# Appendix F Modeling

**U.S. Bureau of Reclamation Reinitiation of Consultation on the Long-Term Operation of the Central Valley Project and State Water Project**

**Modeling to Support the May 2019 EIS Admin Draft Analysis**

**No Action Alternative, Alternative 1, Alternative 2, Alternative 3, and Alternative 4**

## F.1 Introduction

The U.S. Bureau of Reclamation (Reclamation), Reinitiation of Consultation on Long-Term Operation of the Central Valley Project (CVP) and State Water Project (SWP) (ROC on LTO) project team has developed model simulations to support analysis of CVP and SWP long-term operations as part of developing an Environmental Impact Statement (EIS), for completion in June 2019.

The results of model simulations are provided for informational purposes. Please do not use any information contained in these products for any purpose other than those related to the Reclamation ROC on LTO process. If there are any questions regarding the results of these model simulations, please contact the Reclamation ROC on LTO team.

Any use of results of model simulations should observe limitations of the models used as well as the limitations to the modeled alternatives. These results should only be used for comparative purposes. More information regarding limitations of the models used as well as the limitations to the modeled alternatives is included Appendix F Attachment 2-7, *Model Limitations*.

## F.2 Modeled Alternatives

The following action alternatives were prepared:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019043019

The assumptions used for each alternative and each model listed above are documented in the following attachments:

- Appendix F Attachment 2-1, *Model Assumptions*
- Appendix F, Attachment 2-2, *CalSim II Model Assumptions Callouts*
- Appendix F, Attachment 2-3, *DSM2 Model Assumptions Callouts*

- Appendix F, Attachment 2-4, *HEC-5Q and Reclamation Temperature Model Assumptions Callouts*
- Appendix F, Attachment 2-5, *CalSim II Model Delivery Specifications*
- Appendix F, Attachment 2-6, *Winter Run Chinook Temperature-Dependent Egg Mortality Modeling*
- Appendix F, Attachment 2-7, *Model Limitations*

The following is a summary of the alternatives and the models used.

**No Action Alternative**

The No Action Alternative represents CVP and SWP operations to comply with the "current" regulatory environment as of (December 27, 2017) under projected Year 2030 conditions. The No Action Alternative assumptions include existing facilities and ongoing programs that existed as of December 27, 2017, the publication date of the Notice of Intent (NOI). The No Action Alternative assumptions also include facilities and programs that received approvals and permits by December, 2017, because those programs were consistent with existing management direction as of the Notice of Intent. The No Action Alternative model does not include any potential future habitat restoration areas due to the uncertainty of system effects depending on potential locations of such areas within the Delta.

**Alternative 1**

Alternative 1 represents CVP and SWP operations with modified Shasta temperature, Delta Smelt habitat, and Old and Middle River (OMR) actions to incorporate real-time monitoring and focusing water resources on locations and timing with the most benefits for fish. Alternative 1 includes the New Melones Stepped Release Plan to obtain a more sustainable operation on the Stanislaus River, as well as the 2017 Flow Management Standard and "planning minimum" for the American River.

**Alternative 2**

Alternative 2 represents CVP and SWP operations with only D1641 regulations.

**Alternative 3**

Alternative 3 represents CVP and SWP operations with only D1641 regulations and 25,000 acres of habitat restoration in the Sacramento–San Joaquin Delta (Delta).

**Alternative 4**

Alternative 4 is intended to represent CVP and SWP operations under higher regulation than Alternative 1. In addition to Alternative 1, flows from the Sacramento, Feather American Rivers are increased up to 55% of unimpaired instream flow, and Delta exports are reduced for positive combined Old and Middle River flows from March through May, resulting in increased Delta outflow. Flows from CVP and SWP reservoir releases are limited to preserve storage conditions for upstream habitat and to not exacerbate flood conditions..

The following model simulations were prepared for each alternative:

- CalSim II
- HEC-5Q

- Reclamation Temperature Model
- DSM2
- Winter-Run Chinook Temperature-Dependent Egg Mortality Models

## F.3 CalSim II

The Reclamation/California Department of Water Resources (DWR) CalSim II planning model was used to simulate the coordinated operation of the CVP and SWP over a range of hydrologic conditions. CalSim II is a generalized reservoir-river basin simulation model that allows for specification and achievement of user-specified allocation targets, or goals (Draper et al. 2004). CalSim II represents the best available planning model for CVP and SWP system operations and has been used in previous system-wide evaluations of CVP and SWP operations (Reclamation 2015).

## F.4 HEC-5Q

Over the past 15 years, various temperature models were developed to simulate temperature conditions on the rivers affected by CVP and SWP operations (SRWQM, San Joaquin River HEC-5Q model) (Reclamation 2008). Recently, these models were compiled and updated into a single modeling package called in here as the HEC-5Q model. Further updates were performed under the LTO EIS modeling that included improved meteorological data and subsequent validation of the Sacramento and American River models, implementation of the Folsom Temperature Control Devices and low-level outlet, implementation of the Trinity auxiliary outlet, improved temperature targeting for Shasta and Folsom Dams, as well as improved documentation and streamlining of the models as well as improved integration with the CalSim II model (Reclamation 2015).

## F.5 Reclamation Temperature Model

Reclamation Temperature Model includes reservoir and stream temperature models, which simulate monthly reservoir and stream temperatures used for evaluating the effects of CVP/SWP project operations on mean monthly water temperatures in the basin (Reclamation 2008). The model simulates temperatures in seven major reservoirs (Trinity, Whiskeytown, Shasta, Oroville, Folsom, New Melones, and Tulloch), four downstream regulating reservoirs (Lewiston, Keswick, Goodwin, and Natoma), and five main river systems (Trinity, Sacramento, Feather, American, and Stanislaus Rivers). The river component of the Reclamation Temperature model calculates temperature changes in the regulating reservoirs, below the main reservoirs. With regulating reservoir release temperature as the initial river temperature, the river model computes temperatures at several locations along the rivers. The calculation points for river temperatures generally coincide with tributary inflow locations. The model is one-dimensional in the longitudinal direction and assumes fully mixed river cross sections. The effect of tributary inflow on river temperature is computed by mass balance calculation. The river temperature calculations are based on regulating reservoir release temperatures, river flows, and climatic data (Reclamation 2015).

# F.6 DSM2

DSM2 is a one-dimensional hydrodynamic and water quality simulation model used to simulate hydrodynamics, water quality, and particle tracking in the Sacramento–San Joaquin Delta (DWR 2002). DSM2 represents the best-available planning model for Delta tidal hydraulic and salinity modeling. It is appropriate for describing the existing conditions in the Delta, as well as performing simulations for the assessment of incremental environmental impacts caused by future facilities and operations (Reclamation 2015).

# F.7 Winter-Run Chinook Temperature-Dependent Egg Mortality Models

Two egg mortality estimation methods were used for evaluating Winter-Run Chinook Salmon habitat on the Sacramento River downstream of Keswick Dam. Both models start by modeling a redd's lifetime by counting the days required to cross a known cumulative degree-days threshold, and both estimate mortality as a linear, increasing function of temperature past a known temperature threshold, but each uses a different set of assumptions to implement this conceptual model. The methods are applied to a set of simulated redds and the results are summarized on a seasonal level for comparison of mortality outcomes between HEC-5Q model runs. The Martin model was developed for estimating temperature-dependent egg mortality in the field and fit its parameters to Sacramento River Winter-Run Chinook Salmon population data collected between 1996 and 2015 (Martin et al. 2017). The Anderson model uses field data from 2002 through 2015, a critical period just before hatching was found to provide the best fit (Anderson 2018).

# F.8 Model Results for Modeled Alternatives

## F.8.1 Model Results

The results for each alternative for each model are compiled in tables and charts in the following attachments:

- Appendix F, Attachment 3-1, *Storage and Elevation Results (CalSim II)*
- Appendix F, Attachment 3-2, *Flow Results (CalSim II)*
- Appendix F, Attachment 3-3, *Diversion Results (CalSim II)*
- Appendix F, Attachment 3-4, *Temperature Results (HEC-5Q)*
- Appendix F, Attachment 3-5, *Temperature Results (Reclamation Temperature Model)*
- Appendix F, Attachment 3-6, *Salinity (EC) Results (DSM2-QUAL)*
- Appendix F, Attachment 3-7, *X2 Position Results (DSM2-QUAL)*
- Appendix F, Attachment 3-8 ,*Winter-Run Chinook Temperature Dependent Egg Mortality Results (Martin and Anderson Models)*
- Appendix F, Attachment 3-9, *Water Supply Results (CalSim II)*
- Appendix F, Attachment 3-10, *Chloride Results (DSM2-QUAL)*

Each attachment includes a catalog of results included.

As noted in the Introduction any use of results of model simulations should observe limitations of the models used as well as the limitations to the modeled alternatives. These results should only be used for comparative purposes. More information regarding limitations of the models used as well as the limitations to the modeled alternatives is included Appendix F, Attachment 2-7, *Model Limitations*.

#### F.8.1.1 *Formats Provided*

The following formats are provided:

- Monthly tables comparing two alternatives (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all action alternatives
- Monthly exceedance charts (all months) including all action alternatives

## F.9 References

Anderson, James. 2018. *Using river temperature to optimize fish incubation metabolism and survival: a case for mechanistic models*. doi:10.1101/257154.

California Department of Water Resources (DWR), Modeling Support Branch. Last updated September 2002. Available: http://modeling.water.ca.gov/. Accessed: February 4, 2011.

Draper, A. J., Munévar, A., Arora, S. K., Reyes, E., Parker, N. L., Chung, F. I., and Peterson, L. E. 2004. CalSim: Generalized Model for Reservoir System Analysis. American Society of Civil Engineers, Journal of Water Resources Planning and Management, Vol. 130, No. 6.

Martin, B. T., A. Pike, S. N. John, N. Hamda, J. Roberts, S. T. Lindley, and E. M. Danner. 2017. Phenomenological vs. biophysical models of thermal stress in aquatic eggs. *Ecology Letters* 20:50–59.

U.S. Bureau of Reclamation (Reclamation). 2008.

U.S. Bureau of Reclamation (Reclamation). 2015. *Coordinated Long-Term Operation of the CVP and SWP EIS*, Appendix 5A CalSim II and DSM2 Modeling.

# Attachment 2-1 Model Assumptions

## 1 Introduction

The following model simulations were prepared to evaluate the impacts of different project operations at projected Year 2030 climate conditions:

- No Action Alternative 011319
- Alternative 1 011519 (ALT1)
- Alternative 2 021719 (ALT2)
- Alternative 3 021719 (ALT3)
- Alternative 4 43019043019 (ALT4)

Sections 2 through 6 describe the assumptions used for each model simulation. Section 7 describes the assumptions used for Year 2030 climate conditions. Section 8 lists references cited.

The assumptions for all model simulations are also summarized in table format in the following attachments:

- Appendix F, Attachment 2-2, *CalSim II Model Assumptions Callouts*
- Appendix F, Attachment 2-3, *DSM2 Model Assumptions Callouts*
- Appendix F, Attachment 2-4, *HEC-5Q and Reclamation Temperature Model Assumptions Callouts*
- Appendix F, Attachment 2-5, *CalSim II Model Delivery Specifications*
- Appendix F, Attachment 2-6, *Winter-Run Chinook Temperature-Dependent Egg Mortality Modeling*

Any use of results of model simulations should observe limitations of the models used as well as the limitations to the modeled alternatives. These results should only be used for comparative purposes. More information regarding limitations of the models used as well as the limitations to the modeled alternatives is included Appendix F, Attachment 2-7, *Model Limitations*.

## 2 Assumptions for the No Action Alternative

This section presents the assumptions used in developing the CalSim II, DSM2, HEC-5Q, Reclamation Temperature Model and Egg Mortality Model simulations of the No Action Alternative considered for the ROC on LTO ESA Consultation.

The No Action Alternative represents CVP and SWP operations to comply with the "current" regulatory environment as of (December 27, 2017) under projected Year 2030 conditions. The No Action Alternative assumptions include existing facilities and ongoing programs that existed as of December 27, 2017, the publication date of the Notice of Intent (NOI). The No Action Alternative assumptions also include facilities and programs that received approvals and permits by December, 2017, because those

programs were consistent with existing management direction as of the Notice of Intent. The No Action Alternative model does not include any potential future habitat restoration areas due to the uncertainty of system effects depending on potential locations of such areas within the Delta.

The No Action Alternative includes projected climate change and sea-level rise assumptions corresponding to the Year 2030. Change in climate results in the changes in the reservoir and tributary inflows included in CalSim II. The sea-level rise changes result in modified flow-salinity relationships in the Delta. The climate change and sea-level rise assumptions at Year 2030 are described in detail in Section 7. The CalSim II simulation for the No Action Alternative does not consider any adaptation measures that would result in managing the CVP and SWP system in a different manner than today to reduce climate impacts. For example, future changes in reservoir flood control reservation to better accommodate a seasonally changing hydrograph may be considered under future programs but are not considered under this consultation.

## 2.1 CalSim II Assumptions for the No Action Alternative

The following is a description of the assumptions tabulated in Appendix F, Attachment 2-2, *CalSim II Model Assumptions Callouts*.

### Hydrology

#### *Inflows/Supplies*

The CalSim II model includes the historical hydrology projected to Year 2030 with climate change and with projected 2020 modifications for operations upstream of the rim reservoirs. The climate change representation is the same as the Bay-Delta Conservation Plan Early Long-term Q5 climate scenario (ICF 2016).

#### *Level of Development*

CalSim II uses a hydrology that is the result of an analysis of agricultural and urban land use and population estimates. The assumptions used for Sacramento Valley land use result from aggregation of historical survey and projected data developed for the California Water Plan Update (Bulletin 160-98) (DWR 1998). Generally, land use projections are based on Year 2020 estimates (hydrology serial number 2020D09E), however the San Joaquin Valley hydrology reflects draft 2030 land use assumptions developed by Reclamation. Where appropriate Year 2020 projections of demands associated with water rights and CVP and SWP water service contracts have been included. Specifically, projections of full build out are used to describe the American River region demands for water rights and CVP contract supplies, and California Aqueduct and the Delta Mendota Canal SWP/CVP contractor demands are set to full contract amounts.

CVP Settlement Contractor Consumptive Use of Applied Water (CUAW) Demands are modified to match historical annual volumes and monthly distributions, based on historical data from 2000–2016. The monthly distributions of annual contract amounts were also modified to match the distributions of CUAW demand.

#### *Demands, Water Rights, CVP/SWP Contracts*

CalSim II demand inputs are preprocessed monthly time series for a specified level of development (e.g., 2020) and according to hydrologic conditions. Demands are classified as CVP project, SWP project, local

project or non-project. CVP and SWP demands are separated into different classes based on the contract type. A description of various demands and classifications included in CalSim II is provided in the 2008 Operations Criteria and Plan (OCAP) BA Appendix D (Reclamation 2008a).

The detailed listing of CVP and SWP contract amounts and other water rights assumptions are included in the delivery specification tables in Appendix FF Attachment 2-5, *CalSim II Model Delivery Specifications*. The demand assumptions are not modified for changes in climate conditions.

## Facilities

All CVP-SWP existing facilities are simulated based on operations criteria under current regulatory environment.

CalSim II includes representation of all the existing CVP and SWP storage and conveyance facilities. Assumptions regarding selected key facilities are included in the callout tables in Appendix FF Attachment 2-2, *CalSim II Model Assumptions Callouts*.

CalSim II also represents the flood control weirs such as the Fremont Weir located along the Sacramento River at the upstream end of the Yolo Bypass (Reclamation 2017).

The No Action Alternative also includes the Freeport Regional Water Project, located along the Sacramento River near Freeport and the City of Stockton Delta Water Supply Project (30 million gallons per day capacity).

A brief description of the key export facilities that are located in the Delta and included under the No Action Alternative run is provided below.

The Delta serves as a natural system of channels to transport river flows and reservoir storage to the CVP and SWP facilities in the south Delta, which export water to the projects' contractors through two pumping plants: CVP's C.W. Jones Pumping Plant (Jones Pumping Plant) and SWP's Harvey O. Banks Pumping Plant (Banks Pumping Plant). The Jones and Banks Pumping Plants supply water to agricultural and urban users throughout parts of the San Joaquin Valley, South Lahontan, Southern California, Central Coast, and South San Francisco Bay Area regions.

The Contra Costa Canal and the North Bay Aqueduct supply water to users in the northeastern San Francisco Bay and Napa Valley areas.

### *Fremont Weir*

Fremont Weir is a flood control structure located along the Sacramento River at the head of the Yolo Bypass. To enhance the potential benefits of the Yolo Bypass for various fish species, the Fremont Weir is assumed to be notched to provide increased seasonal floodplain inundation in all of the alternatives simulated for this consultation. For this alternative, it is assumed that an opening in the existing weir and operable gates are constructed at invert elevation 14 feet along with two smaller openings and operable gates at invert elevation 18 feet.

### *CVP C.W. Bill Jones Pumping Plant (Tracy PP) Capacity*

The Jones Pumping Plant consists of six pumps including one rated at 800 cubic feet per second (cfs), two at 850 cfs, and three at 950 cfs. Maximum pumping capacity is assumed to be 4,600 cfs with the 400 cfs Delta Mendota Canal (DMC) –California Aqueduct Intertie that became operational in July 2012.

### *SWP Banks Pumping Plant Capacity*

The SWP Banks Pumping Plant has an installed capacity of about 10,300 cfs. The SWP water rights for diversions specify a maximum of 10,300 cfs, but the U.S. Army Corps' of Engineers (USACE) permit for the Banks Pumping Plant allows a maximum pumping of 6,680 cfs. With additional diversions depending on Vernalis flows the total diversion can go up to 10,300 cfs during December 15–March 15. Additional capacity of 500 cfs (pumping limit up to 7,180 cfs) is allowed to reduce impact of National Marine Fisheries Service (NMFS) Biological Opinion (BO) Action 4.2.1 on the SWP.

### *CCWD Intakes*

The Contra Costa Canal originates at Rock Slough, about four miles southeast of Oakley, and terminates after 47.7 miles at Martinez Reservoir. Historically, diversions at the unscreened Rock Slough facility (Contra Costa Canal Pumping Plant No. 1) have ranged from about 50–250 cfs. The canal and associated facilities are part of the CVP, but are operated and maintained by the Contra Costa Water District (CCWD). CCWD also operates a diversion on Old River and the Alternative Intake Project (AIP), the new drinking water intake at Victoria Canal, about 2.5 miles east of the CCWD intake on the Old River. CCWD can divert water to the Los Vaqueros Reservoir to store good quality water when available and supply to its customers.

## Regulatory Standards

The regulatory standards that govern the operations of the CVP and SWP facilities under the No Action Alternative are briefly described below. Specific assumptions related to key regulatory standards are also outlined below.

### *D-1641 Operations*

The SWRCB Water Quality Control Plan (WQCP) and other applicable water rights decisions, as well as other agreements are important factors in determining the operations of both the CVP and the SWP.

The December 1994 Accord committed the CVP and SWP to a set of Delta habitat protective objectives that were incorporated into the 1995 WQCP and later, were implemented by D-1641. Significant elements in D-1641 include X2 standards, export/inflow (E/I) ratios, Delta water quality standards, real-time Delta Cross Channel (DCC) operation, and San Joaquin flow standards.

### *Coordinated Operations Agreement*

The CVP and SWP use a common water supply in the Central Valley of California. Reclamation and DWR have built water conservation and water delivery facilities in the Central Valley in order to deliver water supplies to project contractors. The water rights of the projects are conditioned by the SWRCB to protect the beneficial uses of water within each respective project and jointly for the protection of beneficial uses in the Sacramento Valley and the Sacramento-San Joaquin Delta Estuary. The agencies coordinate and operate the CVP and SWP to meet the joint water right requirements in the Delta.

The Coordinated Operations Agreement (COA), signed in 1986, defines the project facilities and their water supplies, sets forth procedures for coordination of operations, identifies formulas for sharing joint responsibilities for meeting Delta standards as they existed in SWRCB Decision 1485 (D-1485), identifies how unstored flow will be shared, sets up a framework for exchange of water and services between the CVP and SWP, and provides for periodic review of the agreement.

Reclamation and DWR re-negotiated COA in 2018 and this ROC on LTO includes the new COA. The amendment stipulates a change in responsibility for making storage withdrawals to meet in-basin use (as noted in Table 1) and a change in export capacity when exports are constrained (Table 2).

**Table 1. Sharing of Responsibility for Meeting In-Basin Use**

| | CVP | SWP |
|---|---|---|
| Wet | 80% | 20% |
| Above normal | 80% | 20% |
| Below normal | 75% | 25% |
| Dry | 65% | 35% |
| Critically dry | 60% | 40% |

**Table 2. Sharing of Applicable Export Capacity When Exports Are Constrained**

| | CVP | SWP |
|---|---|---|
| Balanced water conditions | 65% | 35% |
| Excess water conditions | 60% | 40% |

### *CVPIA (b)(2) Assumptions*

The No Action Alternative includes a dynamic representation of the Central Valley Project Improvement Act (CVPIA) 3406(b)(2) water allocation, management and related actions (B2). The selection of discretionary actions for use of B2 water in each year was based on a May 2003 Department of the Interior policy decision. The use of B2 water is assumed to continue in conjunction with the U.S. Fish and Wildlife Service (USFWS) and NMFS BO reasonable and prudent alternative (RPA) actions. CalSim II does not dynamically account for the use of (b)(2) water, but rather assumes pre-determined upstream fish objectives for Clear Creek. Other (b)(2) actions are assumed to be accommodated by USFWS and NMFS BO RPA actions.

### *Continued CALFED Agreements*

The Environmental Water Account (EWA) was established in 2000 by the CALFED Record of Decision (ROD). The EWA was initially identified as a 4-year cooperative effort intended to operate from 2001 through 2004 but was extended through 2007 by agreement between the EWA agencies. It is uncertain, however, whether the EWA will be in place in the future and what actions and assets it may include. Because of this uncertainty, the EWA has not been included in the current CalSim II implementation.

One element of the EWA available assets is the Lower Yuba River Accord (LYRA) Component 1 water. In the absence of the EWA and implementation in CalSim II, the LYRA Component 1 water is assumed to be transferred to south of Delta SWP contractors to help mitigate the impact of the NMFS BO and D1641 on SWP exports during April and May. An additional 500 cfs of capacity is permitted at Banks Pumping Plant from July through September to export this transferred water.

### *USFWS Delta Smelt BO Actions*

The USFWS Delta Smelt BO was released on December 15, 2008, in response to Reclamation's request for formal consultation with the USFWS on the coordinated operations of the CVPSWP in California. To

develop CalSim II modeling assumptions for the RPA documented in this BO, DWR led a series of meetings that involved members of fisheries and project agencies. This group has prepared the assumptions and CalSim II implementations to represent the RPA in the CalSim II model. The following actions of the USFWS BO RPA have been included in the No Action Alternative CalSim II model simulation:

- Action 1: Adult Delta Smelt migration and entrainment (RPA Component 1, Action 1 – First Flush)
- Action 2: Adult Delta Smelt migration and entrainment (RPA Component 1, Action 2)
- Action 3: Entrainment protection of larval and juvenile Delta Smelt (RPA Component 2)
- Action 4: Estuarine habitat during Fall (RPA Component 3)
- Action 5: Temporary spring head of Old River barrier and the Temporary Barrier Project (RPA Component 2)

A detailed description of the assumptions that have been used to model each action is included in the technical memorandum "Representation of U.S. Fish and Wildlife Service Biological Opinion Reasonable and Prudent Alternative Actions for CalSim II Planning Studies," prepared by an interagency working group under the direction of the lead agencies. This technical memorandum is included in Appendix 5A of the LTO EIS (Reclamation 2015b) and is incorporated here by reference.

### *NMFS BO Salmon Actions*

The NMFS Salmon BO on long-term operations of the CVP and SWP was released on June 4, 2009. To develop CalSim II modeling assumptions for the RPAs documented in this BO, DWR led a series of meetings that involved members of fisheries and project agencies. This group has prepared the assumptions and CalSim II implementations to represent the RPA in the CalSim II model for future planning studies. The following NMFS BO RPA's have been included in the No Action Alternative CalSim II model simulation:

- Action I.1.1: Clear Creek spring attraction flows
- Action I.4: Wilkins Slough operations
- Action II.1: Lower American River flow management
- Action III.1.3: Stanislaus River flows below Goodwin Dam
- Action IV.1.2: Delta Cross Channel gate operations
- Action IV.2.1: San Joaquin River flow requirements at Vernalis and Delta export restrictions
- Action IV.2.3: Old and Middle River flow management

For Action I.2.1, which calls for a percentage of years that meet certain specified end-of-September and end-of-April storage and temperature criteria resulting from the operation of Lake Shasta, no specific CalSim II modeling code is implemented to simulate the performance measures identified.

A detailed description of the assumptions that have been used to model each action is included in the technical memorandum "Representation of National Marine Fisheries Service Biological Opinion Reasonable and Prudent Alternative Actions for CalSim II Planning Studies," prepared by an interagency working group under the direction of the lead agencies. This technical memorandum is included in the in Appendix 5A of the LTO EIS (Reclamation 2015c) and is incorporated here by reference.

### *Water Transfers*

**Lower Yuba River Accord**

Acquisitions of Component 1 water under the Lower Yuba River Accord (LYRA), and use of 500 cfs dedicated capacity at Banks PP during July–September, are assumed to be used to reduce as much of the impact of the April–May Delta export actions on SWP contractors as possible.

**Phase 8 transfers**

Phase 8 transfers are not included in the No Action Alternative simulation.

**Short-term or Temporary Water Transfers**

Short term or temporary transfers such as Sacramento Valley acquisitions conveyed through Banks Pumping Plant are not included in the No Action Alternative simulation.

## Specific Regulatory Assumptions

### *Upper Sacramento Flow Management*

Model includes SWRCB WR 90-5 and NMFS BO (2009) Action I.2.2 achieved as possible through other modeled actions.

### *Lower Feather Flow Management*

Model includes 1983 DWR, CDFW Agreement (minimum flow 750–1,700 cfs, depending on runoff and month).

### *Lower American Flow Management*

The 2006 American River Flow Management Standard (ARFMS) is included in the No Action Alternative.

The flow requirements of ARFMS are further described in *Lower American River Flow Management Standard. Draft Report* (Reclamation 2006).

### *Delta Outflow (Flow and Salinity)*

SWRCB D-1641:

All Delta outflow requirements per SWRCB D-1641 are included in the No Action Alternative simulation. Similarly, for the February through June period the X2 standard is included in the No Action Alternative simulation.

**USFWS BO (December, 2008) Action 4:**

USFWS BO (2008) Action 4 requires additional Delta outflow to manage X2 in the fall months following wet and above normal years to maintain an average X2 for September and October no greater (more eastward) than 74 kilometers following wet years and 81 kilometers following above normal years. In November, the inflow to CVP/SWP reservoirs in the Sacramento Basin should be added to reservoir

releases to provide an added increment of Delta inflow and to augment Delta outflow up to the fall X2 target. This action is included in the No Action Alternative simulation.

### *Combined Old and Middle River Flows*

USFWS BO (2008) restricts south Delta pumping to preserve certain Old and Middle River (OMR) flows in three of its actions: Action 1 to protect pre-spawning adult Delta Smelt from entrainment during the first flush, Action 2 to protect pre-spawning adults from entrainment and from adverse hydrodynamic conditions, and Action 3 to protect larval Delta Smelt from entrainment. CalSim II simulates these actions to a limited extent.

Brief description of USFWS BO Actions 1 through 3 implementations in CalSim is as follows: Action 1 is onset based on a turbidity trigger that takes place during or after December. This action requires limit on exports so that the average daily OMR flow is no more negative than -2,000 cfs for a total duration of 14 days, with a 5-day running average no more negative than -2,500 cfs (within 25% of the monthly criteria). Action 1 ends after 14 days of duration or when Action 3 is triggered based on a temperature criterion. Action 2 starts immediately after Action 1 and requires a range of net daily OMR flows to be no more negative than -1,250 to -5,000 cfs (with a 5-day running average within 25% of the monthly criteria). The Action continues until Action 3 is triggered. Action 3 also requires net daily OMR flow to be no more negative than -1,250 to -5,000 cfs based on a 14-day running average (with a simultaneous 5-day running average within 25%). Although the range is similar to Action 2, the Action 3 implementation is different. Action 3 continues until June 30 or when water temperature reaches a certain threshold. A more detailed description is included in the Appendix 5A of the LTO EIS (Reclamation 2015b).

NMFS BO (2009) Action 4.2.3 requires OMR flow management to protect emigrating juvenile winter-run, yearling spring-run, and Central Valley steelhead within the lower Sacramento and San Joaquin Rivers from entrainment into south Delta channels and at the export facilities in the south Delta. This action requires reducing exports from January 1 through June 15 to limit negative OMR flows to -2,500 to -5,000 cfs. CalSim II assumes OMR flows required in NMFS BO are covered by OMR flow requirements developed for Actions 1 through 3 of the USFWS BO as described in the Appendix 5A of the LTO EIS (Reclamation 2015c).

### *South Delta Export-San Joaquin River Inflow Ratio*

NMFS BO (2009) Action 4.2.1 requires exports to be capped at a certain fraction of San Joaquin River flow at Vernalis during April and May while maintaining a health and safety pumping of 1,500 cfs.

### *Exports at the South Delta Intakes*

Exports at the Jones and Banks Pumping Plants are restricted to their permitted capacities per SWRCB D-1641 requirements. In addition, the south Delta exports are subjected to Vernalis flow-based export limits during April and May as required by Action 4.2.1. Additional 500 cfs pumping is allowed to reduce impact of NMFS BO Action 4.2.1 and D1641 on SWP during the July through September period.

Under D-1641 the combined export of the CVP Tracy Pumping Plant and SWP Banks Pumping Plant is limited to a percentage of Delta inflow. The percentage ranges from 35% to 45% during February depending on the January eight river index and is 35% during March through June months. For the rest of the months, 65% of the Delta inflow is allowed to be exported.

A minimum health and safety pumping of 1,500 cfs is assumed from January through June.

### *Delta Water Quality*

The No Action Alternative simulation includes SWRCB D-1641 salinity requirements. However, not all salinity requirements are included because CalSim II is not capable of predicting salinities in the Delta. Instead, empirically based equations and models are used to relate interior salinity conditions with the flow conditions. DWR's Artificial Neural Network (ANN) trained for salinity is used to predict and interpret salinity conditions at the Emmaton, Jersey Point, Rock Slough, and Collinsville stations. Emmaton and Jersey Point standards are for protecting water quality conditions for agricultural use in the western Delta and they are in effect from April 1 to August 15. The electrical conductivity (EC) requirement at Emmaton varies from 0.45 millimhos per centimeter (mmhos/cm) to 2.78 mmhos/cm, depending on the water year type. The EC requirement at Jersey Point varies from 0.45 to 2.20 mmhos/cm, depending on the water year type. The Rock Slough standard is for protecting water quality conditions for municipal and industrial (M&I) use for water exported through the Contra Costa Canal. It is a year-round standard that requires a certain number of days in a year with chloride concentration less than 150 milligrams per liter (mg/L). The number of days requirement is dependent upon the water year type. The Collinsville standard is applied during October through May months to protect water quality conditions for migrating fish species, and it varies between 12.5 mmhos/cm in May and 19.0 mmhos/cm in October.

The sea-level rise change assumed at the Year 2030 results in a modified flow-salinity relationship in the Delta. An ANN, which is capable of emulating DSM2 results under the 15-cm sea-level rise condition at the Year 2030 is used to simulate the flow-salinity relationship in CalSim II simulation for the No Action Alternative.

### *San Joaquin River Restoration Program*

Friant Dam releases required by the San Joaquin River Restoration Program are included in the No Action Alternative, Alternative 1, Alternative 2, Alternative 3, and Alternative 4. More detailed description of the San Joaquin River Restoration Program is presented in the Appendix 3A, "*No Action Alternative: Central Valley Project and State Water Project Operations*" of the LTO EIS (Reclamation 2015a).

## Operations Criteria

### *Fremont Weir Operations*

To provide seasonal floodplain inundation in the Yolo Bypass, the 14-foot and the two 18-foot elevation gates are opened between November 1 and March 15. The gates would open to allow a maximum flow of 6,000 cfs when the water surface elevation in the river reaches 28 feet. The gates are operated to limit maximum spill to 6,000 cfs until the Sacramento River stage reaches the existing Fremont Weir crest elevation. When the river stage is at or above the existing Fremont Weir crest elevation, the notch gates are assumed to be closed. While desired inundation period is on the order of 30 to 45 days, gates are not managed to limit to this range, instead the duration of the event is governed by the Sacramento River flow conditions. The spills at about 21 feet river stage would be around 1,000 cfs. This operation is further described in the *Yolo Bypass Salmonid Habitat Restoration and Fish Passage EIS/EIR,* Alternative 1 (Reclamation 2017).

### *Delta Cross Channel Gate Operations*

SWRCB D-1641 DCC standards provide for closure of the DCC gates for fisheries protection at certain times of the year. From November through January, the DCC may be closed for up to 45 days. From

February 1 through May 20, the gates are closed every day. The gates may also be closed for 14 days during the May 21 through June 15 time period. Reclamation determines the timing and duration of the closures after discussion with USFWS, California Department of Fish and Wildlife (CDFW), and NMFS.

NMFS BO Action 4.1.2 requires gates to be operated as described in the BO based on the presence of salmonids and water quality from October 1 through December 14; and gates to be closed from December 15 to January 31, except for short-term operations to maintain water quality. CalSim II includes the NMFS BO DCC gate operations in addition to the D-1641 gate operations. When the daily flows in the Sacramento River at Wilkins Slough exceed 7,500 cfs (flow assumed to flush salmon into the Delta), DCC is closed for a certain number of days in a month as described in Appendix 5A of the LTO EIS (Reclamation 2015b). During October 1 to December 14, if the flow trigger condition is such that additional days of DCC gates closure is called for, however water quality conditions are a concern and the DCC gates remain open, then Delta exports are limited to 2,000 cfs for each day in question.

### *Allocation Decisions*

CalSim II includes allocation logic for determining deliveries to north-of-Delta and south-of-Delta CVP and SWP contractors. The delivery logic uses runoff forecast information, which incorporates uncertainty in the hydrology, and standardized rule curves (i.e. Water Supply Index versus Demand Index Curve). The rule curves relate forecasted water supplies to deliverable "demand," and then use deliverable "demand" to assign subsequent delivery levels to estimate the water available for delivery and carryover storage. Updates of delivery levels occur monthly from January 1 through May 1 for the SWP and March 1 through May 1 for the CVP as runoff forecasts become more certain. The south-of-Delta SWP delivery is determined based on water supply parameters and operational constraints. The CVP system wide delivery and south-of-Delta delivery are determined similarly upon water supply parameters and operational constraints with specific consideration for export constraints.

### *San Luis Operations*

CalSim II sets targets for San Luis storage each month that are dependent on the current South-of-Delta allocation and upstream reservoir storage. When upstream reservoir storage is high, allocations and San Luis fill targets are increased. During a prolonged drought when upstream storage is low, allocations and fill targets are correspondingly low. For the No Action Alternative simulation, the San Luis rule curve is managed to minimize situations in which shortages may occur due to lack of storage or exports.

### *New Melones Operations*

In addition to flood control, New Melones is operated for four different purposes: fishery flows, water quality, Bay-Delta flow, and water supply.

**Fishery**

In the No Action Alternative,, fishery flows refer to flow requirements of the 2009 NMFS BO Action III.1.3 (NMFS 2009). These flows are patterned to provide fall attraction flows in October and outmigration pulse flows in spring months (April 15 through May 15 in all years) and total up to 98.9 thousand acre-feet (TAF) to 589.5 TAF annually depending on the hydrological conditions based on the New Melones water supply forecast (the end-of-February New Melones Storage, plus the March through September forecast of inflow to the reservoir) (Tables 3 through 5).

**Table 3. Annual Fishery Flow Allocation in New Melones**

| New Melones Water Supply Forecast (TAF) | Fishery Flows (TAF) |
|---|---|
| 0 to 1,399.9 | 185.3 |
| 1,400 to 1,999.9 | 234.1 |
| 2,000 to 2,499.9 | 346.7 |
| 2,500 to 2,999.9 | 483.7 |
| ≥3,000 | 589.5 |

**Table 4. Monthly "Base" Flows for Fisheries Purposes Based on the Annual Fishery Volume**

| Annual Fishery Flow Volume (TAF) | Monthly Fishery Base Flows (cfs) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr 1–15 | May 16–31 | Jun | Jul | Aug | Sep |
| 98.9 | 110 | 200 | 200 | 125 | 125 | 125 | 250 | 250 | 0 | 0 | 0 | 0 |
| 185.3 | 577.4 | 200 | 200 | 212.9 | 214.3 | 200 | 200 | 150 | 150 | 150 | 150 | 150 |
| 234.1 | 635.5 | 200 | 200 | 219.4 | 221.4 | 200 | 500 | 284.4 | 200 | 200 | 200 | 200 |
| 346.7 | 774.2 | 200 | 200 | 225.8 | 228.6 | 200 | 1,471.4 | 1,031.3 | 363.3 | 250 | 250 | 250 |
| 483.7 | 796.8 | 200 | 200 | 232.3 | 235.7 | 1,521 | 1,614.3 | 1,200 | 940 | 300 | 300 | 300 |
| 589.5 | 841.9 | 300 | 300 | 358.1 | 364.3 | 1,648.4 | 2,442.9 | 1,725 | 1,100 | 429 | 400 | 400 |

**Table 5. April 15 through May 15 "Pulse" Flows for Fisheries Purposes Based on the Annual Fishery Volume**

| Annual Fishery Flow Volume (TAF) | Fishery Pulse Flows (cfs) | |
|---|---|---|
| | April 15–30 | May 1–15 |
| 185.3 | 687.5 | 666.7 |
| 234.1 | 1,000.0 | 1,000.0 |
| 346.7 | 1,625.0 | 1,466.7 |
| 483.7 | 1,212.5 | 1,933.3 |
| 589.5 | 925.0 | 2,206.7 |

## Water Quality

Water quality releases include releases to meet the State Water Resources Control Board (SWRCB) Decision 1641 (D-1641) salinity objectives at Vernalis and the Decision 1422 (D-1422) dissolved oxygen objectives at Ripon. The Vernalis water quality requirement (SWRCB D-1641) is an electrical conductivity (EC) requirement of 700 and 1,000 micromhos/cm for the irrigation (April through August) and nonirrigation (September through March) seasons, respectively.

Additional releases are made to the Stanislaus River below Goodwin Dam if necessary, to meet the D-1422 dissolved oxygen content objective. Surrogate flows representing releases for dissolved oxygen requirement in CalSim II are presented in Table 6. The surrogate flows are reduced for critical years where New Melones water supply forecast (the end-of-February New Melones Storage, plus the March

through September forecast of inflow to the reservoir) is less than 940 TAF. These flows are met through releases from New Melones without any annual volumetric limit.

**Table 6. Surrogate flows for D1422 DO requirement at Vernalis (TAF)**

| | Non-Critical Years | Critical Years |
|---|---|---|
| January | 0.0 | 0.0 |
| February | 0.0 | 0.0 |
| March | 0.0 | 0.0 |
| April | 0.0 | 0.0 |
| May | 0.0 | 0.0 |
| June | 15.2 | 11.9 |
| July | 16.3 | 12.3 |
| August | 17.4 | 12.3 |
| September | 14.8 | 11.9 |
| October | 0.0 | 0.0 |
| November | 0.0 | 0.0 |
| December | 0.0 | 0.0 |

## Bay-Delta Flows

Bay-Delta flow requirements are defined by D-1641 flow requirements at Vernalis (not including pulse flows during the April 15 through May 16 period). These flows are met through releases from New Melones without any annual volumetric limit. D-1641 requires the flow at Vernalis to be maintained during the February through June period. The flow requirement is based on the required location of "X2" and the San Joaquin Valley water year hydrologic classification (60-20-20 Index) as summarized in Table 7.

**Table 7. Bay-Delta Vernalis Flow Objectives (average monthly cfs)**

| 60-20-20 Index | Flow Required if X2 is West of Chipps Island | Flow required if X2 is East of Chipps Island |
|---|---|---|
| Wet | 3,420 | 2,130 |
| Above Normal | 3,420 | 2,130 |
| Below Normal | 2,280 | 1,420 |
| Dry | 2,280 | 1,420 |
| Critically Dry | 1,140 | 710 |

## Water Supply

Water supply refers to deliveries from New Melones to water rights holders (Oakdale Irrigation District and South San Joaquin Irrigation District) and CVP eastside contractors (Stockton East Water District and Central San Joaquin Water Control District). Water is provided to Oakdale Irrigation District and South San Joaquin Irrigation District in accordance with their 1988 Settlement Agreement with Reclamation (up to 600 TAF based on hydrologic conditions), limited by consumptive use. The conservation account of up to 200 TAF storage capacity defined under this agreement is not modeled in CalSim II.

**Water Supply-CVP Eastside Contractors**

Annual allocations are determined using New Melones water supply forecast (the end-of- February New Melones Storage, plus the March through September forecast of inflow to the reservoir) for Stockton East Water District and Central San Joaquin Water Conservation District (Table 8) and are distributed throughout a year using monthly patterns.

**Table 8. CVP Contractor Allocations**

| New Melones Water Supply Forecast (TAF) | CVP Contractor Allocation (TAF) |
|---|---|
| <1,400 | 0 |
| 1,400 to 1,800 | 49 |
| >1,800 | 155 |

## 2.2 DSM2 Assumptions for No Action Alternative

The following is a description of the assumptions listed in Appendix F, Attachment 2-3, *DSM2 Model Assumptions Callouts*.

### River Flows

For DSM2 simulation, the river flows at the DSM2 boundaries are based on the monthly flow time series from CalSim II.

### Tidal Boundary

The tidal boundary condition at Martinez is based on an adjusted astronomical tide normalized for sea-level rise (Ateljevich and Yu 2007) and is modified to account for the sea-level rise using the correlations derived based on three-dimensional (UnTRIM) modeling of the Bay-Delta with sea-level rise at Year 2030.

### Water Quality

#### *Martinez EC*

The Martinez EC boundary condition in the DSM2 planning simulation is estimated using the G-model based on the net Delta outflow simulated in CalSim II and the pure astronomical tide (Ateljevich 2001), as modified to account for the salinity changes related to the sea-level rise using the correlations derived based on the three-dimensional (UnTRIM) modeling of the Bay-Delta with sea-level rise at Year 2030.

#### *Vernalis EC*

For the DSM2 simulation, the Vernalis EC boundary condition is based on the monthly San Joaquin EC time series estimated in CalSim II.

### Morphological Changes

No additional morphological changes were assumed as part of the No Action Alternative. The DSM2 model and grid developed as part of the 2009 recalibration effort (CH2M HILL, 2009) was used for modeling.

### Facilities

#### *Delta Cross Channel*

Delta Cross Channel (DCC) gate operations are modeled in DSM2. The number of days in a month the DCC gates are open is based on the monthly time series from CalSim II.

#### *South Delta Temporary Barriers*

South Delta Temporary Barriers are included in the No Action Alternative simulation. The three agricultural temporary barriers located on Old River, Middle River and Grant Line Canal are included in the model. The fish barrier located at the Head of Old River is also included in the model.

#### *Clifton Court Forebay Gates*

Clifton Court Forebay gates are operated based on the Priority 3 operation, where the gate operations are synchronized with the incoming tide to minimize the impacts to low water levels in nearby channels. The Priority 3 operation is described in the 2008 OCAP BA Appendix F Section 5.2 (Reclamation 2008b).

### Operations Criteria

#### *South Delta Temporary Barriers*

South Delta Temporary Barriers are operated based on San Joaquin River flow conditions. Head of Old River Barrier is assumed to be only installed from September 16 to November 30 and is not installed in the spring months, based on the USFWS Delta Smelt BO Action 5. The agricultural barriers on Old and Middle Rivers are assumed to be installed starting from May 16 and the one on Grant Line Canal from June 1. All three agricultural barriers are allowed to operate until November 30. The tidal gates on Old and Middle River agricultural barriers are assumed to be tied open from May 16 to May 31.

#### *Montezuma Salinity Control Gate*

The radial gates in the Montezuma Slough Salinity Control Gate Structure are assumed to be tidally operating from October through February each year, to minimize propagation of high salinity conditions into the interior Delta.

## 2.3 HEC-5Q and Reclamation Temperature Model Assumptions for the No Action Alternative

The following is a description of the assumptions listed in Appendix F, Attachment 2-4, *HEC-5Q and Reclamation Temperature Model Assumptions Callouts*.

### Sacramento-Trinity Rivers

#### *Reservoir Storage Conditions*

Trinity Lake, Lewiston Lake, Whiskeytown Lake, Shasta Lake, Keswick Reservoir, and Black Butte Lake are all operated per CalSim II output.

#### *Shasta Temperature Management*

The Shasta temperature management is similar to the 2009 NMFS BO, Appendix 2D. (See the 2015 ROC on LTO for details.)

#### *Trinity Temperature Management*

Releases from lower, auxiliary outlet are allowed when normal outlet releases are too warm.

### American River

#### *Reservoir Storage Conditions*

Folsom Lake and Lake Natoma are operated per CalSim II output.

#### *Folsom Temperature Management*

The Folsom temperature management is similar to 2009 NMFS BO Appendix 2D. (See the 2015 ROC on LTO for details.)

### Stanislaus River

#### *Reservoir Storage Conditions*

New Melones Lake, Lake Tulloch, and Goodwin Reservoir are all operated per CalSim II output.

### Feather River

#### *Reservoir Storage Conditions*

Lake Oroville and Thermolito Afterbay are operated per CalSim II output.

## 2.4 Egg Mortality Model Assumptions for the No Action Alternative

Temperature-dependent egg mortality is estimated with two methods: Martin Model and Anderson Model. Both methods calculate a redd's lifetime with a degree-days threshold, estimate the temperature-mortality relationship as linear. However, they assume temperature-dependent mortality occurs during different time-windows in the redd's lifespan. The distribution of redds is the average location and timing of redds counted in CDFW Winter-Run aerial survey data from 2007 to 2014. See Appendix F, Attachment 2-6, *Winter-Run Chinook Temperature-Dependent Egg Mortality Modeling*, for more information.

# 3 Assumptions for Alternative 1

This section presents the assumptions used in developing the CalSim II, DSM2, HEC-5Q, Reclamation Temperature Model and Egg Mortality Model simulations of Alternative 1 considered for the ROC on LTO ESA Consultation.

Alternative 1 includes modified Shasta temperature, Delta Smelt habitat, and OMR actions to incorporate real-time monitoring and focusing water resources on locations and timing with the most benefits for fish. Alternative 1 includes the New Melones Stepped Release Plan to obtain a more sustainable operation on the Stanislaus River, as well as the 2017 Flow Management Standard and "planning minimum" for the American River.

Alternative 1 includes projected climate change and sea-level rise assumptions corresponding to the Year 2030. Change in climate results in the changes in the reservoir and tributary inflows included in CalSim II. The sea-level rise changes result in modified flow-salinity relationships in the Delta. The climate change and sea-level rise assumptions at Year 2030 are described in detail in Section 7. The CalSim II simulation for Alternative 1 does not consider any adaptation measures that would result in managing the CVP and SWP system in a different manner than today to reduce climate impacts. For example, future changes in reservoir flood control reservation to better accommodate a seasonally changing hydrograph may be considered under future programs but are not considered under this consultation.

## 3.1 CalSim II Assumptions for Alternative 1

The following is a description of the assumptions listed in Appendix F, Attachment 2-2, *CalSim II Model Assumptions Callouts*.

### Hydrology

#### *Inflows/Supplies*

Same as the No Action Alternative.

#### *Level of Development*

Same as the No Action Alternative.

#### *Demands, Water Rights, CVP/SWP Contracts*

Same as the No Action Alternative.

### Facilities

Same as the No Action Alternative.

#### *Fremont Weir*

Same as the No Action Alternative.

### *CVP C.W. Bill Jones Pumping Plant (Tracy PP) Capacity*

Same as the No Action Alternative.

### *SWP Banks Pumping Plant Capacity*

Same as the No Action Alternative.

### *CCWD Intakes*

Same as the No Action Alternative.

## Regulatory Standards

The regulatory standards that govern the operations of the CVP and SWP facilities are briefly described below. Specific assumptions related to key regulatory standards are also outlined below.

### *D-1641 Operations*

Same as the No Action Alternative.

### *Coordinated Operations Agreement (COA)*

Same as the No Action Alternative.

### *CVPIA (b)(2) Assumptions*

The Central Valley Project Improvement Act (CVPIA) 3406(b)(2) water allocation, management and related actions (B2) are not modeled in this alternative.

### *Clear Creek Flows*

The regulated condition under Alternative 1 is assumed to be similar to the No Action Alternative, therefore the model implementation has been assumed to be Same as the No Action Alternative.

Reclamation proposes to release Clear Creek flows in accordance with the 1960 Memorandum of Agreement (MOA) with CDFW, and the April 15, 2002 SWRCB permit, which established minimum flows to be released to Clear Creek at Whiskeytown Dam. Reclamation proposes a minimum baseflow in Clear Creek of 200 cfs from October through May, and 150 cfs from June through September in all year types except critically dry year types. In critically years, Clear Creek base flows would be reduced below 150 cfs based on available water from Trinity Reservoir but the 1960 MOA and 2002 SWRCB permit would provide a minimum base flow. Additional flow may be required for temperature management during the fall.

In addition, Reclamation proposes to create pulse flows for both channel maintenance and spring attraction flows. For spring attraction flows, Reclamation would release 10 TAF (measured at the release), with daily release up to the safe release capacity (approximately 900 cfs, depending on reservoir elevation and downstream capacity), in all year-types except for Critical year-types to be shaped by the Clear Creek Implementation Team in coordination with CVO. Reclamation would also release 10 TAF for geomorphic flows in all year types except for dry and critically dry year types.

### *Continued CALFED Agreements*

Same as the No Action Alternative.

### *USFWS Delta Smelt BO Actions*

The USFWS Delta Smelt BO RPA actions are replaced with actions developed for Alternative 1 as summarized below and described further in this document.

### *NMFS BO Salmon Actions*

The NMFS Salmon BO RPA actions are replaced with actions developed for Alternative 1 as summarized below and described further in this document.

### *Water Transfers*

Same as the No Action Alternative.

## Specific Regulatory Assumptions

### *Upper Sacramento Flow Management*

Model includes SWRCB WR 90-5.

### *Lower Feather Flow Management*

Same as the No Action Alternative.

### *Lower American Flow Management*

Model includes Water Forum's 2017 Lower American Flow Management Standard where the flows range from 500 to 2,000 cfs based on time of year and annual hydrology. Planning minimum storage is represented in CalSim with a 275 TAF end-of September storage target in Folsom.

### *Delta Outflow (Flow and Salinity)*

**SWRCB D-1641:**

Same as the No Action Alternative.

### *Combined Old and Middle River Flows*

Reclamation and DWR propose to operate the CVP and SWP in a manner that maximizes exports while minimizing entrainment of fish and protecting critical habitat.

Proposed OMR management is modeled as follows:

Projects operate to an OMR index no more negative than a 14-day moving average of -5,000 cfs between January 1 and June 30 except for the following conditions:

- Integrated Early Winter Pulse Protection: After December 1, and when the 3-day average turbidity is 12 nephelometric turbidity units (NTU) or greater at Old River at Bacon Island (OBI), Prisoner's Point (PPT), and Victoria Canal (VCU), Reclamation and DWR propose to operate to -2,000 cfs of the 14-day average OMR index for 14 days. The same model index of SAC_RI developed for the USFWS RPA Action I representation is used in the model to determine when the turbidity exceeds 12 NTU.
- Turbidity Bridge Avoidance: For January and February in any water year type, if the Turbidity trigger is reached (SAC_RI greater than or equal to 20,000 cfs), Projects operate to 14-day average OMR Index if -2000 cfs for 5 days. For March through June of wet and above normal years, it is assumed that there will be one event of turbidity bridge avoidance in each month (-2000 cfs for 5 days).
- WIIN Act Storm-Related OMR Flexibility: It is assumed that there may be storm-related OMR management flexibility in January and February. In wet years, it is assumed that storm events will coincide with turbidity bridge events and no OMR flexibility is modeled. In above normal and below normal years, it is assumed that there will be one opportunity in January and one opportunity in February to operate to a more negative OMR index than -5,000 cfs. This is modeled as 14-day OMR index of -6,000 cfs for 7 days in each month. In dry years, it is assumed that one opportunity occurs either in January or February but not both months.
- Species-specific cumulative salvage or loss threshold: Even though salvage or loss cannot be modeled using CalSim, it is assumed that this threshold would be reached by April and May of above normal and below normal years and species-specific off-ramp would be met by June. The OMR restriction for this condition is modeled as a 14-day average OMR index of -3,500 cfs in April and May of all above normal and below normal year-types.

#### *South Delta Export-San Joaquin River Inflow Ratio*

NMFS BO Action 4.2.1 would not be implemented under this alternative.

#### *Exports at the South Delta Intakes*

Same as the No Action Alternative.

#### *Delta Water Quality*

Same as the No Action Alternative.

#### *San Joaquin River Restoration Program*

Same as the No Action Alternative.

### Operations Criteria

#### *Fremont Weir Operations*

Same as the No Action Alternative.

### *Delta Cross Channel Gate Operations*

DCC gates are assumed to be operated based on the proposed DCC operational changes described in Table 2 of the *Delta Cross Channel Temporary Closure Final Environmental Assessment* (Reclamation 2012). However, model representation of the proposed DCC operations remain the same as the No Action Alternative as the proposed changes cannot be captured within the CalSim model.

### *Allocation Decisions*

Same as the No Action Alternative.

### *San Luis Operations*

Same as the No Action Alternative.

### *New Melones Operations*

In addition to flood control, New Melones is operated for three different purposes: fishery flows, water quality, and water supply.

**Fishery**

These flows are patterned to provide fall attraction flows in October and outmigration pulse flows in spring months (April 15 through May 15 in all years), and total up to 98.9 TAF to 483.7 TAF annually depending on the hydrological conditions based on the San Joaquin 60-20-20 Index (Tables 9 through 11).

**Table 9. Annual Fishery Flow Allocation**

| 60-20-20 Index | Fishery Flows (TAF) |
|---|---|
| Critically dry | 185.3 |
| Dry | 234.1 |
| Below normal | 346.7 |
| Above normal | 346.7 |
| Wet | 483.7 |

**Table 10. Monthly "Base" Flows for Fishery Purposes Based on the Annual Fishery Volume**

| Annual Fishery Flow Volume (TAF) | Monthly Fishery Base Flows (cfs) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. 1–14 | May 16–31 | June | July | Aug. | Sept. |
| 185.3 | 577.4 | 200 | 200 | 212.9 | 214.3 | 200 | 200 | 150 | 150 | 150 | 150 | 150 |
| 234.1 | 635.5 | 200 | 200 | 219.4 | 221.4 | 200 | 500 | 284.4 | 200 | 200 | 200 | 200 |
| 346.7 | 774.2 | 200 | 200 | 225.8 | 228.6 | 200 | 1,471.4 | 1,031.3 | 363.3 | 250 | 250 | 250 |
| 483.7 | 796.8 | 200 | 200 | 232.3 | 235.7 | 1,521 | 1,614.3 | 1,200 | 940 | 300 | 300 | 300 |

**Table 11. April 15 through May 15 "Pulse" Flows for Fishery Purposes Based on the Annual Fishery Volume**

| Annual Fishery Flow Volume (TAF) | Fishery Pulse Flows (cfs) | |
|---|---|---|
| | April 15–30 | May 1–15 |
| 185.3 | 687.5 | 666.7 |
| 234.1 | 1,000 | 1,000 |
| 346.7 | 1,625 | 1,466.7 |
| 483.7 | 1,212.5 | 1,933.3 |

## Water Quality

Releases are made to the Stanislaus River below Goodwin Dam to meet the D-1422 dissolved oxygen content objective. Surrogate flows representing releases for dissolved oxygen requirement in CalSim II are presented in Table 12. The surrogate flows are reduced for critical years under the San Joaquin 60-20-20 Index. These flows are met through releases from New Melones without any annual volumetric limit.

**Table 12. Surrogate Flows Representing Releases for Dissolved Oxygen Requirement in CalSim II**

| | Non-Critical Years | Critical Years |
|---|---|---|
| January | 0.0 | 0.0 |
| February | 0.0 | 0.0 |
| March | 0.0 | 0.0 |
| April | 0.0 | 0.0 |
| May | 15.2 | 11.9 |
| June | 16.3 | 12.3 |
| July | 17.4 | 12.3 |
| August | 14.8 | 11.9 |
| September | 0.0 | 0.0 |
| October | 0.0 | 0.0 |
| November | 0.0 | 0.0 |
| December | 0.0 | 0.0 |

## Water Supply

Water supply refers to deliveries from New Melones to water rights holders (Oakdale Irrigation District and South San Joaquin Irrigation District) and CVP eastside contractors (Stockton East Water District and Central San Joaquin Water Control District).

Water is provided to Oakdale Irrigation District and South San Joaquin Irrigation District in accordance with their 1988 Settlement Agreement with Reclamation (up to 600 TAF based on hydrologic conditions), limited by consumptive use. The conservation account of up to 200 TAF storage capacity defined under this agreement is not modeled in CalSim II.

### Water Supply-CVP Eastside Contractors

Annual allocations are determined using the San Joaquin 60-20-20 Index for Stockton East Water District and Central San Joaquin Water Conservation District (Table 13) and are distributed throughout 1 year using monthly patterns.

**Table 13. Annual allocations for Stockton East Water District and Central San Joaquin Water Conservation District**

| 60-20-20 Index | CVP Contractor Allocation (TAF) |
|---|---|
| Critically dry | 0 |
| Dry | 49 |
| Below normal, above normal, and wet | 155 |

## 3.2 DSM2 Assumptions for Alternative 1

The following is a description of the assumptions listed in Appendix F, Attachment 2-3, *DSM2 Model Assumptions Callouts*.

### River Flows

Same as the No Action Alternative.

### Tidal Boundary

Same as the No Action Alternative.

### Water Quality

#### *Martinez EC*

Same as the No Action Alternative.

#### *Vernalis EC*

Same as the No Action Alternative.

### Morphological Changes

Same as the No Action Alternative.

### Facilities

#### *Delta Cross Channel*

Same as the No Action Alternative.

#### *South Delta Temporary Barriers*

The three agricultural temporary barriers located on Old River, Middle River, and Grant Line Canal are included in the model; however, the fish barrier located at the Head of Old River is not included in the model.

#### *Clifton Court Forebay Gates*

Same as the No Action Alternative.

### Operations Criteria

#### *South Delta Temporary Barriers*

South Delta Temporary Barriers are operated based on San Joaquin River flow conditions. The agricultural barriers on Old and Middle Rivers are assumed to be installed starting from May 16 and the one on Grant Line Canal from June 1. All three agricultural barriers are allowed to operate until November 30. The tidal gates on Old and Middle River agricultural barriers are assumed to be tied open from May 16 to May 31. Head of Old River Barrier would not be installed.

#### *Montezuma Salinity Control Gate*

The radial gates in the Montezuma Slough Salinity Control Gate Structure are assumed to be tidally operating from October through February each year, to minimize propagation of high salinity conditions into the interior Delta.

Gate operations occur in October through February. Gates open when upstream water level is 0.3 feet above downstream water level. Gates close when current is less than -0.1 feet per second. Gates are open in March through September.

Reclamation proposes to replace Fall X2 with Suisun Marsh Salinity Control Gates operations in September and October of above normal and below normal water year types. Iterative analysis using the DSM2 model would be required to identify associated changes in Delta outflow and reservoir releases required to support changes in Outflow to continue to meet D-1641 standards with tidal operation of the SMSCG. This analysis has not been completed and therefore the effects of this operation have not been incorporated in the CalSim II model (would require a modified implementation of the flow-salinity ANN model).

## 3.3 HEC-5Q and Reclamation Temperature Model Assumptions for Alternative 1

The following is a description of the assumptions listed in Appendix F, Attachment 2-4, *HEC-5Q and Reclamation Temperature Model Assumptions Callouts*.

### Sacramento-Trinity Rivers

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

#### *Shasta Temperature Management*

Alternative 1 temperature strategy focuses on maximizing duration of temperature below 53.5°F at Sacramento River at Clear Creek from May 15 through October 31. The strategy consists of four temperature tiers, based on Shasta coldwater pool or storage volume. As Shasta coldwater pool or storage decrease, the 53.5°F compliance time window narrows or focuses on the projected time when the Winter-Run Chinook Salmon eggs have the highest dissolved oxygen requirement. The updated strategy applies a tactical approach. Temperature release targets are adjusted based on information from near-term changes in Shasta storage and meteorological conditions.

#### *Trinity Temperature Management*

Same as the No Action Alternative.

### American River

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

#### *Folsom Temperature Management*

Same as the No Action Alternative.

### Stanislaus River

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

### Feather River

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

## 3.4 Egg Mortality Model Assumptions for Alternative 1

Same as the No Action Alternative.

# 4 Assumptions for Alternative 2

This section presents the assumptions used in developing the CalSim II, DSM2, HEC-5Q, Reclamation Temperature Model and Egg Mortality Model simulations of Alternative 2 considered for the ROC on LTO ESA Consultation.

Alternative 2 represents CVP and SWP operations with only D1641 regulations. Alternative 2 includes projected climate change and sea-level rise assumptions corresponding to the Year 2030. Change in climate results in the changes in the reservoir and tributary inflows included in CalSim II. The sea-level

rise changes result in modified flow-salinity relationships in the Delta. The climate change and sea-level rise assumptions at Year 2030 are described in detail in Section 7. The CalSim II simulation for Alternative 2 does not consider any adaptation measures that would result in managing the CVP and SWP system in a different manner than today to reduce climate impacts. For example, future changes in reservoir flood control reservation to better accommodate a seasonally changing hydrograph may be considered under future programs but are not considered under this consultation.

## 4.1 CalSim II Assumptions for Alternative 2

The following is a description of the assumptions listed in Appendix F, Attachment 2-2, *CalSim II Model Assumptions Callouts*.

### Hydrology

#### *Inflows/Supplies*

Same as the No Action Alternative.

#### *Level of Development*

Same as the No Action Alternative.

#### *Demands, Water Rights, CVP/SWP Contracts*

Same as the No Action Alternative.

### Facilities

Same as the No Action Alternative.

#### *Fremont Weir*

Same as the No Action Alternative.

#### *CVP C.W. Bill Jones Pumping Plant (Tracy PP) Capacity*

Same as the No Action Alternative.

#### *SWP Banks Pumping Plant Capacity*

Same as the No Action Alternative.

#### *CCWD Intakes*

Same as the No Action Alternative.

### Regulatory Standards

The regulatory standards that govern the operations of the CVP and SWP facilities are briefly described below. Specific assumptions related to key regulatory standards are also outlined below.

### *D-1641 Operations*

Same as No Action Alternative.

### *Coordinated Operations Agreement (COA)*

Same as the No Action Alternative.

### *CVPIA (b)(2) Assumptions*

Same as Alternative 1.

### *Clear Creek Flows*

Clear Creek flows in accordance with the 1963 USBR Proposal to USFWS and NPS. Further information is available in Appendix 3E of the LTO EIS (Reclamation 2015a).

### *Continued CALFED Agreements*

Same as the No Action Alternative.

### *USFWS Delta Smelt BO Actions*

The USFWS Delta Smelt BO RPA actions are not implemented under this alternative.

### *NMFS BO Salmon Actions*

The NMFS 2004 Winter-Run Biological Opinion for Shasta Lake end-of-September minimum storage is implemented under this alternative.

### *Water Transfers*

**Lower Yuba River Accord (LYRA)**

Acquisitions of Component 1 water under the Lower Yuba River Accord.

## Specific Regulatory Assumptions

### *Upper Sacramento Flow Management*

Same as Alternative 1.

### *Lower Feather Flow Management*

Same as the No Action Alternative.

### *Lower American Flow Management*

The 2006 ARFMS is included in Alternative 2.

### *Delta Outflow (Flow and Salinity)*

Same as the Alternative 1.

### *Combined Old and Middle River Flows*

Combined Old and Middle River Flow targets are not implemented under this alternative.

### *South Delta Export-San Joaquin River Inflow Ratio*

Same as Alternative 1.

### *Exports at the South Delta Intakes*

Same as the No Action Alternative.

### *Delta Water Quality*

Same as the No Action Alternative.

### *San Joaquin River Restoration Program*

Same as the No Action Alternative.

## Operations Criteria

### *Fremont Weir Operations*

Same as the No Action Alternative.

### *Delta Cross Channel Gate Operations*

DCC gates are assumed to be operated based on SWRCB D-1641 DCC standards, which provide for closure of the DCC gates for fisheries protection at certain times of the year. From November through January, the DCC may be closed for up to 45 days. From February 1 through May 20, the gates are closed every day. The gates may also be closed for 14 days during the May 21 through June 15 period. Reclamation determines the timing and duration of the closures after discussion with USFWS, CDFW, and NMFS.

### *Allocation Decisions*

Same as the No Action Alternative.

### *San Luis Operations*

Same as the No Action Alternative.

### *New Melones Operations*

New Melones continues to operate to the same flood control, water quality, and water delivery as the No Action Alternative. The fishery flows are based on the 1987 USBR and CDFW agreement, which

provides an annual volume of fisheries releases between 98.3 and 302.1 TAF, as shown in Table 14. These values are linearly interpolated based on the following formula:

End-of-February New Melones Storage + March through September inflow – settlement contract allocation to Oakdale and South San Joaquin Irrigation Districts – CVP contract allocation out of New Melones – estimated releases for water quality – estimated evaporation – a 1,700 TAF carryover target.

**Table 14. Annual Volume Release Pattern in CalSim II**

| Annual Volume (TAF) | Monthly Flow (cfs) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 98.4 | 110 | 200 | 200 | 125 | 125 | 125 | 250 | 250 | 0 | 0 | 0 | 0 |
| 243.3 | 200 | 250 | 250 | 250 | 250 | 250 | 300 | 300 | 200 | 200 | 200 | 200 |
| 310.3 | 250 | 300 | 300 | 300 | 300 | 300 | 900 | 900 | 250 | 250 | 250 | 250 |

## 4.2 DSM2 Assumptions for Alternative 2

The following is a description of the assumptions listed in Appendix FF Attachment 2-3, *DSM2 Model Assumptions Callouts*.

### River Flows

Same as the No Action Alternative.

### Tidal Boundary

Same as the No Action Alternative.

### Water Quality

#### *Martinez EC*

Same as the No Action Alternative.

#### *Vernalis EC*

Same as the No Action Alternative.

### Morphological Changes

Same as the No Action Alternative.

### Facilities

#### *Delta Cross Channel*

Same as the No Action Alternative.

#### *South Delta Temporary Barriers*

Same as the No Action Alternative.

#### *Clifton Court Forebay Gates*

Same as the No Action Alternative.

### Operations Criteria

#### *South Delta Temporary Barriers*

South Delta Temporary Barriers are operated based on San Joaquin flow conditions. Head of Old River Barrier is assumed to be only installed from April 16 to May 15 and from September 16 to November 30. The agricultural barriers on Old and Middle Rivers are assumed to be installed starting from May 16 and the one on Grant Line Canal from June 1. All three agricultural barriers are allowed to operate until November 30. The tidal gates on Old and Middle River agricultural barriers are assumed to be tied open from May 16 to May 31.

#### *Montezuma Salinity Control Gate*

Same as the No Action Alternative.

## 4.3 HEC-5Q and Reclamation Temperature Model Assumptions for Alternative 2

The following is a description of the assumptions listed in Appendix FF Attachment, 2-4, *HEC-5Q and Reclamation Temperature Model Assumptions Callouts*.

### Sacramento-Trinity Rivers

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

#### *Shasta Temperature Management*

Same as the No Action Alternative.

#### *Trinity Temperature Management*

Same as the No Action Alternative.

### American River

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

#### *Folsom Temperature Management*

Same as the No Action Alternative.

### Stanislaus River

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

### Feather River

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

## 4.4 Egg Mortality Model Assumptions for Alternative 2

Same as the No Action Alternative.

# 5 Assumptions for Alternative 3

This section presents the assumptions used in developing the CalSim II, DSM2, HEC-5Q, Reclamation Temperature Model and Egg Mortality Model simulations of Alternative 3 considered for the ROC on LTO ESA Consultation.

Alternative 3 represents CVP and SWP operations with only D1641 regulations and 25,000 acres of habitat restoration in the Delta.

Alternative 3 includes projected climate change and sea-level rise assumptions corresponding to the Year 2030. Change in climate results in the changes in the reservoir and tributary inflows included in CalSim II. The sea-level rise changes result in modified flow-salinity relationships in the Delta. The climate change and sea-level rise assumptions at Year 2030 are described in detail in Section 7. The CalSim II simulation for Alternative 3 does not consider any adaptation measures that would result in managing the CVP and SWP system in a different manner than today to reduce climate impacts. For example, future changes in reservoir flood control reservation to better accommodate a seasonally changing hydrograph may be considered under future programs but are not considered under this consultation.

## 5.1 CalSim II Assumptions for Alternative 3

The following is a description of the assumptions listed in Appendix F, Attachment 2-2, *CalSim II Model Assumptions Callouts*.

### Hydrology

#### *Inflows/Supplies*

Same as the No Action Alternative.

### *Level of Development*

Same as the No Action Alternative.

### *Demands, Water Rights, CVP/SWP Contracts*

Same as the No Action Alternative.

### Facilities

Same as the No Action Alternative.

### *Fremont Weir*

Same as the No Action Alternative.

### *CVP C.W. Bill Jones Pumping Plant (Tracy PP) Capacity*

Same as the No Action Alternative.

### *SWP Banks Pumping Plant Capacity*

Same as the No Action Alternative.

### *CCWD Intakes*

Same as the No Action Alternative.

### Regulatory Standards

The regulatory standards that govern the operations of the CVP and SWP facilities are briefly described below. Specific assumptions related to key regulatory standards are also outlined below.

### *D-1641 Operations*

Same as the No Action Alternative.

### *Coordinated Operations Agreement (COA)*

Same as the No Action Alternative.

### *CVPIA (b)(2) Assumptions*

Same as Alternative 1.

### *Clear Creek Flows*

Same as Alternative 2.

### *Continued CALFED Agreements*

Same as the No Action Alternative.

### *USFWS Delta Smelt BO Actions*

Same as Alternative 2.

### *NMFS BO Salmon Actions*

Same as Alternative 2.

### *Water Transfers*

Same as the No Action Alternative.

## Specific Regulatory Assumptions

### *Upper Sacramento Flow Management*

Same as Alternative 1.

### *Lower Feather Flow Management*

Same as the No Action Alternative.

### *Lower American Flow Management*

Same as Alternative 2.

### *Delta Outflow (Flow and Salinity)*

Same as Alternative 2.

### *Combined Old and Middle River Flows*

Same as Alternative 2.

### *South Delta Export-San Joaquin River Inflow Ratio*

Same as Alternative 1.

### *Exports at the South Delta Intakes*

Same as the No Action Alternative.

### *Delta Water Quality*

The Alternative 3 simulation includes SWRCB D-1641 salinity requirements. However, not all salinity requirements are included as CalSim II is not capable of predicting salinities in the Delta. Instead, empirically based equations and models are used to relate interior salinity conditions with the flow

conditions. DWR's Artificial Neural Network (ANN) trained for salinity is used to predict and interpret salinity conditions at the Emmaton, Jersey Point, Rock Slough and Collinsville stations. Emmaton and Jersey Point standards are for protecting water quality conditions for agricultural use in the western Delta and they are in effect from April 1 to August 15. The EC requirement at Emmaton varies from 0.45 mmhos/cm to 2.78 mmhos/cm, depending on the water year type. The EC requirement at Jersey Point varies from 0.45 to 2.20 mmhos/cm, depending on the water year type. The Rock Slough standard is for protecting water quality conditions for M&I use for water exported through the Contra Costa Canal. It is a year-round standard that requires a certain number of days in a year with chloride concentration less than 150 mg/L. The number of days requirement is dependent upon the water year type. The Collinsville standard is applied during October through May months to protect water quality conditions for migrating fish species, and it varies between 12.5 mmhos/cm in May and 19.0 mmhos/cm in October.

The sea-level rise change assumed at the Year 2030 results in a modified flow – salinity relationship in the Delta. An ANN, which is capable of emulating DSM2 results under the 15-cm sea-level rise and 25,000 acres of tidal restoration condition at the Year 2030 is used to simulate the flow-salinity relationship in CalSim II simulation for Alternative 3.

#### *San Joaquin River Restoration Program*

Same as the No Action Alternative.

### Operations Criteria

#### *Fremont Weir Operations*

Same as the No Action Alternative.

#### *Delta Cross Channel Gate Operations*

Same as Alternative 2.

#### *Allocation Decisions*

Same as the No Action Alternative.

#### *San Luis Operations*

Same as the No Action Alternative.

#### *New Melones Operations*

Same as Alternative 2.

## 5.2 DSM2 Assumptions for Alternative 3

The following is a description of the assumptions listed in Appendix F, Attachment 2-3, *DSM2 Model Assumptions Callouts*.

### River Flows

Same as the No Action Alternative.

### Tidal Boundary

The adjusted astronomical tide specified in the No Action Alternative is modified to account for the habitat restoration and sea-level rise using the correlations derived based on two-dimensional RMA modeling of the Delta with restoration and sea-level rise. This is further described in the Bay Delta Conservation Plan/California WaterFix FEIR/EIS Appendix 5A Section A.5.3, incorporated here by reference.

### Water Quality

#### *Martinez EC*

EC time series resulting from the G-model is modified to account for the salinity changes related to the habitat restoration and sea-level rise using the correlations derived based on the two-dimensional RMA modeling of the Delta with restoration and sea-level rise. This is further described in the *Bay Delta Conservation Plan/California WaterFix FEIR/EIS* Appendix 5A, Section A.5.3.

#### *Vernalis EC*

Same as the No Action Alternative.

### Morphological Changes

DSM2 grid and other inputs such as the channel roughness coefficients and the dispersion coefficients are modified to reflect the changes related to the tidal marsh restoration and the sea-level rise assumptions associated with the Alternative 3. These changes are described in the *Bay Delta Conservation Plan/California WaterFix FEIR/EIS* Appendix 5A, Section A.

### Facilities

#### *Delta Cross Channel*

Same as the No Action Alternative.

#### *South Delta Temporary Barriers*

Same as the No Action Alternative.

#### *Clifton Court Forebay Gates*

Same as the No Action Alternative.

### Operations Criteria

#### *South Delta Temporary Barriers*

Same as Alternative 2.

#### *Montezuma Salinity Control Gate*

Same as the No Action Alternative.

## 5.3 HEC-5Q and Reclamation Temperature Model Assumptions for Alternative 3

The following is a description of the assumptions listed in Appendix F, Attachment 2-4, *HEC-5Q and Reclamation Temperature Model Assumptions Callouts*.

### Sacramento-Trinity Rivers

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

#### *Shasta Temperature Management*

Same as the No Action Alternative.

#### *Trinity Temperature Management*

Same as the No Action Alternative.

### American River

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

#### *Folsom Temperature Management*

Same as the No Action Alternative.

### Stanislaus River

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

### Feather River

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

## 5.4 Egg Mortality Model Assumptions for Alternative 3

Same as the No Action Alternative.

# 6 Assumptions for Alternative 4

This section presents the assumptions used in developing the CalSim II, DSM2, HEC-5Q, Reclamation Temperature Model and Egg Mortality Model simulations of Alternative 4 considered for the ROC on LTO ESA Consultation.

Alternative 4 is intended to represent CVP and SWP operations under higher regulation than Alternative 1. In addition to Alternative 1, flows from the Sacramento, Feather, and American Rivers are increased up to 55% of unimpaired instream flow, and Delta exports are reduced for positive combined Old and Middle River flows from March through May, resulting in increased Delta outflow. Flows from CVP and SWP reservoir releases are limited to preserve storage conditions for upstream habitat and to not exacerbate flood conditions.

Alternative 4 includes projected climate change and sea-level rise assumptions corresponding to the Year 2030. Change in climate results in the changes in the reservoir and tributary inflows included in CalSim II. The sea-level rise changes result in modified flow-salinity relationships in the Delta. The climate change and sea-level rise assumptions at Year 2030 are described in detail in Section 7. The CalSim II simulation for Alternative 4 does not consider any adaptation measures that would result in managing the CVP and SWP system in a different manner than today to reduce climate impacts. For example, future changes in reservoir flood control reservation to better accommodate a seasonally changing hydrograph may be considered under future programs but are not considered under this consultation.

## 6.1 CalSim II Assumptions for Alternative 4

The following is a description of the assumptions listed in Appendix F, Attachment 2-2, *CalSim II Model Assumptions Callouts*.

### Hydrology

#### *Inflows/Supplies*

Same as the No Action Alternative.

#### *Level of Development*

Same as the No Action Alternative.

#### *Demands, Water Rights, CVP/SWP Contracts*

Same as the No Action Alternative.

### Facilities

Same as the No Action Alternative.

#### *Fremont Weir*

Same as the No Action Alternative.

### *CVP C.W. Bill Jones Pumping Plant (Tracy PP) Capacity*

Same as the No Action Alternative.

### *SWP Banks Pumping Plant Capacity*

Same as Alternative 1.

### *CCWD Intakes*

Same as the No Action Alternative.

## Regulatory Standards

The regulatory standards that govern the operations of the CVP and SWP facilities are briefly described below. Specific assumptions related to key regulatory standards are also outlined below.

### *D-1641 Operations*

Same as Alternative 1.

### *Coordinated Operations Agreement (COA)*

Same as the No Action Alternative.

### *CVPIA (b)(2) Assumptions*

Same as Alternative 1.

### *Clear Creek Flows*

Implementation is similar to Alternative with minimum instream flow requirement of 55% of unimpaired flow in Clear Creek at Igo.

### *Continued CALFED Agreements*

Same as the No Action Alternative.

### *USFWS Delta Smelt BO Actions*

Same as Alternative. 1.

### *NMFS BO Salmon Actions*

Same as Alternative 1.

### *Water Transfers*

No acquisitions by SWP contractors modeled.

## Specific Regulatory Assumptions

### *Upper Sacramento Flow Management*

Model includes SWRCB WR 90-5. Furthermore, a flow objective of 55% of unimpaired instream flow or greater in Sacramento River at Red Bluff and upstream of confluence with the Feather River (subject to off-ramp in Shasta index critical years, or limited during significant bypass-weir flows).

### *Lower Feather Flow Management*

Model includes 1983 DWR, CDFW Agreement (minimum flow 750–1,700 cfs, depending on runoff and month). Furthermore, a flow objective of 55% of unimpaired instream flow or greater in Feather River below Thermalito (subject to off-ramp in the 35% driest years on record, or limited during significant bypass-weir flows).

### *Lower American Flow Management*

Model includes Water Forum's 2017 Lower American Flow Management Standard where the flows range from 500 to 2,000 cfs based on time of year and annual hydrology. Planning minimum storage is represented in CalSim with a 275 TAF end-of September storage target in Folsom. Furthermore, a flow objective of 55% of unimpaired instream flow or greater in American River at Fair Oaks (subject to off-ramp in the 60% driest years on record, or limited during significant bypass-weir flows).

### *Delta Outflow (Flow and Salinity)*

**SWRCB D-1641:**

All Delta outflow requirements per SWRCB D-1641 are included in the Alternative 4 simulation. Similarly, for the February through June period, the X2 standard is included in the Alternative 4 simulation. Furthermore, flows contributed from the Sacramento, Feather, and American Rivers for flow objective of 55% of unimpaired instream flow, or contributed from export reductions for positive OMR from March through May are included.

### *Combined Old and Middle River Flows*

Alternative 4 OMR management is modeled as follows:

Projects operate to an OMR index no more negative than a 14-day moving average of -5,000 cfs in January and February, a positive 14-day moving average in March through May (subject to minimum exports required for Health and Safety), and no more negative than a 14-day moving average of -5,000 cfs in June, except for following conditions:

- Integrated Early Winter Pulse Protection: Same as Alternative 1.
- Turbidity Bridge Avoidance: Same as Alternative 1.
- WIIN Act Storm-Related OMR Flexibility: Same as Alternative 1

### *South Delta Export-San Joaquin River Inflow Ratio*

Same as Alternative 1.

#### *Exports at the South Delta Intakes*

Same as the No Action Alternative.

#### *Delta Water Quality*

Same as the No Action Alternative.

#### *San Joaquin River Restoration Program*

Same as the No Action Alternative.

### Operations Criteria

#### *Fremont Weir Operations*

Same as the No Action Alternative.

#### *Delta Cross Channel Gate Operations*

Same as Alternative 1.

#### *Allocation Decisions*

Same as Alternative 1.

#### *San Luis Operations*

Same as the No Action Alternative.

#### *New Melones Operations*

Same as Alternative 1.

## 6.2 DSM2 Assumptions for Alternative 4

The following is a description of the assumptions listed in Appendix F, Attachment 2-3, *DSM2 Model Assumptions Callouts*.

### River Flows

Same as the No Action Alternative.

### Tidal Boundary

Same as the No Action Alternative.

### Water Quality

#### *Martinez EC*

Same as the No Action Alternative.

#### *Vernalis EC*

Same as the No Action Alternative.

### Morphological Changes

Same as the No Action Alternative.

### Facilities

#### *Delta Cross Channel*

Same as the No Action Alternative.

#### *South Delta Temporary Barriers*

Same as the No Action Alternative.

#### *Clifton Court Forebay Gates*

Same as the No Action Alternative.

### Operations Criteria

#### *South Delta Temporary Barriers*

Same as the No Action Alternative.

#### *Montezuma Salinity Control Gate*

Same as the No Action Alternative.

## 6.3 HEC-5Q and Reclamation Temperature Model Assumptions for Alternative 4

The following is a description of the assumptions listed in Appendix F, Attachment 2-4, *HEC-5Q and Reclamation Temperature Model Assumptions Callouts*.

### Sacramento-Trinity Rivers

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

#### *Shasta Temperature Management*

Same as Alternative 1.

#### *Trinity Temperature Management*

Same as the No Action Alternative.

### American River

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

#### *Folsom Temperature Management*

Same as the No Action Alternative.

### Stanislaus River

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

### Feather River

#### *Reservoir Storage Conditions*

Same as the No Action Alternative.

## 6.4 Egg Mortality Model Assumptions for Alternative 4

Same as the No Action Alternative.

# 7 Planning Horizon: Year 2030 Climate Condition

The No Action Alternative, Alternative 1, Alternative 2, Alternative 3, and Alternative 4 are simulated at Year 2030 conditions. Changes in climate conditions and sea level (15 cm rise) were assumed at Year 2030 and are consistent within all action alternatives. Using the BDCP EIR/S approach, the climate scenario was derived based on sampling of the ensemble of GCM projections rather than one single realization or a handful of individual realizations. The Q5 scenario that represents the central tendency of the climate projections was selected.

Simulation of climate change and sea-level rise effects in CalSim II modeling of the Alternatives is accomplished by:

- Incorporating the modified CalSim II inputs reflecting climate change for parameters including inflows, water year types, runoff forecasts, and Delta water temperature.
- Incorporating modified ANNs to reflect the flow-salinity response under sea-level change.

Simulation of the tidal marsh restoration areas and sea-level rise effects in DSM2 modeling of the alternatives is accomplished by:

- Incorporating consistent grid changes identified in corroboration simulation into the DSM2 model for the sea-level rise condition.
- Modifying the downstream stage and EC boundary conditions at Martinez in the DSM2 model using the appropriate regression equation for the 15 cm sea-level rise. The adjusted astronomical tide specified at Martinez in the alternatives is modified using the correlations shown in Table 14. The Martinez EC boundary condition resulting from the G-model is modified using the correlations specified in Table 15.

**Table 15. Correlation to Transform Baseline Martinez Stage and EC for Use in Alternatives DSM2 Simulations at Year 2030**

| | Martinez Stage (feet NGVD 29) | | Martinez EC (µS/cm) | |
|---|---|---|---|---|
| **Scenario** | **Correlation** | **Lag (min)** | **Correlation** | **Lag (min)** |
| Year 2030 (15 cm SLR) | Y = 1.0033*X + .47 | -1 | Y = 0.9954* X + 556.3 | 0 |
| Year 2030 (25,000 ac & 15 cm SLR) | Y = 0.968*X + 0.5 | -5 | Y = 0.999* X + 357.78 | 9 |

Notes:
X = Baseline Martinez stage or EC
Y = Alternative Martinez stage or EC

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# Attachment 2-2 CalSim II Model Assumptions Callouts

## 1 Introduction

The assumptions for all Reclamation ROC on LTO model simulations are summarized in Appendix F, Attachment 2-1, *Model Assumption*s.

## 2 CalSim II Modeling Assumptions Callouts

The following matrix summarizes the assumptions used for the CalSim II models:

- No Action Alternative 011319 (NAA)
- Alternative 1 011519 (ALT1)
- Alternative 2 021719 (ALT2)
- Alternative 3 021719 (ALT3)
- Alternative 4 043019 (ALT4)

| | No Action Alternative (NAA) | Alternative 1 (ALT1) | Alternative 2 (ALT2) | Alternative 3 (ALT3) | Alternative 4 (ALT4) |
|---|---|---|---|---|---|
| **GENERAL** | | | | | |
| **Planning horizon**[a] | Year 2030 | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| **Period of simulation** | 82 years (1922-2003) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| **HYDROLOGY** | | | | | |
| **Climate Condition** | ELT Q5 projected changes in temperature, and precipitation; sea-level rise increased by 15 cm. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| **Inflows/Supplies** | Modified inflows based on historical hydrology and projected climate condition. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| **Level of development** | Projected 2030 level[b] | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| **DEMANDS, WATER RIGHTS, CVP/SWP CONTRACTS** | | | | | |
| Sacramento River Region (excluding American River) | | | | | |
| CVP[c] | Land use-based, full buildout of contract amounts, except for Settlement Contractors represented with historical diversions. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| SWP (FRSA)[d] | Land use-based, limited by contract amounts | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Non-project | Land use-based, limited by water rights and SWRCB Decisions for Existing Facilities | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Antioch Water Works | Pre-1914 water right | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Federal refuges | Firm Level 2 water supply needs | Same as NAA | Same as NAA | Same as NAA | Same as NAA |

| | No Action Alternative (NAA) | Alternative 1 (ALT1) | Alternative 2 (ALT2) | Alternative 3 (ALT3) | Alternative 4 (ALT4) |
|---|---|---|---|---|---|
| Sacramento River Region - American River[e] | | | | | |
| Water rights | Year 2025, full water rights | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| CVP | Year 2025, full contracts except for Settlement Contractors at historical diversions, including Freeport Regional Water Project | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| San Joaquin River Region[f] | | | | | |
| Friant Unit | Limited by contract amounts, based on current allocation policy | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Lower Basin | Land use-based, based on district level operations and constraints | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Stanislaus River | Land use-based, Revised Operations Plan (2008 model assumptions) and NMFS BO (Jun 2009) Actions III.1.2 and III.1.3 | Land use-based, Stepped Release Plan (SRP) | Land use-based, 1987 USBR, CDFW agreement | Same as ALT2 | Same as ALT1 |
| San Francisco Bay, Central Coast, Tulare Lake and South Coast Regions (CVP/SWP project facilities) | | | | | |
| CVP[c] | Demand based on contract amounts | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| CCWD[g] | 195 TAF/yr CVP contract supply and water rights | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| SWP[d,h] | Demand based on Table A amounts | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Article 56 | Based on 2001-08 contractor requests | Same as NAA | Same as NAA | Same as NAA | Same as NAA |

| | No Action Alternative (NAA) | Alternative 1 (ALT1) | Alternative 2 (ALT2) | Alternative 3 (ALT3) | Alternative 4 (ALT4) |
|---|---|---|---|---|---|
| Article 21 | MWD demand up to 200 TAF/month from December to March subject to conveyance capacity, KCWA demand up to 180 TAF/month and other contractor demands up to 34 TAF/month in all months, subject to conveyance capacity | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| North Bay Aqueduct (NBA) | 77 TAF/yr demand under SWP contracts, up to 43.7 cfs of excess flow under Fairfield, Vacaville, and Benecia Settlement Agreement | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Federal refuges | Firm Level 2 water needs | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| **FACILITIES** | | | | | |
| Systemwide | | | | | |
| Systemwide | Existing facilities | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Sacramento River Region | | | | | |
| Shasta Lake | Existing, 4,552 TAF capacity | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Red Bluff Diversion Dam | Diversion dam gates out all year, Pumping Plant operated to deliver CVP water | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Fremont Weir | Notched Fremont Weir as represented in Yolo Bypass Salmonid Habitat Restoration and Fish Passage EIS/EIR Alternative 1 (preferred alternative) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Colusa Basin | Existing conveyance and storage facilities | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Upper American River[e,i] | PCWA American River Pump Station | Same as NAA | Same as NAA | Same as NAA | Same as NAA |

| | No Action Alternative (NAA) | Alternative 1 (ALT1) | Alternative 2 (ALT2) | Alternative 3 (ALT3) | Alternative 4 (ALT4) |
|---|---|---|---|---|---|
| Lower Sacramento River | Freeport Regional Water Project[j] | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| San Joaquin River Region | | | | | |
| Millerton Lake (Friant Dam) | Existing, 520 TAF capacity | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Lower San Joaquin River | City of Stockton Delta Water Supply Project, 30-mgd capacity | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| SWP Banks Pumping Plant (South Delta) | Physical capacity is 10,300 cfs but 6,680 cfs permitted capacity in all months. Pumping can be up to 10,300 cfs during Dec 15 – Mar 15 depending on Vernalis flow conditions; additional capacity of 500 cfs (up to 7,180 cfs) allowed Jul – Sep for reducing impact of NMFS BO (Jun 2009) Action IV.2.1 Phase II on SWP | Physical capacity is 10,300 cfs but 6,680 cfs permitted capacity in all months. Pumping can be up to 10,300 cfs during Dec 15 – Mar 15 depending on Vernalis flow conditions; additional capacity of 500 cfs (up to 7,180 cfs) allowed Jul – Sep for reducing impact of OMR action on SWP exports | Physical capacity is 10,300 cfs but 6,680 cfs permitted capacity in all months. Pumping can be up to 10,300 cfs during Dec 15 – Mar 15 depending on Vernalis flow conditions; additional capacity of 500 cfs (up to 7,180 cfs) allowed Jul – Sep. | Same as ALT2 | Same as ALT1 |
| CVP C.W. Bill Jones Pumping Plant (Tracy PP) | Permit capacity is 4,600 cfs in all months (allowed for by the Delta-Mendota Canal–California Aqueduct Intertie) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Upper Delta-Mendota Canal Capacity | Existing plus 400 cfs Delta-Mendota Canal–California Aqueduct Intertie | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| CCWD Intakes | Los Vaqueros Reservoir with existing storage capacity (160 TAF), and existing intakes except for Mallard Slough Intake | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| San Francisco Bay Region | | | | | |

| | No Action Alternative (NAA) | Alternative 1 (ALT1) | Alternative 2 (ALT2) | Alternative 3 (ALT3) | Alternative 4 (ALT4) |
|---|---|---|---|---|---|
| South Bay Aqueduct (SBA) | SBA rehabilitation, 430 cfs capacity from junction with California Aqueduct to Alameda County FC&WSD Zone 7 diversion point | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| South Coast Region | | | | | |
| California Aqueduct East Branch | Existing capacity | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| **REGULATORY STANDARDS** | | | | | |
| North Coast Region | | | | | |
| Trinity River | | | | | |
| Minimum flow below Lewiston Dam | Trinity EIS Preferred Alternative (369-815 TAF/yr) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Trinity River Fall Augmentation Flows | 420 cfs Aug 1 – Sep 30 in all but wet years | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Trinity Reservoir end-of-September minimum storage | Trinity EIS Preferred Alternative (600 TAF as able) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Sacramento River Region | | | | | |
| Clear Creek | | | | | |
| Minimum flow below Whiskeytown Dam | Downstream water rights, 1963 USBR Proposal to USFWS and NPS, predetermined CVPIA 3406(b)(2) flows, and NMFS BO (Jun 2009) Action I.1.1 | Downstream water rights, 1963 USBR Proposal to USFWS and NPS, 150 cfs year-round and pulse flows, model representation same as NAA | Downstream water rights, 1963 USBR Proposal to USFWS and NPS | Same as ALT2 | Downstream water rights, 1963 USBR Proposal to USFWS and NPS and flow objective of 55% of unimpaired instream flow or greater in Clear Creek at Igo |

| | **No Action Alternative (NAA)** | **Alternative 1 (ALT1)** | **Alternative 2 (ALT2)** | **Alternative 3 (ALT3)** | **Alternative 4 (ALT4)** |
|---|---|---|---|---|---|
| Upper Sacramento River | | | | | |
| Shasta Lake end-of-September minimum storage | NMFS 2004 Winter-Run Biological Opinion, (1,900 TAF in non-critically dry years), and NMFS BO (Jun 2009) Action I.2.1 (NMFS BO storage objectives not explicitly modeled; achieved through project allocation procedures when hydrologically feasible) | 1,900 TAF in non-critically dry years (not explicitly modeled; achieved through project allocation profiles when hydrologically feasible) | NMFS 2004 Winter-Run Biological Opinion (1,900 TAF in non-critically dry years; not explicitly modeled; achieved through project allocation procedures when hydrologically feasible) | Same as ALT2 | Same as ALT1 |
| Minimum flow below Keswick Dam | SWRCB WR 90-5; NMFS BO (Jun 2009) Action I.2.2 achieved as possible through other modeled actions | SWRCB WR 90-5 | Same as ALT1 | Same as ALT1 | SWRCB WR 90-5 and flow objective of 55% of unimpaired instream flow or greater in Sacramento River at Red Bluff and upstream of confluence with the Feather River (subject to off-ramp in Shasta index critical years, or limited during significant bypass-weir flows) |
| Feather River | | | | | |
| Minimum flow below Thermalito Diversion Dam | 2006 Settlement Agreement (700/800 cfs) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Minimum flow below Thermalito Afterbay outlet | 1983 DWR, CDFW Agreement (750 – 1,700 cfs) | Same as NAA | Same as NAA | Same as NAA | 1983 DWR, CDFW Agreement (750 – 1,700 cfs) and flow objective of 55% of unimpaired instream flow or greater in Feather River below Thermalito (subject to off-ramp in the 35% driest years on record, or limited during significant bypass-weir flows) |

| | No Action Alternative (NAA) | Alternative 1 (ALT1) | Alternative 2 (ALT2) | Alternative 3 (ALT3) | Alternative 4 (ALT4) |
|---|---|---|---|---|---|
| Yuba River | | | | | |
| Minimum flow below Daguerre Point Dam | D-1644 Operations (Lower Yuba River Accord)[r] | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| American River | | | | | |
| Minimum flow below Nimbus Dam | American River Flow Management (2006) as required by NMFS BO (Jun 2009) Action II.1[n] | American River Flow Management Standard, per 2017 Water Forum Agreement with a planning minimum end of September storage target of 275 TAF | American River Flow Management Standard, (2006) | Same as ALT2 | American River Flow Management Standard, per 2017 Water Forum Agreement with a planning minimum end-of-September storage target of 275 TAF and flow objective of 55% of unimpaired instream flow or greater in American River at Fair Oaks (subject to off-ramp in the 60% driest years on record, or limited during significant bypass-weir flows) |
| Minimum Flow at H Street Bridge | SWRCB D-893 | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Lower Sacramento River | | | | | |
| Minimum flow near Rio Vista | SWRCB D-1641 | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| San Joaquin River Region | | | | | |
| Mokelumne River[j] | | | | | |
| Minimum flow below Camanche Dam | FERC 2916-029, 1996 (Joint Settlement Agreement) (100-325 cfs) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Minimum flow below Woodbridge Diversion Dam | FERC 2916-029, 1996 (Joint Settlement Agreement) (25 – 300 cfs) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |

| | **No Action Alternative (NAA)** | **Alternative 1 (ALT1)** | **Alternative 2 (ALT2)** | **Alternative 3 (ALT3)** | **Alternative 4 (ALT4)** |
|---|---|---|---|---|---|
| Stanislaus River | | | | | |
| Minimum flow below Goodwin Dam | 1987 USBR, CDFW agreement, and flows required for NMFS BO (Jun 2009) Action III.1.2 and III.1.3[n] | Flows per New Melones SRP | 1987 USBR, CDFW agreement | Same as ALT2 | Same as ALT1 |
| Minimum dissolved oxygen | SWRCB D-1422 | Model representation Same as NAA | Model representation Same as NAA | Model representation Same as NAA | Model representation Same as NAA |
| Merced River | | | | | |
| Minimum flow below Crocker-Huffman Diversion Dam | Davis-Grunsky (180 – 220 cfs, Nov – Mar), and Cowell Agreement | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Minimum flow at Shaffer Bridge | FERC 2179 (25 – 100 cfs) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Tuolumne River | | | | | |
| Minimum flow at Lagrange Bridge | FERC 2299-024, 1995 (Settlement Agreement) (94-301 TAF/yr) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| San Joaquin River | | | | | |
| San Joaquin River below Friant Dam/Mendota Pool | San Joaquin River Restoration-full flows, not constrained by current river capacity, model implementation does not include any recapture/recirculation | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Maximum salinity near Vernalis | SWRCB D-1641 | Stanislaus contribution per New Melones SRP | Same as NAA | Same as NAA | Same as ALT1 |
| Minimum flow near Vernalis | SWRCB D-1641, and NMFS BO (Jun 2009) Action IV.2.1[n] | Stanislaus contribution per New Melones SRP | SWRCB D-1641 flow requirements at Vernalis, not including pulse flows during the April 15 – May 16 period | Same as ALT2 | Same as ALT1 |

| | **No Action Alternative (NAA)** | **Alternative 1 (ALT1)** | **Alternative 2 (ALT2)** | **Alternative 3 (ALT3)** | **Alternative 4 (ALT4)** |
|---|---|---|---|---|---|
| Sacramento River–San Joaquin Delta Region | | | | | |
| Delta Outflow Index (Flow, NDOI) | SWRCB D-1641 and USFWS BO (Dec 2008) Action 4 | SWRCB D-1641 | Same as ALT1 | Same as ALT1 | SWRCB D-1641 and flows contributed from Sacramento, Feather, and American Rivers for flow objective of 55% of unimpaired instream flow, or contributed from export reductions for positive OMR from March through May |
| Delta Cross Channel gate operation | SRWCB D-1641 with additional days closed from Oct 1 – Jan 31 based on NMFS BO (Jun 2009) Action IV.1.2 (closed during flushing flows from Oct 1 – Dec 14 unless adverse water quality conditions would result) | Gate operations per Multi Year Study Program; model representation Same as NAA | SRWCB D-1641 | Same as ALT2 | Same as ALT1 |
| South Delta export limits (Jones PP and Banks PP) | SWRCB D-1641, Vernalis flow-based export limits Apr 1 – May 31 as required by NMFS BO (Jun, 2009) Action IV.2.1 (additional 500 cfs allowed for Jul – Sep for reducing impact on SWP) | SWRCB D-1641 Vernalis flow-based export limits Apr 1 – May 31, (additional 500 cfs allowed for Jul – Sep for reducing impact on SWP) | SWRCB D-1641 (additional 500 cfs allowed for Jul – Sep) | Same as ALT2 | Same as ALT1 |

| | No Action Alternative (NAA) | Alternative 1 (ALT1) | Alternative 2 (ALT2) | Alternative 3 (ALT3) | Alternative 4 (ALT4) |
|---|---|---|---|---|---|
| Combined Flow in Old and Middle River (OMR) | USFWS BO (Dec 2008) Actions 1 through 3 and NMFS BO (Jun 2009) Action IV.2.3 | OMR target of -5,000 cfs January through June except for 5 days of -2,000 cfs when turbidity bridge occurs and 7 days of -6,000 cfs when increased pumping due to storm is possible, followed by "first flush" action only if it occurs in December (14 days of -2,000 cfs), and OMR target of 3,500 cfs in April and May of AN and BN years | No target | No target | OMR target of -5,000 cfs January and February, except for 5 days of -2,000 cfs when turbidity bridge occurs and 7 days of -6,000 cfs when increased pumping due to storm is possible, followed by "first flush" action only if it occurs in December (14 days of -2,000 cfs), OMR positive in March through May, subject to minimum exports required for Health and Safety, and OMR target of -5,000 cfs in June |
| **OPERATIONS CRITERIA: RIVER-SPECIFIC** | | | | | |
| Sacramento River Region | | | | | |
| Upper Sacramento River: Flow objective for navigation (Wilkins Slough) | Flow objective for Wilkins Slough based on month, CVP allocation, and Shasta storage condition to reflect CVP operations for local delivery | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| American River: Folsom Dam flood control | Variable 400/600 flood control diagram (without outlet modifications) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Feather River: Flow at Mouth of Feather River (above Verona) | Maintain CDFW/DWR flow target of 2,800 cfs for Apr – Sep when flows available dependent on Oroville inflow and FRSA allocation | Same as NAA | Same as NAA | Same as NAA | Same as NAA |

| | No Action Alternative (NAA) | Alternative 1 (ALT1) | Alternative 2 (ALT2) | Alternative 3 (ALT3) | Alternative 4 (ALT4) |
|---|---|---|---|---|---|
| San Joaquin River Region | | | | | |
| Stanislaus River: Flow below Goodwin Dam | 1987 USBR, CDFW agreement, and flows required for NMFS BO (Jun 2009) Action III.1.2 and III.1.3[n] | Flows per New Melones SRP | 1987 USBR, CDFW agreement | Same as ALT2 | Same as ALT1 |
| San Joaquin River: Salinity at Vernalis | Grasslands Bypass Project (full implementation) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| **OPERATIONS CRITERIA: SYSTEMWIDE** | | | | | |
| CVP water allocation | | | | | |
| Settlement / Exchange | 100% (75% in Shasta critically dry years) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Refuges | 100% (75% in Shasta critically dry years) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Agriculture Service | 100% – 0% based on supply, south-of-Delta allocations are additionally limited due to D-1641, USFWS BO (Dec 2008) and NMFS BO (Jun 2009) export restrictions | 100% – 0% based on supply, south-of-Delta allocations are additionally limited due to D-1641 and OMR action | 100% – 0% based on supply | Same as ALT2 | 100% – 0% based on supply, south-of-Delta allocations are additionally limited due to D-1641 and OMR action, including positive OMR March through May |
| Municipal & Industrial Service | 100% – 50% based on supply, south-of-Delta allocations are additionally limited due to D-1641, USFWS BO (Dec 2008) and NMFS BO (Jun 2009) export restrictions[n] | 100% – 50% based on supply, south-of-Delta allocations are additionally limited due to D-1641 and OMR action | 100% – 50% based on supply | Same as ALT2 | 100% – 50% based on supply, south-of-Delta allocations are additionally limited due to D-1641 and OMR action, including positive OMR March through May |

| | No Action Alternative (NAA) | Alternative 1 (ALT1) | Alternative 2 (ALT2) | Alternative 3 (ALT3) | Alternative 4 (ALT4) |
|---|---|---|---|---|---|
| SWP water allocation | | | | | |
| North of Delta (FRSA) | Contract specific | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| South of Delta (including North Bay Aqueduct) | Based on supply; equal prioritization between Ag and M&I based on Monterey Agreement; allocations are additionally limited due to D-1641 and USFWS BO (Dec 2008) and NMFS BO (Jun 2009) export restrictions[n] | Based on supply; equal prioritization between Ag and M&I based on Monterey Agreement; allocations are additionally limited due to D-1641 and OMR action | Based on supply; equal prioritization between Ag and M&I based on Monterey Agreement | Same as ALT2 | Based on supply; equal prioritization between Ag and M&I based on Monterey Agreement; allocations are additionally limited due to D-1641 and OMR action, including positive OMR March through May |
| CVP-SWP coordinated operations | | | | | |
| Sharing of responsibility for in-basin-use | Revised Coordinated Operations Agreement | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Sharing of surplus flows | Revised Coordinated Operations Agreement | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Sharing of restricted export capacity for project- specific priority pumping | Revised Coordinated Operations Agreement | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Water transfers | Acquisitions by SWP contractors are wheeled at priority in Banks Pumping Plant over non-SWP users; LYRA included for SWP contractors | Same as NAA | Same as NAA | Same as NAA | No acquisitions by SWP contractors modeled |
| Sharing of export capacity for lesser priority and wheeling-related pumping | Cross Valley Canal wheeling (max of 128 TAF/yr), CALFED ROD defined Joint Point of Diversion (JPOD) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| San Luis Reservoir | San Luis Reservoir is allowed to operate to a minimum storage of 100 TAF | Same as NAA | Same as NAA | Same as NAA | Same as NAA |

| | No Action Alternative (NAA) | Alternative 1 (ALT1) | Alternative 2 (ALT2) | Alternative 3 (ALT3) | Alternative 4 (ALT4) |
|---|---|---|---|---|---|
| CVPIA 3406(b)(2)[l,n] | | | | | |
| Policy Decision | Per May 2003 Dept. of Interior Decision: | N/A | N/A | N/A | N/A |
| Allocation | 800 TAF, 700 TAF in 40-30-30 dry years, and 600 TAF in 40-30-30 critically dry years as a function of Ag allocation | No B2 Allocation modeled | No B2 Allocation | Same as ALT2 | Same as ALT1 |
| Actions | Pre-determined upstream fish flow objectives below Whiskeytown Dam, non-discretionary NMFS BO (Jun 2009) actions for the American and Stanislaus Rivers, and NMFS BO (Jun 2009) and USFWS BO (Dec 2008) actions leading to export restrictions | Pre-determined upstream fish flow objectives below Whiskeytown | No B2 Action | Same as ALT2 | Same as ALT2 |
| Accounting[m] | Releases for non-discretionary FWSUSFWS BO (Dec 2008) and NMFS BO (Jun 2009) actions may or may not always be deemed (b)(2) actions; in general, it is anticipated, that accounting of these actions using (b)(2) metrics, the sum would exceed the (b)(2) allocation in many years; therefore no additional actions are considered and no accounting logic is included in the model | No B2 Accounting modeled | No B2 Accounting | Same as ALT2 | Same as ALT1 |

| | No Action Alternative (NAA) | Alternative 1 (ALT1) | Alternative 2 (ALT2) | Alternative 3 (ALT3) | Alternative 4 (ALT4) |
|---|---|---|---|---|---|
| **WATER MANAGEMENT ACTIONS** | | | | | |
| Water Transfer Supplies (long term programs) | | | | | |
| Lower Yuba River Accord[m] | Yuba River acquisitions for reducing impact of NMFS BO export restrictions on SWP | Yuba River acquisitions for reducing impact of D-1641 and OMR Action export restrictions on SWP | Yuba River acquisitions | Same as ALT2 | No Yuba River acquisitions for the SWP modeled |
| Phase 8 | None | None | None | None | None |

a These assumptions have been developed under the direction of the Bureau of Reclamation (Reclamation) management team for the Reinitiation of Consultation on the Long-Term Operations of the Central Valley Project (CVP) and State Water Project (SWP).

b The Sacramento Valley hydrology used in the Future Conditions CALSIM II model reflects 2020 land-use assumptions associated with Bulletin 160-98. The San Joaquin Valley hydrology reflects draft 2030 land-use assumptions developed by Reclamation. Development of Future-level projected land-use are being coordinated with the California Water Plan Update for future models.

c Refer to Appendix D Attachment 2-5 CalSim II Model Delivery Specifications for contract specific details

d Refer to Appendix D Attachment 2-5 CalSim II Model Delivery Specifications for contract specific details

e Assumptions regarding American River water rights and CVP contracts with the Sacramento River Water Reliability Project are documented in the Delivery Specifications attachments. The Sacramento Area Water Forum agreement, its dry year diversion reductions, Middle Fork Project operations and water is not included. Refer to Appendix D Attachment 2-5 CalSim II Model Delivery Specifications for contract specific details

f The CALSIM II representation of the San Joaquin River reflects the difficulties on-going groundwater overdraft problems. The 2030 level of development representation of the San Joaquin River Basin does not make any attempt to offer solutions to groundwater overdraft problems. In addition a dynamic groundwater simulation is not yet developed for the San Joaquin River Valley. Groundwater extraction/ recharge and stream-groundwater interaction are static assumptions and may not accurately reflect a response to simulated actions. These limitations should be considered in the analysis of results.

g The actual amount diverted is operated is conjunction with supplies from the Los Vaqueros project. The existing Los Vaqueros storage capacity is 160 TAF. Associated water rights to fill Los Vaqueros with Delta excess flows are included, but CCWD's water right permit and water right license on Mallard Slough are not included.

h It is assumed that SWP Contractors can take delivery of all Table A allocations and Article 21 supplies. Article 56 provisions are assumed and allow for SWP Contractors to manage storage and delivery conditions such that full Table A allocations can be delivered. Detailed analysis of the South Coast and Tulare regions support these assumptions. NBA Article 21 deliveries are dependent on excess conditions only, all other Article 21 deliveries also require that San Luis Reservoir be at capacity and that Banks PP and the California Aqueduct has available capacity to divert from the Delta for direct delivery.

i PCWA American River pumping facility upstream of Folsom Lake is included.

j Mokelumne River flows are modified to reflect modified operations associated with EBMUD supplies from the Freeport Regional Water Project.

k Current ACOE permit for Banks PP allows for an average diversion rate of 6,680 cfs in all months. Diversion rate can increase up to 1/3 of the rate of San Joaquin River flow at Vernalis during Dec 15 – Mar 15 up to a maximum diversion of 10,300 cfs, if Vernalis flow exceeds 1,000 cfs.

l Delta actions, under USFWS discretionary use of CVPIA 3406(b)(2) allocations, are no longer dynamically operated and accounted for in the CALSIM II model. The Combined Old and Middle River Flow and Delta Export restrictions under the USFWS BO (Dec 15, 2008) and the NMFS BO (June 4, 2009) severely limit any discretion that would have been otherwise assumed in selecting Delta actions under the CVPIA 3406(b)(2) accounting criteria. Therefore, it is anticipated that CVPIA 3406(b)(2) account availability for upstream river flows below Whiskeytown, Keswick and Nimbus Dams would be very limited. The future of these operations is uncertain. For these baseline simulations, upstream flows on the Clear Creek and Sacramento River are pre-determined based on CVPIA 3406(b)(2) based operations from the Aug 2008 BA Study 7.0 and Study 8.0 for Existing and Future Conditions respectively. The procedures for dynamic operation and accounting of CVPIA 3406(b)(2) are not included in the CALSIM II model.

m D-1644 and the Lower Yuba River Accord is assumed to be implemented . The Yuba River is not dynamically modeled in CALSIM II. Yuba River hydrology and availability of water acquisitions under the Lower Yuba River Accord are based on modeling performed and the Lower Yuba River Accord EIS/EIR study team.

n In cooperation with Reclamation, National Marine Fisheries Service, Fish and Wildlife Service, and Ca Department of Fish and Game, the Ca Department of Water Resources has developed assumptions for implementation of the USFWS BO (Dec 15, 2008) and NMFS BO (June 4, 2009) in CALSIM II. The USFWS BO and NMFS BO assumptions are documented in the Appendix 5A of the LTO EIS (Reclamation 2015b).

# Attachment 2-3 DSM2 Model Assumptions Callouts

## 1 Introduction

The assumptions for all Reclamation ROC on LTO model simulations are summarized in Appendix F Attachment 2-1, *Model Assumptions*.

## 2 DSM2 Modeling Assumptions Callouts

The following matrix summarizes the assumptions used for the DSM2 models:

- No Action Alternative 011319 (NAA)
- Alternative 1 011519 (ALT1)
- Alternative 2 021719 (ALT2)
- Alternative 3 021719 (ALT3)
- Alternative 4 043019 (ALT4)

| | **No Action Alternative (NAA)** | **Alternative 1 (ALT1)** | **Alternative 2 (ALT2)** | **Alternative 3 (ALT3)** | **Alternative 4 (ALT4)** |
|---|---|---|---|---|---|
| Period of simulation | 82 years (1922–2003)[a] | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| BOUNDARY CONDITIONS | | | | | |
| Boundary flows | Monthly time series from CalSim II output (alternatives provide different flows and exports)[b] | Monthly time series from CalSim II output (alternatives provide different flows and exports)[b] | Monthly time series from CalSim II output (alternatives provide different flows and exports)[b] | Monthly time series from CalSim II output (alternatives provide different flows and exports)[b] | Monthly time series from CalSim II output (alternatives provide different flows and exports)[b] |
| Ag flows (DICU) | 2020 Level, DWR Bulletin 160-98[c] | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Martinez stage | 15-minute adjusted astronomical tide with 15 cm sea-level rise[a] | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Vernalis EC | Monthly time series from CalSim II output[d] | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Agricultural Return EC | Municipal Water Quality Investigation Program analysis | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Martinez EC | Monthly net Delta Outflow from CalSim output & G-model[e] | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| FACILITIES | | | | | |
| Freeport Regional Water Project | Monthly output from CalSim II | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Delta Cross Channel | Monthly time series of number of days open from CalSim II output | Monthly time series of number of days open from CalSim II output | Monthly time series of number of days open from CalSim II output | Monthly time series of number of days open from CalSim II output | Monthly time series of number of days open from CalSim II output |
| Stockton Delta Water Supply Project | Monthly output from CalSim II | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Delta Habitat Improvements | None | None | None | 25,000 acres[i] | None |
| Franks Tract Program | None | None | None | None | None |

| | **No Action Alternative (NAA)** | **Alternative 1 (ALT1)** | **Alternative 2 (ALT2)** | **Alternative 3 (ALT3)** | **Alternative 4 (ALT4)** |
|---|---|---|---|---|---|
| Veale Tract Drainage Relocation | The Veale Tract Water Quality Improvement Project, funded by CALFED, relocates the agricultural drainage outlet from Rock Slough channel to the southern end of Veale Tract, on Indian Slough[h] | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Clifton Court Forebay | Priority 3, gate operations synchronized with incoming tide to minimize impacts to low water levels in nearby channels | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Contra Costa Water District Delta Intakes | Rock Slough Pumping Plant, Old River at Highway 4 Intake and Alternate Improvement Project Intake on Victoria Canal | Same as NAA | Same as NAA | Same as NAA | Same as NAA |

| | **No Action Alternative (NAA)** | **Alternative 1 (ALT1)** | **Alternative 2 (ALT2)** | **Alternative 3 (ALT3)** | **Alternative 4 (ALT4)** |
|---|---|---|---|---|---|
| South Delta Barriers | Temporary Barriers Project operated based on San Joaquin River flow time series from CalSim II output; HORB installed[h] Sep 16 – Nov 30; agricultural barriers on Old and Middle Rivers are assumed to be installed starting from May 16 and on Grant Line Canal from June 1; all three barriers are allowed to be operated until November 30; May 16 – May 31, the tidal gates are assumed to be tied open for the barriers on Old and Middle Rivers[g]. | Temporary Barriers Project operated based on San Joaquin River flow time series from CalSim II output; HORB is not installed; agricultural barriers on Old and Middle Rivers are assumed to be installed starting from May 16 and on Grant Line Canal from June 1; all three barriers are allowed to be operated until November 30; May 16 – May 31, the tidal gates are assumed to be tied open for the barriers on Old and Middle Rivers[g]. | Temporary Barriers Project operated based on San Joaquin River flow time series from CalSim II output; HORB installed Apr 16 – May 15 and Sep 16 – Nov 30; agricultural barriers on Old and Middle Rivers are assumed to be installed starting from May 16 and on Grant Line Canal from June 1; all three barriers are allowed to be operated until November 30; May 16 – May 31, the tidal gates are assumed to be tied open for the barriers on Old and Middle Rivers[g]. | Same as ALT2 | Same as NAA |
| Antioch Water Works | Monthly output from CalSim II | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Montezuma Slough Salinity Control Gates | Gate operations occur in October – February. Gates open when upstream water level is 0.3 ft above downstream water level. Gates close when current is less than -0.1 fps. Gates are open in March – September. | Model representation same as NAA. Gate operations occur in October – February, and June – September. Gates open when upstream water level is 0.3 ft above downstream water level. Gates close when current is less than -0.1 fps. Gates are open in March – May. | Same as NAA | Same as NAA | Same as NAA |

[a] A new adjusted astronomical tide for use in DSM2 planning studies has been developed by the California Department of Water Resources (DWR) Bay Delta Office Modeling Support Branch Delta Modeling Section in cooperation with the Common Assumptions workgroup. This tide is based on a more extensive observed dataset and covers the entire 82-year period of record. Martinez stage boundary condition is augmented by 15 cm based on equations used for Bay-Delta Conservation Plan to simulate expected sea-level rise in 2030.

[b] Although monthly CalSim output was used as the DSM2-HYDRO input, the Sacramento and San Joaquin Rivers were interpolated to daily values in order to smooth the transition from high to low and low to high flows. DSM2 then uses the daily flow values along with a 15-minute adjusted astronomical tide to simulate effect of the spring and neap tides.

[c] The Delta Island Consumptive Use (DICU) model is used to calculate diversions and return flows for all Delta islands based on the level of development assumed. The projected 2020 land-use assumptions are found in Bulletin 160-98.

[d] CalSim II calculates monthly electrical conductivity (EC) for the San Joaquin River, which was then converted to daily EC using the monthly EC and flow for the San Joaquin River. Fixed concentrations of 150, 175, and 125 µmhos/cm were assumed for the Sacramento River, Yolo Bypass, and eastside streams, respectively.

[e] Net Delta outflow based on the CalSim II flows was used with an updated G-model to calculate Martinez EC. Under changed climate conditions, Martinez EC is modified to account for the sea-level rise at early (15 cm) and late (45 cm) long-term phases (Year 2060).

[f] Information was obtained based on the information from the draft final *Delta Region Drinking Water Quality Management Plan* dated June 2005, prepared under the CALFED Water Quality Program, and a presentation by David Briggs at SWRCB public workshop for periodic review. The presentation "Compliance location at Contra Costa Canal at Pumping Plant #1 – Addressing Local Degradation" notes that the Veale Tract drainage relocation project will be operational in June 2005. The DICU drainage currently simulated at node 204 is moved to node 202 in DSM2.

[g] Based on the USFWS Delta Smelt BO Action 5 and the project description provided in the page 119.

[h] Based on the USFWS Delta Smelt BO Action 5, Head of Old River Barrier (HORB) is assumed to be not installed in April or May; therefore HORB is only installed in the Fall as shown.

[i] Based on tidal marsh restoration analysis conducted in Appendix 5A Section D Attachment 2 in the *Bay Delta Conservation Plan Final EIR-EIS*: Numerical Modeling in Support of Bay Delta Conservation Plan Technical Study #4 – Evaluation of Tidal Marsh Restoration Effects.

# Attachment 2-4 HEC5Q and Reclamation Temperature Model Assumptions Callouts

## 1 Introduction

The assumptions for all Reclamation ROC on LTO model simulations are summarized in Appendix F Attachment 2-1, *Model Assumptions*.

## 2 HEC5Q and Reclamation Temperature Modeling Assumptions Callouts

The following matrix summarizes the assumptions used for the HEC5Q and Reclamation Temperature Models:

- No Action Alternative 011319 (NAA)
- Alternative 1 011519 (ALT1)
- Alternative 2 021719 (ALT2)
- Alternative 3 021719 (ALT3)
- Alternative 3 043019 (ALT4)

| | **No Action Alternative (NAA)** | **Alternative 1 (ALT 1)** | **Alternative 2 (ALT 2)** | **Alternative 3 (ALT 3)** | **Alternative 4 (ALT 4)** |
|---|---|---|---|---|---|
| Period of simulation | 82 years (1922–2003) | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Climate | ELT Q5 | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Boundary flows and storages | Monthly timeseries (from CalSim II output). | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Trinity Lake | Monthly time series (from CalSim II output). Limited to physical specifications of reservoir. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Lewistown Lake | Monthly time series (from CalSim II output). Limited to physical specifications of reservoir. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Whiskeytown Lake | Monthly time series (from CalSim II output). Limited to physical specifications of reservoir. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Shasta Lake | Monthly time series (from CalSim II output). Limited to physical specifications of reservoir. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Keswick Reservoir | Monthly time series (from CalSim II output). Limited to physical specifications of reservoir. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Black Butte Lake | Monthly time series (from CalSim II output). Limited to physical specifications of reservoir. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Shasta Temperature Management | Similar to 2009 NMFS BO Appendix B (see 2015 LTO for details). | Updated temperature schedules to match temperature strategy drafted in BA. | Same as NAA | Same as NAA | Same as ALT 1 |
| Trinity Temperature Management | Releases allowed from lower, auxiliary outlet when normal outlet release are too warm. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Lake Oroville | Monthly time series (from CalSim II output). Limited to physical specifications of reservoir. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Thermalito Afterbay | Monthly time series (from CalSim II output). Limited to physical specifications of reservoir. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |

| | **No Action Alternative (NAA)** | **Alternative 1 (ALT 1)** | **Alternative 2 (ALT 2)** | **Alternative 3 (ALT 3)** | **Alternative 4 (ALT 4)** |
|---|---|---|---|---|---|
| Folsom Lake | Monthly time series (from CalSim II output). Limited to physical specifications of reservoir. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Lake Natoma | Monthly time series (from CalSim II output). Limited to physical specifications of reservoir. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Folsom Temperature Management | Similar to 2009 NMFS BO Appendix B (see 2015 LTO for details). | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| New Melones Lake | Monthly time series (from CalSim II output). Limited to physical specifications of reservoir. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Lake Tulloch | Monthly time series (from CalSim II output). Limited to physical specifications of reservoir. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |
| Goodwin Reservoir | Monthly time series (from CalSim II output). Limited to physical specifications of reservoir. | Same as NAA | Same as NAA | Same as NAA | Same as NAA |

# Attachment 2-5 CalSim II Model Delivery Specifications

## 1 Introduction

The assumptions for all Reclamation ROC on LTO model simulations are summarized in Appendix F Attachment 2-1, *Model Assumptions*. This compilation of delivery specifications for the CalSim II model provides additional detail in support of Attachment 2-1.

## 2 Delivery Specifications

The delivery specifications for the CalSim II model include Central Valley Project (CVP) and State Water Project (SWP) contract amounts and other water rights assumptions used. These specifications are detailed in the following tables:

- Tables 1a through 1d. CVP North-of-the-Delta – Future Conditions
- Tables 2a and 2b. CVP American River – Future Conditions
- Table 3. CVP Delta – Future Conditions
- Tables 4a through 4e. CVP South-of-the-Delta – Future Conditions
- Table 5. SWP North-of-the-Delta – Future Conditions
- Tables 6a and 6b. SWP South-of-the-Delta – Future Conditions

**Table 1a. CVP North-of-the-Delta - Future Conditions**

| CVP Contractor | Geographic Location | CVP Water Service Contracts (TAF/yr) | | Settlement / Exchange Contractor (TAF/yr) | Water Rights/ Non-CVP (TAF/yr) | Level 2 Refuges[1] (TAF/yr) |
|---|---|---|---|---|---|---|
| | | AG | M&I | | | |
| Anderson Cottonwood ID | Sacramento River Redding Subbasin | | | 128.0 | | |
| Clear Creek CSD | | 13.8 | 1.5 | | | |
| Bella Vista WD | | 22.1 | 2.4 | | | |
| Shasta CSD | | | 1.0 | | | |
| Sac R. Misc. Users | | | | 3.4 | | |
| Redding, City of | | | | 21.0 | | |
| City of Shasta Lake | | 2.5 | 0.3 | | | |
| Mountain Gate CSD | | | 0.4 | | | |
| Shasta County Water Agency | | 0.5 | 0.5 | | | |
| Redding, City of/Buckeye | | | 6.1 | | | |
| **Total** | | **38.9** | **12.2** | **152.4** | | **0.0** |
| Corning WD | Corning Canal | 23.0 | | | | |
| Proberta WD | | 3.5 | | | | |
| Thomes Creek WD | | 6.4 | | | | |
| **Total** | | **32.9** | **0.0** | **0.0** | | **0.0** |

**Table 1b. CVP North-of-the-Delta - Future Conditions**

| CVP Contractor | Geographic Location | CVP Water Service Contracts (TAF/yr) | | Settlement / Exchange Contractor (TAF/yr) | Water Rights/ Non-CVP (TAF/yr) | Level 2 Refuges[1] (TAF/yr) |
|---|---|---|---|---|---|---|
| | | AG | M&I | | | |
| Kirkwood WD | Tehama-Colusa Canal | 2.1 | | | | |
| Glide WD | | 10.5 | | | | |
| Kanawha WD | | 45.0 | | | | |
| Orland-Artois WD | | 53.0 | | | | |
| Colusa, County of | | 20.0 | | | | |
| Colusa County WD | | 62.2 | | | | |
| Davis WD | | 4.0 | | | | |
| Dunnigan WD | | 19.0 | | | | |
| La Grande WD | | 5.0 | | | | |
| Westside WD | | 65.0 | | | | |
| Total | | 285.8 | 0.0 | 0.0 | | 0.0 |
| Sac. R. Misc. Users[2] | Sacramento River | | | 1.5 | | |
| Glenn Colusa ID | Glenn-Colusa Canal | | | 441.5 | | |
| | | | | 383.5 | | |
| Sacramento NWR | | | | | | 54.5 |
| Delevan NWR | | | | | | 24.6 |
| Colusa NWR | | | | | | 29.3 |
| Colusa Drain MWC | Colusa Basin Drain | | | 7.7 | | |
| | | | | 62.3 | | |
| Total | | 0.0 | 0.0 | 895.0 | | 108.4 |

**Table 1c. CVP North-of-the-Delta - Future Conditions**

| CVP Contractor | Geographic Location | CVP Water Service Contracts (TAF/yr) | | Settlement / Exchange Contractor (TAF/yr) | Water Rights/ Non-CVP (TAF/yr) | Level 2 Refuges[1] (TAF/yr) |
|---|---|---|---|---|---|---|
| | | AG | M&I | | | |
| Princeton-Cordova-Glenn ID | Sacramento River | | | 67.8 | | |
| Provident ID | | | | 54.7 | | |
| Maxwell ID | | | | 1.8 | | |
| | | | | 16.2 | | |
| Sycamore Family Trust | | | | 31.8 | | |
| Roberts Ditch IC | | | | 4.4 | | |
| Sacramento River Misc. Users[2] | | | | 4.9 | | |
| | | | | 9.5 | | |
| Total | | 0.0 | 0.0 | 191.2 | | 0.0 |
| Reclamation District 108 | | | | 12.9 | | |
| | | | | 219.1 | | |
| River Garden Farms | | | | 29.8 | | |
| Meridian Farms WC | | | | 35.0 | | |
| Pelger Mutual WC | | | | 8.9 | | |
| Reclamation District 1004 | | | | 71.4 | | |
| Carter MWC | | | | 4.7 | | |
| Sutter MWC | | | | 226.0 | | |
| Tisdale Irrigation & Drainage Co. | | | | 9.9 | | |
| Sacramento River Misc. Users[2] | | | | 103.4 | | |
| | | | | 0.9 | | |
| Feather River WD export | | 20.0 | | | | |
| Total | | 20.0 | 0.0 | 722.1 | | 0.0 |

**Table 1d. CVP North-of-the-Delta - Future Conditions**

| CVP Contractor | Geographic Location | CVP Water Service Contracts (TAF/yr) | | Settlement / Exchange Contractor (TAF/yr) | Water Rights/ Non-CVP (TAF/yr) | Level 2 Refuges[1] (TAF/yr) |
|---|---|---|---|---|---|---|
| | | AG | M&I | | | |
| Sutter NWR | Sutter bypass water for Sutter NWR | | | | | 25.7 |
| Gray Lodge WMA | Feather River | | | | | 41.3 |
| Butte Sink Duck Clubs | | | | | | 15.6 |
| Total | | 0.0 | 0.0 | 0.0 | | 82.6 |
| Sac. R. Misc. Users[2] | Sacramento River DSA 65 | | | 56.8 | | |
| City of West Sacramento | | | | 23.6 | | |
| Davis-Woodland Water Supply Project | | | | | | |
| Total | | 0.0 | 0.0 | 80.4 | | 0.0 |
| Sac R. Misc. Users | Lower Sacramento River | | | 4.8 | | |
| Natomas Central MWC | | | | 120.2 | | |
| Pleasant Grove-Verona MWC | | | | 26.3 | | |
| City of Sacramento (PCWA) | | | 0.0 | | 0.0 | |
| PCWA (Water Rights) | | | 0.0 | | 0.0 | |
| Total | | 0.0 | 0.0 | 151.3 | 0.0 | |
| Total CVP North-of-Delta | | 377.6 | 12.2 | 2193.8 | 0.0 | 191.0 |

[1] Incremental Level 4 Refuge water needs are part of the proposed action but are not included in the CalSim II model Incremental Level 4 water supplies are delivered from various water sources that may change over time, and are therefore difficult to model.

**Table 2a American River – Future Conditions**

| | Diversion Location | CVP M&I[1] Contracts (maximum[1]) | Water Rights (maximum) | Diversion Limit (maximum capacity) |
|---|---|---|---|---|
| Placer County Water Agency | Auburn Dam Site | | 65.0 | 65.0 |
| Total | | 0 | 65.0 | 65.0 |
| Sacramento Suburban Water District[2] | Folsom Reservoir | | 0 | 0 |
| City of Folsom - includes P.L. 101-514 | | 7 | 27 | 34 |
| Folsom Prison | | | 5 | 5 |
| San Juan Water District (Placer County) | | | 25 | 25 |
| San Juan Water District (Sac County) - includes P.L. 101-514 | | 24.2 | 33 | 57.2 |
| El Dorado Irrigation District | | 7.55 | 17 | 24.55 |
| City of Roseville | | 32 | 30 | 62.0 |
| Placer County Water Agency | | 35 | | 35 |
| El Dorado County - P.L.101-514 | | 15 | | 15 |
| Total | | 120.75 | 137.0 | 257.75 |
| So. Cal WC/Arden Cordova WC | Folsom South Canal | | 5 | 5 |
| California Parks and Recreation | | 5 | | 5 |
| SMUD | | 30 | 15 | 45 |
| Canal Losses | | | 1 | 1 |
| Total | | 35 | 21 | 56 |
| City of Sacramento[3] | Lower American River | | 230 | 230 |
| Carmichael Water District | | | 12 | 12 |
| Total | | 0 | 242 | 242 |
| Total American River Diversions | | 155.75 | 465 | 620.75 |

**Table 2b American River – Future Conditions**

| | Diversion Location | CVP M&I[1] Contracts (maximum[1]) | Water Rights (maximum) | Diversion Limit (maximum capacity) |
|---|---|---|---|---|
| Sacramento River Diversions | | | | |
| City of Sacramento | Lower Sacramento River | | 81.8 | 81.8 |
| Sacramento County Water Agency | | 10 | | 10 |
| Sacramento County Water Agency - P.L. 101-514 / FRWP | | 35 | | 35 |
| Sacramento County Water Agency - water rights and acquisitions | | | varies[4], average ~32 | varies[4], average ~32 |
| East Bay Municipal Utilities District | | 133 | | varies[5], average 14.6 |
| Total Sacramento River Diversions | | 178 | 113.8 | 173.4 |
| Total | | 333.75 | 578.8 | 794.15 |

[1] When the CVP Contract quantity exceeds the quantity of the Diversion Limit minus the Water Right (if any), the diversion modeled is the quantity allocated to the CVP Contract (based on the CVP contract quantity shown times the CVP M&I allocation percentage) plus the Water Right (if any), but with the sum limited to the quantity of the Diversion Limit.

[2] Diversion is only allowed if and when Mar–Nov Folsom Unimpaired Inflow (FUI) exceeds 1600 TAF.

[3] When the Hodge single dry year criteria is triggered, Mar–Nov FUI falls below 400 TAF, diversion on the American River is limited to 50 TAF/yr; based on monthly Hodge flow limits assumed for the American, diversion on the Sacramento River may be increased to 223 TAF due to reductions of diversions on American River.

[4] SCWA targets 68 TAF of surface water supplies annually. The portion unmet by CVP contract water is assumed to come from two sources:
(1) Delta "excess" water- averages 17.5 TAF annually, but varies according to availability. SCWA is assumed to divert excess flow when it is available, and when there is available pumping capacity.
(2) "Other" water- derived from transfers and/or other appropriated water, averaging 14.5 TAF annually but varying according remaining unmet demand.

[5] EBMUD CVP diversions are governed by the Amendatory Contract, stipulating:
(1) 133 TAF maximum diversion in any given year
(2) 165 TAF maximum diversion amount over any 3 year period
(3) Diversions allowed only when EBMUD total storage drops below 500 TAF
(4) 155 cfs maximum diversion rate

**Table 3. Delta - Future Conditions**

| CVP/ SWP Contractor | Geographic Location | Water Right (TAF/yr) | SWP Table A Amount (TAF) | | SWP Article 21 Demand (TAF/mon) | CVP Water Service Contracts (TAF/yr) | |
|---|---|---|---|---|---|---|---|
| | | | Ag | M&I | | AG | M&I |
| **North Delta** | | | | | | | |
| City of Vallejo | City of Vallejo | | | | | | 16.0 |
| CCWD[1] | Contra Costa County | | | | | | 195.0 |
| Napa County FC&WCD | North Bay Aqueduct | | | 29.03 | 1.0 | | |
| Solano County WA | North Bay Aqueduct | | | 47.76 | 1.0 | | |
| Fairfield, Vacaville and Benicia Agreement | North Bay Aqueduct | 31.60 | | | | | |
| City of Antioch | City of Antioch | 18.0 | | | | | |
| **Total North Delta** | | **49.6** | **0.0** | **76.79** | **2.0** | **0.0** | **211.0** |
| **South Delta** | | | | | | | |
| Delta Water Supply Project | City of Stockton | 32.4 | | | | | |
| **Total South Delta** | | **32.4** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| **Total** | | **82.0** | **0.0** | **76.79** | **2.0** | **0.0** | **211.0** |

[1] The Los Vaqueros module in CalSim II is used to determine the range of demands that are met by CVP contracts or other water rights.

**Table 4a. CVP South-of-the-Delta - Future Conditions**

| CVP Contractor | Geographic Location | CVP Water Service Contracts (TAF/yr) | | Settlement/ Exchange Contractor (TAF/yr) | Water Rights/ Non-CVP (TAF/yr) | Level 2 Refuges[1] (TAF/yr) | Losses (TAF/yr) |
|---|---|---|---|---|---|---|---|
| | | AG | M&I | | | | |
| Byron-Bethany ID | Upper DMC | 20.6 | | | | | |
| Tracy, City of | | | 10.0 | | | | |
| | | | 5.0 | | | | |
| | | | 5.0 | | | | |
| Banta Carbona ID | | 20.0 | | | | | |
| **Total** | | **40.6** | **20.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| Del Puerto WD | Upper DMC | 12.1 | | | | | |
| Davis WD | | 5.4 | | | | | |
| Foothill WD | | 10.8 | | | | | |
| Hospital WD | | 34.1 | | | | | |
| Kern Canon WD | | 7.7 | | | | | |
| Mustang WD | | 14.7 | | | | | |
| Orestimba WD | | 15.9 | | | | | |
| Quinto WD | | 8.6 | | | | | |
| Romero WD | | 5.2 | | | | | |
| Salado WD | | 9.1 | | | | | |
| Sunflower WD | | 16.6 | | | | | |
| West Stanislaus WD | | 50.0 | | | | | |
| Patterson WD | | 16.5 | | | 6.0 | | |
| **Total** | | **206.7** | **0.0** | **0.0** | **6.0** | **0.0** | **0.0** |

**Table 4b. CVP South-of-the-Delta - Future Conditions**

| CVP Contractor | Geographic Location | CVP Water Service Contracts (TAF/yr) | | Settlement/ Exchange Contractor (TAF/yr) | Water Rights/ Non-CVP (TAF/yr) | Level 2 Refuges[1] (TAF/yr) | Losses (TAF/yr) |
|---|---|---|---|---|---|---|---|
| | | AG | M&I | | | | |
| Upper DMC Loss | Upper DMC | | | | | | 18.5 |
| Panoche WD | Lower DMC Volta | 6.6 | | | | | |
| San Luis WD | | 65.0 | | | | | |
| Laguna WD | | 0.8 | | | | | |
| Eagle Field WD | | 4.6 | | | | | |
| Mercy Springs WD | | 2.8 | | | | | |
| Oro Loma WD | | 4.6 | | | | | |
| Total | | 84.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Central California ID | Lower DMC Volta | | | 140.0 | | | |
| Grasslands via CCID | | | | | | 81.8 | |
| Los Banos WMA | | | | | | 11.2 | |
| Kesterson NWR | | | | | | 10.5 | |
| Freitas - SJBAP | | | | | | 6.3 | |
| Salt Slough - SJBAP | | | | | | 8.6 | |
| China Island - SJBAP | | | | | | 7.0 | |
| Volta WMA | | | | | | 13.0 | |
| Grassland via Volta Wasteway | | | | | | 23.2 | |
| Total | | 0.0 | 0.0 | 140.0 | 0.0 | 161.5 | 0.0 |

**Table 4c. CVP South-of-the-Delta - Future Conditions**

| CVP Contractor | Geographic Location | CVP Water Service Contracts (TAF/yr) | | Settlement/ Exchange Contractor (TAF/yr) | Water Rights/ Non-CVP (TAF/yr) | Level 2 Refuges[1] (TAF/yr) | Losses (TAF/yr) |
|---|---|---|---|---|---|---|---|
| | | AG | M&I | | | | |
| Fresno Slough WD | San Joaquin River at Mendota Pool | 4.0 | | | 0.9 | | |
| James ID | | 35.3 | | | 9.7 | | |
| Coelho Family Trust | | 2.1 | | | 1.3 | | |
| Tranquillity ID | | 13.8 | | | 20.2 | | |
| Tranquillity PUD | | 0.1 | | | 0.1 | | |
| Reclamation District 1606 | | 0.2 | | | 0.3 | | |
| Central California ID | | | | 392.4 | | | |
| Columbia Canal Co. | | | | 59.0 | | | |
| Firebaugh Canal Co. | | | | 85.0 | | | |
| San Luis Canal Co. | | | | 23.6 | | | |
| M.L. Dudley Company | | | | | 2.3 | | |
| Grasslands WD | | | | | | 29.0 | |
| Mendota WMA | | | | | | 27.6 | |
| Losses | | | | | | | 101.5 |
| Total | | 55.5 | 0.0 | 560.0 | 34.8 | 56.6 | 101.5 |
| San Luis Canal Co. | | | | 140.0 | | | |
| Grasslands WD | | | | | | 2.3 | |
| Los Banos WMA | | | | | | 12.4 | |
| San Luis NWR | | | | | | 19.5 | |
| West Bear Creek NWR | | | | | | 7.5 | |
| East Bear Creek NWR | | | | | | 8.9 | |
| Total | | 0.0 | 0.0 | 140.0 | 0.0 | 50.6 | 0.0 |

**Table 4d. CVP South-of-the-Delta - Future Conditions**

| CVP Contractor | Geographic Location | CVP Water Service Contracts (TAF/yr) | | Settlement/ Exchange Contractor (TAF/yr) | Water Rights/ Non-CVP (TAF/yr) | Level 2 Refuges[1] (TAF/yr) | Losses (TAF/yr) |
|---|---|---|---|---|---|---|---|
| | | AG | M&I | | | | |
| San Benito County WD (Ag) | San Felipe Aqueduct | 35.6 | | | | | |
| Santa Clara Valley WD (Ag) | | 33.1 | | | | | |
| Pajaro Valley WD | | 6.3 | | | | | |
| San Benito County WD (M&I) | | | 8.3 | | | | |
| Santa Clara Valley WD (M&I) | | | 119.4 | | | | |
| Total | | 74.9 | 127.7 | 0.0 | 0.0 | 0.0 | 0.0 |
| San Luis WD | CA reach 3 | 60.1 | | | | | |
| CA, State Parks and Rec | | 2.3 | | | | | |
| Affonso/Los Banos Gravel Co. | | 0.3 | | | | | |
| Total | | 62.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Panoche WD | CVP Dos Amigos PP/ CA reach 4 | 87.4 | | | | | |
| Pacheco WD | | 10.1 | | | | | |
| Total | | 97.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Westlands WD (Centinella) | CA reach 4 | 2.5 | | | | | |
| Westlands WD (Broadview WD) | | 27.0 | | | | | |
| Westlands WD (Mercy Springs WD) | | 4.2 | | | | | |
| Westlands WD (Widern WD) | | 3.0 | | | | | |
| Total | | 36.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Westlands WD: CA Joint Reach 4 | CA reach 4 | 219.0 | | | | | |
| Westlands WD: CA Joint Reach 5 | CA reach 5 | 570.0 | | | | | |
| Westlands WD: CA Joint Reach 6 | CA reach 6 | 219.0 | | | | | |
| Westlands WD: CA Joint Reach 7 | CA reach 7 | 142.0 | | | | | |
| Total | | 1150.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

**Table 4e. CVP South-of-the-Delta - Future Conditions**

| CVP Contractor | Geographic Location | CVP Water Service Contracts (TAF/yr) | | Settlement/ Exchange Contractor (TAF/yr) | Water Rights/ Non-CVP (TAF/yr) | Level 2 Refuges[1] (TAF/yr) | Losses (TAF/yr) |
|---|---|---|---|---|---|---|---|
| | | AG | M&I | | | | |
| Avenal, City of | CA reach 7 | | 3.5 | | 3.5 | | |
| Coalinga, City of | | | 10.0 | | | | |
| Huron, City of | | | 3.0 | | | | |
| Total | | 0.0 | 16.5 | 0.0 | 3.5 | 0.0 | 0.0 |
| CA Joint Reach 3 - Loss | CVP Dos Amigos PP/CA reach 3 | | | | | | 2.5 |
| CA Joint Reach 4 - Loss | CA reach 4 | | | | | | 10.1 |
| CA Joint Reach 5 - Loss | CA reach 5 | | | | | | 30.1 |
| CA Joint Reach 6 - Loss | CA reach 6 | | | | | | 12.5 |
| CA Joint Reach 7 - Loss | CA reach 7 | | | | | | 8.5 |
| Total | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 63.7 |
| Cross Valley Canal - CVP | CA reach 14 | | | | | | |
| Fresno, County of | | 3.0 | | | | | |
| Hills Valley ID-Amendatory | | 3.3 | | | | | |
| Kern-Tulare WD | | 40.0 | | | | | |
| Lower Tule River ID | | 31.1 | | | | | |
| Pixley ID | | 31.1 | | | | | |
| Rag Gulch WD | | 13.3 | | | | | |
| Tri-Valley WD | | 1.1 | | | | | |
| Tulare, County of | | 5.3 | | | | | |
| Kern NWR | | | | | | 11.0 | |
| Pixley NWR | | | | | | 1.3 | |
| Total | | 128.3 | 0.0 | 0.0 | 0.0 | 12.3 | 0.0 |
| Total CVP South-of-Delta | | 1937.1 | 164.2 | 840.0 | 44.3 | 281.0 | 183.7 |

1. Incremental Level 4 Refuge water needs are part of the proposed action but are not included in the CalSim II model Incremental Level 4 water supplies are delivered from various water sources that may change over time, and are therefore difficult to model.

**Table 5. SWP North-of-the-Delta - Future Conditions**

| SWP CONTRACTOR | Geographic Location | FRSA Amount (TAF) | Water Right (TAF/yr) | Table A Amount (TAF) | | Article 21 Demand (TAF/mon) | Other (TAF/yr) |
|---|---|---|---|---|---|---|---|
| | | | | Ag | M&I | | |
| **Feather River** | | | | | | | |
| Palermo | FRSA | | 17.6 | | | | |
| County of Butte | Feather River | | | | 27.5 | | |
| Thermalito | FRSA | | 8.0 | | | | |
| Western Canal | FRSA | 150.0 | 145.0 | | | | |
| Joint Board | FRSA | 550.0 | 5.0 | | | | |
| City of Yuba City | Feather River | | | | 9.6 | | |
| Feather WD | FRSA | 17.0 | | | | | |
| Garden, Oswald, Joint Board | FRSA | | | | | | |
| Garden | FRSA | 12.9 | 5.1 | | | | |
| Oswald | FRSA | 2.9 | | | | | |
| Joint Board | FRSA | 50.0 | | | | | |
| Plumas, Tudor | FRSA | | | | | | |
| Plumas | FRSA | 8.0 | 6.0 | | | | |
| Tudor | FRSA | 5.1 | 0.2 | | | | |
| **Total Feather River Area** | | **795.8** | **186.9** | **0.0** | **37.1** | | |
| **Other** | | | | | | | |
| Yuba County Water Agency | Yuba River | | | | | | Variable |
| | | | | | | | 333.6 |
| Camp Far West ID | Yuba River | | | | | | 12.6 |
| Bear River Exports | American R/DSA70 | | | | | | Variable |
| | | | | | | | 95.2 |
| Feather River Exports to American River (left bank to DSA70) | American R/DSA70 | | 11.0 | | | | |

**Table 6a. SWP South-of-the-Delta –Future Conditions**

| SWP Contractor | Geographic Location | Table A Amount (TAF) | | Article 21 Demand (TAF/mon) | Losses (TAF/yr) |
|---|---|---|---|---|---|
| | | Ag | M&I | | |
| Alameda Co. FC&WCD, Zone 7 | SBA reaches 1-4 | | 43.98 | 1.00 | |
| | SBA reaches 5-6 | | 36.64 | None | |
| | **Total** | | **80.62** | **1.00** | |
| Alameda County WD | SBA reaches 7-8 | | 42.00 | 1.00 | |
| Santa Clara Valley WD | SBA reach 9 | | 100.00 | 4.00 | |
| Oak Flat WD | CA reach 2A | 5.70 | | None | |
| County of Kings | CA reach 8C | 9.31 | | None | |
| Dudley Ridge WD | CA reach 8D | 45.35 | | 1.00 | |
| Empire West Side ID | CA reach 8C | 3.00 | | 1.00 | |
| Kern County Water Agency | CA reaches 3, 9-13B | 608.86 | 134.60 | None | |
| | CA reaches 14A-C | 99.20 | | 180.00 | |
| | CA reaches 15A-16A | 59.40 | | None | |
| | CA reach 31A | 80.67 | | None | |
| | **Total** | **848.13** | **134.60** | **180.00** | |
| Tulare Lake Basin WSD | CA reaches 8C-8D | 87.47 | | 15.00 | |
| San Luis Obispo Co. FC&WCD | CA reaches 33A-35 | | 25.00 | None | |
| Santa Barbara Co. FC&WCD | CA reach 35 | | 45.49 | None | |
| Antelope Valley-East Kern WA | CA reaches 19-20B, 22A-B | | 144.84 | 1.00 | |
| Castaic Lake WA | CA reach 31A | 12.70 | | 1.00 | |
| | CA reach 30 | | 82.50 | None | |
| | **Total** | **12.70** | **82.50** | **1.00** | |
| Coachella Valley WD | CA reach 26A | | 138.35 | 2.00 | |
| Crestline-Lake Arrowhead WA | CA reach 24 | | 5.80 | None | |
| Desert WA | CA reach 26A | | 55.75 | 5.00 | |
| Littlerock Creek ID | CA reach 21 | | 2.30 | None | |
| Mojave WA | CA reaches 19, 22B-23 | | 85.80 | None | |

| SWP Contractor | Geographic Location | Table A Amount (TAF) | | Article 21 Demand (TAF/mon) | Losses (TAF/yr) |
|---|---|---|---|---|---|
| | | Ag | M&I | | |
| Metropolitan WDSC | CA reach 26A | | 148.67 | 90.70 | |
| | CA reach 30 | | 756.69 | 74.80 | |
| | CA reaches 28G-H | | 102.71 | 27.60 | |
| | CA reach 28J | | 903.43 | 6.90 | |
| | **Total** | | **1911.50** | **200.00** | |

**Table 6b. SWP South-of-the-Delta –Future Conditions**

| SWP Contractor | Geographic Location | Table A Amount (TAF) | | Article 21 Demand (TAF/mon) | Losses (TAF/yr) |
|---|---|---|---|---|---|
| | | Ag | M&I | | |
| Palmdale WD | CA reaches 20A-B | | 21.30 | None | |
| San Bernardino Valley MWD | CA reach 26A | | 102.60 | None | |
| San Gabriel Valley MWD | CA reach 26A | | 28.80 | None | |
| San Gorgonio Pass WA | CA reach 26A | | 17.30 | None | |
| Ventura County FCD | CA reach 29H | | 3.15 | None | |
| | CA reach 30 | | 16.85 | None | |
| | Total | | 20.00 | | |
| SWP Losses | CA reaches 1-2 | | | | 7.70 |
| | SBA reaches 1-9 | | | | 0.60 |
| | CA reach 3 | | | | 10.80 |
| | CA reach 4 | | | | 2.60 |
| | CA reach 5 | | | | 3.90 |
| | CA reach 6 | | | | 1.20 |
| | CA reach 7 | | | | 1.60 |
| | CA reaches 8C-13B | | | | 11.90 |
| | Wheeler Ridge PP and CA reaches 14A-C | | | | 3.60 |
| | Chrisman PP and CA reaches 15A-18A | | | | 1.80 |
| | Pearblossom PP and CA reaches 17-21 | | | | 5.10 |
| | Mojave PP and CA reaches 22A-23 | | | | 4.00 |
| | REC and CA reaches 24-28J | | | | 1.40 |
| | CA reaches 29A-29F | | | | 1.90 |
| | Castaic PWP and CA reach 29H | | | | 3.10 |
| | REC and CA reach 30 | | | | 2.40 |
| | Total | | | | 63.60 |
| Total | | 1011.66 | 3044.55 | 412.00 | 63.60 |

# Attachment 2-6 Winter-Run Chinook Temperature-Dependent Egg Mortality Modeling

## 1 Introduction

Operations of Shasta Dam's Temperature Control Device (TCD) are regulated with the goal of minimizing adverse effects on listed species, including Winter-Run Chinook Salmon (*Oncorhynchus tshawytscha*). Salmon lay eggs in nests called redds, which are composed of inundated gravel. The dissolved oxygen content of the water passing through the gravel substrate and sustaining the eggs is positively correlated with temperature; hot, hypoxic conditions result in egg mortality. This analysis attempts to isolate the thermal component of egg mortality from other components such as density-dependent mortality and redd dewatering.

Two egg mortality estimation methods were used in this analysis. Both start by modeling a redd's lifetime by counting the days required to cross a known cumulative degree-days threshold, and both estimate mortality as a linear, increasing function of temperature past a known temperature threshold, but each uses a different set of assumptions to implement this conceptual model. The methods are applied to a set of simulated redds and the results are summarized on a seasonal level for comparison of mortality outcomes between HEC5Q model runs.

### 1.1 Martin Model

Dr. Benjamin Martin and colleagues at the National Oceanic and Atmospheric Administration's Southwest Fisheries Science Center identified a discrepancy between laboratory and field estimates and proposed a mechanism based on differing flow velocities in the laboratory and field environments. They then outlined a model for estimating temperature-dependent egg mortality in the field and fit its parameters to Sacramento River Winter-Run Chinook Salmon population data collected between 1996 and 2015 (Martin et al. 2017).

The first step in what is herein referred to as the Martin Model is to estimate a redd's date of emergence. Individual eggs within the redd hatch as alevins, which remain within the gravel substrate of the redd. These later depart the redd, emerging as fry. The redd's estimated date of emergence is intended to represent the point in the average egg's/alevin's life span when it leaves the redd.

The Martin Model estimates the date of emergence using a linear relationship between water temperature and maturation: Rate of maturation = 0.00058 * T(F) - 0.018 (Zueg et al. 2012). For each simulated redd, the Zueg equation was applied to daily temperatures starting the day after redd creation until the cumulative sum of daily maturation rates is greater than one. The day on which this occurs is considered the date of emergence for the redd.

Daily survival is then calculated for every day of the redd's lifespan. Below a temperature threshold of 11.9 degrees Celsius (°C), no temperature-dependent mortality is recorded, and the survival is 1. For each degree C above the threshold, 0.024 is subtracted from the daily survival. The product of the natural

exponents of daily survivals is the total survival, and 1 minus survival is the estimated mortality fraction for that simulated redd.

The Martin Model, in summary, uses the Zueg equation to estimate date of emergence and then estimates daily mortality for each day of the redd's lifespan using a linear relationship.

### 1.2 Anderson Model

Dr. James Anderson of the University of Washington has proposed a model building on the Martin et al. findings but differing in two key assumptions. While Martin applies mortality to each day of a redd's lifespan from spawning past hatching to emergence, Anderson uses a short critical period instead. Using field data from 2002 through 2015, a critical period just before hatching was found to provide the best fit (Anderson 2018). This analysis used a critical period of 5 days in length, following the implementation of the Anderson Model on the SacPAS website (http://www.cbr.washington.edu/sacramento/fishmodel/).

Instead of using the Zueg equation to estimate date of emergence, the Anderson Model uses a different equation to estimate date of hatching. Like the Zueg equation, daily temperatures are correlated to daily maturation and a cumulative sum of daily maturation is calculated until maturation crosses a known threshold. The date on which this occurs is the hatching date, and in this implementation of the Martin Model, the 5 days before hatching are the days on which mortality is estimated.

The daily equation was calibrated in Alderdice and Velsen (1978): ln(Daily development rate) = ln(k) + b * ( ln(T(C) - c) ), where k = 0.08646, b = 1.23473, and c = -2.26721. The day on which the cumulative sum of daily development rate passes 100 is considered the redd hatching date.

Like the Martin Model, a linear relationship between mortality and temperature is assumed, with zero mortality below a threshold. The threshold was set identical to the Martin Model at 11.9°C, while the slope is not 0.024 but 0.5. This is unsurprising; calibration to substantially the same dataset will naturally result in a much higher slope, or a much larger mortality impact per degree C above the threshold, for a model which only applies mortality to 5 days instead of the full lifespan of the redd. The same formulae for adding up daily survivals and finding a total mortality estimate are used as for the Martin Model.

## 2 Spatio-Temporal Distribution of Simulated Winter-Run Chinook Eggs

The Martin and Anderson Models were applied to HEC5Q Sacramento River temperature results using the same spatio-temporal distribution of redds in each year. The distribution is the averaged location and timing of redds counted in California Department of Fish and Wildlife Winter-Run aerial survey data from 2007 to 2014. Simulated redds were created and subjected to mortality calculations. All simulated redds' mortalities were combined in a sum, weighted by the spatio-temporal distribution, to estimate the total seasonal mortality fraction.

No assumption is made regarding the total number of redds, as density-dependent mortality is not considered in this calculation; results indicate only the percentage of the total seasonal Winter-Run

Chinook Salmon egg population in the upper Sacramento River that is estimated to have succumbed to temperature-dependent mortality. Because a large percentage of modeled redds survived into October and the HEC5Q simulation ends at September of 2003, temperature-dependent egg mortality is only estimated for the 1922–2002 Winter-Run Chinook populations.

The following tables indicate the river miles and dates for which simulated redds were created as well as the fraction of the total population which each location or time represents. The same temporal distribution was assumed for all locations.

**Table 1. Spatial Distribution of Simulated Redds**

| River Reach | River Mile | Average percentages (2007–2014) |
|---|---|---|
| Keswick to A.C.I.D. Dam. | 298 | 46.4% |
| A.C.I.D. Dam to Highway 44 Bridge | 296 | 46.1% |
| Highway 44 Br. to Airport Rd. Br. | 284 | 6.7% |
| Airport Rd. Br. to Balls Ferry Br. | 275 | 0.3% |
| Balls Ferry Br. to Battle Creek. | 271 | 0.2% |
| Battle Creek to Jellys Ferry Br. | 266 | 0.2% |
| Jellys Ferry Br. to Bend Bridge | 257 | 0.1% |
| Bend Bridge to Red Bluff Diversion Dam | 242 | 0.0% |

**Table 2. Temporal Distribution of Simulated Redds**

| Dates (month/day) | Average percentages (2007–2014) |
|---|---|
| 5/15 | 5.4% |
| 6/1 | 5.9% |
| 6/9 | 7.8% |
| 6/16 | 13.3% |
| 6/24 | 16.0% |
| 7/1 | 15.9% |
| 7/9 | 14.2% |
| 7/16 | 10.4% |
| 7/24 | 6.7% |
| 8/1 | 3.1% |
| 8/16 | 1.4% |

# 3 References

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Zueg, S. C., P. S. Bergman, B. J. Cavallo, and K.S. Jones. (2012). Application of a life cycle simulation model to evaluate impacts of water management and conservation actions on an endangered population of Chinook salmon. Environ. Model. Assess., 17, 455–467.

# Attachment 2-7 Model Limitations

## 1 Introduction

Models are commonly used to evaluate changes in the management and operations of water resources systems. These models are computer based and use mathematical expressions, methods and input data to represent hydrologic, physical, environmental, operational, and institutional aspects of the water resources systems. As complex as water resources systems are, the representation of the water resources system in input data, calculations and model outputs is understood to be simplified and generalized in comparison to what is observed in the historical records and documents that describe the real-world water resources system. Even so, models are useful tools in assessing historical, current, and future projected conditions of the water resources system. These conditions are described by models based on assumptions that are captured in the data and calculations used.

Because the representation of the water resources system in models is understood to be simplified and generalized in comparison to what is observed in the historical records and documents, the use of model results should be subject to a set of agreed upon limitations and subsequent analysis of results is thereby limited. The developers and expert users of the models in question should be consulted in regard to these limitations. The following is a presentation of information that the team of modelers involved in the ROC on LTO consider relevant to the limitations of the models and modeled scenarios. This information should be considered in use of the model results and any subsequent analysis derived from these model results.

## 2 General Limitations of Models Used

### 2.1 CalSim II

CalSim II is a monthly model developed for planning-level analyses. The model is run for an 82-year historical hydrologic period, at a projected level of hydrology and demands, and under an assumed framework of regulations. Therefore the 82-year simulation does not provide information about historical conditions, but it does provide information about variability of conditions that would occur at the assumed level of hydrology and demand with the assumed operations, under the same historical hydrologic sequence. Because it is not a physically based model, CalSim II is not calibrated and cannot be used in a predictive manner. CalSim II is intended to be used in a comparative manner; which is appropriate for ESA analysis.

In CalSim II, operational decisions are made on a monthly basis, based on a set of pre-defined rules that represent the assumed regulations. Modifications by the model user would be required to allow for variation in these rules based on a sequence of hydrologic events such as a prolonged drought, or statistical performance criteria such as meeting a storage target in an assumed percentage of years.

While there are certain components in the model that are downscaled to a daily time step (simulated or approximated hydrology), such as an air-temperature based trigger for a fisheries action, the results of those daily conditions are always averaged to a monthly time step. For example, a certain number of days

with and without the action is calculated and the monthly result is calculated using a day-weighted average based on the total number of days in that month. Operational decisions based on those components are again made on a monthly basis. Any reporting or use of sub-monthly results from CalSim II should include disaggregation methods that are appropriate for the given application, report, or subsequent model.

Appropriate use of model results is important. Despite detailed model inputs and assumptions, the CalSim II results differ from real-time operations under stressed water supply conditions. Such model results occur because the model is unable to make unique real-time policy decisions under extreme circumstances, as the actual (human) operators must do. Therefore, results that indicate severely low storage, or inability to meet flow requirements or senior water rights should only be considered an indicator of stressed water supply conditions under that alternative, and should not necessarily be understood to reflect literally what would occur in the future under that alternative. These conditions, in real-time operations, would be avoided by making policy decisions on other requirements in prior months. In actual future operations, as has always been the case in the past, the project operators would work in real time to satisfy legal and contractual obligations given then current conditions and hydrologic constraints.

Reclamation's 2008 *Biological Assessment on the Continued Long-Term Operations of the Central Valley Project and State Water Project,* Appendix W (Reclamation 2008b) included a comprehensive sensitivity and uncertainty analysis of CalSim II results relative to the uncertainty in the inputs. This appendix provides a good summary of the key inputs that are critical to the largest changes in several operational outputs. Understanding the findings from this appendix may help in better understanding of the alternatives.

## 2.2 HEC5Q

The model is one-dimensional in the vertical and longitudinal directions for reservoirs and rivers, respectively. HEC5Q assumes fully mixed river cross sections. The effect of tributary inflow on river temperature is computed by mass balance calculation. When used with inputs derived from CalSim II outputs, changes in results between two scenarios should be considered at a monthly timestep, consistent with the changes in inputs. HEC5Q computes at a 6-hour timestep to capture the range of daily temperatures. Despite capturing sub-daily changes, a 6-hour timestep may not capture all variations in flow and climate conditions.. Spatial resolution of the model may miss inflow from small tributaries or culverts, rapid changes in roughness, or variations in river slope.

HEC5Q was used for Sacramento, Trinity, American, and Stanislaus Rivers.

## 2.3 Reclamation Temperature Model

Reclamation Temperature model is one-dimensional in the vertical direction for reservoirs. The reservoir is divided into isothermal, horizontal layers of uniform thickness. Energy exchange between the reservoir and the atmosphere is assumed to occur at the reservoir surface (Reclamation 2008a).

The model is one-dimensional in the longitudinal direction and assumes fully mixed river cross sections. The effect of tributary inflow on river temperature is computed by mass balance calculation. The river temperature calculations are based on regulating reservoir release temperatures, river flows, and climatic data. The model uses up to 10 computational steps for each monthly timestep to approximate results for each month. Mean monthly flows and temperature do not capture daily variations in flow and climate conditions.

Reclamation's 2008 OCAP BA on the coordinated long-term operations, Appendix H (Reclamation 2008a) included a comprehensive description Reclamation Temperature Model and its limitations.

The Reclamation Temperature Model was used for the Feather River.

### 2.4 DSM2

DSM2 is a one-dimensional model with inherent limitations in simulating hydrodynamic and transport processes in a complex estuarine environment such as the Sacramento–San Joaquin Delta. DSM2 assumes that velocity in a channel can be adequately represented by a single average velocity over the channel cross-section, meaning that variations both across the width of the channel and through the water column are negligible. DSM2 does not have the ability to model short-circuiting of flow through a reach, where a majority of the flow in a cross-section is confined to a small portion of the cross-section. DSM2 does not conserve momentum at the channel junctions and does not model the secondary currents in a channel. DSM2 also does not explicitly account for dispersion due to flow accelerating through channel bends. It cannot model the vertical salinity stratification in the channels.

It has inherent limitations in simulating the hydrodynamics related to the open water areas. Since an open water surface area (represented with a reservoir in the model) is constant in DSM2, it impacts the stage in the reservoir and thereby impacts the flow exchange with the adjoining channel. Due to the inability to change the cross-sectional area of the reservoir inlets with changing water surface elevation, the final entrance and exit coefficients were fine-tuned to match a median flow range. This causes errors in the flow exchange at breaches (levee openings) during the extreme spring and neap tides. Using an arbitrary bottom elevation value for the reservoirs representing the proposed marsh areas to get around the wetting-drying limitation of DSM2 may increase the dilution of salinity in the reservoirs. Accurate representation of RMA's tidal marsh areas, bottom elevations, location of breaches, breach widths, cross-sections, and boundary conditions in DSM2 is critical to the agreement of corroboration results.

For open water bodies DSM2 assumes uniform and instantaneous mixing over entire open water area. Thus it does not account for the any salinity gradients that may exist within the open water bodies. Significant uncertainty exists in flow and electrical conductivity (EC) input data related to in-Delta agriculture, which leads to uncertainty in the simulated EC values. Caution needs to be exercised when using EC outputs on a sub-monthly scale, and therefore results are only presented at the monthly scale. Water quality results inside the water bodies representing the tidal marsh areas were not validated specifically and because of the bottom elevation assumptions, preferably should not be used for analysis.

## 3 Specific Limitations of Scenarios Modeled

### 3.1 Alternative 1

Alternative 1 model results are appropriate for analysis with the following considerations:

- OMR actions – The OMR actions as described in Alternative 1 are intended to be managed based on a number of real-time triggers. Since not all of these triggers can be modeled in CalSim II, the modeled OMR is an approximation of real-time operations that are described in the EIS.
- Montezuma Slough Salinity Control Gates operations – The salinity gate operation rules to cover hydrologic conditions simulated in the 82-year planning study have not yet been developed and therefore were not explicitly modeled in DSM2. Similarly, changes to the flow-salinity relationship

would not have been captured by the existing ANNs. To preserve consistency in modeling, this action is not modeled and is evaluated. With implementation of the extended salinity gate operations, it is likely that the upstream reservoirs would release more water to meet Delta salinity requirements than Alternative 1 model results indicate.

- 2017 American River Flow Management Standard – The planning minimum of the 2017 FMS is represented by a Folsom carry over target of 275 TAF. Reclamation has committed to working with the Water Forum to develop a planning minimum. The model assumption of 275 TAF will be revisited and updated in the future based on those discussions.
- Stanislaus dissolved oxygen (DO) location – While Alternative 1 moves the DO compliance point upstream to OBB, or use a surrogate DO compliance at the existing Ripon gage, there was not enough data to modify the CalSim II assumptions for the Stanislaus DO release. Releases for DO would likely be less than Alternative 1 model results.

## 3.2 Alternative 2

Alternative 2 model results are appropriate for analysis with the following considerations:

- CVPIA B2: Not modeled. Section 3406(b)(2) of the Central Valley Project Improvement Act (CVPIA) includes use of up to 800 TAF toward meeting SWRCB D-1641 Water Quality Control Plan requirements and additional actions. No additional B2 actions have been assumed in Alternative 2.

## 3.3 Alternative 3

Alternative 3 model results are appropriate for analysis with the following considerations:

- See Alternative 2; in addition,
- Habitat restoration – Accurate effects of the tidal marsh restoration and sea-level rise are incorporated in the Alternative 3 DSM2 simulation by: (1) corroborating the grid configuration and model setup to RMA model results of tidal marsh and sea-level rise simulations; (2) modifying the downstream stage and EC boundary conditions at Martinez in the DSM2 model inputs using the regression relationships identified in the corroboration process. This is further described in the *FEIR/EIS Bay Delta Conservation Plan/California WaterFix,* Appendix 5A (ICF International 2016).

## 3.4 Alternative 4

Alternative 4 model results are appropriate for analysis with the following considerations:is currently under development.

- See Alternative 1; in addition,
- Estimates of Unimpaired Instream Flows – The estimates of unimpaired instream flows used as the basis of calculating flow objectives are uncertain due to limitations in the hydrologic analysis used and perturbations for climate change assumed.
- Flow objectives based on Unimpaired Instream Flows – Flow objectives of 55% unimpaired instream flow were only applied to CVP and SWP reservoir operations; in order to fully meet the flow objectives, changes in non-CVP and non-SWP reservoir operations would be required; in addition,

only diversions associated with CVP and SWP Ag and M&I service contracts were adjusted to accommodate these flow objectives; in order to fully meet the flow objectives, changes in non-CVP and non-SWP diversions (impairments) would be required; flow objectives were adjusted for non-CVP and non-SWP and other non-discretionary impairments so as to moderate the associated change in CVP and SWP reservoir releases.

- Positive combined Old and Middle River Flows for March through May – Flows objectives for combined Old and Middle River Flows for March through May were selected as a surrogate for reducing Delta exports and increasing Delta outflow as a complimentary action to the flow objective of 55% unimpaired instream flow during this period; flow objectives were limited in consideration of Delta exports necessary for Health and Safety considerations; as a surrogate, this action is not intended to represent the specifics of any additional Delta outflow or export regulations that may occur in the future
- CVP and SWP Water Supply Allocations – Under the higher regulations assumed for this alternative, forecasting water supply availability and the ability of the projects to allocate and deliver water to contractors is severely limited; allocating supplies under these conditions is more uncertain than typical for the CalSim II model

# 4 References

ICF International. 2016. *Final Environmental Impact Report/Environmental Impact Statement for the Bay Delta Conservation Plan/California WaterFix*. Appendix 5A, December, 2016.

U.S. Department of the Interior, Bureau of Reclamation (Reclamation), 2008a. *Biological Assessment on the Continued Long-Term Operations of the Central Valley Project and State Water Project*, Appendix H Reclamation Temperature Model and SRWQM Temperature Model, August 2008.

U.S. Department of the Interior, Bureau of Reclamation (Reclamation), 2008b. *Biological Assessment on the Continued Long-Term Operations of the Central Valley Project and State Water Project*, Appendix W Sensitivity and Uncertainty Analysis, August 2008.

# Attachment 3-1 Storage and Elevation Results (CalSim II)

The following results of the CalSim II model are included for reservoir storage conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Trinity Lake Storage | S1 | 1-1 to 1-4 | 1-1 to 1-18 |
| Trinity Lake Elevation | Post-processed | 1a-1 to 1a-4 | 1a-1 to 1a-18 |
| Shasta Lake Storage | S4 | 3-1 to 3-4 | 3-1 to 3-18 |
| Shasta Lake Elevation | Post-processed | 3a-1 to 3a-4 | 3a-1 to 3a-18 |
| Lake Oroville Storage | S6 | 4-1 to 4-4 | 4-1 to 4-18 |
| Lake Oroville Elevation | Post-processed | 4a-1 to 4a-4 | 4a-1 to 4a-18 |
| Folsom Lake Storage | S8 | 5-1 to 5-4 | 5-1 to 5-18 |
| Folsom Lake Elevation | Post-processed | 5a-1 to 5a-4 | 5a-1 to 5a-18 |
| San Luis Reservoir Storage | S11+S12 | 6-1 to 6-4 | 6-1 to 6-18 |
| San Luis Reservoir Elevation | Post-processed | 6a-1 to 6a-4 | 6a-1 to 6a-18 |
| CVP San Luis Reservoir Storage | S11 | 6b-1 to 6b-4 | 6b-1 to 6b-18 |
| SWP San Luis Reservoir Storage | S12 | 6c-1 to 6c-4 | 6c-1 to 6c-18 |
| New Melones Reservoir Storage | S10 | 7-1 to 7-4 | 7-1 to 7-18 |
| New Melones Reservoir Elevation | Post-processed | 7a-1 to 7a-4 | 7a-1 to 7a-18 |
| Millerton Lake Storage | S18 | 8-1 to 8-4 | 8-1 to 8-18 |
| Millerton Lake Elevation | Post-processed | 8a-1 to 8a-4 | 8a-1 to 8a-18 |

# 1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

# Appendix F – Modeling

## Attachment 3-1 – Storage and Elevation Results (CalSim II)

The following results of the CalSim II model are included for reservoir storage conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Trinity Lake Storage | S1 | 1-1 to 1-4 | 1-1 to 1-18 |
| Trinity Lake Elevation | Post-processed | 1a-1 to 1a-4 | 1a-1 to 1a-18 |
| Shasta Lake Storage | S4 | 3-1 to 3-4 | 3-1 to 3-18 |
| Shasta Lake Elevation | Post-processed | 3a-1 to 3a-4 | 3a-1 to 3a-18 |
| Lake Oroville Storage | S6 | 4-1 to 4-4 | 4-1 to 4-18 |
| Lake Oroville Elevation | Post-processed | 4a-1 to 4a-4 | 4a-1 to 4a-18 |
| Folsom Lake Storage | S8 | 5-1 to 5-4 | 5-1 to 5-18 |
| Folsom Lake Elevation | Post-processed | 5a-1 to 5a-4 | 5a-1 to 5a-18 |
| San Luis Reservoir Storage | S11+S12 | 6-1 to 6-4 | 6-1 to 6-18 |
| San Luis Reservoir Elevation | Post-processed | 6a-1 to 6a-4 | 6a-1 to 6a-18 |
| CVP San Luis Reservoir Storage | S11 | 6b-1 to 6b-4 | 6b-1 to 6b-18 |
| SWP San Luis Reservoir Storage | S12 | 6c-1 to 6c-4 | 6c-1 to 6c-18 |
| New Melones Reservoir Storage | S10 | 7-1 to 7-4 | 7-1 to 7-18 |
| New Melones Reservoir Elevation | Post-processed | 7a-1 to 7a-4 | 7a-1 to 7a-18 |
| Millerton Lake Storage | S18 | 8-1 to 8-4 | 8-1 to 8-18 |
| Millerton Lake Elevation | Post-processed | 8a-1 to 8a-4 | 8a-1 to 8a-18 |

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

# Table 1-1. Trinity Lake Storage, End of Month Storage

## No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,850 | 1,839 | 1,850 | 1,900 | 2,000 | 2,100 | 2,300 | 2,354 | 2,314 | 2,261 | 2,130 | 1,934 |
| 20% | 1,804 | 1,749 | 1,809 | 1,885 | 2,000 | 2,100 | 2,270 | 2,282 | 2,221 | 2,094 | 1,964 | 1,855 |
| 30% | 1,510 | 1,551 | 1,656 | 1,765 | 1,950 | 2,096 | 2,226 | 2,163 | 2,059 | 1,914 | 1,759 | 1,600 |
| 40% | 1,430 | 1,445 | 1,537 | 1,668 | 1,775 | 2,011 | 2,151 | 2,080 | 1,960 | 1,806 | 1,619 | 1,437 |
| 50% | 1,245 | 1,275 | 1,391 | 1,529 | 1,684 | 1,782 | 1,942 | 1,881 | 1,795 | 1,652 | 1,479 | 1,336 |
| 60% | 1,169 | 1,185 | 1,274 | 1,345 | 1,529 | 1,667 | 1,802 | 1,724 | 1,657 | 1,506 | 1,337 | 1,224 |
| 70% | 1,072 | 1,078 | 1,134 | 1,205 | 1,285 | 1,432 | 1,580 | 1,597 | 1,479 | 1,395 | 1,229 | 1,097 |
| 80% | 901 | 945 | 983 | 1,005 | 1,122 | 1,276 | 1,443 | 1,383 | 1,328 | 1,176 | 1,024 | 924 |
| 90% | 655 | 666 | 668 | 697 | 828 | 922 | 1,018 | 978 | 924 | 854 | 755 | 673 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,264 | 1,271 | 1,334 | 1,415 | 1,543 | 1,670 | 1,815 | 1,792 | 1,728 | 1,602 | 1,455 | 1,319 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,696 | 1,681 | 1,698 | 1,769 | 1,937 | 2,063 | 2,233 | 2,257 | 2,203 | 2,091 | 1,958 | 1,791 |
| Above Normal (16%) | 1,477 | 1,467 | 1,507 | 1,511 | 1,723 | 1,908 | 2,094 | 2,068 | 1,981 | 1,852 | 1,686 | 1,534 |
| Below Normal (13%) | 1,171 | 1,185 | 1,262 | 1,496 | 1,584 | 1,687 | 1,844 | 1,769 | 1,677 | 1,521 | 1,346 | 1,203 |
| Dry (24%) | 1,029 | 1,070 | 1,213 | 1,208 | 1,302 | 1,434 | 1,571 | 1,523 | 1,454 | 1,304 | 1,158 | 1,050 |
| Critical (15%) | 579 | 586 | 627 | 817 | 859 | 941 | 990 | 955 | 929 | 842 | 711 | 621 |

## Alternative 1 011519

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,850 | 1,850 | 1,850 | 1,900 | 2,000 | 2,100 | 2,300 | 2,354 | 2,314 | 2,261 | 2,130 | 1,975 |
| 20% | 1,836 | 1,844 | 1,850 | 1,900 | 2,000 | 2,100 | 2,272 | 2,281 | 2,233 | 2,099 | 1,981 | 1,902 |
| 30% | 1,574 | 1,613 | 1,713 | 1,820 | 1,991 | 2,100 | 2,238 | 2,179 | 2,083 | 1,938 | 1,777 | 1,622 |
| 40% | 1,429 | 1,484 | 1,617 | 1,718 | 1,861 | 2,045 | 2,172 | 2,104 | 1,971 | 1,813 | 1,638 | 1,457 |
| 50% | 1,314 | 1,334 | 1,461 | 1,653 | 1,744 | 1,869 | 2,034 | 1,933 | 1,840 | 1,667 | 1,482 | 1,356 |
| 60% | 1,238 | 1,243 | 1,323 | 1,427 | 1,545 | 1,740 | 1,842 | 1,822 | 1,735 | 1,578 | 1,397 | 1,283 |
| 70% | 1,128 | 1,160 | 1,236 | 1,295 | 1,405 | 1,543 | 1,642 | 1,630 | 1,613 | 1,433 | 1,264 | 1,137 |
| 80% | 971 | 1,007 | 1,012 | 1,058 | 1,166 | 1,361 | 1,547 | 1,476 | 1,386 | 1,261 | 1,111 | 1,000 |
| 90% | 683 | 703 | 754 | 780 | 834 | 921 | 1,071 | 1,047 | 1,005 | 906 | 781 | 684 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,304 | 1,322 | 1,384 | 1,463 | 1,587 | 1,710 | 1,856 | 1,833 | 1,767 | 1,631 | 1,479 | 1,354 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,727 | 1,742 | 1,758 | 1,781 | 1,950 | 2,071 | 2,245 | 2,269 | 2,213 | 2,097 | 1,960 | 1,821 |
| Above Normal (16%) | 1,508 | 1,528 | 1,570 | 1,554 | 1,747 | 1,925 | 2,111 | 2,085 | 1,990 | 1,851 | 1,685 | 1,540 |
| Below Normal (13%) | 1,206 | 1,213 | 1,288 | 1,571 | 1,659 | 1,746 | 1,901 | 1,824 | 1,720 | 1,561 | 1,377 | 1,245 |
| Dry (24%) | 1,090 | 1,124 | 1,266 | 1,276 | 1,369 | 1,502 | 1,639 | 1,590 | 1,534 | 1,375 | 1,222 | 1,112 |
| Critical (15%) | 615 | 617 | 658 | 885 | 928 | 1,008 | 1,059 | 1,024 | 992 | 871 | 734 | 640 |

## Alternative 1 011519 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 |
| 20% | 32 | 95 | 41 | 15 | 0 | 0 | 3 | -1 | 12 | 5 | 18 | 47 |
| 30% | 64 | 62 | 58 | 55 | 41 | 4 | 12 | 16 | 24 | 24 | 18 | 22 |
| 40% | -1 | 39 | 79 | 50 | 86 | 34 | 21 | 25 | 12 | 7 | 18 | 20 |
| 50% | 69 | 59 | 70 | 124 | 60 | 87 | 92 | 52 | 45 | 14 | 3 | 20 |
| 60% | 70 | 58 | 49 | 82 | 16 | 72 | 41 | 98 | 79 | 71 | 60 | 59 |
| 70% | 57 | 82 | 103 | 90 | 120 | 111 | 62 | 33 | 134 | 38 | 35 | 40 |
| 80% | 70 | 62 | 29 | 53 | 44 | 85 | 105 | 93 | 58 | 85 | 87 | 76 |
| 90% | 28 | 37 | 86 | 83 | 6 | 0 | 53 | 69 | 81 | 52 | 26 | 11 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 40 | 51 | 50 | 48 | 45 | 40 | 41 | 40 | 39 | 29 | 24 | 34 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 31 | 61 | 60 | 12 | 13 | 8 | 12 | 12 | 10 | 6 | 2 | 31 |
| Above Normal (16%) | 31 | 61 | 63 | 44 | 25 | 17 | 17 | 17 | 9 | 0 | -1 | 5 |
| Below Normal (13%) | 35 | 28 | 26 | 75 | 75 | 59 | 57 | 55 | 43 | 40 | 30 | 43 |
| Dry (24%) | 61 | 54 | 53 | 68 | 68 | 69 | 68 | 67 | 80 | 71 | 65 | 62 |
| Critical (15%) | 36 | 31 | 31 | 68 | 69 | 67 | 69 | 69 | 63 | 29 | 24 | 19 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 1-2. Trinity Lake Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,850 | 1,839 | 1,850 | 1,900 | 2,000 | 2,100 | 2,300 | 2,354 | 2,314 | 2,261 | 2,130 | 1,934 |
| 20% | 1,804 | 1,749 | 1,809 | 1,885 | 2,000 | 2,100 | 2,270 | 2,282 | 2,221 | 2,094 | 1,964 | 1,855 |
| 30% | 1,510 | 1,551 | 1,656 | 1,765 | 1,950 | 2,096 | 2,226 | 2,163 | 2,059 | 1,914 | 1,759 | 1,600 |
| 40% | 1,430 | 1,445 | 1,537 | 1,668 | 1,775 | 2,011 | 2,151 | 2,080 | 1,960 | 1,806 | 1,619 | 1,437 |
| 50% | 1,245 | 1,275 | 1,391 | 1,529 | 1,684 | 1,782 | 1,942 | 1,881 | 1,795 | 1,652 | 1,479 | 1,336 |
| 60% | 1,169 | 1,185 | 1,274 | 1,345 | 1,529 | 1,667 | 1,802 | 1,724 | 1,657 | 1,506 | 1,337 | 1,224 |
| 70% | 1,072 | 1,078 | 1,134 | 1,205 | 1,285 | 1,432 | 1,580 | 1,597 | 1,479 | 1,395 | 1,229 | 1,097 |
| 80% | 901 | 945 | 983 | 1,005 | 1,122 | 1,276 | 1,443 | 1,383 | 1,328 | 1,176 | 1,024 | 924 |
| 90% | 655 | 666 | 668 | 697 | 828 | 922 | 1,018 | 978 | 924 | 854 | 755 | 673 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,264 | 1,271 | 1,334 | 1,415 | 1,543 | 1,670 | 1,815 | 1,792 | 1,728 | 1,602 | 1,455 | 1,319 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,696 | 1,681 | 1,698 | 1,769 | 1,937 | 2,063 | 2,233 | 2,257 | 2,203 | 2,091 | 1,958 | 1,791 |
| Above Normal (16%) | 1,477 | 1,467 | 1,507 | 1,511 | 1,723 | 1,908 | 2,094 | 2,068 | 1,981 | 1,852 | 1,686 | 1,534 |
| Below Normal (13%) | 1,171 | 1,185 | 1,262 | 1,496 | 1,584 | 1,687 | 1,844 | 1,769 | 1,677 | 1,521 | 1,346 | 1,203 |
| Dry (24%) | 1,029 | 1,070 | 1,213 | 1,208 | 1,302 | 1,434 | 1,571 | 1,523 | 1,454 | 1,304 | 1,158 | 1,050 |
| Critical (15%) | 579 | 586 | 627 | 817 | 859 | 941 | 990 | 955 | 929 | 842 | 711 | 621 |

### Alternative 2 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,850 | 1,850 | 1,850 | 1,900 | 2,000 | 2,100 | 2,300 | 2,354 | 2,277 | 2,228 | 2,095 | 1,975 |
| 20% | 1,782 | 1,813 | 1,850 | 1,900 | 2,000 | 2,100 | 2,266 | 2,272 | 2,192 | 2,062 | 1,931 | 1,824 |
| 30% | 1,532 | 1,587 | 1,683 | 1,768 | 1,969 | 2,099 | 2,233 | 2,157 | 2,092 | 1,924 | 1,749 | 1,593 |
| 40% | 1,339 | 1,389 | 1,548 | 1,684 | 1,830 | 1,969 | 2,146 | 2,083 | 1,979 | 1,782 | 1,580 | 1,409 |
| 50% | 1,233 | 1,290 | 1,400 | 1,570 | 1,717 | 1,840 | 2,016 | 1,925 | 1,798 | 1,651 | 1,441 | 1,292 |
| 60% | 1,156 | 1,182 | 1,265 | 1,380 | 1,527 | 1,666 | 1,797 | 1,745 | 1,656 | 1,471 | 1,313 | 1,191 |
| 70% | 1,086 | 1,063 | 1,143 | 1,160 | 1,326 | 1,436 | 1,596 | 1,623 | 1,548 | 1,411 | 1,256 | 1,104 |
| 80% | 924 | 965 | 973 | 1,029 | 1,127 | 1,264 | 1,472 | 1,451 | 1,369 | 1,214 | 1,057 | 965 |
| 90% | 659 | 666 | 695 | 732 | 815 | 948 | 1,064 | 991 | 939 | 865 | 759 | 678 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,262 | 1,283 | 1,349 | 1,429 | 1,556 | 1,681 | 1,829 | 1,806 | 1,741 | 1,601 | 1,444 | 1,315 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,711 | 1,727 | 1,749 | 1,762 | 1,935 | 2,058 | 2,231 | 2,256 | 2,203 | 2,086 | 1,947 | 1,806 |
| Above Normal (16%) | 1,453 | 1,477 | 1,524 | 1,522 | 1,717 | 1,902 | 2,090 | 2,064 | 1,970 | 1,821 | 1,638 | 1,495 |
| Below Normal (13%) | 1,129 | 1,137 | 1,214 | 1,546 | 1,634 | 1,724 | 1,884 | 1,809 | 1,713 | 1,537 | 1,352 | 1,190 |
| Dry (24%) | 1,025 | 1,066 | 1,209 | 1,209 | 1,304 | 1,439 | 1,580 | 1,532 | 1,467 | 1,306 | 1,156 | 1,044 |
| Critical (15%) | 599 | 606 | 646 | 863 | 907 | 990 | 1,040 | 1,006 | 976 | 863 | 710 | 624 |

### Alternative 2 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | **-37** | **-33** | **-35** | 41 |
| 20% | **-22** | 64 | 41 | 15 | 0 | 0 | **-4** | **-10** | **-29** | **-32** | **-32** | **-31** |
| 30% | 22 | 36 | 28 | 3 | 20 | 4 | 7 | **-6** | 33 | 10 | **-10** | **-7** |
| 40% | **-92** | **-56** | 10 | 16 | 54 | **-42** | **-5** | 3 | 20 | **-24** | **-39** | **-28** |
| 50% | **-11** | 15 | 9 | 41 | 33 | 58 | 74 | 44 | 3 | **-1** | **-38** | **-45** |
| 60% | **-12** | **-3** | **-8** | 35 | **-2** | **-2** | **-5** | 21 | **0** | **-35** | **-25** | **-33** |
| 70% | 15 | **-15** | 9 | **-45** | 41 | 4 | 16 | 26 | 68 | 16 | 27 | 6 |
| 80% | 23 | 20 | **-11** | 24 | 5 | **-12** | 29 | 68 | 42 | 38 | 34 | 41 |
| 90% | 3 | 1 | 27 | 34 | **-13** | 26 | 46 | 13 | 16 | 11 | 4 | 5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-3** | 12 | 15 | 13 | 13 | 11 | 13 | 14 | 13 | **-1** | **-11** | **-4** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 15 | 46 | 51 | **-6** | **-2** | **-5** | **-2** | **-1** | **0** | **-5** | **-11** | 15 |
| Above Normal (16%) | **-24** | 10 | 17 | 12 | **-6** | **-6** | **-5** | **-5** | **-11** | **-31** | **-48** | **-40** |
| Below Normal (13%) | **-42** | **-48** | **-48** | 50 | 51 | 36 | 40 | 40 | 36 | 16 | 6 | **-13** |
| Dry (24%) | **-4** | **-4** | **-4** | 1 | 3 | 6 | 9 | 9 | 13 | 2 | **-2** | **-6** |
| Critical (15%) | 20 | 20 | 19 | 46 | 47 | 49 | 50 | 51 | 47 | 21 | **-1** | 2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 1-3. Trinity Lake Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,850 | 1,839 | 1,850 | 1,900 | 2,000 | 2,100 | 2,300 | 2,354 | 2,314 | 2,261 | 2,130 | 1,934 |
| 20% | 1,804 | 1,749 | 1,809 | 1,885 | 2,000 | 2,100 | 2,270 | 2,282 | 2,221 | 2,094 | 1,964 | 1,855 |
| 30% | 1,510 | 1,551 | 1,656 | 1,765 | 1,950 | 2,096 | 2,226 | 2,163 | 2,059 | 1,914 | 1,759 | 1,600 |
| 40% | 1,430 | 1,445 | 1,537 | 1,668 | 1,775 | 2,011 | 2,151 | 2,080 | 1,960 | 1,806 | 1,619 | 1,437 |
| 50% | 1,245 | 1,275 | 1,391 | 1,529 | 1,684 | 1,782 | 1,942 | 1,881 | 1,795 | 1,652 | 1,479 | 1,336 |
| 60% | 1,169 | 1,185 | 1,274 | 1,345 | 1,529 | 1,667 | 1,802 | 1,724 | 1,657 | 1,506 | 1,337 | 1,224 |
| 70% | 1,072 | 1,078 | 1,134 | 1,205 | 1,285 | 1,432 | 1,580 | 1,597 | 1,479 | 1,395 | 1,229 | 1,097 |
| 80% | 901 | 945 | 983 | 1,005 | 1,122 | 1,276 | 1,443 | 1,383 | 1,328 | 1,176 | 1,024 | 924 |
| 90% | 655 | 666 | 668 | 697 | 828 | 922 | 1,018 | 978 | 924 | 854 | 755 | 673 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,264 | 1,271 | 1,334 | 1,415 | 1,543 | 1,670 | 1,815 | 1,792 | 1,728 | 1,602 | 1,455 | 1,319 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,696 | 1,681 | 1,698 | 1,769 | 1,937 | 2,063 | 2,233 | 2,257 | 2,203 | 2,091 | 1,958 | 1,791 |
| Above Normal (16%) | 1,477 | 1,467 | 1,507 | 1,511 | 1,723 | 1,908 | 2,094 | 2,068 | 1,981 | 1,852 | 1,686 | 1,534 |
| Below Normal (13%) | 1,171 | 1,185 | 1,262 | 1,496 | 1,584 | 1,687 | 1,844 | 1,769 | 1,677 | 1,521 | 1,346 | 1,203 |
| Dry (24%) | 1,029 | 1,070 | 1,213 | 1,208 | 1,302 | 1,434 | 1,571 | 1,523 | 1,454 | 1,304 | 1,158 | 1,050 |
| Critical (15%) | 579 | 586 | 627 | 817 | 859 | 941 | 990 | 955 | 929 | 842 | 711 | 621 |

### Alternative 3 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,850 | 1,850 | 1,850 | 1,900 | 2,000 | 2,100 | 2,300 | 2,354 | 2,277 | 2,227 | 2,094 | 1,975 |
| 20% | 1,782 | 1,831 | 1,850 | 1,900 | 2,000 | 2,100 | 2,266 | 2,272 | 2,185 | 2,053 | 1,936 | 1,841 |
| 30% | 1,538 | 1,566 | 1,692 | 1,776 | 1,962 | 2,082 | 2,229 | 2,158 | 2,084 | 1,927 | 1,753 | 1,600 |
| 40% | 1,353 | 1,361 | 1,535 | 1,685 | 1,832 | 1,962 | 2,141 | 2,062 | 1,969 | 1,783 | 1,578 | 1,422 |
| 50% | 1,238 | 1,267 | 1,402 | 1,558 | 1,664 | 1,839 | 2,005 | 1,917 | 1,788 | 1,639 | 1,431 | 1,304 |
| 60% | 1,147 | 1,175 | 1,252 | 1,364 | 1,517 | 1,631 | 1,778 | 1,746 | 1,659 | 1,473 | 1,325 | 1,196 |
| 70% | 1,067 | 1,057 | 1,159 | 1,155 | 1,335 | 1,445 | 1,608 | 1,615 | 1,554 | 1,403 | 1,257 | 1,100 |
| 80% | 904 | 960 | 963 | 1,033 | 1,132 | 1,269 | 1,453 | 1,428 | 1,339 | 1,186 | 1,065 | 937 |
| 90% | 657 | 667 | 691 | 718 | 809 | 937 | 1,030 | 978 | 922 | 861 | 758 | 676 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,256 | 1,277 | 1,341 | 1,421 | 1,549 | 1,674 | 1,823 | 1,800 | 1,735 | 1,597 | 1,441 | 1,313 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,712 | 1,727 | 1,747 | 1,752 | 1,927 | 2,051 | 2,228 | 2,253 | 2,201 | 2,087 | 1,947 | 1,809 |
| Above Normal (16%) | 1,462 | 1,484 | 1,525 | 1,517 | 1,712 | 1,896 | 2,084 | 2,058 | 1,962 | 1,815 | 1,636 | 1,497 |
| Below Normal (13%) | 1,113 | 1,122 | 1,197 | 1,546 | 1,635 | 1,724 | 1,883 | 1,807 | 1,712 | 1,536 | 1,350 | 1,190 |
| Dry (24%) | 1,019 | 1,060 | 1,203 | 1,208 | 1,303 | 1,437 | 1,579 | 1,531 | 1,466 | 1,304 | 1,156 | 1,043 |
| Critical (15%) | 574 | 583 | 623 | 840 | 884 | 967 | 1,015 | 980 | 951 | 841 | 689 | 603 |

### Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | **-37** | **-33** | **-37** | 41 |
| 20% | **-22** | 82 | 41 | 15 | 0 | 0 | **-4** | **-10** | **-36** | **-41** | **-27** | **-14** |
| 30% | 29 | 16 | 37 | 11 | 12 | **-14** | 3 | **-4** | 25 | 13 | **-6** | **0** |
| 40% | **-77** | **-84** | **-3** | 17 | 56 | **-49** | **-11** | **-18** | 9 | **-23** | **-41** | **-15** |
| 50% | **-7** | **-8** | 11 | 29 | **-21** | 57 | 64 | 36 | **-7** | **-14** | **-48** | **-33** |
| 60% | **-21** | **-10** | **-21** | 19 | **-12** | **-36** | **-23** | 22 | 3 | **-33** | **-12** | **-28** |
| 70% | **-4** | **-21** | 25 | **-50** | 50 | 13 | 27 | 18 | 75 | 8 | 27 | 2 |
| 80% | 3 | 15 | **-20** | 27 | 10 | **-8** | 10 | 45 | 11 | 10 | 41 | 13 |
| 90% | 2 | 1 | 24 | 21 | **-19** | 16 | 12 | 0 | **-1** | 7 | 2 | 3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-8** | 6 | 7 | 6 | 6 | 4 | 8 | 8 | 7 | **-6** | **-14** | **-6** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 16 | 46 | 49 | **-17** | **-10** | **-12** | **-5** | **-4** | **-2** | **-5** | **-11** | 18 |
| Above Normal (16%) | **-16** | 17 | 18 | 6 | **-11** | **-12** | **-11** | **-11** | **-20** | **-37** | **-50** | **-38** |
| Below Normal (13%) | **-58** | **-63** | **-65** | 51 | 51 | 37 | 39 | 37 | 34 | 15 | 4 | **-13** |
| Dry (24%) | **-10** | **-10** | **-10** | **0** | 1 | 4 | 8 | 8 | 12 | **0** | **-1** | **-7** |
| Critical (15%) | **-5** | **-3** | **-4** | 23 | 24 | 26 | 25 | 26 | 22 | **-1** | **-22** | **-19** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 1-4. Trinity Lake Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,850 | 1,839 | 1,850 | 1,900 | 2,000 | 2,100 | 2,300 | 2,354 | 2,314 | 2,261 | 2,130 | 1,934 |
| 20% | 1,804 | 1,749 | 1,809 | 1,885 | 2,000 | 2,100 | 2,270 | 2,282 | 2,221 | 2,094 | 1,964 | 1,855 |
| 30% | 1,510 | 1,551 | 1,656 | 1,765 | 1,950 | 2,096 | 2,226 | 2,163 | 2,059 | 1,914 | 1,759 | 1,600 |
| 40% | 1,430 | 1,445 | 1,537 | 1,668 | 1,775 | 2,011 | 2,151 | 2,080 | 1,960 | 1,806 | 1,619 | 1,437 |
| 50% | 1,245 | 1,275 | 1,391 | 1,529 | 1,684 | 1,782 | 1,942 | 1,881 | 1,795 | 1,652 | 1,479 | 1,336 |
| 60% | 1,169 | 1,185 | 1,274 | 1,345 | 1,529 | 1,667 | 1,802 | 1,724 | 1,657 | 1,506 | 1,337 | 1,224 |
| 70% | 1,072 | 1,078 | 1,134 | 1,205 | 1,285 | 1,432 | 1,580 | 1,597 | 1,479 | 1,395 | 1,229 | 1,097 |
| 80% | 901 | 945 | 983 | 1,005 | 1,122 | 1,276 | 1,443 | 1,383 | 1,328 | 1,176 | 1,024 | 924 |
| 90% | 655 | 666 | 668 | 697 | 828 | 922 | 1,018 | 978 | 924 | 854 | 755 | 673 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,264 | 1,271 | 1,334 | 1,415 | 1,543 | 1,670 | 1,815 | 1,792 | 1,728 | 1,602 | 1,455 | 1,319 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,696 | 1,681 | 1,698 | 1,769 | 1,937 | 2,063 | 2,233 | 2,257 | 2,203 | 2,091 | 1,958 | 1,791 |
| Above Normal (16%) | 1,477 | 1,467 | 1,507 | 1,511 | 1,723 | 1,908 | 2,094 | 2,068 | 1,981 | 1,852 | 1,686 | 1,534 |
| Below Normal (13%) | 1,171 | 1,185 | 1,262 | 1,496 | 1,584 | 1,687 | 1,844 | 1,769 | 1,677 | 1,521 | 1,346 | 1,203 |
| Dry (24%) | 1,029 | 1,070 | 1,213 | 1,208 | 1,302 | 1,434 | 1,571 | 1,523 | 1,454 | 1,304 | 1,158 | 1,050 |
| Critical (15%) | 579 | 586 | 627 | 817 | 859 | 941 | 990 | 955 | 929 | 842 | 711 | 621 |

### Alternative 4 043019

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,850 | 1,850 | 1,850 | 1,900 | 2,000 | 2,100 | 2,300 | 2,348 | 2,303 | 2,248 | 2,130 | 1,975 |
| 20% | 1,805 | 1,820 | 1,849 | 1,900 | 2,000 | 2,100 | 2,255 | 2,272 | 2,186 | 2,054 | 1,876 | 1,813 |
| 30% | 1,586 | 1,618 | 1,695 | 1,837 | 2,000 | 2,100 | 2,232 | 2,188 | 2,082 | 1,944 | 1,791 | 1,621 |
| 40% | 1,405 | 1,456 | 1,626 | 1,721 | 1,850 | 2,050 | 2,192 | 2,103 | 2,007 | 1,801 | 1,625 | 1,457 |
| 50% | 1,324 | 1,353 | 1,449 | 1,625 | 1,754 | 1,861 | 2,032 | 1,943 | 1,827 | 1,690 | 1,510 | 1,374 |
| 60% | 1,270 | 1,264 | 1,327 | 1,435 | 1,562 | 1,722 | 1,846 | 1,823 | 1,755 | 1,590 | 1,405 | 1,288 |
| 70% | 1,151 | 1,177 | 1,246 | 1,291 | 1,434 | 1,540 | 1,671 | 1,651 | 1,609 | 1,483 | 1,309 | 1,184 |
| 80% | 1,015 | 1,016 | 1,025 | 1,098 | 1,179 | 1,391 | 1,576 | 1,485 | 1,415 | 1,277 | 1,104 | 1,012 |
| 90% | 669 | 741 | 770 | 824 | 857 | 947 | 1,068 | 1,015 | 990 | 890 | 767 | 670 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,312 | 1,331 | 1,394 | 1,475 | 1,598 | 1,717 | 1,856 | 1,834 | 1,773 | 1,638 | 1,487 | 1,362 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,715 | 1,730 | 1,751 | 1,788 | 1,953 | 2,066 | 2,232 | 2,256 | 2,199 | 2,080 | 1,943 | 1,803 |
| Above Normal (16%) | 1,509 | 1,526 | 1,568 | 1,602 | 1,791 | 1,962 | 2,129 | 2,103 | 2,011 | 1,870 | 1,700 | 1,550 |
| Below Normal (13%) | 1,247 | 1,259 | 1,335 | 1,572 | 1,658 | 1,745 | 1,901 | 1,830 | 1,746 | 1,572 | 1,401 | 1,271 |
| Dry (24%) | 1,099 | 1,134 | 1,275 | 1,277 | 1,371 | 1,504 | 1,639 | 1,594 | 1,541 | 1,394 | 1,239 | 1,126 |
| Critical (15%) | 637 | 647 | 686 | 900 | 943 | 1,021 | 1,068 | 1,032 | 1,003 | 898 | 762 | 682 |

### Alternative 4 043019 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 11 | 0 | 0 | 0 | 0 | **0** | **-6** | **-11** | **-13** | 0 | 41 |
| 20% | 1 | 71 | 41 | 15 | 0 | 0 | **-15** | **-9** | **-35** | **-40** | **-88** | **-42** |
| 30% | 76 | 67 | 40 | 72 | 50 | 4 | 6 | 25 | 22 | 30 | 32 | 21 |
| 40% | **-25** | 11 | 89 | 53 | 75 | 39 | 41 | 24 | 48 | **-5** | 6 | 21 |
| 50% | 79 | 78 | 58 | 95 | 69 | 79 | 90 | 62 | 32 | 38 | 30 | 37 |
| 60% | 102 | 79 | 53 | 90 | 33 | 54 | 45 | 98 | 98 | 84 | 67 | 64 |
| 70% | 80 | 99 | 113 | 86 | 148 | 108 | 91 | 54 | 130 | 88 | 80 | 87 |
| 80% | 114 | 71 | 42 | 93 | 57 | 115 | 134 | 102 | 87 | 101 | 80 | 87 |
| 90% | 14 | 76 | 103 | 126 | 29 | 25 | 50 | 37 | 66 | 36 | 12 | **-3** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 47 | 59 | 60 | 60 | 55 | 46 | 41 | 42 | 45 | 36 | 32 | 43 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 20 | 49 | 52 | 19 | 16 | 3 | **-1** | **-1** | **-4** | **-11** | **-15** | 12 |
| Above Normal (16%) | 32 | 59 | 61 | 91 | 69 | 54 | 35 | 35 | 30 | 18 | 14 | 16 |
| Below Normal (13%) | 76 | 74 | 73 | 76 | 75 | 58 | 57 | 61 | 69 | 51 | 55 | 69 |
| Dry (24%) | 70 | 64 | 62 | 69 | 70 | 70 | 68 | 70 | 87 | 89 | 82 | 76 |
| Critical (15%) | 58 | 61 | 59 | 83 | 84 | 80 | 78 | 77 | 74 | 56 | 51 | 61 |

a Based on the 82-year simulation period.

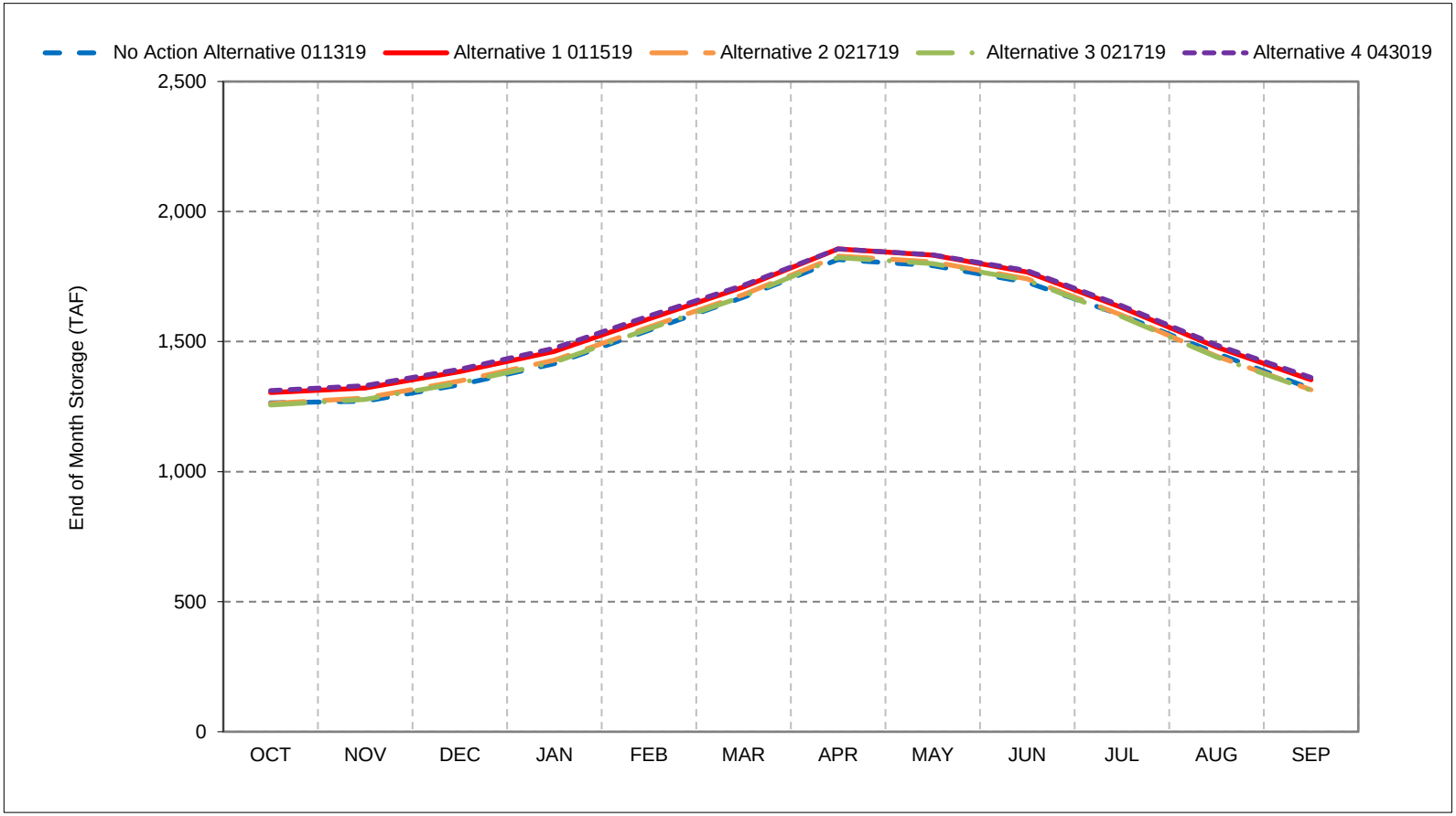
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

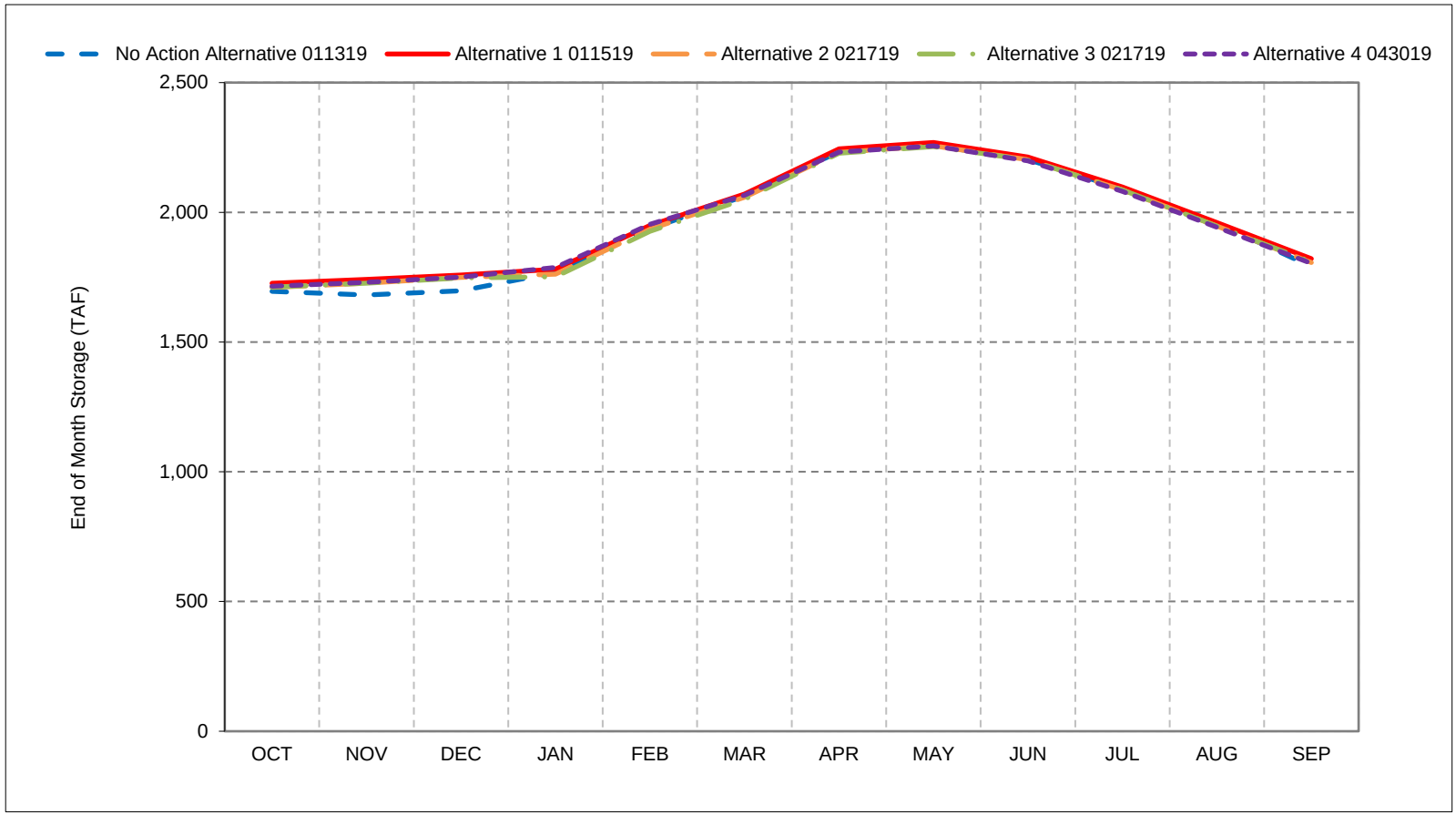
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-1. Trinity Lake Storage, Long-Term Average Storage



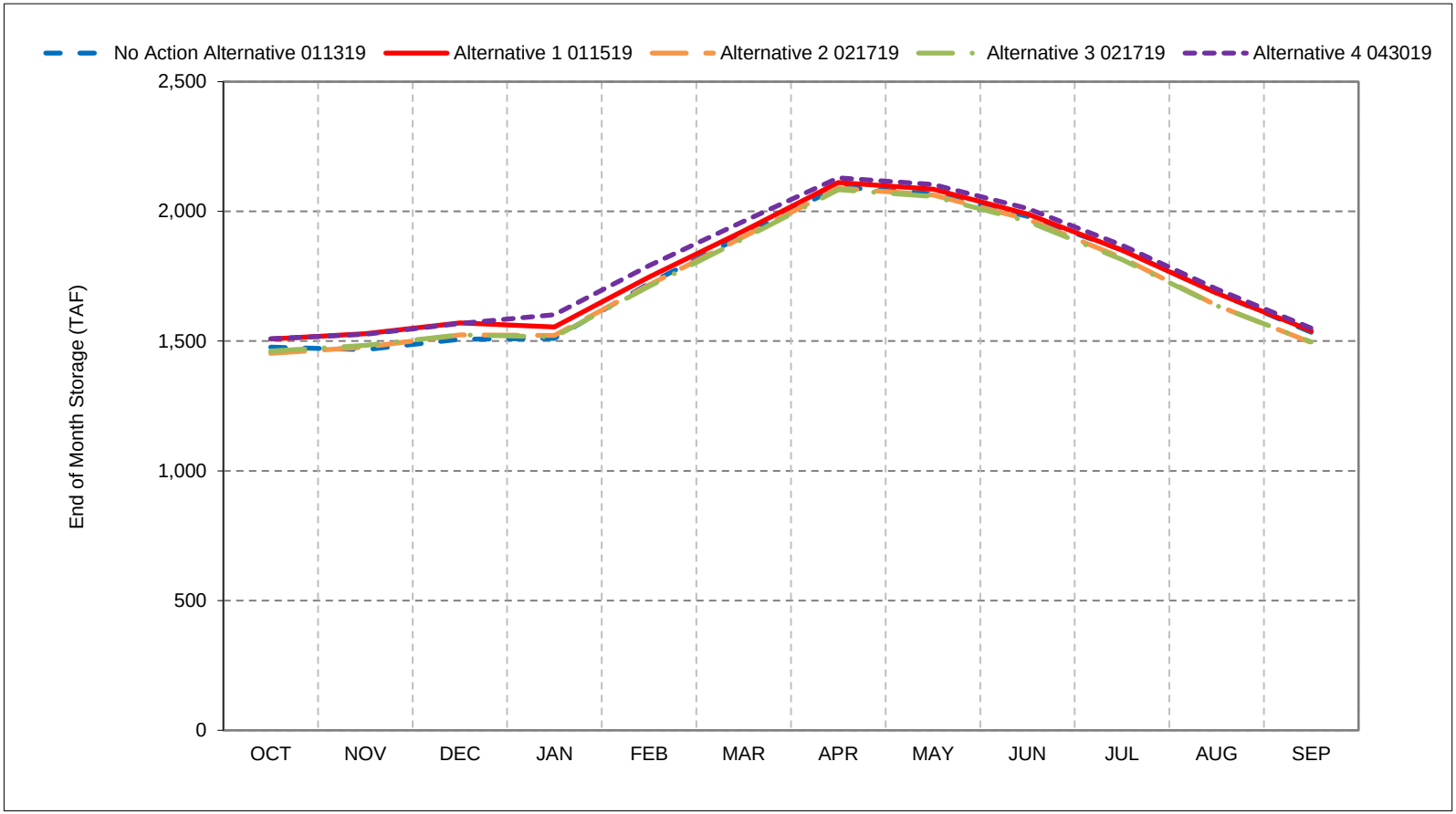

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-2. Trinity Lake Storage, Wet Year Average Storage



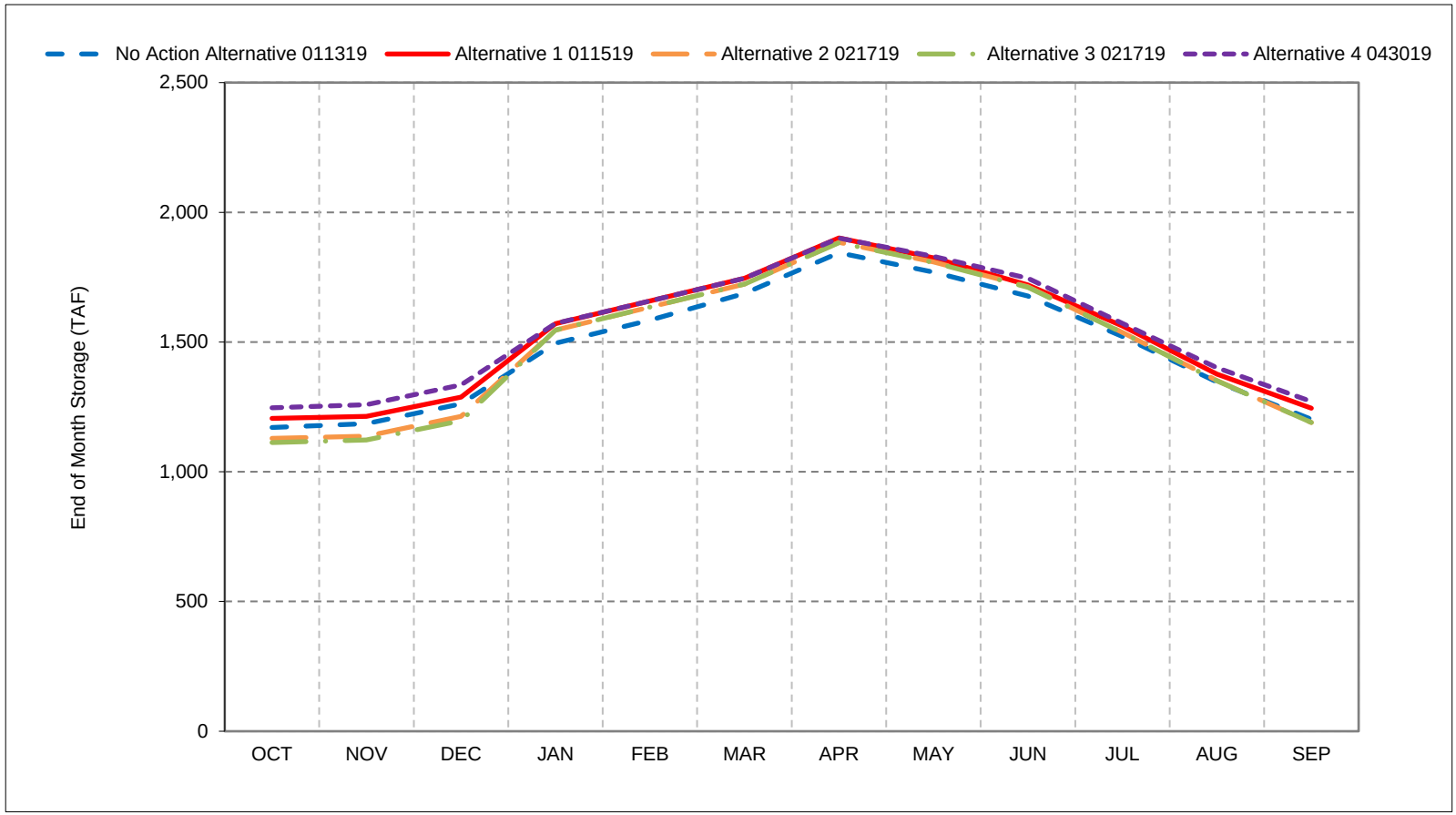

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-3. Trinity Lake Storage, Above Normal Year Average Storage



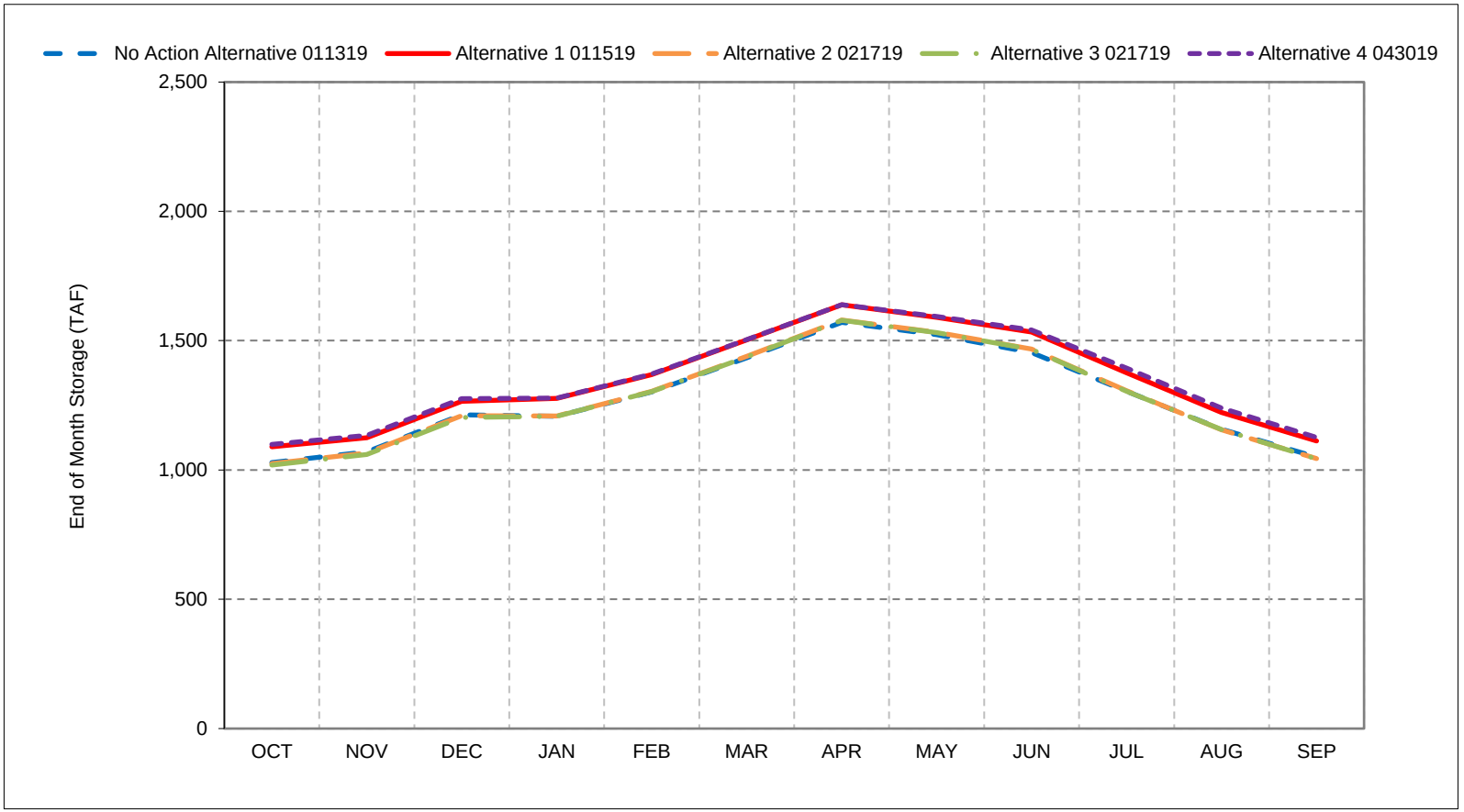

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-4. Trinity Lake Storage, Below Normal Year Average Storage



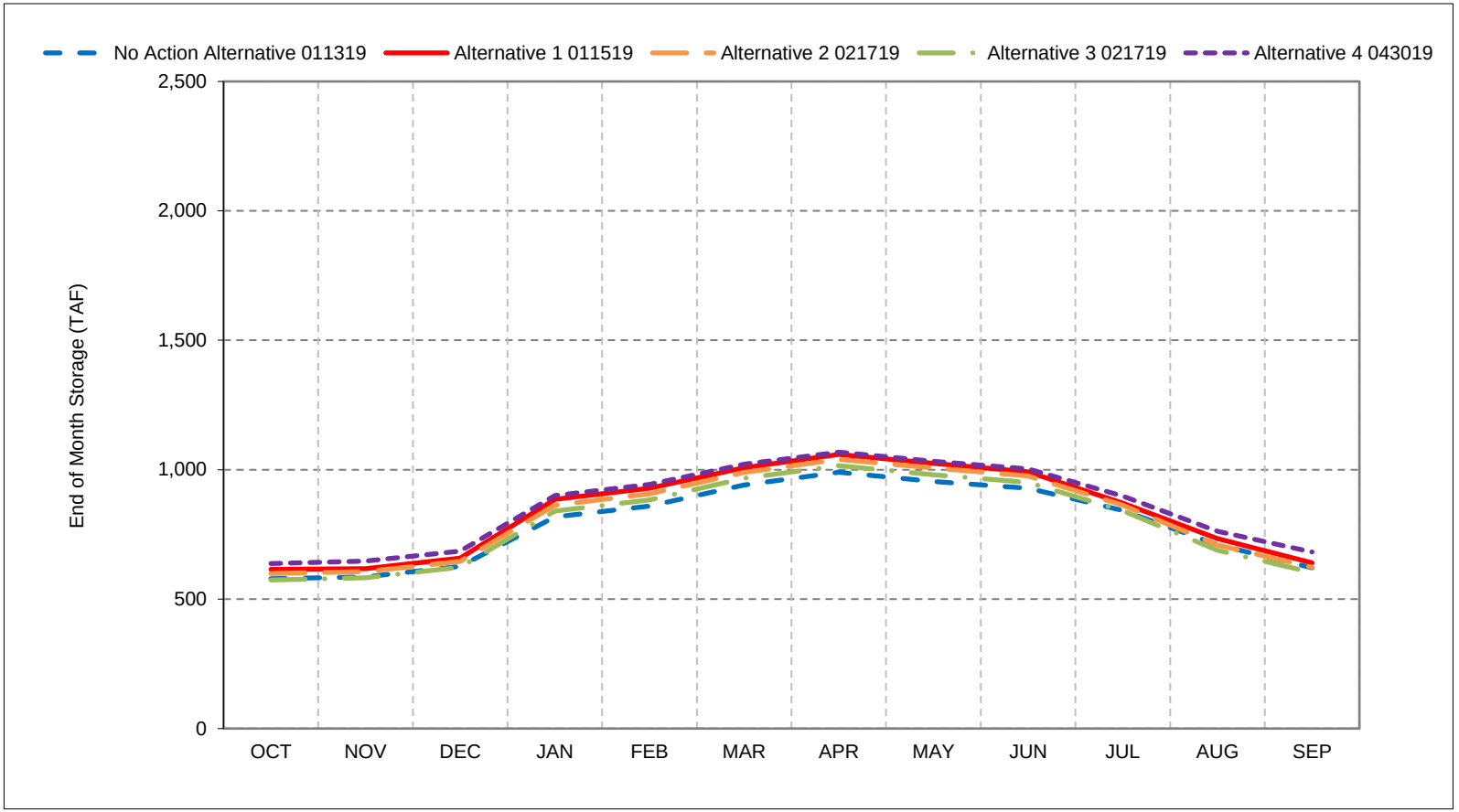

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-5. Trinity Lake Storage, Dry Year Average Storage



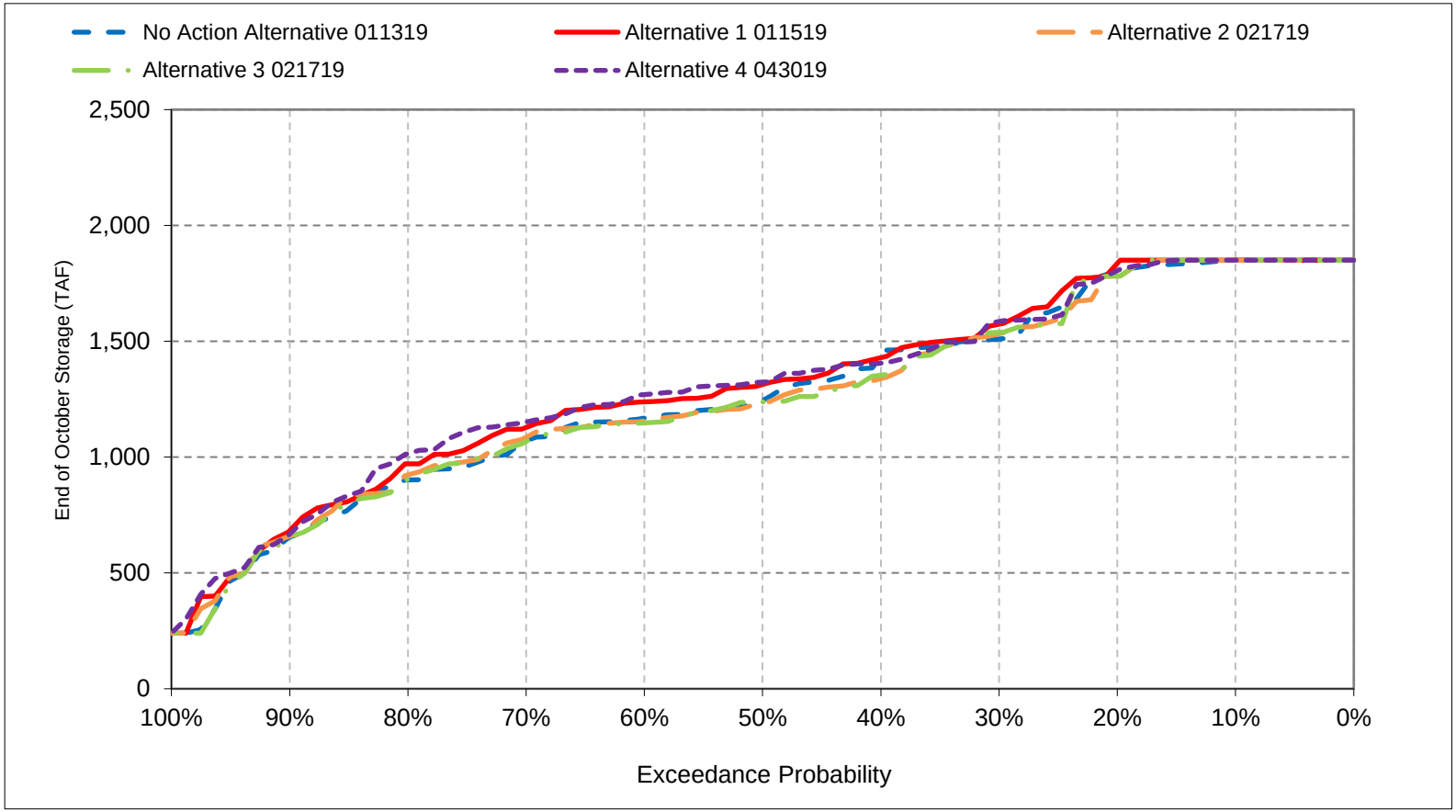

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-6. Trinity Lake Storage, Critical Year Average Storage



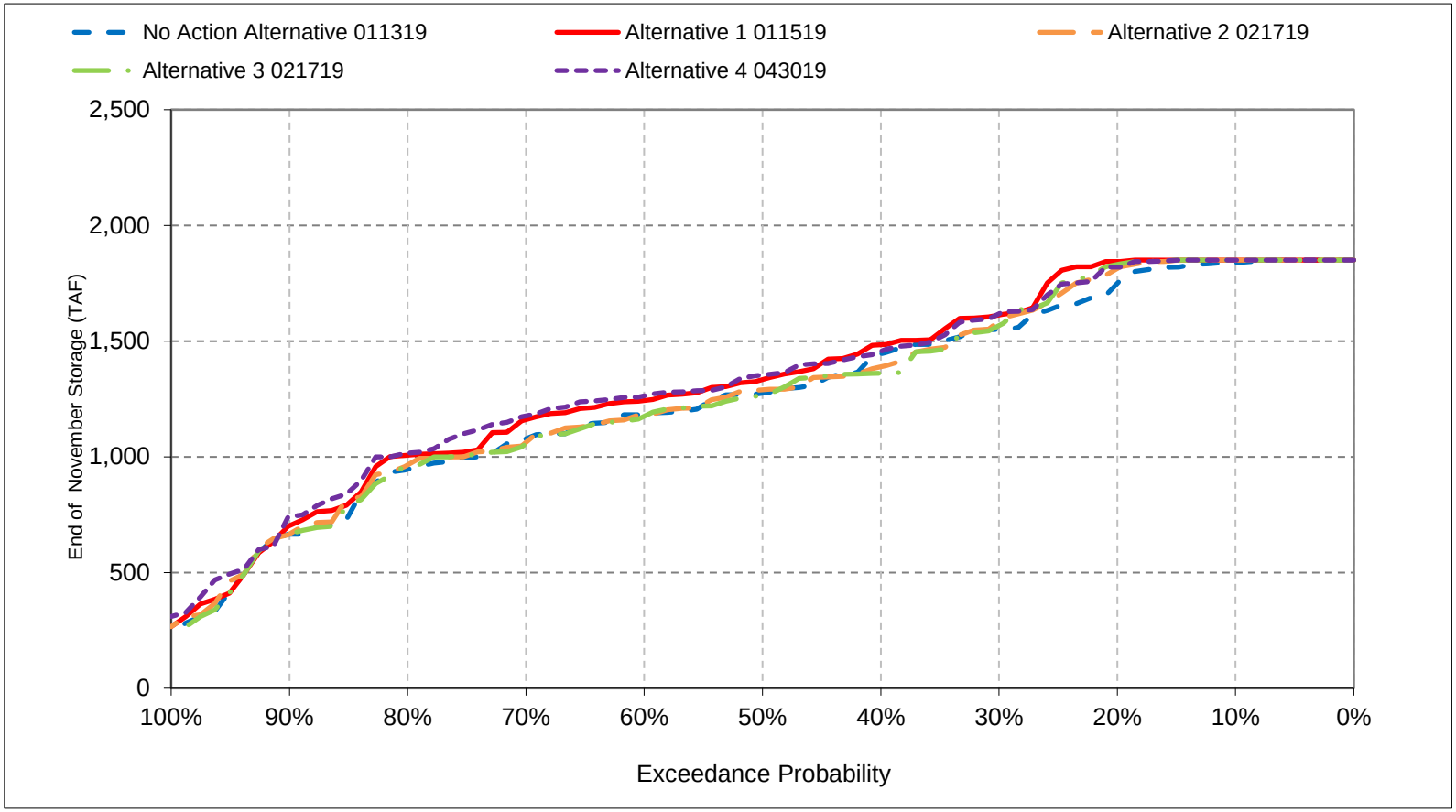

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-7. Trinity Lake Storage, End of October Storage



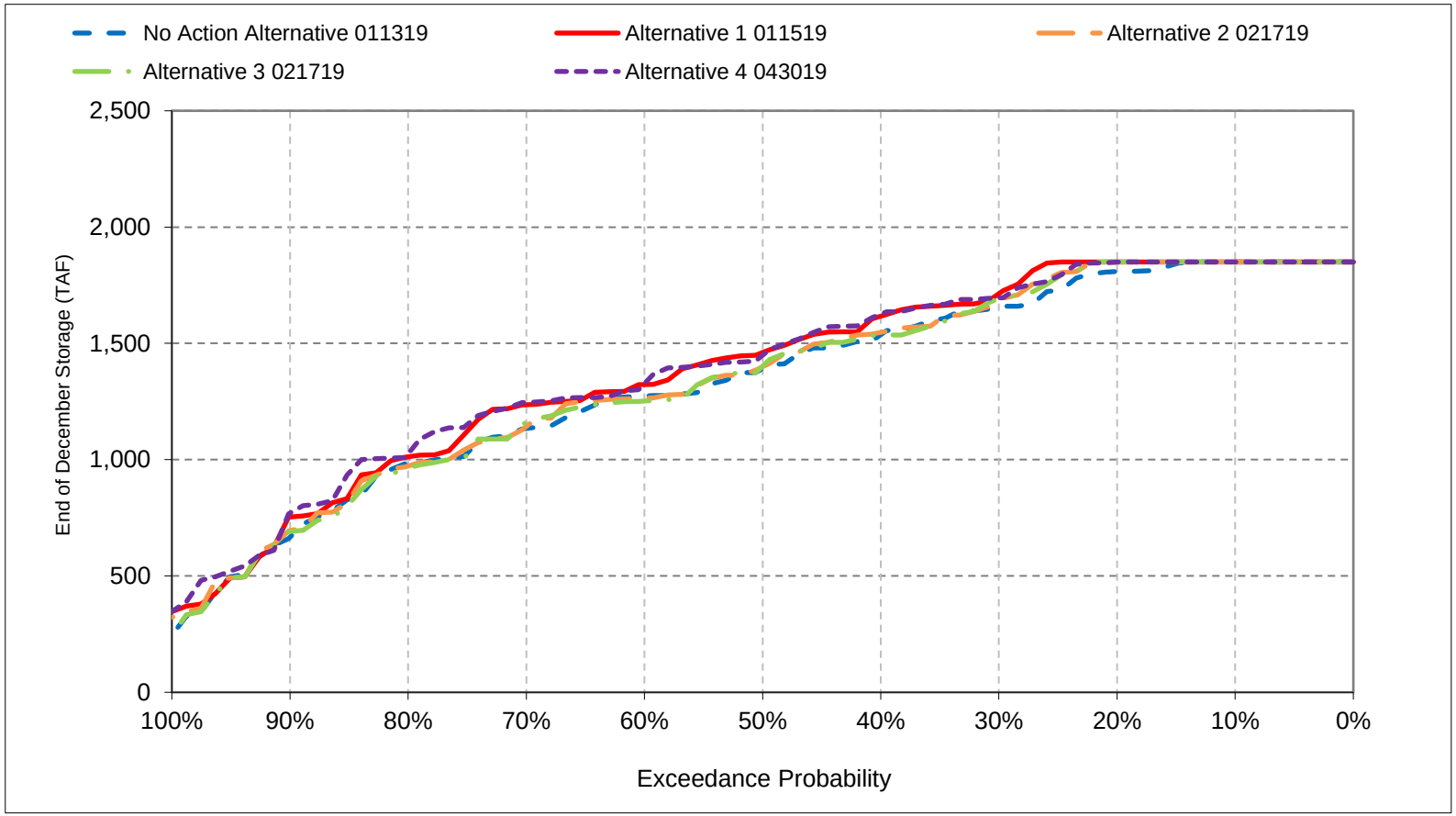

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-8. Trinity Lake Storage, End of November Storage



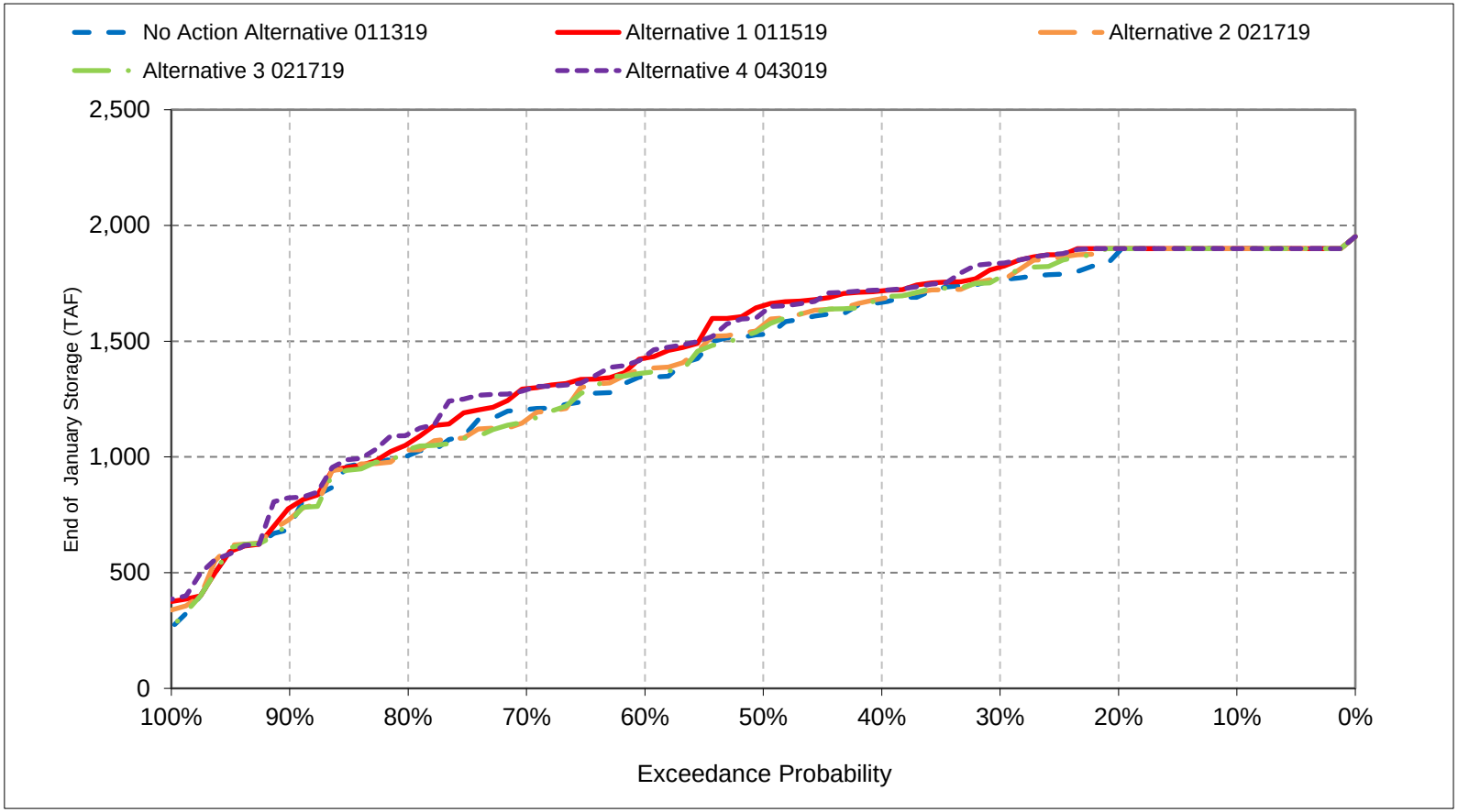

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-9. Trinity Lake Storage, End of December Storage



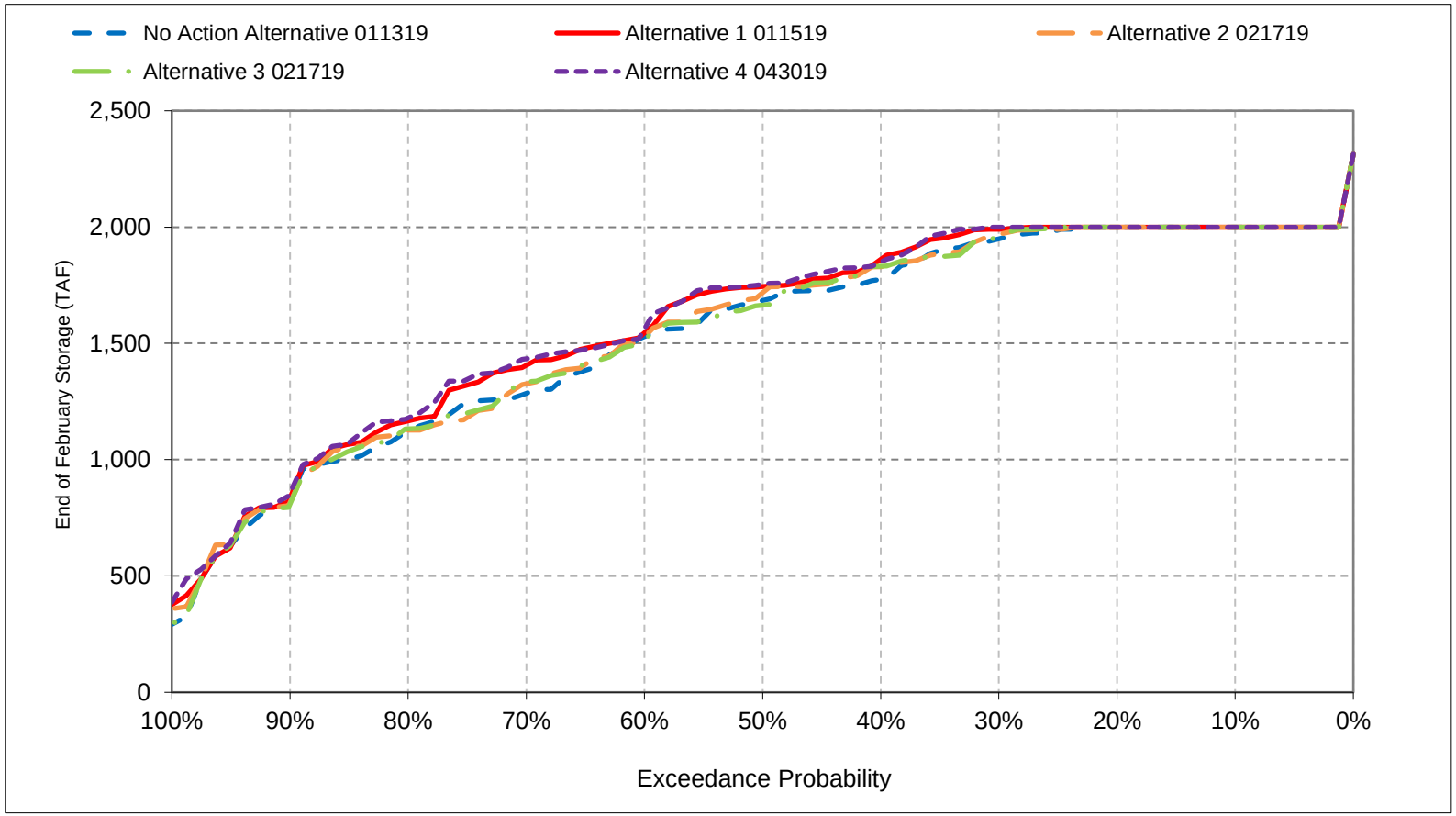

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-10. Trinity Lake Storage, End of January Storage



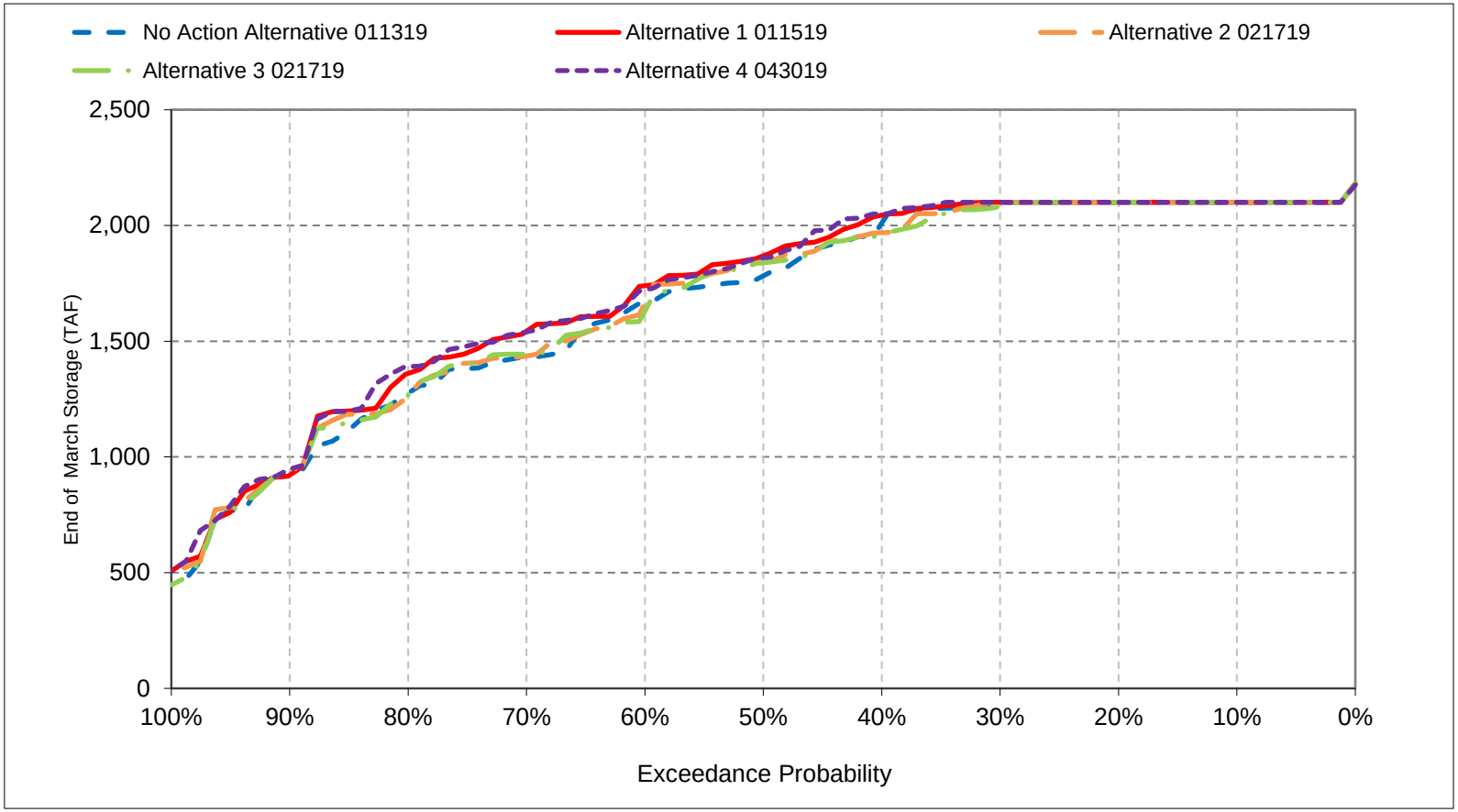

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-11. Trinity Lake Storage, End of February Storage



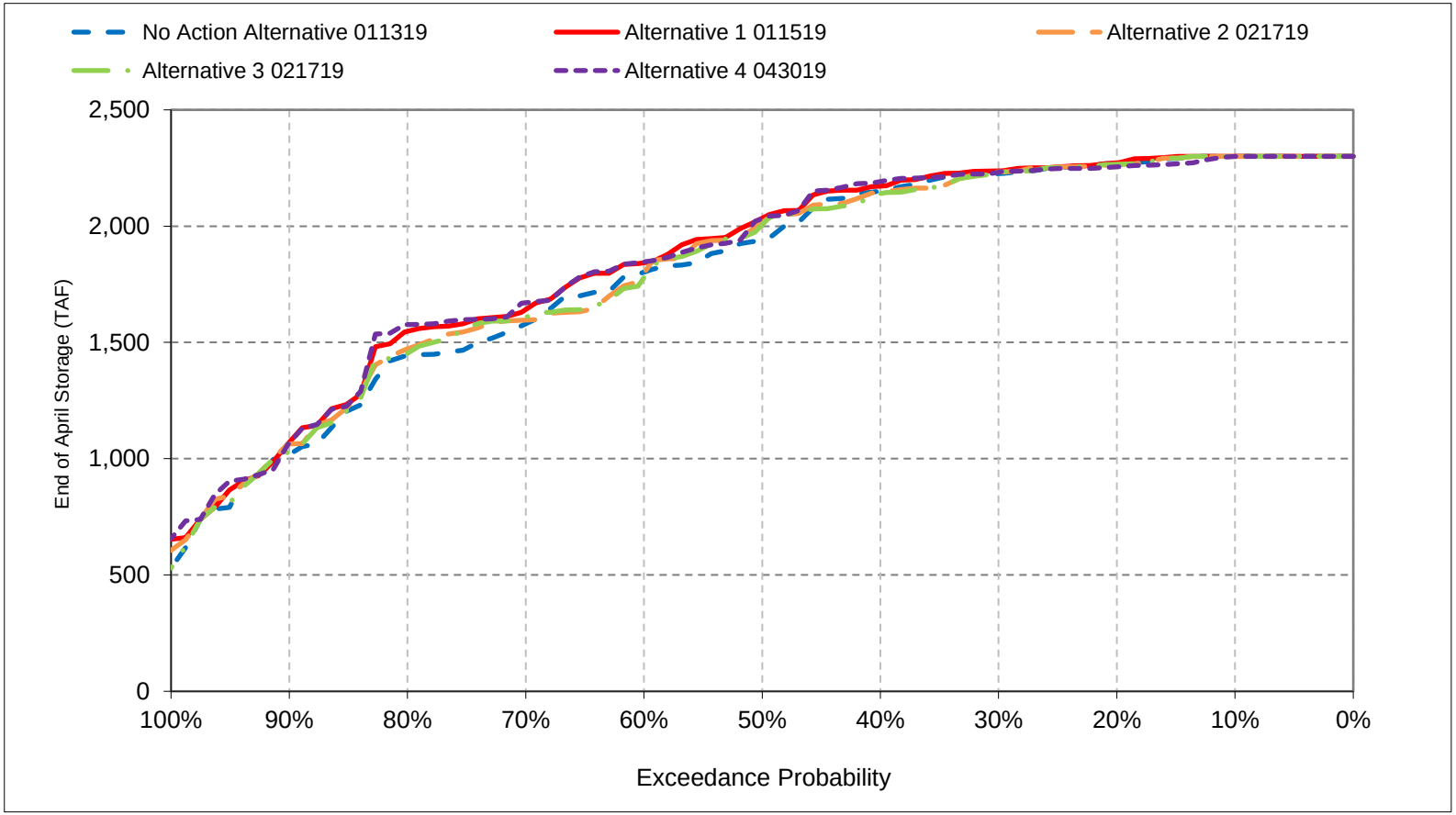

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-12. Trinity Lake Storage, End of March Storage



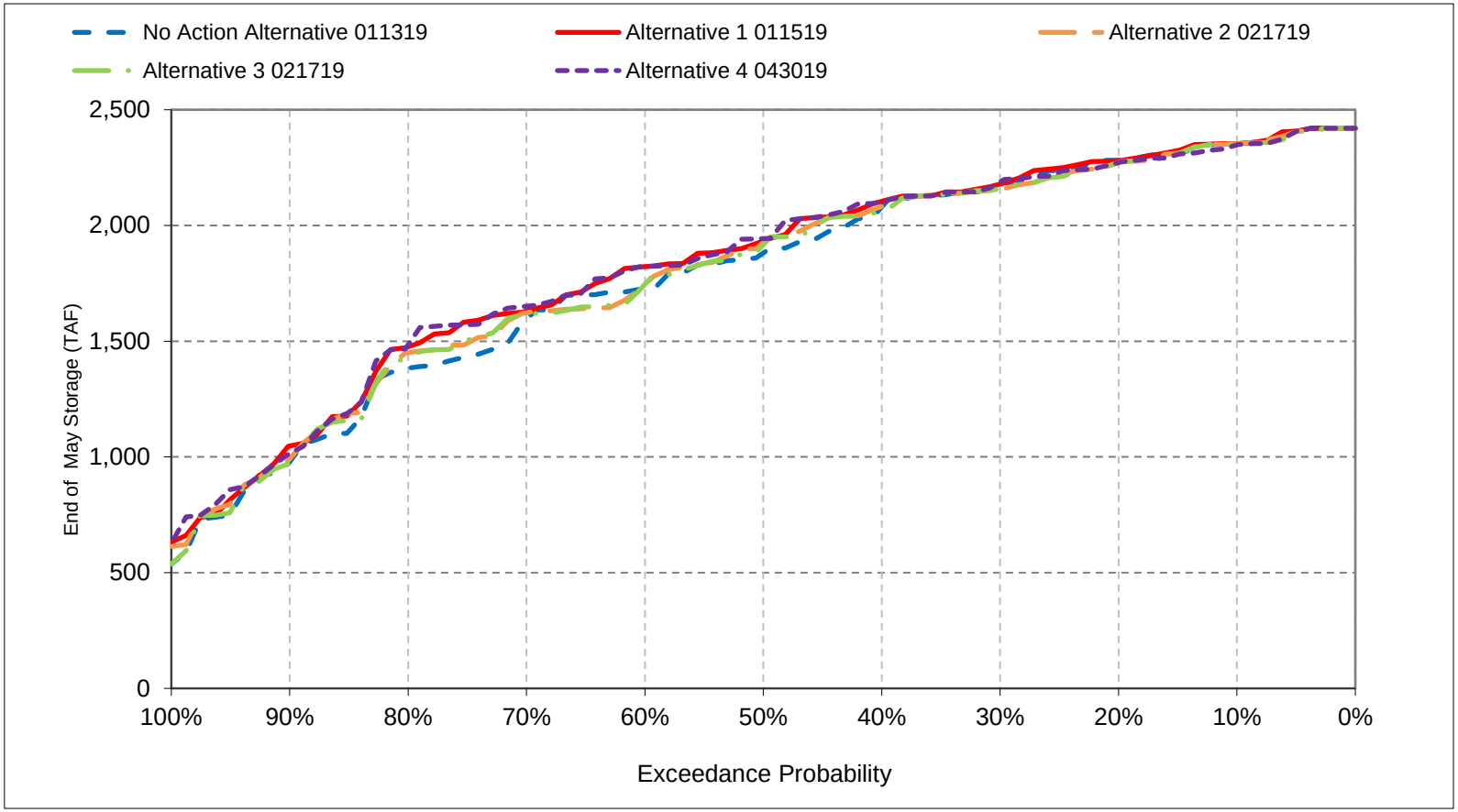

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-13. Trinity Lake Storage, End of April Storage



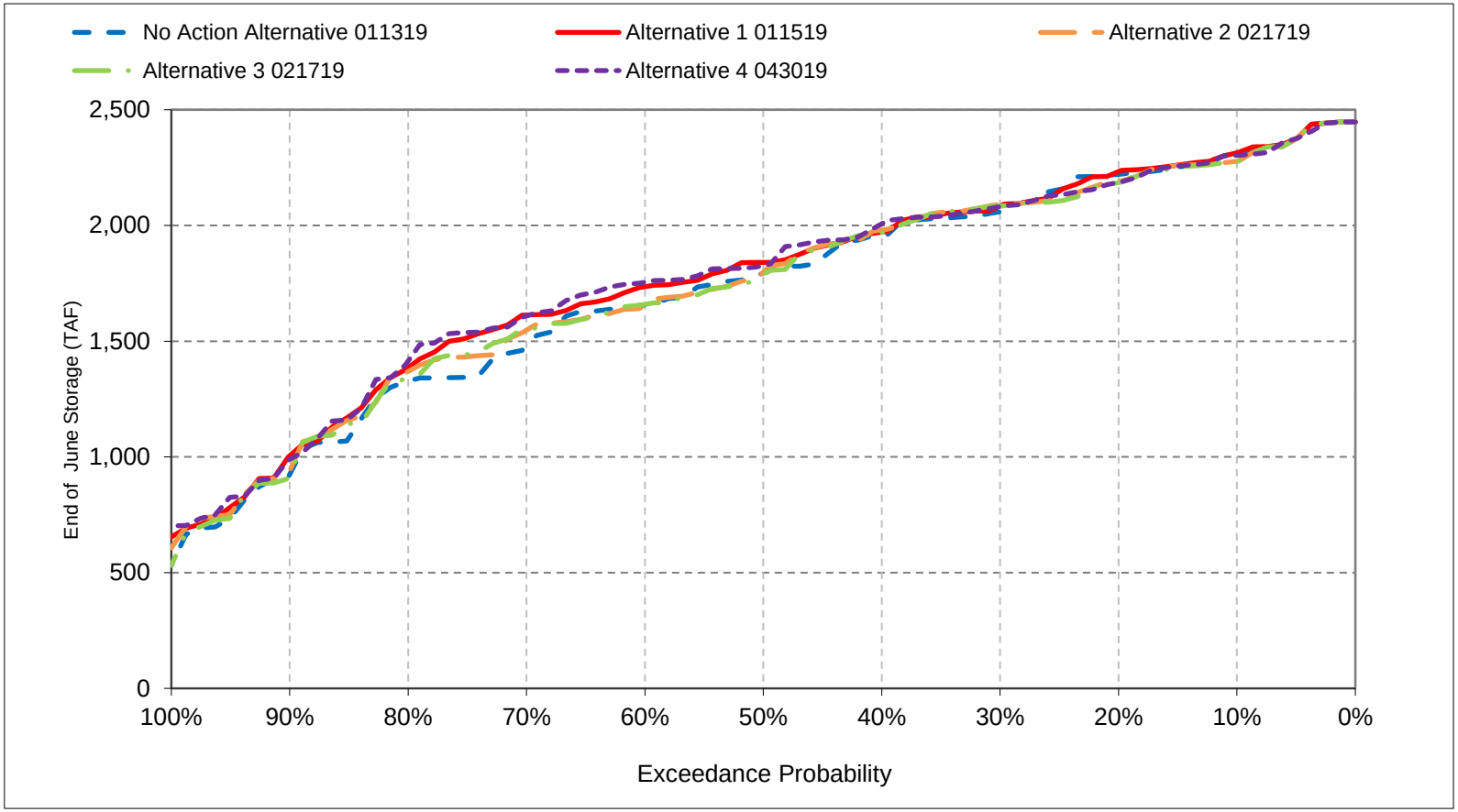

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-14. Trinity Lake Storage, End of May Storage



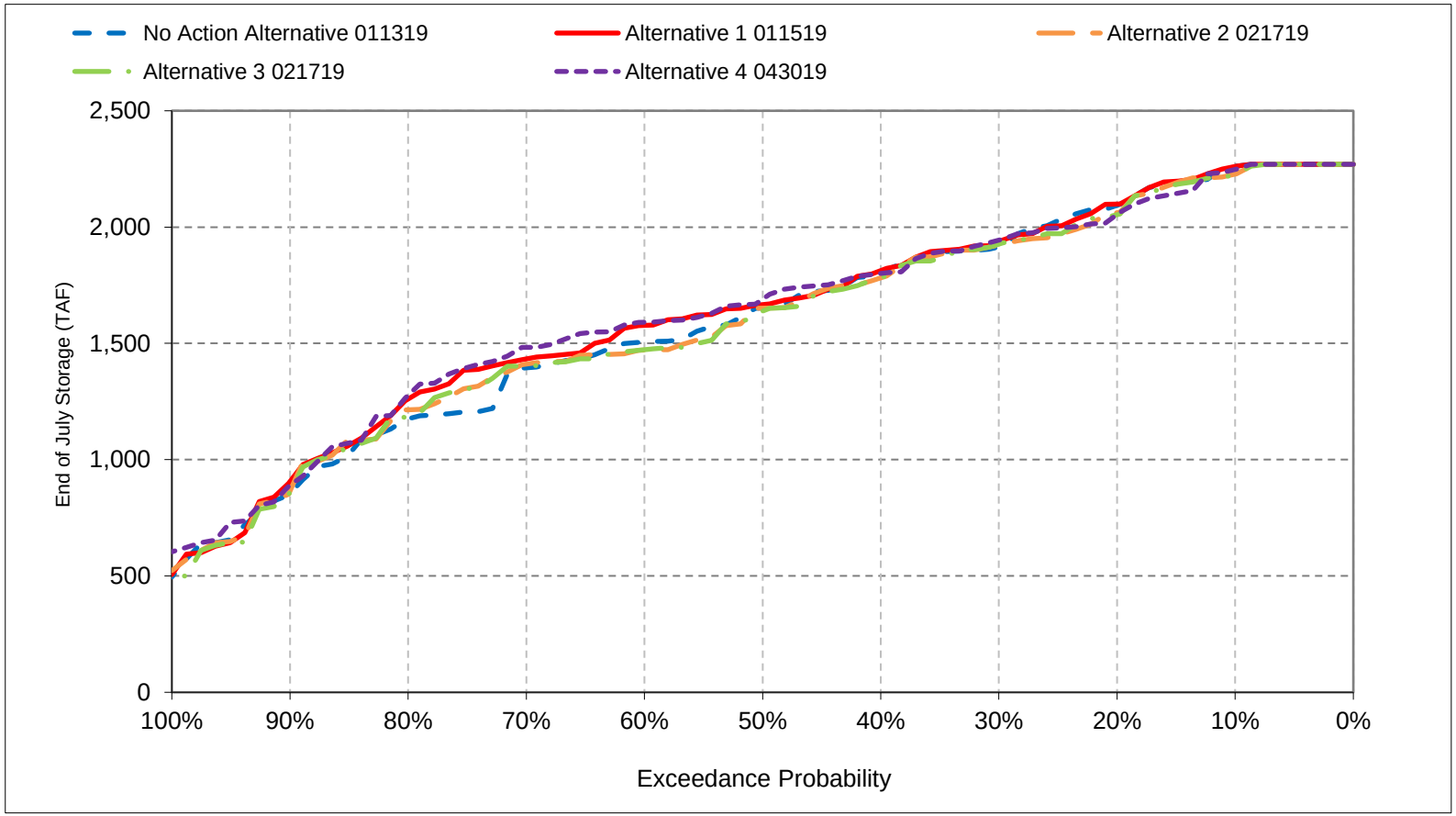

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-15. Trinity Lake Storage, End of June Storage



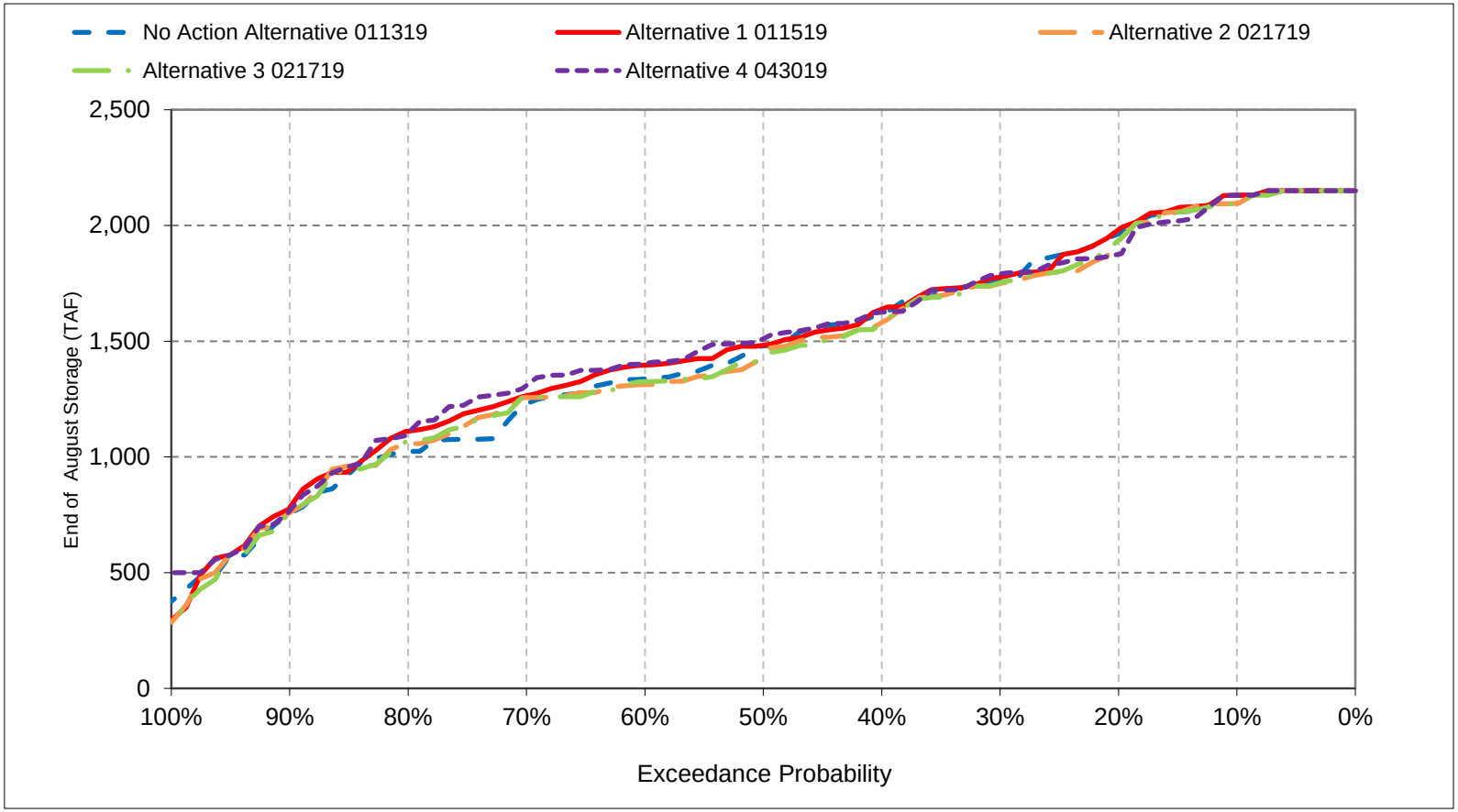

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-16. Trinity Lake Storage, End of July Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

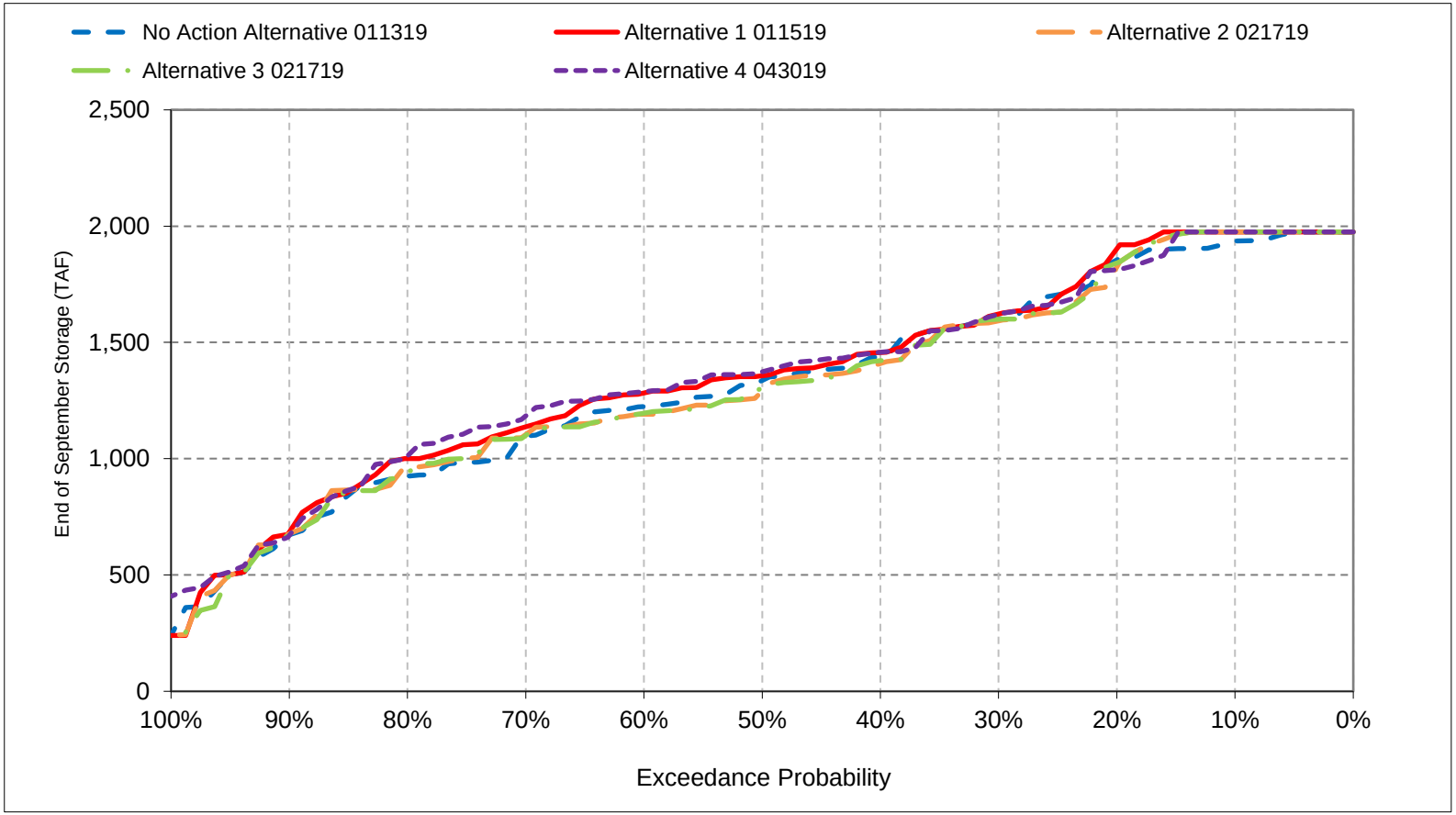
## Figure 1-17. Trinity Lake Storage, End of August Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-18. Trinity Lake Storage, End of September Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

# Table 1a-1. Trinity Lake Elevation, End of Month Elevation

## No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,332 | 2,331 | 2,332 | 2,337 | 2,345 | 2,350 | 2,361 | 2,364 | 2,362 | 2,359 | 2,352 | 2,339 |
| 20% | 2,328 | 2,324 | 2,329 | 2,335 | 2,345 | 2,350 | 2,359 | 2,360 | 2,357 | 2,350 | 2,342 | 2,333 |
| 30% | 2,303 | 2,307 | 2,316 | 2,325 | 2,341 | 2,350 | 2,357 | 2,354 | 2,348 | 2,338 | 2,324 | 2,311 |
| 40% | 2,297 | 2,298 | 2,306 | 2,317 | 2,326 | 2,345 | 2,353 | 2,349 | 2,342 | 2,328 | 2,313 | 2,297 |
| 50% | 2,280 | 2,283 | 2,293 | 2,305 | 2,318 | 2,326 | 2,340 | 2,335 | 2,328 | 2,315 | 2,301 | 2,289 |
| 60% | 2,273 | 2,275 | 2,283 | 2,289 | 2,305 | 2,317 | 2,328 | 2,322 | 2,316 | 2,303 | 2,289 | 2,278 |
| 70% | 2,263 | 2,264 | 2,269 | 2,276 | 2,284 | 2,297 | 2,309 | 2,311 | 2,301 | 2,294 | 2,279 | 2,266 |
| 80% | 2,244 | 2,249 | 2,253 | 2,256 | 2,268 | 2,284 | 2,298 | 2,293 | 2,288 | 2,274 | 2,258 | 2,246 |
| 90% | 2,210 | 2,211 | 2,212 | 2,216 | 2,234 | 2,246 | 2,257 | 2,252 | 2,246 | 2,238 | 2,224 | 2,212 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,275 | 2,276 | 2,282 | 2,290 | 2,302 | 2,313 | 2,324 | 2,322 | 2,317 | 2,307 | 2,294 | 2,281 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,319 | 2,318 | 2,319 | 2,325 | 2,339 | 2,348 | 2,357 | 2,359 | 2,355 | 2,348 | 2,339 | 2,327 |
| Above Normal (16%) | 2,300 | 2,299 | 2,303 | 2,302 | 2,321 | 2,336 | 2,348 | 2,347 | 2,341 | 2,332 | 2,318 | 2,305 |
| Below Normal (13%) | 2,270 | 2,271 | 2,278 | 2,300 | 2,308 | 2,317 | 2,329 | 2,324 | 2,317 | 2,303 | 2,288 | 2,274 |
| Dry (24%) | 2,256 | 2,261 | 2,274 | 2,272 | 2,282 | 2,295 | 2,307 | 2,303 | 2,297 | 2,284 | 2,270 | 2,259 |
| Critical (15%) | 2,185 | 2,190 | 2,198 | 2,224 | 2,231 | 2,243 | 2,250 | 2,246 | 2,244 | 2,233 | 2,214 | 2,197 |

## Alternative 1 011519

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,332 | 2,332 | 2,332 | 2,337 | 2,345 | 2,350 | 2,361 | 2,364 | 2,362 | 2,359 | 2,352 | 2,343 |
| 20% | 2,331 | 2,332 | 2,332 | 2,337 | 2,345 | 2,350 | 2,360 | 2,360 | 2,357 | 2,350 | 2,343 | 2,337 |
| 30% | 2,309 | 2,312 | 2,321 | 2,330 | 2,344 | 2,350 | 2,358 | 2,355 | 2,349 | 2,340 | 2,326 | 2,313 |
| 40% | 2,297 | 2,301 | 2,312 | 2,321 | 2,333 | 2,347 | 2,354 | 2,351 | 2,343 | 2,329 | 2,314 | 2,299 |
| 50% | 2,287 | 2,289 | 2,299 | 2,316 | 2,323 | 2,334 | 2,347 | 2,339 | 2,331 | 2,317 | 2,301 | 2,290 |
| 60% | 2,280 | 2,280 | 2,288 | 2,296 | 2,306 | 2,323 | 2,332 | 2,330 | 2,323 | 2,309 | 2,294 | 2,284 |
| 70% | 2,269 | 2,272 | 2,280 | 2,285 | 2,295 | 2,306 | 2,315 | 2,314 | 2,312 | 2,297 | 2,282 | 2,270 |
| 80% | 2,252 | 2,256 | 2,256 | 2,262 | 2,273 | 2,291 | 2,307 | 2,301 | 2,293 | 2,282 | 2,267 | 2,255 |
| 90% | 2,214 | 2,217 | 2,224 | 2,228 | 2,235 | 2,246 | 2,263 | 2,260 | 2,256 | 2,244 | 2,228 | 2,214 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,279 | 2,281 | 2,287 | 2,295 | 2,307 | 2,317 | 2,328 | 2,326 | 2,321 | 2,310 | 2,296 | 2,284 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,322 | 2,323 | 2,324 | 2,326 | 2,340 | 2,348 | 2,358 | 2,360 | 2,356 | 2,349 | 2,339 | 2,330 |
| Above Normal (16%) | 2,303 | 2,305 | 2,308 | 2,305 | 2,323 | 2,337 | 2,349 | 2,348 | 2,342 | 2,332 | 2,318 | 2,306 |
| Below Normal (13%) | 2,274 | 2,274 | 2,281 | 2,307 | 2,315 | 2,322 | 2,333 | 2,328 | 2,320 | 2,307 | 2,290 | 2,278 |
| Dry (24%) | 2,263 | 2,266 | 2,279 | 2,278 | 2,288 | 2,300 | 2,313 | 2,309 | 2,304 | 2,290 | 2,276 | 2,265 |
| Critical (15%) | 2,193 | 2,197 | 2,205 | 2,234 | 2,240 | 2,251 | 2,258 | 2,254 | 2,251 | 2,236 | 2,216 | 2,197 |

## Alternative 1 011519 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 20% | 3 | 8 | 3 | 1 | 0 | 0 | 0 | **0** | 1 | 0 | 2 | 4 |
| 30% | 5 | 5 | 5 | 5 | 4 | 0 | 1 | 1 | 1 | 2 | 2 | 2 |
| 40% | **0** | 3 | 7 | 4 | 7 | 2 | 1 | 1 | 1 | 1 | 2 | 2 |
| 50% | 6 | 5 | 6 | 10 | 5 | 7 | 7 | 4 | 4 | 1 | 0 | 2 |
| 60% | 7 | 6 | 4 | 7 | 1 | 6 | 3 | 8 | 7 | 6 | 5 | 6 |
| 70% | 6 | 8 | 10 | 9 | 10 | 9 | 5 | 3 | 11 | 3 | 3 | 4 |
| 80% | 8 | 7 | 3 | 6 | 4 | 7 | 9 | 8 | 5 | 8 | 9 | 9 |
| 90% | 4 | 5 | 12 | 12 | 1 | **0** | 6 | 8 | 9 | 6 | 4 | 2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 3 | 2 | 3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3 | 5 | 5 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 3 |
| Above Normal (16%) | 3 | 5 | 6 | 4 | 2 | 1 | 1 | 1 | 1 | 0 | **0** | 0 |
| Below Normal (13%) | 4 | 3 | 2 | 7 | 7 | 5 | 5 | 4 | 4 | 3 | 3 | 4 |
| Dry (24%) | 7 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 6 | 6 | 7 |
| Critical (15%) | 8 | 7 | 7 | 10 | 9 | 8 | 8 | 8 | 7 | 3 | 2 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 1a-2. Trinity Lake Elevation, End of Month Elevation

### No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,332 | 2,331 | 2,332 | 2,337 | 2,345 | 2,350 | 2,361 | 2,364 | 2,362 | 2,359 | 2,352 | 2,339 |
| 20% | 2,328 | 2,324 | 2,329 | 2,335 | 2,345 | 2,350 | 2,359 | 2,360 | 2,357 | 2,350 | 2,342 | 2,333 |
| 30% | 2,303 | 2,307 | 2,316 | 2,325 | 2,341 | 2,350 | 2,357 | 2,354 | 2,348 | 2,338 | 2,324 | 2,311 |
| 40% | 2,297 | 2,298 | 2,306 | 2,317 | 2,326 | 2,345 | 2,353 | 2,349 | 2,342 | 2,328 | 2,313 | 2,297 |
| 50% | 2,280 | 2,283 | 2,293 | 2,305 | 2,318 | 2,326 | 2,340 | 2,335 | 2,328 | 2,315 | 2,301 | 2,289 |
| 60% | 2,273 | 2,275 | 2,283 | 2,289 | 2,305 | 2,317 | 2,328 | 2,322 | 2,316 | 2,303 | 2,289 | 2,278 |
| 70% | 2,263 | 2,264 | 2,269 | 2,276 | 2,284 | 2,297 | 2,309 | 2,311 | 2,301 | 2,294 | 2,279 | 2,266 |
| 80% | 2,244 | 2,249 | 2,253 | 2,256 | 2,268 | 2,284 | 2,298 | 2,293 | 2,288 | 2,274 | 2,258 | 2,246 |
| 90% | 2,210 | 2,211 | 2,212 | 2,216 | 2,234 | 2,246 | 2,257 | 2,252 | 2,246 | 2,238 | 2,224 | 2,212 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,275 | 2,276 | 2,282 | 2,290 | 2,302 | 2,313 | 2,324 | 2,322 | 2,317 | 2,307 | 2,294 | 2,281 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,319 | 2,318 | 2,319 | 2,325 | 2,339 | 2,348 | 2,357 | 2,359 | 2,355 | 2,348 | 2,339 | 2,327 |
| Above Normal (16%) | 2,300 | 2,299 | 2,303 | 2,302 | 2,321 | 2,336 | 2,348 | 2,347 | 2,341 | 2,332 | 2,318 | 2,305 |
| Below Normal (13%) | 2,270 | 2,271 | 2,278 | 2,300 | 2,308 | 2,317 | 2,329 | 2,324 | 2,317 | 2,303 | 2,288 | 2,274 |
| Dry (24%) | 2,256 | 2,261 | 2,274 | 2,272 | 2,282 | 2,295 | 2,307 | 2,303 | 2,297 | 2,284 | 2,270 | 2,259 |
| Critical (15%) | 2,185 | 2,190 | 2,198 | 2,224 | 2,231 | 2,243 | 2,250 | 2,246 | 2,244 | 2,233 | 2,214 | 2,197 |

### Alternative 2 021719

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,332 | 2,332 | 2,332 | 2,337 | 2,345 | 2,350 | 2,361 | 2,364 | 2,360 | 2,357 | 2,350 | 2,343 |
| 20% | 2,326 | 2,329 | 2,332 | 2,337 | 2,345 | 2,350 | 2,359 | 2,359 | 2,355 | 2,348 | 2,339 | 2,330 |
| 30% | 2,305 | 2,310 | 2,318 | 2,325 | 2,342 | 2,350 | 2,357 | 2,353 | 2,350 | 2,339 | 2,324 | 2,310 |
| 40% | 2,289 | 2,293 | 2,307 | 2,318 | 2,331 | 2,342 | 2,353 | 2,349 | 2,343 | 2,326 | 2,309 | 2,295 |
| 50% | 2,279 | 2,285 | 2,294 | 2,308 | 2,321 | 2,331 | 2,346 | 2,339 | 2,328 | 2,315 | 2,298 | 2,285 |
| 60% | 2,272 | 2,274 | 2,283 | 2,292 | 2,305 | 2,317 | 2,328 | 2,323 | 2,316 | 2,300 | 2,287 | 2,275 |
| 70% | 2,265 | 2,262 | 2,270 | 2,272 | 2,288 | 2,297 | 2,311 | 2,313 | 2,307 | 2,295 | 2,282 | 2,266 |
| 80% | 2,246 | 2,251 | 2,252 | 2,258 | 2,269 | 2,282 | 2,300 | 2,298 | 2,292 | 2,277 | 2,262 | 2,251 |
| 90% | 2,210 | 2,211 | 2,215 | 2,221 | 2,232 | 2,249 | 2,262 | 2,254 | 2,248 | 2,239 | 2,225 | 2,213 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,275 | 2,278 | 2,284 | 2,292 | 2,304 | 2,315 | 2,326 | 2,324 | 2,319 | 2,307 | 2,293 | 2,280 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,320 | 2,322 | 2,324 | 2,325 | 2,339 | 2,347 | 2,357 | 2,359 | 2,355 | 2,348 | 2,338 | 2,329 |
| Above Normal (16%) | 2,298 | 2,300 | 2,304 | 2,302 | 2,320 | 2,335 | 2,348 | 2,346 | 2,340 | 2,329 | 2,314 | 2,302 |
| Below Normal (13%) | 2,267 | 2,267 | 2,274 | 2,304 | 2,313 | 2,320 | 2,332 | 2,327 | 2,320 | 2,305 | 2,288 | 2,273 |
| Dry (24%) | 2,256 | 2,260 | 2,274 | 2,272 | 2,282 | 2,295 | 2,308 | 2,304 | 2,299 | 2,284 | 2,270 | 2,258 |
| Critical (15%) | 2,191 | 2,195 | 2,203 | 2,232 | 2,237 | 2,249 | 2,256 | 2,252 | 2,249 | 2,235 | 2,212 | 2,195 |

### Alternative 2 021719 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | -2 | -2 | -2 | 3 |
| 20% | -2 | 5 | 3 | 1 | 0 | 0 | 0 | -1 | -2 | -2 | -3 | -3 |
| 30% | 2 | 3 | 2 | 0 | 2 | 0 | 0 | 0 | 2 | 1 | -1 | -1 |
| 40% | -8 | -5 | 1 | 1 | 5 | -3 | 0 | 0 | 2 | -2 | -3 | -2 |
| 50% | -1 | 1 | 1 | 3 | 3 | 5 | 6 | 4 | 0 | 0 | -3 | -4 |
| 60% | -1 | 0 | -1 | 3 | 0 | 0 | 0 | 2 | 0 | -3 | -2 | -3 |
| 70% | 2 | -2 | 1 | -5 | 3 | 0 | 1 | 2 | 6 | 1 | 3 | 1 |
| 80% | 3 | 2 | -1 | 3 | 0 | -1 | 2 | 6 | 4 | 4 | 4 | 5 |
| 90% | 0 | 0 | 4 | 5 | -2 | 3 | 5 | 2 | 2 | 1 | 1 | 1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | -1 | -1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1 | 4 | 4 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | 1 |
| Above Normal (16%) | -2 | 1 | 2 | 1 | -1 | 0 | 0 | 0 | 0 | -2 | -4 | -3 |
| Below Normal (13%) | -3 | -4 | -4 | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 1 | -1 |
| Dry (24%) | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| Critical (15%) | 5 | 5 | 5 | 8 | 6 | 6 | 6 | 6 | 6 | 2 | -2 | -2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 1a-3. Trinity Lake Elevation, End of Month Elevation

### No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,332 | 2,331 | 2,332 | 2,337 | 2,345 | 2,350 | 2,361 | 2,364 | 2,362 | 2,359 | 2,352 | 2,339 |
| 20% | 2,328 | 2,324 | 2,329 | 2,335 | 2,345 | 2,350 | 2,359 | 2,360 | 2,357 | 2,350 | 2,342 | 2,333 |
| 30% | 2,303 | 2,307 | 2,316 | 2,325 | 2,341 | 2,350 | 2,357 | 2,354 | 2,348 | 2,338 | 2,324 | 2,311 |
| 40% | 2,297 | 2,298 | 2,306 | 2,317 | 2,326 | 2,345 | 2,353 | 2,349 | 2,342 | 2,328 | 2,313 | 2,297 |
| 50% | 2,280 | 2,283 | 2,293 | 2,305 | 2,318 | 2,326 | 2,340 | 2,335 | 2,328 | 2,315 | 2,301 | 2,289 |
| 60% | 2,273 | 2,275 | 2,283 | 2,289 | 2,305 | 2,317 | 2,328 | 2,322 | 2,316 | 2,303 | 2,289 | 2,278 |
| 70% | 2,263 | 2,264 | 2,269 | 2,276 | 2,284 | 2,297 | 2,309 | 2,311 | 2,301 | 2,294 | 2,279 | 2,266 |
| 80% | 2,244 | 2,249 | 2,253 | 2,256 | 2,268 | 2,284 | 2,298 | 2,293 | 2,288 | 2,274 | 2,258 | 2,246 |
| 90% | 2,210 | 2,211 | 2,212 | 2,216 | 2,234 | 2,246 | 2,257 | 2,252 | 2,246 | 2,238 | 2,224 | 2,212 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,275 | 2,276 | 2,282 | 2,290 | 2,302 | 2,313 | 2,324 | 2,322 | 2,317 | 2,307 | 2,294 | 2,281 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,319 | 2,318 | 2,319 | 2,325 | 2,339 | 2,348 | 2,357 | 2,359 | 2,355 | 2,348 | 2,339 | 2,327 |
| Above Normal (16%) | 2,300 | 2,299 | 2,303 | 2,302 | 2,321 | 2,336 | 2,348 | 2,347 | 2,341 | 2,332 | 2,318 | 2,305 |
| Below Normal (13%) | 2,270 | 2,271 | 2,278 | 2,300 | 2,308 | 2,317 | 2,329 | 2,324 | 2,317 | 2,303 | 2,288 | 2,274 |
| Dry (24%) | 2,256 | 2,261 | 2,274 | 2,272 | 2,282 | 2,295 | 2,307 | 2,303 | 2,297 | 2,284 | 2,270 | 2,259 |
| Critical (15%) | 2,185 | 2,190 | 2,198 | 2,224 | 2,231 | 2,243 | 2,250 | 2,246 | 2,244 | 2,233 | 2,214 | 2,197 |

### Alternative 3 021719

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,332 | 2,332 | 2,332 | 2,337 | 2,345 | 2,350 | 2,361 | 2,364 | 2,360 | 2,357 | 2,350 | 2,343 |
| 20% | 2,326 | 2,331 | 2,332 | 2,337 | 2,345 | 2,350 | 2,359 | 2,359 | 2,355 | 2,348 | 2,340 | 2,332 |
| 30% | 2,306 | 2,308 | 2,319 | 2,326 | 2,342 | 2,349 | 2,357 | 2,353 | 2,349 | 2,339 | 2,324 | 2,311 |
| 40% | 2,290 | 2,291 | 2,305 | 2,318 | 2,331 | 2,342 | 2,352 | 2,348 | 2,342 | 2,327 | 2,309 | 2,296 |
| 50% | 2,280 | 2,283 | 2,294 | 2,307 | 2,316 | 2,331 | 2,345 | 2,338 | 2,327 | 2,314 | 2,297 | 2,286 |
| 60% | 2,271 | 2,274 | 2,281 | 2,291 | 2,304 | 2,314 | 2,326 | 2,323 | 2,316 | 2,300 | 2,288 | 2,276 |
| 70% | 2,263 | 2,261 | 2,272 | 2,272 | 2,289 | 2,298 | 2,312 | 2,312 | 2,307 | 2,294 | 2,282 | 2,266 |
| 80% | 2,244 | 2,250 | 2,251 | 2,259 | 2,269 | 2,283 | 2,299 | 2,296 | 2,289 | 2,275 | 2,262 | 2,248 |
| 90% | 2,210 | 2,211 | 2,215 | 2,219 | 2,231 | 2,248 | 2,258 | 2,253 | 2,246 | 2,239 | 2,224 | 2,213 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,274 | 2,276 | 2,283 | 2,291 | 2,303 | 2,314 | 2,325 | 2,323 | 2,318 | 2,307 | 2,292 | 2,280 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,320 | 2,322 | 2,323 | 2,324 | 2,338 | 2,347 | 2,357 | 2,359 | 2,355 | 2,348 | 2,338 | 2,329 |
| Above Normal (16%) | 2,299 | 2,301 | 2,304 | 2,302 | 2,320 | 2,335 | 2,347 | 2,346 | 2,340 | 2,329 | 2,314 | 2,302 |
| Below Normal (13%) | 2,265 | 2,266 | 2,272 | 2,304 | 2,313 | 2,320 | 2,332 | 2,326 | 2,319 | 2,305 | 2,288 | 2,273 |
| Dry (24%) | 2,256 | 2,260 | 2,273 | 2,272 | 2,282 | 2,295 | 2,308 | 2,304 | 2,299 | 2,284 | 2,270 | 2,258 |
| Critical (15%) | 2,184 | 2,189 | 2,197 | 2,226 | 2,233 | 2,246 | 2,253 | 2,249 | 2,246 | 2,232 | 2,208 | 2,192 |

### Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | -2 | -2 | -2 | 3 |
| 20% | -2 | 7 | 3 | 1 | 0 | 0 | 0 | -1 | -2 | -2 | -2 | -1 |
| 30% | 2 | 1 | 3 | 1 | 1 | -1 | 0 | 0 | 1 | 1 | -1 | 0 |
| 40% | -6 | -7 | 0 | 1 | 5 | -3 | -1 | -1 | 1 | -2 | -3 | -1 |
| 50% | -1 | -1 | 1 | 2 | -2 | 5 | 5 | 3 | -1 | -1 | -4 | -3 |
| 60% | -2 | -1 | -2 | 2 | -1 | -3 | -2 | 2 | 0 | -3 | -1 | -3 |
| 70% | -1 | -2 | 3 | -5 | 4 | 1 | 2 | 2 | 6 | 1 | 3 | 0 |
| 80% | 0 | 2 | -2 | 3 | 1 | -1 | 1 | 4 | 1 | 1 | 5 | 1 |
| 90% | 0 | 0 | 3 | 3 | -3 | 2 | 1 | 0 | 0 | 1 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | -2 | -1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1 | 4 | 4 | -1 | -1 | -1 | 0 | 0 | 0 | 0 | -1 | 2 |
| Above Normal (16%) | -1 | 2 | 2 | 0 | -1 | -1 | -1 | -1 | -1 | -3 | -4 | -3 |
| Below Normal (13%) | -5 | -6 | -6 | 4 | 4 | 3 | 3 | 3 | 3 | 1 | 1 | -1 |
| Dry (24%) | -1 | -1 | -1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| Critical (15%) | -1 | -1 | -1 | 2 | 2 | 3 | 2 | 3 | 2 | -1 | -6 | -5 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 1a-4. Trinity Lake Elevation, End of Month Elevation

## No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,332 | 2,331 | 2,332 | 2,337 | 2,345 | 2,350 | 2,361 | 2,364 | 2,362 | 2,359 | 2,352 | 2,339 |
| 20% | 2,328 | 2,324 | 2,329 | 2,335 | 2,345 | 2,350 | 2,359 | 2,360 | 2,357 | 2,350 | 2,342 | 2,333 |
| 30% | 2,303 | 2,307 | 2,316 | 2,325 | 2,341 | 2,350 | 2,357 | 2,354 | 2,348 | 2,338 | 2,324 | 2,311 |
| 40% | 2,297 | 2,298 | 2,306 | 2,317 | 2,326 | 2,345 | 2,353 | 2,349 | 2,342 | 2,328 | 2,313 | 2,297 |
| 50% | 2,280 | 2,283 | 2,293 | 2,305 | 2,318 | 2,326 | 2,340 | 2,335 | 2,328 | 2,315 | 2,301 | 2,289 |
| 60% | 2,273 | 2,275 | 2,283 | 2,289 | 2,305 | 2,317 | 2,328 | 2,322 | 2,316 | 2,303 | 2,289 | 2,278 |
| 70% | 2,263 | 2,264 | 2,269 | 2,276 | 2,284 | 2,297 | 2,309 | 2,311 | 2,301 | 2,294 | 2,279 | 2,266 |
| 80% | 2,244 | 2,249 | 2,253 | 2,256 | 2,268 | 2,284 | 2,298 | 2,293 | 2,288 | 2,274 | 2,258 | 2,246 |
| 90% | 2,210 | 2,211 | 2,212 | 2,216 | 2,234 | 2,246 | 2,257 | 2,252 | 2,246 | 2,238 | 2,224 | 2,212 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,275 | 2,276 | 2,282 | 2,290 | 2,302 | 2,313 | 2,324 | 2,322 | 2,317 | 2,307 | 2,294 | 2,281 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,319 | 2,318 | 2,319 | 2,325 | 2,339 | 2,348 | 2,357 | 2,359 | 2,355 | 2,348 | 2,339 | 2,327 |
| Above Normal (16%) | 2,300 | 2,299 | 2,303 | 2,302 | 2,321 | 2,336 | 2,348 | 2,347 | 2,341 | 2,332 | 2,318 | 2,305 |
| Below Normal (13%) | 2,270 | 2,271 | 2,278 | 2,300 | 2,308 | 2,317 | 2,329 | 2,324 | 2,317 | 2,303 | 2,288 | 2,274 |
| Dry (24%) | 2,256 | 2,261 | 2,274 | 2,272 | 2,282 | 2,295 | 2,307 | 2,303 | 2,297 | 2,284 | 2,270 | 2,259 |
| Critical (15%) | 2,185 | 2,190 | 2,198 | 2,224 | 2,231 | 2,243 | 2,250 | 2,246 | 2,244 | 2,233 | 2,214 | 2,197 |

## Alternative 4 043019

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,332 | 2,332 | 2,332 | 2,337 | 2,345 | 2,350 | 2,361 | 2,364 | 2,361 | 2,358 | 2,352 | 2,343 |
| 20% | 2,328 | 2,330 | 2,332 | 2,337 | 2,345 | 2,350 | 2,359 | 2,360 | 2,355 | 2,348 | 2,334 | 2,329 |
| 30% | 2,310 | 2,313 | 2,319 | 2,331 | 2,345 | 2,350 | 2,357 | 2,355 | 2,349 | 2,340 | 2,327 | 2,313 |
| 40% | 2,295 | 2,299 | 2,313 | 2,321 | 2,332 | 2,348 | 2,355 | 2,351 | 2,345 | 2,328 | 2,313 | 2,299 |
| 50% | 2,288 | 2,290 | 2,298 | 2,313 | 2,324 | 2,333 | 2,347 | 2,340 | 2,330 | 2,319 | 2,303 | 2,292 |
| 60% | 2,283 | 2,282 | 2,288 | 2,297 | 2,308 | 2,321 | 2,332 | 2,330 | 2,324 | 2,310 | 2,295 | 2,285 |
| 70% | 2,271 | 2,274 | 2,281 | 2,285 | 2,297 | 2,306 | 2,317 | 2,315 | 2,312 | 2,301 | 2,286 | 2,274 |
| 80% | 2,257 | 2,257 | 2,258 | 2,266 | 2,274 | 2,293 | 2,309 | 2,301 | 2,295 | 2,284 | 2,266 | 2,256 |
| 90% | 2,212 | 2,222 | 2,226 | 2,234 | 2,238 | 2,249 | 2,263 | 2,257 | 2,254 | 2,242 | 2,226 | 2,212 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,281 | 2,283 | 2,289 | 2,297 | 2,308 | 2,318 | 2,328 | 2,326 | 2,322 | 2,311 | 2,297 | 2,286 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,321 | 2,322 | 2,324 | 2,327 | 2,341 | 2,348 | 2,357 | 2,359 | 2,355 | 2,348 | 2,338 | 2,328 |
| Above Normal (16%) | 2,303 | 2,305 | 2,308 | 2,310 | 2,327 | 2,340 | 2,350 | 2,349 | 2,343 | 2,333 | 2,320 | 2,307 |
| Below Normal (13%) | 2,278 | 2,279 | 2,286 | 2,307 | 2,315 | 2,322 | 2,333 | 2,329 | 2,322 | 2,308 | 2,293 | 2,281 |
| Dry (24%) | 2,264 | 2,267 | 2,280 | 2,279 | 2,288 | 2,301 | 2,313 | 2,309 | 2,305 | 2,292 | 2,278 | 2,267 |
| Critical (15%) | 2,199 | 2,203 | 2,210 | 2,237 | 2,243 | 2,254 | 2,260 | 2,256 | 2,253 | 2,240 | 2,222 | 2,210 |

## Alternative 4 043019 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 1 | 0 | 0 | 0 | 0 | **0** | **0** | **-1** | **-1** | 0 | 3 |
| 20% | 0 | 6 | 3 | 1 | 0 | 0 | **-1** | **-1** | **-2** | **-2** | **-7** | **-4** |
| 30% | 6 | 6 | 3 | 6 | 4 | 0 | 0 | 1 | 1 | 3 | 3 | 2 |
| 40% | **-2** | 1 | 7 | 5 | 6 | 3 | 2 | 1 | 4 | **0** | 0 | 2 |
| 50% | 7 | 7 | 5 | 8 | 6 | 7 | 7 | 5 | 3 | 3 | 3 | 3 |
| 60% | 10 | 8 | 5 | 8 | 3 | 5 | 4 | 8 | 8 | 7 | 6 | 6 |
| 70% | 8 | 10 | 11 | 8 | 13 | 9 | 8 | 5 | 11 | 7 | 8 | 9 |
| 80% | 13 | 8 | 5 | 10 | 6 | 10 | 11 | 9 | 7 | 10 | 9 | 10 |
| 90% | 2 | 11 | 15 | 18 | 4 | 3 | 6 | 4 | 8 | 4 | 2 | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6 | 7 | 7 | 6 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2 | 4 | 5 | 2 | 1 | 0 | 0 | 0 | **0** | **0** | **-1** | 1 |
| Above Normal (16%) | 3 | 5 | 5 | 8 | 6 | 4 | 2 | 2 | 3 | 2 | 1 | 1 |
| Below Normal (13%) | 8 | 8 | 7 | 7 | 6 | 5 | 5 | 5 | 6 | 4 | 5 | 7 |
| Dry (24%) | 8 | 7 | 6 | 7 | 6 | 6 | 6 | 6 | 7 | 8 | 8 | 8 |
| Critical (15%) | 14 | 14 | 12 | 13 | 12 | 10 | 9 | 9 | 9 | 7 | 8 | 13 |

a Based on the 82-year simulation period.

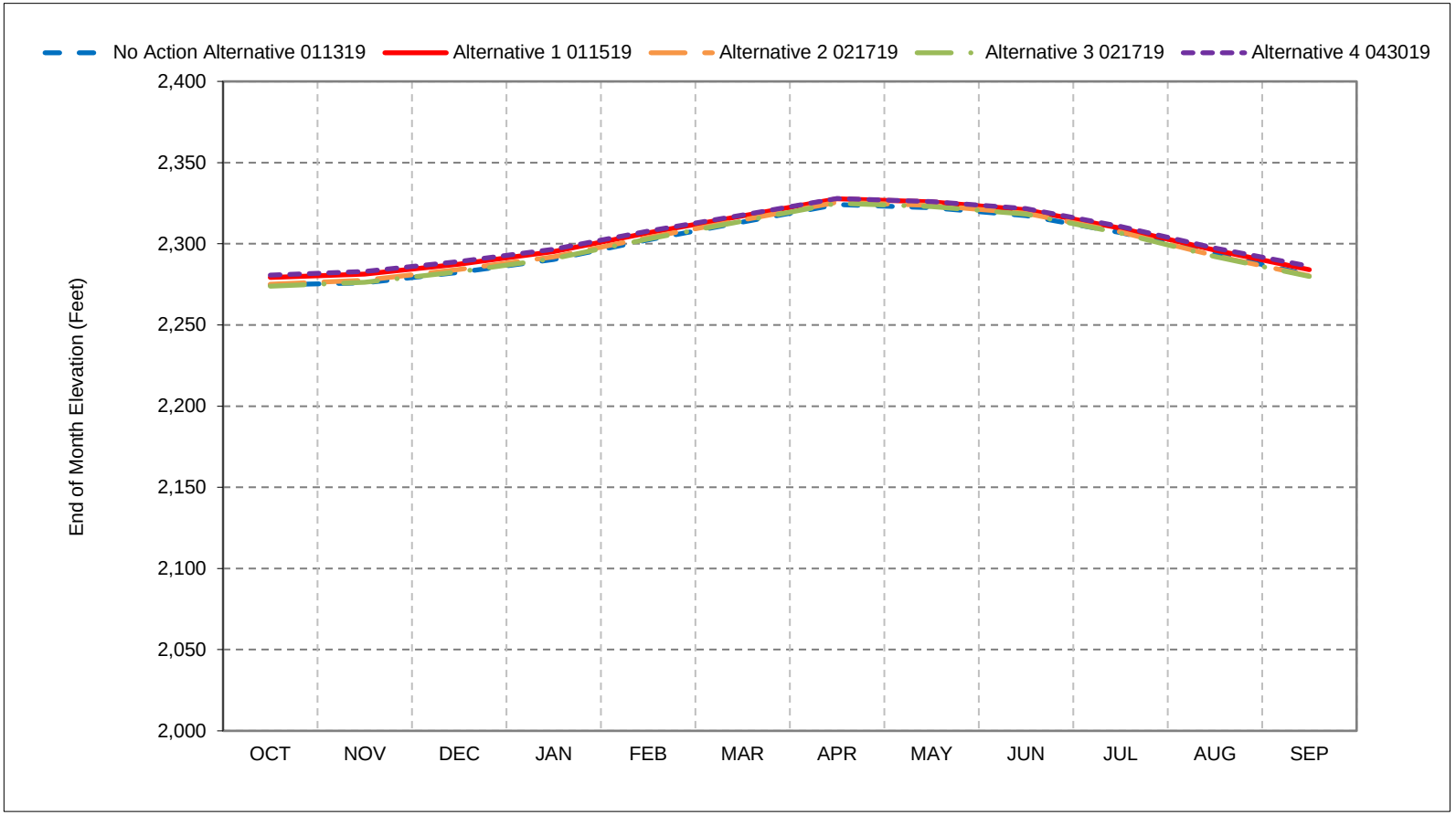
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

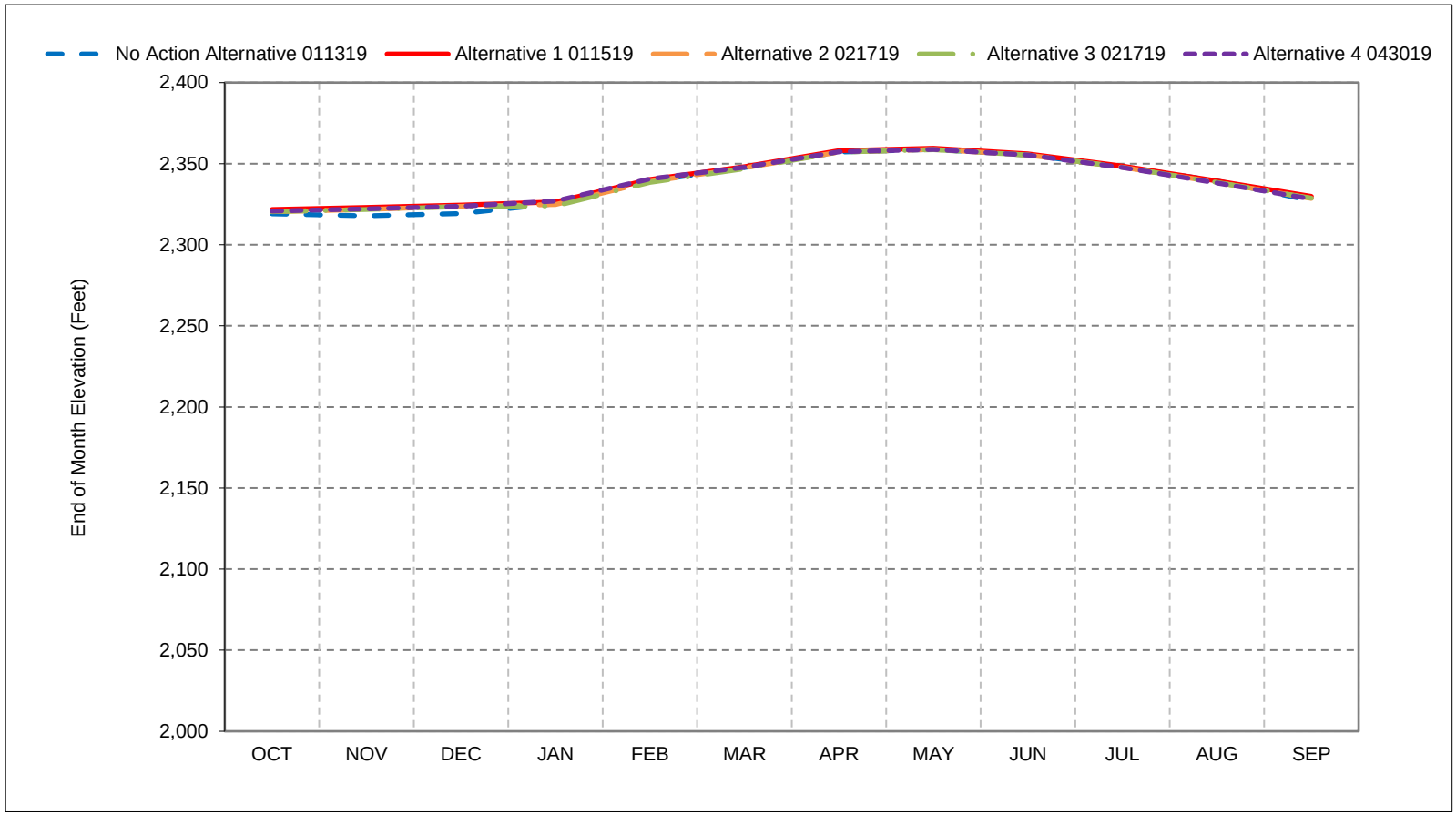
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1a-1. Trinity Lake Elevation, Long-Term Average Elevation



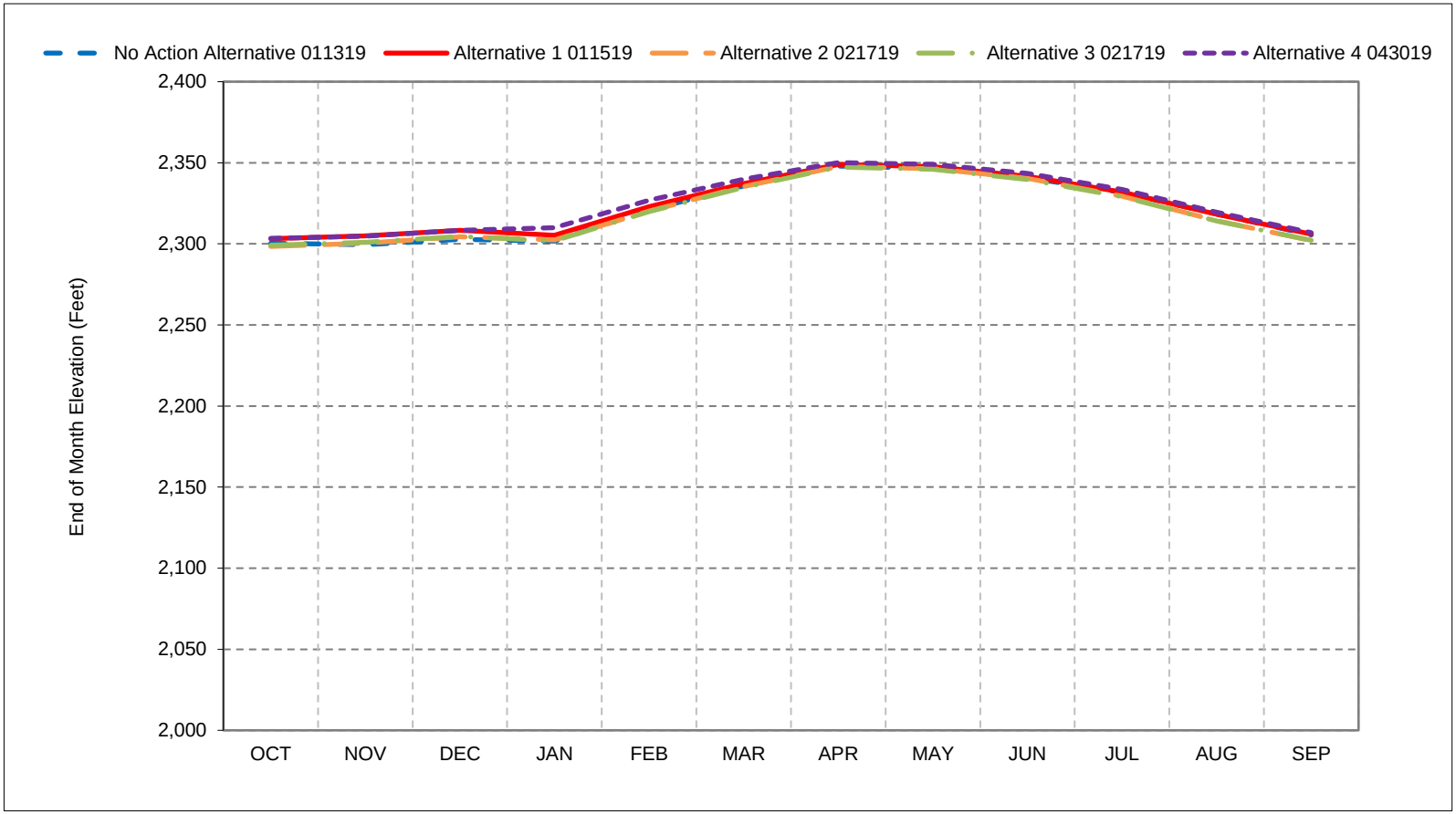

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1a-2. Trinity Lake Elevation, Wet Year Average Elevation



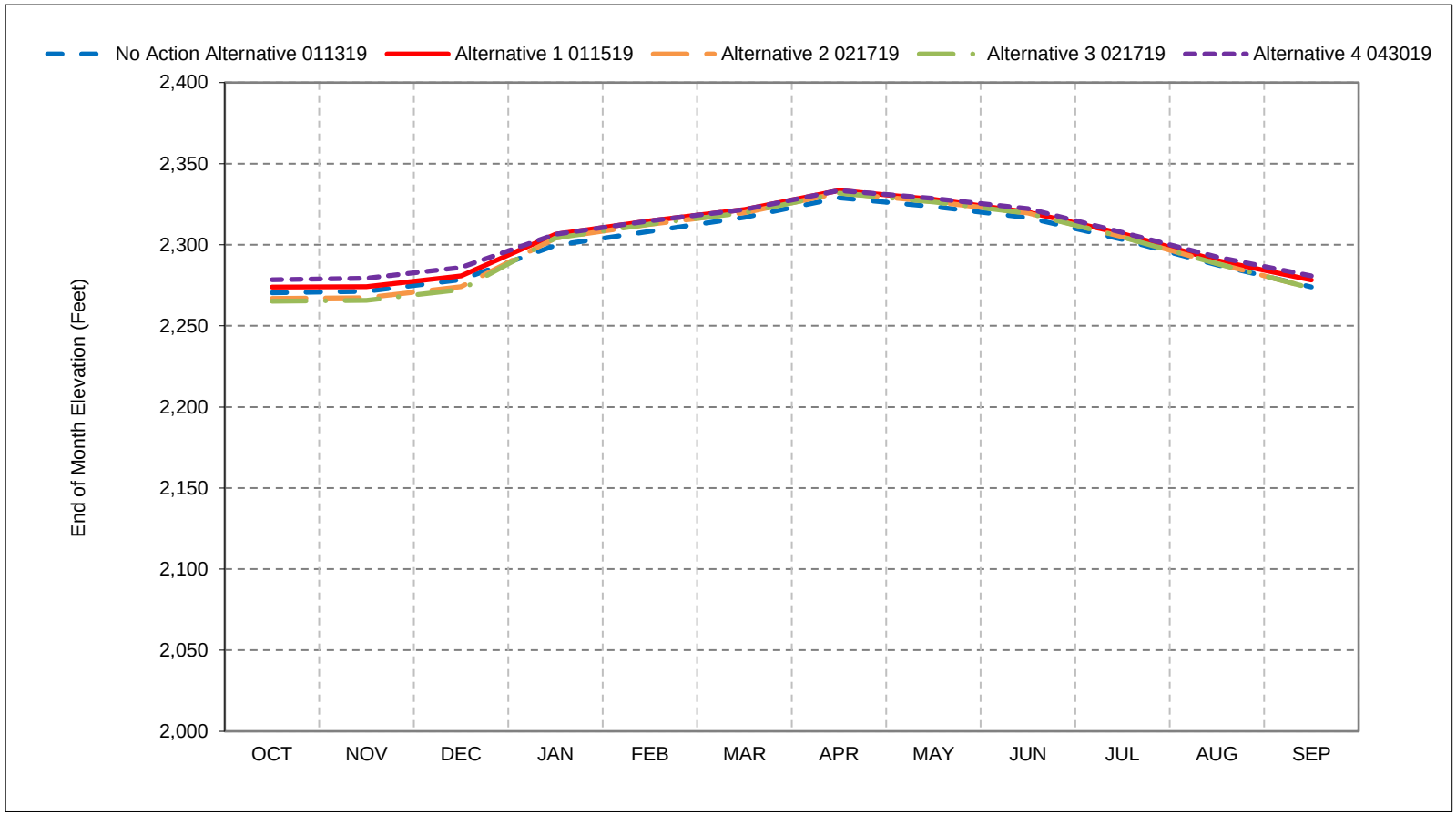

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1a-3. Trinity Lake Elevation, Above Normal Year Average Elevation



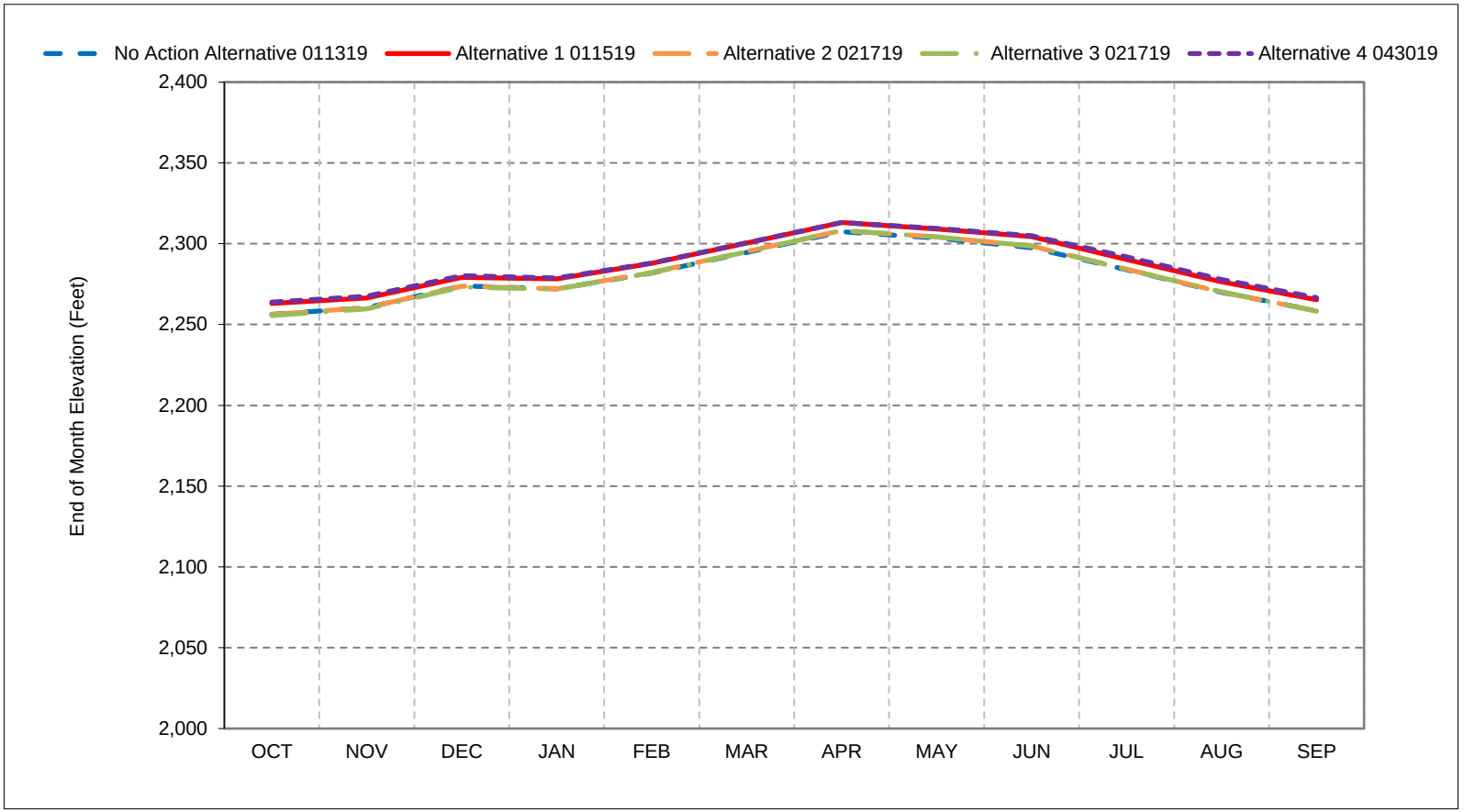

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1a-4. Trinity Lake Elevation, Below Normal Year Average Elevation



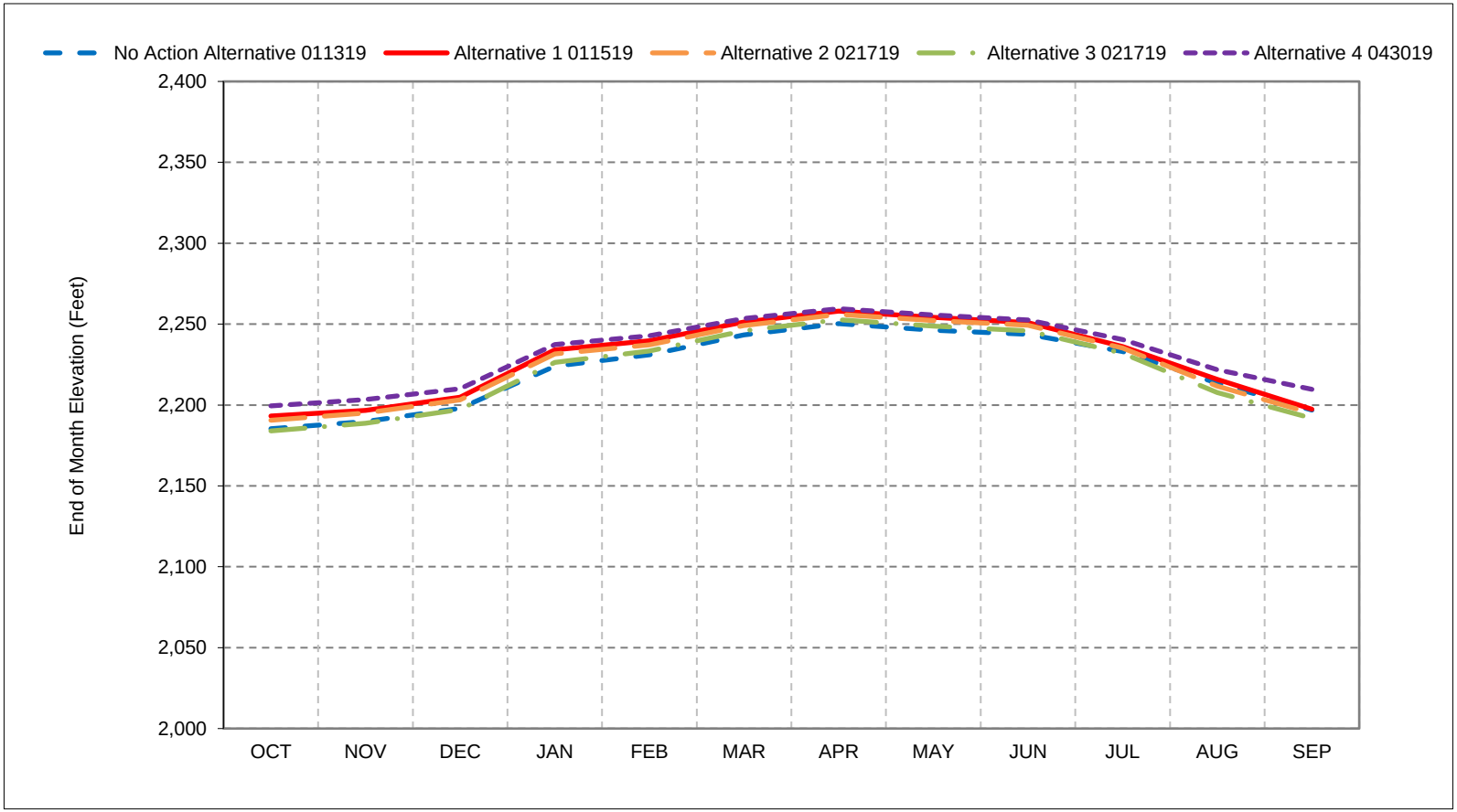

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1a-5. Trinity Lake Elevation, Dry Year Average Elevation



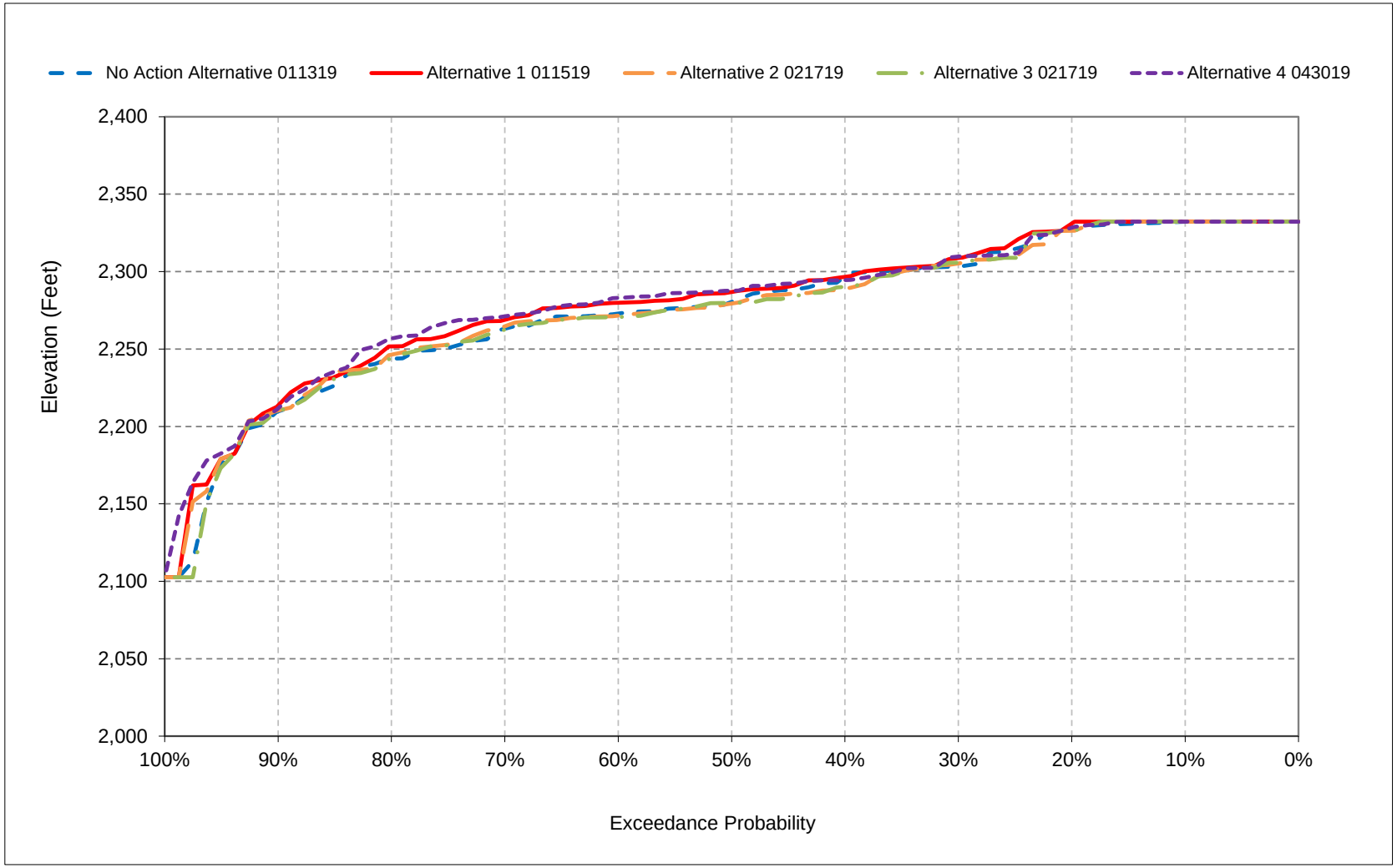

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1a-6. Trinity Lake Elevation, Critical Year Average Elevation




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

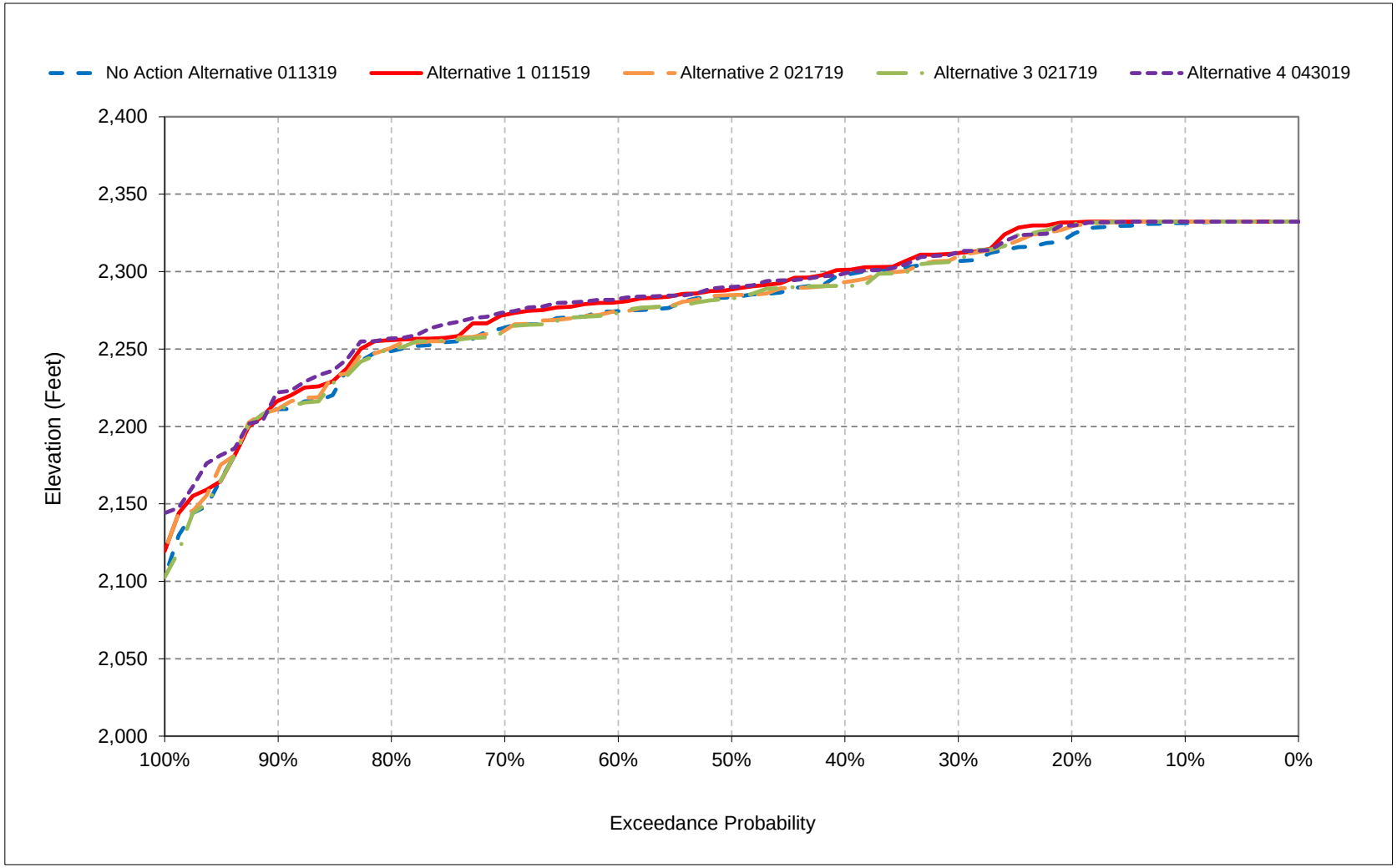
**Figure 1a-7. Trinity Lake, Reservoir Pool Elevation, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

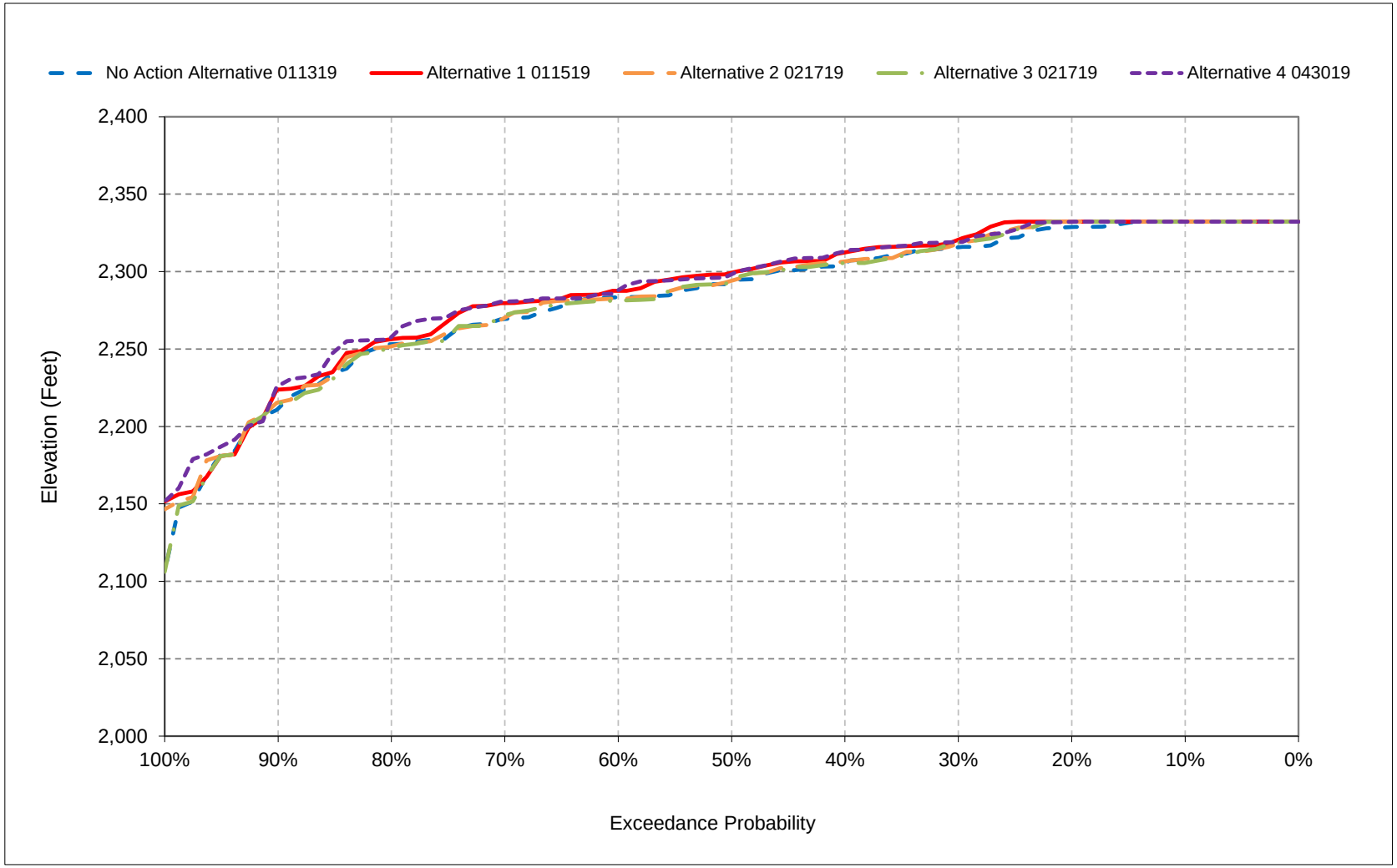
**Figure 1a-8. Trinity Lake, Reservoir Pool Elevation, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

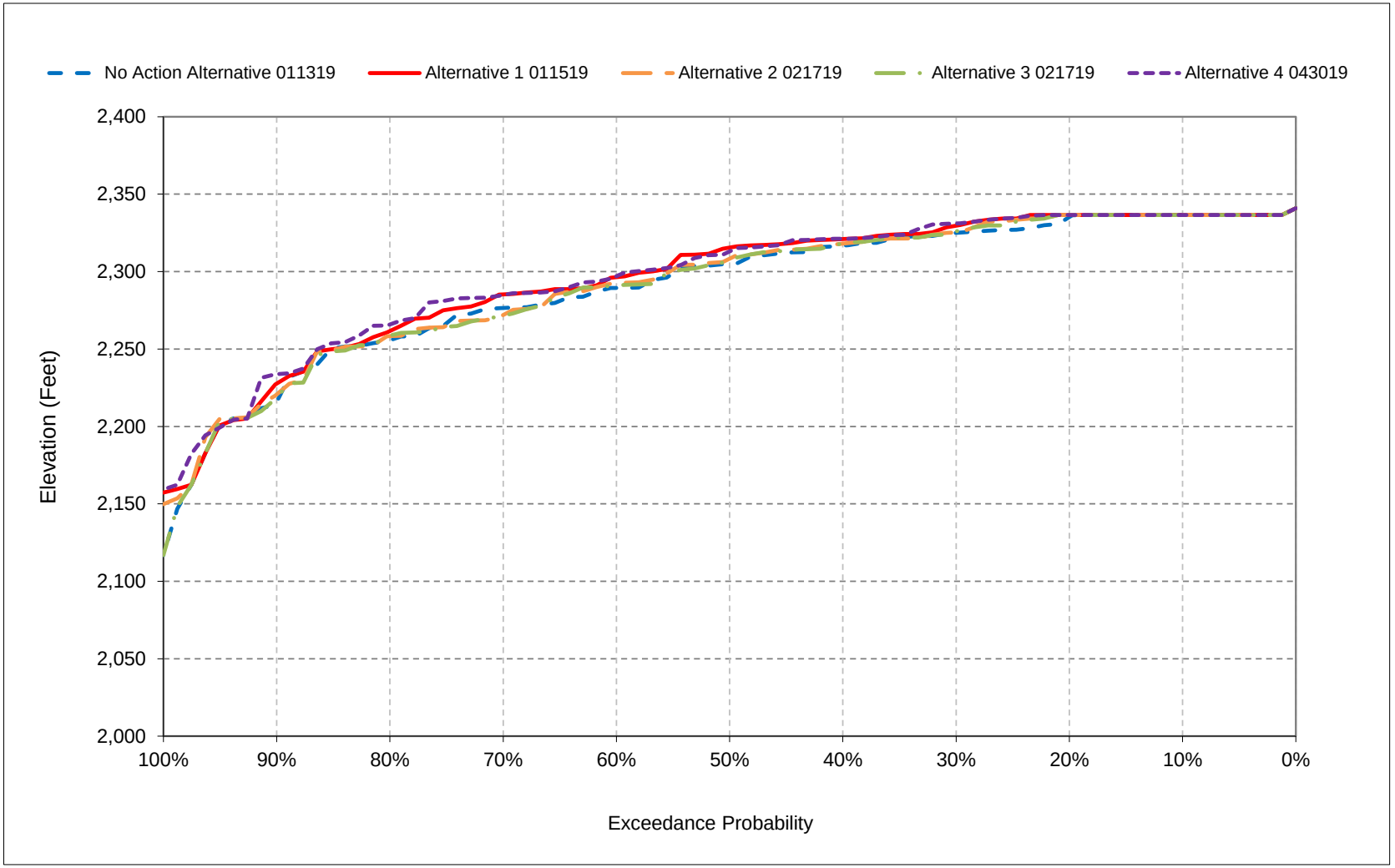
**Figure 1a-9. Trinity Lake, Reservoir Pool Elevation, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

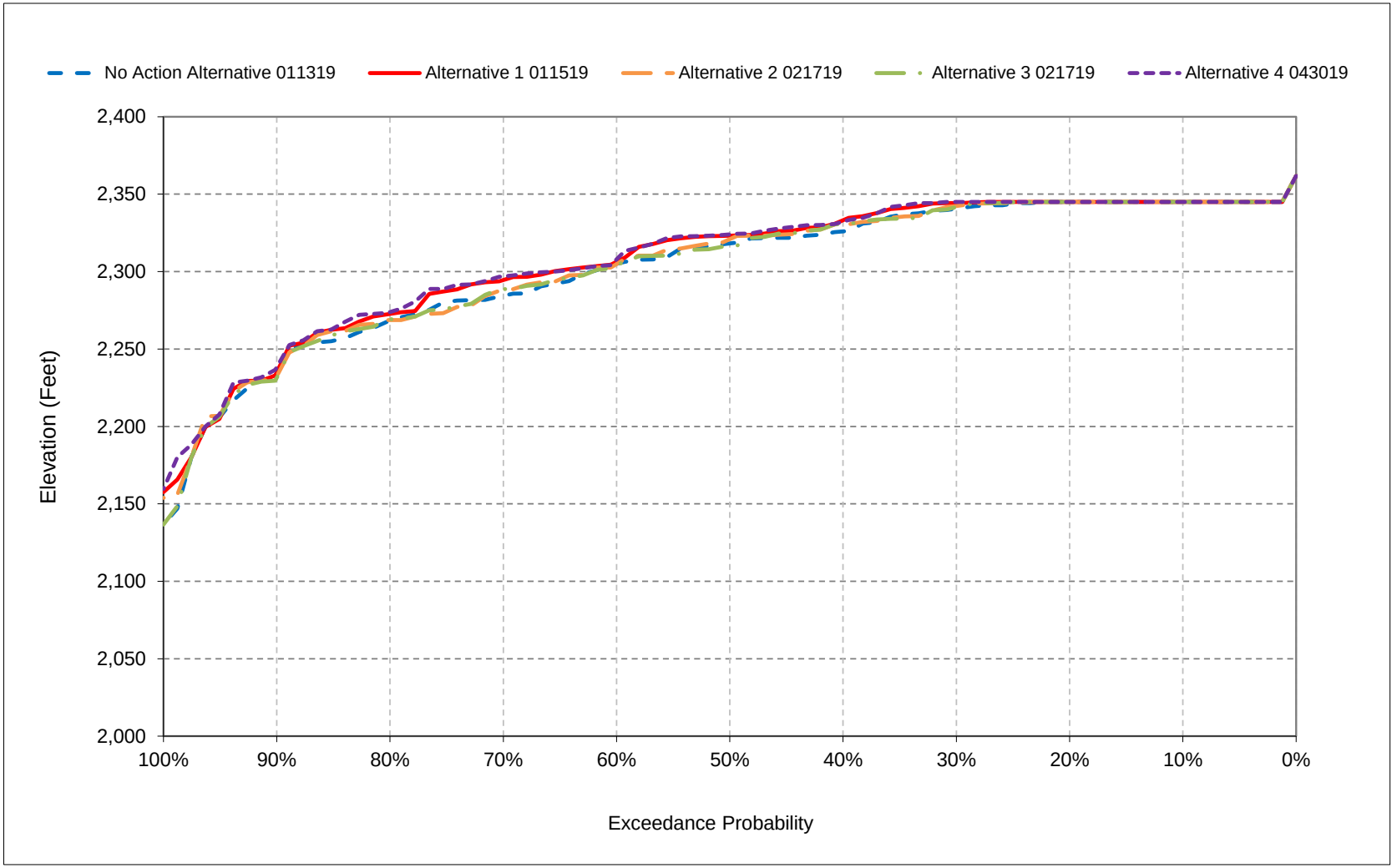
**Figure 1a-10. Trinity Lake, Reservoir Pool Elevation, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

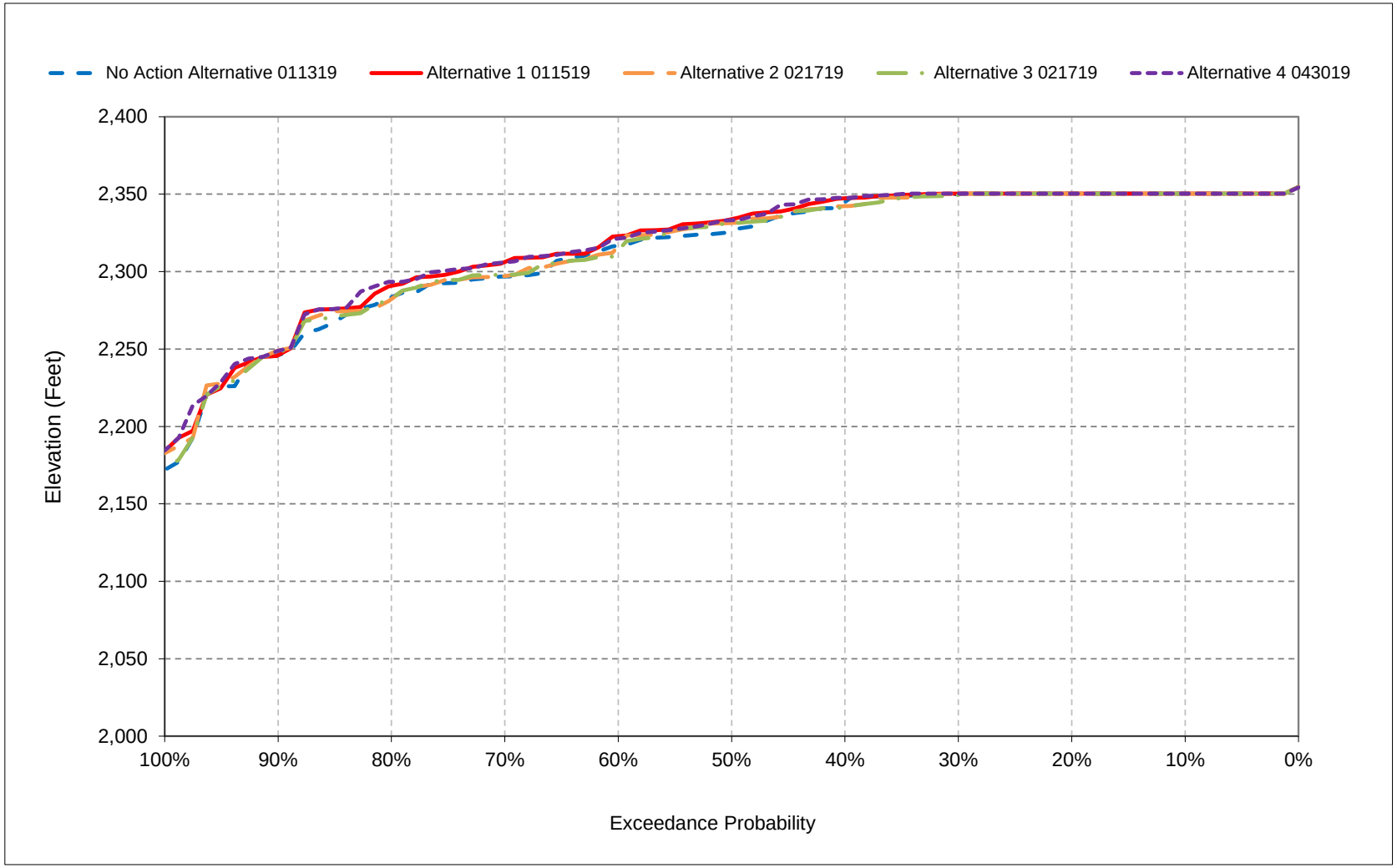
**Figure 1a-11. Trinity Lake, Reservoir Pool Elevation, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

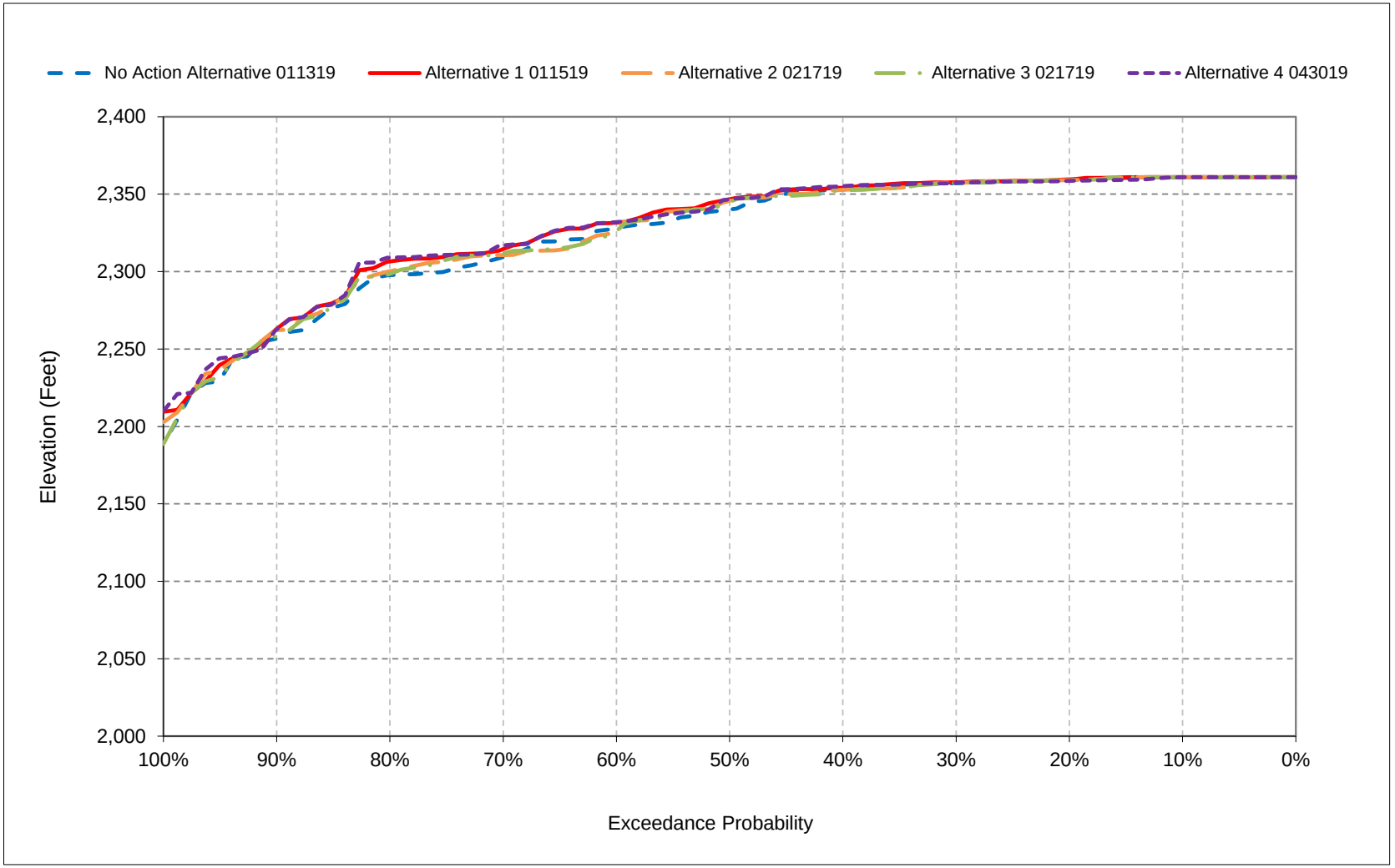
**Figure 1a-12. Trinity Lake, Reservoir Pool Elevation, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

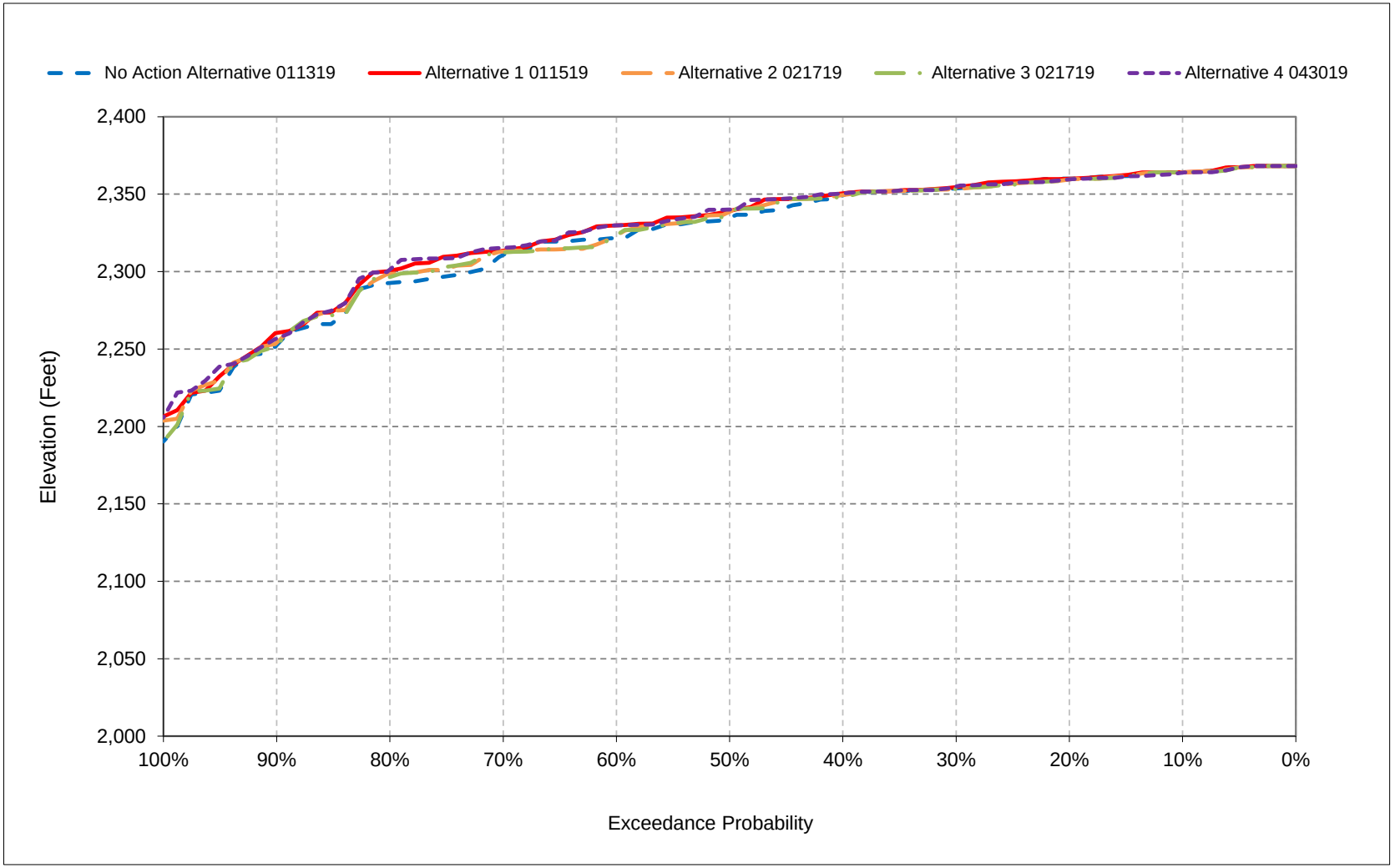
**Figure 1a-13. Trinity Lake, Reservoir Pool Elevation, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

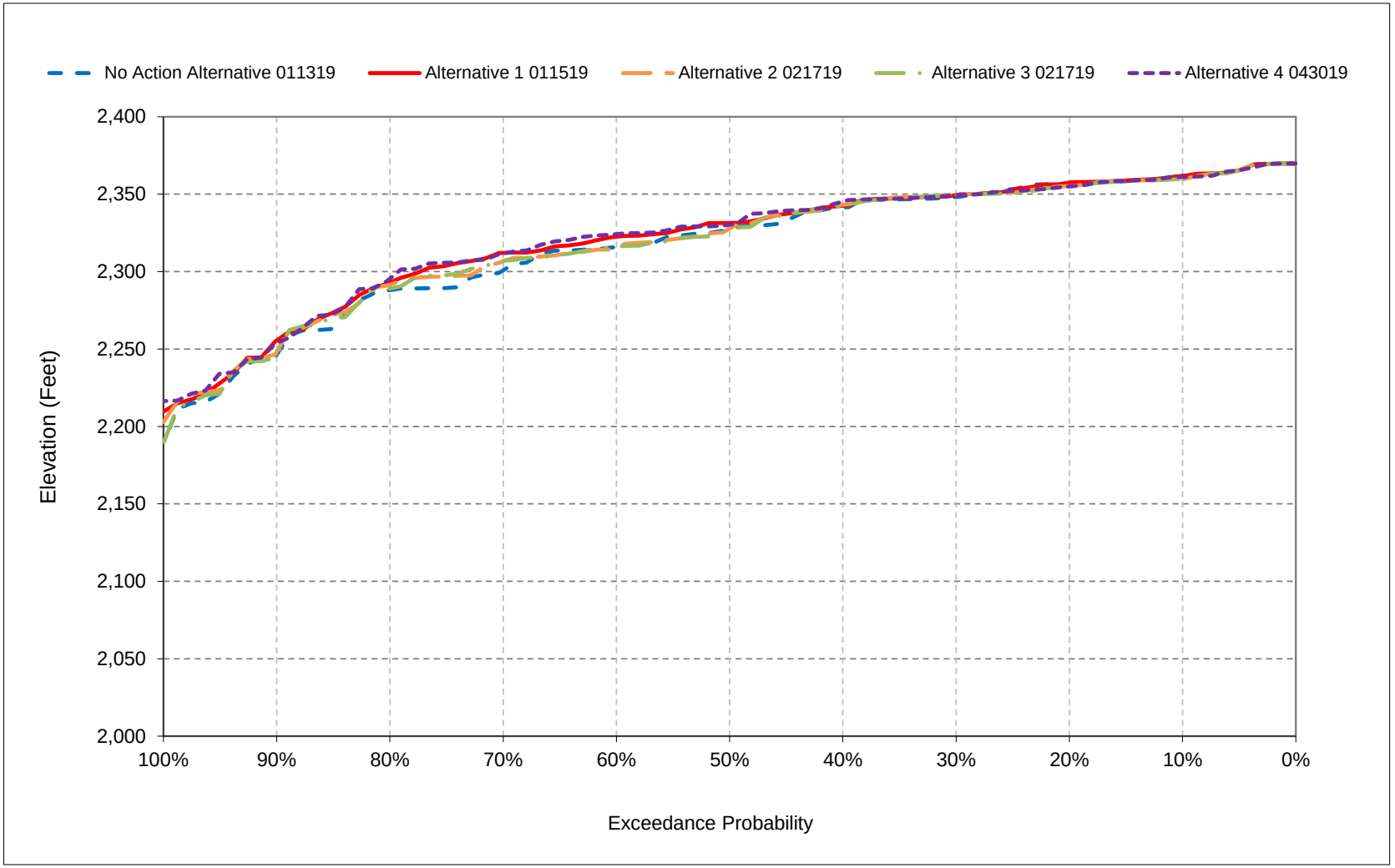
**Figure 1a-14. Trinity Lake, Reservoir Pool Elevation, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

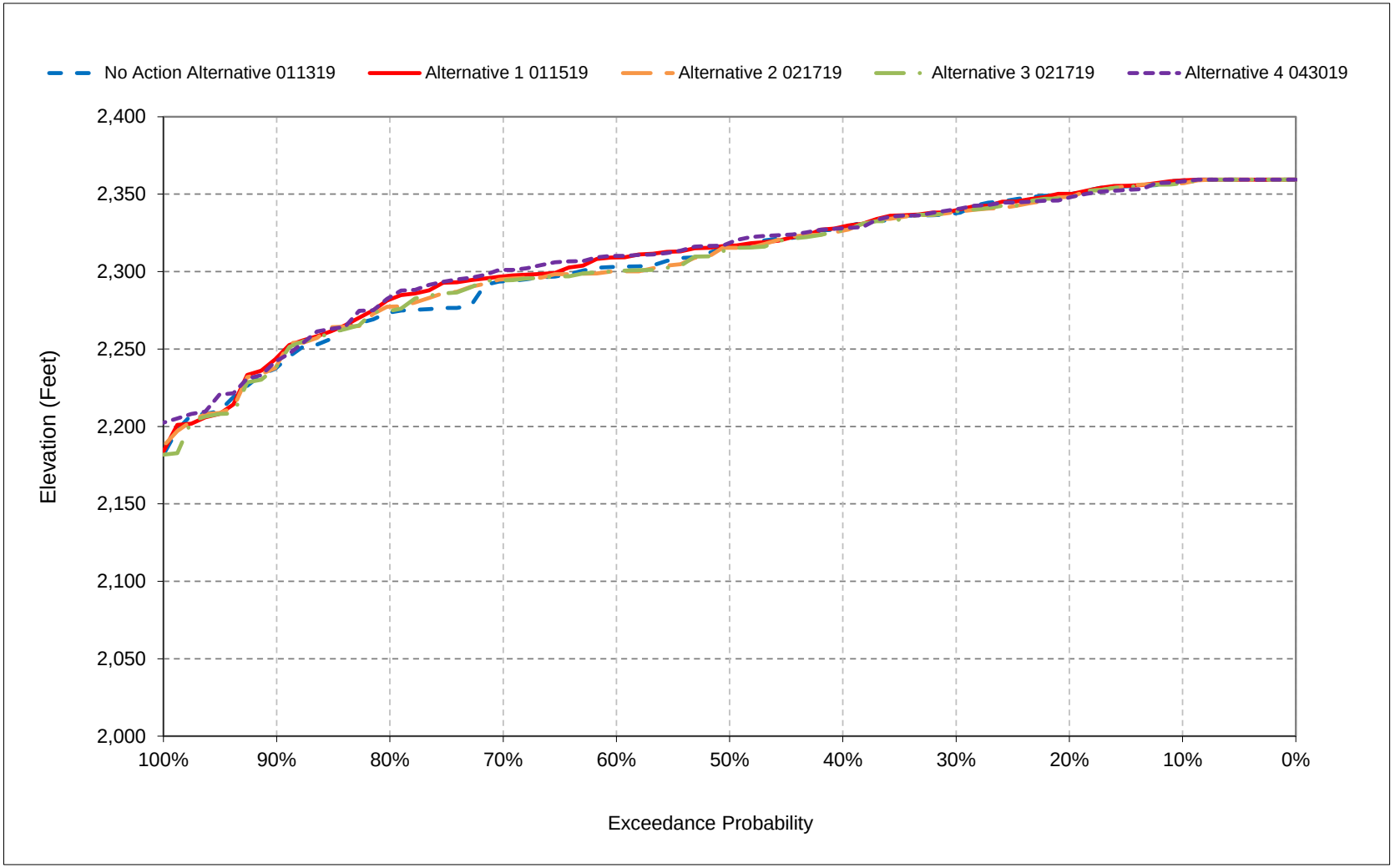
**Figure 1a-15. Trinity Lake, Reservoir Pool Elevation, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

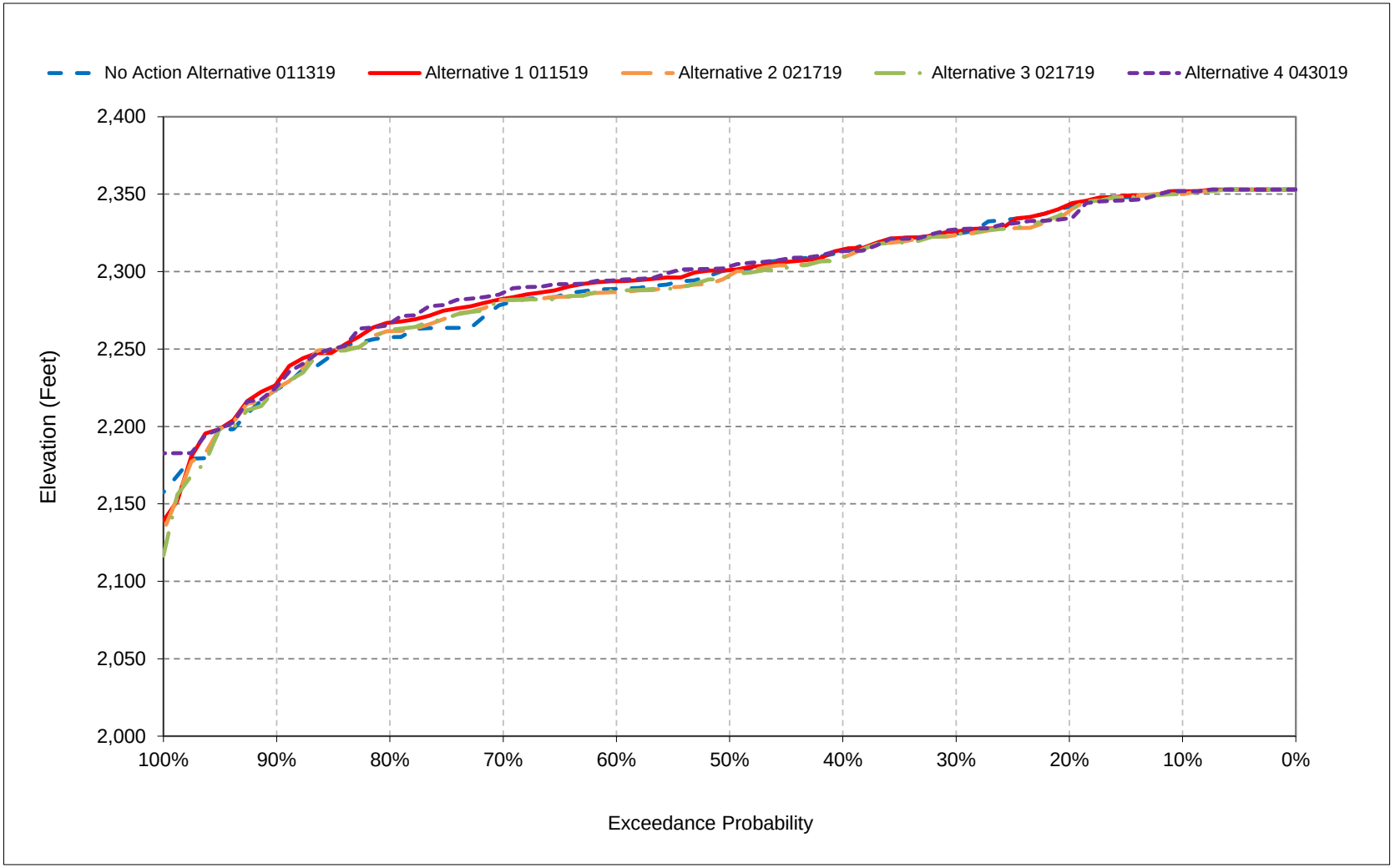
**Figure 1a-16. Trinity Lake, Reservoir Pool Elevation, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

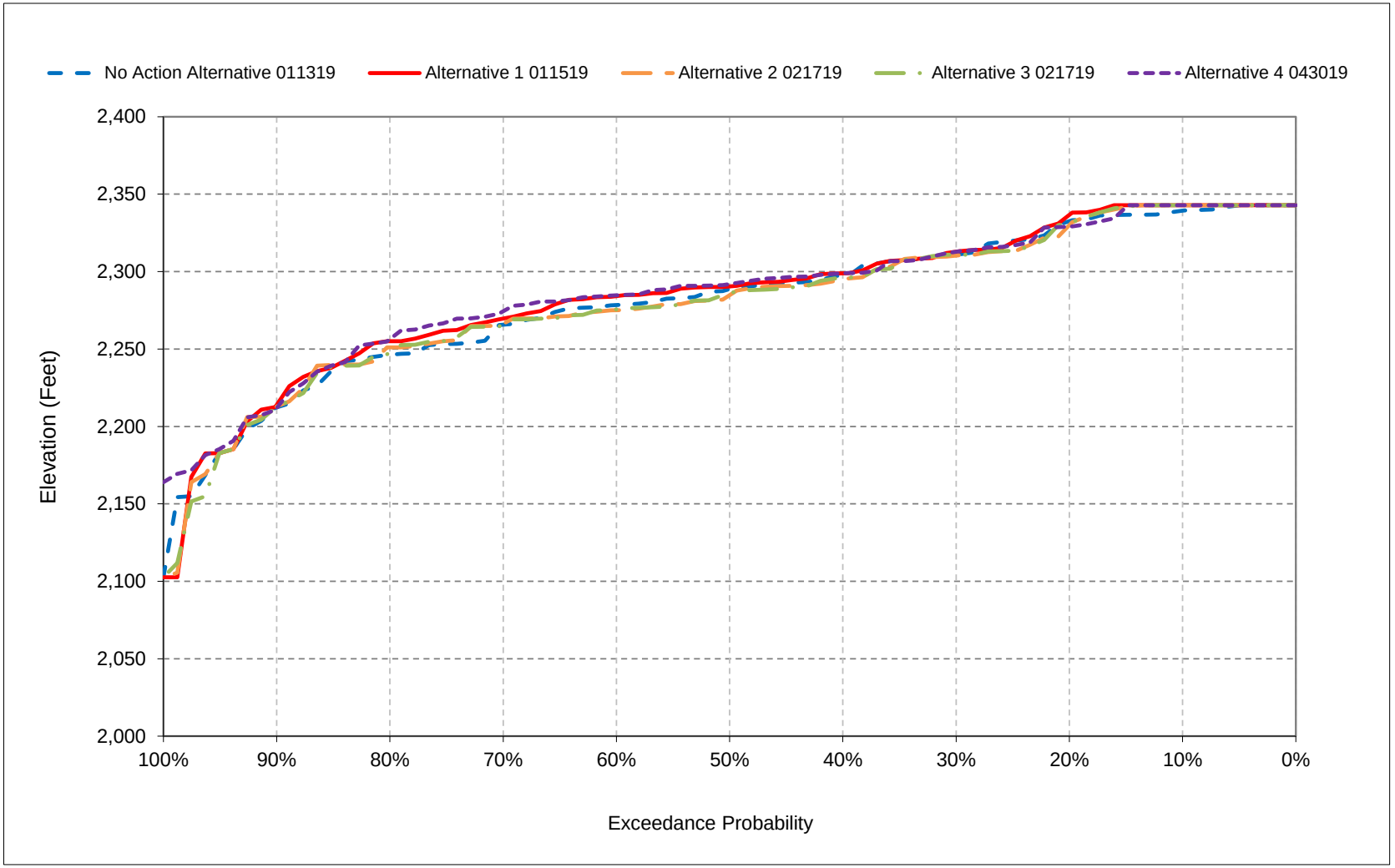
**Figure 1a-17. Trinity Lake, Reservoir Pool Elevation, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 1a-18. Trinity Lake, Reservoir Pool Elevation, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 3-1. Shasta Lake Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,218 | 3,252 | 3,335 | 3,621 | 3,875 | 4,229 | 4,552 | 4,552 | 4,500 | 4,011 | 3,670 | 3,199 |
| 20% | 3,036 | 2,926 | 3,309 | 3,539 | 3,744 | 4,127 | 4,544 | 4,552 | 4,402 | 3,789 | 3,477 | 3,106 |
| 30% | 2,903 | 2,807 | 3,266 | 3,397 | 3,649 | 4,046 | 4,475 | 4,552 | 4,288 | 3,622 | 3,275 | 3,005 |
| 40% | 2,771 | 2,709 | 3,027 | 3,318 | 3,529 | 3,980 | 4,389 | 4,486 | 4,101 | 3,466 | 3,160 | 2,923 |
| 50% | 2,677 | 2,579 | 2,793 | 3,247 | 3,477 | 3,875 | 4,265 | 4,347 | 3,909 | 3,380 | 3,043 | 2,809 |
| 60% | 2,547 | 2,500 | 2,656 | 3,032 | 3,358 | 3,724 | 4,144 | 4,225 | 3,800 | 3,149 | 2,860 | 2,660 |
| 70% | 2,294 | 2,305 | 2,426 | 2,836 | 3,252 | 3,513 | 3,971 | 3,960 | 3,450 | 2,883 | 2,631 | 2,476 |
| 80% | 2,033 | 2,102 | 2,233 | 2,544 | 2,948 | 3,348 | 3,619 | 3,344 | 2,986 | 2,509 | 2,251 | 2,198 |
| 90% | 1,553 | 1,409 | 1,720 | 2,061 | 2,314 | 2,593 | 2,749 | 2,579 | 2,276 | 1,947 | 1,729 | 1,673 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,482 | 2,450 | 2,669 | 2,976 | 3,273 | 3,630 | 3,972 | 3,958 | 3,668 | 3,125 | 2,816 | 2,579 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 2,849 | 2,698 | 2,932 | 3,392 | 3,652 | 3,892 | 4,360 | 4,492 | 4,342 | 3,821 | 3,481 | 2,989 |
| Above Normal (16%) | 2,711 | 2,597 | 2,852 | 3,255 | 3,529 | 4,065 | 4,501 | 4,489 | 4,138 | 3,464 | 3,120 | 2,833 |
| Below Normal (13%) | 2,690 | 2,736 | 2,863 | 3,170 | 3,518 | 3,893 | 4,213 | 4,108 | 3,735 | 3,129 | 2,774 | 2,729 |
| Dry (24%) | 2,538 | 2,640 | 2,896 | 2,722 | 3,135 | 3,594 | 3,889 | 3,811 | 3,449 | 2,951 | 2,680 | 2,611 |
| Critical (15%) | 1,158 | 1,173 | 1,345 | 2,021 | 2,180 | 2,413 | 2,474 | 2,330 | 2,002 | 1,540 | 1,309 | 1,225 |

### Alternative 1 011519

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,250 | 3,252 | 3,359 | 3,666 | 3,939 | 4,262 | 4,552 | 4,552 | 4,500 | 4,011 | 3,669 | 3,400 |
| 20% | 3,250 | 3,252 | 3,337 | 3,612 | 3,837 | 4,182 | 4,536 | 4,552 | 4,402 | 3,785 | 3,455 | 3,400 |
| 30% | 3,213 | 3,244 | 3,314 | 3,538 | 3,732 | 4,080 | 4,478 | 4,552 | 4,253 | 3,607 | 3,303 | 3,304 |
| 40% | 2,997 | 3,128 | 3,280 | 3,410 | 3,653 | 4,012 | 4,433 | 4,483 | 4,058 | 3,431 | 3,151 | 3,058 |
| 50% | 2,752 | 2,897 | 3,226 | 3,329 | 3,564 | 3,966 | 4,291 | 4,344 | 3,879 | 3,282 | 2,981 | 2,914 |
| 60% | 2,648 | 2,718 | 3,098 | 3,252 | 3,484 | 3,855 | 4,183 | 4,159 | 3,661 | 3,139 | 2,812 | 2,804 |
| 70% | 2,518 | 2,622 | 2,789 | 2,985 | 3,283 | 3,638 | 4,087 | 3,913 | 3,484 | 2,921 | 2,664 | 2,589 |
| 80% | 2,261 | 2,279 | 2,411 | 2,720 | 3,113 | 3,418 | 3,854 | 3,660 | 3,177 | 2,723 | 2,429 | 2,377 |
| 90% | 1,542 | 1,441 | 1,798 | 2,122 | 2,607 | 2,690 | 2,753 | 2,930 | 2,552 | 2,135 | 1,748 | 1,676 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,626 | 2,674 | 2,833 | 3,093 | 3,370 | 3,706 | 4,041 | 3,994 | 3,667 | 3,141 | 2,828 | 2,730 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 3,152 | 3,180 | 3,280 | 3,412 | 3,662 | 3,899 | 4,355 | 4,473 | 4,318 | 3,806 | 3,460 | 3,280 |
| Above Normal (16%) | 2,899 | 2,940 | 3,118 | 3,358 | 3,567 | 4,069 | 4,503 | 4,461 | 4,096 | 3,427 | 3,084 | 3,070 |
| Below Normal (13%) | 2,637 | 2,690 | 2,818 | 3,404 | 3,695 | 4,031 | 4,328 | 4,164 | 3,724 | 3,109 | 2,752 | 2,664 |
| Dry (24%) | 2,586 | 2,689 | 2,922 | 2,915 | 3,330 | 3,765 | 4,058 | 3,928 | 3,489 | 3,007 | 2,730 | 2,668 |
| Critical (15%) | 1,247 | 1,251 | 1,423 | 2,127 | 2,293 | 2,501 | 2,566 | 2,406 | 2,039 | 1,642 | 1,413 | 1,331 |

### Alternative 1 011519 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 32 | 0 | 24 | 45 | 64 | 33 | 0 | 0 | 0 | 0 | **-2** | 201 |
| 20% | 214 | 326 | 28 | 73 | 93 | 56 | **-8** | 0 | **0** | **-4** | **-22** | 294 |
| 30% | 309 | 437 | 48 | 141 | 83 | 34 | 3 | 0 | **-35** | **-15** | 28 | 298 |
| 40% | 226 | 419 | 253 | 93 | 125 | 32 | 44 | **-2** | **-43** | **-34** | **-9** | 136 |
| 50% | 75 | 318 | 433 | 82 | 87 | 91 | 25 | **-2** | **-30** | **-98** | **-63** | 105 |
| 60% | 100 | 218 | 442 | 220 | 126 | 131 | 39 | **-66** | **-140** | **-11** | **-48** | 143 |
| 70% | 223 | 318 | 363 | 149 | 31 | 125 | 116 | **-47** | 33 | 39 | 33 | 113 |
| 80% | 228 | 177 | 178 | 177 | 165 | 69 | 236 | 315 | 192 | 214 | 177 | 179 |
| 90% | **-11** | 33 | 78 | 62 | 293 | 97 | 4 | 351 | 276 | 188 | 19 | 3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 143 | 224 | 164 | 117 | 97 | 76 | 69 | 37 | **-1** | 15 | 12 | 151 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 302 | 482 | 348 | 21 | 10 | 7 | **-5** | **-20** | **-24** | **-15** | **-22** | 292 |
| Above Normal (16%) | 188 | 343 | 266 | 104 | 38 | 4 | 2 | **-28** | **-42** | **-37** | **-36** | 237 |
| Below Normal (13%) | **-53** | **-46** | **-45** | 234 | 176 | 138 | 114 | 56 | **-11** | **-20** | **-22** | **-65** |
| Dry (24%) | 48 | 48 | 26 | 193 | 195 | 170 | 169 | 117 | 40 | 56 | 50 | 56 |
| Critical (15%) | 88 | 78 | 78 | 107 | 112 | 88 | 92 | 76 | 37 | 102 | 104 | 106 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 3-2. Shasta Lake Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,218 | 3,252 | 3,335 | 3,621 | 3,875 | 4,229 | 4,552 | 4,552 | 4,500 | 4,011 | 3,670 | 3,199 |
| 20% | 3,036 | 2,926 | 3,309 | 3,539 | 3,744 | 4,127 | 4,544 | 4,552 | 4,402 | 3,789 | 3,477 | 3,106 |
| 30% | 2,903 | 2,807 | 3,266 | 3,397 | 3,649 | 4,046 | 4,475 | 4,552 | 4,288 | 3,622 | 3,275 | 3,005 |
| 40% | 2,771 | 2,709 | 3,027 | 3,318 | 3,529 | 3,980 | 4,389 | 4,486 | 4,101 | 3,466 | 3,160 | 2,923 |
| 50% | 2,677 | 2,579 | 2,793 | 3,247 | 3,477 | 3,875 | 4,265 | 4,347 | 3,909 | 3,380 | 3,043 | 2,809 |
| 60% | 2,547 | 2,500 | 2,656 | 3,032 | 3,358 | 3,724 | 4,144 | 4,225 | 3,800 | 3,149 | 2,860 | 2,660 |
| 70% | 2,294 | 2,305 | 2,426 | 2,836 | 3,252 | 3,513 | 3,971 | 3,960 | 3,450 | 2,883 | 2,631 | 2,476 |
| 80% | 2,033 | 2,102 | 2,233 | 2,544 | 2,948 | 3,348 | 3,619 | 3,344 | 2,986 | 2,509 | 2,251 | 2,198 |
| 90% | 1,553 | 1,409 | 1,720 | 2,061 | 2,314 | 2,593 | 2,749 | 2,579 | 2,276 | 1,947 | 1,729 | 1,673 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,482 | 2,450 | 2,669 | 2,976 | 3,273 | 3,630 | 3,972 | 3,958 | 3,668 | 3,125 | 2,816 | 2,579 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,849 | 2,698 | 2,932 | 3,392 | 3,652 | 3,892 | 4,360 | 4,492 | 4,342 | 3,821 | 3,481 | 2,989 |
| Above Normal (16%) | 2,711 | 2,597 | 2,852 | 3,255 | 3,529 | 4,065 | 4,501 | 4,489 | 4,138 | 3,464 | 3,120 | 2,833 |
| Below Normal (13%) | 2,690 | 2,736 | 2,863 | 3,170 | 3,518 | 3,893 | 4,213 | 4,108 | 3,735 | 3,129 | 2,774 | 2,729 |
| Dry (24%) | 2,538 | 2,640 | 2,896 | 2,722 | 3,135 | 3,594 | 3,889 | 3,811 | 3,449 | 2,951 | 2,680 | 2,611 |
| Critical (15%) | 1,158 | 1,173 | 1,345 | 2,021 | 2,180 | 2,413 | 2,474 | 2,330 | 2,002 | 1,540 | 1,309 | 1,225 |

### Alternative 2 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,250 | 3,252 | 3,359 | 3,650 | 3,943 | 4,255 | 4,552 | 4,552 | 4,500 | 4,011 | 3,669 | 3,400 |
| 20% | 3,220 | 3,252 | 3,335 | 3,601 | 3,837 | 4,189 | 4,541 | 4,552 | 4,391 | 3,761 | 3,402 | 3,395 |
| 30% | 3,141 | 3,182 | 3,309 | 3,530 | 3,731 | 4,073 | 4,478 | 4,551 | 4,200 | 3,588 | 3,206 | 3,206 |
| 40% | 2,945 | 3,028 | 3,266 | 3,424 | 3,652 | 4,019 | 4,429 | 4,482 | 3,891 | 3,355 | 3,008 | 2,957 |
| 50% | 2,585 | 2,723 | 3,143 | 3,311 | 3,541 | 3,959 | 4,295 | 4,298 | 3,739 | 3,128 | 2,775 | 2,719 |
| 60% | 2,448 | 2,511 | 2,933 | 3,252 | 3,426 | 3,803 | 4,165 | 4,111 | 3,608 | 2,979 | 2,690 | 2,592 |
| 70% | 2,292 | 2,392 | 2,515 | 2,969 | 3,252 | 3,513 | 4,060 | 3,765 | 3,326 | 2,772 | 2,508 | 2,382 |
| 80% | 2,079 | 2,192 | 2,319 | 2,615 | 2,983 | 3,416 | 3,794 | 3,538 | 3,079 | 2,555 | 2,217 | 2,141 |
| 90% | 1,273 | 1,206 | 1,614 | 2,032 | 2,408 | 2,700 | 2,758 | 2,722 | 2,345 | 1,816 | 1,520 | 1,402 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,511 | 2,566 | 2,759 | 3,044 | 3,329 | 3,676 | 4,006 | 3,941 | 3,573 | 3,046 | 2,721 | 2,615 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,124 | 3,158 | 3,276 | 3,422 | 3,664 | 3,902 | 4,362 | 4,472 | 4,270 | 3,764 | 3,406 | 3,249 |
| Above Normal (16%) | 2,713 | 2,788 | 3,025 | 3,339 | 3,554 | 4,067 | 4,503 | 4,450 | 3,960 | 3,309 | 2,950 | 2,902 |
| Below Normal (13%) | 2,512 | 2,567 | 2,736 | 3,368 | 3,709 | 4,048 | 4,334 | 4,135 | 3,642 | 3,039 | 2,616 | 2,522 |
| Dry (24%) | 2,458 | 2,553 | 2,836 | 2,771 | 3,202 | 3,676 | 3,961 | 3,801 | 3,374 | 2,893 | 2,631 | 2,541 |
| Critical (15%) | 1,052 | 1,066 | 1,244 | 2,064 | 2,224 | 2,422 | 2,470 | 2,292 | 1,910 | 1,466 | 1,233 | 1,138 |

### Alternative 2 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 32 | 0 | 24 | 28 | 68 | 27 | 0 | 0 | 0 | 1 | **-2** | 201 |
| 20% | 184 | 326 | 26 | 62 | 94 | 62 | **-3** | 0 | **-11** | **-27** | **-76** | 290 |
| 30% | 238 | 376 | 42 | 133 | 82 | 28 | 3 | **-1** | **-88** | **-34** | **-68** | 201 |
| 40% | 174 | 320 | 239 | 106 | 123 | 39 | 40 | **-4** | **-210** | **-111** | **-152** | 34 |
| 50% | **-92** | 145 | 351 | 64 | 65 | 84 | 30 | **-49** | **-170** | **-252** | **-268** | **-90** |
| 60% | **-99** | 11 | 277 | 220 | 68 | 79 | 21 | **-114** | **-192** | **-170** | **-170** | **-69** |
| 70% | **-3** | 88 | 89 | 132 | 0 | 0 | 89 | **-195** | **-125** | **-111** | **-123** | **-94** |
| 80% | 45 | 90 | 86 | 71 | 35 | 68 | 176 | 193 | 94 | 46 | **-34** | **-57** |
| 90% | **-281** | **-203** | **-106** | **-29** | 94 | 107 | 10 | 144 | 69 | **-131** | **-208** | **-271** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 29 | 116 | 90 | 68 | 56 | 45 | 34 | **-17** | **-95** | **-80** | **-95** | 36 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 275 | 460 | 344 | 30 | 12 | 10 | 2 | **-20** | **-72** | **-57** | **-75** | 260 |
| Above Normal (16%) | 2 | 191 | 173 | 84 | 26 | 2 | 2 | **-39** | **-178** | **-154** | **-170** | 68 |
| Below Normal (13%) | **-178** | **-170** | **-127** | 199 | 190 | 156 | 120 | 27 | **-93** | **-90** | **-158** | **-207** |
| Dry (24%) | **-80** | **-87** | **-60** | 49 | 68 | 82 | 72 | **-10** | **-75** | **-58** | **-49** | **-70** |
| Critical (15%) | **-106** | **-107** | **-101** | 43 | 44 | 9 | **-5** | **-38** | **-92** | **-74** | **-75** | **-86** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 3-3. Shasta Lake Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,218 | 3,252 | 3,335 | 3,621 | 3,875 | 4,229 | 4,552 | 4,552 | 4,500 | 4,011 | 3,670 | 3,199 |
| 20% | 3,036 | 2,926 | 3,309 | 3,539 | 3,744 | 4,127 | 4,544 | 4,552 | 4,402 | 3,789 | 3,477 | 3,106 |
| 30% | 2,903 | 2,807 | 3,266 | 3,397 | 3,649 | 4,046 | 4,475 | 4,552 | 4,288 | 3,622 | 3,275 | 3,005 |
| 40% | 2,771 | 2,709 | 3,027 | 3,318 | 3,529 | 3,980 | 4,389 | 4,486 | 4,101 | 3,466 | 3,160 | 2,923 |
| 50% | 2,677 | 2,579 | 2,793 | 3,247 | 3,477 | 3,875 | 4,265 | 4,347 | 3,909 | 3,380 | 3,043 | 2,809 |
| 60% | 2,547 | 2,500 | 2,656 | 3,032 | 3,358 | 3,724 | 4,144 | 4,225 | 3,800 | 3,149 | 2,860 | 2,660 |
| 70% | 2,294 | 2,305 | 2,426 | 2,836 | 3,252 | 3,513 | 3,971 | 3,960 | 3,450 | 2,883 | 2,631 | 2,476 |
| 80% | 2,033 | 2,102 | 2,233 | 2,544 | 2,948 | 3,348 | 3,619 | 3,344 | 2,986 | 2,509 | 2,251 | 2,198 |
| 90% | 1,553 | 1,409 | 1,720 | 2,061 | 2,314 | 2,593 | 2,749 | 2,579 | 2,276 | 1,947 | 1,729 | 1,673 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,482 | 2,450 | 2,669 | 2,976 | 3,273 | 3,630 | 3,972 | 3,958 | 3,668 | 3,125 | 2,816 | 2,579 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,849 | 2,698 | 2,932 | 3,392 | 3,652 | 3,892 | 4,360 | 4,492 | 4,342 | 3,821 | 3,481 | 2,989 |
| Above Normal (16%) | 2,711 | 2,597 | 2,852 | 3,255 | 3,529 | 4,065 | 4,501 | 4,489 | 4,138 | 3,464 | 3,120 | 2,833 |
| Below Normal (13%) | 2,690 | 2,736 | 2,863 | 3,170 | 3,518 | 3,893 | 4,213 | 4,108 | 3,735 | 3,129 | 2,774 | 2,729 |
| Dry (24%) | 2,538 | 2,640 | 2,896 | 2,722 | 3,135 | 3,594 | 3,889 | 3,811 | 3,449 | 2,951 | 2,680 | 2,611 |
| Critical (15%) | 1,158 | 1,173 | 1,345 | 2,021 | 2,180 | 2,413 | 2,474 | 2,330 | 2,002 | 1,540 | 1,309 | 1,225 |

### Alternative 3 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,250 | 3,252 | 3,349 | 3,639 | 3,943 | 4,255 | 4,552 | 4,552 | 4,500 | 4,011 | 3,668 | 3,400 |
| 20% | 3,223 | 3,251 | 3,327 | 3,612 | 3,795 | 4,164 | 4,541 | 4,552 | 4,403 | 3,761 | 3,399 | 3,376 |
| 30% | 3,127 | 3,182 | 3,304 | 3,530 | 3,719 | 4,073 | 4,478 | 4,551 | 4,226 | 3,575 | 3,234 | 3,187 |
| 40% | 2,942 | 3,004 | 3,260 | 3,383 | 3,649 | 4,012 | 4,419 | 4,474 | 3,893 | 3,361 | 3,025 | 2,980 |
| 50% | 2,653 | 2,708 | 3,120 | 3,279 | 3,528 | 3,954 | 4,288 | 4,291 | 3,753 | 3,130 | 2,764 | 2,758 |
| 60% | 2,381 | 2,490 | 2,912 | 3,220 | 3,344 | 3,829 | 4,158 | 4,093 | 3,607 | 2,979 | 2,693 | 2,598 |
| 70% | 2,259 | 2,363 | 2,510 | 2,872 | 3,252 | 3,513 | 4,055 | 3,774 | 3,315 | 2,777 | 2,500 | 2,360 |
| 80% | 2,014 | 2,138 | 2,272 | 2,585 | 3,002 | 3,416 | 3,719 | 3,484 | 3,077 | 2,561 | 2,186 | 2,152 |
| 90% | 1,231 | 1,159 | 1,405 | 1,913 | 2,382 | 2,660 | 2,753 | 2,678 | 2,306 | 1,789 | 1,491 | 1,371 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,494 | 2,549 | 2,738 | 3,024 | 3,315 | 3,664 | 3,991 | 3,932 | 3,570 | 3,041 | 2,714 | 2,608 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,118 | 3,150 | 3,260 | 3,416 | 3,664 | 3,901 | 4,353 | 4,482 | 4,285 | 3,773 | 3,403 | 3,252 |
| Above Normal (16%) | 2,733 | 2,784 | 3,010 | 3,328 | 3,552 | 4,068 | 4,504 | 4,448 | 3,977 | 3,322 | 2,965 | 2,902 |
| Below Normal (13%) | 2,501 | 2,554 | 2,722 | 3,345 | 3,692 | 4,032 | 4,316 | 4,117 | 3,630 | 3,028 | 2,618 | 2,521 |
| Dry (24%) | 2,408 | 2,522 | 2,810 | 2,755 | 3,187 | 3,668 | 3,953 | 3,791 | 3,362 | 2,883 | 2,616 | 2,526 |
| Critical (15%) | 1,018 | 1,032 | 1,208 | 2,001 | 2,171 | 2,369 | 2,418 | 2,243 | 1,873 | 1,429 | 1,203 | 1,111 |

### Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 32 | 0 | 14 | 18 | 68 | 27 | 0 | 0 | 0 | 1 | **-2** | 201 |
| 20% | 187 | 324 | 18 | 73 | 51 | 37 | **-3** | 0 | 1 | **-27** | **-78** | 271 |
| 30% | 223 | 375 | 37 | 133 | 70 | 28 | 3 | **-1** | **-62** | **-47** | **-41** | 181 |
| 40% | 171 | 295 | 233 | 65 | 120 | 32 | 30 | **-12** | **-208** | **-105** | **-135** | 57 |
| 50% | **-24** | 130 | 327 | 31 | 51 | 79 | 22 | **-55** | **-156** | **-250** | **-279** | **-51** |
| 60% | **-166** | **-10** | 256 | 188 | **-14** | 105 | 14 | **-132** | **-193** | **-170** | **-167** | **-62** |
| 70% | **-35** | 58 | 84 | 35 | 0 | 0 | 84 | **-186** | **-136** | **-106** | **-131** | **-116** |
| 80% | **-19** | 36 | 39 | 42 | 54 | 68 | 101 | 140 | 92 | 52 | **-65** | **-45** |
| 90% | **-323** | **-250** | **-315** | **-148** | 68 | 67 | 5 | 99 | 30 | **-158** | **-238** | **-301** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 11 | 99 | 69 | 48 | 42 | 34 | 20 | **-26** | **-98** | **-84** | **-101** | 29 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 269 | 452 | 328 | 24 | 12 | 9 | **-7** | **-10** | **-57** | **-48** | **-78** | 264 |
| Above Normal (16%) | 22 | 187 | 158 | 73 | 23 | 3 | 3 | **-41** | **-161** | **-142** | **-156** | 69 |
| Below Normal (13%) | **-189** | **-183** | **-141** | 175 | 173 | 139 | 102 | 10 | **-105** | **-102** | **-156** | **-209** |
| Dry (24%) | **-130** | **-118** | **-87** | 33 | 52 | 74 | 64 | **-19** | **-87** | **-68** | **-64** | **-86** |
| Critical (15%) | **-140** | **-141** | **-137** | **-20** | **-9** | **-45** | **-56** | **-87** | **-129** | **-111** | **-106** | **-113** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 3-4. Shasta Lake Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,218 | 3,252 | 3,335 | 3,621 | 3,875 | 4,229 | 4,552 | 4,552 | 4,500 | 4,011 | 3,670 | 3,199 |
| 20% | 3,036 | 2,926 | 3,309 | 3,539 | 3,744 | 4,127 | 4,544 | 4,552 | 4,402 | 3,789 | 3,477 | 3,106 |
| 30% | 2,903 | 2,807 | 3,266 | 3,397 | 3,649 | 4,046 | 4,475 | 4,552 | 4,288 | 3,622 | 3,275 | 3,005 |
| 40% | 2,771 | 2,709 | 3,027 | 3,318 | 3,529 | 3,980 | 4,389 | 4,486 | 4,101 | 3,466 | 3,160 | 2,923 |
| 50% | 2,677 | 2,579 | 2,793 | 3,247 | 3,477 | 3,875 | 4,265 | 4,347 | 3,909 | 3,380 | 3,043 | 2,809 |
| 60% | 2,547 | 2,500 | 2,656 | 3,032 | 3,358 | 3,724 | 4,144 | 4,225 | 3,800 | 3,149 | 2,860 | 2,660 |
| 70% | 2,294 | 2,305 | 2,426 | 2,836 | 3,252 | 3,513 | 3,971 | 3,960 | 3,450 | 2,883 | 2,631 | 2,476 |
| 80% | 2,033 | 2,102 | 2,233 | 2,544 | 2,948 | 3,348 | 3,619 | 3,344 | 2,986 | 2,509 | 2,251 | 2,198 |
| 90% | 1,553 | 1,409 | 1,720 | 2,061 | 2,314 | 2,593 | 2,749 | 2,579 | 2,276 | 1,947 | 1,729 | 1,673 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,482 | 2,450 | 2,669 | 2,976 | 3,273 | 3,630 | 3,972 | 3,958 | 3,668 | 3,125 | 2,816 | 2,579 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,849 | 2,698 | 2,932 | 3,392 | 3,652 | 3,892 | 4,360 | 4,492 | 4,342 | 3,821 | 3,481 | 2,989 |
| Above Normal (16%) | 2,711 | 2,597 | 2,852 | 3,255 | 3,529 | 4,065 | 4,501 | 4,489 | 4,138 | 3,464 | 3,120 | 2,833 |
| Below Normal (13%) | 2,690 | 2,736 | 2,863 | 3,170 | 3,518 | 3,893 | 4,213 | 4,108 | 3,735 | 3,129 | 2,774 | 2,729 |
| Dry (24%) | 2,538 | 2,640 | 2,896 | 2,722 | 3,135 | 3,594 | 3,889 | 3,811 | 3,449 | 2,951 | 2,680 | 2,611 |
| Critical (15%) | 1,158 | 1,173 | 1,345 | 2,021 | 2,180 | 2,413 | 2,474 | 2,330 | 2,002 | 1,540 | 1,309 | 1,225 |

### Alternative 4 043019

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,250 | 3,252 | 3,360 | 3,650 | 3,920 | 4,196 | 4,516 | 4,552 | 4,497 | 3,955 | 3,623 | 3,400 |
| 20% | 3,231 | 3,252 | 3,344 | 3,598 | 3,833 | 4,117 | 4,442 | 4,527 | 4,328 | 3,729 | 3,425 | 3,391 |
| 30% | 3,136 | 3,241 | 3,317 | 3,538 | 3,703 | 4,029 | 4,408 | 4,482 | 4,229 | 3,591 | 3,267 | 3,258 |
| 40% | 2,999 | 3,122 | 3,270 | 3,416 | 3,643 | 3,992 | 4,304 | 4,401 | 4,036 | 3,399 | 3,069 | 3,020 |
| 50% | 2,799 | 2,945 | 3,233 | 3,325 | 3,543 | 3,928 | 4,234 | 4,326 | 3,844 | 3,238 | 2,925 | 2,938 |
| 60% | 2,665 | 2,769 | 3,038 | 3,239 | 3,436 | 3,820 | 4,145 | 4,154 | 3,662 | 3,115 | 2,794 | 2,753 |
| 70% | 2,591 | 2,584 | 2,701 | 3,075 | 3,292 | 3,634 | 4,049 | 3,878 | 3,505 | 2,933 | 2,743 | 2,681 |
| 80% | 2,358 | 2,397 | 2,471 | 2,706 | 3,192 | 3,416 | 3,809 | 3,687 | 3,203 | 2,711 | 2,472 | 2,399 |
| 90% | 1,768 | 1,733 | 1,742 | 2,248 | 2,527 | 2,845 | 2,788 | 2,858 | 2,592 | 2,242 | 1,909 | 1,830 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,655 | 2,711 | 2,860 | 3,108 | 3,368 | 3,686 | 3,998 | 3,987 | 3,667 | 3,141 | 2,841 | 2,757 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,138 | 3,184 | 3,282 | 3,419 | 3,653 | 3,869 | 4,287 | 4,433 | 4,282 | 3,766 | 3,425 | 3,272 |
| Above Normal (16%) | 2,895 | 2,954 | 3,126 | 3,398 | 3,573 | 4,034 | 4,446 | 4,449 | 4,108 | 3,402 | 3,069 | 3,046 |
| Below Normal (13%) | 2,743 | 2,781 | 2,892 | 3,379 | 3,668 | 3,978 | 4,256 | 4,147 | 3,722 | 3,134 | 2,817 | 2,782 |
| Dry (24%) | 2,592 | 2,697 | 2,904 | 2,932 | 3,328 | 3,746 | 4,019 | 3,927 | 3,473 | 2,983 | 2,718 | 2,663 |
| Critical (15%) | 1,376 | 1,379 | 1,552 | 2,162 | 2,321 | 2,546 | 2,614 | 2,475 | 2,128 | 1,774 | 1,555 | 1,459 |

### Alternative 4 043019 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 32 | 0 | 25 | 28 | 45 | **-32** | **-36** | 0 | **-3** | **-55** | **-48** | 201 |
| 20% | 195 | 326 | 35 | 59 | 89 | **-10** | **-102** | **-25** | **-74** | **-60** | **-53** | 285 |
| 30% | 232 | 434 | 50 | 141 | 54 | **-17** | **-67** | **-70** | **-59** | **-31** | **-8** | 252 |
| 40% | 228 | 414 | 243 | 98 | 114 | 12 | **-85** | **-84** | **-65** | **-67** | **-90** | 98 |
| 50% | 122 | 367 | 441 | 78 | 66 | 53 | **-31** | **-21** | **-66** | **-142** | **-118** | 129 |
| 60% | 118 | 269 | 382 | 208 | 78 | 97 | 1 | **-71** | **-138** | **-34** | **-66** | 92 |
| 70% | 297 | 280 | 274 | 239 | 40 | 121 | 79 | **-82** | 55 | 50 | 111 | 205 |
| 80% | 325 | 295 | 237 | 162 | 244 | 68 | 191 | 343 | 218 | 202 | 221 | 201 |
| 90% | 214 | 324 | 22 | 187 | 213 | 252 | 39 | 279 | 316 | 295 | 180 | 157 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 173 | 261 | 190 | 131 | 95 | 56 | 26 | 30 | **-1** | 16 | 25 | 178 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 289 | 486 | 350 | 27 | 1 | **-23** | **-72** | **-59** | **-60** | **-55** | **-56** | 283 |
| Above Normal (16%) | 184 | 357 | 274 | 143 | 44 | **-31** | **-55** | **-40** | **-30** | **-61** | **-52** | 212 |
| Below Normal (13%) | 53 | 44 | 30 | 210 | 150 | 85 | 42 | 39 | **-13** | 5 | 43 | 53 |
| Dry (24%) | 54 | 57 | 8 | 210 | 193 | 152 | 130 | 116 | 24 | 32 | 38 | 52 |
| Critical (15%) | 218 | 206 | 207 | 141 | 141 | 133 | 139 | 145 | 126 | 234 | 246 | 234 |

a Based on the 82-year simulation period.

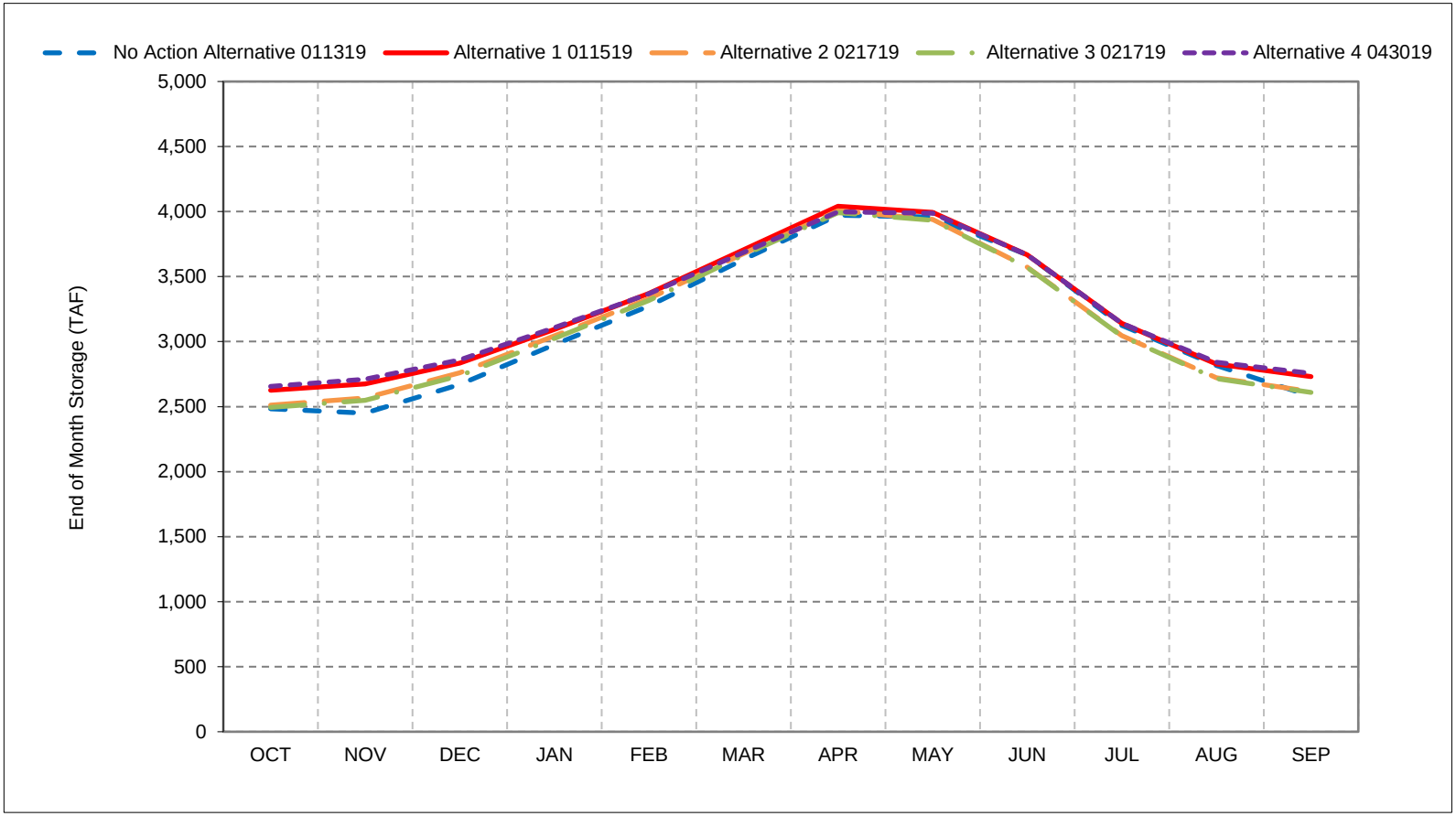
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

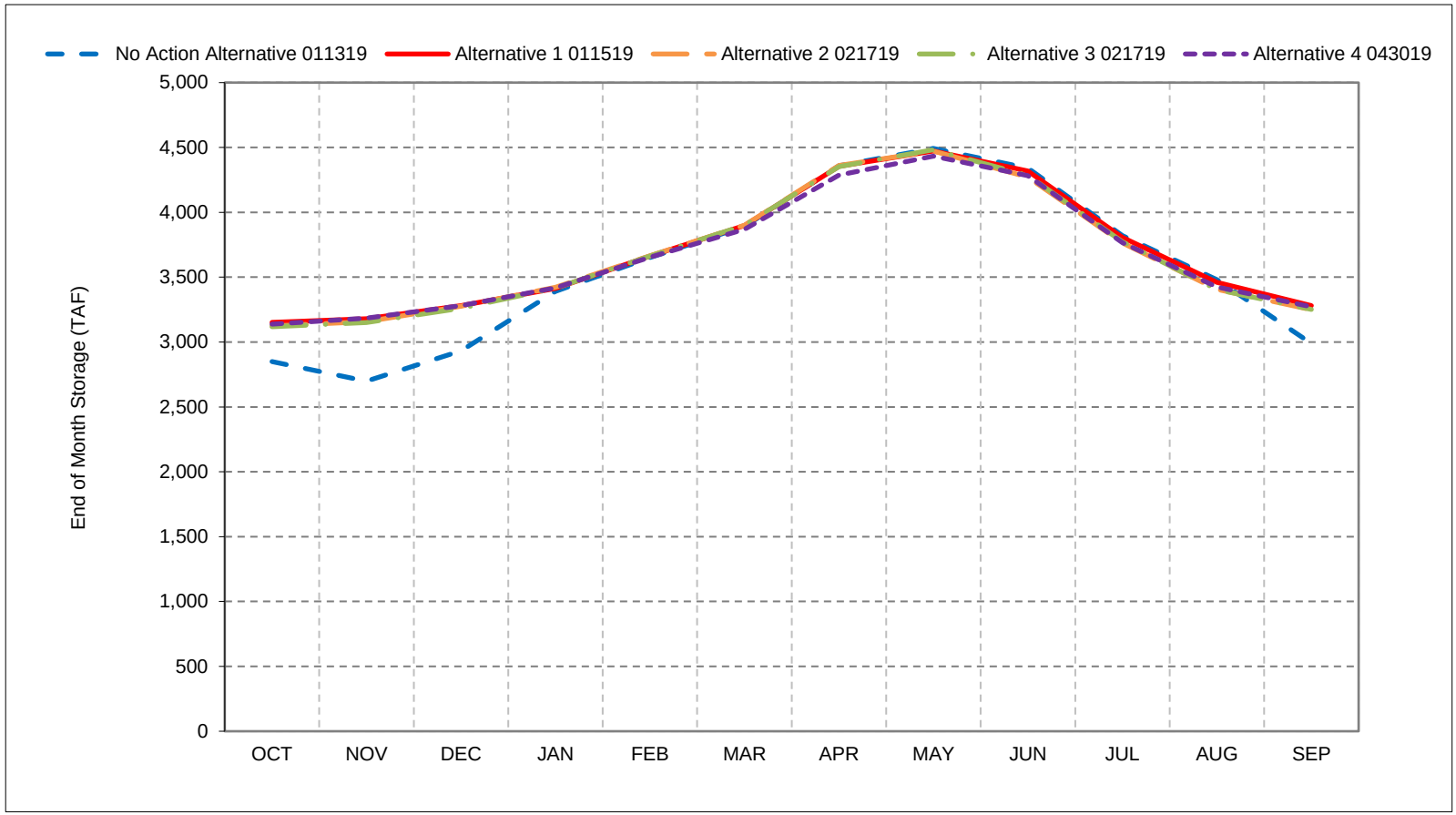
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-1. Shasta Lake Storage, Long-Term Average Storage



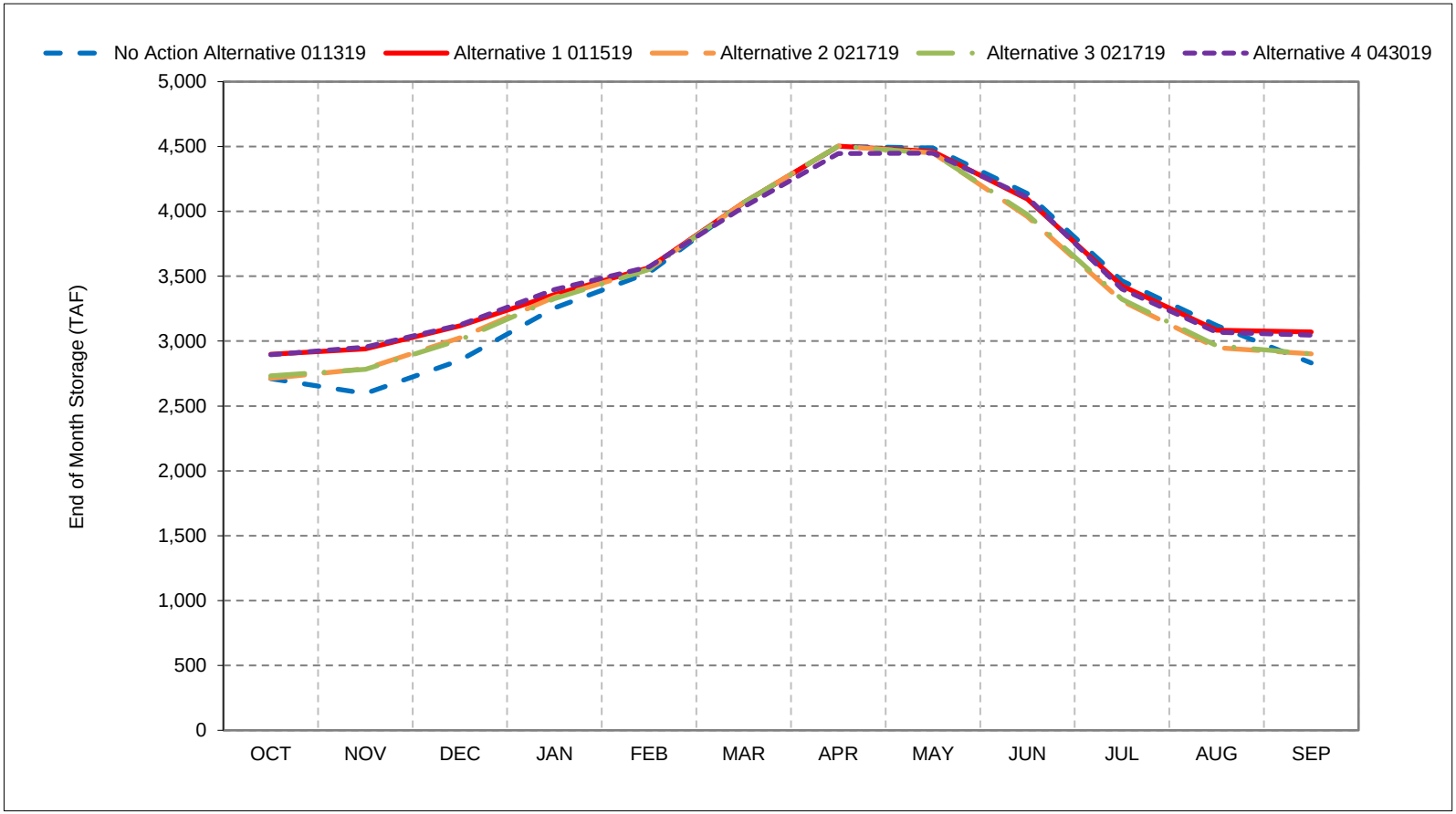

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-2. Shasta Lake Storage, Wet Year Average Storage



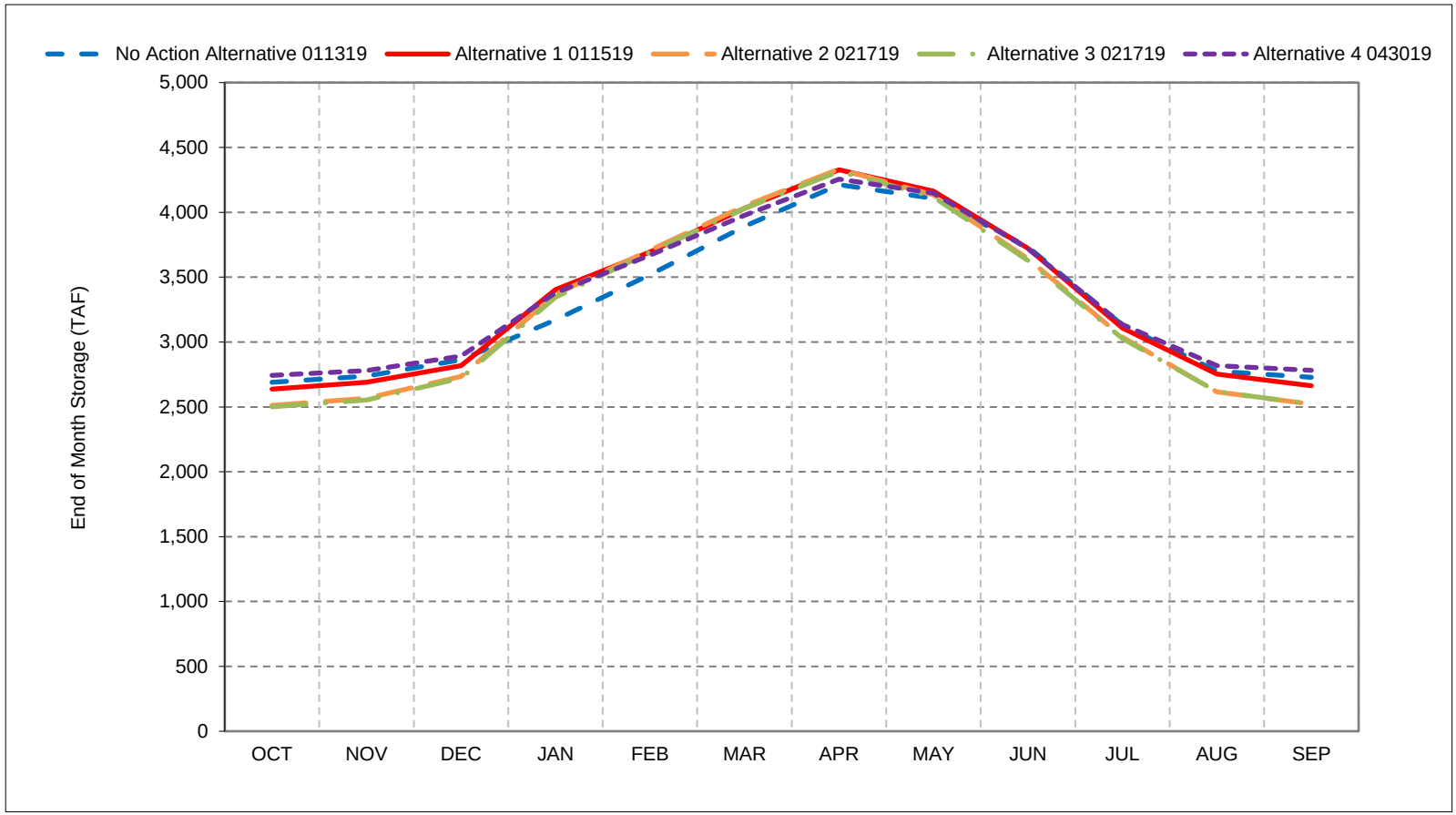

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-3. Shasta Lake Storage, Above Normal Year Average Storage



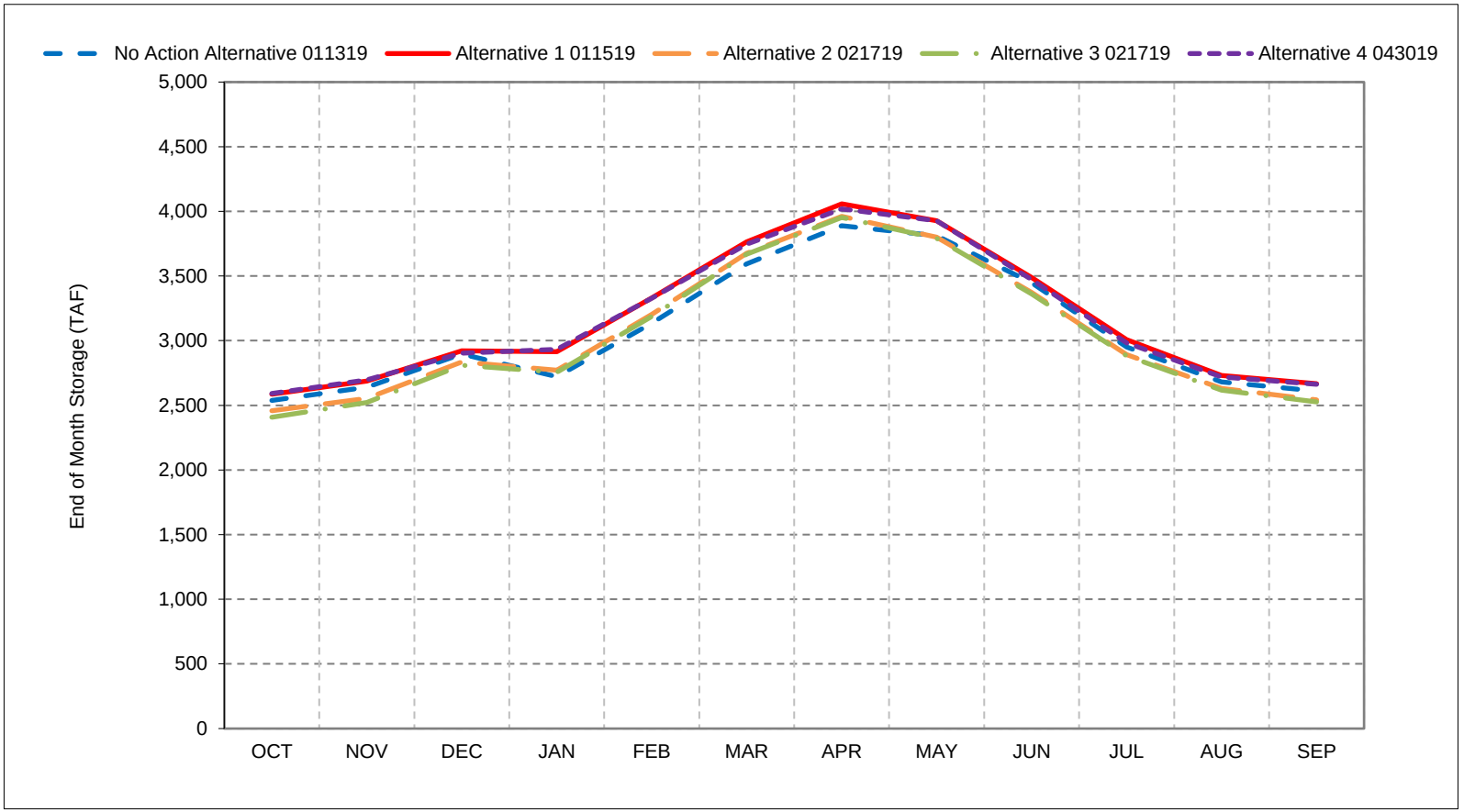

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-4. Shasta Lake Storage, Below Normal Year Average Storage



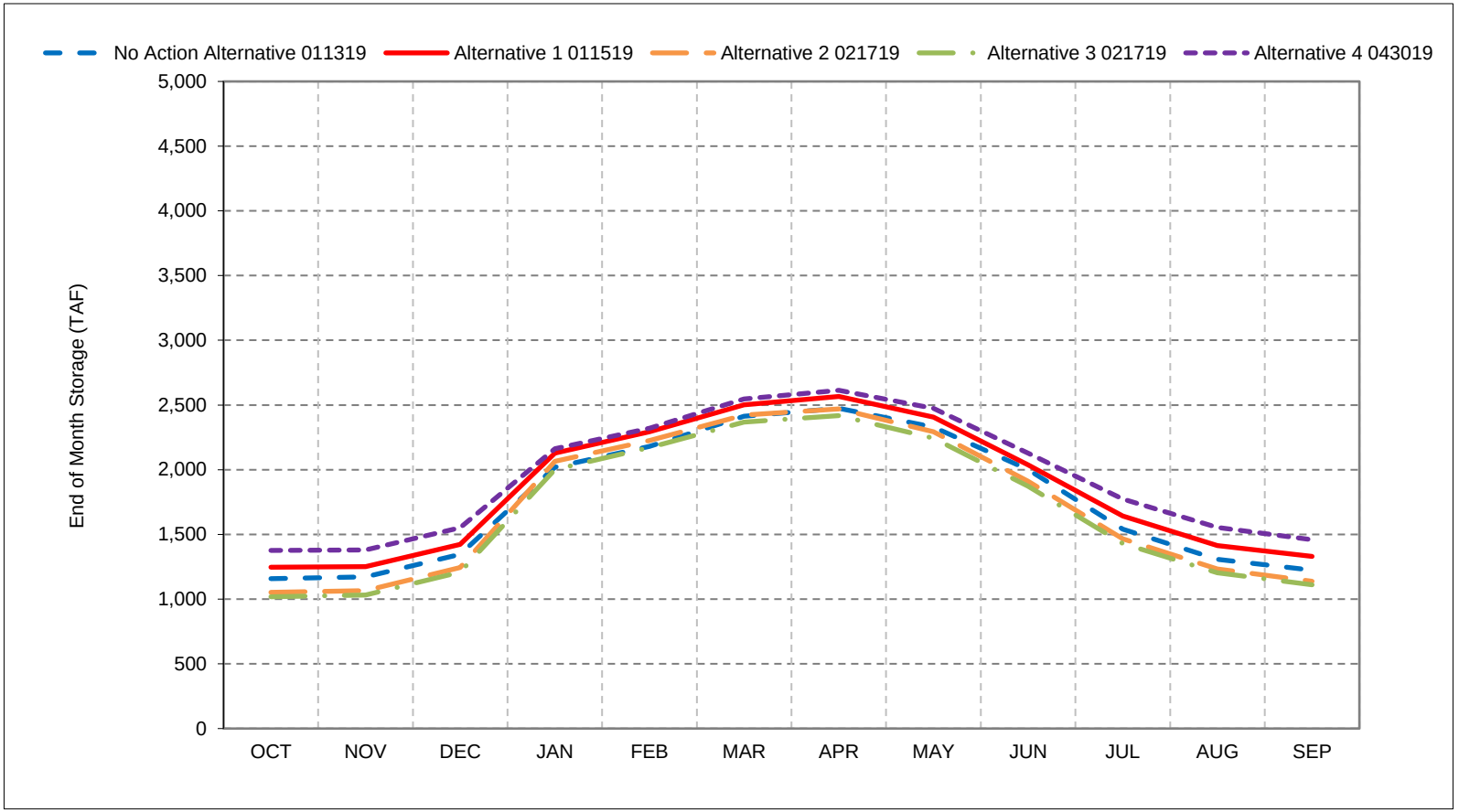

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-5. Shasta Lake Storage, Dry Year Average Storage



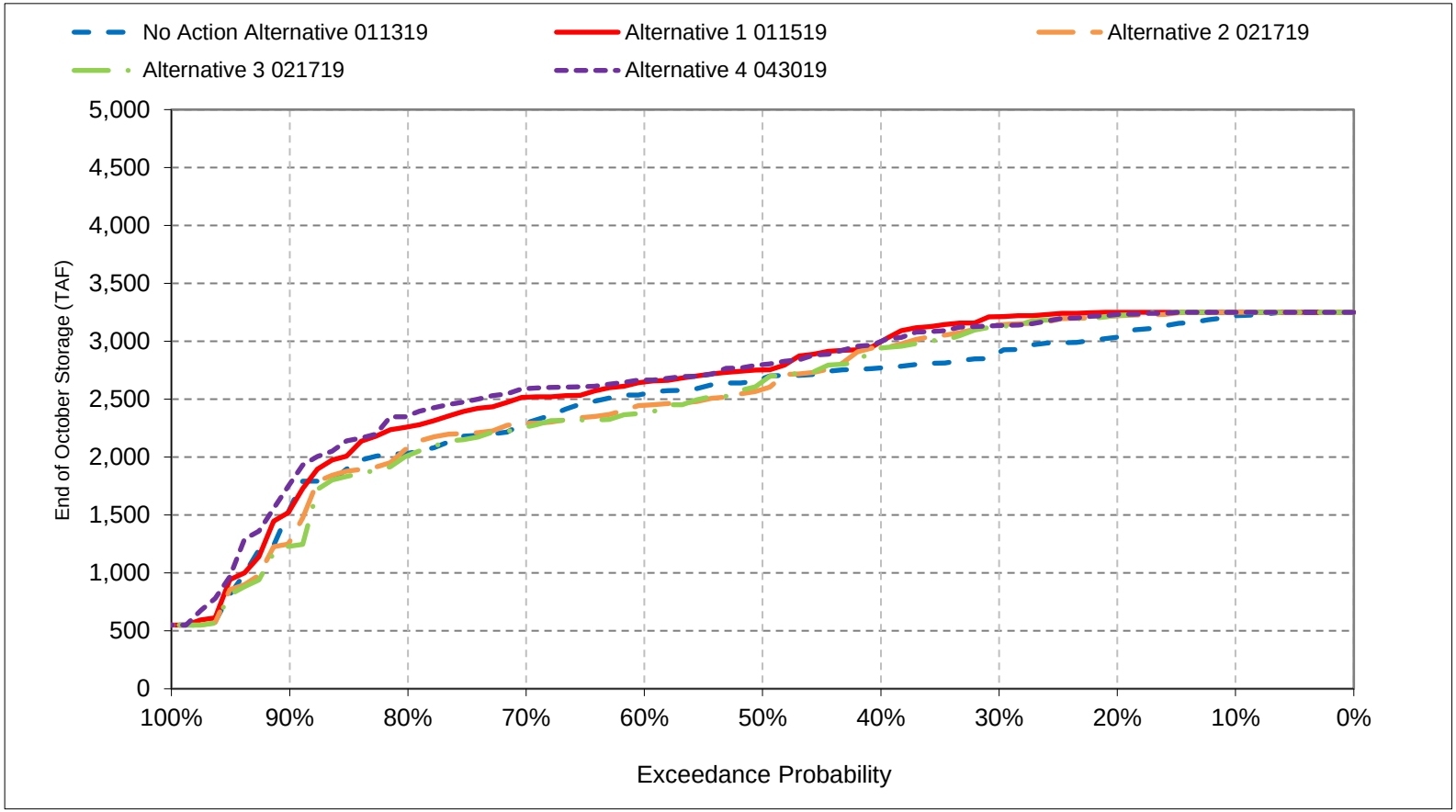

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-6. Shasta Lake Storage, Critical Year Average Storage



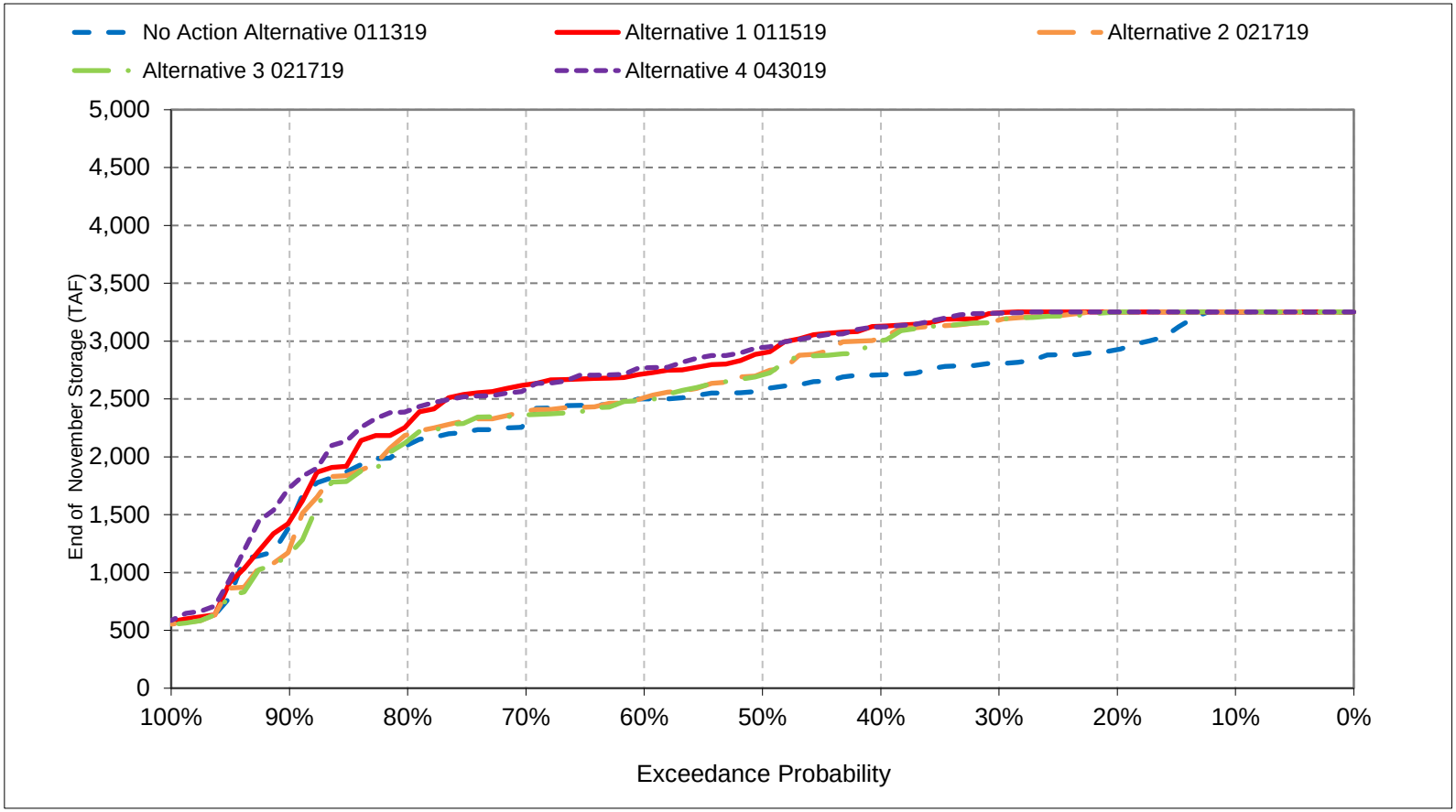

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-7. Shasta Lake Storage, End of October Storage



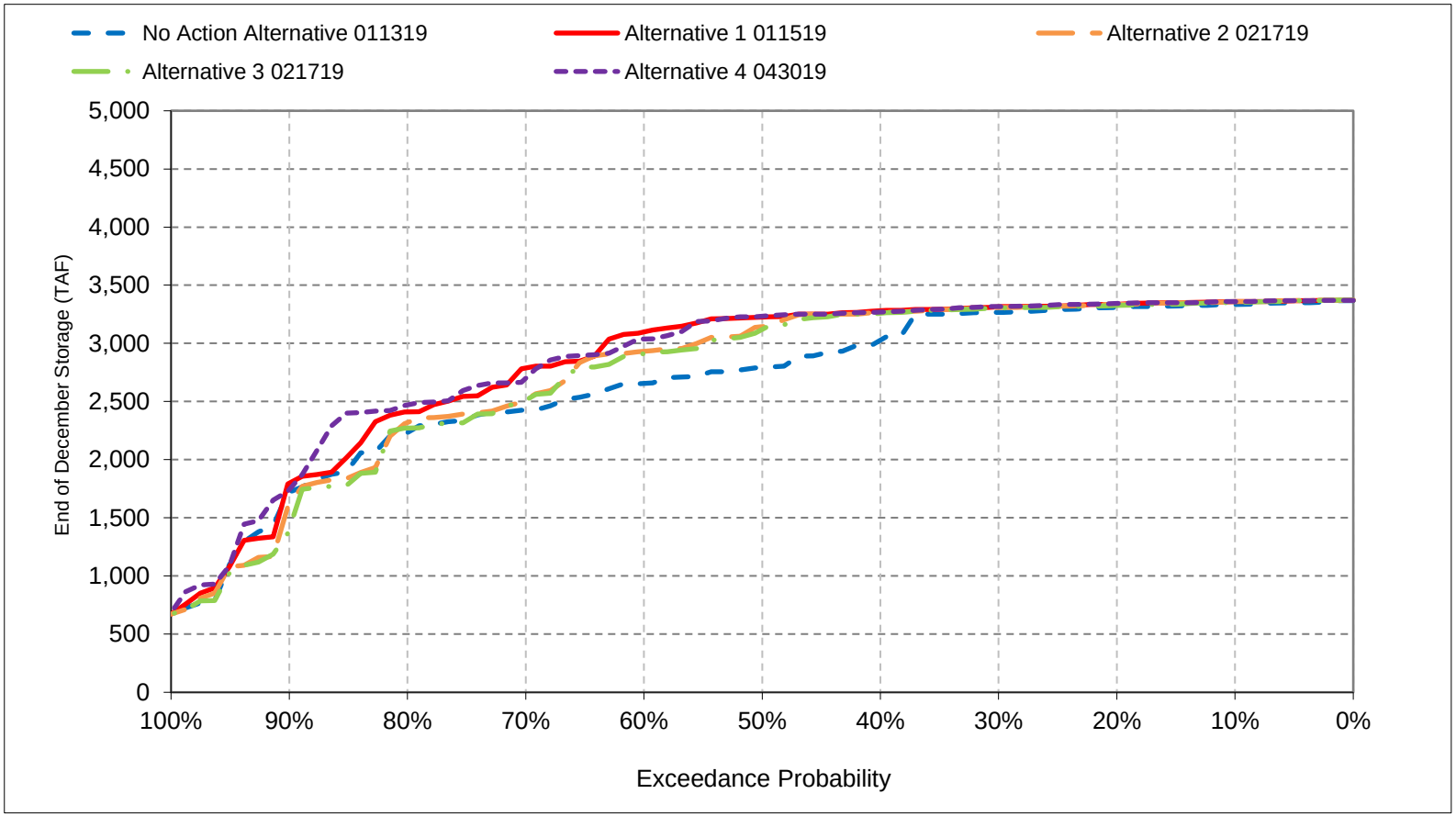

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-8. Shasta Lake Storage, End of November Storage



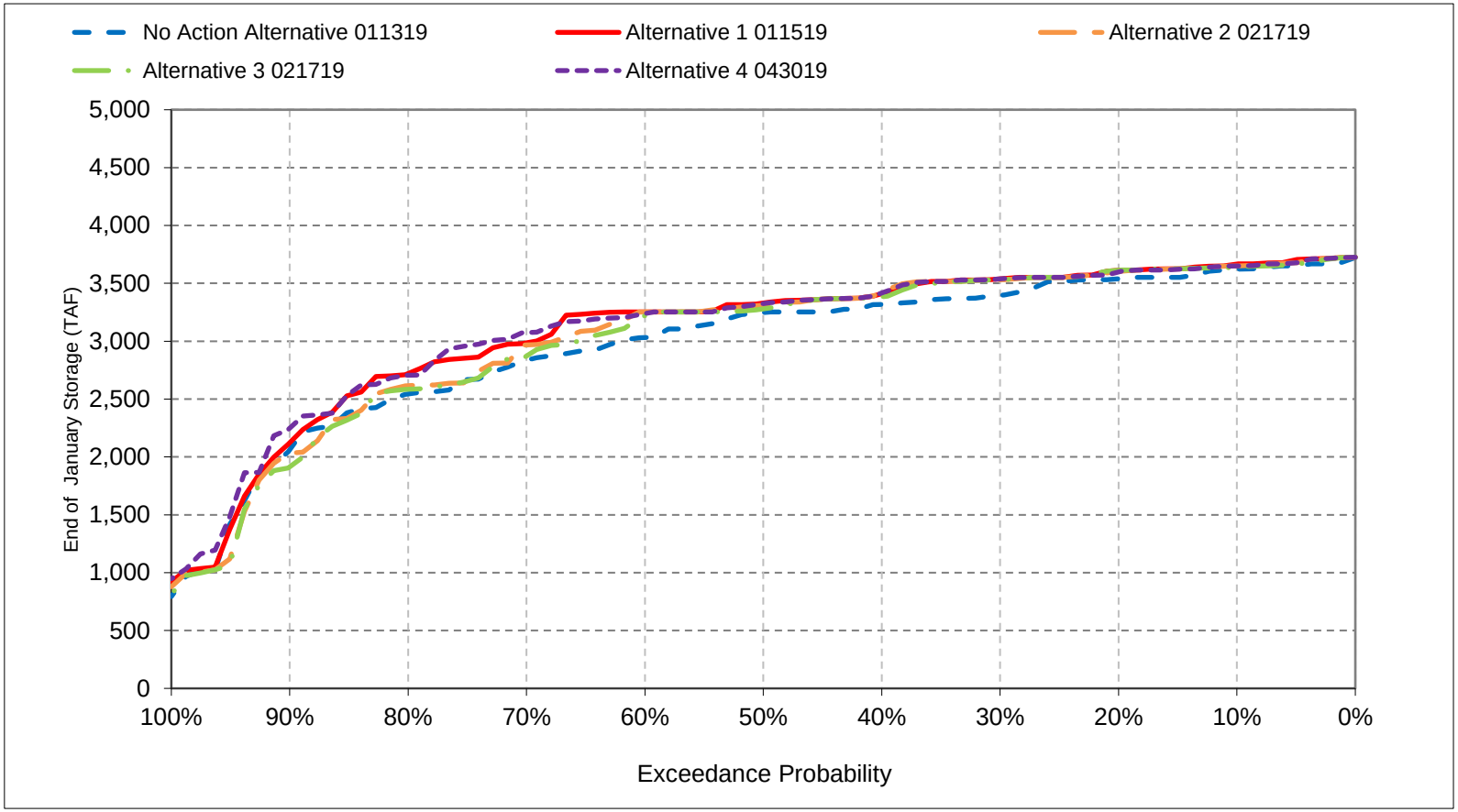

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-9. Shasta Lake Storage, End of December Storage



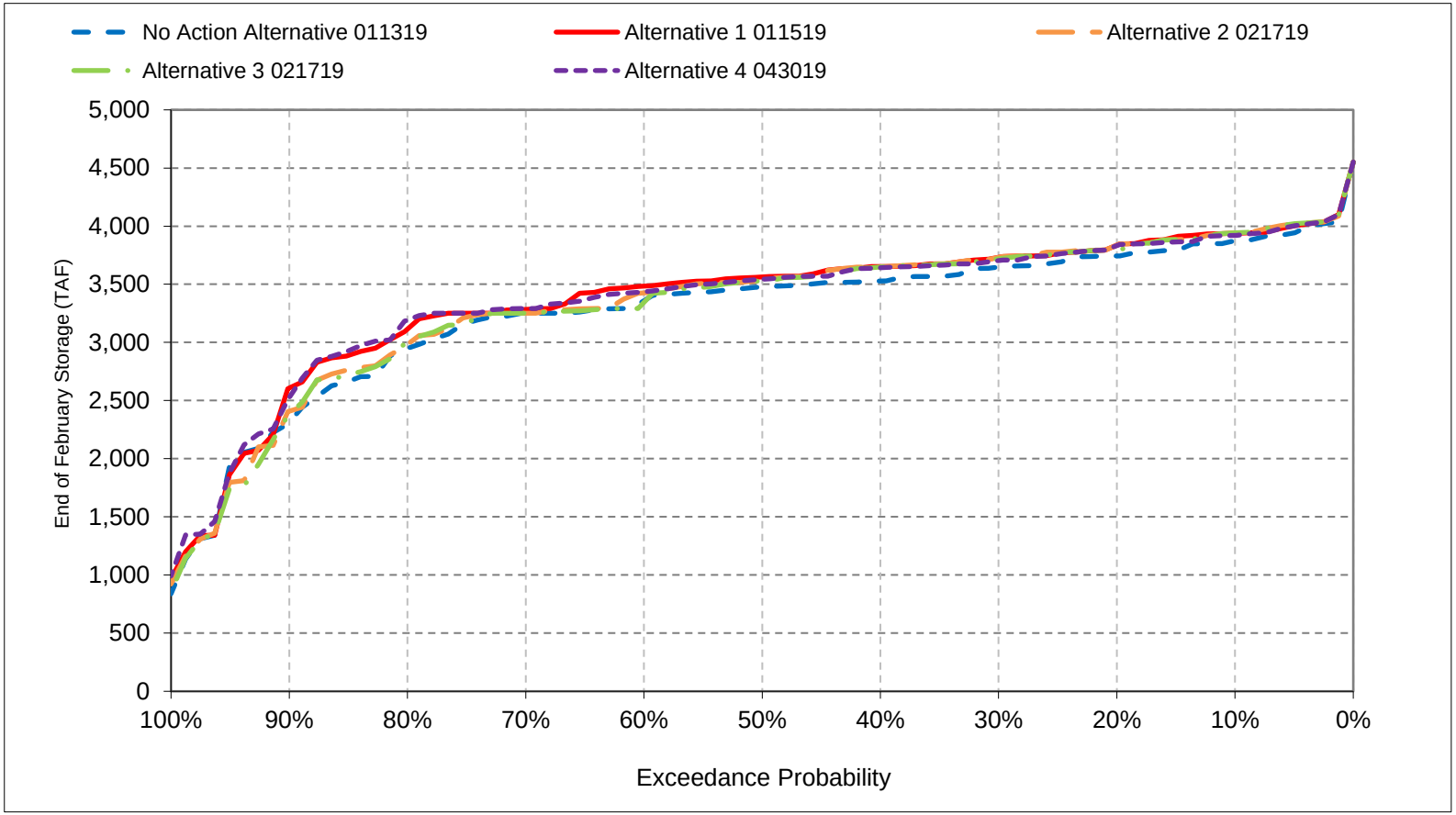

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-10. Shasta Lake Storage, End of January Storage



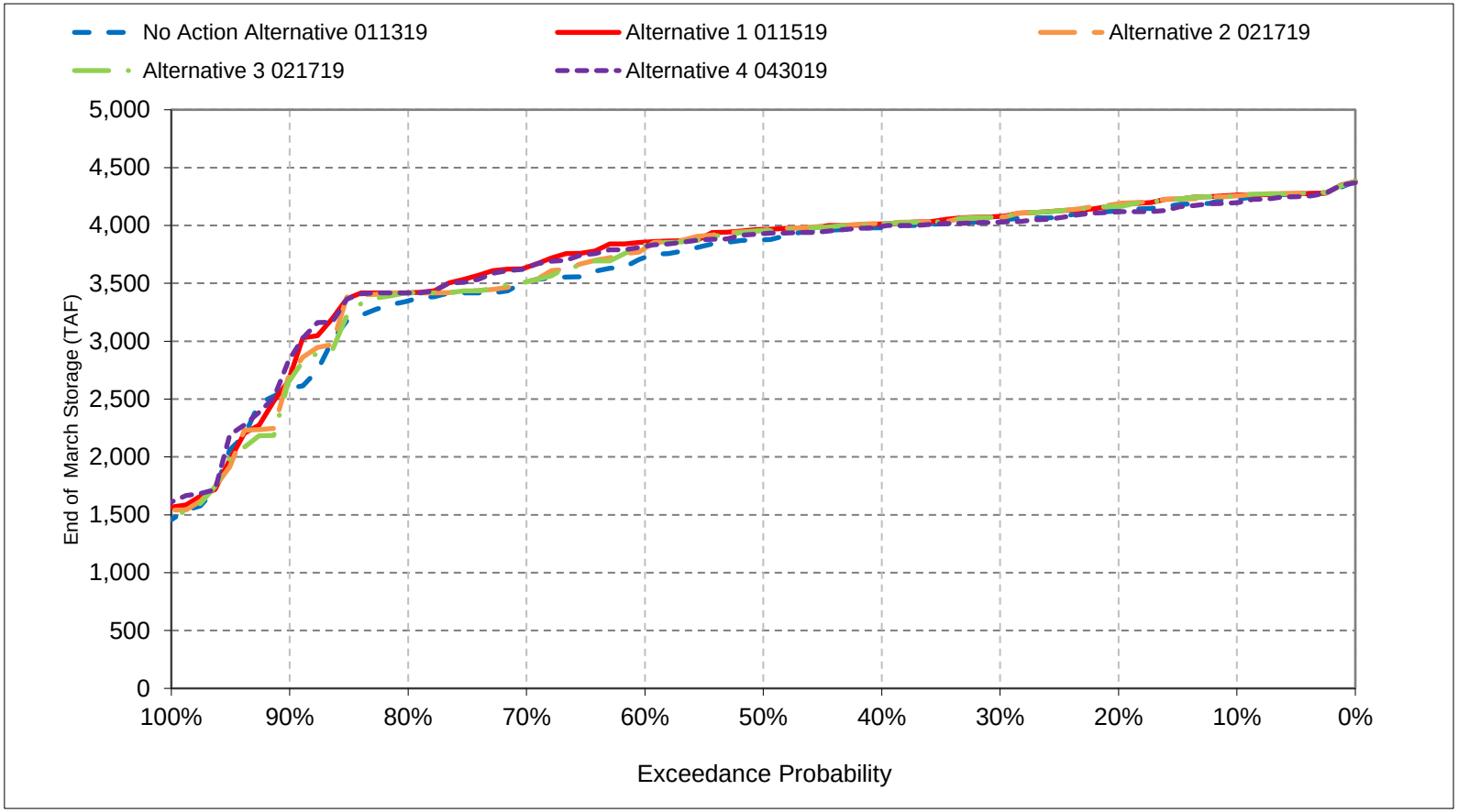

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-11. Shasta Lake Storage, End of February Storage



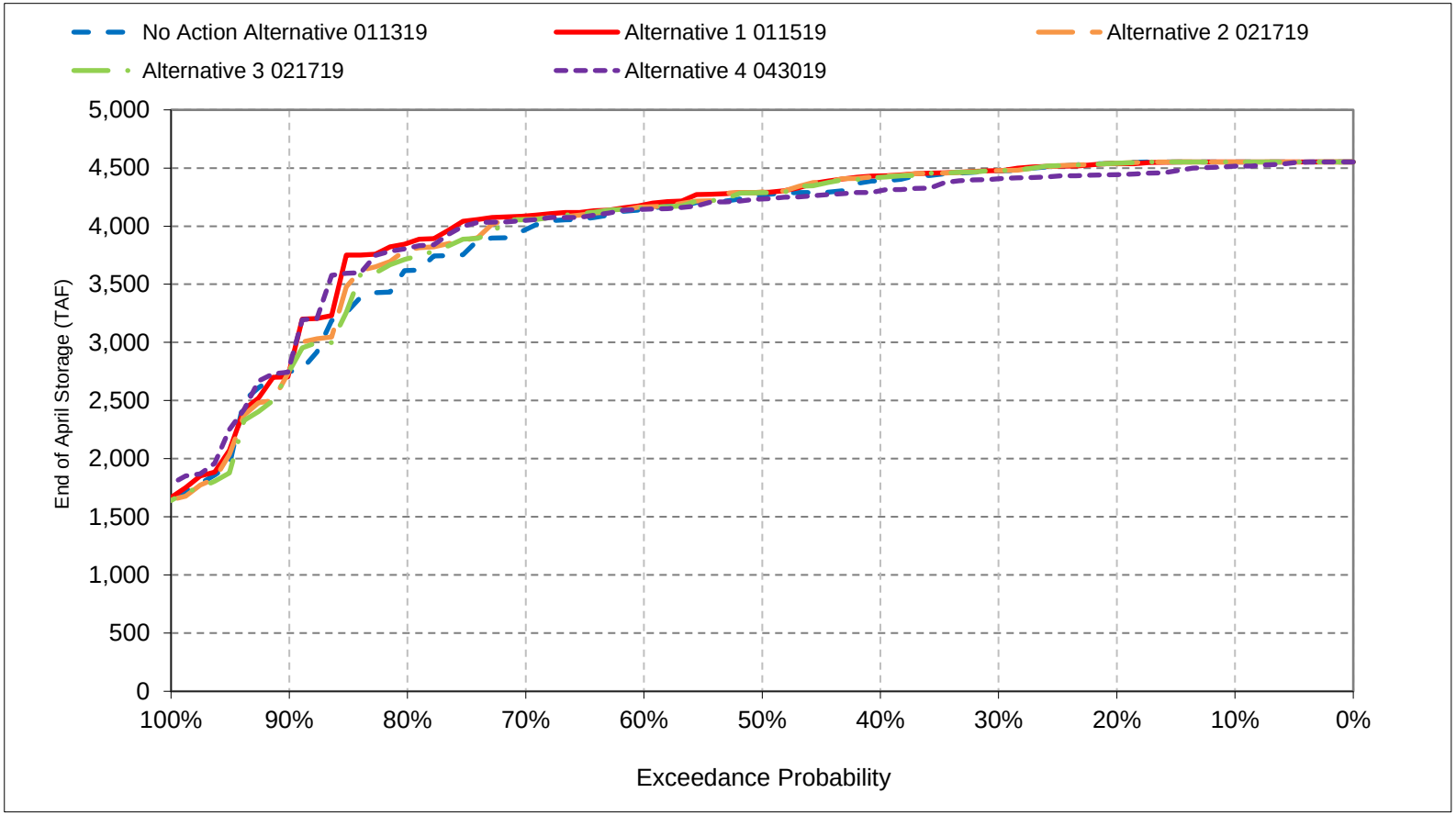

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-12. Shasta Lake Storage, End of March Storage



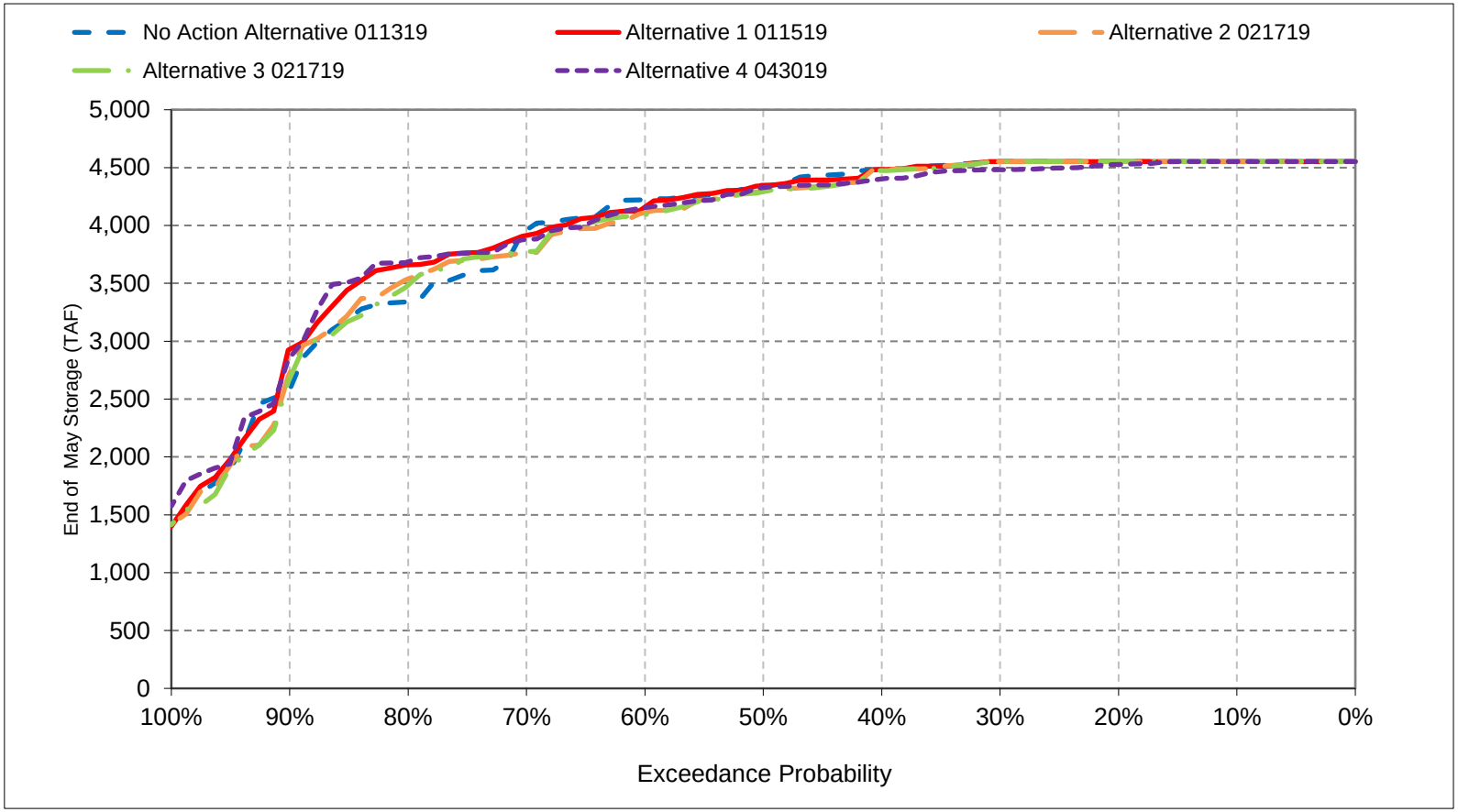

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-13. Shasta Lake Storage, End of April Storage



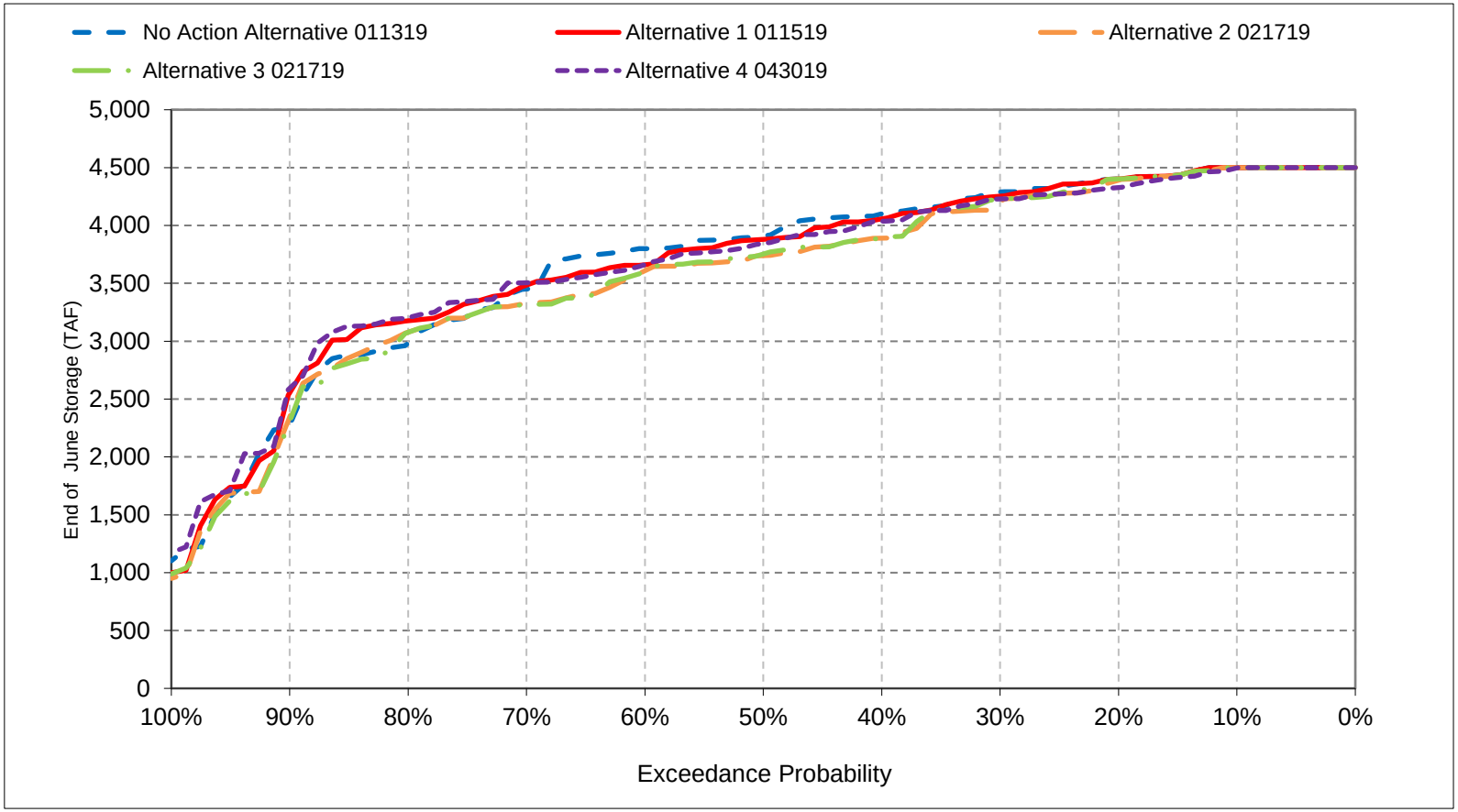

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-14. Shasta Lake Storage, End of May Storage



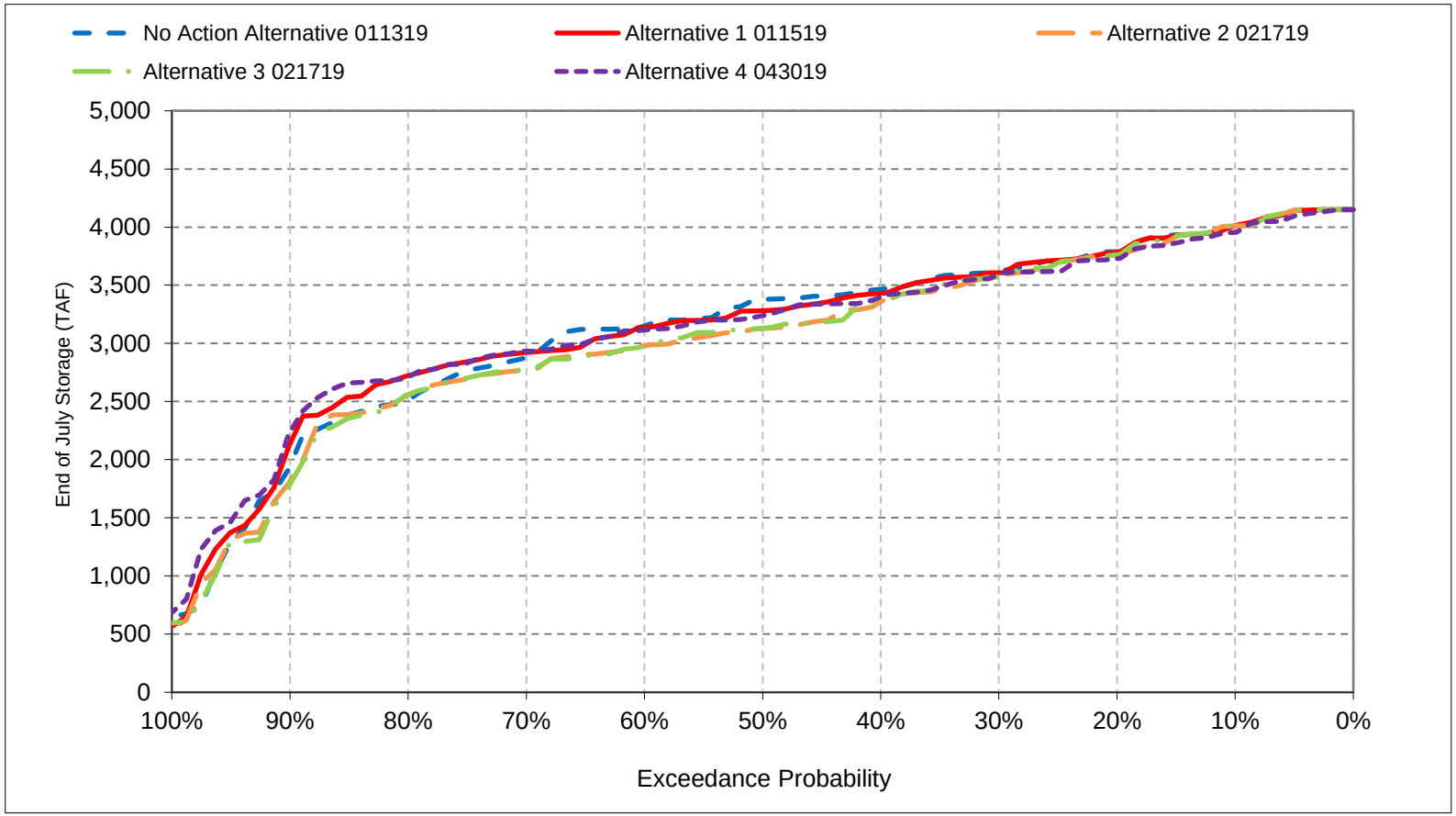

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-15. Shasta Lake Storage, End of June Storage



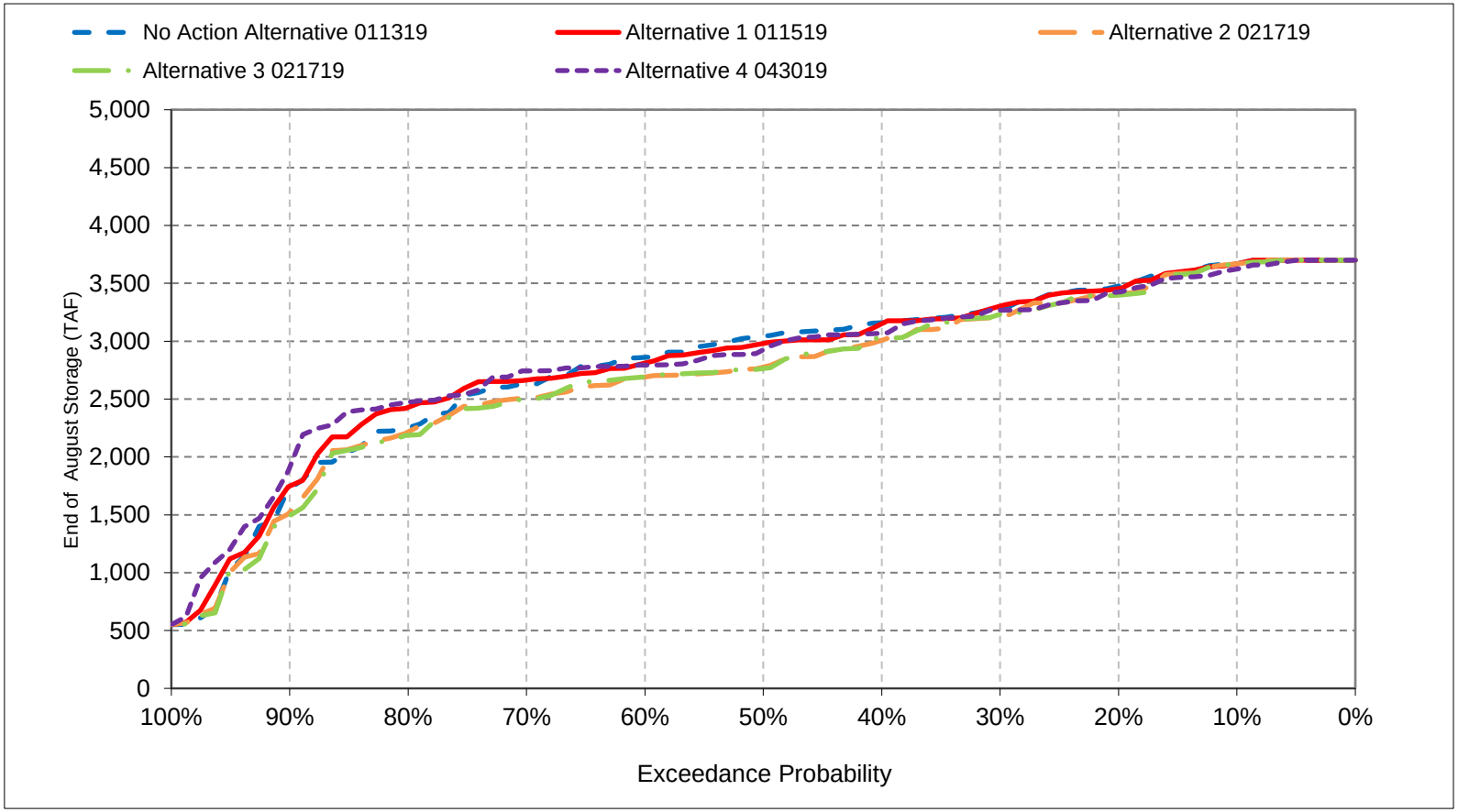

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-16. Shasta Lake Storage, End of July Storage



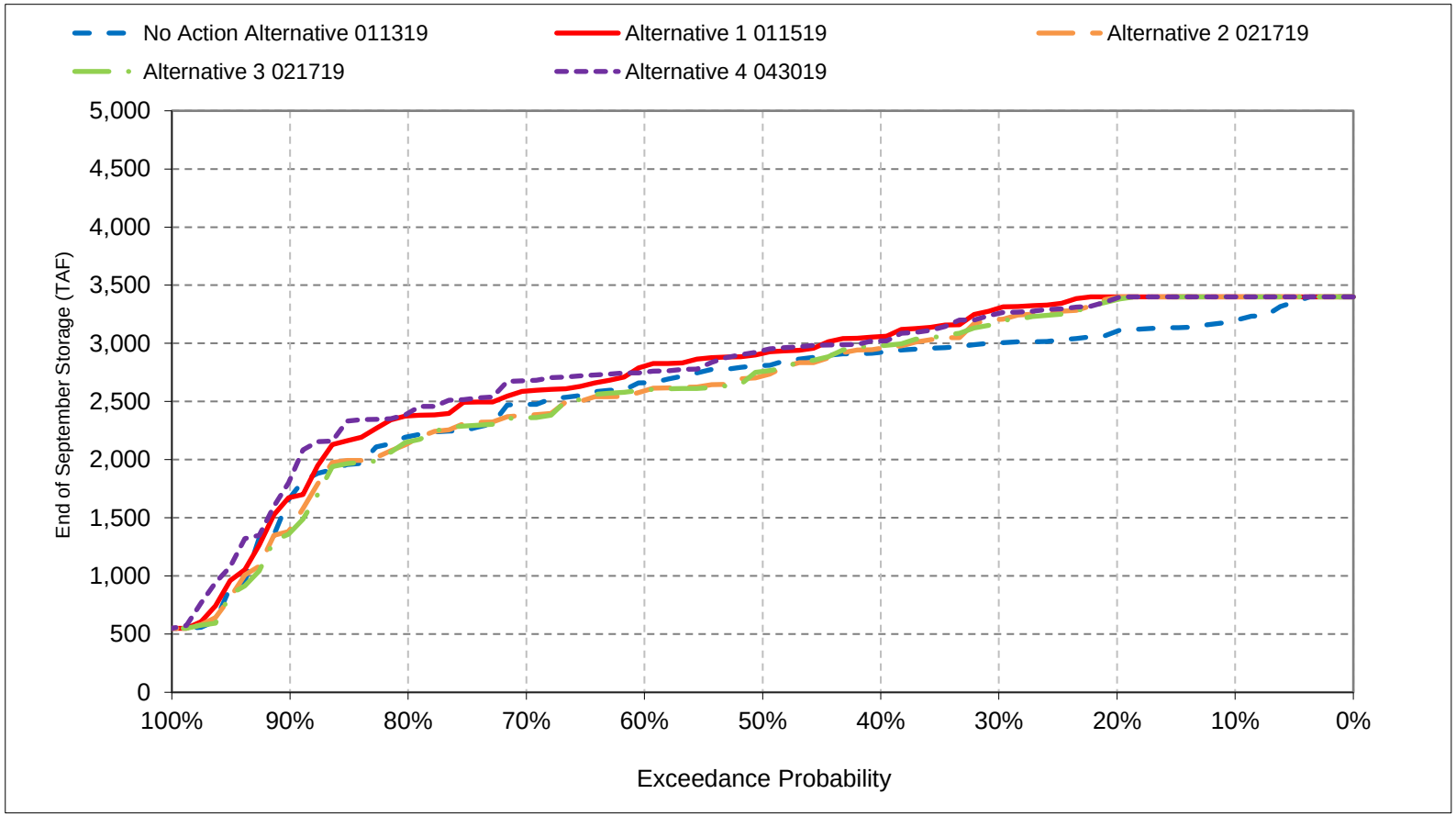

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-17. Shasta Lake Storage, End of August Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-18. Shasta Lake Storage, End of September Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

# Table 3a-1. Shasta Lake Elevation, End of Month Elevation

## No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,016 | 1,017 | 1,021 | 1,033 | 1,043 | 1,055 | 1,067 | 1,067 | 1,065 | 1,048 | 1,035 | 1,015 |
| 20% | 1,008 | 1,003 | 1,019 | 1,029 | 1,038 | 1,052 | 1,067 | 1,067 | 1,062 | 1,040 | 1,027 | 1,011 |
| 30% | 1,002 | 998 | 1,018 | 1,023 | 1,034 | 1,049 | 1,064 | 1,067 | 1,058 | 1,033 | 1,018 | 1,006 |
| 40% | 996 | 993 | 1,007 | 1,020 | 1,029 | 1,047 | 1,061 | 1,065 | 1,051 | 1,026 | 1,013 | 1,003 |
| 50% | 992 | 988 | 997 | 1,017 | 1,027 | 1,043 | 1,057 | 1,060 | 1,044 | 1,023 | 1,008 | 998 |
| 60% | 986 | 984 | 991 | 1,007 | 1,022 | 1,037 | 1,052 | 1,055 | 1,040 | 1,013 | 1,000 | 991 |
| 70% | 972 | 973 | 980 | 999 | 1,017 | 1,028 | 1,046 | 1,046 | 1,026 | 1,001 | 990 | 983 |
| 80% | 958 | 962 | 969 | 986 | 1,004 | 1,021 | 1,033 | 1,021 | 1,005 | 984 | 970 | 967 |
| 90% | 928 | 918 | 940 | 959 | 974 | 988 | 995 | 988 | 971 | 953 | 940 | 937 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 977 | 976 | 987 | 1,002 | 1,016 | 1,031 | 1,044 | 1,043 | 1,031 | 1,007 | 993 | 982 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 999 | 992 | 1,003 | 1,023 | 1,034 | 1,043 | 1,060 | 1,065 | 1,059 | 1,040 | 1,027 | 1,005 |
| Above Normal (16%) | 993 | 987 | 999 | 1,017 | 1,029 | 1,049 | 1,065 | 1,065 | 1,052 | 1,026 | 1,011 | 998 |
| Below Normal (13%) | 991 | 993 | 999 | 1,013 | 1,028 | 1,043 | 1,055 | 1,051 | 1,037 | 1,011 | 995 | 993 |
| Dry (24%) | 984 | 989 | 1,000 | 991 | 1,010 | 1,030 | 1,042 | 1,039 | 1,025 | 1,003 | 991 | 987 |
| Critical (15%) | 890 | 892 | 907 | 950 | 960 | 976 | 979 | 971 | 952 | 920 | 902 | 895 |

## Alternative 1 011519

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,017 | 1,017 | 1,022 | 1,035 | 1,045 | 1,057 | 1,067 | 1,067 | 1,065 | 1,048 | 1,035 | 1,023 |
| 20% | 1,017 | 1,017 | 1,021 | 1,033 | 1,041 | 1,054 | 1,066 | 1,067 | 1,062 | 1,040 | 1,026 | 1,023 |
| 30% | 1,015 | 1,017 | 1,020 | 1,029 | 1,038 | 1,050 | 1,064 | 1,067 | 1,056 | 1,032 | 1,019 | 1,019 |
| 40% | 1,006 | 1,012 | 1,018 | 1,024 | 1,034 | 1,048 | 1,063 | 1,065 | 1,049 | 1,025 | 1,013 | 1,009 |
| 50% | 995 | 1,002 | 1,016 | 1,020 | 1,031 | 1,046 | 1,058 | 1,060 | 1,043 | 1,018 | 1,005 | 1,002 |
| 60% | 991 | 994 | 1,010 | 1,017 | 1,027 | 1,042 | 1,054 | 1,053 | 1,035 | 1,012 | 998 | 998 |
| 70% | 985 | 990 | 997 | 1,005 | 1,018 | 1,034 | 1,050 | 1,044 | 1,027 | 1,003 | 991 | 988 |
| 80% | 971 | 972 | 979 | 994 | 1,011 | 1,024 | 1,042 | 1,035 | 1,014 | 994 | 980 | 977 |
| 90% | 927 | 920 | 944 | 963 | 989 | 993 | 995 | 1,003 | 987 | 963 | 942 | 937 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 984 | 986 | 995 | 1,008 | 1,020 | 1,034 | 1,047 | 1,045 | 1,031 | 1,009 | 994 | 989 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,013 | 1,014 | 1,018 | 1,024 | 1,034 | 1,043 | 1,060 | 1,064 | 1,059 | 1,040 | 1,026 | 1,018 |
| Above Normal (16%) | 1,001 | 1,003 | 1,011 | 1,021 | 1,030 | 1,050 | 1,065 | 1,064 | 1,051 | 1,025 | 1,010 | 1,009 |
| Below Normal (13%) | 988 | 991 | 997 | 1,024 | 1,036 | 1,048 | 1,059 | 1,053 | 1,036 | 1,010 | 994 | 990 |
| Dry (24%) | 987 | 991 | 1,002 | 1,000 | 1,019 | 1,037 | 1,049 | 1,044 | 1,027 | 1,006 | 994 | 991 |
| Critical (15%) | 896 | 897 | 912 | 956 | 966 | 980 | 983 | 975 | 953 | 926 | 909 | 902 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1 | 0 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | **0** | 9 |
| 20% | 9 | 14 | 1 | 3 | 3 | 2 | **0** | 0 | **0** | **0** | **-1** | 13 |
| 30% | 13 | 19 | 2 | 6 | 3 | 1 | 0 | 0 | **-1** | **-1** | 1 | 13 |
| 40% | 10 | 18 | 11 | 4 | 5 | 1 | 2 | **0** | **-2** | **-1** | **0** | 6 |
| 50% | 3 | 14 | 19 | 4 | 4 | 3 | 1 | **0** | **-1** | **-4** | **-3** | 5 |
| 60% | 4 | 10 | 19 | 10 | 5 | 5 | 1 | **-2** | **-5** | **0** | **-2** | 6 |
| 70% | 13 | 17 | 17 | 6 | 1 | 5 | 4 | **-2** | 1 | 2 | 1 | 5 |
| 80% | 13 | 10 | 10 | 8 | 7 | 3 | 9 | 14 | 8 | 10 | 10 | 10 |
| 90% | **-1** | 2 | 4 | 3 | 15 | 4 | 0 | 15 | 15 | 11 | 1 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7 | 11 | 8 | 5 | 4 | 3 | 3 | 2 | 0 | 1 | 1 | 7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 14 | 22 | 16 | 1 | 0 | 0 | **0** | **-1** | **-1** | **-1** | **-1** | 13 |
| Above Normal (16%) | 9 | 16 | 12 | 4 | 1 | 0 | 0 | **-1** | **-1** | **-2** | **-2** | 11 |
| Below Normal (13%) | **-3** | **-2** | **-2** | 10 | 7 | 5 | 4 | 2 | **0** | **-1** | **-1** | **-3** |
| Dry (24%) | 3 | 3 | 1 | 9 | 8 | 7 | 7 | 5 | 2 | 3 | 3 | 3 |
| Critical (15%) | 6 | 5 | 5 | 6 | 6 | 4 | 4 | 3 | 1 | 7 | 8 | 8 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 3a-2. Shasta Lake Elevation, End of Month Elevation

### No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,016 | 1,017 | 1,021 | 1,033 | 1,043 | 1,055 | 1,067 | 1,067 | 1,065 | 1,048 | 1,035 | 1,015 |
| 20% | 1,008 | 1,003 | 1,019 | 1,029 | 1,038 | 1,052 | 1,067 | 1,067 | 1,062 | 1,040 | 1,027 | 1,011 |
| 30% | 1,002 | 998 | 1,018 | 1,023 | 1,034 | 1,049 | 1,064 | 1,067 | 1,058 | 1,033 | 1,018 | 1,006 |
| 40% | 996 | 993 | 1,007 | 1,020 | 1,029 | 1,047 | 1,061 | 1,065 | 1,051 | 1,026 | 1,013 | 1,003 |
| 50% | 992 | 988 | 997 | 1,017 | 1,027 | 1,043 | 1,057 | 1,060 | 1,044 | 1,023 | 1,008 | 998 |
| 60% | 986 | 984 | 991 | 1,007 | 1,022 | 1,037 | 1,052 | 1,055 | 1,040 | 1,013 | 1,000 | 991 |
| 70% | 972 | 973 | 980 | 999 | 1,017 | 1,028 | 1,046 | 1,046 | 1,026 | 1,001 | 990 | 983 |
| 80% | 958 | 962 | 969 | 986 | 1,004 | 1,021 | 1,033 | 1,021 | 1,005 | 984 | 970 | 967 |
| 90% | 928 | 918 | 940 | 959 | 974 | 988 | 995 | 988 | 971 | 953 | 940 | 937 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 977 | 976 | 987 | 1,002 | 1,016 | 1,031 | 1,044 | 1,043 | 1,031 | 1,007 | 993 | 982 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 999 | 992 | 1,003 | 1,023 | 1,034 | 1,043 | 1,060 | 1,065 | 1,059 | 1,040 | 1,027 | 1,005 |
| Above Normal (16%) | 993 | 987 | 999 | 1,017 | 1,029 | 1,049 | 1,065 | 1,065 | 1,052 | 1,026 | 1,011 | 998 |
| Below Normal (13%) | 991 | 993 | 999 | 1,013 | 1,028 | 1,043 | 1,055 | 1,051 | 1,037 | 1,011 | 995 | 993 |
| Dry (24%) | 984 | 989 | 1,000 | 991 | 1,010 | 1,030 | 1,042 | 1,039 | 1,025 | 1,003 | 991 | 987 |
| Critical (15%) | 890 | 892 | 907 | 950 | 960 | 976 | 979 | 971 | 952 | 920 | 902 | 895 |

### Alternative 2 021719

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,017 | 1,017 | 1,022 | 1,034 | 1,045 | 1,056 | 1,067 | 1,067 | 1,065 | 1,048 | 1,035 | 1,023 |
| 20% | 1,016 | 1,017 | 1,021 | 1,032 | 1,041 | 1,054 | 1,067 | 1,067 | 1,061 | 1,039 | 1,023 | 1,023 |
| 30% | 1,012 | 1,014 | 1,019 | 1,029 | 1,038 | 1,050 | 1,064 | 1,067 | 1,054 | 1,032 | 1,015 | 1,015 |
| 40% | 1,004 | 1,007 | 1,018 | 1,024 | 1,034 | 1,048 | 1,063 | 1,064 | 1,043 | 1,021 | 1,006 | 1,004 |
| 50% | 988 | 994 | 1,012 | 1,020 | 1,030 | 1,046 | 1,058 | 1,058 | 1,038 | 1,012 | 996 | 994 |
| 60% | 981 | 985 | 1,003 | 1,017 | 1,025 | 1,040 | 1,053 | 1,051 | 1,032 | 1,005 | 993 | 988 |
| 70% | 972 | 978 | 985 | 1,005 | 1,017 | 1,028 | 1,049 | 1,039 | 1,020 | 996 | 985 | 977 |
| 80% | 960 | 967 | 974 | 989 | 1,005 | 1,024 | 1,040 | 1,029 | 1,009 | 987 | 968 | 964 |
| 90% | 908 | 903 | 933 | 958 | 979 | 993 | 996 | 994 | 975 | 945 | 926 | 917 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 978 | 981 | 991 | 1,005 | 1,018 | 1,033 | 1,045 | 1,042 | 1,027 | 1,004 | 989 | 983 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,011 | 1,013 | 1,018 | 1,024 | 1,034 | 1,043 | 1,060 | 1,064 | 1,057 | 1,038 | 1,024 | 1,017 |
| Above Normal (16%) | 992 | 996 | 1,007 | 1,020 | 1,030 | 1,049 | 1,065 | 1,063 | 1,046 | 1,019 | 1,004 | 1,002 |
| Below Normal (13%) | 982 | 985 | 993 | 1,022 | 1,036 | 1,049 | 1,059 | 1,052 | 1,033 | 1,007 | 988 | 983 |
| Dry (24%) | 980 | 985 | 998 | 993 | 1,013 | 1,033 | 1,045 | 1,039 | 1,022 | 1,001 | 989 | 984 |
| Critical (15%) | 882 | 884 | 900 | 952 | 962 | 976 | 979 | 969 | 946 | 915 | 897 | 889 |

### Alternative 2 021719 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1 | 0 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | **0** | 9 |
| 20% | 8 | 14 | 1 | 3 | 3 | 2 | **0** | 0 | **0** | **-1** | **-3** | 13 |
| 30% | 10 | 16 | 2 | 6 | 3 | 1 | 0 | **0** | **-3** | **-1** | **-3** | 9 |
| 40% | 8 | 14 | 10 | 5 | 5 | 1 | 1 | **0** | **-8** | **-5** | **-7** | 1 |
| 50% | **-4** | 6 | 15 | 3 | 3 | 3 | 1 | **-2** | **-6** | **-11** | **-12** | **-4** |
| 60% | **-5** | 0 | 12 | 10 | 3 | 3 | 1 | **-4** | **-8** | **-7** | **-7** | **-3** |
| 70% | **0** | 5 | 5 | 6 | 0 | 0 | 3 | **-7** | **-5** | **-5** | **-5** | **-5** |
| 80% | 3 | 5 | 5 | 3 | 2 | 3 | 7 | 8 | 4 | 2 | **-2** | **-3** |
| 90% | **-20** | **-15** | **-7** | **-2** | 5 | 5 | 0 | 6 | 4 | **-7** | **-15** | **-20** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1 | 5 | 4 | 3 | 2 | 2 | 1 | **-1** | **-4** | **-4** | **-4** | 1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 12 | 21 | 15 | 1 | 0 | 0 | 0 | **-1** | **-3** | **-2** | **-3** | 11 |
| Above Normal (16%) | **0** | 9 | 8 | 3 | 1 | 0 | 0 | **-1** | **-7** | **-7** | **-7** | 3 |
| Below Normal (13%) | **-9** | **-8** | **-6** | 9 | 8 | 6 | 4 | 1 | **-4** | **-4** | **-7** | **-10** |
| Dry (24%) | **-3** | **-4** | **-3** | 2 | 3 | 3 | 3 | 0 | **-3** | **-2** | **-2** | **-3** |
| Critical (15%) | **-8** | **-8** | **-7** | 2 | 2 | 0 | **0** | **-2** | **-6** | **-4** | **-5** | **-6** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 3a-3. Shasta Lake Elevation, End of Month Elevation

### No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,016 | 1,017 | 1,021 | 1,033 | 1,043 | 1,055 | 1,067 | 1,067 | 1,065 | 1,048 | 1,035 | 1,015 |
| 20% | 1,008 | 1,003 | 1,019 | 1,029 | 1,038 | 1,052 | 1,067 | 1,067 | 1,062 | 1,040 | 1,027 | 1,011 |
| 30% | 1,002 | 998 | 1,018 | 1,023 | 1,034 | 1,049 | 1,064 | 1,067 | 1,058 | 1,033 | 1,018 | 1,006 |
| 40% | 996 | 993 | 1,007 | 1,020 | 1,029 | 1,047 | 1,061 | 1,065 | 1,051 | 1,026 | 1,013 | 1,003 |
| 50% | 992 | 988 | 997 | 1,017 | 1,027 | 1,043 | 1,057 | 1,060 | 1,044 | 1,023 | 1,008 | 998 |
| 60% | 986 | 984 | 991 | 1,007 | 1,022 | 1,037 | 1,052 | 1,055 | 1,040 | 1,013 | 1,000 | 991 |
| 70% | 972 | 973 | 980 | 999 | 1,017 | 1,028 | 1,046 | 1,046 | 1,026 | 1,001 | 990 | 983 |
| 80% | 958 | 962 | 969 | 986 | 1,004 | 1,021 | 1,033 | 1,021 | 1,005 | 984 | 970 | 967 |
| 90% | 928 | 918 | 940 | 959 | 974 | 988 | 995 | 988 | 971 | 953 | 940 | 937 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 977 | 976 | 987 | 1,002 | 1,016 | 1,031 | 1,044 | 1,043 | 1,031 | 1,007 | 993 | 982 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 999 | 992 | 1,003 | 1,023 | 1,034 | 1,043 | 1,060 | 1,065 | 1,059 | 1,040 | 1,027 | 1,005 |
| Above Normal (16%) | 993 | 987 | 999 | 1,017 | 1,029 | 1,049 | 1,065 | 1,065 | 1,052 | 1,026 | 1,011 | 998 |
| Below Normal (13%) | 991 | 993 | 999 | 1,013 | 1,028 | 1,043 | 1,055 | 1,051 | 1,037 | 1,011 | 995 | 993 |
| Dry (24%) | 984 | 989 | 1,000 | 991 | 1,010 | 1,030 | 1,042 | 1,039 | 1,025 | 1,003 | 991 | 987 |
| Critical (15%) | 890 | 892 | 907 | 950 | 960 | 976 | 979 | 971 | 952 | 920 | 902 | 895 |

### Alternative 3 021719

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,017 | 1,017 | 1,021 | 1,034 | 1,045 | 1,056 | 1,067 | 1,067 | 1,065 | 1,048 | 1,035 | 1,023 |
| 20% | 1,016 | 1,017 | 1,020 | 1,033 | 1,040 | 1,053 | 1,067 | 1,067 | 1,062 | 1,039 | 1,023 | 1,022 |
| 30% | 1,012 | 1,014 | 1,019 | 1,029 | 1,037 | 1,050 | 1,064 | 1,067 | 1,055 | 1,031 | 1,016 | 1,014 |
| 40% | 1,004 | 1,006 | 1,017 | 1,023 | 1,034 | 1,048 | 1,062 | 1,064 | 1,043 | 1,022 | 1,007 | 1,005 |
| 50% | 991 | 993 | 1,011 | 1,018 | 1,029 | 1,046 | 1,058 | 1,058 | 1,038 | 1,012 | 996 | 996 |
| 60% | 977 | 984 | 1,002 | 1,016 | 1,021 | 1,041 | 1,053 | 1,051 | 1,032 | 1,005 | 993 | 989 |
| 70% | 971 | 976 | 985 | 1,000 | 1,017 | 1,028 | 1,049 | 1,039 | 1,020 | 996 | 984 | 976 |
| 80% | 957 | 964 | 971 | 988 | 1,006 | 1,024 | 1,037 | 1,027 | 1,009 | 987 | 966 | 964 |
| 90% | 905 | 899 | 917 | 951 | 977 | 991 | 995 | 992 | 973 | 944 | 924 | 915 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 977 | 980 | 989 | 1,004 | 1,017 | 1,032 | 1,045 | 1,042 | 1,027 | 1,003 | 988 | 983 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,011 | 1,013 | 1,017 | 1,024 | 1,034 | 1,043 | 1,060 | 1,065 | 1,057 | 1,038 | 1,024 | 1,017 |
| Above Normal (16%) | 993 | 996 | 1,006 | 1,020 | 1,030 | 1,050 | 1,065 | 1,063 | 1,046 | 1,020 | 1,004 | 1,002 |
| Below Normal (13%) | 982 | 984 | 992 | 1,021 | 1,035 | 1,048 | 1,059 | 1,051 | 1,032 | 1,007 | 988 | 983 |
| Dry (24%) | 977 | 983 | 996 | 992 | 1,013 | 1,033 | 1,045 | 1,039 | 1,021 | 1,001 | 988 | 984 |
| Critical (15%) | 880 | 881 | 897 | 948 | 959 | 973 | 976 | 966 | 944 | 912 | 894 | 887 |

### Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1 | 0 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | **0** | 9 |
| 20% | 8 | 14 | 1 | 3 | 2 | 1 | **0** | 0 | 0 | **-1** | **-3** | 12 |
| 30% | 10 | 16 | 2 | 6 | 3 | 1 | 0 | **0** | **-2** | **-2** | **-2** | 8 |
| 40% | 7 | 13 | 10 | 3 | 5 | 1 | 1 | **0** | **-7** | **-5** | **-6** | 2 |
| 50% | **-1** | 6 | 14 | 1 | 2 | 3 | 1 | **-2** | **-6** | **-11** | **-12** | **-2** |
| 60% | **-9** | **-1** | 11 | 8 | **-1** | 4 | 1 | **-5** | **-8** | **-7** | **-7** | **-3** |
| 70% | **-2** | 3 | 5 | 2 | 0 | 0 | 3 | **-7** | **-6** | **-5** | **-6** | **-7** |
| 80% | **-1** | 2 | 2 | 2 | 2 | 3 | 4 | 6 | 4 | 3 | **-4** | **-3** |
| 90% | **-23** | **-19** | **-23** | **-8** | 4 | 3 | 0 | 4 | 2 | **-9** | **-17** | **-22** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | 4 | 2 | 2 | 2 | 1 | 1 | **-1** | **-4** | **-4** | **-5** | 1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 12 | 20 | 15 | 1 | 0 | 0 | **0** | **0** | **-2** | **-2** | **-3** | 12 |
| Above Normal (16%) | 1 | 9 | 7 | 3 | 1 | 0 | 0 | **-1** | **-6** | **-6** | **-7** | 3 |
| Below Normal (13%) | **-10** | **-9** | **-7** | 8 | 7 | 5 | 4 | 1 | **-4** | **-4** | **-7** | **-10** |
| Dry (24%) | **-6** | **-6** | **-4** | 1 | 2 | 3 | 3 | **0** | **-3** | **-3** | **-3** | **-4** |
| Critical (15%) | **-11** | **-11** | **-10** | **-2** | **-1** | **-3** | **-3** | **-5** | **-8** | **-7** | **-8** | **-8** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 3a-4. Shasta Lake Elevation, End of Month Elevation

### No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,016 | 1,017 | 1,021 | 1,033 | 1,043 | 1,055 | 1,067 | 1,067 | 1,065 | 1,048 | 1,035 | 1,015 |
| 20% | 1,008 | 1,003 | 1,019 | 1,029 | 1,038 | 1,052 | 1,067 | 1,067 | 1,062 | 1,040 | 1,027 | 1,011 |
| 30% | 1,002 | 998 | 1,018 | 1,023 | 1,034 | 1,049 | 1,064 | 1,067 | 1,058 | 1,033 | 1,018 | 1,006 |
| 40% | 996 | 993 | 1,007 | 1,020 | 1,029 | 1,047 | 1,061 | 1,065 | 1,051 | 1,026 | 1,013 | 1,003 |
| 50% | 992 | 988 | 997 | 1,017 | 1,027 | 1,043 | 1,057 | 1,060 | 1,044 | 1,023 | 1,008 | 998 |
| 60% | 986 | 984 | 991 | 1,007 | 1,022 | 1,037 | 1,052 | 1,055 | 1,040 | 1,013 | 1,000 | 991 |
| 70% | 972 | 973 | 980 | 999 | 1,017 | 1,028 | 1,046 | 1,046 | 1,026 | 1,001 | 990 | 983 |
| 80% | 958 | 962 | 969 | 986 | 1,004 | 1,021 | 1,033 | 1,021 | 1,005 | 984 | 970 | 967 |
| 90% | 928 | 918 | 940 | 959 | 974 | 988 | 995 | 988 | 971 | 953 | 940 | 937 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 977 | 976 | 987 | 1,002 | 1,016 | 1,031 | 1,044 | 1,043 | 1,031 | 1,007 | 993 | 982 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 999 | 992 | 1,003 | 1,023 | 1,034 | 1,043 | 1,060 | 1,065 | 1,059 | 1,040 | 1,027 | 1,005 |
| Above Normal (16%) | 993 | 987 | 999 | 1,017 | 1,029 | 1,049 | 1,065 | 1,065 | 1,052 | 1,026 | 1,011 | 998 |
| Below Normal (13%) | 991 | 993 | 999 | 1,013 | 1,028 | 1,043 | 1,055 | 1,051 | 1,037 | 1,011 | 995 | 993 |
| Dry (24%) | 984 | 989 | 1,000 | 991 | 1,010 | 1,030 | 1,042 | 1,039 | 1,025 | 1,003 | 991 | 987 |
| Critical (15%) | 890 | 892 | 907 | 950 | 960 | 976 | 979 | 971 | 952 | 920 | 902 | 895 |

### Alternative 4 043019

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,017 | 1,017 | 1,022 | 1,034 | 1,044 | 1,054 | 1,066 | 1,067 | 1,065 | 1,046 | 1,033 | 1,023 |
| 20% | 1,016 | 1,017 | 1,021 | 1,032 | 1,041 | 1,051 | 1,063 | 1,066 | 1,059 | 1,038 | 1,024 | 1,023 |
| 30% | 1,012 | 1,017 | 1,020 | 1,029 | 1,037 | 1,048 | 1,062 | 1,064 | 1,055 | 1,032 | 1,018 | 1,017 |
| 40% | 1,006 | 1,011 | 1,018 | 1,024 | 1,034 | 1,047 | 1,058 | 1,062 | 1,049 | 1,023 | 1,009 | 1,007 |
| 50% | 997 | 1,004 | 1,016 | 1,020 | 1,030 | 1,045 | 1,056 | 1,059 | 1,042 | 1,016 | 1,003 | 1,003 |
| 60% | 992 | 996 | 1,008 | 1,016 | 1,025 | 1,041 | 1,052 | 1,053 | 1,035 | 1,011 | 997 | 995 |
| 70% | 988 | 988 | 993 | 1,009 | 1,019 | 1,034 | 1,049 | 1,043 | 1,028 | 1,003 | 995 | 992 |
| 80% | 976 | 978 | 982 | 993 | 1,014 | 1,024 | 1,040 | 1,036 | 1,015 | 993 | 983 | 978 |
| 90% | 943 | 941 | 941 | 970 | 985 | 999 | 997 | 1,000 | 988 | 970 | 951 | 946 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 986 | 989 | 996 | 1,009 | 1,020 | 1,034 | 1,045 | 1,045 | 1,032 | 1,009 | 996 | 991 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,012 | 1,014 | 1,018 | 1,024 | 1,034 | 1,042 | 1,058 | 1,063 | 1,057 | 1,038 | 1,025 | 1,018 |
| Above Normal (16%) | 1,001 | 1,004 | 1,011 | 1,023 | 1,030 | 1,048 | 1,063 | 1,063 | 1,051 | 1,024 | 1,009 | 1,008 |
| Below Normal (13%) | 995 | 996 | 1,001 | 1,022 | 1,034 | 1,046 | 1,056 | 1,053 | 1,036 | 1,012 | 998 | 997 |
| Dry (24%) | 987 | 992 | 1,001 | 1,001 | 1,019 | 1,036 | 1,047 | 1,044 | 1,026 | 1,005 | 993 | 990 |
| Critical (15%) | 906 | 906 | 921 | 959 | 968 | 983 | 986 | 979 | 959 | 936 | 920 | 912 |

### Alternative 4 043019 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1 | 0 | 1 | 1 | 2 | -1 | -1 | 0 | 0 | -2 | -2 | 9 |
| 20% | 8 | 14 | 2 | 3 | 3 | 0 | -4 | -1 | -3 | -2 | -2 | 12 |
| 30% | 10 | 19 | 2 | 6 | 2 | -1 | -2 | -3 | -2 | -1 | 0 | 11 |
| 40% | 10 | 18 | 11 | 4 | 5 | 0 | -3 | -3 | -2 | -3 | -4 | 4 |
| 50% | 5 | 16 | 19 | 3 | 3 | 2 | -1 | -1 | -2 | -6 | -5 | 6 |
| 60% | 5 | 12 | 17 | 9 | 3 | 3 | 0 | -3 | -5 | -1 | -3 | 4 |
| 70% | 16 | 15 | 13 | 10 | 2 | 5 | 3 | -3 | 2 | 2 | 5 | 9 |
| 80% | 18 | 17 | 13 | 7 | 11 | 3 | 8 | 15 | 9 | 9 | 13 | 11 |
| 90% | 15 | 23 | 1 | 11 | 12 | 11 | 2 | 12 | 17 | 17 | 10 | 9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 9 | 13 | 9 | 6 | 4 | 3 | 1 | 2 | 1 | 2 | 3 | 9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 13 | 22 | 16 | 1 | 0 | -1 | -3 | -2 | -2 | -2 | -2 | 13 |
| Above Normal (16%) | 9 | 17 | 13 | 6 | 2 | -1 | -2 | -1 | -1 | -3 | -2 | 9 |
| Below Normal (13%) | 3 | 3 | 2 | 9 | 6 | 3 | 2 | 2 | 0 | 1 | 3 | 3 |
| Dry (24%) | 3 | 3 | 1 | 10 | 8 | 6 | 5 | 5 | 1 | 2 | 2 | 3 |
| Critical (15%) | 16 | 15 | 14 | 9 | 8 | 7 | 7 | 8 | 8 | 17 | 18 | 18 |

a Based on the 82-year simulation period.

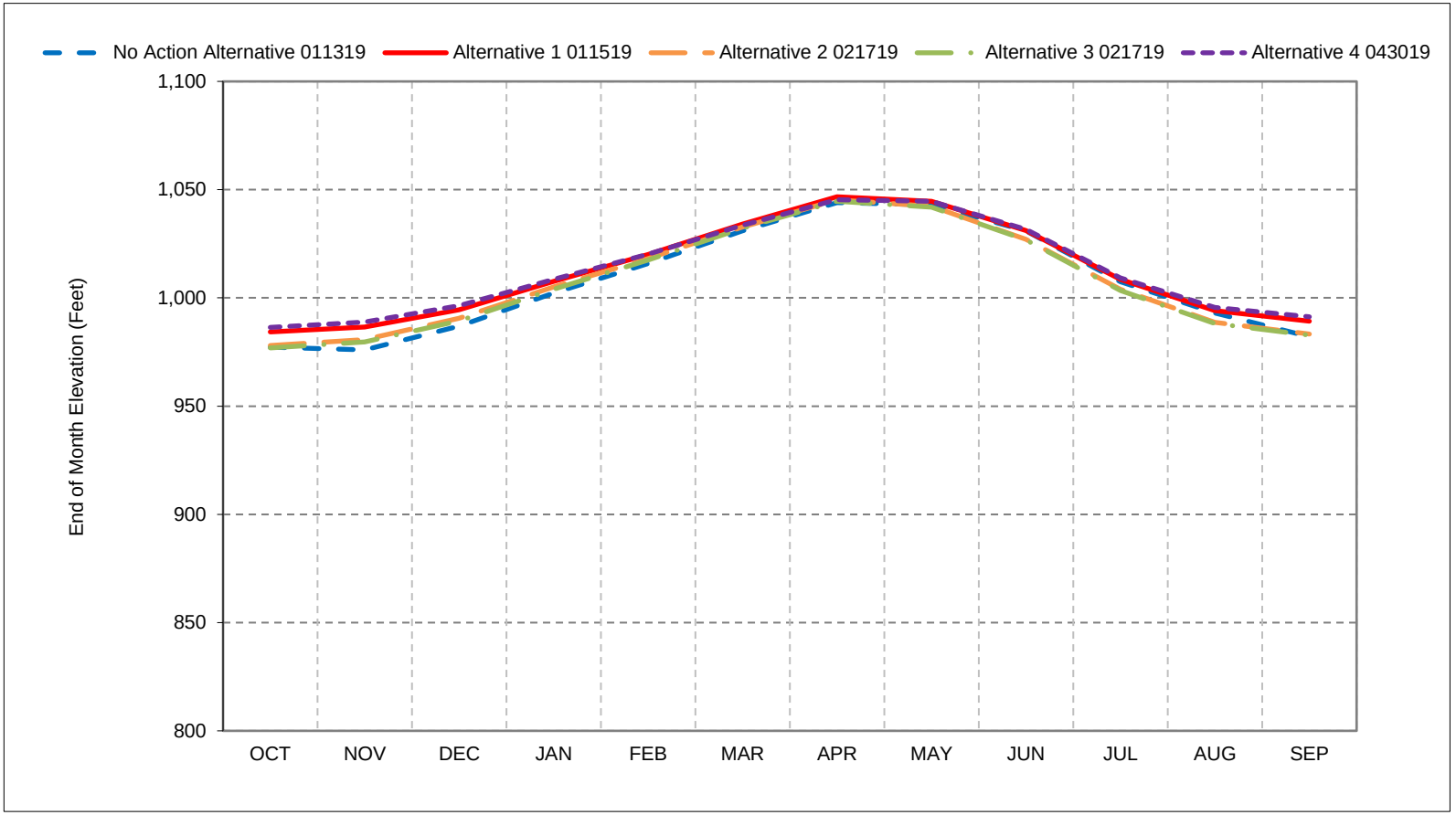
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

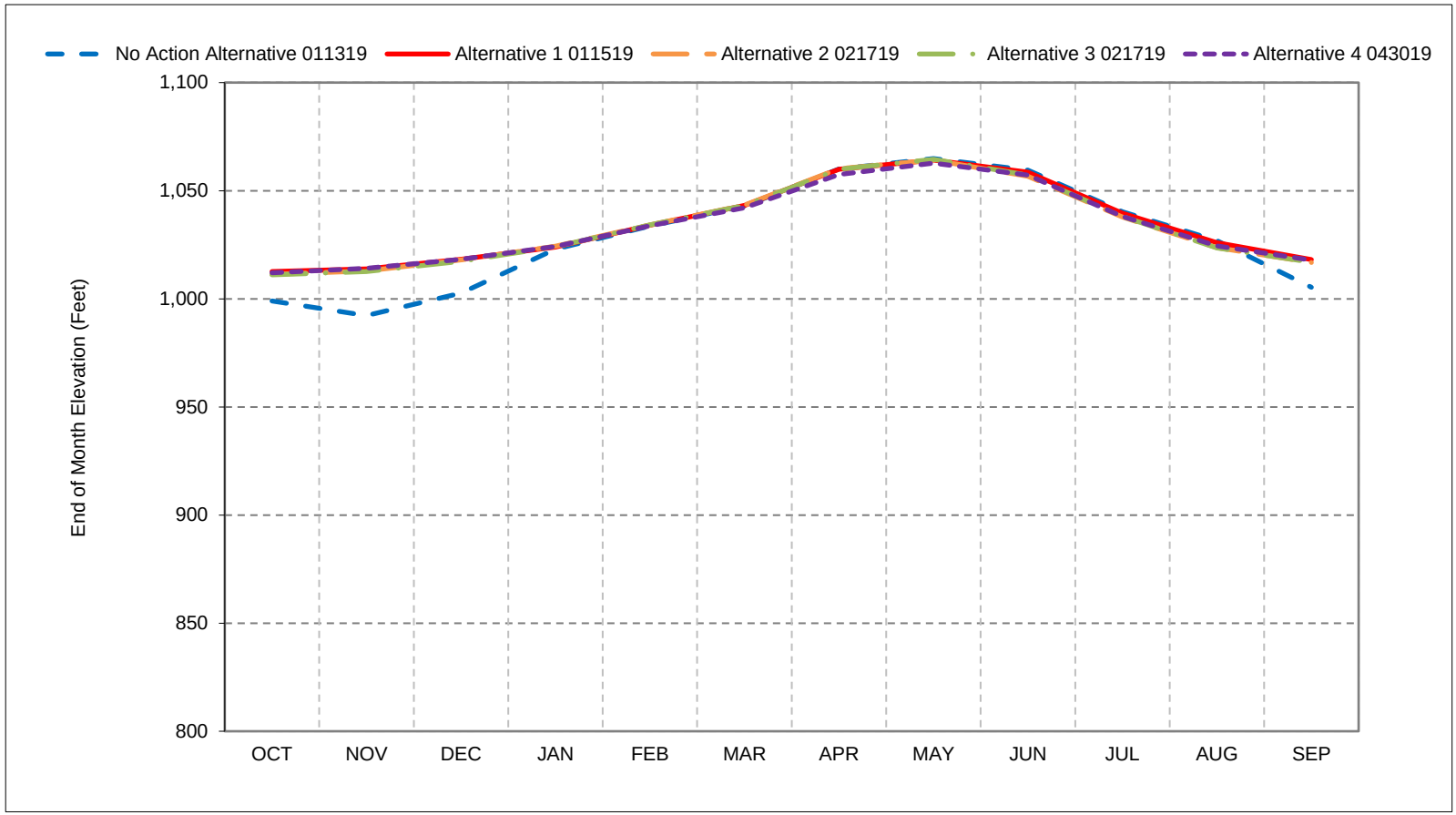
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3a-1. Shasta Lake Elevation, Long-Term Average Elevation



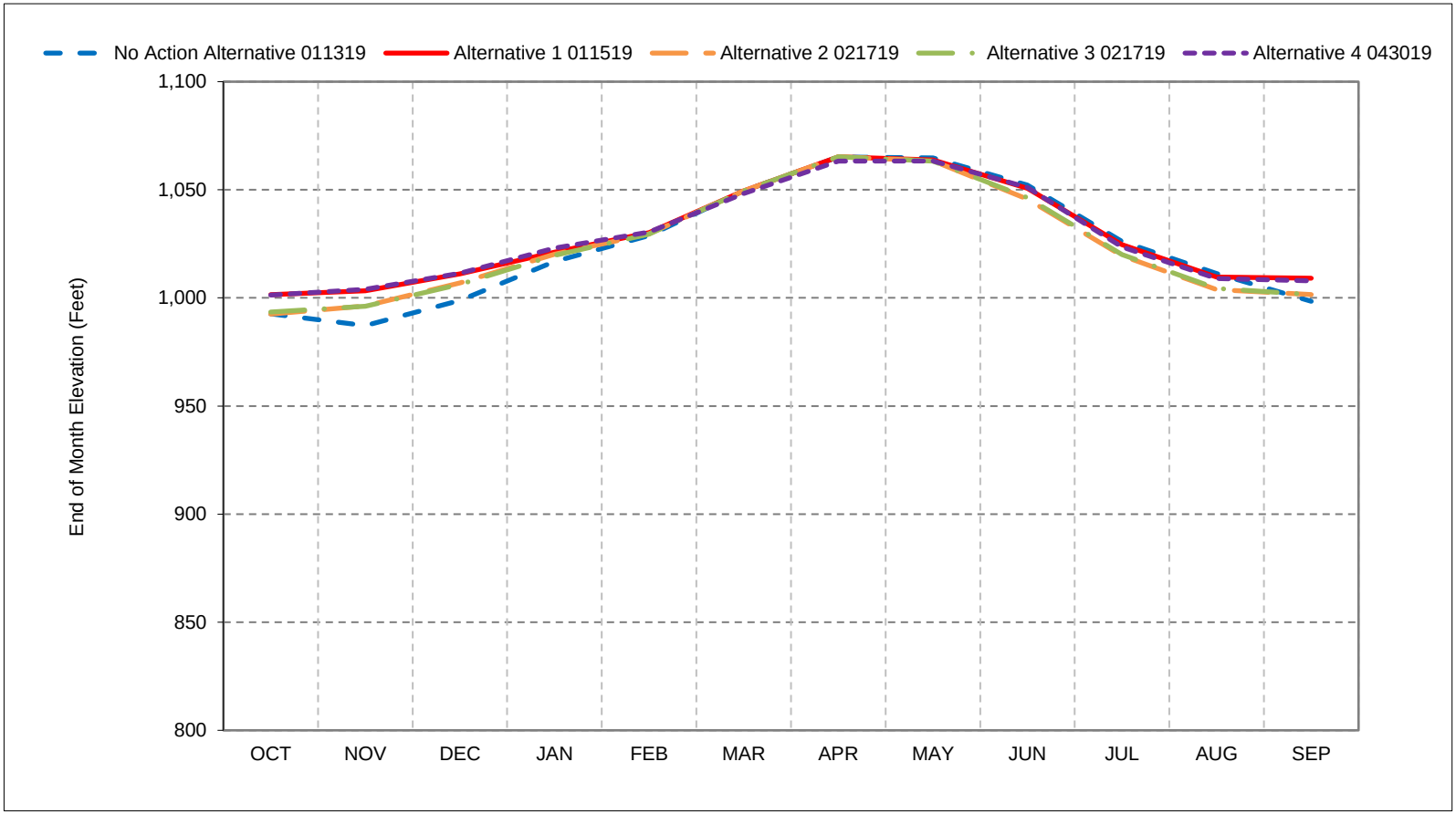

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3a-2. Shasta Lake Elevation, Wet Year Average Elevation



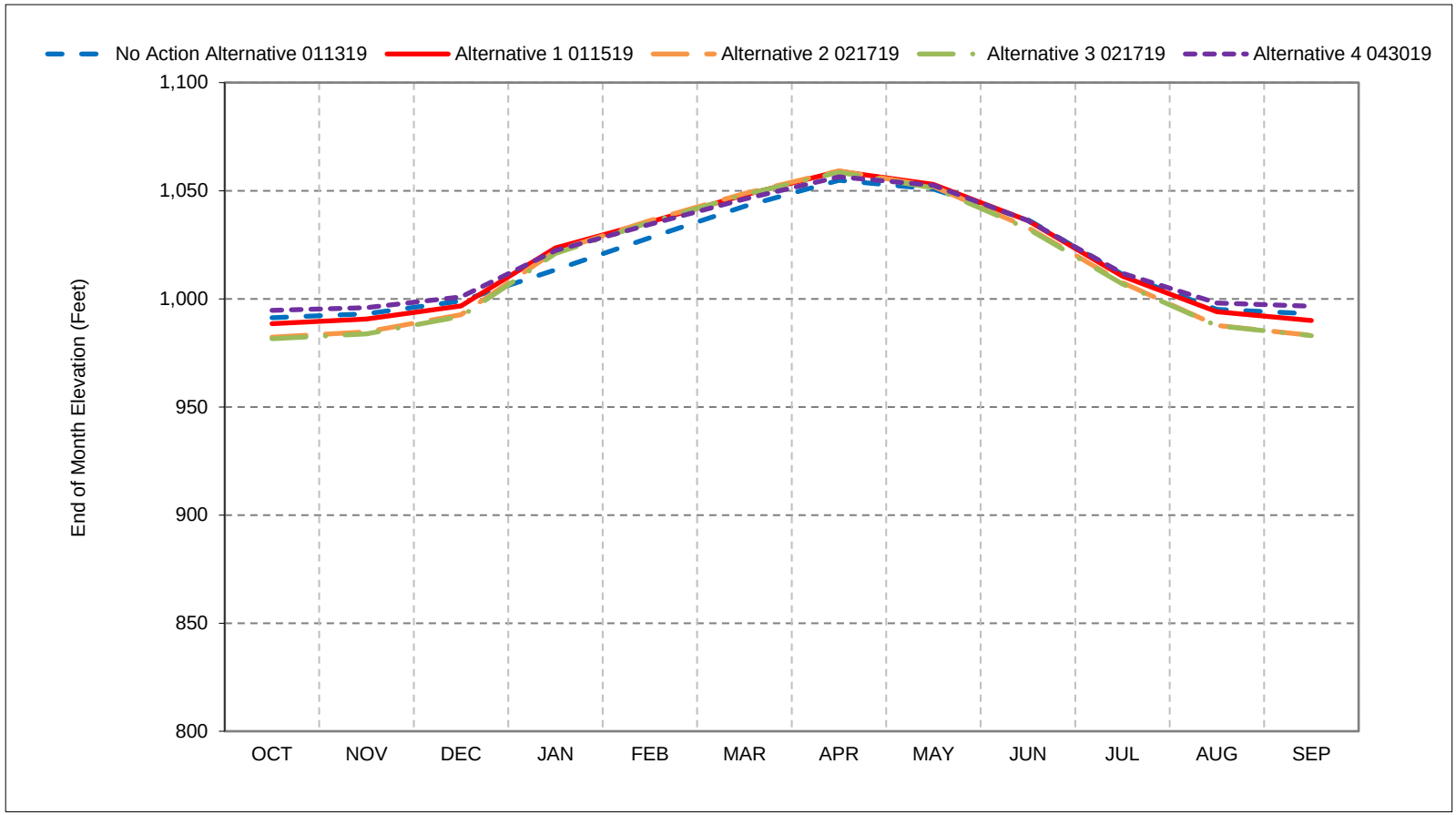

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3a-3. Shasta Lake Elevation, Above Normal Year Average Elevation



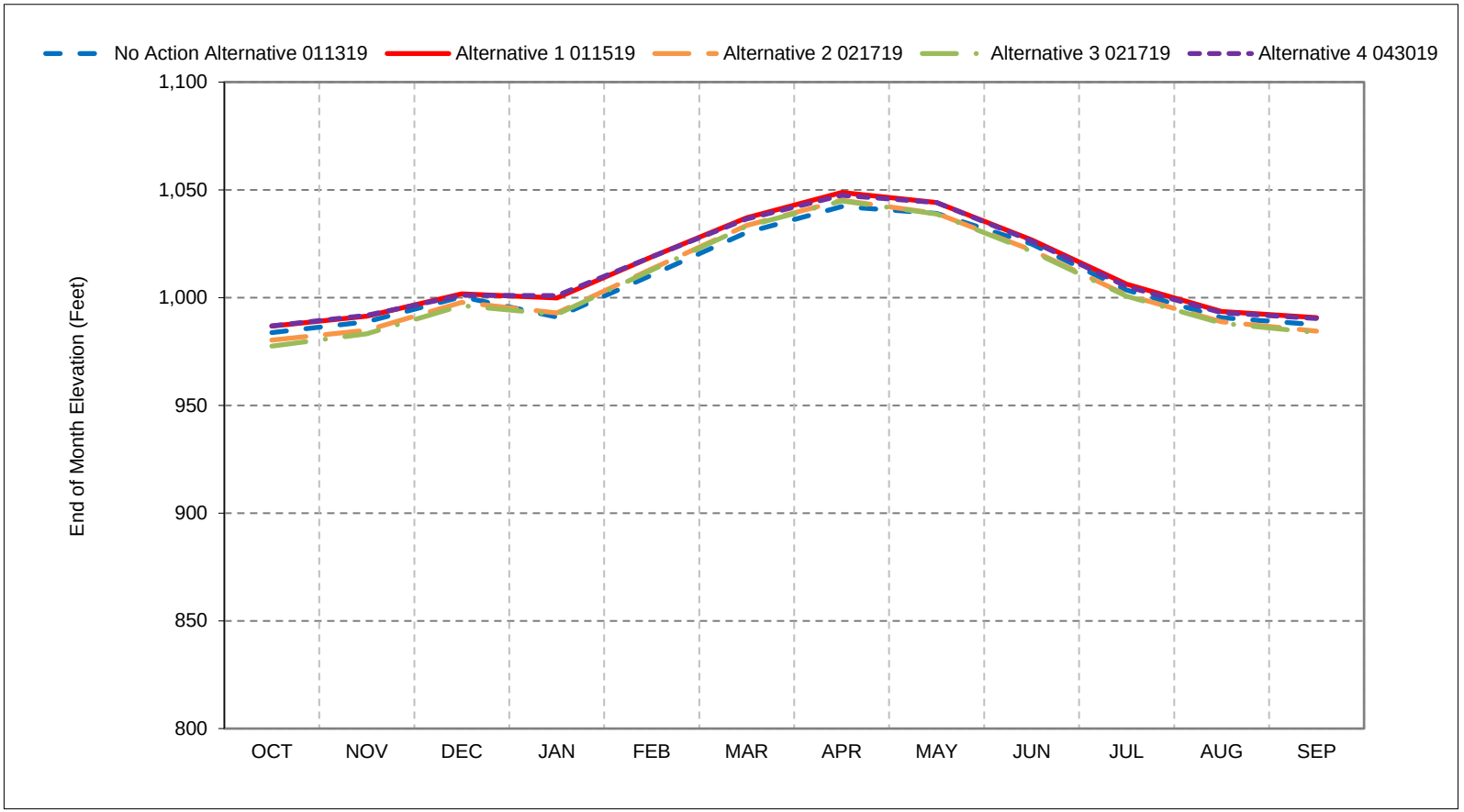

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3a-4. Shasta Lake Elevation, Below Normal Year Average Elevation



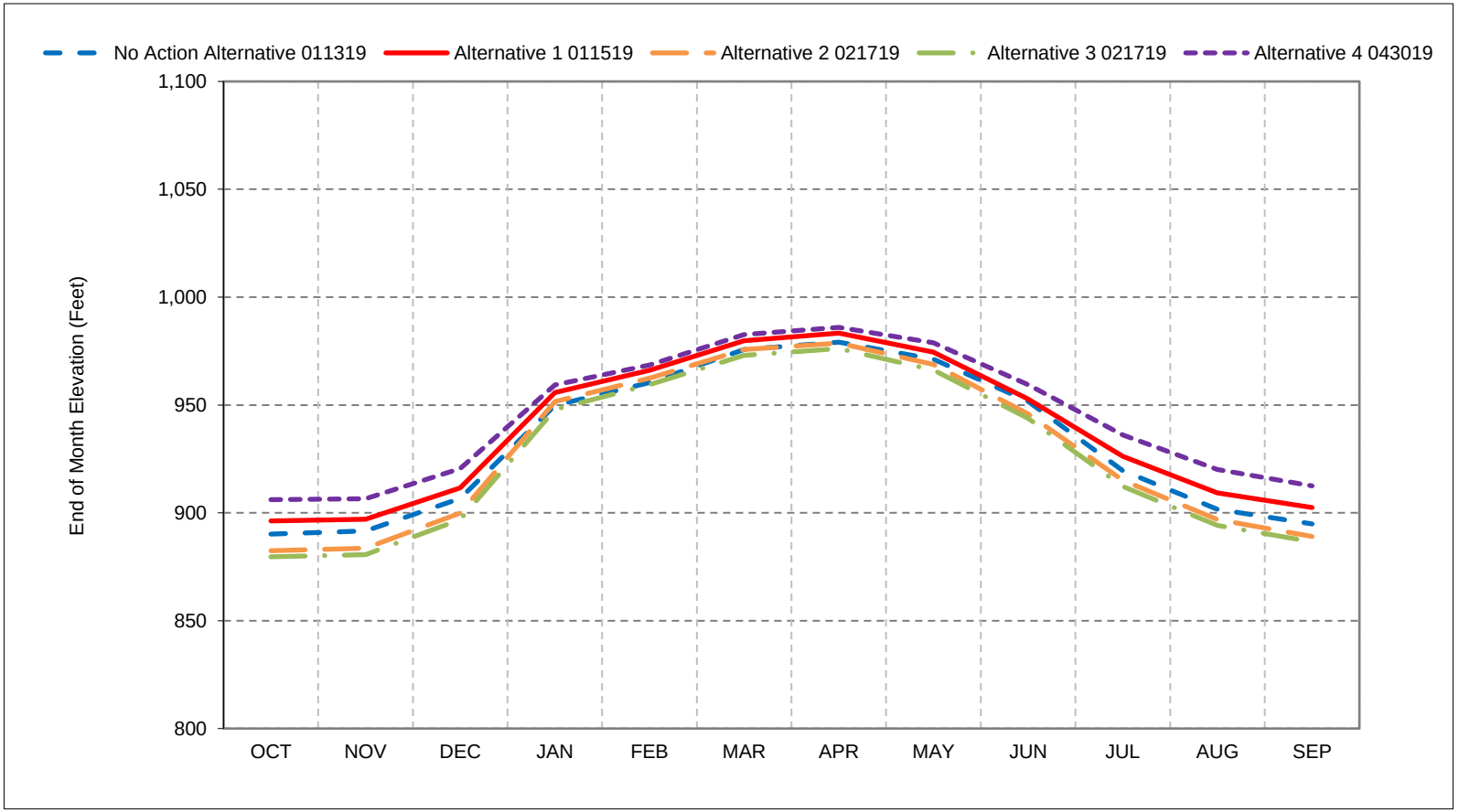

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3a-5. Shasta Lake Elevation, Dry Year Average Elevation



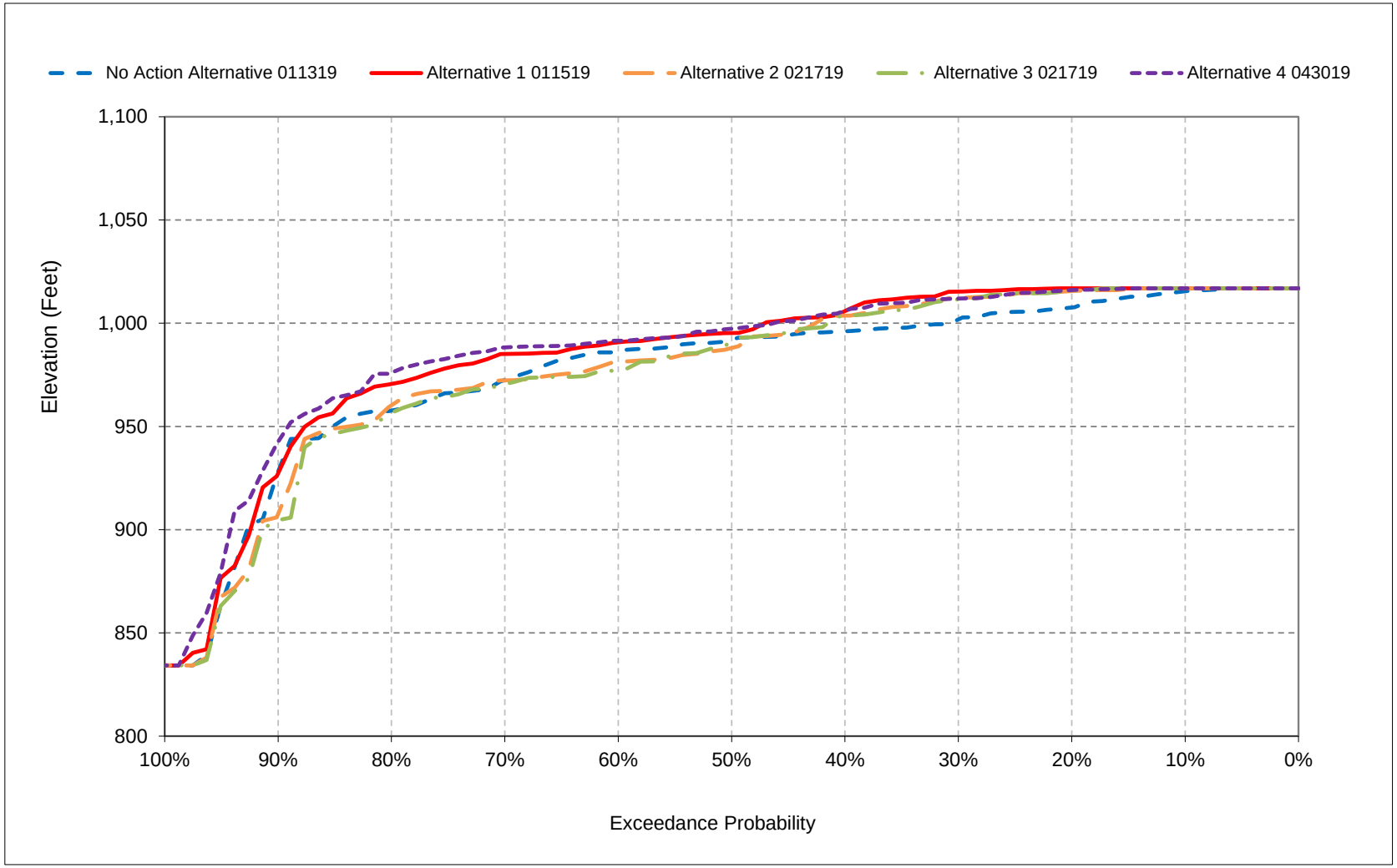

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3a-6. Shasta Lake Elevation, Critical Year Average Elevation




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

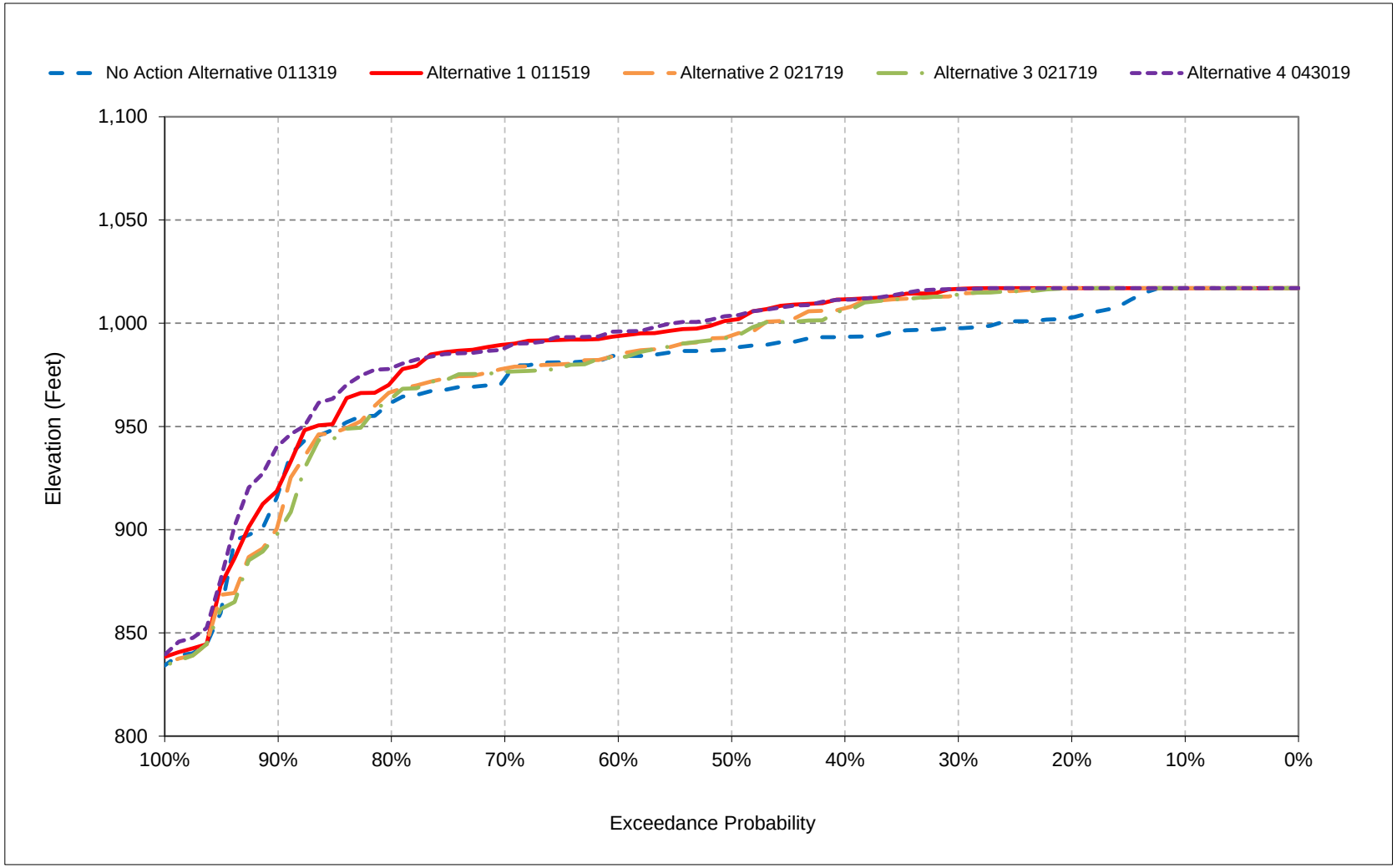
**Figure 3a-7. Shasta Lake, Reservoir Pool Elevation, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

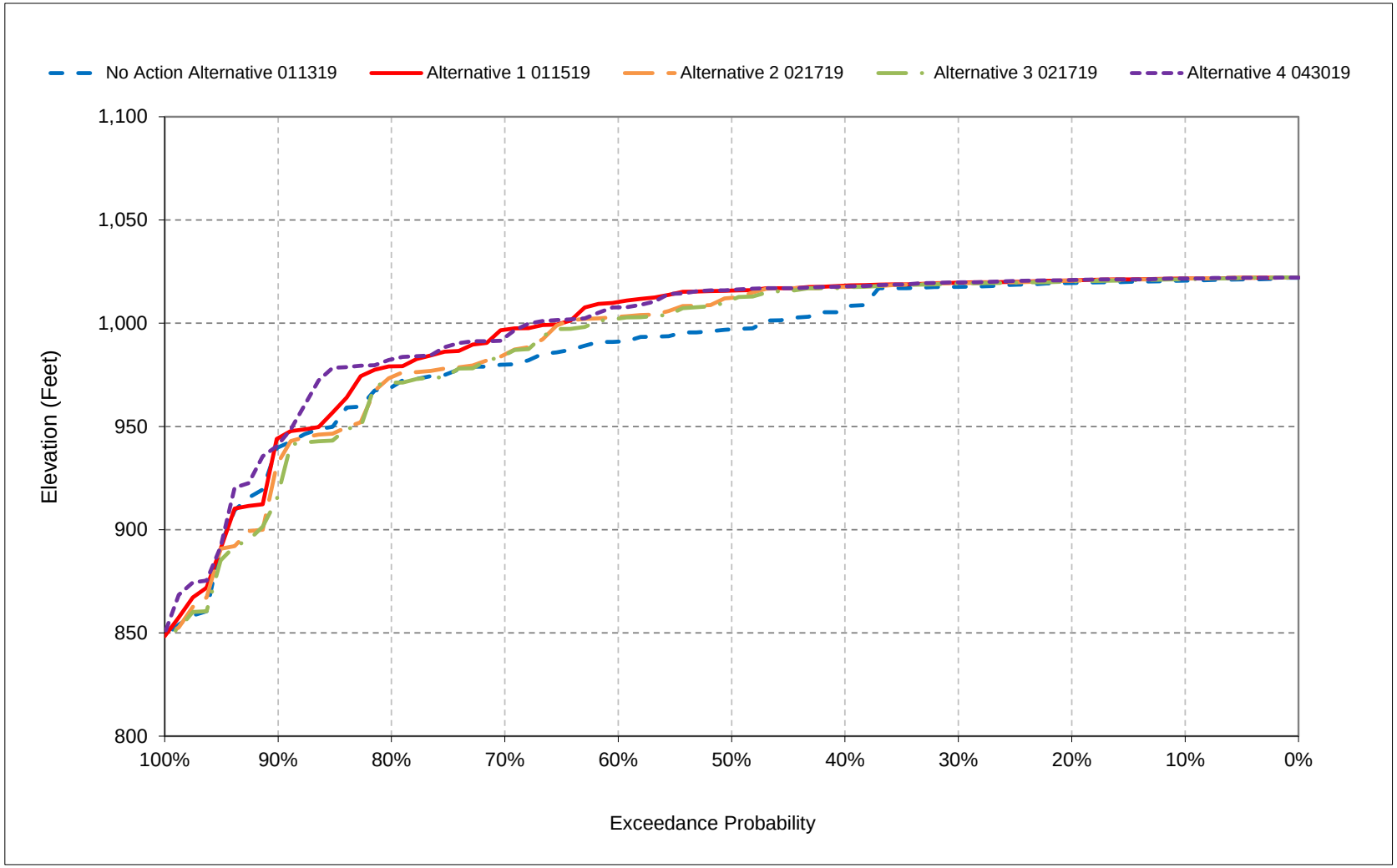
**Figure 3a-8. Shasta Lake, Reservoir Pool Elevation, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

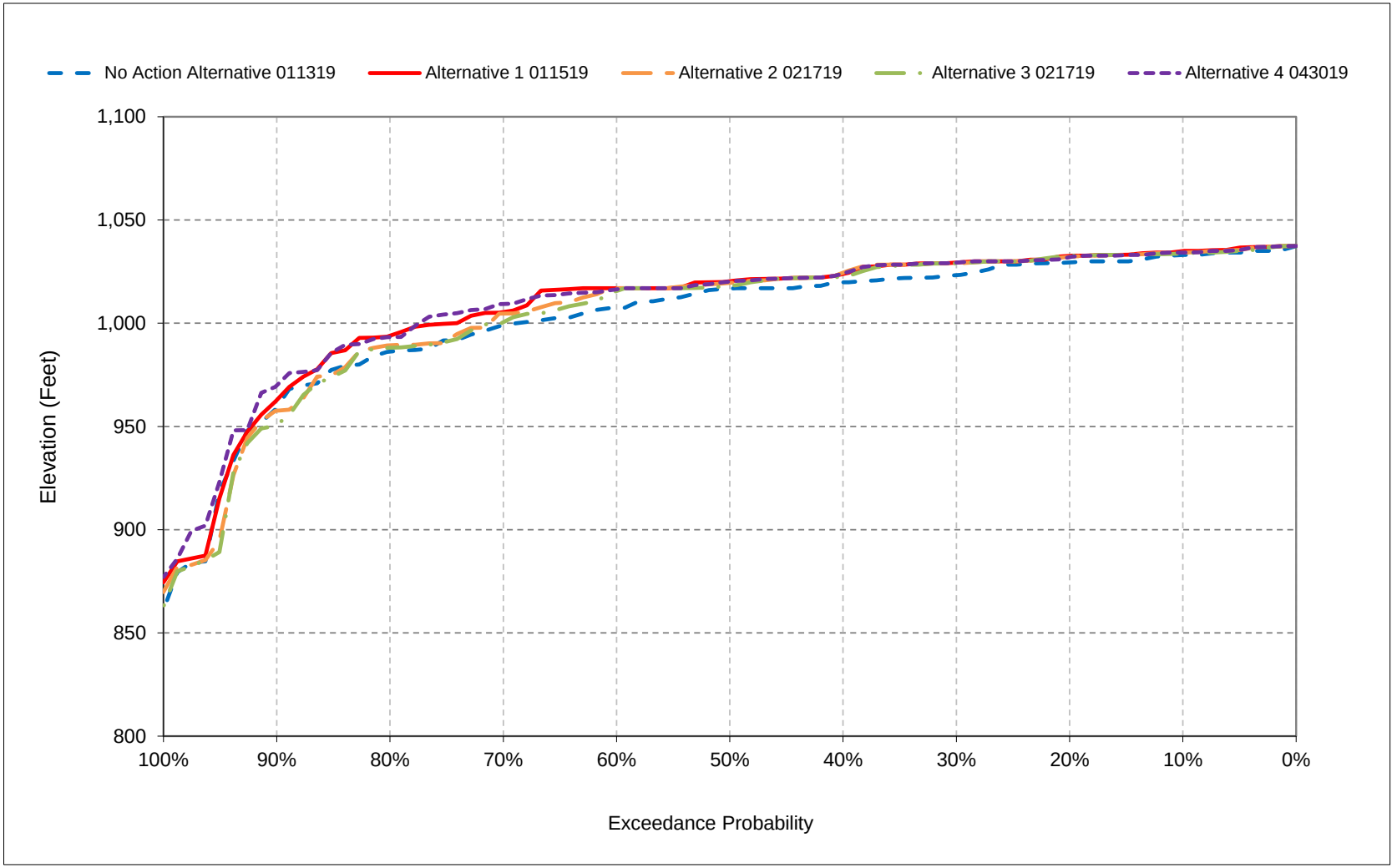
**Figure 3a-9. Shasta Lake, Reservoir Pool Elevation, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

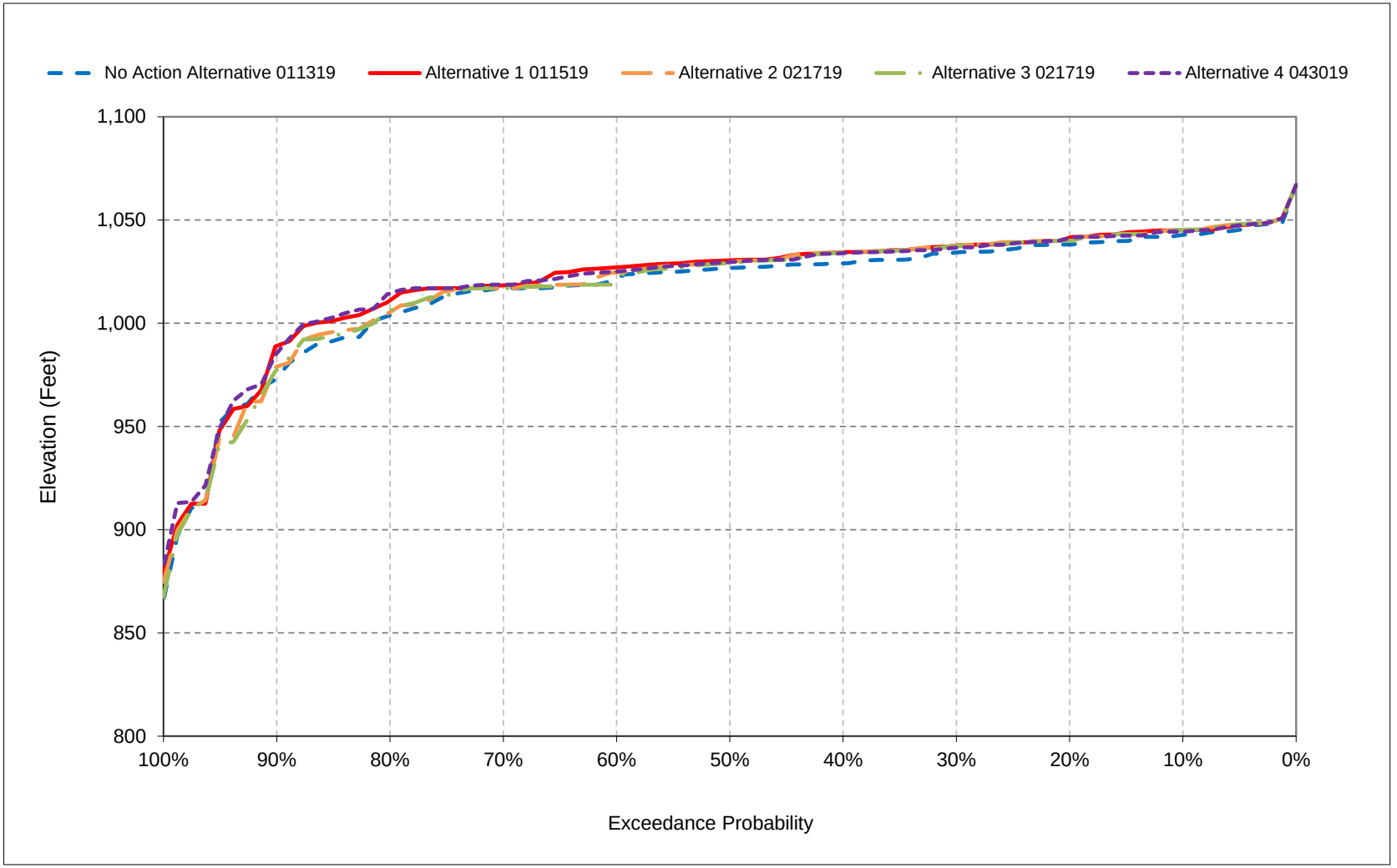
**Figure 3a-10. Shasta Lake, Reservoir Pool Elevation, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

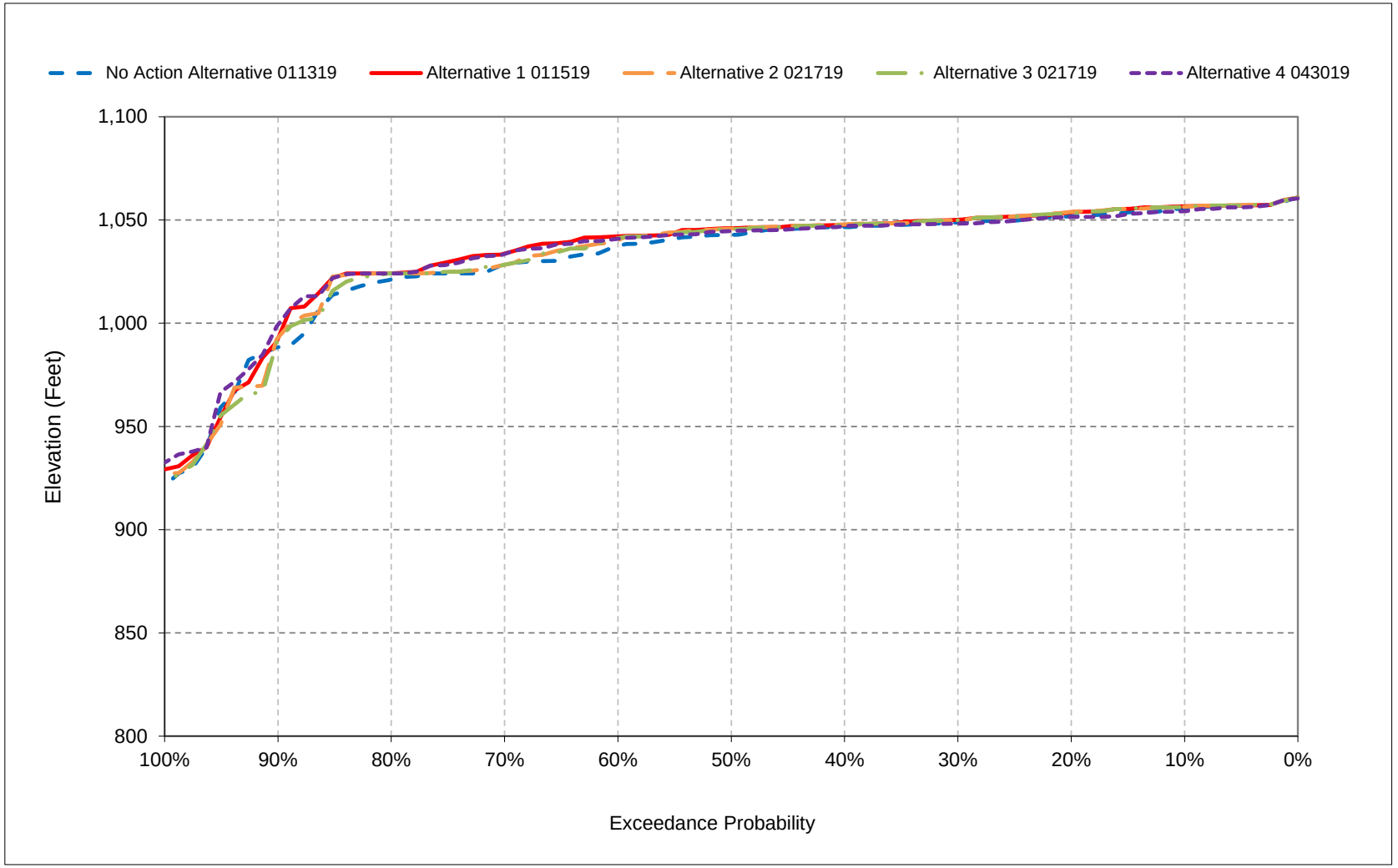
**Figure 3a-11. Shasta Lake, Reservoir Pool Elevation, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

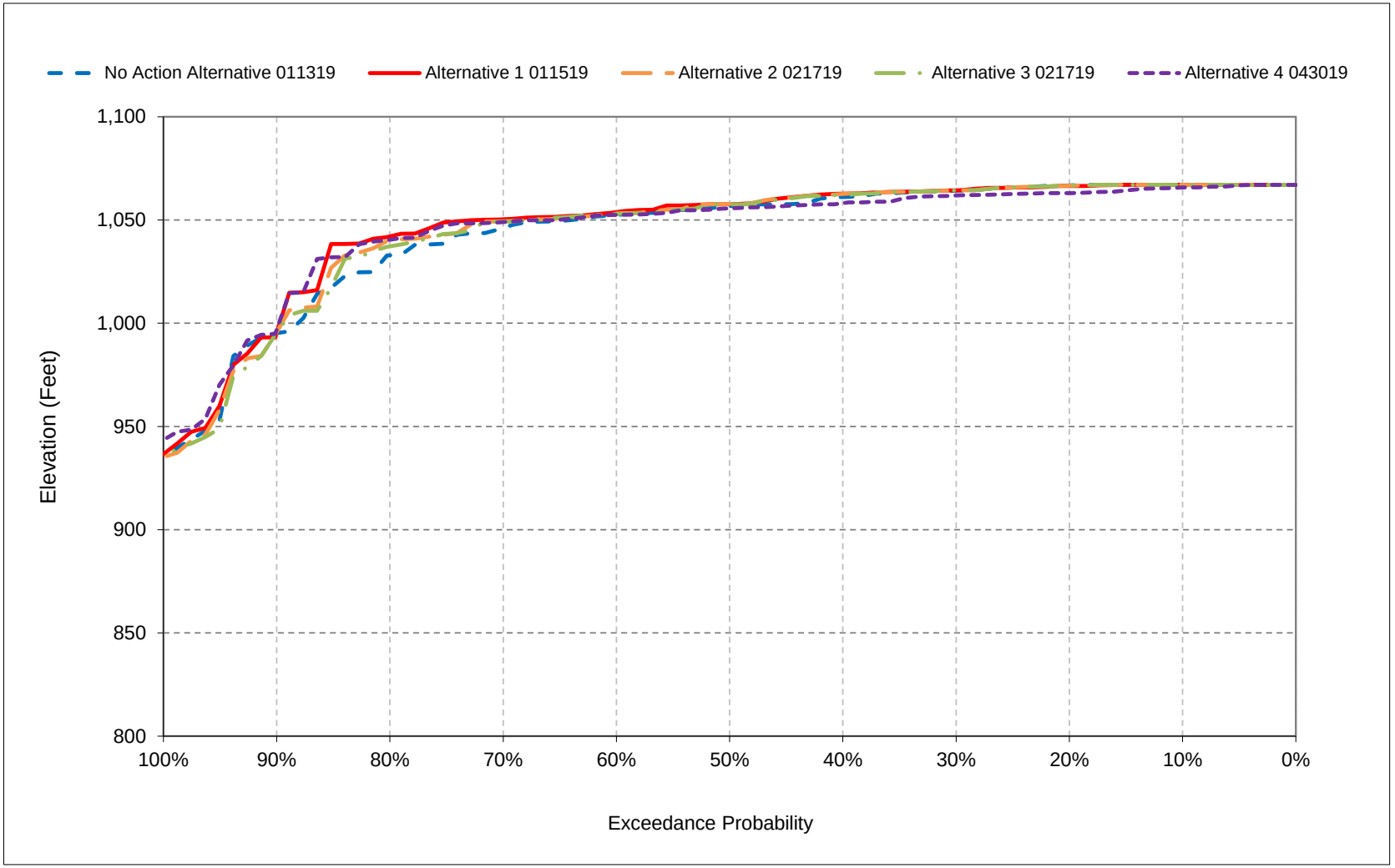
**Figure 3a-12. Shasta Lake, Reservoir Pool Elevation, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

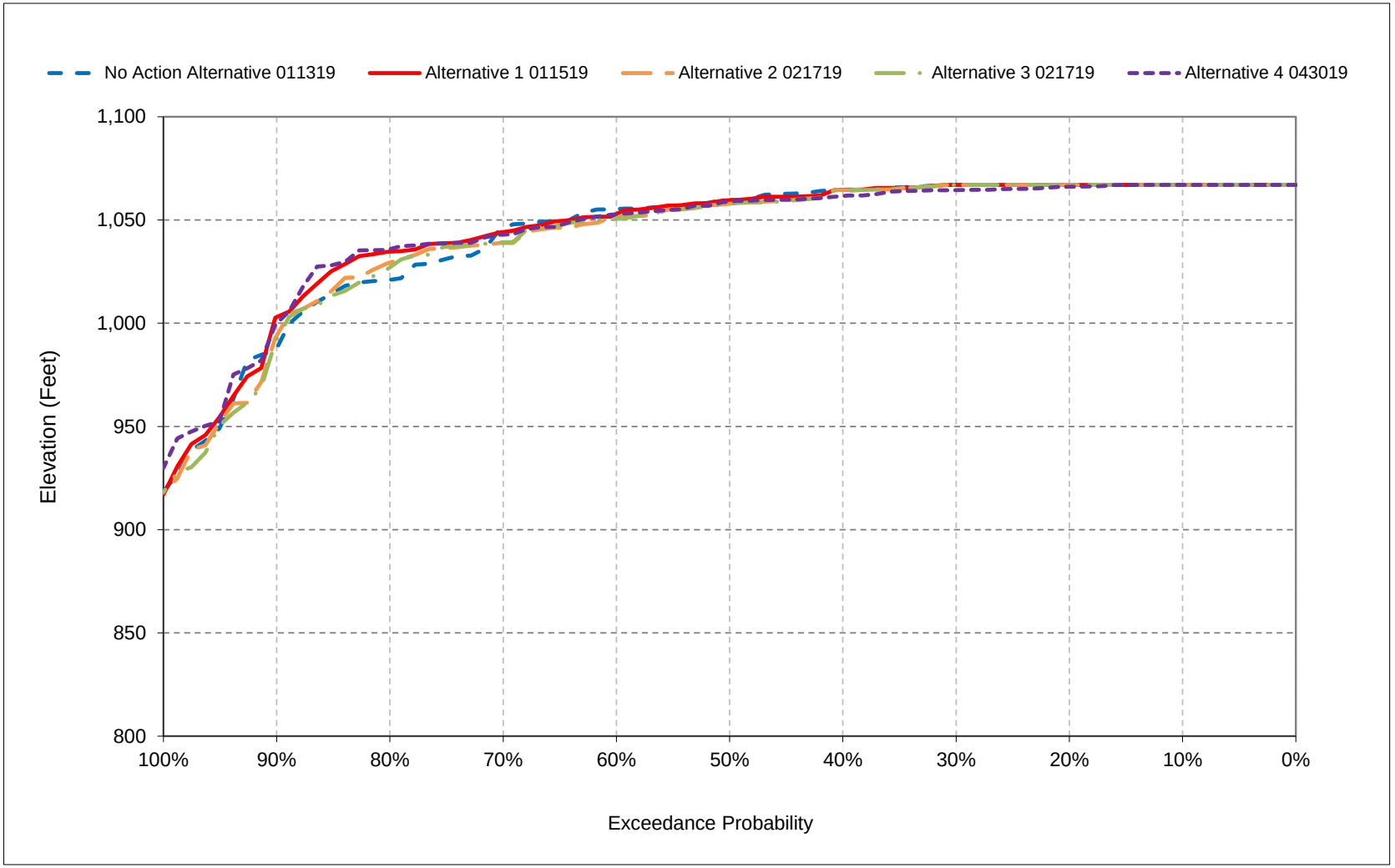
**Figure 3a-13. Shasta Lake, Reservoir Pool Elevation, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

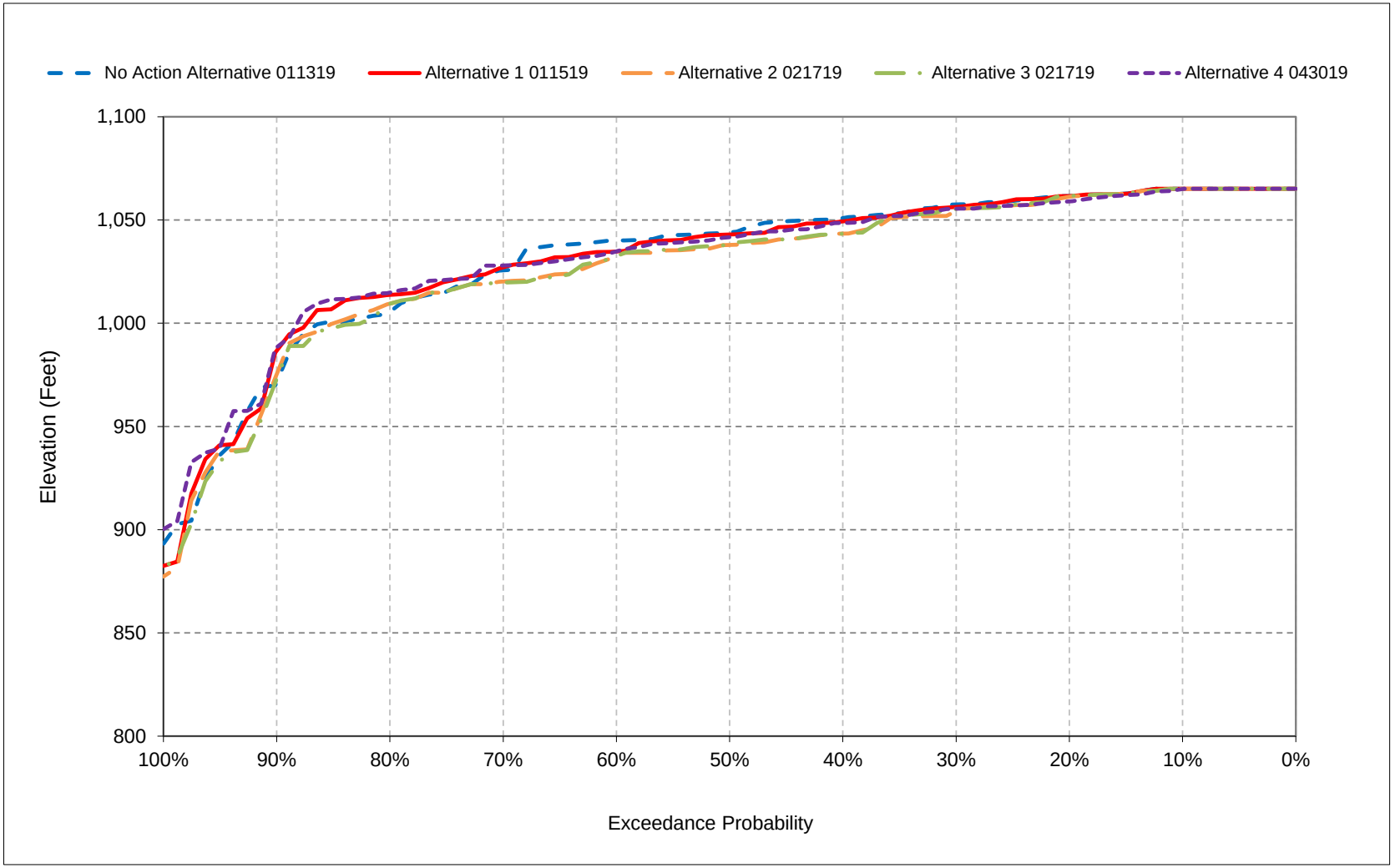
**Figure 3a-14. Shasta Lake, Reservoir Pool Elevation, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

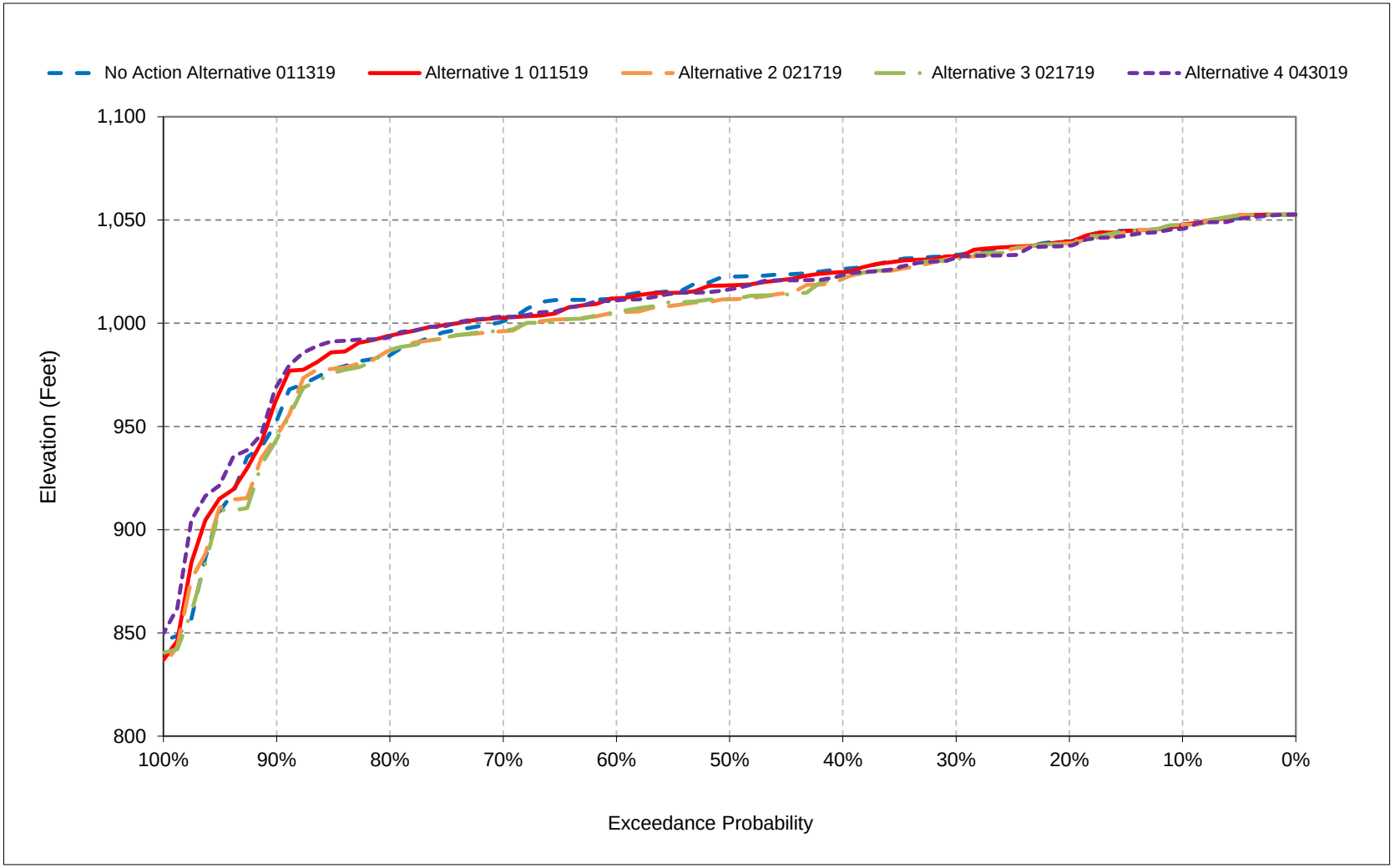
**Figure 3a-15. Shasta Lake, Reservoir Pool Elevation, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

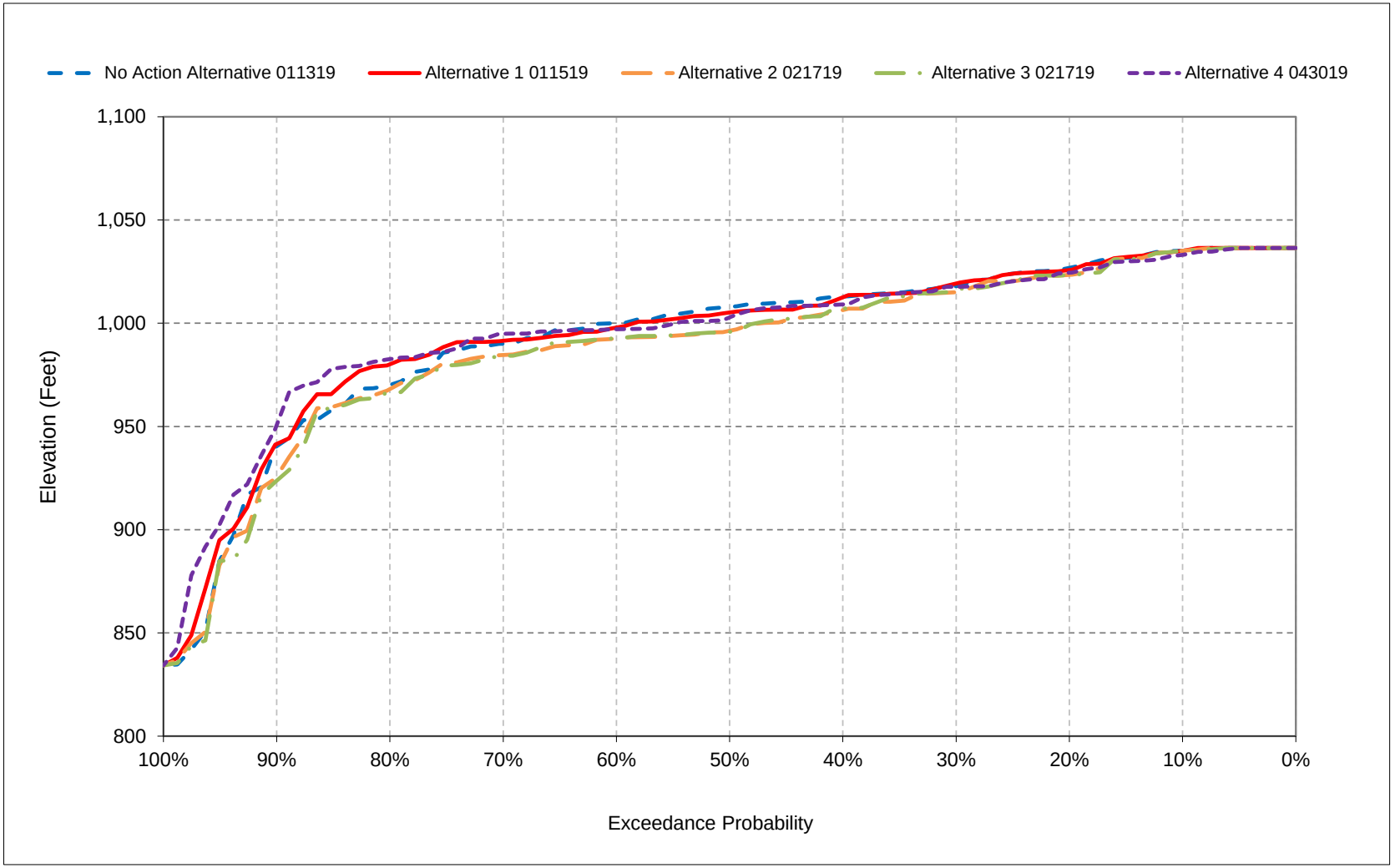
**Figure 3a-16. Shasta Lake, Reservoir Pool Elevation, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

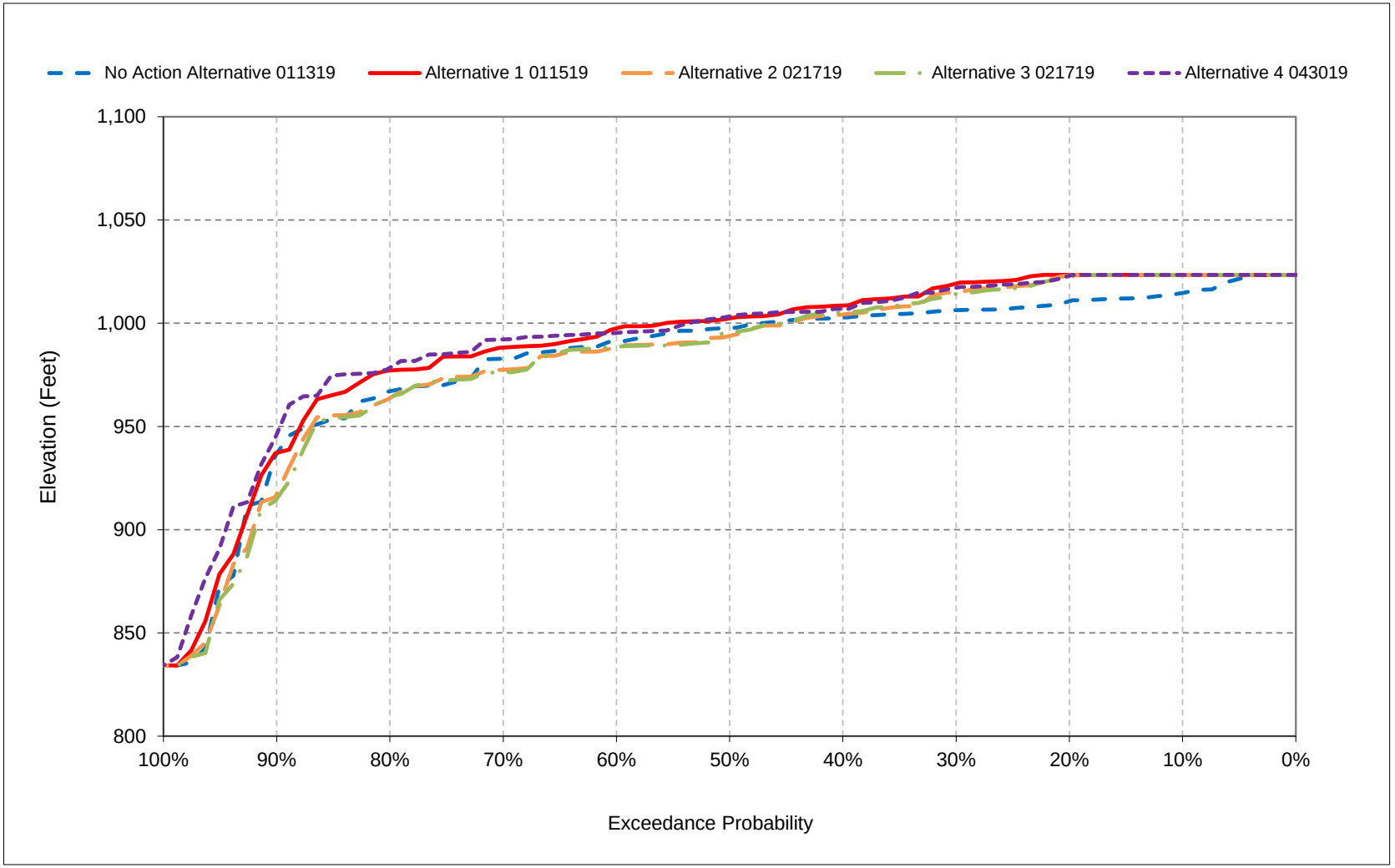
**Figure 3a-17. Shasta Lake, Reservoir Pool Elevation, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 3a-18. Shasta Lake, Reservoir Pool Elevation, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 4-1. Lake Oroville Storage, End of Month Storage

## No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,151 | 2,150 | 2,784 | 2,788 | 2,925 | 3,040 | 3,352 | 3,538 | 3,538 | 3,060 | 2,750 | 2,224 |
| 20% | 1,834 | 1,862 | 2,136 | 2,764 | 2,788 | 2,964 | 3,302 | 3,538 | 3,534 | 2,975 | 2,550 | 2,016 |
| 30% | 1,704 | 1,734 | 1,893 | 2,405 | 2,788 | 2,921 | 3,273 | 3,487 | 3,366 | 2,843 | 2,389 | 1,896 |
| 40% | 1,548 | 1,550 | 1,730 | 1,961 | 2,676 | 2,788 | 3,209 | 3,356 | 3,192 | 2,614 | 2,131 | 1,690 |
| 50% | 1,487 | 1,463 | 1,553 | 1,807 | 2,204 | 2,691 | 2,908 | 3,002 | 2,891 | 2,290 | 1,821 | 1,543 |
| 60% | 1,370 | 1,292 | 1,453 | 1,557 | 2,026 | 2,372 | 2,662 | 2,719 | 2,461 | 1,836 | 1,541 | 1,461 |
| 70% | 1,237 | 1,189 | 1,200 | 1,473 | 1,747 | 2,119 | 2,263 | 2,330 | 2,065 | 1,540 | 1,424 | 1,352 |
| 80% | 1,137 | 1,053 | 1,067 | 1,242 | 1,558 | 1,875 | 2,015 | 1,996 | 1,814 | 1,533 | 1,367 | 1,266 |
| 90% | 898 | 906 | 927 | 1,084 | 1,259 | 1,471 | 1,578 | 1,649 | 1,399 | 1,137 | 997 | 951 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,492 | 1,474 | 1,639 | 1,894 | 2,193 | 2,430 | 2,695 | 2,788 | 2,640 | 2,182 | 1,889 | 1,612 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,006 | 1,967 | 2,086 | 2,617 | 2,858 | 2,942 | 3,300 | 3,487 | 3,447 | 3,009 | 2,676 | 2,190 |
| Above Normal (16%) | 1,658 | 1,639 | 1,758 | 1,995 | 2,518 | 2,922 | 3,265 | 3,414 | 3,298 | 2,718 | 2,239 | 1,799 |
| Below Normal (13%) | 1,428 | 1,352 | 1,467 | 1,793 | 2,196 | 2,468 | 2,724 | 2,776 | 2,612 | 2,023 | 1,644 | 1,494 |
| Dry (24%) | 1,228 | 1,266 | 1,585 | 1,380 | 1,659 | 2,007 | 2,252 | 2,283 | 2,012 | 1,563 | 1,417 | 1,323 |
| Critical (15%) | 697 | 688 | 790 | 1,165 | 1,287 | 1,455 | 1,478 | 1,448 | 1,249 | 986 | 818 | 750 |

## Alternative 1 011519

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,687 | 2,692 | 2,788 | 2,807 | 2,949 | 3,058 | 3,352 | 3,538 | 3,538 | 3,060 | 2,748 | 2,718 |
| 20% | 2,206 | 2,226 | 2,467 | 2,788 | 2,829 | 2,994 | 3,302 | 3,538 | 3,531 | 2,959 | 2,512 | 2,299 |
| 30% | 1,954 | 2,061 | 2,215 | 2,530 | 2,788 | 2,937 | 3,273 | 3,474 | 3,314 | 2,761 | 2,341 | 2,061 |
| 40% | 1,660 | 1,719 | 1,979 | 2,406 | 2,788 | 2,831 | 3,209 | 3,377 | 3,153 | 2,530 | 2,147 | 1,817 |
| 50% | 1,525 | 1,485 | 1,719 | 2,092 | 2,606 | 2,788 | 3,128 | 3,137 | 2,928 | 2,292 | 1,847 | 1,574 |
| 60% | 1,376 | 1,297 | 1,495 | 1,594 | 2,055 | 2,617 | 2,805 | 2,788 | 2,572 | 1,951 | 1,541 | 1,510 |
| 70% | 1,226 | 1,171 | 1,216 | 1,497 | 1,779 | 2,191 | 2,329 | 2,464 | 2,079 | 1,540 | 1,423 | 1,353 |
| 80% | 1,142 | 1,051 | 1,082 | 1,244 | 1,683 | 1,894 | 2,190 | 2,066 | 1,771 | 1,529 | 1,368 | 1,260 |
| 90% | 970 | 951 | 926 | 1,126 | 1,283 | 1,455 | 1,593 | 1,724 | 1,485 | 1,251 | 1,132 | 1,091 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,632 | 1,618 | 1,761 | 1,998 | 2,269 | 2,489 | 2,753 | 2,829 | 2,642 | 2,182 | 1,885 | 1,741 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,394 | 2,365 | 2,413 | 2,671 | 2,882 | 2,942 | 3,300 | 3,478 | 3,420 | 2,977 | 2,656 | 2,534 |
| Above Normal (16%) | 1,733 | 1,722 | 1,840 | 2,129 | 2,611 | 2,957 | 3,294 | 3,428 | 3,281 | 2,679 | 2,203 | 1,888 |
| Below Normal (13%) | 1,456 | 1,379 | 1,497 | 2,105 | 2,409 | 2,675 | 2,927 | 2,948 | 2,728 | 2,102 | 1,673 | 1,516 |
| Dry (24%) | 1,247 | 1,283 | 1,602 | 1,468 | 1,749 | 2,099 | 2,345 | 2,353 | 2,018 | 1,596 | 1,442 | 1,340 |
| Critical (15%) | 676 | 663 | 769 | 1,187 | 1,310 | 1,481 | 1,503 | 1,461 | 1,226 | 967 | 805 | 739 |

## Alternative 1 011519 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 536 | 542 | 4 | 19 | 24 | 17 | **0** | 0 | 0 | **0** | **-2** | 495 |
| 20% | 371 | 364 | 331 | 24 | 41 | 30 | 0 | 0 | **-2** | **-16** | **-38** | 283 |
| 30% | 251 | 328 | 321 | 125 | 0 | 16 | 0 | **-13** | **-52** | **-82** | **-48** | 166 |
| 40% | 112 | 169 | 250 | 445 | 111 | 43 | 0 | 21 | **-39** | **-85** | 16 | 127 |
| 50% | 38 | 22 | 166 | 285 | 401 | 97 | 220 | 135 | 37 | 2 | 27 | 31 |
| 60% | 6 | 5 | 42 | 37 | 29 | 244 | 142 | 69 | 112 | 115 | 0 | 49 |
| 70% | **-12** | **-17** | 16 | 24 | 32 | 73 | 66 | 134 | 14 | **0** | **-1** | 1 |
| 80% | 5 | **-2** | 15 | 2 | 124 | 19 | 175 | 70 | **-43** | **-4** | 1 | **-7** |
| 90% | 72 | 45 | **0** | 42 | 24 | **-16** | 15 | 75 | 86 | 114 | 135 | 139 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 140 | 144 | 122 | 105 | 77 | 60 | 58 | 41 | 3 | **0** | **-4** | 129 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 387 | 398 | 327 | 54 | 24 | 0 | 0 | **-9** | **-27** | **-32** | **-20** | 344 |
| Above Normal (16%) | 75 | 83 | 83 | 133 | 94 | 34 | 29 | 14 | **-17** | **-39** | **-35** | 90 |
| Below Normal (13%) | 28 | 27 | 30 | 312 | 214 | 207 | 203 | 171 | 116 | 80 | 29 | 22 |
| Dry (24%) | 19 | 17 | 16 | 88 | 91 | 92 | 93 | 70 | 7 | 33 | 25 | 17 |
| Critical (15%) | **-21** | **-25** | **-21** | 22 | 23 | 26 | 25 | 14 | **-23** | **-18** | **-13** | **-10** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 4-2. Lake Oroville Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,151 | 2,150 | 2,784 | 2,788 | 2,925 | 3,040 | 3,352 | 3,538 | 3,538 | 3,060 | 2,750 | 2,224 |
| 20% | 1,834 | 1,862 | 2,136 | 2,764 | 2,788 | 2,964 | 3,302 | 3,538 | 3,534 | 2,975 | 2,550 | 2,016 |
| 30% | 1,704 | 1,734 | 1,893 | 2,405 | 2,788 | 2,921 | 3,273 | 3,487 | 3,366 | 2,843 | 2,389 | 1,896 |
| 40% | 1,548 | 1,550 | 1,730 | 1,961 | 2,676 | 2,788 | 3,209 | 3,356 | 3,192 | 2,614 | 2,131 | 1,690 |
| 50% | 1,487 | 1,463 | 1,553 | 1,807 | 2,204 | 2,691 | 2,908 | 3,002 | 2,891 | 2,290 | 1,821 | 1,543 |
| 60% | 1,370 | 1,292 | 1,453 | 1,557 | 2,026 | 2,372 | 2,662 | 2,719 | 2,461 | 1,836 | 1,541 | 1,461 |
| 70% | 1,237 | 1,189 | 1,200 | 1,473 | 1,747 | 2,119 | 2,263 | 2,330 | 2,065 | 1,540 | 1,424 | 1,352 |
| 80% | 1,137 | 1,053 | 1,067 | 1,242 | 1,558 | 1,875 | 2,015 | 1,996 | 1,814 | 1,533 | 1,367 | 1,266 |
| 90% | 898 | 906 | 927 | 1,084 | 1,259 | 1,471 | 1,578 | 1,649 | 1,399 | 1,137 | 997 | 951 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,492 | 1,474 | 1,639 | 1,894 | 2,193 | 2,430 | 2,695 | 2,788 | 2,640 | 2,182 | 1,889 | 1,612 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,006 | 1,967 | 2,086 | 2,617 | 2,858 | 2,942 | 3,300 | 3,487 | 3,447 | 3,009 | 2,676 | 2,190 |
| Above Normal (16%) | 1,658 | 1,639 | 1,758 | 1,995 | 2,518 | 2,922 | 3,265 | 3,414 | 3,298 | 2,718 | 2,239 | 1,799 |
| Below Normal (13%) | 1,428 | 1,352 | 1,467 | 1,793 | 2,196 | 2,468 | 2,724 | 2,776 | 2,612 | 2,023 | 1,644 | 1,494 |
| Dry (24%) | 1,228 | 1,266 | 1,585 | 1,380 | 1,659 | 2,007 | 2,252 | 2,283 | 2,012 | 1,563 | 1,417 | 1,323 |
| Critical (15%) | 697 | 688 | 790 | 1,165 | 1,287 | 1,455 | 1,478 | 1,448 | 1,249 | 986 | 818 | 750 |

### Alternative 2 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,726 | 2,646 | 2,788 | 2,788 | 2,952 | 3,058 | 3,354 | 3,538 | 3,538 | 3,066 | 2,832 | 2,829 |
| 20% | 2,176 | 2,262 | 2,605 | 2,787 | 2,832 | 2,990 | 3,302 | 3,538 | 3,480 | 2,933 | 2,540 | 2,344 |
| 30% | 1,963 | 2,025 | 2,175 | 2,603 | 2,788 | 2,937 | 3,273 | 3,474 | 3,244 | 2,746 | 2,348 | 2,126 |
| 40% | 1,638 | 1,749 | 1,990 | 2,435 | 2,788 | 2,857 | 3,209 | 3,360 | 3,038 | 2,465 | 1,990 | 1,771 |
| 50% | 1,503 | 1,473 | 1,682 | 2,085 | 2,644 | 2,788 | 3,114 | 3,080 | 2,684 | 2,117 | 1,857 | 1,568 |
| 60% | 1,372 | 1,351 | 1,496 | 1,630 | 2,056 | 2,575 | 2,802 | 2,760 | 2,362 | 1,815 | 1,548 | 1,489 |
| 70% | 1,256 | 1,182 | 1,208 | 1,486 | 1,810 | 2,250 | 2,440 | 2,480 | 1,962 | 1,542 | 1,426 | 1,372 |
| 80% | 1,145 | 1,045 | 1,069 | 1,264 | 1,656 | 1,890 | 2,113 | 2,060 | 1,798 | 1,532 | 1,378 | 1,263 |
| 90% | 844 | 900 | 907 | 1,069 | 1,268 | 1,460 | 1,655 | 1,766 | 1,510 | 1,256 | 1,095 | 964 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,638 | 1,622 | 1,765 | 1,999 | 2,272 | 2,494 | 2,758 | 2,822 | 2,564 | 2,143 | 1,895 | 1,758 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,419 | 2,383 | 2,430 | 2,658 | 2,874 | 2,942 | 3,300 | 3,474 | 3,382 | 2,966 | 2,707 | 2,587 |
| Above Normal (16%) | 1,735 | 1,723 | 1,845 | 2,129 | 2,610 | 2,958 | 3,296 | 3,419 | 3,171 | 2,585 | 2,160 | 1,871 |
| Below Normal (13%) | 1,447 | 1,365 | 1,479 | 2,076 | 2,389 | 2,655 | 2,903 | 2,886 | 2,445 | 1,928 | 1,655 | 1,525 |
| Dry (24%) | 1,240 | 1,278 | 1,598 | 1,476 | 1,760 | 2,107 | 2,353 | 2,350 | 1,959 | 1,596 | 1,441 | 1,336 |
| Critical (15%) | 681 | 675 | 780 | 1,230 | 1,350 | 1,516 | 1,541 | 1,494 | 1,252 | 989 | 827 | 758 |

### Alternative 2 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 576 | 496 | 4 | 0 | 27 | 17 | 2 | 0 | 0 | 7 | 82 | 605 |
| 20% | 342 | 400 | 469 | 23 | 44 | 26 | 0 | 0 | **-53** | **-43** | **-9** | 328 |
| 30% | 259 | 292 | 282 | 198 | 0 | 16 | 0 | **-13** | **-122** | **-97** | **-41** | 230 |
| 40% | 90 | 200 | 260 | 474 | 111 | 69 | 0 | 3 | **-154** | **-149** | **-142** | 81 |
| 50% | 15 | 9 | 129 | 278 | 440 | 97 | 206 | 78 | **-207** | **-173** | 37 | 25 |
| 60% | 3 | 59 | 43 | 73 | 30 | 203 | 140 | 41 | **-98** | **-21** | 7 | 29 |
| 70% | 18 | **-7** | 8 | 13 | 63 | 132 | 176 | 150 | **-103** | 3 | 2 | 20 |
| 80% | 8 | **-8** | 2 | 22 | 98 | 15 | 98 | 64 | **-16** | **-1** | 11 | **-3** |
| 90% | **-54** | **-6** | **-20** | **-15** | 9 | **-11** | 77 | 117 | 111 | 120 | 99 | 12 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 146 | 148 | 126 | 105 | 80 | 64 | 63 | 34 | **-75** | **-39** | 6 | 146 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 413 | 417 | 345 | 41 | 16 | 0 | 0 | **-14** | **-65** | **-43** | 31 | 397 |
| Above Normal (16%) | 77 | 84 | 87 | 133 | 92 | 36 | 31 | 5 | **-127** | **-133** | **-79** | 72 |
| Below Normal (13%) | 19 | 13 | 11 | 283 | 194 | 187 | 179 | 109 | **-166** | **-94** | 11 | 31 |
| Dry (24%) | 12 | 12 | 12 | 96 | 101 | 100 | 100 | 67 | **-53** | 33 | 24 | 14 |
| Critical (15%) | **-16** | **-13** | **-10** | 65 | 63 | 61 | 63 | 46 | 3 | 4 | 9 | 8 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 4-3. Lake Oroville Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,151 | 2,150 | 2,784 | 2,788 | 2,925 | 3,040 | 3,352 | 3,538 | 3,538 | 3,060 | 2,750 | 2,224 |
| 20% | 1,834 | 1,862 | 2,136 | 2,764 | 2,788 | 2,964 | 3,302 | 3,538 | 3,534 | 2,975 | 2,550 | 2,016 |
| 30% | 1,704 | 1,734 | 1,893 | 2,405 | 2,788 | 2,921 | 3,273 | 3,487 | 3,366 | 2,843 | 2,389 | 1,896 |
| 40% | 1,548 | 1,550 | 1,730 | 1,961 | 2,676 | 2,788 | 3,209 | 3,356 | 3,192 | 2,614 | 2,131 | 1,690 |
| 50% | 1,487 | 1,463 | 1,553 | 1,807 | 2,204 | 2,691 | 2,908 | 3,002 | 2,891 | 2,290 | 1,821 | 1,543 |
| 60% | 1,370 | 1,292 | 1,453 | 1,557 | 2,026 | 2,372 | 2,662 | 2,719 | 2,461 | 1,836 | 1,541 | 1,461 |
| 70% | 1,237 | 1,189 | 1,200 | 1,473 | 1,747 | 2,119 | 2,263 | 2,330 | 2,065 | 1,540 | 1,424 | 1,352 |
| 80% | 1,137 | 1,053 | 1,067 | 1,242 | 1,558 | 1,875 | 2,015 | 1,996 | 1,814 | 1,533 | 1,367 | 1,266 |
| 90% | 898 | 906 | 927 | 1,084 | 1,259 | 1,471 | 1,578 | 1,649 | 1,399 | 1,137 | 997 | 951 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,492 | 1,474 | 1,639 | 1,894 | 2,193 | 2,430 | 2,695 | 2,788 | 2,640 | 2,182 | 1,889 | 1,612 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,006 | 1,967 | 2,086 | 2,617 | 2,858 | 2,942 | 3,300 | 3,487 | 3,447 | 3,009 | 2,676 | 2,190 |
| Above Normal (16%) | 1,658 | 1,639 | 1,758 | 1,995 | 2,518 | 2,922 | 3,265 | 3,414 | 3,298 | 2,718 | 2,239 | 1,799 |
| Below Normal (13%) | 1,428 | 1,352 | 1,467 | 1,793 | 2,196 | 2,468 | 2,724 | 2,776 | 2,612 | 2,023 | 1,644 | 1,494 |
| Dry (24%) | 1,228 | 1,266 | 1,585 | 1,380 | 1,659 | 2,007 | 2,252 | 2,283 | 2,012 | 1,563 | 1,417 | 1,323 |
| Critical (15%) | 697 | 688 | 790 | 1,165 | 1,287 | 1,455 | 1,478 | 1,448 | 1,249 | 986 | 818 | 750 |

### Alternative 3 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,737 | 2,636 | 2,799 | 2,792 | 2,961 | 3,053 | 3,352 | 3,538 | 3,538 | 3,066 | 2,862 | 2,831 |
| 20% | 2,189 | 2,227 | 2,525 | 2,788 | 2,827 | 2,990 | 3,302 | 3,538 | 3,531 | 2,968 | 2,566 | 2,374 |
| 30% | 2,000 | 2,019 | 2,186 | 2,610 | 2,788 | 2,937 | 3,273 | 3,474 | 3,240 | 2,742 | 2,390 | 2,150 |
| 40% | 1,695 | 1,826 | 2,032 | 2,441 | 2,776 | 2,841 | 3,208 | 3,360 | 3,086 | 2,494 | 2,048 | 1,831 |
| 50% | 1,534 | 1,477 | 1,770 | 2,108 | 2,614 | 2,788 | 3,098 | 3,108 | 2,706 | 2,127 | 1,869 | 1,617 |
| 60% | 1,358 | 1,342 | 1,503 | 1,629 | 2,019 | 2,602 | 2,800 | 2,813 | 2,383 | 1,841 | 1,541 | 1,498 |
| 70% | 1,268 | 1,197 | 1,213 | 1,474 | 1,826 | 2,230 | 2,417 | 2,459 | 1,935 | 1,546 | 1,432 | 1,382 |
| 80% | 1,155 | 1,049 | 1,068 | 1,266 | 1,650 | 1,895 | 2,074 | 2,059 | 1,814 | 1,531 | 1,378 | 1,262 |
| 90% | 863 | 900 | 914 | 1,070 | 1,268 | 1,464 | 1,659 | 1,797 | 1,535 | 1,260 | 1,122 | 980 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,651 | 1,635 | 1,773 | 2,003 | 2,275 | 2,493 | 2,757 | 2,823 | 2,573 | 2,152 | 1,914 | 1,776 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,445 | 2,407 | 2,441 | 2,667 | 2,882 | 2,942 | 3,299 | 3,483 | 3,387 | 2,969 | 2,742 | 2,614 |
| Above Normal (16%) | 1,747 | 1,737 | 1,846 | 2,133 | 2,612 | 2,957 | 3,295 | 3,420 | 3,196 | 2,611 | 2,180 | 1,893 |
| Below Normal (13%) | 1,459 | 1,371 | 1,492 | 2,090 | 2,394 | 2,660 | 2,908 | 2,892 | 2,475 | 1,942 | 1,665 | 1,546 |
| Dry (24%) | 1,240 | 1,279 | 1,601 | 1,474 | 1,758 | 2,105 | 2,350 | 2,337 | 1,948 | 1,598 | 1,444 | 1,341 |
| Critical (15%) | 690 | 683 | 787 | 1,225 | 1,348 | 1,513 | 1,538 | 1,493 | 1,265 | 1,004 | 841 | 768 |

### Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 586 | 486 | 15 | 4 | 36 | 13 | 0 | 0 | 0 | 7 | 112 | 607 |
| 20% | 355 | 365 | 389 | 24 | 39 | 26 | 0 | 0 | -2 | -7 | 17 | 358 |
| 30% | 296 | 285 | 293 | 205 | 0 | 16 | 0 | -13 | -126 | -101 | 1 | 255 |
| 40% | 148 | 276 | 303 | 480 | 99 | 53 | -1 | 3 | -106 | -120 | -83 | 141 |
| 50% | 47 | 14 | 217 | 302 | 410 | 97 | 191 | 105 | -185 | -163 | 49 | 74 |
| 60% | -12 | 51 | 50 | 72 | -7 | 230 | 138 | 94 | -78 | 4 | 1 | 37 |
| 70% | 31 | 8 | 12 | 2 | 79 | 112 | 153 | 129 | -130 | 6 | 8 | 30 |
| 80% | 18 | -5 | 1 | 24 | 91 | 20 | 59 | 63 | 0 | -2 | 11 | -4 |
| 90% | -35 | -6 | -13 | -14 | 9 | -7 | 81 | 148 | 136 | 124 | 125 | 29 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 159 | 160 | 133 | 109 | 82 | 64 | 62 | 35 | -67 | -29 | 24 | 163 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 438 | 440 | 356 | 50 | 24 | 0 | -1 | -4 | -60 | -40 | 66 | 424 |
| Above Normal (16%) | 89 | 98 | 88 | 137 | 94 | 35 | 30 | 5 | -102 | -107 | -59 | 94 |
| Below Normal (13%) | 31 | 19 | 25 | 297 | 199 | 192 | 184 | 116 | -137 | -80 | 21 | 52 |
| Dry (24%) | 12 | 13 | 16 | 94 | 99 | 98 | 98 | 54 | -64 | 35 | 27 | 19 |
| Critical (15%) | -7 | -5 | -3 | 60 | 61 | 59 | 60 | 45 | 17 | 18 | 23 | 18 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 4-4. Lake Oroville Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,151 | 2,150 | 2,784 | 2,788 | 2,925 | 3,040 | 3,352 | 3,538 | 3,538 | 3,060 | 2,750 | 2,224 |
| 20% | 1,834 | 1,862 | 2,136 | 2,764 | 2,788 | 2,964 | 3,302 | 3,538 | 3,534 | 2,975 | 2,550 | 2,016 |
| 30% | 1,704 | 1,734 | 1,893 | 2,405 | 2,788 | 2,921 | 3,273 | 3,487 | 3,366 | 2,843 | 2,389 | 1,896 |
| 40% | 1,548 | 1,550 | 1,730 | 1,961 | 2,676 | 2,788 | 3,209 | 3,356 | 3,192 | 2,614 | 2,131 | 1,690 |
| 50% | 1,487 | 1,463 | 1,553 | 1,807 | 2,204 | 2,691 | 2,908 | 3,002 | 2,891 | 2,290 | 1,821 | 1,543 |
| 60% | 1,370 | 1,292 | 1,453 | 1,557 | 2,026 | 2,372 | 2,662 | 2,719 | 2,461 | 1,836 | 1,541 | 1,461 |
| 70% | 1,237 | 1,189 | 1,200 | 1,473 | 1,747 | 2,119 | 2,263 | 2,330 | 2,065 | 1,540 | 1,424 | 1,352 |
| 80% | 1,137 | 1,053 | 1,067 | 1,242 | 1,558 | 1,875 | 2,015 | 1,996 | 1,814 | 1,533 | 1,367 | 1,266 |
| 90% | 898 | 906 | 927 | 1,084 | 1,259 | 1,471 | 1,578 | 1,649 | 1,399 | 1,137 | 997 | 951 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,492 | 1,474 | 1,639 | 1,894 | 2,193 | 2,430 | 2,695 | 2,788 | 2,640 | 2,182 | 1,889 | 1,612 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 2,006 | 1,967 | 2,086 | 2,617 | 2,858 | 2,942 | 3,300 | 3,487 | 3,447 | 3,009 | 2,676 | 2,190 |
| Above Normal (16%) | 1,658 | 1,639 | 1,758 | 1,995 | 2,518 | 2,922 | 3,265 | 3,414 | 3,298 | 2,718 | 2,239 | 1,799 |
| Below Normal (13%) | 1,428 | 1,352 | 1,467 | 1,793 | 2,196 | 2,468 | 2,724 | 2,776 | 2,612 | 2,023 | 1,644 | 1,494 |
| Dry (24%) | 1,228 | 1,266 | 1,585 | 1,380 | 1,659 | 2,007 | 2,252 | 2,283 | 2,012 | 1,563 | 1,417 | 1,323 |
| Critical (15%) | 697 | 688 | 790 | 1,165 | 1,287 | 1,455 | 1,478 | 1,448 | 1,249 | 986 | 818 | 750 |

### Alternative 4 043019

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,601 | 2,554 | 2,788 | 2,788 | 2,930 | 3,026 | 3,257 | 3,483 | 3,466 | 3,013 | 2,704 | 2,682 |
| 20% | 2,100 | 2,180 | 2,344 | 2,743 | 2,815 | 2,964 | 3,195 | 3,300 | 3,331 | 2,827 | 2,395 | 2,118 |
| 30% | 1,786 | 1,782 | 2,079 | 2,504 | 2,788 | 2,936 | 3,095 | 3,198 | 3,029 | 2,484 | 2,180 | 1,938 |
| 40% | 1,548 | 1,556 | 1,868 | 2,270 | 2,788 | 2,809 | 3,034 | 3,064 | 2,889 | 2,386 | 1,911 | 1,614 |
| 50% | 1,435 | 1,442 | 1,600 | 1,886 | 2,397 | 2,766 | 2,891 | 2,810 | 2,619 | 1,977 | 1,595 | 1,541 |
| 60% | 1,354 | 1,246 | 1,439 | 1,603 | 1,958 | 2,308 | 2,525 | 2,457 | 2,232 | 1,667 | 1,540 | 1,450 |
| 70% | 1,213 | 1,130 | 1,163 | 1,464 | 1,735 | 2,083 | 2,205 | 2,239 | 2,000 | 1,539 | 1,408 | 1,337 |
| 80% | 1,130 | 998 | 1,006 | 1,185 | 1,537 | 1,779 | 1,919 | 1,950 | 1,680 | 1,495 | 1,355 | 1,241 |
| 90% | 882 | 900 | 904 | 1,020 | 1,191 | 1,455 | 1,580 | 1,675 | 1,496 | 1,213 | 1,090 | 981 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,564 | 1,550 | 1,699 | 1,931 | 2,205 | 2,412 | 2,586 | 2,642 | 2,478 | 2,046 | 1,783 | 1,665 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 2,309 | 2,283 | 2,343 | 2,616 | 2,852 | 2,927 | 3,183 | 3,328 | 3,303 | 2,871 | 2,549 | 2,433 |
| Above Normal (16%) | 1,611 | 1,605 | 1,738 | 2,069 | 2,585 | 2,941 | 3,091 | 3,147 | 3,006 | 2,456 | 1,992 | 1,716 |
| Below Normal (13%) | 1,366 | 1,285 | 1,379 | 1,972 | 2,293 | 2,453 | 2,550 | 2,561 | 2,338 | 1,768 | 1,551 | 1,474 |
| Dry (24%) | 1,199 | 1,224 | 1,553 | 1,390 | 1,627 | 1,953 | 2,169 | 2,186 | 1,897 | 1,512 | 1,371 | 1,293 |
| Critical (15%) | 689 | 690 | 798 | 1,165 | 1,276 | 1,447 | 1,473 | 1,441 | 1,215 | 957 | 798 | 737 |

### Alternative 4 043019 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 450 | 404 | 4 | 0 | 5 | **-14** | **-95** | **-55** | **-72** | **-47** | **-46** | 458 |
| 20% | 265 | 318 | 209 | **-22** | 27 | 0 | **-107** | **-238** | **-203** | **-149** | **-155** | 102 |
| 30% | 82 | 48 | 186 | 99 | 0 | 15 | **-178** | **-289** | **-337** | **-360** | **-208** | 43 |
| 40% | **0** | 7 | 139 | 310 | 111 | 21 | **-175** | **-292** | **-302** | **-228** | **-220** | **-76** |
| 50% | **-53** | **-21** | 47 | 80 | 192 | 75 | **-17** | **-192** | **-272** | **-313** | **-226** | **-1** |
| 60% | **-15** | **-45** | **-14** | 46 | **-68** | **-65** | **-138** | **-262** | **-228** | **-169** | **0** | **-10** |
| 70% | **-25** | **-59** | **-37** | **-9** | **-12** | **-35** | **-59** | **-91** | **-65** | **0** | **-16** | **-15** |
| 80% | **-7** | **-55** | **-61** | **-58** | **-21** | **-96** | **-96** | **-46** | **-134** | **-37** | **-12** | **-25** |
| 90% | **-16** | **-6** | **-23** | **-64** | **-68** | **-16** | 2 | 26 | 97 | 76 | 93 | 30 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 72 | 76 | 60 | 38 | 13 | **-18** | **-109** | **-146** | **-162** | **-136** | **-106** | 52 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 302 | 316 | 257 | **-1** | **-6** | **-15** | **-117** | **-159** | **-144** | **-137** | **-128** | 243 |
| Above Normal (16%) | **-47** | **-34** | **-20** | 73 | 67 | 19 | **-173** | **-267** | **-293** | **-262** | **-246** | **-82** |
| Below Normal (13%) | **-62** | **-66** | **-88** | 179 | 98 | **-14** | **-173** | **-215** | **-273** | **-254** | **-93** | **-20** |
| Dry (24%) | **-29** | **-42** | **-32** | 11 | **-31** | **-55** | **-84** | **-98** | **-115** | **-51** | **-46** | **-29** |
| Critical (15%) | **-8** | 3 | 8 | **-1** | **-11** | **-8** | **-6** | **-7** | **-34** | **-28** | **-20** | **-13** |

a Based on the 82-year simulation period.

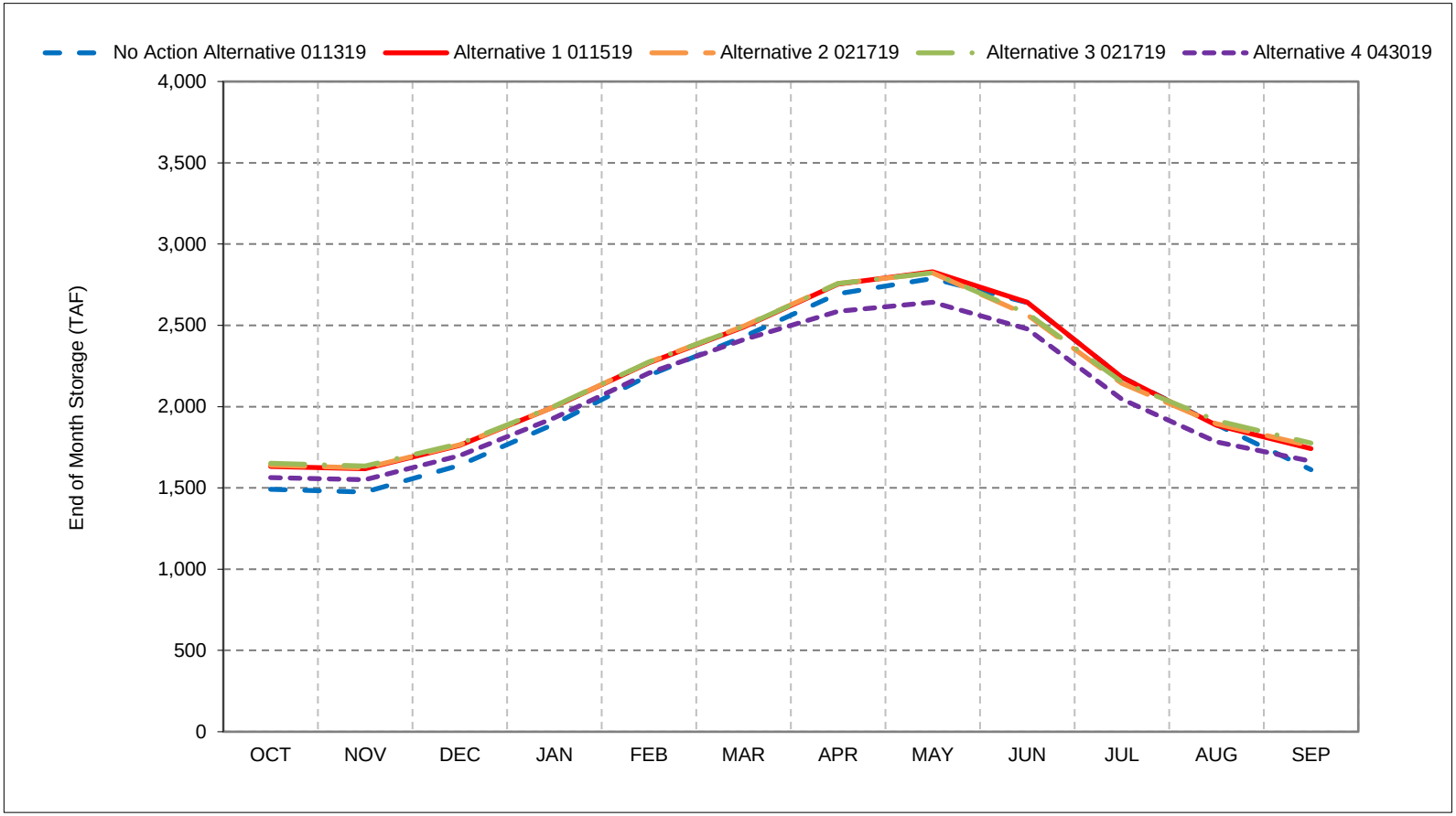
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

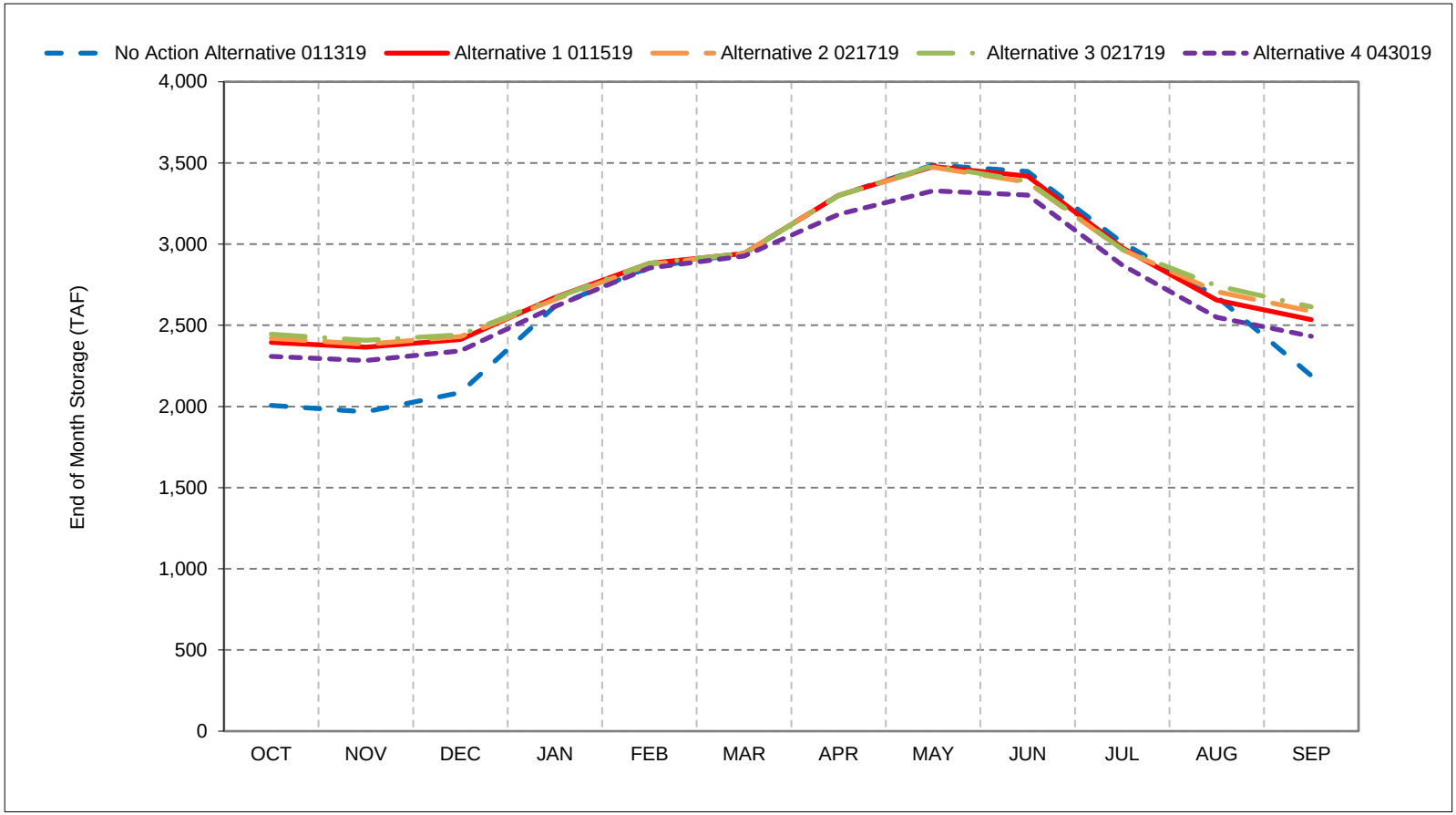
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-1. Lake Oroville Storage, Long-Term Average Storage



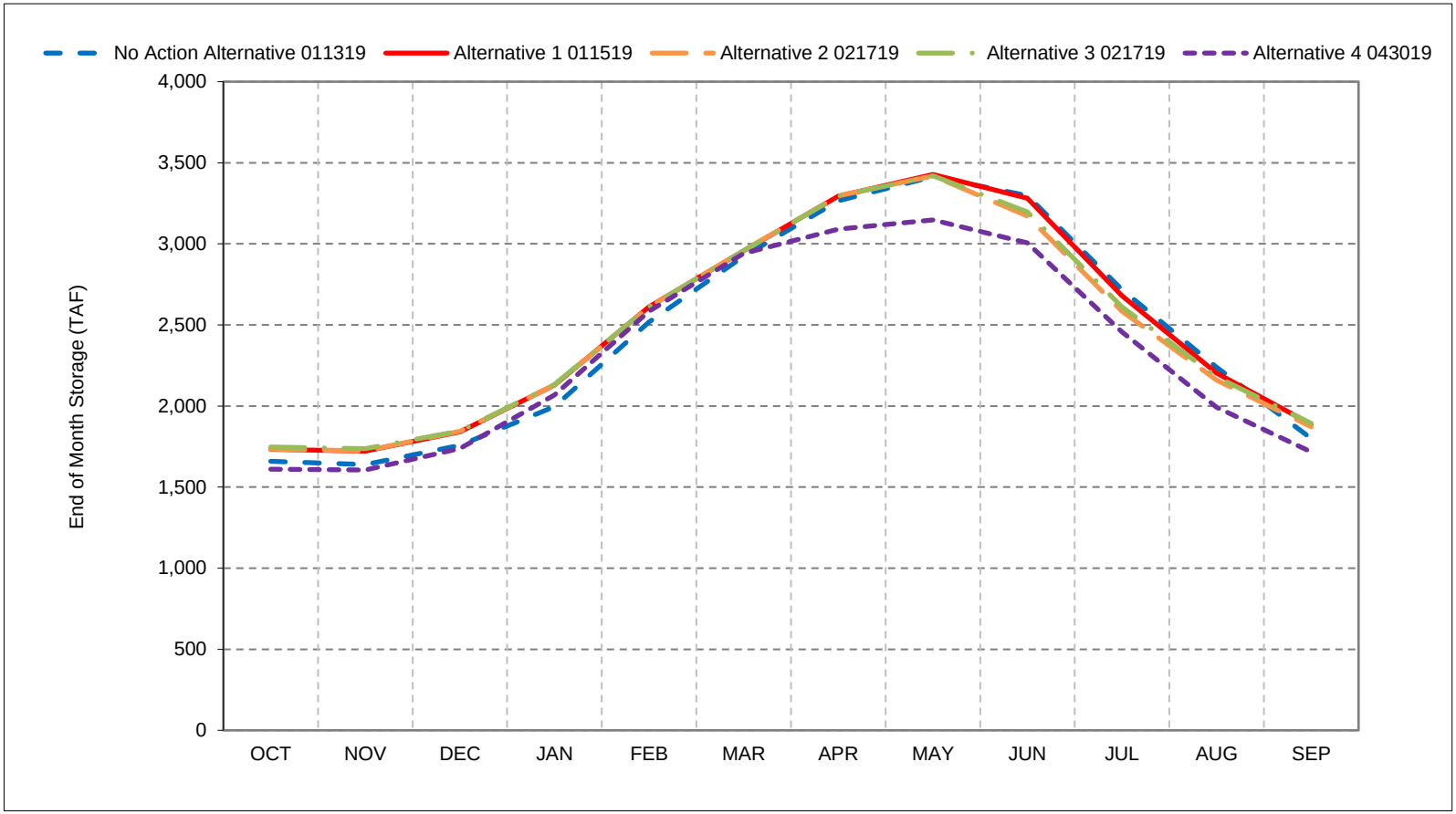

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-2. Lake Oroville Storage, Wet Year Average Storage



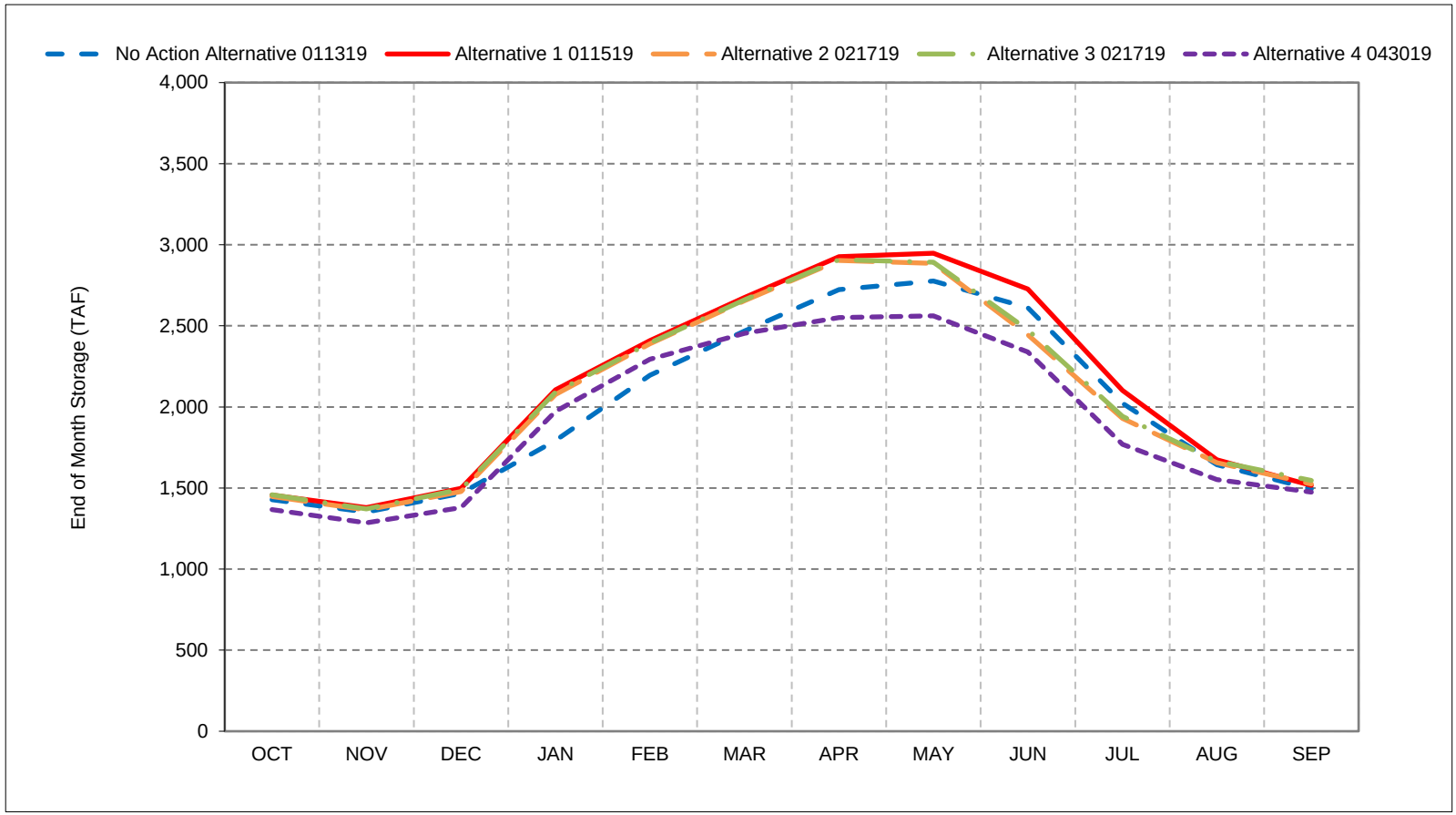

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-3. Lake Oroville Storage, Above Normal Year Average Storage



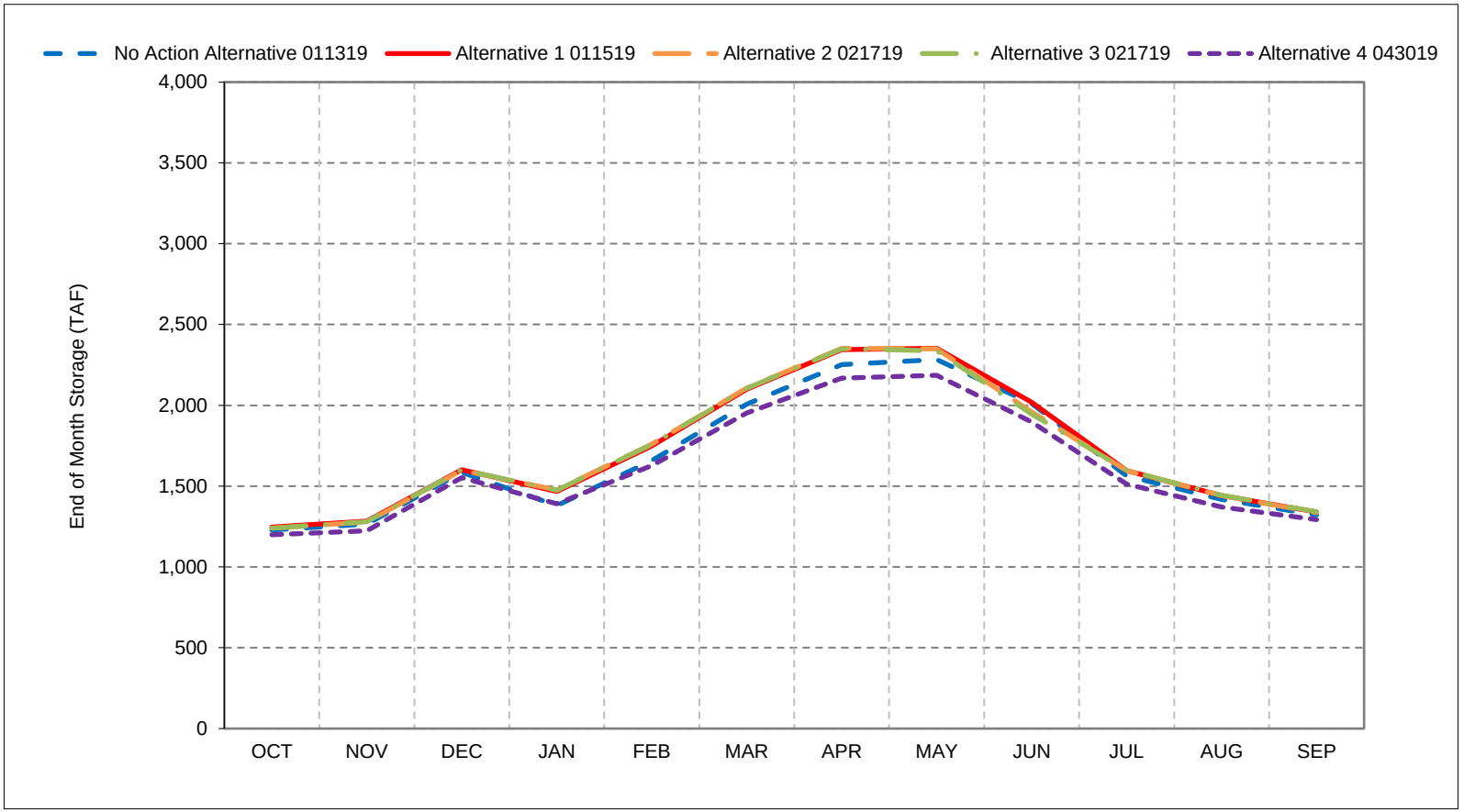

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-4. Lake Oroville Storage, Below Normal Year Average Storage



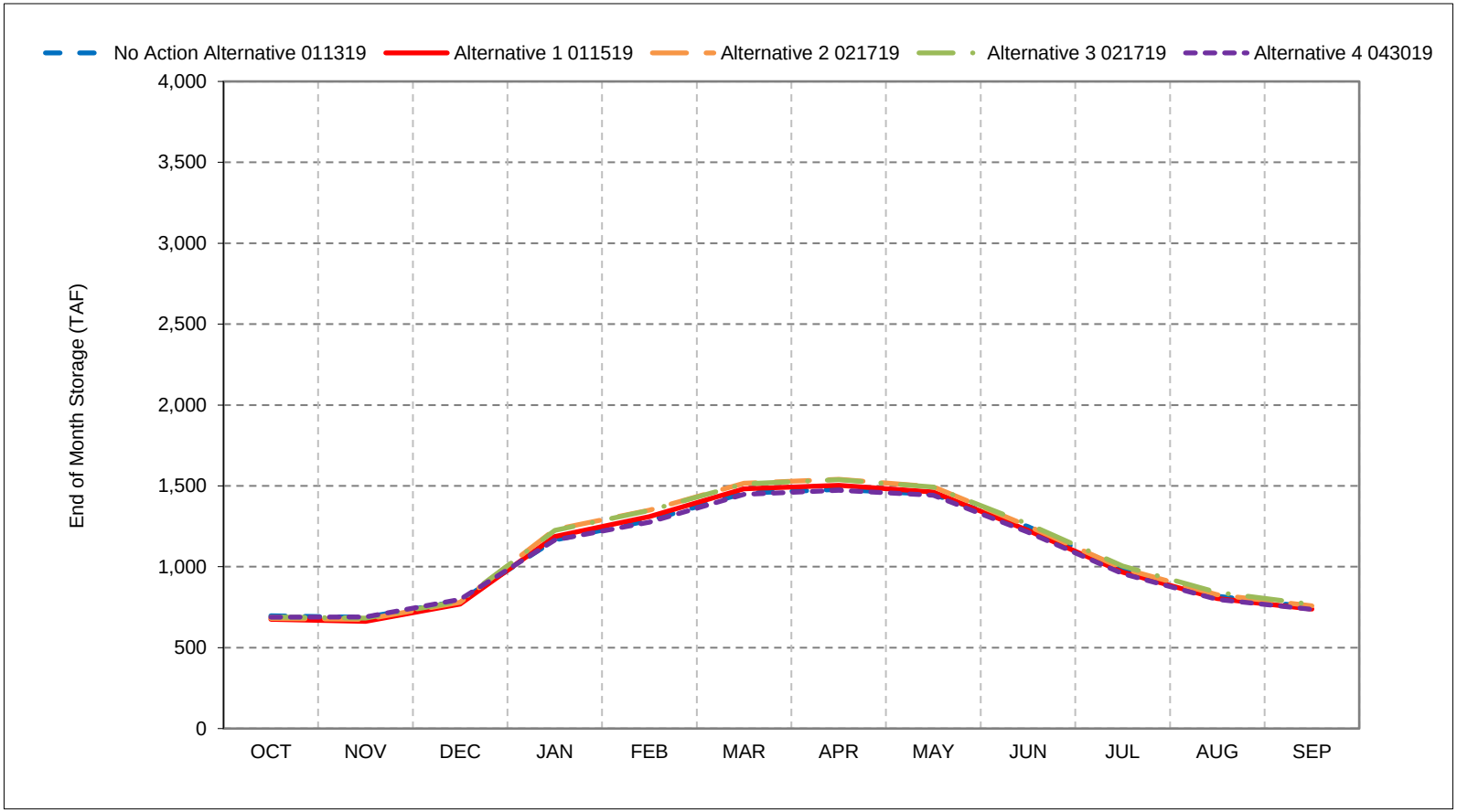

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-5. Lake Oroville Storage, Dry Year Average Storage



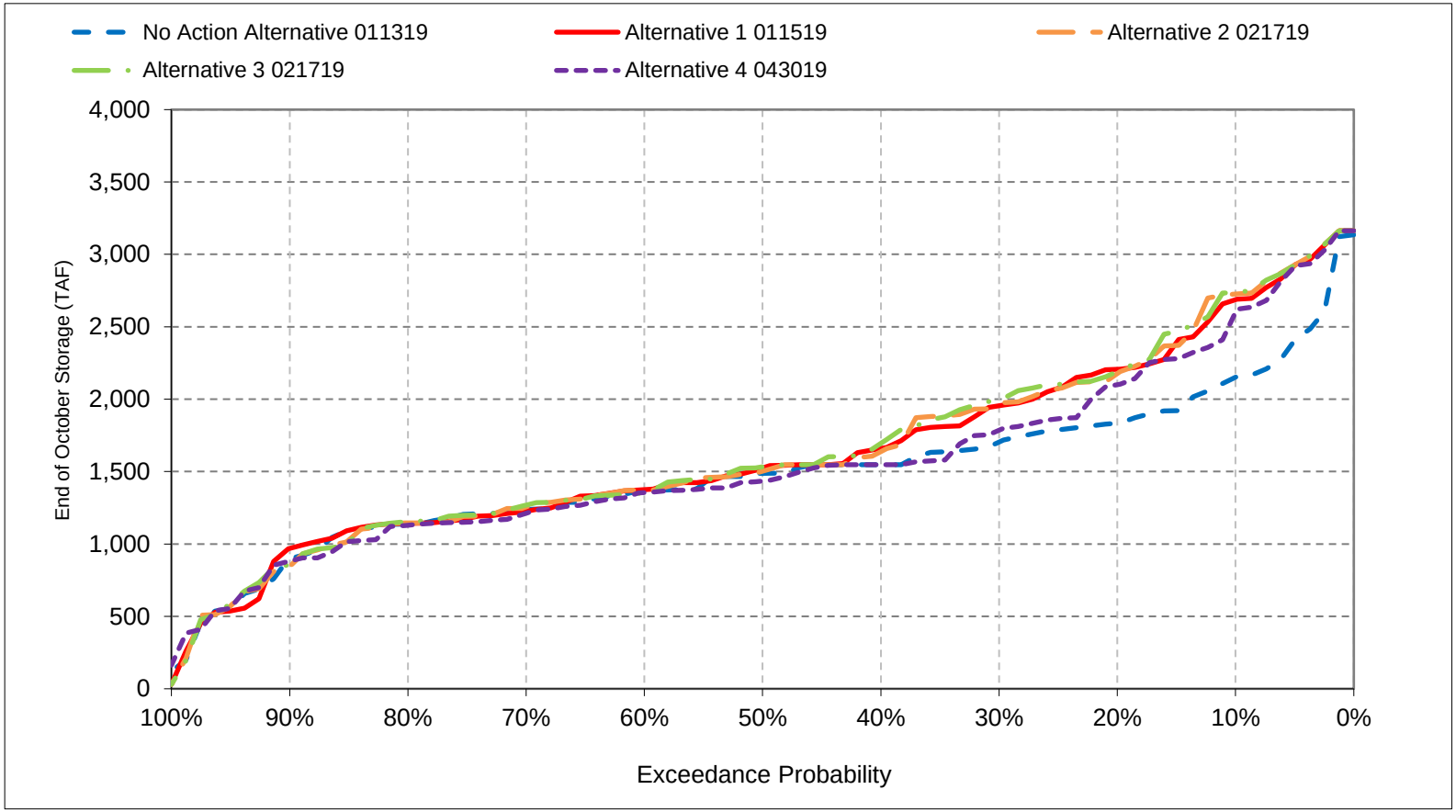

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-6. Lake Oroville Storage, Critical Year Average Storage



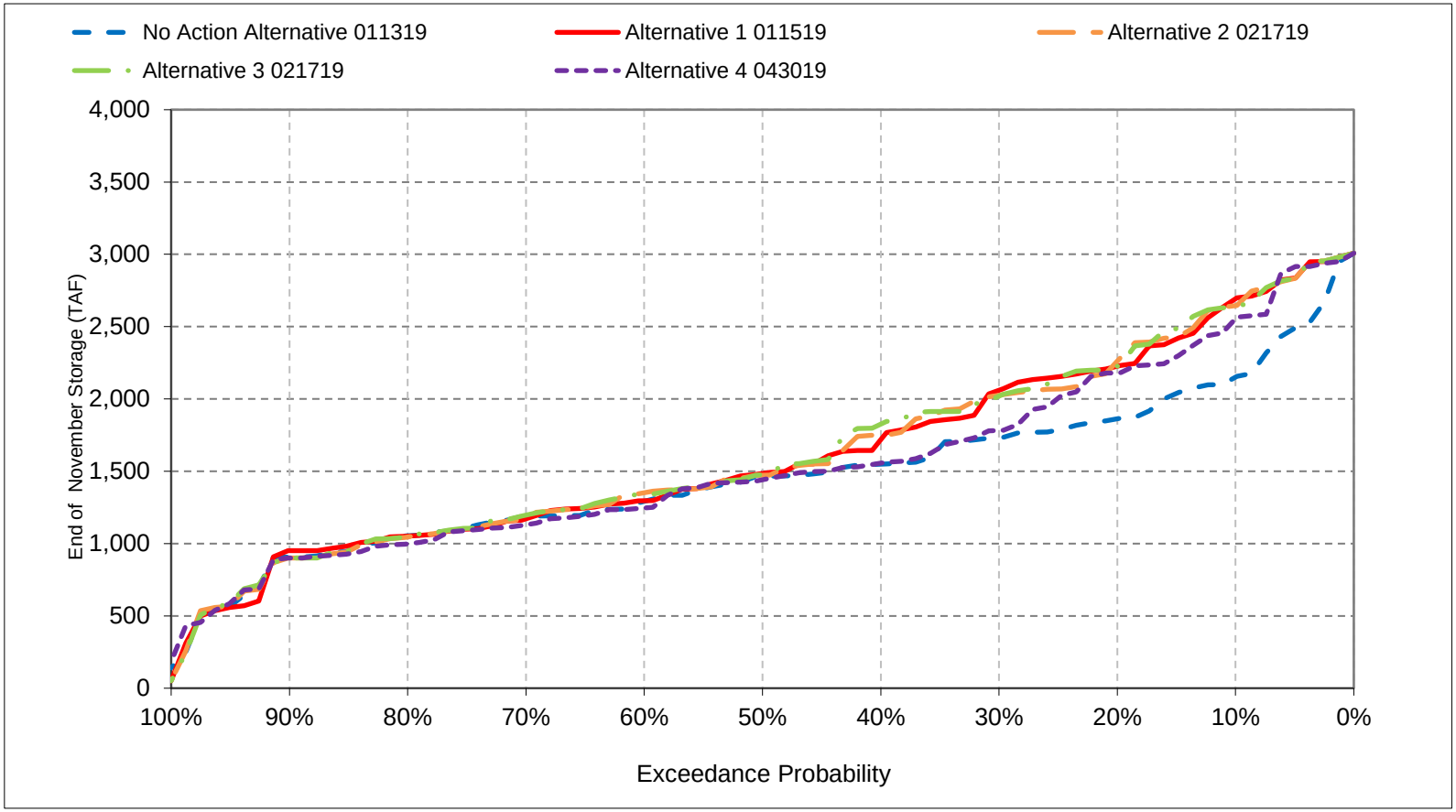

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-7. Lake Oroville Storage, End of October Storage



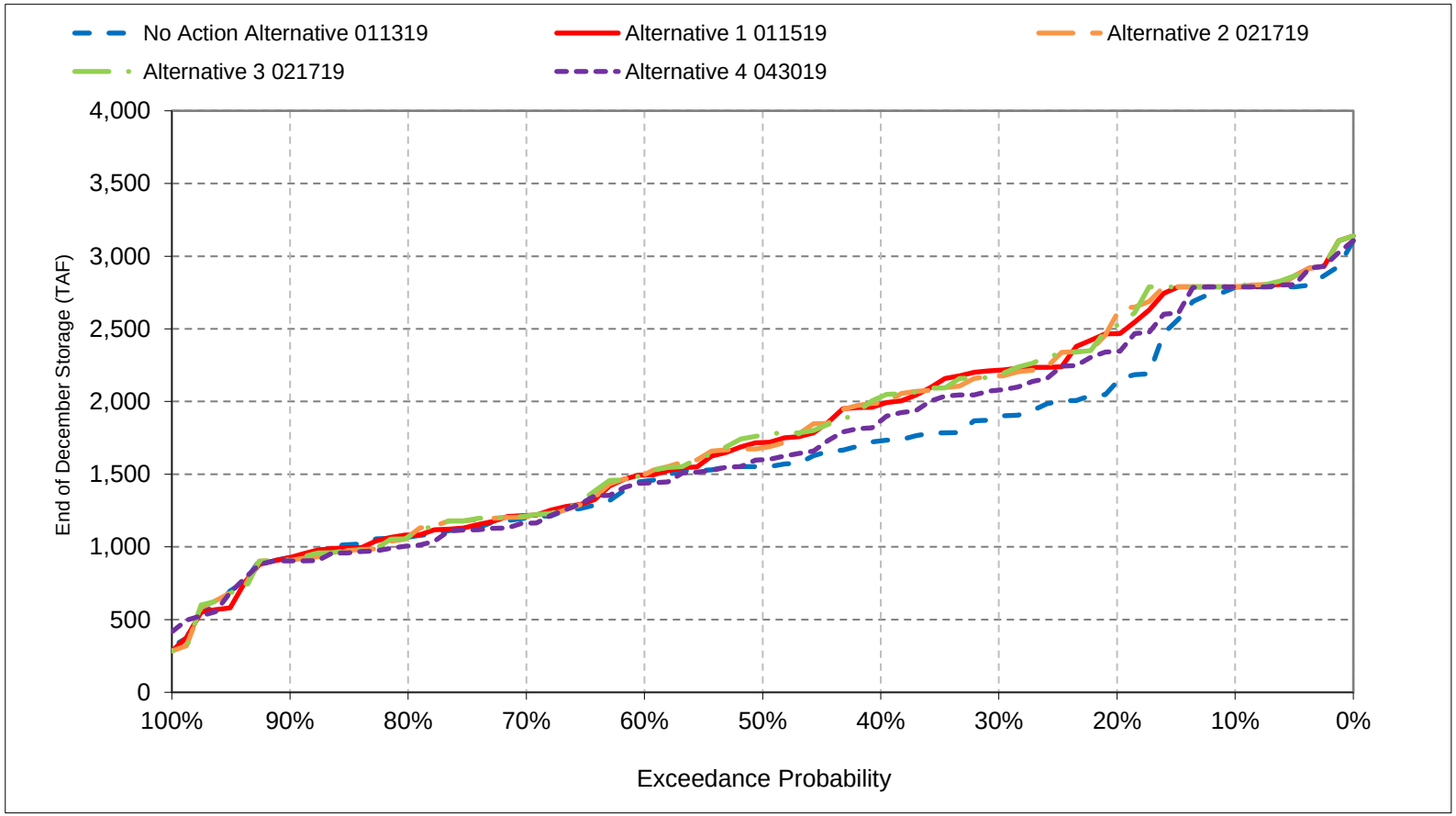

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-8. Lake Oroville Storage, End of November Storage



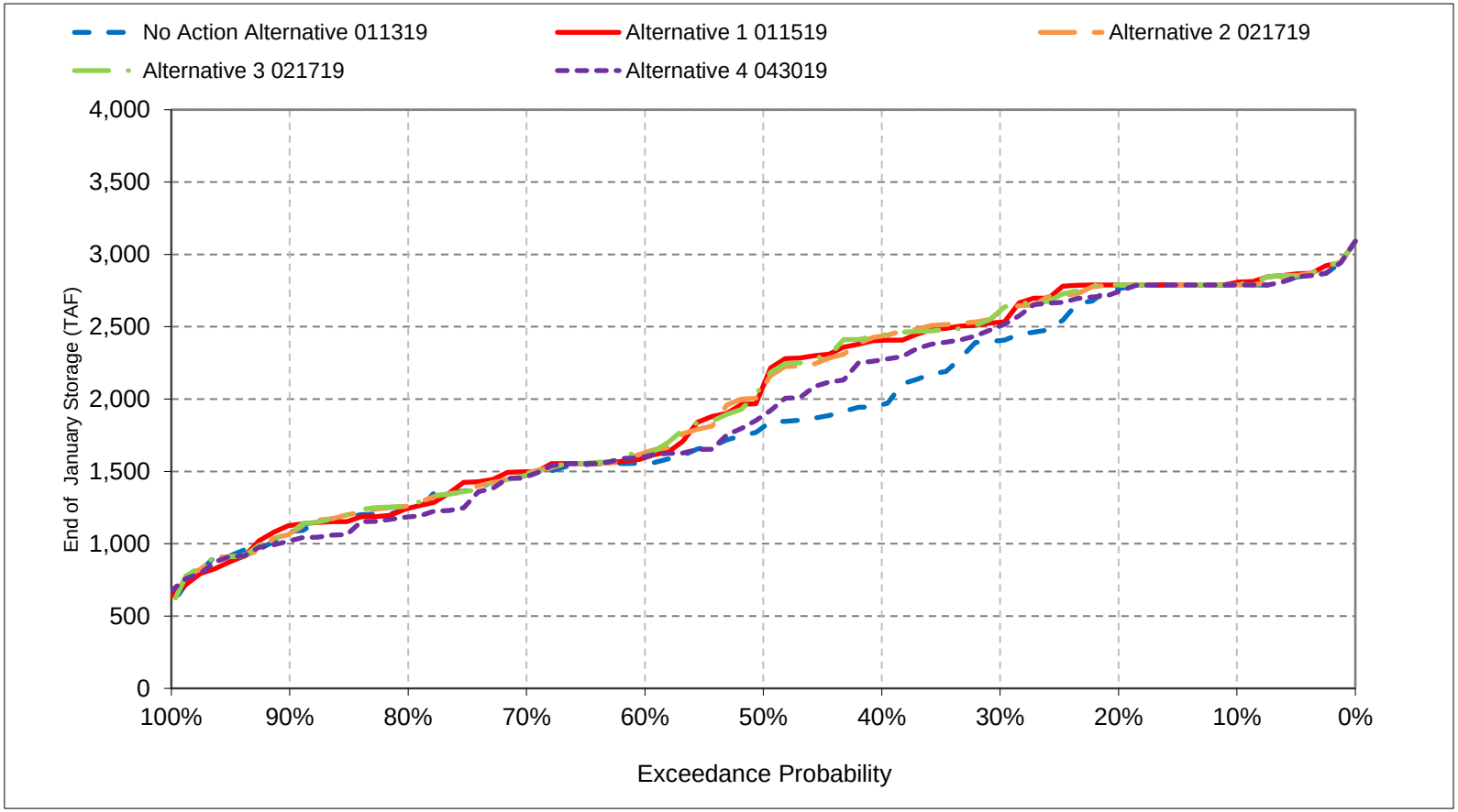

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-9. Lake Oroville Storage, End of December Storage



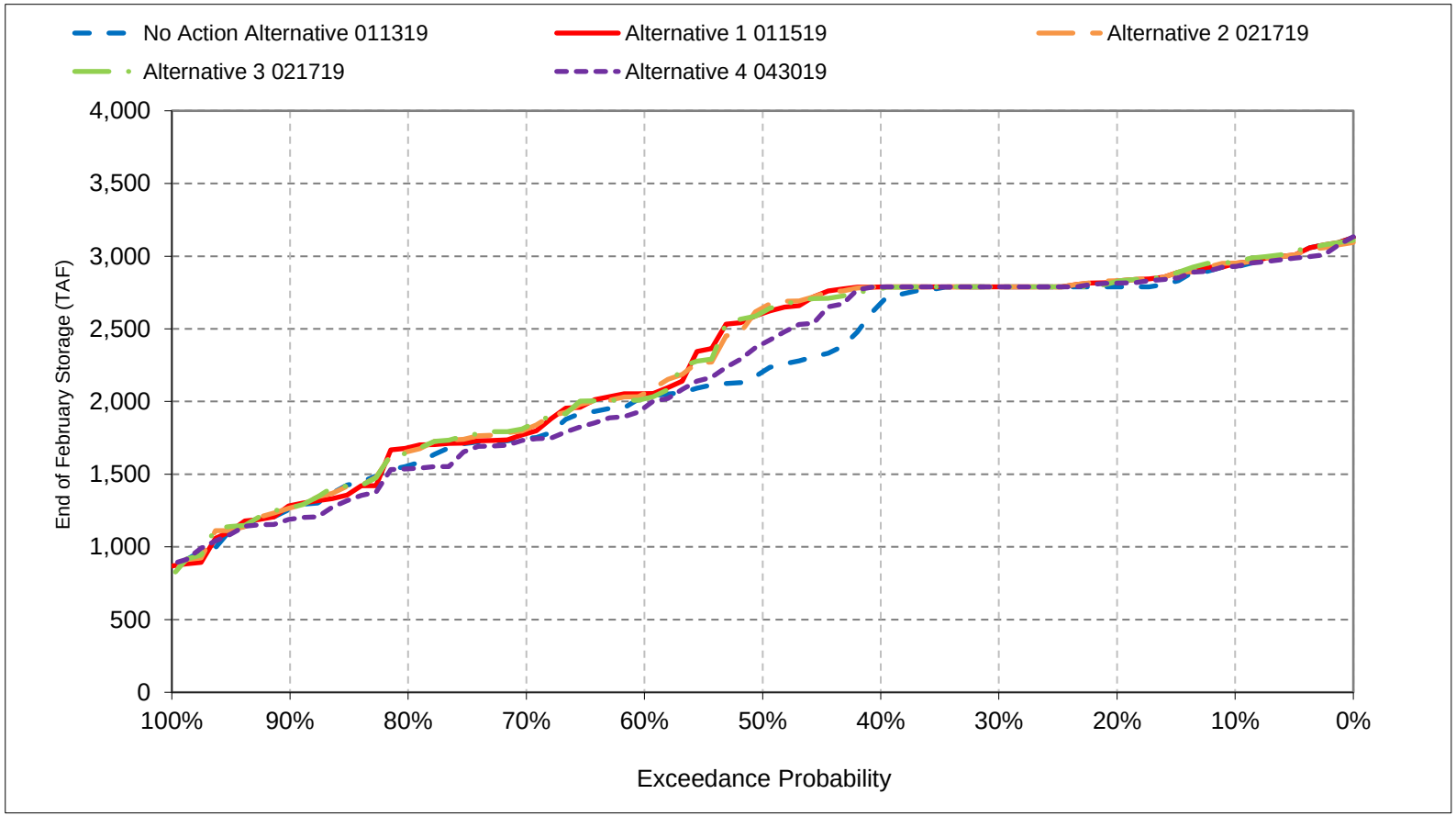

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-10. Lake Oroville Storage, End of January Storage



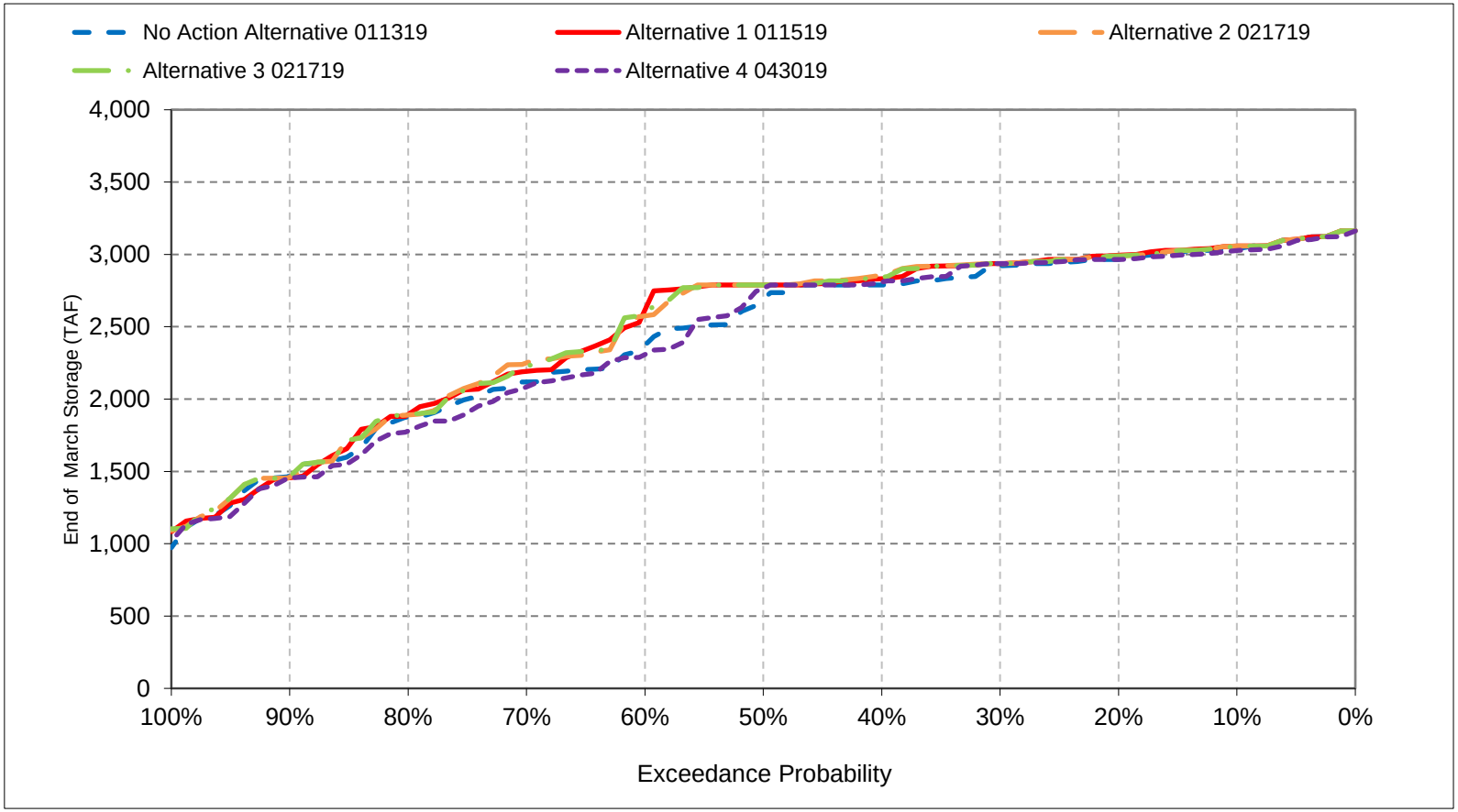

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-11. Lake Oroville Storage, End of February Storage



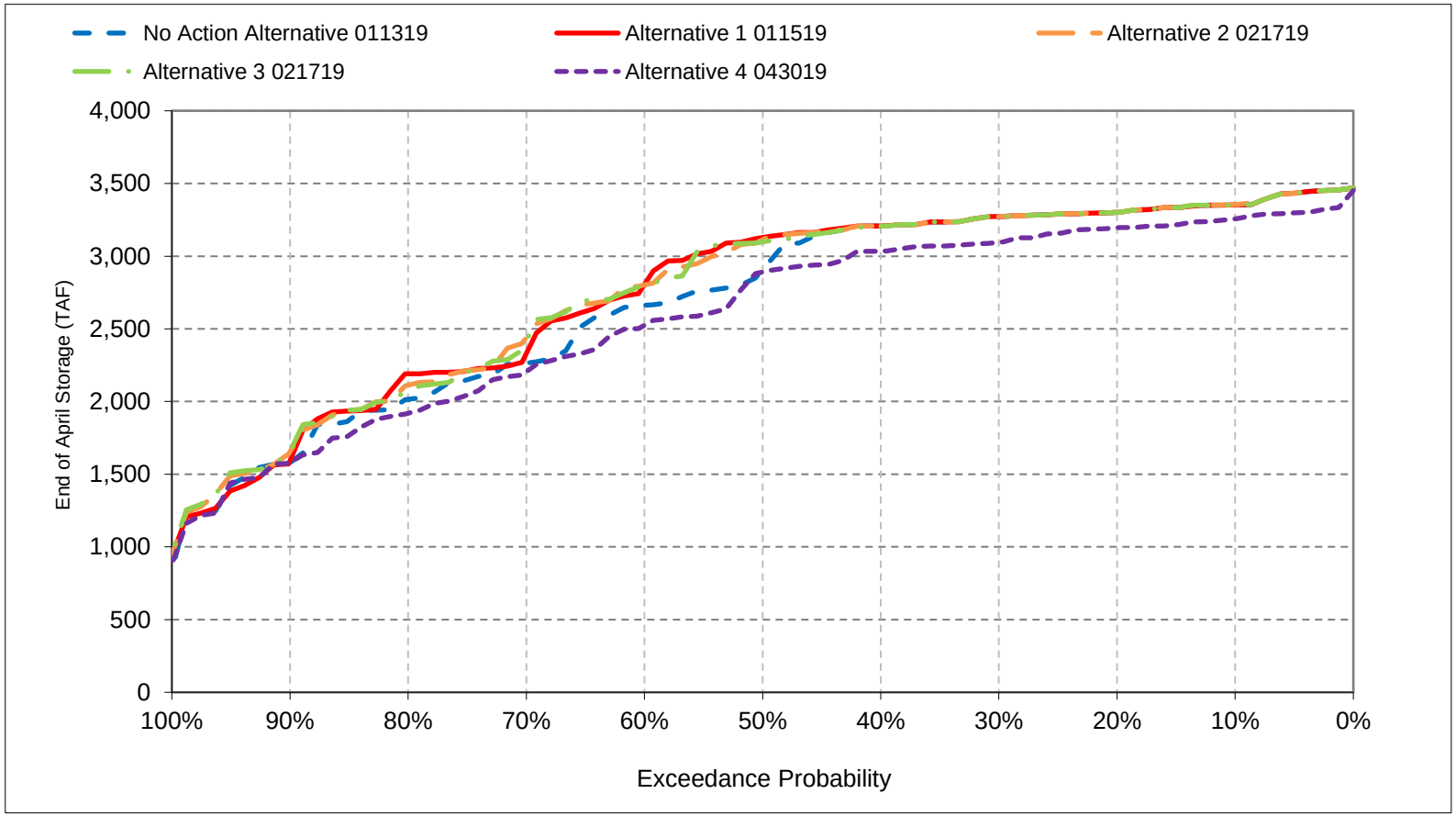

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-12. Lake Oroville Storage, End of March Storage



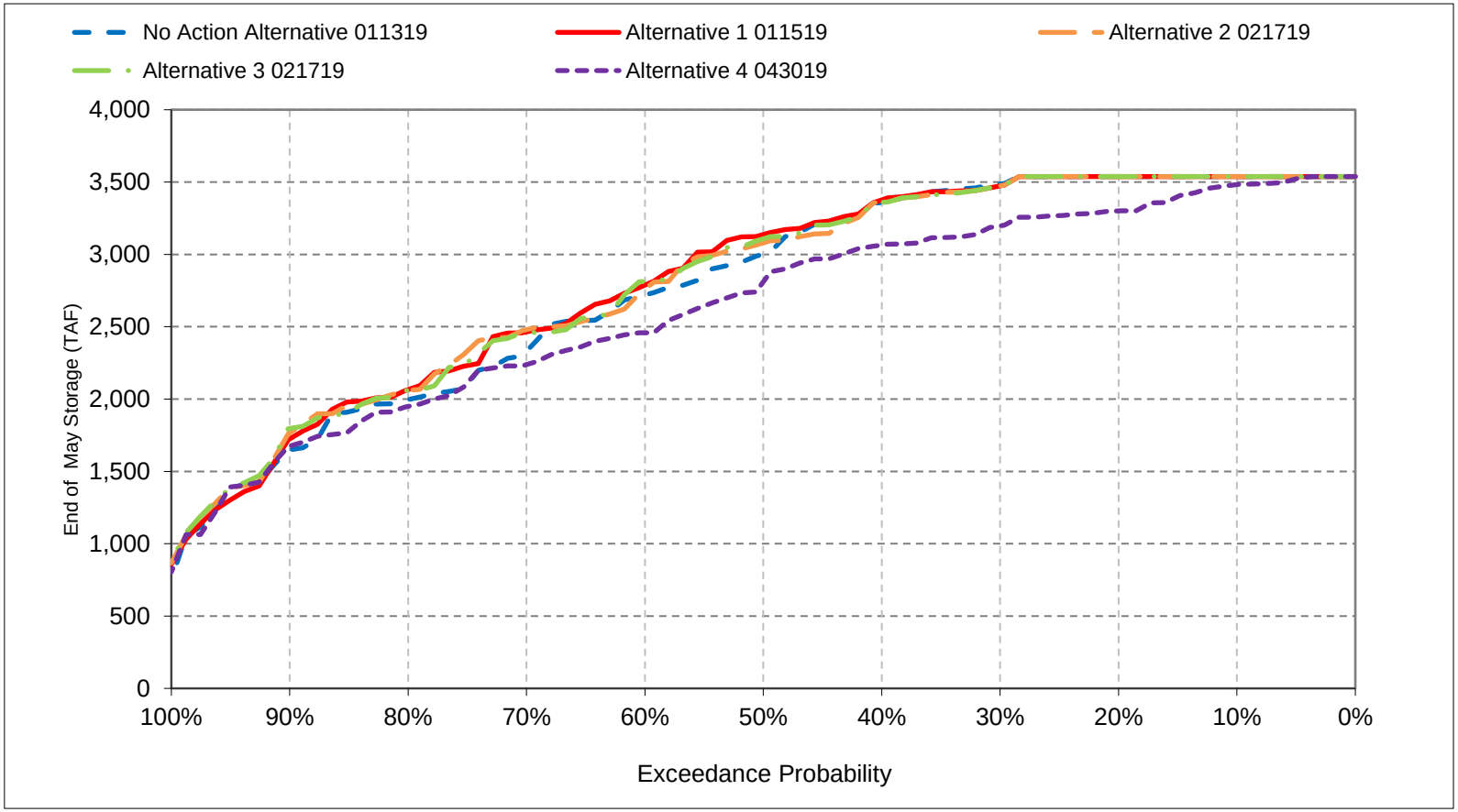

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-13. Lake Oroville Storage, End of April Storage



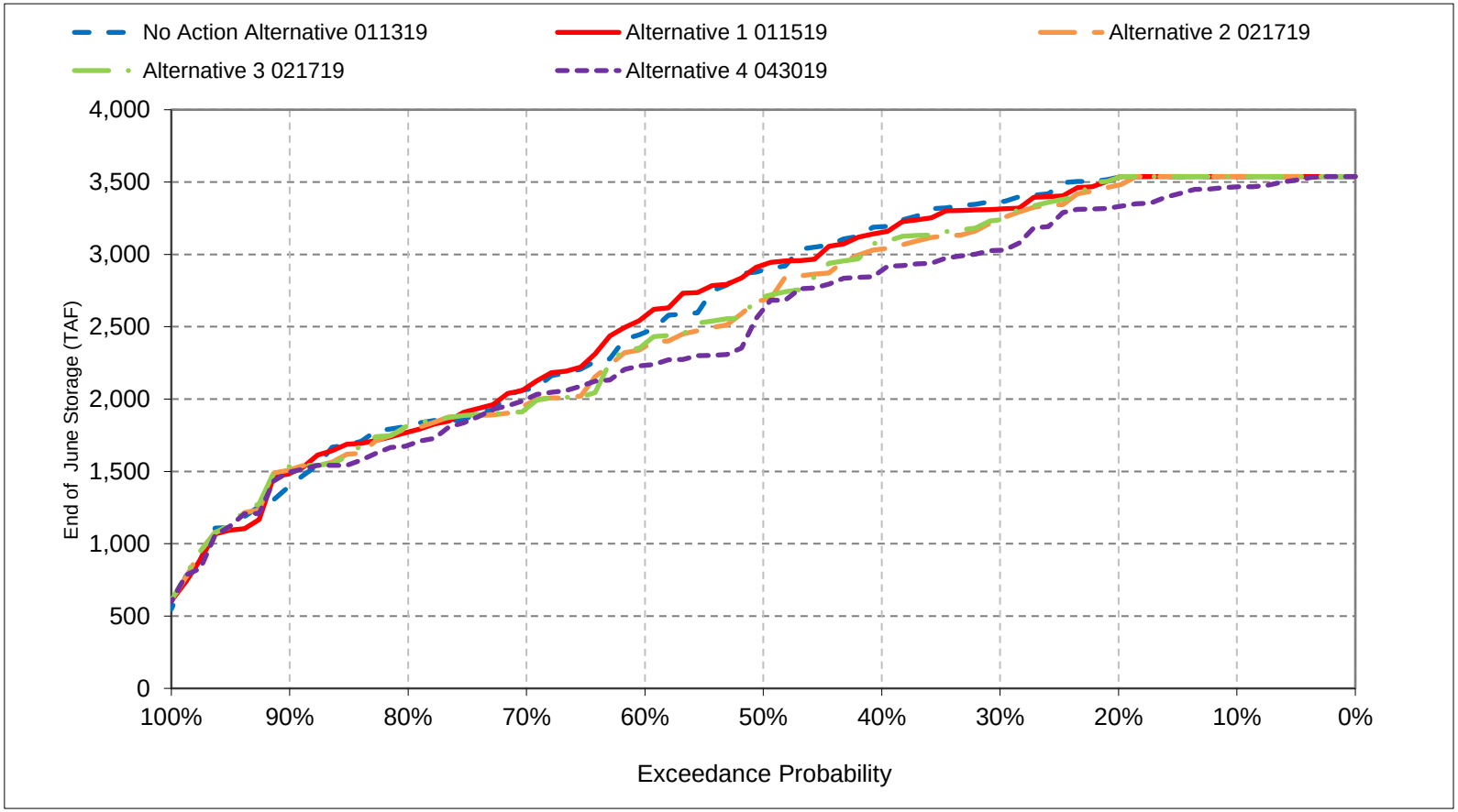

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-14. Lake Oroville Storage, End of May Storage



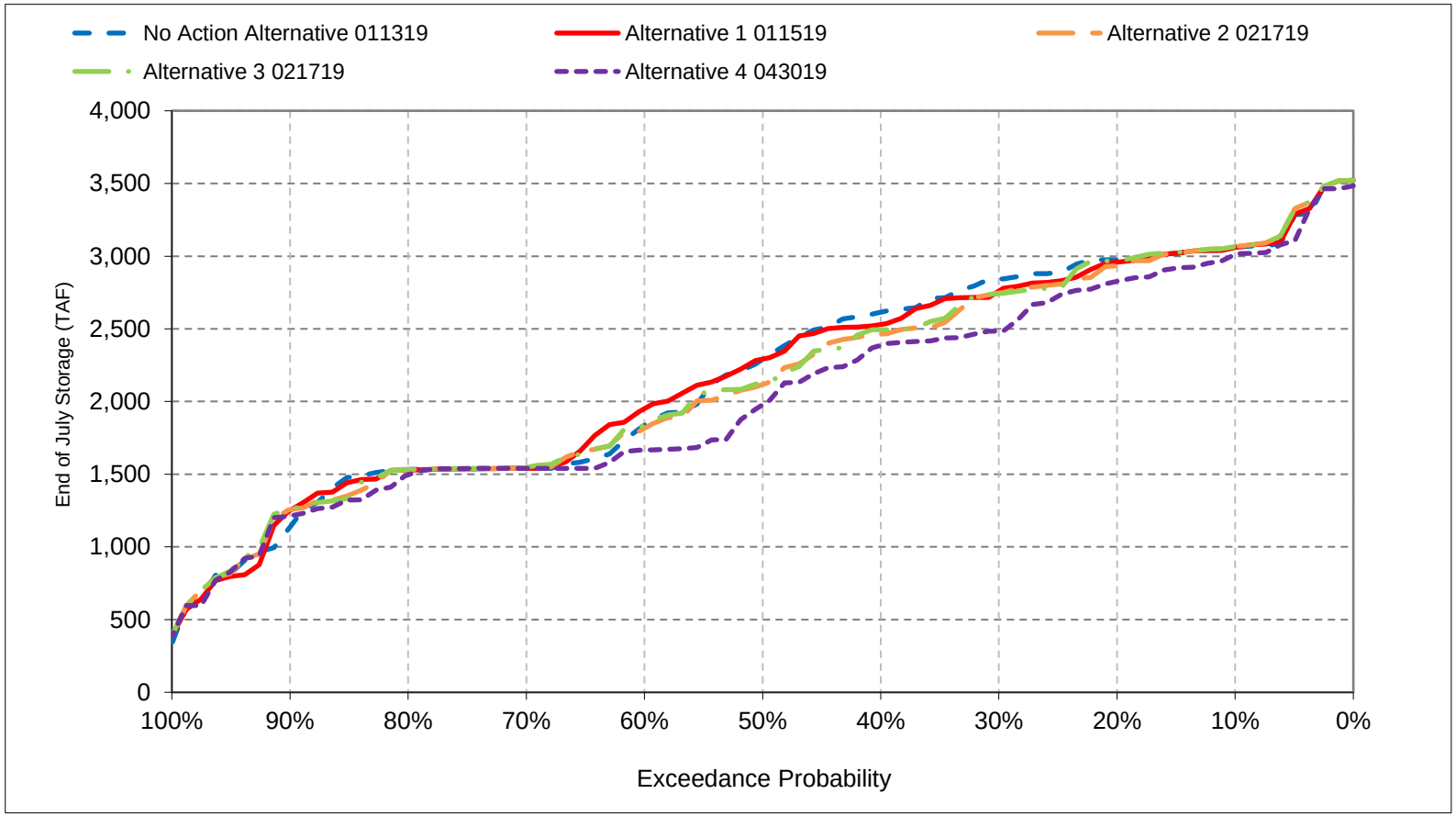

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-15. Lake Oroville Storage, End of June Storage



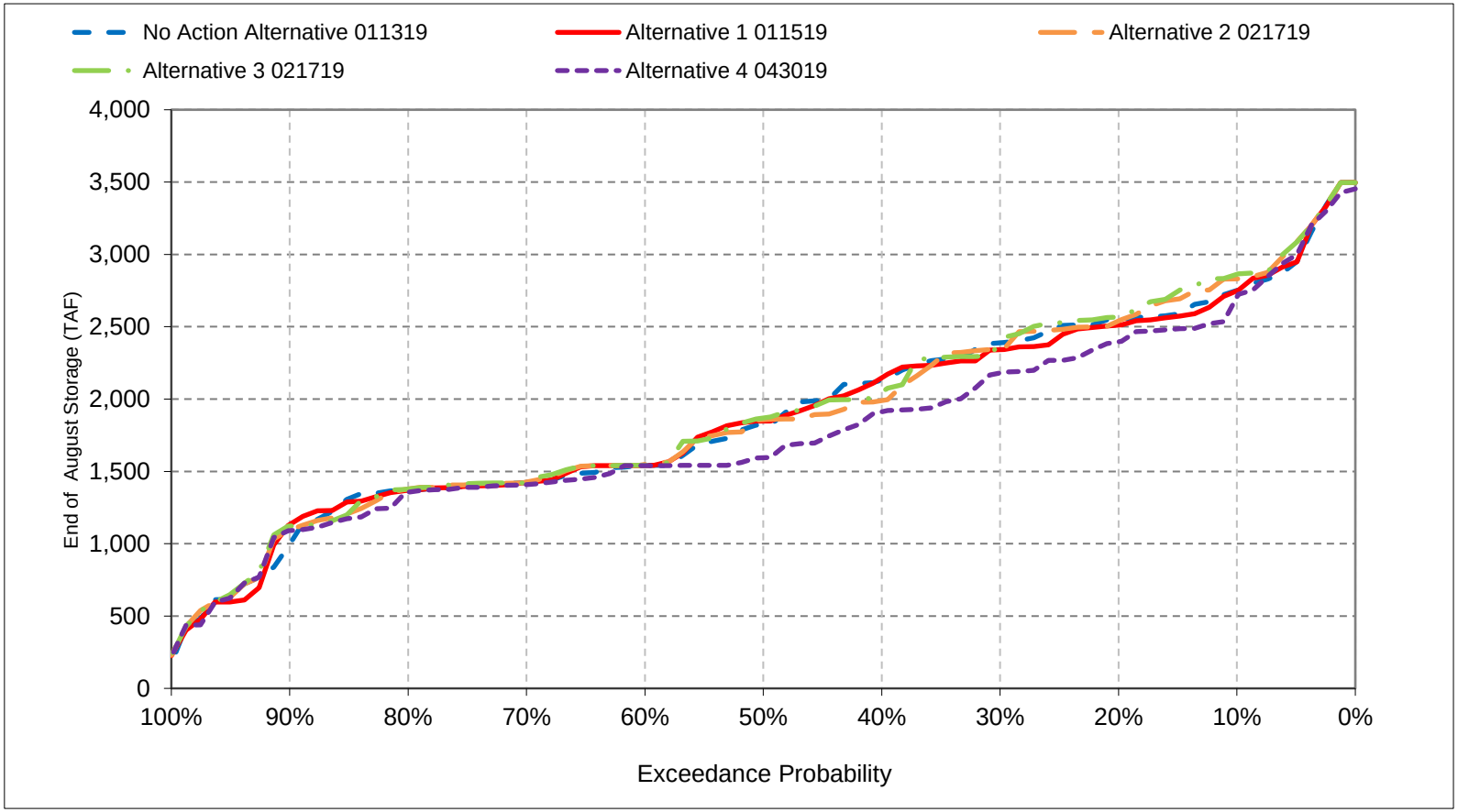

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-16. Lake Oroville Storage, End of July Storage



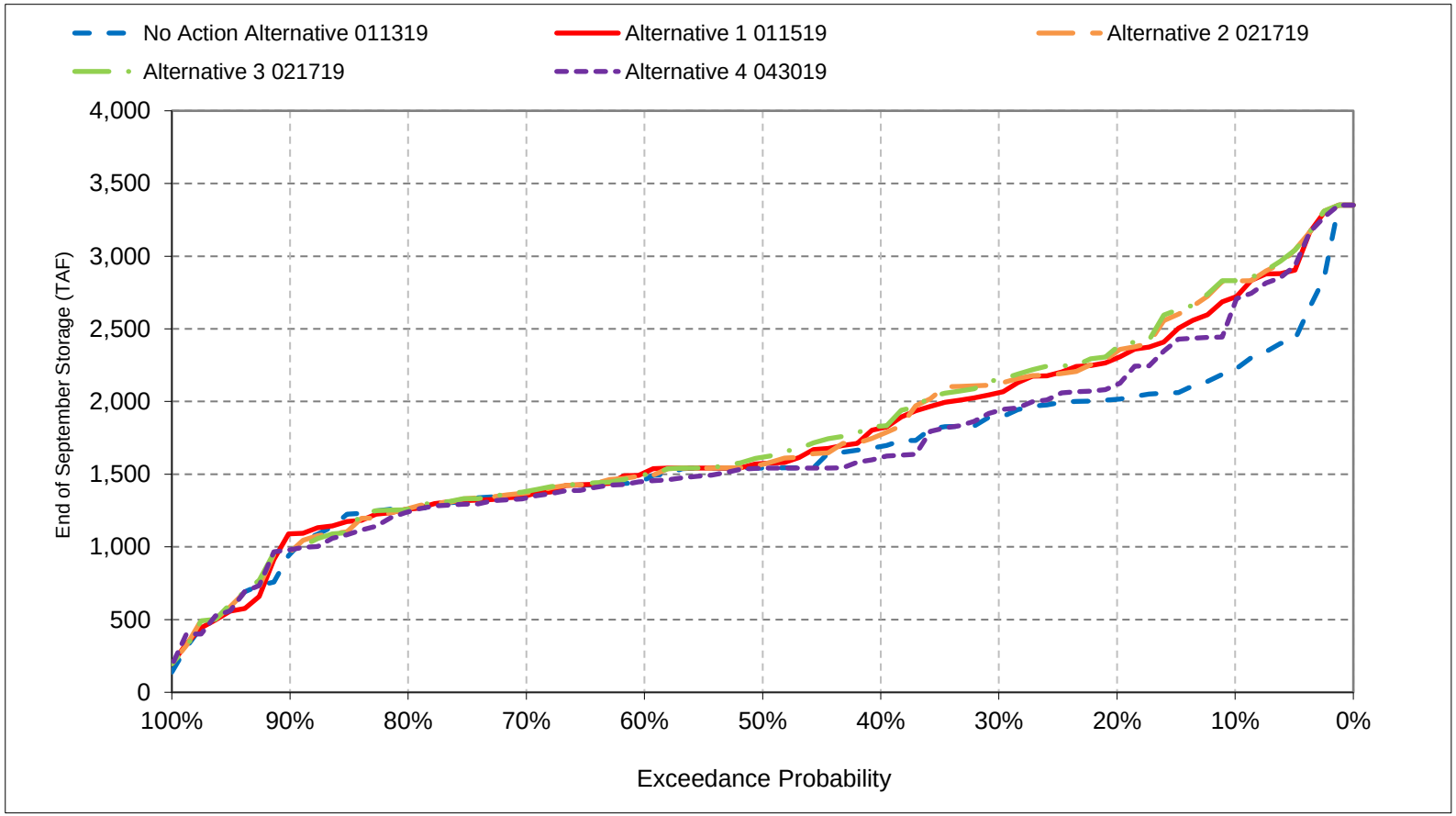

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-17. Lake Oroville Storage, End of August Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-18. Lake Oroville Storage, End of September Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

# Table 4a-1. Lake Oroville Elevation, End of Month Elevation

## No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 798 | 798 | 848 | 849 | 858 | 866 | 887 | 900 | 900 | 867 | 846 | 806 |
| 20% | 766 | 769 | 797 | 847 | 849 | 861 | 884 | 900 | 900 | 862 | 832 | 785 |
| 30% | 752 | 756 | 772 | 823 | 849 | 858 | 882 | 896 | 888 | 853 | 822 | 772 |
| 40% | 734 | 734 | 755 | 779 | 841 | 849 | 877 | 888 | 876 | 837 | 796 | 751 |
| 50% | 726 | 724 | 734 | 763 | 804 | 842 | 857 | 863 | 856 | 813 | 764 | 733 |
| 60% | 712 | 703 | 722 | 735 | 786 | 820 | 840 | 844 | 826 | 766 | 733 | 723 |
| 70% | 696 | 690 | 691 | 725 | 757 | 795 | 810 | 816 | 790 | 733 | 719 | 710 |
| 80% | 684 | 674 | 675 | 697 | 735 | 770 | 784 | 782 | 764 | 732 | 712 | 700 |
| 90% | 648 | 650 | 653 | 677 | 699 | 724 | 738 | 746 | 716 | 684 | 665 | 658 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 719 | 717 | 735 | 763 | 793 | 815 | 835 | 841 | 828 | 788 | 760 | 733 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 780 | 777 | 786 | 835 | 854 | 859 | 884 | 896 | 894 | 864 | 840 | 798 |
| Above Normal (16%) | 746 | 742 | 755 | 778 | 827 | 858 | 881 | 892 | 884 | 844 | 806 | 762 |
| Below Normal (13%) | 718 | 709 | 721 | 759 | 800 | 824 | 843 | 847 | 834 | 784 | 745 | 727 |
| Dry (24%) | 694 | 698 | 730 | 710 | 745 | 782 | 806 | 808 | 783 | 735 | 718 | 706 |
| Critical (15%) | 598 | 600 | 622 | 685 | 701 | 721 | 724 | 719 | 693 | 653 | 622 | 608 |

## Alternative 1 011519

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 842 | 842 | 849 | 850 | 860 | 867 | 887 | 900 | 900 | 867 | 846 | 844 |
| 20% | 804 | 806 | 827 | 849 | 852 | 863 | 884 | 900 | 899 | 860 | 830 | 814 |
| 30% | 778 | 789 | 805 | 831 | 849 | 859 | 882 | 896 | 885 | 847 | 818 | 789 |
| 40% | 748 | 754 | 781 | 823 | 849 | 852 | 877 | 889 | 874 | 831 | 798 | 764 |
| 50% | 731 | 726 | 754 | 792 | 836 | 849 | 872 | 873 | 858 | 813 | 767 | 737 |
| 60% | 713 | 703 | 727 | 740 | 788 | 837 | 850 | 849 | 834 | 778 | 733 | 729 |
| 70% | 695 | 688 | 693 | 728 | 760 | 802 | 815 | 827 | 791 | 733 | 719 | 710 |
| 80% | 684 | 673 | 677 | 697 | 750 | 772 | 802 | 790 | 759 | 732 | 712 | 699 |
| 90% | 661 | 658 | 653 | 682 | 702 | 723 | 739 | 755 | 726 | 698 | 683 | 678 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 731 | 730 | 747 | 773 | 800 | 820 | 840 | 845 | 828 | 788 | 760 | 744 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 816 | 814 | 818 | 839 | 855 | 859 | 884 | 896 | 892 | 862 | 838 | 828 |
| Above Normal (16%) | 754 | 751 | 764 | 791 | 834 | 860 | 883 | 892 | 882 | 841 | 803 | 771 |
| Below Normal (13%) | 722 | 712 | 725 | 787 | 817 | 838 | 858 | 860 | 844 | 792 | 748 | 730 |
| Dry (24%) | 697 | 700 | 732 | 720 | 754 | 790 | 813 | 814 | 783 | 739 | 721 | 708 |
| Critical (15%) | 589 | 591 | 618 | 686 | 703 | 724 | 727 | 721 | 690 | 650 | 620 | 608 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 44 | 44 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 38 |
| 20% | 38 | 37 | 30 | 2 | 3 | 2 | 0 | 0 | 0 | -1 | -3 | 29 |
| 30% | 26 | 34 | 33 | 9 | 0 | 1 | 0 | -1 | -4 | -6 | -4 | 17 |
| 40% | 14 | 20 | 26 | 44 | 8 | 3 | 0 | 1 | -3 | -6 | 2 | 13 |
| 50% | 5 | 3 | 20 | 29 | 32 | 7 | 15 | 9 | 3 | 0 | 3 | 4 |
| 60% | 1 | 1 | 5 | 5 | 3 | 17 | 10 | 5 | 8 | 12 | 0 | 6 |
| 70% | -1 | -2 | 2 | 3 | 3 | 7 | 6 | 10 | 1 | 0 | 0 | 0 |
| 80% | 1 | 0 | 2 | 0 | 15 | 2 | 18 | 7 | -4 | 0 | 0 | -1 |
| 90% | 13 | 8 | 0 | 5 | 3 | -2 | 2 | 8 | 10 | 14 | 18 | 21 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 12 | 13 | 12 | 10 | 6 | 5 | 5 | 3 | 0 | 1 | 0 | 12 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 35 | 37 | 31 | 5 | 2 | 0 | 0 | -1 | -2 | -2 | -2 | 30 |
| Above Normal (16%) | 8 | 9 | 9 | 13 | 7 | 2 | 2 | 1 | -1 | -3 | -3 | 9 |
| Below Normal (13%) | 3 | 4 | 4 | 27 | 17 | 15 | 14 | 13 | 10 | 8 | 3 | 3 |
| Dry (24%) | 3 | 2 | 2 | 9 | 9 | 8 | 8 | 6 | 1 | 4 | 3 | 2 |
| Critical (15%) | -9 | -9 | -4 | 1 | 2 | 3 | 3 | 2 | -3 | -2 | -2 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 4a-2. Lake Oroville Elevation, End of Month Elevation

## No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 798 | 798 | 848 | 849 | 858 | 866 | 887 | 900 | 900 | 867 | 846 | 806 |
| 20% | 766 | 769 | 797 | 847 | 849 | 861 | 884 | 900 | 900 | 862 | 832 | 785 |
| 30% | 752 | 756 | 772 | 823 | 849 | 858 | 882 | 896 | 888 | 853 | 822 | 772 |
| 40% | 734 | 734 | 755 | 779 | 841 | 849 | 877 | 888 | 876 | 837 | 796 | 751 |
| 50% | 726 | 724 | 734 | 763 | 804 | 842 | 857 | 863 | 856 | 813 | 764 | 733 |
| 60% | 712 | 703 | 722 | 735 | 786 | 820 | 840 | 844 | 826 | 766 | 733 | 723 |
| 70% | 696 | 690 | 691 | 725 | 757 | 795 | 810 | 816 | 790 | 733 | 719 | 710 |
| 80% | 684 | 674 | 675 | 697 | 735 | 770 | 784 | 782 | 764 | 732 | 712 | 700 |
| 90% | 648 | 650 | 653 | 677 | 699 | 724 | 738 | 746 | 716 | 684 | 665 | 658 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 719 | 717 | 735 | 763 | 793 | 815 | 835 | 841 | 828 | 788 | 760 | 733 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 780 | 777 | 786 | 835 | 854 | 859 | 884 | 896 | 894 | 864 | 840 | 798 |
| Above Normal (16%) | 746 | 742 | 755 | 778 | 827 | 858 | 881 | 892 | 884 | 844 | 806 | 762 |
| Below Normal (13%) | 718 | 709 | 721 | 759 | 800 | 824 | 843 | 847 | 834 | 784 | 745 | 727 |
| Dry (24%) | 694 | 698 | 730 | 710 | 745 | 782 | 806 | 808 | 783 | 735 | 718 | 706 |
| Critical (15%) | 598 | 600 | 622 | 685 | 701 | 721 | 724 | 719 | 693 | 653 | 622 | 608 |

## Alternative 2 021719

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 845 | 839 | 849 | 849 | 860 | 867 | 887 | 900 | 900 | 868 | 852 | 852 |
| 20% | 801 | 810 | 836 | 849 | 852 | 863 | 884 | 900 | 896 | 859 | 832 | 818 |
| 30% | 779 | 785 | 801 | 836 | 849 | 859 | 882 | 896 | 880 | 846 | 819 | 796 |
| 40% | 745 | 757 | 782 | 825 | 849 | 853 | 877 | 888 | 866 | 827 | 782 | 759 |
| 50% | 728 | 725 | 750 | 792 | 839 | 849 | 871 | 869 | 842 | 795 | 768 | 736 |
| 60% | 712 | 710 | 728 | 744 | 789 | 834 | 850 | 847 | 819 | 764 | 734 | 727 |
| 70% | 698 | 689 | 692 | 726 | 763 | 809 | 825 | 828 | 779 | 733 | 719 | 712 |
| 80% | 685 | 673 | 675 | 699 | 747 | 772 | 794 | 789 | 762 | 732 | 713 | 699 |
| 90% | 638 | 649 | 650 | 675 | 700 | 723 | 747 | 759 | 729 | 698 | 679 | 660 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 732 | 730 | 747 | 773 | 800 | 821 | 841 | 845 | 822 | 785 | 761 | 746 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 818 | 815 | 819 | 838 | 855 | 859 | 884 | 896 | 889 | 861 | 842 | 832 |
| Above Normal (16%) | 754 | 752 | 764 | 791 | 834 | 860 | 883 | 892 | 875 | 834 | 798 | 769 |
| Below Normal (13%) | 721 | 711 | 723 | 782 | 815 | 836 | 856 | 855 | 822 | 775 | 746 | 731 |
| Dry (24%) | 696 | 699 | 731 | 720 | 754 | 791 | 814 | 814 | 778 | 739 | 720 | 708 |
| Critical (15%) | 590 | 592 | 619 | 692 | 708 | 728 | 731 | 725 | 694 | 655 | 625 | 612 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 46 | 41 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 6 | 46 |
| 20% | 35 | 41 | 39 | 2 | 3 | 2 | 0 | 0 | **-4** | **-3** | **-1** | 33 |
| 30% | 27 | 30 | 29 | 14 | 0 | 1 | 0 | **-1** | **-8** | **-7** | **-3** | 24 |
| 40% | 11 | 23 | 27 | 46 | 8 | 5 | 0 | 0 | **-11** | **-10** | **-15** | 8 |
| 50% | 2 | 1 | 16 | 29 | 35 | 7 | 14 | 5 | **-14** | **-18** | 4 | 3 |
| 60% | 0 | 7 | 5 | 9 | 3 | 14 | 10 | 3 | **-7** | **-2** | 1 | 4 |
| 70% | 2 | **-1** | 1 | 2 | 6 | 14 | 15 | 12 | **-11** | 0 | 0 | 2 |
| 80% | 1 | **-1** | 0 | 3 | 12 | 2 | 10 | 7 | **-2** | **0** | 1 | **0** |
| 90% | **-10** | **-1** | **-4** | **-2** | 1 | **-1** | 9 | 13 | 14 | 15 | 13 | 2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 13 | 13 | 12 | 10 | 7 | 5 | 5 | 3 | **-5** | **-3** | 1 | 13 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 37 | 39 | 33 | 4 | 1 | 0 | 0 | **-1** | **-4** | **-3** | 2 | 34 |
| Above Normal (16%) | 8 | 9 | 10 | 13 | 7 | 2 | 2 | 0 | **-9** | **-10** | **-8** | 7 |
| Below Normal (13%) | 2 | 2 | 2 | 23 | 14 | 13 | 13 | 9 | **-12** | **-9** | 1 | 4 |
| Dry (24%) | 2 | 1 | 1 | 10 | 10 | 9 | 8 | 6 | **-5** | 4 | 3 | 2 |
| Critical (15%) | **-9** | **-8** | **-3** | 7 | 7 | 7 | 8 | 6 | 1 | 2 | 3 | 4 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 4a-3. Lake Oroville Elevation, End of Month Elevation

### No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 798 | 798 | 848 | 849 | 858 | 866 | 887 | 900 | 900 | 867 | 846 | 806 |
| 20% | 766 | 769 | 797 | 847 | 849 | 861 | 884 | 900 | 900 | 862 | 832 | 785 |
| 30% | 752 | 756 | 772 | 823 | 849 | 858 | 882 | 896 | 888 | 853 | 822 | 772 |
| 40% | 734 | 734 | 755 | 779 | 841 | 849 | 877 | 888 | 876 | 837 | 796 | 751 |
| 50% | 726 | 724 | 734 | 763 | 804 | 842 | 857 | 863 | 856 | 813 | 764 | 733 |
| 60% | 712 | 703 | 722 | 735 | 786 | 820 | 840 | 844 | 826 | 766 | 733 | 723 |
| 70% | 696 | 690 | 691 | 725 | 757 | 795 | 810 | 816 | 790 | 733 | 719 | 710 |
| 80% | 684 | 674 | 675 | 697 | 735 | 770 | 784 | 782 | 764 | 732 | 712 | 700 |
| 90% | 648 | 650 | 653 | 677 | 699 | 724 | 738 | 746 | 716 | 684 | 665 | 658 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 719 | 717 | 735 | 763 | 793 | 815 | 835 | 841 | 828 | 788 | 760 | 733 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 780 | 777 | 786 | 835 | 854 | 859 | 884 | 896 | 894 | 864 | 840 | 798 |
| Above Normal (16%) | 746 | 742 | 755 | 778 | 827 | 858 | 881 | 892 | 884 | 844 | 806 | 762 |
| Below Normal (13%) | 718 | 709 | 721 | 759 | 800 | 824 | 843 | 847 | 834 | 784 | 745 | 727 |
| Dry (24%) | 694 | 698 | 730 | 710 | 745 | 782 | 806 | 808 | 783 | 735 | 718 | 706 |
| Critical (15%) | 598 | 600 | 622 | 685 | 701 | 721 | 724 | 719 | 693 | 653 | 622 | 608 |

### Alternative 3 021719

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 845 | 838 | 849 | 849 | 861 | 867 | 887 | 900 | 900 | 868 | 854 | 852 |
| 20% | 802 | 806 | 831 | 849 | 851 | 863 | 884 | 900 | 899 | 861 | 834 | 820 |
| 30% | 783 | 785 | 802 | 837 | 849 | 859 | 882 | 896 | 880 | 846 | 821 | 798 |
| 40% | 751 | 765 | 786 | 825 | 848 | 852 | 877 | 888 | 869 | 829 | 788 | 766 |
| 50% | 732 | 725 | 759 | 794 | 837 | 849 | 870 | 871 | 843 | 796 | 769 | 742 |
| 60% | 711 | 709 | 728 | 744 | 785 | 836 | 850 | 850 | 821 | 766 | 733 | 728 |
| 70% | 700 | 691 | 693 | 725 | 765 | 806 | 823 | 826 | 776 | 734 | 720 | 714 |
| 80% | 686 | 673 | 675 | 699 | 746 | 772 | 790 | 789 | 764 | 732 | 713 | 699 |
| 90% | 642 | 649 | 651 | 676 | 700 | 724 | 747 | 762 | 732 | 699 | 682 | 663 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 733 | 731 | 748 | 774 | 800 | 821 | 841 | 845 | 823 | 786 | 762 | 748 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 820 | 818 | 820 | 839 | 855 | 859 | 884 | 896 | 890 | 861 | 845 | 835 |
| Above Normal (16%) | 755 | 753 | 764 | 792 | 834 | 860 | 883 | 892 | 877 | 836 | 800 | 772 |
| Below Normal (13%) | 722 | 712 | 725 | 784 | 815 | 837 | 856 | 856 | 825 | 776 | 747 | 733 |
| Dry (24%) | 696 | 699 | 731 | 721 | 755 | 791 | 814 | 813 | 777 | 739 | 721 | 709 |
| Critical (15%) | 591 | 593 | 620 | 692 | 708 | 728 | 731 | 725 | 696 | 657 | 627 | 613 |

### Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 47 | 40 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 8 | 46 |
| 20% | 36 | 37 | 34 | 2 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 36 |
| 30% | 30 | 29 | 30 | 14 | 0 | 1 | 0 | -1 | -9 | -7 | 0 | 26 |
| 40% | 18 | 31 | 31 | 46 | 7 | 4 | 0 | 0 | -7 | -8 | -9 | 14 |
| 50% | 6 | 2 | 25 | 31 | 33 | 7 | 13 | 7 | -13 | -17 | 5 | 9 |
| 60% | -1 | 6 | 6 | 9 | -1 | 16 | 9 | 6 | -5 | 0 | 0 | 5 |
| 70% | 4 | 1 | 2 | 0 | 8 | 11 | 14 | 10 | -13 | 1 | 1 | 4 |
| 80% | 2 | -1 | 0 | 3 | 11 | 2 | 6 | 6 | 0 | 0 | 1 | -1 |
| 90% | -6 | -1 | -2 | -2 | 1 | -1 | 10 | 16 | 17 | 15 | 17 | 5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 14 | 15 | 13 | 10 | 7 | 5 | 5 | 3 | -5 | -2 | 2 | 15 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 40 | 41 | 34 | 4 | 2 | 0 | 0 | 0 | -4 | -3 | 5 | 36 |
| Above Normal (16%) | 9 | 11 | 10 | 13 | 7 | 2 | 2 | 0 | -7 | -8 | -6 | 10 |
| Below Normal (13%) | 4 | 3 | 4 | 25 | 15 | 13 | 13 | 9 | -9 | -8 | 2 | 6 |
| Dry (24%) | 2 | 2 | 1 | 10 | 10 | 9 | 8 | 5 | -6 | 4 | 3 | 2 |
| Critical (15%) | -8 | -7 | -2 | 7 | 7 | 7 | 8 | 6 | 3 | 4 | 5 | 5 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 4a-4. Lake Oroville Elevation, End of Month Elevation

### No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 798 | 798 | 848 | 849 | 858 | 866 | 887 | 900 | 900 | 867 | 846 | 806 |
| 20% | 766 | 769 | 797 | 847 | 849 | 861 | 884 | 900 | 900 | 862 | 832 | 785 |
| 30% | 752 | 756 | 772 | 823 | 849 | 858 | 882 | 896 | 888 | 853 | 822 | 772 |
| 40% | 734 | 734 | 755 | 779 | 841 | 849 | 877 | 888 | 876 | 837 | 796 | 751 |
| 50% | 726 | 724 | 734 | 763 | 804 | 842 | 857 | 863 | 856 | 813 | 764 | 733 |
| 60% | 712 | 703 | 722 | 735 | 786 | 820 | 840 | 844 | 826 | 766 | 733 | 723 |
| 70% | 696 | 690 | 691 | 725 | 757 | 795 | 810 | 816 | 790 | 733 | 719 | 710 |
| 80% | 684 | 674 | 675 | 697 | 735 | 770 | 784 | 782 | 764 | 732 | 712 | 700 |
| 90% | 648 | 650 | 653 | 677 | 699 | 724 | 738 | 746 | 716 | 684 | 665 | 658 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 719 | 717 | 735 | 763 | 793 | 815 | 835 | 841 | 828 | 788 | 760 | 733 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 780 | 777 | 786 | 835 | 854 | 859 | 884 | 896 | 894 | 864 | 840 | 798 |
| Above Normal (16%) | 746 | 742 | 755 | 778 | 827 | 858 | 881 | 892 | 884 | 844 | 806 | 762 |
| Below Normal (13%) | 718 | 709 | 721 | 759 | 800 | 824 | 843 | 847 | 834 | 784 | 745 | 727 |
| Dry (24%) | 694 | 698 | 730 | 710 | 745 | 782 | 806 | 808 | 783 | 735 | 718 | 706 |
| Critical (15%) | 598 | 600 | 622 | 685 | 701 | 721 | 724 | 719 | 693 | 653 | 622 | 608 |

### Alternative 4 043019

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 836 | 833 | 849 | 849 | 858 | 865 | 881 | 896 | 895 | 864 | 843 | 841 |
| 20% | 793 | 801 | 818 | 846 | 851 | 861 | 877 | 884 | 886 | 851 | 822 | 795 |
| 30% | 761 | 760 | 791 | 829 | 849 | 859 | 870 | 877 | 865 | 828 | 801 | 777 |
| 40% | 734 | 735 | 769 | 811 | 849 | 850 | 866 | 868 | 856 | 821 | 774 | 742 |
| 50% | 720 | 721 | 740 | 771 | 822 | 847 | 856 | 850 | 837 | 781 | 740 | 733 |
| 60% | 710 | 697 | 721 | 741 | 779 | 814 | 831 | 826 | 807 | 748 | 733 | 722 |
| 70% | 693 | 683 | 687 | 724 | 756 | 791 | 804 | 807 | 783 | 733 | 717 | 708 |
| 80% | 683 | 666 | 668 | 690 | 733 | 760 | 775 | 778 | 750 | 727 | 710 | 696 |
| 90% | 645 | 649 | 649 | 669 | 690 | 723 | 738 | 749 | 728 | 693 | 678 | 663 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 725 | 724 | 741 | 767 | 794 | 813 | 827 | 831 | 816 | 776 | 750 | 737 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 808 | 806 | 811 | 835 | 853 | 858 | 876 | 886 | 884 | 854 | 829 | 819 |
| Above Normal (16%) | 740 | 739 | 752 | 786 | 832 | 859 | 869 | 873 | 864 | 825 | 782 | 753 |
| Below Normal (13%) | 712 | 702 | 712 | 773 | 807 | 821 | 829 | 831 | 815 | 759 | 734 | 725 |
| Dry (24%) | 691 | 692 | 726 | 712 | 741 | 776 | 798 | 800 | 772 | 729 | 712 | 703 |
| Critical (15%) | 601 | 604 | 626 | 684 | 699 | 721 | 723 | 719 | 689 | 650 | 620 | 609 |

### Alternative 4 043019 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 38 | 35 | 0 | 0 | 0 | **-1** | **-6** | **-4** | **-5** | **-3** | **-3** | 36 |
| 20% | 27 | 33 | 21 | **-1** | 2 | 0 | **-7** | **-16** | **-14** | **-10** | **-11** | 10 |
| 30% | 9 | 5 | 19 | 7 | 0 | 1 | **-12** | **-20** | **-23** | **-25** | **-20** | 4 |
| 40% | **0** | 1 | 14 | 32 | 8 | 1 | **-12** | **-20** | **-21** | **-16** | **-23** | **-9** |
| 50% | **-6** | **-3** | 6 | 8 | 18 | 5 | **-1** | **-13** | **-19** | **-32** | **-25** | **0** |
| 60% | **-2** | **-6** | **-2** | 6 | **-7** | **-6** | **-9** | **-18** | **-20** | **-18** | **0** | **-1** |
| 70% | **-3** | **-7** | **-4** | **-1** | **-1** | **-4** | **-6** | **-9** | **-7** | **0** | **-2** | **-2** |
| 80% | **-1** | **-7** | **-8** | **-7** | **-3** | **-10** | **-10** | **-5** | **-14** | **-5** | **-1** | **-3** |
| 90% | **-3** | **-1** | **-4** | **-8** | **-8** | **-2** | 0 | 3 | 12 | 9 | 13 | 6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6 | 7 | 6 | 3 | 0 | **-2** | **-8** | **-10** | **-12** | **-11** | **-10** | 4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 28 | 29 | 25 | 0 | **0** | **-1** | **-8** | **-11** | **-10** | **-10** | **-11** | 20 |
| Above Normal (16%) | **-6** | **-3** | **-2** | 8 | 5 | 1 | **-12** | **-18** | **-20** | **-19** | **-24** | **-9** |
| Below Normal (13%) | **-7** | **-7** | **-9** | 14 | 6 | **-3** | **-14** | **-15** | **-20** | **-26** | **-10** | **-2** |
| Dry (24%) | **-4** | **-5** | **-4** | 1 | **-4** | **-6** | **-7** | **-8** | **-11** | **-6** | **-5** | **-3** |
| Critical (15%) | 3 | 4 | 4 | **-1** | **-2** | **-1** | **0** | **0** | **-4** | **-3** | **-1** | 1 |

a Based on the 82-year simulation period.

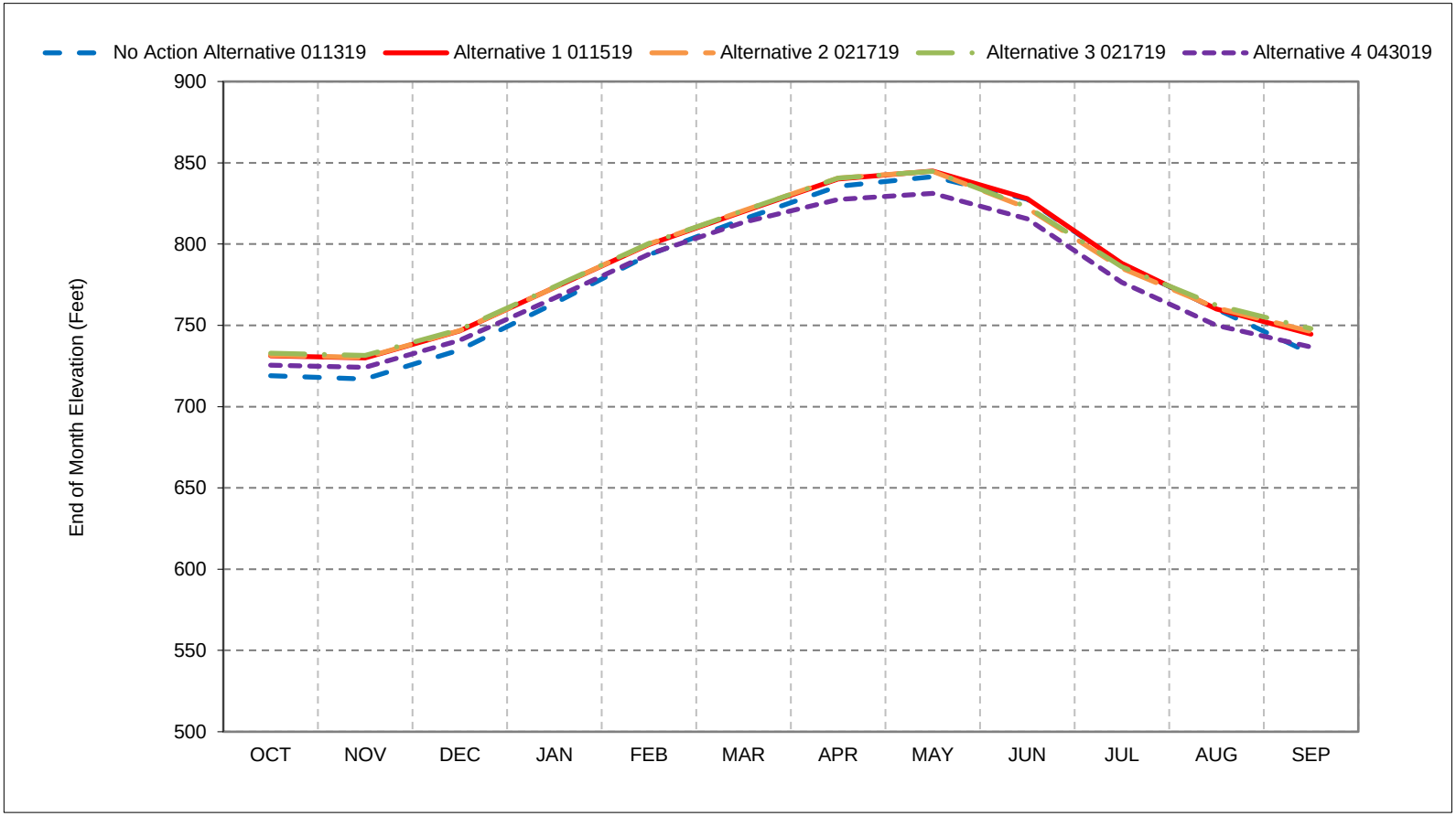
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

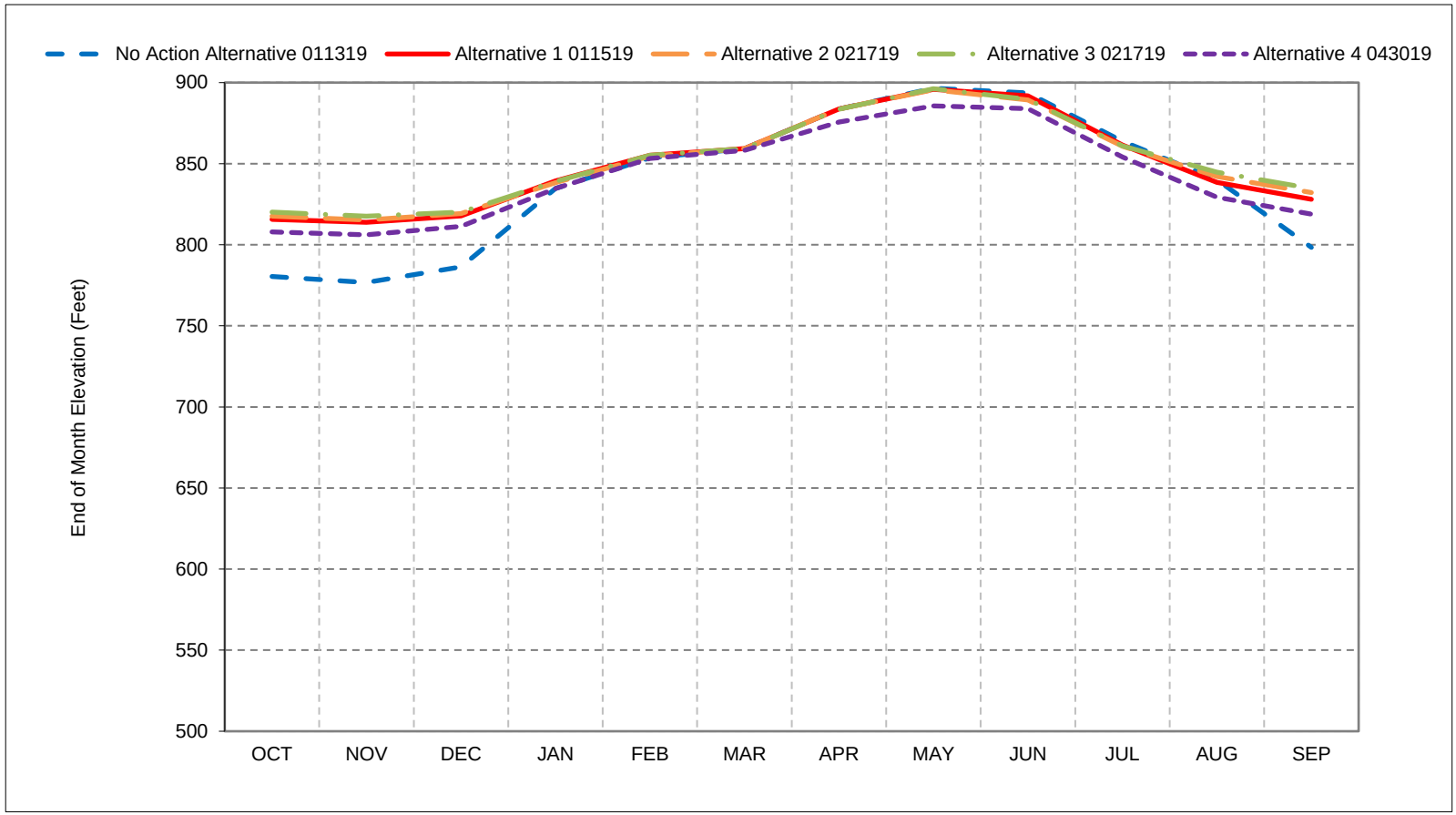
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4a-1. Lake Oroville Elevation, Long-Term Average Elevation



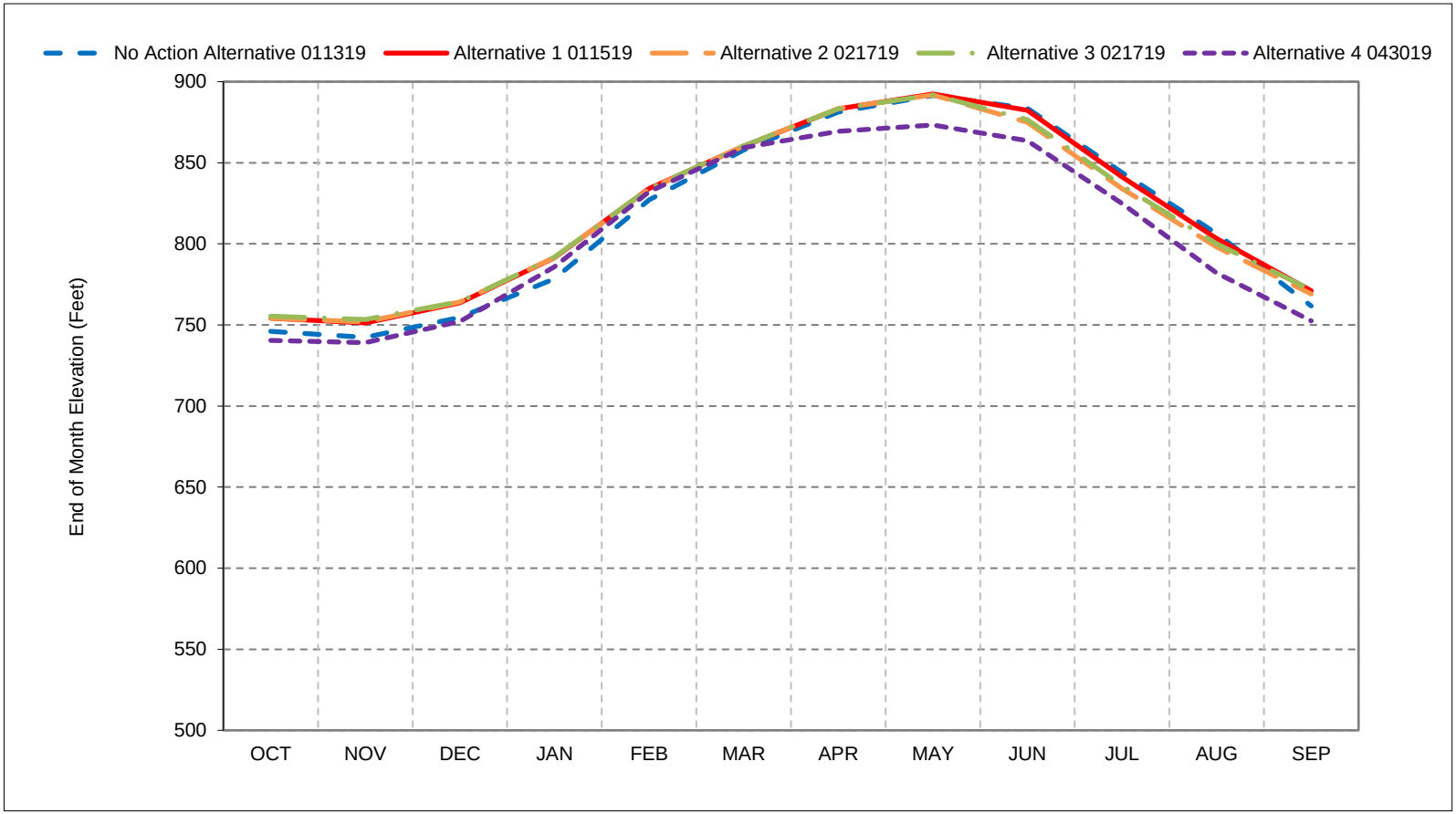

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4a-2. Lake Oroville Elevation, Wet Year Average Elevation



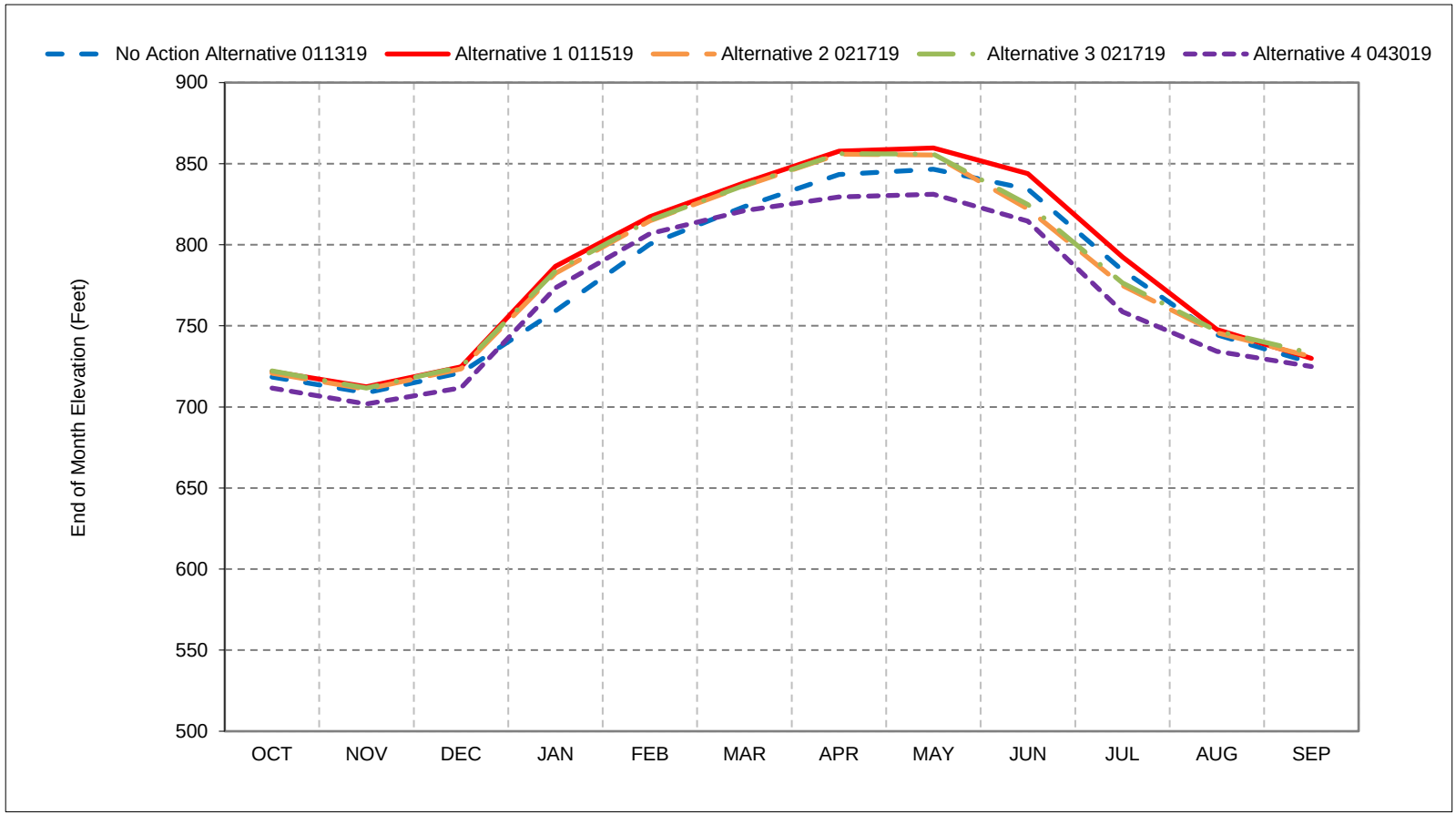

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4a-3. Lake Oroville Elevation, Above Normal Year Average Elevation



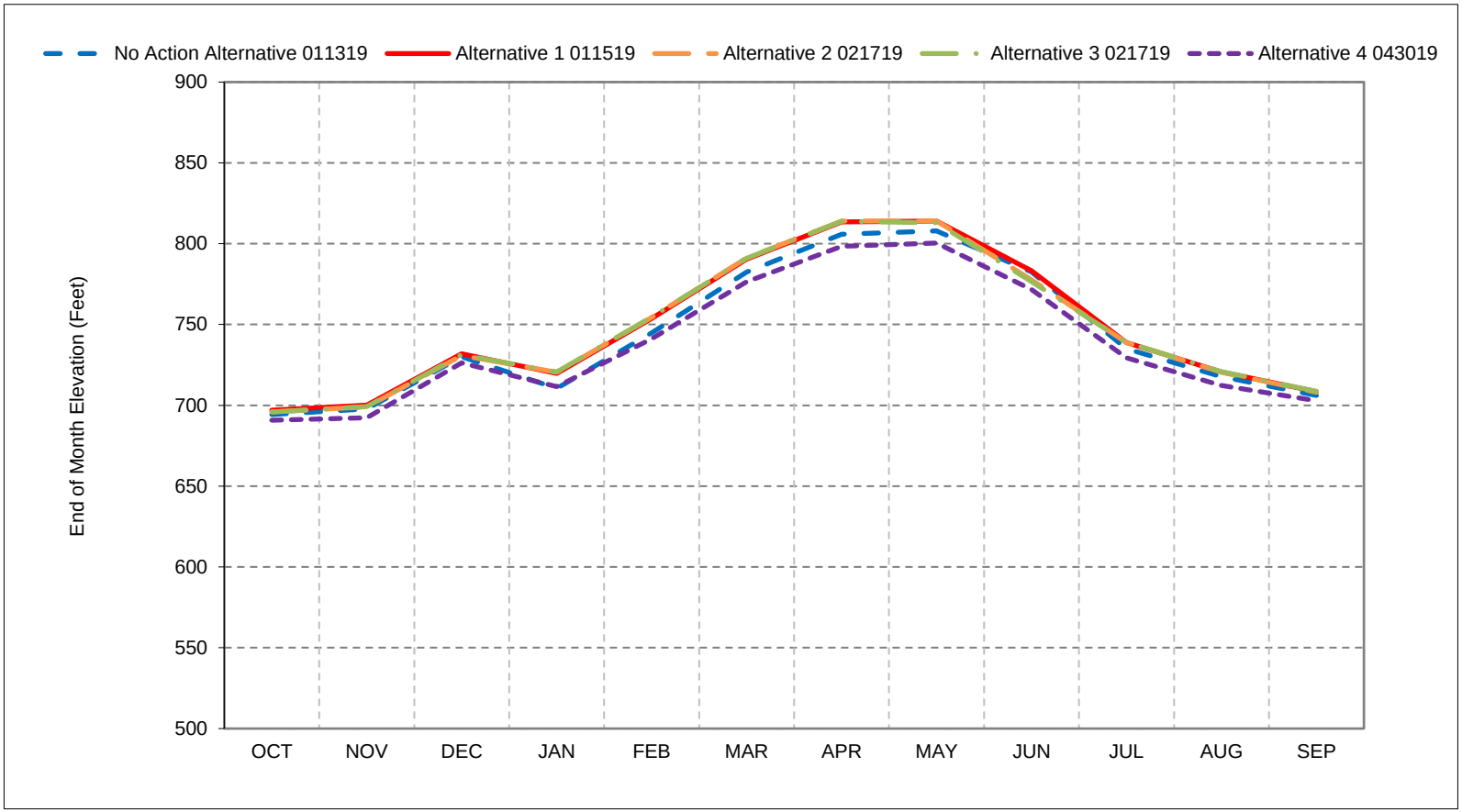

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4a-4. Lake Oroville Elevation, Below Normal Year Average Elevation



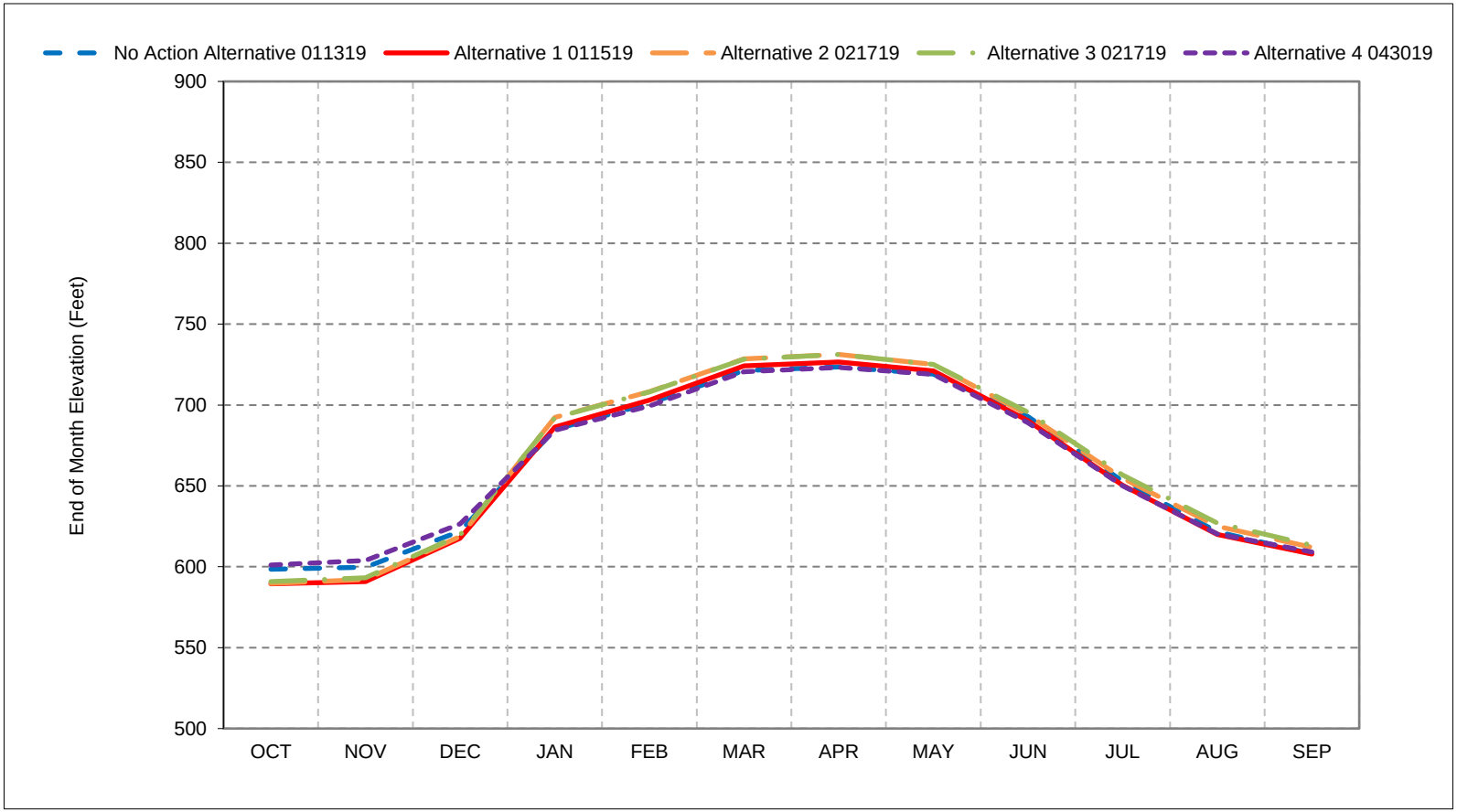

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4a-5. Lake Oroville Elevation, Dry Year Average Elevation



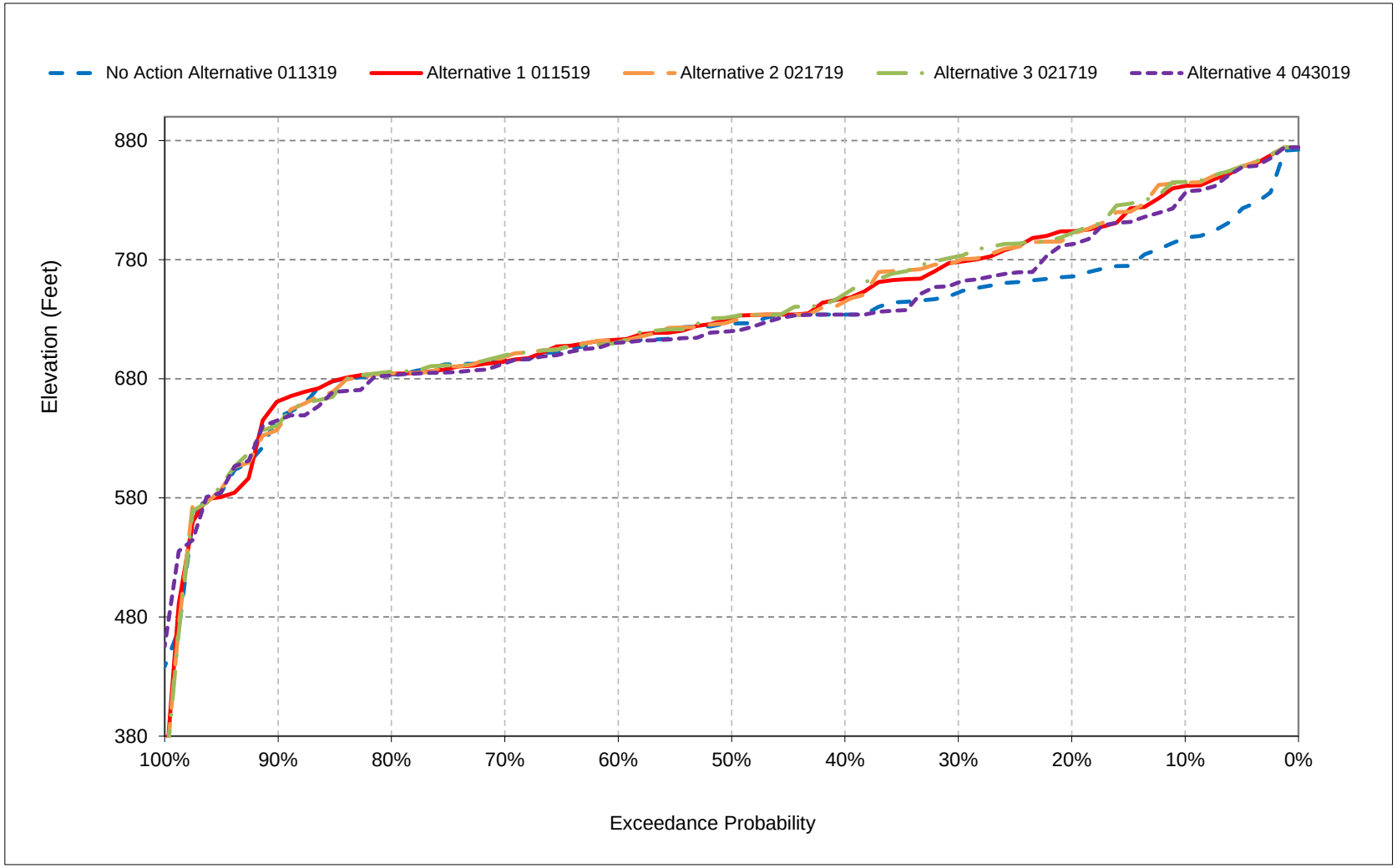

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4a-6. Lake Oroville Elevation, Critical Year Average Elevation




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

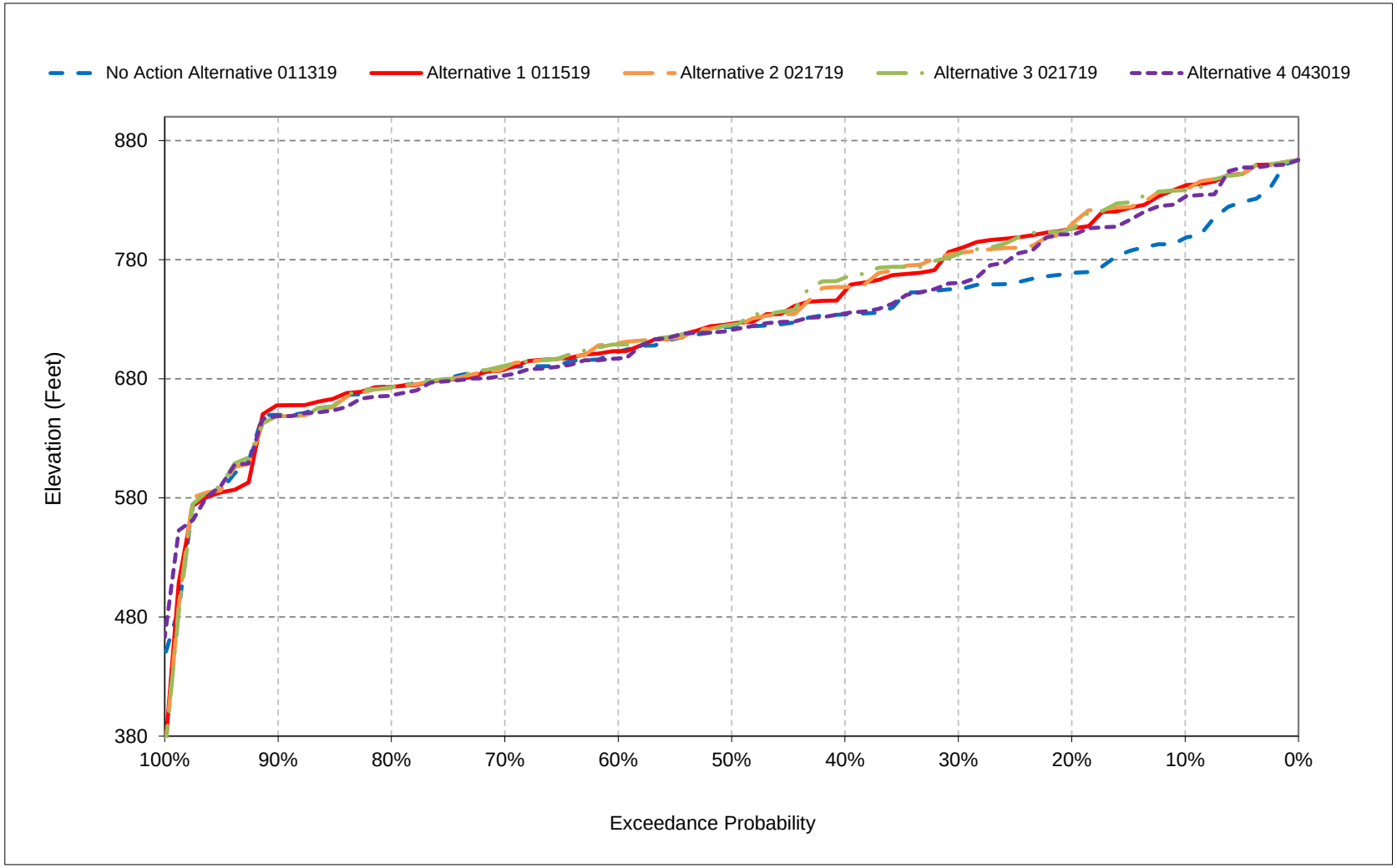
**Figure 4a-7. Lake Oroville, Reservoir Pool Elevation, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

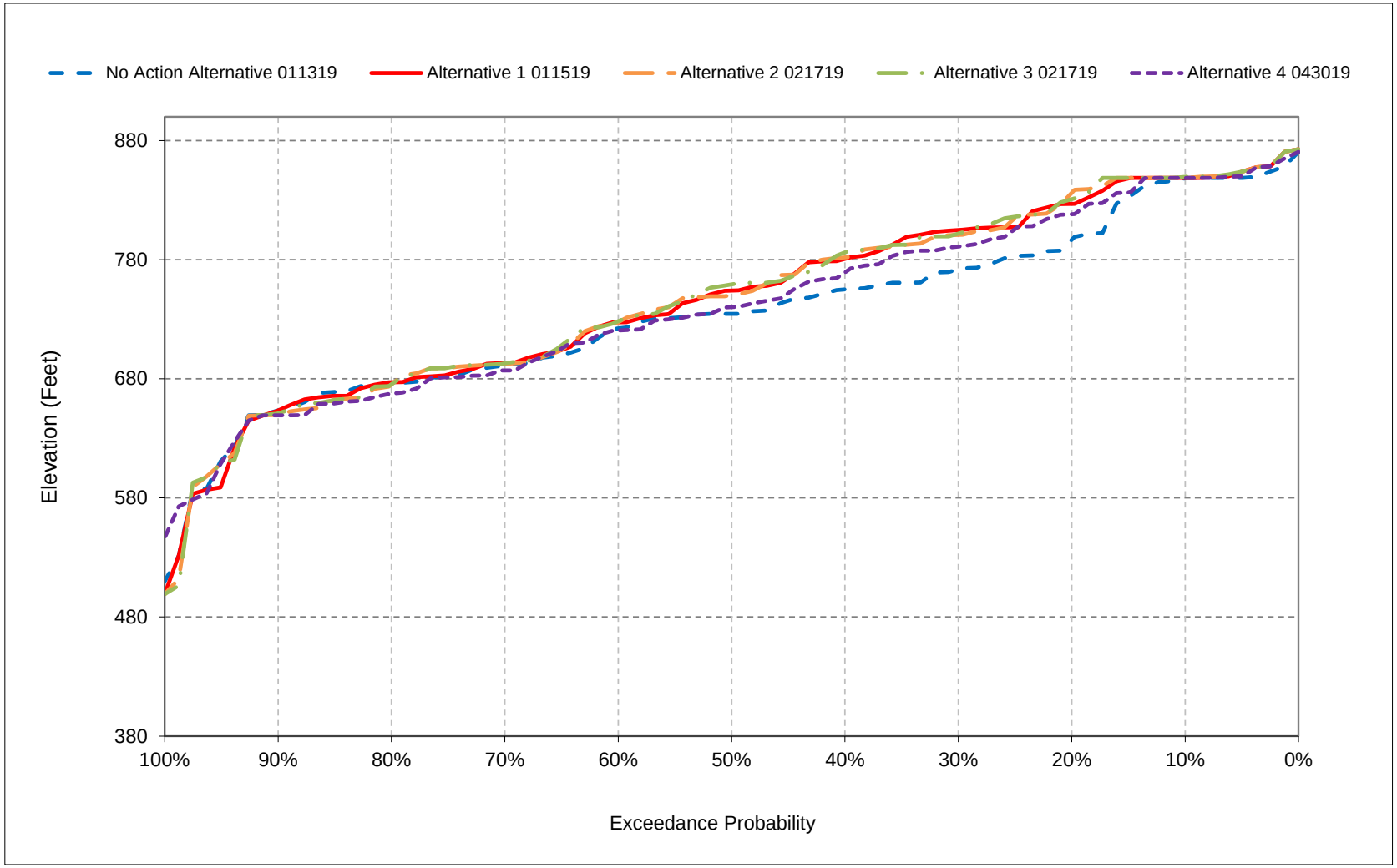
**Figure 4a-8. Lake Oroville, Reservoir Pool Elevation, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

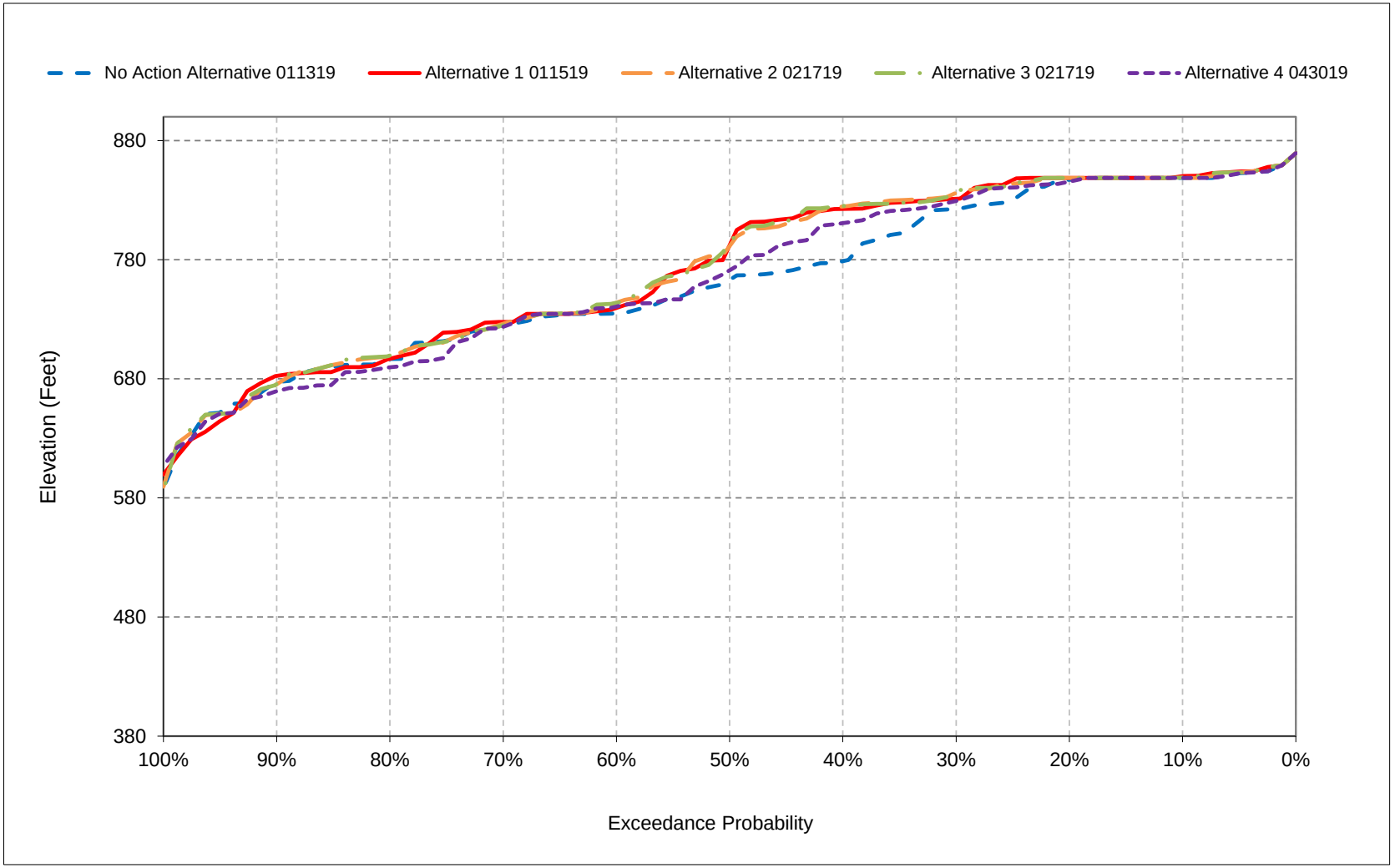
**Figure 4a-9. Lake Oroville, Reservoir Pool Elevation, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

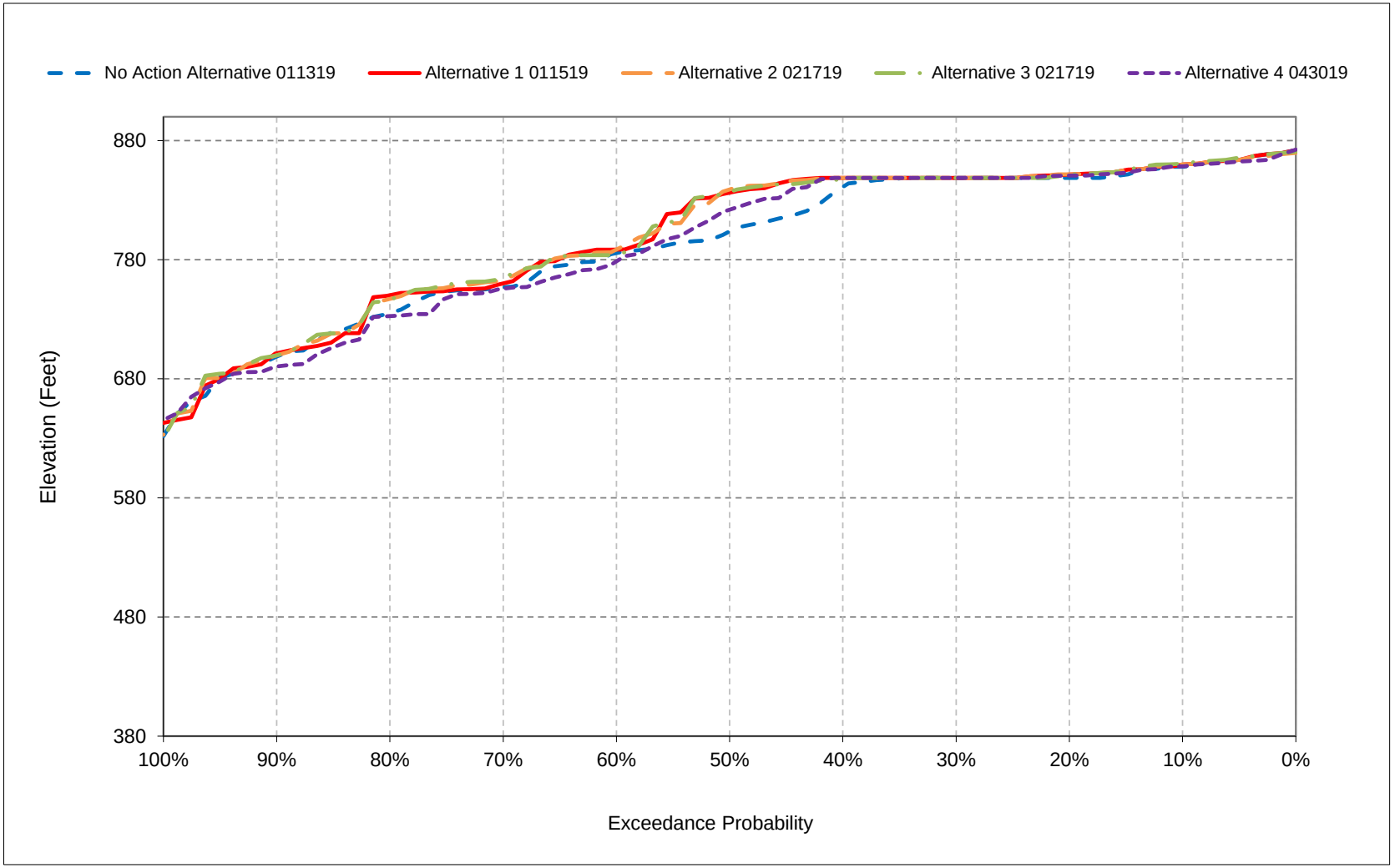
**Figure 4a-10. Lake Oroville, Reservoir Pool Elevation, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

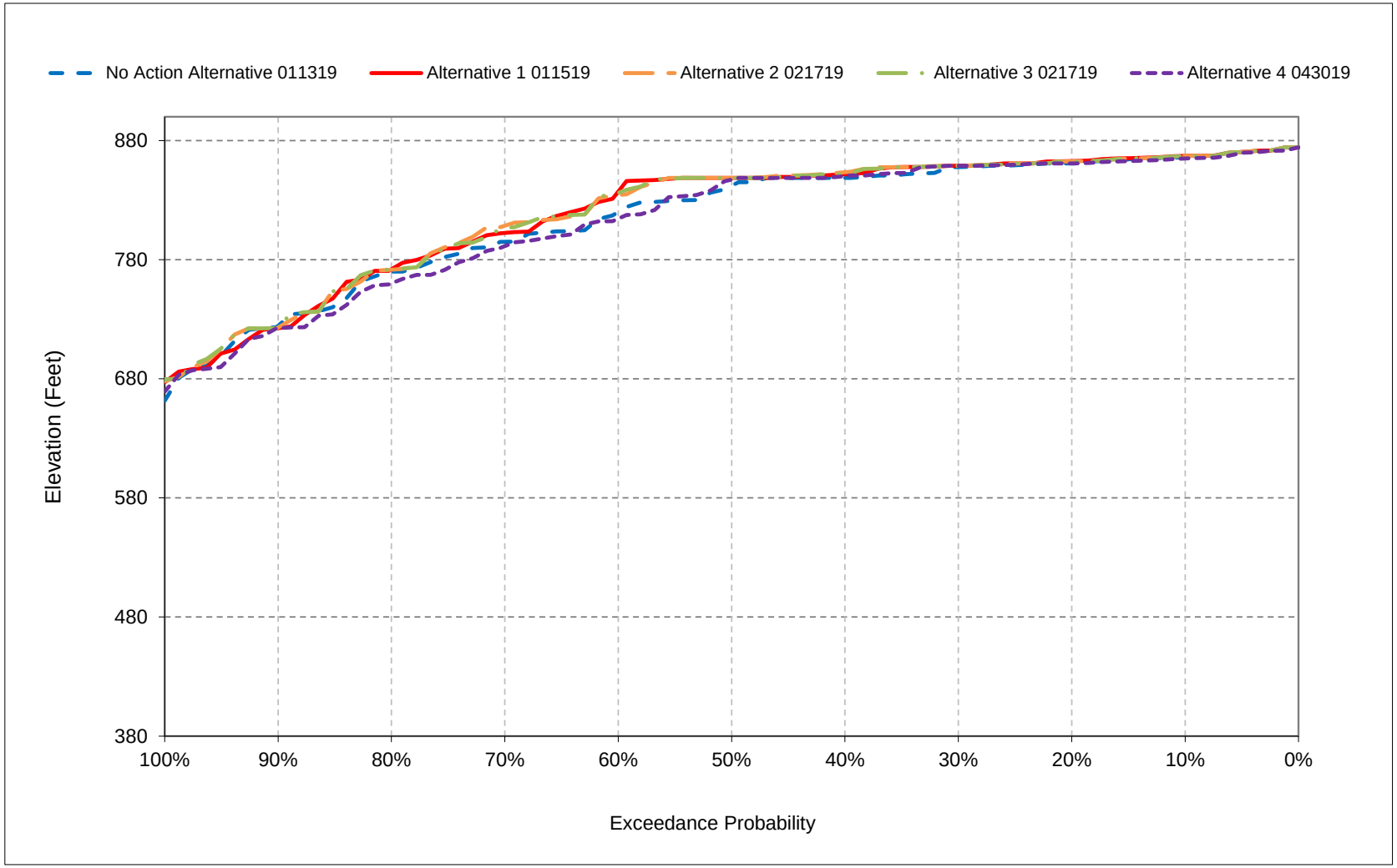
**Figure 4a-11. Lake Oroville, Reservoir Pool Elevation, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

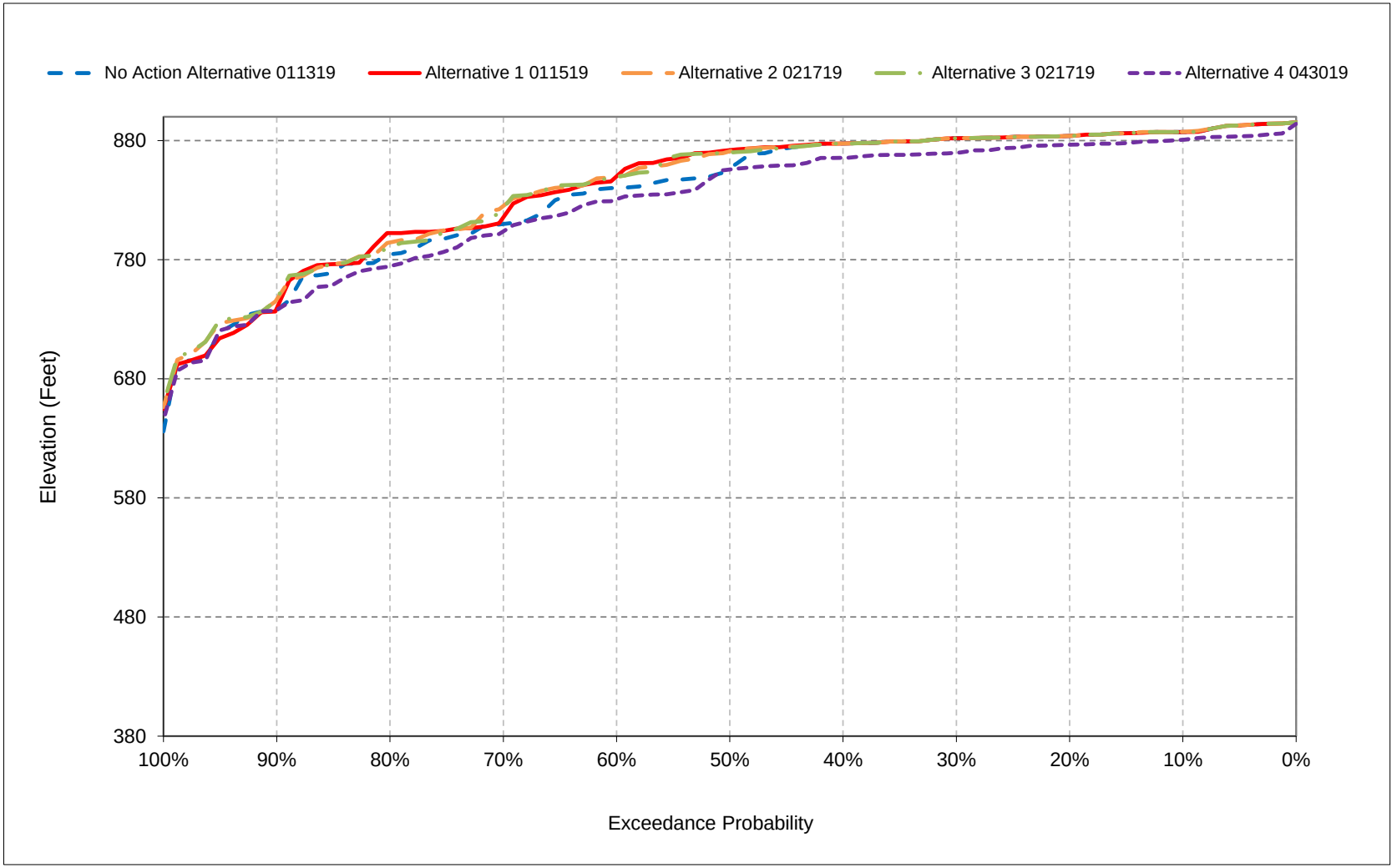
**Figure 4a-12. Lake Oroville, Reservoir Pool Elevation, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

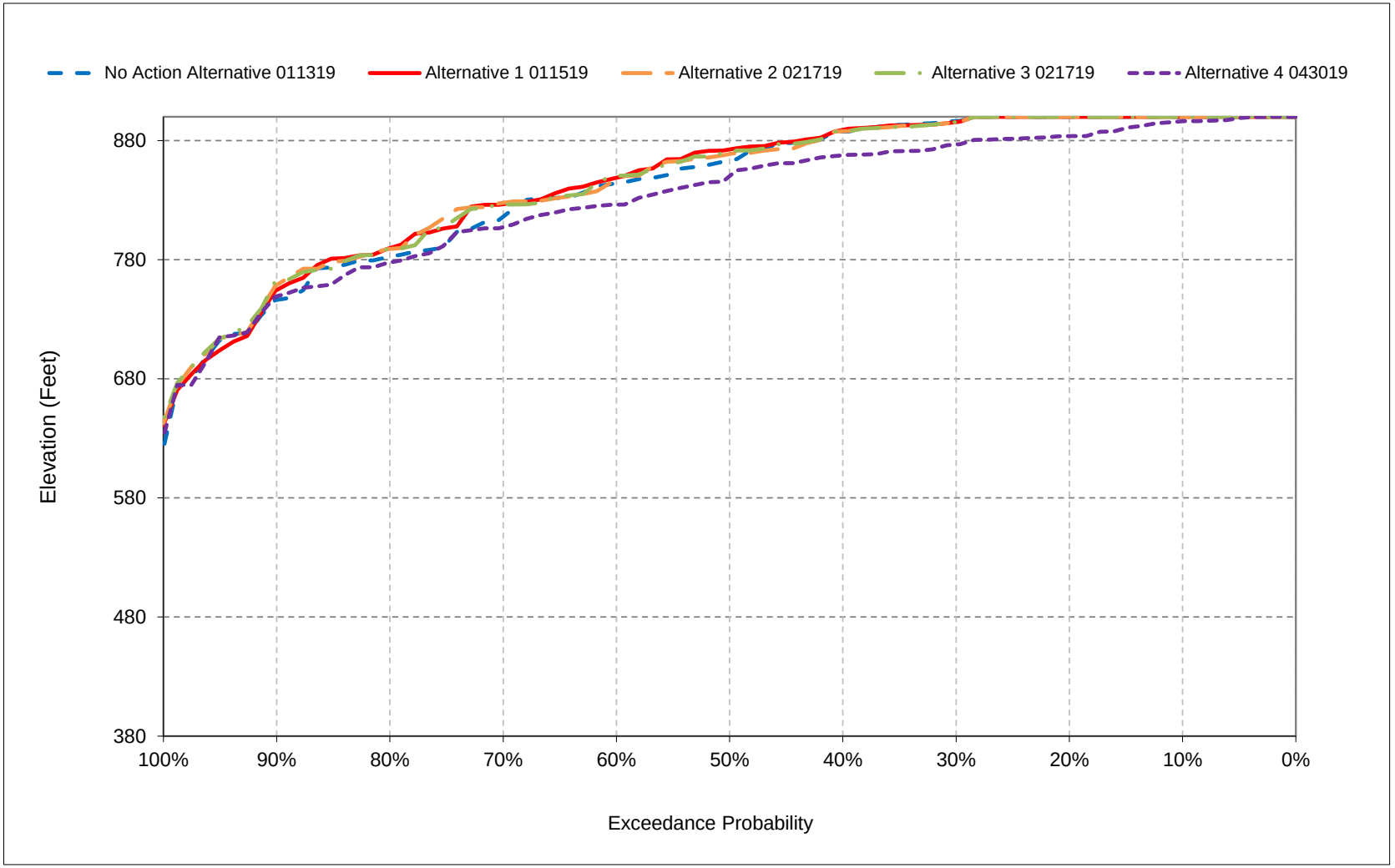
**Figure 4a-13. Lake Oroville, Reservoir Pool Elevation, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

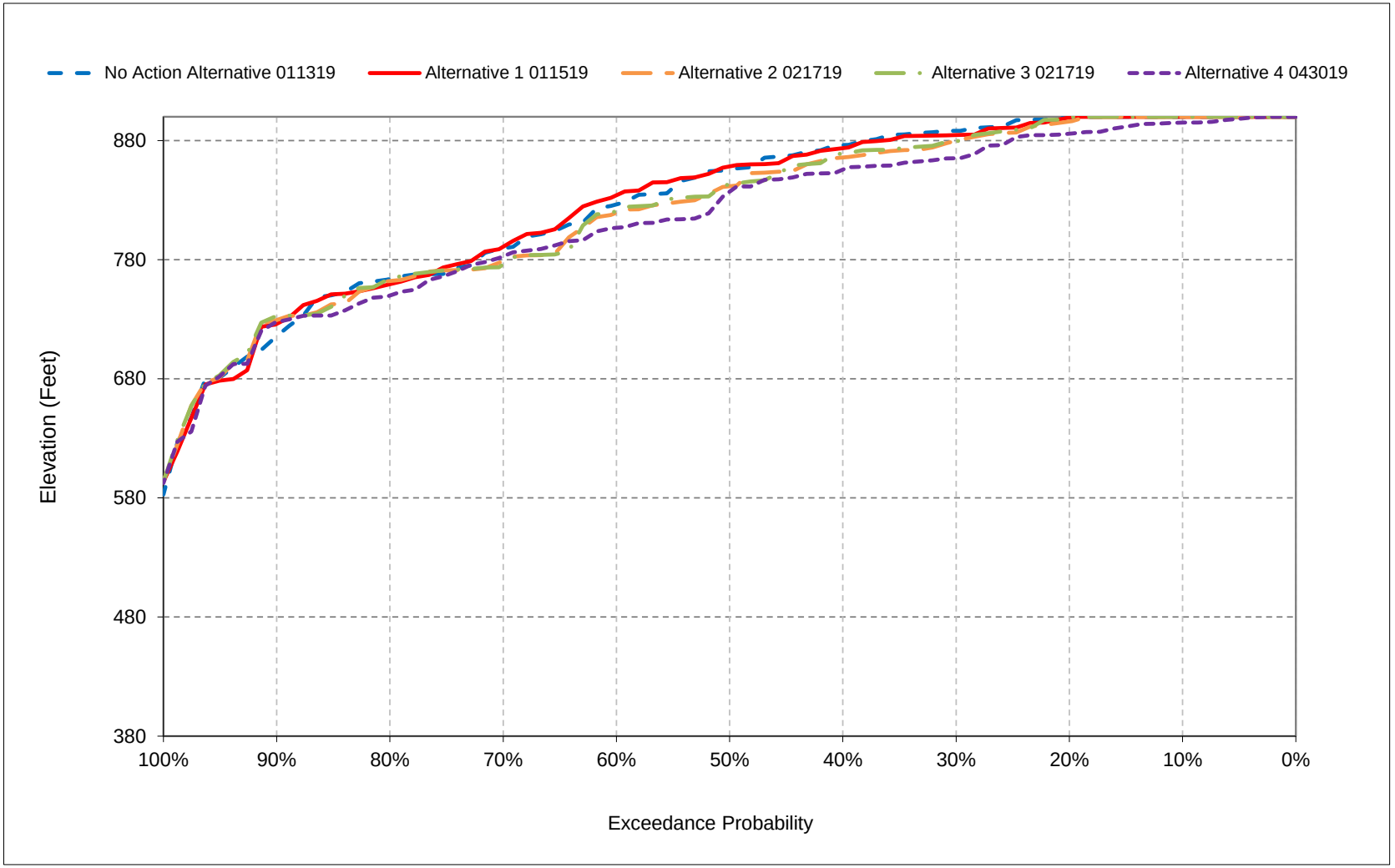
**Figure 4a-14. Lake Oroville, Reservoir Pool Elevation, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

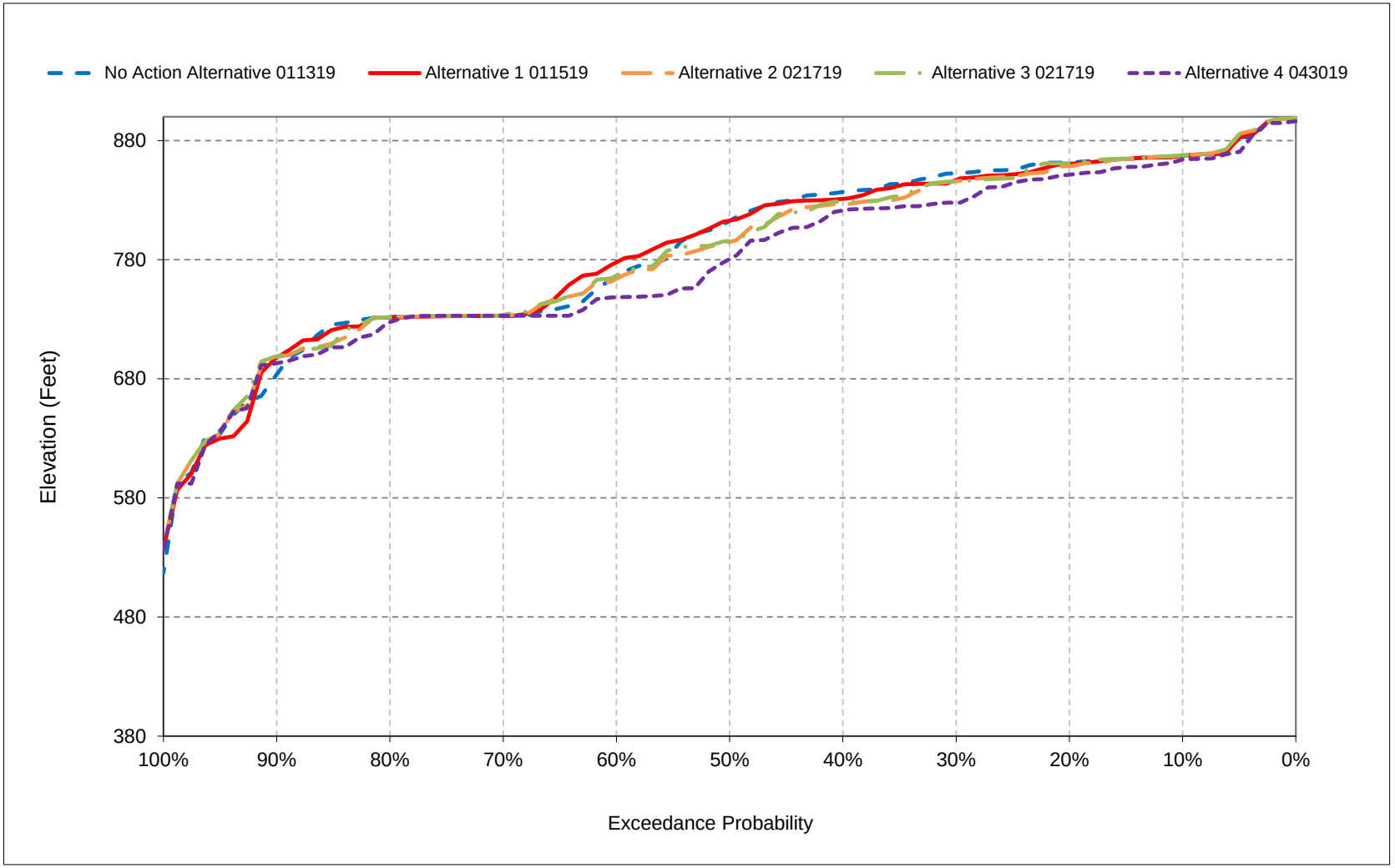
**Figure 4a-15. Lake Oroville, Reservoir Pool Elevation, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

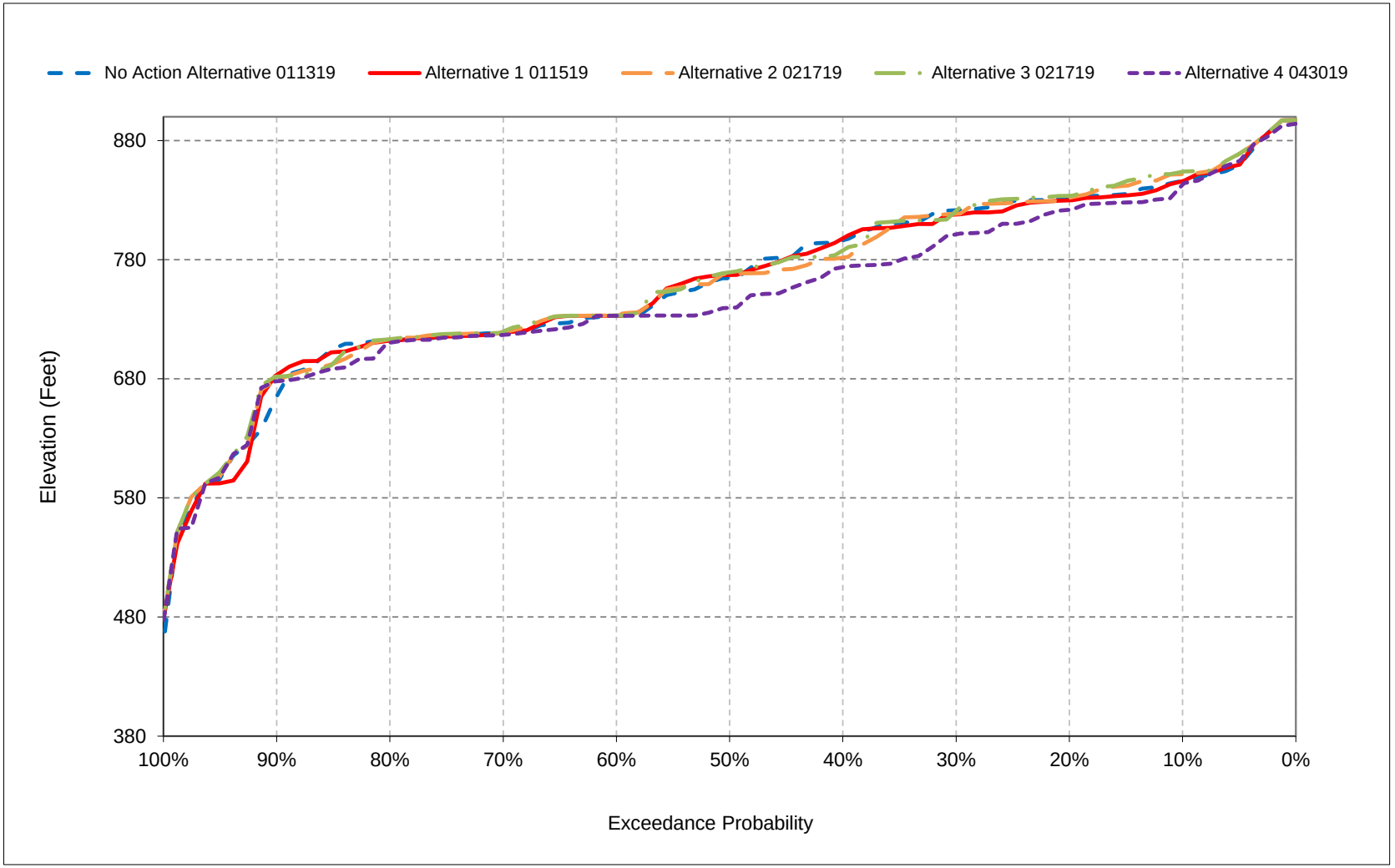
**Figure 4a-16. Lake Oroville, Reservoir Pool Elevation, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

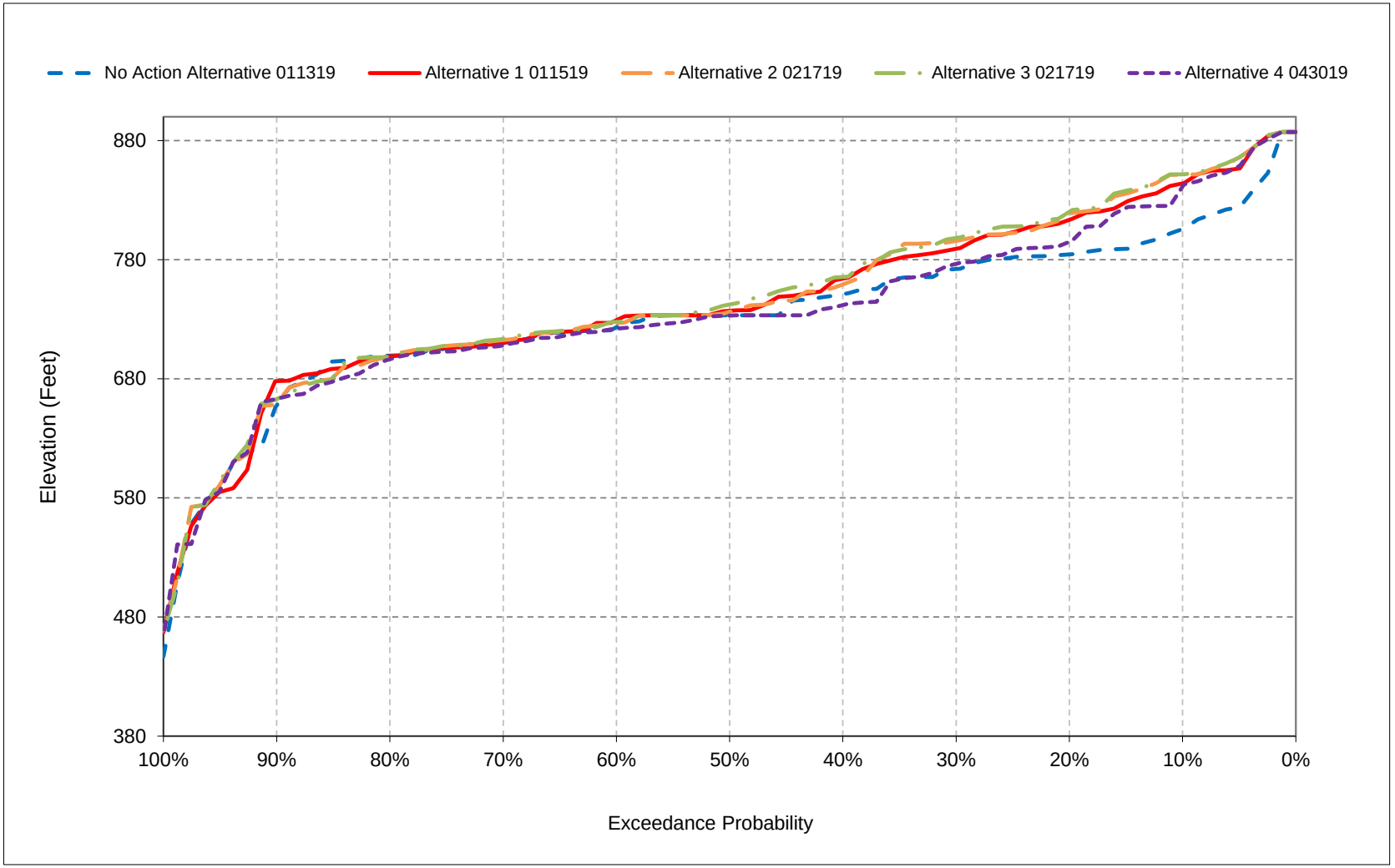
**Figure 4a-17. Lake Oroville, Reservoir Pool Elevation, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 4a-18. Lake Oroville, Reservoir Pool Elevation, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 5-1. Folsom Lake Storage, End of Month Storage

## No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 592 | 542 | 567 | 567 | 567 | 659 | 792 | 967 | 967 | 913 | 792 | 681 |
| 20% | 534 | 489 | 567 | 564 | 566 | 656 | 792 | 967 | 967 | 849 | 755 | 618 |
| 30% | 492 | 457 | 521 | 557 | 558 | 652 | 792 | 967 | 955 | 755 | 683 | 570 |
| 40% | 452 | 425 | 484 | 525 | 553 | 646 | 792 | 967 | 910 | 663 | 574 | 516 |
| 50% | 403 | 413 | 447 | 482 | 530 | 632 | 792 | 960 | 842 | 599 | 532 | 474 |
| 60% | 358 | 392 | 414 | 436 | 491 | 621 | 787 | 852 | 767 | 522 | 460 | 408 |
| 70% | 327 | 347 | 382 | 412 | 457 | 599 | 731 | 751 | 667 | 450 | 399 | 380 |
| 80% | 282 | 304 | 345 | 369 | 408 | 524 | 598 | 613 | 533 | 412 | 350 | 303 |
| 90% | 256 | 240 | 257 | 294 | 368 | 409 | 488 | 481 | 433 | 350 | 305 | 262 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 411 | 396 | 437 | 457 | 486 | 586 | 709 | 816 | 763 | 606 | 531 | 465 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 500 | 439 | 477 | 517 | 515 | 632 | 784 | 950 | 935 | 795 | 698 | 583 |
| Above Normal (16%) | 416 | 412 | 455 | 506 | 527 | 640 | 786 | 944 | 873 | 607 | 540 | 475 |
| Below Normal (13%) | 420 | 411 | 447 | 484 | 531 | 617 | 754 | 834 | 771 | 549 | 483 | 451 |
| Dry (24%) | 389 | 407 | 433 | 419 | 475 | 568 | 682 | 751 | 665 | 531 | 462 | 429 |
| Critical (15%) | 242 | 250 | 331 | 314 | 358 | 430 | 463 | 477 | 428 | 374 | 318 | 271 |

## Alternative 1 011519

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 697 | 567 | 567 | 567 | 567 | 659 | 792 | 967 | 967 | 915 | 792 | 745 |
| 20% | 635 | 565 | 567 | 567 | 567 | 656 | 792 | 967 | 967 | 851 | 747 | 670 |
| 30% | 573 | 538 | 567 | 566 | 564 | 652 | 792 | 967 | 952 | 773 | 692 | 633 |
| 40% | 495 | 521 | 541 | 558 | 558 | 642 | 792 | 967 | 883 | 669 | 587 | 531 |
| 50% | 417 | 461 | 508 | 543 | 553 | 631 | 792 | 959 | 825 | 597 | 524 | 472 |
| 60% | 390 | 423 | 470 | 502 | 528 | 621 | 788 | 880 | 766 | 551 | 488 | 437 |
| 70% | 369 | 382 | 423 | 453 | 477 | 606 | 729 | 751 | 657 | 515 | 452 | 398 |
| 80% | 341 | 353 | 385 | 417 | 448 | 556 | 653 | 649 | 577 | 435 | 373 | 349 |
| 90% | 250 | 283 | 305 | 348 | 394 | 467 | 534 | 547 | 483 | 371 | 304 | 269 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 459 | 444 | 472 | 488 | 503 | 594 | 716 | 824 | 765 | 623 | 544 | 495 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 612 | 533 | 527 | 523 | 515 | 632 | 786 | 954 | 930 | 809 | 712 | 663 |
| Above Normal (16%) | 451 | 449 | 487 | 538 | 539 | 640 | 789 | 948 | 867 | 628 | 558 | 505 |
| Below Normal (13%) | 397 | 405 | 447 | 544 | 548 | 623 | 756 | 828 | 754 | 547 | 461 | 415 |
| Dry (24%) | 418 | 445 | 463 | 442 | 498 | 581 | 697 | 769 | 680 | 562 | 489 | 442 |
| Critical (15%) | 261 | 282 | 373 | 383 | 405 | 460 | 484 | 496 | 447 | 382 | 331 | 283 |

## Alternative 1 011519 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 105 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 64 |
| 20% | 101 | 76 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 2 | **-8** | 52 |
| 30% | 81 | 81 | 46 | 9 | 6 | 0 | 0 | 0 | **-3** | 18 | 9 | 63 |
| 40% | 43 | 96 | 57 | 33 | 5 | **-4** | 0 | 0 | **-28** | 6 | 13 | 15 |
| 50% | 14 | 47 | 60 | 62 | 23 | **-2** | 0 | **0** | **-17** | **-2** | **-7** | **-2** |
| 60% | 32 | 32 | 56 | 66 | 37 | 0 | 1 | 28 | **-1** | 29 | 28 | 29 |
| 70% | 42 | 34 | 41 | 41 | 20 | 7 | **-2** | **-1** | **-11** | 65 | 53 | 18 |
| 80% | 59 | 49 | 40 | 48 | 40 | 31 | 55 | 36 | 44 | 22 | 23 | 47 |
| 90% | **-6** | 43 | 48 | 54 | 26 | 57 | 46 | 65 | 50 | 20 | **-1** | 7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 48 | 49 | 35 | 31 | 17 | 8 | 8 | 8 | 2 | 17 | 13 | 30 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 113 | 94 | 50 | 6 | 0 | **0** | 2 | 4 | **-4** | 15 | 14 | 80 |
| Above Normal (16%) | 35 | 37 | 32 | 32 | 13 | 0 | 3 | 4 | **-6** | 21 | 18 | 30 |
| Below Normal (13%) | **-22** | **-6** | **0** | 60 | 17 | 6 | 2 | **-6** | **-16** | **-2** | **-22** | **-35** |
| Dry (24%) | 29 | 39 | 31 | 23 | 23 | 13 | 15 | 18 | 15 | 31 | 28 | 13 |
| Critical (15%) | 20 | 31 | 43 | 69 | 47 | 30 | 20 | 19 | 19 | 8 | 14 | 12 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 5-2. Folsom Lake Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 592 | 542 | 567 | 567 | 567 | 659 | 792 | 967 | 967 | 913 | 792 | 681 |
| 20% | 534 | 489 | 567 | 564 | 566 | 656 | 792 | 967 | 967 | 849 | 755 | 618 |
| 30% | 492 | 457 | 521 | 557 | 558 | 652 | 792 | 967 | 955 | 755 | 683 | 570 |
| 40% | 452 | 425 | 484 | 525 | 553 | 646 | 792 | 967 | 910 | 663 | 574 | 516 |
| 50% | 403 | 413 | 447 | 482 | 530 | 632 | 792 | 960 | 842 | 599 | 532 | 474 |
| 60% | 358 | 392 | 414 | 436 | 491 | 621 | 787 | 852 | 767 | 522 | 460 | 408 |
| 70% | 327 | 347 | 382 | 412 | 457 | 599 | 731 | 751 | 667 | 450 | 399 | 380 |
| 80% | 282 | 304 | 345 | 369 | 408 | 524 | 598 | 613 | 533 | 412 | 350 | 303 |
| 90% | 256 | 240 | 257 | 294 | 368 | 409 | 488 | 481 | 433 | 350 | 305 | 262 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 411 | 396 | 437 | 457 | 486 | 586 | 709 | 816 | 763 | 606 | 531 | 465 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 500 | 439 | 477 | 517 | 515 | 632 | 784 | 950 | 935 | 795 | 698 | 583 |
| Above Normal (16%) | 416 | 412 | 455 | 506 | 527 | 640 | 786 | 944 | 873 | 607 | 540 | 475 |
| Below Normal (13%) | 420 | 411 | 447 | 484 | 531 | 617 | 754 | 834 | 771 | 549 | 483 | 451 |
| Dry (24%) | 389 | 407 | 433 | 419 | 475 | 568 | 682 | 751 | 665 | 531 | 462 | 429 |
| Critical (15%) | 242 | 250 | 331 | 314 | 358 | 430 | 463 | 477 | 428 | 374 | 318 | 271 |

### Alternative 2 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 691 | 567 | 567 | 567 | 567 | 661 | 792 | 967 | 967 | 915 | 792 | 752 |
| 20% | 610 | 565 | 567 | 567 | 566 | 656 | 792 | 967 | 967 | 834 | 741 | 665 |
| 30% | 557 | 538 | 562 | 562 | 558 | 652 | 792 | 967 | 922 | 759 | 668 | 601 |
| 40% | 473 | 490 | 522 | 554 | 554 | 644 | 792 | 965 | 862 | 630 | 554 | 512 |
| 50% | 372 | 412 | 476 | 512 | 533 | 632 | 792 | 942 | 756 | 546 | 473 | 424 |
| 60% | 337 | 378 | 434 | 466 | 492 | 621 | 787 | 840 | 664 | 465 | 405 | 383 |
| 70% | 300 | 338 | 376 | 423 | 457 | 595 | 728 | 734 | 592 | 414 | 367 | 345 |
| 80% | 278 | 292 | 339 | 373 | 428 | 544 | 633 | 625 | 542 | 370 | 321 | 302 |
| 90% | 214 | 254 | 264 | 290 | 384 | 451 | 484 | 469 | 435 | 277 | 258 | 225 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 425 | 416 | 449 | 468 | 490 | 588 | 709 | 809 | 730 | 578 | 504 | 466 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 594 | 529 | 527 | 523 | 515 | 632 | 784 | 946 | 914 | 795 | 687 | 647 |
| Above Normal (16%) | 392 | 412 | 468 | 536 | 537 | 640 | 787 | 939 | 802 | 536 | 472 | 437 |
| Below Normal (13%) | 361 | 379 | 432 | 515 | 541 | 625 | 762 | 827 | 702 | 479 | 405 | 369 |
| Dry (24%) | 382 | 398 | 425 | 422 | 477 | 573 | 686 | 745 | 651 | 519 | 462 | 428 |
| Critical (15%) | 226 | 238 | 317 | 311 | 356 | 429 | 451 | 457 | 413 | 345 | 304 | 257 |

### Alternative 2 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 99 | 25 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 71 |
| 20% | 76 | 76 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | **-15** | **-14** | 47 |
| 30% | 65 | 81 | 42 | 5 | 0 | 0 | 0 | 0 | **-33** | 4 | **-15** | 31 |
| 40% | 20 | 65 | 38 | 29 | 2 | **-2** | 0 | **-2** | **-48** | **-32** | **-19** | **-4** |
| 50% | **-31** | **-1** | 29 | 30 | 3 | **0** | 0 | **-18** | **-86** | **-53** | **-59** | **-50** |
| 60% | **-21** | **-14** | 20 | 30 | 1 | **0** | 0 | **-12** | **-103** | **-57** | **-54** | **-25** |
| 70% | **-27** | **-9** | **-6** | 11 | 0 | **-4** | **-3** | **-18** | **-75** | **-36** | **-32** | **-35** |
| 80% | **-4** | **-12** | **-6** | 3 | 20 | 19 | 36 | 12 | 8 | **-42** | **-28** | **0** |
| 90% | **-42** | 14 | 7 | **-3** | 16 | 42 | **-4** | **-12** | 2 | **-73** | **-48** | **-37** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 14 | 20 | 12 | 11 | 3 | 2 | 0 | **-7** | **-33** | **-28** | **-27** | 1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 94 | 90 | 49 | 6 | 0 | **0** | **0** | **-3** | **-21** | 0 | **-12** | 64 |
| Above Normal (16%) | **-24** | 0 | 13 | 29 | 10 | 0 | 1 | **-5** | **-71** | **-71** | **-68** | **-38** |
| Below Normal (13%) | **-59** | **-32** | **-15** | 31 | 10 | 8 | 7 | **-7** | **-68** | **-70** | **-79** | **-81** |
| Dry (24%) | **-7** | **-8** | **-7** | 2 | 3 | 5 | 4 | **-6** | **-14** | **-11** | 0 | **-1** |
| Critical (15%) | **-16** | **-13** | **-14** | **-3** | **-2** | **-1** | **-12** | **-20** | **-15** | **-29** | **-14** | **-14** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 5-3. Folsom Lake Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 592 | 542 | 567 | 567 | 567 | 659 | 792 | 967 | 967 | 913 | 792 | 681 |
| 20% | 534 | 489 | 567 | 564 | 566 | 656 | 792 | 967 | 967 | 849 | 755 | 618 |
| 30% | 492 | 457 | 521 | 557 | 558 | 652 | 792 | 967 | 955 | 755 | 683 | 570 |
| 40% | 452 | 425 | 484 | 525 | 553 | 646 | 792 | 967 | 910 | 663 | 574 | 516 |
| 50% | 403 | 413 | 447 | 482 | 530 | 632 | 792 | 960 | 842 | 599 | 532 | 474 |
| 60% | 358 | 392 | 414 | 436 | 491 | 621 | 787 | 852 | 767 | 522 | 460 | 408 |
| 70% | 327 | 347 | 382 | 412 | 457 | 599 | 731 | 751 | 667 | 450 | 399 | 380 |
| 80% | 282 | 304 | 345 | 369 | 408 | 524 | 598 | 613 | 533 | 412 | 350 | 303 |
| 90% | 256 | 240 | 257 | 294 | 368 | 409 | 488 | 481 | 433 | 350 | 305 | 262 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 411 | 396 | 437 | 457 | 486 | 586 | 709 | 816 | 763 | 606 | 531 | 465 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 500 | 439 | 477 | 517 | 515 | 632 | 784 | 950 | 935 | 795 | 698 | 583 |
| Above Normal (16%) | 416 | 412 | 455 | 506 | 527 | 640 | 786 | 944 | 873 | 607 | 540 | 475 |
| Below Normal (13%) | 420 | 411 | 447 | 484 | 531 | 617 | 754 | 834 | 771 | 549 | 483 | 451 |
| Dry (24%) | 389 | 407 | 433 | 419 | 475 | 568 | 682 | 751 | 665 | 531 | 462 | 429 |
| Critical (15%) | 242 | 250 | 331 | 314 | 358 | 430 | 463 | 477 | 428 | 374 | 318 | 271 |

### Alternative 3 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 699 | 567 | 567 | 567 | 567 | 661 | 792 | 967 | 967 | 915 | 792 | 752 |
| 20% | 603 | 565 | 567 | 565 | 567 | 656 | 792 | 967 | 967 | 843 | 741 | 666 |
| 30% | 544 | 536 | 562 | 562 | 559 | 652 | 792 | 967 | 948 | 754 | 671 | 597 |
| 40% | 484 | 484 | 525 | 553 | 554 | 644 | 792 | 965 | 876 | 635 | 563 | 521 |
| 50% | 371 | 412 | 480 | 520 | 534 | 630 | 792 | 941 | 769 | 558 | 475 | 429 |
| 60% | 327 | 379 | 446 | 466 | 496 | 621 | 789 | 847 | 690 | 472 | 407 | 379 |
| 70% | 305 | 345 | 395 | 421 | 456 | 595 | 728 | 729 | 592 | 414 | 368 | 349 |
| 80% | 286 | 297 | 333 | 378 | 424 | 553 | 628 | 626 | 536 | 383 | 328 | 305 |
| 90% | 248 | 255 | 246 | 290 | 383 | 435 | 487 | 479 | 430 | 300 | 278 | 246 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 428 | 417 | 451 | 468 | 490 | 589 | 709 | 810 | 735 | 583 | 508 | 470 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 593 | 530 | 527 | 524 | 515 | 632 | 784 | 950 | 917 | 790 | 686 | 649 |
| Above Normal (16%) | 390 | 411 | 469 | 536 | 537 | 640 | 787 | 939 | 819 | 549 | 474 | 431 |
| Below Normal (13%) | 376 | 387 | 436 | 514 | 541 | 625 | 759 | 824 | 704 | 498 | 426 | 389 |
| Dry (24%) | 384 | 396 | 424 | 423 | 481 | 577 | 689 | 748 | 654 | 519 | 463 | 429 |
| Critical (15%) | 232 | 243 | 324 | 306 | 353 | 427 | 450 | 456 | 412 | 354 | 309 | 262 |

### Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 107 | 25 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 71 |
| 20% | 69 | 76 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | **-6** | **-14** | 47 |
| 30% | 52 | 79 | 41 | 5 | 1 | 0 | 0 | 0 | **-7** | **-1** | **-12** | 27 |
| 40% | 32 | 59 | 41 | 28 | 2 | **-2** | 0 | **-2** | **-35** | **-28** | **-11** | 6 |
| 50% | **-32** | **-1** | 33 | 38 | 5 | **-3** | 0 | **-18** | **-73** | **-41** | **-57** | **-45** |
| 60% | **-30** | **-13** | 31 | 30 | 5 | **0** | 2 | **-6** | **-77** | **-51** | **-53** | **-29** |
| 70% | **-23** | **-3** | 13 | 9 | **-1** | **-4** | **-3** | **-23** | **-75** | **-36** | **-31** | **-31** |
| 80% | 4 | **-7** | **-12** | 8 | 16 | 29 | 30 | 13 | 3 | **-29** | **-22** | 2 |
| 90% | **-8** | 16 | **-11** | **-3** | 15 | 26 | **0** | **-3** | **-4** | **-50** | **-28** | **-16** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 17 | 22 | 13 | 11 | 4 | 3 | 1 | **-6** | **-28** | **-23** | **-23** | 5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 94 | 91 | 50 | 7 | 0 | **0** | **0** | **0** | **-18** | **-5** | **-13** | 66 |
| Above Normal (16%) | **-27** | **-1** | 13 | 30 | 10 | 0 | 1 | **-5** | **-54** | **-59** | **-66** | **-43** |
| Below Normal (13%) | **-44** | **-24** | **-11** | 30 | 10 | 8 | 5 | **-10** | **-66** | **-51** | **-58** | **-61** |
| Dry (24%) | **-6** | **-10** | **-9** | 4 | 6 | 9 | 7 | **-4** | **-12** | **-11** | 1 | 1 |
| Critical (15%) | **-9** | **-7** | **-7** | **-8** | **-4** | **-3** | **-13** | **-21** | **-16** | **-20** | **-9** | **-9** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 5-4. Folsom Lake Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 592 | 542 | 567 | 567 | 567 | 659 | 792 | 967 | 967 | 913 | 792 | 681 |
| 20% | 534 | 489 | 567 | 564 | 566 | 656 | 792 | 967 | 967 | 849 | 755 | 618 |
| 30% | 492 | 457 | 521 | 557 | 558 | 652 | 792 | 967 | 955 | 755 | 683 | 570 |
| 40% | 452 | 425 | 484 | 525 | 553 | 646 | 792 | 967 | 910 | 663 | 574 | 516 |
| 50% | 403 | 413 | 447 | 482 | 530 | 632 | 792 | 960 | 842 | 599 | 532 | 474 |
| 60% | 358 | 392 | 414 | 436 | 491 | 621 | 787 | 852 | 767 | 522 | 460 | 408 |
| 70% | 327 | 347 | 382 | 412 | 457 | 599 | 731 | 751 | 667 | 450 | 399 | 380 |
| 80% | 282 | 304 | 345 | 369 | 408 | 524 | 598 | 613 | 533 | 412 | 350 | 303 |
| 90% | 256 | 240 | 257 | 294 | 368 | 409 | 488 | 481 | 433 | 350 | 305 | 262 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 411 | 396 | 437 | 457 | 486 | 586 | 709 | 816 | 763 | 606 | 531 | 465 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 500 | 439 | 477 | 517 | 515 | 632 | 784 | 950 | 935 | 795 | 698 | 583 |
| Above Normal (16%) | 416 | 412 | 455 | 506 | 527 | 640 | 786 | 944 | 873 | 607 | 540 | 475 |
| Below Normal (13%) | 420 | 411 | 447 | 484 | 531 | 617 | 754 | 834 | 771 | 549 | 483 | 451 |
| Dry (24%) | 389 | 407 | 433 | 419 | 475 | 568 | 682 | 751 | 665 | 531 | 462 | 429 |
| Critical (15%) | 242 | 250 | 331 | 314 | 358 | 430 | 463 | 477 | 428 | 374 | 318 | 271 |

### Alternative 4 043019

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 675 | 567 | 567 | 567 | 567 | 658 | 792 | 967 | 967 | 898 | 775 | 725 |
| 20% | 574 | 567 | 567 | 567 | 567 | 655 | 792 | 967 | 943 | 807 | 717 | 645 |
| 30% | 515 | 531 | 567 | 565 | 563 | 649 | 792 | 959 | 903 | 701 | 619 | 563 |
| 40% | 474 | 491 | 543 | 559 | 557 | 640 | 792 | 890 | 836 | 658 | 576 | 522 |
| 50% | 428 | 457 | 503 | 543 | 549 | 629 | 776 | 858 | 792 | 601 | 525 | 473 |
| 60% | 392 | 424 | 445 | 497 | 497 | 620 | 747 | 798 | 756 | 550 | 487 | 438 |
| 70% | 357 | 382 | 415 | 439 | 468 | 595 | 699 | 742 | 644 | 500 | 440 | 396 |
| 80% | 339 | 351 | 378 | 383 | 441 | 541 | 629 | 655 | 585 | 443 | 378 | 349 |
| 90% | 282 | 299 | 303 | 316 | 386 | 467 | 538 | 530 | 477 | 395 | 343 | 305 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 448 | 441 | 468 | 483 | 497 | 590 | 706 | 795 | 750 | 611 | 535 | 487 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 596 | 530 | 525 | 523 | 515 | 632 | 776 | 922 | 910 | 794 | 699 | 650 |
| Above Normal (16%) | 439 | 438 | 475 | 538 | 539 | 640 | 782 | 908 | 851 | 621 | 548 | 496 |
| Below Normal (13%) | 413 | 422 | 454 | 543 | 549 | 624 | 745 | 805 | 743 | 560 | 473 | 426 |
| Dry (24%) | 398 | 435 | 459 | 428 | 480 | 568 | 678 | 733 | 661 | 535 | 470 | 424 |
| Critical (15%) | 254 | 277 | 368 | 372 | 391 | 452 | 482 | 492 | 447 | 374 | 328 | 287 |

### Alternative 4 043019 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 83 | 25 | 0 | 0 | 0 | **-1** | 0 | 0 | 0 | **-15** | **-17** | 44 |
| 20% | 40 | 78 | 0 | 3 | 1 | **-1** | 0 | 0 | **-24** | **-42** | **-38** | 27 |
| 30% | 23 | 74 | 46 | 8 | 5 | **-3** | 0 | **-8** | **-52** | **-55** | **-64** | **-7** |
| 40% | 21 | 66 | 58 | 34 | 4 | **-6** | 0 | **-77** | **-75** | **-5** | 2 | 6 |
| 50% | 25 | 44 | 56 | 62 | 20 | **-4** | **-16** | **-101** | **-50** | 2 | **-7** | **0** |
| 60% | 34 | 32 | 31 | 61 | 7 | **-2** | **-40** | **-54** | **-11** | 28 | 27 | 30 |
| 70% | 29 | 34 | 33 | 26 | 11 | **-4** | **-32** | **-9** | **-24** | 49 | 41 | 16 |
| 80% | 57 | 47 | 33 | 14 | 33 | 17 | 31 | 41 | 52 | 30 | 29 | 46 |
| 90% | 26 | 60 | 46 | 23 | 18 | 57 | 50 | 49 | 44 | 45 | 38 | 43 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 37 | 46 | 31 | 26 | 11 | 4 | **-3** | **-21** | **-13** | 5 | 4 | 22 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 96 | 91 | 47 | 6 | 0 | **0** | **-8** | **-28** | **-25** | **0** | 1 | 67 |
| Above Normal (16%) | 23 | 26 | 20 | 32 | 13 | 0 | **-4** | **-36** | **-22** | 14 | 8 | 21 |
| Below Normal (13%) | **-7** | 12 | 7 | 59 | 18 | 7 | **-10** | **-29** | **-27** | 11 | **-10** | **-24** |
| Dry (24%) | 9 | 29 | 26 | 9 | 6 | 1 | **-4** | **-18** | **-4** | 4 | 9 | **-5** |
| Critical (15%) | 13 | 27 | 37 | 58 | 33 | 21 | 19 | 15 | 19 | **0** | 10 | 16 |

a Based on the 82-year simulation period.

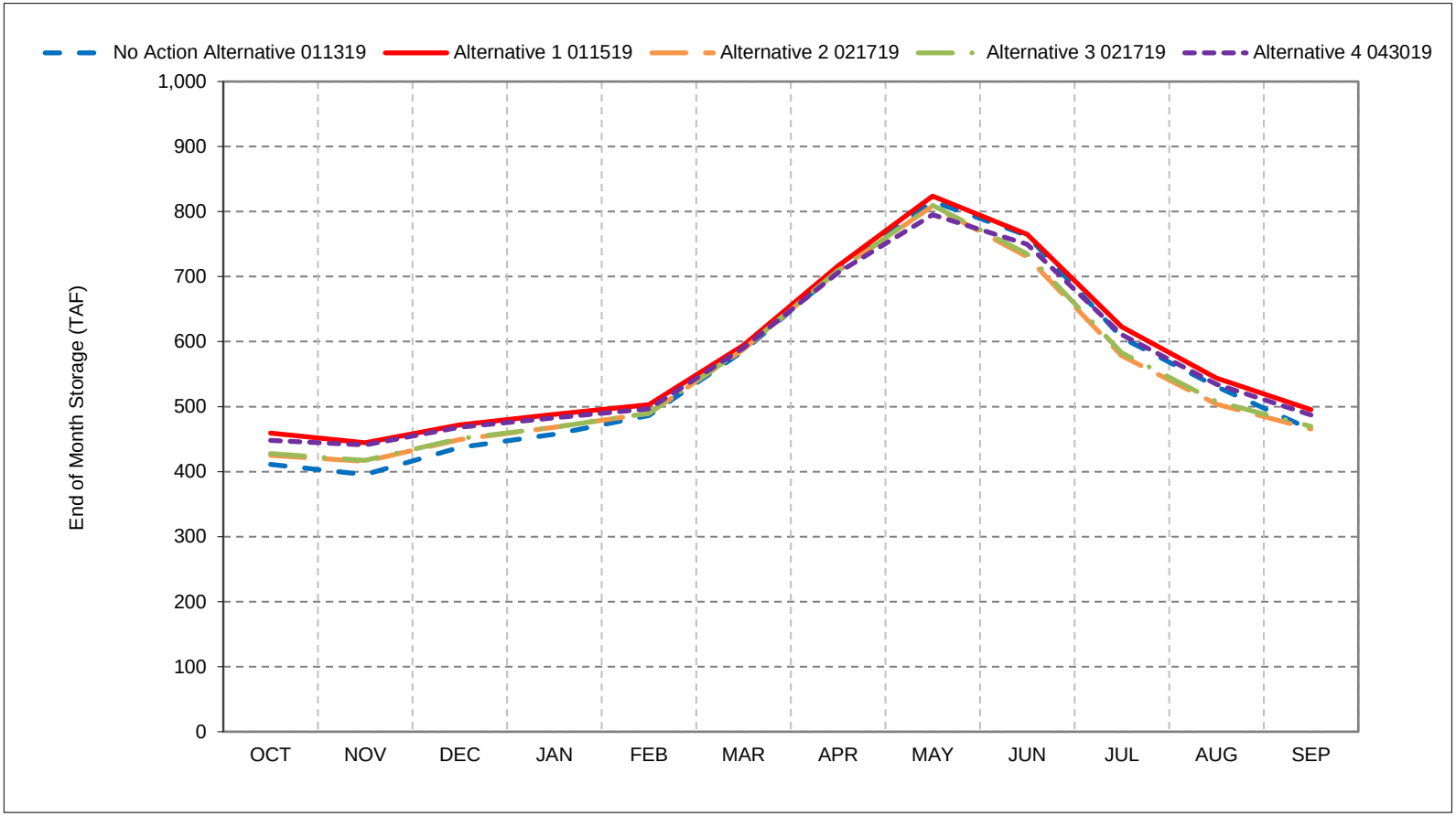
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

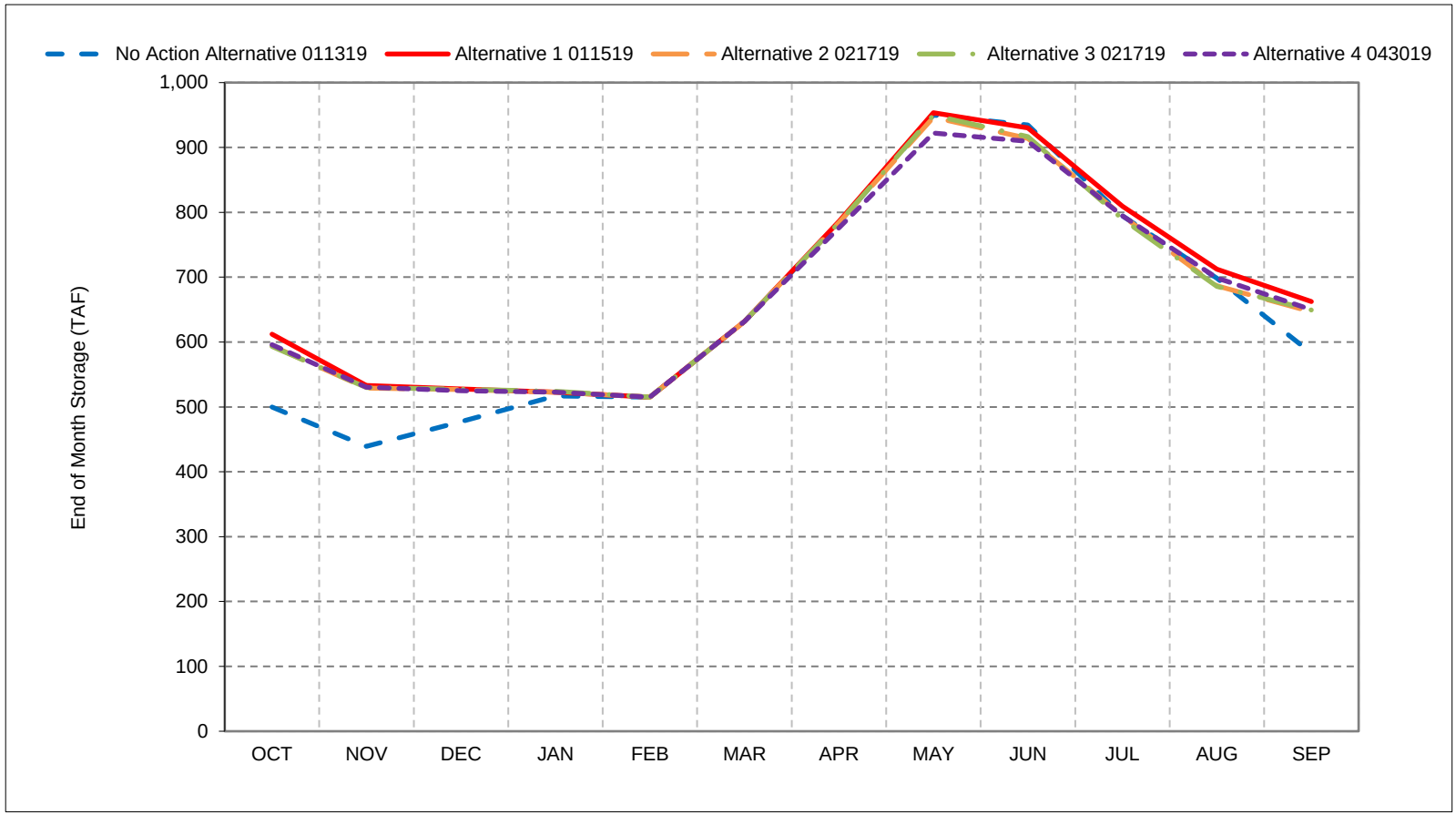
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-1. Folsom Lake Storage, Long-Term Average Storage



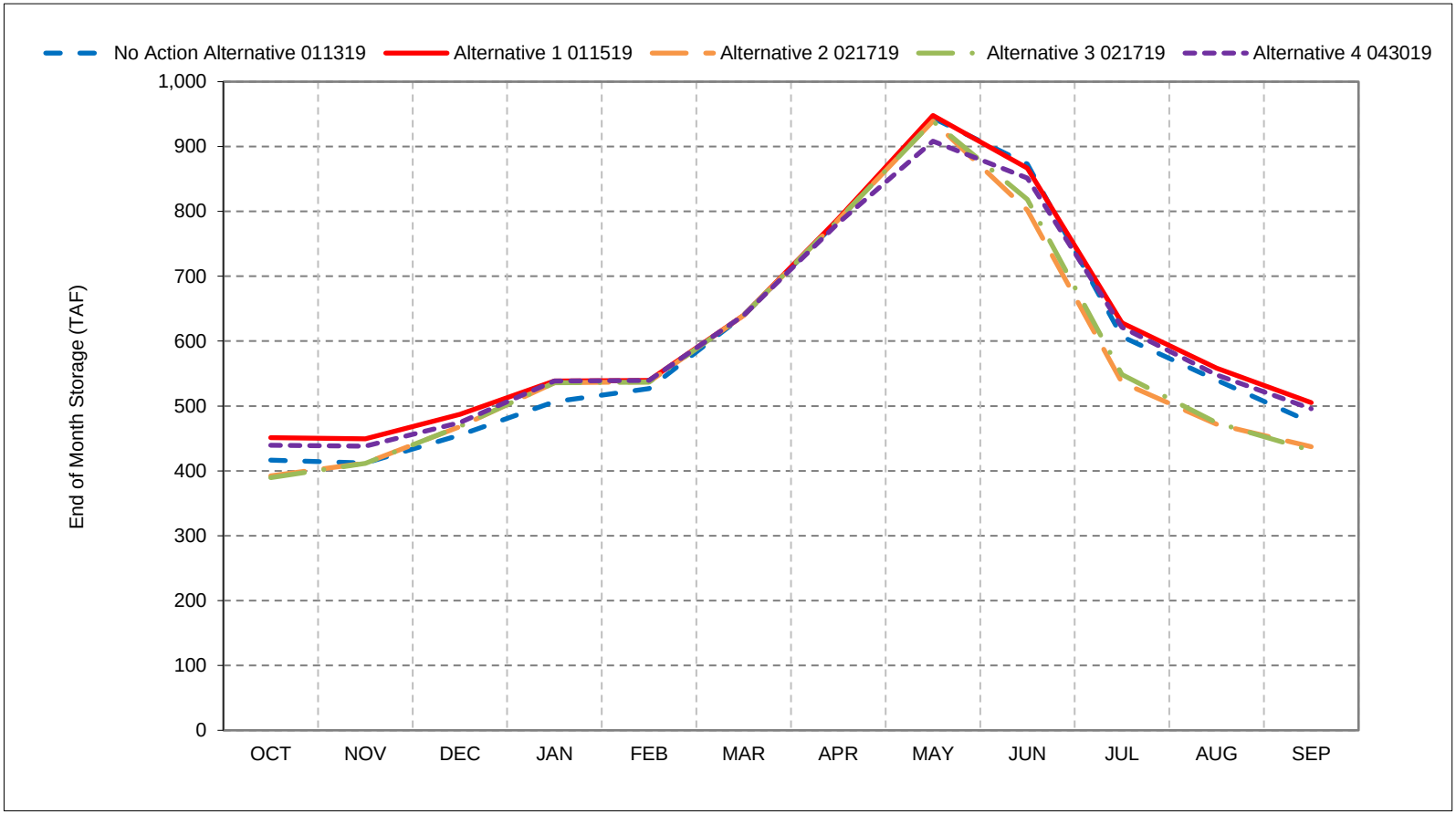

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-2. Folsom Lake Storage, Wet Year Average Storage



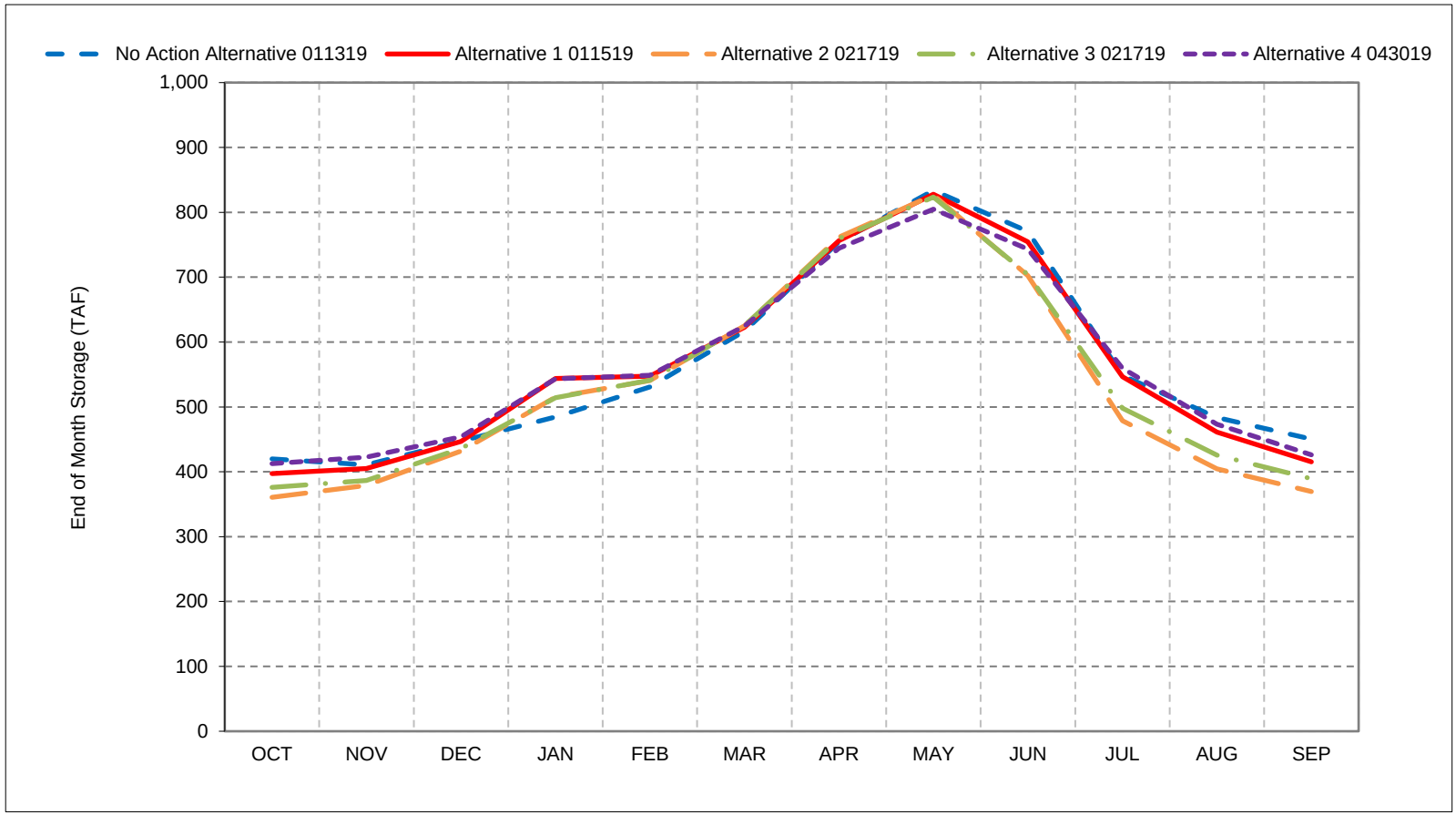

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-3. Folsom Lake Storage, Above Normal Year Average Storage



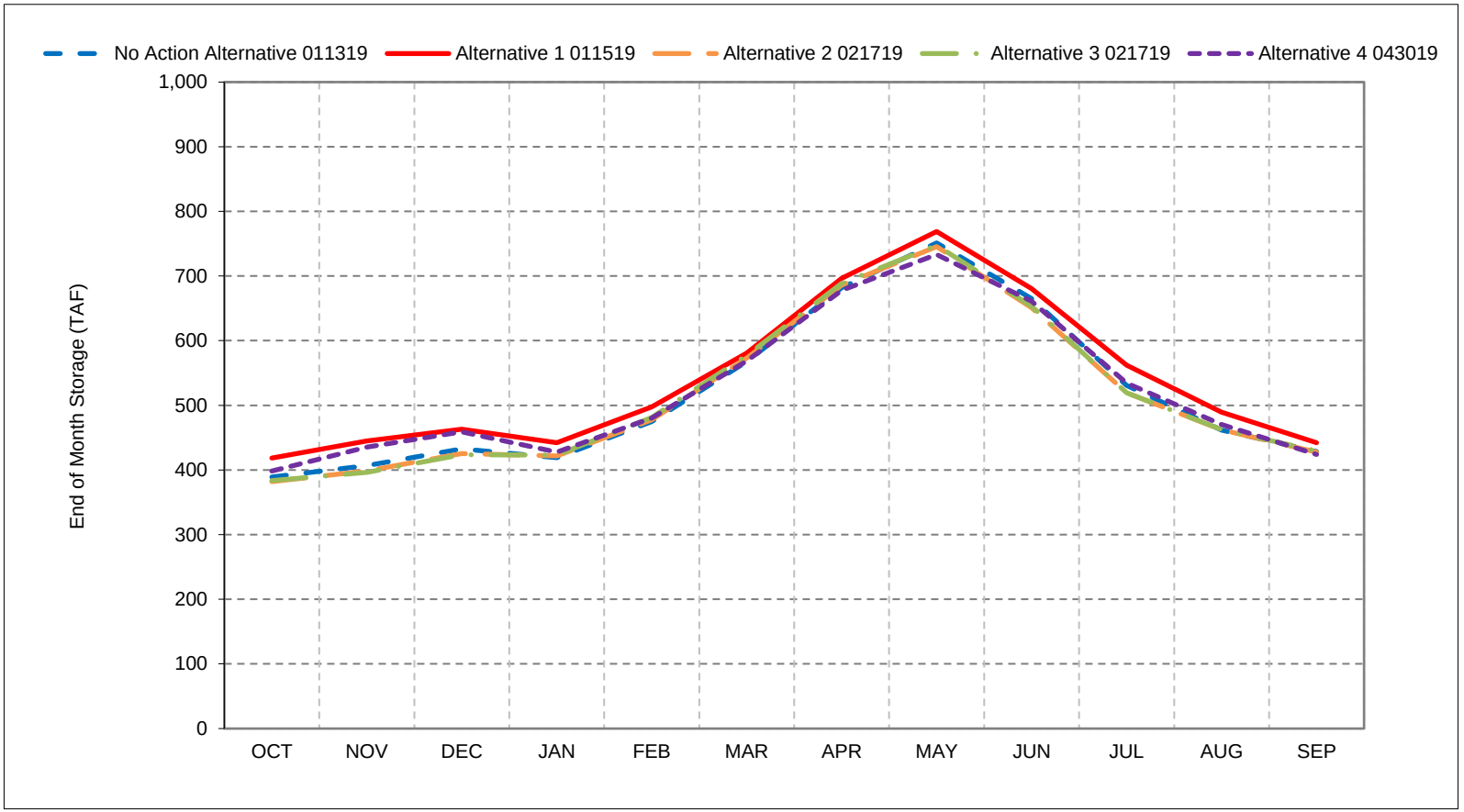

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-4. Folsom Lake Storage, Below Normal Year Average Storage



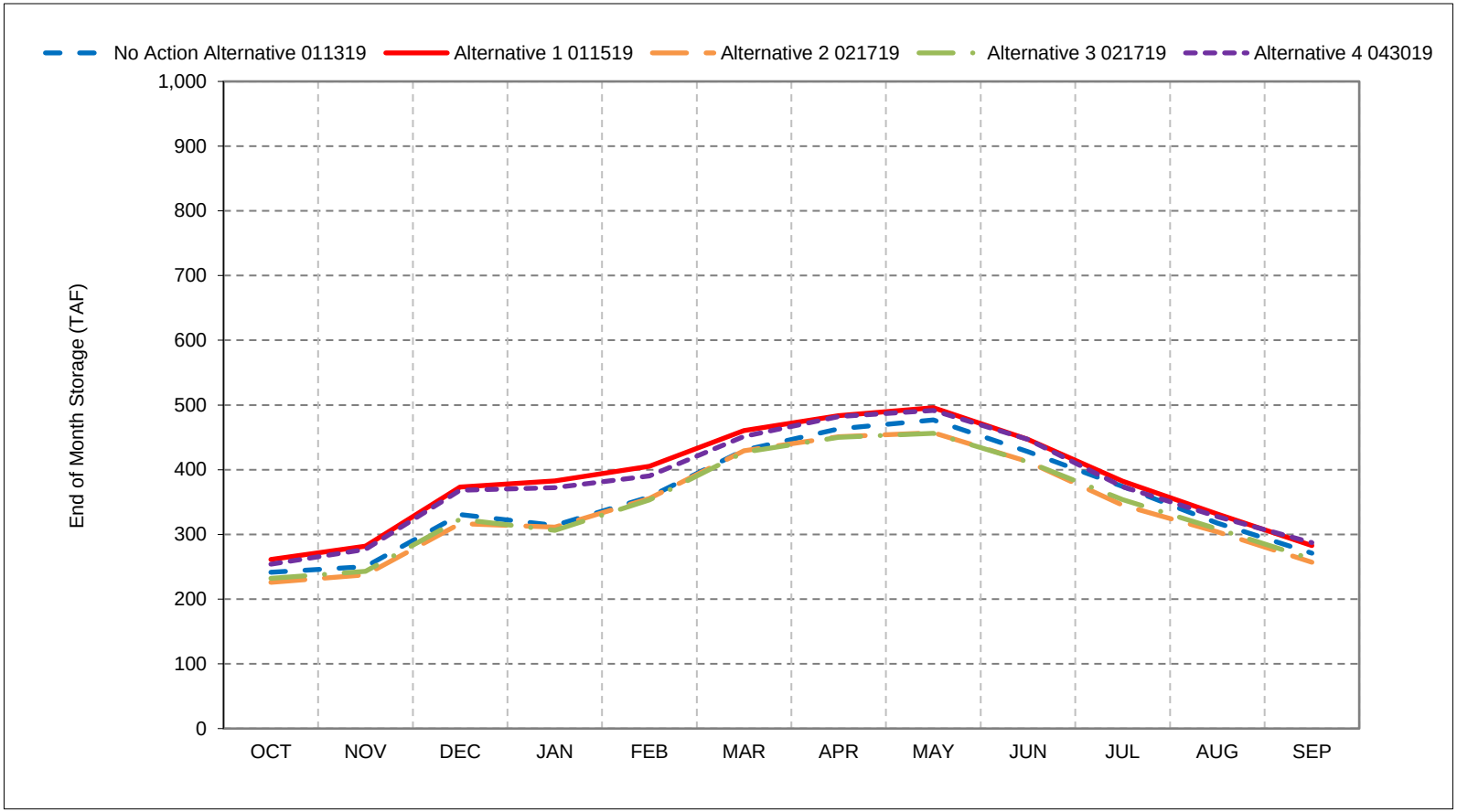

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-5. Folsom Lake Storage, Dry Year Average Storage



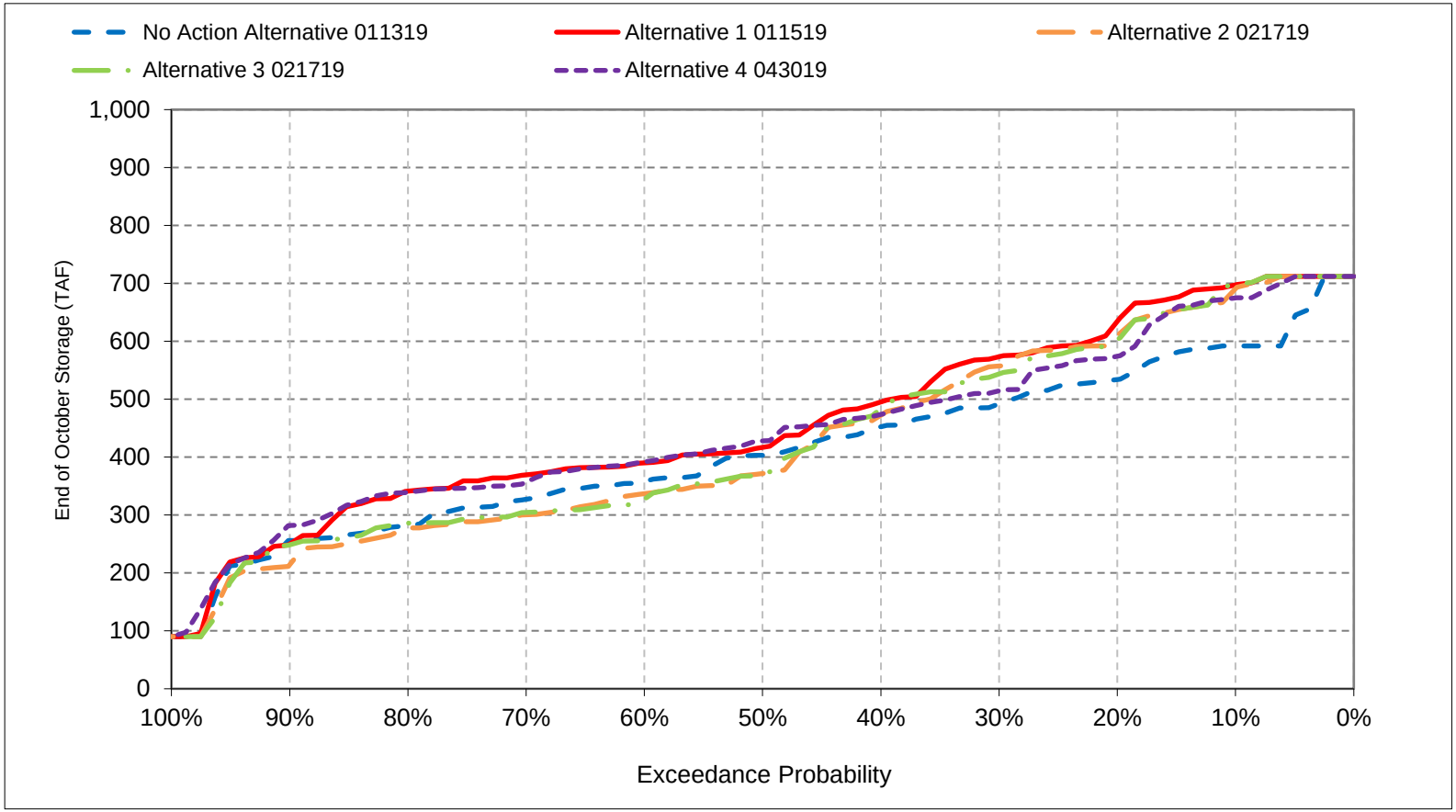

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-6. Folsom Lake Storage, Critical Year Average Storage



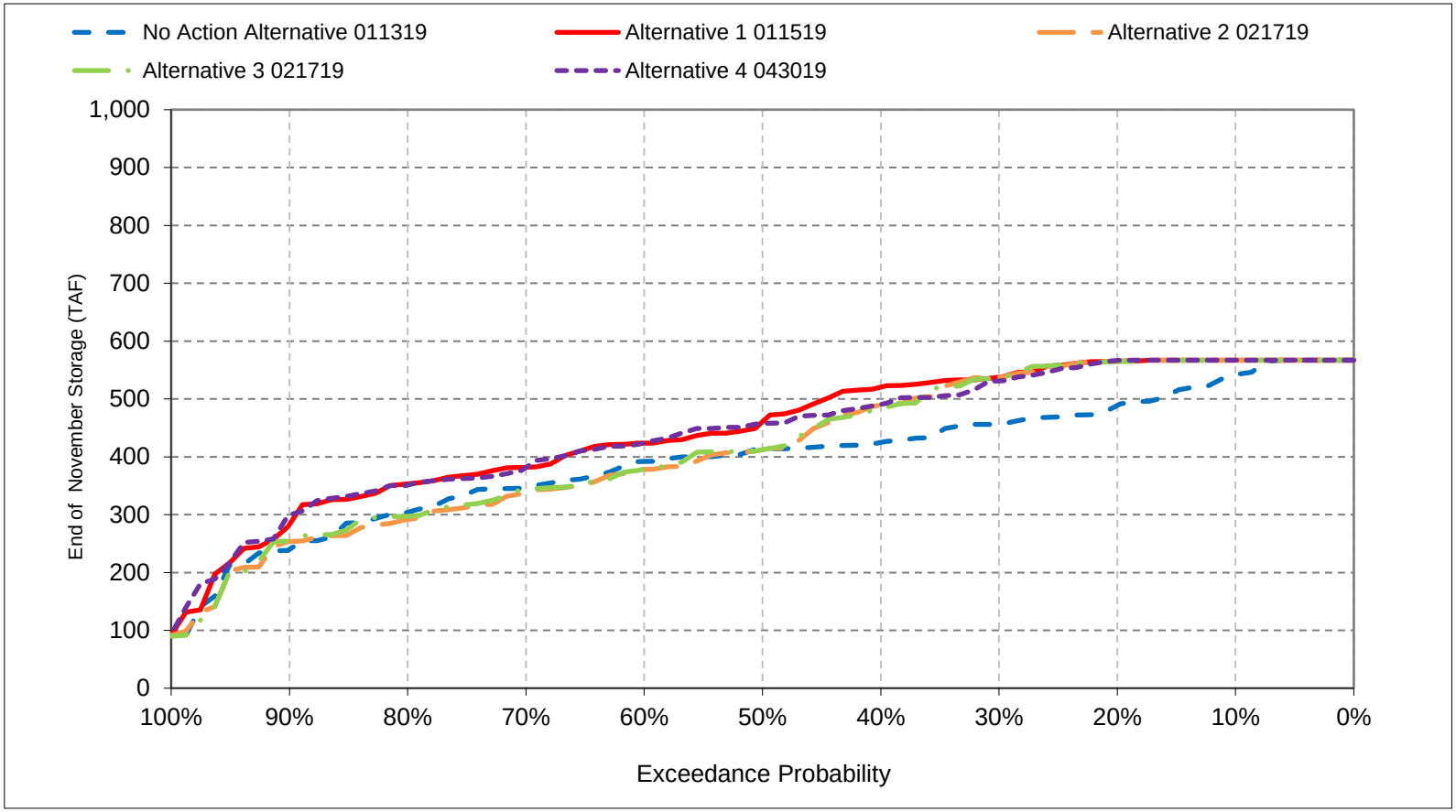

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-7. Folsom Lake Storage, End of October Storage



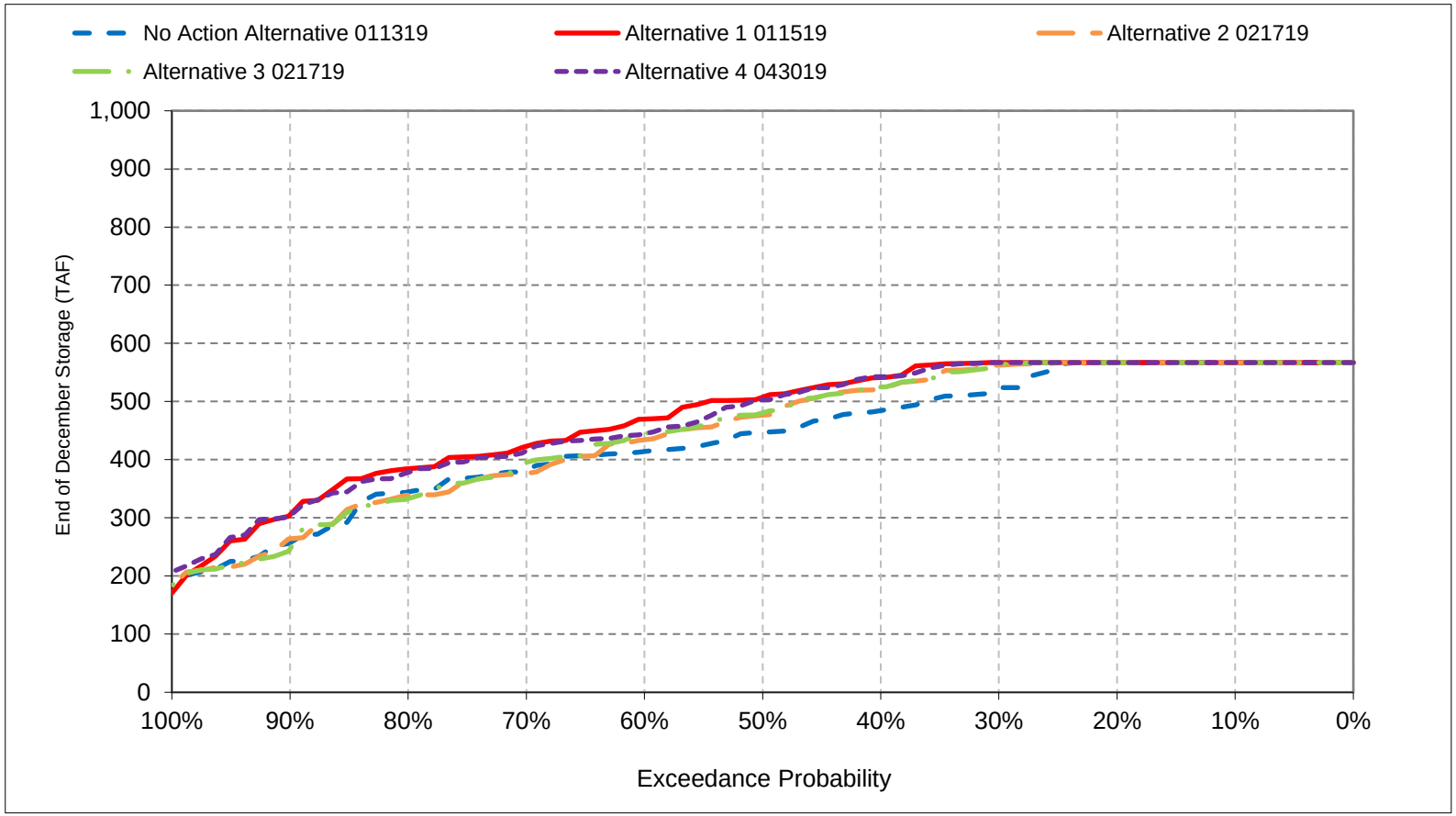

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-8. Folsom Lake Storage, End of November Storage



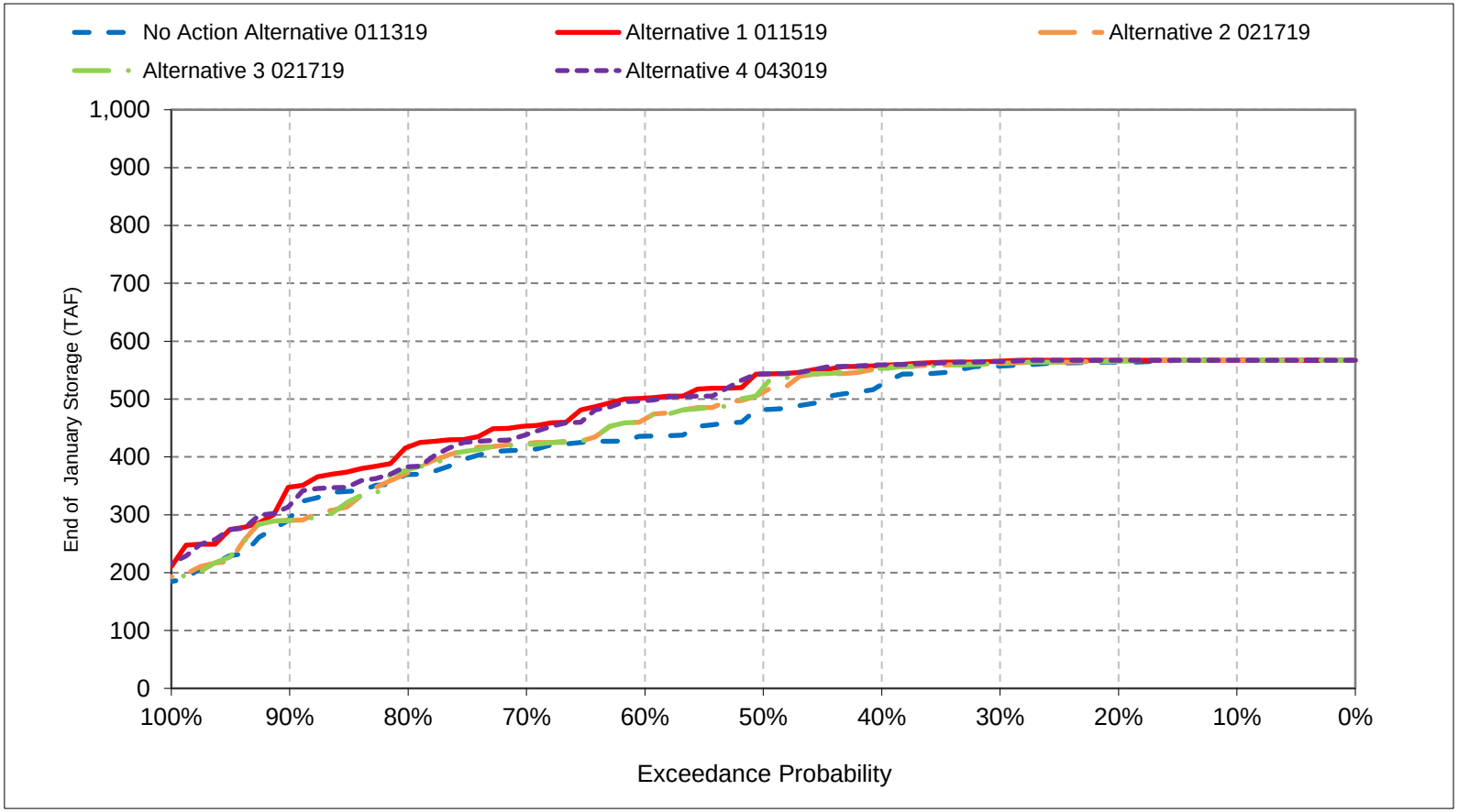

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-9. Folsom Lake Storage, End of December Storage



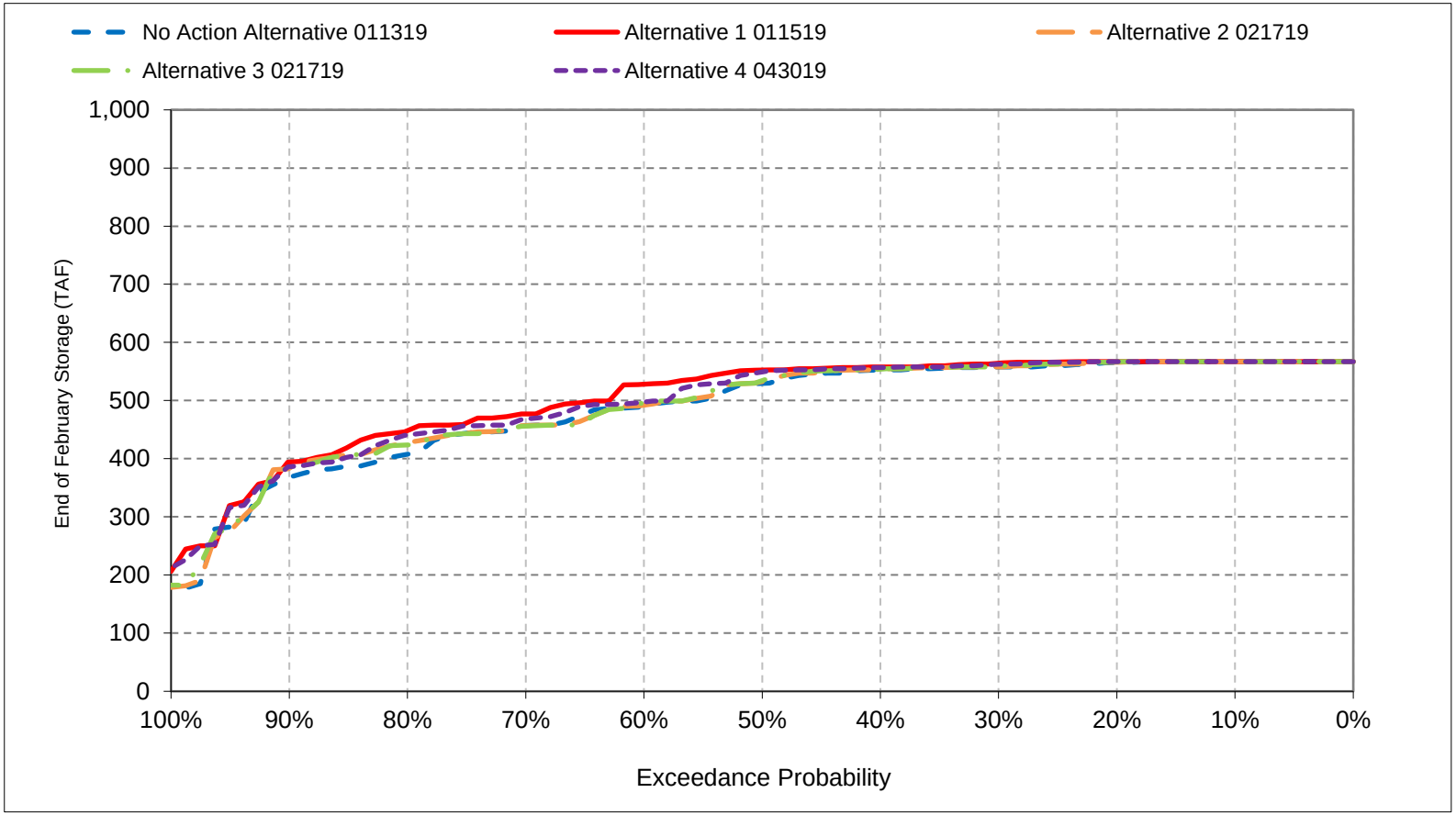

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-10. Folsom Lake Storage, End of January Storage



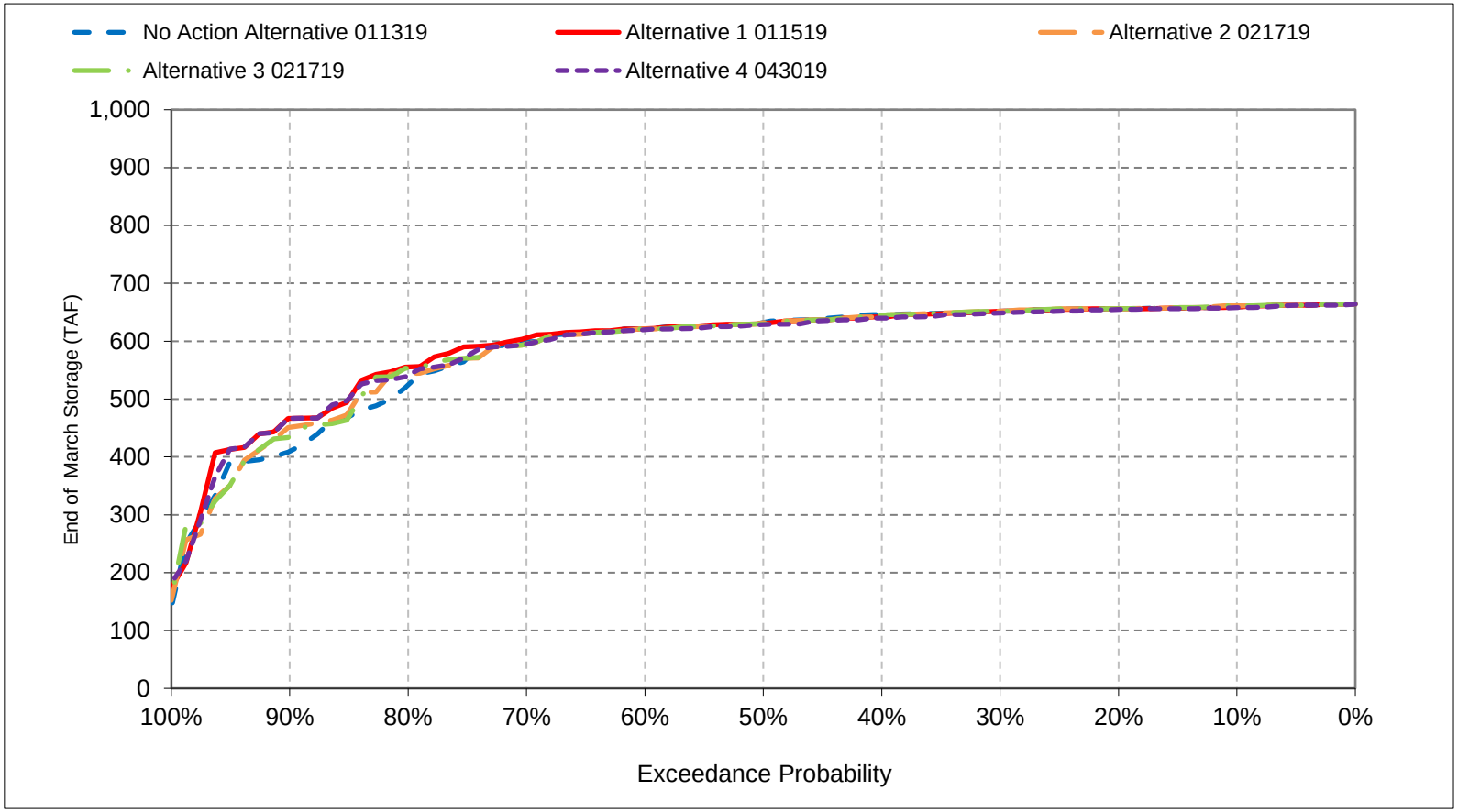

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-11. Folsom Lake Storage, End of February Storage



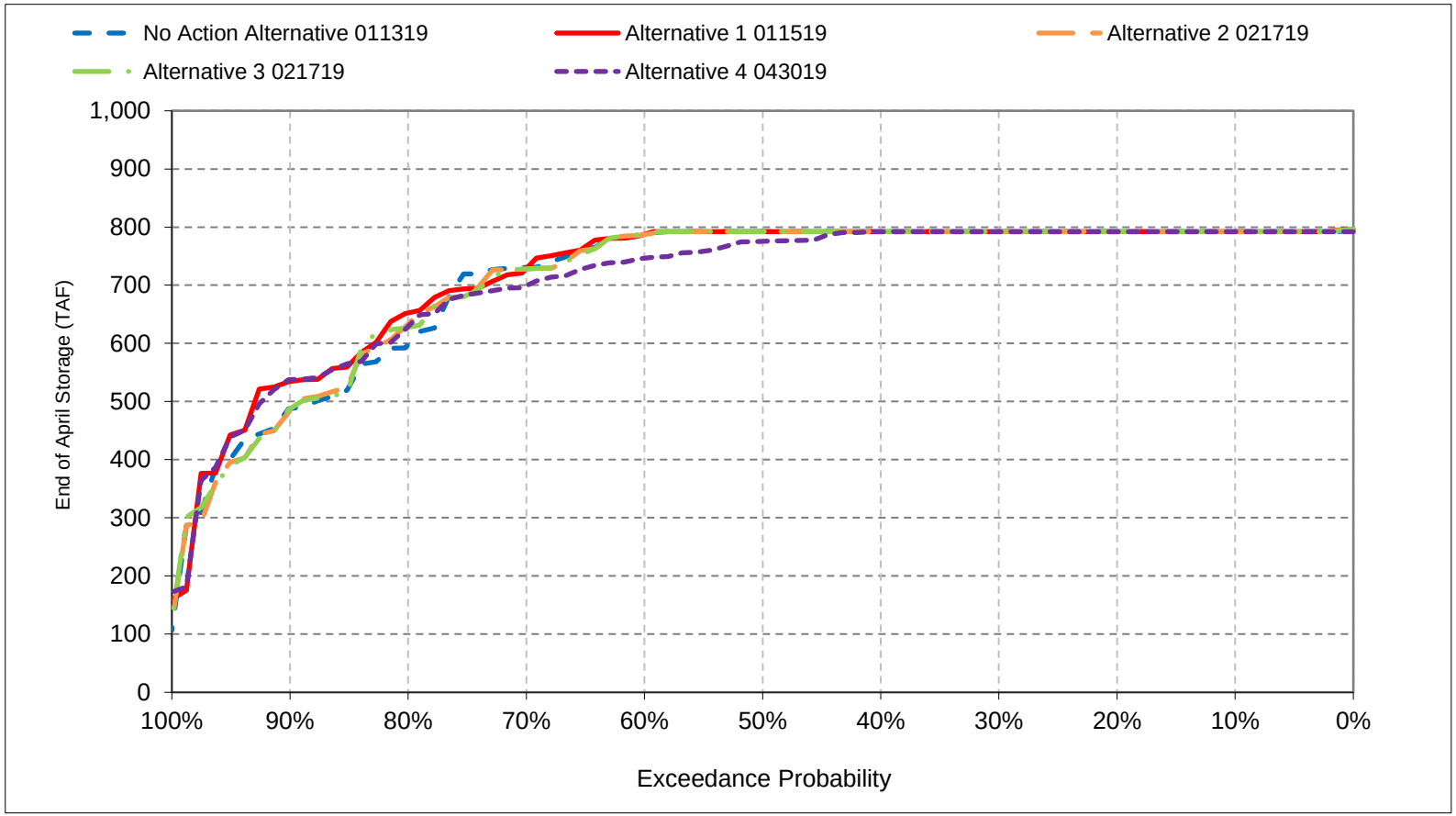

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-12. Folsom Lake Storage, End of March Storage



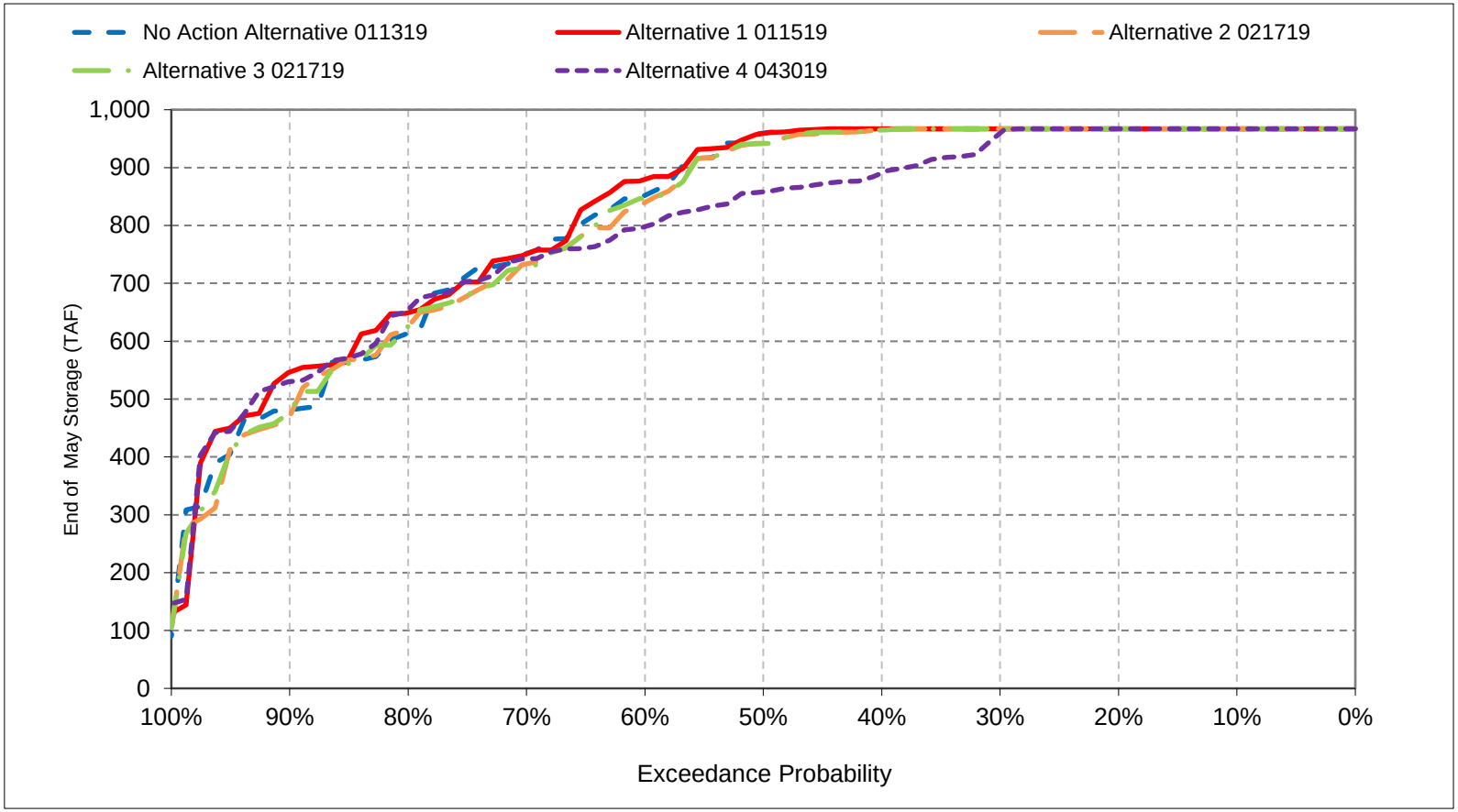

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-13. Folsom Lake Storage, End of April Storage



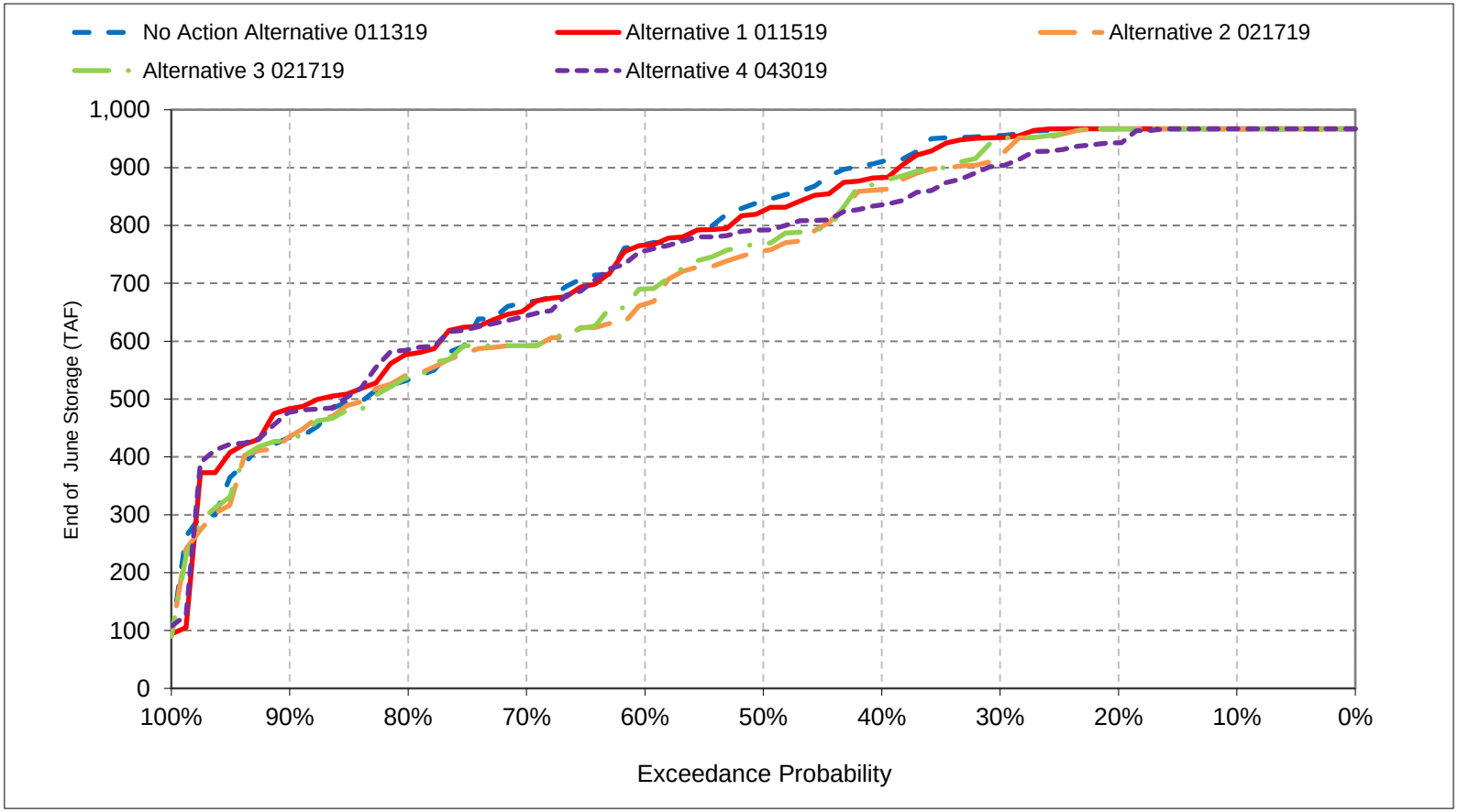

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-14. Folsom Lake Storage, End of May Storage



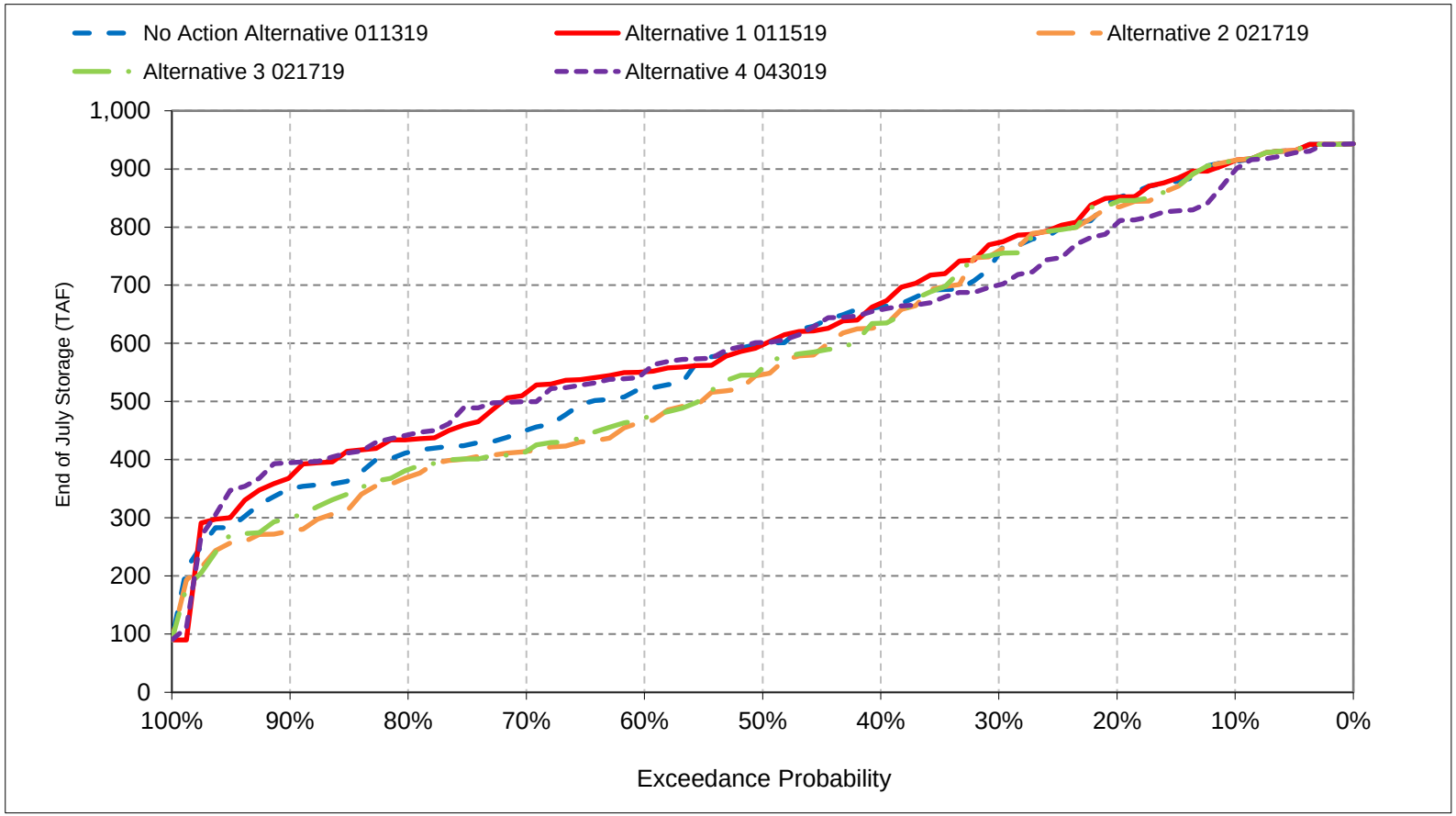

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-15. Folsom Lake Storage, End of June Storage



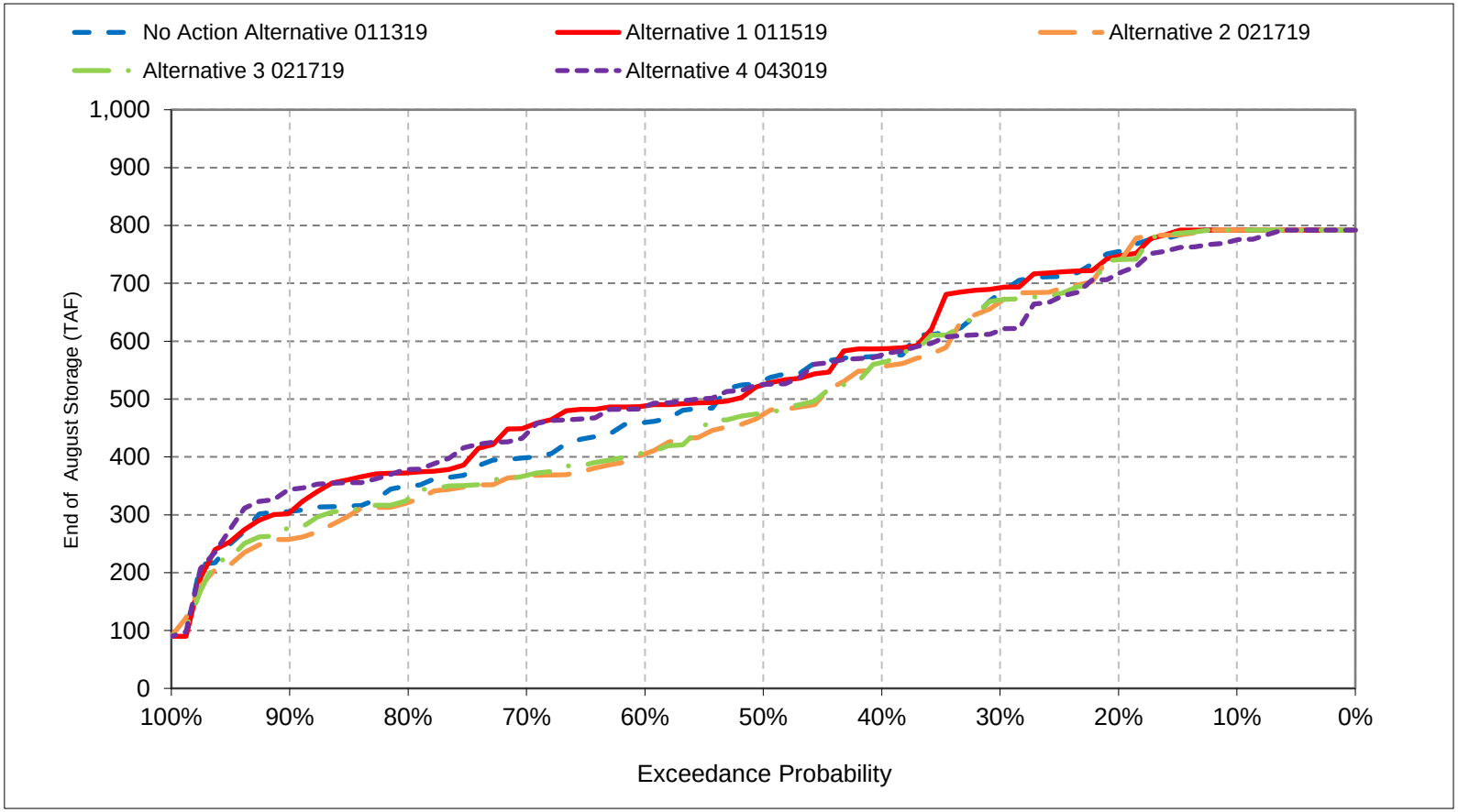

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-16. Folsom Lake Storage, End of July Storage



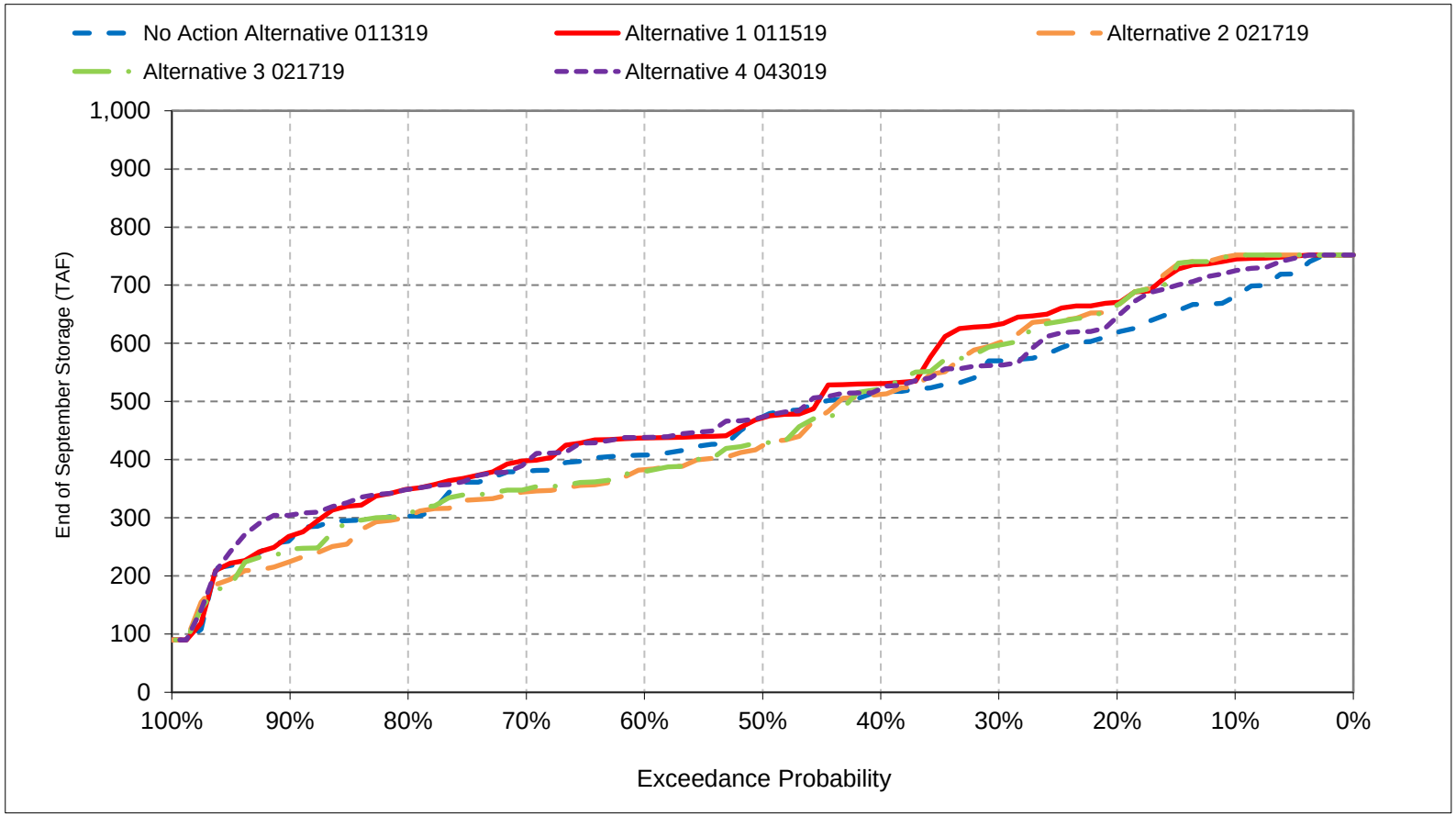

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-17. Folsom Lake Storage, End of August Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-18. Folsom Lake Storage, End of September Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

# Table 5a-1. Folsom Lake Elevation, End of Month Elevation

## No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 427 | 421 | 424 | 424 | 424 | 436 | 449 | 466 | 466 | 461 | 449 | 438 |
| 20% | 420 | 415 | 424 | 424 | 424 | 435 | 449 | 466 | 466 | 455 | 445 | 431 |
| 30% | 415 | 411 | 419 | 423 | 423 | 435 | 449 | 466 | 465 | 445 | 438 | 425 |
| 40% | 410 | 407 | 414 | 419 | 423 | 434 | 449 | 466 | 461 | 436 | 425 | 418 |
| 50% | 404 | 405 | 409 | 414 | 420 | 432 | 449 | 465 | 454 | 428 | 420 | 413 |
| 60% | 397 | 403 | 405 | 408 | 415 | 431 | 449 | 455 | 447 | 419 | 411 | 405 |
| 70% | 392 | 396 | 401 | 405 | 411 | 428 | 443 | 445 | 437 | 410 | 403 | 401 |
| 80% | 385 | 389 | 395 | 399 | 405 | 419 | 428 | 430 | 420 | 405 | 396 | 388 |
| 90% | 380 | 377 | 380 | 387 | 399 | 405 | 415 | 414 | 408 | 396 | 389 | 381 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 402 | 401 | 407 | 410 | 414 | 426 | 439 | 450 | 444 | 427 | 418 | 409 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 415 | 408 | 413 | 418 | 418 | 432 | 448 | 464 | 463 | 448 | 439 | 425 |
| Above Normal (16%) | 405 | 404 | 410 | 417 | 419 | 433 | 448 | 464 | 457 | 429 | 421 | 413 |
| Below Normal (13%) | 404 | 403 | 407 | 414 | 420 | 431 | 445 | 453 | 446 | 421 | 413 | 409 |
| Dry (24%) | 400 | 403 | 406 | 405 | 413 | 424 | 437 | 444 | 435 | 419 | 410 | 406 |
| Critical (15%) | 371 | 373 | 391 | 388 | 394 | 405 | 408 | 409 | 402 | 395 | 385 | 376 |

## Alternative 1 011519

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 440 | 424 | 424 | 424 | 424 | 436 | 449 | 466 | 466 | 461 | 449 | 444 |
| 20% | 433 | 424 | 424 | 424 | 424 | 435 | 449 | 466 | 466 | 455 | 445 | 437 |
| 30% | 425 | 421 | 424 | 424 | 424 | 435 | 449 | 466 | 465 | 447 | 439 | 433 |
| 40% | 415 | 419 | 421 | 423 | 423 | 434 | 449 | 466 | 458 | 437 | 427 | 420 |
| 50% | 406 | 411 | 417 | 421 | 423 | 432 | 449 | 465 | 452 | 428 | 419 | 412 |
| 60% | 402 | 406 | 412 | 416 | 420 | 431 | 449 | 458 | 446 | 422 | 415 | 408 |
| 70% | 399 | 401 | 406 | 410 | 413 | 429 | 443 | 445 | 436 | 418 | 410 | 403 |
| 80% | 395 | 397 | 402 | 406 | 410 | 423 | 435 | 435 | 426 | 408 | 400 | 396 |
| 90% | 379 | 385 | 389 | 396 | 403 | 412 | 420 | 422 | 414 | 399 | 389 | 382 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 408 | 407 | 412 | 414 | 416 | 427 | 440 | 451 | 444 | 428 | 419 | 413 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 430 | 420 | 419 | 419 | 418 | 432 | 448 | 465 | 462 | 450 | 440 | 435 |
| Above Normal (16%) | 410 | 409 | 414 | 421 | 421 | 433 | 449 | 464 | 456 | 431 | 423 | 417 |
| Below Normal (13%) | 400 | 402 | 408 | 421 | 422 | 431 | 445 | 452 | 445 | 421 | 409 | 403 |
| Dry (24%) | 405 | 409 | 411 | 408 | 415 | 426 | 439 | 446 | 437 | 423 | 414 | 408 |
| Critical (15%) | 374 | 380 | 397 | 399 | 402 | 409 | 411 | 411 | 403 | 394 | 387 | 378 |

## Alternative 1 011519 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 12 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 20% | 13 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | 6 |
| 30% | 10 | 10 | 6 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 8 |
| 40% | 5 | 12 | 7 | 4 | 1 | 0 | 0 | 0 | -3 | 1 | 2 | 2 |
| 50% | 2 | 6 | 8 | 8 | 3 | 0 | 0 | 0 | -2 | 0 | -1 | 0 |
| 60% | 5 | 4 | 7 | 8 | 5 | 0 | 0 | 3 | 0 | 4 | 4 | 4 |
| 70% | 7 | 6 | 5 | 5 | 2 | 1 | 0 | 0 | -1 | 8 | 7 | 2 |
| 80% | 10 | 8 | 6 | 6 | 5 | 4 | 7 | 4 | 5 | 3 | 4 | 8 |
| 90% | -1 | 8 | 9 | 9 | 4 | 7 | 6 | 8 | 6 | 3 | 0 | 1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7 | 7 | 5 | 4 | 2 | 1 | 1 | 1 | 0 | 2 | 2 | 4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 14 | 12 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 10 |
| Above Normal (16%) | 5 | 5 | 4 | 4 | 2 | 0 | 0 | 0 | -1 | 3 | 2 | 4 |
| Below Normal (13%) | -4 | -1 | 0 | 8 | 2 | 1 | 0 | 0 | -2 | 0 | -3 | -6 |
| Dry (24%) | 5 | 6 | 5 | 3 | 3 | 2 | 2 | 2 | 2 | 4 | 4 | 2 |
| Critical (15%) | 4 | 6 | 6 | 11 | 8 | 4 | 3 | 2 | 1 | -1 | 2 | 2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 5a-2. Folsom Lake Elevation, End of Month Elevation

## No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 427 | 421 | 424 | 424 | 424 | 436 | 449 | 466 | 466 | 461 | 449 | 438 |
| 20% | 420 | 415 | 424 | 424 | 424 | 435 | 449 | 466 | 466 | 455 | 445 | 431 |
| 30% | 415 | 411 | 419 | 423 | 423 | 435 | 449 | 466 | 465 | 445 | 438 | 425 |
| 40% | 410 | 407 | 414 | 419 | 423 | 434 | 449 | 466 | 461 | 436 | 425 | 418 |
| 50% | 404 | 405 | 409 | 414 | 420 | 432 | 449 | 465 | 454 | 428 | 420 | 413 |
| 60% | 397 | 403 | 405 | 408 | 415 | 431 | 449 | 455 | 447 | 419 | 411 | 405 |
| 70% | 392 | 396 | 401 | 405 | 411 | 428 | 443 | 445 | 437 | 410 | 403 | 401 |
| 80% | 385 | 389 | 395 | 399 | 405 | 419 | 428 | 430 | 420 | 405 | 396 | 388 |
| 90% | 380 | 377 | 380 | 387 | 399 | 405 | 415 | 414 | 408 | 396 | 389 | 381 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 402 | 401 | 407 | 410 | 414 | 426 | 439 | 450 | 444 | 427 | 418 | 409 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 415 | 408 | 413 | 418 | 418 | 432 | 448 | 464 | 463 | 448 | 439 | 425 |
| Above Normal (16%) | 405 | 404 | 410 | 417 | 419 | 433 | 448 | 464 | 457 | 429 | 421 | 413 |
| Below Normal (13%) | 404 | 403 | 407 | 414 | 420 | 431 | 445 | 453 | 446 | 421 | 413 | 409 |
| Dry (24%) | 400 | 403 | 406 | 405 | 413 | 424 | 437 | 444 | 435 | 419 | 410 | 406 |
| Critical (15%) | 371 | 373 | 391 | 388 | 394 | 405 | 408 | 409 | 402 | 395 | 385 | 376 |

## Alternative 2 021719

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 439 | 424 | 424 | 424 | 424 | 436 | 449 | 466 | 466 | 461 | 449 | 445 |
| 20% | 430 | 424 | 424 | 424 | 424 | 435 | 449 | 466 | 466 | 453 | 444 | 437 |
| 30% | 423 | 421 | 424 | 424 | 423 | 435 | 449 | 466 | 462 | 446 | 437 | 429 |
| 40% | 413 | 415 | 419 | 423 | 423 | 434 | 449 | 466 | 456 | 432 | 423 | 418 |
| 50% | 400 | 405 | 413 | 417 | 420 | 432 | 449 | 464 | 446 | 422 | 413 | 407 |
| 60% | 394 | 401 | 408 | 412 | 415 | 431 | 449 | 454 | 436 | 412 | 404 | 401 |
| 70% | 388 | 394 | 400 | 406 | 411 | 428 | 443 | 443 | 427 | 405 | 399 | 395 |
| 80% | 384 | 386 | 394 | 400 | 407 | 421 | 433 | 432 | 421 | 399 | 391 | 388 |
| 90% | 371 | 379 | 381 | 386 | 402 | 410 | 414 | 412 | 408 | 384 | 380 | 373 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 403 | 403 | 408 | 411 | 414 | 427 | 439 | 449 | 440 | 423 | 414 | 409 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 427 | 420 | 419 | 419 | 418 | 432 | 448 | 464 | 461 | 449 | 437 | 433 |
| Above Normal (16%) | 401 | 404 | 412 | 420 | 421 | 433 | 449 | 463 | 450 | 419 | 412 | 407 |
| Below Normal (13%) | 395 | 398 | 405 | 418 | 421 | 432 | 446 | 452 | 439 | 410 | 400 | 396 |
| Dry (24%) | 399 | 402 | 405 | 405 | 413 | 425 | 437 | 443 | 433 | 417 | 410 | 406 |
| Critical (15%) | 367 | 371 | 389 | 388 | 394 | 405 | 407 | 407 | 400 | 390 | 383 | 374 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 12 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 20% | 9 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 6 |
| 30% | 8 | 10 | 5 | 1 | 0 | 0 | 0 | 0 | -3 | 0 | -2 | 4 |
| 40% | 2 | 8 | 5 | 4 | 0 | 0 | 0 | 0 | -5 | -4 | -2 | 0 |
| 50% | -4 | 0 | 4 | 4 | 0 | 0 | 0 | -2 | -8 | -7 | -7 | -6 |
| 60% | -3 | -2 | 2 | 4 | 0 | 0 | 0 | -1 | -10 | -7 | -7 | -3 |
| 70% | -4 | -1 | -1 | 1 | 0 | -1 | 0 | -2 | -9 | -5 | -5 | -6 |
| 80% | -1 | -2 | -1 | 1 | 3 | 2 | 4 | 1 | 1 | -6 | -5 | 0 |
| 90% | -9 | 3 | 1 | -1 | 2 | 5 | 0 | -1 | 0 | -12 | -9 | -8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1 | 2 | 1 | 1 | 0 | 0 | 0 | -1 | -3 | -4 | -4 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 12 | 11 | 6 | 1 | 0 | 0 | 0 | 0 | -2 | 0 | -1 | 8 |
| Above Normal (16%) | -4 | 0 | 2 | 4 | 1 | 0 | 0 | 0 | -7 | -9 | -9 | -6 |
| Below Normal (13%) | -10 | -5 | -2 | 4 | 1 | 1 | 1 | -1 | -7 | -10 | -12 | -13 |
| Dry (24%) | -1 | -1 | -1 | 0 | 0 | 1 | 1 | 0 | -1 | -1 | 0 | 0 |
| Critical (15%) | -3 | -2 | -2 | 0 | 0 | 0 | -1 | -3 | -2 | -5 | -2 | -2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 5a-3. Folsom Lake Elevation, End of Month Elevation

### No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 427 | 421 | 424 | 424 | 424 | 436 | 449 | 466 | 466 | 461 | 449 | 438 |
| 20% | 420 | 415 | 424 | 424 | 424 | 435 | 449 | 466 | 466 | 455 | 445 | 431 |
| 30% | 415 | 411 | 419 | 423 | 423 | 435 | 449 | 466 | 465 | 445 | 438 | 425 |
| 40% | 410 | 407 | 414 | 419 | 423 | 434 | 449 | 466 | 461 | 436 | 425 | 418 |
| 50% | 404 | 405 | 409 | 414 | 420 | 432 | 449 | 465 | 454 | 428 | 420 | 413 |
| 60% | 397 | 403 | 405 | 408 | 415 | 431 | 449 | 455 | 447 | 419 | 411 | 405 |
| 70% | 392 | 396 | 401 | 405 | 411 | 428 | 443 | 445 | 437 | 410 | 403 | 401 |
| 80% | 385 | 389 | 395 | 399 | 405 | 419 | 428 | 430 | 420 | 405 | 396 | 388 |
| 90% | 380 | 377 | 380 | 387 | 399 | 405 | 415 | 414 | 408 | 396 | 389 | 381 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 402 | 401 | 407 | 410 | 414 | 426 | 439 | 450 | 444 | 427 | 418 | 409 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 415 | 408 | 413 | 418 | 418 | 432 | 448 | 464 | 463 | 448 | 439 | 425 |
| Above Normal (16%) | 405 | 404 | 410 | 417 | 419 | 433 | 448 | 464 | 457 | 429 | 421 | 413 |
| Below Normal (13%) | 404 | 403 | 407 | 414 | 420 | 431 | 445 | 453 | 446 | 421 | 413 | 409 |
| Dry (24%) | 400 | 403 | 406 | 405 | 413 | 424 | 437 | 444 | 435 | 419 | 410 | 406 |
| Critical (15%) | 371 | 373 | 391 | 388 | 394 | 405 | 408 | 409 | 402 | 395 | 385 | 376 |

### Alternative 3 021719

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 440 | 424 | 424 | 424 | 424 | 436 | 449 | 466 | 466 | 461 | 449 | 445 |
| 20% | 429 | 424 | 424 | 424 | 424 | 435 | 449 | 466 | 466 | 454 | 444 | 437 |
| 30% | 421 | 421 | 424 | 424 | 423 | 435 | 449 | 466 | 464 | 445 | 437 | 428 |
| 40% | 414 | 414 | 419 | 423 | 423 | 434 | 449 | 466 | 457 | 433 | 424 | 419 |
| 50% | 400 | 405 | 414 | 418 | 420 | 432 | 449 | 464 | 447 | 423 | 413 | 407 |
| 60% | 392 | 401 | 409 | 412 | 416 | 431 | 449 | 454 | 439 | 412 | 404 | 401 |
| 70% | 389 | 395 | 403 | 406 | 411 | 428 | 443 | 443 | 427 | 405 | 399 | 396 |
| 80% | 386 | 387 | 393 | 401 | 406 | 423 | 432 | 432 | 421 | 401 | 392 | 389 |
| 90% | 378 | 380 | 378 | 386 | 401 | 408 | 414 | 413 | 407 | 388 | 384 | 378 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 404 | 403 | 408 | 411 | 414 | 427 | 439 | 449 | 441 | 423 | 414 | 409 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 427 | 420 | 419 | 419 | 418 | 432 | 448 | 464 | 461 | 448 | 437 | 433 |
| Above Normal (16%) | 400 | 404 | 412 | 420 | 421 | 433 | 449 | 463 | 452 | 421 | 412 | 406 |
| Below Normal (13%) | 397 | 399 | 406 | 417 | 421 | 432 | 446 | 452 | 439 | 413 | 404 | 400 |
| Dry (24%) | 399 | 402 | 405 | 405 | 413 | 426 | 438 | 444 | 433 | 417 | 410 | 406 |
| Critical (15%) | 368 | 372 | 390 | 387 | 394 | 405 | 407 | 407 | 400 | 392 | 384 | 375 |

### Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 12 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 20% | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 6 |
| 30% | 6 | 10 | 5 | 1 | 0 | 0 | 0 | 0 | -1 | 0 | -1 | 3 |
| 40% | 4 | 7 | 5 | 3 | 0 | 0 | 0 | 0 | -3 | -3 | -1 | 1 |
| 50% | -4 | 0 | 4 | 5 | 1 | 0 | 0 | -2 | -7 | -5 | -7 | -6 |
| 60% | -5 | -2 | 4 | 4 | 1 | 0 | 0 | -1 | -7 | -6 | -7 | -4 |
| 70% | -4 | 0 | 2 | 1 | 0 | -1 | 0 | -2 | -9 | -5 | -4 | -5 |
| 80% | 1 | -1 | -2 | 1 | 2 | 4 | 4 | 2 | 0 | -4 | -4 | 0 |
| 90% | -1 | 3 | -2 | -1 | 2 | 3 | 0 | 0 | 0 | -8 | -5 | -3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2 | 3 | 2 | 1 | 1 | 0 | 0 | -1 | -3 | -3 | -3 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 12 | 12 | 6 | 1 | 0 | 0 | 0 | 0 | -2 | -1 | -1 | 8 |
| Above Normal (16%) | -5 | -1 | 2 | 4 | 1 | 0 | 0 | 0 | -5 | -7 | -9 | -7 |
| Below Normal (13%) | -7 | -4 | -2 | 4 | 1 | 1 | 1 | -1 | -7 | -7 | -9 | -9 |
| Dry (24%) | -1 | -1 | -1 | 1 | 1 | 1 | 1 | 0 | -1 | -2 | 0 | 0 |
| Critical (15%) | -2 | -2 | -1 | -1 | 0 | 0 | -1 | -3 | -2 | -3 | -1 | -1 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 5a-4. Folsom Lake Elevation, End of Month Elevation

## No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 427 | 421 | 424 | 424 | 424 | 436 | 449 | 466 | 466 | 461 | 449 | 438 |
| 20% | 420 | 415 | 424 | 424 | 424 | 435 | 449 | 466 | 466 | 455 | 445 | 431 |
| 30% | 415 | 411 | 419 | 423 | 423 | 435 | 449 | 466 | 465 | 445 | 438 | 425 |
| 40% | 410 | 407 | 414 | 419 | 423 | 434 | 449 | 466 | 461 | 436 | 425 | 418 |
| 50% | 404 | 405 | 409 | 414 | 420 | 432 | 449 | 465 | 454 | 428 | 420 | 413 |
| 60% | 397 | 403 | 405 | 408 | 415 | 431 | 449 | 455 | 447 | 419 | 411 | 405 |
| 70% | 392 | 396 | 401 | 405 | 411 | 428 | 443 | 445 | 437 | 410 | 403 | 401 |
| 80% | 385 | 389 | 395 | 399 | 405 | 419 | 428 | 430 | 420 | 405 | 396 | 388 |
| 90% | 380 | 377 | 380 | 387 | 399 | 405 | 415 | 414 | 408 | 396 | 389 | 381 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 402 | 401 | 407 | 410 | 414 | 426 | 439 | 450 | 444 | 427 | 418 | 409 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 415 | 408 | 413 | 418 | 418 | 432 | 448 | 464 | 463 | 448 | 439 | 425 |
| Above Normal (16%) | 405 | 404 | 410 | 417 | 419 | 433 | 448 | 464 | 457 | 429 | 421 | 413 |
| Below Normal (13%) | 404 | 403 | 407 | 414 | 420 | 431 | 445 | 453 | 446 | 421 | 413 | 409 |
| Dry (24%) | 400 | 403 | 406 | 405 | 413 | 424 | 437 | 444 | 435 | 419 | 410 | 406 |
| Critical (15%) | 371 | 373 | 391 | 388 | 394 | 405 | 408 | 409 | 402 | 395 | 385 | 376 |

## Alternative 4 043019

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 438 | 424 | 424 | 424 | 424 | 436 | 449 | 466 | 466 | 459 | 447 | 442 |
| 20% | 425 | 424 | 424 | 424 | 424 | 435 | 449 | 466 | 464 | 450 | 442 | 434 |
| 30% | 418 | 420 | 424 | 424 | 424 | 435 | 449 | 465 | 460 | 440 | 431 | 424 |
| 40% | 413 | 415 | 421 | 423 | 423 | 433 | 449 | 459 | 453 | 436 | 425 | 419 |
| 50% | 407 | 411 | 416 | 421 | 422 | 432 | 447 | 455 | 449 | 429 | 419 | 413 |
| 60% | 403 | 407 | 409 | 416 | 416 | 431 | 445 | 450 | 446 | 422 | 414 | 408 |
| 70% | 397 | 401 | 405 | 408 | 412 | 428 | 440 | 444 | 434 | 416 | 409 | 403 |
| 80% | 394 | 396 | 401 | 401 | 409 | 421 | 432 | 435 | 427 | 409 | 401 | 396 |
| 90% | 385 | 388 | 388 | 391 | 402 | 412 | 421 | 420 | 413 | 403 | 395 | 389 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 407 | 407 | 411 | 413 | 415 | 427 | 439 | 448 | 443 | 427 | 418 | 412 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 428 | 420 | 419 | 419 | 418 | 432 | 447 | 462 | 460 | 449 | 439 | 434 |
| Above Normal (16%) | 408 | 408 | 412 | 421 | 421 | 433 | 448 | 460 | 455 | 431 | 422 | 415 |
| Below Normal (13%) | 404 | 405 | 409 | 421 | 422 | 432 | 444 | 450 | 444 | 423 | 412 | 406 |
| Dry (24%) | 402 | 408 | 411 | 406 | 413 | 425 | 437 | 442 | 435 | 420 | 412 | 406 |
| Critical (15%) | 374 | 380 | 397 | 398 | 400 | 408 | 411 | 411 | 405 | 394 | 387 | 380 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10 | 3 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **-1** | **-2** | 4 |
| 20% | 5 | 10 | 0 | 0 | 0 | **0** | 0 | 0 | **-2** | **-4** | **-4** | 3 |
| 30% | 3 | 9 | 6 | 1 | 1 | **0** | 0 | **-1** | **-5** | **-5** | **-8** | **-1** |
| 40% | 3 | 8 | 7 | 4 | 1 | **-1** | 0 | **-7** | **-7** | **-1** | 0 | 1 |
| 50% | 3 | 5 | 7 | 8 | 2 | **0** | **-2** | **-10** | **-5** | 0 | **-1** | **0** |
| 60% | 5 | 4 | 4 | 8 | 1 | **0** | **-4** | **-5** | **-1** | 3 | 3 | 4 |
| 70% | 5 | 5 | 4 | 3 | 1 | **-1** | **-3** | **-1** | **-3** | 6 | 5 | 2 |
| 80% | 10 | 8 | 5 | 2 | 4 | 2 | 4 | 5 | 6 | 4 | 5 | 8 |
| 90% | 5 | 11 | 8 | 4 | 3 | 7 | 6 | 6 | 5 | 7 | 6 | 8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 5 | 7 | 4 | 4 | 2 | 1 | 0 | **-2** | **-1** | 1 | 1 | 3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 12 | 12 | 6 | 1 | 0 | **0** | **-1** | **-3** | **-2** | 0 | 0 | 8 |
| Above Normal (16%) | 3 | 3 | 2 | 4 | 2 | 0 | **0** | **-3** | **-2** | 2 | 1 | 3 |
| Below Normal (13%) | **-1** | 2 | 1 | 8 | 2 | 1 | **-1** | **-3** | **-3** | 3 | **0** | **-3** |
| Dry (24%) | 2 | 5 | 4 | 1 | 1 | 0 | **0** | **-2** | **0** | 1 | 2 | **0** |
| Critical (15%) | 4 | 6 | 6 | 9 | 6 | 3 | 3 | 2 | 2 | **-1** | 2 | 4 |

a Based on the 82-year simulation period.

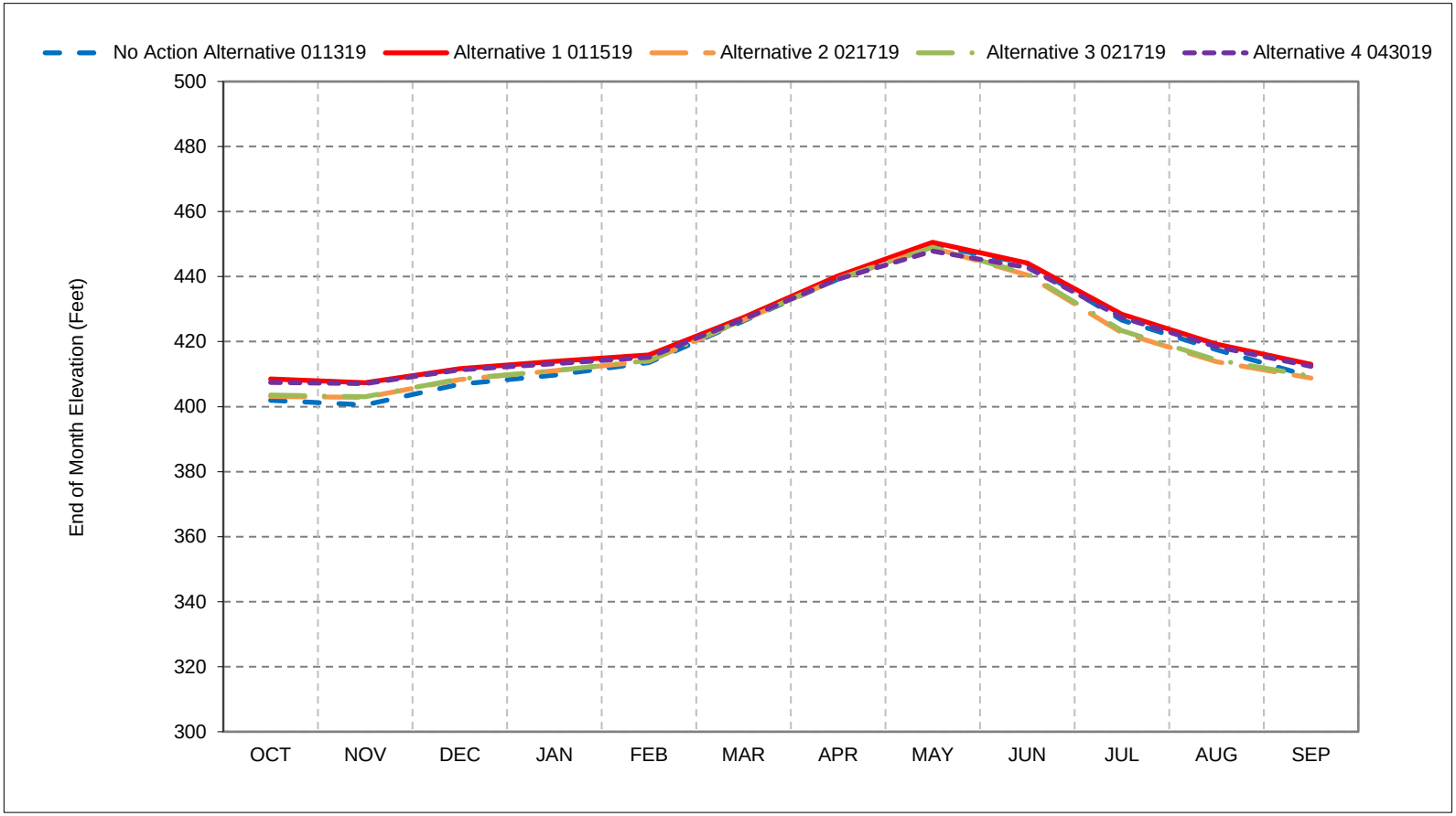
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

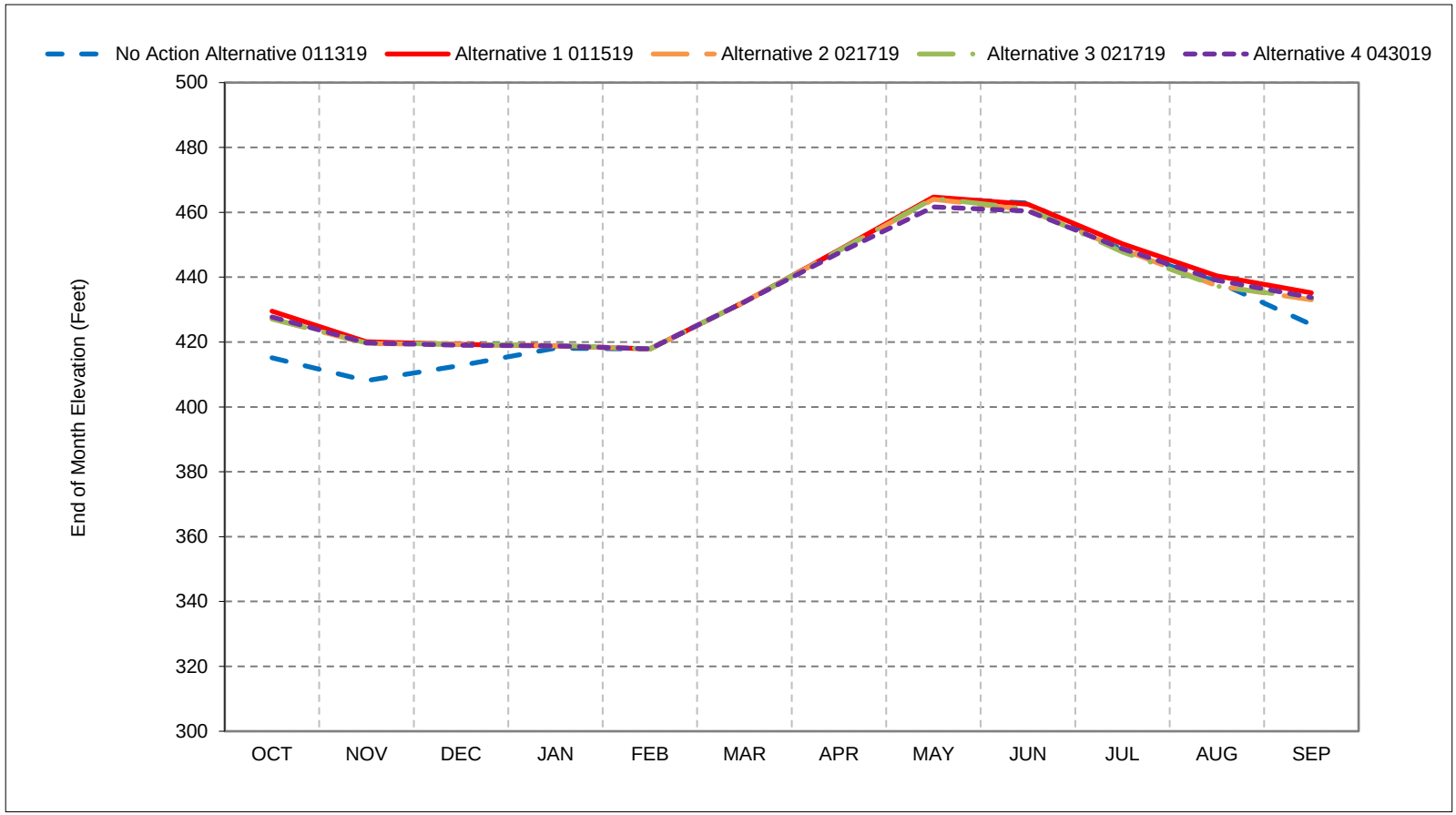
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5a-1. Folsom Lake Elevation, Long-Term Average Elevation



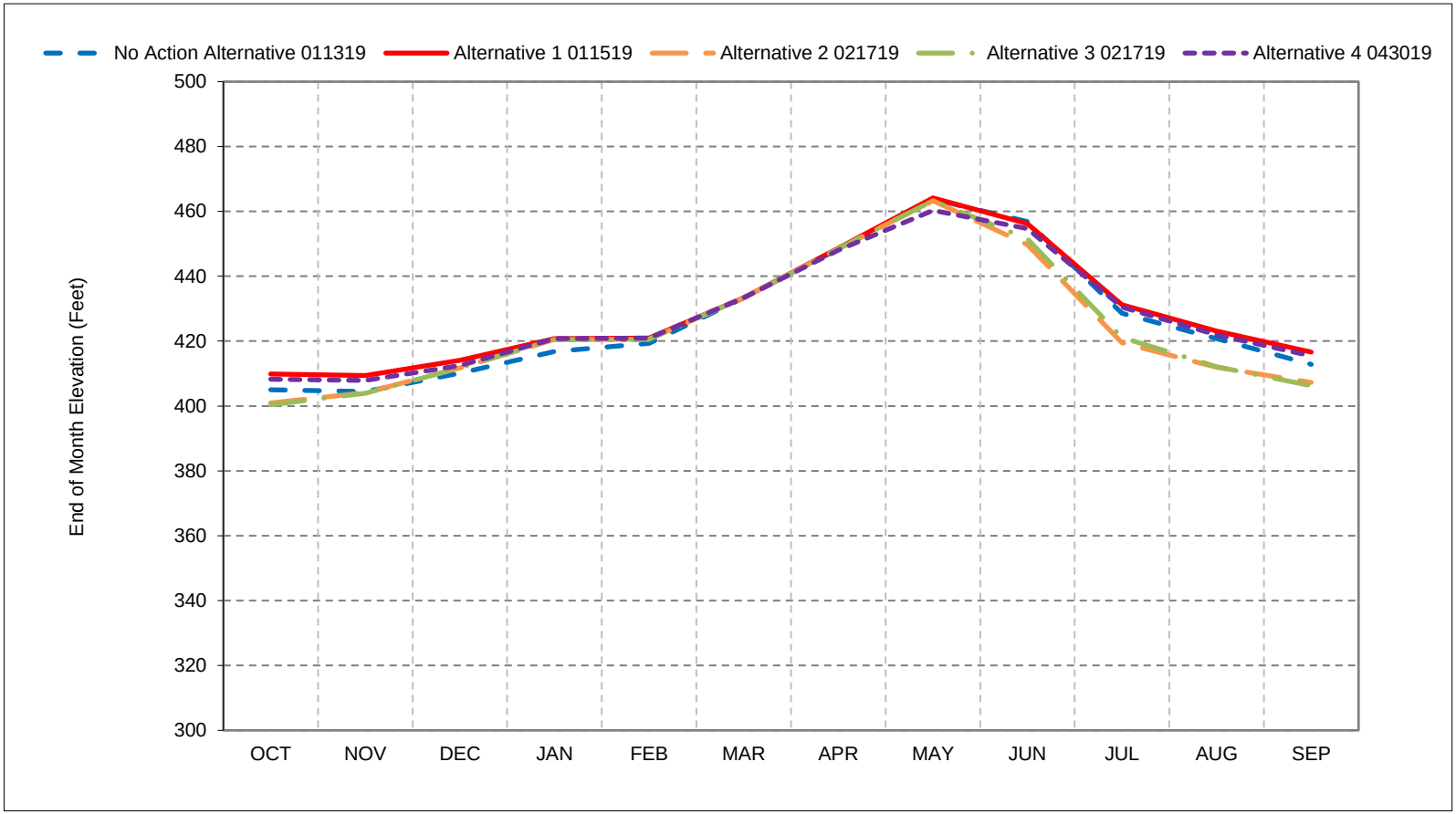

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5a-2. Folsom Lake Elevation, Wet Year Average Elevation



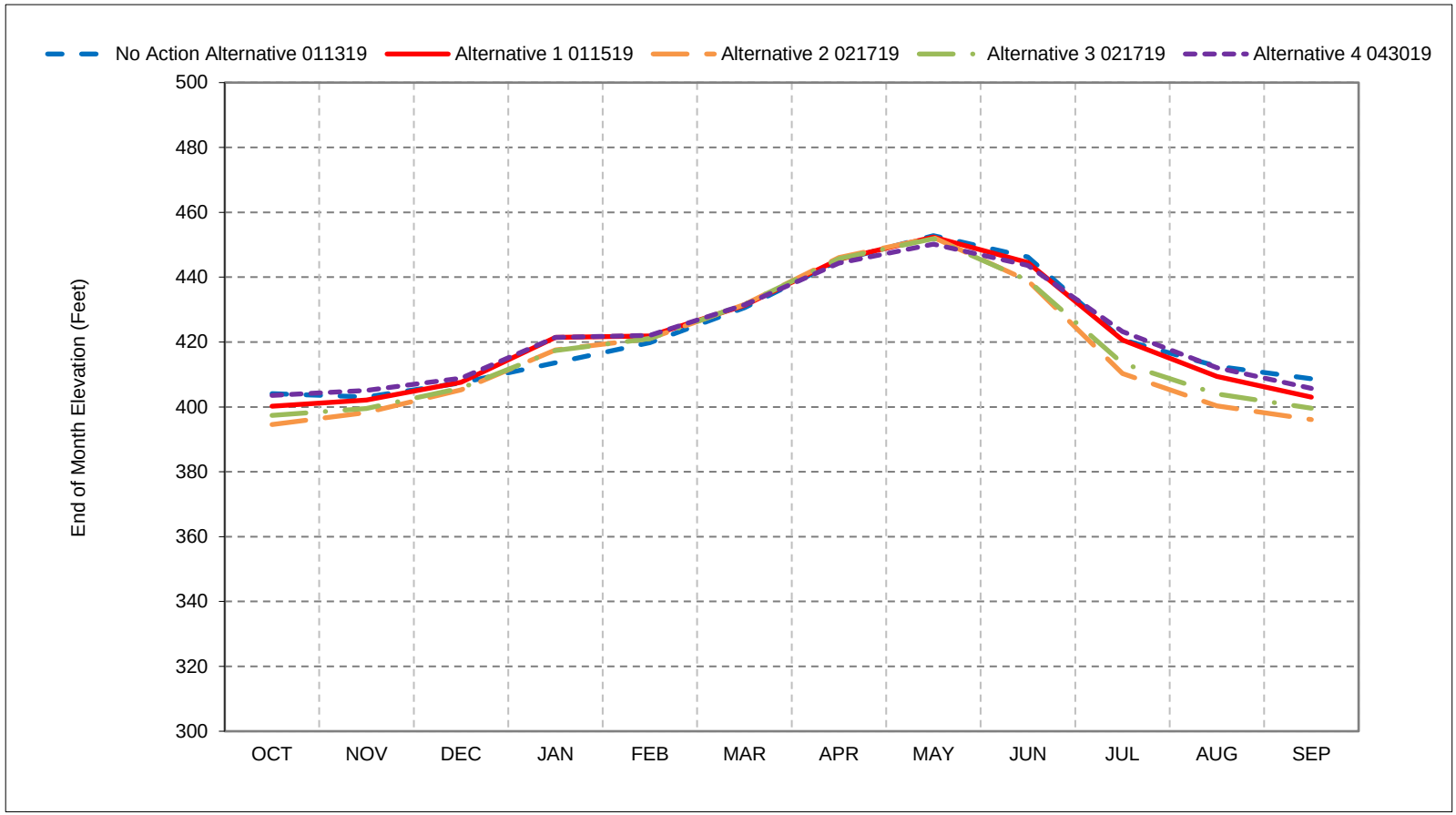

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5a-3. Folsom Lake Elevation, Above Normal Year Average Elevation



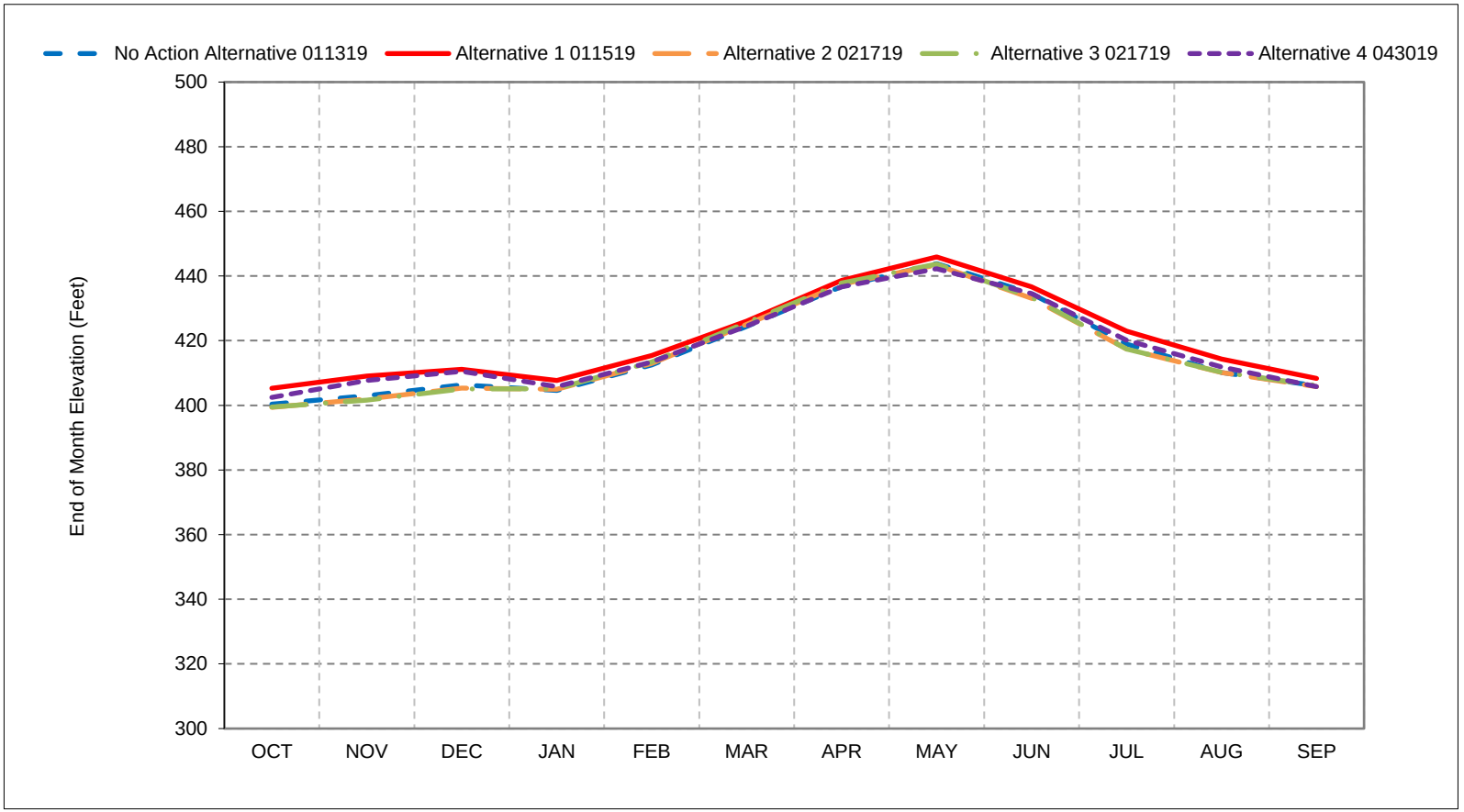

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5a-4. Folsom Lake Elevation, Below Normal Year Average Elevation



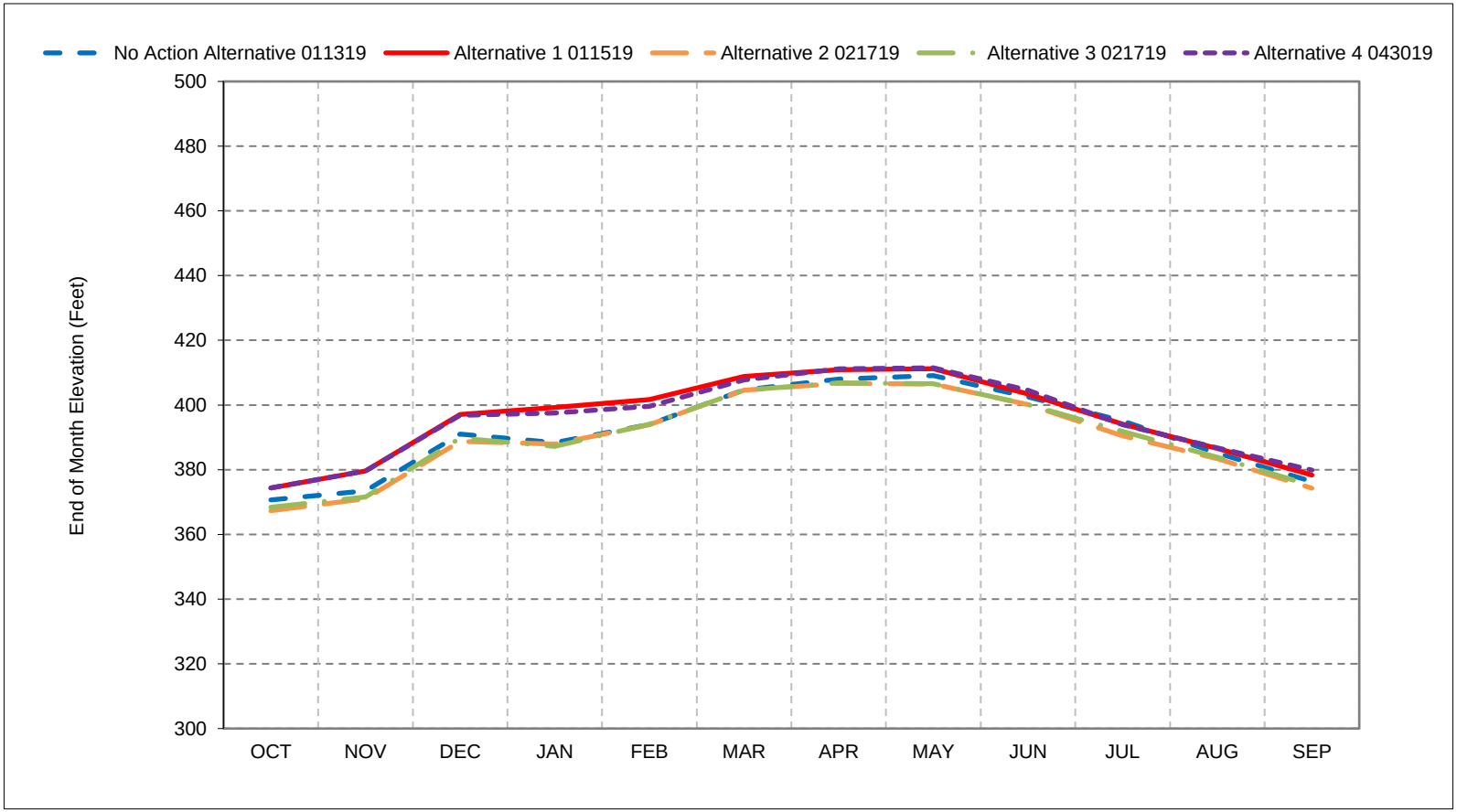

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5a-5. Folsom Lake Elevation, Dry Year Average Elevation



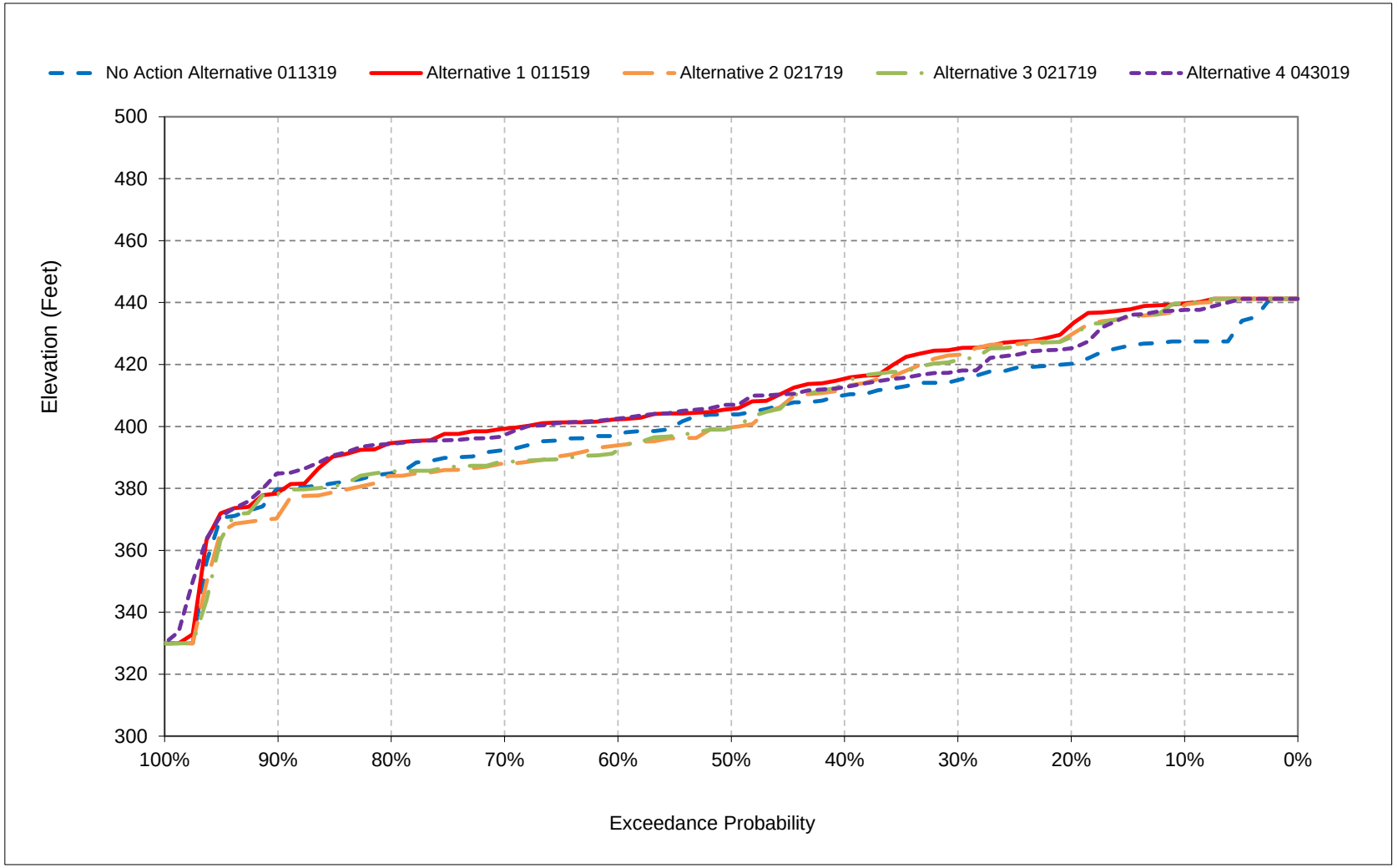

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5a-6. Folsom Lake Elevation, Critical Year Average Elevation




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

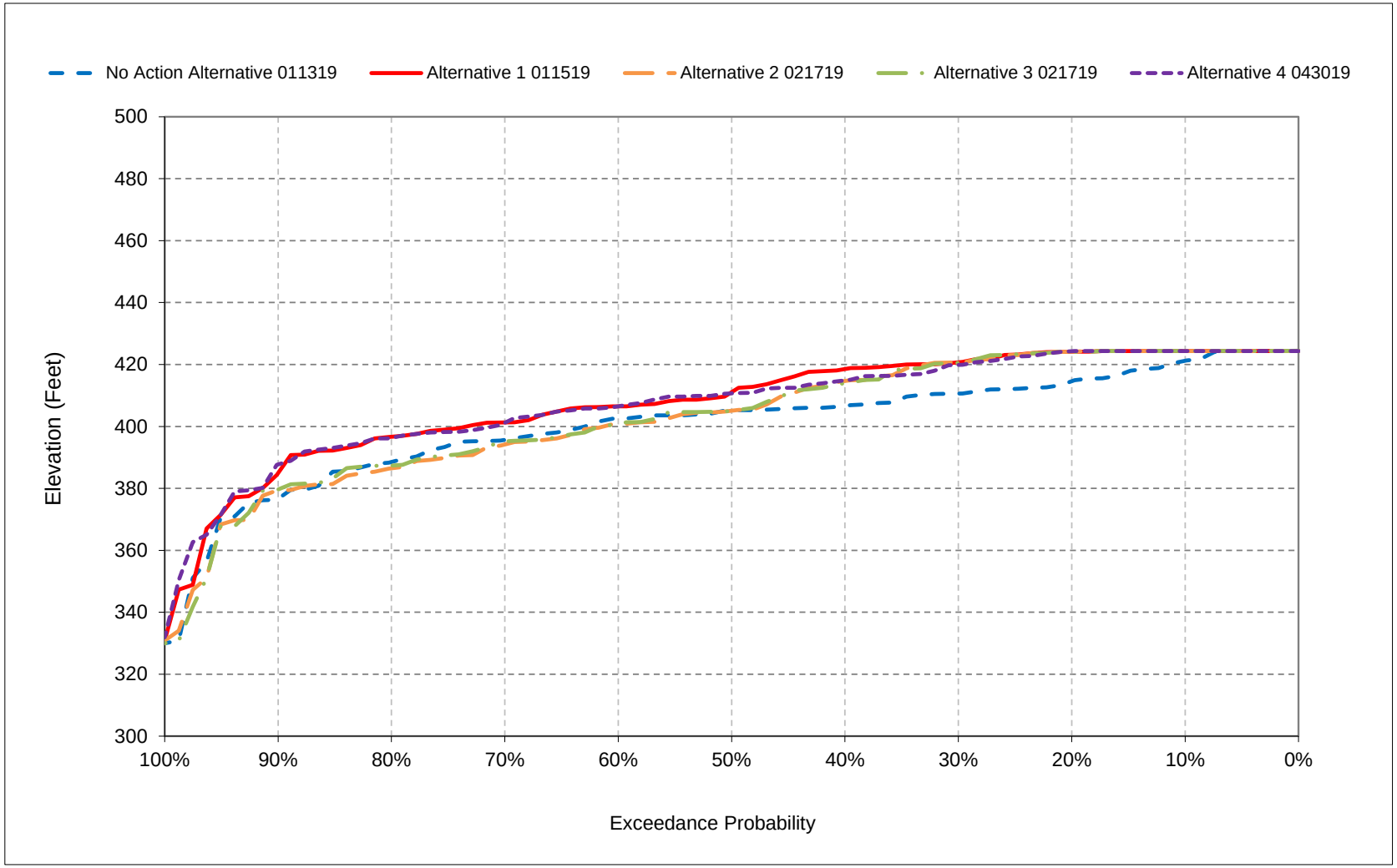
**Figure 5a-7. Folsom Lake, Reservoir Pool Elevation, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

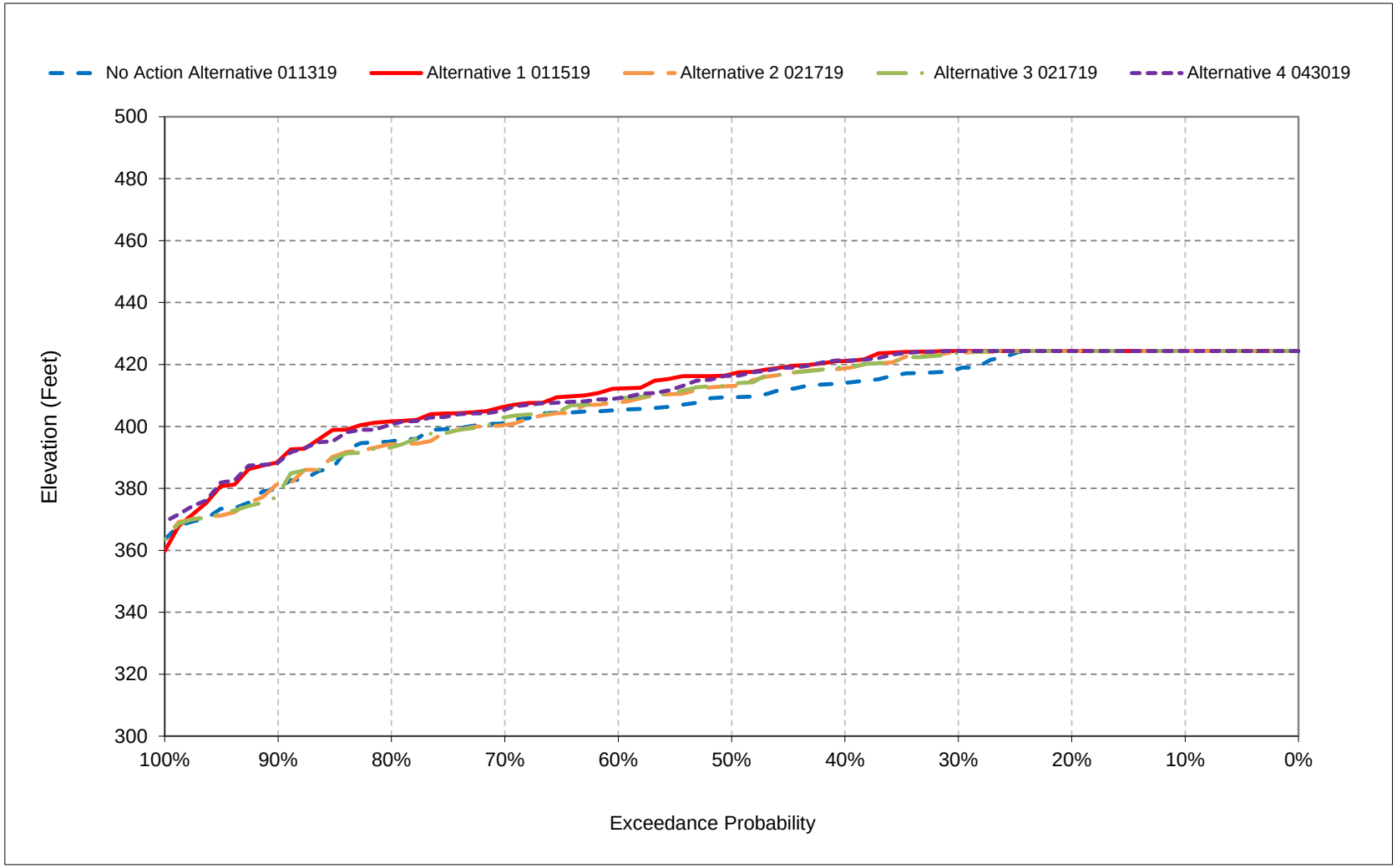
**Figure 5a-8. Folsom Lake, Reservoir Pool Elevation, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

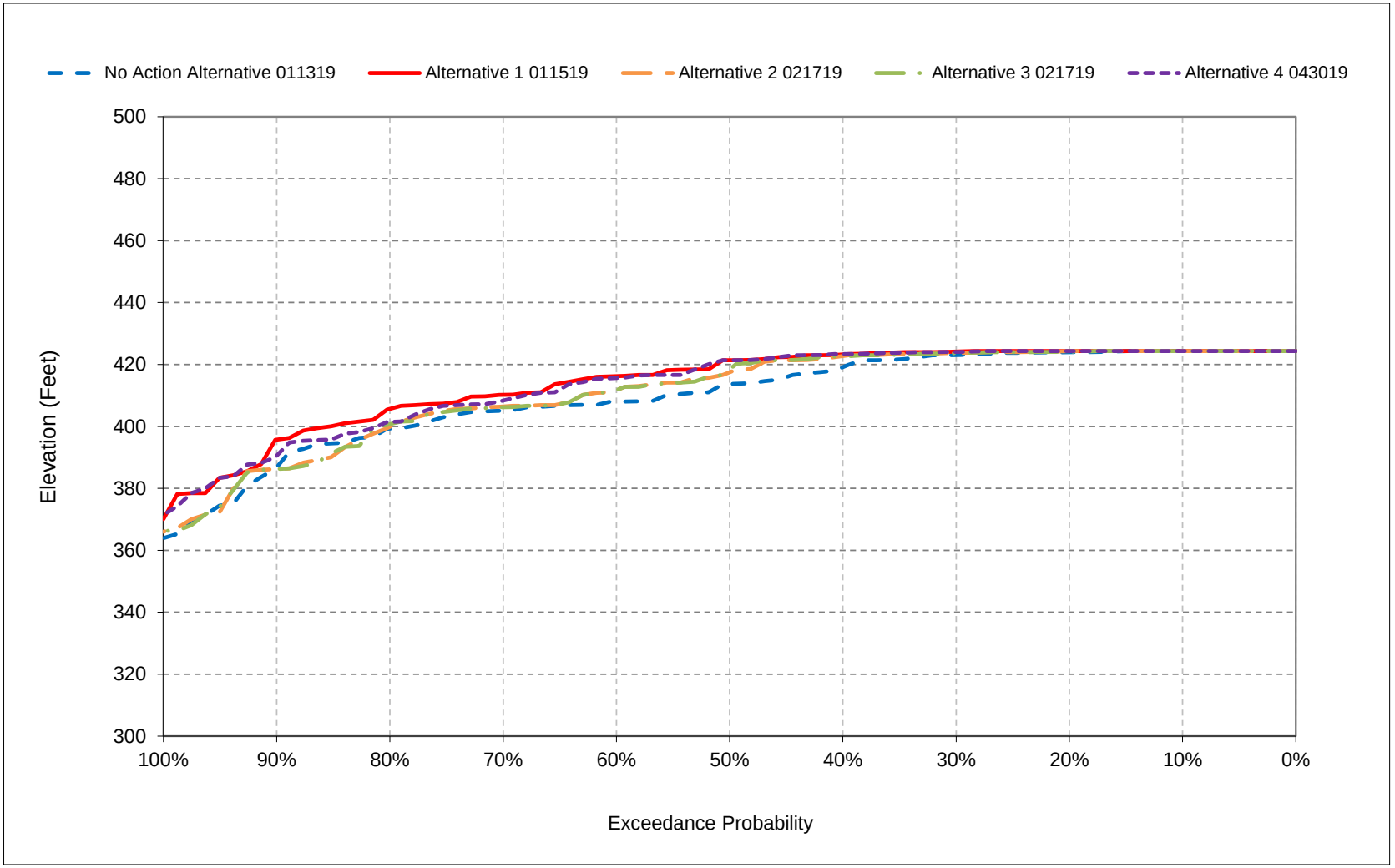
**Figure 5a-9. Folsom Lake, Reservoir Pool Elevation, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

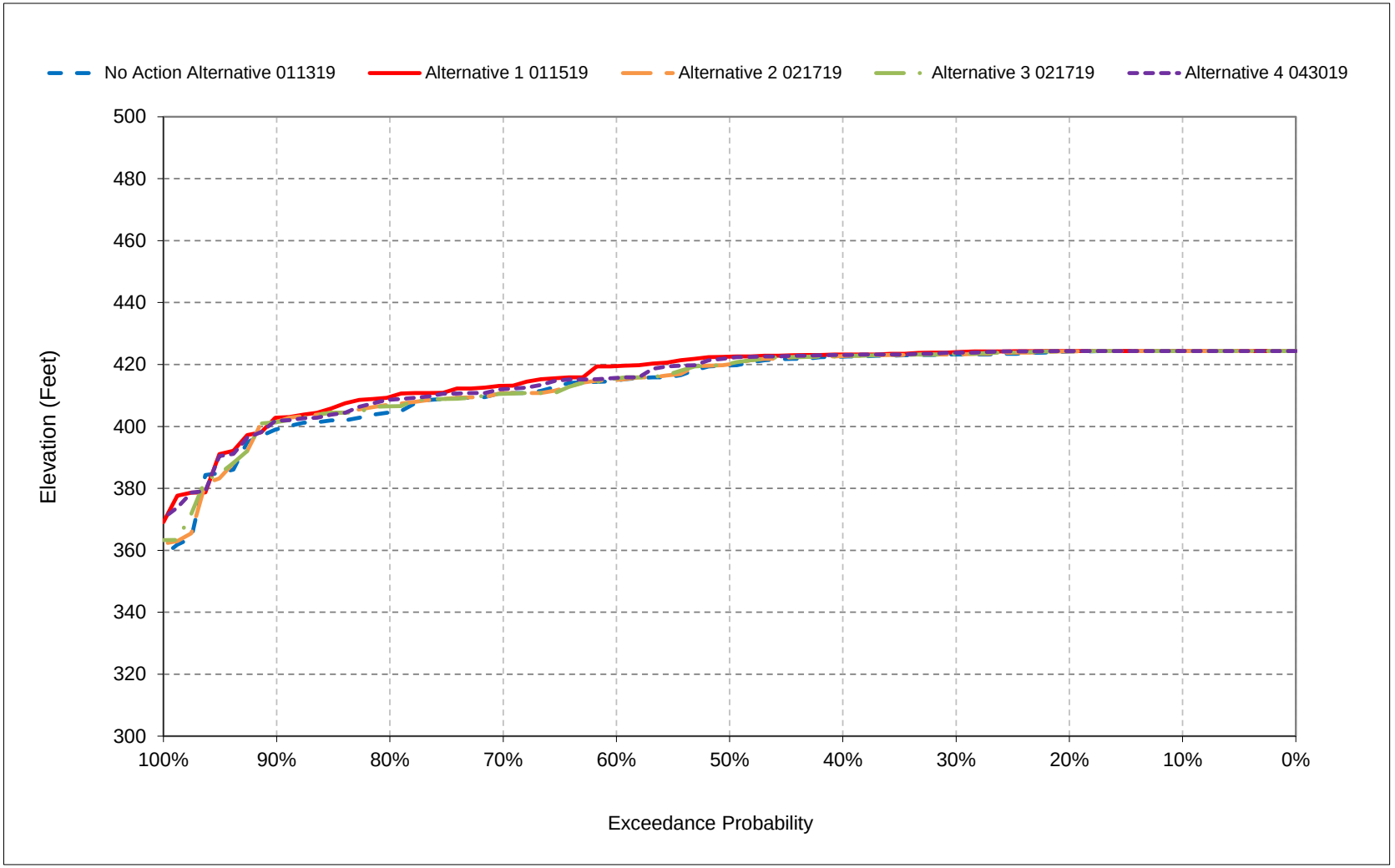
**Figure 5a-10. Folsom Lake, Reservoir Pool Elevation, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

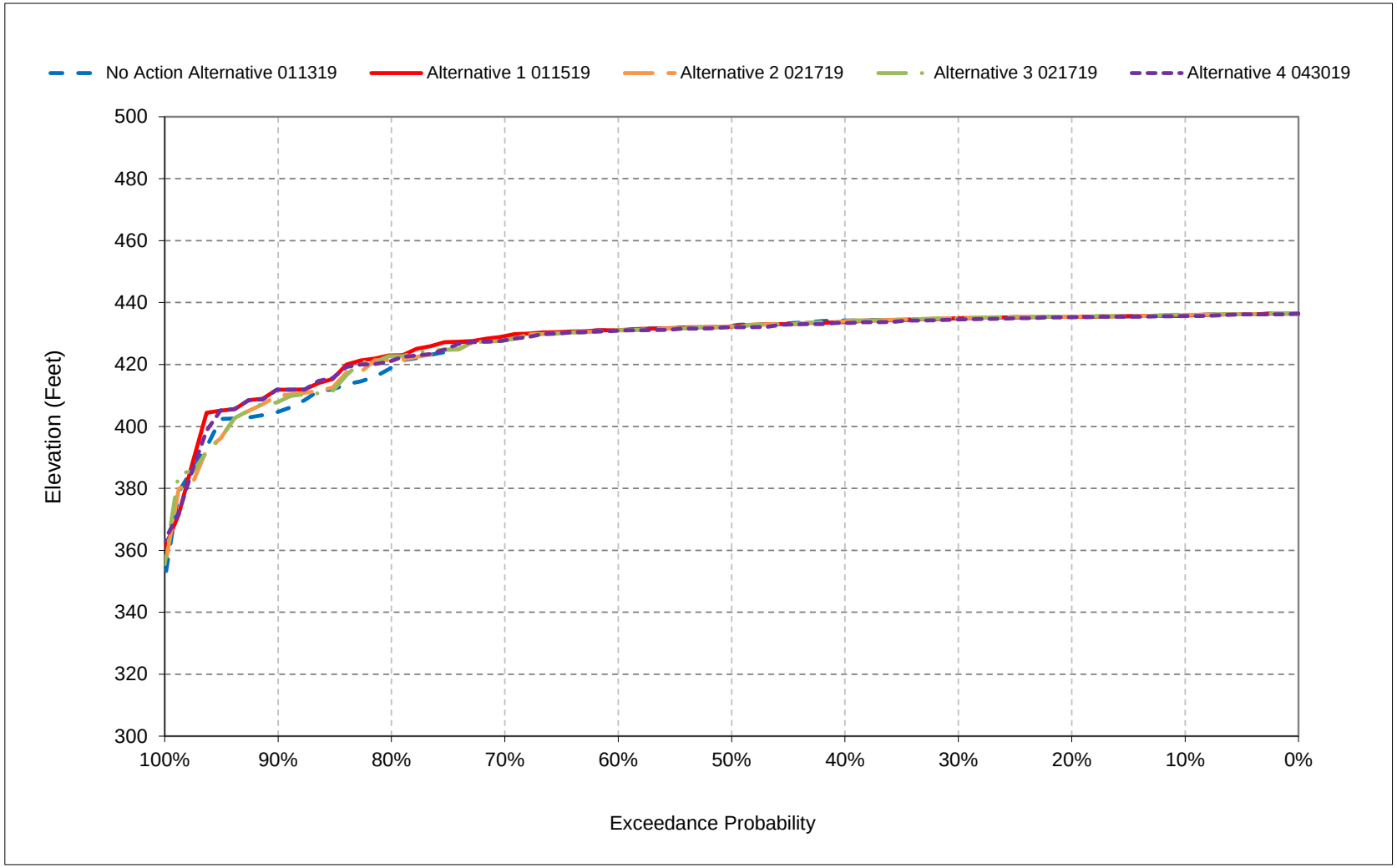
**Figure 5a-11. Folsom Lake, Reservoir Pool Elevation, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

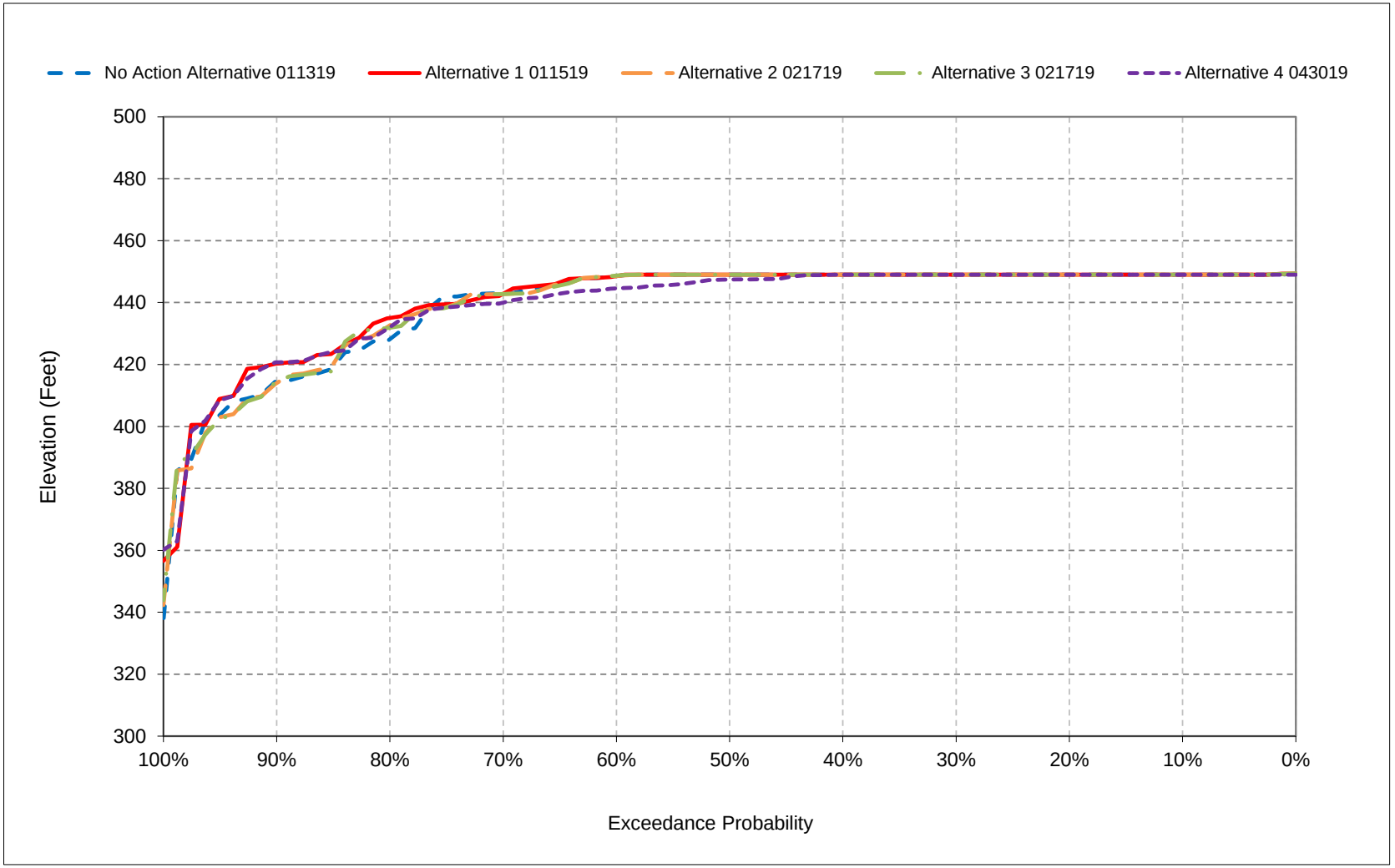
**Figure 5a-12. Folsom Lake, Reservoir Pool Elevation, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

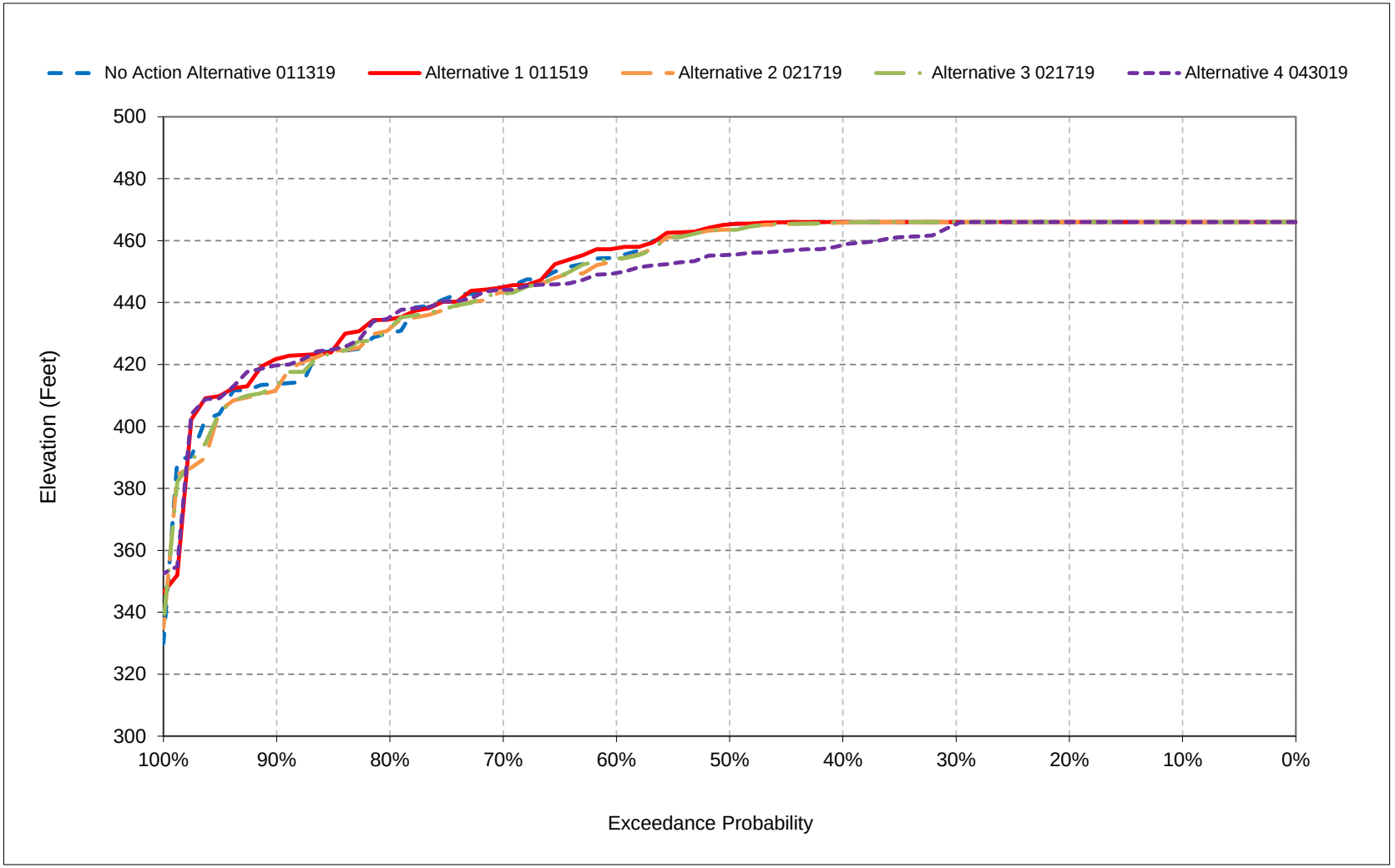
**Figure 5a-13. Folsom Lake, Reservoir Pool Elevation, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

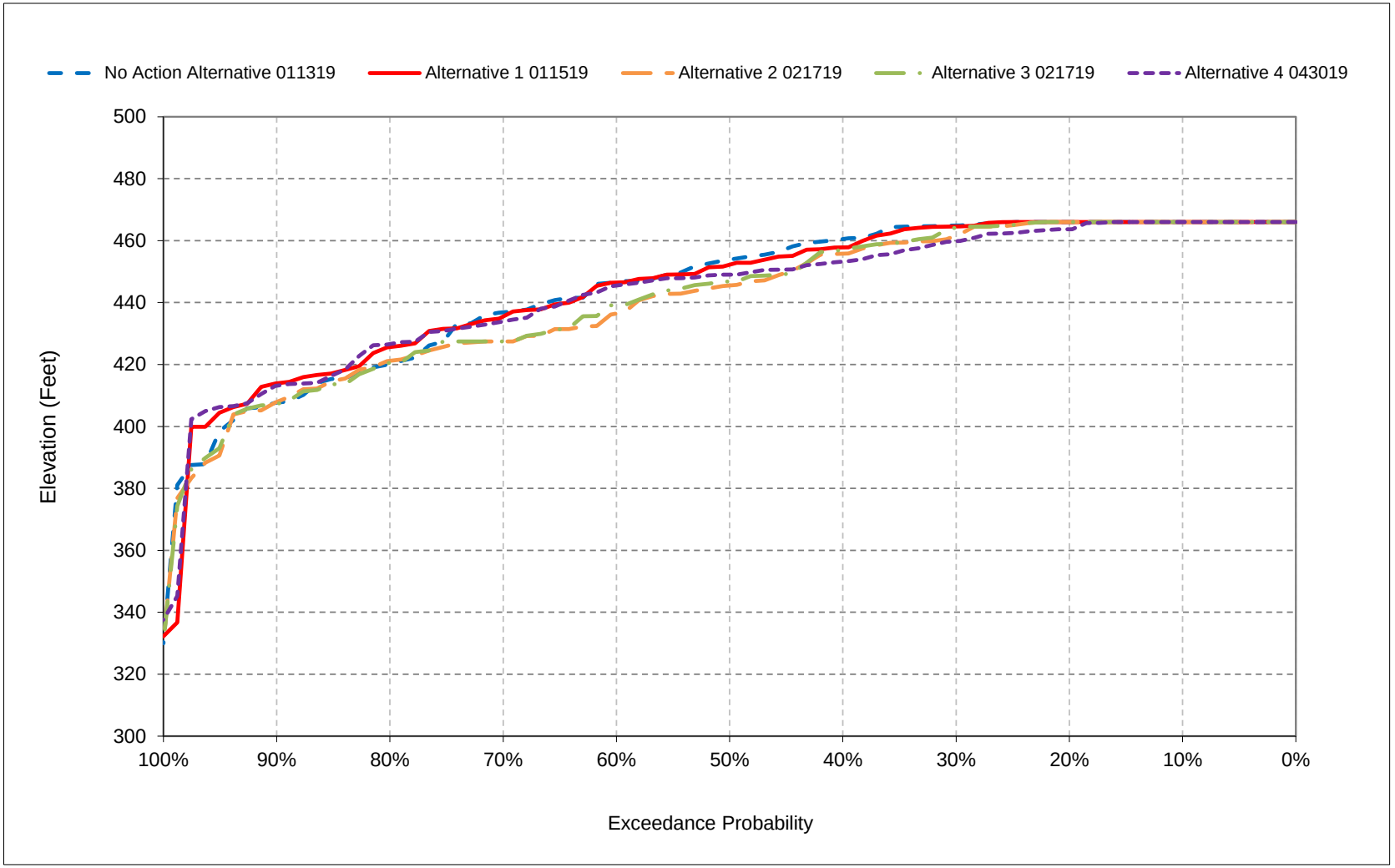
**Figure 5a-14. Folsom Lake, Reservoir Pool Elevation, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

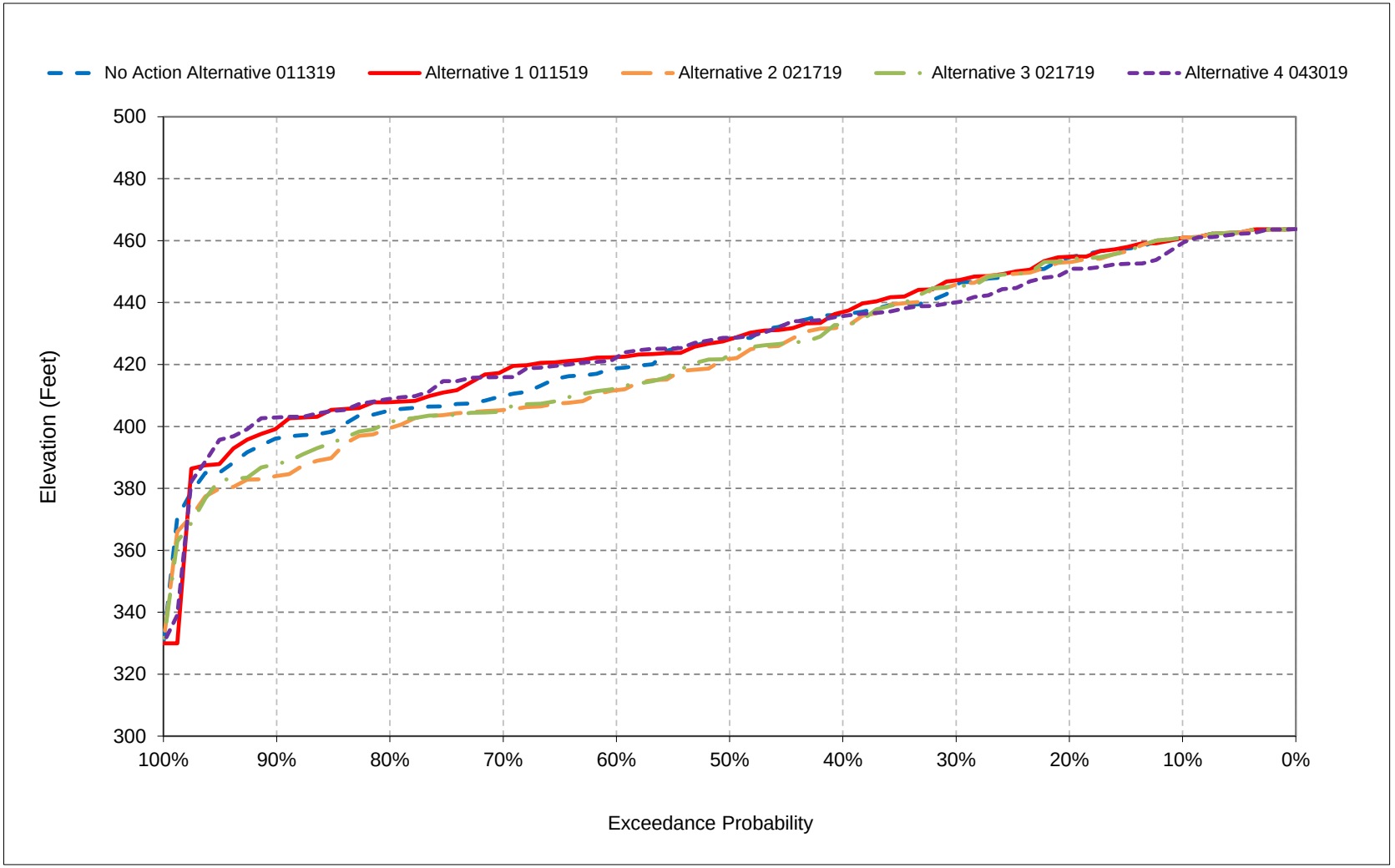
**Figure 5a-15. Folsom Lake, Reservoir Pool Elevation, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

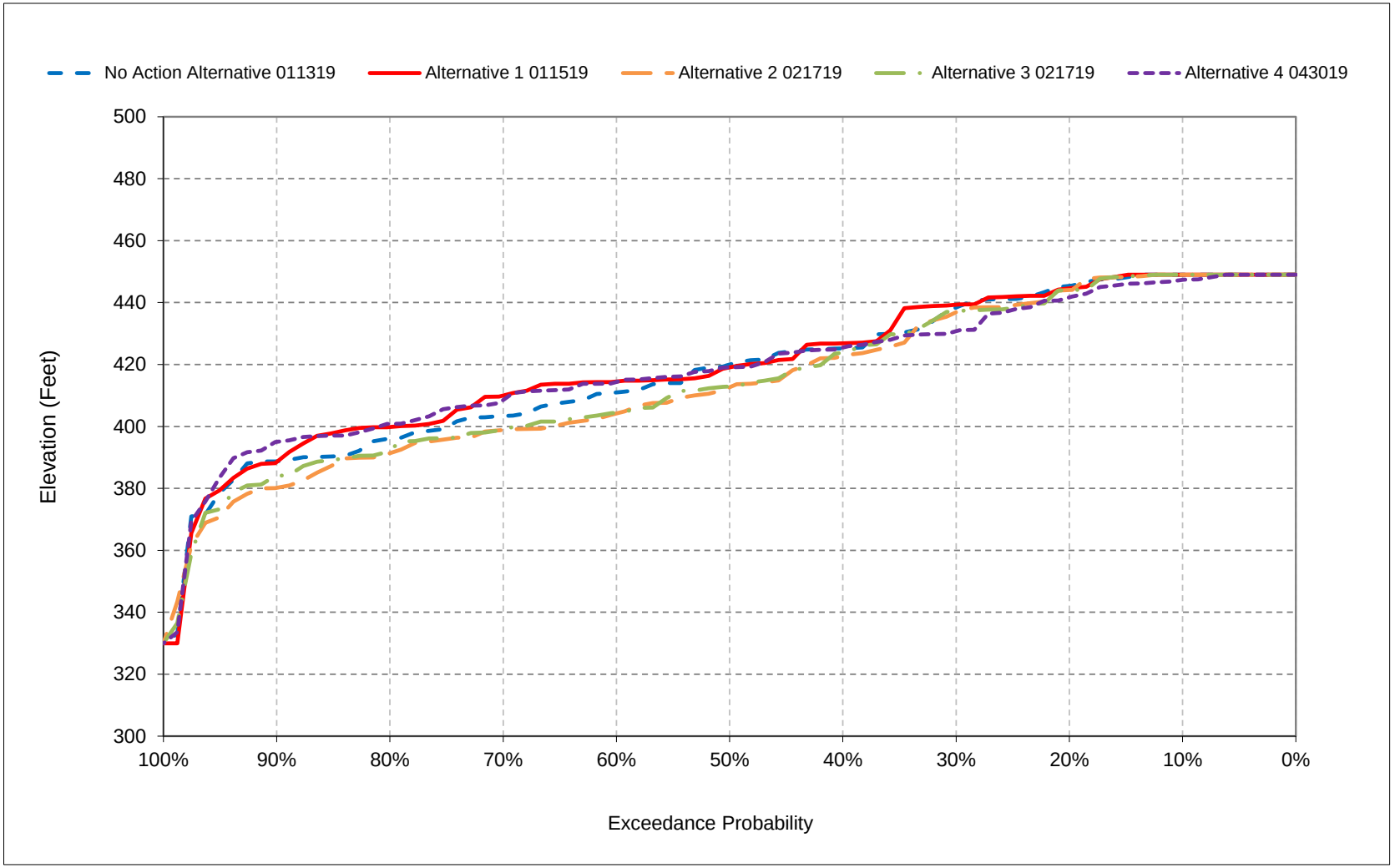
**Figure 5a-16. Folsom Lake, Reservoir Pool Elevation, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

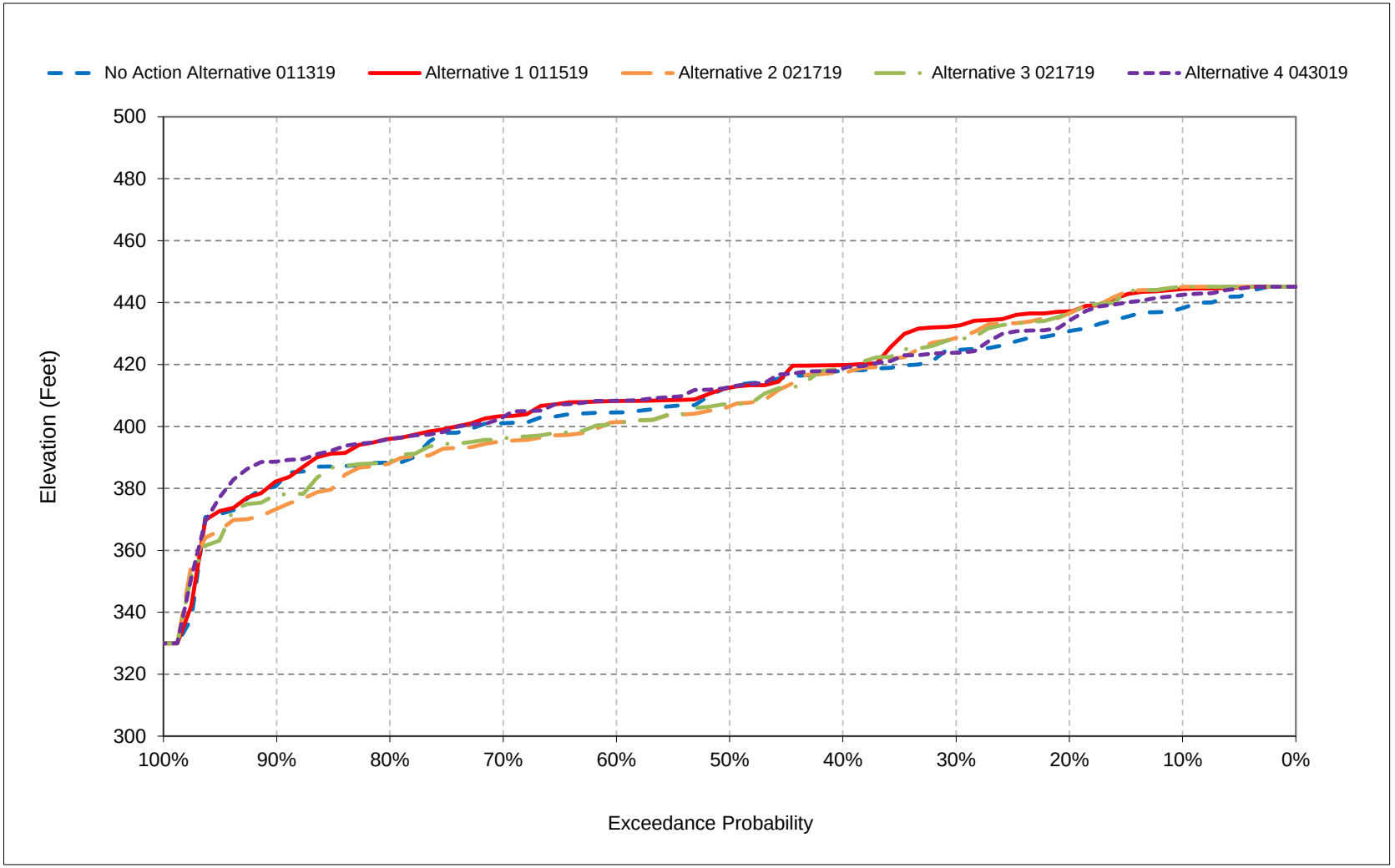
**Figure 5a-17. Folsom Lake, Reservoir Pool Elevation, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 5a-18. Folsom Lake, Reservoir Pool Elevation, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 6-1. San Luis Storage (CVP and SWP), End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 687 | 875 | 1,128 | 1,514 | 1,871 | 2,039 | 1,837 | 1,473 | 1,217 | 932 | 679 | 699 |
| 20% | 509 | 685 | 1,037 | 1,321 | 1,578 | 1,961 | 1,751 | 1,350 | 956 | 735 | 529 | 572 |
| 30% | 467 | 601 | 925 | 1,235 | 1,513 | 1,776 | 1,618 | 1,256 | 853 | 627 | 449 | 505 |
| 40% | 427 | 547 | 854 | 1,147 | 1,445 | 1,714 | 1,499 | 1,157 | 785 | 528 | 366 | 443 |
| 50% | 383 | 500 | 779 | 1,033 | 1,322 | 1,553 | 1,416 | 1,071 | 717 | 468 | 305 | 380 |
| 60% | 333 | 436 | 708 | 974 | 1,225 | 1,442 | 1,305 | 996 | 621 | 407 | 265 | 339 |
| 70% | 270 | 422 | 635 | 911 | 1,066 | 1,316 | 1,176 | 906 | 577 | 352 | 207 | 232 |
| 80% | 213 | 367 | 556 | 859 | 1,011 | 1,220 | 1,119 | 820 | 474 | 292 | 165 | 178 |
| 90% | 191 | 285 | 454 | 757 | 912 | 1,069 | 942 | 749 | 409 | 232 | 127 | 149 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 420 | 545 | 798 | 1,092 | 1,334 | 1,549 | 1,409 | 1,109 | 764 | 545 | 379 | 423 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 574 | 616 | 890 | 1,209 | 1,521 | 1,813 | 1,629 | 1,274 | 955 | 711 | 584 | 647 |
| Above Normal (16%) | 448 | 568 | 863 | 1,101 | 1,379 | 1,621 | 1,412 | 1,027 | 642 | 398 | 353 | 465 |
| Below Normal (13%) | 380 | 529 | 738 | 979 | 1,180 | 1,391 | 1,238 | 915 | 519 | 409 | 297 | 327 |
| Dry (24%) | 297 | 513 | 762 | 1,068 | 1,265 | 1,460 | 1,381 | 1,132 | 776 | 573 | 271 | 275 |
| Critical (15%) | 301 | 433 | 646 | 970 | 1,133 | 1,190 | 1,135 | 978 | 690 | 422 | 220 | 227 |

### Alternative 1 011519

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 948 | 1,206 | 1,484 | 1,714 | 1,992 | 2,039 | 2,018 | 1,885 | 1,469 | 1,137 | 859 | 854 |
| 20% | 821 | 989 | 1,150 | 1,346 | 1,703 | 2,027 | 1,966 | 1,806 | 1,339 | 955 | 695 | 749 |
| 30% | 545 | 740 | 981 | 1,274 | 1,539 | 1,791 | 1,889 | 1,646 | 1,241 | 860 | 583 | 556 |
| 40% | 464 | 591 | 819 | 1,142 | 1,461 | 1,630 | 1,638 | 1,467 | 1,038 | 694 | 440 | 448 |
| 50% | 376 | 524 | 690 | 1,008 | 1,291 | 1,540 | 1,499 | 1,333 | 952 | 591 | 351 | 344 |
| 60% | 296 | 479 | 620 | 931 | 1,183 | 1,399 | 1,377 | 1,139 | 820 | 526 | 275 | 257 |
| 70% | 245 | 412 | 579 | 829 | 1,048 | 1,300 | 1,288 | 1,031 | 713 | 453 | 188 | 198 |
| 80% | 232 | 334 | 512 | 768 | 993 | 1,177 | 1,139 | 938 | 630 | 376 | 159 | 168 |
| 90% | 187 | 266 | 408 | 700 | 941 | 1,105 | 1,063 | 869 | 517 | 280 | 116 | 140 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 500 | 653 | 831 | 1,113 | 1,356 | 1,551 | 1,535 | 1,351 | 991 | 675 | 444 | 455 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 766 | 926 | 1,111 | 1,250 | 1,499 | 1,706 | 1,732 | 1,577 | 1,201 | 881 | 676 | 707 |
| Above Normal (16%) | 415 | 542 | 665 | 1,115 | 1,344 | 1,473 | 1,438 | 1,195 | 758 | 433 | 312 | 359 |
| Below Normal (13%) | 371 | 484 | 605 | 1,135 | 1,357 | 1,540 | 1,466 | 1,186 | 759 | 543 | 370 | 374 |
| Dry (24%) | 388 | 580 | 809 | 1,031 | 1,284 | 1,549 | 1,530 | 1,372 | 1,062 | 726 | 374 | 353 |
| Critical (15%) | 322 | 456 | 648 | 931 | 1,180 | 1,311 | 1,281 | 1,149 | 883 | 526 | 266 | 257 |

### Alternative 1 011519 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 262 | 331 | 357 | 200 | 121 | 0 | 181 | 411 | 252 | 205 | 180 | 155 |
| 20% | 312 | 304 | 113 | 24 | 126 | 66 | 214 | 456 | 383 | 220 | 166 | 178 |
| 30% | 78 | 139 | 55 | 39 | 26 | 15 | 270 | 391 | 387 | 234 | 134 | 52 |
| 40% | 36 | 44 | **-35** | **-4** | 16 | **-85** | 140 | 310 | 253 | 166 | 73 | 5 |
| 50% | **-7** | 25 | **-90** | **-24** | **-31** | **-13** | 83 | 262 | 235 | 123 | 46 | **-36** |
| 60% | **-37** | 43 | **-88** | **-43** | **-43** | **-43** | 72 | 143 | 199 | 118 | 9 | **-83** |
| 70% | **-26** | **-9** | **-56** | **-82** | **-18** | **-16** | 111 | 125 | 136 | 100 | **-19** | **-33** |
| 80% | 19 | **-32** | **-44** | **-90** | **-18** | **-43** | 20 | 119 | 156 | 84 | **-7** | **-10** |
| 90% | **-4** | **-18** | **-46** | **-57** | 29 | 36 | 121 | 120 | 109 | 48 | **-12** | **-10** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 80 | 108 | 32 | 22 | 23 | 2 | 125 | 243 | 227 | 130 | 64 | 32 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 191 | 310 | 221 | 41 | **-22** | **-107** | 104 | 303 | 246 | 170 | 92 | 60 |
| Above Normal (16%) | **-33** | **-26** | **-198** | 14 | **-35** | **-148** | 26 | 168 | 117 | 35 | **-40** | **-106** |
| Below Normal (13%) | **-9** | **-45** | **-133** | 157 | 177 | 149 | 228 | 271 | 240 | 134 | 72 | 47 |
| Dry (24%) | 91 | 66 | 46 | **-37** | 18 | 89 | 148 | 240 | 286 | 153 | 104 | 78 |
| Critical (15%) | 21 | 22 | 2 | **-38** | 47 | 120 | 147 | 171 | 193 | 104 | 46 | 30 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 6-2. San Luis Storage (CVP and SWP), End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 687 | 875 | 1,128 | 1,514 | 1,871 | 2,039 | 1,837 | 1,473 | 1,217 | 932 | 679 | 699 |
| 20% | 509 | 685 | 1,037 | 1,321 | 1,578 | 1,961 | 1,751 | 1,350 | 956 | 735 | 529 | 572 |
| 30% | 467 | 601 | 925 | 1,235 | 1,513 | 1,776 | 1,618 | 1,256 | 853 | 627 | 449 | 505 |
| 40% | 427 | 547 | 854 | 1,147 | 1,445 | 1,714 | 1,499 | 1,157 | 785 | 528 | 366 | 443 |
| 50% | 383 | 500 | 779 | 1,033 | 1,322 | 1,553 | 1,416 | 1,071 | 717 | 468 | 305 | 380 |
| 60% | 333 | 436 | 708 | 974 | 1,225 | 1,442 | 1,305 | 996 | 621 | 407 | 265 | 339 |
| 70% | 270 | 422 | 635 | 911 | 1,066 | 1,316 | 1,176 | 906 | 577 | 352 | 207 | 232 |
| 80% | 213 | 367 | 556 | 859 | 1,011 | 1,220 | 1,119 | 820 | 474 | 292 | 165 | 178 |
| 90% | 191 | 285 | 454 | 757 | 912 | 1,069 | 942 | 749 | 409 | 232 | 127 | 149 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 420 | 545 | 798 | 1,092 | 1,334 | 1,549 | 1,409 | 1,109 | 764 | 545 | 379 | 423 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 574 | 616 | 890 | 1,209 | 1,521 | 1,813 | 1,629 | 1,274 | 955 | 711 | 584 | 647 |
| Above Normal (16%) | 448 | 568 | 863 | 1,101 | 1,379 | 1,621 | 1,412 | 1,027 | 642 | 398 | 353 | 465 |
| Below Normal (13%) | 380 | 529 | 738 | 979 | 1,180 | 1,391 | 1,238 | 915 | 519 | 409 | 297 | 327 |
| Dry (24%) | 297 | 513 | 762 | 1,068 | 1,265 | 1,460 | 1,381 | 1,132 | 776 | 573 | 271 | 275 |
| Critical (15%) | 301 | 433 | 646 | 970 | 1,133 | 1,190 | 1,135 | 978 | 690 | 422 | 220 | 227 |

### Alternative 2 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,201 | 1,473 | 1,798 | 2,039 | 2,039 | 2,039 | 2,039 | 2,003 | 1,805 | 1,334 | 1,097 | 1,085 |
| 20% | 923 | 1,093 | 1,452 | 1,880 | 2,039 | 2,039 | 2,039 | 1,946 | 1,633 | 1,161 | 834 | 852 |
| 30% | 802 | 999 | 1,308 | 1,665 | 1,980 | 2,039 | 2,039 | 1,859 | 1,454 | 1,078 | 738 | 759 |
| 40% | 617 | 826 | 1,112 | 1,578 | 1,916 | 2,039 | 2,023 | 1,764 | 1,373 | 985 | 668 | 638 |
| 50% | 487 | 561 | 919 | 1,404 | 1,831 | 2,031 | 1,965 | 1,681 | 1,291 | 879 | 569 | 527 |
| 60% | 379 | 511 | 838 | 1,340 | 1,714 | 1,976 | 1,882 | 1,596 | 1,210 | 815 | 450 | 364 |
| 70% | 264 | 465 | 698 | 1,287 | 1,602 | 1,847 | 1,769 | 1,459 | 1,069 | 700 | 353 | 273 |
| 80% | 210 | 371 | 626 | 1,039 | 1,470 | 1,589 | 1,598 | 1,343 | 965 | 628 | 269 | 234 |
| 90% | 154 | 285 | 489 | 901 | 1,240 | 1,468 | 1,418 | 1,228 | 892 | 518 | 165 | 168 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 604 | 763 | 1,036 | 1,436 | 1,719 | 1,864 | 1,833 | 1,641 | 1,300 | 924 | 603 | 587 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,061 | 1,249 | 1,516 | 1,673 | 1,906 | 2,018 | 2,015 | 1,879 | 1,562 | 1,220 | 955 | 971 |
| Above Normal (16%) | 630 | 722 | 969 | 1,549 | 1,836 | 1,947 | 1,916 | 1,650 | 1,214 | 843 | 604 | 611 |
| Below Normal (13%) | 382 | 498 | 707 | 1,575 | 1,815 | 1,929 | 1,839 | 1,514 | 1,131 | 790 | 461 | 414 |
| Dry (24%) | 323 | 534 | 857 | 1,230 | 1,585 | 1,822 | 1,787 | 1,612 | 1,306 | 866 | 425 | 373 |
| Critical (15%) | 260 | 379 | 667 | 1,012 | 1,321 | 1,448 | 1,417 | 1,281 | 969 | 590 | 267 | 244 |

### Alternative 2 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 514 | 598 | 670 | 525 | 168 | 0 | 202 | 529 | 588 | 402 | 418 | 386 |
| 20% | 414 | 408 | 415 | 558 | 461 | 78 | 288 | 596 | 677 | 426 | 305 | 280 |
| 30% | 335 | 398 | 382 | 430 | 467 | 263 | 421 | 603 | 600 | 451 | 289 | 255 |
| 40% | 190 | 279 | 258 | 432 | 471 | 325 | 525 | 608 | 588 | 458 | 301 | 195 |
| 50% | 105 | 61 | 140 | 371 | 509 | 478 | 549 | 610 | 574 | 411 | 264 | 147 |
| 60% | 46 | 76 | 130 | 367 | 489 | 534 | 577 | 600 | 588 | 407 | 185 | 25 |
| 70% | **-6** | 43 | 63 | 376 | 535 | 530 | 592 | 553 | 492 | 348 | 145 | 42 |
| 80% | **-2** | 4 | 70 | 181 | 459 | 369 | 480 | 523 | 491 | 336 | 104 | 56 |
| 90% | **-38** | 0 | 34 | 144 | 328 | 399 | 476 | 478 | 484 | 286 | 38 | 19 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 184 | 218 | 238 | 344 | 385 | 315 | 423 | 532 | 535 | 379 | 224 | 164 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 486 | 632 | 626 | 465 | 385 | 205 | 387 | 605 | 607 | 509 | 371 | 324 |
| Above Normal (16%) | 182 | 154 | 107 | 448 | 458 | 327 | 504 | 623 | 572 | 445 | 252 | 146 |
| Below Normal (13%) | 2 | **-31** | **-31** | 596 | 635 | 539 | 600 | 599 | 612 | 382 | 163 | 87 |
| Dry (24%) | 26 | 20 | 95 | 162 | 320 | 362 | 406 | 480 | 530 | 293 | 154 | 98 |
| Critical (15%) | **-41** | **-54** | 20 | 42 | 188 | 258 | 282 | 303 | 279 | 168 | 47 | 17 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 6-3. San Luis Storage (CVP and SWP), End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 687 | 875 | 1,128 | 1,514 | 1,871 | 2,039 | 1,837 | 1,473 | 1,217 | 932 | 679 | 699 |
| 20% | 509 | 685 | 1,037 | 1,321 | 1,578 | 1,961 | 1,751 | 1,350 | 956 | 735 | 529 | 572 |
| 30% | 467 | 601 | 925 | 1,235 | 1,513 | 1,776 | 1,618 | 1,256 | 853 | 627 | 449 | 505 |
| 40% | 427 | 547 | 854 | 1,147 | 1,445 | 1,714 | 1,499 | 1,157 | 785 | 528 | 366 | 443 |
| 50% | 383 | 500 | 779 | 1,033 | 1,322 | 1,553 | 1,416 | 1,071 | 717 | 468 | 305 | 380 |
| 60% | 333 | 436 | 708 | 974 | 1,225 | 1,442 | 1,305 | 996 | 621 | 407 | 265 | 339 |
| 70% | 270 | 422 | 635 | 911 | 1,066 | 1,316 | 1,176 | 906 | 577 | 352 | 207 | 232 |
| 80% | 213 | 367 | 556 | 859 | 1,011 | 1,220 | 1,119 | 820 | 474 | 292 | 165 | 178 |
| 90% | 191 | 285 | 454 | 757 | 912 | 1,069 | 942 | 749 | 409 | 232 | 127 | 149 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 420 | 545 | 798 | 1,092 | 1,334 | 1,549 | 1,409 | 1,109 | 764 | 545 | 379 | 423 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 574 | 616 | 890 | 1,209 | 1,521 | 1,813 | 1,629 | 1,274 | 955 | 711 | 584 | 647 |
| Above Normal (16%) | 448 | 568 | 863 | 1,101 | 1,379 | 1,621 | 1,412 | 1,027 | 642 | 398 | 353 | 465 |
| Below Normal (13%) | 380 | 529 | 738 | 979 | 1,180 | 1,391 | 1,238 | 915 | 519 | 409 | 297 | 327 |
| Dry (24%) | 297 | 513 | 762 | 1,068 | 1,265 | 1,460 | 1,381 | 1,132 | 776 | 573 | 271 | 275 |
| Critical (15%) | 301 | 433 | 646 | 970 | 1,133 | 1,190 | 1,135 | 978 | 690 | 422 | 220 | 227 |

### Alternative 3 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,197 | 1,458 | 1,756 | 2,033 | 2,039 | 2,039 | 2,039 | 2,016 | 1,817 | 1,333 | 1,047 | 1,061 |
| 20% | 888 | 1,087 | 1,449 | 1,806 | 2,039 | 2,039 | 2,039 | 1,946 | 1,635 | 1,174 | 806 | 823 |
| 30% | 806 | 975 | 1,257 | 1,665 | 1,983 | 2,039 | 2,039 | 1,826 | 1,460 | 1,065 | 737 | 755 |
| 40% | 613 | 831 | 1,125 | 1,565 | 1,881 | 2,039 | 2,022 | 1,750 | 1,356 | 988 | 672 | 633 |
| 50% | 502 | 624 | 967 | 1,455 | 1,817 | 2,029 | 1,964 | 1,669 | 1,298 | 879 | 576 | 527 |
| 60% | 389 | 525 | 872 | 1,363 | 1,732 | 1,986 | 1,864 | 1,588 | 1,198 | 801 | 428 | 391 |
| 70% | 261 | 463 | 716 | 1,278 | 1,644 | 1,839 | 1,743 | 1,505 | 1,134 | 703 | 351 | 274 |
| 80% | 220 | 346 | 602 | 1,101 | 1,493 | 1,602 | 1,613 | 1,382 | 987 | 645 | 255 | 229 |
| 90% | 172 | 287 | 490 | 883 | 1,190 | 1,468 | 1,437 | 1,257 | 904 | 508 | 160 | 176 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 597 | 758 | 1,039 | 1,437 | 1,723 | 1,863 | 1,831 | 1,644 | 1,302 | 925 | 597 | 581 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,066 | 1,261 | 1,535 | 1,670 | 1,918 | 2,028 | 2,011 | 1,880 | 1,571 | 1,243 | 955 | 971 |
| Above Normal (16%) | 593 | 704 | 966 | 1,550 | 1,851 | 1,946 | 1,918 | 1,651 | 1,196 | 807 | 574 | 575 |
| Below Normal (13%) | 389 | 508 | 725 | 1,603 | 1,808 | 1,918 | 1,841 | 1,524 | 1,138 | 798 | 465 | 419 |
| Dry (24%) | 315 | 518 | 846 | 1,224 | 1,577 | 1,809 | 1,773 | 1,607 | 1,308 | 859 | 415 | 368 |
| Critical (15%) | 245 | 353 | 655 | 1,013 | 1,326 | 1,460 | 1,434 | 1,298 | 978 | 590 | 267 | 247 |

### Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 511 | 583 | 629 | 519 | 168 | 0 | 202 | 543 | 600 | 402 | 368 | 362 |
| 20% | 379 | 402 | 412 | 485 | 461 | 78 | 288 | 596 | 680 | 439 | 277 | 251 |
| 30% | 339 | 374 | 332 | 430 | 470 | 263 | 421 | 570 | 607 | 439 | 289 | 250 |
| 40% | 186 | 284 | 271 | 418 | 436 | 325 | 523 | 593 | 571 | 461 | 306 | 190 |
| 50% | 119 | 125 | 188 | 423 | 495 | 476 | 548 | 598 | 581 | 411 | 272 | 148 |
| 60% | 57 | 90 | 164 | 389 | 507 | 544 | 559 | 592 | 577 | 393 | 163 | 51 |
| 70% | **-9** | 41 | 80 | 367 | 578 | 523 | 566 | 598 | 557 | 351 | 144 | 42 |
| 80% | 7 | **-20** | 46 | 243 | 482 | 383 | 494 | 562 | 513 | 353 | 89 | 51 |
| 90% | **-19** | 2 | 35 | 125 | 278 | 399 | 494 | 507 | 496 | 276 | 33 | 26 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 177 | 213 | 241 | 346 | 389 | 315 | 421 | 536 | 538 | 380 | 217 | 158 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 492 | 645 | 645 | 461 | 397 | 214 | 382 | 606 | 616 | 532 | 371 | 324 |
| Above Normal (16%) | 145 | 136 | 103 | 449 | 472 | 325 | 506 | 624 | 555 | 409 | 222 | 110 |
| Below Normal (13%) | 9 | **-21** | **-14** | 624 | 628 | 528 | 603 | 610 | 619 | 389 | 167 | 92 |
| Dry (24%) | 18 | 5 | 84 | 157 | 311 | 349 | 391 | 475 | 532 | 286 | 145 | 93 |
| Critical (15%) | **-56** | **-80** | 9 | 44 | 192 | 270 | 299 | 320 | 288 | 169 | 47 | 20 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 6-4. San Luis Storage (CVP and SWP), End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 687 | 875 | 1,128 | 1,514 | 1,871 | 2,039 | 1,837 | 1,473 | 1,217 | 932 | 679 | 699 |
| 20% | 509 | 685 | 1,037 | 1,321 | 1,578 | 1,961 | 1,751 | 1,350 | 956 | 735 | 529 | 572 |
| 30% | 467 | 601 | 925 | 1,235 | 1,513 | 1,776 | 1,618 | 1,256 | 853 | 627 | 449 | 505 |
| 40% | 427 | 547 | 854 | 1,147 | 1,445 | 1,714 | 1,499 | 1,157 | 785 | 528 | 366 | 443 |
| 50% | 383 | 500 | 779 | 1,033 | 1,322 | 1,553 | 1,416 | 1,071 | 717 | 468 | 305 | 380 |
| 60% | 333 | 436 | 708 | 974 | 1,225 | 1,442 | 1,305 | 996 | 621 | 407 | 265 | 339 |
| 70% | 270 | 422 | 635 | 911 | 1,066 | 1,316 | 1,176 | 906 | 577 | 352 | 207 | 232 |
| 80% | 213 | 367 | 556 | 859 | 1,011 | 1,220 | 1,119 | 820 | 474 | 292 | 165 | 178 |
| 90% | 191 | 285 | 454 | 757 | 912 | 1,069 | 942 | 749 | 409 | 232 | 127 | 149 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 420 | 545 | 798 | 1,092 | 1,334 | 1,549 | 1,409 | 1,109 | 764 | 545 | 379 | 423 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 574 | 616 | 890 | 1,209 | 1,521 | 1,813 | 1,629 | 1,274 | 955 | 711 | 584 | 647 |
| Above Normal (16%) | 448 | 568 | 863 | 1,101 | 1,379 | 1,621 | 1,412 | 1,027 | 642 | 398 | 353 | 465 |
| Below Normal (13%) | 380 | 529 | 738 | 979 | 1,180 | 1,391 | 1,238 | 915 | 519 | 409 | 297 | 327 |
| Dry (24%) | 297 | 513 | 762 | 1,068 | 1,265 | 1,460 | 1,381 | 1,132 | 776 | 573 | 271 | 275 |
| Critical (15%) | 301 | 433 | 646 | 970 | 1,133 | 1,190 | 1,135 | 978 | 690 | 422 | 220 | 227 |

### Alternative 4 043019

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 986 | 1,297 | 1,588 | 1,778 | 2,039 | 2,039 | 2,003 | 1,757 | 1,473 | 1,073 | 837 | 825 |
| 20% | 849 | 1,062 | 1,319 | 1,647 | 1,944 | 1,986 | 1,807 | 1,531 | 1,185 | 939 | 646 | 705 |
| 30% | 721 | 939 | 1,177 | 1,548 | 1,776 | 1,769 | 1,712 | 1,362 | 1,069 | 799 | 528 | 608 |
| 40% | 630 | 767 | 1,049 | 1,361 | 1,641 | 1,623 | 1,572 | 1,281 | 922 | 682 | 462 | 527 |
| 50% | 493 | 684 | 937 | 1,252 | 1,537 | 1,530 | 1,469 | 1,150 | 853 | 628 | 389 | 433 |
| 60% | 422 | 607 | 866 | 1,159 | 1,438 | 1,405 | 1,307 | 1,048 | 792 | 548 | 327 | 366 |
| 70% | 373 | 558 | 792 | 1,113 | 1,391 | 1,337 | 1,254 | 985 | 695 | 423 | 290 | 302 |
| 80% | 269 | 483 | 746 | 1,020 | 1,349 | 1,289 | 1,178 | 902 | 590 | 381 | 256 | 253 |
| 90% | 234 | 370 | 534 | 904 | 1,188 | 1,134 | 1,073 | 773 | 521 | 321 | 154 | 182 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 580 | 778 | 1,011 | 1,317 | 1,572 | 1,556 | 1,474 | 1,214 | 924 | 669 | 463 | 500 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 805 | 997 | 1,220 | 1,478 | 1,747 | 1,780 | 1,712 | 1,433 | 1,101 | 823 | 665 | 721 |
| Above Normal (16%) | 550 | 743 | 944 | 1,351 | 1,588 | 1,556 | 1,437 | 1,101 | 704 | 435 | 362 | 462 |
| Below Normal (13%) | 425 | 590 | 838 | 1,314 | 1,530 | 1,462 | 1,348 | 1,061 | 794 | 651 | 370 | 357 |
| Dry (24%) | 463 | 718 | 997 | 1,243 | 1,513 | 1,474 | 1,395 | 1,157 | 932 | 677 | 380 | 388 |
| Critical (15%) | 463 | 610 | 816 | 1,056 | 1,314 | 1,291 | 1,247 | 1,096 | 886 | 592 | 357 | 380 |

### Alternative 4 043019 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 299 | 422 | 460 | 263 | 168 | 0 | 166 | 284 | 255 | 141 | 159 | 126 |
| 20% | 340 | 377 | 282 | 326 | 367 | 25 | 55 | 181 | 229 | 204 | 117 | 133 |
| 30% | 254 | 338 | 251 | 313 | 263 | -6 | 94 | 107 | 215 | 173 | 80 | 104 |
| 40% | 203 | 220 | 195 | 214 | 196 | -92 | 73 | 124 | 137 | 154 | 96 | 84 |
| 50% | 110 | 185 | 158 | 219 | 215 | -23 | 53 | 79 | 136 | 159 | 84 | 53 |
| 60% | 89 | 172 | 158 | 185 | 213 | -37 | 2 | 52 | 171 | 140 | 62 | 26 |
| 70% | 103 | 136 | 156 | 202 | 325 | 20 | 78 | 79 | 118 | 71 | 82 | 70 |
| 80% | 56 | 116 | 189 | 161 | 338 | 70 | 60 | 82 | 116 | 89 | 91 | 75 |
| 90% | 43 | 85 | 80 | 147 | 276 | 65 | 130 | 24 | 112 | 89 | 27 | 33 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 160 | 233 | 213 | 225 | 239 | 7 | 65 | 105 | 160 | 124 | 84 | 77 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 231 | 381 | 330 | 269 | 226 | -34 | 83 | 159 | 146 | 112 | 81 | 74 |
| Above Normal (16%) | 102 | 175 | 82 | 250 | 209 | -65 | 25 | 73 | 62 | 37 | 9 | -2 |
| Below Normal (13%) | 45 | 61 | 99 | 336 | 350 | 71 | 110 | 146 | 275 | 242 | 73 | 30 |
| Dry (24%) | 167 | 205 | 234 | 175 | 248 | 15 | 13 | 26 | 156 | 105 | 109 | 112 |
| Critical (15%) | 162 | 176 | 170 | 86 | 180 | 101 | 112 | 118 | 197 | 170 | 136 | 153 |

a Based on the 82-year simulation period.

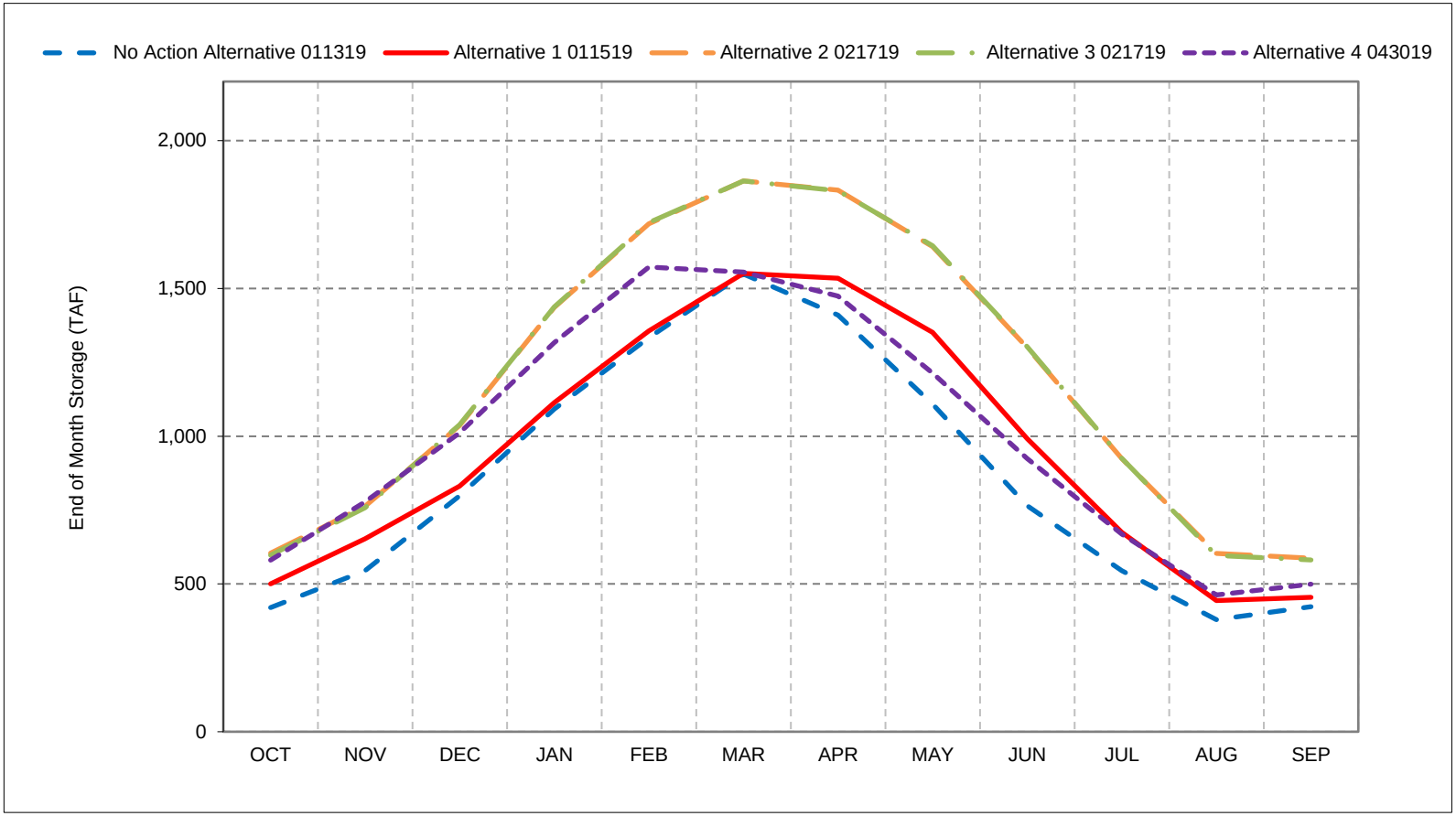
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

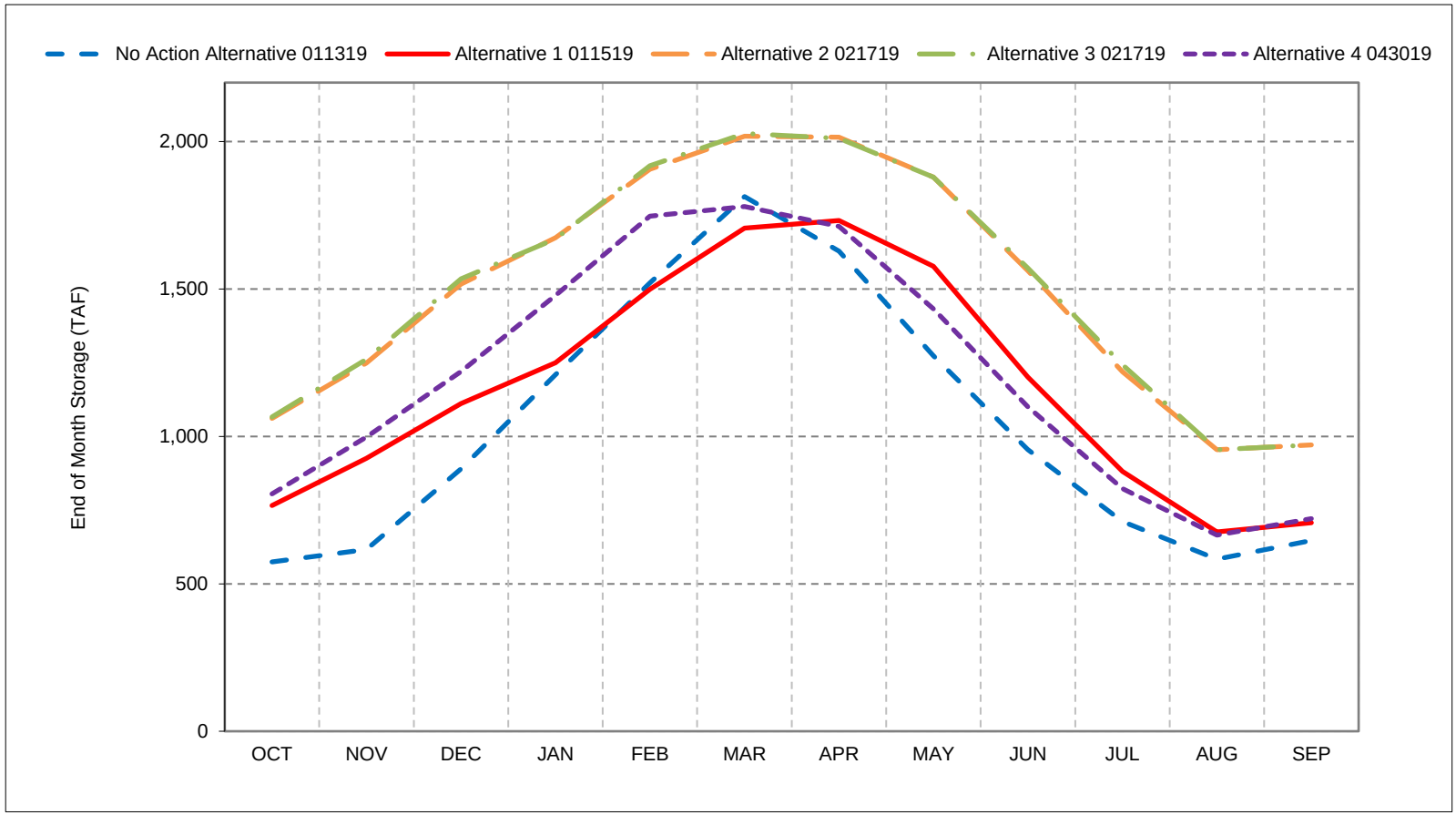
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-1. San Luis Storage (CVP and SWP), Long-Term Average Storage



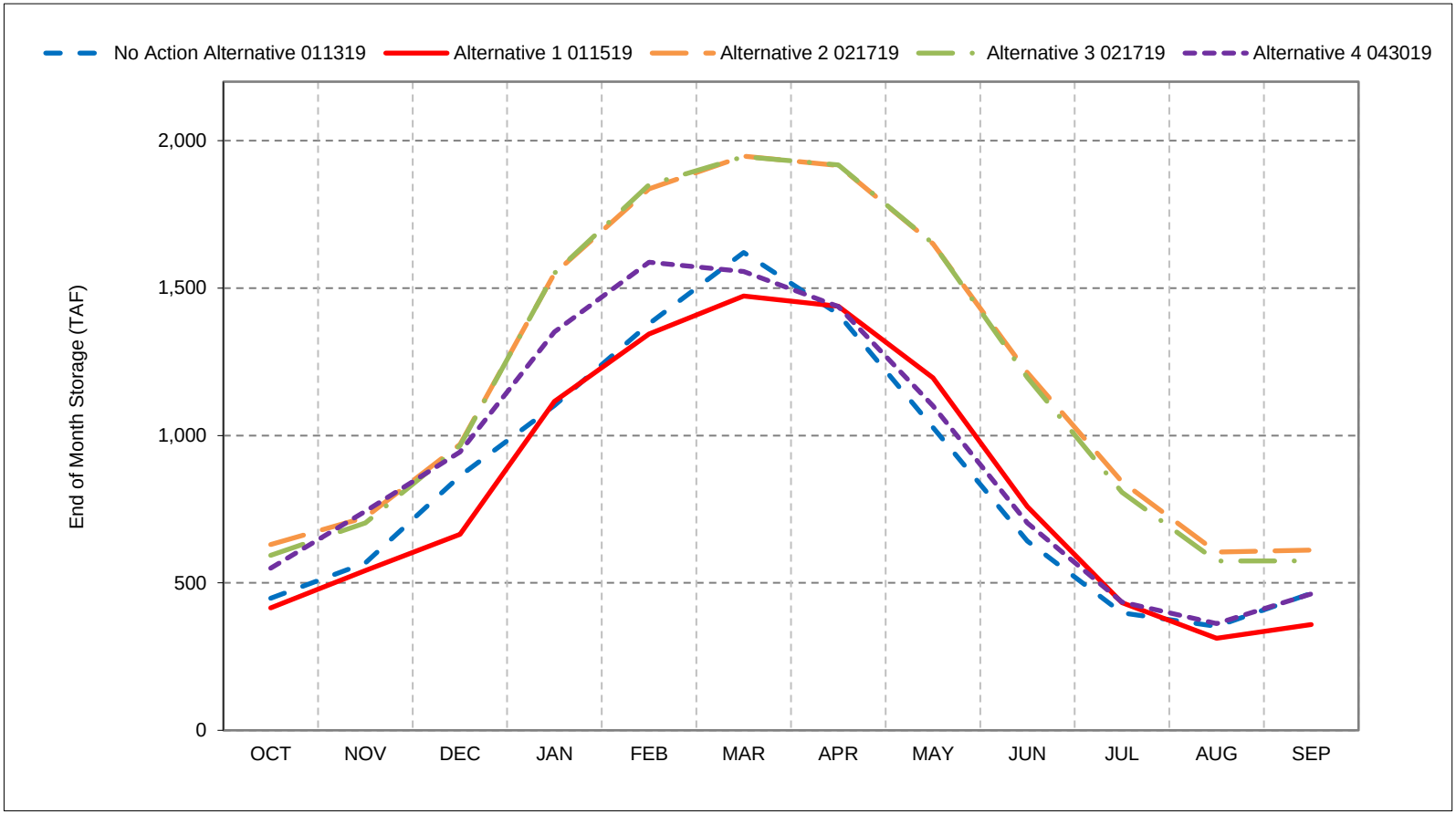

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-2. San Luis Storage (CVP and SWP), Wet Year Average Storage



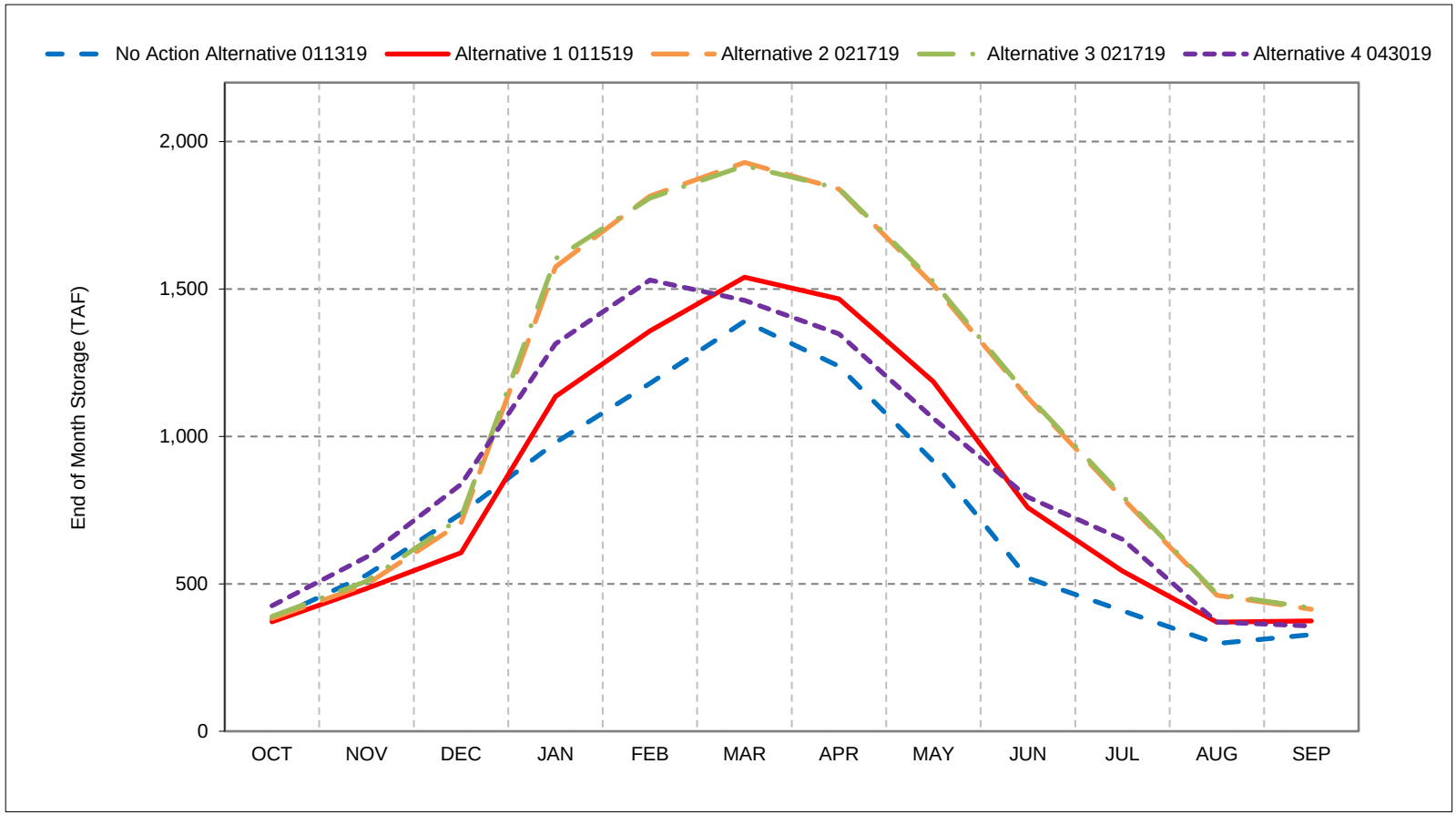

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-3. San Luis Storage (CVP and SWP), Above Normal Year Average Storage



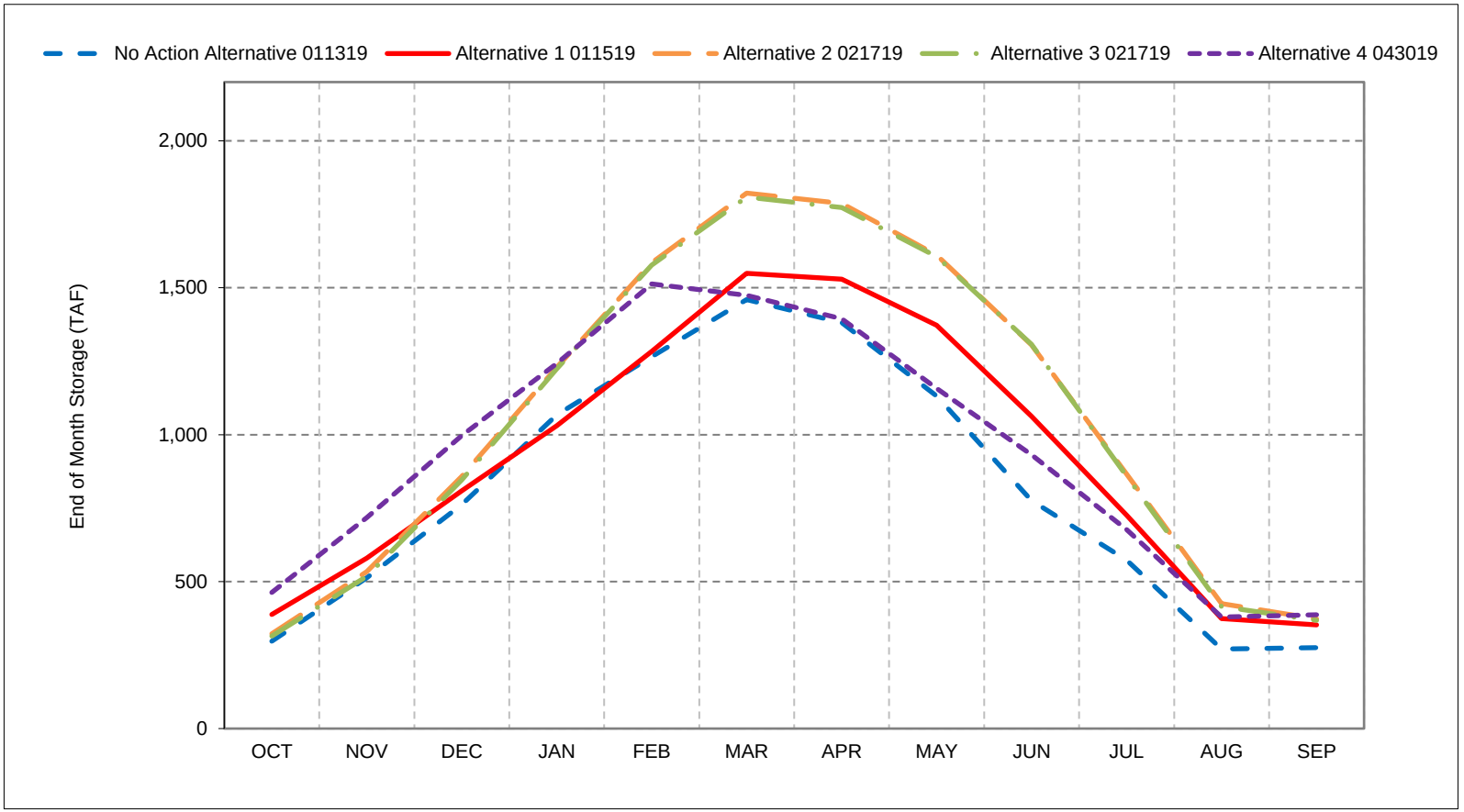

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-4. San Luis Storage (CVP and SWP), Below Normal Year Average Storage



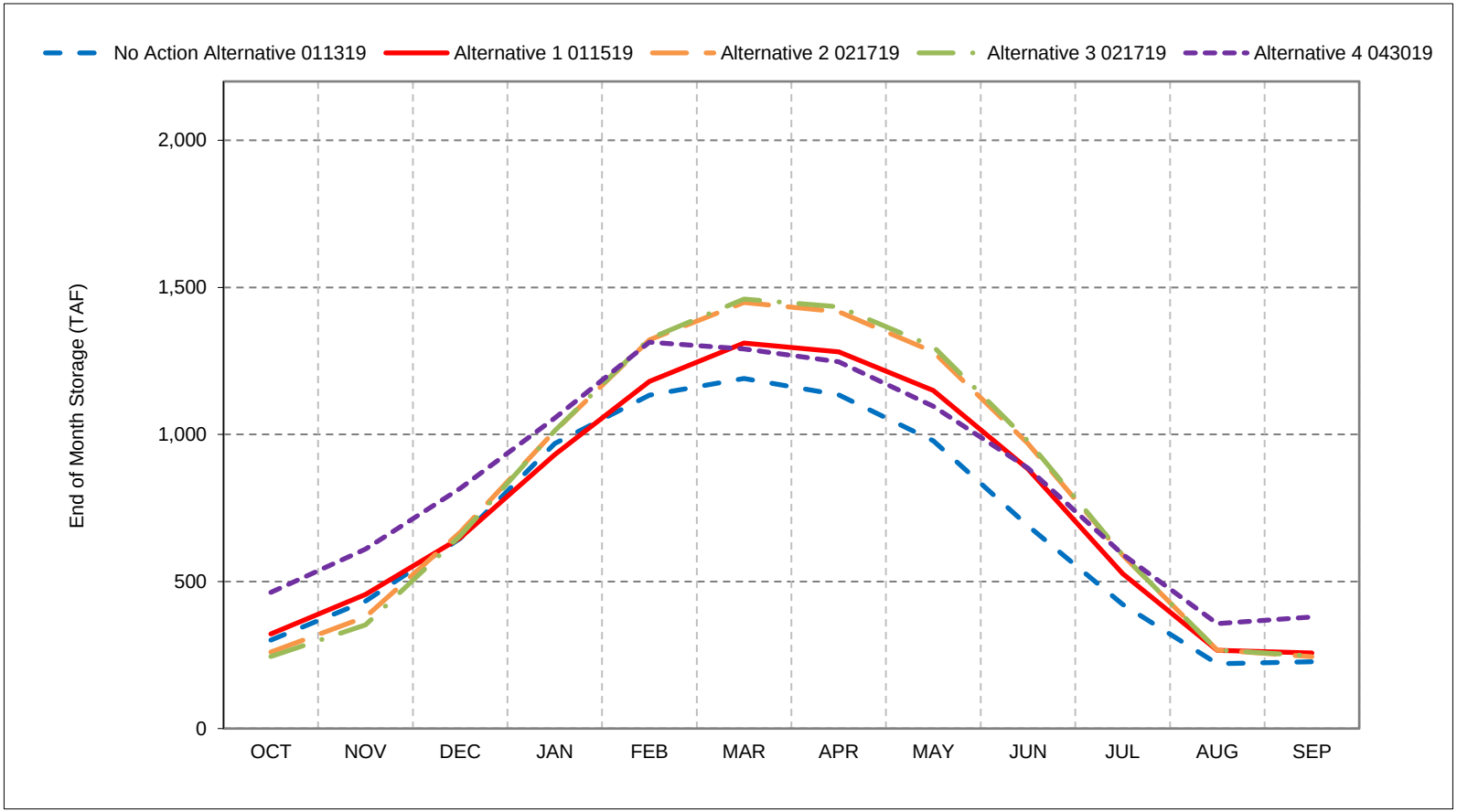

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-5. San Luis Storage (CVP and SWP), Dry Year Average Storage



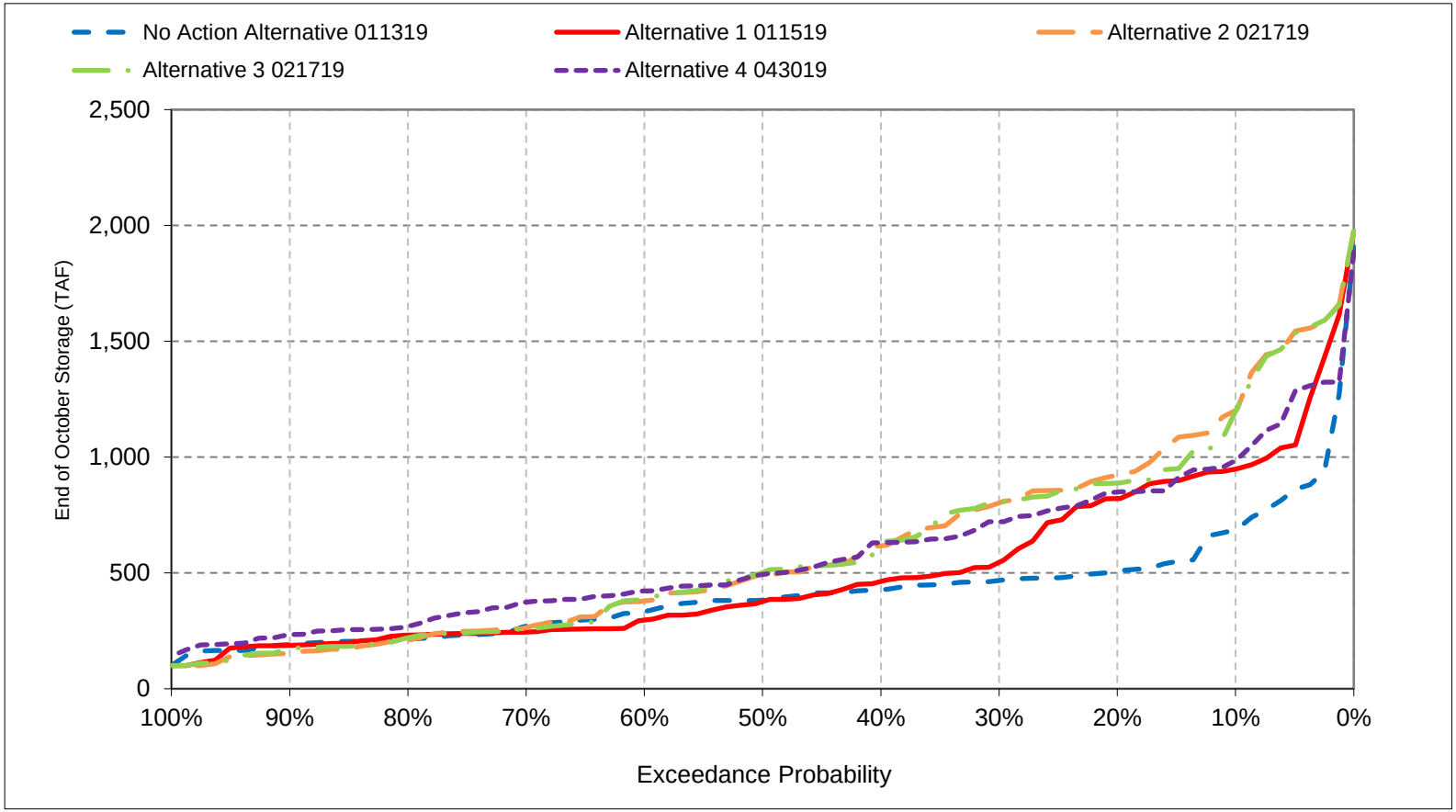

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-6. San Luis Storage (CVP and SWP), Critical Year Average Storage



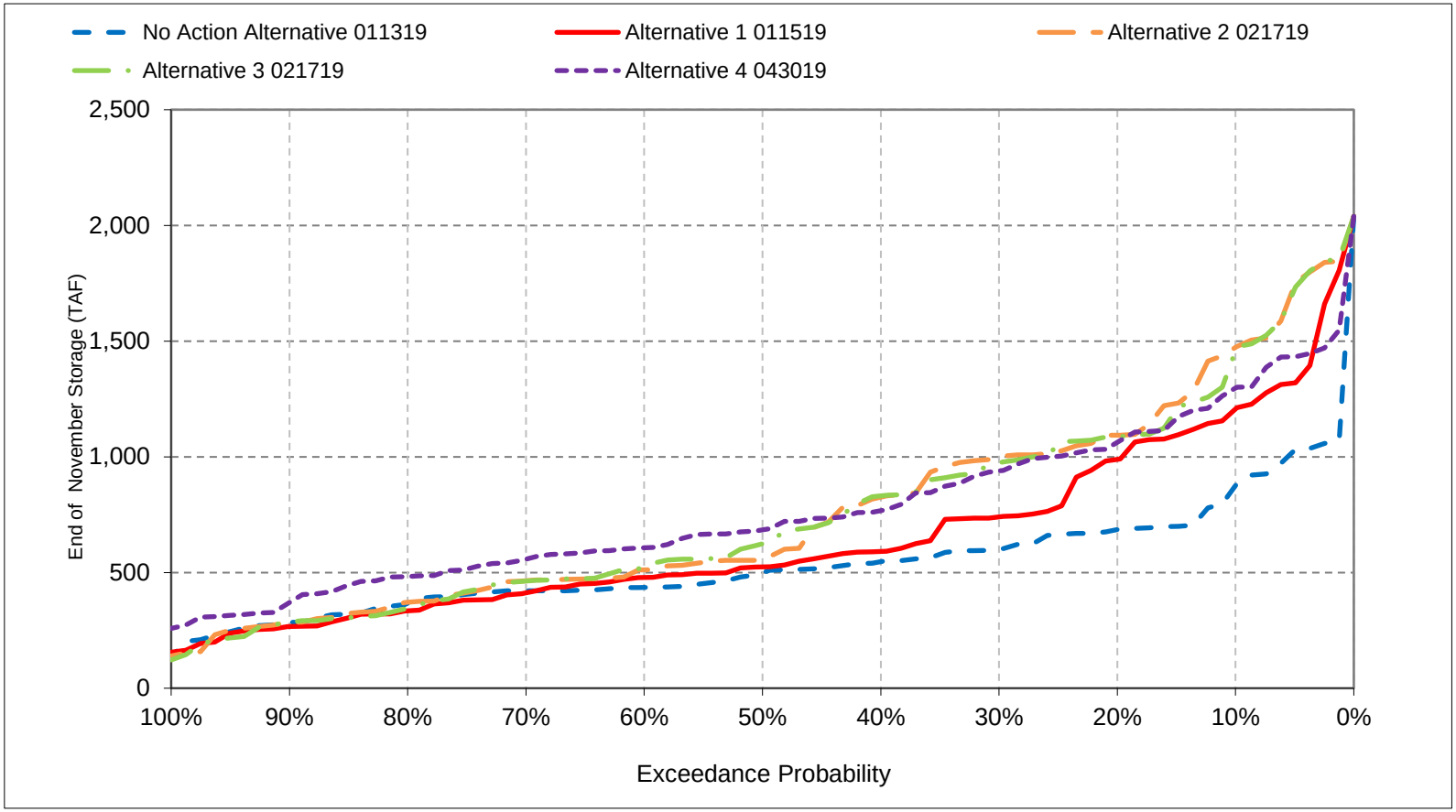

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-7. San Luis Storage (CVP and SWP), End of October Storage



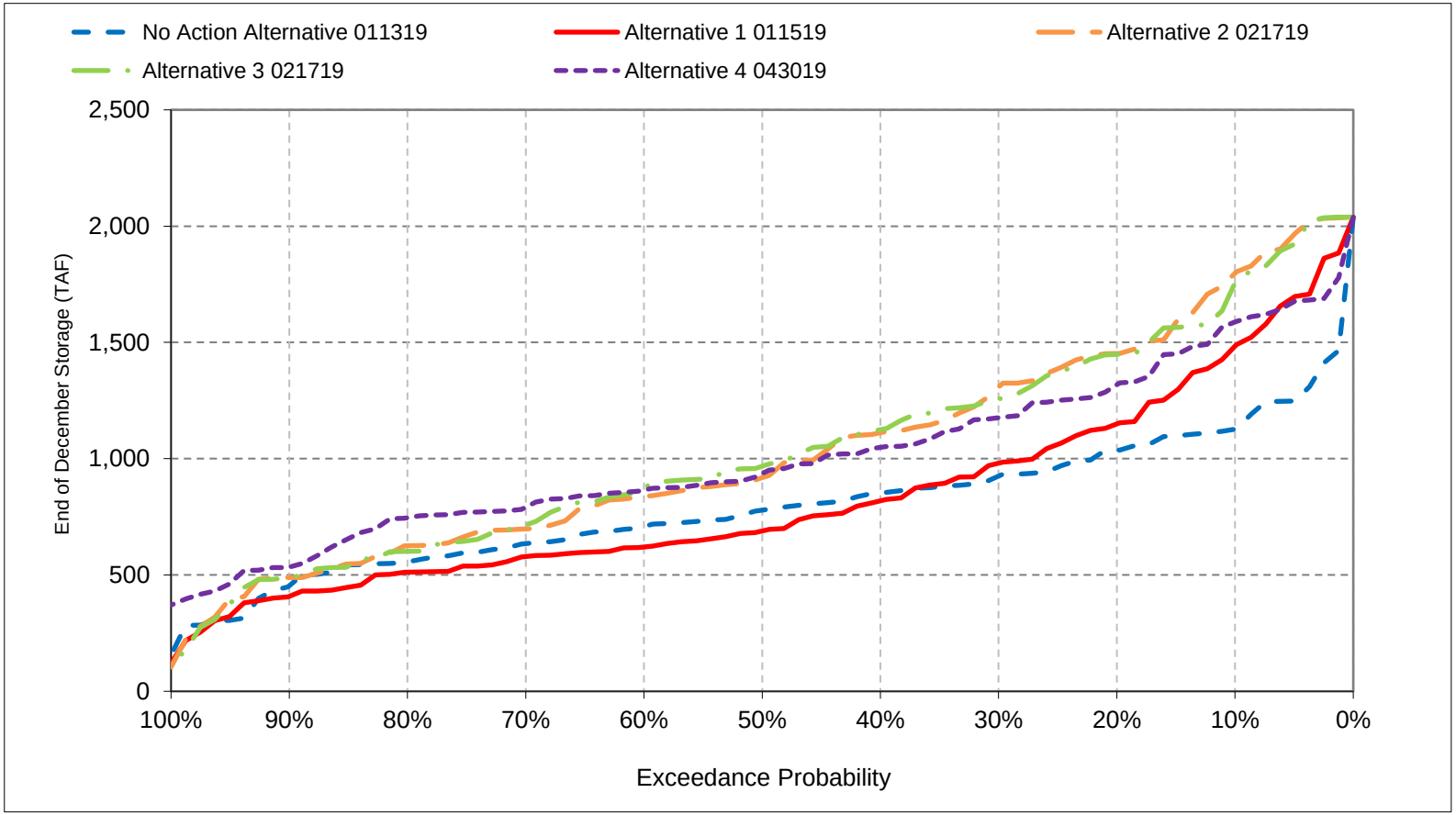

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-8. San Luis Storage (CVP and SWP), End of November Storage



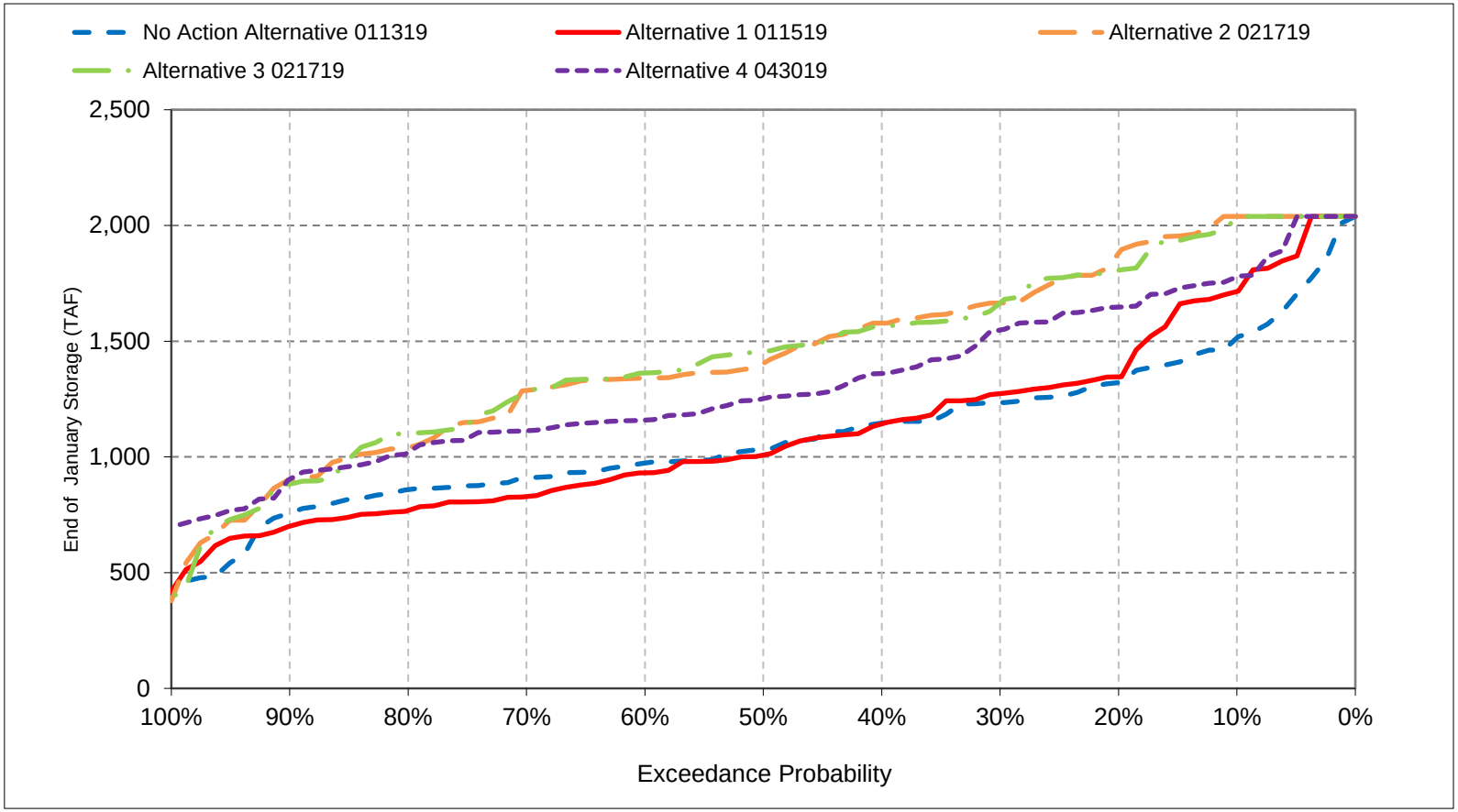

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-9. San Luis Storage (CVP and SWP), End of December Storage



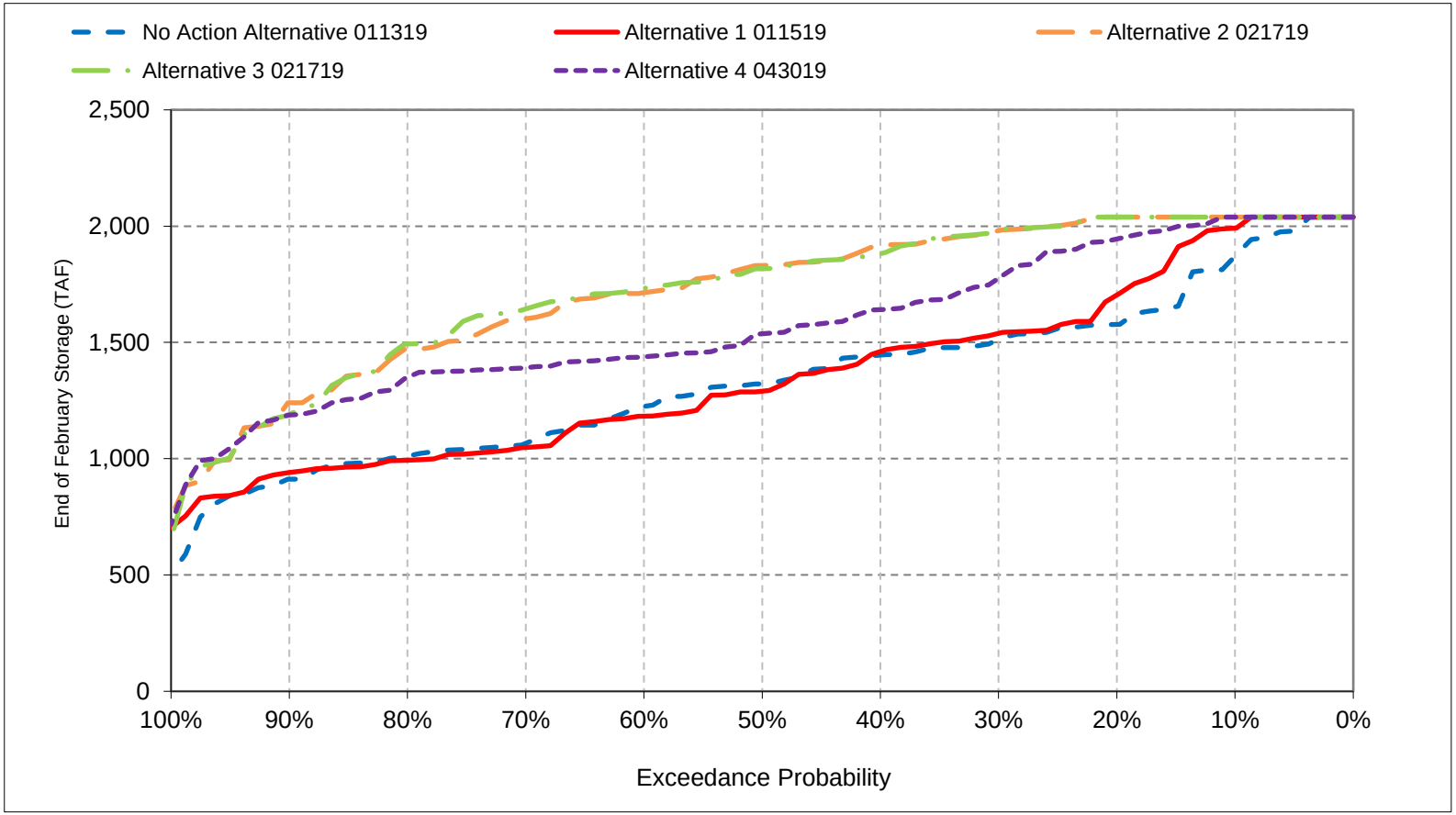

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-10. San Luis Storage (CVP and SWP), End of January Storage



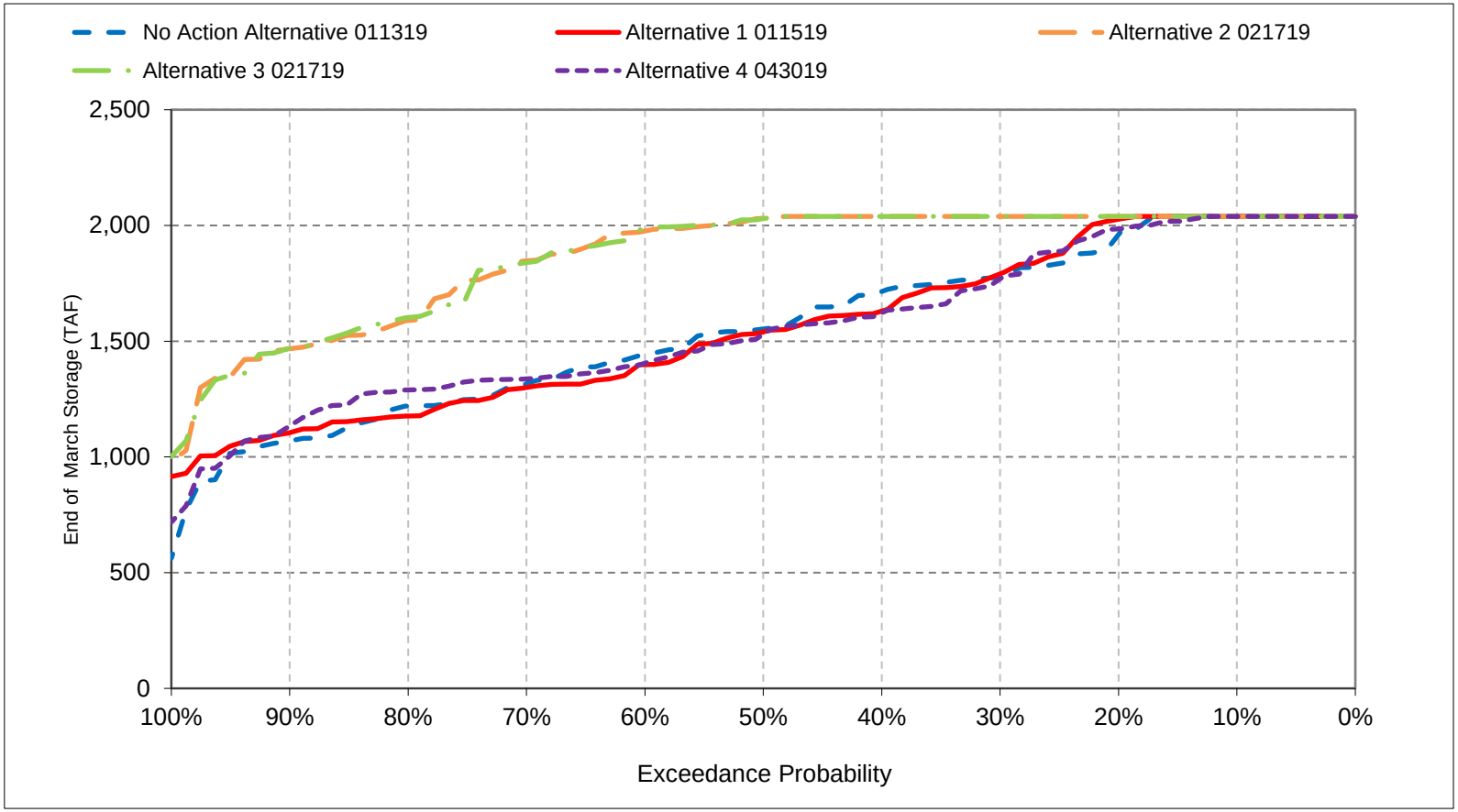

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-11. San Luis Storage (CVP and SWP), End of February Storage



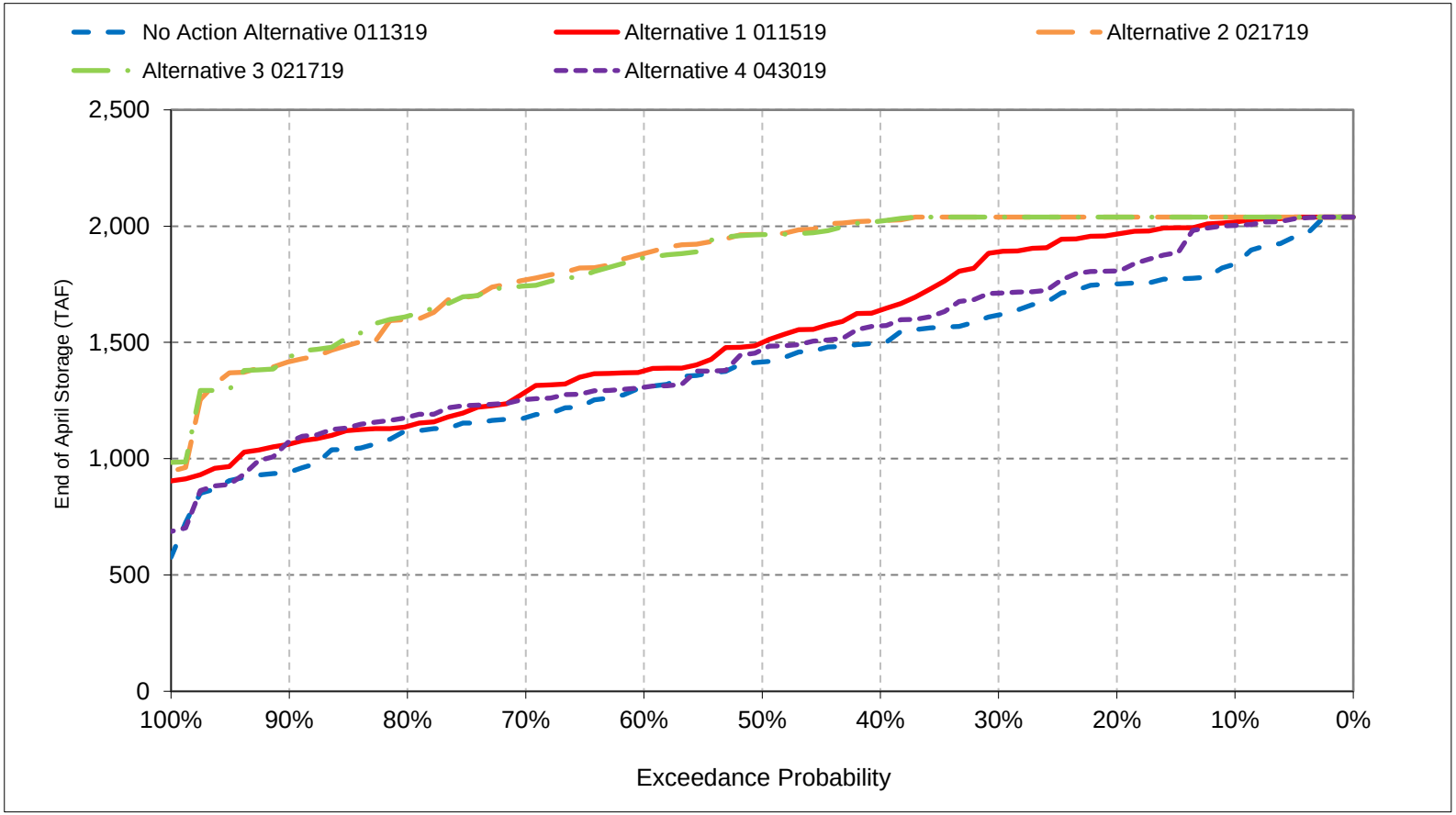

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-12. San Luis Storage (CVP and SWP), End of March Storage



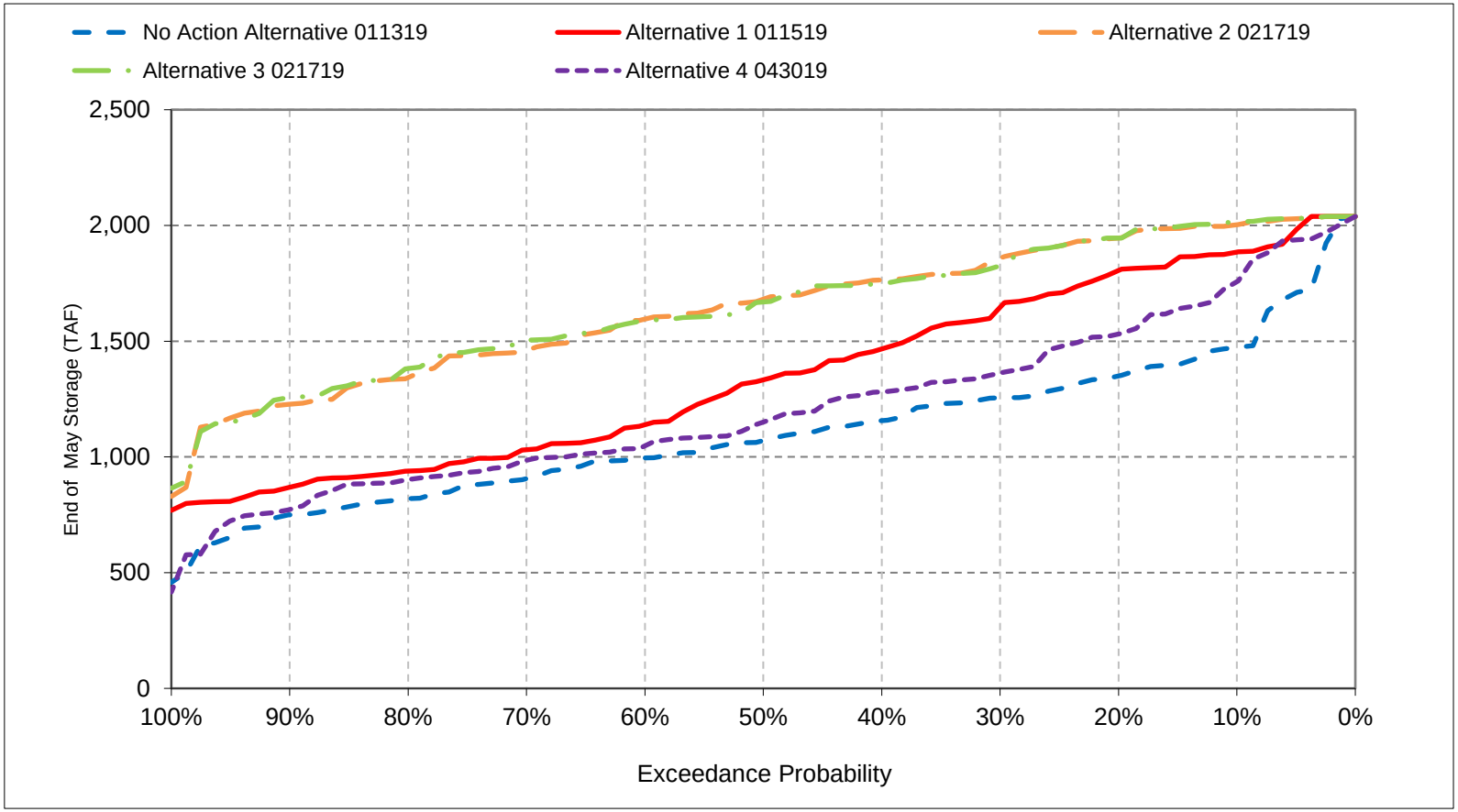

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-13. San Luis Storage (CVP and SWP), End of April Storage



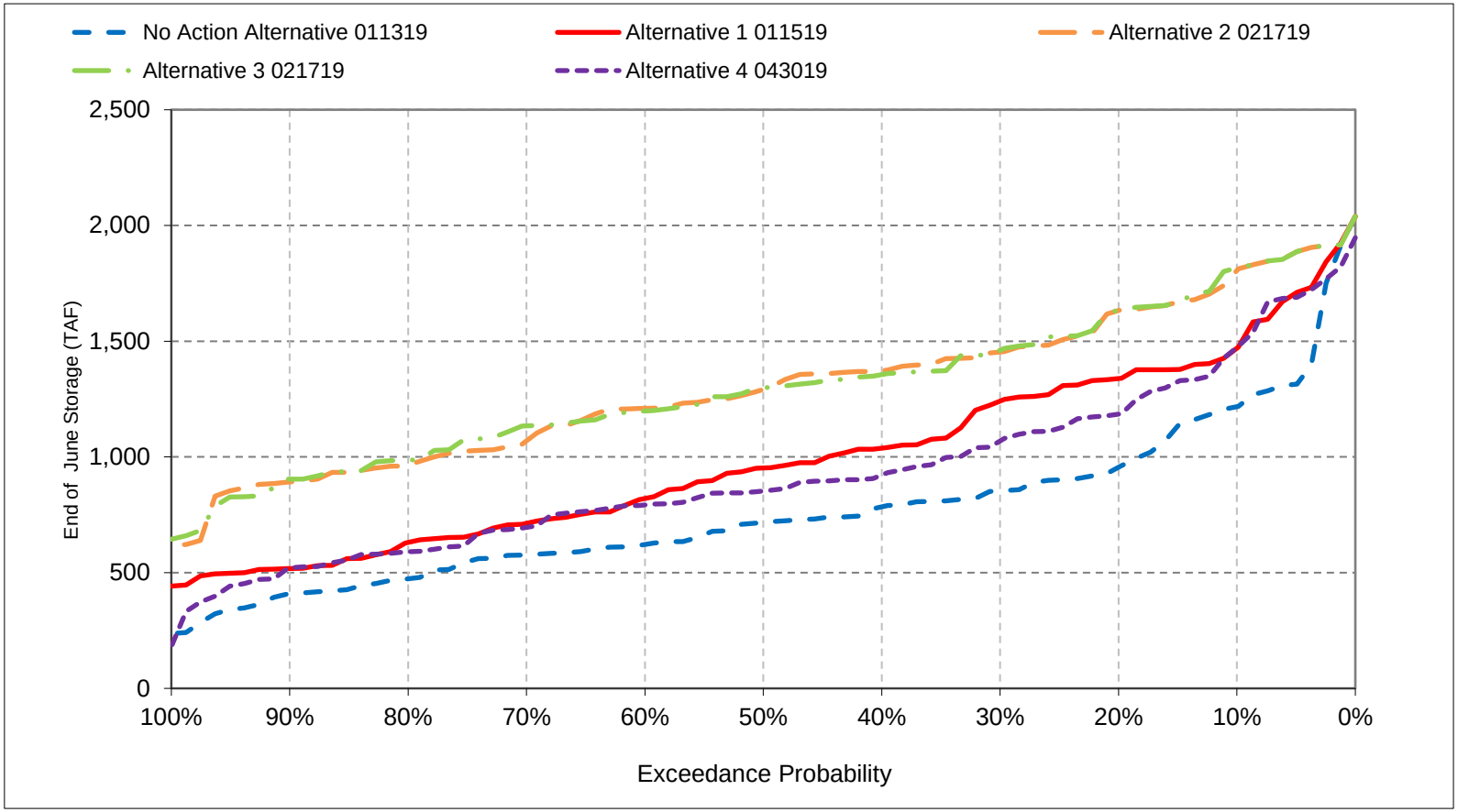

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-14. San Luis Storage (CVP and SWP), End of May Storage



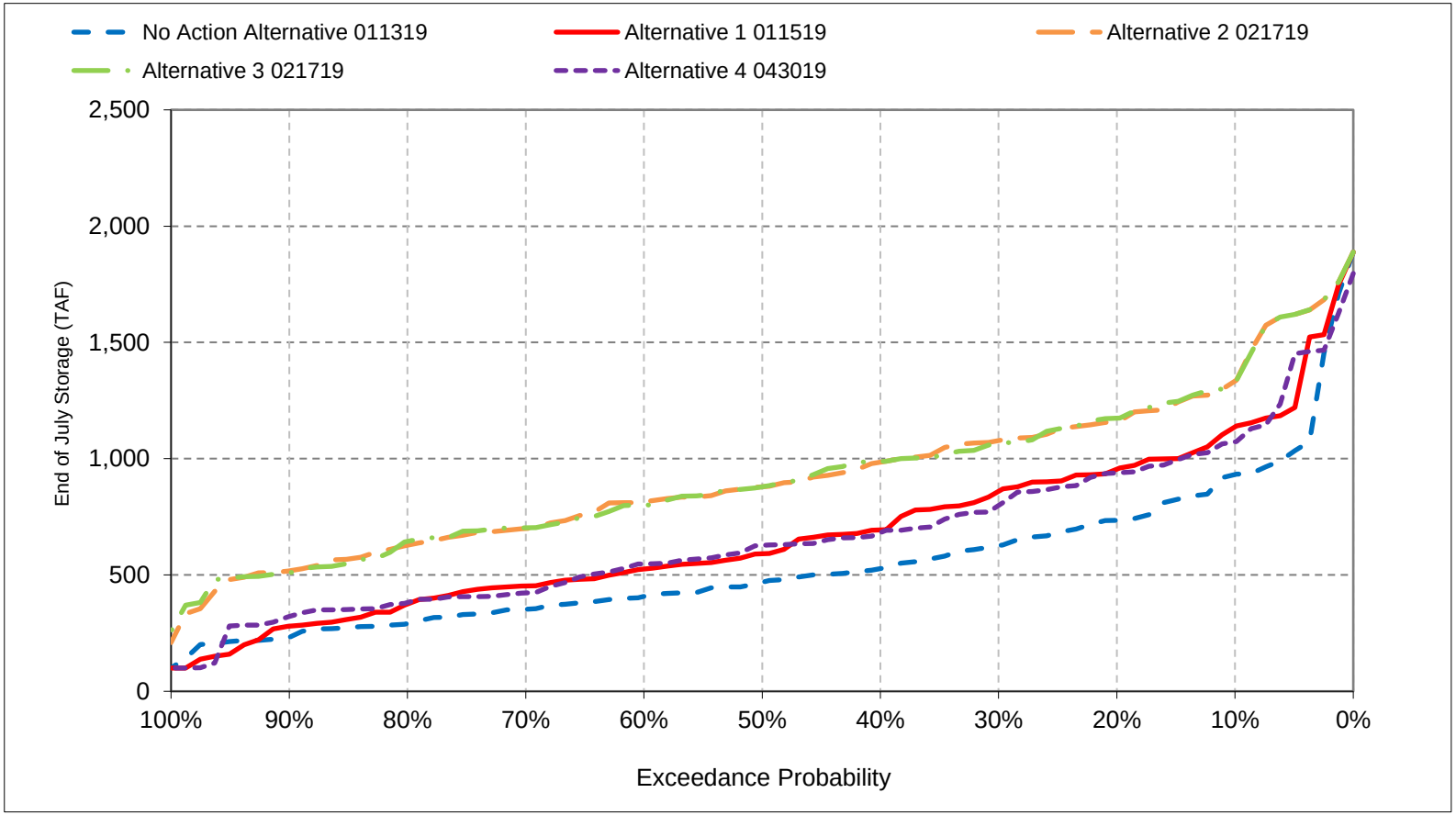

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-15. San Luis Storage (CVP and SWP), End of June Storage



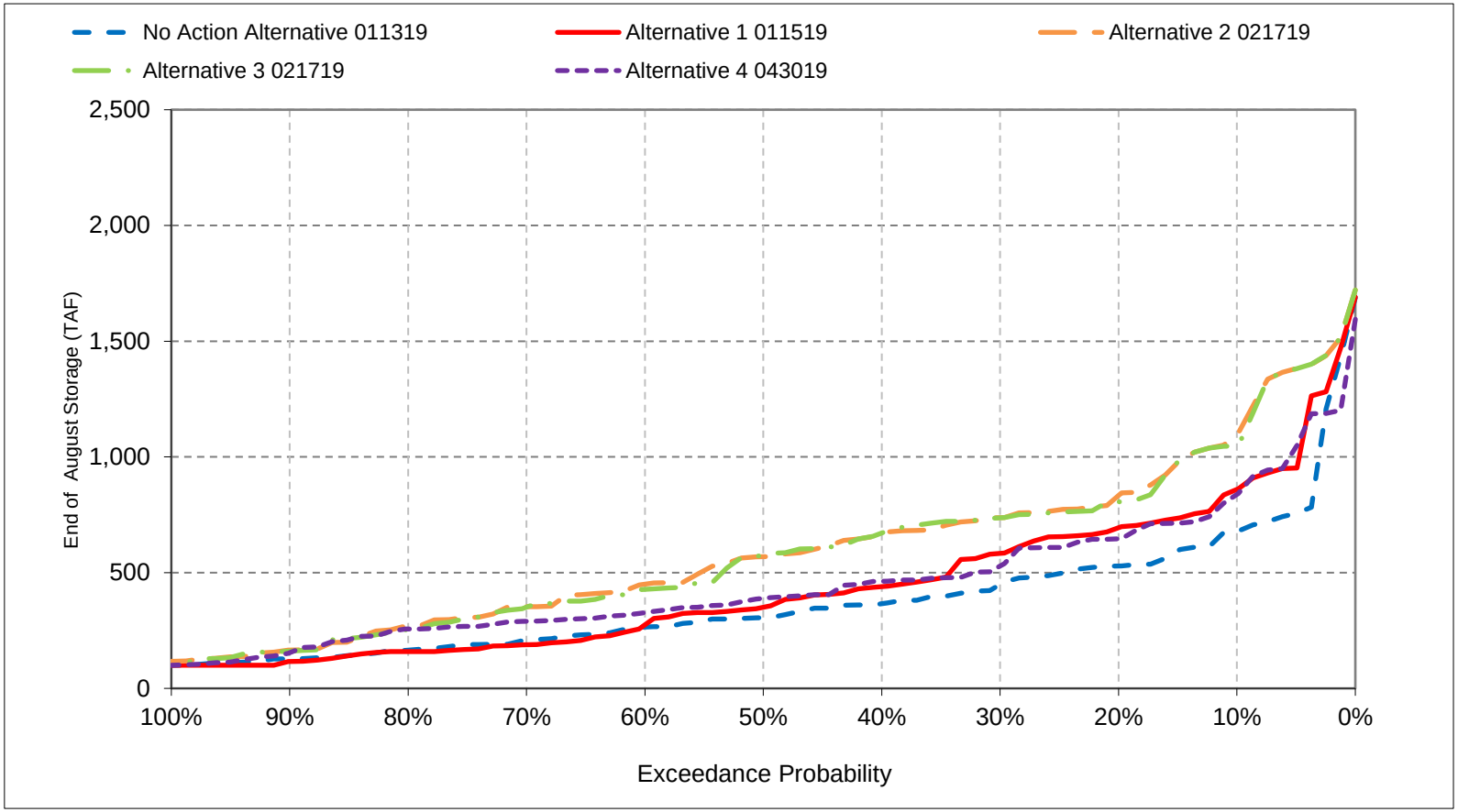

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-16. San Luis Storage (CVP and SWP), End of July Storage



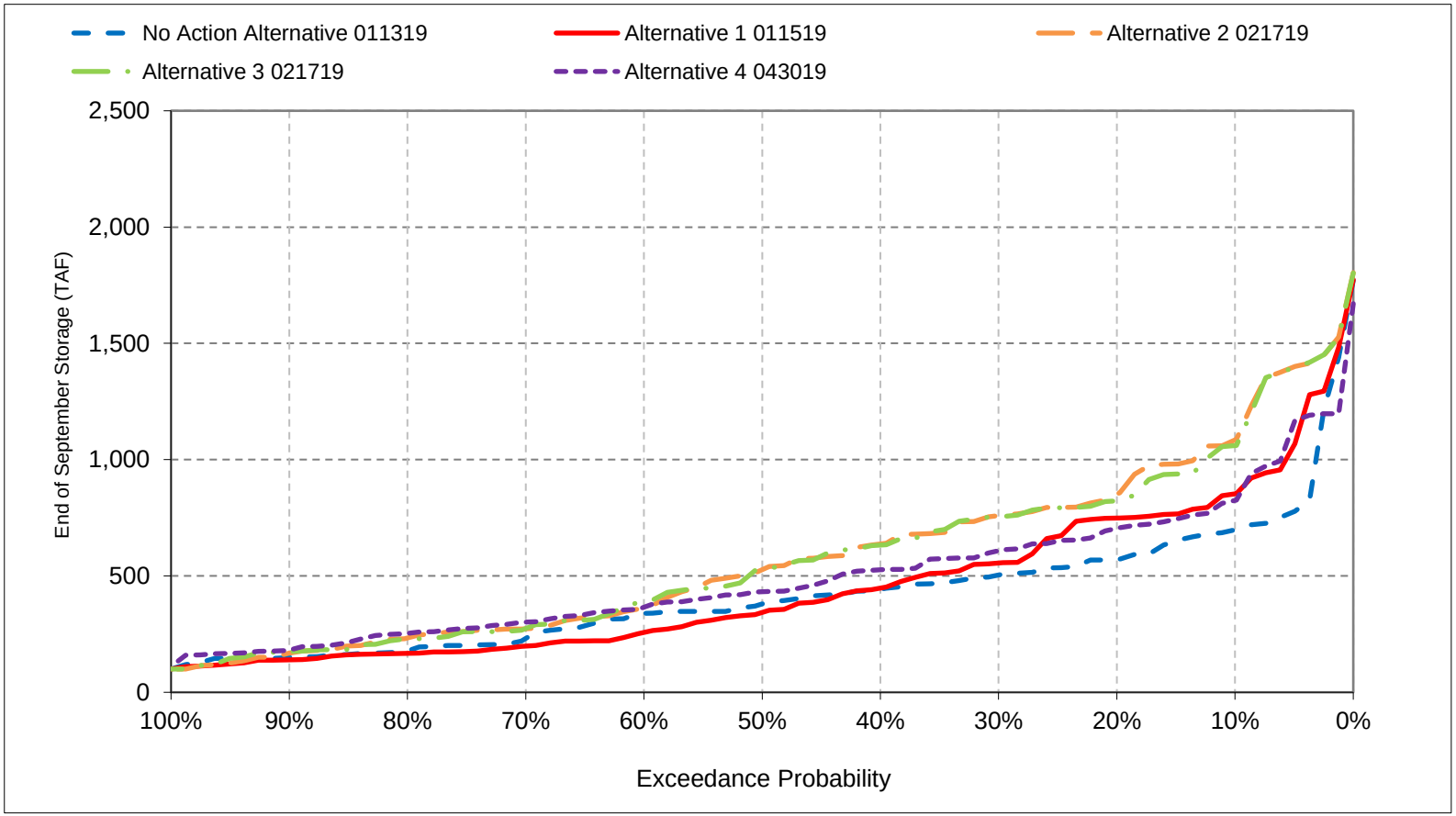

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-17. San Luis Storage (CVP and SWP), End of August Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-18. San Luis Storage (CVP and SWP), End of September Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

# Table 6a-1. San Luis Reservoir (SWP and CVP), End of Month Elevation

## No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 422 | 443 | 480 | 506 | 541 | 544 | 536 | 515 | 500 | 450 | 412 | 419 |
| 20% | 396 | 429 | 469 | 500 | 529 | 544 | 529 | 508 | 478 | 422 | 383 | 390 |
| 30% | 386 | 429 | 466 | 495 | 525 | 544 | 525 | 489 | 454 | 403 | 363 | 375 |
| 40% | 381 | 423 | 462 | 491 | 514 | 534 | 521 | 482 | 444 | 399 | 353 | 370 |
| 50% | 379 | 416 | 455 | 488 | 503 | 524 | 510 | 477 | 431 | 391 | 350 | 360 |
| 60% | 375 | 407 | 449 | 482 | 495 | 518 | 505 | 469 | 423 | 387 | 347 | 356 |
| 70% | 372 | 399 | 442 | 472 | 489 | 506 | 492 | 461 | 420 | 377 | 337 | 351 |
| 80% | 370 | 390 | 430 | 460 | 477 | 494 | 483 | 454 | 409 | 365 | 331 | 348 |
| 90% | 361 | 380 | 409 | 449 | 464 | 470 | 464 | 442 | 401 | 349 | 329 | 345 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 385 | 414 | 451 | 481 | 502 | 517 | 506 | 478 | 441 | 396 | 362 | 373 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 398 | 428 | 466 | 492 | 517 | 536 | 525 | 498 | 468 | 414 | 378 | 387 |
| Above Normal (16%) | 379 | 412 | 456 | 479 | 504 | 525 | 509 | 473 | 438 | 372 | 347 | 365 |
| Below Normal (13%) | 380 | 409 | 442 | 476 | 493 | 511 | 496 | 463 | 418 | 382 | 347 | 364 |
| Dry (24%) | 378 | 407 | 443 | 480 | 496 | 513 | 503 | 476 | 434 | 399 | 360 | 369 |
| Critical (15%) | 382 | 404 | 433 | 469 | 482 | 484 | 474 | 456 | 421 | 389 | 358 | 364 |

## Alternative 1 011519

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 456 | 488 | 526 | 544 | 544 | 544 | 544 | 544 | 525 | 466 | 436 | 440 |
| 20% | 429 | 451 | 485 | 513 | 540 | 544 | 544 | 544 | 507 | 445 | 405 | 411 |
| 30% | 411 | 442 | 469 | 501 | 528 | 544 | 544 | 533 | 488 | 430 | 382 | 391 |
| 40% | 390 | 427 | 460 | 490 | 521 | 542 | 539 | 523 | 474 | 416 | 370 | 380 |
| 50% | 382 | 414 | 451 | 483 | 505 | 529 | 532 | 515 | 463 | 404 | 357 | 376 |
| 60% | 379 | 404 | 439 | 475 | 497 | 519 | 525 | 501 | 453 | 398 | 353 | 360 |
| 70% | 371 | 391 | 431 | 463 | 488 | 509 | 508 | 494 | 446 | 393 | 349 | 355 |
| 80% | 365 | 384 | 425 | 457 | 477 | 502 | 492 | 475 | 442 | 386 | 336 | 348 |
| 90% | 341 | 373 | 404 | 437 | 462 | 485 | 484 | 466 | 434 | 370 | 329 | 339 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 395 | 422 | 453 | 483 | 505 | 522 | 521 | 508 | 471 | 414 | 372 | 382 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 414 | 450 | 483 | 500 | 520 | 535 | 541 | 534 | 497 | 436 | 392 | 402 |
| Above Normal (16%) | 389 | 417 | 448 | 470 | 493 | 513 | 520 | 507 | 463 | 385 | 352 | 367 |
| Below Normal (13%) | 387 | 406 | 433 | 492 | 511 | 527 | 521 | 501 | 461 | 408 | 366 | 377 |
| Dry (24%) | 388 | 410 | 445 | 476 | 499 | 519 | 513 | 498 | 462 | 412 | 370 | 377 |
| Critical (15%) | 381 | 402 | 428 | 468 | 491 | 502 | 493 | 478 | 447 | 403 | 363 | 367 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 33 | 45 | 46 | 38 | 3 | 0 | 8 | 29 | 25 | 16 | 24 | 22 |
| 20% | 33 | 22 | 16 | 13 | 11 | 0 | 15 | 35 | 29 | 23 | 22 | 21 |
| 30% | 24 | 13 | 2 | 6 | 3 | 0 | 19 | 44 | 35 | 27 | 19 | 16 |
| 40% | 9 | 4 | -2 | -1 | 6 | 8 | 18 | 41 | 30 | 17 | 16 | 9 |
| 50% | 4 | -2 | -4 | -5 | 1 | 6 | 22 | 38 | 32 | 13 | 8 | 16 |
| 60% | 4 | -3 | -10 | -7 | 3 | 1 | 20 | 32 | 31 | 11 | 6 | 4 |
| 70% | -1 | -8 | -10 | -9 | -1 | 3 | 16 | 33 | 27 | 17 | 12 | 5 |
| 80% | -5 | -6 | -5 | -3 | 1 | 8 | 9 | 21 | 33 | 21 | 4 | 0 |
| 90% | -20 | -7 | -4 | -13 | -2 | 15 | 20 | 24 | 33 | 22 | 0 | -5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 10 | 8 | 3 | 2 | 4 | 5 | 15 | 30 | 30 | 18 | 11 | 9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 15 | 21 | 16 | 8 | 3 | 0 | 16 | 36 | 29 | 22 | 14 | 15 |
| Above Normal (16%) | 10 | 5 | -8 | -9 | -11 | -12 | 11 | 34 | 25 | 14 | 5 | 2 |
| Below Normal (13%) | 7 | -2 | -9 | 16 | 18 | 16 | 25 | 38 | 42 | 26 | 19 | 13 |
| Dry (24%) | 10 | 3 | 2 | -4 | 2 | 7 | 11 | 22 | 28 | 12 | 10 | 9 |
| Critical (15%) | -1 | -2 | -5 | -1 | 8 | 19 | 19 | 21 | 26 | 13 | 4 | 3 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 6a-2. San Luis Reservoir (SWP and CVP), End of Month Elevation

## No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 422 | 443 | 480 | 506 | 541 | 544 | 536 | 515 | 500 | 450 | 412 | 419 |
| 20% | 396 | 429 | 469 | 500 | 529 | 544 | 529 | 508 | 478 | 422 | 383 | 390 |
| 30% | 386 | 429 | 466 | 495 | 525 | 544 | 525 | 489 | 454 | 403 | 363 | 375 |
| 40% | 381 | 423 | 462 | 491 | 514 | 534 | 521 | 482 | 444 | 399 | 353 | 370 |
| 50% | 379 | 416 | 455 | 488 | 503 | 524 | 510 | 477 | 431 | 391 | 350 | 360 |
| 60% | 375 | 407 | 449 | 482 | 495 | 518 | 505 | 469 | 423 | 387 | 347 | 356 |
| 70% | 372 | 399 | 442 | 472 | 489 | 506 | 492 | 461 | 420 | 377 | 337 | 351 |
| 80% | 370 | 390 | 430 | 460 | 477 | 494 | 483 | 454 | 409 | 365 | 331 | 348 |
| 90% | 361 | 380 | 409 | 449 | 464 | 470 | 464 | 442 | 401 | 349 | 329 | 345 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 385 | 414 | 451 | 481 | 502 | 517 | 506 | 478 | 441 | 396 | 362 | 373 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 398 | 428 | 466 | 492 | 517 | 536 | 525 | 498 | 468 | 414 | 378 | 387 |
| Above Normal (16%) | 379 | 412 | 456 | 479 | 504 | 525 | 509 | 473 | 438 | 372 | 347 | 365 |
| Below Normal (13%) | 380 | 409 | 442 | 476 | 493 | 511 | 496 | 463 | 418 | 382 | 347 | 364 |
| Dry (24%) | 378 | 407 | 443 | 480 | 496 | 513 | 503 | 476 | 434 | 399 | 360 | 369 |
| Critical (15%) | 382 | 404 | 433 | 469 | 482 | 484 | 474 | 456 | 421 | 389 | 358 | 364 |

## Alternative 2 021719

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 463 | 495 | 520 | 544 | 544 | 544 | 544 | 544 | 529 | 466 | 438 | 447 |
| 20% | 423 | 454 | 490 | 523 | 544 | 544 | 544 | 542 | 508 | 446 | 401 | 405 |
| 30% | 409 | 436 | 472 | 504 | 536 | 544 | 544 | 534 | 494 | 434 | 387 | 394 |
| 40% | 396 | 429 | 467 | 498 | 529 | 544 | 544 | 526 | 485 | 421 | 371 | 387 |
| 50% | 390 | 425 | 464 | 495 | 522 | 544 | 537 | 521 | 480 | 416 | 363 | 379 |
| 60% | 386 | 412 | 455 | 488 | 513 | 537 | 531 | 506 | 468 | 409 | 357 | 368 |
| 70% | 377 | 399 | 444 | 479 | 503 | 532 | 517 | 492 | 452 | 402 | 341 | 360 |
| 80% | 356 | 394 | 432 | 466 | 489 | 514 | 499 | 483 | 435 | 389 | 333 | 348 |
| 90% | 345 | 376 | 406 | 449 | 478 | 483 | 475 | 463 | 423 | 377 | 329 | 343 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 396 | 426 | 461 | 491 | 514 | 528 | 524 | 510 | 473 | 418 | 374 | 384 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 428 | 462 | 494 | 509 | 530 | 543 | 543 | 534 | 505 | 448 | 404 | 411 |
| Above Normal (16%) | 399 | 422 | 459 | 489 | 519 | 534 | 532 | 515 | 476 | 404 | 363 | 370 |
| Below Normal (13%) | 382 | 410 | 439 | 503 | 518 | 531 | 523 | 499 | 450 | 392 | 354 | 375 |
| Dry (24%) | 376 | 411 | 451 | 478 | 501 | 522 | 515 | 501 | 463 | 413 | 364 | 378 |
| Critical (15%) | 366 | 388 | 430 | 465 | 489 | 499 | 488 | 477 | 442 | 400 | 356 | 361 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 41 | 51 | 40 | 38 | 3 | 0 | 8 | 29 | 28 | 15 | 26 | 29 |
| 20% | 27 | 25 | 21 | 23 | 16 | 0 | 15 | 34 | 30 | 24 | 18 | 15 |
| 30% | 23 | 7 | 5 | 8 | 11 | 0 | 19 | 44 | 40 | 30 | 24 | 19 |
| 40% | 15 | 7 | 5 | 8 | 15 | 10 | 23 | 43 | 41 | 23 | 17 | 17 |
| 50% | 11 | 9 | 9 | 7 | 19 | 21 | 27 | 44 | 49 | 25 | 14 | 19 |
| 60% | 11 | 5 | 6 | 7 | 19 | 19 | 26 | 37 | 45 | 23 | 9 | 11 |
| 70% | 5 | **0** | 3 | 8 | 14 | 26 | 25 | 31 | 32 | 25 | 4 | 9 |
| 80% | **-14** | 4 | 2 | 5 | 13 | 20 | 16 | 28 | 26 | 24 | 2 | **0** |
| 90% | **-16** | **-4** | **-3** | **-1** | 14 | 13 | 11 | 21 | 22 | 29 | 0 | **-2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 10 | 11 | 10 | 10 | 12 | 11 | 18 | 32 | 32 | 22 | 12 | 12 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 30 | 34 | 28 | 17 | 13 | 7 | 18 | 36 | 37 | 34 | 26 | 24 |
| Above Normal (16%) | 21 | 10 | 3 | 10 | 15 | 9 | 23 | 41 | 38 | 33 | 15 | 5 |
| Below Normal (13%) | 2 | 1 | **-3** | 27 | 25 | 20 | 27 | 35 | 32 | 10 | 7 | 10 |
| Dry (24%) | **-2** | 5 | 7 | **-2** | 4 | 9 | 13 | 25 | 30 | 14 | 4 | 9 |
| Critical (15%) | **-16** | **-16** | **-3** | **-4** | 6 | 15 | 14 | 20 | 21 | 11 | **-3** | **-3** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 6a-3. San Luis Reservoir (SWP and CVP), End of Month Elevation

### No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 422 | 443 | 480 | 506 | 541 | 544 | 536 | 515 | 500 | 450 | 412 | 419 |
| 20% | 396 | 429 | 469 | 500 | 529 | 544 | 529 | 508 | 478 | 422 | 383 | 390 |
| 30% | 386 | 429 | 466 | 495 | 525 | 544 | 525 | 489 | 454 | 403 | 363 | 375 |
| 40% | 381 | 423 | 462 | 491 | 514 | 534 | 521 | 482 | 444 | 399 | 353 | 370 |
| 50% | 379 | 416 | 455 | 488 | 503 | 524 | 510 | 477 | 431 | 391 | 350 | 360 |
| 60% | 375 | 407 | 449 | 482 | 495 | 518 | 505 | 469 | 423 | 387 | 347 | 356 |
| 70% | 372 | 399 | 442 | 472 | 489 | 506 | 492 | 461 | 420 | 377 | 337 | 351 |
| 80% | 370 | 390 | 430 | 460 | 477 | 494 | 483 | 454 | 409 | 365 | 331 | 348 |
| 90% | 361 | 380 | 409 | 449 | 464 | 470 | 464 | 442 | 401 | 349 | 329 | 345 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 385 | 414 | 451 | 481 | 502 | 517 | 506 | 478 | 441 | 396 | 362 | 373 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 398 | 428 | 466 | 492 | 517 | 536 | 525 | 498 | 468 | 414 | 378 | 387 |
| Above Normal (16%) | 379 | 412 | 456 | 479 | 504 | 525 | 509 | 473 | 438 | 372 | 347 | 365 |
| Below Normal (13%) | 380 | 409 | 442 | 476 | 493 | 511 | 496 | 463 | 418 | 382 | 347 | 364 |
| Dry (24%) | 378 | 407 | 443 | 480 | 496 | 513 | 503 | 476 | 434 | 399 | 360 | 369 |
| Critical (15%) | 382 | 404 | 433 | 469 | 482 | 484 | 474 | 456 | 421 | 389 | 358 | 364 |

### Alternative 3 021719

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 450 | 485 | 520 | 544 | 544 | 544 | 544 | 544 | 529 | 464 | 434 | 440 |
| 20% | 425 | 454 | 486 | 516 | 544 | 544 | 544 | 543 | 508 | 446 | 401 | 406 |
| 30% | 412 | 437 | 471 | 504 | 538 | 544 | 544 | 533 | 492 | 431 | 384 | 392 |
| 40% | 396 | 432 | 468 | 500 | 530 | 544 | 544 | 525 | 484 | 421 | 373 | 387 |
| 50% | 390 | 425 | 464 | 496 | 522 | 544 | 537 | 517 | 477 | 414 | 358 | 379 |
| 60% | 382 | 416 | 455 | 489 | 514 | 538 | 529 | 508 | 469 | 405 | 350 | 366 |
| 70% | 376 | 401 | 446 | 480 | 505 | 528 | 515 | 489 | 448 | 397 | 339 | 358 |
| 80% | 363 | 395 | 438 | 470 | 490 | 514 | 499 | 478 | 437 | 387 | 331 | 348 |
| 90% | 340 | 375 | 407 | 448 | 476 | 477 | 477 | 458 | 422 | 373 | 329 | 336 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 395 | 425 | 461 | 491 | 514 | 528 | 523 | 509 | 473 | 416 | 371 | 383 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 428 | 461 | 493 | 508 | 530 | 543 | 542 | 533 | 502 | 447 | 402 | 410 |
| Above Normal (16%) | 394 | 423 | 460 | 488 | 522 | 534 | 533 | 515 | 476 | 401 | 358 | 368 |
| Below Normal (13%) | 383 | 410 | 441 | 506 | 518 | 531 | 523 | 500 | 451 | 387 | 348 | 372 |
| Dry (24%) | 379 | 412 | 454 | 478 | 500 | 519 | 511 | 497 | 460 | 411 | 361 | 378 |
| Critical (15%) | 363 | 382 | 426 | 468 | 492 | 502 | 492 | 480 | 445 | 402 | 357 | 360 |

### Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 28 | 41 | 40 | 38 | 3 | 0 | 8 | 29 | 28 | 13 | 23 | 21 |
| 20% | 29 | 25 | 17 | 16 | 16 | 0 | 15 | 35 | 30 | 24 | 18 | 16 |
| 30% | 25 | 8 | 5 | 9 | 13 | 0 | 19 | 43 | 39 | 27 | 21 | 17 |
| 40% | 15 | 9 | 6 | 9 | 16 | 10 | 23 | 43 | 40 | 22 | 19 | 17 |
| 50% | 11 | 9 | 9 | 8 | 19 | 21 | 26 | 40 | 46 | 23 | 8 | 19 |
| 60% | 6 | 9 | 6 | 7 | 20 | 20 | 24 | 40 | 47 | 19 | 3 | 10 |
| 70% | 4 | 2 | 5 | 8 | 16 | 23 | 22 | 28 | 29 | 20 | 2 | 8 |
| 80% | -7 | 5 | 8 | 10 | 13 | 20 | 15 | 23 | 28 | 21 | 0 | 0 |
| 90% | -21 | -5 | -2 | -2 | 12 | 6 | 13 | 16 | 21 | 25 | 0 | -8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 10 | 11 | 11 | 10 | 13 | 11 | 18 | 31 | 31 | 20 | 10 | 10 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 30 | 33 | 27 | 16 | 13 | 8 | 17 | 34 | 34 | 32 | 25 | 23 |
| Above Normal (16%) | 16 | 11 | 4 | 9 | 18 | 10 | 24 | 41 | 37 | 29 | 10 | 3 |
| Below Normal (13%) | 3 | 2 | -1 | 30 | 25 | 20 | 27 | 37 | 33 | 5 | 1 | 8 |
| Dry (24%) | 2 | 6 | 10 | -2 | 4 | 6 | 9 | 21 | 27 | 12 | 2 | 9 |
| Critical (15%) | -19 | -22 | -7 | -1 | 9 | 19 | 18 | 23 | 24 | 12 | -2 | -4 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 6a-4. San Luis Reservoir (SWP and CVP), End of Month Elevation

## No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 422 | 443 | 480 | 506 | 541 | 544 | 536 | 515 | 500 | 450 | 412 | 419 |
| 20% | 396 | 429 | 469 | 500 | 529 | 544 | 529 | 508 | 478 | 422 | 383 | 390 |
| 30% | 386 | 429 | 466 | 495 | 525 | 544 | 525 | 489 | 454 | 403 | 363 | 375 |
| 40% | 381 | 423 | 462 | 491 | 514 | 534 | 521 | 482 | 444 | 399 | 353 | 370 |
| 50% | 379 | 416 | 455 | 488 | 503 | 524 | 510 | 477 | 431 | 391 | 350 | 360 |
| 60% | 375 | 407 | 449 | 482 | 495 | 518 | 505 | 469 | 423 | 387 | 347 | 356 |
| 70% | 372 | 399 | 442 | 472 | 489 | 506 | 492 | 461 | 420 | 377 | 337 | 351 |
| 80% | 370 | 390 | 430 | 460 | 477 | 494 | 483 | 454 | 409 | 365 | 331 | 348 |
| 90% | 361 | 380 | 409 | 449 | 464 | 470 | 464 | 442 | 401 | 349 | 329 | 345 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 385 | 414 | 451 | 481 | 502 | 517 | 506 | 478 | 441 | 396 | 362 | 373 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 398 | 428 | 466 | 492 | 517 | 536 | 525 | 498 | 468 | 414 | 378 | 387 |
| Above Normal (16%) | 379 | 412 | 456 | 479 | 504 | 525 | 509 | 473 | 438 | 372 | 347 | 365 |
| Below Normal (13%) | 380 | 409 | 442 | 476 | 493 | 511 | 496 | 463 | 418 | 382 | 347 | 364 |
| Dry (24%) | 378 | 407 | 443 | 480 | 496 | 513 | 503 | 476 | 434 | 399 | 360 | 369 |
| Critical (15%) | 382 | 404 | 433 | 469 | 482 | 484 | 474 | 456 | 421 | 389 | 358 | 364 |

## Alternative 4 043019

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 476 | 499 | 520 | 544 | 544 | 544 | 544 | 544 | 522 | 478 | 456 | 461 |
| 20% | 430 | 465 | 498 | 537 | 544 | 543 | 543 | 524 | 498 | 442 | 409 | 418 |
| 30% | 413 | 440 | 477 | 508 | 541 | 541 | 532 | 507 | 465 | 414 | 379 | 389 |
| 40% | 395 | 429 | 466 | 500 | 532 | 531 | 528 | 488 | 452 | 400 | 358 | 373 |
| 50% | 386 | 424 | 459 | 494 | 521 | 522 | 512 | 480 | 433 | 387 | 349 | 363 |
| 60% | 381 | 410 | 450 | 485 | 514 | 507 | 495 | 461 | 427 | 383 | 341 | 358 |
| 70% | 374 | 401 | 438 | 474 | 500 | 497 | 485 | 452 | 422 | 373 | 338 | 354 |
| 80% | 368 | 391 | 431 | 467 | 489 | 482 | 470 | 447 | 411 | 362 | 329 | 348 |
| 90% | 358 | 385 | 418 | 450 | 480 | 475 | 460 | 428 | 402 | 330 | 329 | 346 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 400 | 429 | 463 | 495 | 516 | 513 | 505 | 480 | 449 | 399 | 368 | 382 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 415 | 449 | 483 | 505 | 528 | 532 | 530 | 508 | 474 | 414 | 383 | 395 |
| Above Normal (16%) | 392 | 423 | 456 | 495 | 516 | 512 | 504 | 472 | 433 | 369 | 346 | 364 |
| Below Normal (13%) | 387 | 415 | 452 | 497 | 519 | 510 | 498 | 467 | 436 | 395 | 357 | 375 |
| Dry (24%) | 380 | 407 | 445 | 489 | 511 | 504 | 490 | 461 | 433 | 391 | 355 | 367 |
| Critical (15%) | 420 | 441 | 464 | 478 | 497 | 493 | 486 | 471 | 449 | 419 | 395 | 402 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 54 | 56 | 40 | 38 | 3 | 0 | 8 | 29 | 22 | 28 | 44 | 42 |
| 20% | 34 | 36 | 29 | 37 | 16 | -2 | 14 | 16 | 21 | 20 | 26 | 28 |
| 30% | 27 | 11 | 11 | 12 | 16 | -3 | 7 | 18 | 12 | 11 | 16 | 14 |
| 40% | 14 | 6 | 5 | 9 | 18 | -3 | 7 | 6 | 8 | 1 | 5 | 3 |
| 50% | 7 | 8 | 3 | 6 | 18 | -2 | 1 | 3 | 2 | -4 | -1 | 3 |
| 60% | 6 | 3 | 0 | 3 | 19 | -11 | -10 | -8 | 4 | -4 | -6 | 1 |
| 70% | 2 | 3 | -4 | 3 | 11 | -8 | -7 | -9 | 3 | -4 | 1 | 3 |
| 80% | -2 | 1 | 2 | 6 | 12 | -12 | -13 | -7 | 2 | -4 | -2 | 0 |
| 90% | -3 | 5 | 10 | 0 | 16 | 4 | -4 | -14 | 2 | -19 | 0 | 1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 14 | 14 | 12 | 13 | 15 | -4 | 0 | 2 | 7 | 4 | 7 | 9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 16 | 20 | 17 | 13 | 11 | -3 | 5 | 10 | 6 | -1 | 5 | 9 |
| Above Normal (16%) | 14 | 11 | 0 | 16 | 11 | -13 | -5 | -1 | -5 | -3 | -2 | -1 |
| Below Normal (13%) | 7 | 6 | 10 | 21 | 26 | -1 | 2 | 4 | 18 | 13 | 10 | 10 |
| Dry (24%) | 2 | 0 | 2 | 9 | 15 | -9 | -13 | -15 | -1 | -8 | -5 | -2 |
| Critical (15%) | 39 | 37 | 31 | 9 | 15 | 10 | 12 | 15 | 28 | 29 | 37 | 38 |

a Based on the 82-year simulation period.

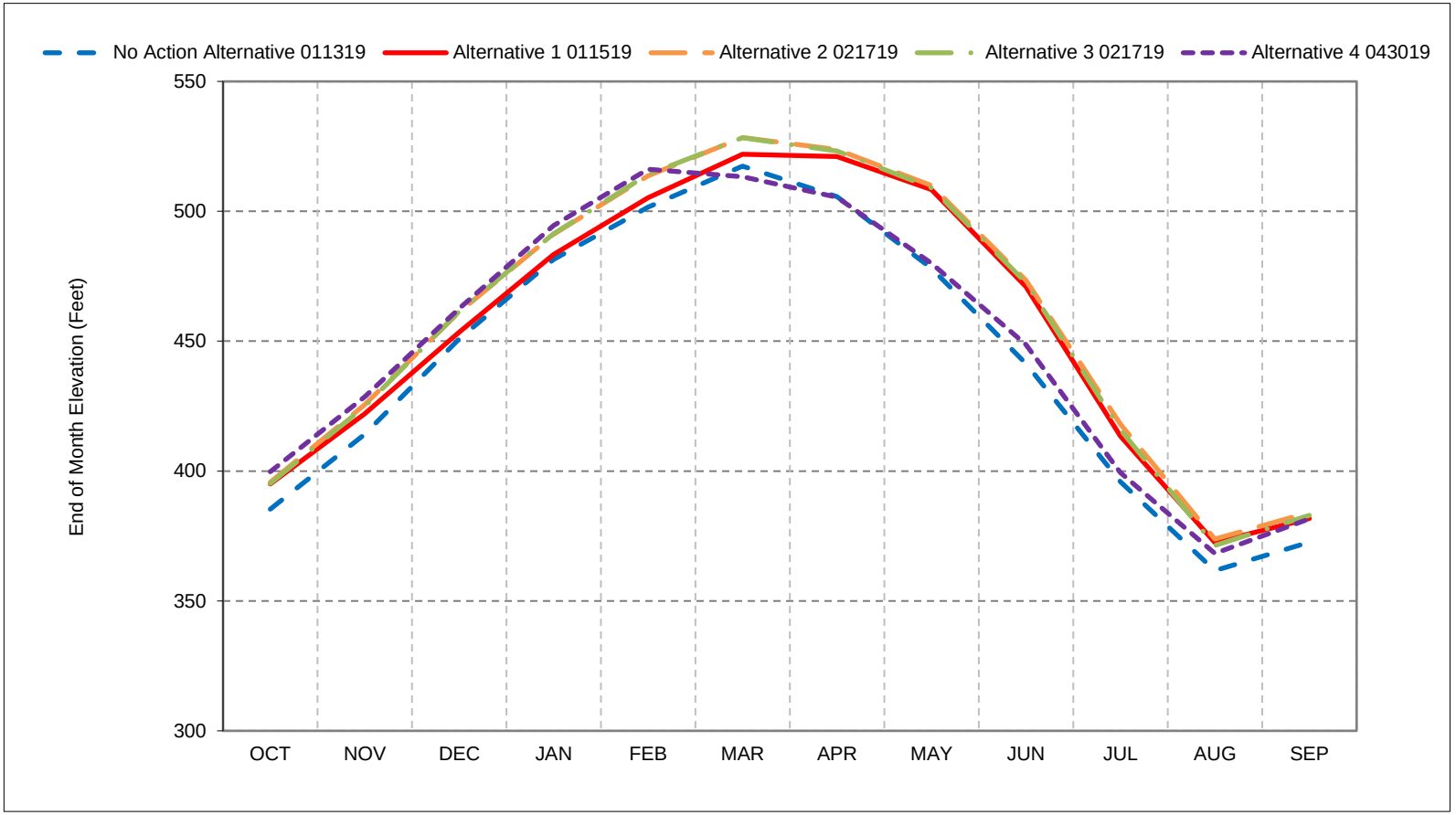
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

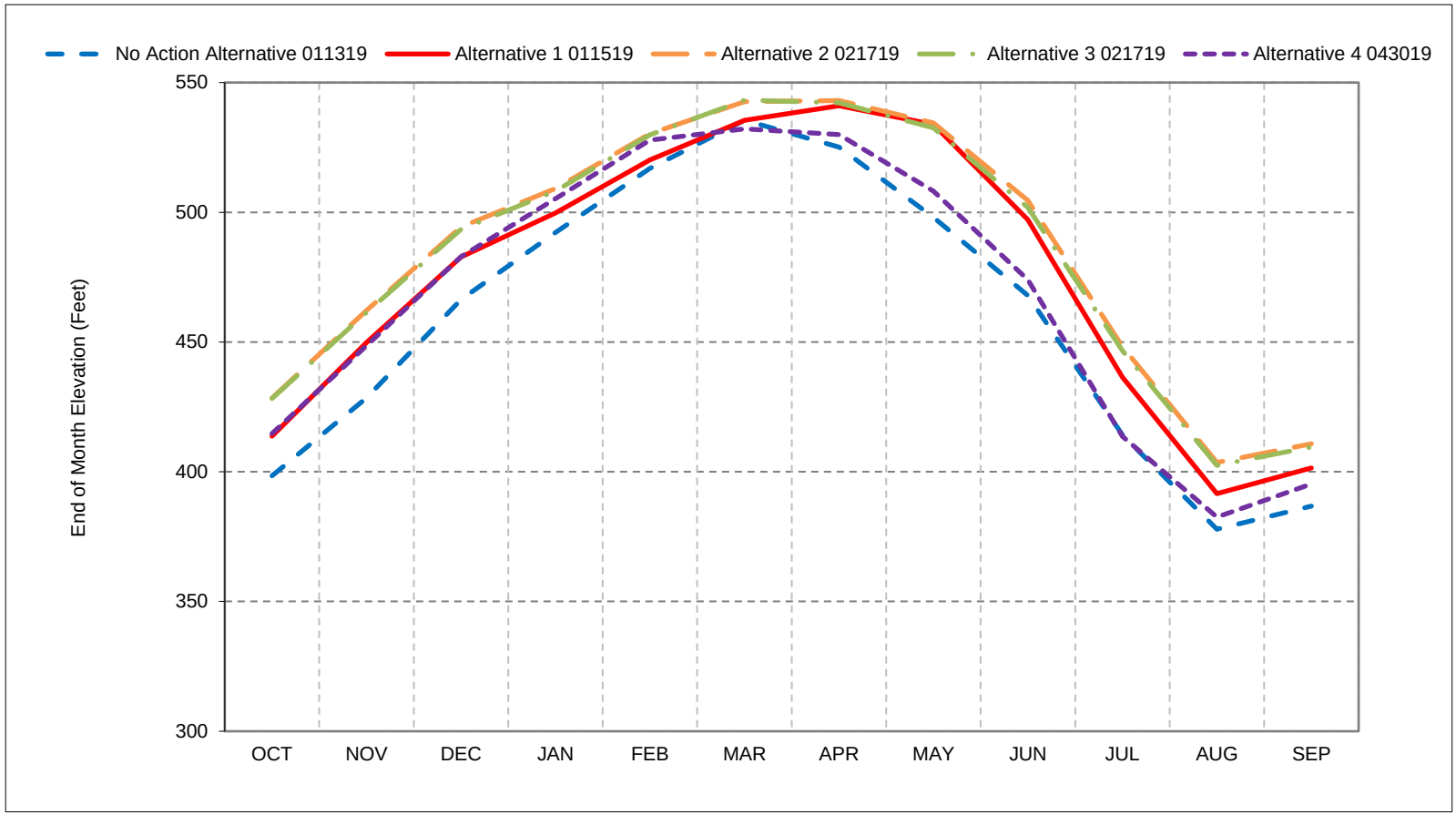
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6a-1. San Luis Reservoir (SWP and CVP), Long-Term Average Elevation



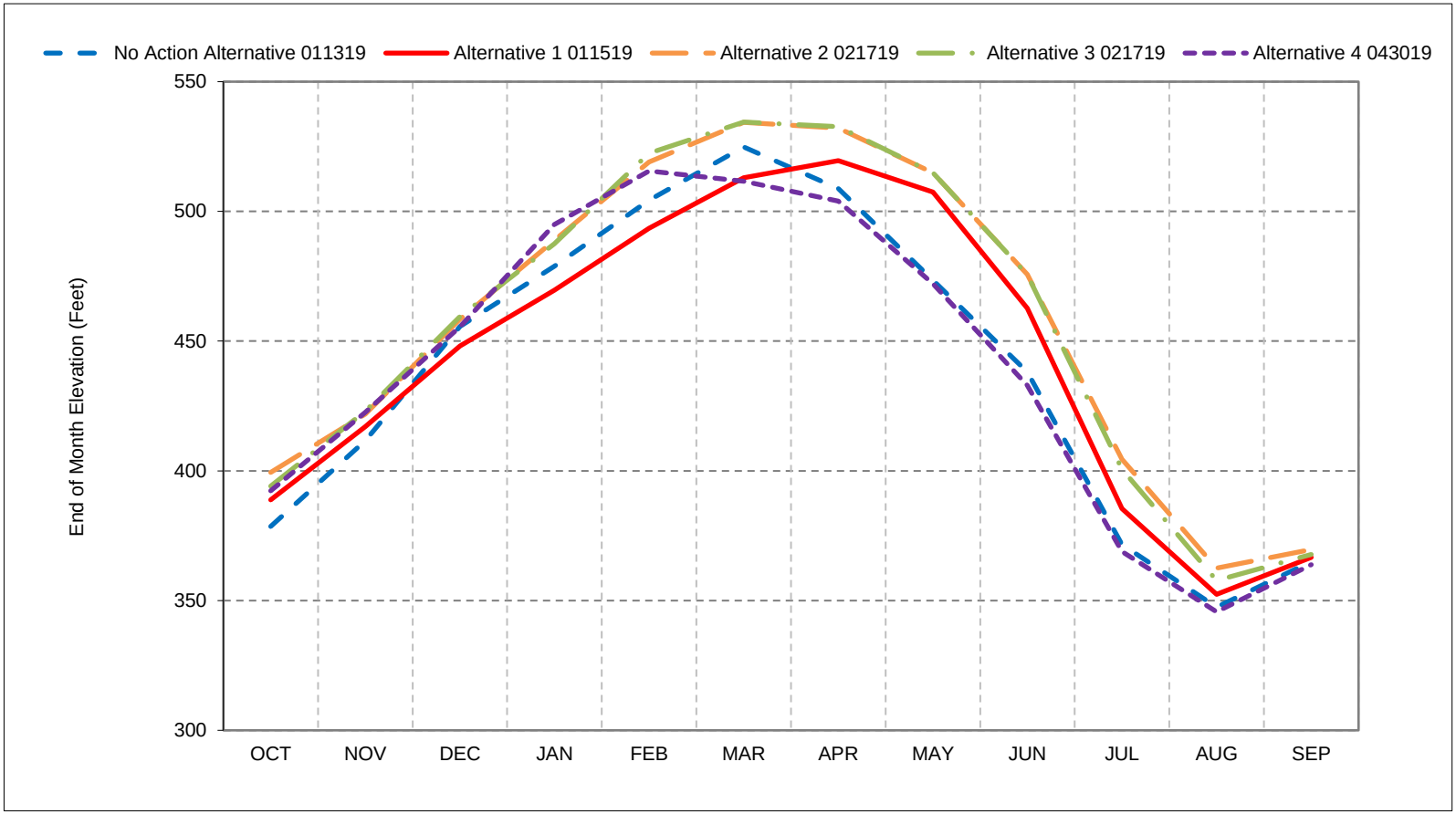

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6a-2. San Luis Reservoir (SWP and CVP), Wet Year Average Elevation



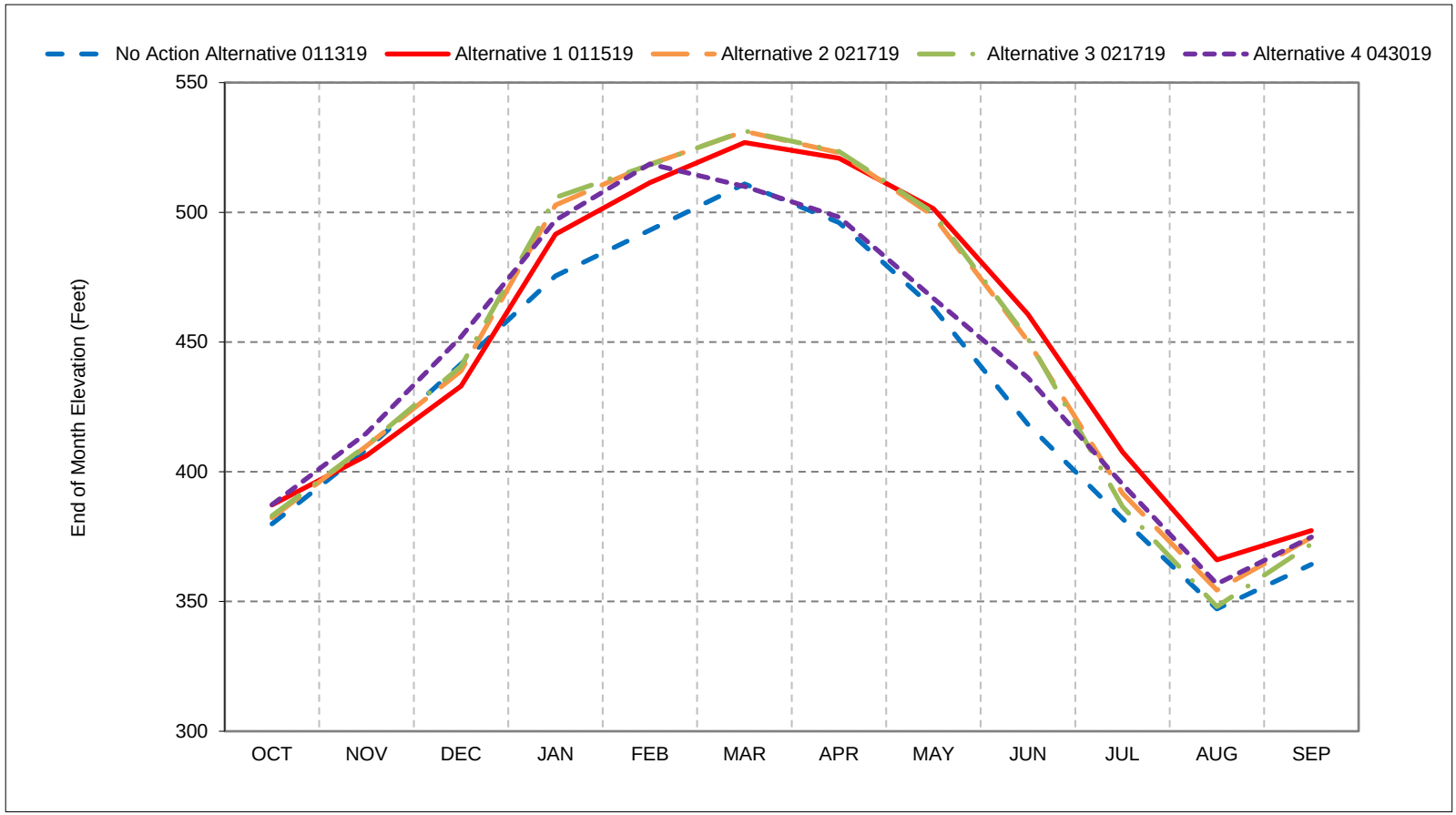

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6a-3. San Luis Reservoir (SWP and CVP), Above Normal Year Average Elevation



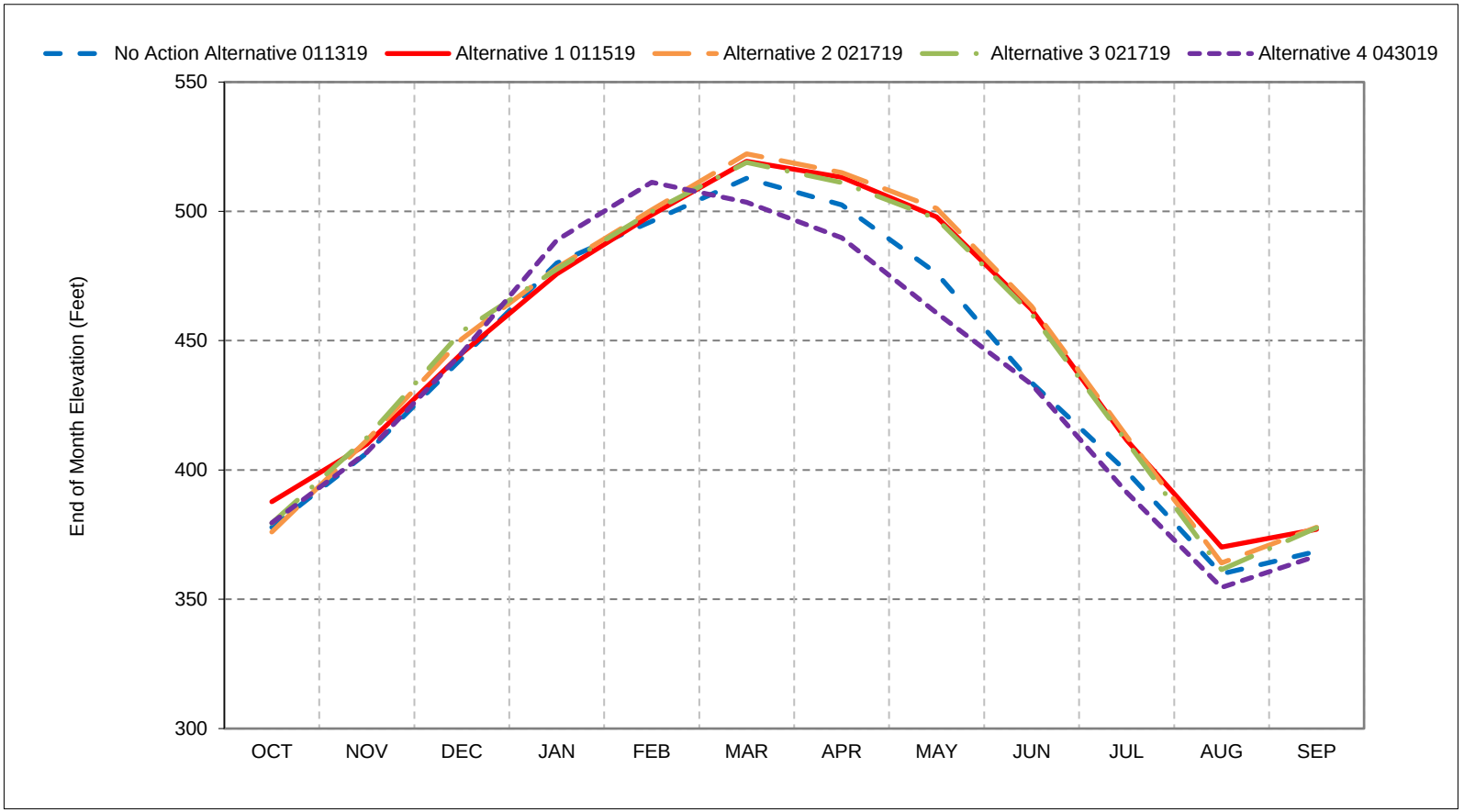

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6a-4. San Luis Reservoir (SWP and CVP), Below Normal Year Average Elevation



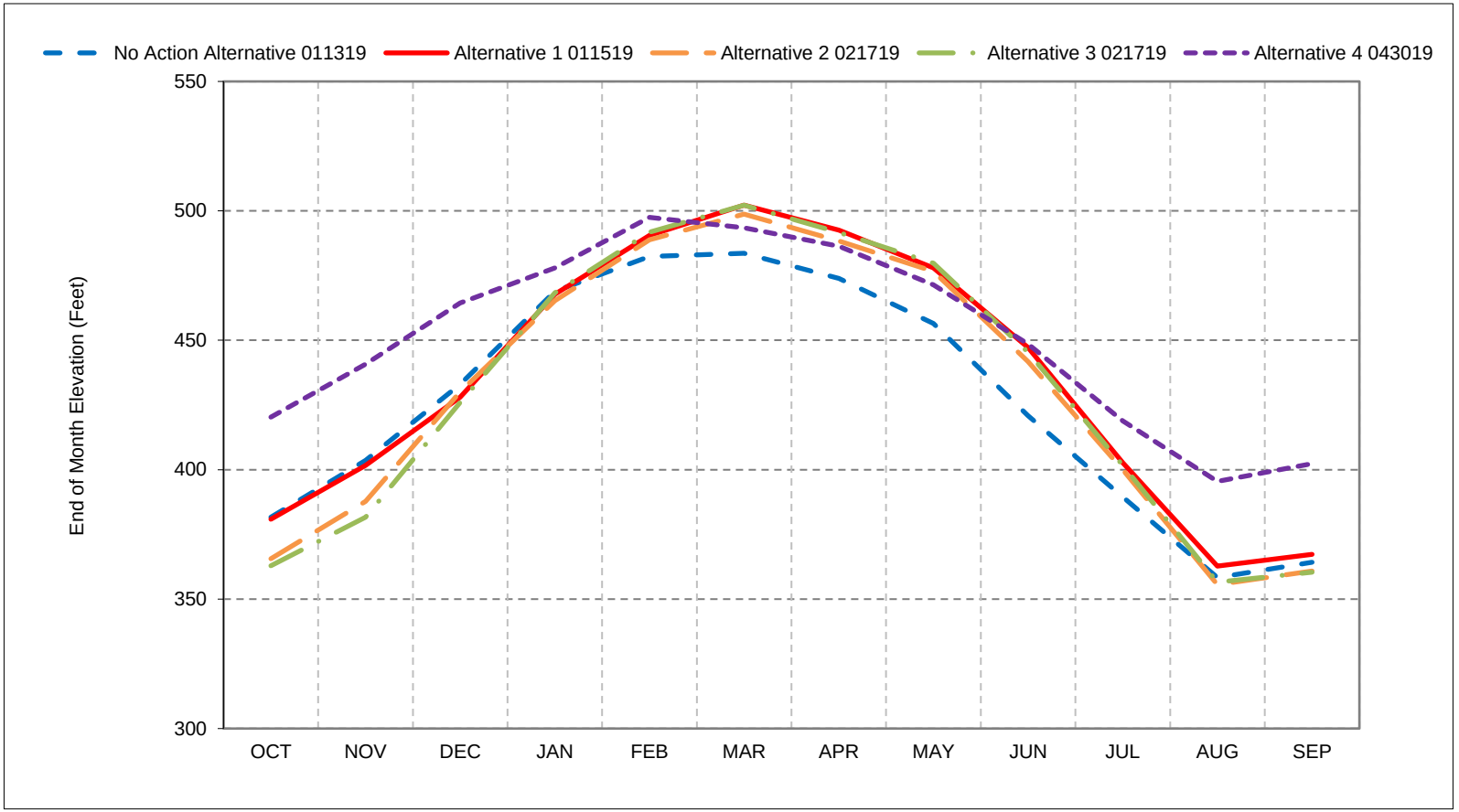

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6a-5. San Luis Reservoir (SWP and CVP), Dry Year Average Elevation



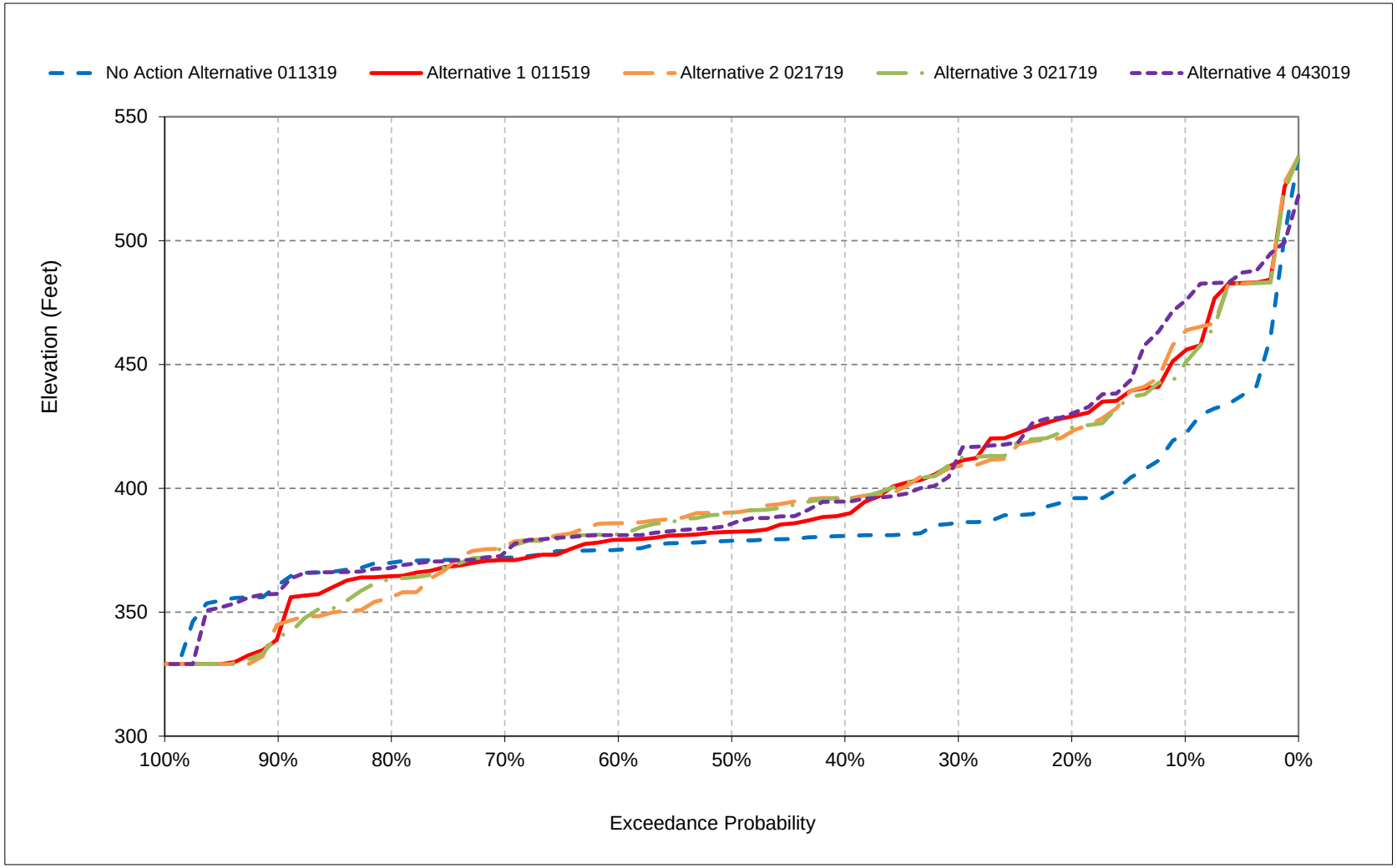

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6a-6. San Luis Reservoir (SWP and CVP), Critical Year Average Elevation




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

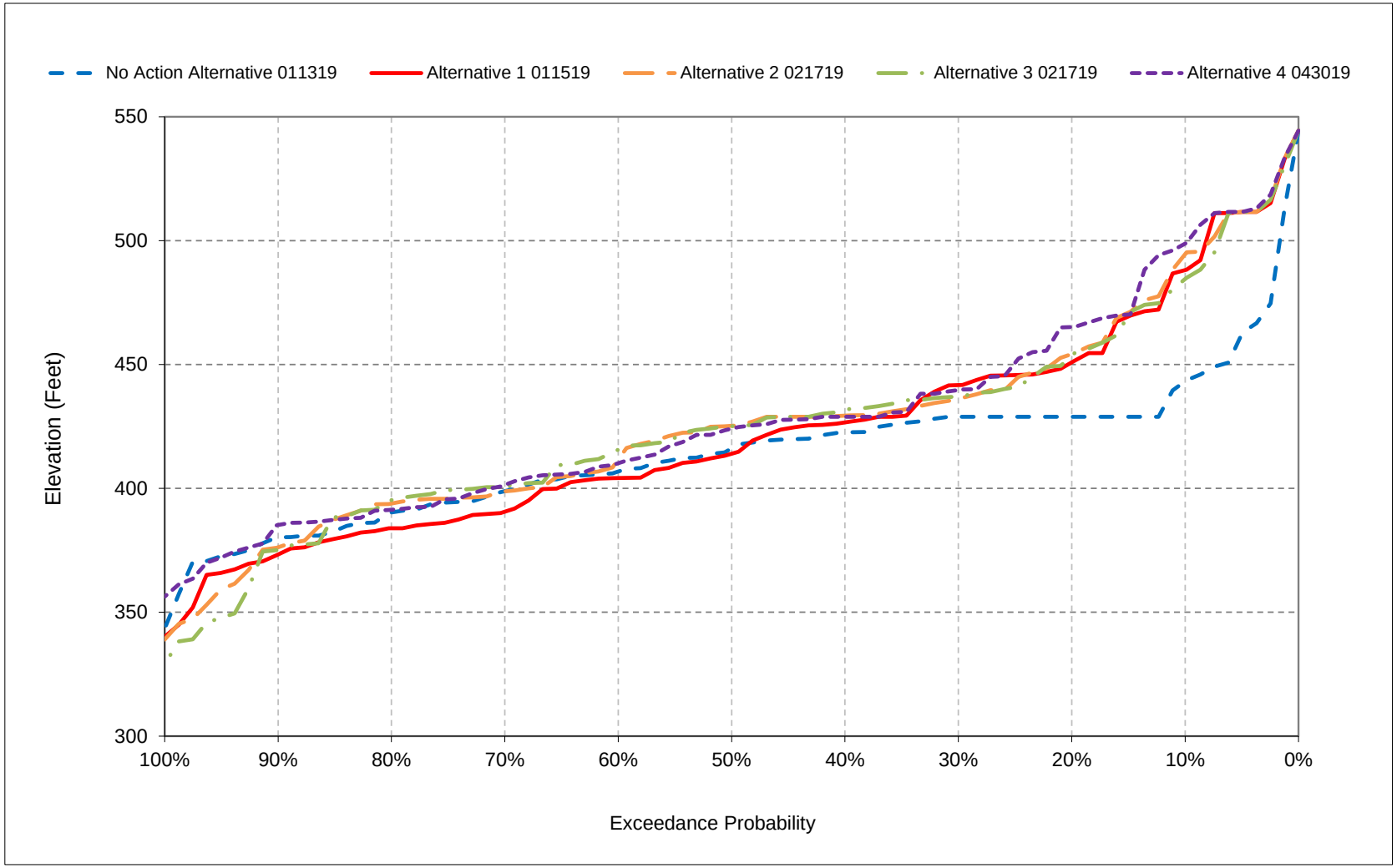
**Figure 6a-7. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

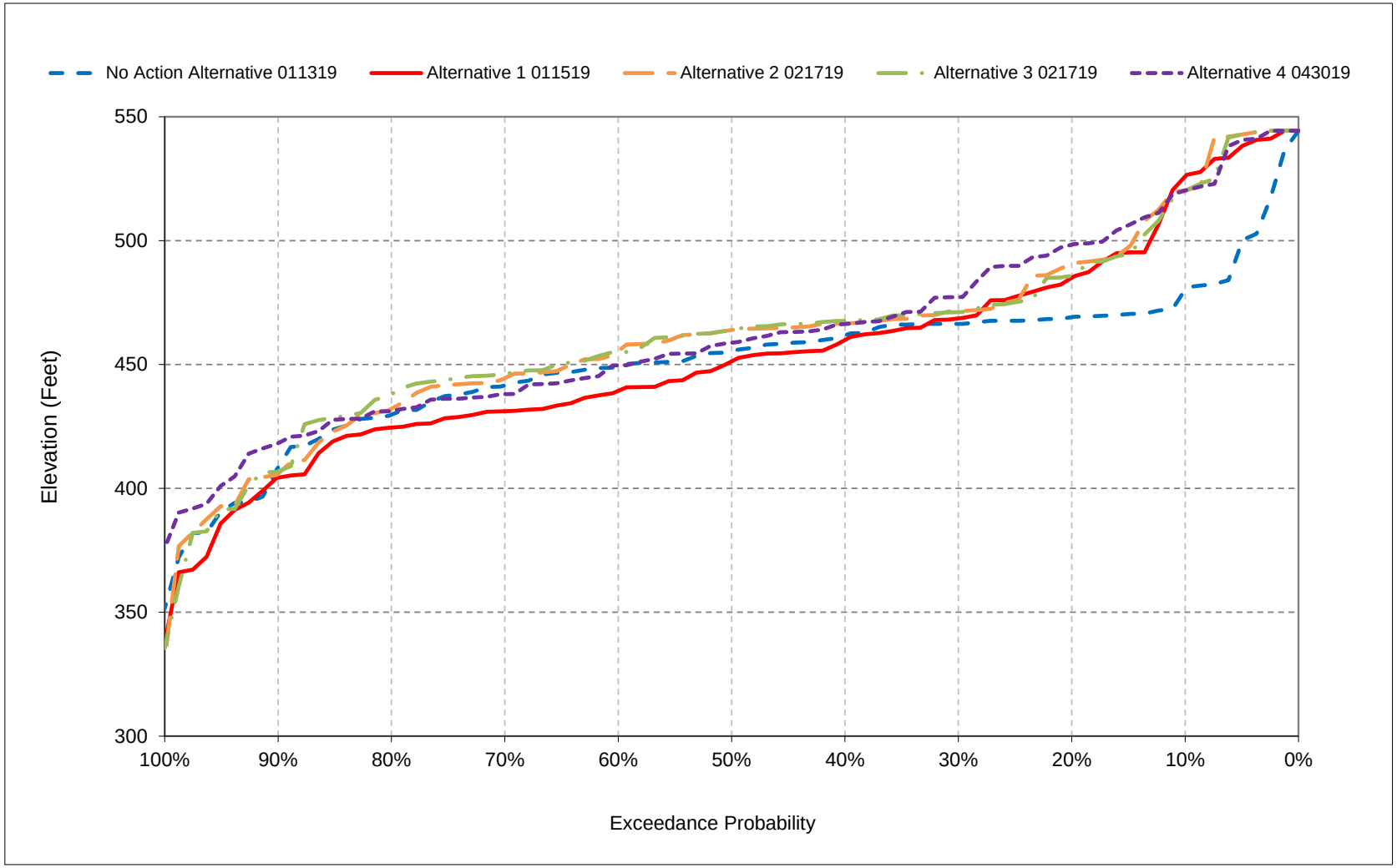
**Figure 6a-8. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

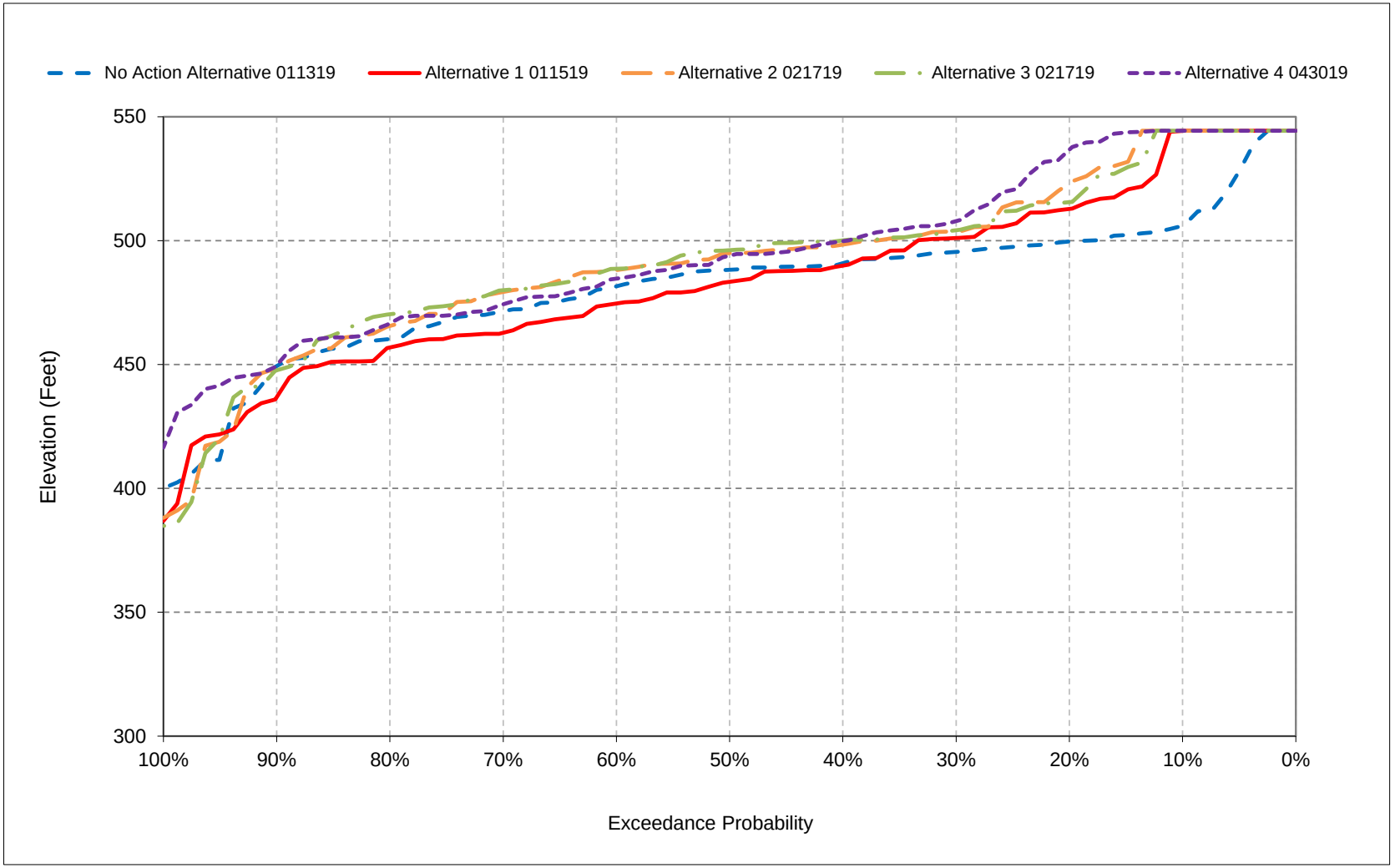
**Figure 6a-9. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

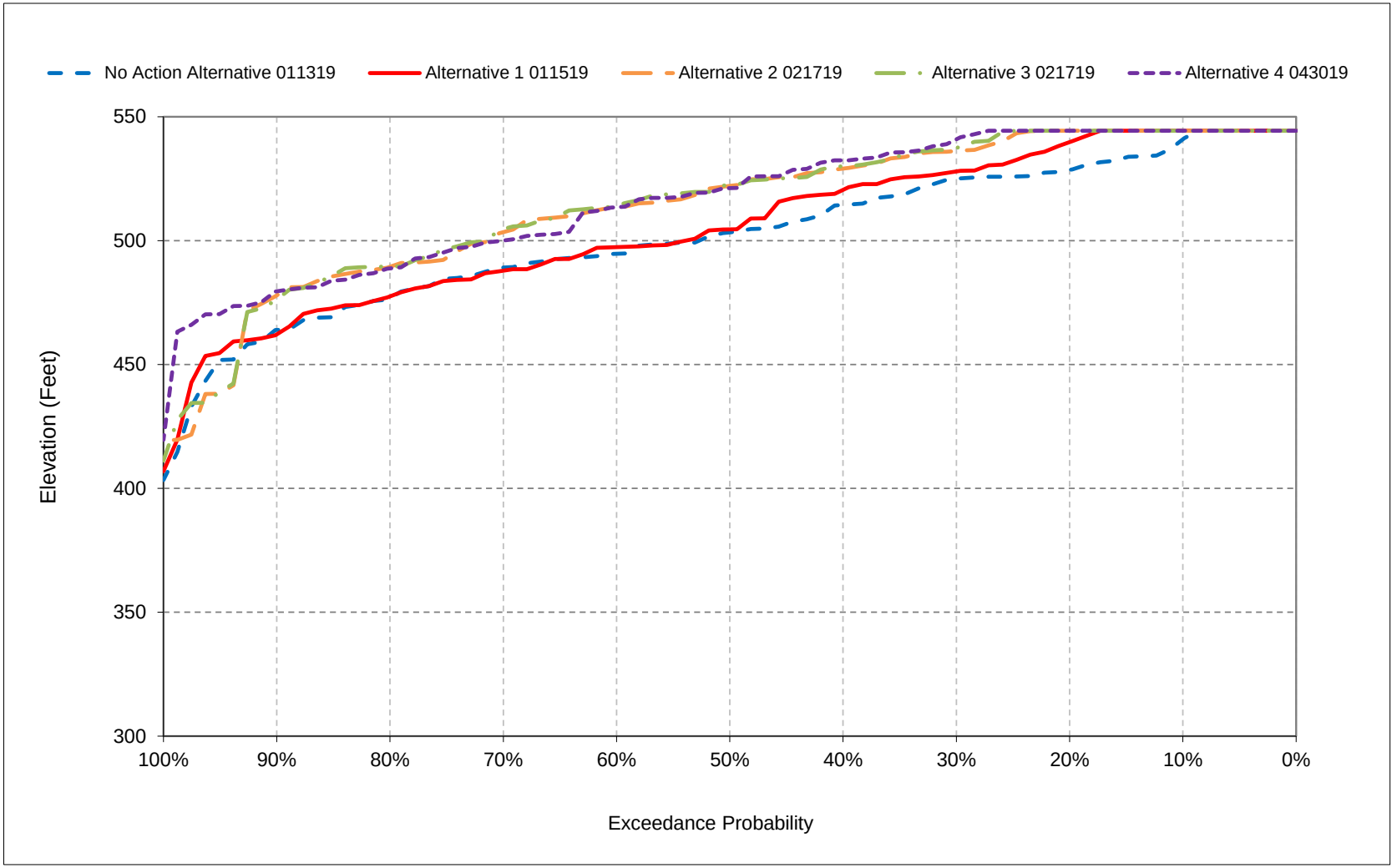
**Figure 6a-10. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

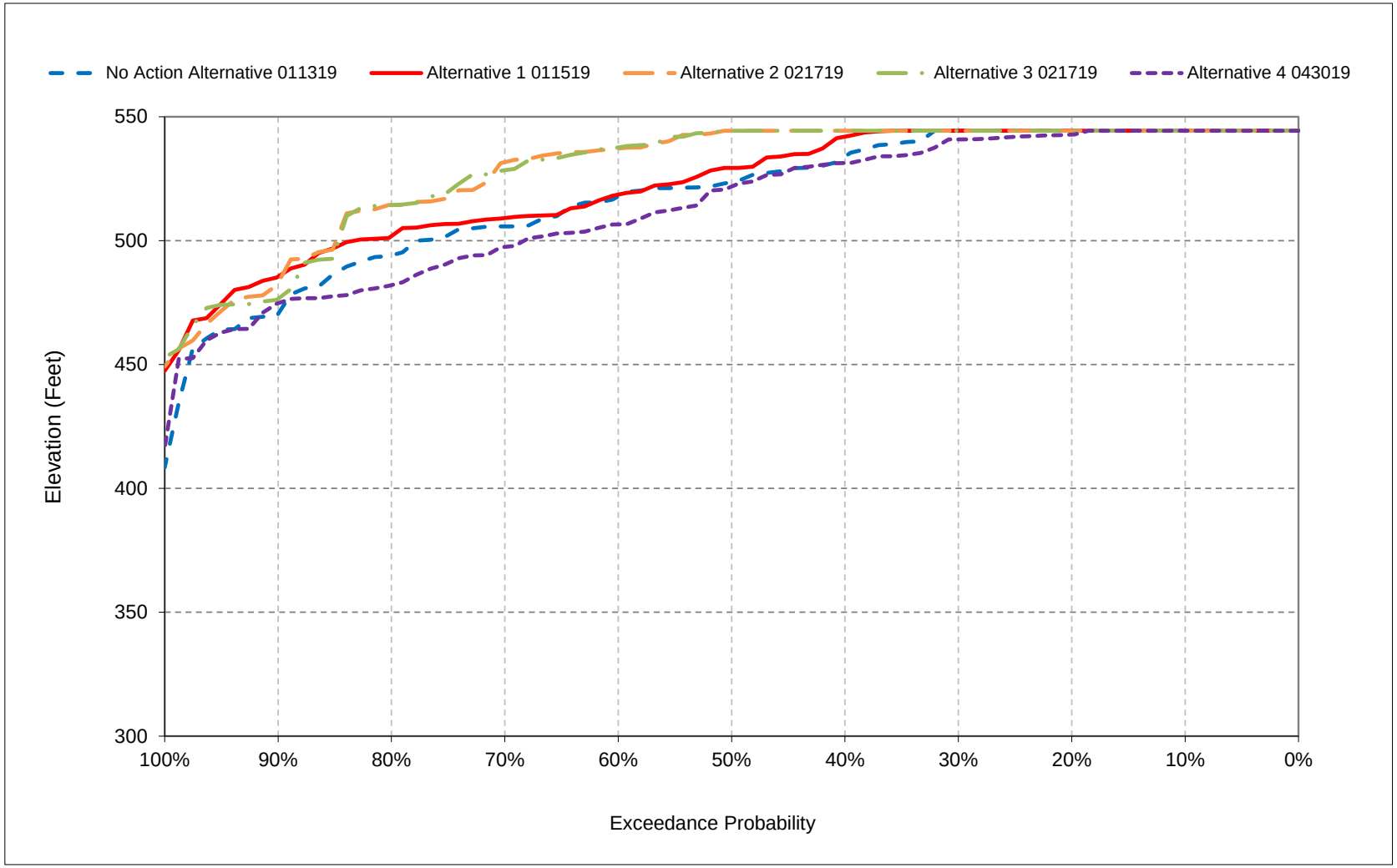
**Figure 6a-11. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

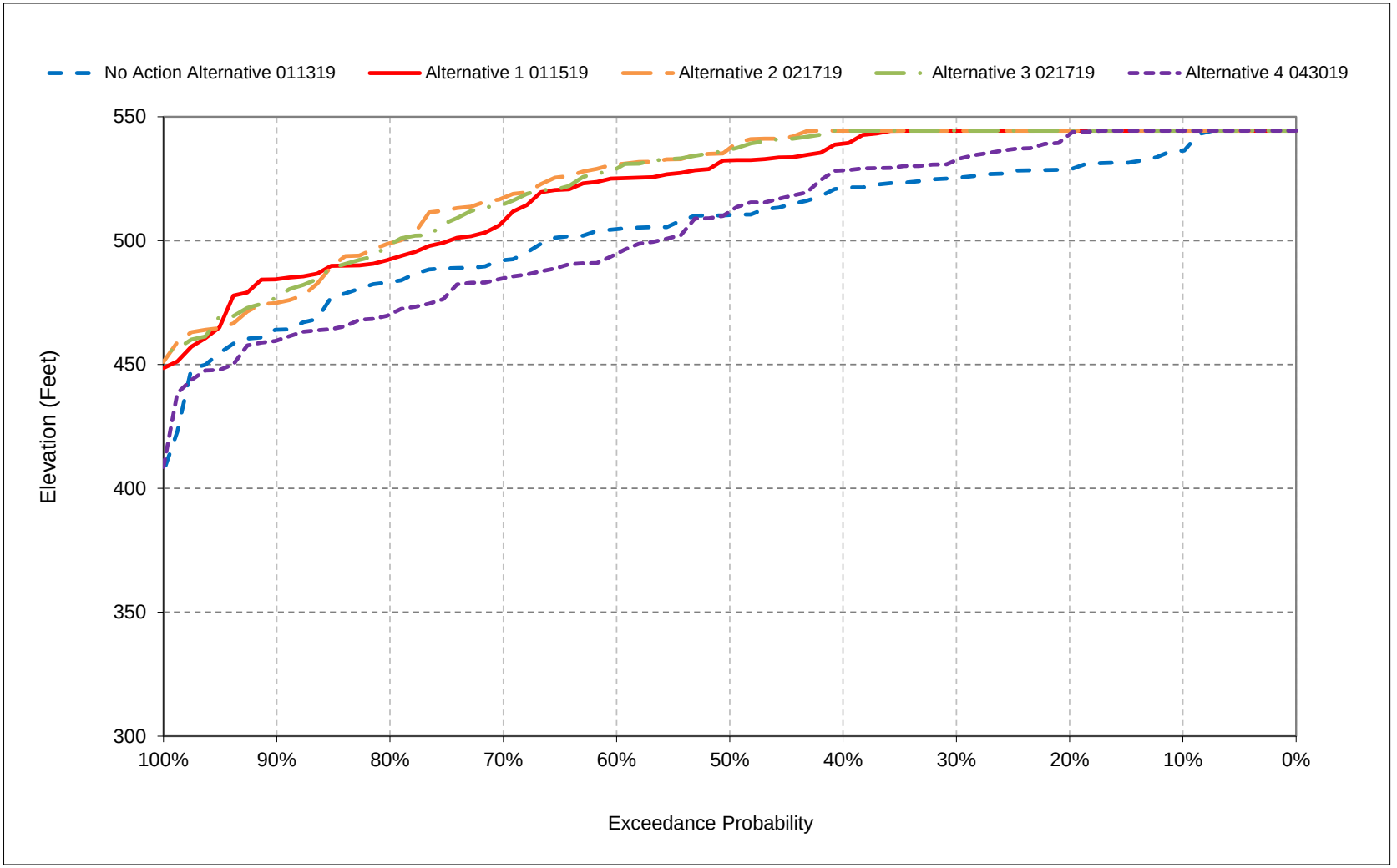
**Figure 6a-12. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6a-13. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6a-14. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

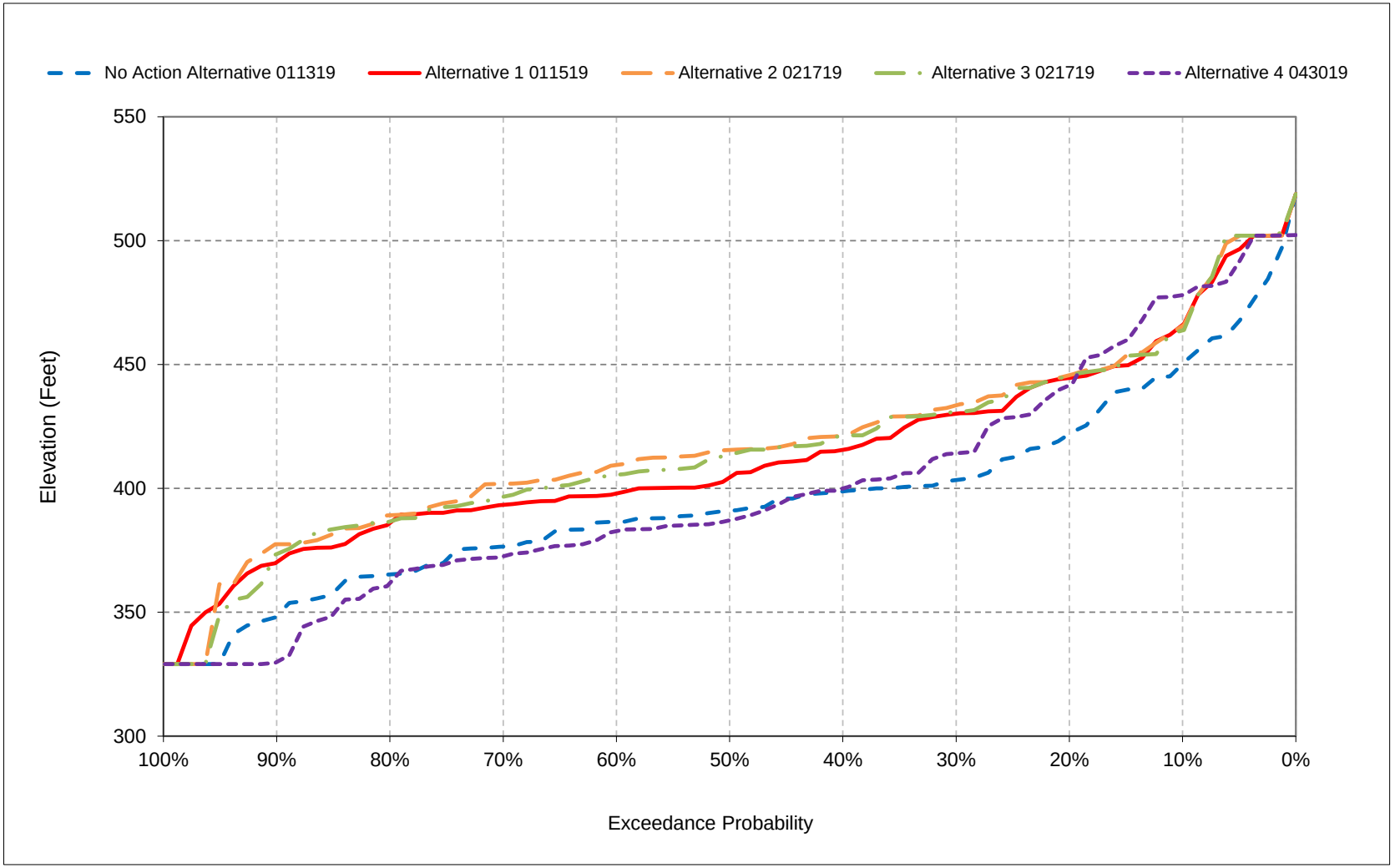
**Figure 6a-15. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

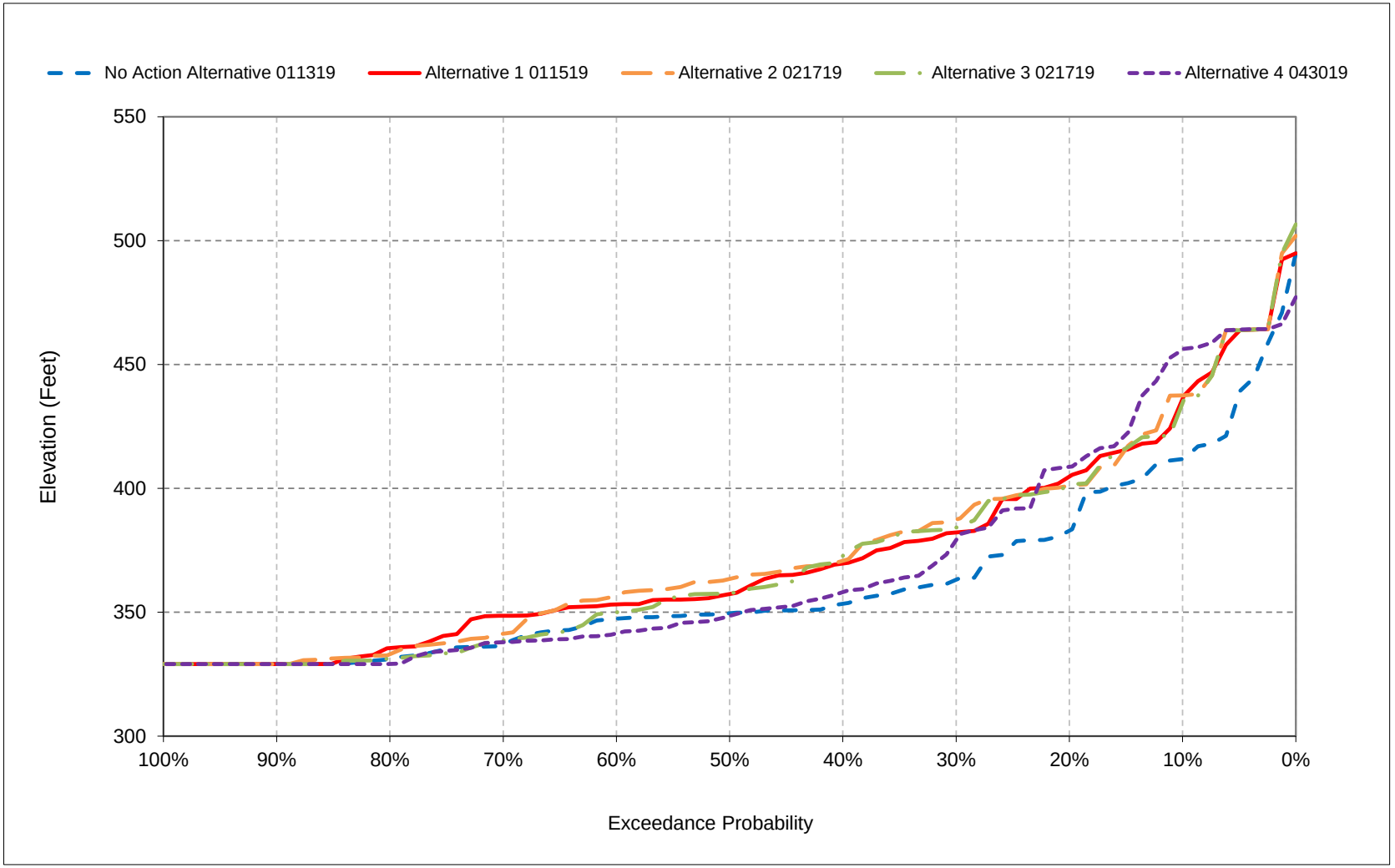
**Figure 6a-16. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

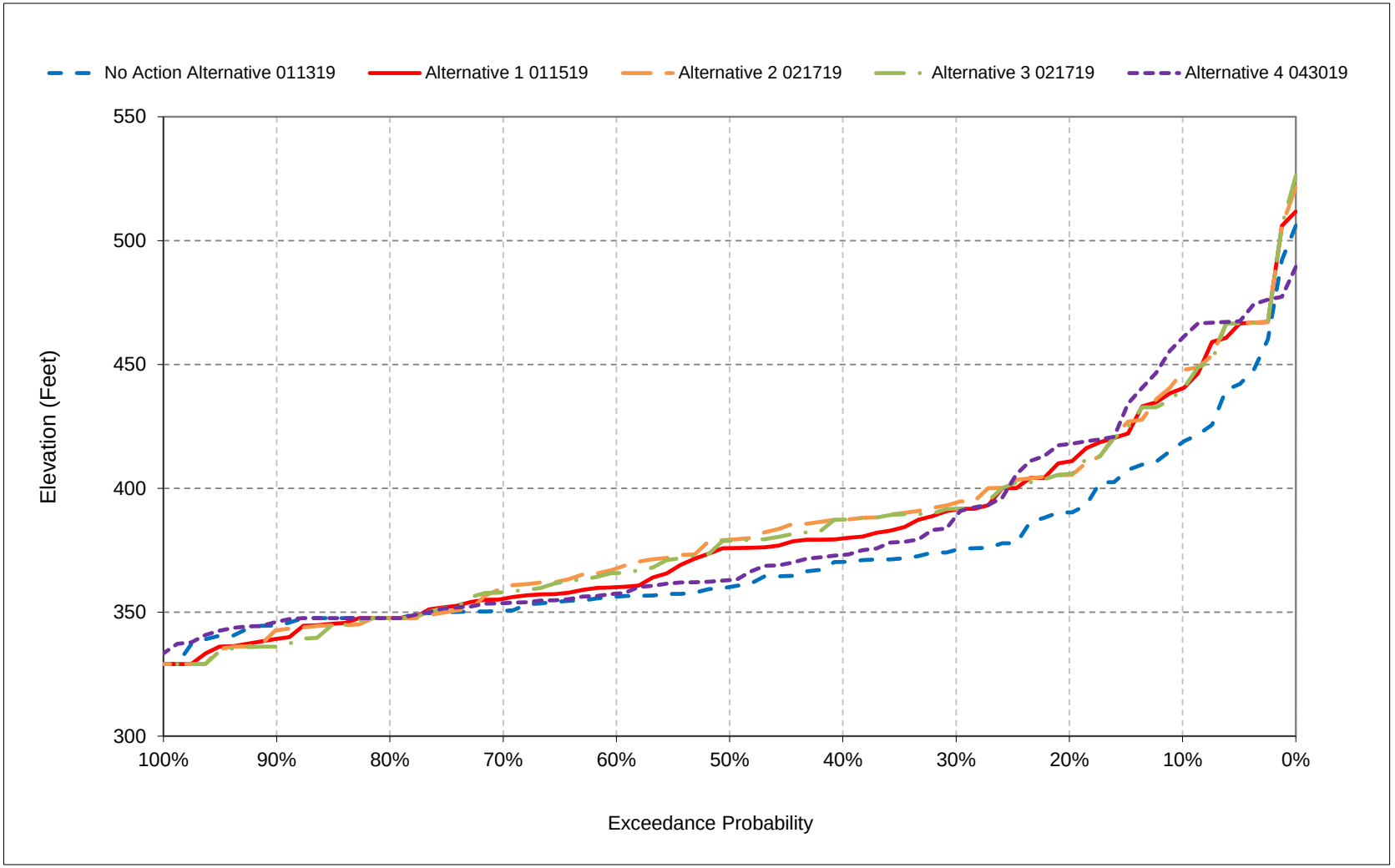
**Figure 6a-17. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6a-18. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 6b-1. San Luis CVP Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 338 | 432 | 614 | 750 | 951 | 972 | 924 | 801 | 720 | 464 | 296 | 324 |
| 20% | 234 | 367 | 557 | 716 | 878 | 972 | 880 | 763 | 601 | 338 | 190 | 215 |
| 30% | 201 | 367 | 544 | 692 | 857 | 972 | 859 | 659 | 479 | 262 | 128 | 163 |
| 40% | 182 | 340 | 520 | 667 | 797 | 910 | 835 | 624 | 436 | 244 | 104 | 146 |
| 50% | 176 | 314 | 488 | 654 | 736 | 849 | 774 | 598 | 374 | 217 | 95 | 121 |
| 60% | 163 | 276 | 459 | 620 | 688 | 816 | 743 | 556 | 341 | 202 | 90 | 111 |
| 70% | 152 | 245 | 424 | 569 | 658 | 749 | 674 | 516 | 328 | 168 | 64 | 97 |
| 80% | 145 | 215 | 370 | 513 | 596 | 685 | 629 | 482 | 285 | 133 | 50 | 90 |
| 90% | 123 | 181 | 283 | 459 | 531 | 564 | 532 | 427 | 252 | 92 | 45 | 83 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 207 | 314 | 476 | 625 | 733 | 820 | 754 | 609 | 436 | 251 | 140 | 170 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 256 | 373 | 547 | 682 | 816 | 920 | 860 | 711 | 561 | 330 | 198 | 222 |
| Above Normal (16%) | 176 | 299 | 492 | 611 | 746 | 860 | 769 | 582 | 414 | 169 | 94 | 138 |
| Below Normal (13%) | 182 | 287 | 434 | 596 | 689 | 784 | 702 | 534 | 332 | 193 | 90 | 134 |
| Dry (24%) | 181 | 285 | 442 | 614 | 700 | 791 | 735 | 598 | 398 | 251 | 127 | 154 |
| Critical (15%) | 203 | 277 | 399 | 564 | 634 | 640 | 589 | 502 | 343 | 223 | 134 | 154 |

### Alternative 1 011519

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 489 | 653 | 863 | 972 | 972 | 972 | 972 | 972 | 858 | 541 | 399 | 419 |
| 20% | 367 | 466 | 637 | 788 | 944 | 972 | 972 | 968 | 754 | 438 | 268 | 293 |
| 30% | 291 | 425 | 555 | 723 | 874 | 972 | 972 | 904 | 655 | 372 | 187 | 219 |
| 40% | 212 | 356 | 511 | 662 | 831 | 958 | 941 | 848 | 583 | 311 | 144 | 179 |
| 50% | 188 | 305 | 468 | 629 | 742 | 882 | 900 | 799 | 525 | 266 | 114 | 166 |
| 60% | 177 | 266 | 414 | 585 | 703 | 820 | 858 | 723 | 478 | 241 | 104 | 120 |
| 70% | 149 | 216 | 377 | 526 | 652 | 767 | 760 | 686 | 445 | 225 | 92 | 109 |
| 80% | 131 | 193 | 348 | 496 | 599 | 727 | 676 | 589 | 427 | 200 | 61 | 90 |
| 90% | 73 | 157 | 266 | 402 | 522 | 640 | 634 | 544 | 390 | 146 | 45 | 70 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 252 | 356 | 495 | 638 | 753 | 844 | 840 | 770 | 574 | 318 | 176 | 205 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 335 | 481 | 637 | 724 | 834 | 920 | 952 | 911 | 709 | 420 | 251 | 282 |
| Above Normal (16%) | 219 | 327 | 458 | 570 | 692 | 794 | 831 | 763 | 530 | 219 | 111 | 148 |
| Below Normal (13%) | 210 | 282 | 403 | 682 | 788 | 873 | 838 | 730 | 519 | 284 | 141 | 177 |
| Dry (24%) | 216 | 301 | 452 | 595 | 714 | 828 | 794 | 713 | 527 | 299 | 158 | 181 |
| Critical (15%) | 207 | 277 | 382 | 559 | 676 | 735 | 682 | 606 | 456 | 269 | 149 | 166 |

### Alternative 1 011519 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 151 | 221 | 249 | 222 | 21 | 0 | 48 | 171 | 138 | 77 | 103 | 95 |
| 20% | 134 | 100 | 80 | 72 | 66 | 0 | 92 | 205 | 153 | 100 | 78 | 78 |
| 30% | 91 | 58 | 11 | 31 | 17 | 0 | 113 | 245 | 176 | 110 | 59 | 56 |
| 40% | 30 | 17 | **-10** | **-5** | 35 | 48 | 105 | 224 | 147 | 67 | 40 | 32 |
| 50% | 12 | **-9** | **-20** | **-24** | 7 | 33 | 126 | 201 | 151 | 49 | 19 | 45 |
| 60% | 14 | **-10** | **-45** | **-35** | 15 | 4 | 115 | 166 | 137 | 39 | 14 | 9 |
| 70% | **-3** | **-29** | **-47** | **-44** | **-6** | 19 | 86 | 170 | 118 | 58 | 28 | 12 |
| 80% | **-14** | **-22** | **-22** | **-17** | 3 | 43 | 47 | 107 | 141 | 67 | 11 | **0** |
| 90% | **-50** | **-24** | **-17** | **-57** | **-9** | 76 | 103 | 117 | 138 | 54 | 0 | **-13** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 45 | 42 | 19 | 13 | 20 | 24 | 85 | 161 | 138 | 67 | 36 | 35 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 80 | 108 | 90 | 42 | 18 | **0** | 93 | 199 | 147 | 90 | 53 | 60 |
| Above Normal (16%) | 42 | 28 | **-35** | **-42** | **-54** | **-65** | 62 | 181 | 116 | 50 | 17 | 10 |
| Below Normal (13%) | 27 | **-5** | **-31** | 86 | 99 | 89 | 136 | 196 | 187 | 92 | 51 | 42 |
| Dry (24%) | 36 | 17 | 10 | **-19** | 14 | 37 | 59 | 115 | 129 | 47 | 30 | 28 |
| Critical (15%) | 4 | **0** | **-17** | **-5** | 42 | 95 | 93 | 104 | 113 | 47 | 15 | 12 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 6b-2. San Luis CVP Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 338 | 432 | 614 | 750 | 951 | 972 | 924 | 801 | 720 | 464 | 296 | 324 |
| 20% | 234 | 367 | 557 | 716 | 878 | 972 | 880 | 763 | 601 | 338 | 190 | 215 |
| 30% | 201 | 367 | 544 | 692 | 857 | 972 | 859 | 659 | 479 | 262 | 128 | 163 |
| 40% | 182 | 340 | 520 | 667 | 797 | 910 | 835 | 624 | 436 | 244 | 104 | 146 |
| 50% | 176 | 314 | 488 | 654 | 736 | 849 | 774 | 598 | 374 | 217 | 95 | 121 |
| 60% | 163 | 276 | 459 | 620 | 688 | 816 | 743 | 556 | 341 | 202 | 90 | 111 |
| 70% | 152 | 245 | 424 | 569 | 658 | 749 | 674 | 516 | 328 | 168 | 64 | 97 |
| 80% | 145 | 215 | 370 | 513 | 596 | 685 | 629 | 482 | 285 | 133 | 50 | 90 |
| 90% | 123 | 181 | 283 | 459 | 531 | 564 | 532 | 427 | 252 | 92 | 45 | 83 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 207 | 314 | 476 | 625 | 733 | 820 | 754 | 609 | 436 | 251 | 140 | 170 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 256 | 373 | 547 | 682 | 816 | 920 | 860 | 711 | 561 | 330 | 198 | 222 |
| Above Normal (16%) | 176 | 299 | 492 | 611 | 746 | 860 | 769 | 582 | 414 | 169 | 94 | 138 |
| Below Normal (13%) | 182 | 287 | 434 | 596 | 689 | 784 | 702 | 534 | 332 | 193 | 90 | 134 |
| Dry (24%) | 181 | 285 | 442 | 614 | 700 | 791 | 735 | 598 | 398 | 251 | 127 | 154 |
| Critical (15%) | 203 | 277 | 399 | 564 | 634 | 640 | 589 | 502 | 343 | 223 | 134 | 154 |

### Alternative 2 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 528 | 688 | 830 | 972 | 972 | 972 | 972 | 972 | 878 | 539 | 406 | 450 |
| 20% | 341 | 482 | 665 | 847 | 972 | 972 | 972 | 961 | 762 | 443 | 253 | 271 |
| 30% | 285 | 400 | 569 | 738 | 923 | 972 | 972 | 907 | 683 | 388 | 205 | 229 |
| 40% | 235 | 369 | 545 | 708 | 881 | 972 | 972 | 861 | 638 | 335 | 148 | 205 |
| 50% | 215 | 351 | 531 | 690 | 841 | 972 | 930 | 835 | 610 | 312 | 129 | 177 |
| 60% | 200 | 296 | 488 | 653 | 791 | 929 | 891 | 748 | 550 | 287 | 113 | 139 |
| 70% | 168 | 244 | 437 | 609 | 736 | 896 | 813 | 674 | 471 | 256 | 75 | 119 |
| 80% | 111 | 227 | 382 | 539 | 660 | 796 | 712 | 625 | 396 | 211 | 55 | 90 |
| 90% | 84 | 167 | 272 | 456 | 601 | 627 | 586 | 526 | 343 | 171 | 45 | 78 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 255 | 370 | 531 | 679 | 800 | 881 | 856 | 779 | 588 | 337 | 181 | 213 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 380 | 530 | 693 | 774 | 891 | 962 | 964 | 913 | 746 | 464 | 283 | 308 |
| Above Normal (16%) | 251 | 341 | 506 | 668 | 831 | 916 | 902 | 805 | 597 | 286 | 136 | 156 |
| Below Normal (13%) | 194 | 297 | 430 | 741 | 828 | 898 | 849 | 715 | 476 | 236 | 112 | 170 |
| Dry (24%) | 183 | 304 | 476 | 607 | 725 | 845 | 805 | 729 | 533 | 305 | 143 | 185 |
| Critical (15%) | 167 | 232 | 389 | 551 | 667 | 715 | 660 | 600 | 434 | 261 | 134 | 153 |

### Alternative 2 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 189 | 256 | 217 | 222 | 21 | 0 | 48 | 171 | 158 | 75 | 109 | 126 |
| 20% | 108 | 115 | 108 | 131 | 94 | 0 | 92 | 197 | 161 | 105 | 63 | 56 |
| 30% | 84 | 33 | 26 | 45 | 66 | 0 | 113 | 248 | 204 | 125 | 77 | 66 |
| 40% | 53 | 29 | 24 | 41 | 84 | 62 | 137 | 237 | 202 | 91 | 44 | 59 |
| 50% | 39 | 37 | 43 | 36 | 105 | 123 | 156 | 237 | 236 | 94 | 34 | 57 |
| 60% | 37 | 20 | 29 | 33 | 103 | 113 | 148 | 191 | 209 | 85 | 23 | 28 |
| 70% | 16 | **0** | 13 | 39 | 78 | 147 | 139 | 158 | 144 | 88 | 10 | 22 |
| 80% | **-35** | 12 | 11 | 26 | 64 | 112 | 83 | 143 | 110 | 78 | 5 | **0** |
| 90% | **-39** | **-14** | **-11** | **-4** | 70 | 63 | 55 | 100 | 91 | 79 | 0 | **-5** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 48 | 56 | 55 | 54 | 67 | 62 | 102 | 170 | 153 | 86 | 40 | 42 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 124 | 158 | 146 | 92 | 75 | 41 | 104 | 202 | 185 | 134 | 84 | 86 |
| Above Normal (16%) | 74 | 42 | 14 | 57 | 85 | 57 | 133 | 224 | 183 | 116 | 42 | 17 |
| Below Normal (13%) | 12 | 9 | **-3** | 145 | 139 | 114 | 147 | 182 | 143 | 43 | 21 | 35 |
| Dry (24%) | 2 | 20 | 34 | **-7** | 25 | 54 | 70 | 131 | 135 | 54 | 16 | 31 |
| Critical (15%) | **-36** | **-45** | **-10** | **-13** | 33 | 75 | 71 | 98 | 91 | 39 | **0** | **-1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 6b-3. San Luis CVP Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 338 | 432 | 614 | 750 | 951 | 972 | 924 | 801 | 720 | 464 | 296 | 324 |
| 20% | 234 | 367 | 557 | 716 | 878 | 972 | 880 | 763 | 601 | 338 | 190 | 215 |
| 30% | 201 | 367 | 544 | 692 | 857 | 972 | 859 | 659 | 479 | 262 | 128 | 163 |
| 40% | 182 | 340 | 520 | 667 | 797 | 910 | 835 | 624 | 436 | 244 | 104 | 146 |
| 50% | 176 | 314 | 488 | 654 | 736 | 849 | 774 | 598 | 374 | 217 | 95 | 121 |
| 60% | 163 | 276 | 459 | 620 | 688 | 816 | 743 | 556 | 341 | 202 | 90 | 111 |
| 70% | 152 | 245 | 424 | 569 | 658 | 749 | 674 | 516 | 328 | 168 | 64 | 97 |
| 80% | 145 | 215 | 370 | 513 | 596 | 685 | 629 | 482 | 285 | 133 | 50 | 90 |
| 90% | 123 | 181 | 283 | 459 | 531 | 564 | 532 | 427 | 252 | 92 | 45 | 83 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 207 | 314 | 476 | 625 | 733 | 820 | 754 | 609 | 436 | 251 | 140 | 170 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 256 | 373 | 547 | 682 | 816 | 920 | 860 | 711 | 561 | 330 | 198 | 222 |
| Above Normal (16%) | 176 | 299 | 492 | 611 | 746 | 860 | 769 | 582 | 414 | 169 | 94 | 138 |
| Below Normal (13%) | 182 | 287 | 434 | 596 | 689 | 784 | 702 | 534 | 332 | 193 | 90 | 134 |
| Dry (24%) | 181 | 285 | 442 | 614 | 700 | 791 | 735 | 598 | 398 | 251 | 127 | 154 |
| Critical (15%) | 203 | 277 | 399 | 564 | 634 | 640 | 589 | 502 | 343 | 223 | 134 | 154 |

### Alternative 3 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 465 | 635 | 829 | 972 | 972 | 972 | 972 | 972 | 878 | 530 | 392 | 417 |
| 20% | 348 | 479 | 641 | 803 | 972 | 972 | 972 | 963 | 761 | 443 | 254 | 272 |
| 30% | 296 | 404 | 568 | 740 | 931 | 972 | 972 | 902 | 676 | 375 | 194 | 220 |
| 40% | 235 | 379 | 550 | 718 | 886 | 972 | 972 | 859 | 634 | 334 | 155 | 205 |
| 50% | 214 | 350 | 531 | 696 | 842 | 972 | 926 | 813 | 595 | 304 | 115 | 175 |
| 60% | 185 | 312 | 486 | 656 | 796 | 931 | 881 | 764 | 558 | 271 | 96 | 134 |
| 70% | 166 | 252 | 445 | 612 | 743 | 877 | 798 | 656 | 455 | 237 | 68 | 116 |
| 80% | 128 | 232 | 408 | 563 | 660 | 796 | 709 | 600 | 402 | 202 | 50 | 90 |
| 90% | 72 | 163 | 276 | 452 | 593 | 595 | 598 | 501 | 338 | 157 | 45 | 62 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 253 | 368 | 531 | 680 | 803 | 881 | 852 | 773 | 583 | 329 | 174 | 209 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 378 | 527 | 688 | 768 | 888 | 965 | 959 | 903 | 732 | 457 | 278 | 304 |
| Above Normal (16%) | 233 | 345 | 511 | 660 | 849 | 916 | 905 | 805 | 596 | 271 | 123 | 150 |
| Below Normal (13%) | 195 | 297 | 437 | 754 | 825 | 898 | 851 | 721 | 479 | 220 | 96 | 162 |
| Dry (24%) | 189 | 307 | 487 | 605 | 722 | 828 | 784 | 708 | 520 | 298 | 137 | 184 |
| Critical (15%) | 160 | 216 | 374 | 569 | 684 | 734 | 678 | 616 | 450 | 268 | 137 | 152 |

### Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 126 | 203 | 215 | 222 | 21 | 0 | 48 | 171 | 158 | 67 | 96 | 93 |
| 20% | 114 | 112 | 84 | 87 | 94 | 0 | 92 | 200 | 160 | 105 | 64 | 57 |
| 30% | 95 | 37 | 24 | 48 | 74 | 0 | 113 | 243 | 197 | 113 | 66 | 57 |
| 40% | 53 | 39 | 29 | 51 | 90 | 62 | 137 | 235 | 197 | 90 | 51 | 59 |
| 50% | 39 | 36 | 43 | 43 | 107 | 123 | 152 | 215 | 221 | 87 | 20 | 55 |
| 60% | 22 | 36 | 27 | 36 | 108 | 116 | 138 | 207 | 217 | 69 | 6 | 23 |
| 70% | 14 | 7 | 21 | 42 | 85 | 128 | 124 | 140 | 128 | 69 | 4 | 18 |
| 80% | **-17** | 17 | 38 | 50 | 64 | 111 | 81 | 118 | 117 | 69 | 0 | **0** |
| 90% | **-50** | **-17** | **-7** | **-8** | 62 | 31 | 66 | 74 | 86 | 65 | 0 | **-20** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 46 | 54 | 56 | 55 | 70 | 61 | 98 | 165 | 148 | 78 | 34 | 39 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 123 | 154 | 141 | 86 | 72 | 45 | 100 | 191 | 170 | 127 | 80 | 82 |
| Above Normal (16%) | 57 | 46 | 18 | 49 | 103 | 57 | 136 | 223 | 182 | 102 | 29 | 12 |
| Below Normal (13%) | 13 | 9 | 3 | 158 | 136 | 113 | 149 | 187 | 147 | 27 | 6 | 27 |
| Dry (24%) | 9 | 22 | 45 | **-9** | 22 | 37 | 49 | 111 | 121 | 47 | 10 | 30 |
| Critical (15%) | **-43** | **-61** | **-25** | 5 | 50 | 94 | 89 | 114 | 107 | 46 | 3 | **-2** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 6b-4. San Luis CVP Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 338 | 432 | 614 | 750 | 951 | 972 | 924 | 801 | 720 | 464 | 296 | 324 |
| 20% | 234 | 367 | 557 | 716 | 878 | 972 | 880 | 763 | 601 | 338 | 190 | 215 |
| 30% | 201 | 367 | 544 | 692 | 857 | 972 | 859 | 659 | 479 | 262 | 128 | 163 |
| 40% | 182 | 340 | 520 | 667 | 797 | 910 | 835 | 624 | 436 | 244 | 104 | 146 |
| 50% | 176 | 314 | 488 | 654 | 736 | 849 | 774 | 598 | 374 | 217 | 95 | 121 |
| 60% | 163 | 276 | 459 | 620 | 688 | 816 | 743 | 556 | 341 | 202 | 90 | 111 |
| 70% | 152 | 245 | 424 | 569 | 658 | 749 | 674 | 516 | 328 | 168 | 64 | 97 |
| 80% | 145 | 215 | 370 | 513 | 596 | 685 | 629 | 482 | 285 | 133 | 50 | 90 |
| 90% | 123 | 181 | 283 | 459 | 531 | 564 | 532 | 427 | 252 | 92 | 45 | 83 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 207 | 314 | 476 | 625 | 733 | 820 | 754 | 609 | 436 | 251 | 140 | 170 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 256 | 373 | 547 | 682 | 816 | 920 | 860 | 711 | 561 | 330 | 198 | 222 |
| Above Normal (16%) | 176 | 299 | 492 | 611 | 746 | 860 | 769 | 582 | 414 | 169 | 94 | 138 |
| Below Normal (13%) | 182 | 287 | 434 | 596 | 689 | 784 | 702 | 534 | 332 | 193 | 90 | 134 |
| Dry (24%) | 181 | 285 | 442 | 614 | 700 | 791 | 735 | 598 | 398 | 251 | 127 | 154 |
| Critical (15%) | 203 | 277 | 399 | 564 | 634 | 640 | 589 | 502 | 343 | 223 | 134 | 154 |

### Alternative 4 043019

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 591 | 711 | 830 | 972 | 972 | 972 | 972 | 972 | 842 | 602 | 491 | 515 |
| 20% | 373 | 537 | 708 | 926 | 972 | 963 | 963 | 852 | 708 | 424 | 284 | 321 |
| 30% | 301 | 416 | 598 | 761 | 951 | 951 | 901 | 754 | 538 | 306 | 177 | 210 |
| 40% | 230 | 367 | 543 | 716 | 900 | 894 | 877 | 653 | 473 | 249 | 115 | 156 |
| 50% | 199 | 346 | 505 | 684 | 835 | 839 | 782 | 614 | 384 | 204 | 92 | 127 |
| 60% | 183 | 290 | 461 | 636 | 792 | 753 | 688 | 516 | 359 | 189 | 75 | 114 |
| 70% | 159 | 254 | 408 | 584 | 717 | 703 | 636 | 470 | 339 | 154 | 66 | 105 |
| 80% | 140 | 219 | 377 | 545 | 656 | 622 | 563 | 449 | 294 | 124 | 45 | 90 |
| 90% | 115 | 198 | 322 | 461 | 610 | 586 | 510 | 363 | 259 | 47 | 45 | 86 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 267 | 383 | 535 | 696 | 812 | 797 | 755 | 624 | 473 | 273 | 168 | 206 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 335 | 476 | 638 | 753 | 878 | 902 | 890 | 772 | 600 | 346 | 224 | 261 |
| Above Normal (16%) | 226 | 346 | 493 | 696 | 808 | 786 | 745 | 581 | 397 | 164 | 90 | 137 |
| Below Normal (13%) | 214 | 317 | 477 | 708 | 826 | 777 | 714 | 554 | 409 | 243 | 125 | 172 |
| Dry (24%) | 184 | 285 | 451 | 664 | 783 | 742 | 669 | 524 | 394 | 224 | 113 | 147 |
| Critical (15%) | 355 | 442 | 555 | 613 | 712 | 691 | 654 | 579 | 468 | 340 | 258 | 289 |

### Alternative 4 043019 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 252 | 279 | 216 | 222 | 21 | 0 | 48 | 171 | 122 | 138 | 195 | 191 |
| 20% | 139 | 170 | 151 | 211 | 94 | -9 | 83 | 89 | 108 | 87 | 94 | 106 |
| 30% | 100 | 49 | 54 | 68 | 94 | -21 | 41 | 96 | 59 | 44 | 49 | 47 |
| 40% | 48 | 27 | 23 | 49 | 104 | -15 | 42 | 29 | 36 | 4 | 11 | 10 |
| 50% | 24 | 32 | 17 | 30 | 99 | -10 | 8 | 16 | 10 | -13 | -3 | 7 |
| 60% | 20 | 14 | 1 | 16 | 104 | -62 | -54 | -41 | 18 | -13 | -15 | 3 |
| 70% | 7 | 10 | -16 | 14 | 59 | -45 | -38 | -46 | 11 | -14 | 2 | 7 |
| 80% | -6 | 4 | 7 | 32 | 60 | -62 | -66 | -33 | 8 | -9 | -5 | 0 |
| 90% | -7 | 17 | 39 | 2 | 79 | 21 | -22 | -63 | 7 | -45 | 0 | 3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 60 | 69 | 59 | 70 | 80 | -23 | 1 | 15 | 37 | 21 | 27 | 35 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 79 | 103 | 91 | 71 | 62 | -18 | 30 | 60 | 38 | 15 | 26 | 39 |
| Above Normal (16%) | 50 | 48 | 0 | 85 | 62 | -73 | -24 | -1 | -17 | -5 | -3 | -2 |
| Below Normal (13%) | 32 | 29 | 43 | 112 | 137 | -7 | 12 | 20 | 77 | 50 | 35 | 38 |
| Dry (24%) | 3 | 1 | 8 | 50 | 83 | -49 | -66 | -74 | -4 | -28 | -14 | -7 |
| Critical (15%) | 153 | 165 | 156 | 49 | 78 | 51 | 65 | 77 | 125 | 118 | 124 | 135 |

a Based on the 82-year simulation period.

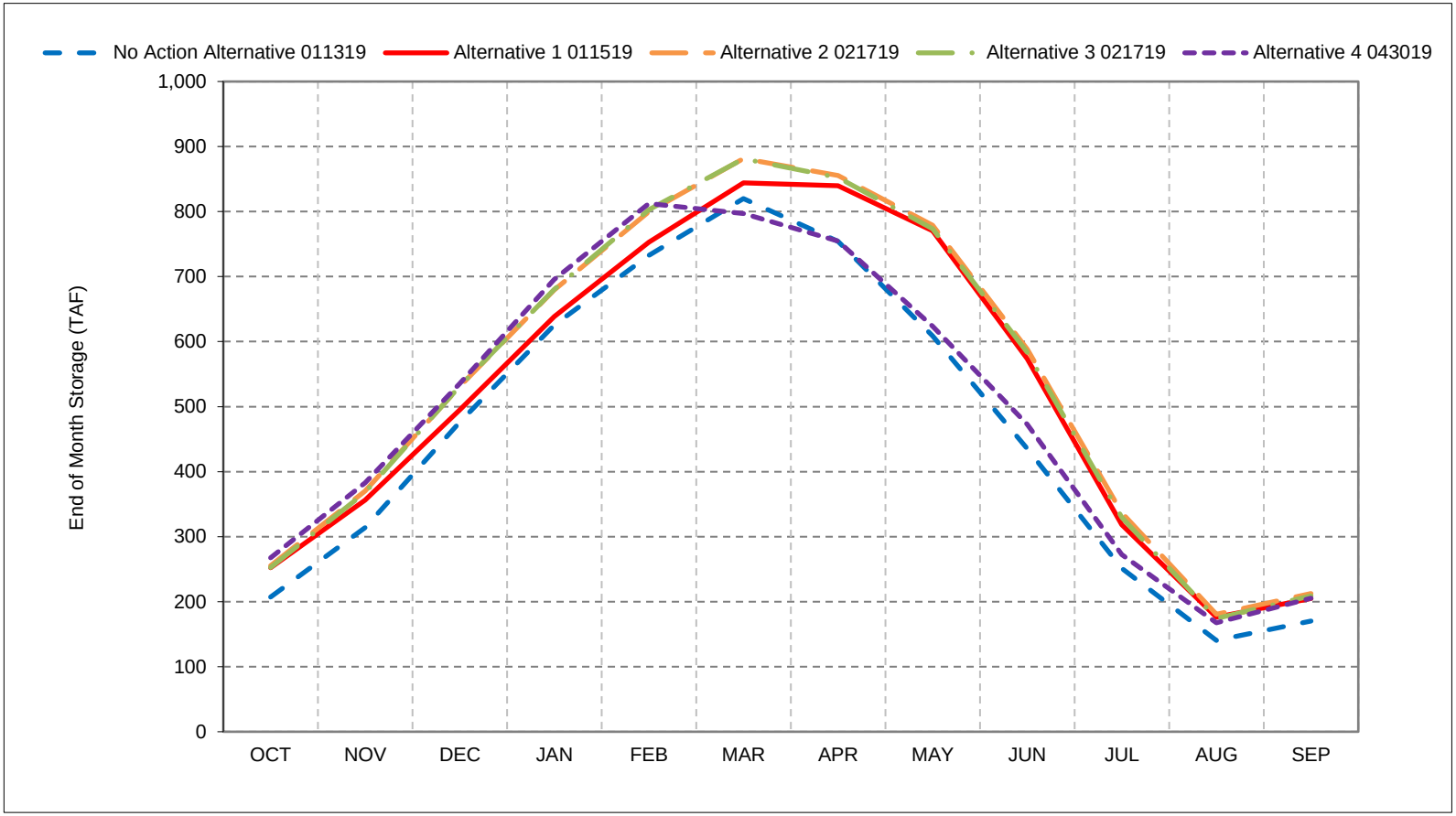
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

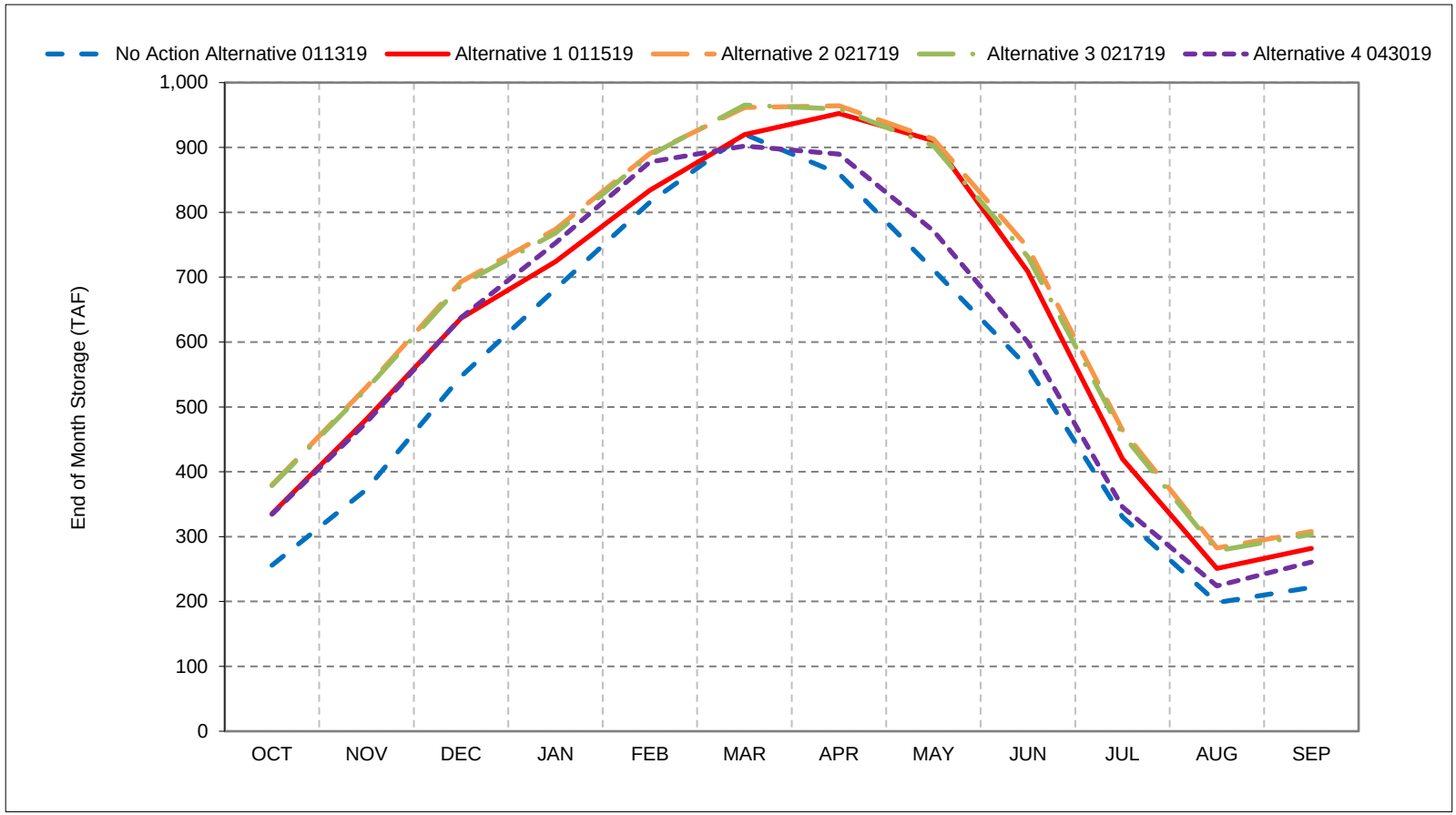
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-1. San Luis CVP Storage, Long-Term Average Storage



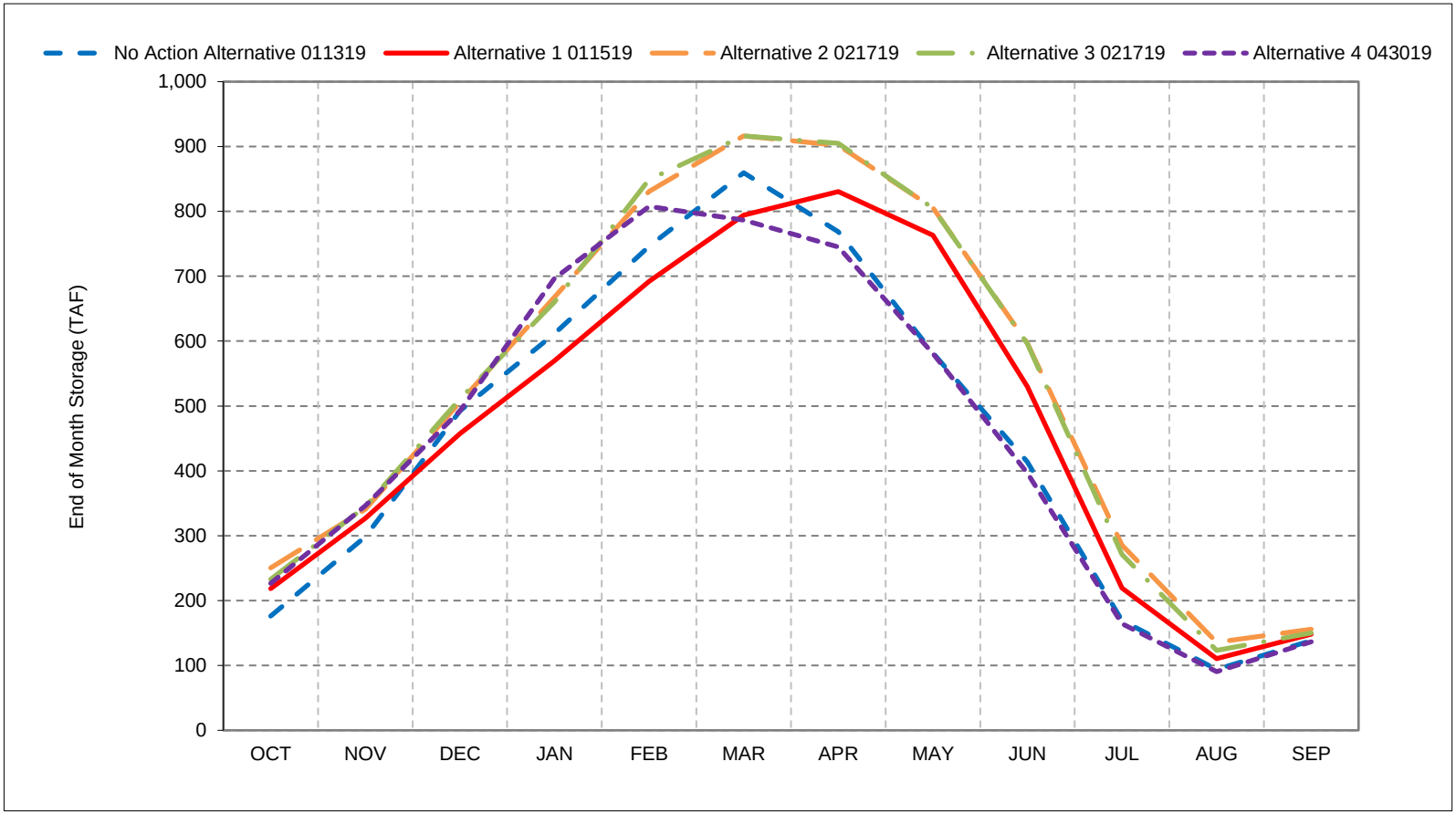

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-2. San Luis CVP Storage, Wet Year Average Storage



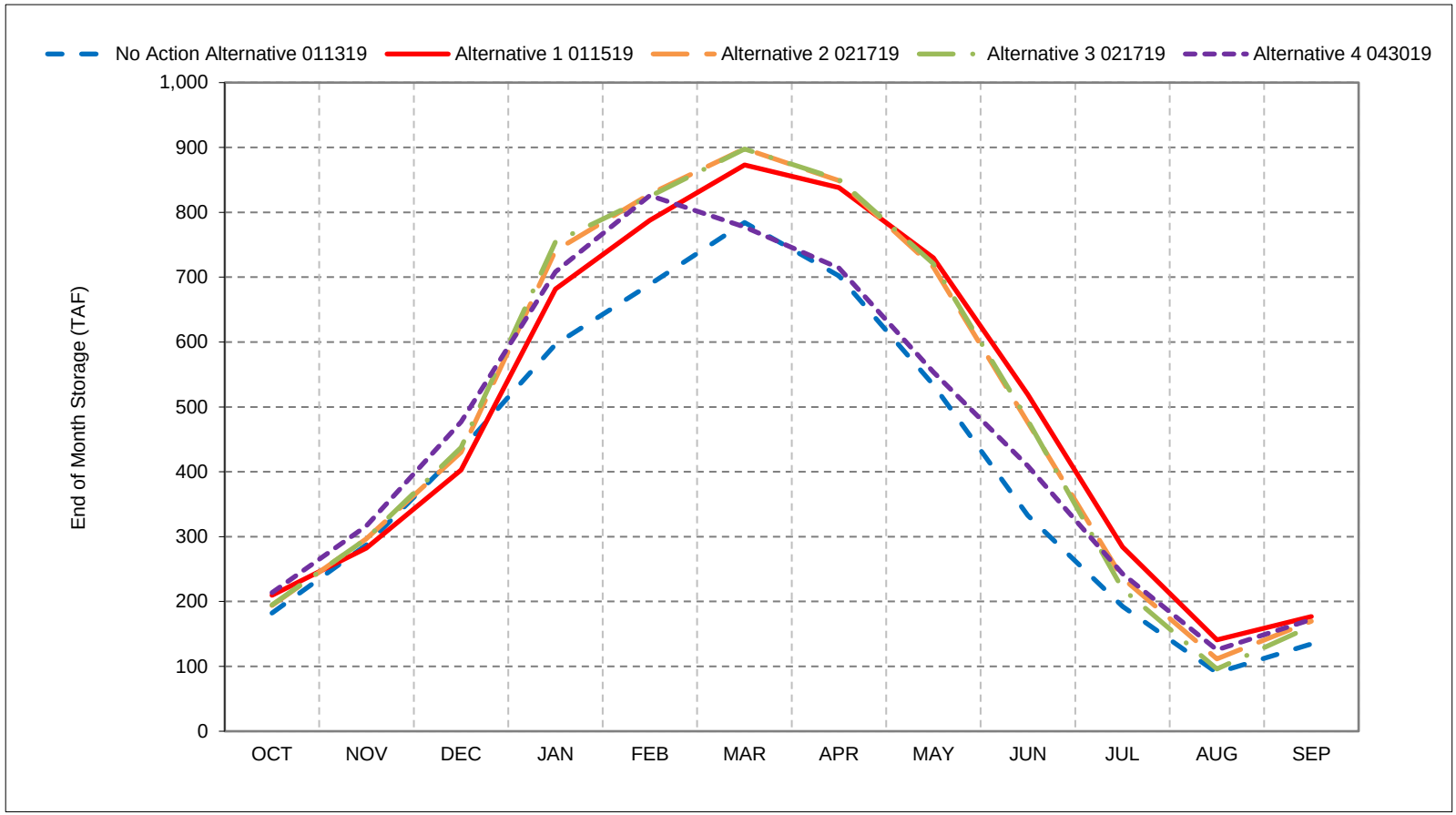

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-3. San Luis CVP Storage, Above Normal Year Average Storage



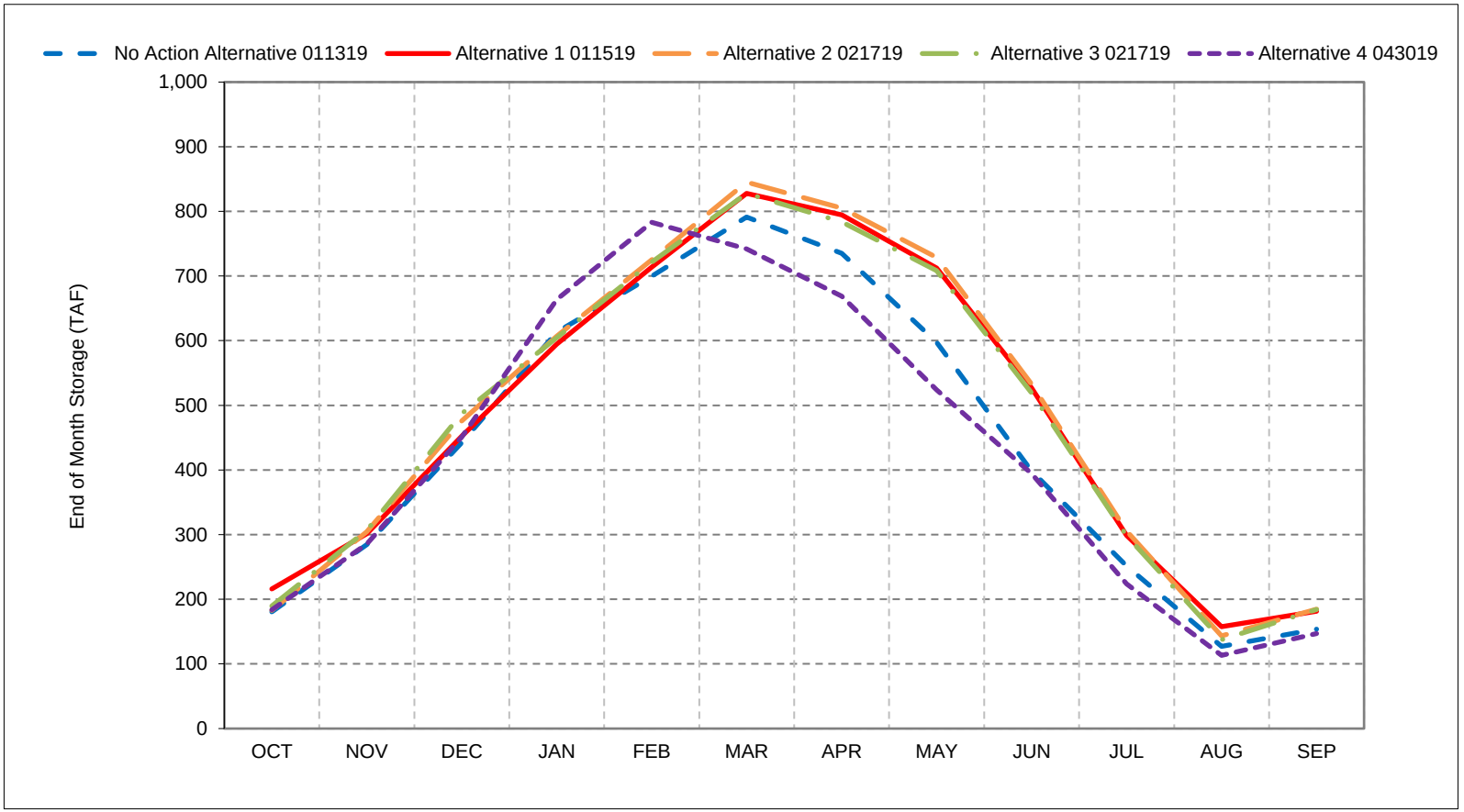

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-4. San Luis CVP Storage, Below Normal Year Average Storage



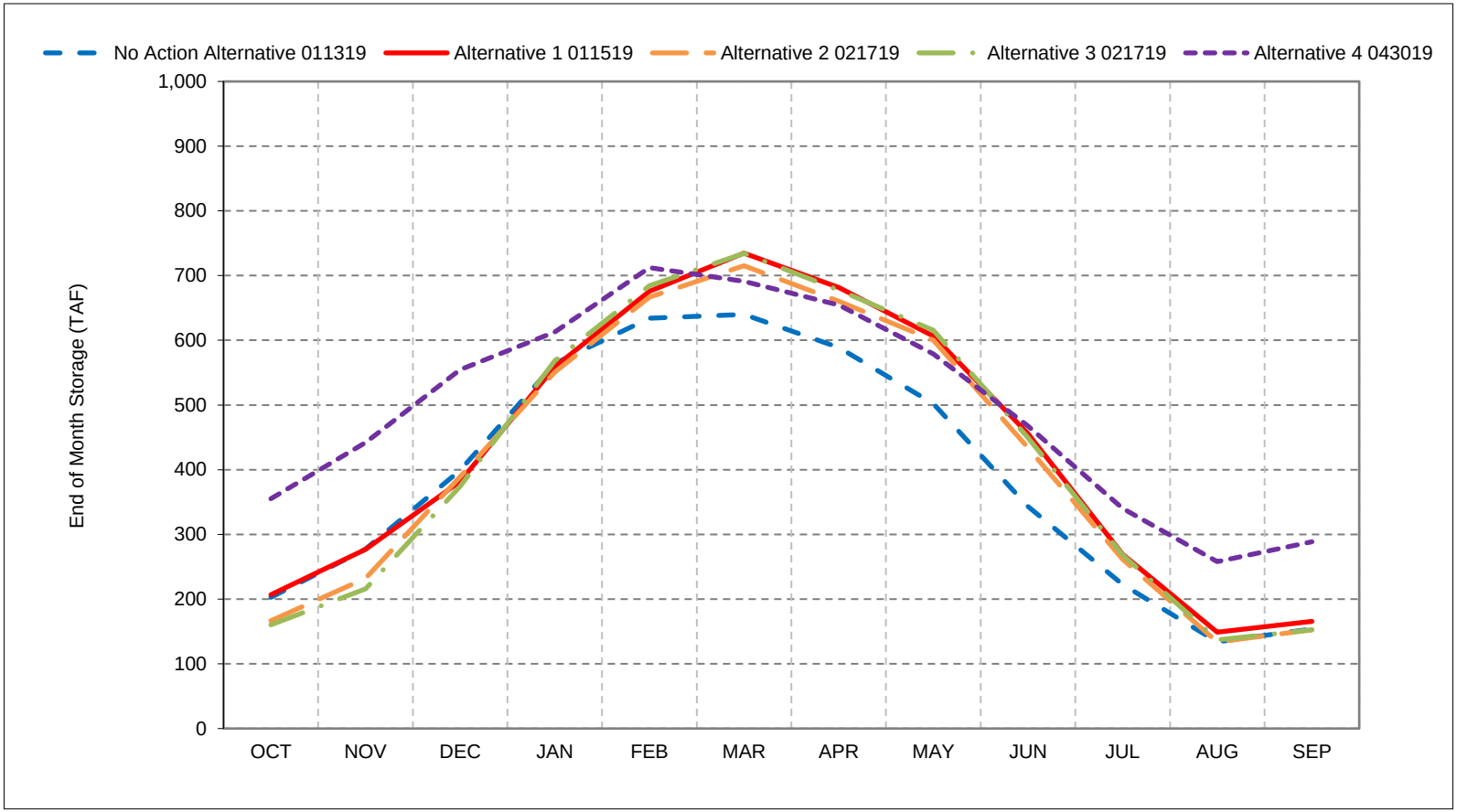

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-5. San Luis CVP Storage, Dry Year Average Storage



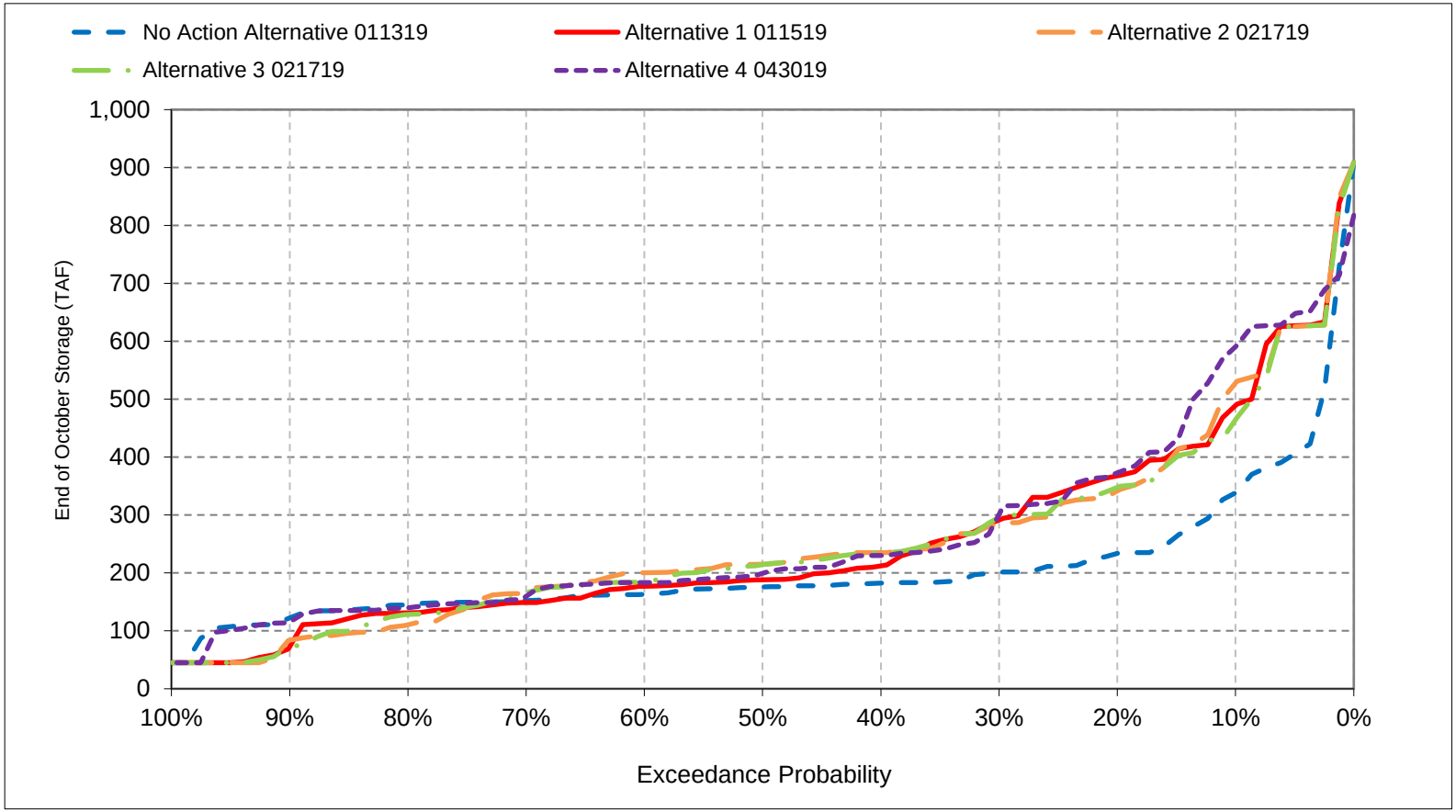

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-6. San Luis CVP Storage, Critical Year Average Storage



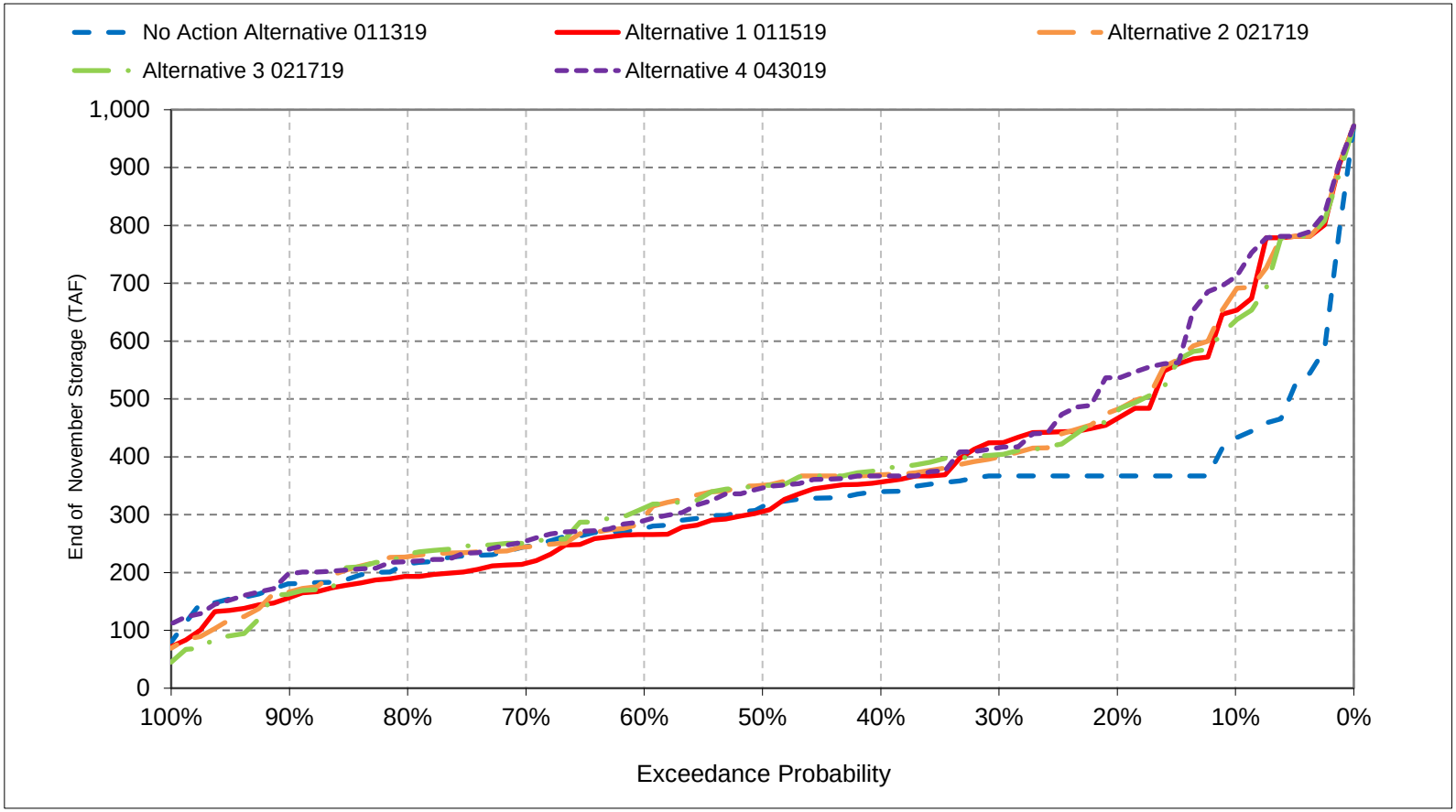

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-7. San Luis CVP Storage, End of October Storage



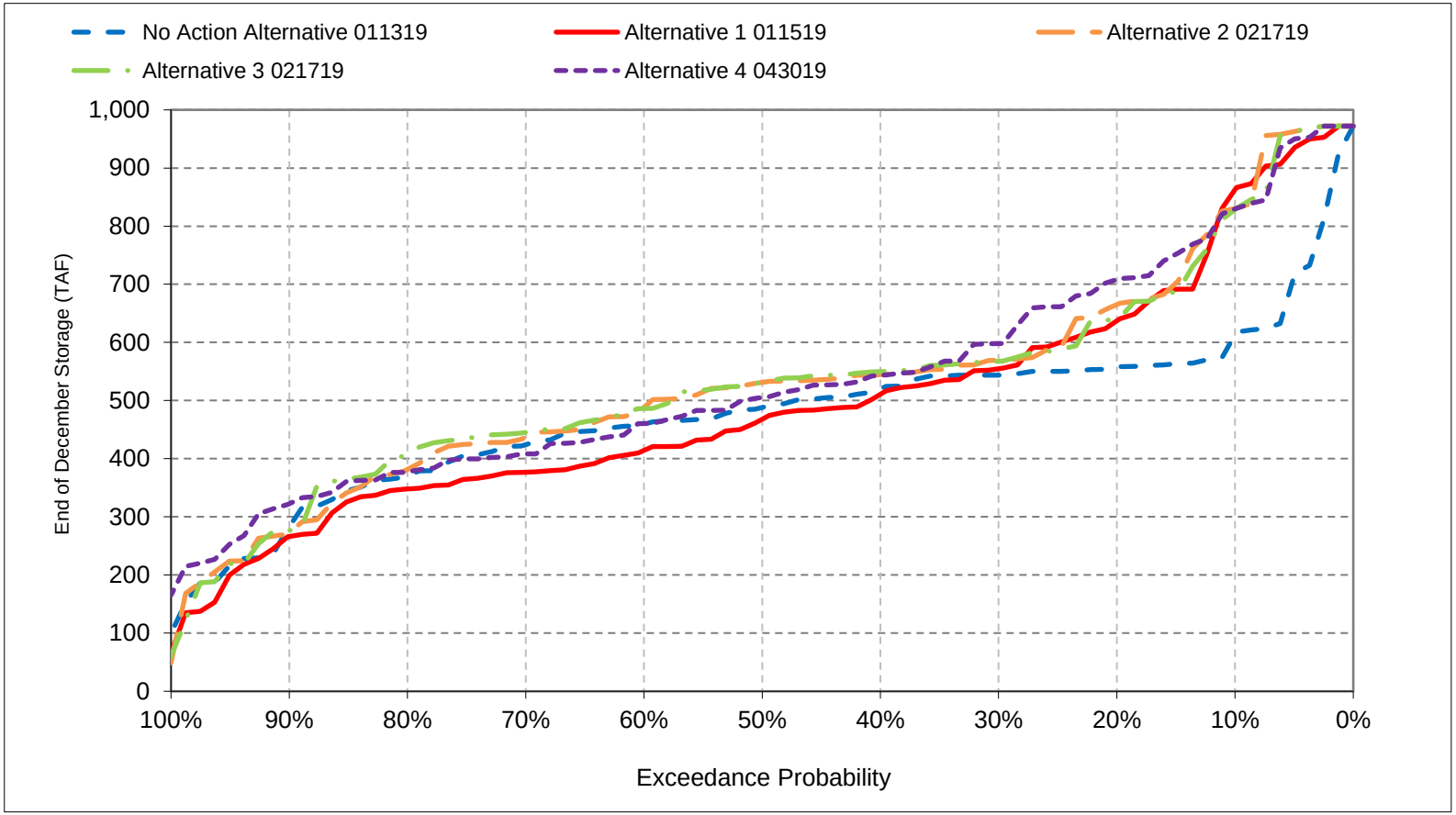

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-8. San Luis CVP Storage, End of November Storage



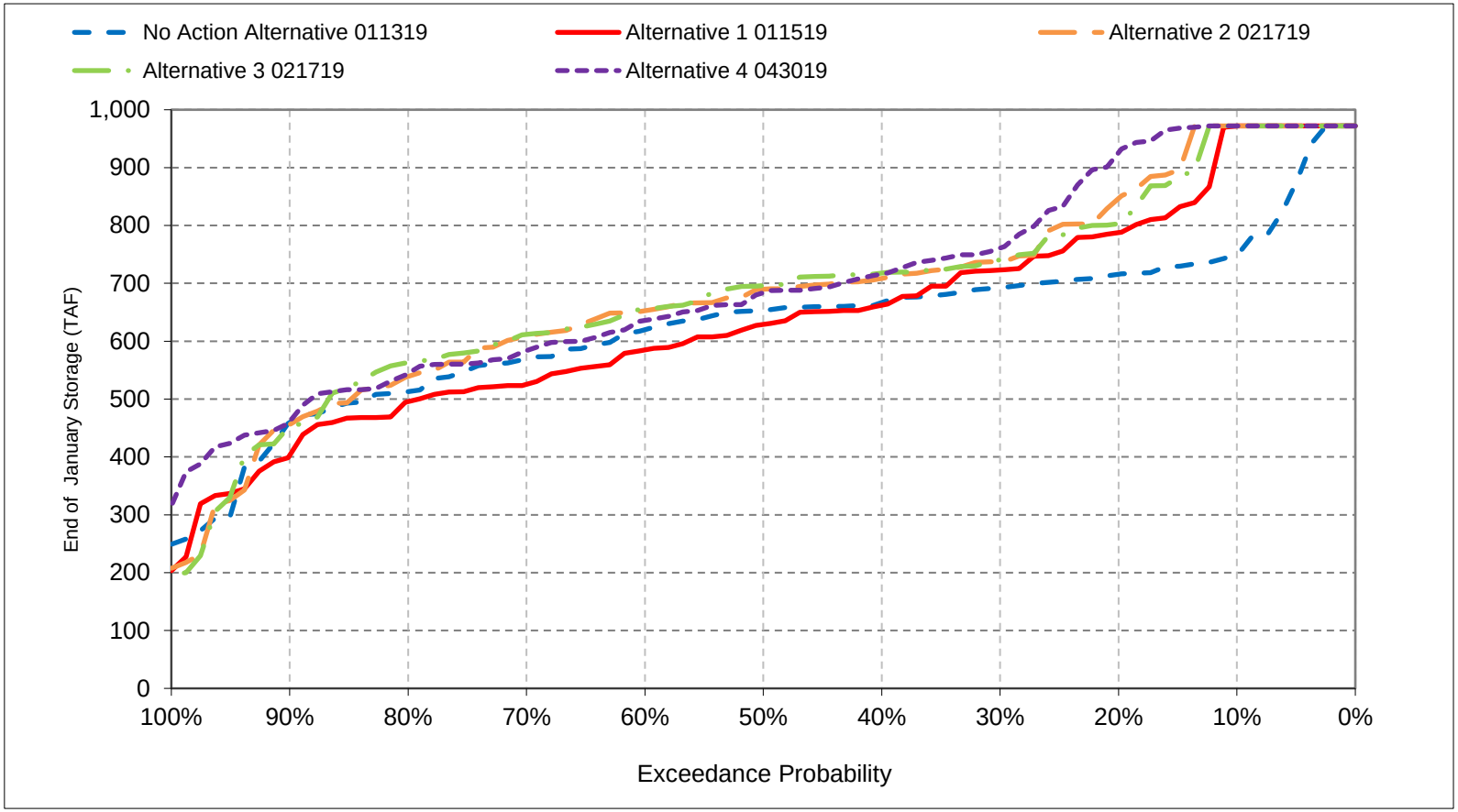

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-9. San Luis CVP Storage, End of December Storage



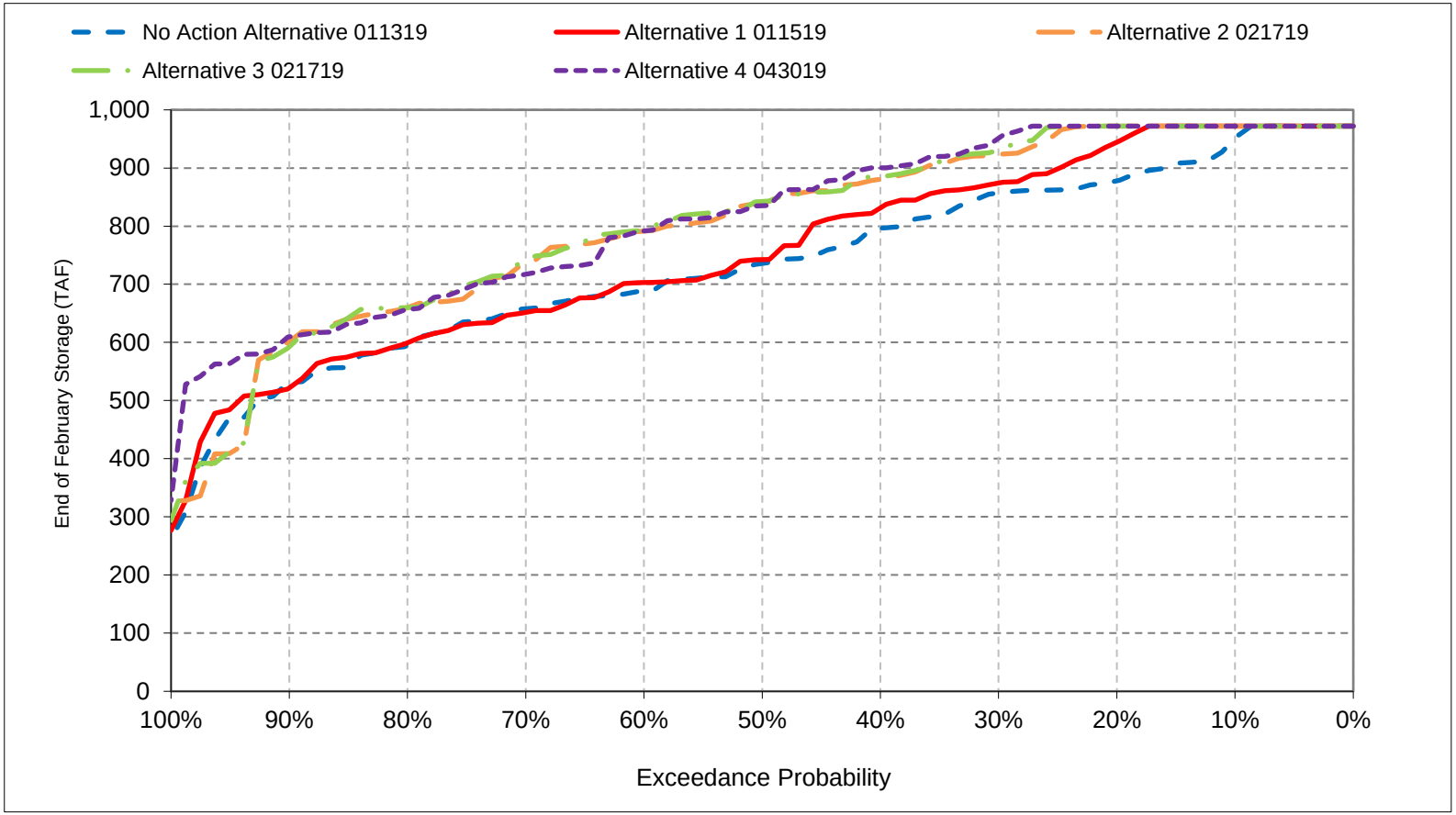

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-10. San Luis CVP Storage, End of January Storage



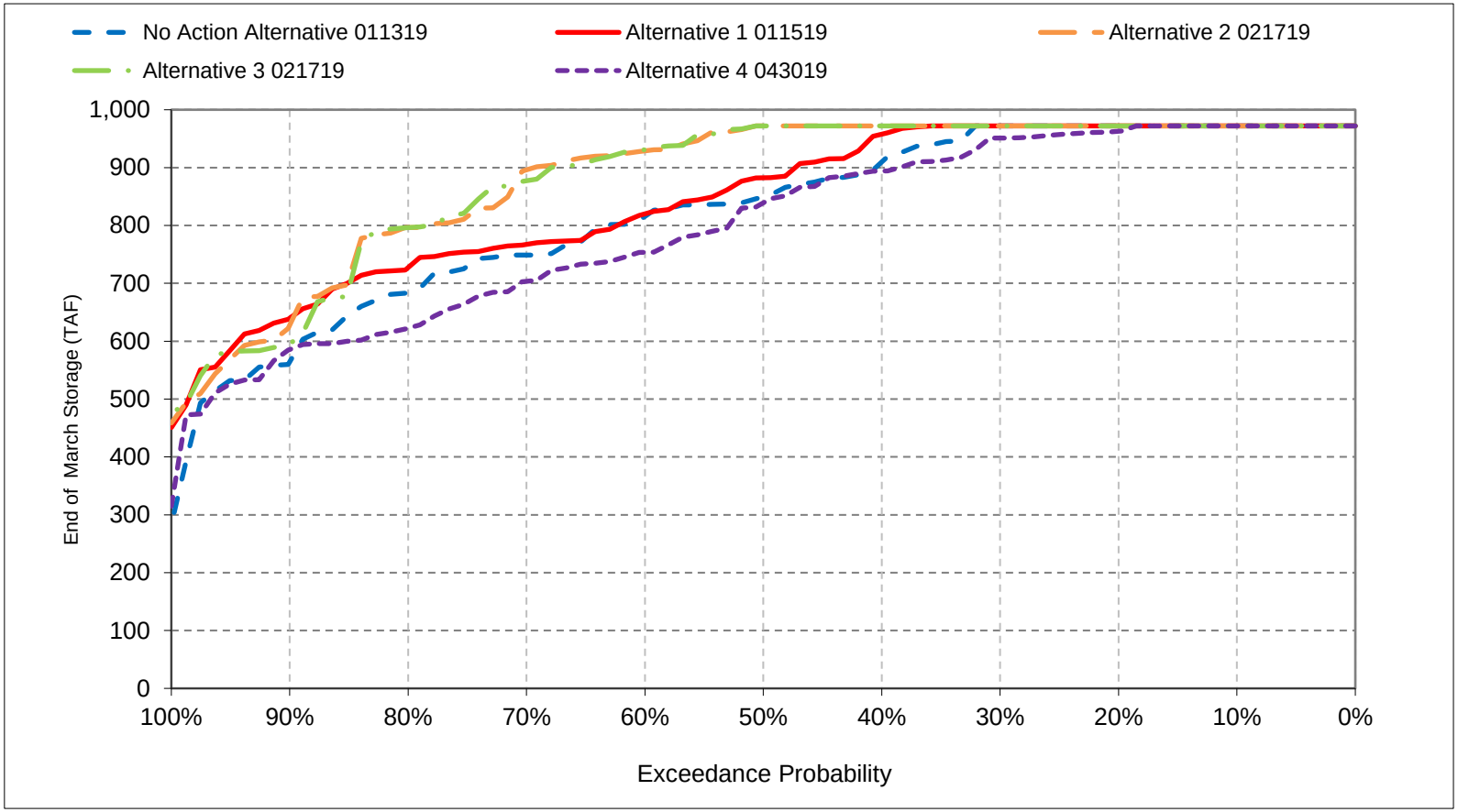

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-11. San Luis CVP Storage, End of February Storage



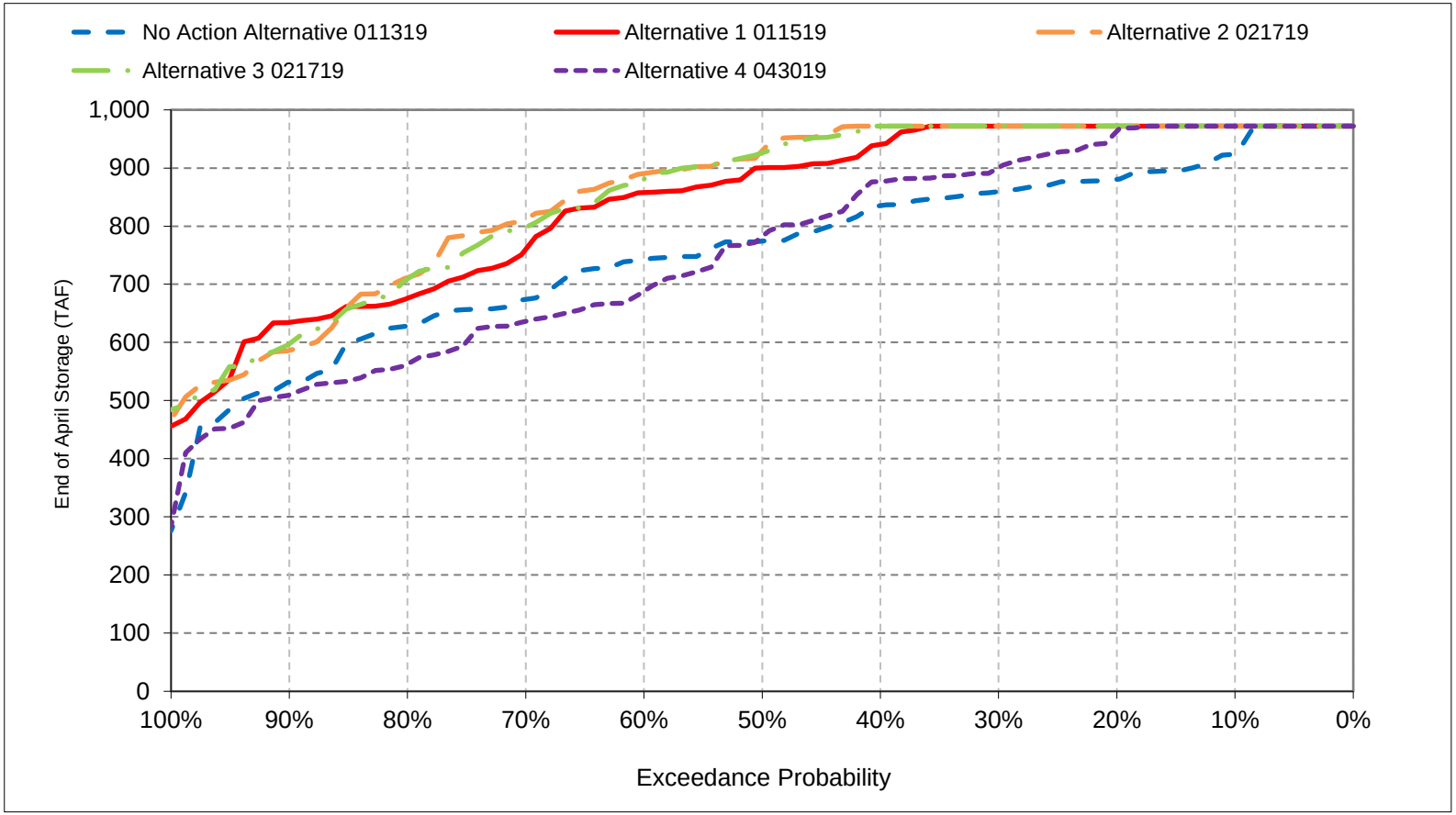

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-12. San Luis CVP Storage, End of March Storage



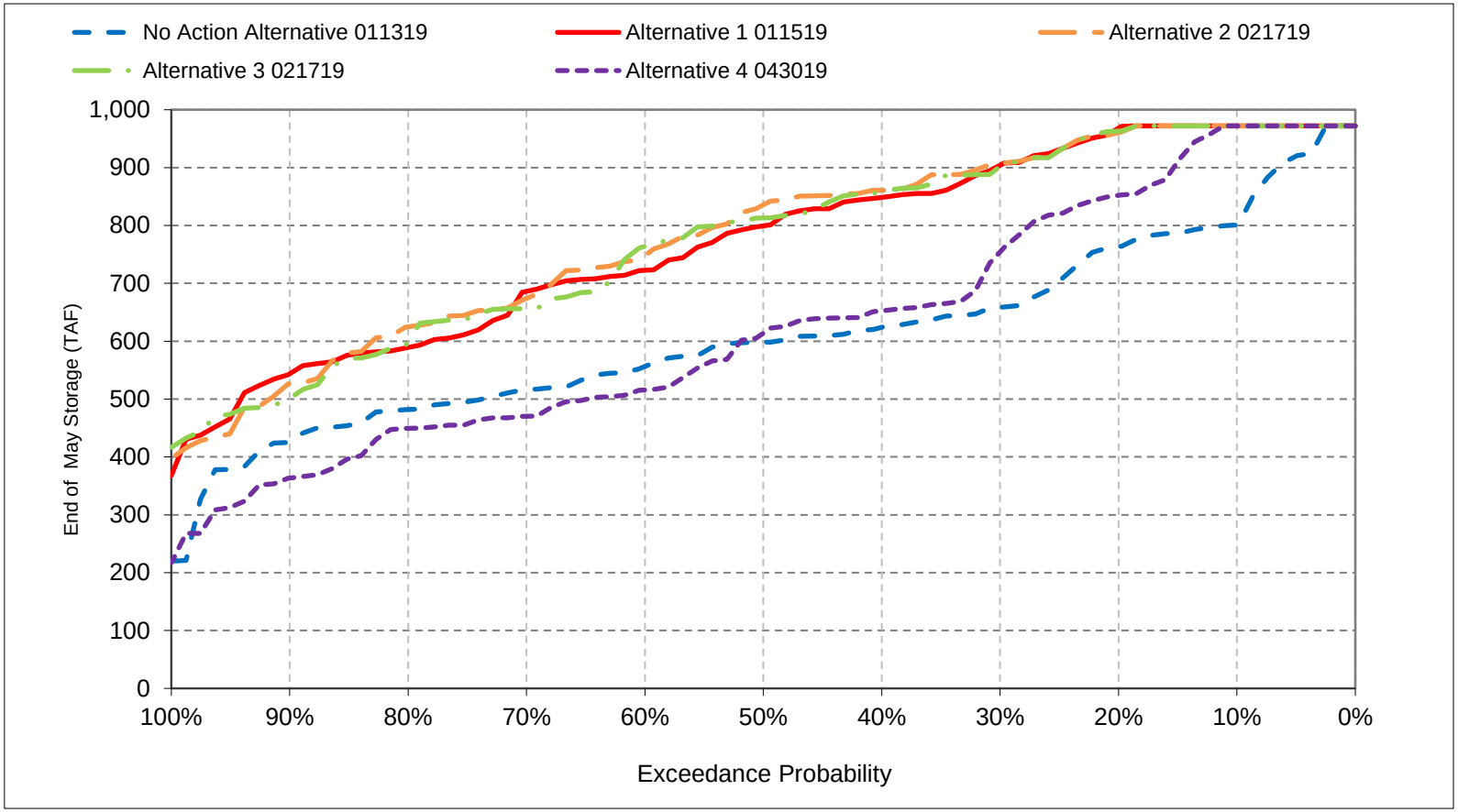

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-13. San Luis CVP Storage, End of April Storage



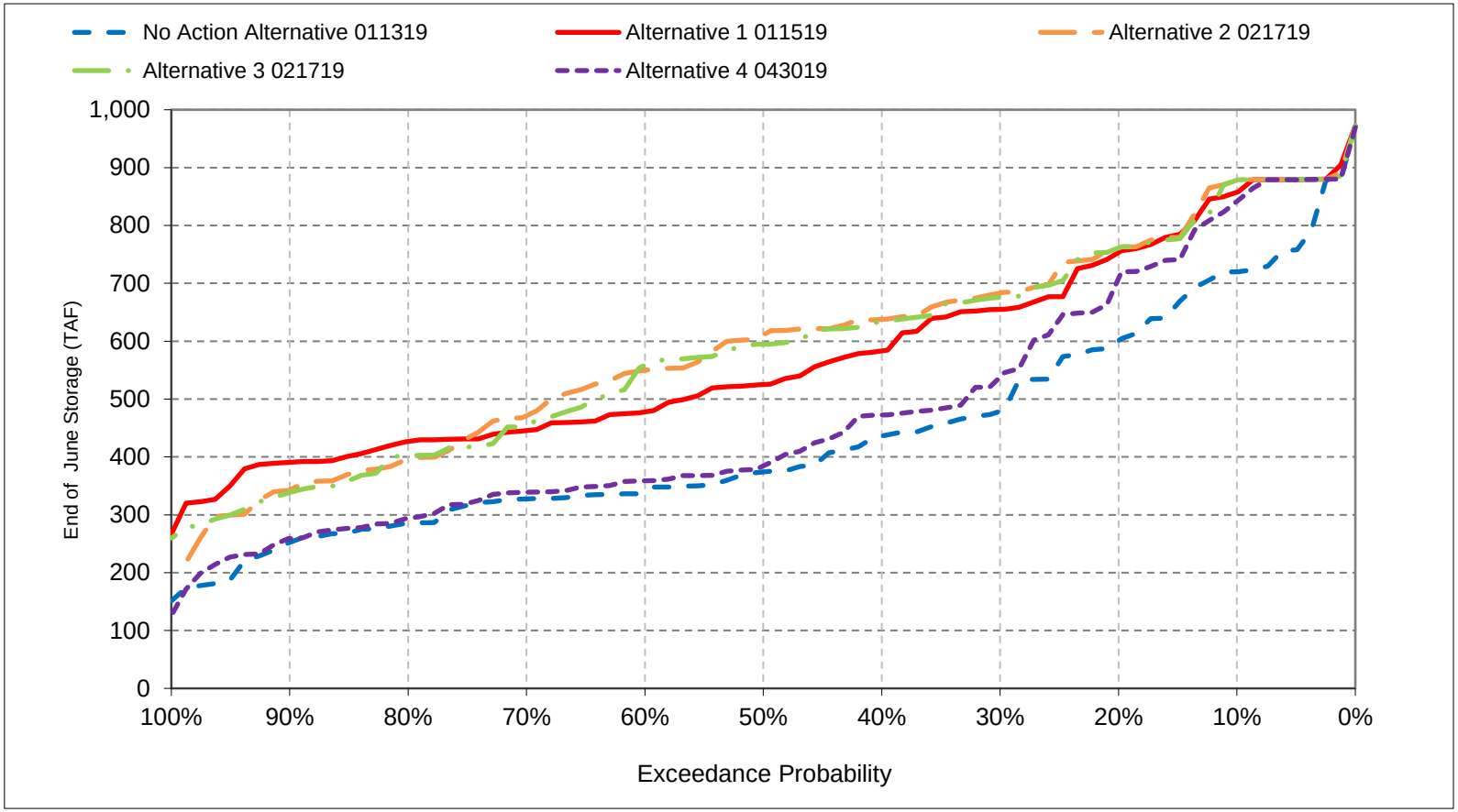

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-14. San Luis CVP Storage, End of May Storage



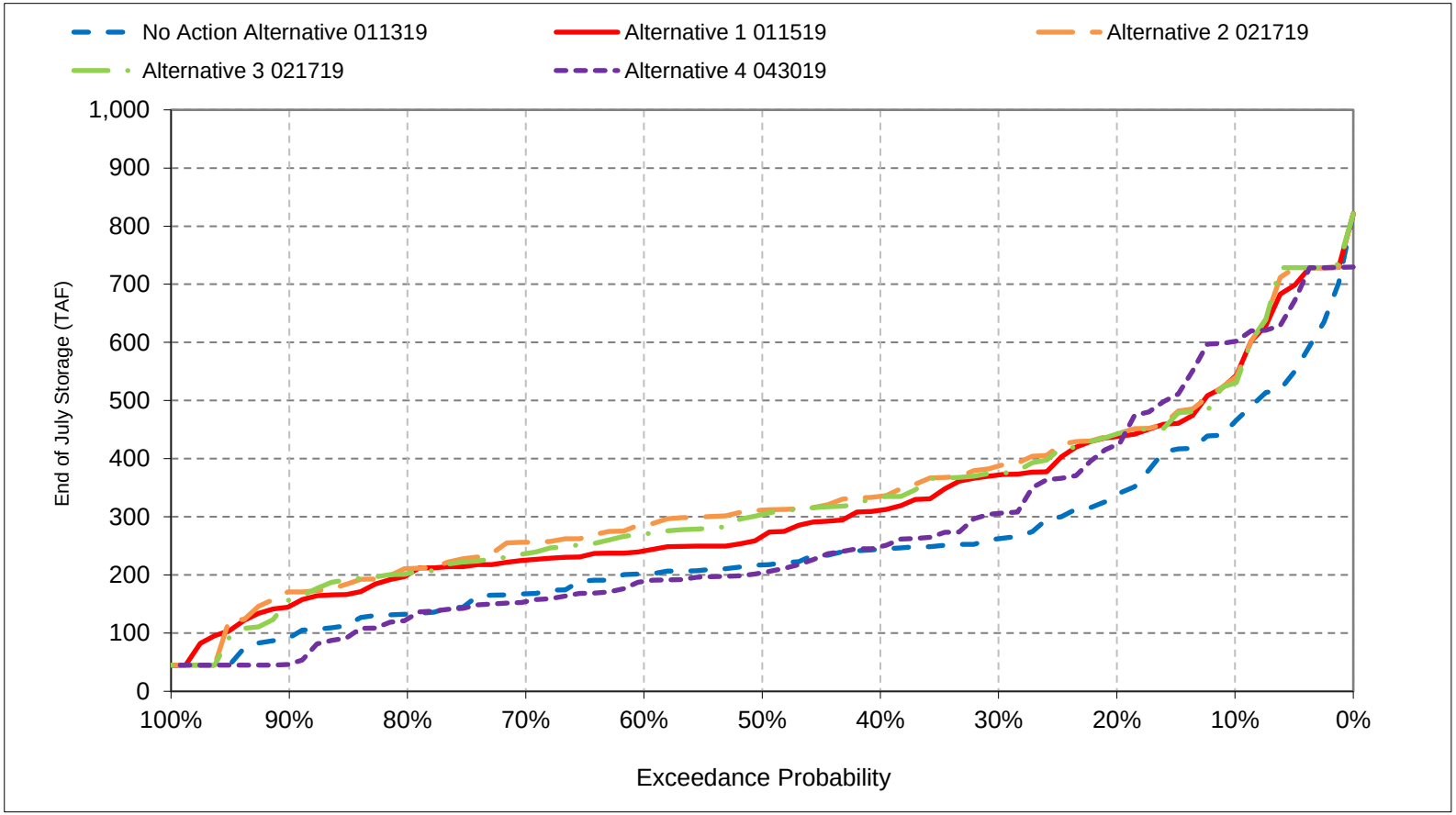

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-15. San Luis CVP Storage, End of June Storage



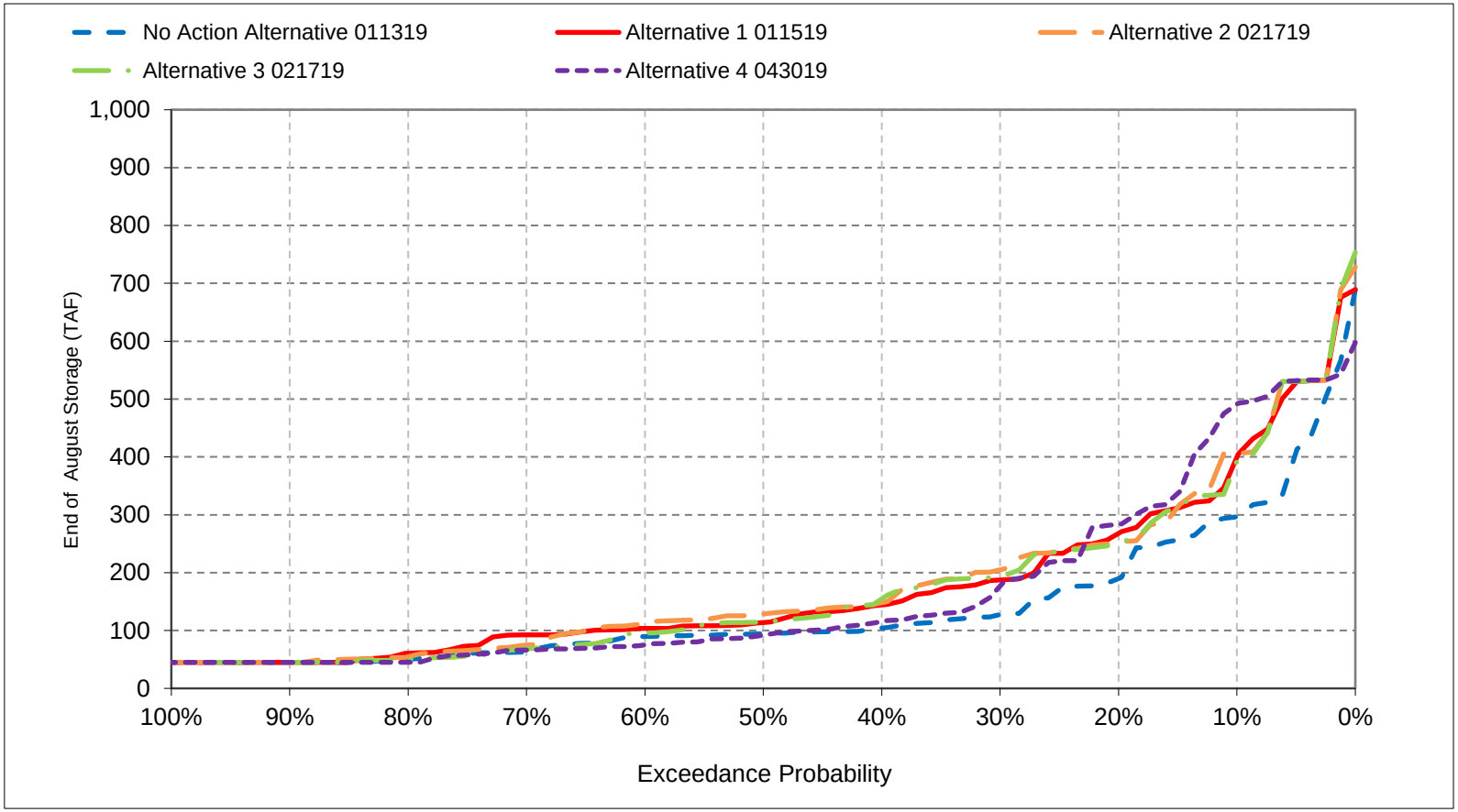

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-16. San Luis CVP Storage, End of July Storage



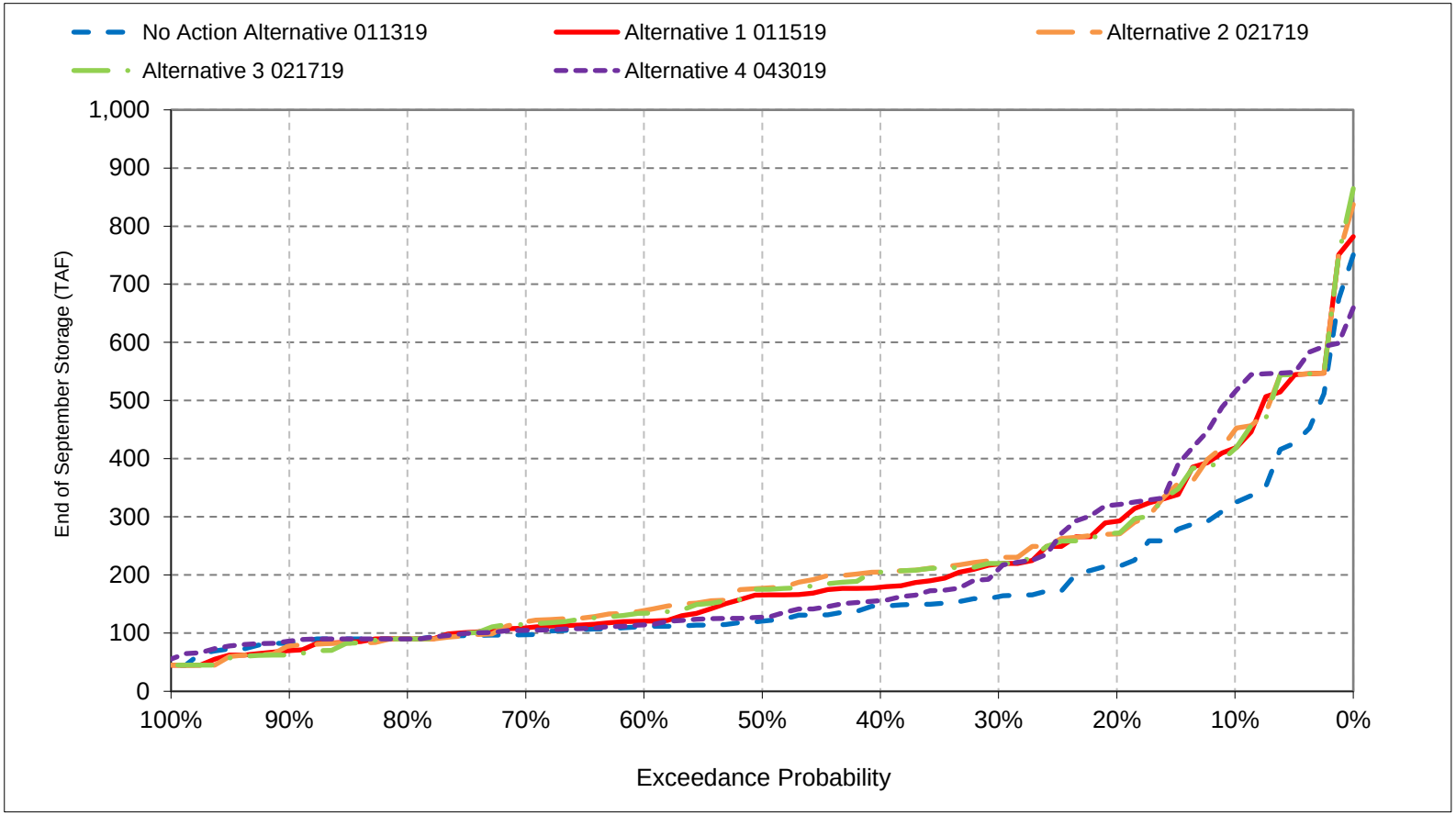

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-17. San Luis CVP Storage, End of August Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-18. San Luis CVP Storage, End of September Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

# Table 6c-1. San Luis SWP Storage, End of Month Storage

## No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 461 | 467 | 648 | 764 | 967 | 1,067 | 931 | 734 | 558 | 476 | 429 | 453 |
| 20% | 293 | 352 | 510 | 672 | 786 | 1,015 | 896 | 643 | 453 | 418 | 352 | 408 |
| 30% | 268 | 311 | 413 | 579 | 724 | 900 | 797 | 621 | 412 | 366 | 312 | 342 |
| 40% | 227 | 228 | 354 | 496 | 657 | 811 | 730 | 557 | 360 | 306 | 238 | 272 |
| 50% | 186 | 189 | 294 | 425 | 587 | 720 | 666 | 483 | 291 | 249 | 198 | 229 |
| 60% | 128 | 155 | 244 | 354 | 520 | 656 | 589 | 434 | 247 | 219 | 168 | 158 |
| 70% | 70 | 70 | 177 | 289 | 435 | 586 | 494 | 373 | 224 | 187 | 117 | 98 |
| 80% | 55 | 55 | 97 | 232 | 333 | 457 | 429 | 308 | 181 | 137 | 66 | 55 |
| 90% | 55 | 55 | 55 | 200 | 299 | 391 | 348 | 266 | 90 | 100 | 55 | 55 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 213 | 231 | 323 | 466 | 601 | 729 | 655 | 500 | 329 | 293 | 239 | 253 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 319 | 244 | 343 | 527 | 705 | 893 | 769 | 563 | 394 | 381 | 386 | 425 |
| Above Normal (16%) | 272 | 269 | 370 | 490 | 633 | 761 | 643 | 446 | 228 | 229 | 259 | 326 |
| Below Normal (13%) | 198 | 242 | 305 | 383 | 491 | 606 | 536 | 381 | 187 | 216 | 207 | 193 |
| Dry (24%) | 116 | 229 | 320 | 454 | 566 | 669 | 647 | 534 | 378 | 321 | 144 | 122 |
| Critical (15%) | 98 | 156 | 247 | 406 | 500 | 550 | 546 | 476 | 346 | 199 | 86 | 73 |

## Alternative 1 011519

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 618 | 636 | 808 | 950 | 1,067 | 1,067 | 1,059 | 944 | 763 | 652 | 560 | 587 |
| 20% | 439 | 483 | 561 | 708 | 879 | 1,065 | 1,021 | 887 | 626 | 559 | 487 | 429 |
| 30% | 302 | 397 | 486 | 633 | 765 | 934 | 928 | 775 | 553 | 474 | 337 | 317 |
| 40% | 233 | 317 | 348 | 498 | 632 | 788 | 810 | 682 | 491 | 391 | 260 | 249 |
| 50% | 163 | 245 | 238 | 394 | 575 | 674 | 654 | 559 | 401 | 325 | 208 | 174 |
| 60% | 96 | 175 | 171 | 287 | 482 | 618 | 587 | 483 | 340 | 285 | 173 | 91 |
| 70% | 55 | 62 | 80 | 233 | 370 | 516 | 502 | 398 | 255 | 208 | 77 | 55 |
| 80% | 55 | 55 | 55 | 215 | 347 | 428 | 443 | 329 | 161 | 144 | 55 | 55 |
| 90% | 55 | 55 | 55 | 200 | 318 | 355 | 335 | 215 | 55 | 55 | 55 | 55 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 248 | 296 | 336 | 475 | 604 | 707 | 695 | 581 | 418 | 357 | 268 | 250 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 430 | 445 | 474 | 525 | 665 | 787 | 780 | 667 | 493 | 461 | 425 | 425 |
| Above Normal (16%) | 196 | 216 | 207 | 545 | 652 | 679 | 608 | 432 | 228 | 214 | 202 | 211 |
| Below Normal (13%) | 162 | 201 | 202 | 453 | 569 | 667 | 628 | 456 | 240 | 259 | 229 | 197 |
| Dry (24%) | 172 | 278 | 357 | 436 | 570 | 721 | 735 | 659 | 535 | 427 | 217 | 172 |
| Critical (15%) | 115 | 179 | 266 | 372 | 505 | 576 | 600 | 542 | 427 | 257 | 117 | 91 |

## Alternative 1 011519 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 157 | 169 | 160 | 186 | 100 | 0 | 128 | 211 | 205 | 177 | 130 | 134 |
| 20% | 146 | 131 | 51 | 36 | 94 | 50 | 125 | 244 | 173 | 140 | 135 | 21 |
| 30% | 34 | 86 | 73 | 55 | 41 | 34 | 132 | 154 | 142 | 108 | 25 | **-25** |
| 40% | 6 | 89 | **-7** | 1 | **-25** | **-24** | 80 | 125 | 131 | 86 | 23 | **-23** |
| 50% | **-23** | 56 | **-56** | **-31** | **-12** | **-45** | **-12** | 76 | 110 | 75 | 10 | **-55** |
| 60% | **-32** | 20 | **-72** | **-67** | **-37** | **-38** | **-2** | 48 | 94 | 66 | 5 | **-66** |
| 70% | **-15** | **-9** | **-96** | **-55** | **-64** | **-70** | 8 | 25 | 32 | 21 | **-39** | **-43** |
| 80% | 0 | 0 | **-42** | **-18** | 14 | **-29** | 14 | 20 | **-20** | 7 | **-11** | 0 |
| 90% | 0 | 0 | **0** | 0 | 19 | **-36** | **-13** | **-51** | **-35** | **-45** | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 35 | 65 | 14 | 9 | 3 | **-22** | 40 | 81 | 89 | 63 | 29 | **-3** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 112 | 201 | 131 | **-2** | **-40** | **-106** | 11 | 104 | 99 | 80 | 39 | **0** |
| Above Normal (16%) | **-75** | **-54** | **-163** | 55 | 19 | **-82** | **-35** | **-13** | 1 | **-15** | **-57** | **-115** |
| Below Normal (13%) | **-36** | **-40** | **-102** | 71 | 78 | 61 | 92 | 75 | 53 | 43 | 22 | 5 |
| Dry (24%) | 56 | 50 | 36 | **-18** | 5 | 53 | 89 | 125 | 158 | 106 | 73 | 50 |
| Critical (15%) | 17 | 22 | 19 | **-33** | 5 | 26 | 54 | 67 | 80 | 58 | 31 | 18 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 6c-2. San Luis SWP Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 461 | 467 | 648 | 764 | 967 | 1,067 | 931 | 734 | 558 | 476 | 429 | 453 |
| 20% | 293 | 352 | 510 | 672 | 786 | 1,015 | 896 | 643 | 453 | 418 | 352 | 408 |
| 30% | 268 | 311 | 413 | 579 | 724 | 900 | 797 | 621 | 412 | 366 | 312 | 342 |
| 40% | 227 | 228 | 354 | 496 | 657 | 811 | 730 | 557 | 360 | 306 | 238 | 272 |
| 50% | 186 | 189 | 294 | 425 | 587 | 720 | 666 | 483 | 291 | 249 | 198 | 229 |
| 60% | 128 | 155 | 244 | 354 | 520 | 656 | 589 | 434 | 247 | 219 | 168 | 158 |
| 70% | 70 | 70 | 177 | 289 | 435 | 586 | 494 | 373 | 224 | 187 | 117 | 98 |
| 80% | 55 | 55 | 97 | 232 | 333 | 457 | 429 | 308 | 181 | 137 | 66 | 55 |
| 90% | 55 | 55 | 55 | 200 | 299 | 391 | 348 | 266 | 90 | 100 | 55 | 55 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 213 | 231 | 323 | 466 | 601 | 729 | 655 | 500 | 329 | 293 | 239 | 253 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 319 | 244 | 343 | 527 | 705 | 893 | 769 | 563 | 394 | 381 | 386 | 425 |
| Above Normal (16%) | 272 | 269 | 370 | 490 | 633 | 761 | 643 | 446 | 228 | 229 | 259 | 326 |
| Below Normal (13%) | 198 | 242 | 305 | 383 | 491 | 606 | 536 | 381 | 187 | 216 | 207 | 193 |
| Dry (24%) | 116 | 229 | 320 | 454 | 566 | 669 | 647 | 534 | 378 | 321 | 144 | 122 |
| Critical (15%) | 98 | 156 | 247 | 406 | 500 | 550 | 546 | 476 | 346 | 199 | 86 | 73 |

### Alternative 2 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 822 | 896 | 1,008 | 1,067 | 1,067 | 1,067 | 1,067 | 1,045 | 958 | 878 | 830 | 815 |
| 20% | 611 | 703 | 851 | 1,067 | 1,067 | 1,067 | 1,067 | 1,015 | 887 | 736 | 568 | 610 |
| 30% | 546 | 553 | 696 | 993 | 1,067 | 1,067 | 1,067 | 981 | 817 | 707 | 536 | 524 |
| 40% | 364 | 448 | 570 | 905 | 1,067 | 1,067 | 1,067 | 938 | 760 | 670 | 487 | 454 |
| 50% | 246 | 339 | 460 | 764 | 1,044 | 1,067 | 1,067 | 891 | 722 | 589 | 426 | 309 |
| 60% | 156 | 211 | 348 | 686 | 956 | 1,067 | 1,043 | 843 | 677 | 545 | 331 | 202 |
| 70% | 77 | 160 | 269 | 595 | 863 | 1,024 | 988 | 791 | 620 | 489 | 263 | 141 |
| 80% | 55 | 92 | 195 | 496 | 750 | 878 | 872 | 733 | 542 | 399 | 181 | 95 |
| 90% | 55 | 55 | 55 | 377 | 633 | 762 | 784 | 643 | 471 | 295 | 92 | 55 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 349 | 393 | 505 | 756 | 919 | 982 | 977 | 862 | 711 | 587 | 422 | 375 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 681 | 718 | 823 | 900 | 1,015 | 1,056 | 1,051 | 966 | 816 | 755 | 672 | 663 |
| Above Normal (16%) | 379 | 381 | 463 | 882 | 1,006 | 1,031 | 1,014 | 845 | 617 | 557 | 469 | 455 |
| Below Normal (13%) | 188 | 201 | 277 | 833 | 986 | 1,031 | 990 | 799 | 656 | 554 | 349 | 244 |
| Dry (24%) | 140 | 229 | 382 | 623 | 860 | 977 | 982 | 883 | 773 | 561 | 282 | 189 |
| Critical (15%) | 93 | 147 | 277 | 461 | 655 | 733 | 756 | 681 | 535 | 328 | 133 | 92 |

### Alternative 2 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 361 | 428 | 361 | 303 | 100 | 0 | 136 | 312 | 400 | 402 | 400 | 361 |
| 20% | 318 | 352 | 341 | 395 | 281 | 52 | 171 | 372 | 434 | 318 | 216 | 202 |
| 30% | 278 | 242 | 283 | 415 | 343 | 167 | 270 | 360 | 405 | 341 | 223 | 182 |
| 40% | 136 | 220 | 216 | 409 | 410 | 256 | 337 | 380 | 400 | 364 | 249 | 182 |
| 50% | 60 | 151 | 167 | 338 | 456 | 347 | 401 | 408 | 431 | 340 | 227 | 80 |
| 60% | 28 | 57 | 105 | 332 | 436 | 411 | 455 | 408 | 430 | 327 | 163 | 45 |
| 70% | 7 | 90 | 92 | 306 | 429 | 439 | 495 | 417 | 396 | 302 | 147 | 43 |
| 80% | 0 | 37 | 98 | 263 | 417 | 421 | 443 | 425 | 361 | 262 | 116 | 40 |
| 90% | 0 | 0 | **0** | 177 | 334 | 371 | 436 | 377 | 381 | 195 | 37 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 136 | 162 | 183 | 290 | 318 | 254 | 322 | 362 | 383 | 293 | 184 | 122 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 362 | 475 | 480 | 373 | 310 | 163 | 282 | 404 | 422 | 375 | 286 | 238 |
| Above Normal (16%) | 108 | 112 | 93 | 391 | 373 | 270 | 371 | 399 | 389 | 328 | 210 | 129 |
| Below Normal (13%) | **-10** | **-41** | **-27** | 451 | 495 | 425 | 454 | 418 | 469 | 338 | 142 | 52 |
| Dry (24%) | 23 | 1 | 61 | 169 | 294 | 308 | 335 | 349 | 395 | 239 | 138 | 67 |
| Critical (15%) | **-5** | **-9** | 30 | 56 | 155 | 183 | 211 | 205 | 188 | 129 | 47 | 19 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 6c-3. San Luis SWP Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 461 | 467 | 648 | 764 | 967 | 1,067 | 931 | 734 | 558 | 476 | 429 | 453 |
| 20% | 293 | 352 | 510 | 672 | 786 | 1,015 | 896 | 643 | 453 | 418 | 352 | 408 |
| 30% | 268 | 311 | 413 | 579 | 724 | 900 | 797 | 621 | 412 | 366 | 312 | 342 |
| 40% | 227 | 228 | 354 | 496 | 657 | 811 | 730 | 557 | 360 | 306 | 238 | 272 |
| 50% | 186 | 189 | 294 | 425 | 587 | 720 | 666 | 483 | 291 | 249 | 198 | 229 |
| 60% | 128 | 155 | 244 | 354 | 520 | 656 | 589 | 434 | 247 | 219 | 168 | 158 |
| 70% | 70 | 70 | 177 | 289 | 435 | 586 | 494 | 373 | 224 | 187 | 117 | 98 |
| 80% | 55 | 55 | 97 | 232 | 333 | 457 | 429 | 308 | 181 | 137 | 66 | 55 |
| 90% | 55 | 55 | 55 | 200 | 299 | 391 | 348 | 266 | 90 | 100 | 55 | 55 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 213 | 231 | 323 | 466 | 601 | 729 | 655 | 500 | 329 | 293 | 239 | 253 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 319 | 244 | 343 | 527 | 705 | 893 | 769 | 563 | 394 | 381 | 386 | 425 |
| Above Normal (16%) | 272 | 269 | 370 | 490 | 633 | 761 | 643 | 446 | 228 | 229 | 259 | 326 |
| Below Normal (13%) | 198 | 242 | 305 | 383 | 491 | 606 | 536 | 381 | 187 | 216 | 207 | 193 |
| Dry (24%) | 116 | 229 | 320 | 454 | 566 | 669 | 647 | 534 | 378 | 321 | 144 | 122 |
| Critical (15%) | 98 | 156 | 247 | 406 | 500 | 550 | 546 | 476 | 346 | 199 | 86 | 73 |

### Alternative 3 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 819 | 804 | 977 | 1,067 | 1,067 | 1,067 | 1,067 | 1,054 | 967 | 878 | 800 | 794 |
| 20% | 598 | 693 | 858 | 1,067 | 1,067 | 1,067 | 1,067 | 1,021 | 902 | 740 | 575 | 598 |
| 30% | 496 | 542 | 718 | 1,019 | 1,067 | 1,067 | 1,067 | 976 | 830 | 713 | 542 | 523 |
| 40% | 342 | 381 | 598 | 857 | 1,067 | 1,067 | 1,067 | 938 | 766 | 657 | 494 | 441 |
| 50% | 248 | 321 | 478 | 781 | 1,035 | 1,067 | 1,061 | 902 | 733 | 611 | 414 | 332 |
| 60% | 161 | 231 | 388 | 704 | 975 | 1,067 | 1,026 | 859 | 689 | 554 | 329 | 210 |
| 70% | 76 | 144 | 276 | 577 | 832 | 1,017 | 999 | 812 | 623 | 490 | 261 | 151 |
| 80% | 55 | 98 | 177 | 504 | 772 | 870 | 895 | 765 | 570 | 387 | 183 | 115 |
| 90% | 55 | 55 | 57 | 344 | 615 | 769 | 784 | 670 | 500 | 303 | 104 | 55 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 344 | 390 | 508 | 757 | 920 | 982 | 979 | 871 | 719 | 596 | 422 | 372 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 688 | 734 | 846 | 902 | 1,030 | 1,062 | 1,051 | 977 | 839 | 786 | 677 | 668 |
| Above Normal (16%) | 360 | 359 | 455 | 891 | 1,001 | 1,029 | 1,013 | 846 | 600 | 536 | 451 | 424 |
| Below Normal (13%) | 195 | 212 | 287 | 848 | 983 | 1,020 | 990 | 803 | 659 | 578 | 369 | 257 |
| Dry (24%) | 125 | 211 | 359 | 620 | 855 | 981 | 989 | 898 | 788 | 561 | 278 | 184 |
| Critical (15%) | 85 | 137 | 280 | 445 | 641 | 726 | 756 | 682 | 528 | 322 | 130 | 94 |

### Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 358 | 337 | 329 | 303 | 100 | 0 | 136 | 320 | 409 | 402 | 370 | 341 |
| 20% | 305 | 341 | 348 | 395 | 281 | 52 | 171 | 378 | 448 | 322 | 223 | 190 |
| 30% | 228 | 230 | 305 | 440 | 343 | 167 | 270 | 354 | 418 | 348 | 229 | 182 |
| 40% | 114 | 153 | 243 | 361 | 410 | 256 | 337 | 381 | 407 | 351 | 256 | 169 |
| 50% | 62 | 132 | 184 | 356 | 448 | 347 | 394 | 419 | 443 | 362 | 216 | 103 |
| 60% | 32 | 76 | 144 | 350 | 456 | 411 | 437 | 425 | 442 | 335 | 161 | 53 |
| 70% | 6 | 73 | 99 | 288 | 397 | 432 | 506 | 439 | 400 | 303 | 145 | 52 |
| 80% | 0 | 43 | 80 | 272 | 438 | 413 | 466 | 457 | 389 | 250 | 117 | 60 |
| 90% | 0 | 0 | 1 | 145 | 316 | 378 | 436 | 404 | 410 | 204 | 49 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 131 | 159 | 185 | 291 | 319 | 254 | 323 | 371 | 390 | 302 | 184 | 119 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 369 | 491 | 503 | 375 | 325 | 169 | 282 | 415 | 445 | 405 | 291 | 242 |
| Above Normal (16%) | 89 | 89 | 85 | 400 | 369 | 268 | 369 | 401 | 373 | 307 | 192 | 98 |
| Below Normal (13%) | **-3** | **-30** | **-17** | 466 | 492 | 414 | 454 | 423 | 472 | 362 | 162 | 64 |
| Dry (24%) | 9 | **-17** | 39 | 165 | 290 | 312 | 342 | 364 | 411 | 240 | 134 | 63 |
| Critical (15%) | **-13** | **-19** | 33 | 39 | 142 | 176 | 211 | 207 | 182 | 123 | 44 | 21 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 6c-4. San Luis SWP Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 461 | 467 | 648 | 764 | 967 | 1,067 | 931 | 734 | 558 | 476 | 429 | 453 |
| 20% | 293 | 352 | 510 | 672 | 786 | 1,015 | 896 | 643 | 453 | 418 | 352 | 408 |
| 30% | 268 | 311 | 413 | 579 | 724 | 900 | 797 | 621 | 412 | 366 | 312 | 342 |
| 40% | 227 | 228 | 354 | 496 | 657 | 811 | 730 | 557 | 360 | 306 | 238 | 272 |
| 50% | 186 | 189 | 294 | 425 | 587 | 720 | 666 | 483 | 291 | 249 | 198 | 229 |
| 60% | 128 | 155 | 244 | 354 | 520 | 656 | 589 | 434 | 247 | 219 | 168 | 158 |
| 70% | 70 | 70 | 177 | 289 | 435 | 586 | 494 | 373 | 224 | 187 | 117 | 98 |
| 80% | 55 | 55 | 97 | 232 | 333 | 457 | 429 | 308 | 181 | 137 | 66 | 55 |
| 90% | 55 | 55 | 55 | 200 | 299 | 391 | 348 | 266 | 90 | 100 | 55 | 55 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 213 | 231 | 323 | 466 | 601 | 729 | 655 | 500 | 329 | 293 | 239 | 253 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 319 | 244 | 343 | 527 | 705 | 893 | 769 | 563 | 394 | 381 | 386 | 425 |
| Above Normal (16%) | 272 | 269 | 370 | 490 | 633 | 761 | 643 | 446 | 228 | 229 | 259 | 326 |
| Below Normal (13%) | 198 | 242 | 305 | 383 | 491 | 606 | 536 | 381 | 187 | 216 | 207 | 193 |
| Dry (24%) | 116 | 229 | 320 | 454 | 566 | 669 | 647 | 534 | 378 | 321 | 144 | 122 |
| Critical (15%) | 98 | 156 | 247 | 406 | 500 | 550 | 546 | 476 | 346 | 199 | 86 | 73 |

### Alternative 4 043019

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 643 | 755 | 874 | 1,067 | 1,067 | 1,067 | 1,041 | 904 | 705 | 658 | 556 | 606 |
| 20% | 535 | 650 | 734 | 905 | 1,067 | 1,055 | 982 | 797 | 651 | 567 | 456 | 484 |
| 30% | 448 | 525 | 577 | 715 | 943 | 962 | 882 | 664 | 538 | 482 | 404 | 416 |
| 40% | 342 | 407 | 495 | 650 | 795 | 772 | 745 | 619 | 476 | 436 | 305 | 338 |
| 50% | 243 | 325 | 463 | 595 | 717 | 725 | 690 | 577 | 446 | 383 | 255 | 276 |
| 60% | 192 | 300 | 405 | 546 | 669 | 661 | 649 | 517 | 382 | 317 | 213 | 175 |
| 70% | 126 | 241 | 301 | 434 | 627 | 617 | 572 | 452 | 342 | 255 | 173 | 140 |
| 80% | 91 | 166 | 228 | 366 | 542 | 547 | 530 | 407 | 258 | 226 | 101 | 86 |
| 90% | 55 | 56 | 118 | 297 | 475 | 486 | 453 | 340 | 202 | 186 | 66 | 55 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 313 | 395 | 476 | 621 | 760 | 758 | 719 | 590 | 452 | 396 | 295 | 294 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 470 | 521 | 583 | 725 | 869 | 877 | 822 | 661 | 501 | 477 | 441 | 460 |
| Above Normal (16%) | 324 | 397 | 452 | 655 | 780 | 769 | 692 | 520 | 307 | 271 | 272 | 326 |
| Below Normal (13%) | 211 | 274 | 361 | 606 | 704 | 684 | 634 | 508 | 385 | 408 | 245 | 185 |
| Dry (24%) | 280 | 433 | 546 | 579 | 730 | 733 | 726 | 633 | 538 | 454 | 266 | 241 |
| Critical (15%) | 107 | 168 | 261 | 443 | 601 | 600 | 592 | 517 | 418 | 252 | 99 | 91 |

### Alternative 4 043019 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 182 | 287 | 226 | 303 | 100 | 0 | 110 | 170 | 147 | 183 | 126 | 153 |
| 20% | 242 | 298 | 224 | 234 | 281 | 40 | 86 | 154 | 198 | 148 | 103 | 75 |
| 30% | 180 | 214 | 164 | 136 | 219 | 62 | 85 | 43 | 127 | 116 | 92 | 74 |
| 40% | 115 | 179 | 141 | 154 | 138 | **-39** | 15 | 62 | 117 | 130 | 68 | 66 |
| 50% | 57 | 136 | 170 | 170 | 130 | 6 | 24 | 94 | 155 | 134 | 57 | 47 |
| 60% | 64 | 145 | 161 | 192 | 150 | 5 | 61 | 83 | 135 | 98 | 45 | 18 |
| 70% | 56 | 170 | 125 | 145 | 193 | 32 | 78 | 79 | 118 | 68 | 56 | 42 |
| 80% | 36 | 111 | 130 | 134 | 209 | 90 | 102 | 99 | 77 | 89 | 35 | 31 |
| 90% | 0 | 1 | 63 | 98 | 176 | 94 | 104 | 73 | 112 | 87 | 11 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 99 | 164 | 154 | 155 | 159 | 30 | 64 | 90 | 123 | 103 | 56 | 41 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 152 | 278 | 240 | 198 | 164 | **-16** | 54 | 98 | 107 | 97 | 55 | 34 |
| Above Normal (16%) | 52 | 128 | 82 | 165 | 147 | 8 | 49 | 74 | 80 | 42 | 13 | **0** |
| Below Normal (13%) | 14 | 32 | 56 | 223 | 213 | 78 | 98 | 127 | 199 | 192 | 38 | **-8** |
| Dry (24%) | 163 | 204 | 226 | 125 | 165 | 64 | 80 | 99 | 160 | 132 | 123 | 119 |
| Critical (15%) | 9 | 12 | 14 | 38 | 102 | 50 | 47 | 41 | 72 | 52 | 12 | 18 |

a Based on the 82-year simulation period.

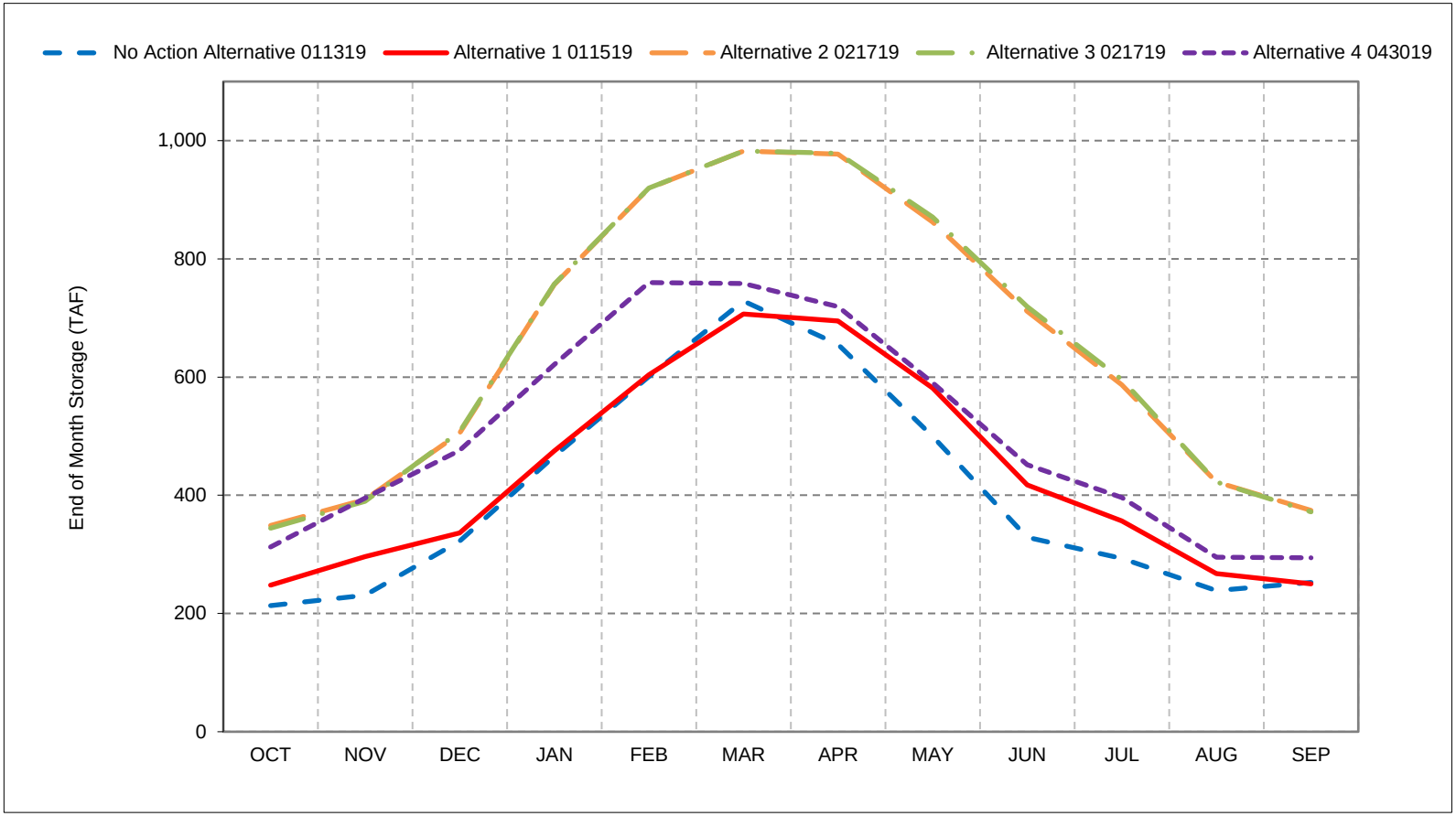
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

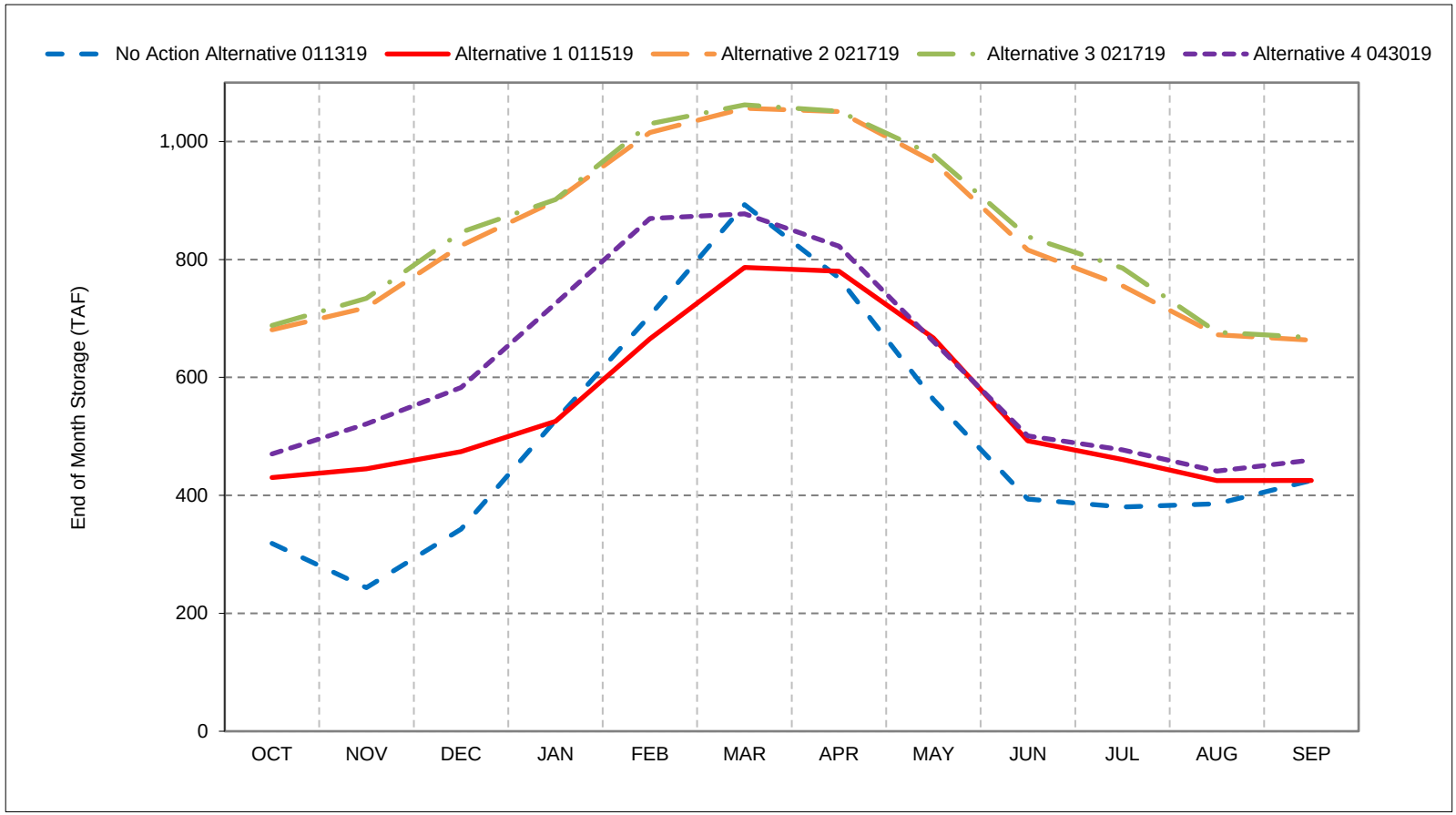
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-1. San Luis SWP Storage, Long-Term Average Storage



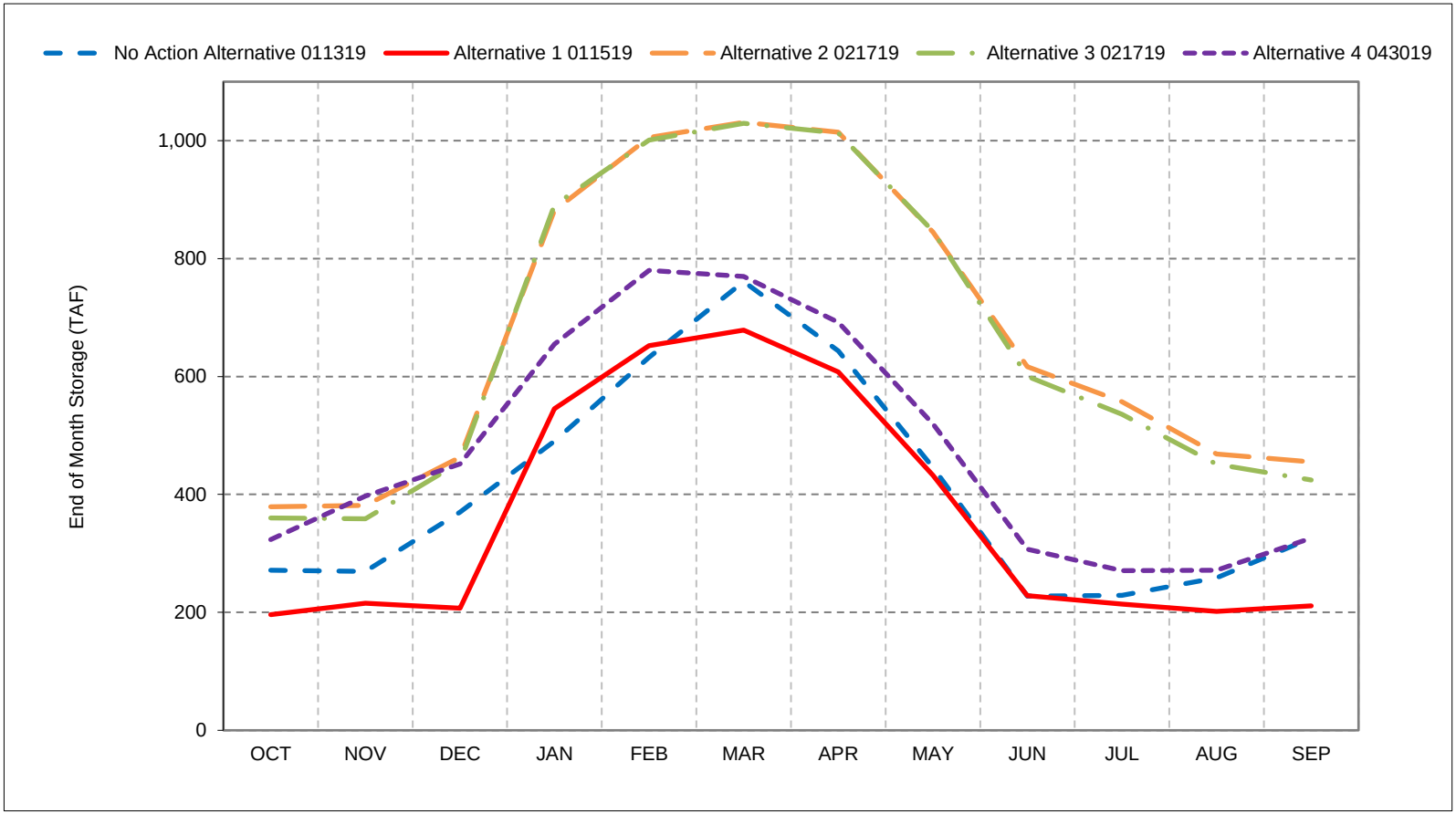

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-2. San Luis SWP Storage, Wet Year Average Storage



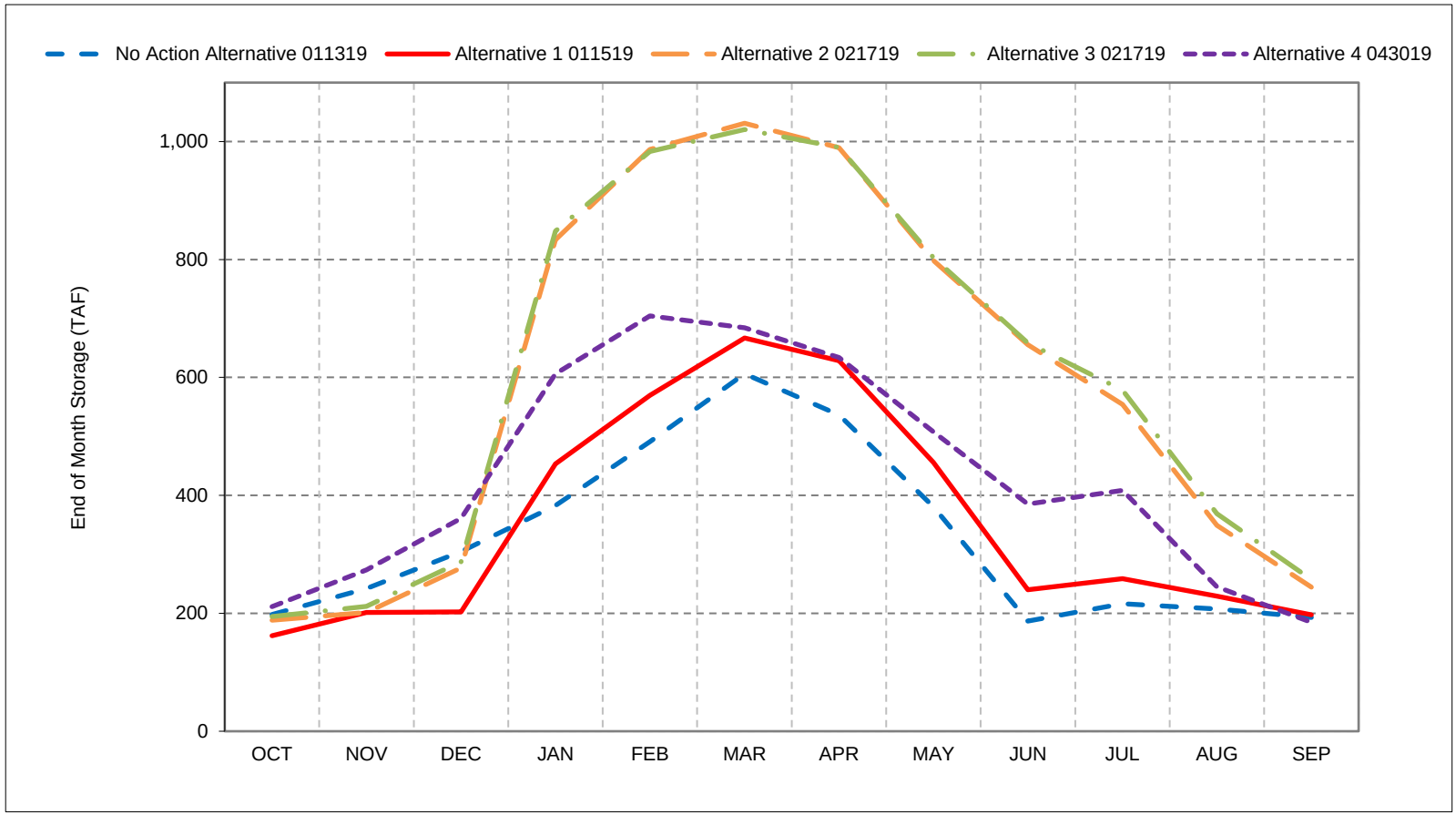

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-3. San Luis SWP Storage, Above Normal Year Average Storage



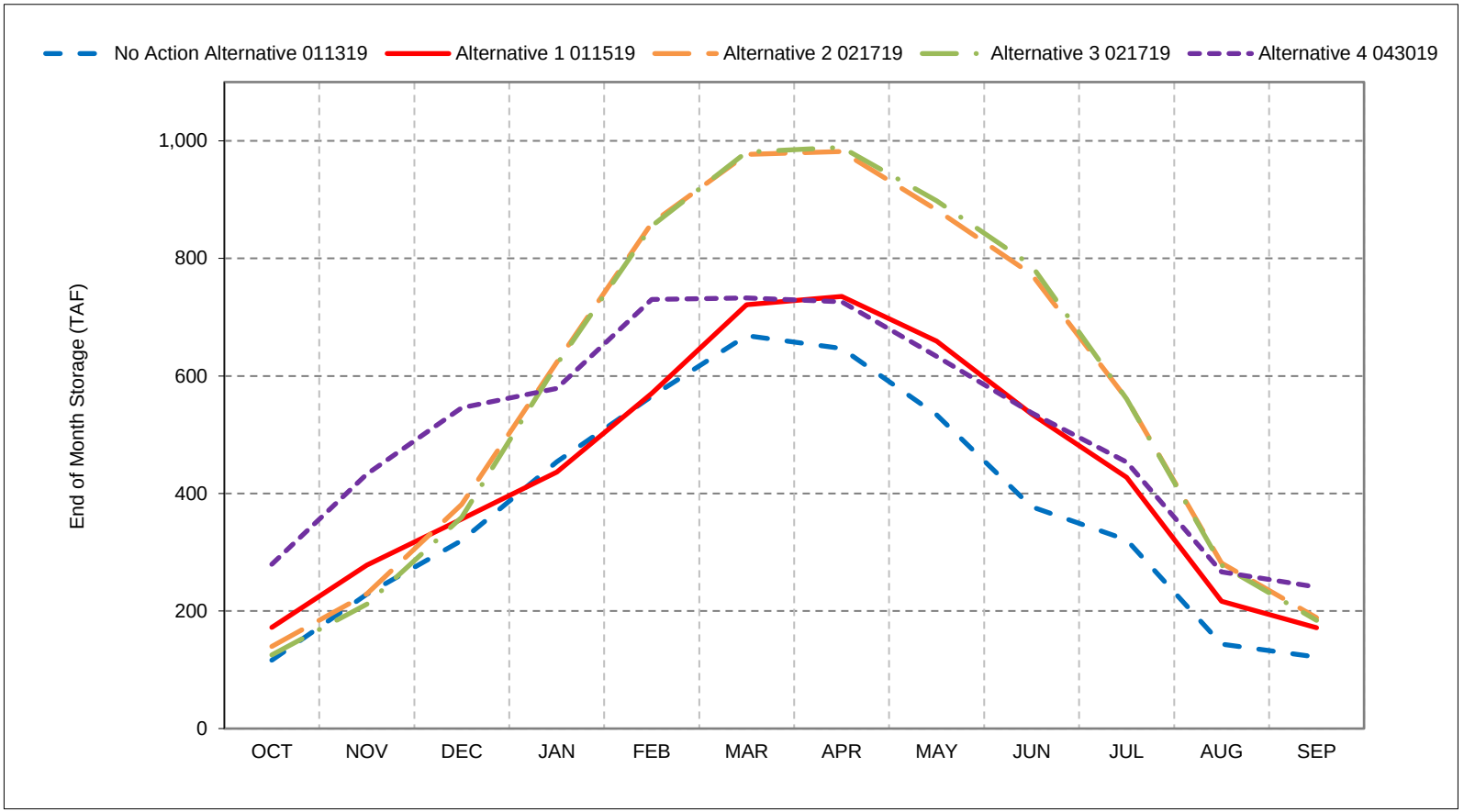

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-4. San Luis SWP Storage, Below Normal Year Average Storage



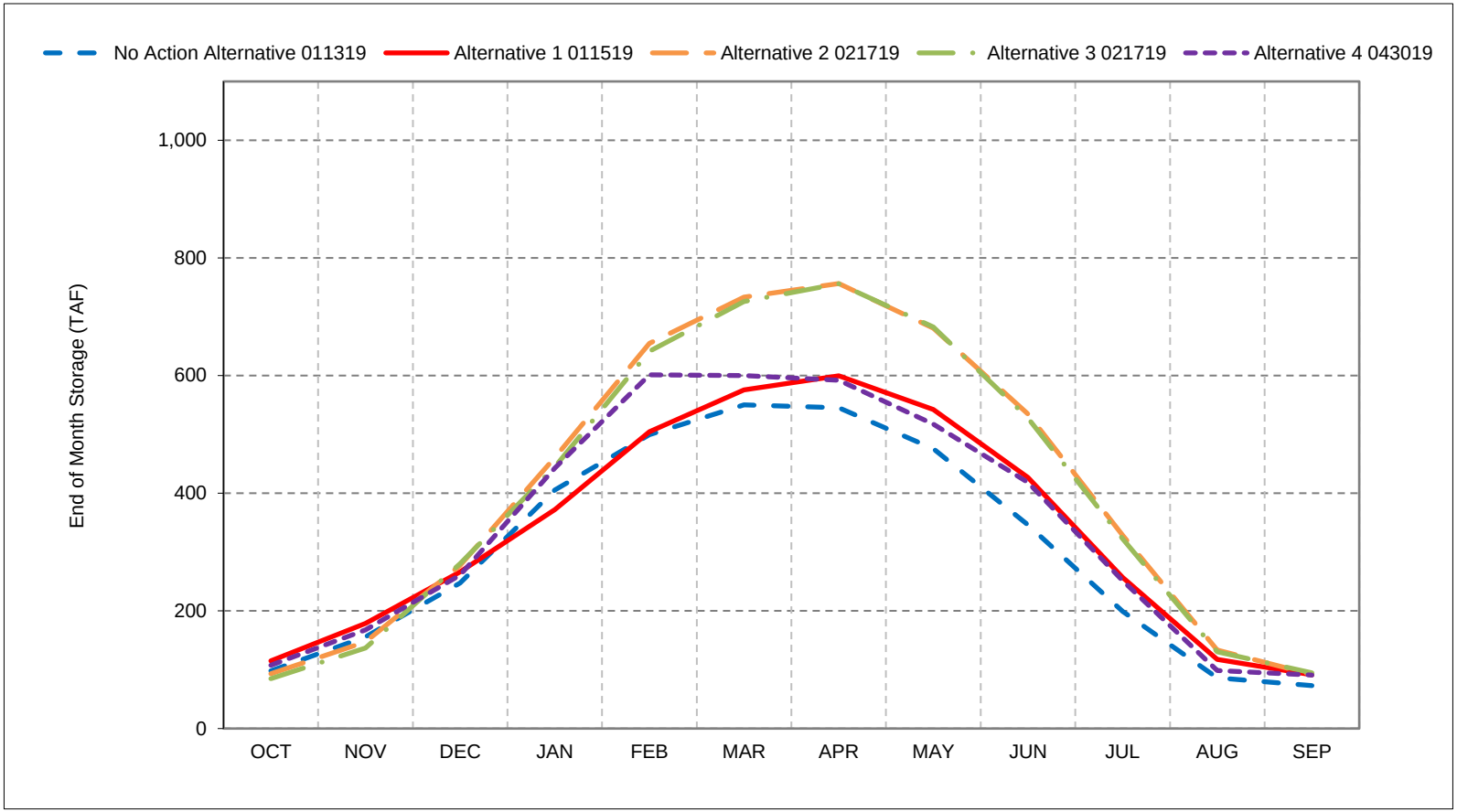

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-5. San Luis SWP Storage, Dry Year Average Storage



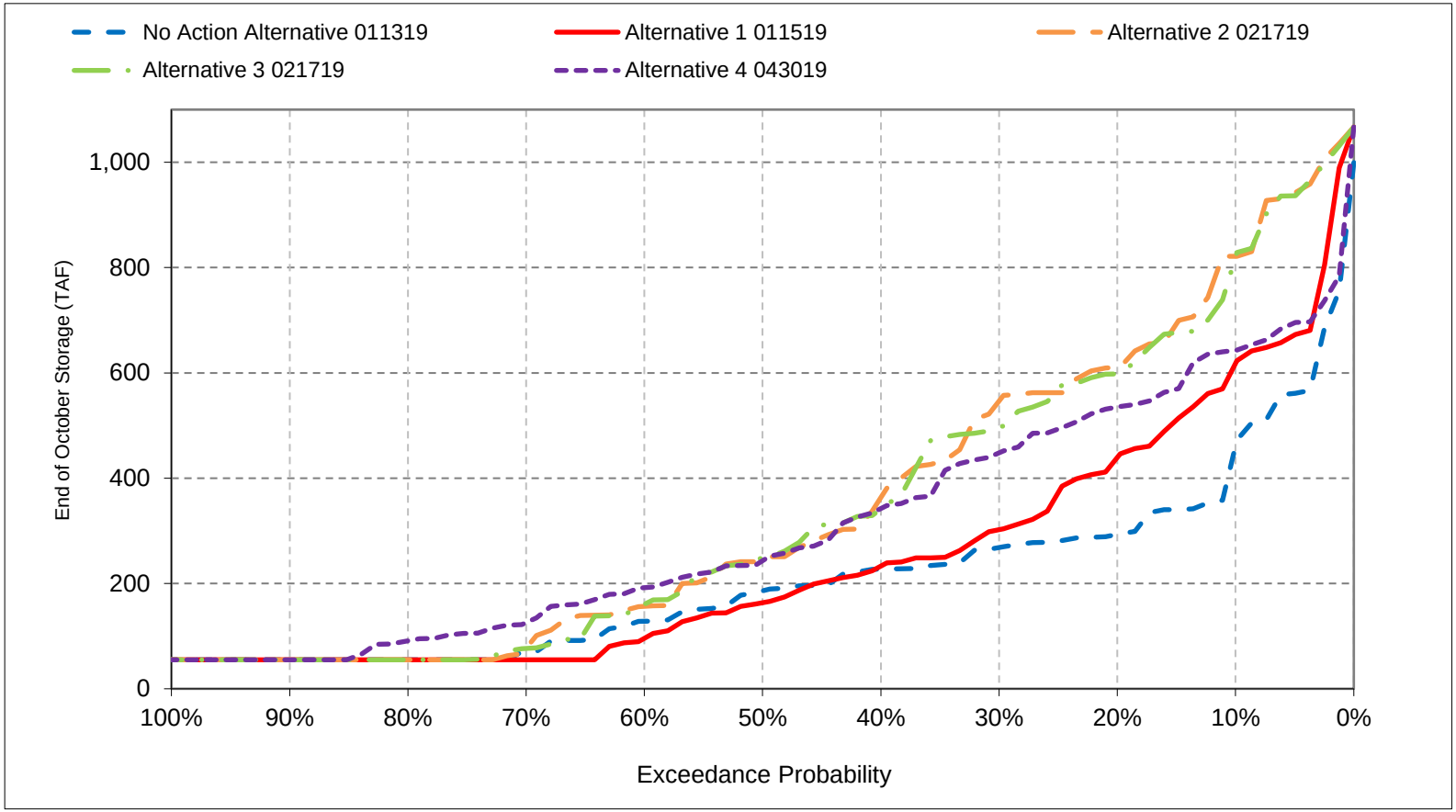

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-6. San Luis SWP Storage, Critical Year Average Storage



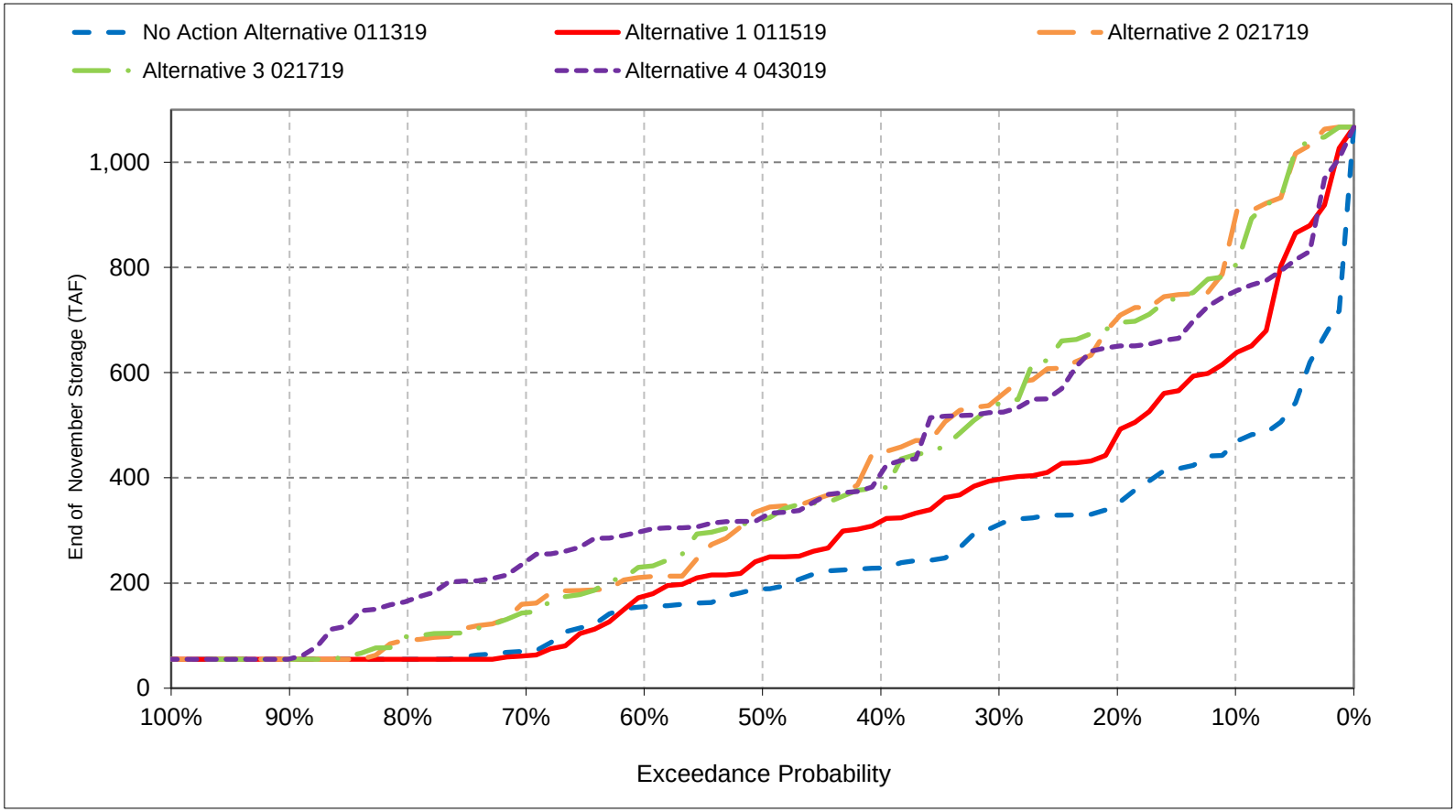

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-7. San Luis SWP Storage, End of October Storage



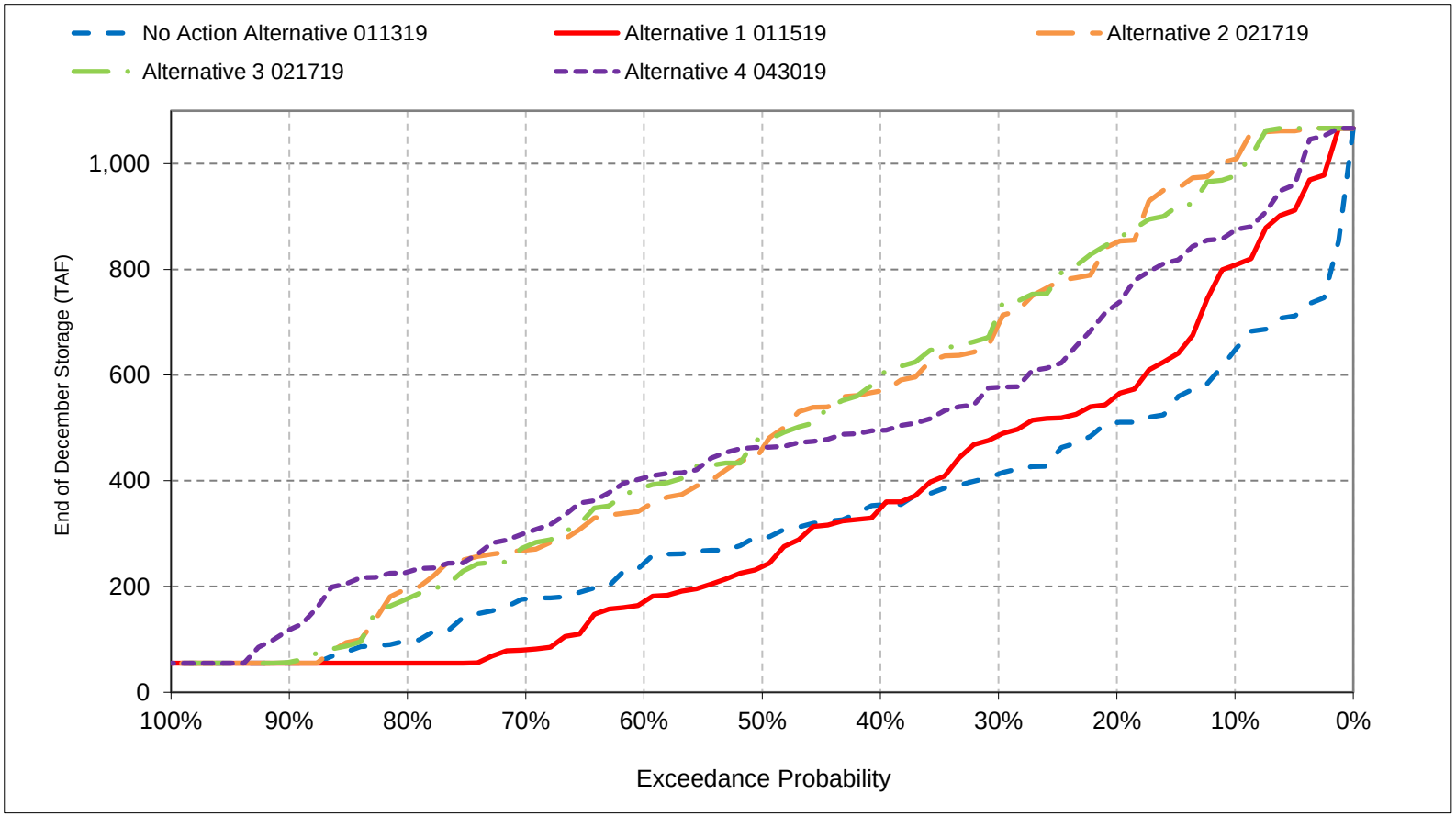

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-8. San Luis SWP Storage, End of November Storage



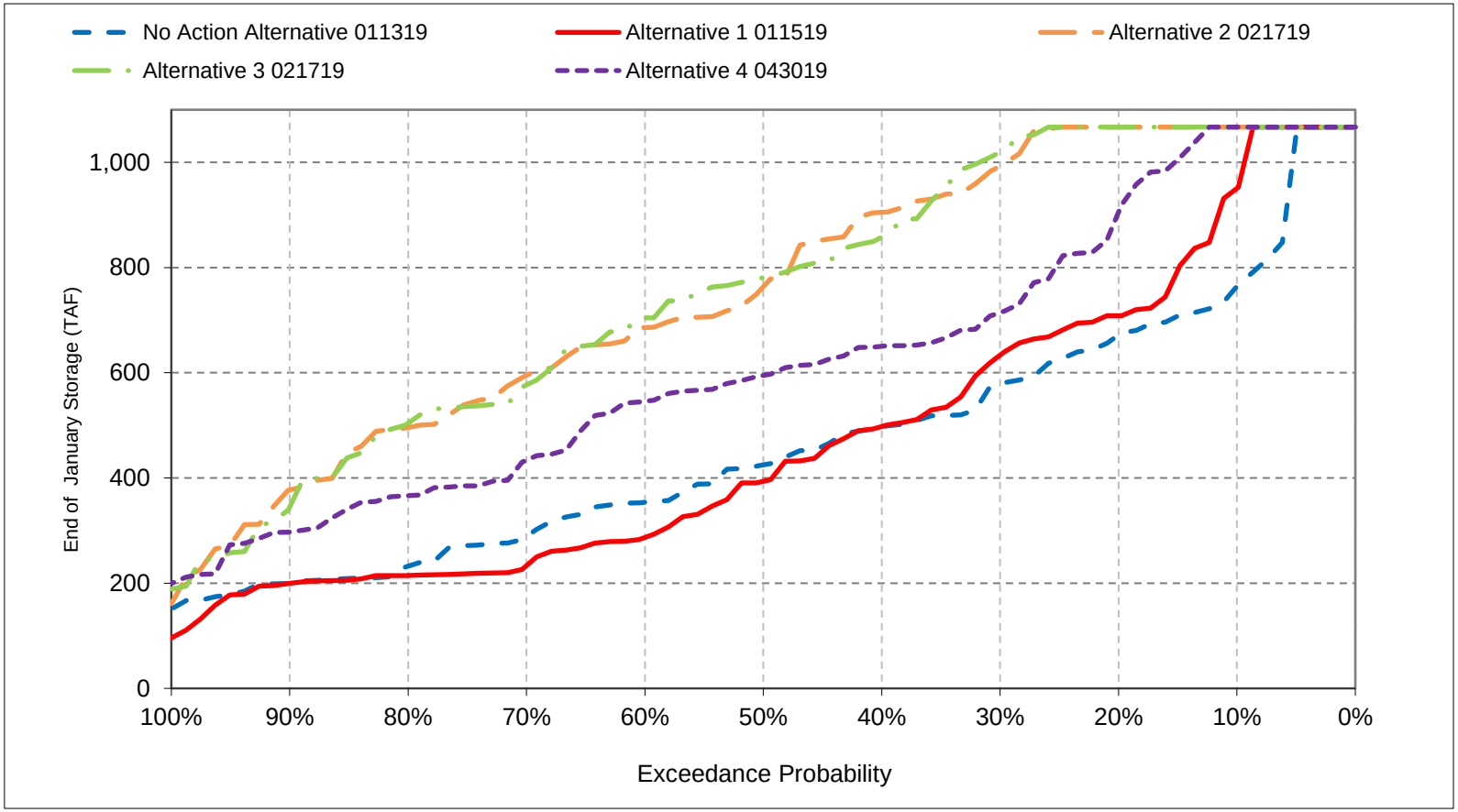

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-9. San Luis SWP Storage, End of December Storage



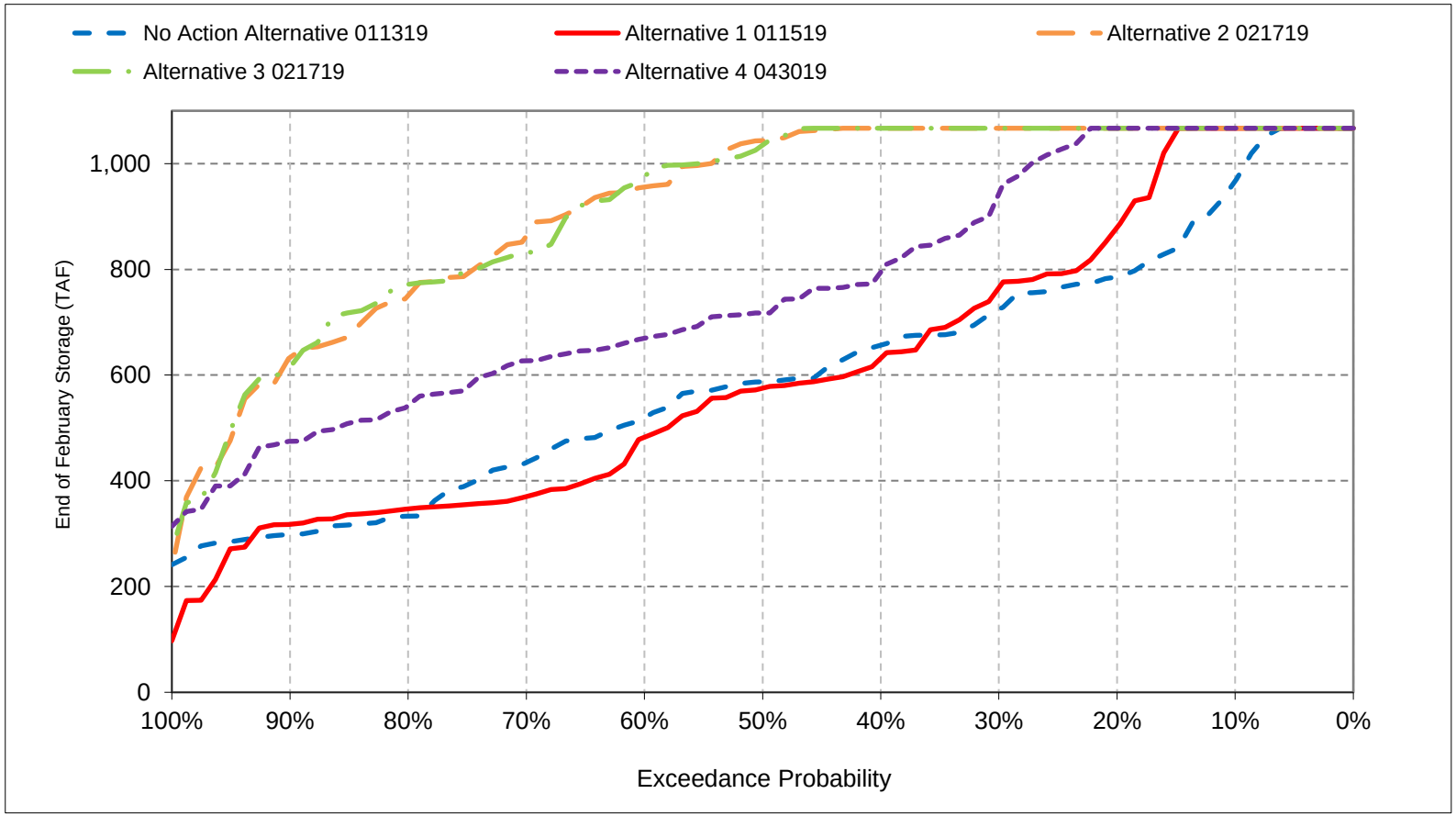

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-10. San Luis SWP Storage, End of January Storage



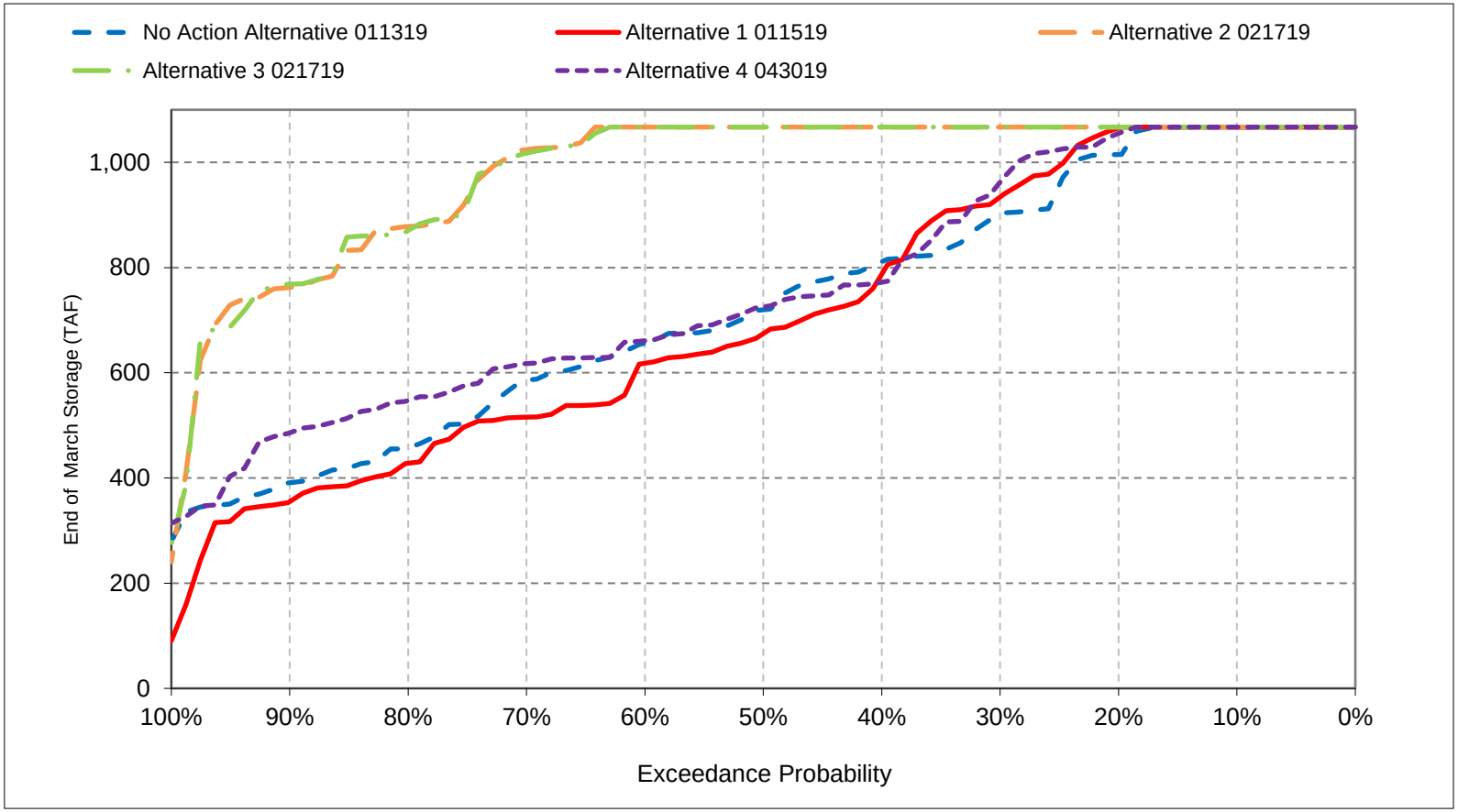

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-11. San Luis SWP Storage, End of February Storage



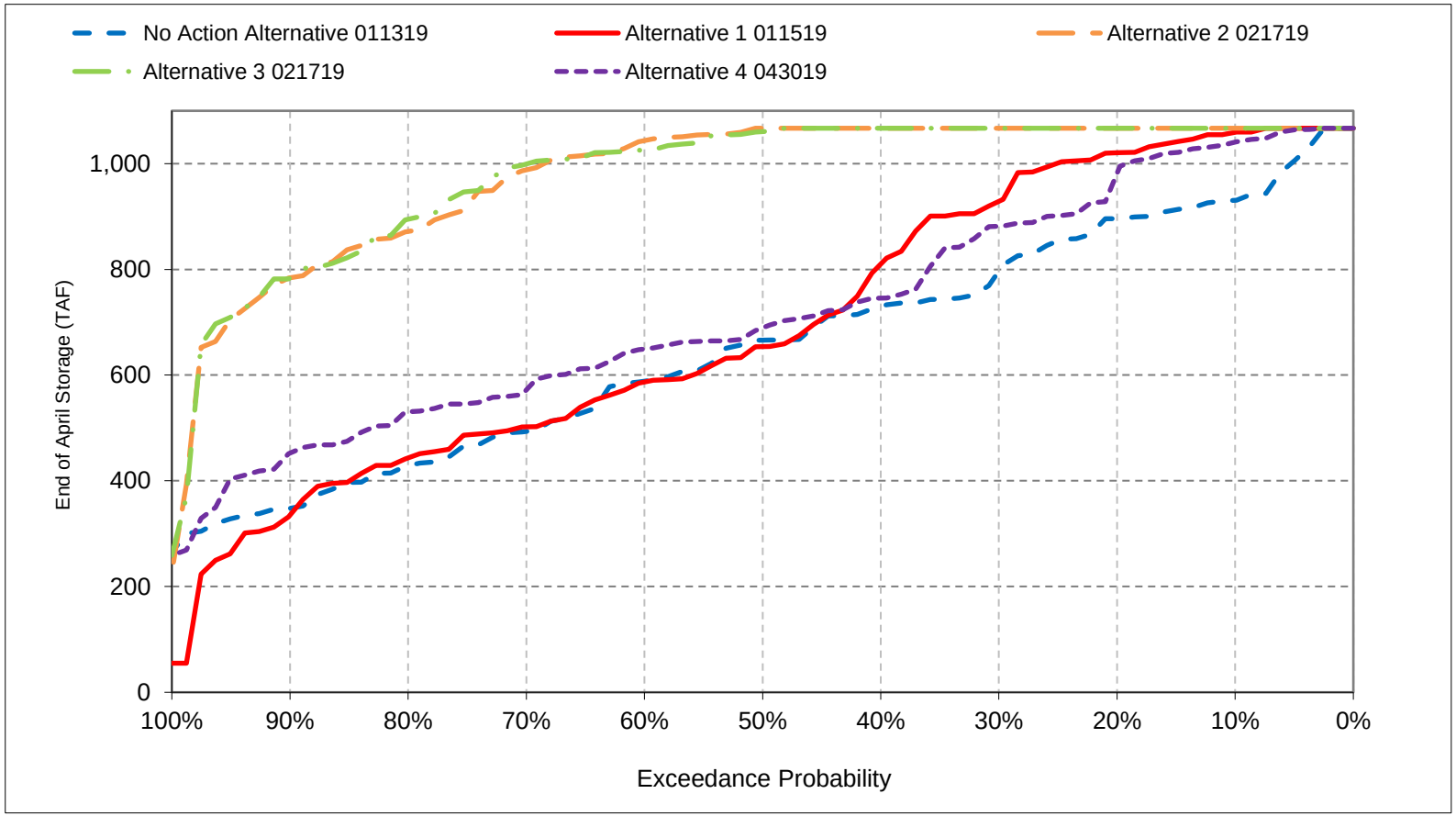

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-12. San Luis SWP Storage, End of March Storage



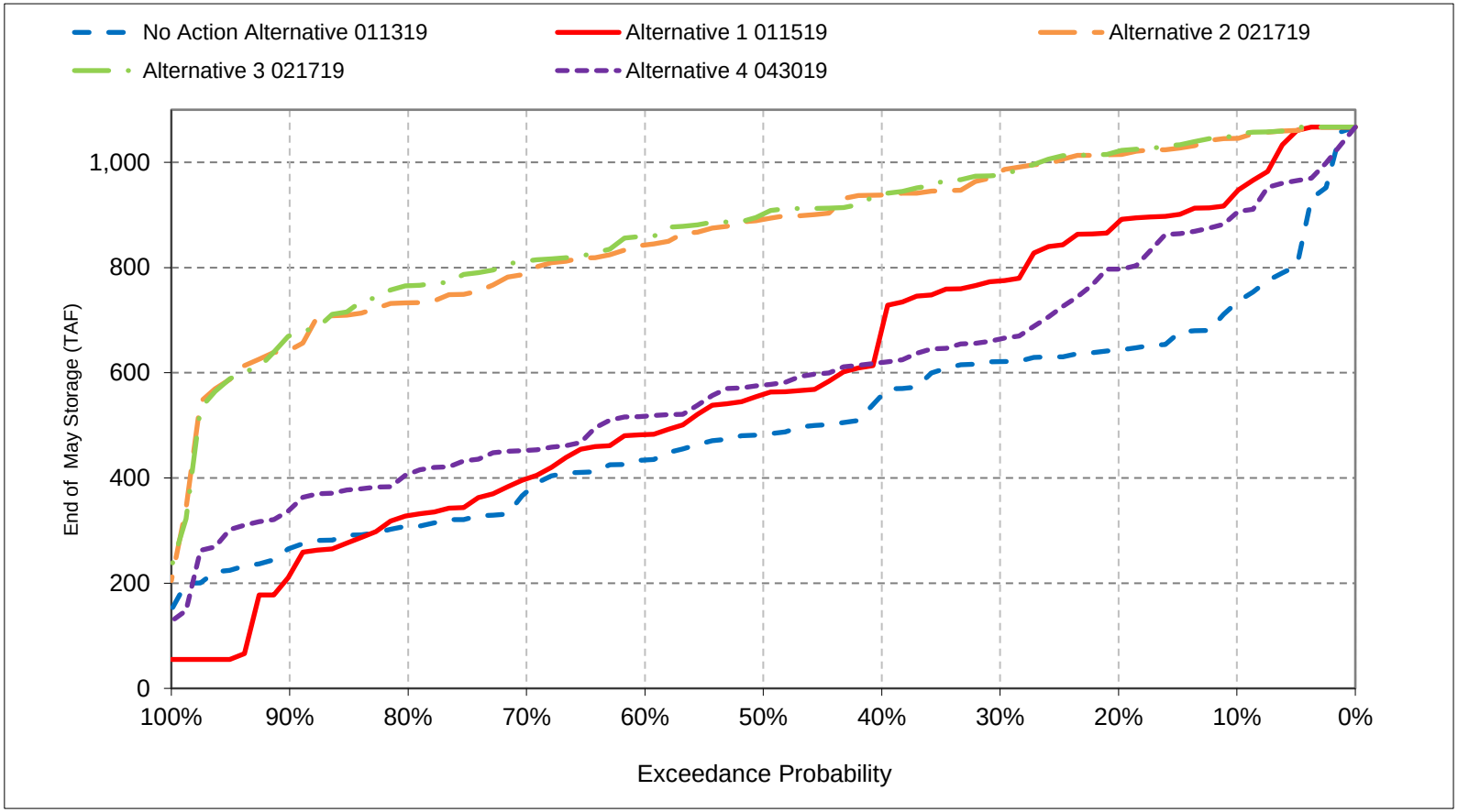

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-13. San Luis SWP Storage, End of April Storage



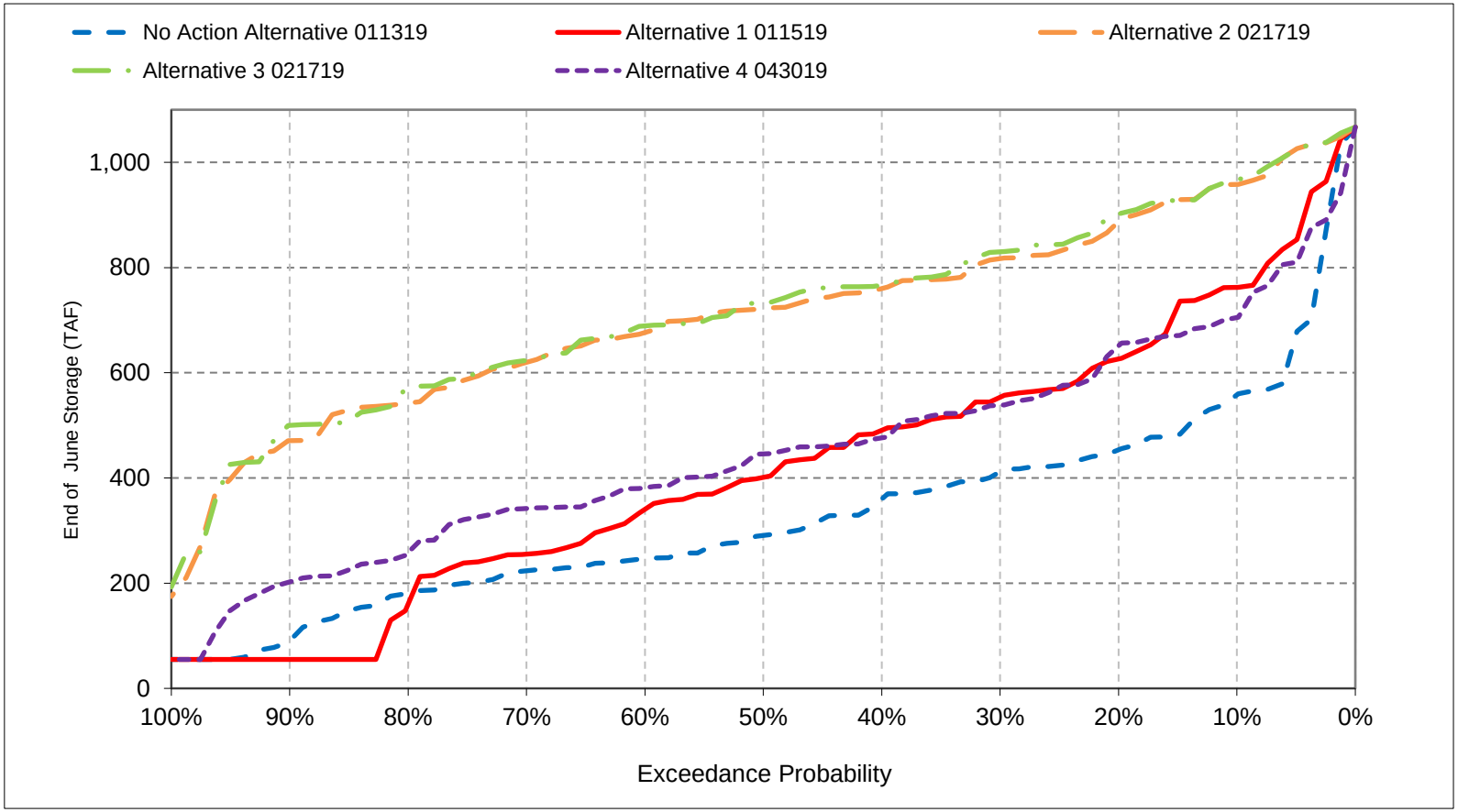

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-14. San Luis SWP Storage, End of May Storage



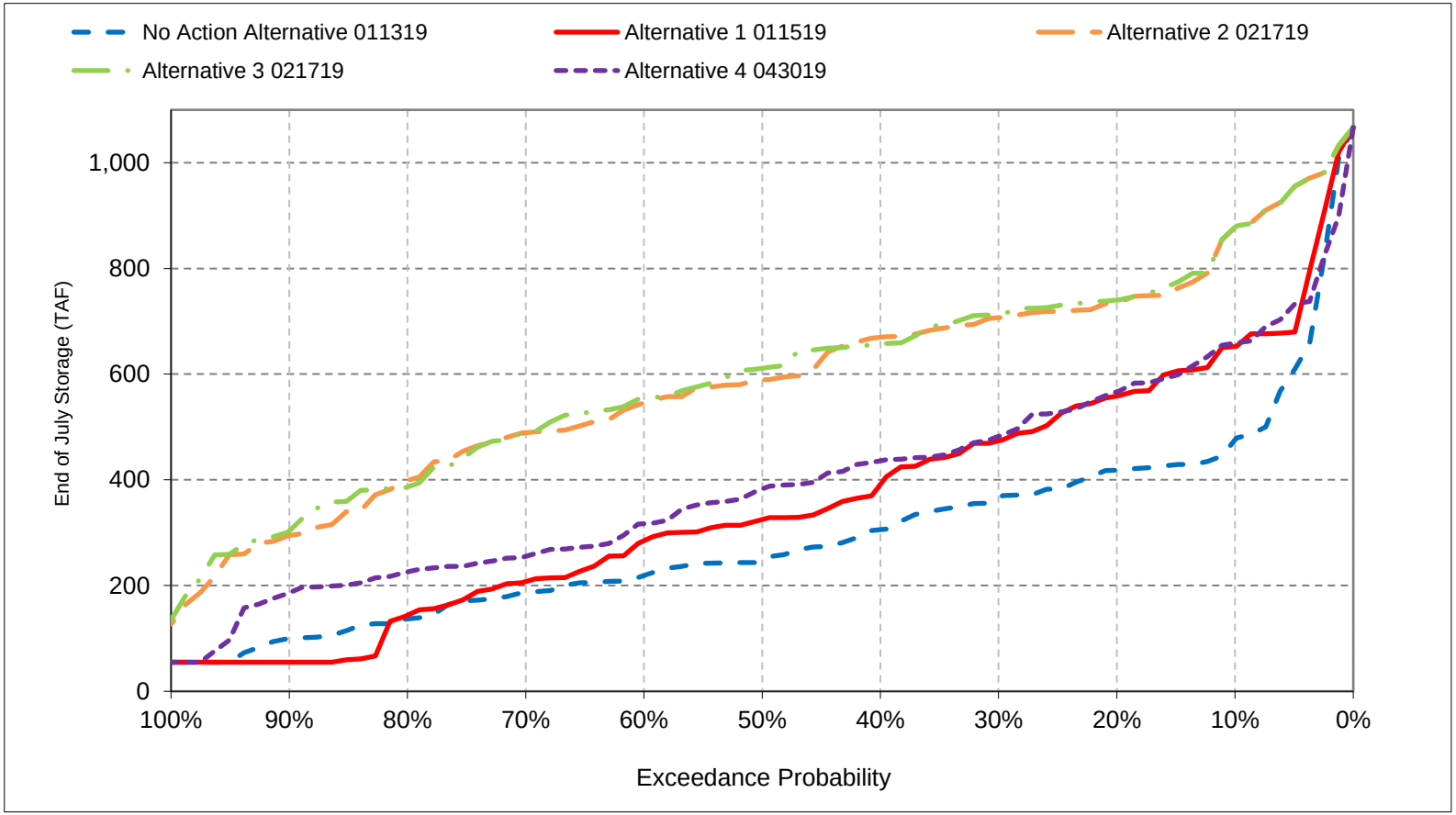

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-15. San Luis SWP Storage, End of June Storage



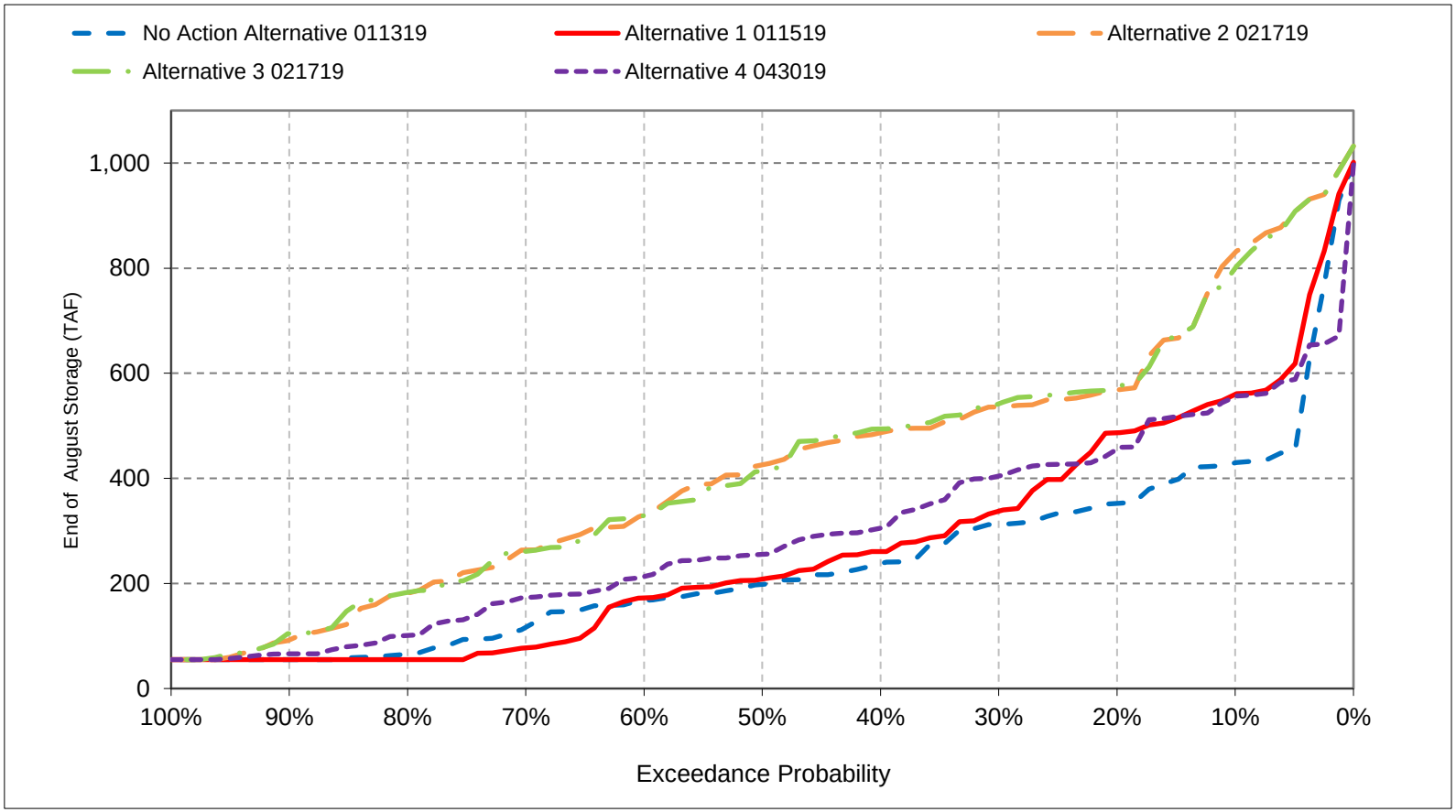

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-16. San Luis SWP Storage, End of July Storage



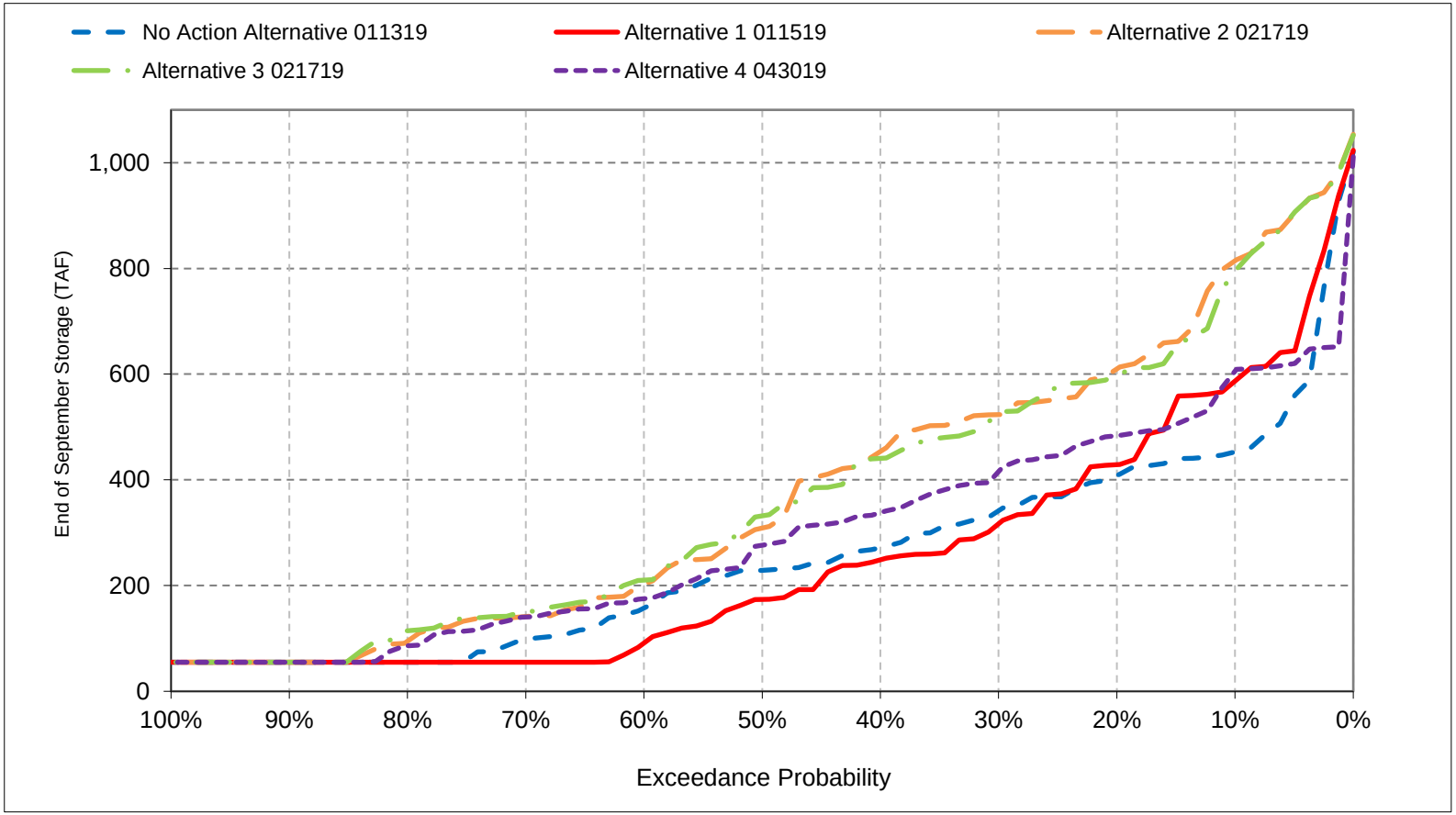

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-17. San Luis SWP Storage, End of August Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6c-18. San Luis SWP Storage, End of September Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 7-1. New Melones Storage, End of Month Storage

No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,765 | 1,759 | 1,823 | 1,880 | 1,931 | 1,980 | 1,946 | 2,053 | 2,075 | 1,978 | 1,870 | 1,806 |
| 20% | 1,612 | 1,631 | 1,647 | 1,687 | 1,768 | 1,799 | 1,834 | 1,901 | 1,877 | 1,798 | 1,692 | 1,633 |
| 30% | 1,533 | 1,537 | 1,555 | 1,597 | 1,686 | 1,729 | 1,687 | 1,745 | 1,786 | 1,707 | 1,605 | 1,557 |
| 40% | 1,272 | 1,274 | 1,432 | 1,515 | 1,594 | 1,618 | 1,592 | 1,534 | 1,539 | 1,433 | 1,333 | 1,274 |
| 50% | 1,120 | 1,127 | 1,154 | 1,308 | 1,436 | 1,535 | 1,461 | 1,443 | 1,392 | 1,283 | 1,190 | 1,156 |
| 60% | 1,024 | 1,042 | 1,079 | 1,146 | 1,199 | 1,273 | 1,279 | 1,335 | 1,277 | 1,200 | 1,103 | 1,054 |
| 70% | 882 | 911 | 986 | 1,015 | 1,039 | 1,057 | 1,083 | 1,090 | 1,087 | 994 | 910 | 868 |
| 80% | 646 | 658 | 683 | 684 | 735 | 808 | 835 | 878 | 871 | 808 | 733 | 692 |
| 90% | 430 | 435 | 440 | 486 | 541 | 569 | 574 | 586 | 630 | 566 | 507 | 473 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,132 | 1,142 | 1,180 | 1,237 | 1,305 | 1,348 | 1,338 | 1,373 | 1,381 | 1,300 | 1,208 | 1,159 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,725 | 1,729 | 1,754 | 1,496 | 1,637 | 1,703 | 1,757 | 1,913 | 2,035 | 1,968 | 1,845 | 1,771 |
| Above Normal (24%) | 1,229 | 1,239 | 1,271 | 1,174 | 1,267 | 1,342 | 1,366 | 1,470 | 1,480 | 1,387 | 1,290 | 1,240 |
| Below Normal (10%) | 1,201 | 1,206 | 1,228 | 1,464 | 1,518 | 1,550 | 1,495 | 1,502 | 1,502 | 1,408 | 1,307 | 1,249 |
| Dry (16%) | 931 | 965 | 1,040 | 1,254 | 1,277 | 1,315 | 1,265 | 1,226 | 1,175 | 1,080 | 996 | 958 |
| Critical (27%) | 614 | 616 | 657 | 978 | 993 | 994 | 935 | 860 | 805 | 734 | 674 | 643 |

Alternative 1 011519

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,884 | 1,877 | 1,911 | 1,965 | 1,970 | 2,030 | 2,010 | 2,086 | 2,207 | 2,117 | 2,008 | 1,942 |
| 20% | 1,745 | 1,748 | 1,780 | 1,860 | 1,942 | 1,975 | 1,918 | 1,989 | 2,023 | 1,919 | 1,828 | 1,785 |
| 30% | 1,619 | 1,628 | 1,685 | 1,781 | 1,833 | 1,857 | 1,818 | 1,867 | 1,900 | 1,817 | 1,713 | 1,655 |
| 40% | 1,504 | 1,539 | 1,586 | 1,652 | 1,738 | 1,765 | 1,752 | 1,759 | 1,753 | 1,653 | 1,569 | 1,527 |
| 50% | 1,411 | 1,432 | 1,456 | 1,522 | 1,620 | 1,669 | 1,628 | 1,662 | 1,623 | 1,560 | 1,483 | 1,439 |
| 60% | 1,317 | 1,341 | 1,361 | 1,408 | 1,473 | 1,554 | 1,531 | 1,552 | 1,560 | 1,485 | 1,384 | 1,349 |
| 70% | 1,131 | 1,160 | 1,254 | 1,299 | 1,369 | 1,403 | 1,379 | 1,376 | 1,369 | 1,277 | 1,211 | 1,173 |
| 80% | 974 | 974 | 1,013 | 1,027 | 1,055 | 1,112 | 1,068 | 1,174 | 1,166 | 1,103 | 1,045 | 1,004 |
| 90% | 594 | 580 | 589 | 597 | 616 | 690 | 672 | 734 | 834 | 765 | 692 | 642 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,316 | 1,326 | 1,366 | 1,422 | 1,483 | 1,526 | 1,516 | 1,558 | 1,572 | 1,490 | 1,398 | 1,349 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,753 | 1,758 | 1,791 | 1,593 | 1,703 | 1,758 | 1,816 | 1,973 | 2,073 | 1,997 | 1,874 | 1,800 |
| Above Normal (24%) | 1,339 | 1,349 | 1,379 | 1,304 | 1,396 | 1,474 | 1,475 | 1,570 | 1,610 | 1,515 | 1,413 | 1,361 |
| Below Normal (10%) | 1,383 | 1,387 | 1,407 | 1,675 | 1,719 | 1,758 | 1,691 | 1,692 | 1,695 | 1,597 | 1,493 | 1,433 |
| Dry (16%) | 1,234 | 1,270 | 1,347 | 1,495 | 1,523 | 1,563 | 1,528 | 1,509 | 1,469 | 1,380 | 1,299 | 1,264 |
| Critical (27%) | 938 | 940 | 983 | 1,245 | 1,262 | 1,266 | 1,224 | 1,168 | 1,121 | 1,056 | 997 | 968 |

Alternative 1 011519 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 118 | 118 | 88 | 85 | 39 | 50 | 64 | 33 | 132 | 138 | 138 | 137 |
| 20% | 134 | 117 | 133 | 173 | 173 | 176 | 84 | 88 | 146 | 121 | 136 | 152 |
| 30% | 86 | 91 | 130 | 184 | 147 | 128 | 132 | 122 | 115 | 110 | 108 | 99 |
| 40% | 233 | 264 | 154 | 137 | 143 | 147 | 161 | 226 | 214 | 219 | 236 | 254 |
| 50% | 291 | 305 | 303 | 214 | 183 | 134 | 167 | 218 | 231 | 277 | 293 | 283 |
| 60% | 293 | 299 | 282 | 262 | 274 | 281 | 252 | 216 | 283 | 285 | 281 | 294 |
| 70% | 249 | 249 | 268 | 284 | 330 | 347 | 296 | 285 | 282 | 282 | 301 | 304 |
| 80% | 328 | 316 | 330 | 343 | 320 | 305 | 233 | 296 | 295 | 295 | 312 | 311 |
| 90% | 164 | 146 | 149 | 111 | 76 | 121 | 98 | 147 | 204 | 198 | 185 | 170 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 184 | 184 | 186 | 185 | 178 | 177 | 179 | 184 | 191 | 190 | 190 | 190 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 28 | 29 | 37 | 97 | 67 | 56 | 59 | 60 | 37 | 29 | 29 | 29 |
| Above Normal (24%) | 111 | 110 | 108 | 130 | 129 | 132 | 109 | 100 | 129 | 128 | 123 | 121 |
| Below Normal (10%) | 181 | 180 | 180 | 211 | 201 | 207 | 196 | 190 | 193 | 189 | 186 | 184 |
| Dry (16%) | 303 | 305 | 307 | 242 | 247 | 248 | 263 | 283 | 294 | 300 | 304 | 306 |
| Critical (27%) | 324 | 324 | 327 | 267 | 269 | 271 | 289 | 308 | 316 | 321 | 323 | 324 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 7-2. New Melones Storage, End of Month Storage

No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,765 | 1,759 | 1,823 | 1,880 | 1,931 | 1,980 | 1,946 | 2,053 | 2,075 | 1,978 | 1,870 | 1,806 |
| 20% | 1,612 | 1,631 | 1,647 | 1,687 | 1,768 | 1,799 | 1,834 | 1,901 | 1,877 | 1,798 | 1,692 | 1,633 |
| 30% | 1,533 | 1,537 | 1,555 | 1,597 | 1,686 | 1,729 | 1,687 | 1,745 | 1,786 | 1,707 | 1,605 | 1,557 |
| 40% | 1,272 | 1,274 | 1,432 | 1,515 | 1,594 | 1,618 | 1,592 | 1,534 | 1,539 | 1,433 | 1,333 | 1,274 |
| 50% | 1,120 | 1,127 | 1,154 | 1,308 | 1,436 | 1,535 | 1,461 | 1,443 | 1,392 | 1,283 | 1,190 | 1,156 |
| 60% | 1,024 | 1,042 | 1,079 | 1,146 | 1,199 | 1,273 | 1,279 | 1,335 | 1,277 | 1,200 | 1,103 | 1,054 |
| 70% | 882 | 911 | 986 | 1,015 | 1,039 | 1,057 | 1,083 | 1,090 | 1,087 | 994 | 910 | 868 |
| 80% | 646 | 658 | 683 | 684 | 735 | 808 | 835 | 878 | 871 | 808 | 733 | 692 |
| 90% | 430 | 435 | 440 | 486 | 541 | 569 | 574 | 586 | 630 | 566 | 507 | 473 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,132 | 1,142 | 1,180 | 1,237 | 1,305 | 1,348 | 1,338 | 1,373 | 1,381 | 1,300 | 1,208 | 1,159 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,725 | 1,729 | 1,754 | 1,496 | 1,637 | 1,703 | 1,757 | 1,913 | 2,035 | 1,968 | 1,845 | 1,771 |
| Above Normal (24%) | 1,229 | 1,239 | 1,271 | 1,174 | 1,267 | 1,342 | 1,366 | 1,470 | 1,480 | 1,387 | 1,290 | 1,240 |
| Below Normal (10%) | 1,201 | 1,206 | 1,228 | 1,464 | 1,518 | 1,550 | 1,495 | 1,502 | 1,502 | 1,408 | 1,307 | 1,249 |
| Dry (16%) | 931 | 965 | 1,040 | 1,254 | 1,277 | 1,315 | 1,265 | 1,226 | 1,175 | 1,080 | 996 | 958 |
| Critical (27%) | 614 | 616 | 657 | 978 | 993 | 994 | 935 | 860 | 805 | 734 | 674 | 643 |

Alternative 2 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,970 | 1,954 | 1,970 | 1,970 | 1,970 | 2,030 | 2,106 | 2,257 | 2,401 | 2,300 | 2,130 | 2,000 |
| 20% | 1,915 | 1,926 | 1,943 | 1,970 | 1,970 | 2,030 | 2,044 | 2,136 | 2,181 | 2,075 | 1,972 | 1,921 |
| 30% | 1,796 | 1,830 | 1,867 | 1,924 | 1,970 | 2,002 | 1,987 | 2,041 | 2,039 | 1,947 | 1,840 | 1,787 |
| 40% | 1,711 | 1,724 | 1,766 | 1,864 | 1,922 | 1,952 | 1,943 | 1,925 | 1,938 | 1,867 | 1,776 | 1,721 |
| 50% | 1,547 | 1,546 | 1,580 | 1,685 | 1,806 | 1,882 | 1,839 | 1,838 | 1,780 | 1,669 | 1,576 | 1,540 |
| 60% | 1,439 | 1,434 | 1,484 | 1,523 | 1,590 | 1,632 | 1,666 | 1,702 | 1,658 | 1,573 | 1,472 | 1,426 |
| 70% | 1,220 | 1,280 | 1,347 | 1,375 | 1,422 | 1,410 | 1,414 | 1,546 | 1,446 | 1,344 | 1,243 | 1,191 |
| 80% | 1,029 | 1,006 | 1,029 | 1,054 | 1,115 | 1,175 | 1,174 | 1,264 | 1,228 | 1,159 | 1,092 | 1,048 |
| 90% | 785 | 790 | 798 | 808 | 896 | 903 | 855 | 851 | 961 | 887 | 810 | 774 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,446 | 1,453 | 1,486 | 1,539 | 1,582 | 1,633 | 1,648 | 1,702 | 1,700 | 1,607 | 1,505 | 1,448 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,914 | 1,913 | 1,922 | 1,780 | 1,833 | 1,920 | 1,996 | 2,170 | 2,262 | 2,171 | 2,030 | 1,935 |
| Above Normal (24%) | 1,559 | 1,567 | 1,595 | 1,444 | 1,526 | 1,604 | 1,658 | 1,785 | 1,797 | 1,702 | 1,603 | 1,552 |
| Below Normal (10%) | 1,581 | 1,586 | 1,607 | 1,709 | 1,748 | 1,791 | 1,793 | 1,843 | 1,850 | 1,753 | 1,649 | 1,591 |
| Dry (16%) | 1,318 | 1,349 | 1,422 | 1,595 | 1,610 | 1,649 | 1,631 | 1,610 | 1,551 | 1,446 | 1,353 | 1,308 |
| Critical (27%) | 956 | 956 | 997 | 1,323 | 1,340 | 1,344 | 1,297 | 1,226 | 1,162 | 1,077 | 1,002 | 963 |

Alternative 2 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 205 | 195 | 147 | 90 | 39 | 50 | 160 | 204 | 325 | 322 | 260 | 194 |
| 20% | 304 | 295 | 296 | 283 | 202 | 231 | 210 | 236 | 304 | 277 | 281 | 287 |
| 30% | 263 | 293 | 312 | 328 | 284 | 273 | 300 | 296 | 254 | 240 | 235 | 230 |
| 40% | 439 | 450 | 334 | 349 | 328 | 334 | 351 | 392 | 398 | 434 | 443 | 447 |
| 50% | 427 | 419 | 426 | 377 | 370 | 348 | 377 | 394 | 388 | 386 | 386 | 383 |
| 60% | 415 | 392 | 405 | 377 | 391 | 359 | 387 | 367 | 382 | 373 | 369 | 372 |
| 70% | 338 | 369 | 361 | 360 | 383 | 353 | 330 | 455 | 358 | 350 | 333 | 323 |
| 80% | 383 | 348 | 347 | 370 | 380 | 367 | 339 | 386 | 356 | 350 | 359 | 355 |
| 90% | 355 | 355 | 358 | 321 | 355 | 334 | 280 | 265 | 331 | 320 | 303 | 301 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 314 | 311 | 306 | 302 | 277 | 284 | 311 | 329 | 319 | 307 | 297 | 289 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 189 | 184 | 168 | 284 | 196 | 217 | 239 | 257 | 226 | 203 | 185 | 164 |
| Above Normal (24%) | 330 | 328 | 324 | 271 | 259 | 262 | 293 | 315 | 316 | 315 | 313 | 312 |
| Below Normal (10%) | 380 | 380 | 379 | 245 | 230 | 241 | 298 | 342 | 348 | 345 | 343 | 342 |
| Dry (16%) | 388 | 384 | 381 | 341 | 333 | 334 | 366 | 384 | 377 | 366 | 357 | 350 |
| Critical (27%) | 342 | 340 | 341 | 345 | 347 | 349 | 361 | 367 | 358 | 342 | 327 | 320 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 7-3. New Melones Storage, End of Month Storage

No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,765 | 1,759 | 1,823 | 1,880 | 1,931 | 1,980 | 1,946 | 2,053 | 2,075 | 1,978 | 1,870 | 1,806 |
| 20% | 1,612 | 1,631 | 1,647 | 1,687 | 1,768 | 1,799 | 1,834 | 1,901 | 1,877 | 1,798 | 1,692 | 1,633 |
| 30% | 1,533 | 1,537 | 1,555 | 1,597 | 1,686 | 1,729 | 1,687 | 1,745 | 1,786 | 1,707 | 1,605 | 1,557 |
| 40% | 1,272 | 1,274 | 1,432 | 1,515 | 1,594 | 1,618 | 1,592 | 1,534 | 1,539 | 1,433 | 1,333 | 1,274 |
| 50% | 1,120 | 1,127 | 1,154 | 1,308 | 1,436 | 1,535 | 1,461 | 1,443 | 1,392 | 1,283 | 1,190 | 1,156 |
| 60% | 1,024 | 1,042 | 1,079 | 1,146 | 1,199 | 1,273 | 1,279 | 1,335 | 1,277 | 1,200 | 1,103 | 1,054 |
| 70% | 882 | 911 | 986 | 1,015 | 1,039 | 1,057 | 1,083 | 1,090 | 1,087 | 994 | 910 | 868 |
| 80% | 646 | 658 | 683 | 684 | 735 | 808 | 835 | 878 | 871 | 808 | 733 | 692 |
| 90% | 430 | 435 | 440 | 486 | 541 | 569 | 574 | 586 | 630 | 566 | 507 | 473 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,132 | 1,142 | 1,180 | 1,237 | 1,305 | 1,348 | 1,338 | 1,373 | 1,381 | 1,300 | 1,208 | 1,159 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,725 | 1,729 | 1,754 | 1,496 | 1,637 | 1,703 | 1,757 | 1,913 | 2,035 | 1,968 | 1,845 | 1,771 |
| Above Normal (24%) | 1,229 | 1,239 | 1,271 | 1,174 | 1,267 | 1,342 | 1,366 | 1,470 | 1,480 | 1,387 | 1,290 | 1,240 |
| Below Normal (10%) | 1,201 | 1,206 | 1,228 | 1,464 | 1,518 | 1,550 | 1,495 | 1,502 | 1,502 | 1,408 | 1,307 | 1,249 |
| Dry (16%) | 931 | 965 | 1,040 | 1,254 | 1,277 | 1,315 | 1,265 | 1,226 | 1,175 | 1,080 | 996 | 958 |
| Critical (27%) | 614 | 616 | 657 | 978 | 993 | 994 | 935 | 860 | 805 | 734 | 674 | 643 |

Alternative 3 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,970 | 1,954 | 1,970 | 1,970 | 1,970 | 2,030 | 2,106 | 2,257 | 2,401 | 2,300 | 2,130 | 2,000 |
| 20% | 1,915 | 1,926 | 1,943 | 1,970 | 1,970 | 2,030 | 2,044 | 2,136 | 2,181 | 2,075 | 1,972 | 1,921 |
| 30% | 1,796 | 1,830 | 1,867 | 1,924 | 1,970 | 2,002 | 1,987 | 2,041 | 2,039 | 1,947 | 1,840 | 1,787 |
| 40% | 1,711 | 1,724 | 1,766 | 1,864 | 1,922 | 1,952 | 1,943 | 1,925 | 1,938 | 1,867 | 1,776 | 1,721 |
| 50% | 1,547 | 1,546 | 1,580 | 1,685 | 1,806 | 1,882 | 1,839 | 1,838 | 1,780 | 1,669 | 1,576 | 1,540 |
| 60% | 1,439 | 1,434 | 1,484 | 1,523 | 1,590 | 1,632 | 1,665 | 1,702 | 1,659 | 1,573 | 1,472 | 1,426 |
| 70% | 1,220 | 1,280 | 1,347 | 1,375 | 1,422 | 1,410 | 1,414 | 1,546 | 1,446 | 1,344 | 1,243 | 1,191 |
| 80% | 1,029 | 1,006 | 1,029 | 1,054 | 1,115 | 1,175 | 1,174 | 1,264 | 1,228 | 1,159 | 1,092 | 1,048 |
| 90% | 785 | 790 | 798 | 808 | 896 | 903 | 855 | 851 | 961 | 886 | 810 | 774 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,446 | 1,453 | 1,486 | 1,539 | 1,582 | 1,633 | 1,648 | 1,702 | 1,700 | 1,607 | 1,505 | 1,448 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,914 | 1,913 | 1,922 | 1,780 | 1,833 | 1,920 | 1,996 | 2,170 | 2,262 | 2,171 | 2,030 | 1,935 |
| Above Normal (24%) | 1,559 | 1,567 | 1,595 | 1,444 | 1,526 | 1,604 | 1,658 | 1,785 | 1,797 | 1,702 | 1,603 | 1,552 |
| Below Normal (10%) | 1,581 | 1,586 | 1,607 | 1,709 | 1,748 | 1,791 | 1,793 | 1,843 | 1,850 | 1,753 | 1,649 | 1,591 |
| Dry (16%) | 1,318 | 1,349 | 1,422 | 1,595 | 1,610 | 1,649 | 1,631 | 1,610 | 1,551 | 1,446 | 1,353 | 1,308 |
| Critical (27%) | 956 | 956 | 997 | 1,323 | 1,340 | 1,344 | 1,297 | 1,226 | 1,162 | 1,077 | 1,002 | 963 |

Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 205 | 195 | 147 | 90 | 39 | 50 | 160 | 204 | 325 | 322 | 260 | 194 |
| 20% | 304 | 295 | 296 | 283 | 202 | 231 | 210 | 236 | 304 | 277 | 281 | 287 |
| 30% | 263 | 293 | 312 | 328 | 284 | 273 | 300 | 296 | 254 | 240 | 235 | 230 |
| 40% | 439 | 450 | 334 | 349 | 328 | 334 | 351 | 392 | 398 | 434 | 443 | 447 |
| 50% | 427 | 419 | 426 | 377 | 370 | 348 | 377 | 394 | 388 | 386 | 386 | 383 |
| 60% | 415 | 392 | 405 | 377 | 391 | 359 | 387 | 367 | 382 | 373 | 369 | 372 |
| 70% | 338 | 369 | 361 | 360 | 383 | 353 | 330 | 455 | 358 | 350 | 333 | 323 |
| 80% | 383 | 348 | 347 | 370 | 380 | 367 | 339 | 386 | 356 | 350 | 359 | 355 |
| 90% | 355 | 355 | 358 | 321 | 355 | 334 | 280 | 265 | 331 | 320 | 303 | 301 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 314 | 311 | 306 | 302 | 277 | 284 | 311 | 329 | 319 | 307 | 297 | 289 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 189 | 184 | 168 | 284 | 196 | 217 | 239 | 257 | 226 | 203 | 185 | 164 |
| Above Normal (24%) | 330 | 328 | 324 | 271 | 259 | 262 | 293 | 315 | 316 | 315 | 313 | 312 |
| Below Normal (10%) | 380 | 380 | 379 | 245 | 230 | 241 | 298 | 342 | 348 | 345 | 343 | 342 |
| Dry (16%) | 388 | 384 | 381 | 341 | 333 | 334 | 366 | 384 | 377 | 366 | 357 | 350 |
| Critical (27%) | 342 | 340 | 341 | 345 | 347 | 349 | 361 | 367 | 358 | 342 | 327 | 320 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 7-4. New Melones Storage, End of Month Storage

No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,765 | 1,759 | 1,823 | 1,880 | 1,931 | 1,980 | 1,946 | 2,053 | 2,075 | 1,978 | 1,870 | 1,806 |
| 20% | 1,612 | 1,631 | 1,647 | 1,687 | 1,768 | 1,799 | 1,834 | 1,901 | 1,877 | 1,798 | 1,692 | 1,633 |
| 30% | 1,533 | 1,537 | 1,555 | 1,597 | 1,686 | 1,729 | 1,687 | 1,745 | 1,786 | 1,707 | 1,605 | 1,557 |
| 40% | 1,272 | 1,274 | 1,432 | 1,515 | 1,594 | 1,618 | 1,592 | 1,534 | 1,539 | 1,433 | 1,333 | 1,274 |
| 50% | 1,120 | 1,127 | 1,154 | 1,308 | 1,436 | 1,535 | 1,461 | 1,443 | 1,392 | 1,283 | 1,190 | 1,156 |
| 60% | 1,024 | 1,042 | 1,079 | 1,146 | 1,199 | 1,273 | 1,279 | 1,335 | 1,277 | 1,200 | 1,103 | 1,054 |
| 70% | 882 | 911 | 986 | 1,015 | 1,039 | 1,057 | 1,083 | 1,090 | 1,087 | 994 | 910 | 868 |
| 80% | 646 | 658 | 683 | 684 | 735 | 808 | 835 | 878 | 871 | 808 | 733 | 692 |
| 90% | 430 | 435 | 440 | 486 | 541 | 569 | 574 | 586 | 630 | 566 | 507 | 473 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,132 | 1,142 | 1,180 | 1,237 | 1,305 | 1,348 | 1,338 | 1,373 | 1,381 | 1,300 | 1,208 | 1,159 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,725 | 1,729 | 1,754 | 1,496 | 1,637 | 1,703 | 1,757 | 1,913 | 2,035 | 1,968 | 1,845 | 1,771 |
| Above Normal (24%) | 1,229 | 1,239 | 1,271 | 1,174 | 1,267 | 1,342 | 1,366 | 1,470 | 1,480 | 1,387 | 1,290 | 1,240 |
| Below Normal (10%) | 1,201 | 1,206 | 1,228 | 1,464 | 1,518 | 1,550 | 1,495 | 1,502 | 1,502 | 1,408 | 1,307 | 1,249 |
| Dry (16%) | 931 | 965 | 1,040 | 1,254 | 1,277 | 1,315 | 1,265 | 1,226 | 1,175 | 1,080 | 996 | 958 |
| Critical (27%) | 614 | 616 | 657 | 978 | 993 | 994 | 935 | 860 | 805 | 734 | 674 | 643 |

Alternative 4 043019

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,884 | 1,877 | 1,911 | 1,965 | 1,970 | 2,030 | 2,010 | 2,086 | 2,207 | 2,117 | 2,008 | 1,942 |
| 20% | 1,745 | 1,748 | 1,780 | 1,860 | 1,942 | 1,975 | 1,918 | 1,989 | 2,023 | 1,919 | 1,828 | 1,785 |
| 30% | 1,619 | 1,628 | 1,685 | 1,781 | 1,833 | 1,857 | 1,818 | 1,867 | 1,900 | 1,817 | 1,713 | 1,655 |
| 40% | 1,504 | 1,539 | 1,586 | 1,652 | 1,738 | 1,765 | 1,752 | 1,759 | 1,753 | 1,653 | 1,569 | 1,527 |
| 50% | 1,411 | 1,432 | 1,456 | 1,522 | 1,620 | 1,669 | 1,628 | 1,662 | 1,623 | 1,560 | 1,483 | 1,439 |
| 60% | 1,317 | 1,341 | 1,361 | 1,408 | 1,473 | 1,554 | 1,531 | 1,552 | 1,560 | 1,485 | 1,384 | 1,349 |
| 70% | 1,131 | 1,160 | 1,254 | 1,299 | 1,369 | 1,403 | 1,379 | 1,376 | 1,369 | 1,277 | 1,211 | 1,173 |
| 80% | 974 | 974 | 1,013 | 1,027 | 1,055 | 1,112 | 1,068 | 1,174 | 1,166 | 1,103 | 1,045 | 1,004 |
| 90% | 594 | 580 | 589 | 597 | 616 | 690 | 672 | 734 | 834 | 765 | 692 | 642 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,316 | 1,326 | 1,366 | 1,422 | 1,483 | 1,526 | 1,516 | 1,558 | 1,572 | 1,490 | 1,398 | 1,349 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,753 | 1,758 | 1,791 | 1,593 | 1,703 | 1,758 | 1,816 | 1,973 | 2,073 | 1,997 | 1,874 | 1,800 |
| Above Normal (24%) | 1,339 | 1,349 | 1,379 | 1,304 | 1,396 | 1,474 | 1,475 | 1,570 | 1,610 | 1,515 | 1,413 | 1,361 |
| Below Normal (10%) | 1,383 | 1,387 | 1,407 | 1,675 | 1,719 | 1,758 | 1,691 | 1,692 | 1,695 | 1,597 | 1,493 | 1,433 |
| Dry (16%) | 1,234 | 1,270 | 1,347 | 1,495 | 1,523 | 1,563 | 1,528 | 1,509 | 1,469 | 1,380 | 1,299 | 1,264 |
| Critical (27%) | 938 | 940 | 983 | 1,245 | 1,262 | 1,266 | 1,224 | 1,168 | 1,121 | 1,056 | 997 | 968 |

Alternative 4 043019 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 118 | 118 | 88 | 85 | 39 | 50 | 64 | 33 | 132 | 138 | 138 | 137 |
| 20% | 134 | 117 | 133 | 173 | 173 | 176 | 84 | 88 | 146 | 121 | 136 | 152 |
| 30% | 86 | 91 | 130 | 184 | 147 | 128 | 132 | 122 | 115 | 110 | 108 | 99 |
| 40% | 233 | 264 | 154 | 137 | 143 | 147 | 161 | 226 | 214 | 219 | 236 | 254 |
| 50% | 291 | 305 | 303 | 214 | 183 | 134 | 167 | 218 | 231 | 277 | 293 | 283 |
| 60% | 293 | 299 | 282 | 262 | 274 | 281 | 252 | 216 | 283 | 285 | 281 | 294 |
| 70% | 249 | 249 | 268 | 284 | 330 | 347 | 296 | 285 | 282 | 282 | 301 | 304 |
| 80% | 328 | 316 | 330 | 343 | 320 | 305 | 233 | 296 | 295 | 295 | 312 | 311 |
| 90% | 164 | 146 | 149 | 111 | 76 | 121 | 98 | 147 | 204 | 198 | 185 | 170 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 184 | 184 | 186 | 185 | 178 | 177 | 179 | 184 | 191 | 190 | 190 | 190 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 28 | 29 | 37 | 97 | 67 | 56 | 59 | 60 | 37 | 29 | 29 | 29 |
| Above Normal (24%) | 111 | 110 | 108 | 130 | 129 | 132 | 109 | 100 | 129 | 128 | 123 | 121 |
| Below Normal (10%) | 181 | 180 | 180 | 211 | 201 | 207 | 196 | 190 | 193 | 189 | 186 | 184 |
| Dry (16%) | 303 | 305 | 307 | 242 | 247 | 248 | 263 | 283 | 294 | 300 | 304 | 306 |
| Critical (27%) | 324 | 324 | 327 | 267 | 269 | 271 | 289 | 308 | 316 | 321 | 323 | 324 |

a Based on the 82-year simulation period.

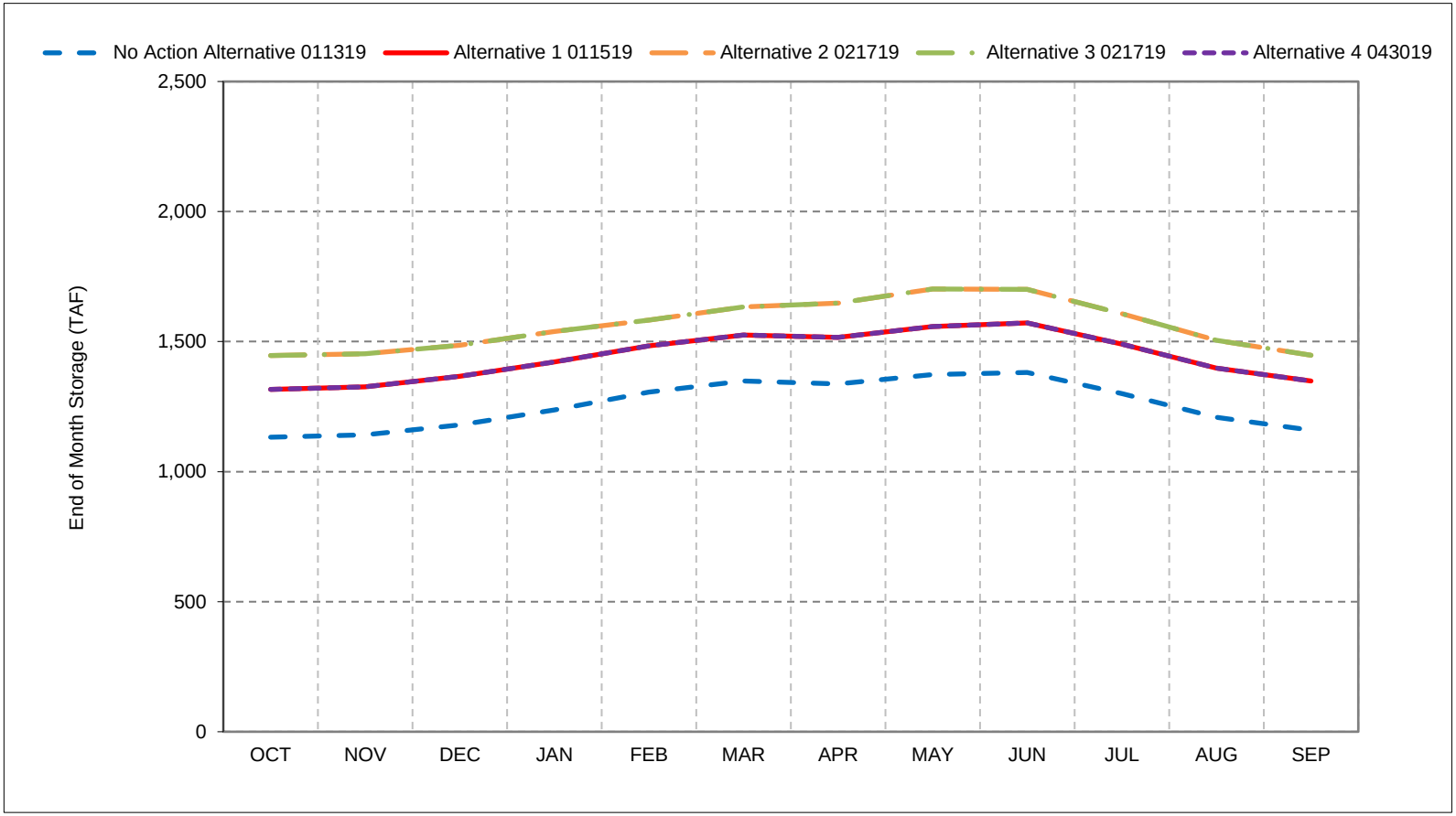
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

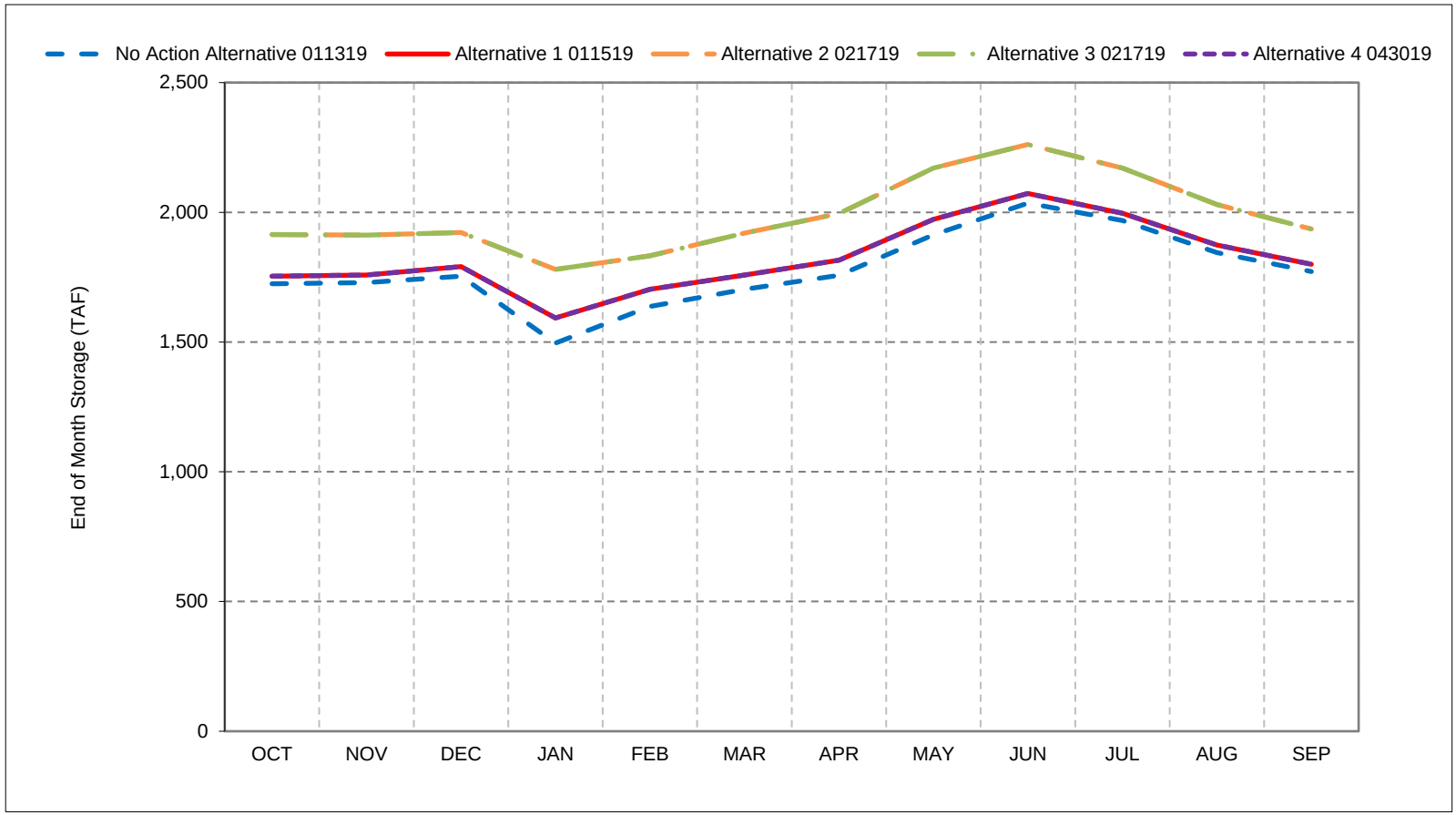
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-1. New Melones Storage, Long-Term Average Storage



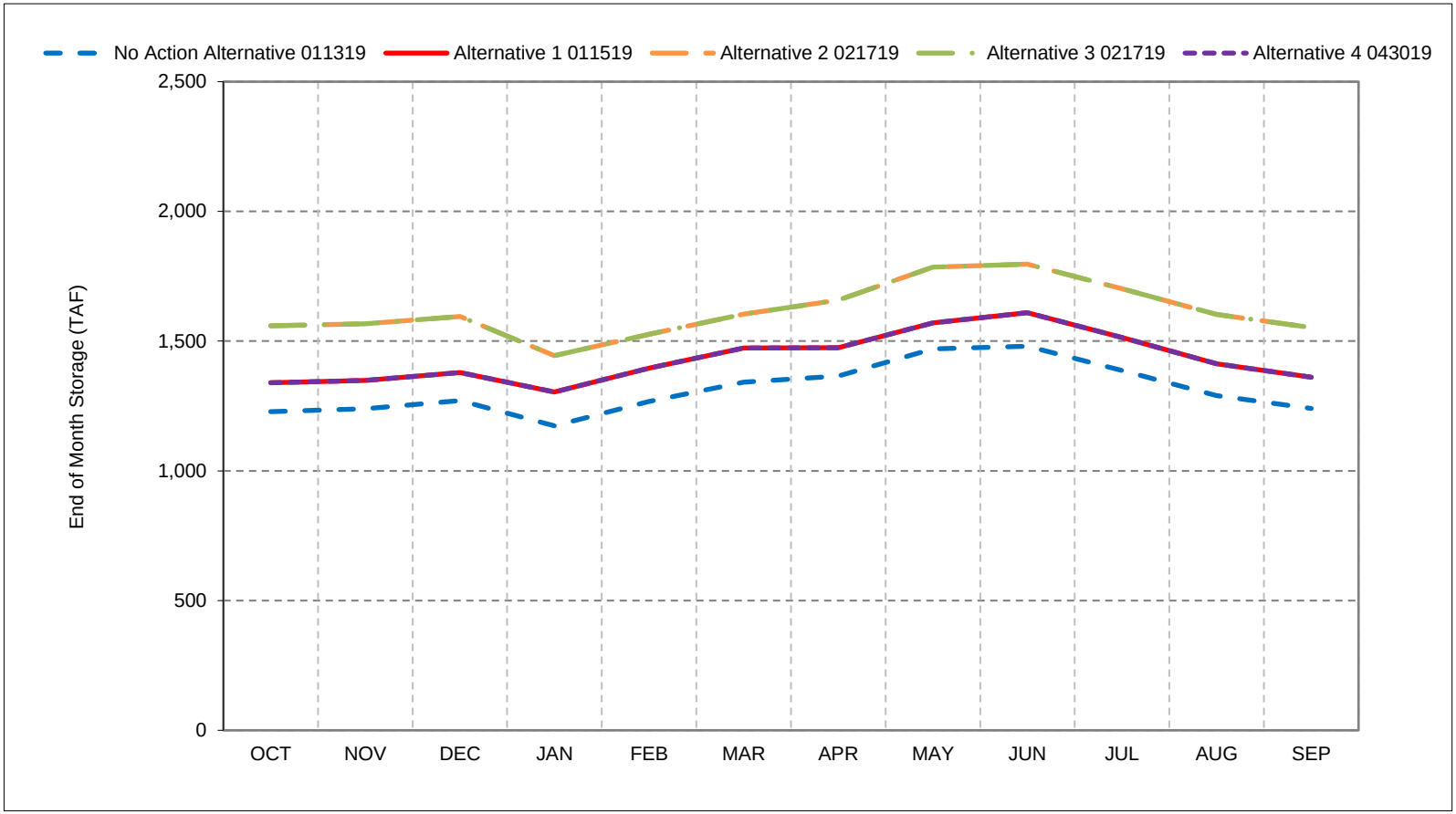

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-2. New Melones Storage, Wet Year Average Storage



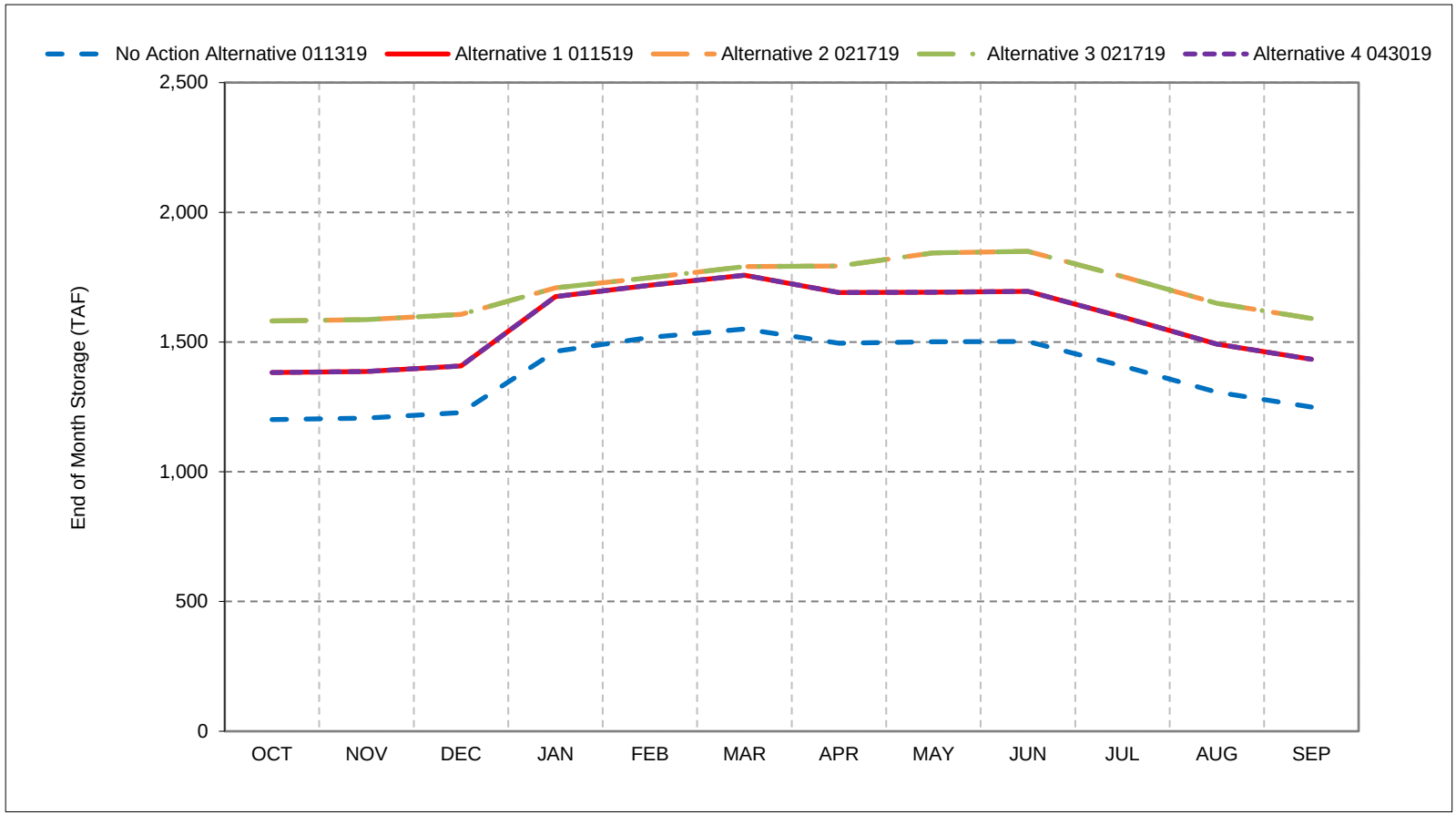

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-3. New Melones Storage, Above Normal Year Average Storage



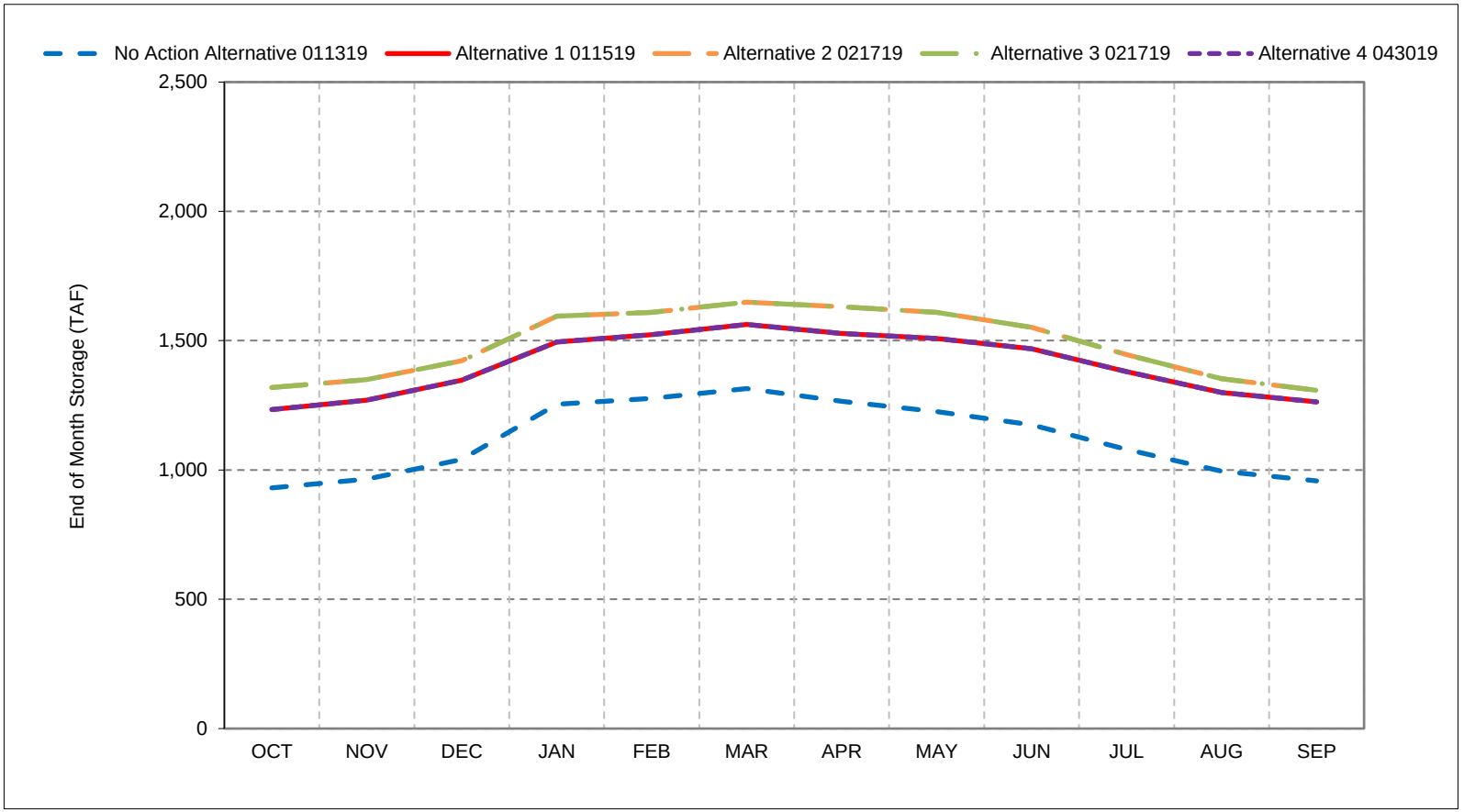

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-4. New Melones Storage, Below Normal Year Average Storage



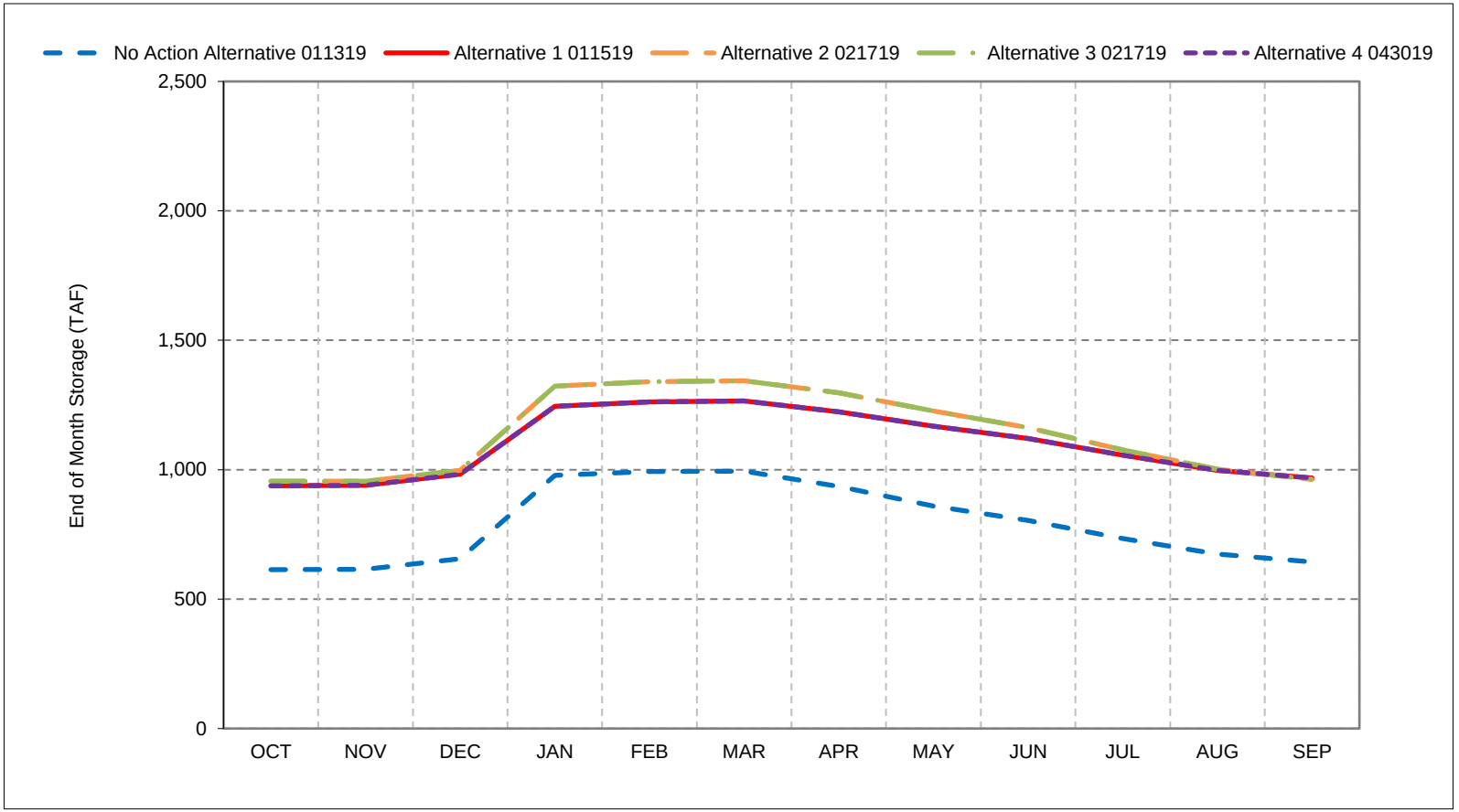

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-5. New Melones Storage, Dry Year Average Storage



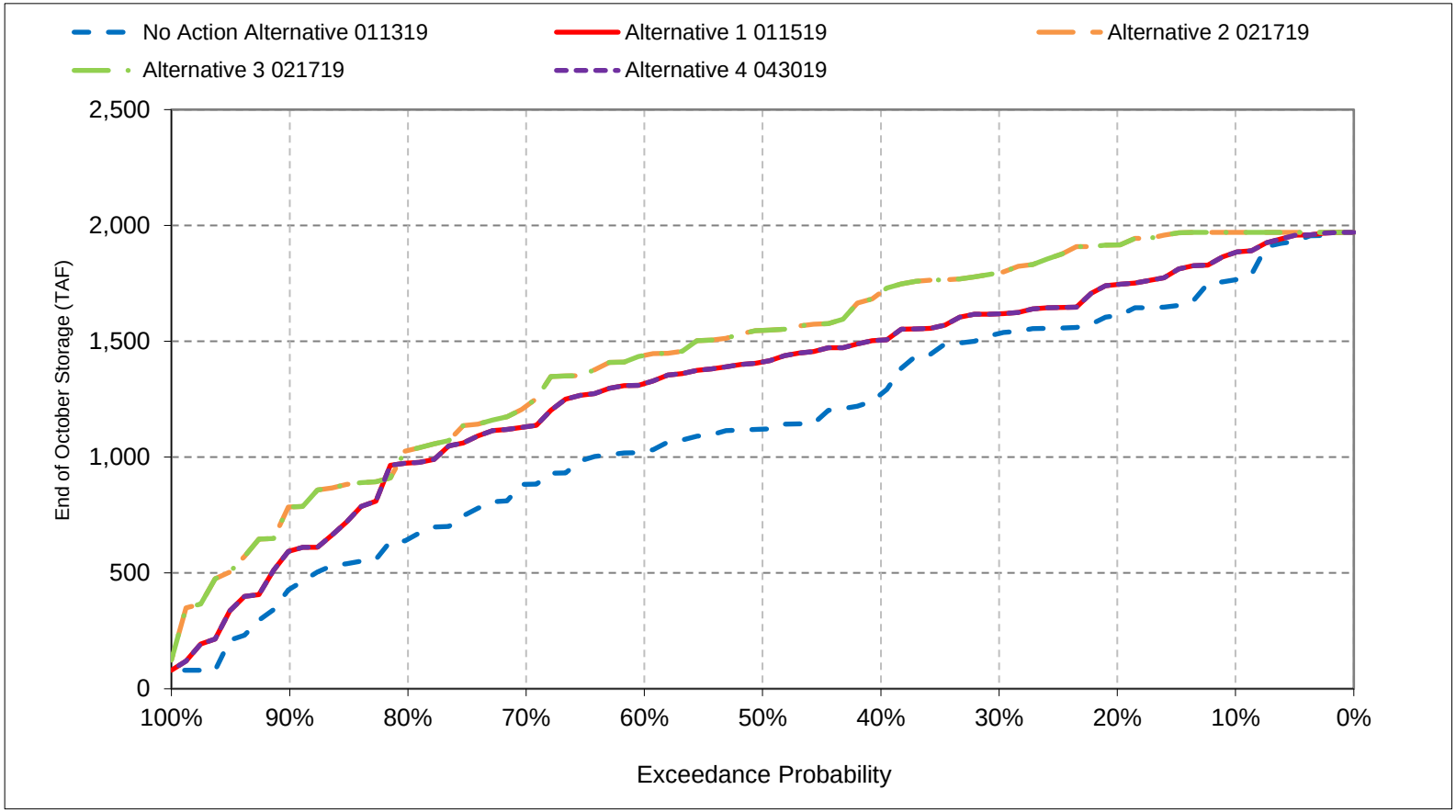

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-6. New Melones Storage, Critical Year Average Storage



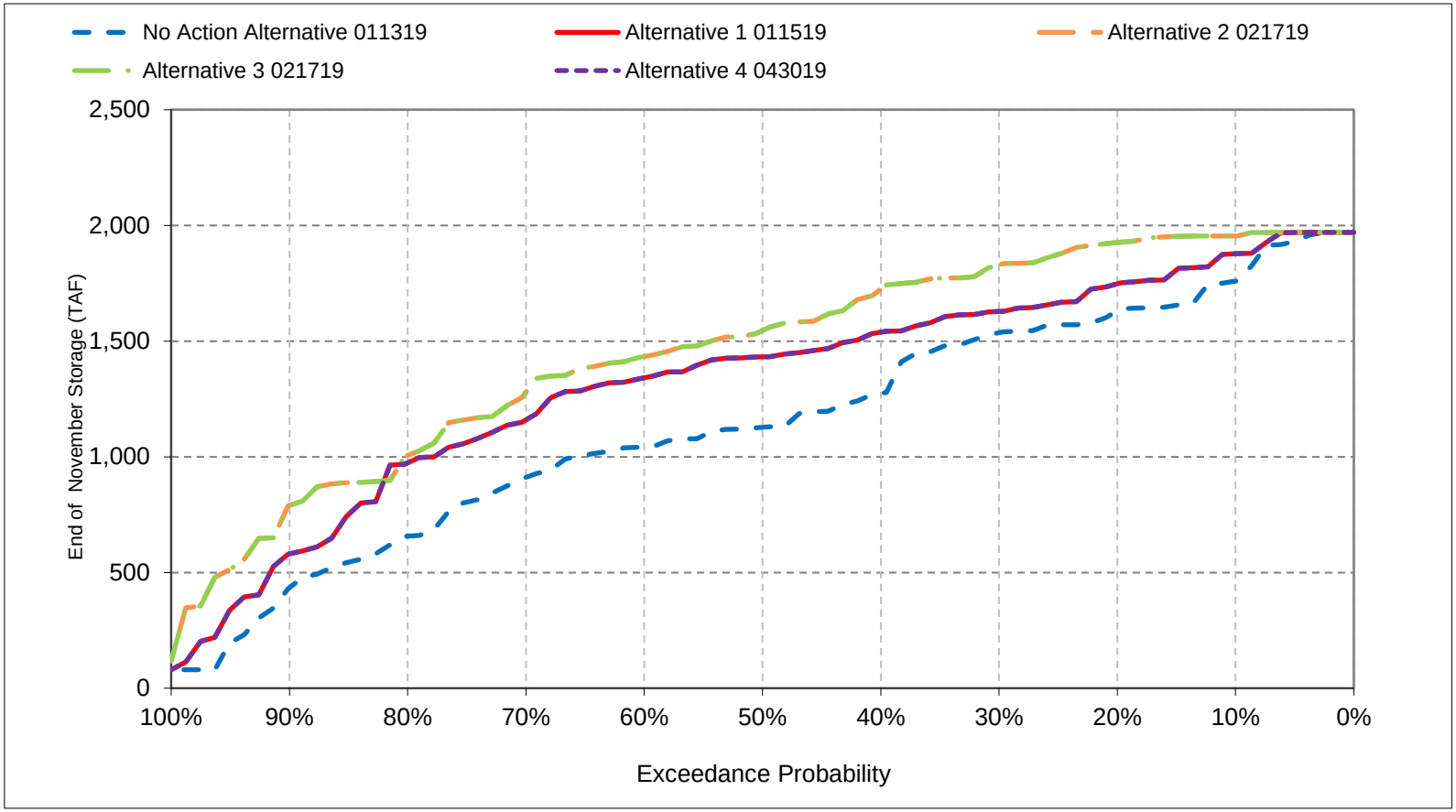

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-7. New Melones Storage, End of October Storage



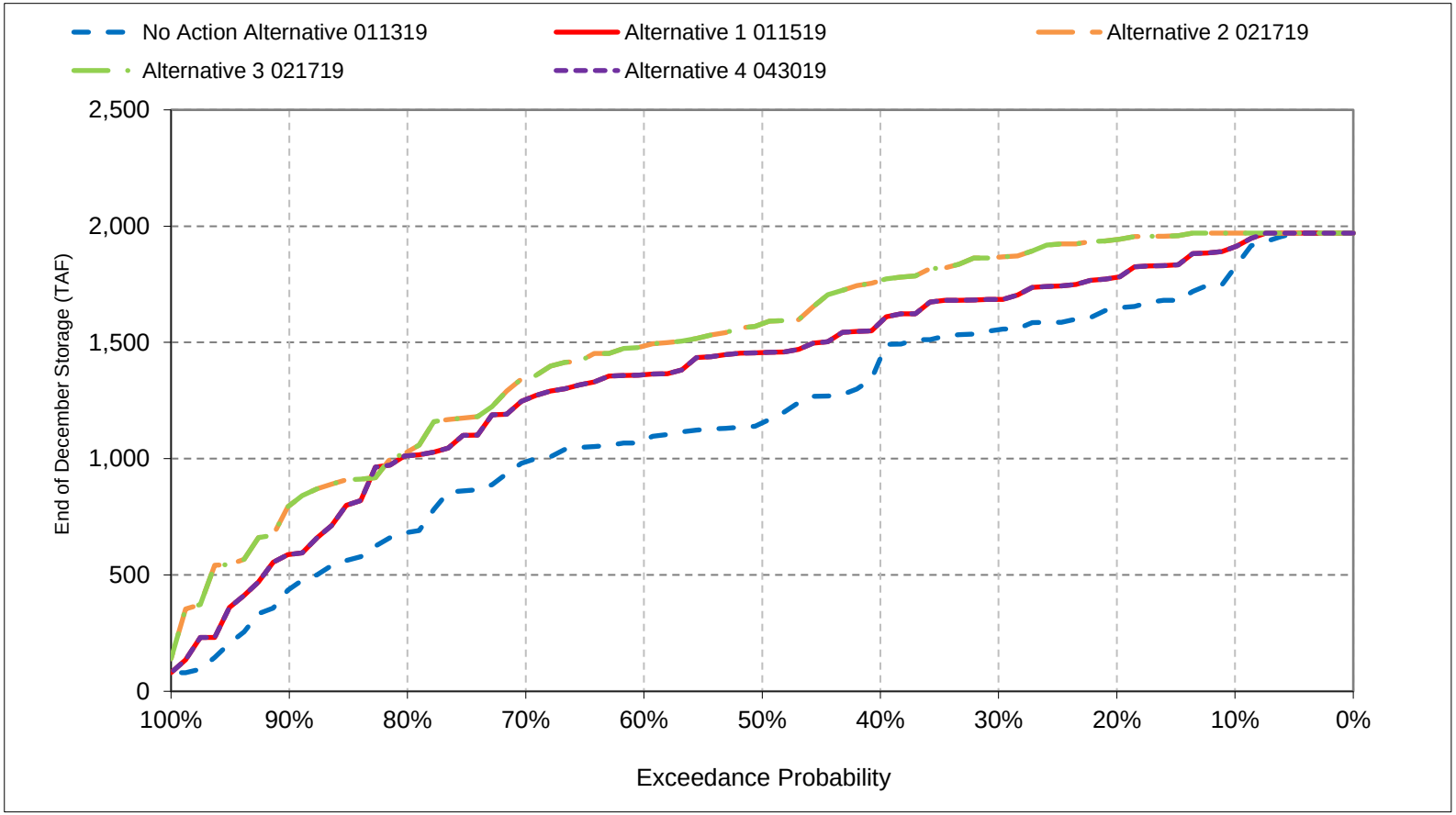

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-8. New Melones Storage, End of November Storage



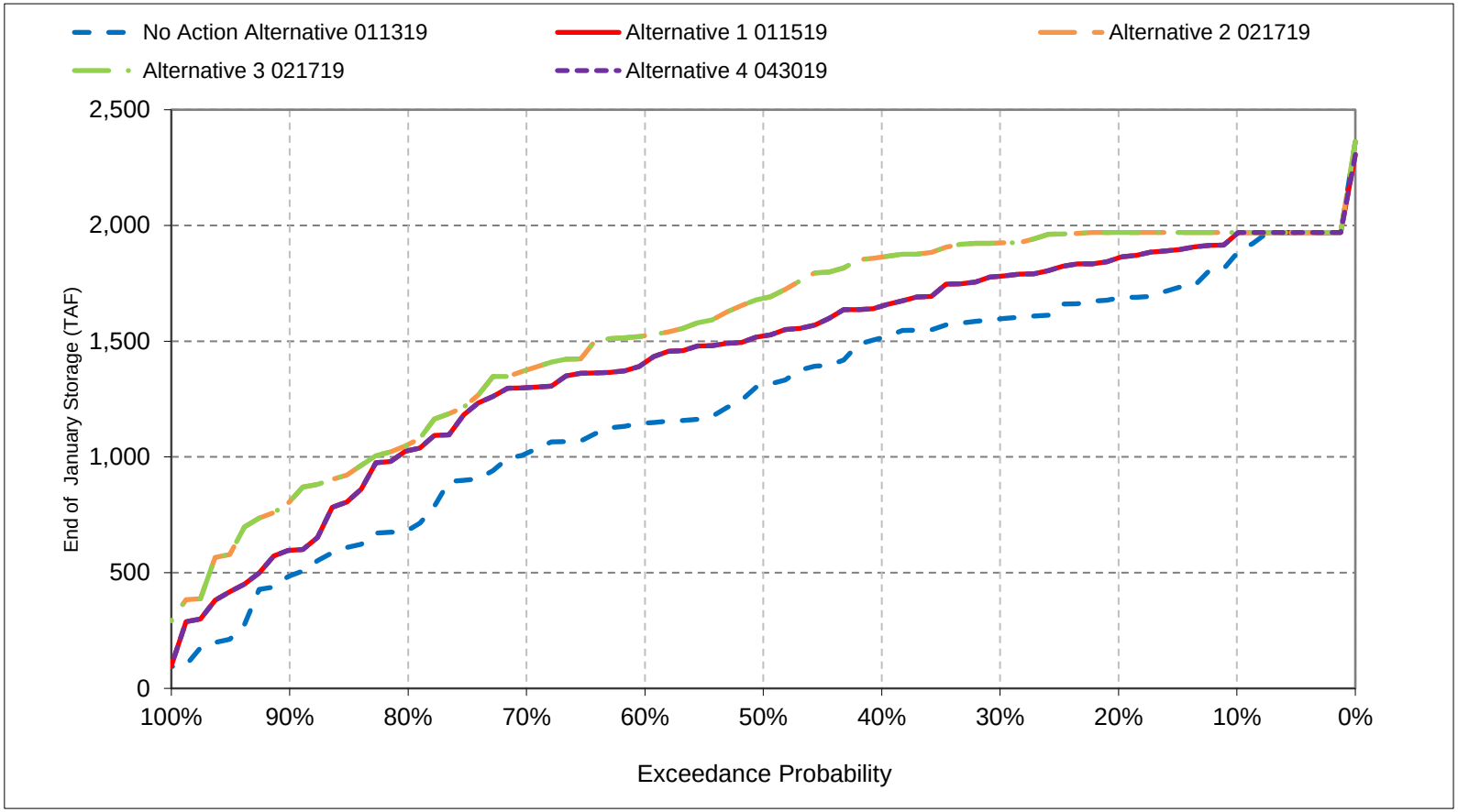

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-9. New Melones Storage, End of December Storage



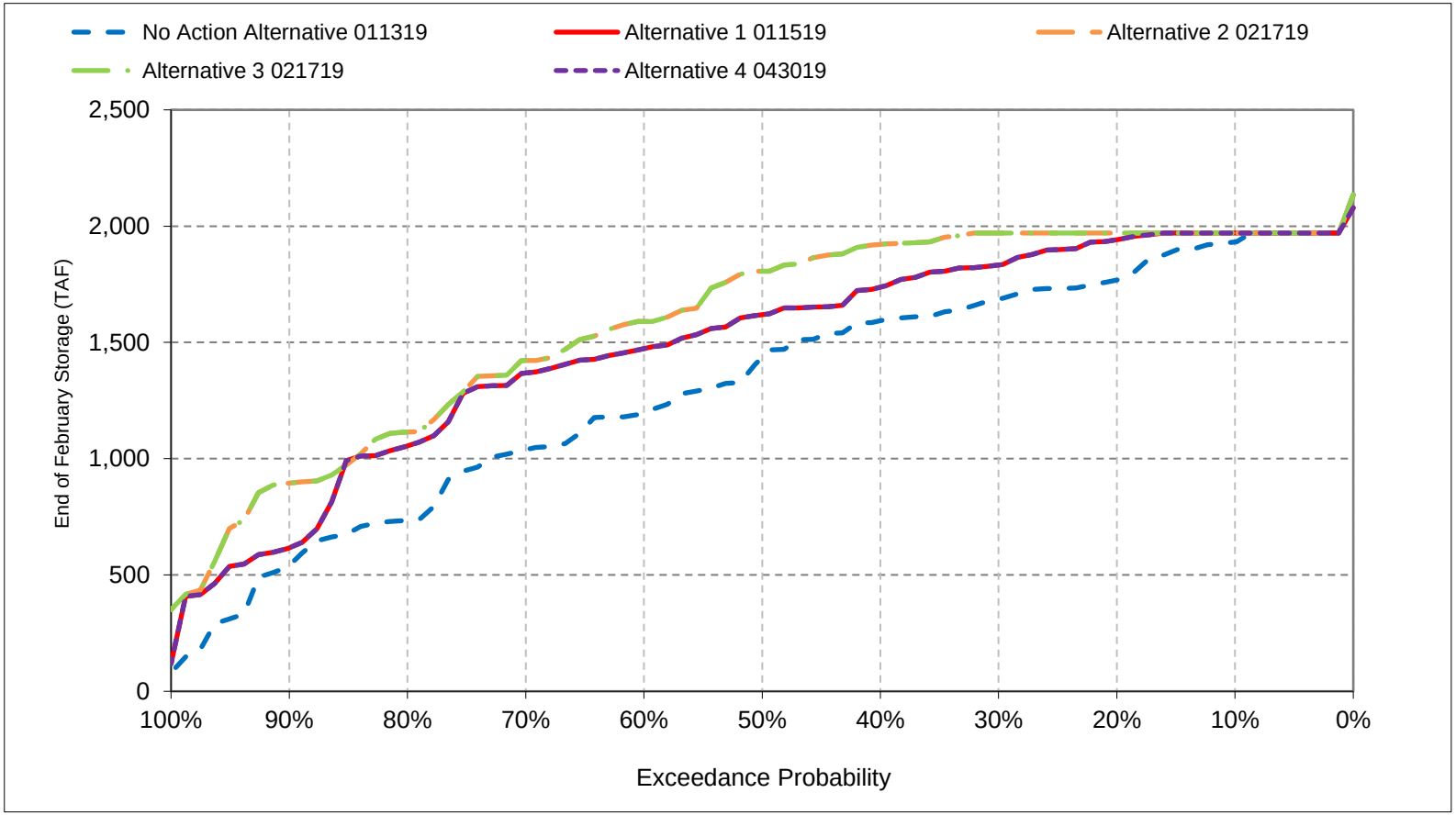

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-10. New Melones Storage, End of January Storage



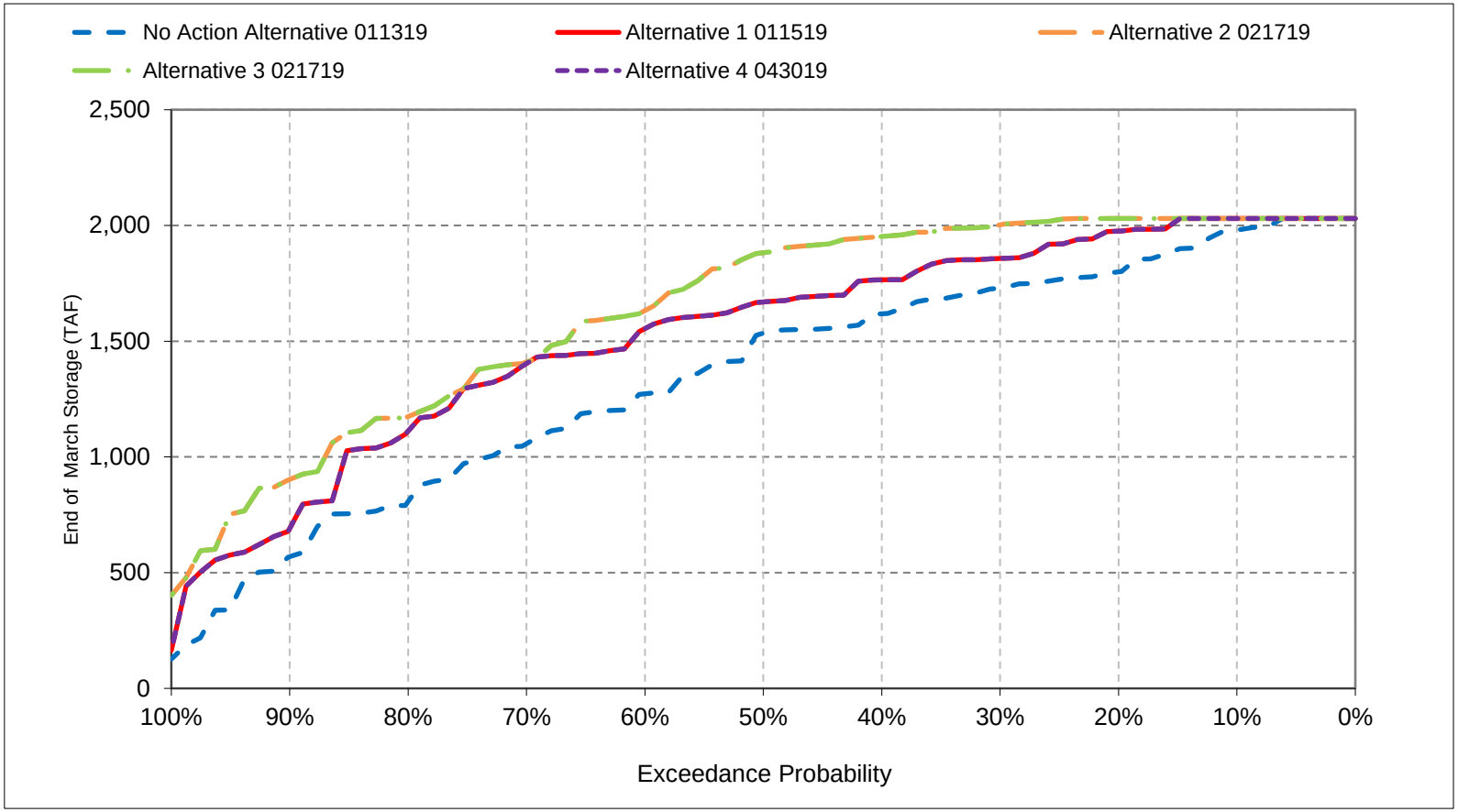

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-11. New Melones Storage, End of February Storage



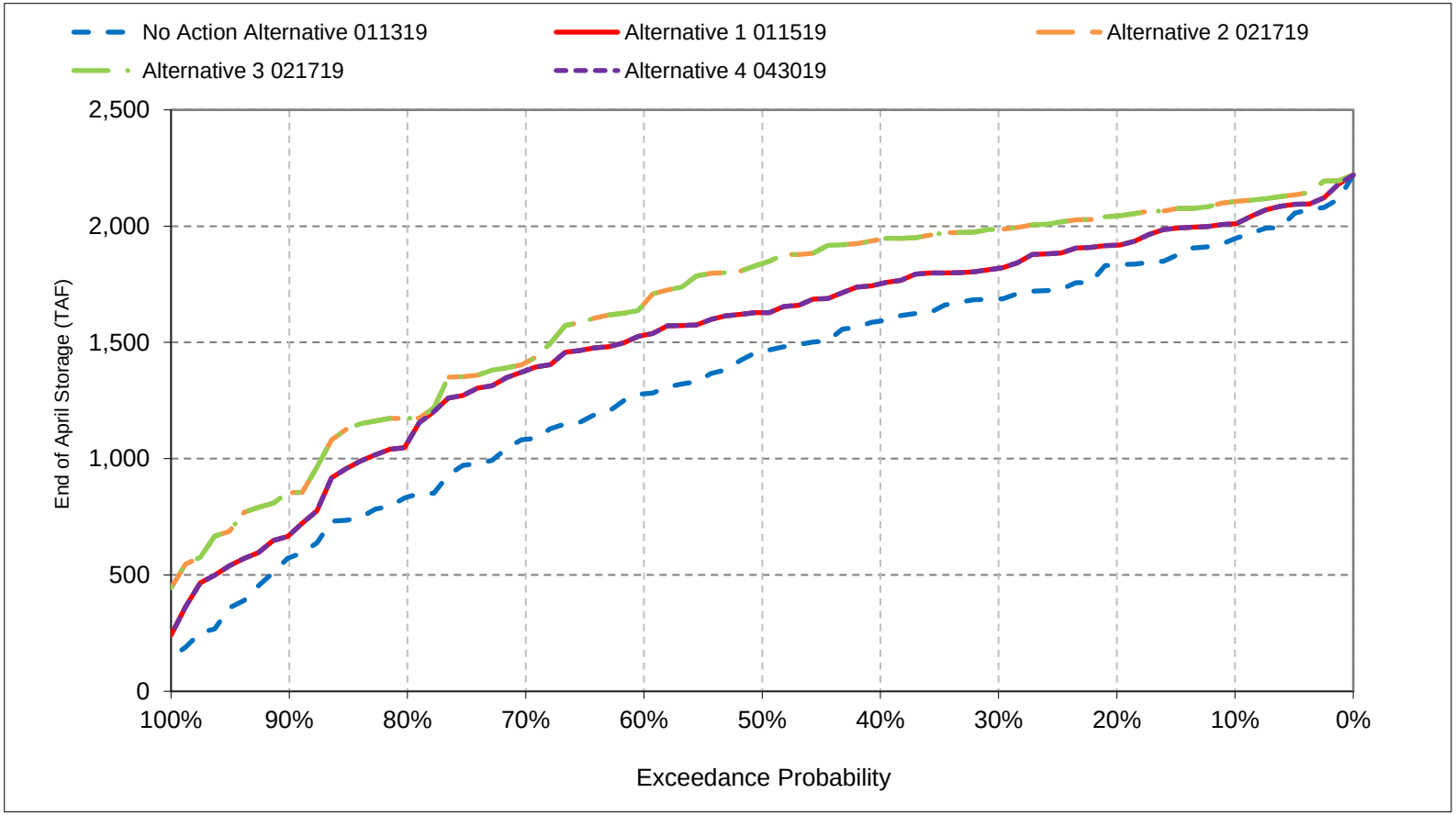

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-12. New Melones Storage, End of March Storage



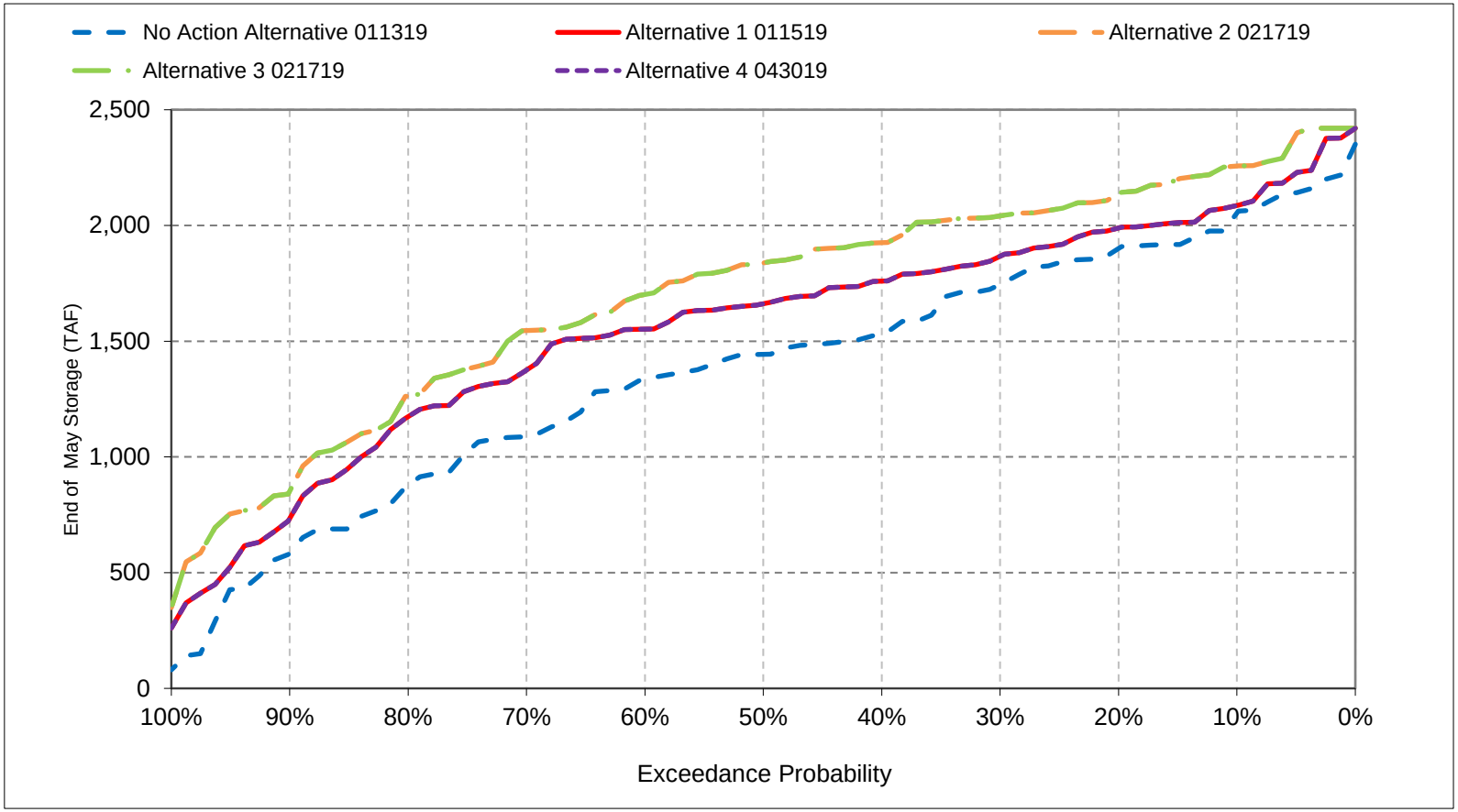

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-13. New Melones Storage, End of April Storage



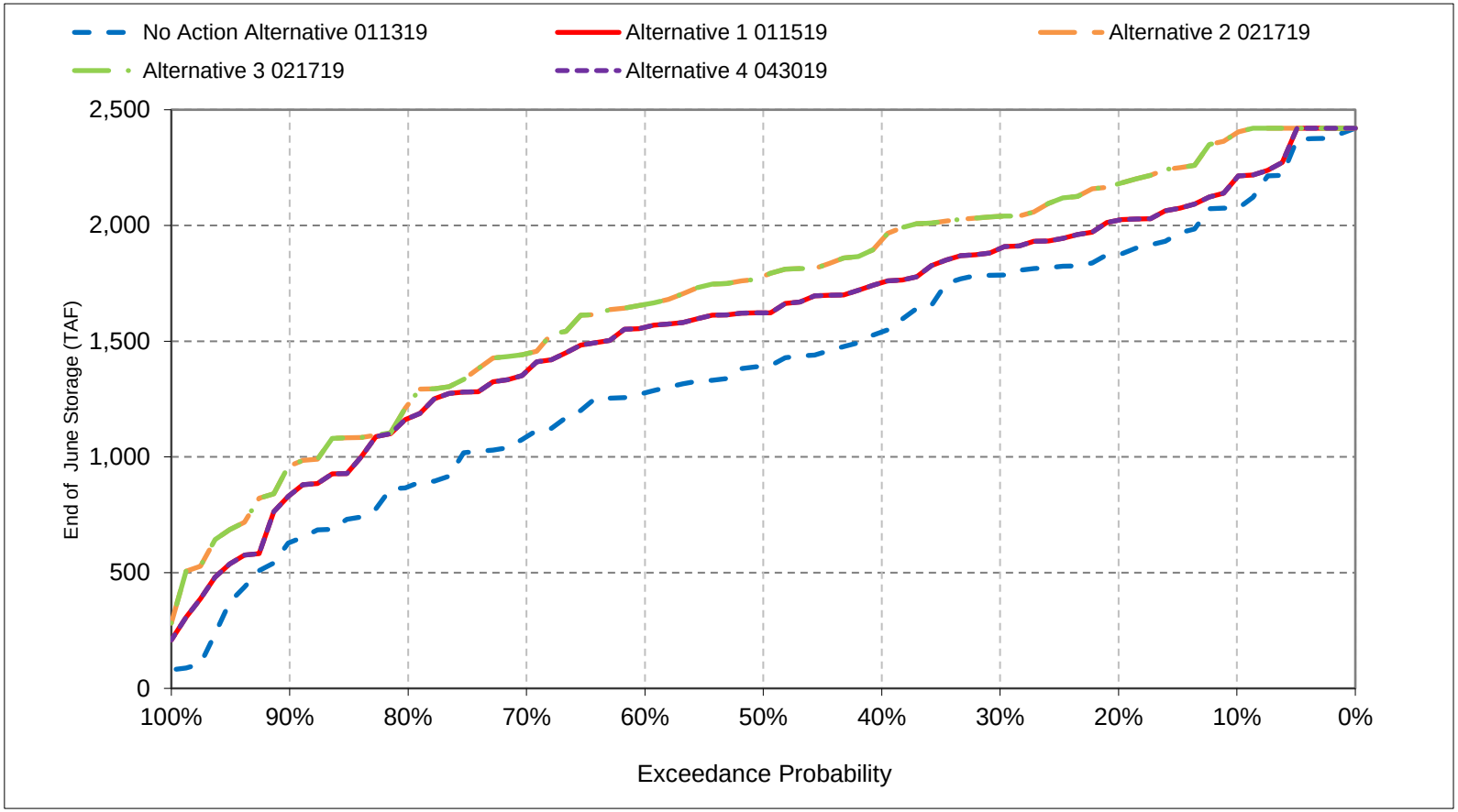

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-14. New Melones Storage, End of May Storage



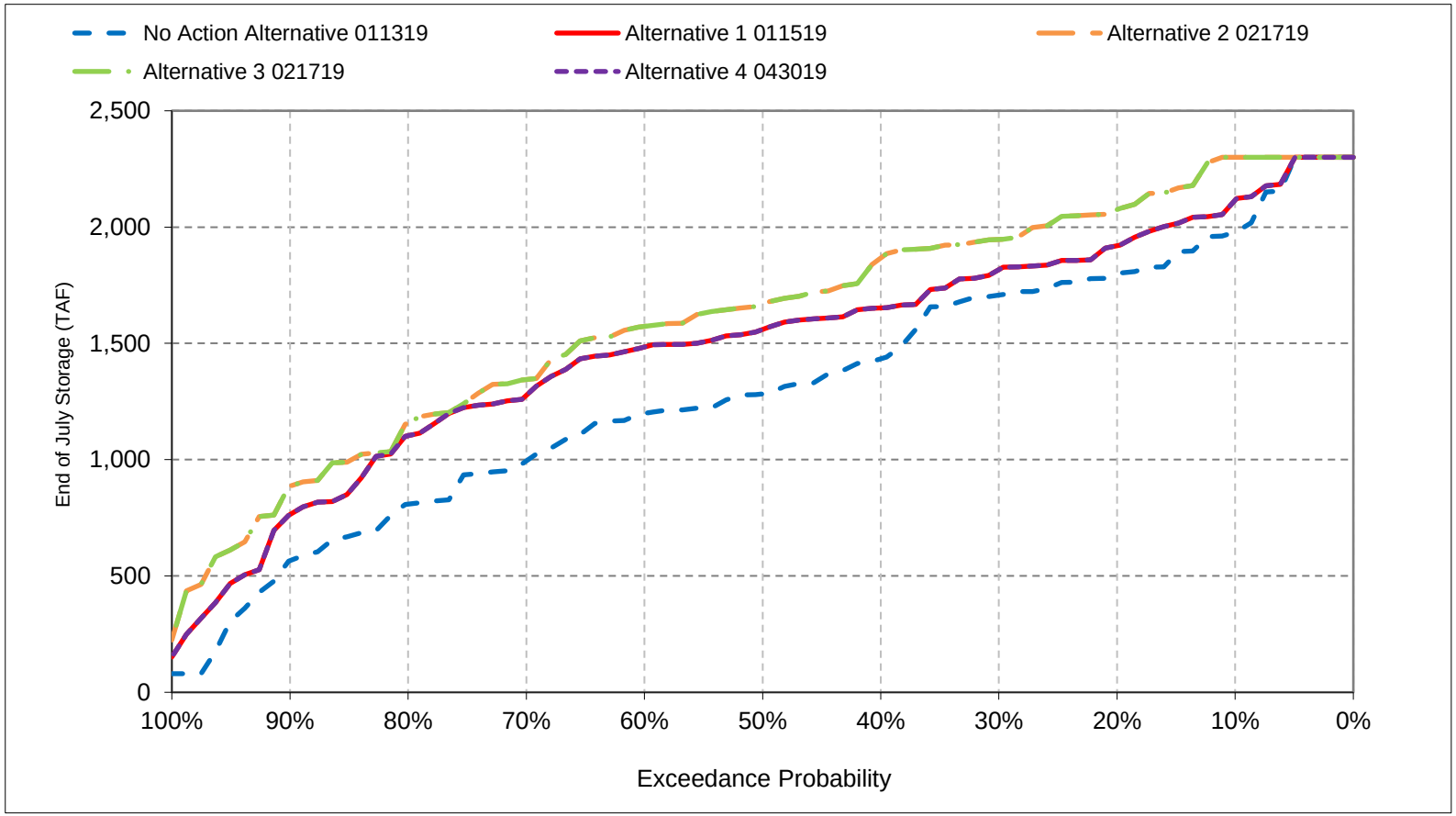

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-15. New Melones Storage, End of June Storage



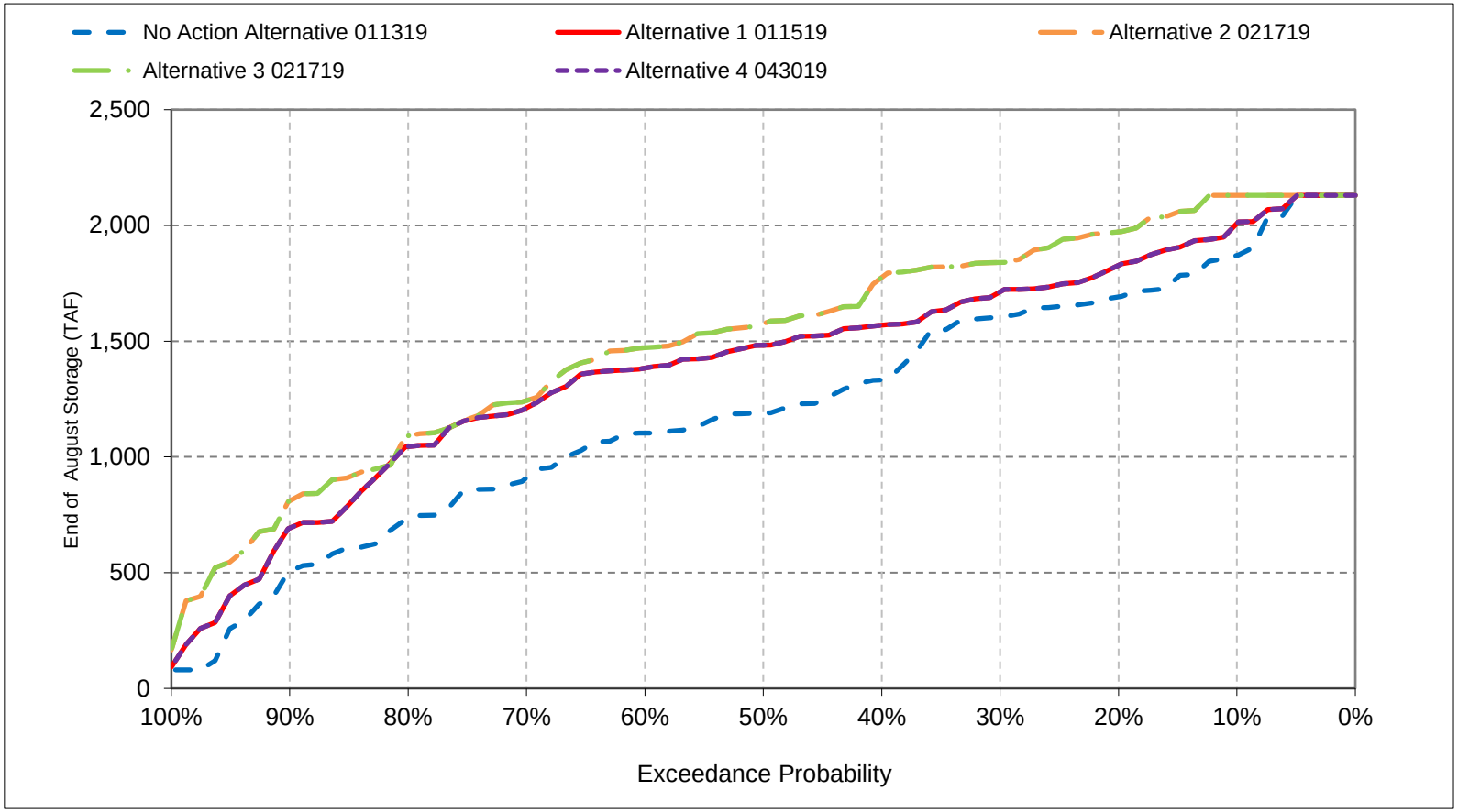

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-16. New Melones Storage, End of July Storage



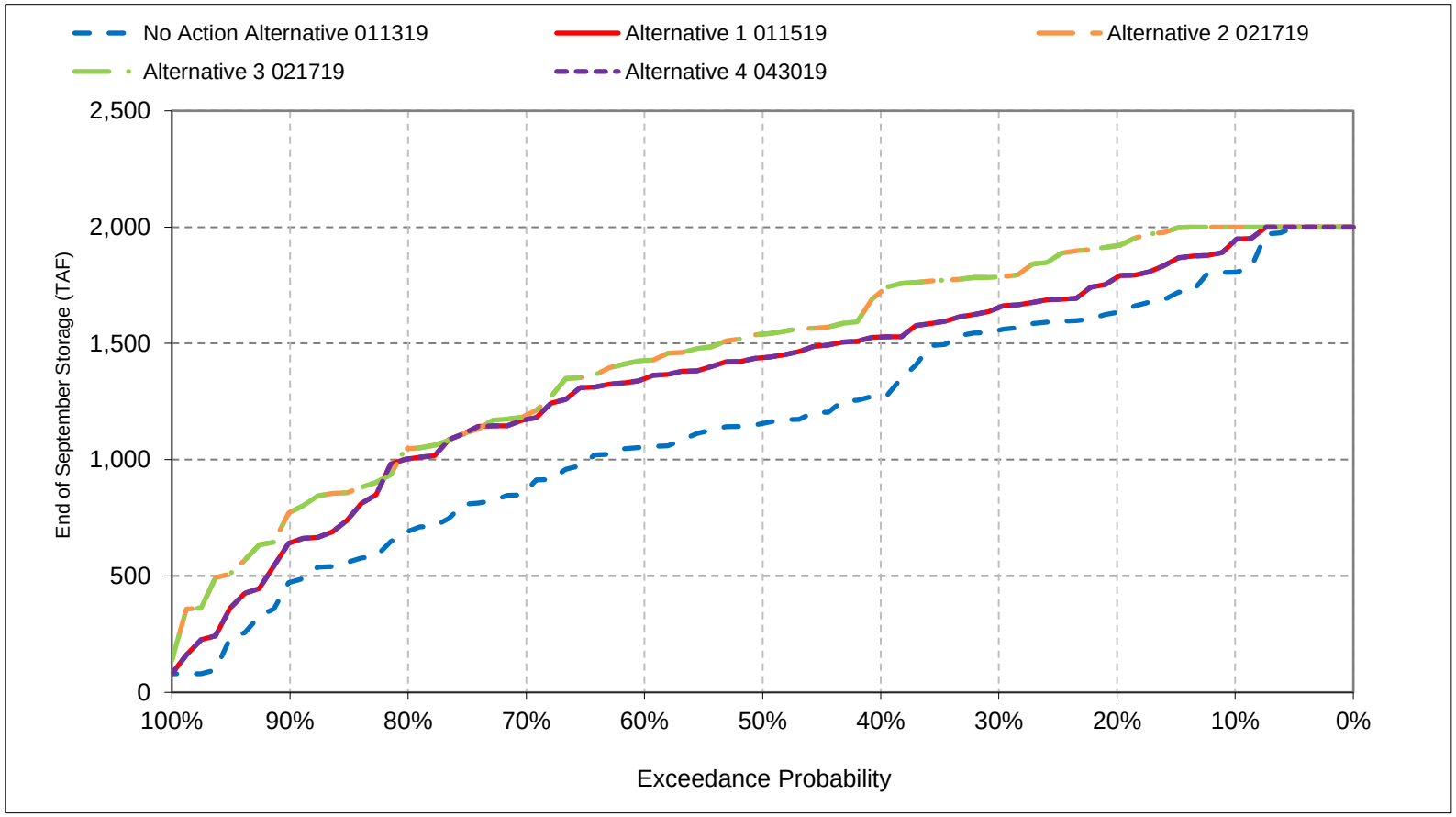

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-17. New Melones Storage, End of August Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-18. New Melones Storage, End of September Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

# Table 7a-1. New Melones Reservoir, End of Month Elevation

No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,029 | 1,028 | 1,035 | 1,040 | 1,046 | 1,050 | 1,047 | 1,057 | 1,059 | 1,050 | 1,039 | 1,033 |
| 20% | 1,013 | 1,015 | 1,017 | 1,021 | 1,029 | 1,032 | 1,036 | 1,043 | 1,040 | 1,032 | 1,021 | 1,016 |
| 30% | 1,006 | 1,006 | 1,008 | 1,012 | 1,021 | 1,025 | 1,021 | 1,027 | 1,031 | 1,023 | 1,013 | 1,008 |
| 40% | 975 | 976 | 995 | 1,004 | 1,012 | 1,014 | 1,011 | 1,006 | 1,006 | 995 | 983 | 976 |
| 50% | 956 | 957 | 960 | 980 | 996 | 1,006 | 998 | 996 | 991 | 977 | 965 | 960 |
| 60% | 943 | 945 | 950 | 959 | 966 | 976 | 976 | 984 | 976 | 966 | 953 | 947 |
| 70% | 925 | 928 | 938 | 942 | 945 | 947 | 951 | 952 | 951 | 939 | 928 | 923 |
| 80% | 879 | 881 | 886 | 887 | 897 | 912 | 918 | 924 | 923 | 912 | 897 | 888 |
| 90% | 835 | 836 | 837 | 846 | 857 | 863 | 864 | 867 | 876 | 863 | 850 | 843 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 944 | 945 | 950 | 958 | 968 | 974 | 973 | 976 | 976 | 965 | 954 | 947 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,024 | 1,025 | 1,027 | 996 | 1,012 | 1,021 | 1,026 | 1,042 | 1,054 | 1,047 | 1,036 | 1,029 |
| Above Normal (24%) | 963 | 965 | 969 | 945 | 959 | 970 | 976 | 991 | 994 | 983 | 971 | 965 |
| Below Normal (10%) | 963 | 963 | 966 | 990 | 998 | 1,001 | 996 | 998 | 999 | 988 | 976 | 969 |
| Dry (16%) | 924 | 929 | 939 | 967 | 970 | 975 | 969 | 965 | 960 | 947 | 935 | 929 |
| Critical (27%) | 858 | 859 | 867 | 922 | 925 | 927 | 917 | 903 | 893 | 881 | 870 | 864 |

Alternative 1 011519

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,041 | 1,040 | 1,044 | 1,049 | 1,050 | 1,055 | 1,053 | 1,060 | 1,070 | 1,062 | 1,053 | 1,047 |
| 20% | 1,027 | 1,027 | 1,030 | 1,038 | 1,047 | 1,050 | 1,044 | 1,051 | 1,054 | 1,044 | 1,035 | 1,031 |
| 30% | 1,014 | 1,015 | 1,021 | 1,031 | 1,036 | 1,038 | 1,034 | 1,039 | 1,043 | 1,034 | 1,024 | 1,018 |
| 40% | 1,003 | 1,006 | 1,011 | 1,017 | 1,026 | 1,029 | 1,028 | 1,028 | 1,028 | 1,018 | 1,009 | 1,005 |
| 50% | 993 | 995 | 998 | 1,004 | 1,014 | 1,019 | 1,015 | 1,018 | 1,015 | 1,008 | 1,000 | 996 |
| 60% | 981 | 984 | 987 | 993 | 999 | 1,008 | 1,005 | 1,007 | 1,008 | 1,001 | 990 | 985 |
| 70% | 957 | 961 | 973 | 979 | 988 | 992 | 989 | 989 | 988 | 976 | 968 | 963 |
| 80% | 937 | 937 | 942 | 943 | 947 | 955 | 949 | 963 | 962 | 953 | 946 | 941 |
| 90% | 868 | 865 | 867 | 869 | 873 | 888 | 884 | 897 | 917 | 903 | 888 | 878 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 970 | 972 | 977 | 984 | 992 | 997 | 996 | 1,000 | 1,001 | 992 | 981 | 975 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,027 | 1,028 | 1,031 | 1,007 | 1,019 | 1,026 | 1,032 | 1,048 | 1,057 | 1,050 | 1,039 | 1,032 |
| Above Normal (24%) | 972 | 973 | 977 | 962 | 976 | 986 | 987 | 1,001 | 1,006 | 995 | 982 | 975 |
| Below Normal (10%) | 987 | 988 | 990 | 1,018 | 1,023 | 1,027 | 1,020 | 1,020 | 1,021 | 1,011 | 1,000 | 993 |
| Dry (16%) | 966 | 971 | 979 | 998 | 1,001 | 1,005 | 1,001 | 999 | 995 | 985 | 975 | 971 |
| Critical (27%) | 916 | 916 | 923 | 964 | 966 | 967 | 961 | 953 | 946 | 936 | 926 | 921 |

Alternative 1 011519 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 12 | 12 | 9 | 9 | 4 | 4 | 6 | 3 | 11 | 12 | 13 | 14 |
| 20% | 13 | 12 | 13 | 17 | 17 | 18 | 8 | 9 | 14 | 12 | 14 | 15 |
| 30% | 9 | 9 | 13 | 19 | 15 | 13 | 13 | 12 | 12 | 11 | 11 | 10 |
| 40% | 27 | 30 | 16 | 14 | 14 | 15 | 16 | 23 | 22 | 22 | 26 | 29 |
| 50% | 38 | 39 | 38 | 24 | 18 | 14 | 17 | 22 | 24 | 31 | 36 | 36 |
| 60% | 38 | 39 | 37 | 34 | 34 | 32 | 29 | 24 | 32 | 35 | 37 | 38 |
| 70% | 32 | 32 | 35 | 37 | 43 | 45 | 39 | 37 | 37 | 37 | 39 | 40 |
| 80% | 58 | 55 | 55 | 57 | 50 | 43 | 31 | 39 | 38 | 41 | 49 | 52 |
| 90% | 34 | 30 | 31 | 23 | 15 | 25 | 20 | 30 | 42 | 41 | 38 | 35 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 27 | 27 | 26 | 25 | 24 | 23 | 23 | 24 | 26 | 27 | 27 | 28 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 3 | 3 | 4 | 11 | 7 | 6 | 6 | 6 | 4 | 3 | 3 | 3 |
| Above Normal (24%) | 9 | 9 | 9 | 17 | 16 | 16 | 11 | 9 | 12 | 12 | 11 | 11 |
| Below Normal (10%) | 24 | 24 | 24 | 28 | 26 | 25 | 24 | 22 | 22 | 22 | 24 | 25 |
| Dry (16%) | 42 | 41 | 40 | 31 | 31 | 30 | 32 | 34 | 35 | 38 | 40 | 42 |
| Critical (27%) | 57 | 57 | 56 | 41 | 41 | 40 | 44 | 49 | 53 | 55 | 56 | 57 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 7a-2. New Melones Reservoir, End of Month Elevation

No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,029 | 1,028 | 1,035 | 1,040 | 1,046 | 1,050 | 1,047 | 1,057 | 1,059 | 1,050 | 1,039 | 1,033 |
| 20% | 1,013 | 1,015 | 1,017 | 1,021 | 1,029 | 1,032 | 1,036 | 1,043 | 1,040 | 1,032 | 1,021 | 1,016 |
| 30% | 1,006 | 1,006 | 1,008 | 1,012 | 1,021 | 1,025 | 1,021 | 1,027 | 1,031 | 1,023 | 1,013 | 1,008 |
| 40% | 975 | 976 | 995 | 1,004 | 1,012 | 1,014 | 1,011 | 1,006 | 1,006 | 995 | 983 | 976 |
| 50% | 956 | 957 | 960 | 980 | 996 | 1,006 | 998 | 996 | 991 | 977 | 965 | 960 |
| 60% | 943 | 945 | 950 | 959 | 966 | 976 | 976 | 984 | 976 | 966 | 953 | 947 |
| 70% | 925 | 928 | 938 | 942 | 945 | 947 | 951 | 952 | 951 | 939 | 928 | 923 |
| 80% | 879 | 881 | 886 | 887 | 897 | 912 | 918 | 924 | 923 | 912 | 897 | 888 |
| 90% | 835 | 836 | 837 | 846 | 857 | 863 | 864 | 867 | 876 | 863 | 850 | 843 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 944 | 945 | 950 | 958 | 968 | 974 | 973 | 976 | 976 | 965 | 954 | 947 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,024 | 1,025 | 1,027 | 996 | 1,012 | 1,021 | 1,026 | 1,042 | 1,054 | 1,047 | 1,036 | 1,029 |
| Above Normal (24%) | 963 | 965 | 969 | 945 | 959 | 970 | 976 | 991 | 994 | 983 | 971 | 965 |
| Below Normal (10%) | 963 | 963 | 966 | 990 | 998 | 1,001 | 996 | 998 | 999 | 988 | 976 | 969 |
| Dry (16%) | 924 | 929 | 939 | 967 | 970 | 975 | 969 | 965 | 960 | 947 | 935 | 929 |
| Critical (27%) | 858 | 859 | 867 | 922 | 925 | 927 | 917 | 903 | 893 | 881 | 870 | 864 |

Alternative 2 021719

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,050 | 1,048 | 1,050 | 1,050 | 1,050 | 1,055 | 1,061 | 1,074 | 1,086 | 1,078 | 1,063 | 1,052 |
| 20% | 1,044 | 1,045 | 1,047 | 1,050 | 1,050 | 1,055 | 1,056 | 1,064 | 1,068 | 1,059 | 1,050 | 1,045 |
| 30% | 1,032 | 1,035 | 1,039 | 1,045 | 1,050 | 1,052 | 1,051 | 1,056 | 1,055 | 1,047 | 1,036 | 1,031 |
| 40% | 1,023 | 1,025 | 1,029 | 1,039 | 1,045 | 1,048 | 1,047 | 1,045 | 1,046 | 1,039 | 1,030 | 1,024 |
| 50% | 1,007 | 1,007 | 1,010 | 1,021 | 1,033 | 1,041 | 1,036 | 1,036 | 1,030 | 1,019 | 1,010 | 1,006 |
| 60% | 996 | 996 | 1,001 | 1,005 | 1,011 | 1,016 | 1,019 | 1,023 | 1,018 | 1,010 | 999 | 995 |
| 70% | 969 | 977 | 985 | 989 | 994 | 993 | 993 | 1,007 | 997 | 985 | 972 | 965 |
| 80% | 944 | 941 | 944 | 947 | 955 | 963 | 963 | 974 | 970 | 961 | 952 | 946 |
| 90% | 907 | 908 | 910 | 912 | 926 | 927 | 921 | 920 | 935 | 925 | 912 | 905 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 988 | 989 | 993 | 999 | 1,005 | 1,010 | 1,012 | 1,017 | 1,016 | 1,006 | 995 | 988 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,044 | 1,044 | 1,045 | 1,028 | 1,034 | 1,043 | 1,050 | 1,066 | 1,074 | 1,066 | 1,054 | 1,046 |
| Above Normal (24%) | 1,004 | 1,005 | 1,008 | 985 | 996 | 1,005 | 1,012 | 1,027 | 1,029 | 1,019 | 1,008 | 1,003 |
| Below Normal (10%) | 1,009 | 1,009 | 1,011 | 1,020 | 1,025 | 1,030 | 1,030 | 1,035 | 1,036 | 1,026 | 1,016 | 1,009 |
| Dry (16%) | 978 | 982 | 990 | 1,010 | 1,011 | 1,015 | 1,013 | 1,011 | 1,005 | 993 | 983 | 977 |
| Critical (27%) | 923 | 923 | 929 | 974 | 977 | 977 | 971 | 961 | 953 | 941 | 930 | 924 |

Alternative 2 021719 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 21 | 20 | 15 | 9 | 4 | 4 | 14 | 17 | 28 | 28 | 24 | 19 |
| 20% | 31 | 30 | 30 | 29 | 20 | 22 | 20 | 21 | 27 | 26 | 28 | 29 |
| 30% | 27 | 30 | 31 | 33 | 29 | 27 | 30 | 29 | 24 | 24 | 24 | 23 |
| 40% | 48 | 49 | 34 | 35 | 33 | 34 | 35 | 39 | 40 | 44 | 47 | 49 |
| 50% | 51 | 50 | 50 | 41 | 37 | 35 | 38 | 40 | 39 | 42 | 45 | 46 |
| 60% | 53 | 50 | 50 | 46 | 45 | 40 | 43 | 39 | 42 | 44 | 46 | 48 |
| 70% | 44 | 48 | 47 | 47 | 49 | 46 | 43 | 55 | 45 | 46 | 43 | 42 |
| 80% | 65 | 59 | 57 | 60 | 58 | 51 | 45 | 50 | 46 | 49 | 55 | 58 |
| 90% | 73 | 73 | 73 | 66 | 69 | 64 | 57 | 53 | 59 | 63 | 62 | 62 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 45 | 44 | 42 | 41 | 37 | 36 | 39 | 41 | 40 | 40 | 41 | 41 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 20 | 19 | 17 | 32 | 22 | 23 | 24 | 24 | 21 | 19 | 18 | 17 |
| Above Normal (24%) | 41 | 40 | 39 | 40 | 36 | 34 | 35 | 36 | 35 | 36 | 38 | 38 |
| Below Normal (10%) | 46 | 46 | 45 | 30 | 28 | 28 | 34 | 37 | 37 | 38 | 40 | 41 |
| Dry (16%) | 54 | 53 | 51 | 43 | 42 | 41 | 45 | 46 | 46 | 46 | 48 | 48 |
| Critical (27%) | 65 | 64 | 62 | 52 | 51 | 51 | 54 | 58 | 60 | 60 | 60 | 60 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 7a-3. New Melones Reservoir, End of Month Elevation

No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,029 | 1,028 | 1,035 | 1,040 | 1,046 | 1,050 | 1,047 | 1,057 | 1,059 | 1,050 | 1,039 | 1,033 |
| 20% | 1,013 | 1,015 | 1,017 | 1,021 | 1,029 | 1,032 | 1,036 | 1,043 | 1,040 | 1,032 | 1,021 | 1,016 |
| 30% | 1,006 | 1,006 | 1,008 | 1,012 | 1,021 | 1,025 | 1,021 | 1,027 | 1,031 | 1,023 | 1,013 | 1,008 |
| 40% | 975 | 976 | 995 | 1,004 | 1,012 | 1,014 | 1,011 | 1,006 | 1,006 | 995 | 983 | 976 |
| 50% | 956 | 957 | 960 | 980 | 996 | 1,006 | 998 | 996 | 991 | 977 | 965 | 960 |
| 60% | 943 | 945 | 950 | 959 | 966 | 976 | 976 | 984 | 976 | 966 | 953 | 947 |
| 70% | 925 | 928 | 938 | 942 | 945 | 947 | 951 | 952 | 951 | 939 | 928 | 923 |
| 80% | 879 | 881 | 886 | 887 | 897 | 912 | 918 | 924 | 923 | 912 | 897 | 888 |
| 90% | 835 | 836 | 837 | 846 | 857 | 863 | 864 | 867 | 876 | 863 | 850 | 843 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 944 | 945 | 950 | 958 | 968 | 974 | 973 | 976 | 976 | 965 | 954 | 947 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,024 | 1,025 | 1,027 | 996 | 1,012 | 1,021 | 1,026 | 1,042 | 1,054 | 1,047 | 1,036 | 1,029 |
| Above Normal (24%) | 963 | 965 | 969 | 945 | 959 | 970 | 976 | 991 | 994 | 983 | 971 | 965 |
| Below Normal (10%) | 963 | 963 | 966 | 990 | 998 | 1,001 | 996 | 998 | 999 | 988 | 976 | 969 |
| Dry (16%) | 924 | 929 | 939 | 967 | 970 | 975 | 969 | 965 | 960 | 947 | 935 | 929 |
| Critical (27%) | 858 | 859 | 867 | 922 | 925 | 927 | 917 | 903 | 893 | 881 | 870 | 864 |

Alternative 3 021719

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,050 | 1,048 | 1,050 | 1,050 | 1,050 | 1,055 | 1,061 | 1,074 | 1,086 | 1,078 | 1,063 | 1,052 |
| 20% | 1,044 | 1,045 | 1,047 | 1,050 | 1,050 | 1,055 | 1,056 | 1,064 | 1,068 | 1,059 | 1,050 | 1,045 |
| 30% | 1,032 | 1,035 | 1,039 | 1,045 | 1,050 | 1,052 | 1,051 | 1,056 | 1,055 | 1,047 | 1,036 | 1,031 |
| 40% | 1,023 | 1,025 | 1,029 | 1,039 | 1,045 | 1,048 | 1,047 | 1,045 | 1,046 | 1,039 | 1,030 | 1,024 |
| 50% | 1,007 | 1,007 | 1,010 | 1,021 | 1,033 | 1,041 | 1,036 | 1,036 | 1,030 | 1,019 | 1,010 | 1,006 |
| 60% | 996 | 996 | 1,001 | 1,005 | 1,011 | 1,015 | 1,019 | 1,023 | 1,018 | 1,010 | 999 | 995 |
| 70% | 969 | 977 | 985 | 989 | 994 | 993 | 993 | 1,007 | 997 | 985 | 972 | 965 |
| 80% | 944 | 941 | 944 | 947 | 955 | 963 | 963 | 974 | 970 | 961 | 952 | 946 |
| 90% | 907 | 908 | 910 | 912 | 926 | 927 | 921 | 920 | 935 | 925 | 912 | 905 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 988 | 989 | 993 | 999 | 1,005 | 1,010 | 1,012 | 1,017 | 1,016 | 1,006 | 995 | 988 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,044 | 1,044 | 1,045 | 1,028 | 1,034 | 1,043 | 1,050 | 1,066 | 1,074 | 1,066 | 1,054 | 1,046 |
| Above Normal (24%) | 1,004 | 1,005 | 1,008 | 985 | 996 | 1,005 | 1,012 | 1,027 | 1,029 | 1,019 | 1,008 | 1,003 |
| Below Normal (10%) | 1,009 | 1,009 | 1,011 | 1,020 | 1,025 | 1,030 | 1,030 | 1,035 | 1,036 | 1,026 | 1,016 | 1,009 |
| Dry (16%) | 978 | 982 | 990 | 1,010 | 1,011 | 1,015 | 1,013 | 1,011 | 1,005 | 993 | 983 | 977 |
| Critical (27%) | 923 | 923 | 929 | 974 | 977 | 977 | 971 | 961 | 953 | 941 | 930 | 924 |

Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 21 | 20 | 15 | 9 | 4 | 4 | 14 | 17 | 28 | 28 | 24 | 19 |
| 20% | 31 | 30 | 30 | 29 | 20 | 22 | 20 | 21 | 27 | 26 | 28 | 29 |
| 30% | 27 | 30 | 31 | 33 | 29 | 27 | 30 | 29 | 24 | 24 | 24 | 23 |
| 40% | 48 | 49 | 34 | 35 | 33 | 34 | 35 | 39 | 40 | 44 | 47 | 49 |
| 50% | 51 | 50 | 50 | 41 | 37 | 35 | 38 | 40 | 39 | 42 | 45 | 46 |
| 60% | 53 | 50 | 50 | 46 | 45 | 40 | 43 | 39 | 42 | 44 | 46 | 48 |
| 70% | 44 | 48 | 47 | 47 | 49 | 46 | 43 | 55 | 45 | 46 | 43 | 42 |
| 80% | 65 | 59 | 57 | 60 | 58 | 51 | 45 | 50 | 46 | 49 | 55 | 58 |
| 90% | 73 | 73 | 73 | 66 | 69 | 64 | 57 | 53 | 59 | 63 | 62 | 62 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 45 | 44 | 42 | 41 | 37 | 36 | 39 | 41 | 40 | 40 | 41 | 41 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 20 | 19 | 17 | 32 | 22 | 23 | 24 | 24 | 21 | 19 | 18 | 17 |
| Above Normal (24%) | 41 | 40 | 39 | 40 | 36 | 34 | 35 | 36 | 35 | 36 | 38 | 38 |
| Below Normal (10%) | 46 | 46 | 45 | 30 | 28 | 28 | 34 | 37 | 37 | 38 | 40 | 41 |
| Dry (16%) | 54 | 53 | 51 | 43 | 42 | 41 | 45 | 46 | 46 | 46 | 48 | 48 |
| Critical (27%) | 65 | 64 | 62 | 52 | 51 | 51 | 54 | 58 | 60 | 60 | 60 | 60 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 7a-4. New Melones Reservoir, End of Month Elevation

No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,029 | 1,028 | 1,035 | 1,040 | 1,046 | 1,050 | 1,047 | 1,057 | 1,059 | 1,050 | 1,039 | 1,033 |
| 20% | 1,013 | 1,015 | 1,017 | 1,021 | 1,029 | 1,032 | 1,036 | 1,043 | 1,040 | 1,032 | 1,021 | 1,016 |
| 30% | 1,006 | 1,006 | 1,008 | 1,012 | 1,021 | 1,025 | 1,021 | 1,027 | 1,031 | 1,023 | 1,013 | 1,008 |
| 40% | 975 | 976 | 995 | 1,004 | 1,012 | 1,014 | 1,011 | 1,006 | 1,006 | 995 | 983 | 976 |
| 50% | 956 | 957 | 960 | 980 | 996 | 1,006 | 998 | 996 | 991 | 977 | 965 | 960 |
| 60% | 943 | 945 | 950 | 959 | 966 | 976 | 976 | 984 | 976 | 966 | 953 | 947 |
| 70% | 925 | 928 | 938 | 942 | 945 | 947 | 951 | 952 | 951 | 939 | 928 | 923 |
| 80% | 879 | 881 | 886 | 887 | 897 | 912 | 918 | 924 | 923 | 912 | 897 | 888 |
| 90% | 835 | 836 | 837 | 846 | 857 | 863 | 864 | 867 | 876 | 863 | 850 | 843 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 944 | 945 | 950 | 958 | 968 | 974 | 973 | 976 | 976 | 965 | 954 | 947 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,024 | 1,025 | 1,027 | 996 | 1,012 | 1,021 | 1,026 | 1,042 | 1,054 | 1,047 | 1,036 | 1,029 |
| Above Normal (24%) | 963 | 965 | 969 | 945 | 959 | 970 | 976 | 991 | 994 | 983 | 971 | 965 |
| Below Normal (10%) | 963 | 963 | 966 | 990 | 998 | 1,001 | 996 | 998 | 999 | 988 | 976 | 969 |
| Dry (16%) | 924 | 929 | 939 | 967 | 970 | 975 | 969 | 965 | 960 | 947 | 935 | 929 |
| Critical (27%) | 858 | 859 | 867 | 922 | 925 | 927 | 917 | 903 | 893 | 881 | 870 | 864 |

Alternative 4 043019

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,041 | 1,040 | 1,044 | 1,049 | 1,050 | 1,055 | 1,053 | 1,060 | 1,070 | 1,062 | 1,053 | 1,047 |
| 20% | 1,027 | 1,027 | 1,030 | 1,038 | 1,047 | 1,050 | 1,044 | 1,051 | 1,054 | 1,044 | 1,035 | 1,031 |
| 30% | 1,014 | 1,015 | 1,021 | 1,031 | 1,036 | 1,038 | 1,034 | 1,039 | 1,043 | 1,034 | 1,024 | 1,018 |
| 40% | 1,003 | 1,006 | 1,011 | 1,017 | 1,026 | 1,029 | 1,028 | 1,028 | 1,028 | 1,018 | 1,009 | 1,005 |
| 50% | 993 | 995 | 998 | 1,004 | 1,014 | 1,019 | 1,015 | 1,018 | 1,015 | 1,008 | 1,000 | 996 |
| 60% | 981 | 984 | 987 | 993 | 999 | 1,008 | 1,005 | 1,007 | 1,008 | 1,001 | 990 | 985 |
| 70% | 957 | 961 | 973 | 979 | 988 | 992 | 989 | 989 | 988 | 976 | 968 | 963 |
| 80% | 937 | 937 | 942 | 943 | 947 | 955 | 949 | 963 | 962 | 953 | 946 | 941 |
| 90% | 868 | 865 | 867 | 869 | 873 | 888 | 884 | 897 | 917 | 903 | 888 | 878 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 970 | 972 | 977 | 984 | 992 | 997 | 996 | 1,000 | 1,001 | 992 | 981 | 975 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,027 | 1,028 | 1,031 | 1,007 | 1,019 | 1,026 | 1,032 | 1,048 | 1,057 | 1,050 | 1,039 | 1,032 |
| Above Normal (24%) | 972 | 973 | 977 | 962 | 976 | 986 | 987 | 1,001 | 1,006 | 995 | 982 | 975 |
| Below Normal (10%) | 987 | 988 | 990 | 1,018 | 1,023 | 1,027 | 1,020 | 1,020 | 1,021 | 1,011 | 1,000 | 993 |
| Dry (16%) | 966 | 971 | 979 | 998 | 1,001 | 1,005 | 1,001 | 999 | 995 | 985 | 975 | 971 |
| Critical (27%) | 916 | 916 | 923 | 964 | 966 | 967 | 961 | 953 | 946 | 936 | 926 | 921 |

Alternative 4 043019 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 12 | 12 | 9 | 9 | 4 | 4 | 6 | 3 | 11 | 12 | 13 | 14 |
| 20% | 13 | 12 | 13 | 17 | 17 | 18 | 8 | 9 | 14 | 12 | 14 | 15 |
| 30% | 9 | 9 | 13 | 19 | 15 | 13 | 13 | 12 | 12 | 11 | 11 | 10 |
| 40% | 27 | 30 | 16 | 14 | 14 | 15 | 16 | 23 | 22 | 22 | 26 | 29 |
| 50% | 38 | 39 | 38 | 24 | 18 | 14 | 17 | 22 | 24 | 31 | 36 | 36 |
| 60% | 38 | 39 | 37 | 34 | 34 | 32 | 29 | 24 | 32 | 35 | 37 | 38 |
| 70% | 32 | 32 | 35 | 37 | 43 | 45 | 39 | 37 | 37 | 37 | 39 | 40 |
| 80% | 58 | 55 | 55 | 57 | 50 | 43 | 31 | 39 | 38 | 41 | 49 | 52 |
| 90% | 34 | 30 | 31 | 23 | 15 | 25 | 20 | 30 | 42 | 41 | 38 | 35 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 27 | 27 | 26 | 25 | 24 | 23 | 23 | 24 | 26 | 27 | 27 | 28 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 3 | 3 | 4 | 11 | 7 | 6 | 6 | 6 | 4 | 3 | 3 | 3 |
| Above Normal (24%) | 9 | 9 | 9 | 17 | 16 | 16 | 11 | 9 | 12 | 12 | 11 | 11 |
| Below Normal (10%) | 24 | 24 | 24 | 28 | 26 | 25 | 24 | 22 | 22 | 22 | 24 | 25 |
| Dry (16%) | 42 | 41 | 40 | 31 | 31 | 30 | 32 | 34 | 35 | 38 | 40 | 42 |
| Critical (27%) | 57 | 57 | 56 | 41 | 41 | 40 | 44 | 49 | 53 | 55 | 56 | 57 |

a Based on the 82-year simulation period.

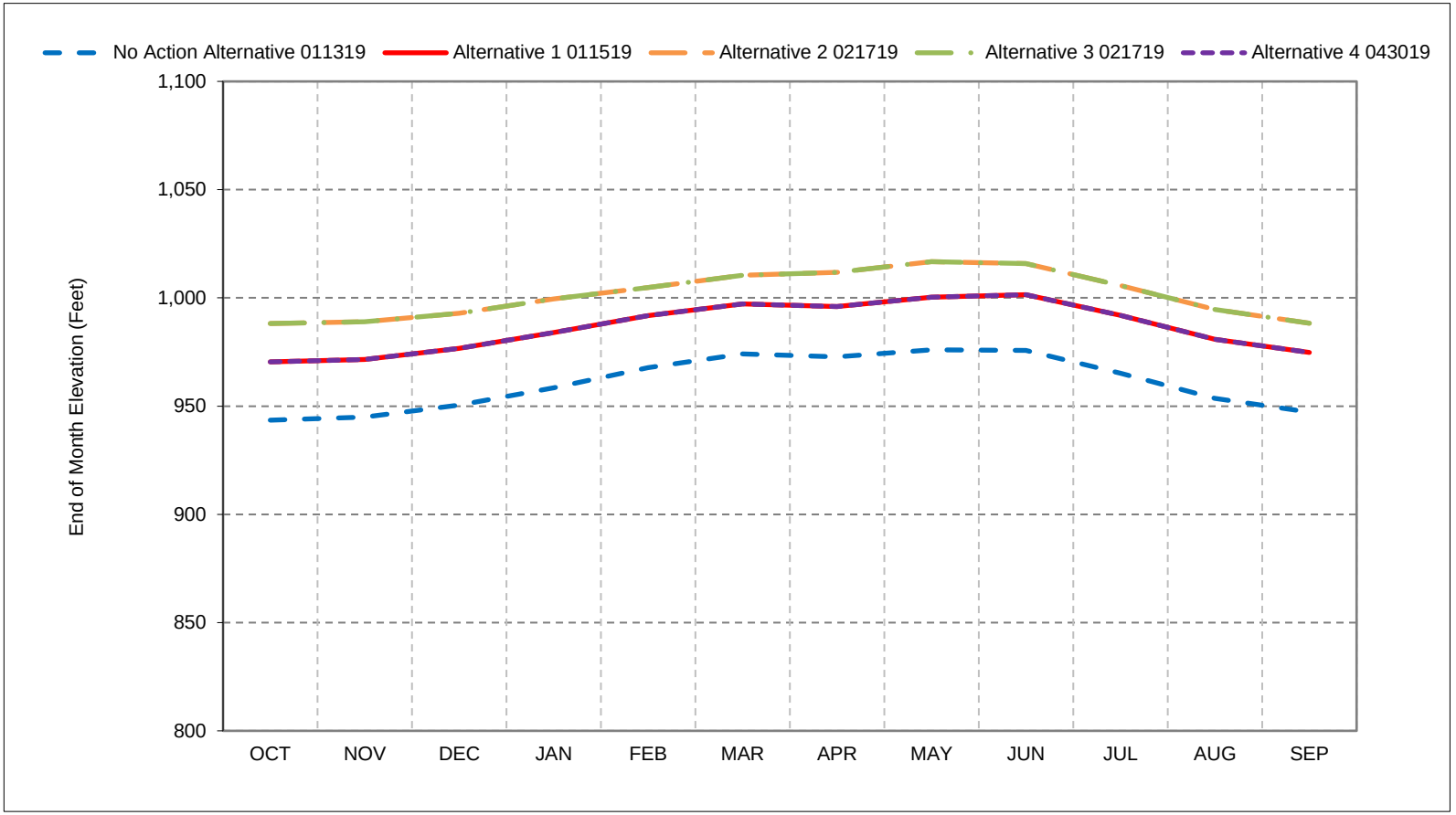
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

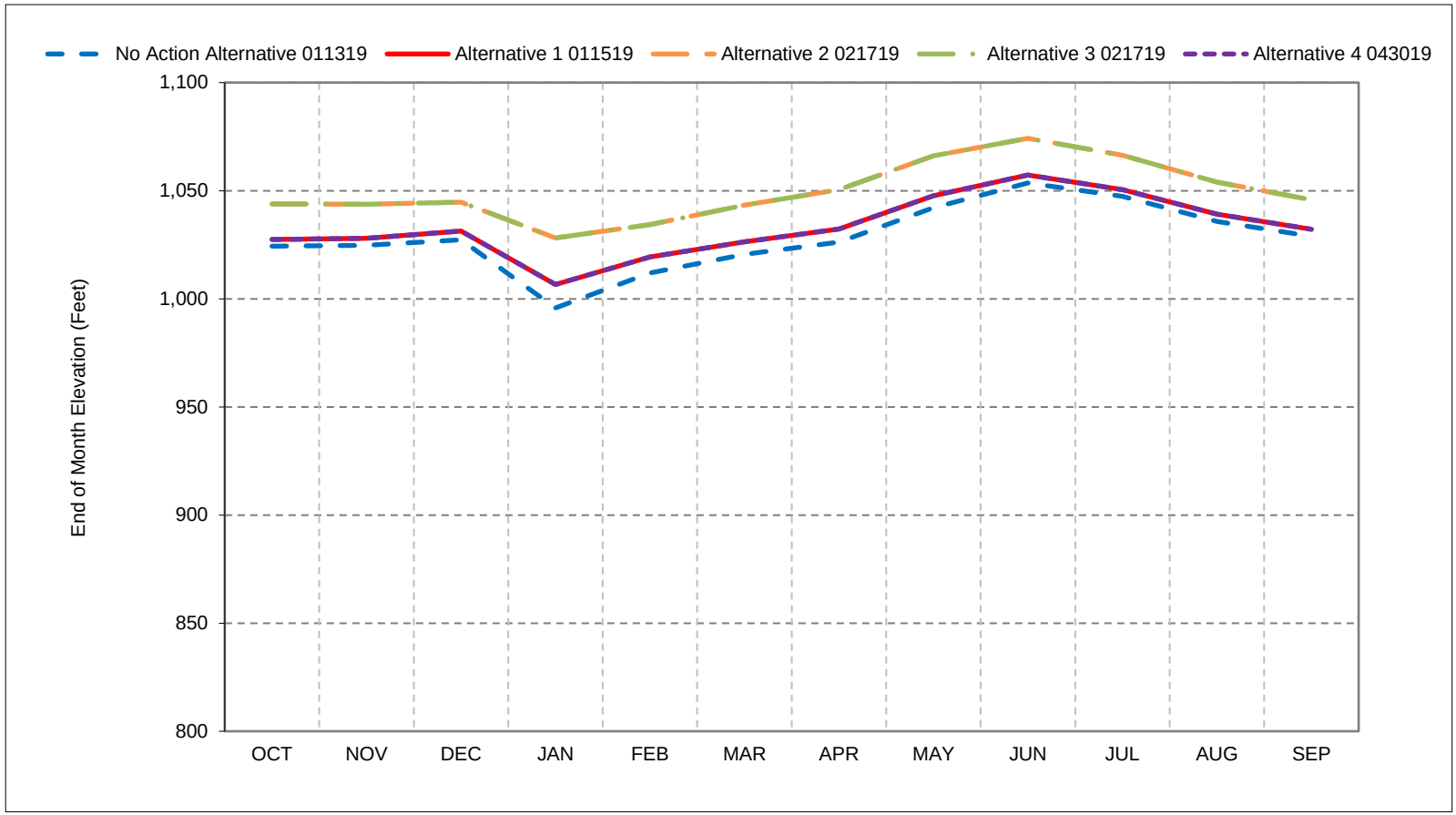
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7a-1. New Melones Reservoir, Long-Term Average Elevation



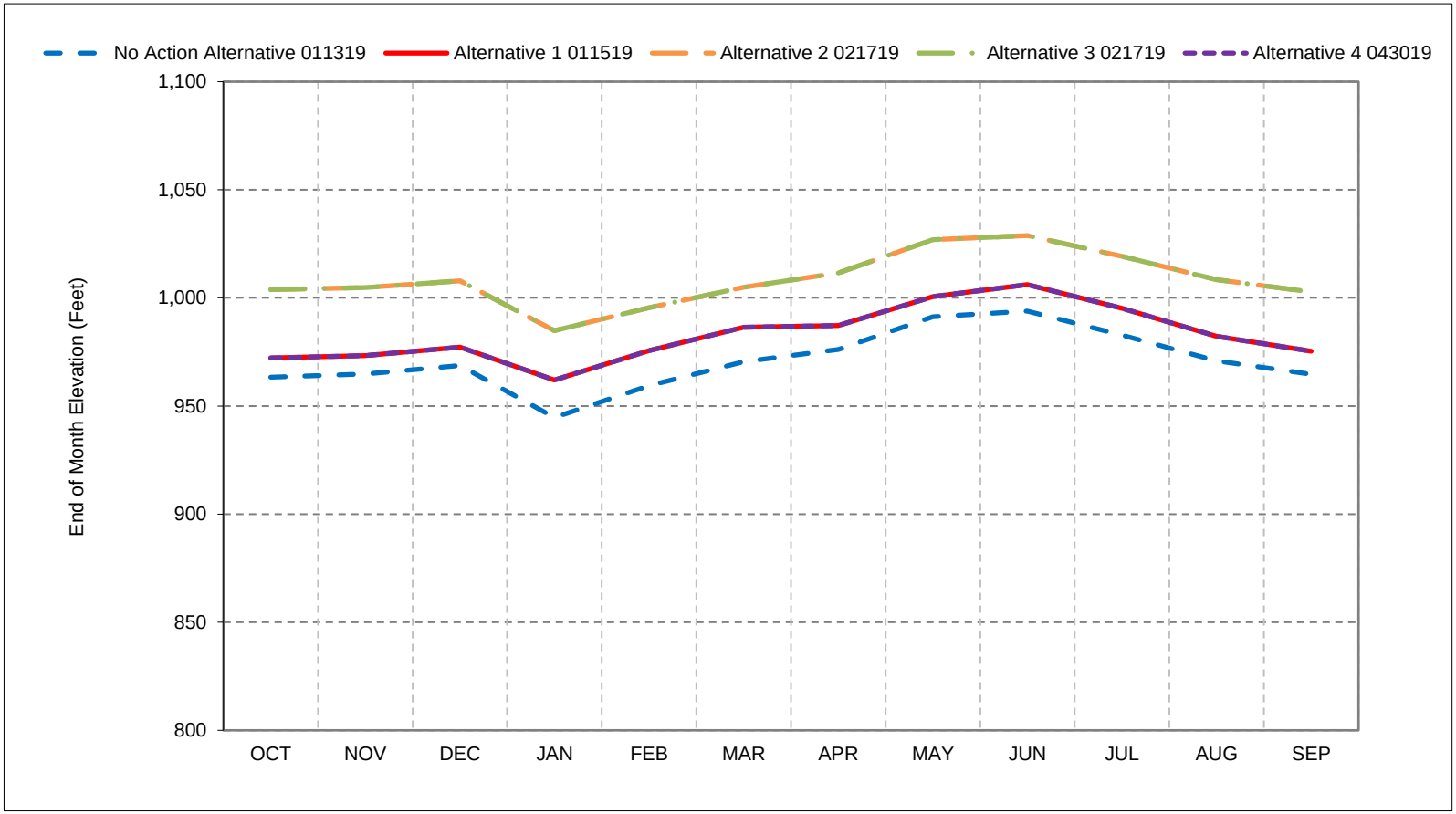

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7a-2. New Melones Reservoir, Wet Year Average Elevation



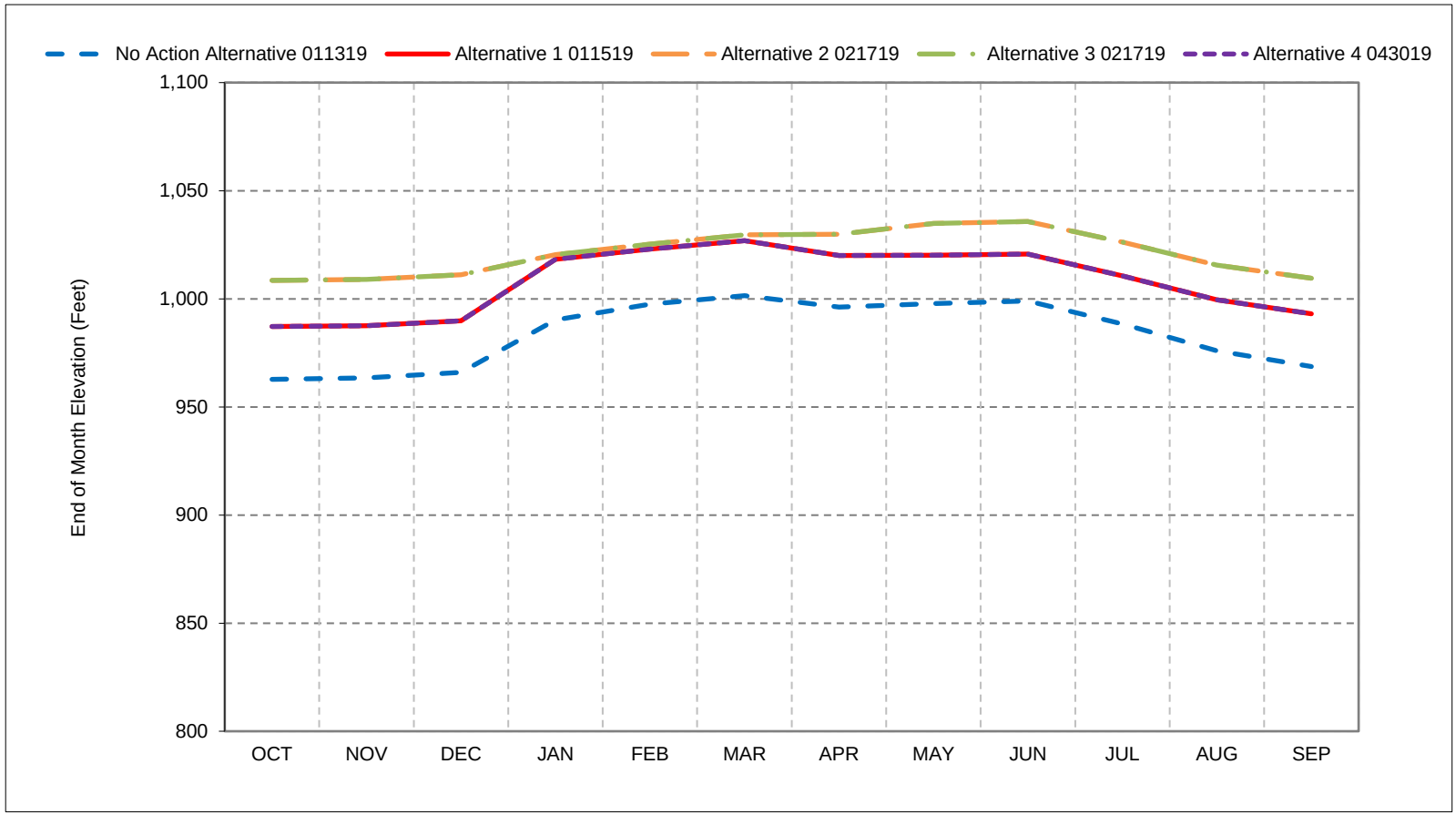

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7a-3. New Melones Reservoir, Above Normal Year Average Elevation



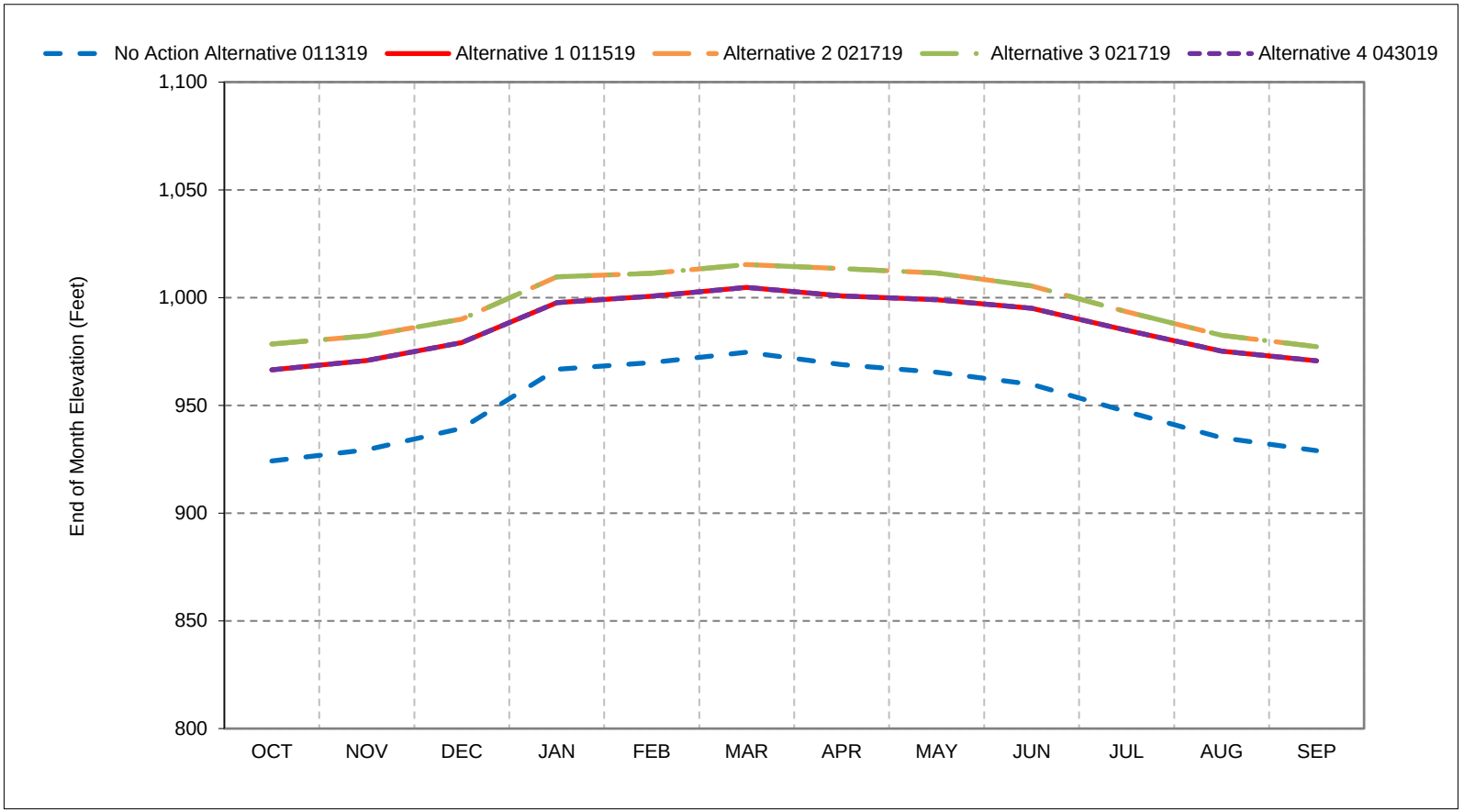

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7a-4. New Melones Reservoir, Below Normal Year Average Elevation



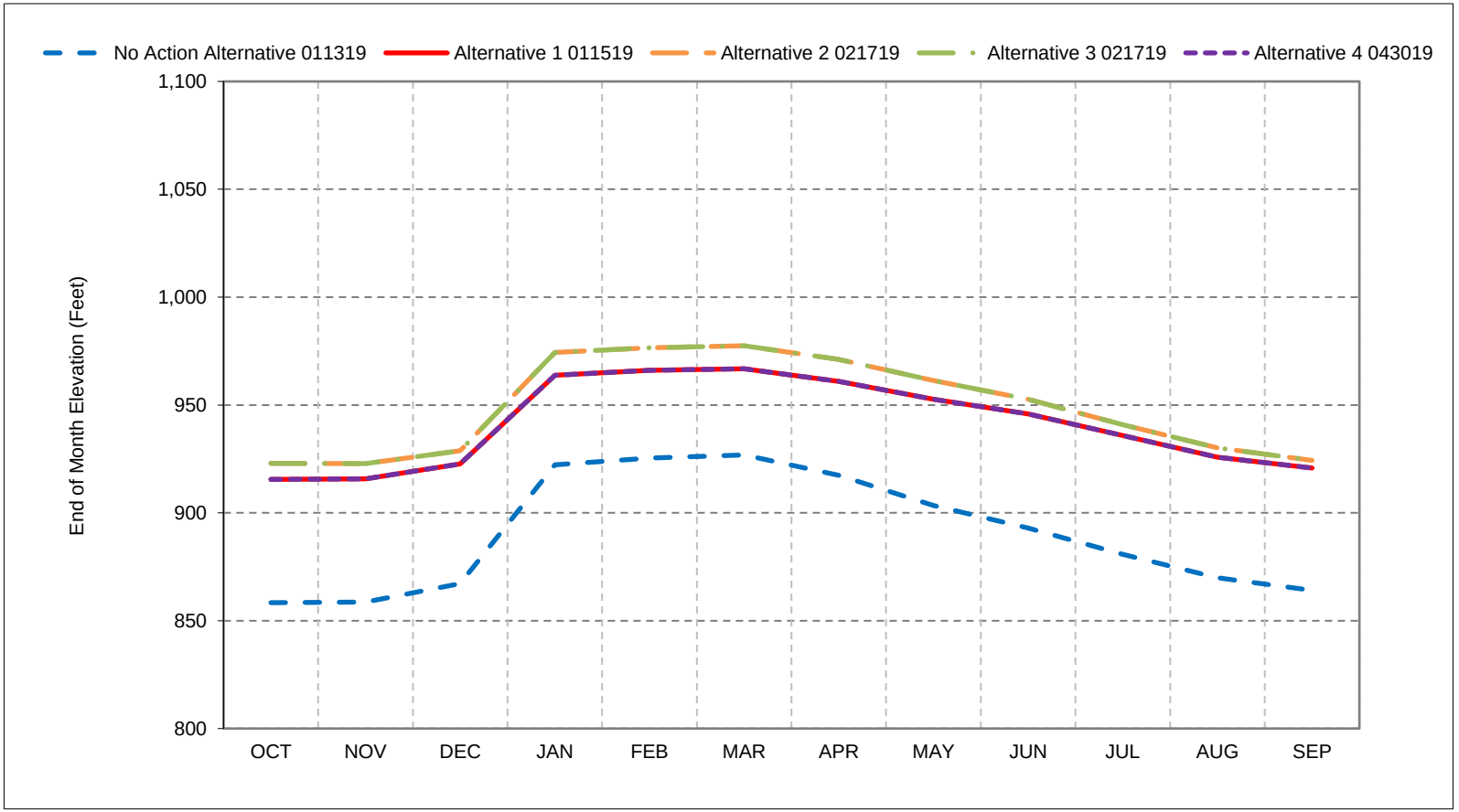

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7a-5. New Melones Reservoir, Dry Year Average Elevation



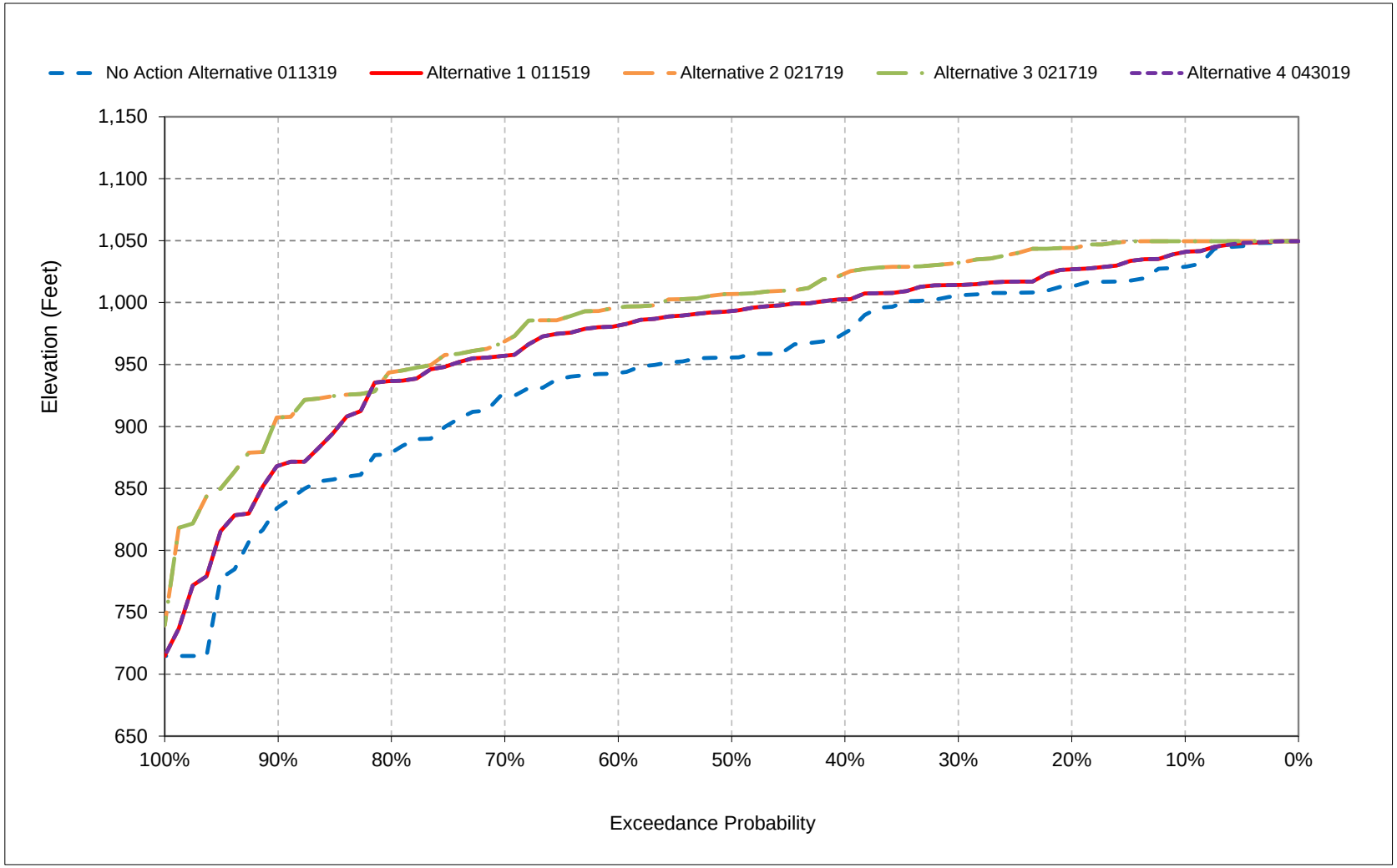

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7a-6. New Melones Reservoir, Critical Year Average Elevation




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

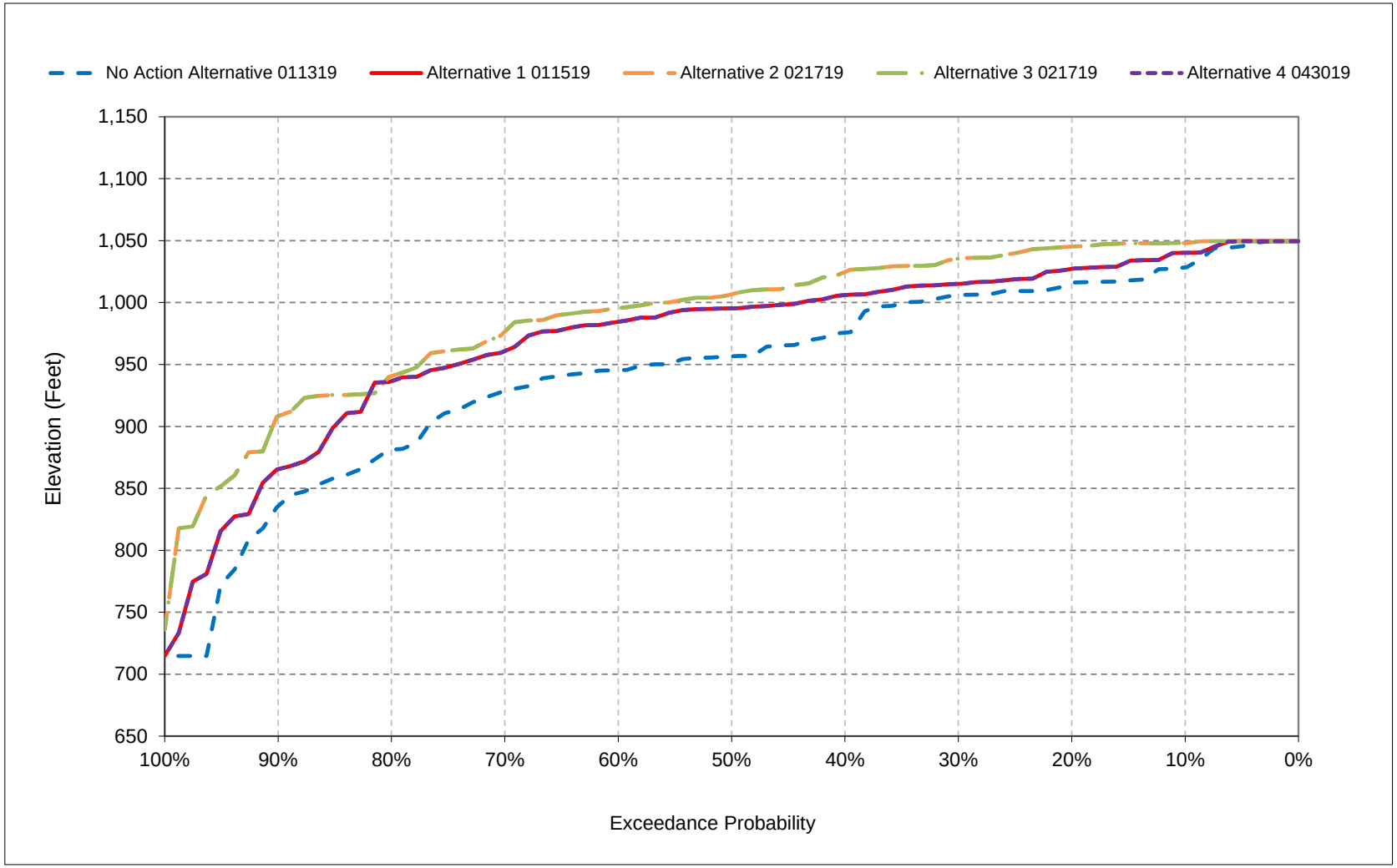
**Figure 7a-7. New Melones Reservoir, Reservoir Pool Elevation, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

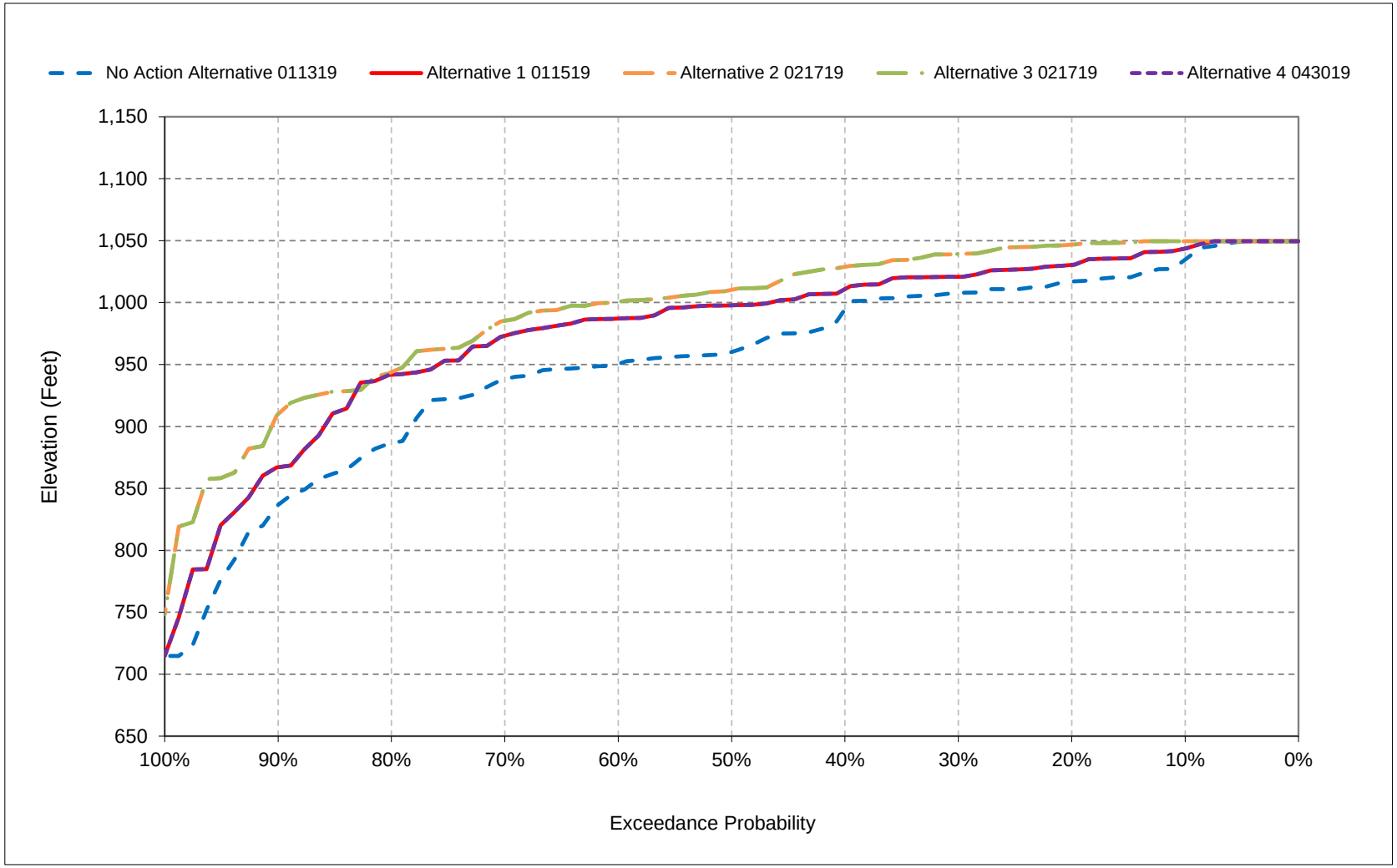
**Figure 7a-8. New Melones Reservoir, Reservoir Pool Elevation, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

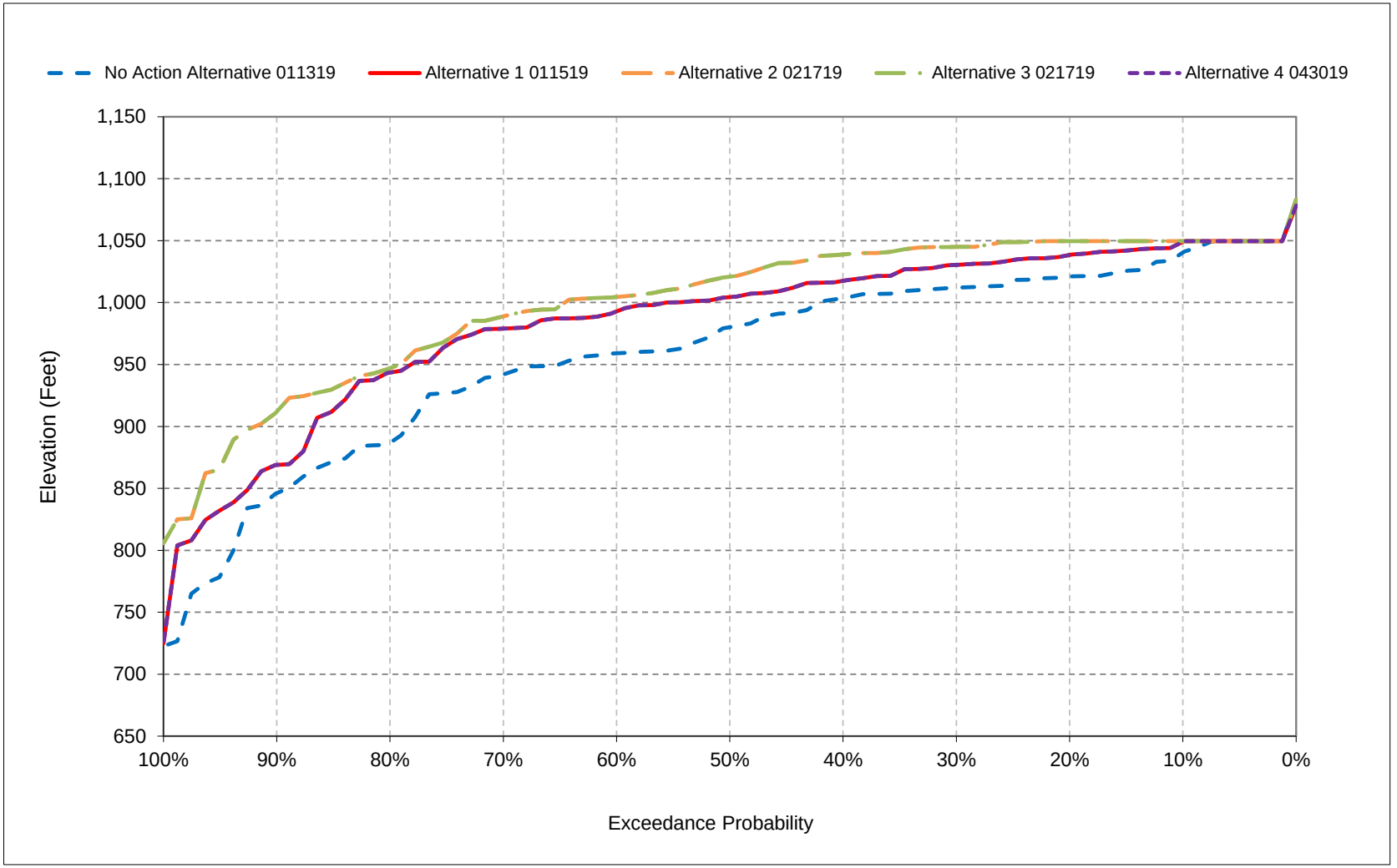
**Figure 7a-9. New Melones Reservoir, Reservoir Pool Elevation, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

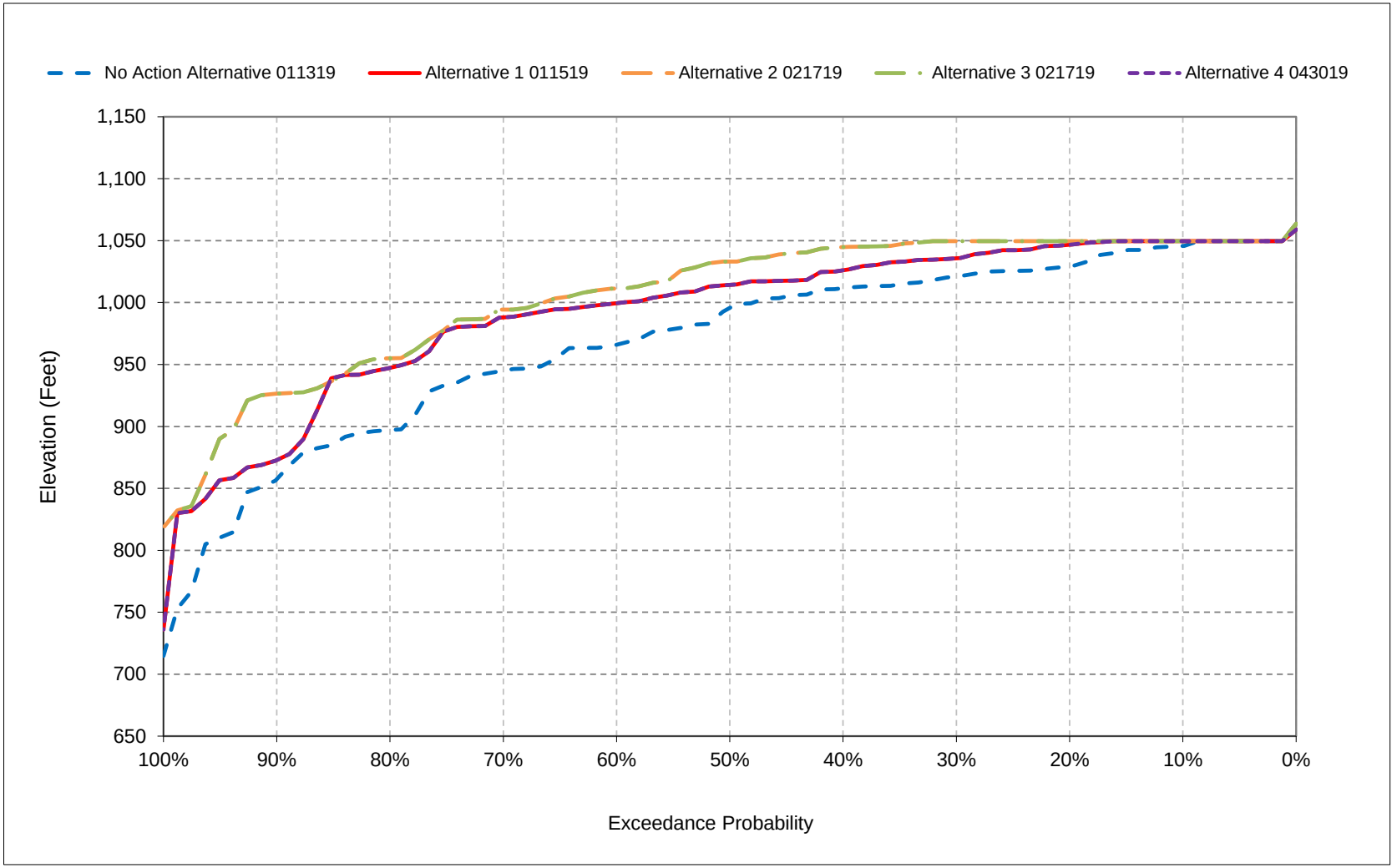
**Figure 7a-10. New Melones Reservoir, Reservoir Pool Elevation, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

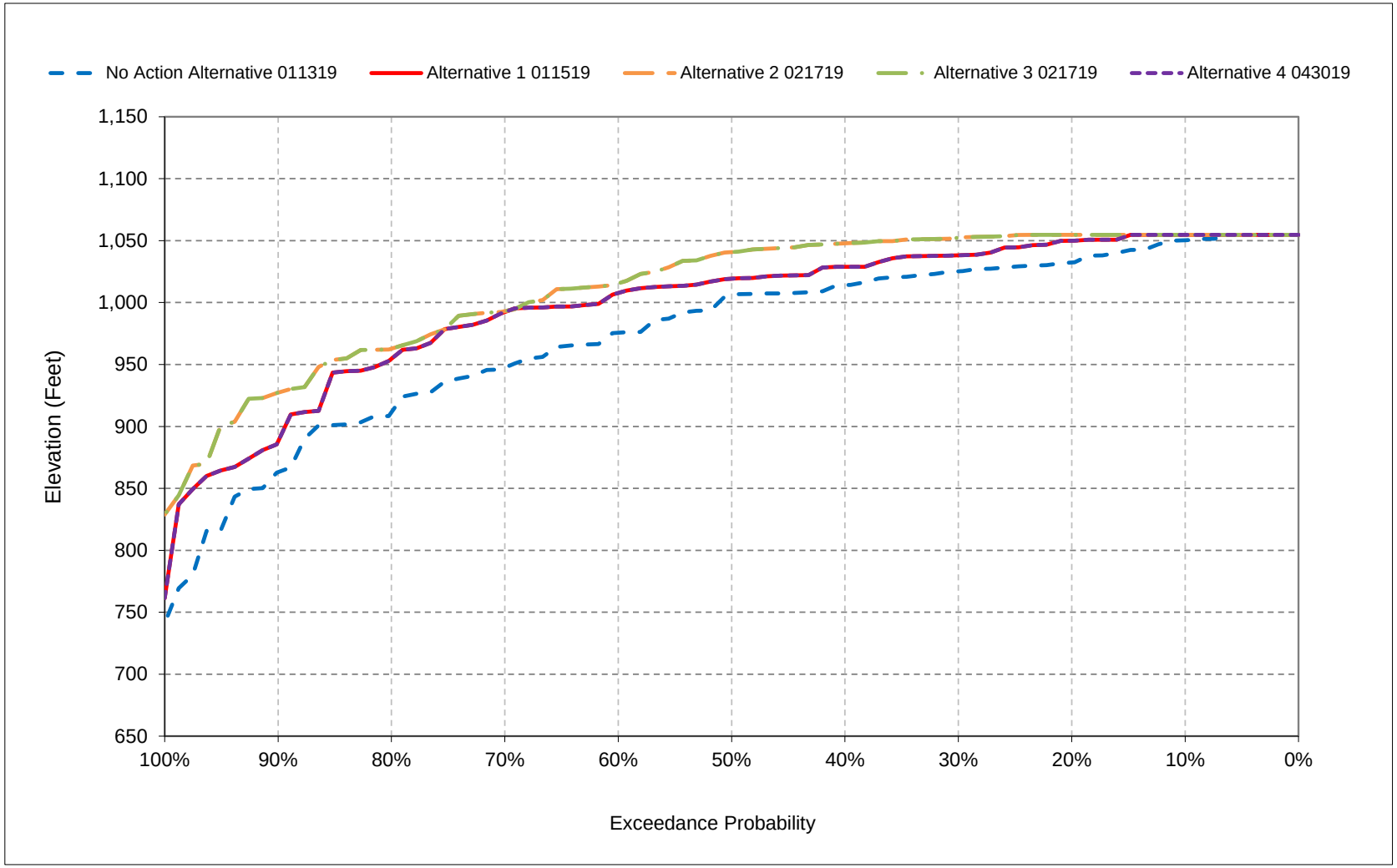
**Figure 7a-11. New Melones Reservoir, Reservoir Pool Elevation, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

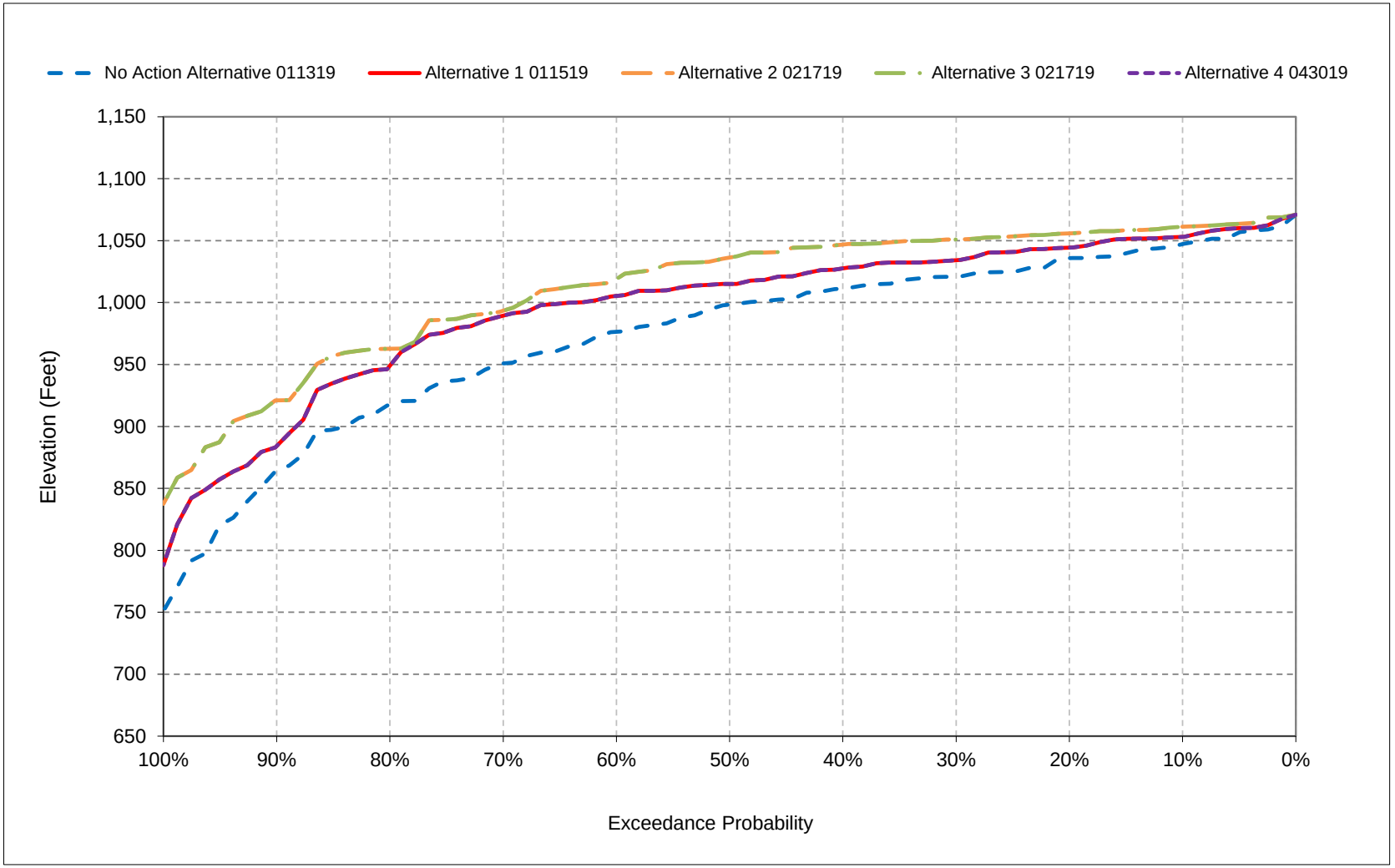
**Figure 7a-12. New Melones Reservoir, Reservoir Pool Elevation, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

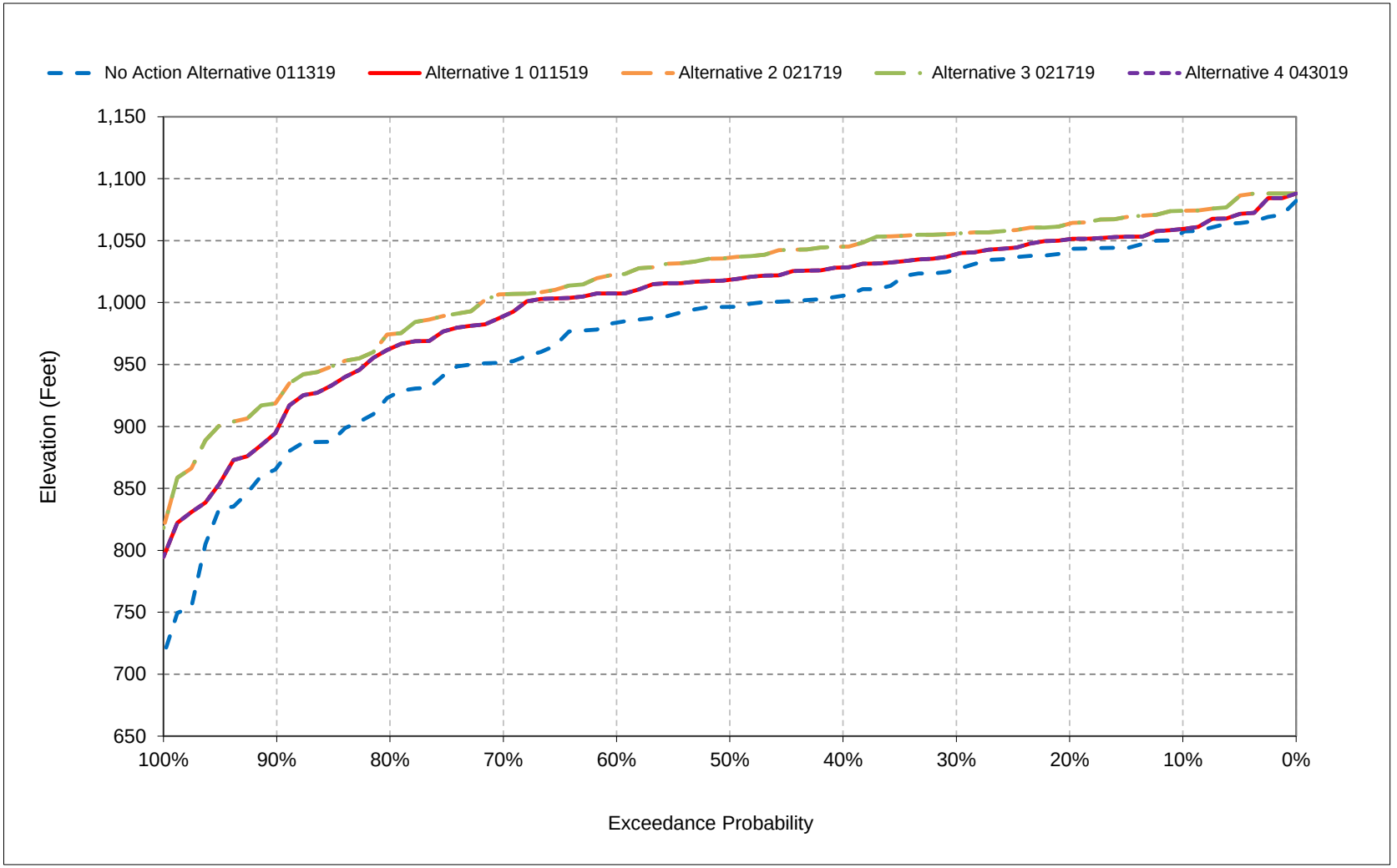
**Figure 7a-13. New Melones Reservoir, Reservoir Pool Elevation, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

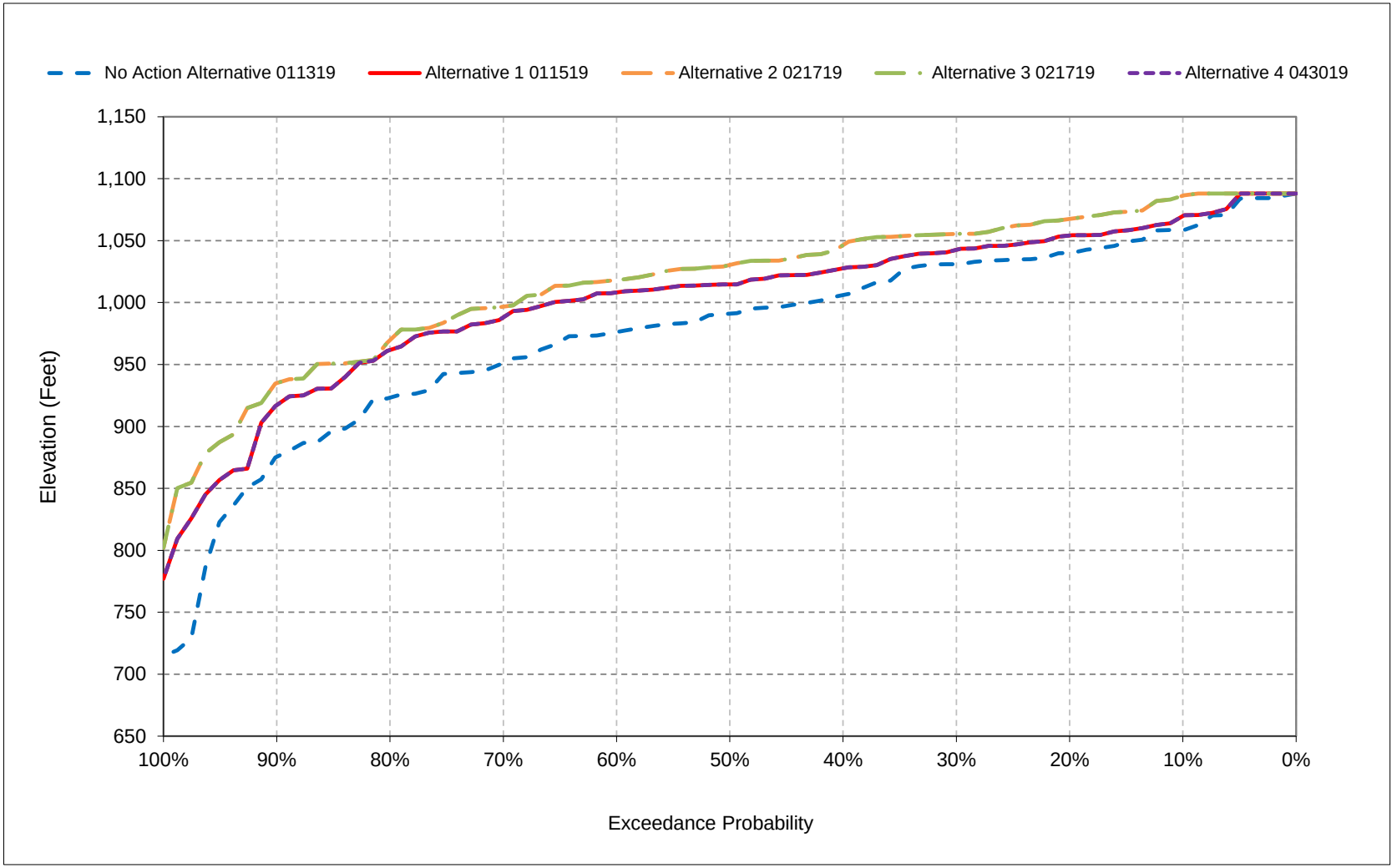
**Figure 7a-14. New Melones Reservoir, Reservoir Pool Elevation, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

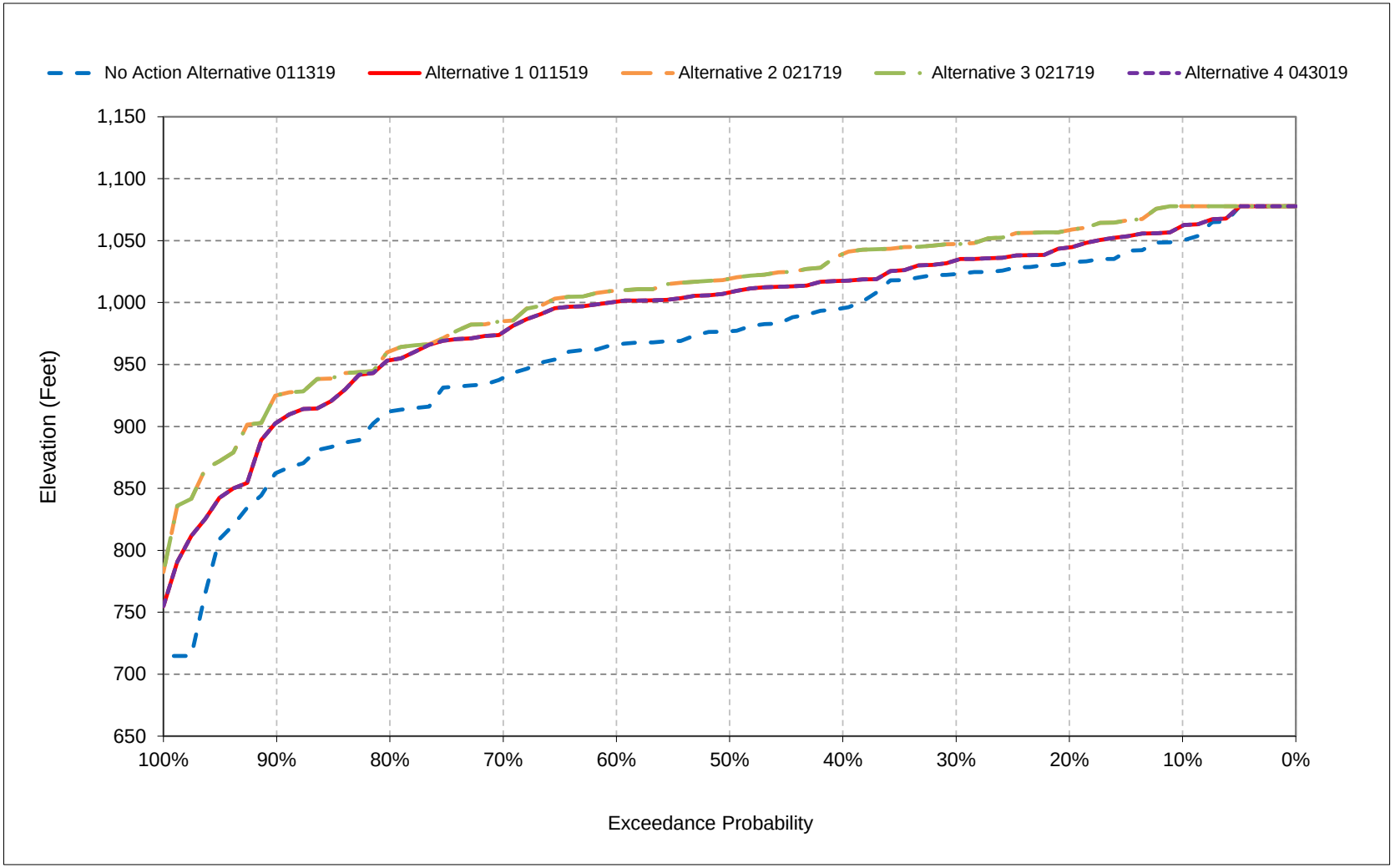
**Figure 7a-15. New Melones Reservoir, Reservoir Pool Elevation, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 7a-16. New Melones Reservoir, Reservoir Pool Elevation, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

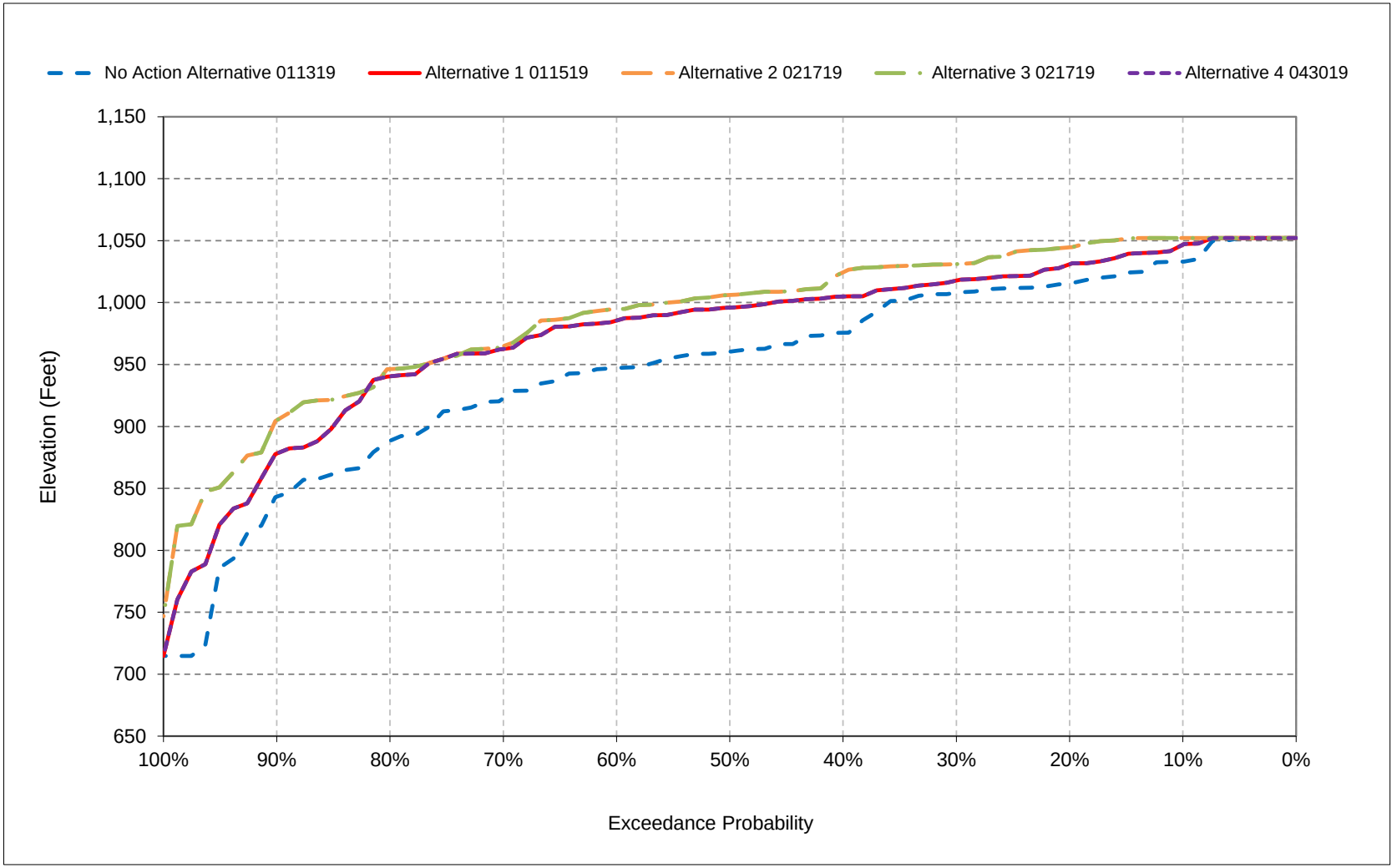
**Figure 7a-17. New Melones Reservoir, Reservoir Pool Elevation, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 7a-18. New Melones Reservoir, Reservoir Pool Elevation, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 8-1. Millerton Lake Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 258 | 292 | 374 | 439 | 439 | 479 | 488 | 524 | 524 | 495 | 311 | 258 |
| 20% | 224 | 267 | 318 | 412 | 439 | 479 | 447 | 523 | 521 | 433 | 260 | 213 |
| 30% | 211 | 250 | 293 | 351 | 439 | 472 | 421 | 479 | 503 | 361 | 210 | 194 |
| 40% | 197 | 223 | 270 | 333 | 419 | 436 | 396 | 455 | 477 | 323 | 188 | 183 |
| 50% | 189 | 210 | 252 | 303 | 383 | 396 | 373 | 430 | 418 | 283 | 178 | 179 |
| 60% | 178 | 194 | 232 | 288 | 339 | 368 | 344 | 403 | 394 | 257 | 169 | 175 |
| 70% | 172 | 176 | 213 | 258 | 315 | 326 | 308 | 382 | 364 | 228 | 162 | 172 |
| 80% | 162 | 168 | 197 | 232 | 266 | 274 | 268 | 332 | 313 | 195 | 158 | 168 |
| 90% | 155 | 154 | 172 | 187 | 204 | 205 | 225 | 245 | 246 | 163 | 136 | 159 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 199 | 220 | 261 | 310 | 353 | 372 | 359 | 415 | 411 | 307 | 207 | 195 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 256 | 279 | 311 | 382 | 426 | 448 | 360 | 428 | 509 | 464 | 312 | 256 |
| Above Normal (24%) | 202 | 241 | 291 | 340 | 417 | 447 | 404 | 491 | 496 | 355 | 210 | 184 |
| Below Normal (10%) | 192 | 209 | 244 | 297 | 354 | 360 | 348 | 401 | 393 | 283 | 185 | 180 |
| Dry (16%) | 177 | 202 | 246 | 302 | 327 | 343 | 386 | 426 | 372 | 231 | 162 | 181 |
| Critical (27%) | 161 | 162 | 202 | 231 | 247 | 260 | 306 | 334 | 278 | 182 | 148 | 168 |

### Alternative 1 011519

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 258 | 292 | 374 | 439 | 439 | 479 | 488 | 524 | 524 | 495 | 311 | 258 |
| 20% | 224 | 267 | 318 | 412 | 439 | 479 | 447 | 523 | 521 | 433 | 260 | 213 |
| 30% | 211 | 250 | 293 | 351 | 439 | 472 | 421 | 479 | 503 | 361 | 210 | 194 |
| 40% | 197 | 223 | 270 | 333 | 419 | 436 | 396 | 455 | 477 | 323 | 188 | 183 |
| 50% | 189 | 210 | 252 | 303 | 383 | 396 | 373 | 430 | 418 | 283 | 178 | 179 |
| 60% | 178 | 194 | 232 | 288 | 339 | 368 | 344 | 403 | 394 | 257 | 169 | 175 |
| 70% | 172 | 176 | 213 | 258 | 315 | 326 | 308 | 382 | 364 | 228 | 162 | 172 |
| 80% | 162 | 168 | 197 | 232 | 266 | 274 | 268 | 332 | 313 | 195 | 158 | 168 |
| 90% | 155 | 154 | 172 | 187 | 204 | 205 | 225 | 245 | 246 | 163 | 136 | 159 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 199 | 220 | 261 | 310 | 353 | 372 | 359 | 415 | 411 | 307 | 207 | 195 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 256 | 279 | 311 | 382 | 426 | 448 | 360 | 428 | 509 | 464 | 312 | 256 |
| Above Normal (24%) | 202 | 241 | 291 | 340 | 417 | 447 | 404 | 491 | 496 | 355 | 210 | 184 |
| Below Normal (10%) | 192 | 209 | 244 | 297 | 354 | 360 | 348 | 401 | 393 | 283 | 185 | 180 |
| Dry (16%) | 177 | 202 | 246 | 302 | 327 | 343 | 386 | 426 | 372 | 231 | 162 | 181 |
| Critical (27%) | 161 | 162 | 202 | 231 | 247 | 260 | 306 | 334 | 278 | 182 | 148 | 168 |

### Alternative 1 011519 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (27%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 8-2. Millerton Lake Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 258 | 292 | 374 | 439 | 439 | 479 | 488 | 524 | 524 | 495 | 311 | 258 |
| 20% | 224 | 267 | 318 | 412 | 439 | 479 | 447 | 523 | 521 | 433 | 260 | 213 |
| 30% | 211 | 250 | 293 | 351 | 439 | 472 | 421 | 479 | 503 | 361 | 210 | 194 |
| 40% | 197 | 223 | 270 | 333 | 419 | 436 | 396 | 455 | 477 | 323 | 188 | 183 |
| 50% | 189 | 210 | 252 | 303 | 383 | 396 | 373 | 430 | 418 | 283 | 178 | 179 |
| 60% | 178 | 194 | 232 | 288 | 339 | 368 | 344 | 403 | 394 | 257 | 169 | 175 |
| 70% | 172 | 176 | 213 | 258 | 315 | 326 | 308 | 382 | 364 | 228 | 162 | 172 |
| 80% | 162 | 168 | 197 | 232 | 266 | 274 | 268 | 332 | 313 | 195 | 158 | 168 |
| 90% | 155 | 154 | 172 | 187 | 204 | 205 | 225 | 245 | 246 | 163 | 136 | 159 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 199 | 220 | 261 | 310 | 353 | 372 | 359 | 415 | 411 | 307 | 207 | 195 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 256 | 279 | 311 | 382 | 426 | 448 | 360 | 428 | 509 | 464 | 312 | 256 |
| Above Normal (24%) | 202 | 241 | 291 | 340 | 417 | 447 | 404 | 491 | 496 | 355 | 210 | 184 |
| Below Normal (10%) | 192 | 209 | 244 | 297 | 354 | 360 | 348 | 401 | 393 | 283 | 185 | 180 |
| Dry (16%) | 177 | 202 | 246 | 302 | 327 | 343 | 386 | 426 | 372 | 231 | 162 | 181 |
| Critical (27%) | 161 | 162 | 202 | 231 | 247 | 260 | 306 | 334 | 278 | 182 | 148 | 168 |

### Alternative 2 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 258 | 292 | 374 | 439 | 439 | 479 | 488 | 524 | 524 | 495 | 311 | 258 |
| 20% | 224 | 267 | 318 | 412 | 439 | 479 | 447 | 523 | 521 | 433 | 260 | 213 |
| 30% | 211 | 250 | 293 | 351 | 439 | 472 | 421 | 479 | 503 | 361 | 210 | 194 |
| 40% | 197 | 223 | 270 | 333 | 419 | 436 | 396 | 455 | 477 | 323 | 188 | 183 |
| 50% | 189 | 210 | 252 | 303 | 383 | 396 | 373 | 430 | 418 | 283 | 178 | 179 |
| 60% | 178 | 194 | 232 | 288 | 339 | 368 | 344 | 403 | 394 | 257 | 169 | 175 |
| 70% | 172 | 176 | 213 | 258 | 315 | 326 | 308 | 382 | 364 | 228 | 162 | 172 |
| 80% | 162 | 168 | 197 | 232 | 266 | 274 | 268 | 332 | 313 | 195 | 158 | 168 |
| 90% | 155 | 154 | 172 | 187 | 204 | 205 | 225 | 245 | 246 | 163 | 136 | 159 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 199 | 220 | 261 | 310 | 353 | 372 | 359 | 415 | 411 | 307 | 207 | 195 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 256 | 279 | 311 | 382 | 426 | 448 | 360 | 428 | 509 | 464 | 312 | 256 |
| Above Normal (24%) | 202 | 241 | 291 | 340 | 417 | 447 | 404 | 491 | 496 | 355 | 210 | 184 |
| Below Normal (10%) | 192 | 209 | 244 | 297 | 354 | 360 | 348 | 401 | 393 | 283 | 185 | 180 |
| Dry (16%) | 177 | 202 | 246 | 302 | 327 | 343 | 386 | 426 | 372 | 231 | 162 | 181 |
| Critical (27%) | 161 | 162 | 202 | 231 | 247 | 260 | 306 | 334 | 278 | 182 | 148 | 168 |

### Alternative 2 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | **0** | **0** | **0** | **0** | **0** | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| Critical (27%) | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 8-3. Millerton Lake Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 258 | 292 | 374 | 439 | 439 | 479 | 488 | 524 | 524 | 495 | 311 | 258 |
| 20% | 224 | 267 | 318 | 412 | 439 | 479 | 447 | 523 | 521 | 433 | 260 | 213 |
| 30% | 211 | 250 | 293 | 351 | 439 | 472 | 421 | 479 | 503 | 361 | 210 | 194 |
| 40% | 197 | 223 | 270 | 333 | 419 | 436 | 396 | 455 | 477 | 323 | 188 | 183 |
| 50% | 189 | 210 | 252 | 303 | 383 | 396 | 373 | 430 | 418 | 283 | 178 | 179 |
| 60% | 178 | 194 | 232 | 288 | 339 | 368 | 344 | 403 | 394 | 257 | 169 | 175 |
| 70% | 172 | 176 | 213 | 258 | 315 | 326 | 308 | 382 | 364 | 228 | 162 | 172 |
| 80% | 162 | 168 | 197 | 232 | 266 | 274 | 268 | 332 | 313 | 195 | 158 | 168 |
| 90% | 155 | 154 | 172 | 187 | 204 | 205 | 225 | 245 | 246 | 163 | 136 | 159 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 199 | 220 | 261 | 310 | 353 | 372 | 359 | 415 | 411 | 307 | 207 | 195 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 256 | 279 | 311 | 382 | 426 | 448 | 360 | 428 | 509 | 464 | 312 | 256 |
| Above Normal (24%) | 202 | 241 | 291 | 340 | 417 | 447 | 404 | 491 | 496 | 355 | 210 | 184 |
| Below Normal (10%) | 192 | 209 | 244 | 297 | 354 | 360 | 348 | 401 | 393 | 283 | 185 | 180 |
| Dry (16%) | 177 | 202 | 246 | 302 | 327 | 343 | 386 | 426 | 372 | 231 | 162 | 181 |
| Critical (27%) | 161 | 162 | 202 | 231 | 247 | 260 | 306 | 334 | 278 | 182 | 148 | 168 |

### Alternative 3 021719

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 258 | 292 | 374 | 439 | 439 | 479 | 488 | 524 | 524 | 495 | 311 | 258 |
| 20% | 224 | 267 | 318 | 412 | 439 | 479 | 447 | 523 | 521 | 433 | 261 | 213 |
| 30% | 211 | 250 | 293 | 351 | 439 | 472 | 421 | 479 | 503 | 361 | 210 | 194 |
| 40% | 197 | 223 | 270 | 333 | 419 | 436 | 396 | 455 | 477 | 323 | 188 | 183 |
| 50% | 189 | 210 | 252 | 303 | 383 | 396 | 373 | 430 | 418 | 283 | 178 | 179 |
| 60% | 178 | 194 | 232 | 288 | 339 | 368 | 344 | 403 | 394 | 257 | 169 | 175 |
| 70% | 172 | 176 | 213 | 258 | 315 | 326 | 308 | 382 | 364 | 228 | 162 | 172 |
| 80% | 162 | 168 | 197 | 232 | 266 | 274 | 268 | 332 | 313 | 195 | 158 | 168 |
| 90% | 154 | 154 | 172 | 187 | 204 | 205 | 225 | 245 | 246 | 163 | 136 | 159 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 199 | 220 | 261 | 310 | 353 | 372 | 359 | 415 | 411 | 307 | 207 | 195 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 256 | 279 | 311 | 382 | 426 | 448 | 360 | 428 | 509 | 464 | 312 | 256 |
| Above Normal (24%) | 202 | 241 | 291 | 340 | 417 | 447 | 404 | 491 | 496 | 355 | 210 | 184 |
| Below Normal (10%) | 192 | 209 | 244 | 297 | 354 | 360 | 348 | 401 | 393 | 283 | 185 | 180 |
| Dry (16%) | 177 | 202 | 246 | 302 | 327 | 343 | 386 | 426 | 372 | 231 | 162 | 181 |
| Critical (27%) | 161 | 162 | 202 | 231 | 247 | 260 | 306 | 334 | 278 | 182 | 148 | 168 |

### Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (27%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 8-4. Millerton Lake Storage, End of Month Storage

### No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 258 | 292 | 374 | 439 | 439 | 479 | 488 | 524 | 524 | 495 | 311 | 258 |
| 20% | 224 | 267 | 318 | 412 | 439 | 479 | 447 | 523 | 521 | 433 | 260 | 213 |
| 30% | 211 | 250 | 293 | 351 | 439 | 472 | 421 | 479 | 503 | 361 | 210 | 194 |
| 40% | 197 | 223 | 270 | 333 | 419 | 436 | 396 | 455 | 477 | 323 | 188 | 183 |
| 50% | 189 | 210 | 252 | 303 | 383 | 396 | 373 | 430 | 418 | 283 | 178 | 179 |
| 60% | 178 | 194 | 232 | 288 | 339 | 368 | 344 | 403 | 394 | 257 | 169 | 175 |
| 70% | 172 | 176 | 213 | 258 | 315 | 326 | 308 | 382 | 364 | 228 | 162 | 172 |
| 80% | 162 | 168 | 197 | 232 | 266 | 274 | 268 | 332 | 313 | 195 | 158 | 168 |
| 90% | 155 | 154 | 172 | 187 | 204 | 205 | 225 | 245 | 246 | 163 | 136 | 159 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 199 | 220 | 261 | 310 | 353 | 372 | 359 | 415 | 411 | 307 | 207 | 195 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 256 | 279 | 311 | 382 | 426 | 448 | 360 | 428 | 509 | 464 | 312 | 256 |
| Above Normal (24%) | 202 | 241 | 291 | 340 | 417 | 447 | 404 | 491 | 496 | 355 | 210 | 184 |
| Below Normal (10%) | 192 | 209 | 244 | 297 | 354 | 360 | 348 | 401 | 393 | 283 | 185 | 180 |
| Dry (16%) | 177 | 202 | 246 | 302 | 327 | 343 | 386 | 426 | 372 | 231 | 162 | 181 |
| Critical (27%) | 161 | 162 | 202 | 231 | 247 | 260 | 306 | 334 | 278 | 182 | 148 | 168 |

### Alternative 4 043019

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 258 | 292 | 374 | 439 | 439 | 479 | 488 | 524 | 524 | 495 | 311 | 258 |
| 20% | 224 | 267 | 318 | 412 | 439 | 479 | 447 | 523 | 521 | 433 | 260 | 213 |
| 30% | 211 | 250 | 293 | 351 | 439 | 472 | 421 | 479 | 503 | 361 | 210 | 194 |
| 40% | 197 | 223 | 270 | 333 | 419 | 436 | 396 | 455 | 477 | 323 | 188 | 183 |
| 50% | 189 | 210 | 252 | 303 | 383 | 396 | 373 | 430 | 418 | 283 | 178 | 179 |
| 60% | 178 | 194 | 232 | 288 | 339 | 368 | 344 | 403 | 394 | 257 | 169 | 175 |
| 70% | 172 | 176 | 213 | 258 | 315 | 326 | 308 | 382 | 364 | 228 | 162 | 172 |
| 80% | 162 | 168 | 197 | 232 | 266 | 274 | 268 | 332 | 313 | 195 | 158 | 168 |
| 90% | 155 | 154 | 172 | 187 | 204 | 205 | 225 | 245 | 246 | 163 | 136 | 159 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 199 | 220 | 261 | 310 | 353 | 372 | 359 | 415 | 411 | 307 | 207 | 195 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 256 | 279 | 311 | 382 | 426 | 448 | 360 | 428 | 509 | 464 | 312 | 256 |
| Above Normal (24%) | 202 | 241 | 291 | 340 | 417 | 447 | 404 | 491 | 496 | 355 | 210 | 184 |
| Below Normal (10%) | 192 | 209 | 244 | 297 | 354 | 360 | 348 | 401 | 393 | 283 | 185 | 180 |
| Dry (16%) | 177 | 202 | 246 | 302 | 327 | 343 | 386 | 426 | 372 | 231 | 162 | 181 |
| Critical (27%) | 161 | 162 | 202 | 231 | 247 | 260 | 306 | 334 | 278 | 182 | 148 | 168 |

### Alternative 4 043019 minus No Action Alternative 011319

| | End of Month Storage (TAF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 |
| Critical (27%) | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

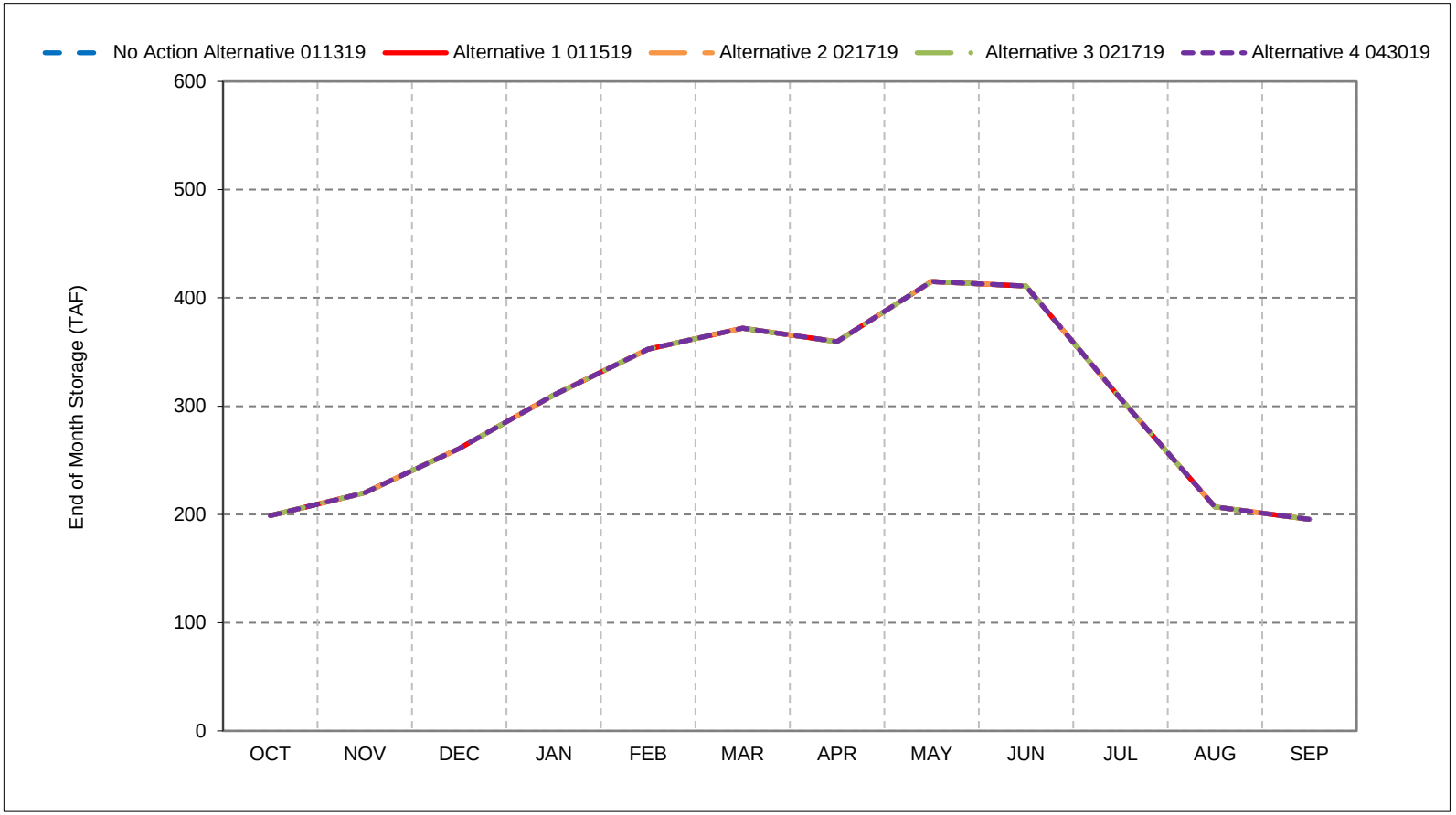
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

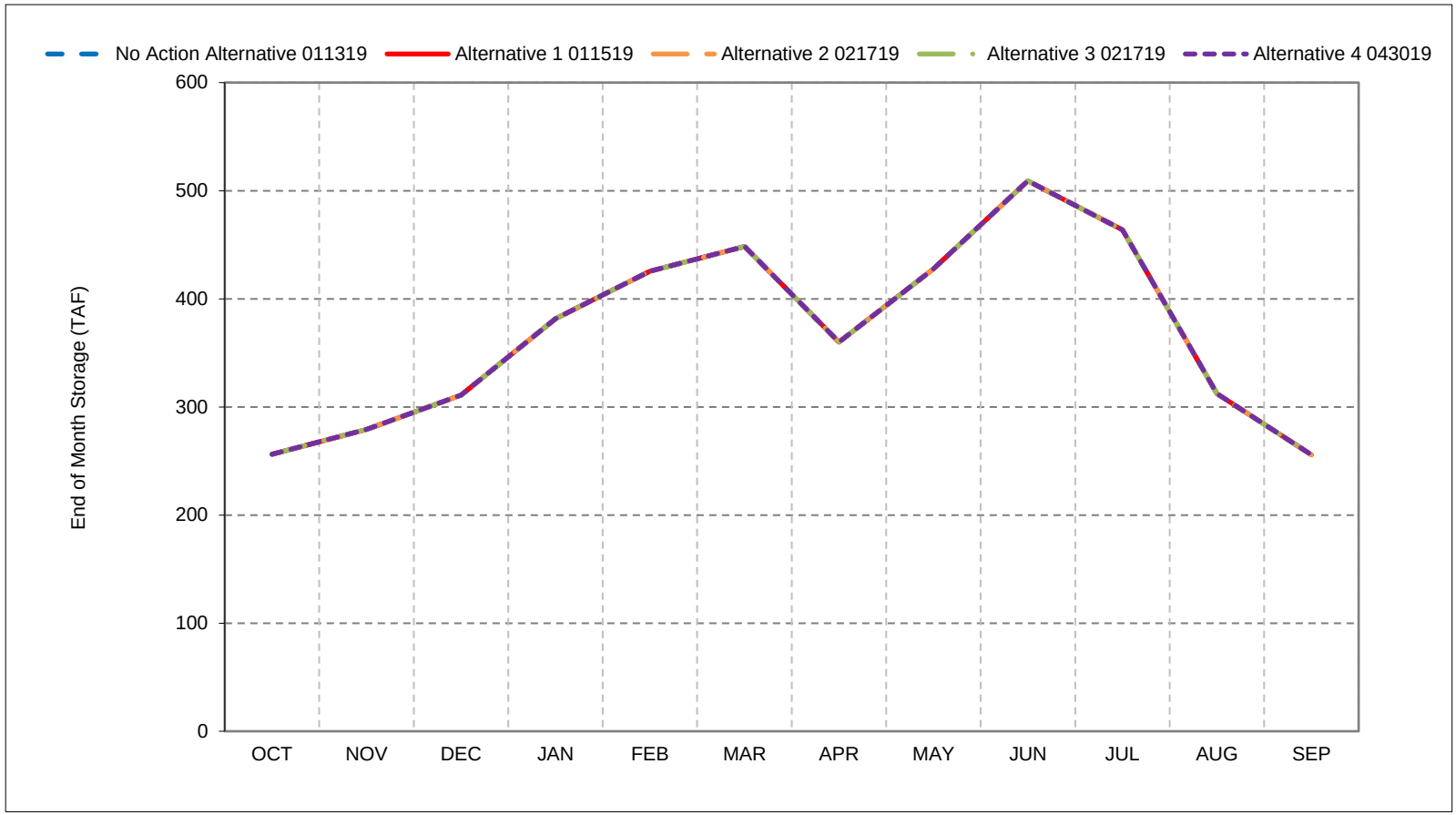
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-1. Millerton Lake Storage, Long-Term Average Storage



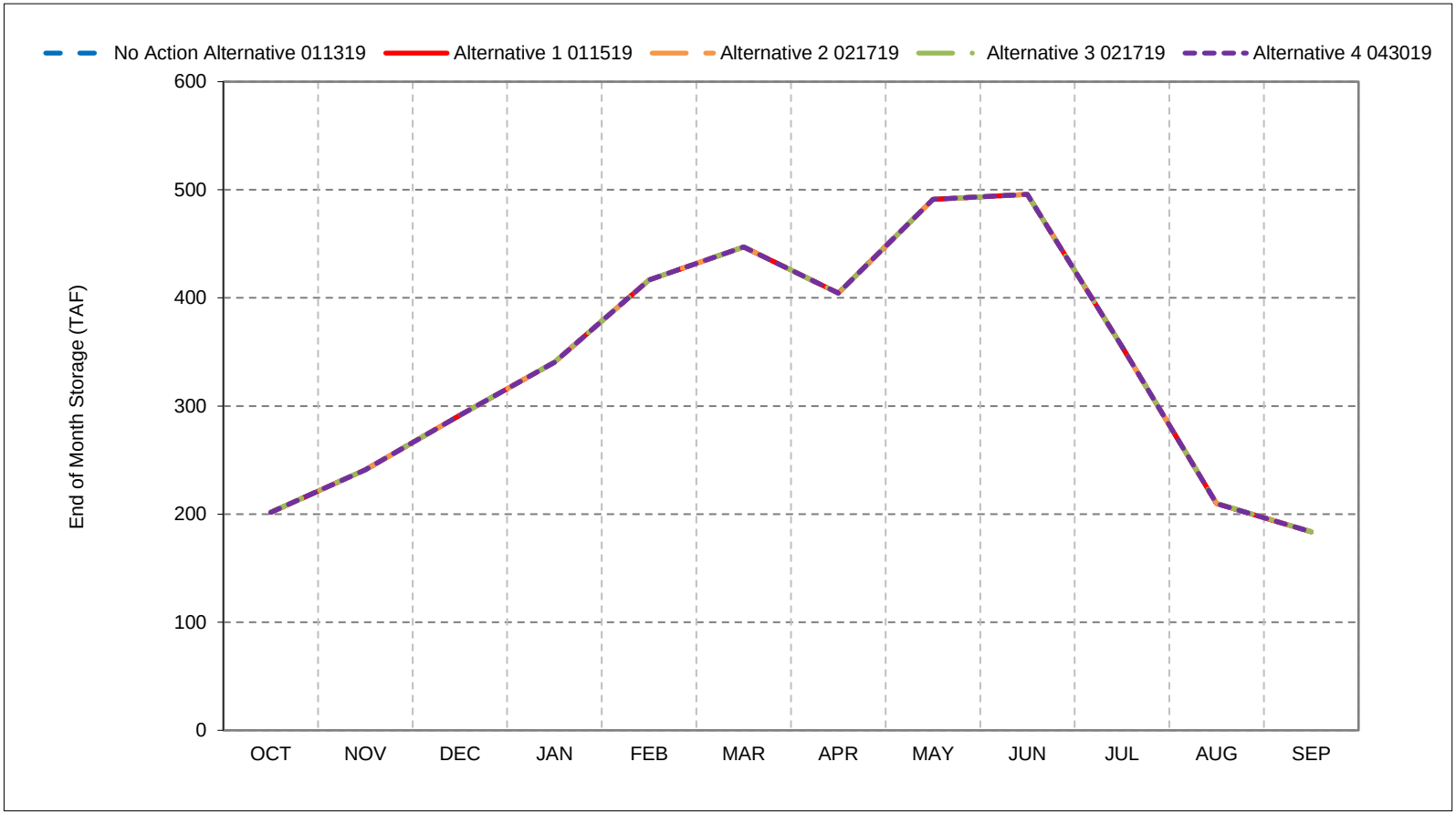

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-2. Millerton Lake Storage, Wet Year Average Storage



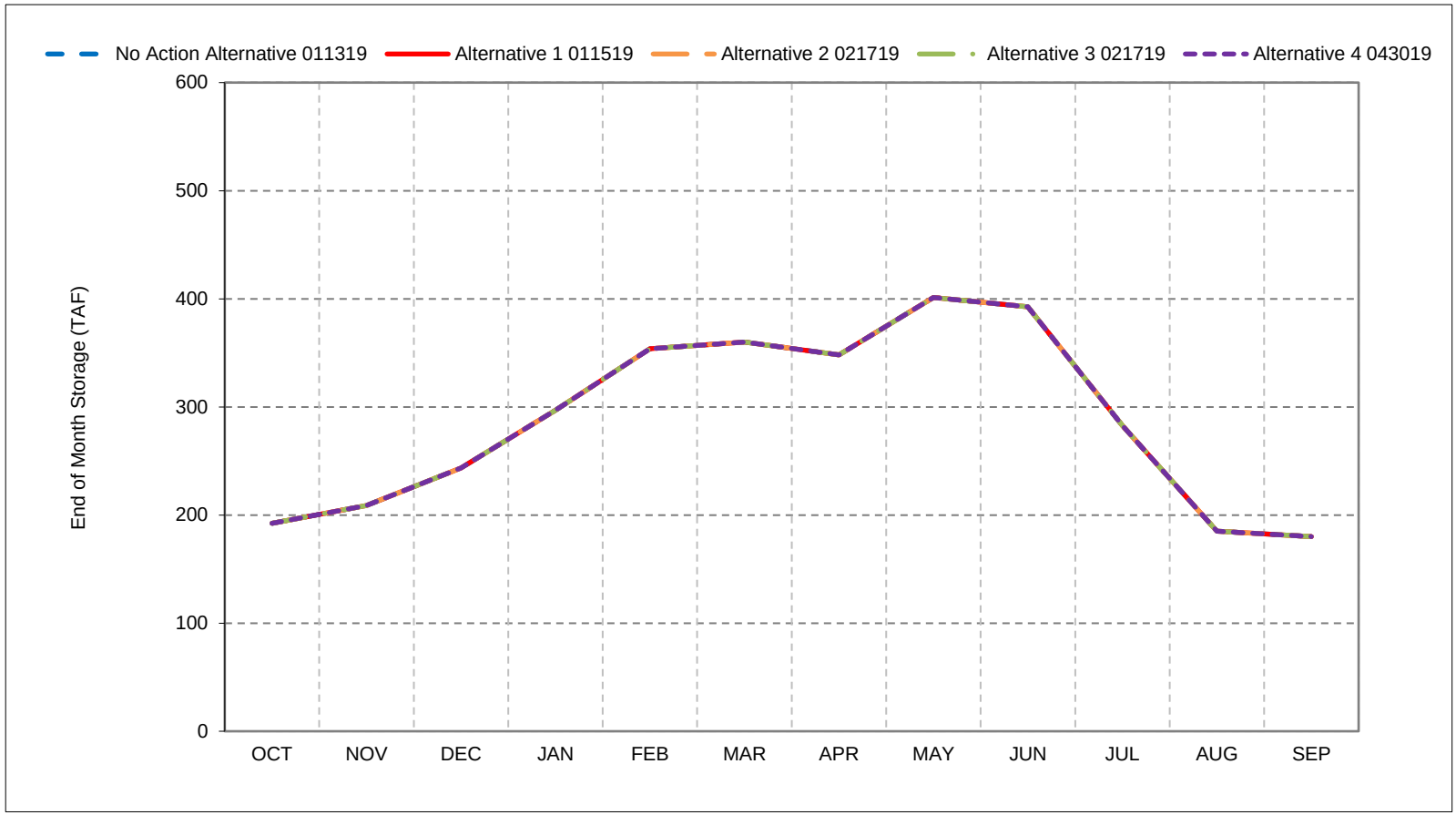

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-3. Millerton Lake Storage, Above Normal Year Average Storage



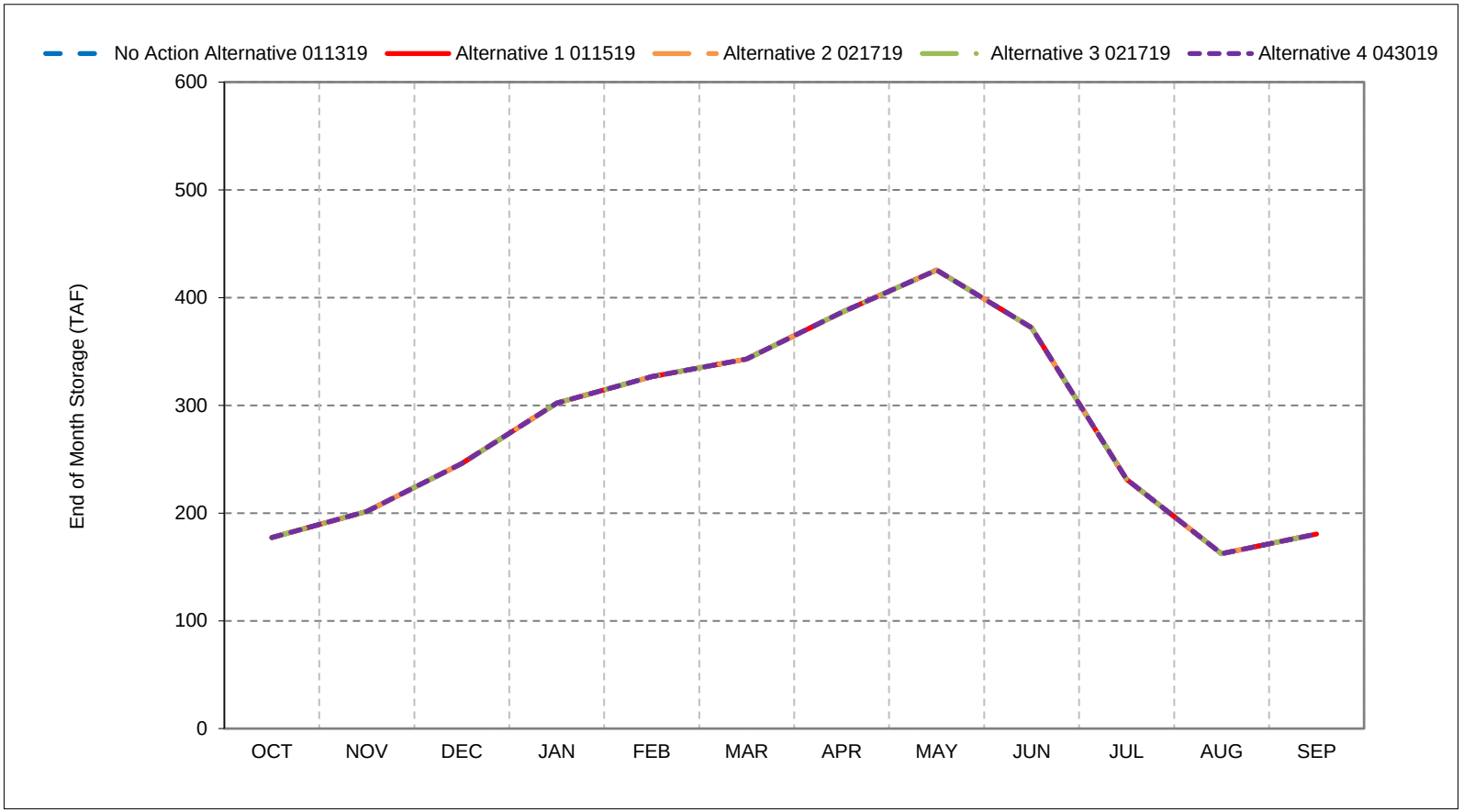

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-4. Millerton Lake Storage, Below Normal Year Average Storage



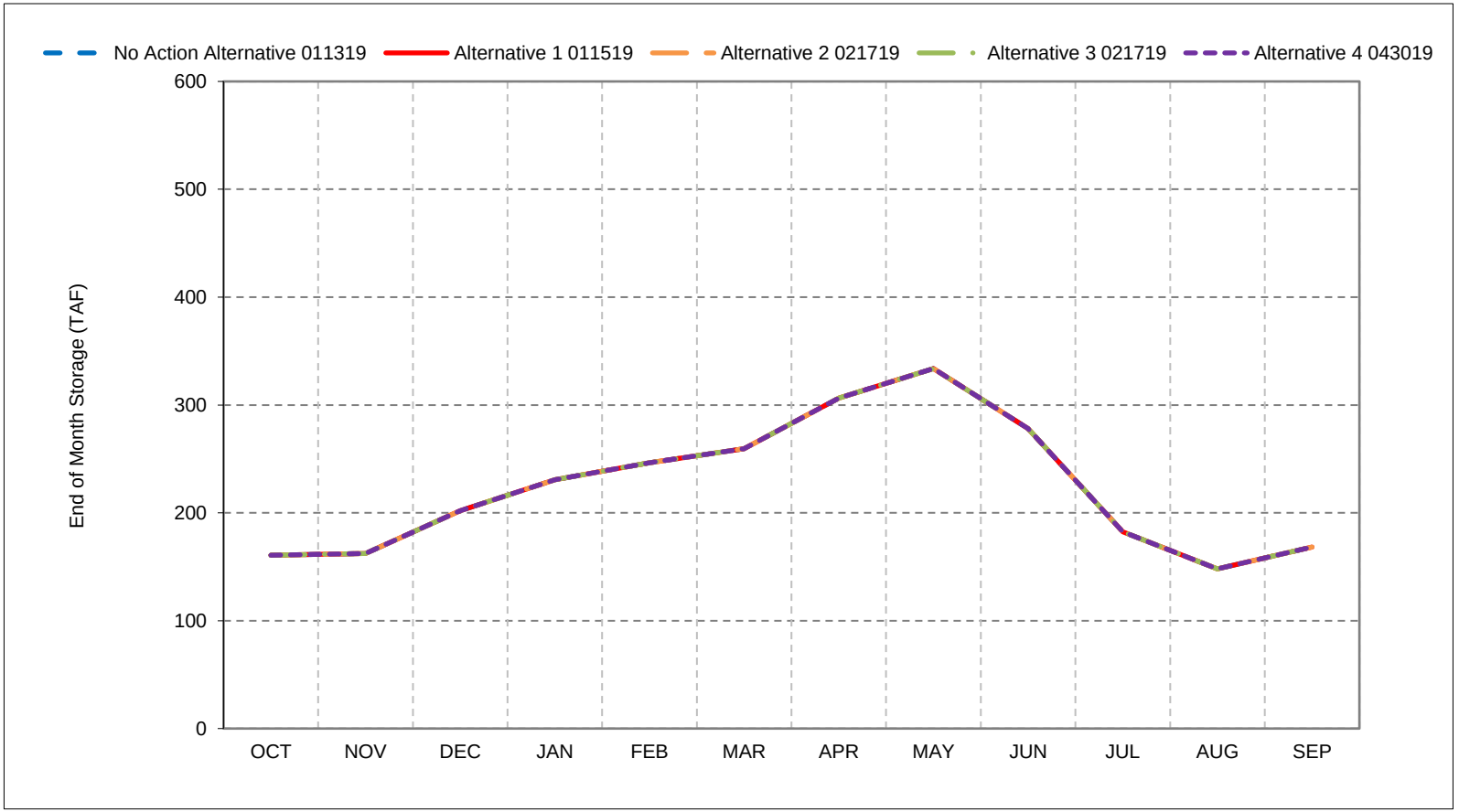

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-5. Millerton Lake Storage, Dry Year Average Storage



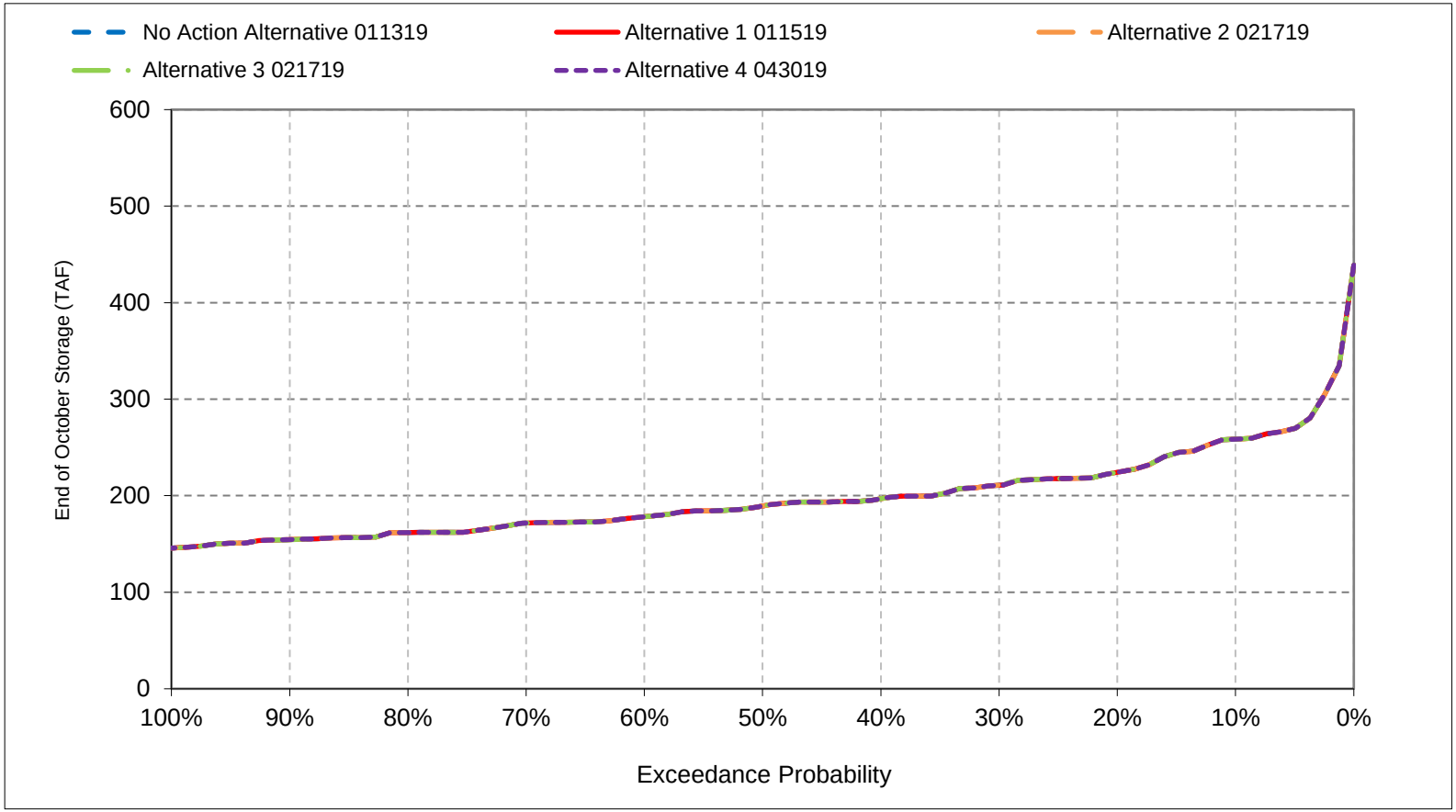

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-6. Millerton Lake Storage, Critical Year Average Storage



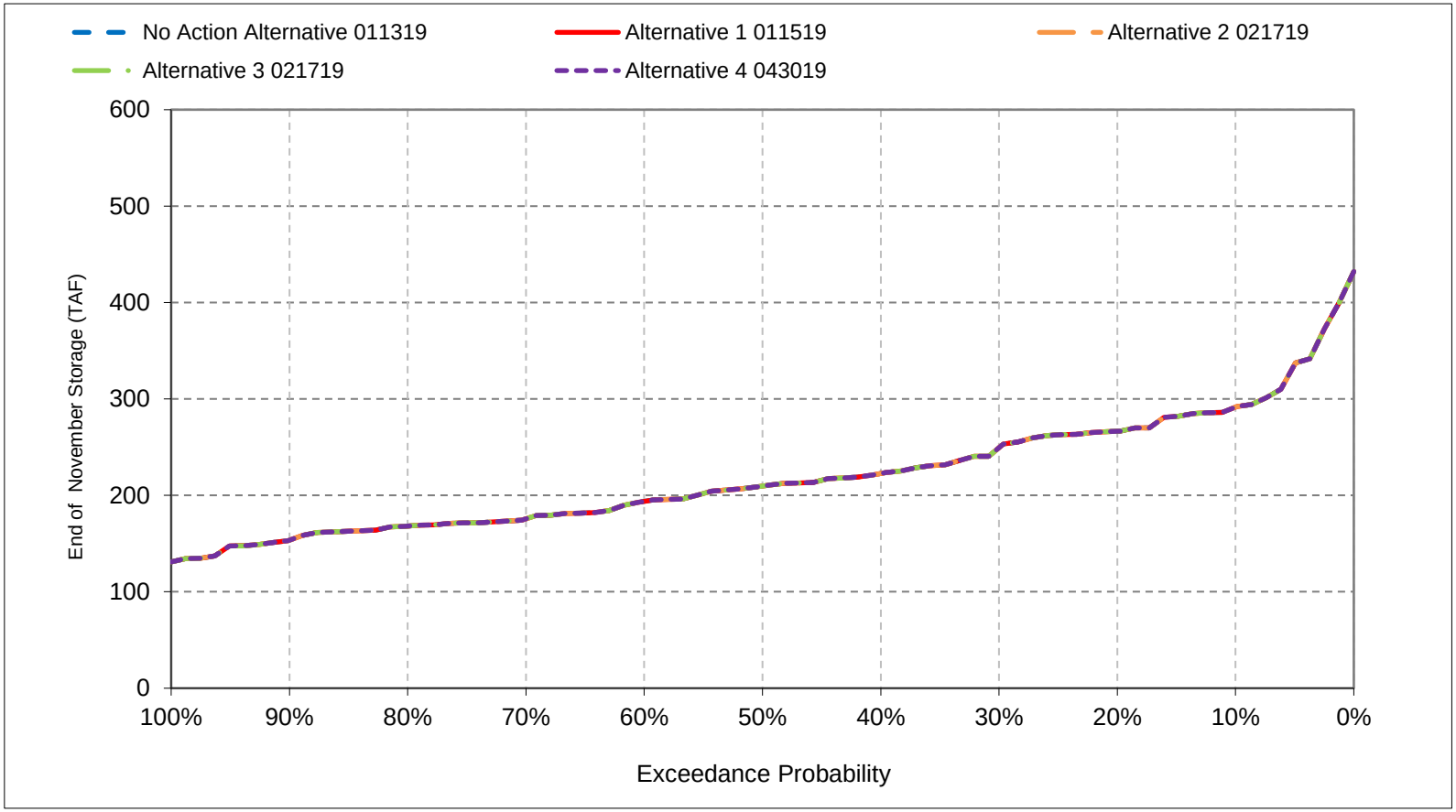

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-7. Millerton Storage, End of October Storage



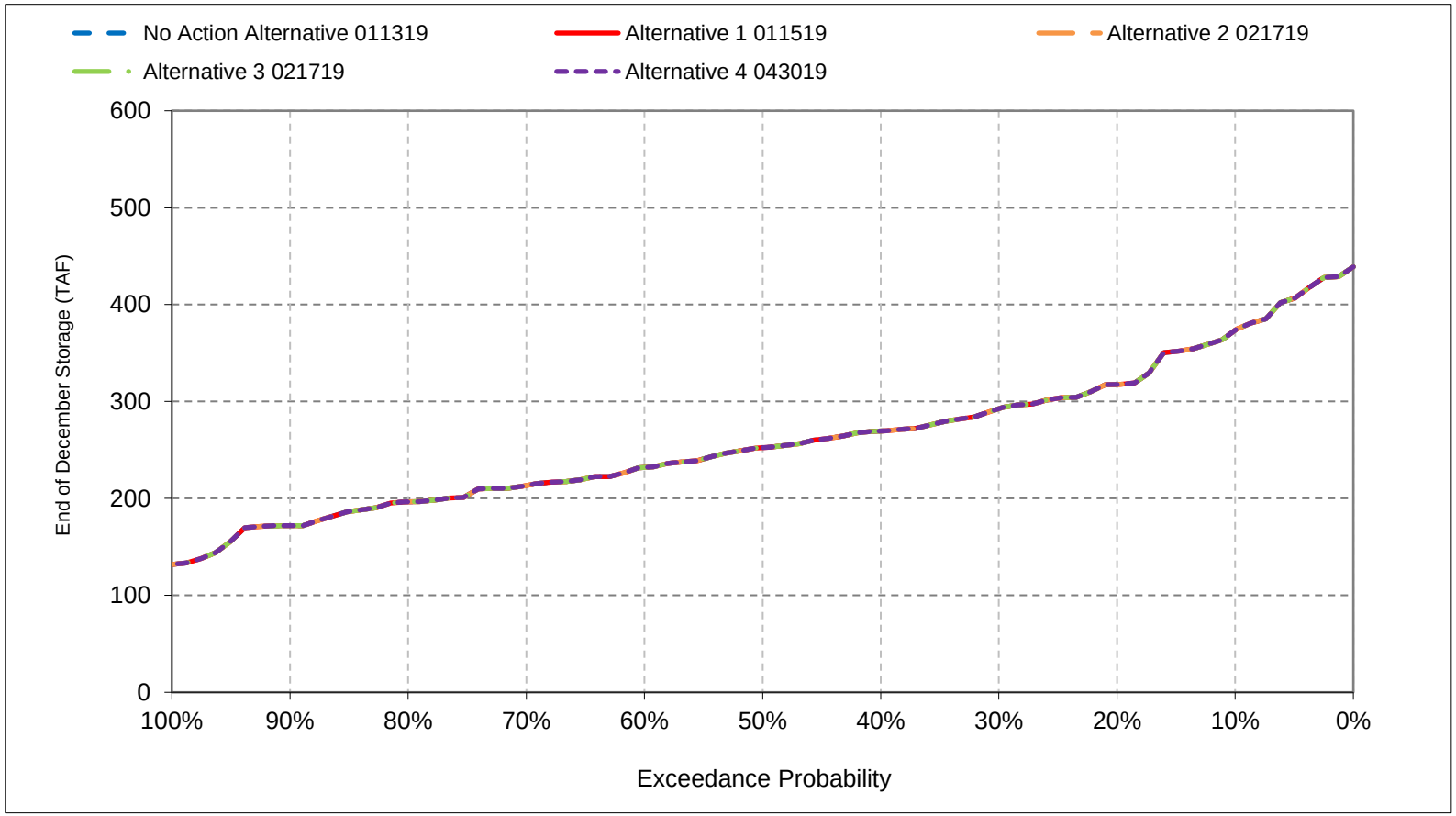

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-8. Millerton Storage, End of November Storage



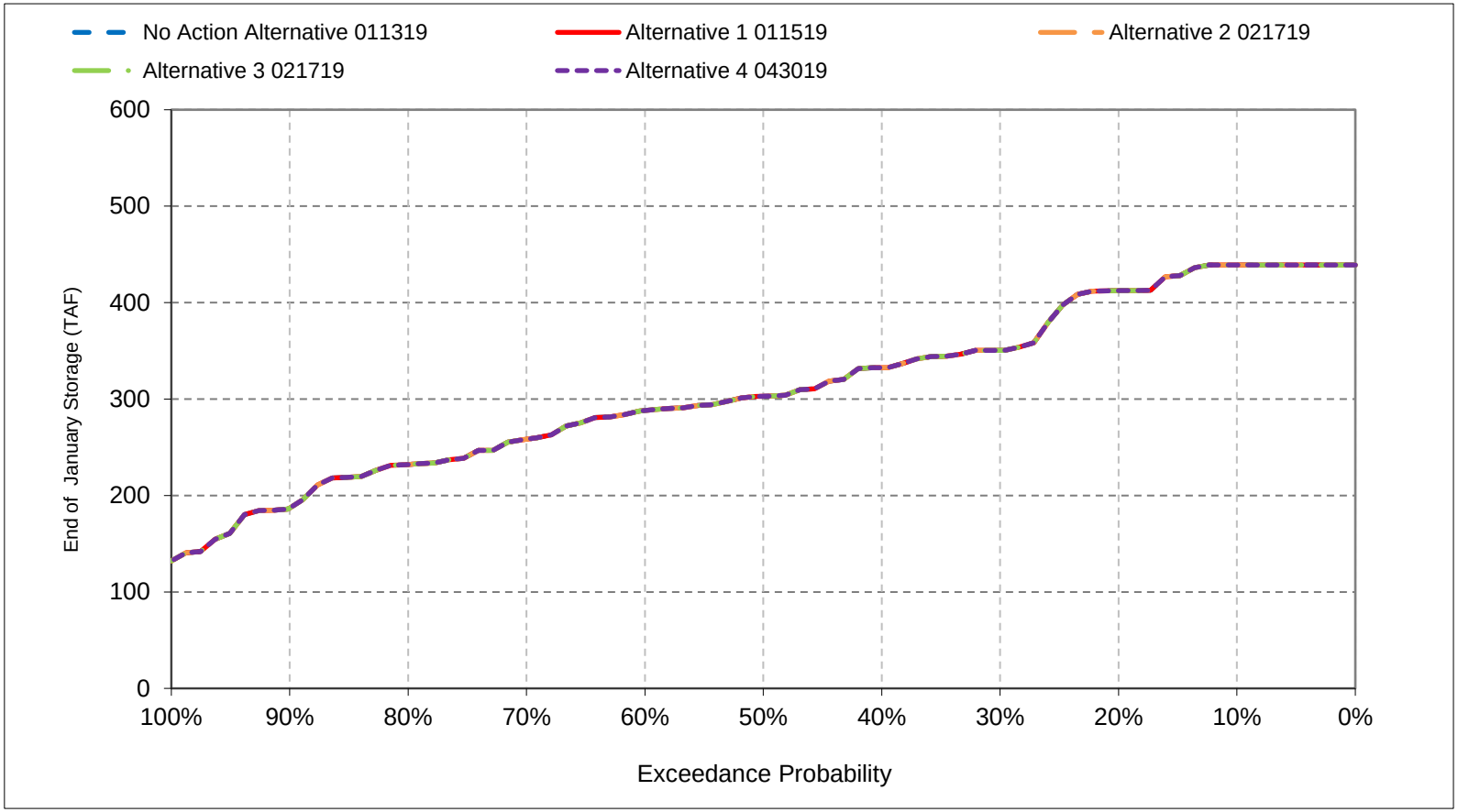

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-9. Millerton Storage, End of December Storage



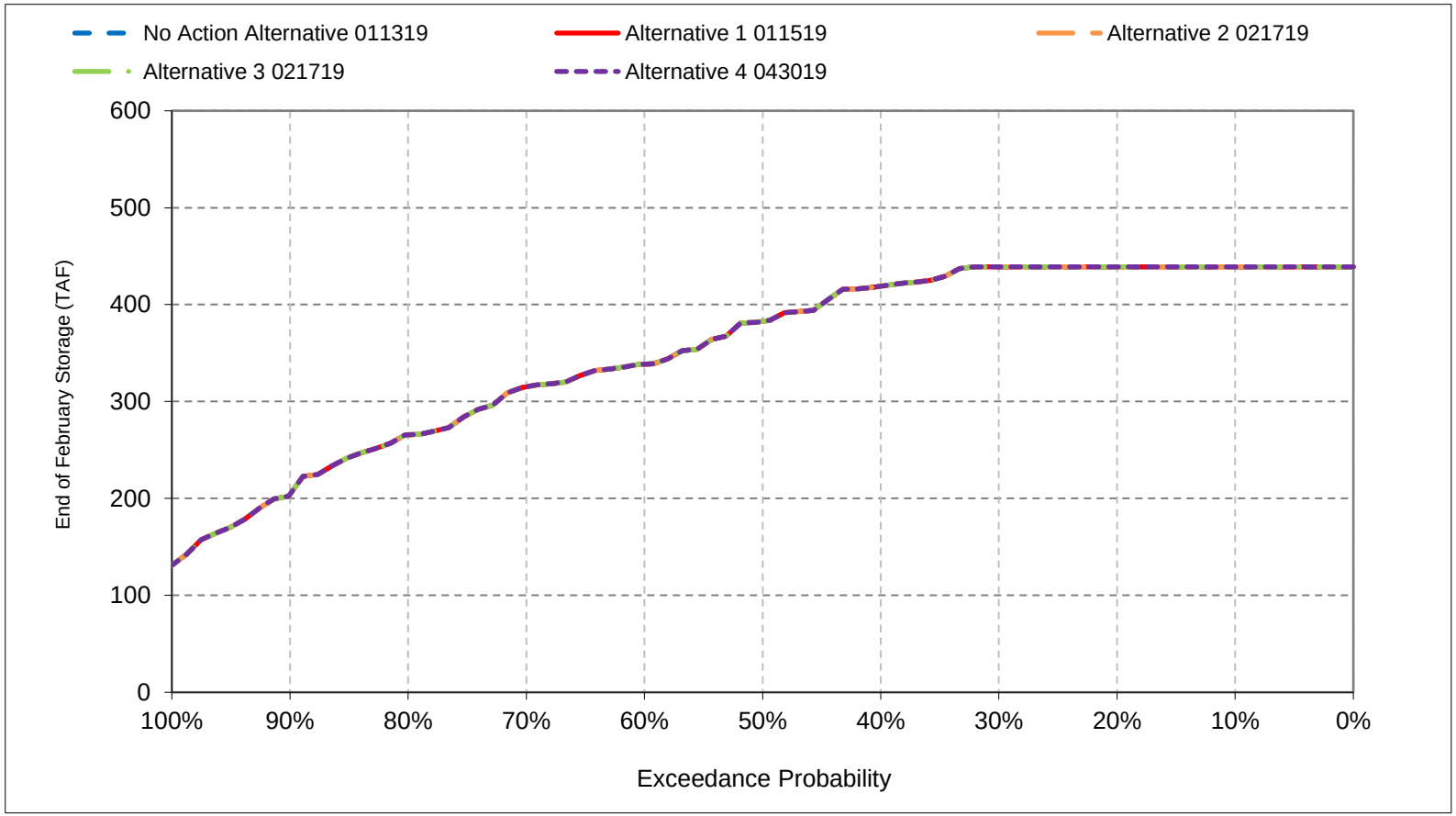

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-10. Millerton Storage, End of January Storage



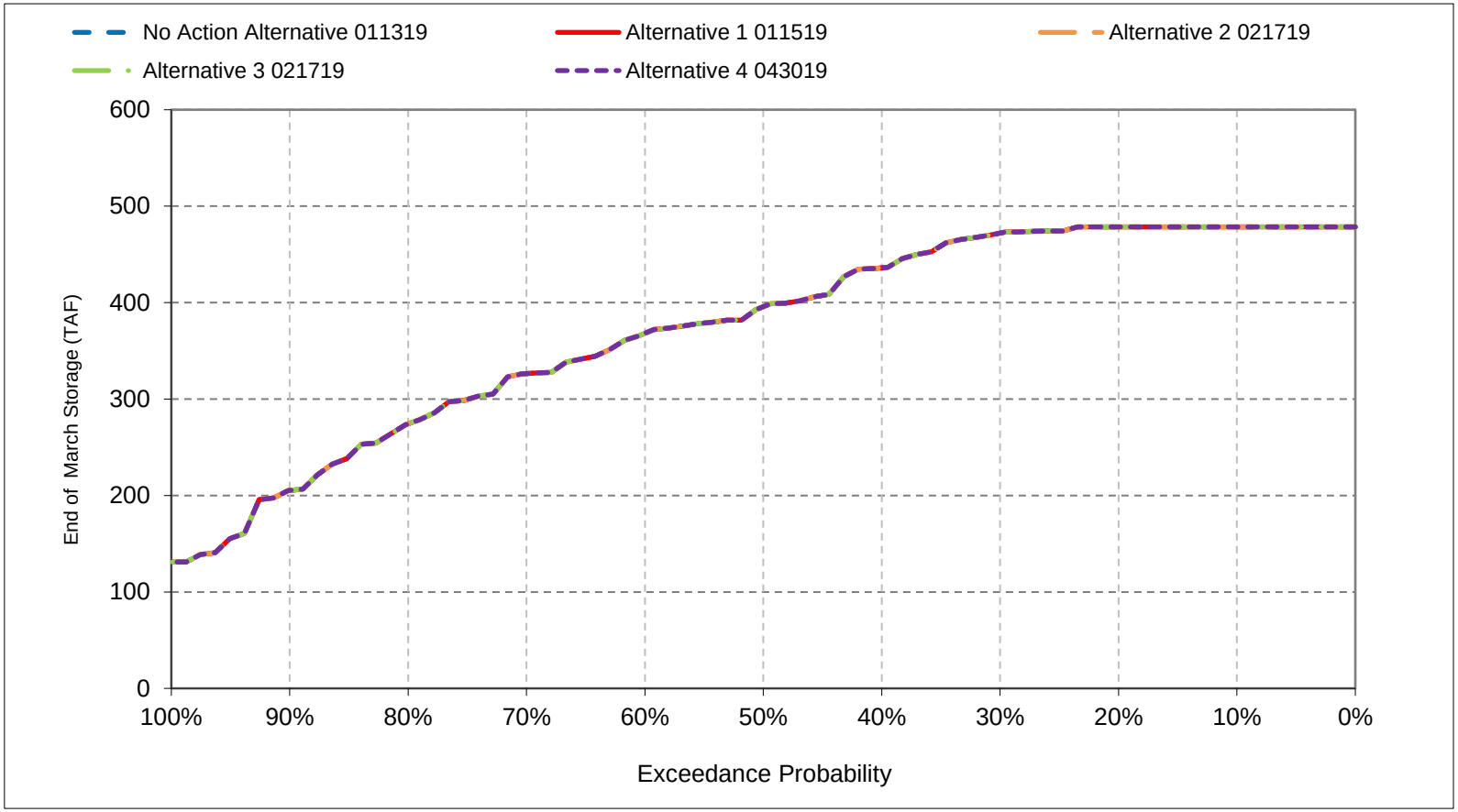

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-11. Millerton Storage, End of February Storage



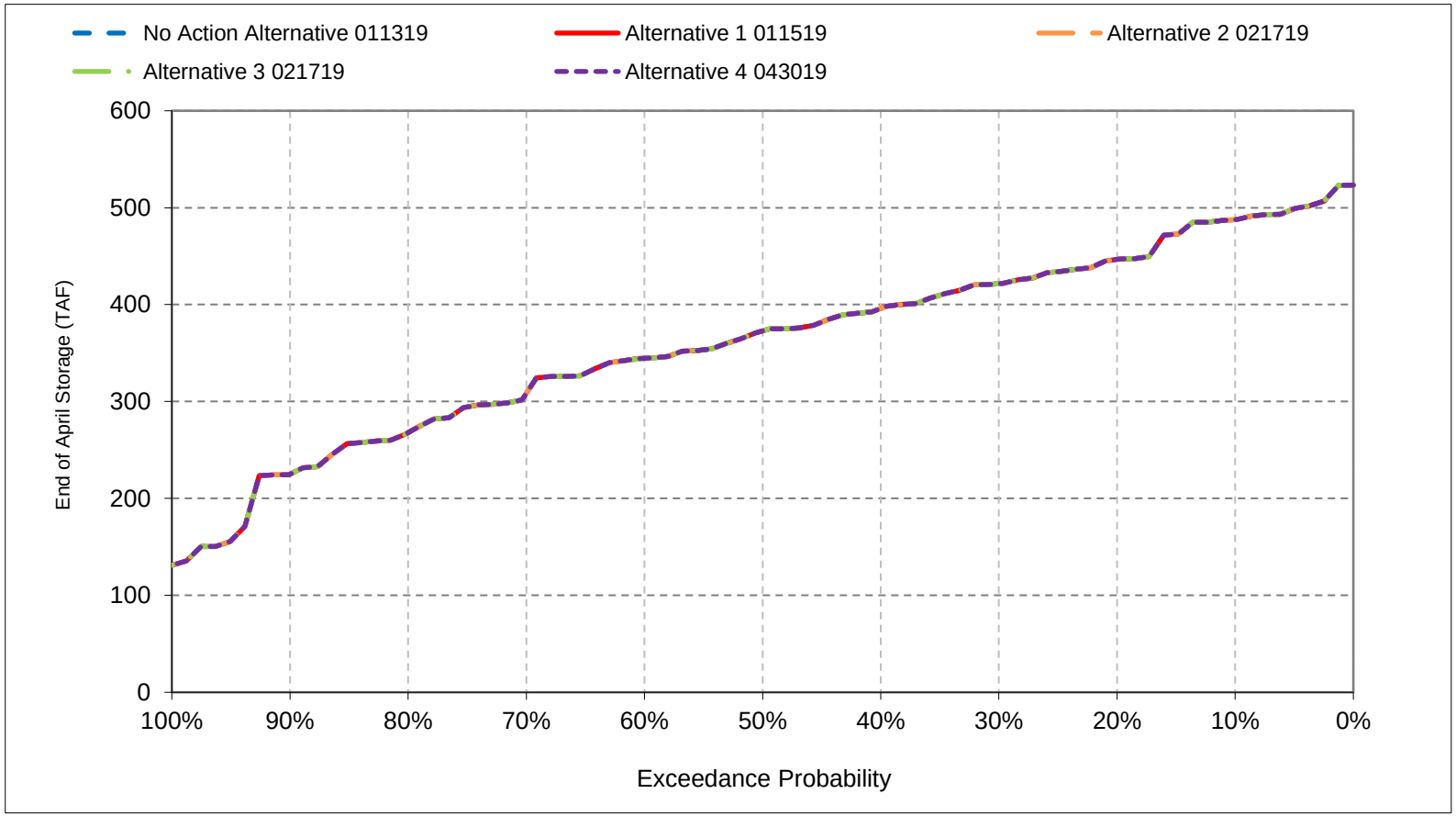

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-12. Millerton Storage, End of March Storage



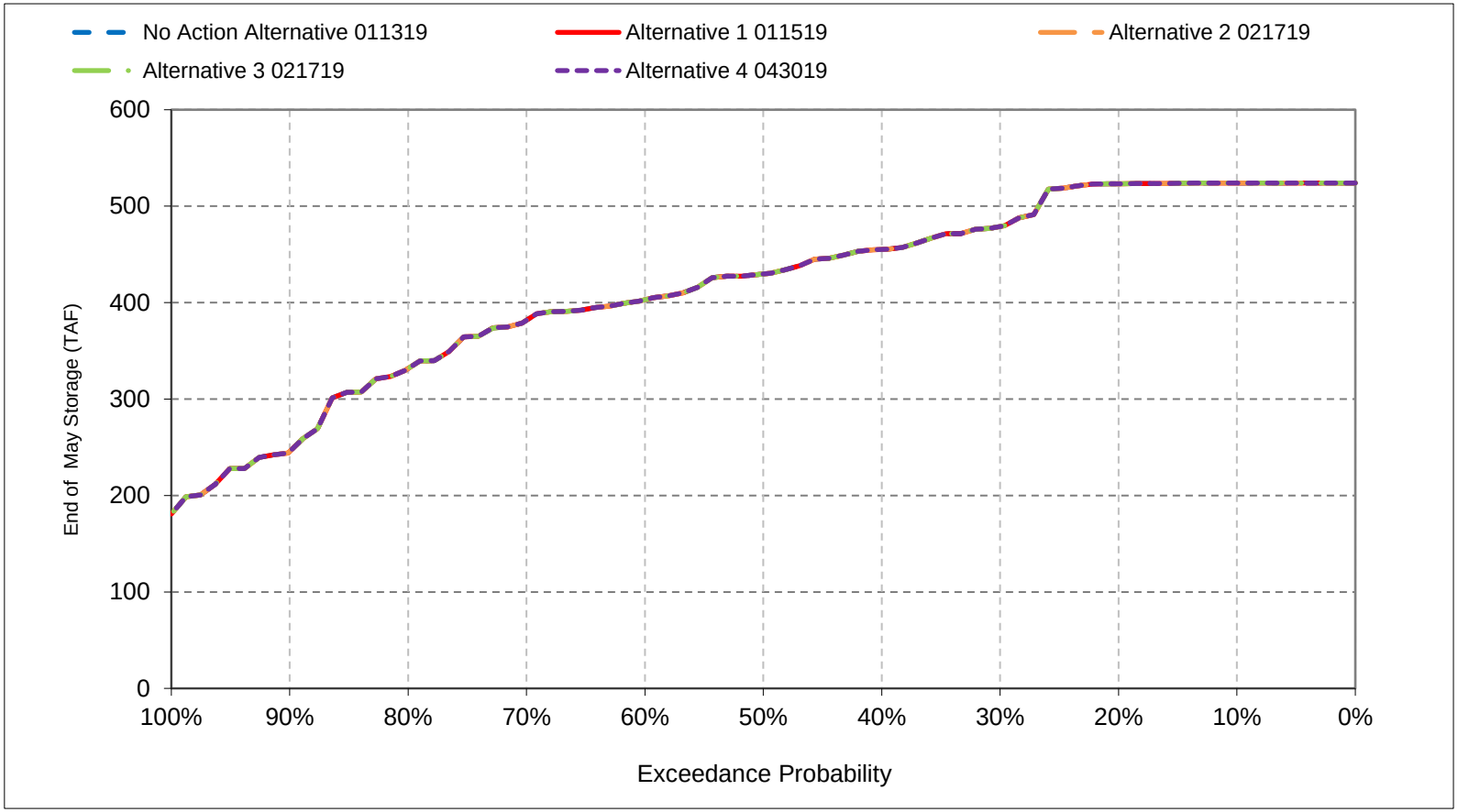

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-13. Millerton Storage, End of April Storage



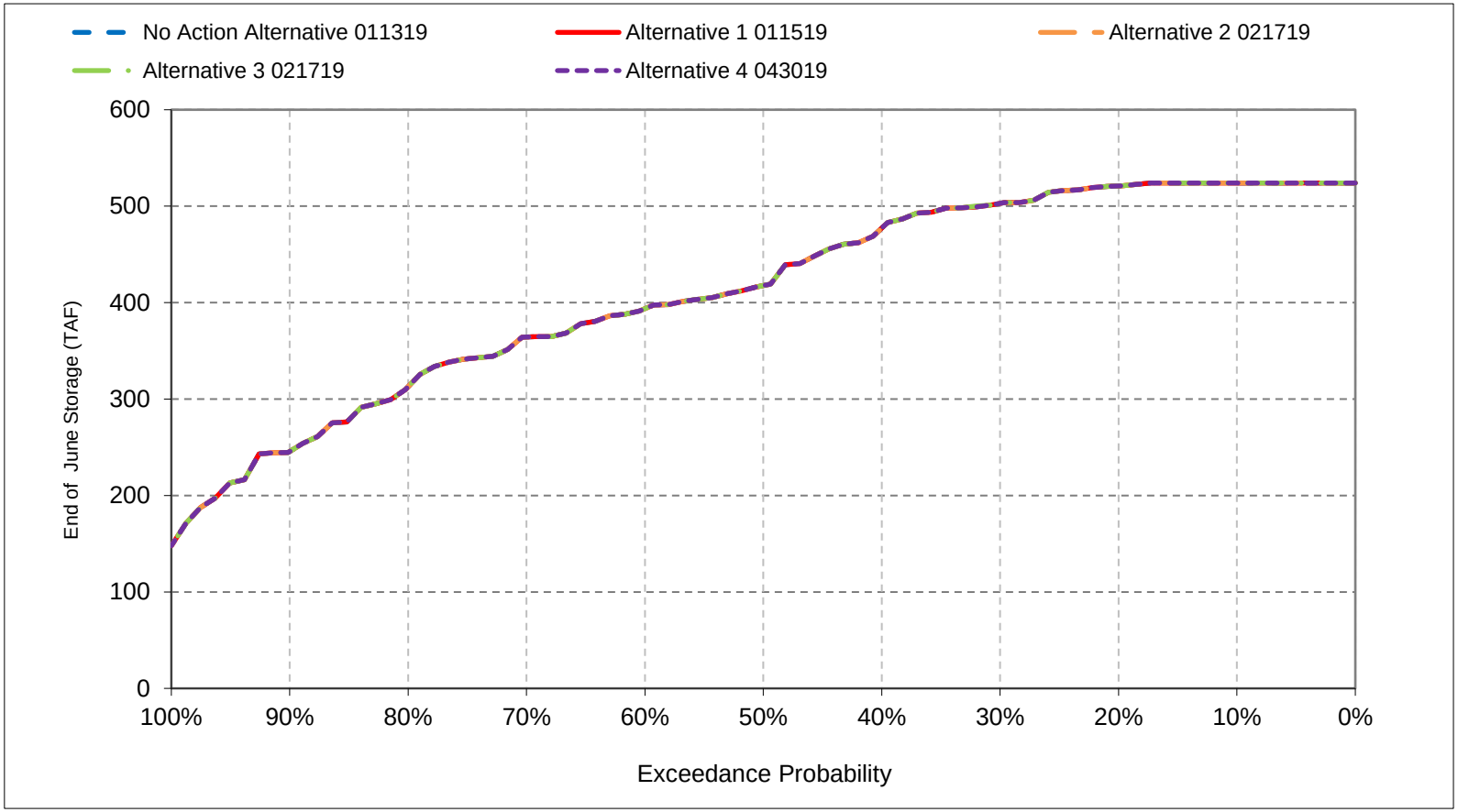

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-14. Millerton Storage, End of May Storage



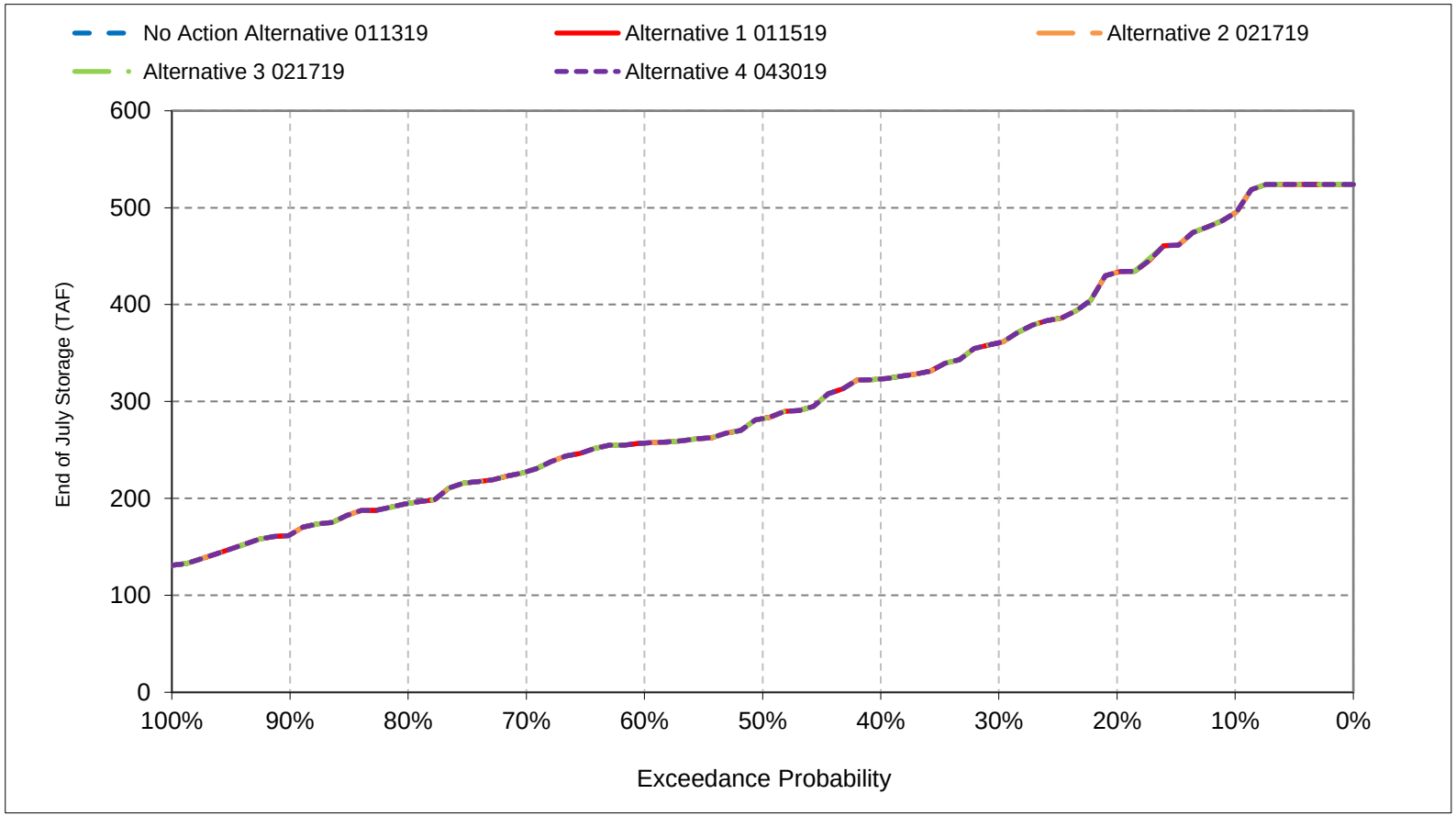

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-15. Millerton Storage, End of June Storage



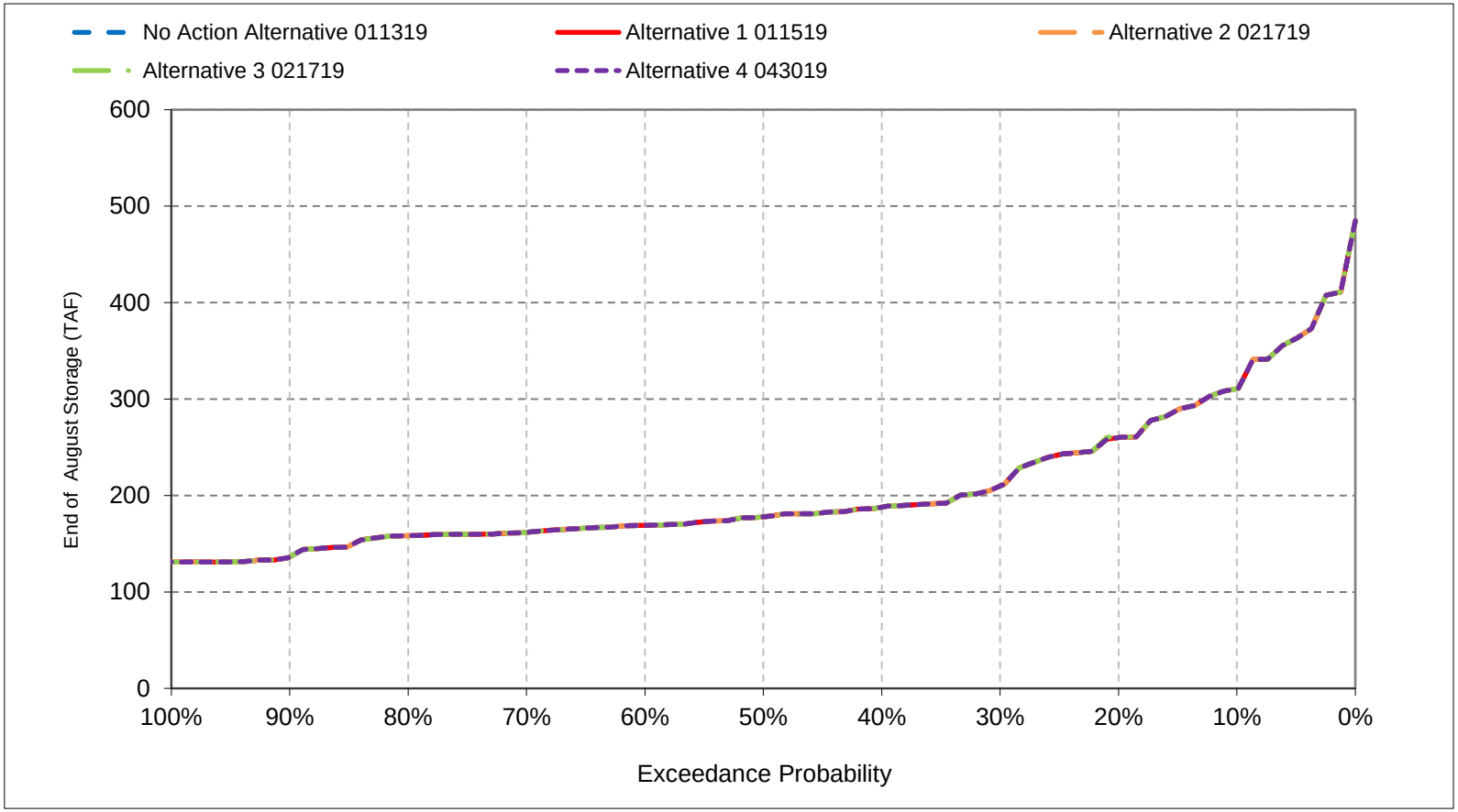

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-16. Millerton Storage, End of July Storage



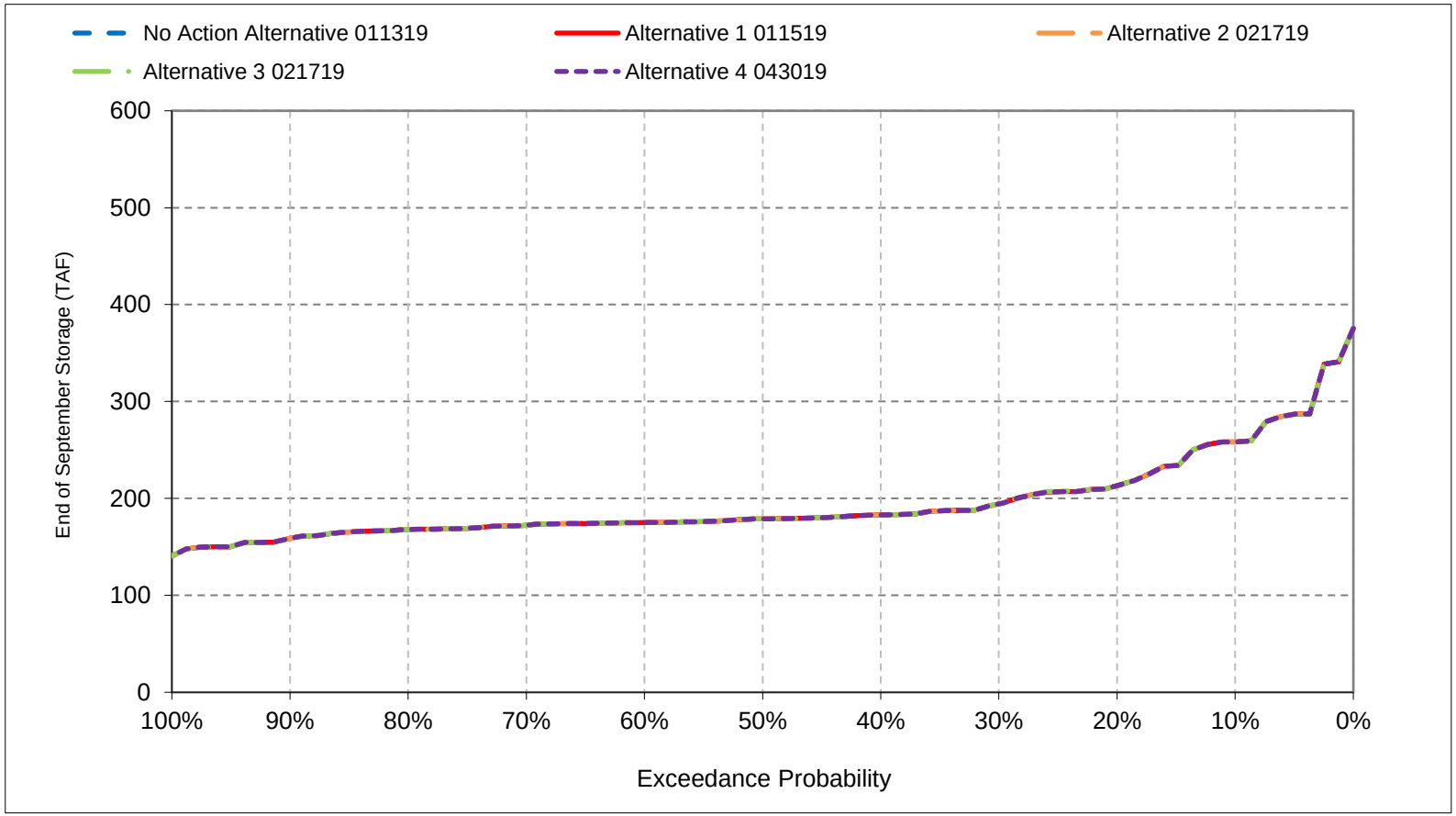

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-17. Millerton Storage, End of August Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-18. Millerton Storage, End of September Storage




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

# Table 8a-1. Millerton Lake Elevation, End of Month Elevation

## No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 515 | 524 | 546 | 561 | 561 | 568 | 570 | 577 | 577 | 571 | 530 | 515 |
| 20% | 503 | 517 | 532 | 555 | 561 | 568 | 562 | 577 | 576 | 559 | 515 | 499 |
| 30% | 498 | 512 | 525 | 540 | 561 | 567 | 557 | 568 | 573 | 543 | 498 | 493 |
| 40% | 493 | 502 | 518 | 536 | 556 | 560 | 551 | 564 | 568 | 533 | 490 | 488 |
| 50% | 491 | 498 | 513 | 528 | 549 | 551 | 546 | 559 | 556 | 522 | 486 | 486 |
| 60% | 486 | 492 | 506 | 523 | 537 | 545 | 539 | 553 | 551 | 514 | 482 | 484 |
| 70% | 483 | 485 | 499 | 514 | 531 | 534 | 529 | 548 | 544 | 504 | 479 | 483 |
| 80% | 479 | 481 | 493 | 506 | 517 | 519 | 517 | 536 | 531 | 493 | 477 | 481 |
| 90% | 475 | 475 | 483 | 490 | 496 | 496 | 503 | 510 | 510 | 479 | 467 | 477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 493 | 500 | 513 | 527 | 538 | 542 | 540 | 553 | 552 | 524 | 494 | 491 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 512 | 520 | 529 | 547 | 558 | 562 | 539 | 556 | 574 | 565 | 528 | 512 |
| Above Normal (24%) | 495 | 508 | 523 | 536 | 555 | 562 | 552 | 570 | 572 | 541 | 497 | 487 |
| Below Normal (10%) | 492 | 497 | 509 | 524 | 540 | 542 | 539 | 552 | 550 | 521 | 488 | 487 |
| Dry (16%) | 485 | 493 | 508 | 526 | 533 | 535 | 546 | 556 | 545 | 505 | 479 | 487 |
| Critical (27%) | 478 | 479 | 493 | 503 | 508 | 511 | 526 | 533 | 518 | 486 | 472 | 482 |

## Alternative 1 011519

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 515 | 524 | 546 | 561 | 561 | 568 | 570 | 577 | 577 | 571 | 530 | 515 |
| 20% | 503 | 517 | 532 | 555 | 561 | 568 | 562 | 577 | 576 | 559 | 515 | 499 |
| 30% | 498 | 512 | 525 | 540 | 561 | 567 | 557 | 568 | 573 | 543 | 498 | 493 |
| 40% | 493 | 502 | 518 | 536 | 556 | 560 | 551 | 564 | 568 | 533 | 490 | 488 |
| 50% | 491 | 498 | 513 | 528 | 549 | 551 | 546 | 559 | 556 | 522 | 486 | 486 |
| 60% | 486 | 492 | 506 | 523 | 537 | 545 | 539 | 553 | 551 | 514 | 482 | 484 |
| 70% | 483 | 485 | 499 | 514 | 531 | 534 | 529 | 548 | 544 | 504 | 479 | 483 |
| 80% | 479 | 481 | 493 | 506 | 517 | 519 | 517 | 536 | 531 | 493 | 477 | 481 |
| 90% | 475 | 475 | 483 | 490 | 496 | 496 | 503 | 510 | 510 | 479 | 467 | 477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 493 | 500 | 513 | 527 | 538 | 542 | 540 | 553 | 552 | 524 | 494 | 491 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 512 | 520 | 529 | 547 | 558 | 562 | 539 | 556 | 574 | 565 | 528 | 512 |
| Above Normal (24%) | 495 | 508 | 523 | 536 | 555 | 562 | 552 | 570 | 572 | 541 | 497 | 487 |
| Below Normal (10%) | 492 | 497 | 509 | 524 | 540 | 542 | 539 | 552 | 550 | 521 | 488 | 487 |
| Dry (16%) | 485 | 493 | 508 | 526 | 533 | 535 | 546 | 556 | 545 | 505 | 479 | 487 |
| Critical (27%) | 478 | 479 | 493 | 503 | 508 | 511 | 526 | 533 | 518 | 486 | 472 | 482 |

## Alternative 1 011519 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 |
| Critical (27%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 8a-2. Millerton Lake Elevation, End of Month Elevation

### No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 515 | 524 | 546 | 561 | 561 | 568 | 570 | 577 | 577 | 571 | 530 | 515 |
| 20% | 503 | 517 | 532 | 555 | 561 | 568 | 562 | 577 | 576 | 559 | 515 | 499 |
| 30% | 498 | 512 | 525 | 540 | 561 | 567 | 557 | 568 | 573 | 543 | 498 | 493 |
| 40% | 493 | 502 | 518 | 536 | 556 | 560 | 551 | 564 | 568 | 533 | 490 | 488 |
| 50% | 491 | 498 | 513 | 528 | 549 | 551 | 546 | 559 | 556 | 522 | 486 | 486 |
| 60% | 486 | 492 | 506 | 523 | 537 | 545 | 539 | 553 | 551 | 514 | 482 | 484 |
| 70% | 483 | 485 | 499 | 514 | 531 | 534 | 529 | 548 | 544 | 504 | 479 | 483 |
| 80% | 479 | 481 | 493 | 506 | 517 | 519 | 517 | 536 | 531 | 493 | 477 | 481 |
| 90% | 475 | 475 | 483 | 490 | 496 | 496 | 503 | 510 | 510 | 479 | 467 | 477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 493 | 500 | 513 | 527 | 538 | 542 | 540 | 553 | 552 | 524 | 494 | 491 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 512 | 520 | 529 | 547 | 558 | 562 | 539 | 556 | 574 | 565 | 528 | 512 |
| Above Normal (24%) | 495 | 508 | 523 | 536 | 555 | 562 | 552 | 570 | 572 | 541 | 497 | 487 |
| Below Normal (10%) | 492 | 497 | 509 | 524 | 540 | 542 | 539 | 552 | 550 | 521 | 488 | 487 |
| Dry (16%) | 485 | 493 | 508 | 526 | 533 | 535 | 546 | 556 | 545 | 505 | 479 | 487 |
| Critical (27%) | 478 | 479 | 493 | 503 | 508 | 511 | 526 | 533 | 518 | 486 | 472 | 482 |

### Alternative 2 021719

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 515 | 524 | 546 | 561 | 561 | 568 | 570 | 577 | 577 | 571 | 530 | 515 |
| 20% | 503 | 517 | 532 | 555 | 561 | 568 | 562 | 577 | 576 | 559 | 515 | 499 |
| 30% | 498 | 512 | 525 | 540 | 561 | 567 | 557 | 568 | 573 | 543 | 498 | 493 |
| 40% | 493 | 502 | 518 | 536 | 556 | 560 | 551 | 564 | 568 | 533 | 490 | 488 |
| 50% | 491 | 498 | 513 | 528 | 549 | 551 | 546 | 559 | 556 | 522 | 486 | 486 |
| 60% | 486 | 492 | 506 | 523 | 537 | 545 | 539 | 553 | 551 | 514 | 482 | 484 |
| 70% | 483 | 485 | 499 | 514 | 531 | 534 | 529 | 548 | 544 | 504 | 479 | 483 |
| 80% | 479 | 481 | 493 | 506 | 517 | 519 | 517 | 536 | 531 | 493 | 477 | 481 |
| 90% | 475 | 475 | 483 | 490 | 496 | 496 | 503 | 510 | 510 | 479 | 467 | 477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 493 | 500 | 513 | 527 | 538 | 542 | 540 | 553 | 552 | 524 | 494 | 491 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 512 | 520 | 529 | 547 | 558 | 562 | 539 | 556 | 574 | 565 | 528 | 512 |
| Above Normal (24%) | 495 | 508 | 523 | 536 | 555 | 562 | 552 | 570 | 572 | 541 | 497 | 487 |
| Below Normal (10%) | 492 | 497 | 509 | 524 | 540 | 542 | 539 | 552 | 550 | 521 | 488 | 487 |
| Dry (16%) | 485 | 493 | 508 | 526 | 533 | 535 | 546 | 556 | 545 | 505 | 479 | 487 |
| Critical (27%) | 478 | 479 | 493 | 503 | 508 | 511 | 526 | 533 | 518 | 486 | 472 | 482 |

### Alternative 2 021719 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | **0** | **0** | **0** | **0** | **0** | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| Critical (27%) | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 8a-3. Millerton Lake Elevation, End of Month Elevation

### No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 515 | 524 | 546 | 561 | 561 | 568 | 570 | 577 | 577 | 571 | 530 | 515 |
| 20% | 503 | 517 | 532 | 555 | 561 | 568 | 562 | 577 | 576 | 559 | 515 | 499 |
| 30% | 498 | 512 | 525 | 540 | 561 | 567 | 557 | 568 | 573 | 543 | 498 | 493 |
| 40% | 493 | 502 | 518 | 536 | 556 | 560 | 551 | 564 | 568 | 533 | 490 | 488 |
| 50% | 491 | 498 | 513 | 528 | 549 | 551 | 546 | 559 | 556 | 522 | 486 | 486 |
| 60% | 486 | 492 | 506 | 523 | 537 | 545 | 539 | 553 | 551 | 514 | 482 | 484 |
| 70% | 483 | 485 | 499 | 514 | 531 | 534 | 529 | 548 | 544 | 504 | 479 | 483 |
| 80% | 479 | 481 | 493 | 506 | 517 | 519 | 517 | 536 | 531 | 493 | 477 | 481 |
| 90% | 475 | 475 | 483 | 490 | 496 | 496 | 503 | 510 | 510 | 479 | 467 | 477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 493 | 500 | 513 | 527 | 538 | 542 | 540 | 553 | 552 | 524 | 494 | 491 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 512 | 520 | 529 | 547 | 558 | 562 | 539 | 556 | 574 | 565 | 528 | 512 |
| Above Normal (24%) | 495 | 508 | 523 | 536 | 555 | 562 | 552 | 570 | 572 | 541 | 497 | 487 |
| Below Normal (10%) | 492 | 497 | 509 | 524 | 540 | 542 | 539 | 552 | 550 | 521 | 488 | 487 |
| Dry (16%) | 485 | 493 | 508 | 526 | 533 | 535 | 546 | 556 | 545 | 505 | 479 | 487 |
| Critical (27%) | 478 | 479 | 493 | 503 | 508 | 511 | 526 | 533 | 518 | 486 | 472 | 482 |

### Alternative 3 021719

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 515 | 524 | 546 | 561 | 561 | 568 | 570 | 577 | 577 | 571 | 530 | 515 |
| 20% | 503 | 517 | 532 | 555 | 561 | 568 | 562 | 577 | 576 | 559 | 515 | 499 |
| 30% | 498 | 512 | 525 | 540 | 561 | 567 | 557 | 568 | 573 | 543 | 498 | 493 |
| 40% | 493 | 502 | 518 | 536 | 556 | 560 | 551 | 564 | 568 | 533 | 490 | 488 |
| 50% | 491 | 498 | 513 | 528 | 549 | 551 | 546 | 559 | 556 | 522 | 486 | 486 |
| 60% | 486 | 492 | 506 | 523 | 537 | 545 | 539 | 553 | 551 | 514 | 482 | 484 |
| 70% | 483 | 485 | 499 | 514 | 531 | 534 | 529 | 548 | 544 | 504 | 479 | 483 |
| 80% | 479 | 481 | 493 | 506 | 517 | 519 | 517 | 536 | 531 | 493 | 477 | 481 |
| 90% | 475 | 475 | 483 | 490 | 496 | 496 | 503 | 510 | 510 | 479 | 467 | 477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 493 | 500 | 513 | 527 | 538 | 542 | 540 | 553 | 552 | 524 | 494 | 491 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 512 | 520 | 529 | 547 | 558 | 562 | 539 | 556 | 574 | 565 | 528 | 512 |
| Above Normal (24%) | 495 | 508 | 523 | 536 | 555 | 562 | 552 | 570 | 572 | 541 | 497 | 488 |
| Below Normal (10%) | 492 | 497 | 509 | 524 | 540 | 542 | 539 | 552 | 550 | 521 | 488 | 487 |
| Dry (16%) | 485 | 493 | 508 | 526 | 533 | 535 | 546 | 556 | 545 | 505 | 479 | 487 |
| Critical (27%) | 478 | 479 | 493 | 503 | 508 | 511 | 526 | 533 | 518 | 486 | 472 | 481 |

### Alternative 3 021719 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | **0** | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** |
| 90% | **0** | 0 | **0** | 0 | **0** | 0 | 0 | **0** | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | **0** | **0** | **0** | **0** | **0** | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| Critical (27%) | **0** | **0** | **0** | **0** | 0 | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 8a-4. Millerton Lake Elevation, End of Month Elevation

## No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 515 | 524 | 546 | 561 | 561 | 568 | 570 | 577 | 577 | 571 | 530 | 515 |
| 20% | 503 | 517 | 532 | 555 | 561 | 568 | 562 | 577 | 576 | 559 | 515 | 499 |
| 30% | 498 | 512 | 525 | 540 | 561 | 567 | 557 | 568 | 573 | 543 | 498 | 493 |
| 40% | 493 | 502 | 518 | 536 | 556 | 560 | 551 | 564 | 568 | 533 | 490 | 488 |
| 50% | 491 | 498 | 513 | 528 | 549 | 551 | 546 | 559 | 556 | 522 | 486 | 486 |
| 60% | 486 | 492 | 506 | 523 | 537 | 545 | 539 | 553 | 551 | 514 | 482 | 484 |
| 70% | 483 | 485 | 499 | 514 | 531 | 534 | 529 | 548 | 544 | 504 | 479 | 483 |
| 80% | 479 | 481 | 493 | 506 | 517 | 519 | 517 | 536 | 531 | 493 | 477 | 481 |
| 90% | 475 | 475 | 483 | 490 | 496 | 496 | 503 | 510 | 510 | 479 | 467 | 477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 493 | 500 | 513 | 527 | 538 | 542 | 540 | 553 | 552 | 524 | 494 | 491 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 512 | 520 | 529 | 547 | 558 | 562 | 539 | 556 | 574 | 565 | 528 | 512 |
| Above Normal (24%) | 495 | 508 | 523 | 536 | 555 | 562 | 552 | 570 | 572 | 541 | 497 | 487 |
| Below Normal (10%) | 492 | 497 | 509 | 524 | 540 | 542 | 539 | 552 | 550 | 521 | 488 | 487 |
| Dry (16%) | 485 | 493 | 508 | 526 | 533 | 535 | 546 | 556 | 545 | 505 | 479 | 487 |
| Critical (27%) | 478 | 479 | 493 | 503 | 508 | 511 | 526 | 533 | 518 | 486 | 472 | 482 |

## Alternative 4 043019

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 515 | 524 | 546 | 561 | 561 | 568 | 570 | 577 | 577 | 571 | 530 | 515 |
| 20% | 503 | 517 | 532 | 555 | 561 | 568 | 562 | 577 | 576 | 559 | 515 | 499 |
| 30% | 498 | 512 | 525 | 540 | 561 | 567 | 557 | 568 | 573 | 543 | 498 | 493 |
| 40% | 493 | 502 | 518 | 536 | 556 | 560 | 551 | 564 | 568 | 533 | 490 | 488 |
| 50% | 491 | 498 | 513 | 528 | 549 | 551 | 546 | 559 | 556 | 522 | 486 | 486 |
| 60% | 486 | 492 | 506 | 523 | 537 | 545 | 539 | 553 | 551 | 514 | 482 | 484 |
| 70% | 483 | 485 | 499 | 514 | 531 | 534 | 529 | 548 | 544 | 504 | 479 | 483 |
| 80% | 479 | 481 | 493 | 506 | 517 | 519 | 517 | 536 | 531 | 493 | 477 | 481 |
| 90% | 475 | 475 | 483 | 490 | 496 | 496 | 503 | 510 | 510 | 479 | 467 | 477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 493 | 500 | 513 | 527 | 538 | 542 | 540 | 553 | 552 | 524 | 494 | 491 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 512 | 520 | 529 | 547 | 558 | 562 | 539 | 556 | 574 | 565 | 528 | 512 |
| Above Normal (24%) | 495 | 508 | 523 | 536 | 555 | 562 | 552 | 570 | 572 | 541 | 497 | 487 |
| Below Normal (10%) | 492 | 497 | 509 | 524 | 540 | 542 | 539 | 552 | 550 | 521 | 488 | 487 |
| Dry (16%) | 485 | 493 | 508 | 526 | 533 | 535 | 546 | 556 | 545 | 505 | 479 | 487 |
| Critical (27%) | 478 | 479 | 493 | 503 | 508 | 511 | 526 | 533 | 518 | 486 | 472 | 482 |

## Alternative 4 043019 minus No Action Alternative 011319

| | End of Month Elevation (FEET) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 |
| Critical (27%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

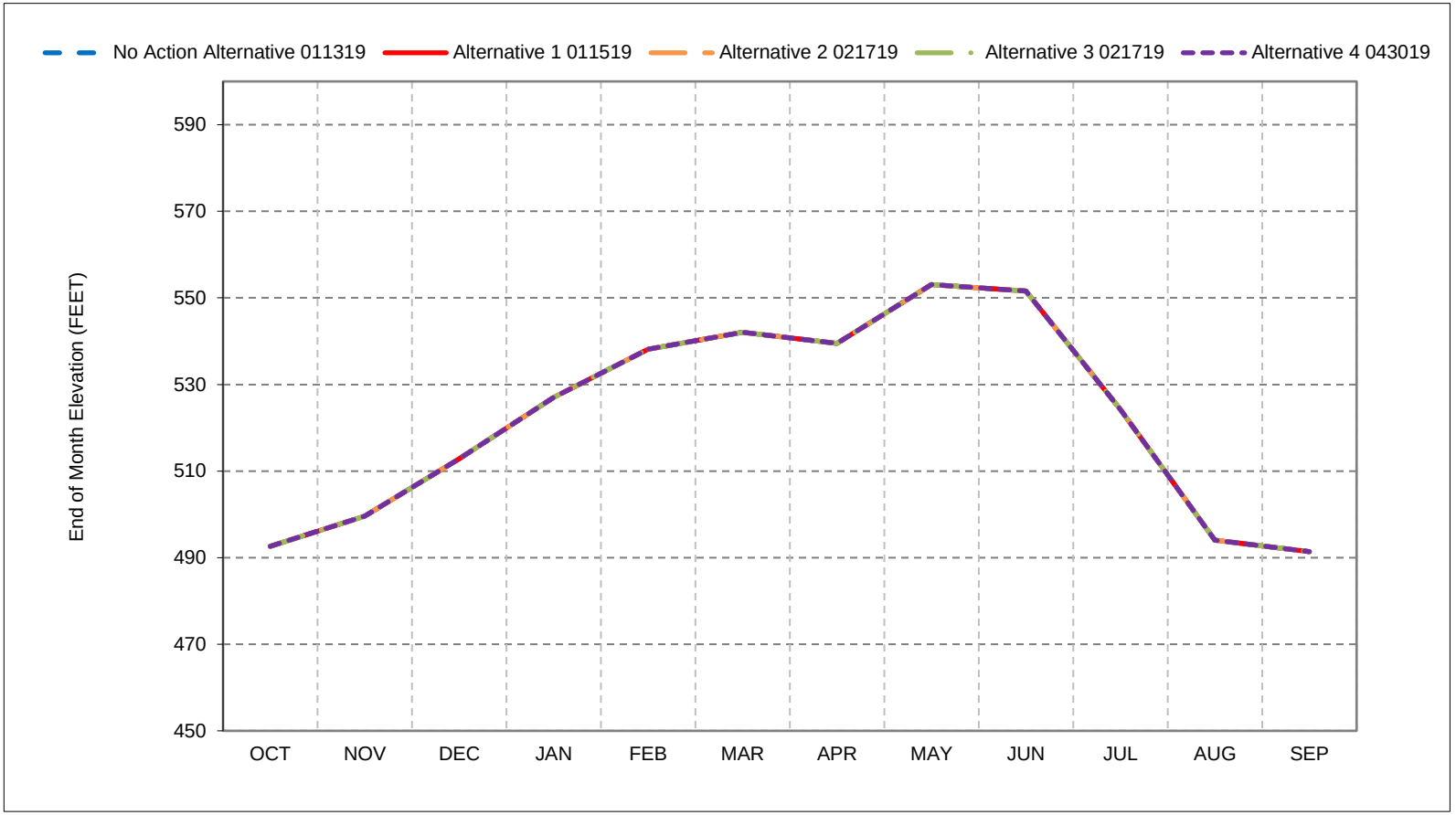
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

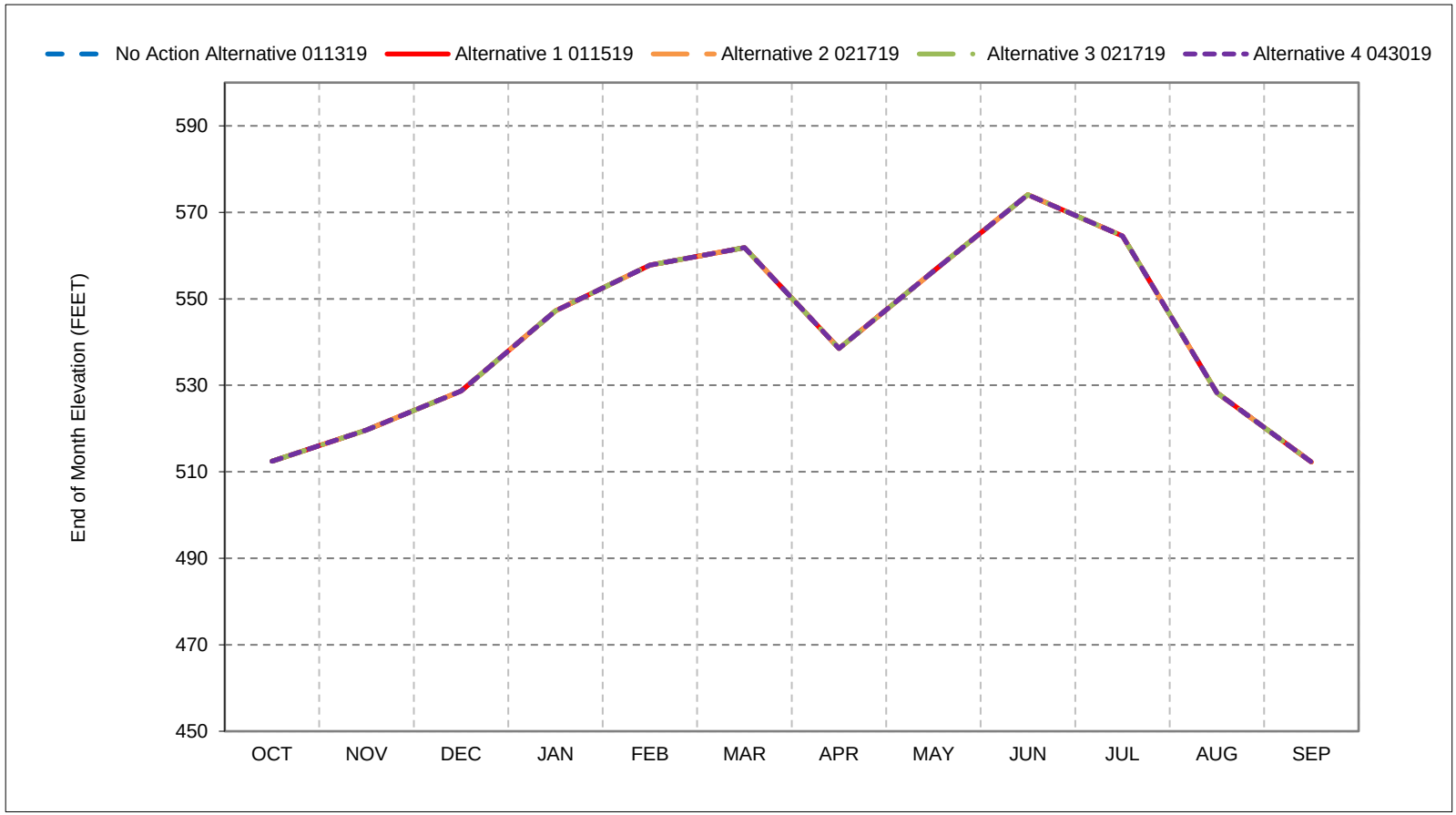
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8a-1. Millerton Lake Elevation, Long-Term Average Elevation



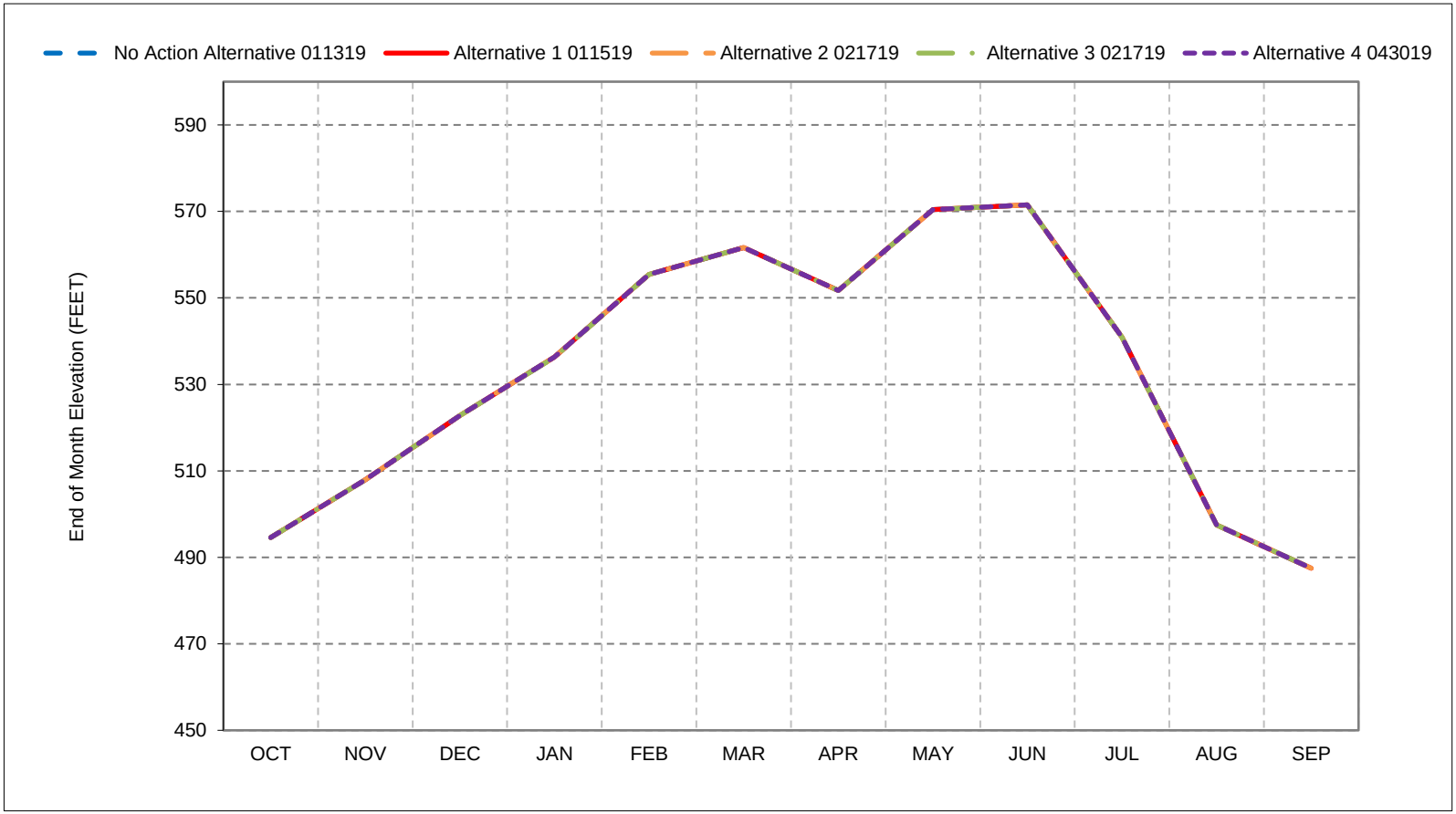

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8a-2. Millerton Lake Elevation, Wet Year Average Elevation



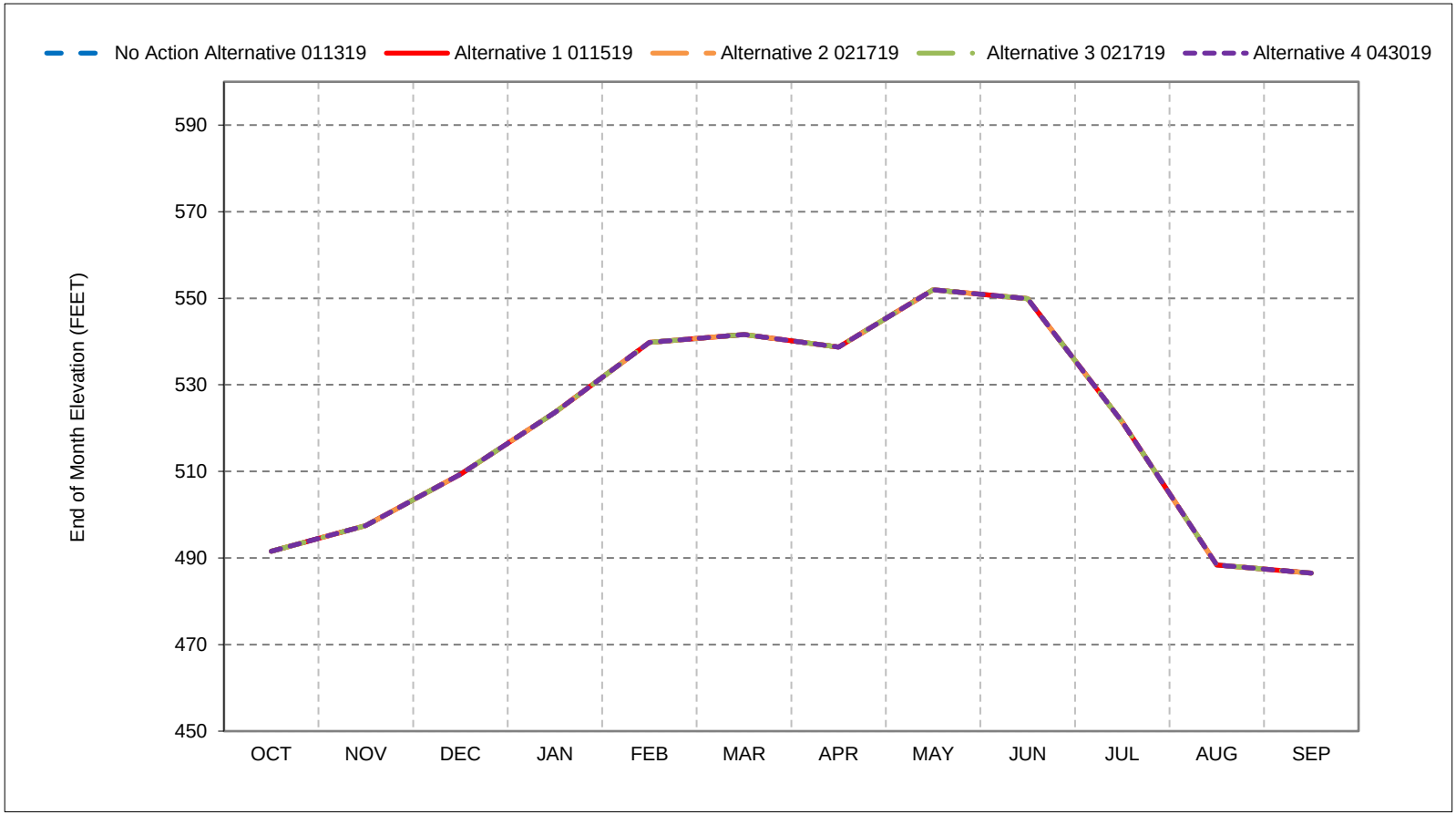

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8a-3. Millerton Lake Elevation, Above Normal Year Average Elevation



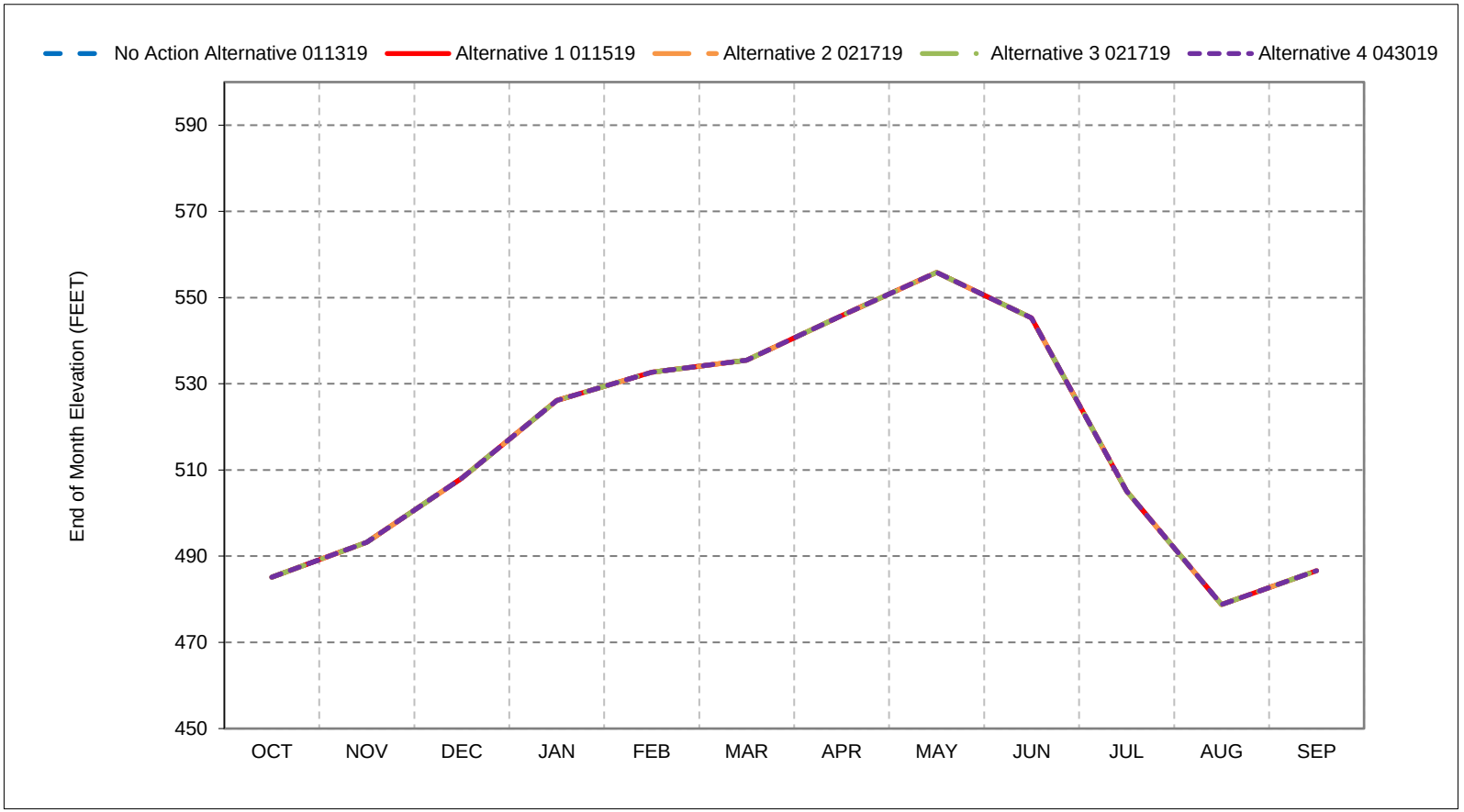

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8a-4. Millerton Lake Elevation, Below Normal Year Average Elevation



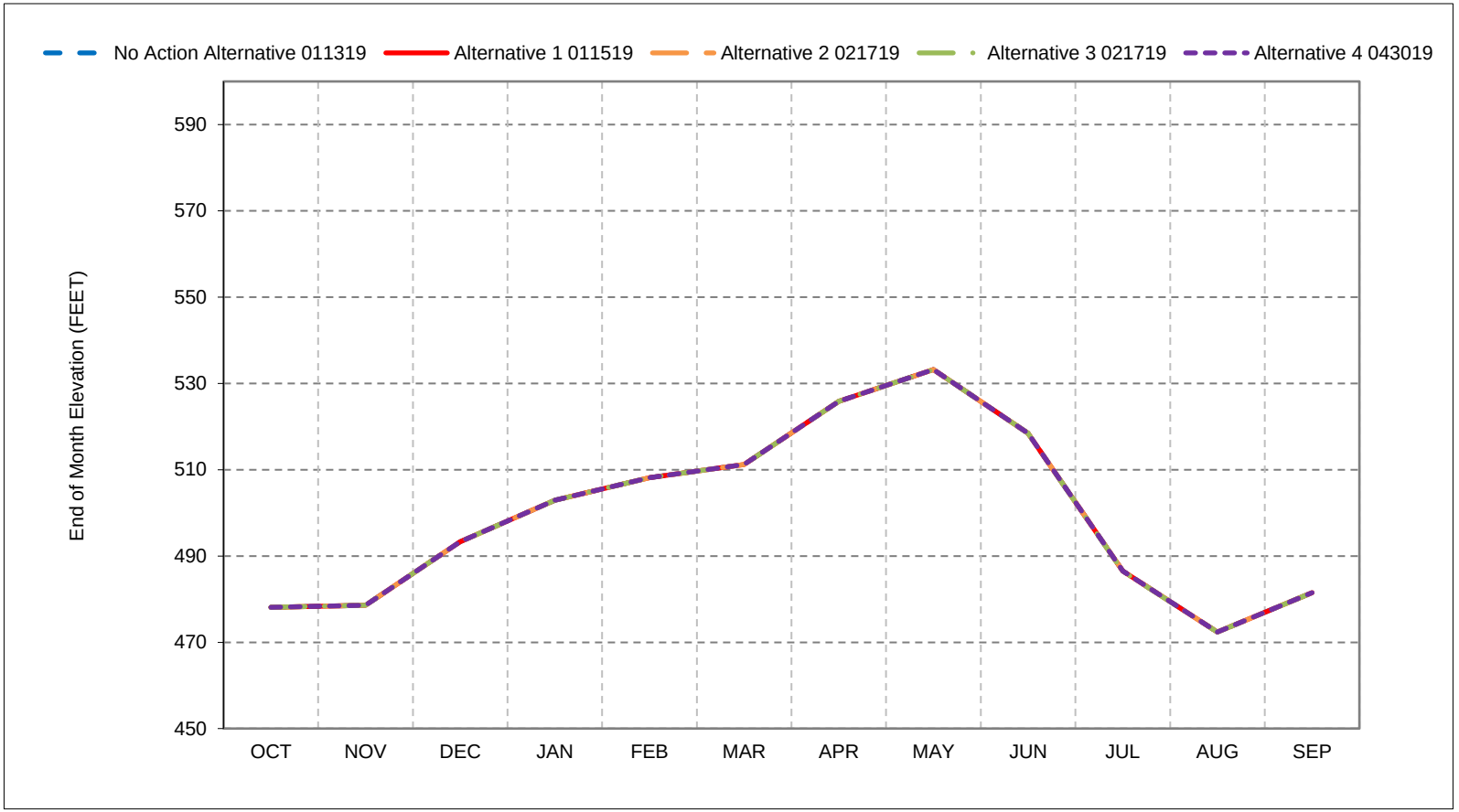

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8a-5. Millerton Lake Elevation, Dry Year Average Elevation



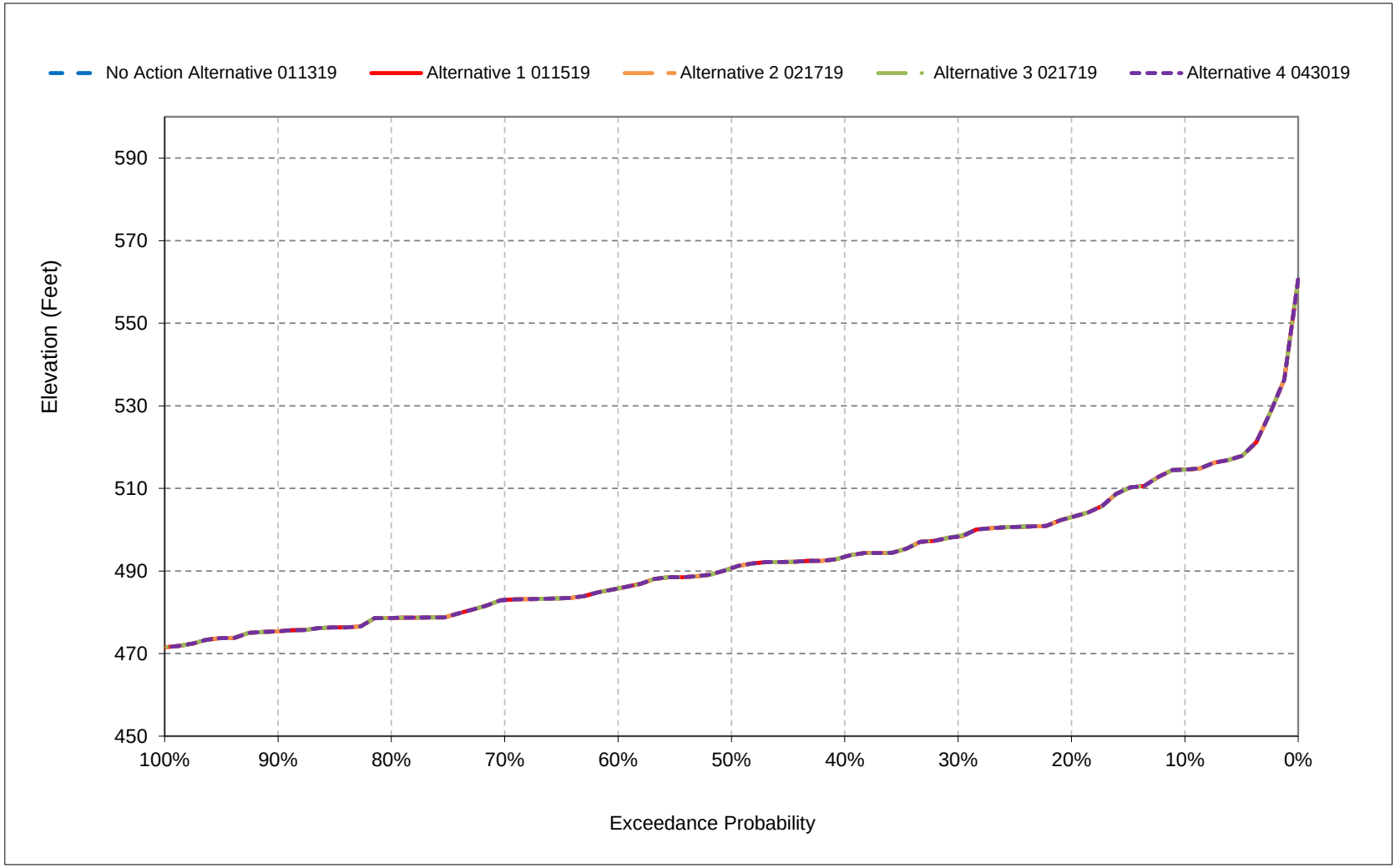

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8a-6. Millerton Lake Elevation, Critical Year Average Elevation




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

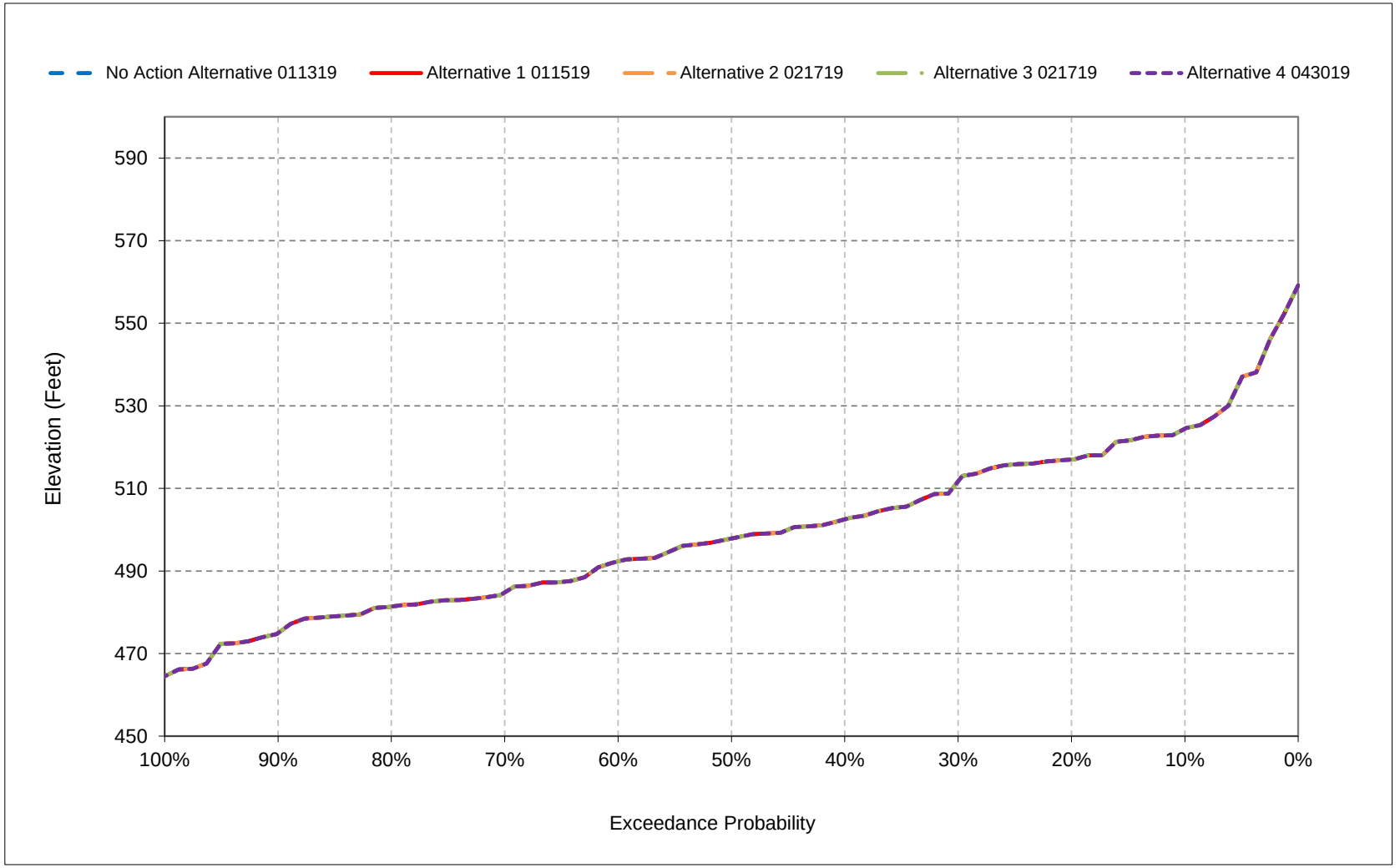
**Figure 8a-7. Millerton Lake, Reservoir Pool Elevation, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

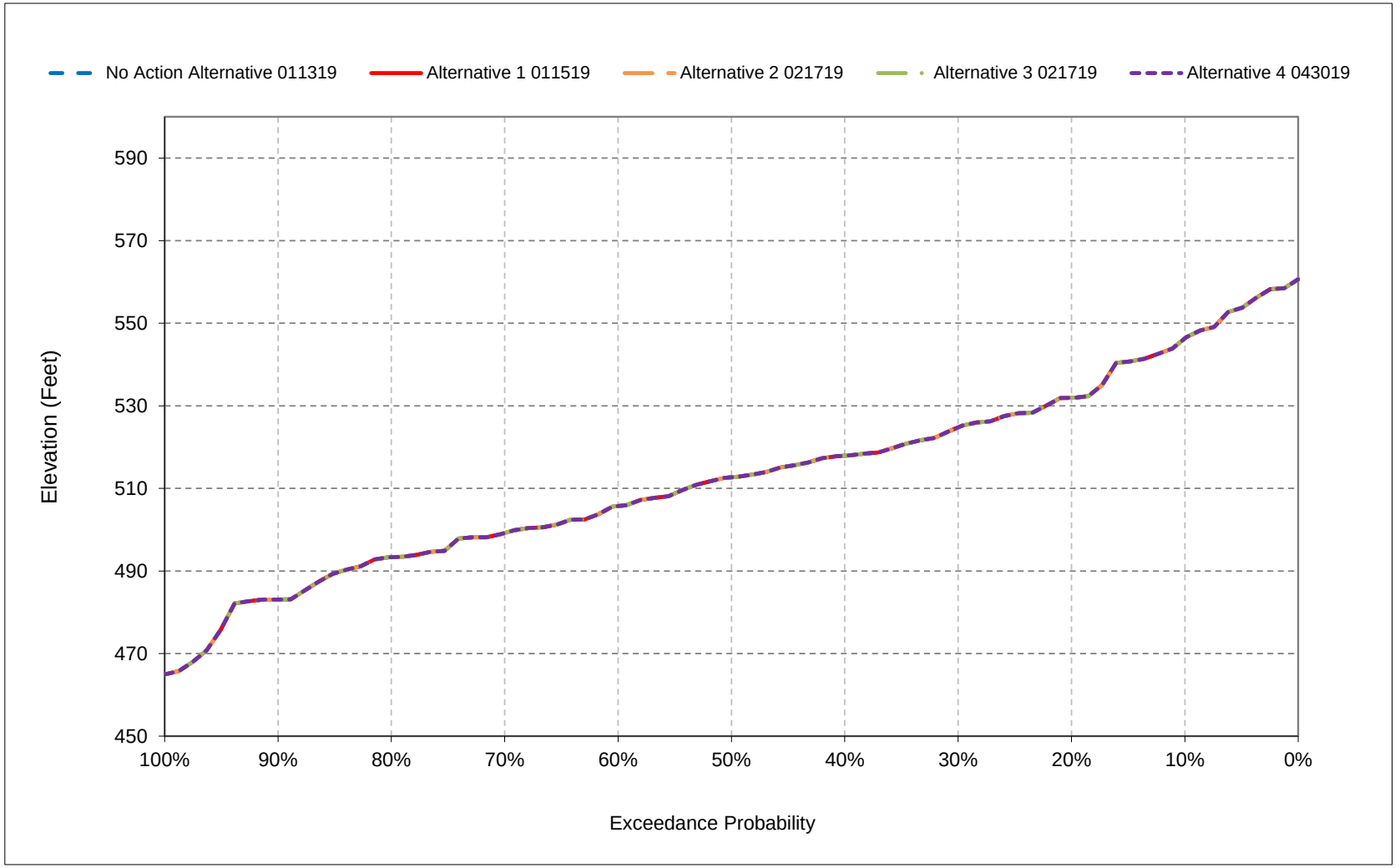
**Figure 8a-8. Millerton Lake, Reservoir Pool Elevation, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

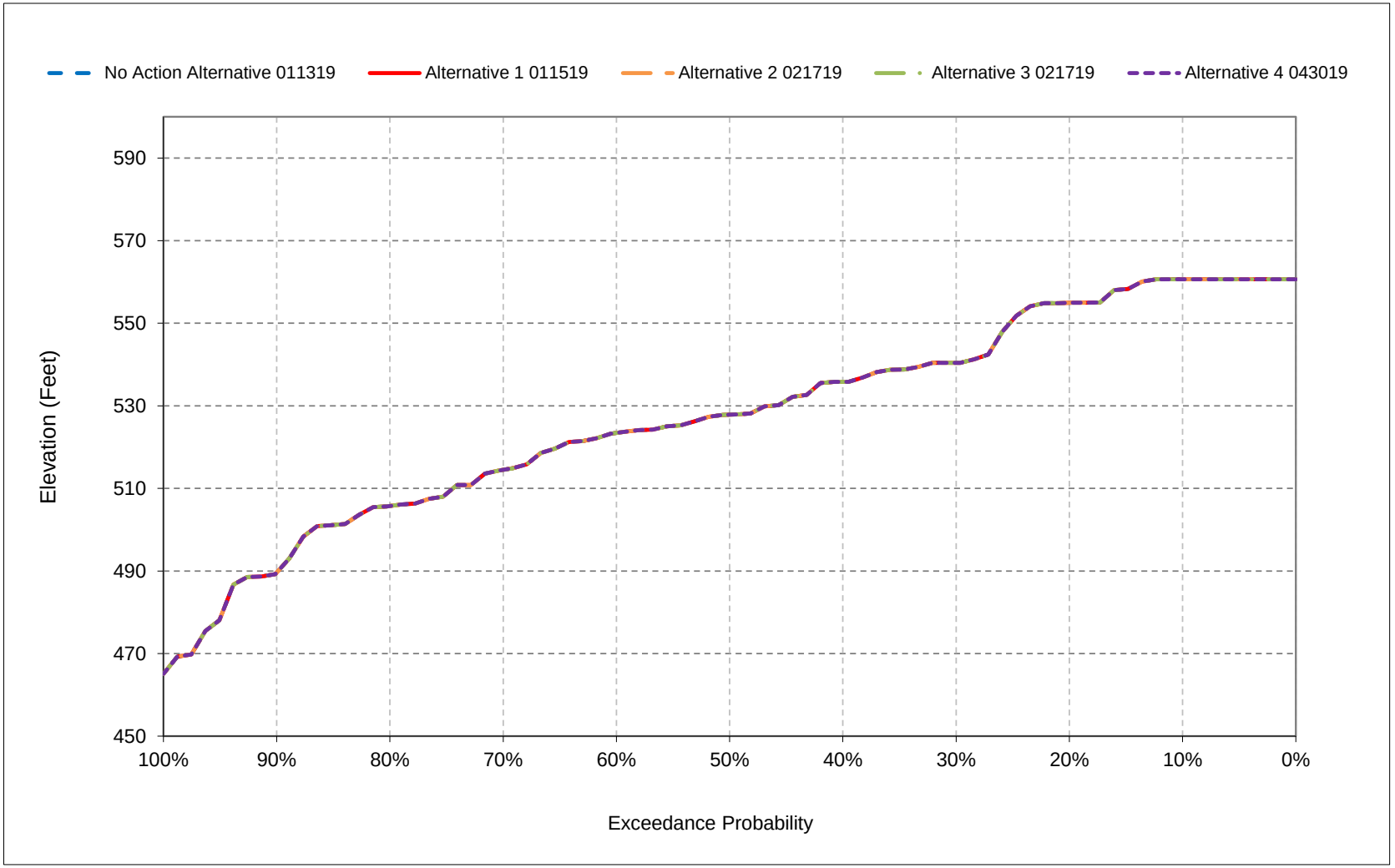
**Figure 8a-9. Millerton Lake, Reservoir Pool Elevation, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

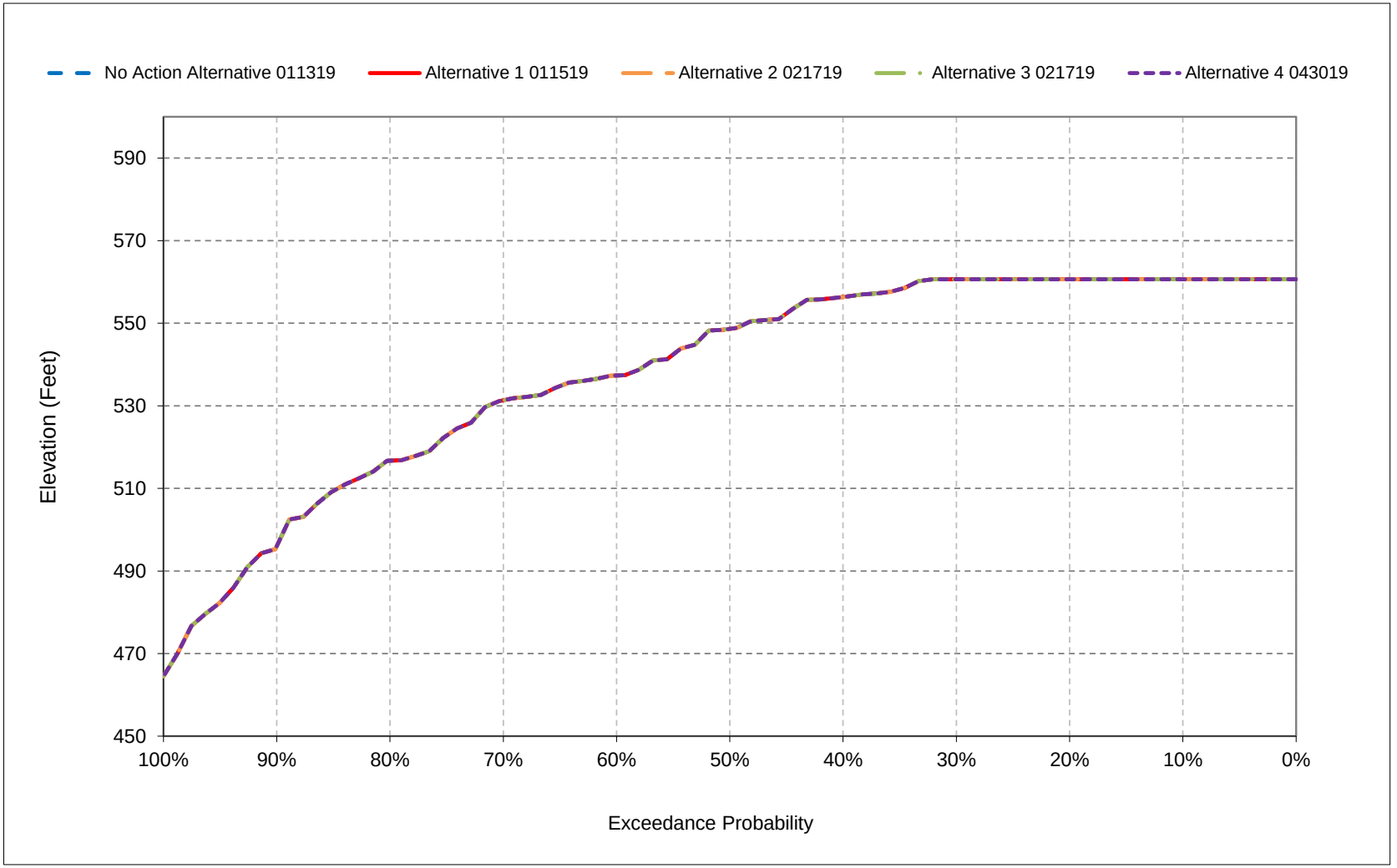
**Figure 8a-10. Millerton Lake, Reservoir Pool Elevation, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

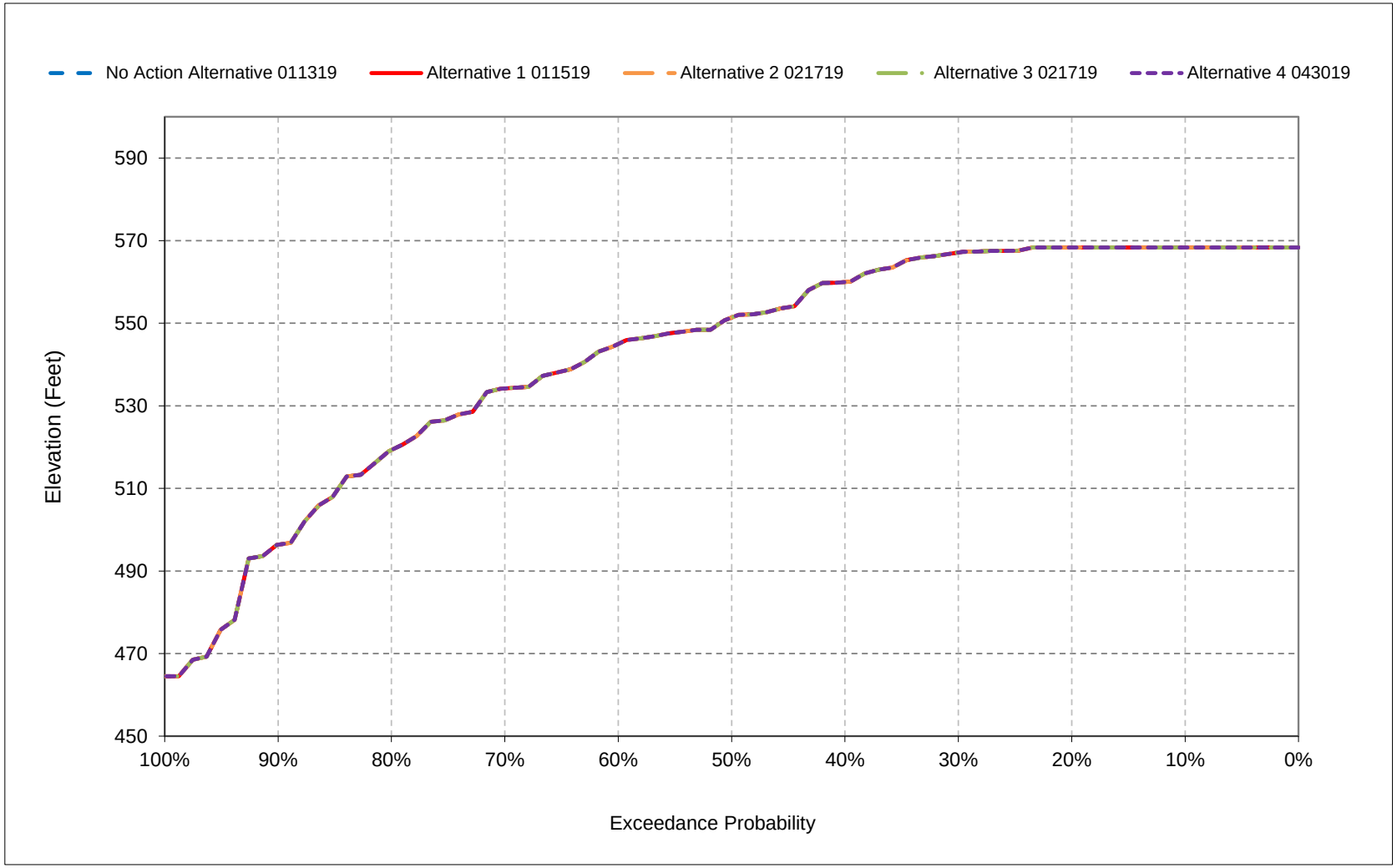
**Figure 8a-11. Millerton Lake, Reservoir Pool Elevation, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

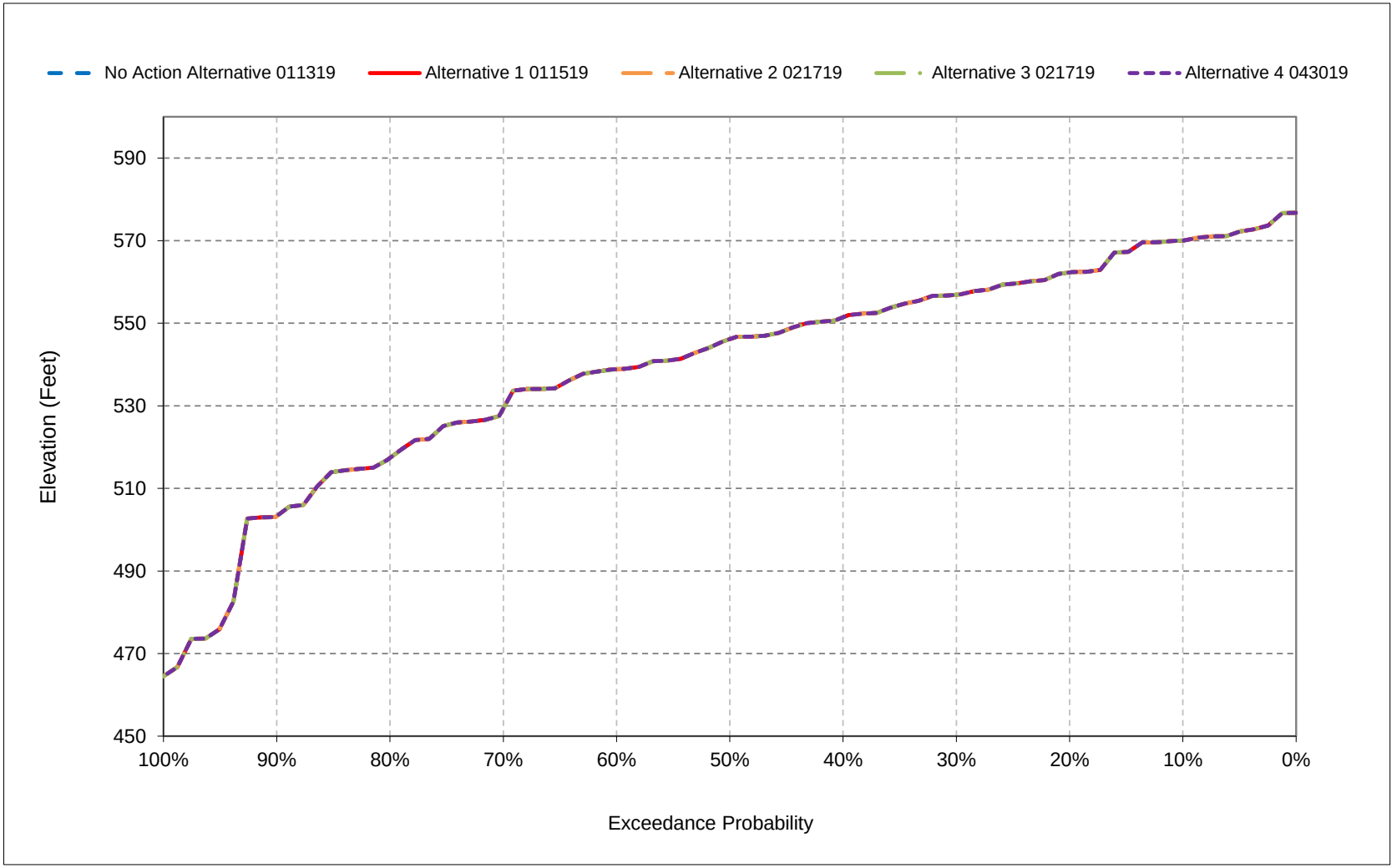
**Figure 8a-12. Millerton Lake, Reservoir Pool Elevation, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

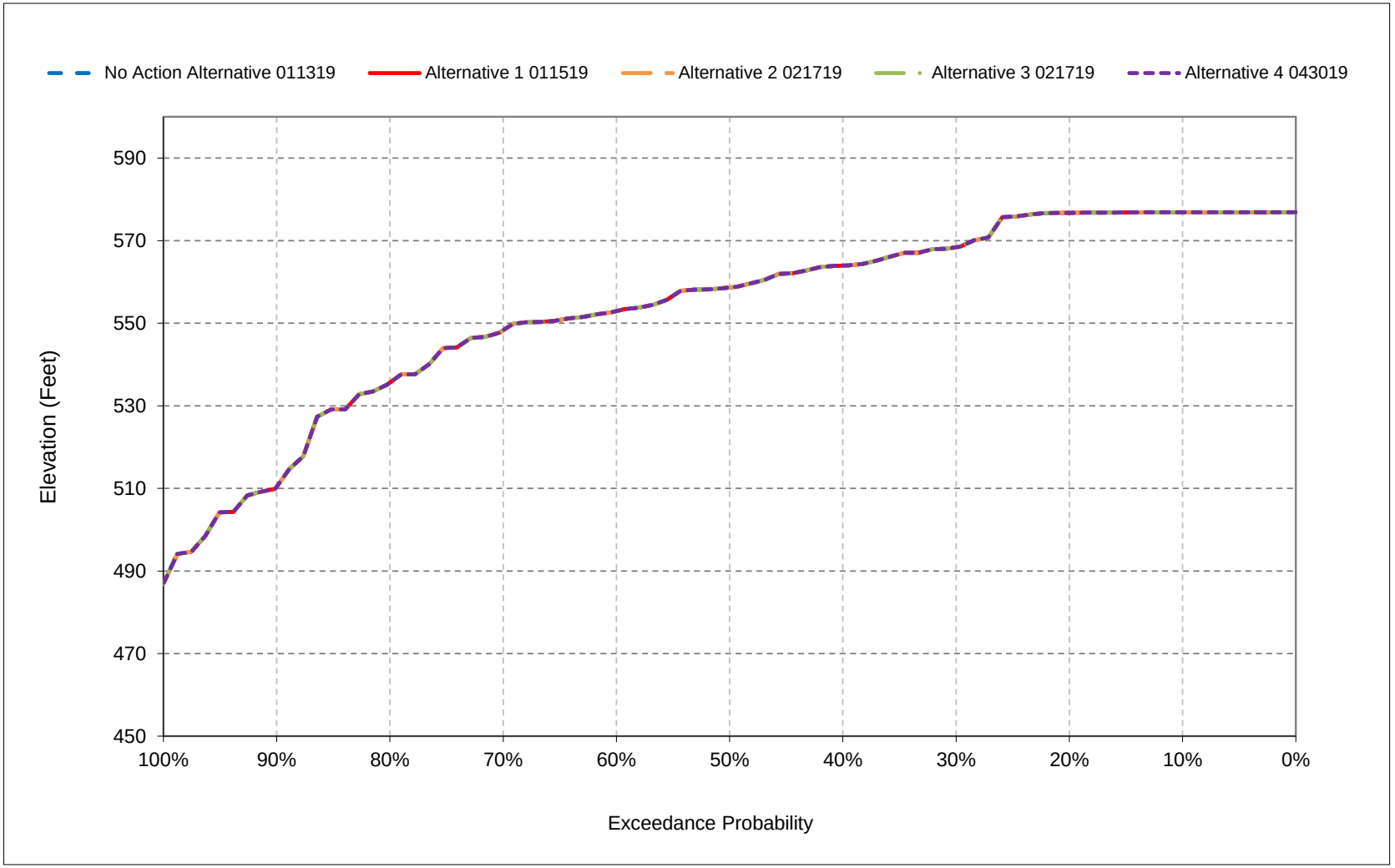
**Figure 8a-13. Millerton Lake, Reservoir Pool Elevation, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

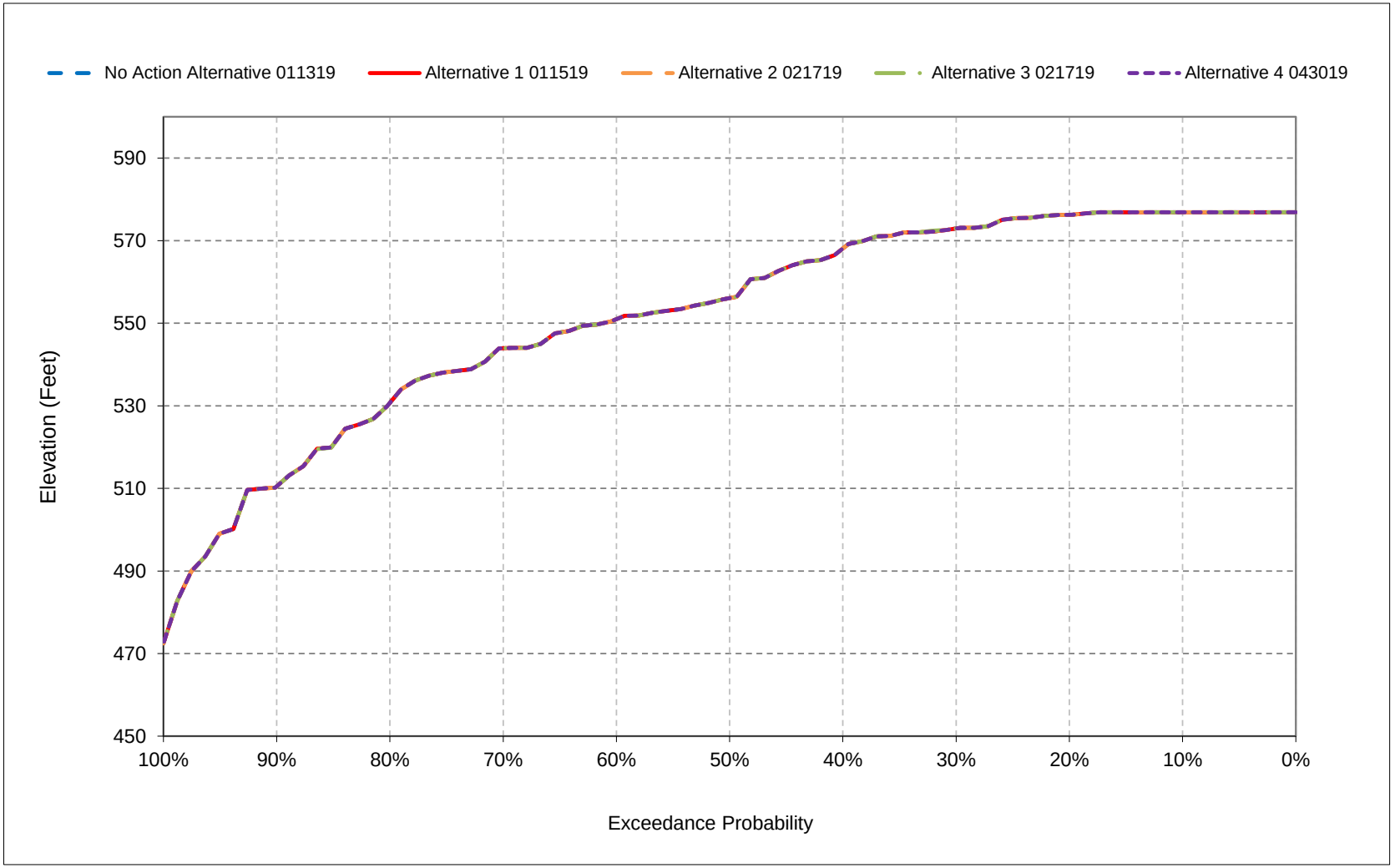
**Figure 8a-14. Millerton Lake, Reservoir Pool Elevation, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

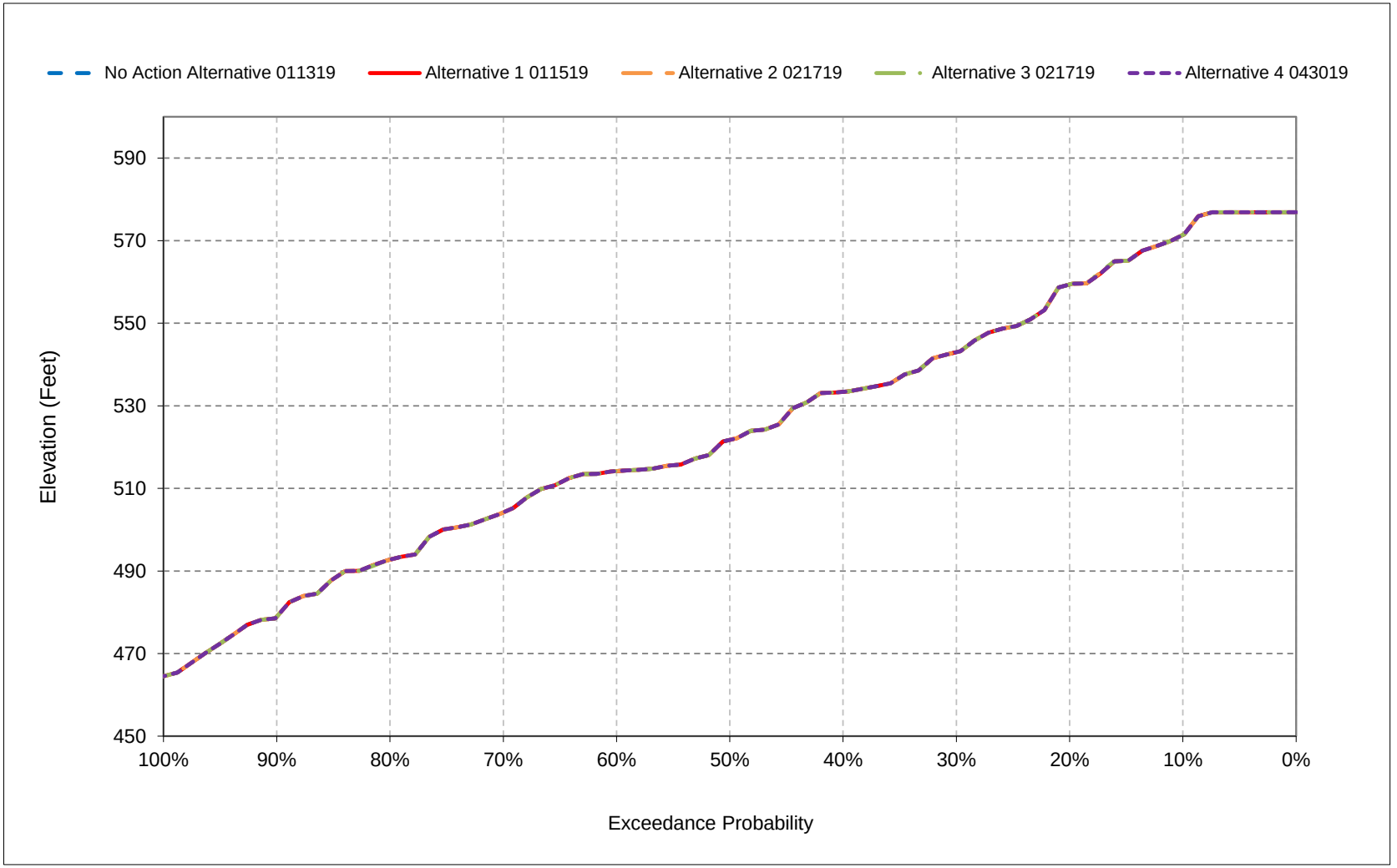
**Figure 8a-15. Millerton Lake, Reservoir Pool Elevation, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

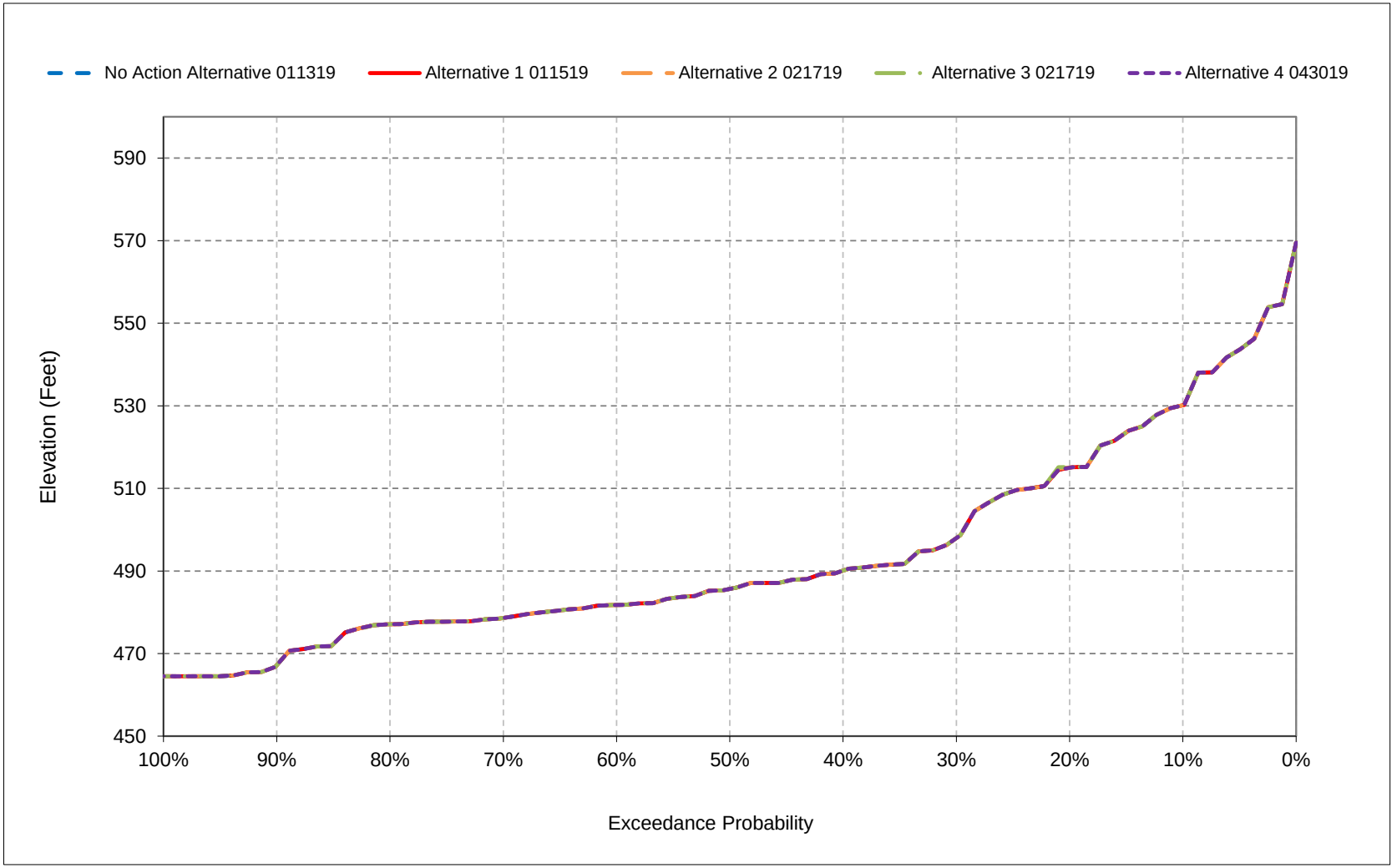
**Figure 8a-16. Millerton Lake, Reservoir Pool Elevation, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

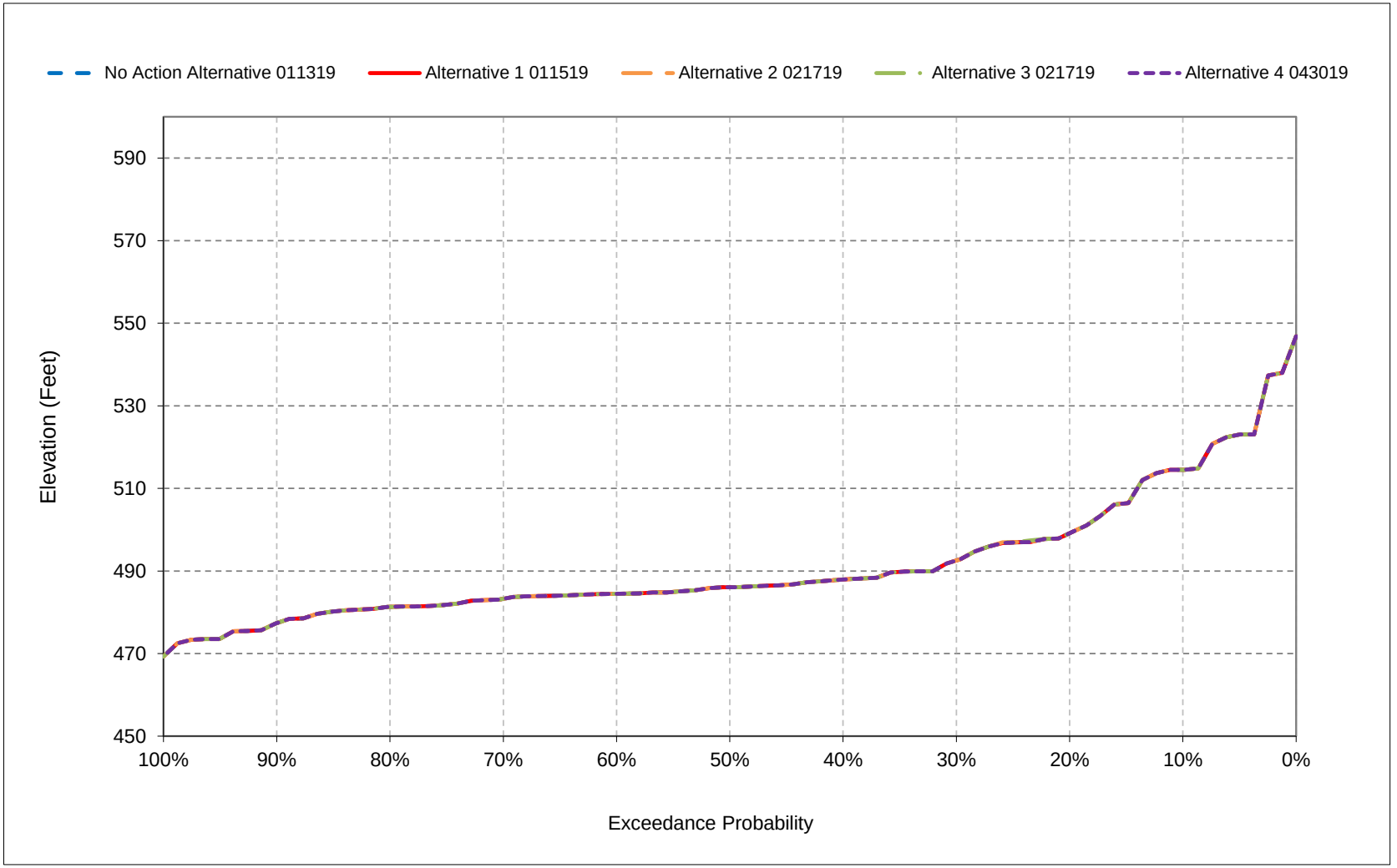
**Figure 8a-17. Millerton Lake, Reservoir Pool Elevation, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8a-18. Millerton Lake, Reservoir Pool Elevation, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Attachment 3-2 Flow Results (CalSim II)

The following results of the CalSim II model are included for river flow conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Trinity River Flow below Lewiston | C100 | 12-1 to 12-4 | 12-1 to 12-18 |
| Clear Creek below Whiskeytown Dam Flow | C3 | 14-1 to 14-4 | 14-1 to 14-18 |
| Sacramento River Flow downstream of Keswick Reservoir | C5 | 15-1 to 15-4 | 15-1 to 15-18 |
| Sacramento Flow River at Bend Bridge | C109 | 16-1 to 16-4 | 16-1 to 16-18 |
| Sacramento River below Red Bluff Diversion Dam Flow | C112 | 17-1 to 17-4 | 17-1 to 17-18 |
| Sacramento River Flow at Hamilton City | C114 | 18-1 to 18-4 | 18-1 to 18-18 |
| Sacramento River at Wilkins Slough Flow | C129 | 19-1 to 19-4 | 19-1 to 19-18 |
| Feather River Flow downstream of Thermalito | C203 | 21-1 to 21-4 | 21-1 to 21-18 |
| Feather River at Sacramento River Confluence Flow | C223 | 22-1 to 22-4 | 22-1 to 22-18 |
| Fremont Weir Spills | D160 | 24-1 to 24-4 | 24-1 to 24-18 |
| Yolo Bypass Flow | C157 | 25-1 to 25-4 | 25-1 to 25-18 |
| American River below Nimbus Dam Flow | C9 | 27-1 to 27-4 | 27-1 to 27-18 |
| American River at H Street | C303 | 28-1 to 28-4 | 28-1 to 28-18 |
| Sacramento River Flow at Freeport | C169 | 29-1 to 29-4 | 29-1 to 29-18 |
| Sacramento River Flow at Rio Vista (Alternative 3 revised DXC equation)[1] | C405 | 32-1 to 32-4 | 32-1 to 32-18 |
| San Joaquin River Flow at Gravelly Ford | C603 | 33-1 to 33-4 | 33-1 to 33-18 |

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| San Joaquin River Flow below Sack Dam | C608 | 34-1 to 34-4 | 34-1 to 34-18 |
| San Joaquin River Flow below confluence with Merced | C620 | 35-1 to 35-4 | 35-1 to 35-18 |
| Stanislaus River Flow below Goodwin | C520 | 37-1 to 37-4 | 37-1 to 37-18 |
| Stanislaus River Flow at Mouth | C528 | 38-1 to 38-4 | 38-1 to 38-18 |
| San Joaquin River at Vernalis | C639 | 39-1 to 39-4 | 39-1 to 39-18 |
| San Joaquin River at Vernalis (60-20-20) | C639 | 39b-1 to 39b-4 | 39b-1 to 39b-18 |
| Old and Middle River Flow | C408 | 40-1 to 40-4 | 40-1 to 40-18 |
| Delta Outflow | C406 | 41-1 to 41-4 | 41-1 to 41-18 |

[1] Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

# 1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

# Appendix F – Modeling

## Attachment 3-2 – Flow Results (CalSim II)

The following results of the CalSim II model are included for river flow conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Trinity River Flow below Lewiston | C100 | 12-1 to 12-4 | 12-1 to 12-18 |
| Clear Creek below Whiskeytown Dam Flow | C3 | 14-1 to 14-4 | 14-1 to 14-18 |
| Sacramento River Flow downstream of Keswick Reservoir | C5 | 15-1 to 15-4 | 15-1 to 15-18 |
| Sacramento Flow River at Bend Bridge | C109 | 16-1 to 16-4 | 16-1 to 16-18 |
| Sacramento River below Red Bluff Diversion Dam Flow | C112 | 17-1 to 17-4 | 17-1 to 17-18 |
| Sacramento River Flow at Hamilton City | C114 | 18-1 to 18-4 | 18-1 to 18-18 |
| Sacramento River at Wilkins Slough Flow | C129 | 19-1 to 19-4 | 19-1 to 19-18 |
| Feather River Flow downstream of Thermalito | C203 | 21-1 to 21-4 | 21-1 to 21-18 |
| Feather River at Sacramento River Confluence Flow | C223 | 22-1 to 22-4 | 22-1 to 22-18 |
| Fremont Weir Spills | D160 | 24-1 to 24-4 | 24-1 to 24-18 |
| Yolo Bypass Flow | C157 | 25-1 to 25-4 | 25-1 to 25-18 |
| American River below Nimbus Dam Flow | C9 | 27-1 to 27-4 | 27-1 to 27-18 |
| American River at H Street | C303 | 28-1 to 28-4 | 28-1 to 28-18 |
| Sacramento River Flow at Freeport | C169 | 29-1 to 29-4 | 29-1 to 29-18 |
| Sacramento River Flow at Rio Vista (Alternative 3 revised DXC equation)[1] | C405 | 32-1 to 32-4 | 32-1 to 32-18 |
| San Joaquin River Flow at Gravelly Ford | C603 | 33-1 to 33-4 | 33-1 to 33-18 |
| San Joaquin River Flow below Sack Dam | C608 | 34-1 to 34-4 | 34-1 to 34-18 |
| San Joaquin River Flow below confluence with Merced | C620 | 35-1 to 35-4 | 35-1 to 35-18 |
| Stanislaus River Flow below Goodwin | C520 | 37-1 to 37-4 | 37-1 to 37-18 |
| Stanislaus River Flow at Mouth | C528 | 38-1 to 38-4 | 38-1 to 38-18 |

| | | | |
|---|---|---|---|
| San Joaquin River at Vernalis | C639 | 39-1 to 39-4 | 39-1 to 39-18 |
| San Joaquin River at Vernalis (60-20-20) | C639 | 39b-1 to 39b-4 | 39b-1 to 39b-18 |
| Old and Middle River Flow | C408 | 40-1 to 40-4 | 40-1 to 40-18 |
| Delta Outflow | C406 | 41-1 to 41-4 | 41-1 to 41-18 |

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Notes

[1]Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

# Table 12-1. Trinity River Flow below Lewiston, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 373 | 300 | 300 | 521 | 1,219 | 861 | 600 | 4,709 | 4,626 | 1,102 | 870 | 870 |
| 20% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,709 | 2,526 | 1,102 | 870 | 870 |
| 30% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 40% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 50% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 60% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 70% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 80% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 90% | 373 | 300 | 300 | 300 | 300 | 300 | 427 | 1,498 | 783 | 450 | 450 | 450 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 368 | 356 | 639 | 700 | 691 | 667 | 588 | 3,753 | 2,210 | 890 | 793 | 793 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 373 | 300 | 1,192 | 1,562 | 1,279 | 1,377 | 735 | 4,556 | 3,413 | 1,136 | 676 | 676 |
| Above Normal (16%) | 373 | 678 | 652 | 300 | 528 | 462 | 457 | 4,597 | 2,948 | 1,102 | 773 | 773 |
| Below Normal (13%) | 373 | 300 | 300 | 300 | 630 | 300 | 517 | 3,585 | 1,755 | 924 | 870 | 870 |
| Dry (24%) | 373 | 300 | 300 | 300 | 300 | 300 | 528 | 3,250 | 1,271 | 678 | 870 | 870 |
| Critical (15%) | 342 | 275 | 300 | 300 | 300 | 300 | 575 | 2,092 | 783 | 450 | 870 | 870 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 373 | 300 | 300 | 1,372 | 2,099 | 889 | 600 | 4,709 | 4,626 | 1,102 | 870 | 870 |
| 20% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,709 | 2,526 | 1,102 | 870 | 870 |
| 30% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 40% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 50% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 60% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 70% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 80% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 90% | 373 | 300 | 300 | 300 | 300 | 300 | 427 | 1,498 | 783 | 450 | 450 | 450 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 364 | 352 | 675 | 719 | 743 | 685 | 588 | 3,753 | 2,210 | 890 | 793 | 786 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 373 | 300 | 1,297 | 1,622 | 1,291 | 1,434 | 735 | 4,556 | 3,413 | 1,136 | 676 | 676 |
| Above Normal (16%) | 373 | 625 | 652 | 300 | 833 | 462 | 457 | 4,597 | 2,948 | 1,102 | 773 | 773 |
| Below Normal (13%) | 373 | 300 | 300 | 300 | 630 | 303 | 517 | 3,585 | 1,755 | 924 | 870 | 870 |
| Dry (24%) | 373 | 300 | 314 | 300 | 300 | 300 | 528 | 3,250 | 1,271 | 678 | 870 | 870 |
| Critical (15%) | 311 | 300 | 300 | 300 | 300 | 300 | 575 | 2,092 | 783 | 450 | 870 | 818 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 851 | 880 | 28 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-5** | **-5** | 37 | 19 | 52 | 18 | 0 | 0 | 0 | 0 | 0 | **-8** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 105 | 60 | 12 | 57 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | **-53** | 0 | 0 | 305 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | **-31** | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **-52** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 12-2. Trinity River Flow below Lewiston, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 373 | 300 | 300 | 521 | 1,219 | 861 | 600 | 4,709 | 4,626 | 1,102 | 870 | 870 |
| 20% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,709 | 2,526 | 1,102 | 870 | 870 |
| 30% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 40% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 50% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 60% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 70% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 80% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 90% | 373 | 300 | 300 | 300 | 300 | 300 | 427 | 1,498 | 783 | 450 | 450 | 450 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 368 | 356 | 639 | 700 | 691 | 667 | 588 | 3,753 | 2,210 | 890 | 793 | 793 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 373 | 300 | 1,192 | 1,562 | 1,279 | 1,377 | 735 | 4,556 | 3,413 | 1,136 | 676 | 676 |
| Above Normal (16%) | 373 | 678 | 652 | 300 | 528 | 462 | 457 | 4,597 | 2,948 | 1,102 | 773 | 773 |
| Below Normal (13%) | 373 | 300 | 300 | 300 | 630 | 300 | 517 | 3,585 | 1,755 | 924 | 870 | 870 |
| Dry (24%) | 373 | 300 | 300 | 300 | 300 | 300 | 528 | 3,250 | 1,271 | 678 | 870 | 870 |
| Critical (15%) | 342 | 275 | 300 | 300 | 300 | 300 | 575 | 2,092 | 783 | 450 | 870 | 870 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 373 | 300 | 300 | 658 | 2,099 | 388 | 600 | 4,709 | 4,626 | 1,102 | 870 | 870 |
| 20% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,709 | 2,526 | 1,102 | 870 | 870 |
| 30% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 40% | 373 | 300 | 300 | 300 | 300 | 300 | 521 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 50% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 60% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 70% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 80% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 90% | 373 | 300 | 300 | 300 | 300 | 300 | 427 | 1,498 | 783 | 450 | 450 | 450 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 364 | 342 | 671 | 708 | 728 | 677 | 580 | 3,753 | 2,210 | 890 | 793 | 786 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 373 | 300 | 1,295 | 1,586 | 1,261 | 1,406 | 709 | 4,556 | 3,413 | 1,136 | 676 | 676 |
| Above Normal (16%) | 373 | 565 | 652 | 300 | 801 | 462 | 457 | 4,597 | 2,948 | 1,102 | 773 | 773 |
| Below Normal (13%) | 373 | 300 | 300 | 300 | 630 | 303 | 517 | 3,585 | 1,755 | 924 | 870 | 870 |
| Dry (24%) | 373 | 300 | 300 | 300 | 300 | 300 | 528 | 3,250 | 1,271 | 678 | 870 | 870 |
| Critical (15%) | 311 | 300 | 300 | 300 | 300 | 300 | 575 | 2,092 | 783 | 450 | 870 | 818 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 138 | 880 | **-473** | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | **-19** | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-5** | **-14** | 33 | 8 | 38 | 10 | **-8** | 0 | 0 | 0 | 0 | **-8** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 103 | 24 | **-18** | 29 | **-26** | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | **-113** | 0 | 0 | 273 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | **-31** | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **-52** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 12-3. Trinity River Flow below Lewiston, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 373 | 300 | 300 | 521 | 1,219 | 861 | 600 | 4,709 | 4,626 | 1,102 | 870 | 870 |
| 20% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,709 | 2,526 | 1,102 | 870 | 870 |
| 30% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 40% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 50% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 60% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 70% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 80% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 90% | 373 | 300 | 300 | 300 | 300 | 300 | 427 | 1,498 | 783 | 450 | 450 | 450 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 368 | 356 | 639 | 700 | 691 | 667 | 588 | 3,753 | 2,210 | 890 | 793 | 793 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 373 | 300 | 1,192 | 1,562 | 1,279 | 1,377 | 735 | 4,556 | 3,413 | 1,136 | 676 | 676 |
| Above Normal (16%) | 373 | 678 | 652 | 300 | 528 | 462 | 457 | 4,597 | 2,948 | 1,102 | 773 | 773 |
| Below Normal (13%) | 373 | 300 | 300 | 300 | 630 | 300 | 517 | 3,585 | 1,755 | 924 | 870 | 870 |
| Dry (24%) | 373 | 300 | 300 | 300 | 300 | 300 | 528 | 3,250 | 1,271 | 678 | 870 | 870 |
| Critical (15%) | 342 | 275 | 300 | 300 | 300 | 300 | 575 | 2,092 | 783 | 450 | 870 | 870 |

### Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 373 | 300 | 300 | 478 | 2,099 | 328 | 600 | 4,709 | 4,626 | 1,102 | 870 | 870 |
| 20% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,709 | 2,526 | 1,102 | 870 | 870 |
| 30% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 40% | 373 | 300 | 300 | 300 | 300 | 300 | 521 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 50% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 60% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 70% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 80% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 90% | 373 | 300 | 300 | 300 | 300 | 300 | 427 | 1,498 | 783 | 450 | 450 | 450 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 365 | 340 | 672 | 704 | 717 | 677 | 580 | 3,753 | 2,210 | 890 | 793 | 783 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 373 | 300 | 1,297 | 1,574 | 1,226 | 1,409 | 709 | 4,556 | 3,413 | 1,136 | 676 | 676 |
| Above Normal (16%) | 373 | 568 | 652 | 300 | 801 | 462 | 457 | 4,597 | 2,948 | 1,102 | 773 | 773 |
| Below Normal (13%) | 373 | 300 | 300 | 300 | 630 | 303 | 517 | 3,585 | 1,755 | 924 | 870 | 870 |
| Dry (24%) | 373 | 300 | 300 | 300 | 300 | 300 | 528 | 3,250 | 1,271 | 678 | 870 | 870 |
| Critical (15%) | 321 | 281 | 300 | 300 | 300 | 300 | 575 | 2,092 | 783 | 450 | 870 | 798 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | **-42** | 880 | **-533** | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | **-19** | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-3** | **-17** | 33 | 4 | 27 | 11 | **-8** | 0 | 0 | 0 | 0 | **-11** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 105 | 12 | **-53** | 32 | **-26** | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | **-111** | 0 | 0 | 273 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | **-21** | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **-73** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 12-4. Trinity River Flow below Lewiston, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 373 | 300 | 300 | 521 | 1,219 | 861 | 600 | 4,709 | 4,626 | 1,102 | 870 | 870 |
| 20% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,709 | 2,526 | 1,102 | 870 | 870 |
| 30% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 40% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 50% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 60% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 70% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 80% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 90% | 373 | 300 | 300 | 300 | 300 | 300 | 427 | 1,498 | 783 | 450 | 450 | 450 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 368 | 356 | 639 | 700 | 691 | 667 | 588 | 3,753 | 2,210 | 890 | 793 | 793 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 373 | 300 | 1,192 | 1,562 | 1,279 | 1,377 | 735 | 4,556 | 3,413 | 1,136 | 676 | 676 |
| Above Normal (16%) | 373 | 678 | 652 | 300 | 528 | 462 | 457 | 4,597 | 2,948 | 1,102 | 773 | 773 |
| Below Normal (13%) | 373 | 300 | 300 | 300 | 630 | 300 | 517 | 3,585 | 1,755 | 924 | 870 | 870 |
| Dry (24%) | 373 | 300 | 300 | 300 | 300 | 300 | 528 | 3,250 | 1,271 | 678 | 870 | 870 |
| Critical (15%) | 342 | 275 | 300 | 300 | 300 | 300 | 575 | 2,092 | 783 | 450 | 870 | 870 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 373 | 300 | 300 | 1,388 | 2,540 | 1,718 | 600 | 4,709 | 4,626 | 1,102 | 870 | 870 |
| 20% | 373 | 300 | 300 | 300 | 395 | 300 | 540 | 4,709 | 2,526 | 1,102 | 870 | 870 |
| 30% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 40% | 373 | 300 | 300 | 300 | 300 | 300 | 540 | 4,570 | 2,526 | 1,102 | 870 | 870 |
| 50% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 60% | 373 | 300 | 300 | 300 | 300 | 300 | 493 | 4,189 | 2,120 | 1,102 | 870 | 870 |
| 70% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 80% | 373 | 300 | 300 | 300 | 300 | 300 | 460 | 2,924 | 783 | 450 | 870 | 870 |
| 90% | 373 | 300 | 300 | 300 | 300 | 300 | 427 | 1,498 | 783 | 450 | 450 | 450 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 373 | 348 | 672 | 735 | 780 | 727 | 587 | 3,753 | 2,210 | 890 | 793 | 793 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 373 | 300 | 1,297 | 1,672 | 1,376 | 1,522 | 731 | 4,556 | 3,413 | 1,136 | 676 | 676 |
| Above Normal (16%) | 373 | 603 | 652 | 300 | 893 | 546 | 457 | 4,597 | 2,948 | 1,102 | 773 | 773 |
| Below Normal (13%) | 373 | 300 | 300 | 300 | 630 | 303 | 517 | 3,585 | 1,755 | 924 | 870 | 870 |
| Dry (24%) | 373 | 300 | 300 | 300 | 300 | 300 | 528 | 3,250 | 1,271 | 678 | 870 | 870 |
| Critical (15%) | 373 | 300 | 300 | 300 | 300 | 300 | 575 | 2,092 | 783 | 450 | 870 | 870 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 868 | 1,321 | 857 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 95 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 5 | -8 | 33 | 35 | 89 | 60 | -1 | 0 | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 105 | 111 | 98 | 146 | -4 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | -75 | 0 | 0 | 366 | 84 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 31 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

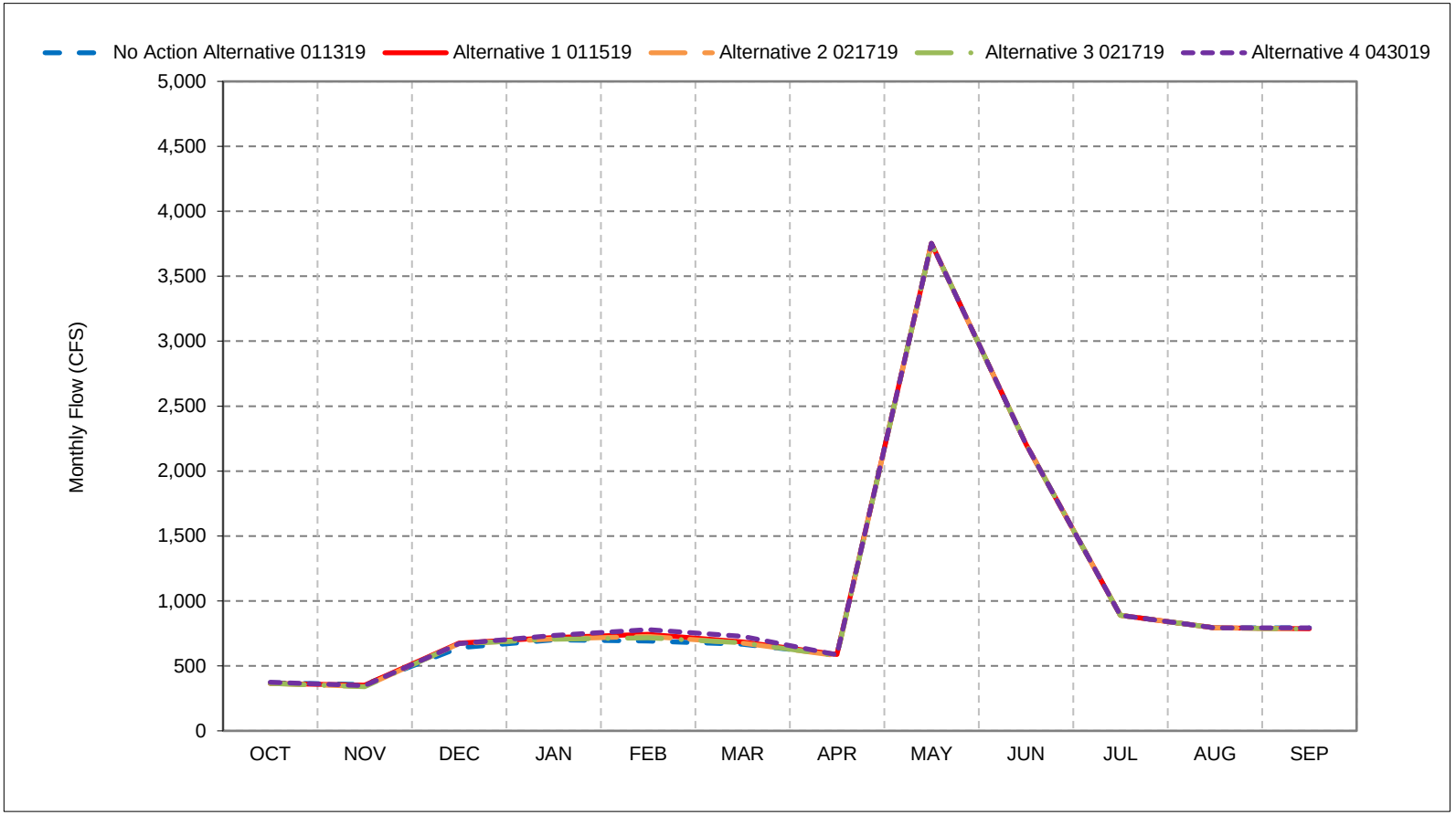
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

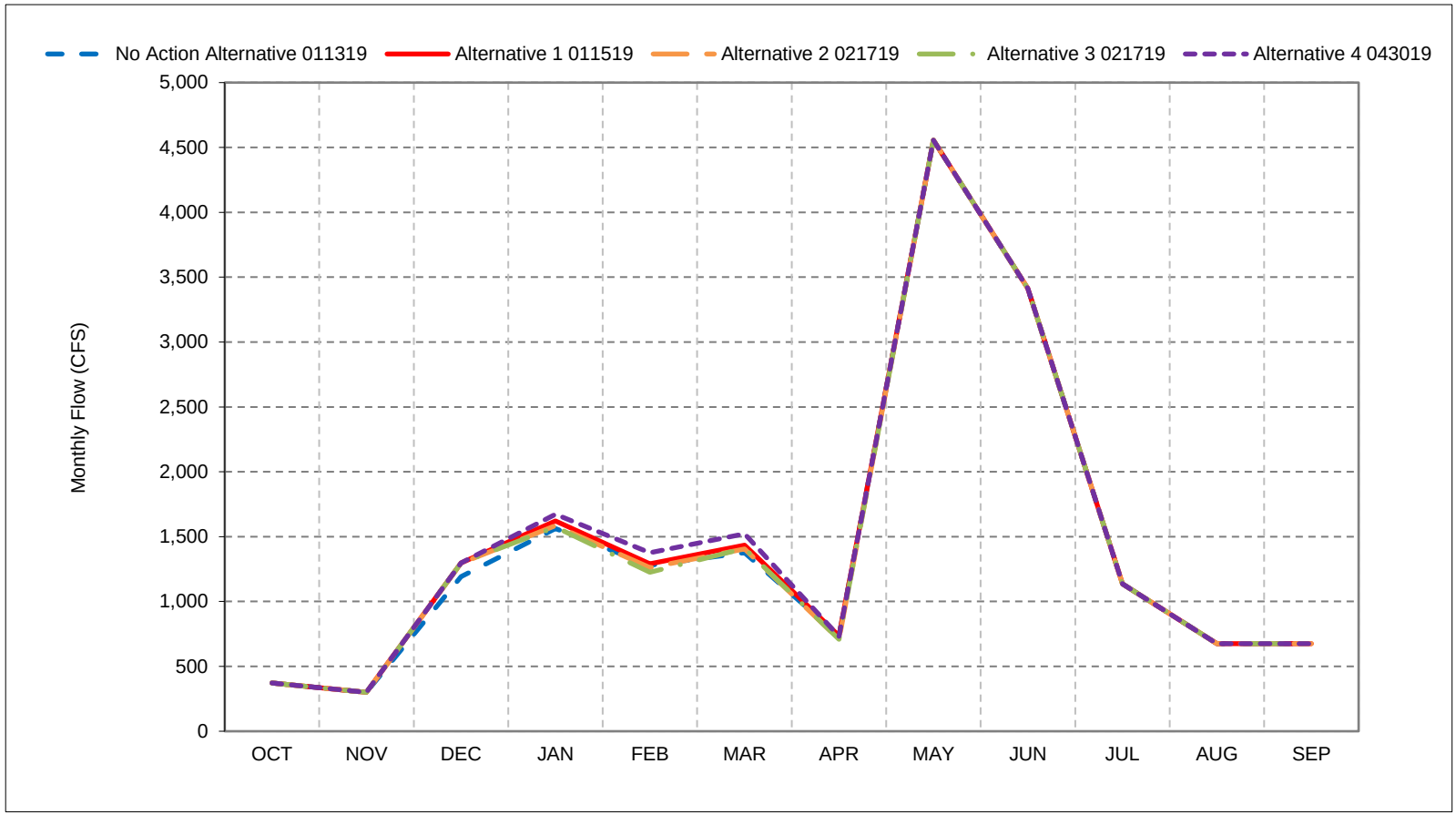
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-1. Trinity River Flow below Lewiston, Long-Term Average Flow



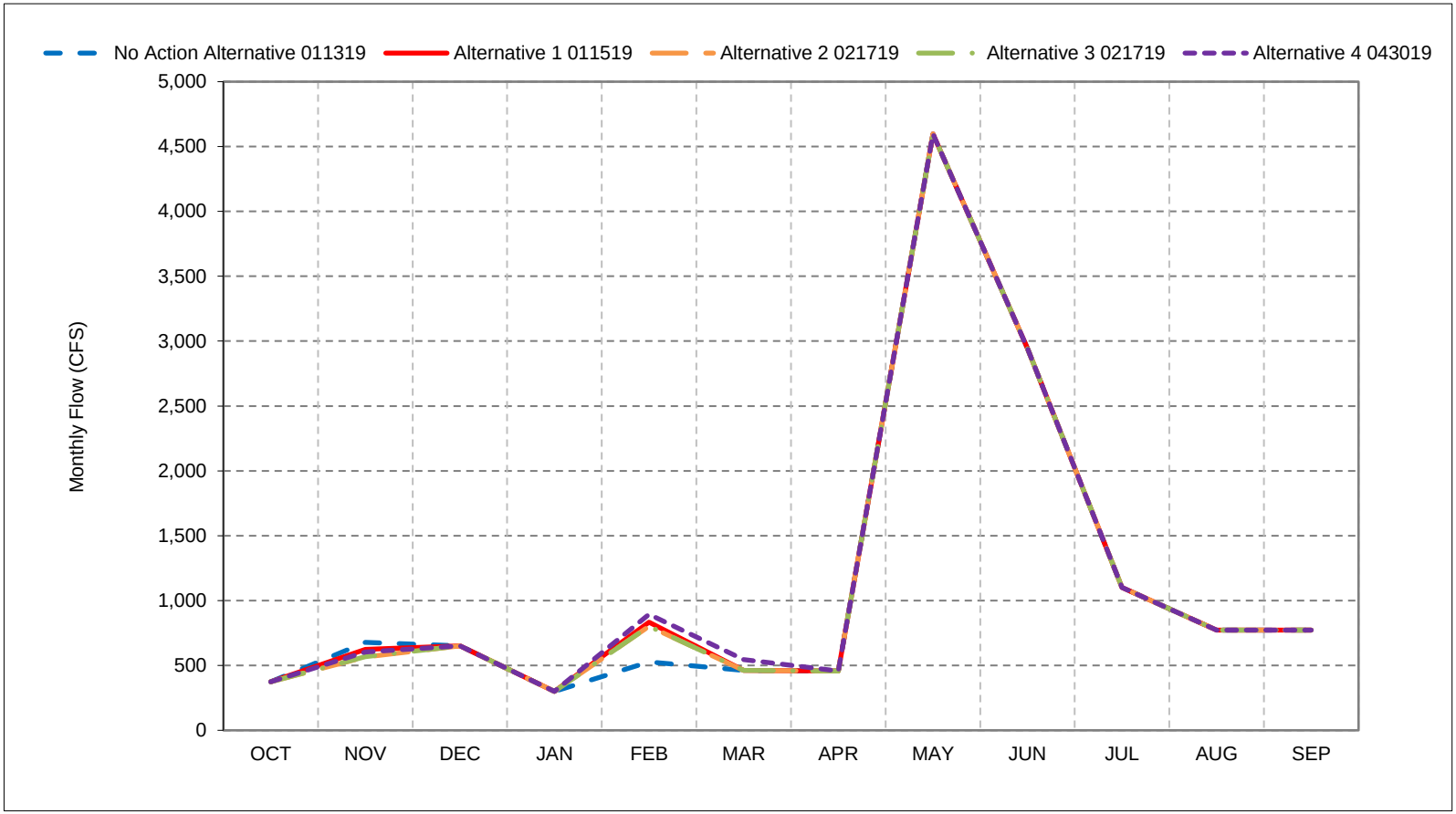

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-2. Trinity River Flow below Lewiston, Wet Year Average Flow



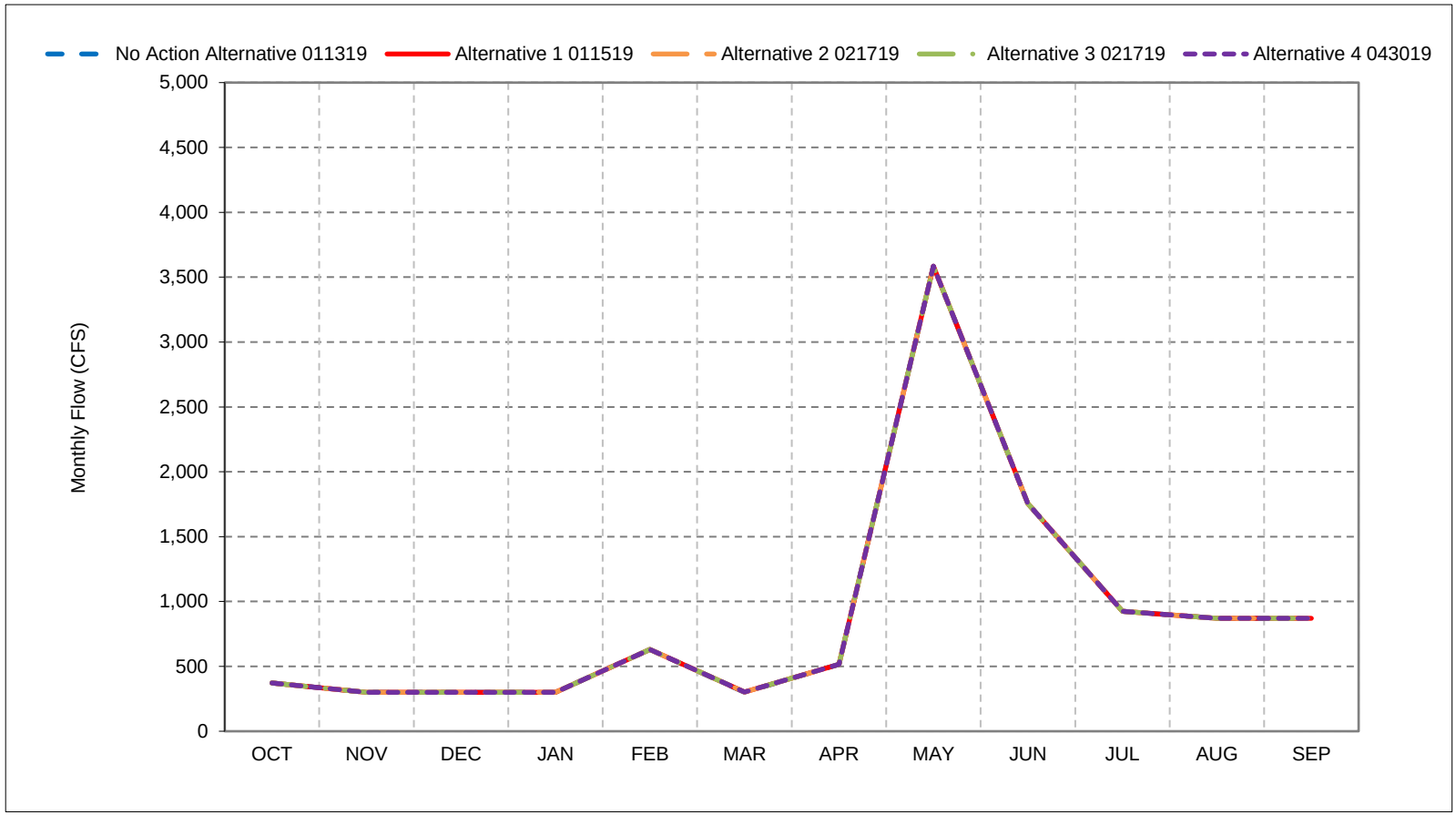

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-3. Trinity River Flow below Lewiston, Above Normal Year Average Flow



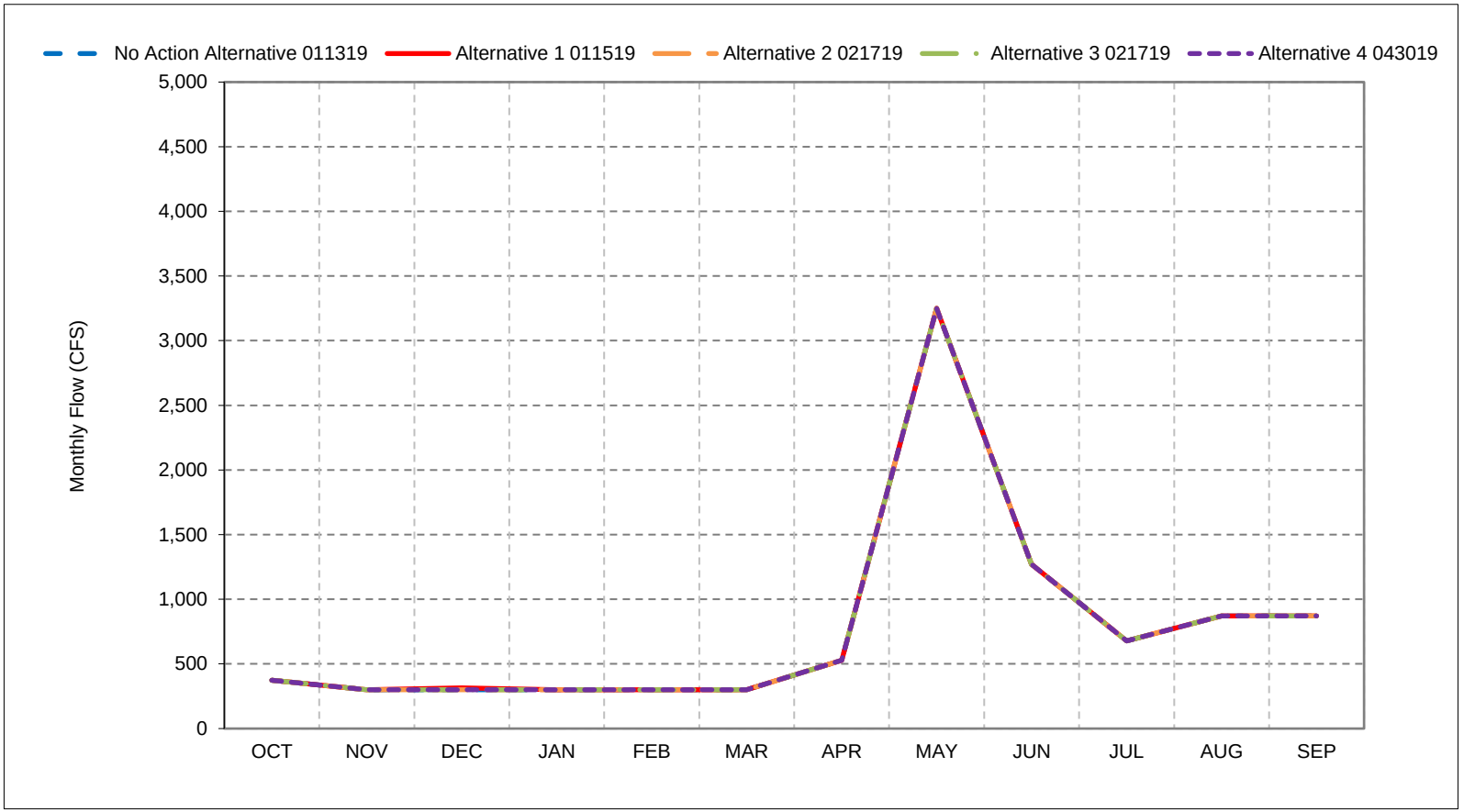

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-4. Trinity River Flow below Lewiston, Below Normal Year Average Flow



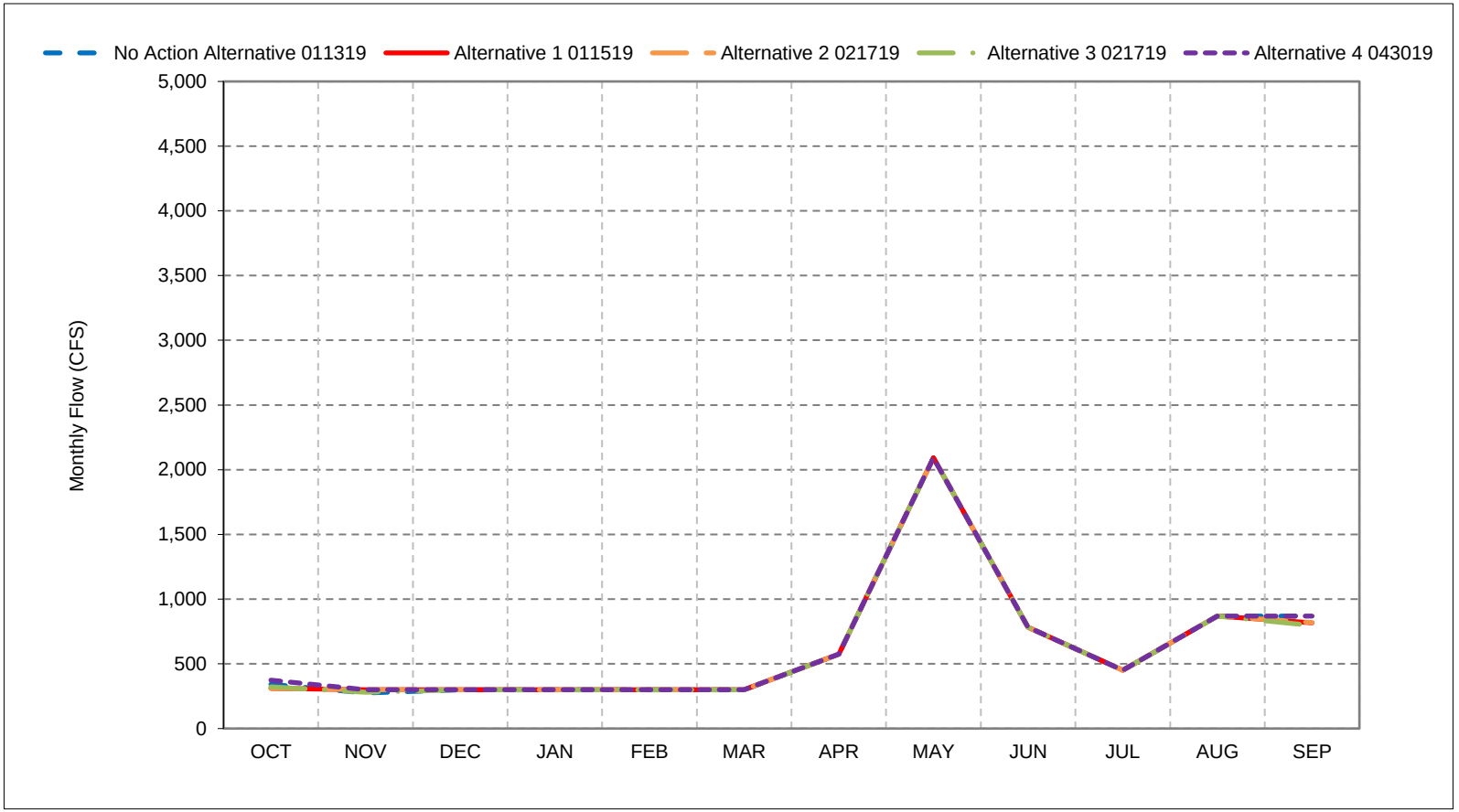

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-5. Trinity River Flow below Lewiston, Dry Year Average Flow



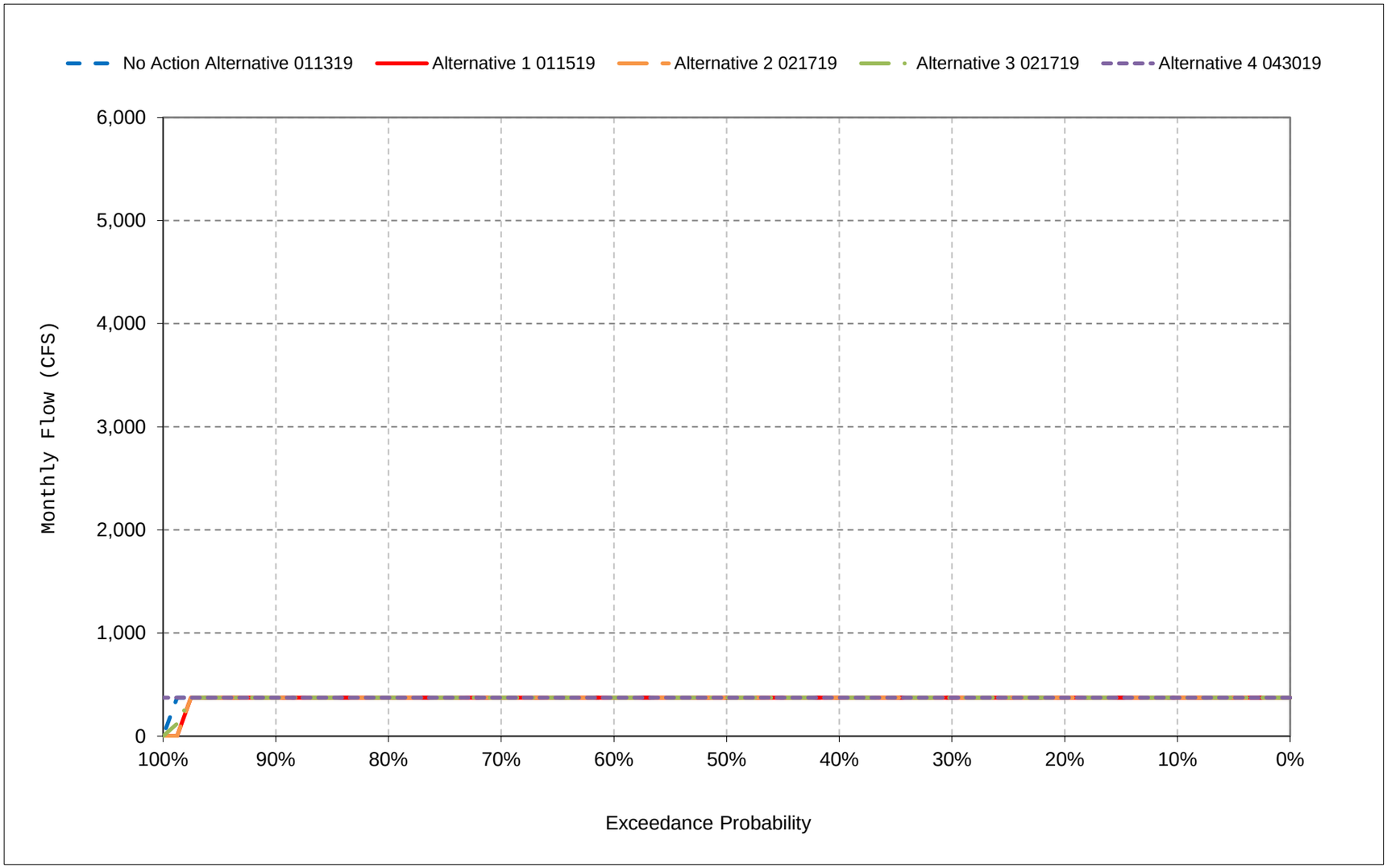

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-6. Trinity River Flow below Lewiston, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

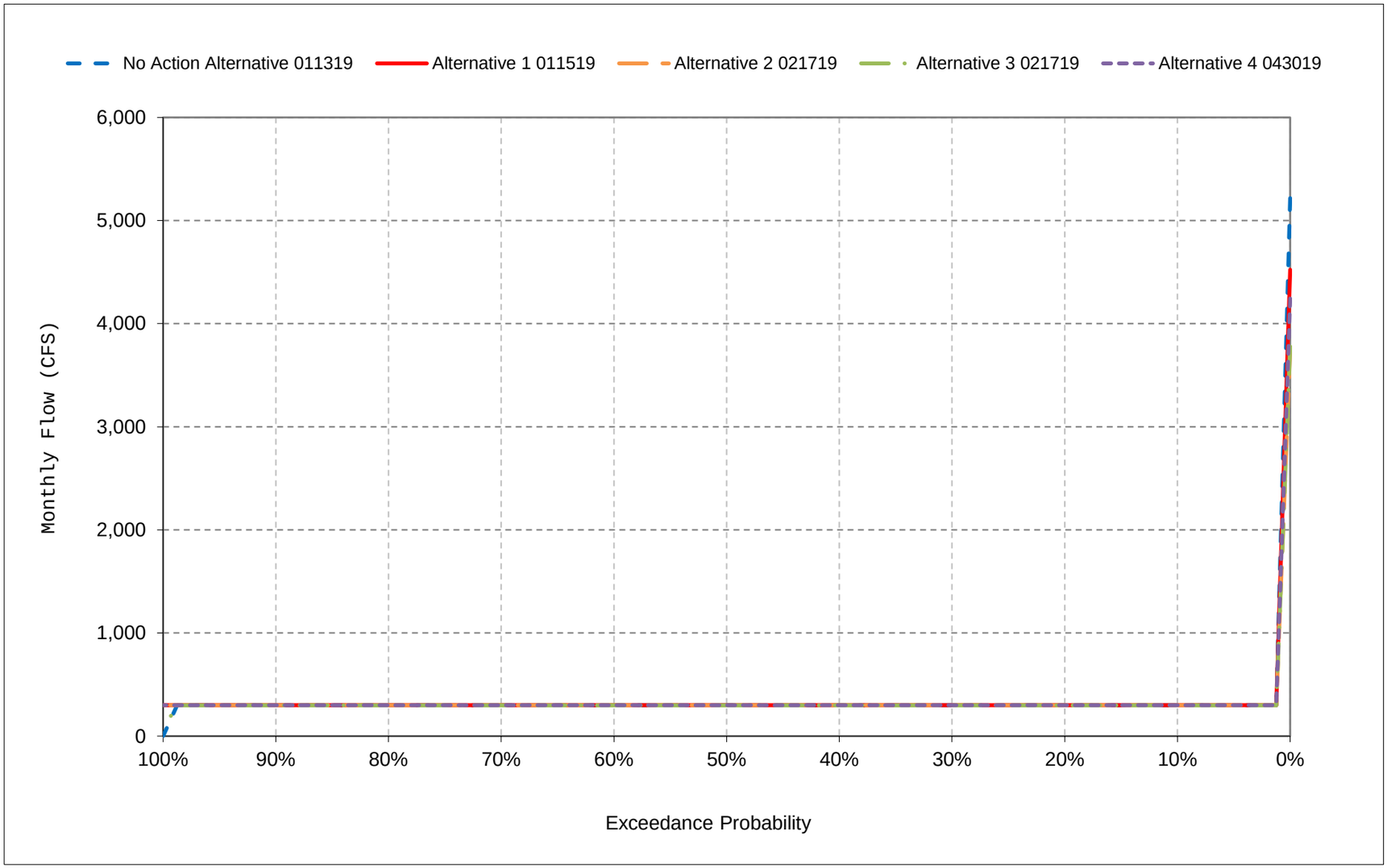
**Figure 12-7. Trinity River Flow below Lewiston, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

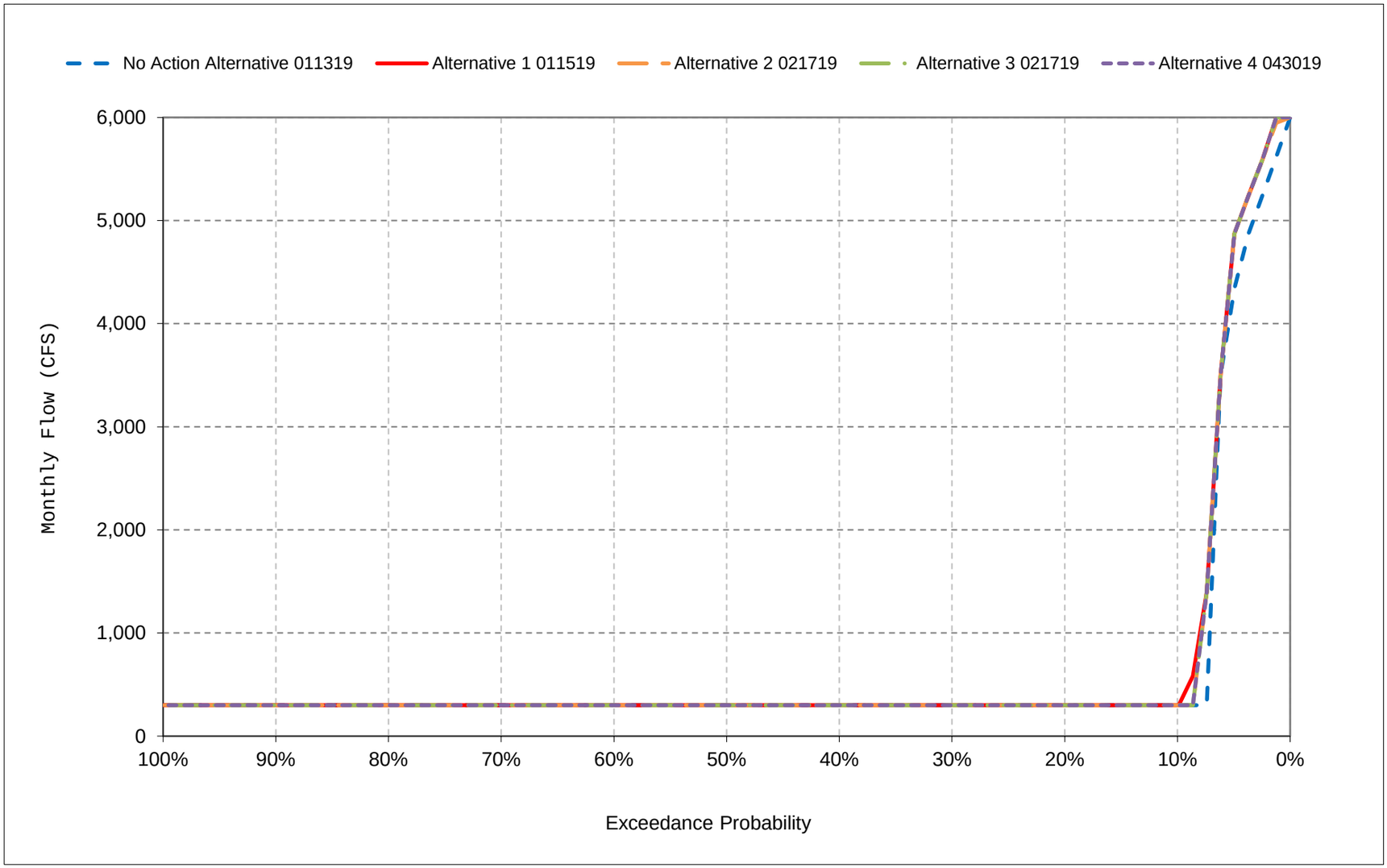
**Figure 12-8. Trinity River Flow below Lewiston, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

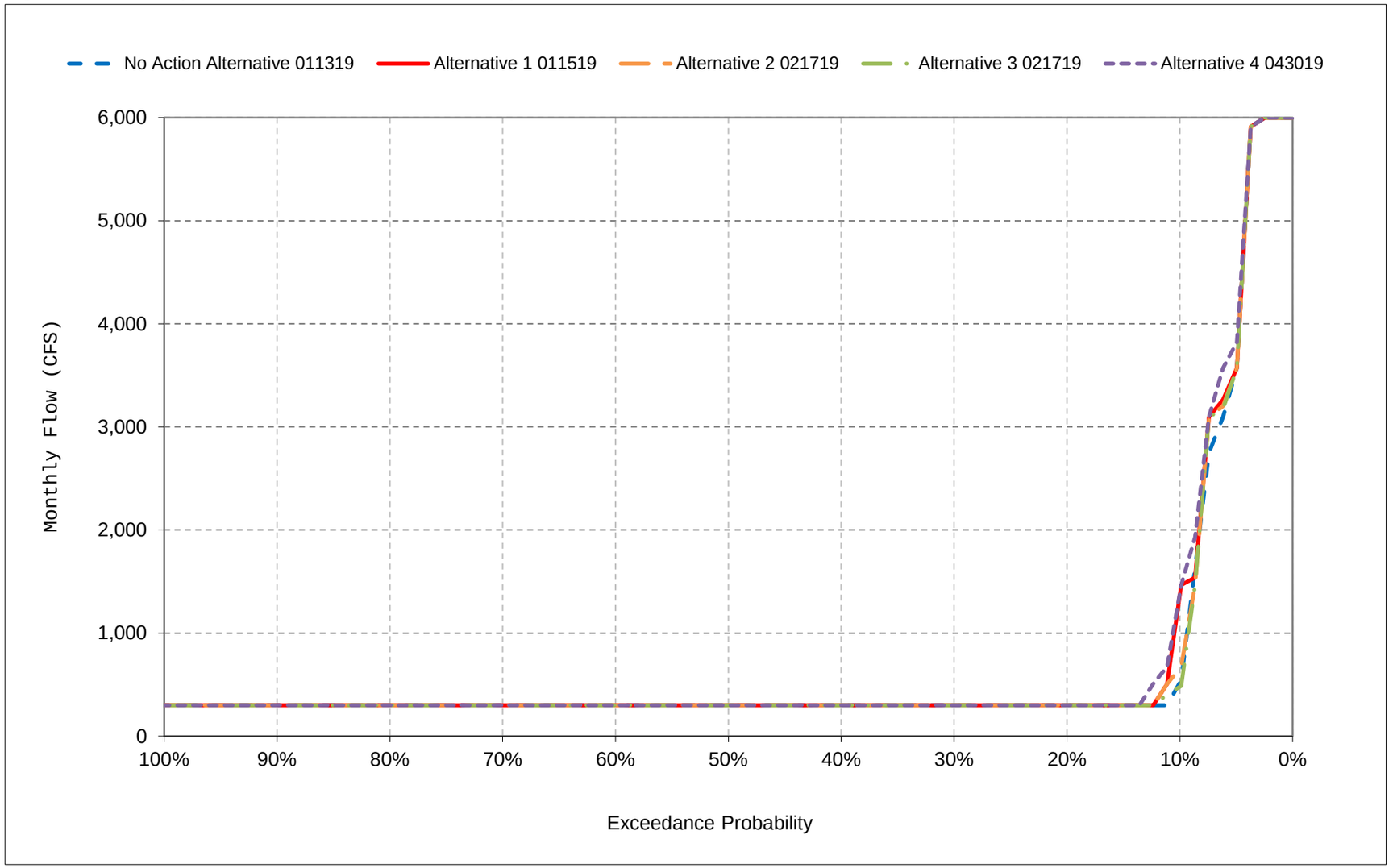
**Figure 12-9. Trinity River Flow below Lewiston, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

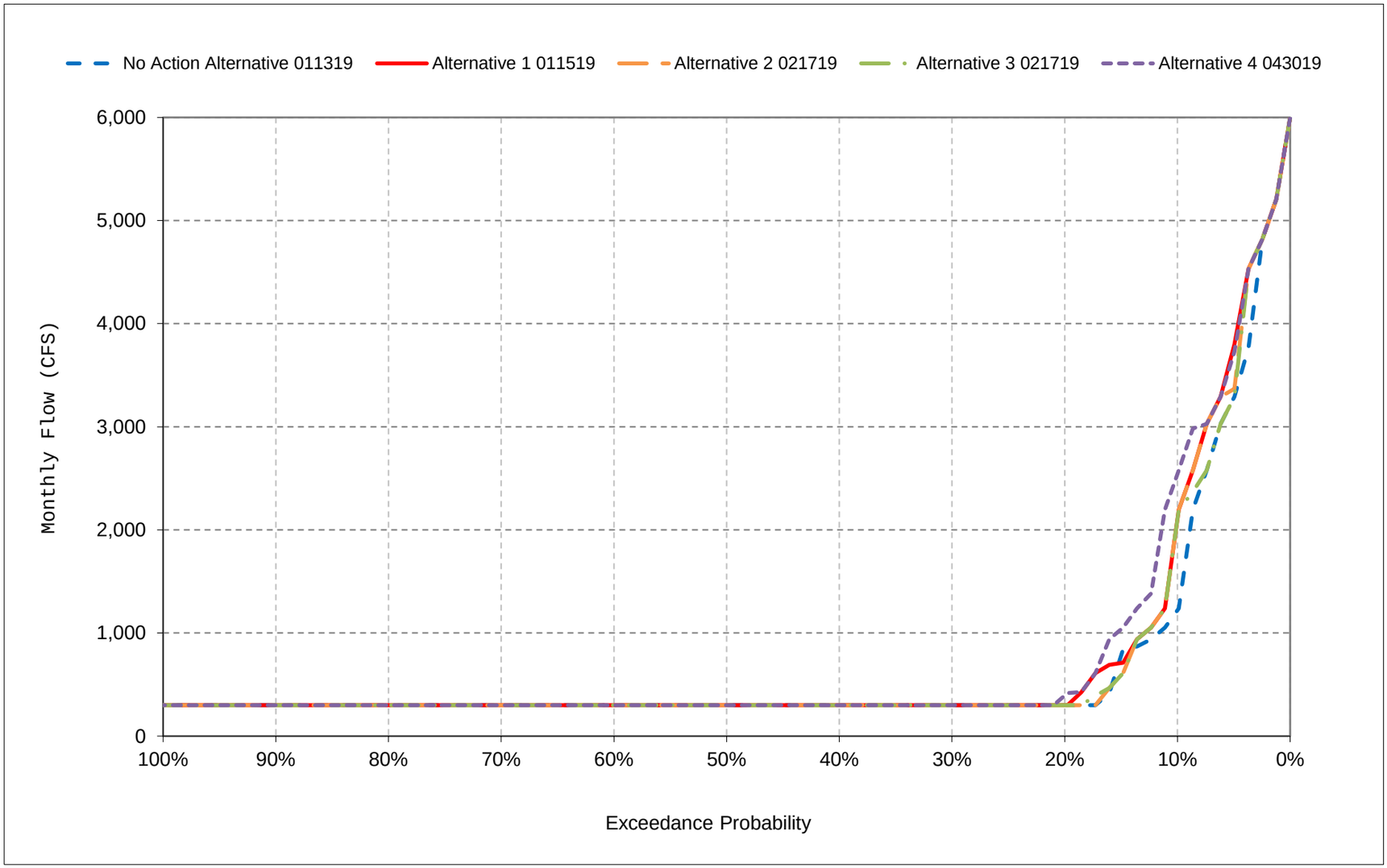
**Figure 12-10. Trinity River Flow below Lewiston, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

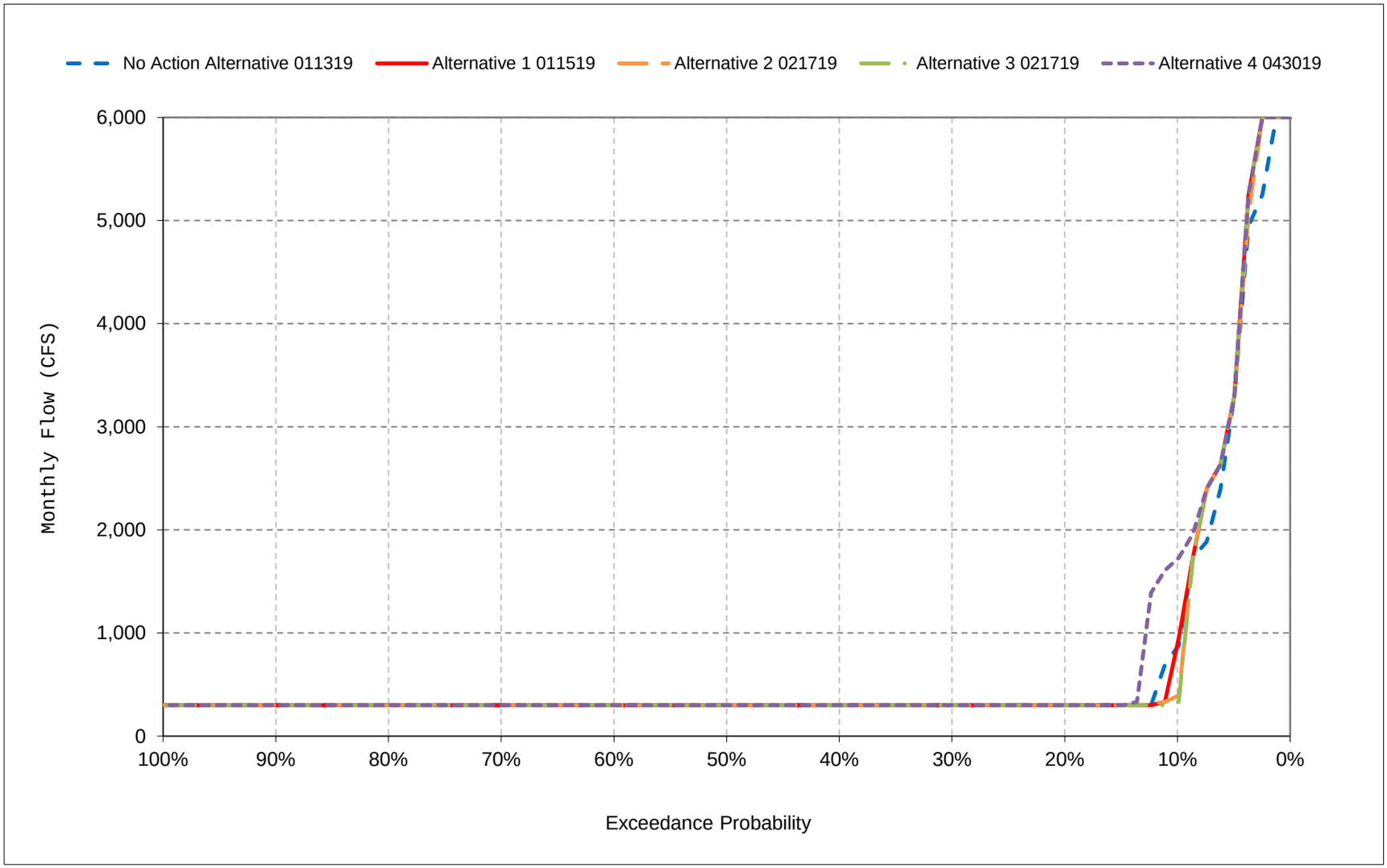
**Figure 12-11. Trinity River Flow below Lewiston, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

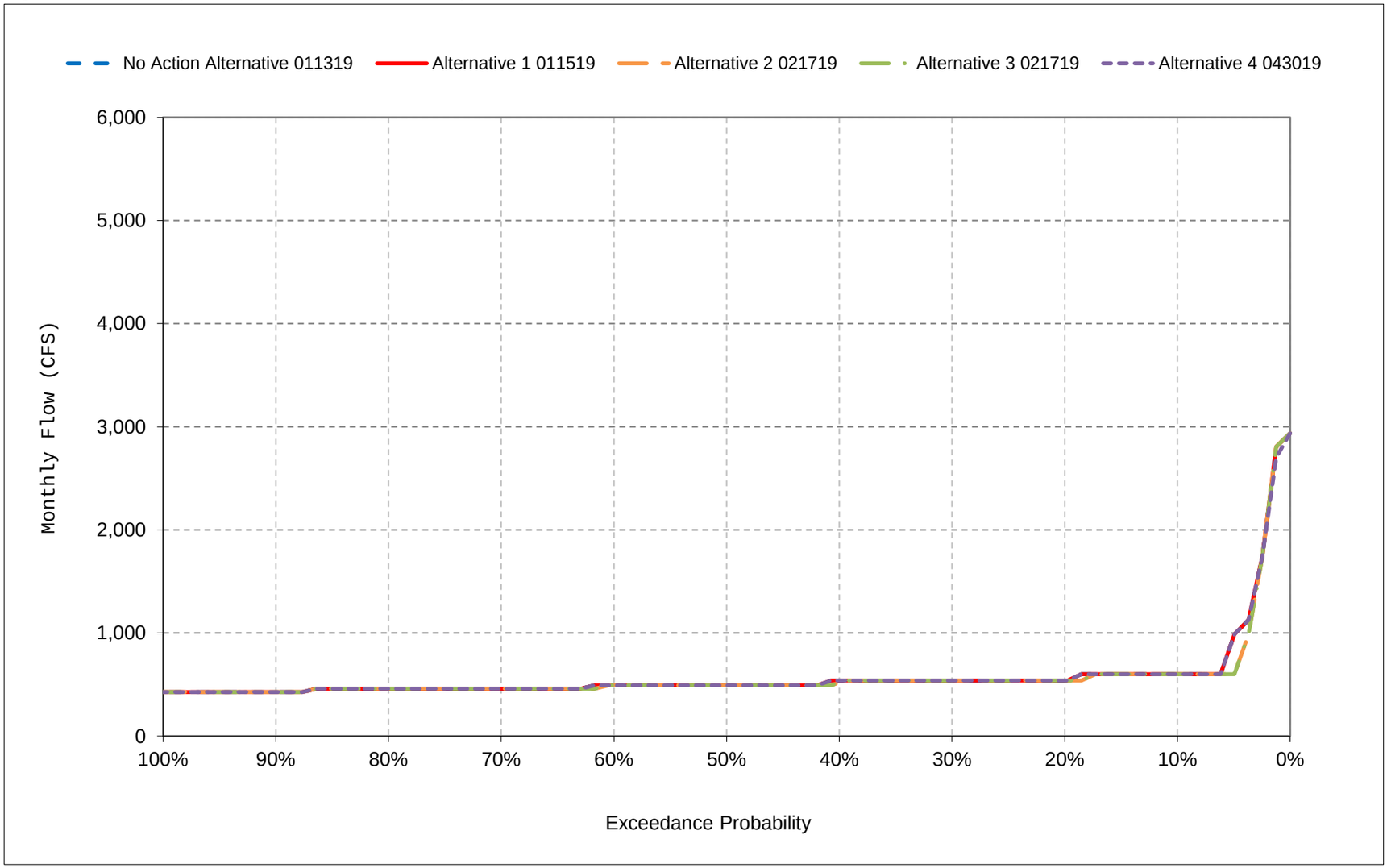
**Figure 12-12. Trinity River Flow below Lewiston, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

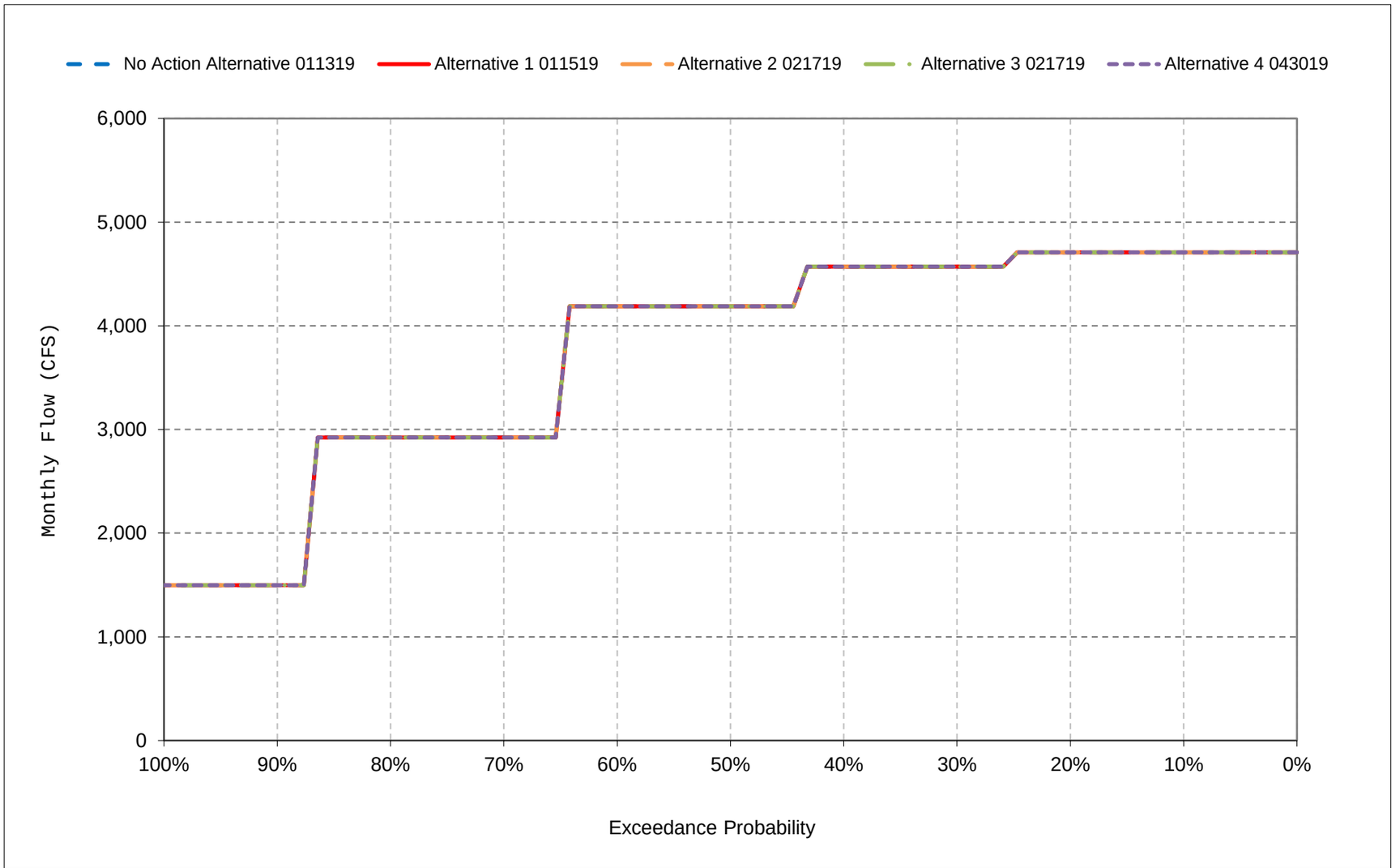
**Figure 12-13. Trinity River Flow below Lewiston, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

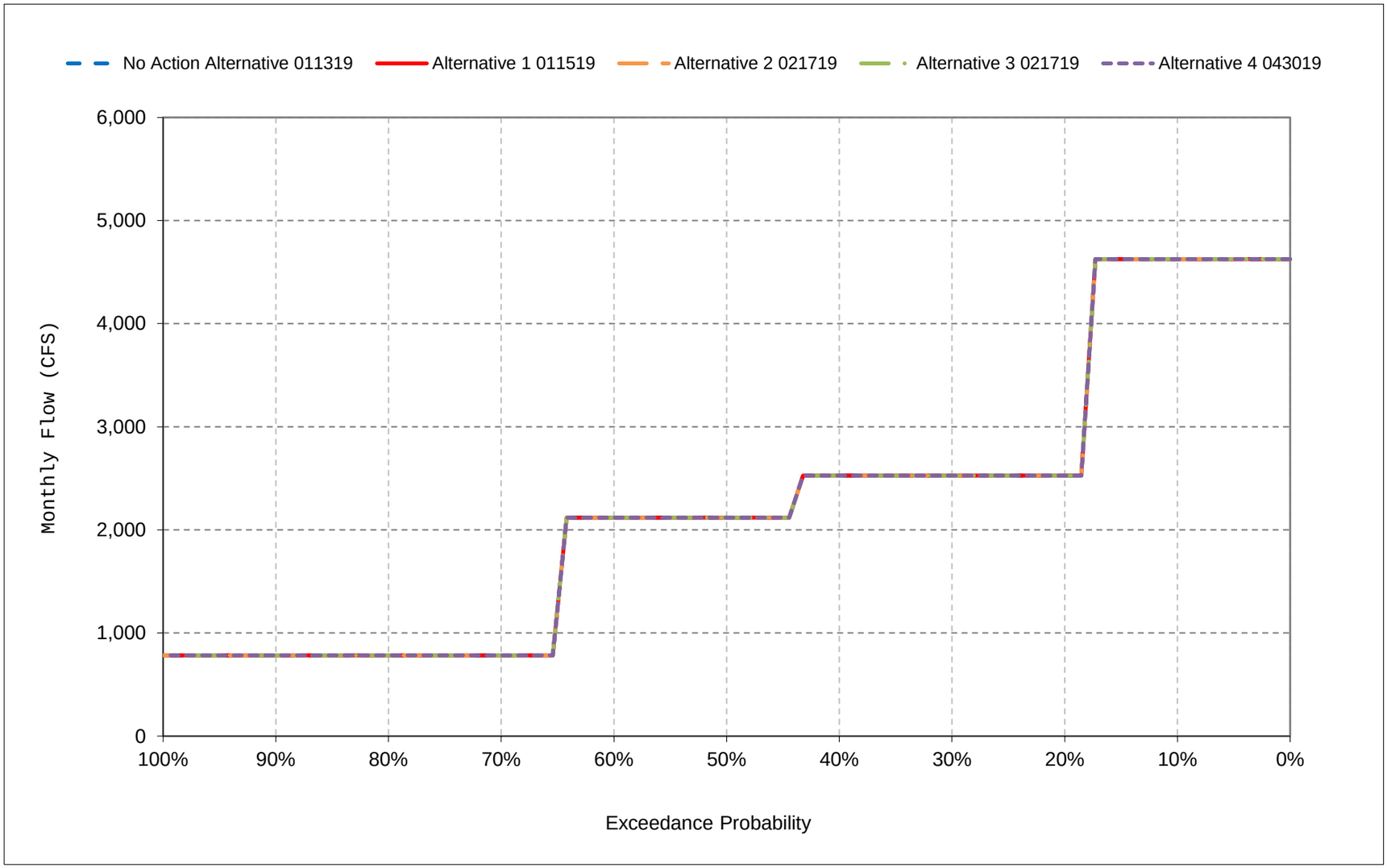
**Figure 12-14. Trinity River Flow below Lewiston, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

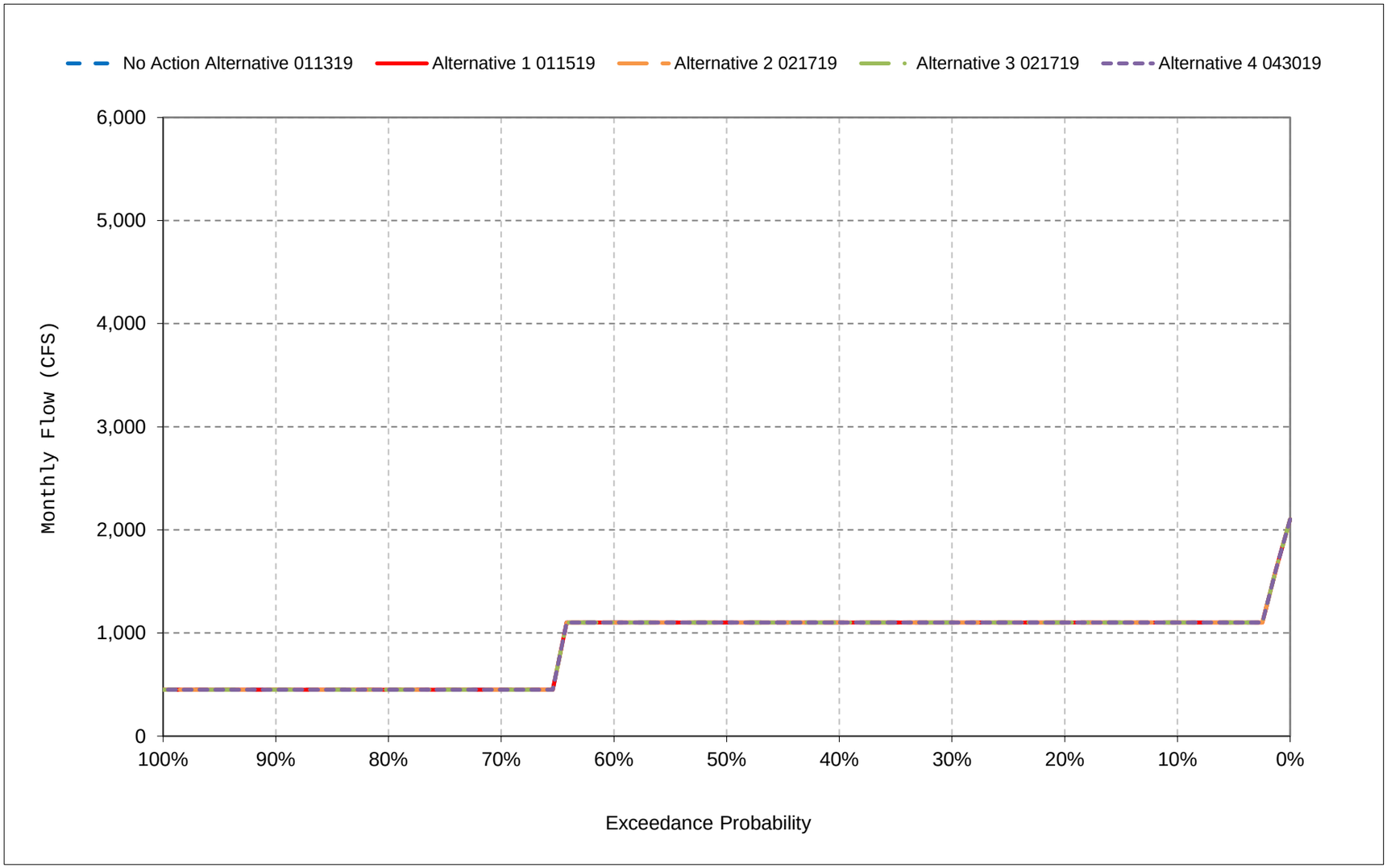
**Figure 12-15. Trinity River Flow below Lewiston, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

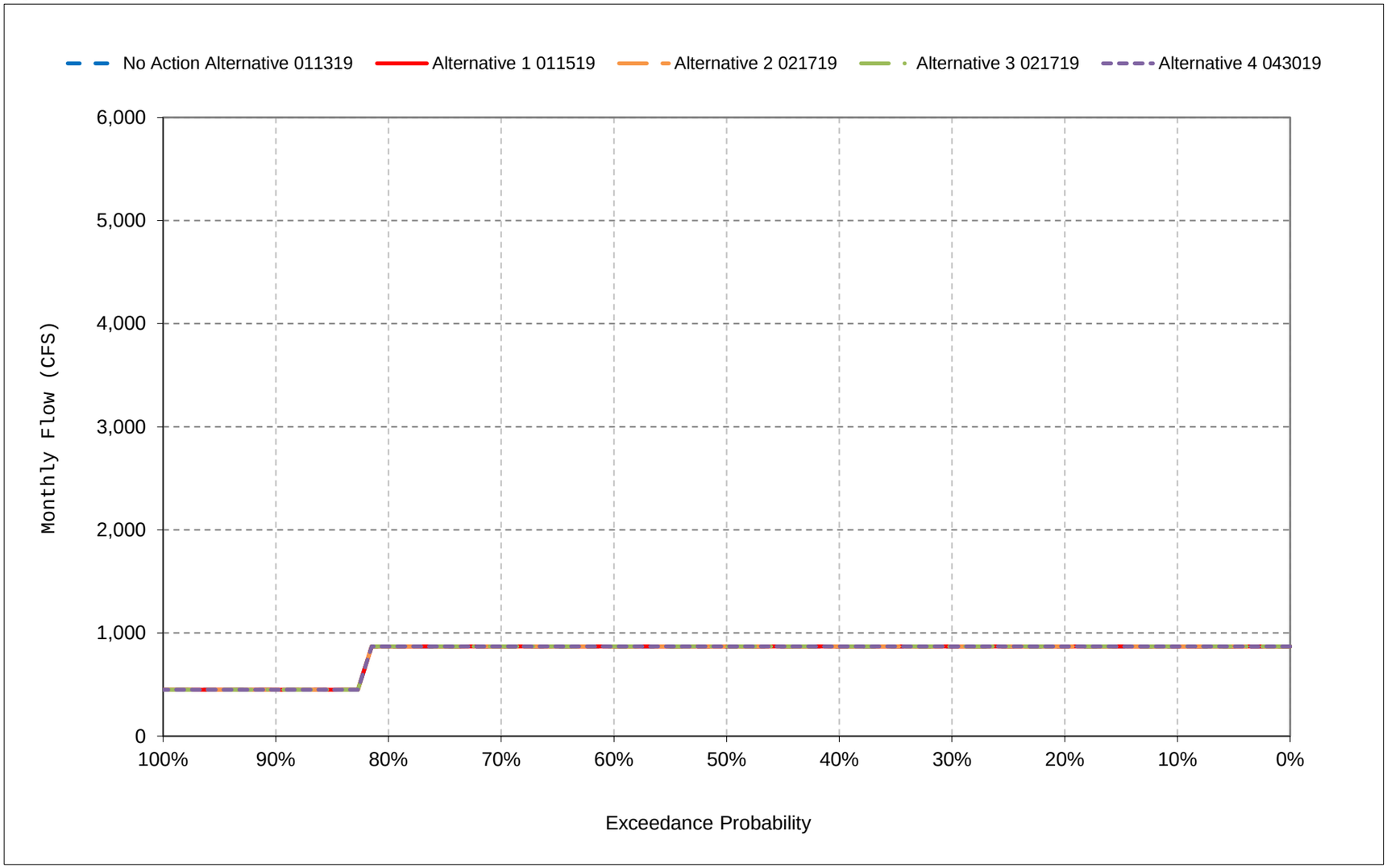
**Figure 12-16. Trinity River Flow below Lewiston, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

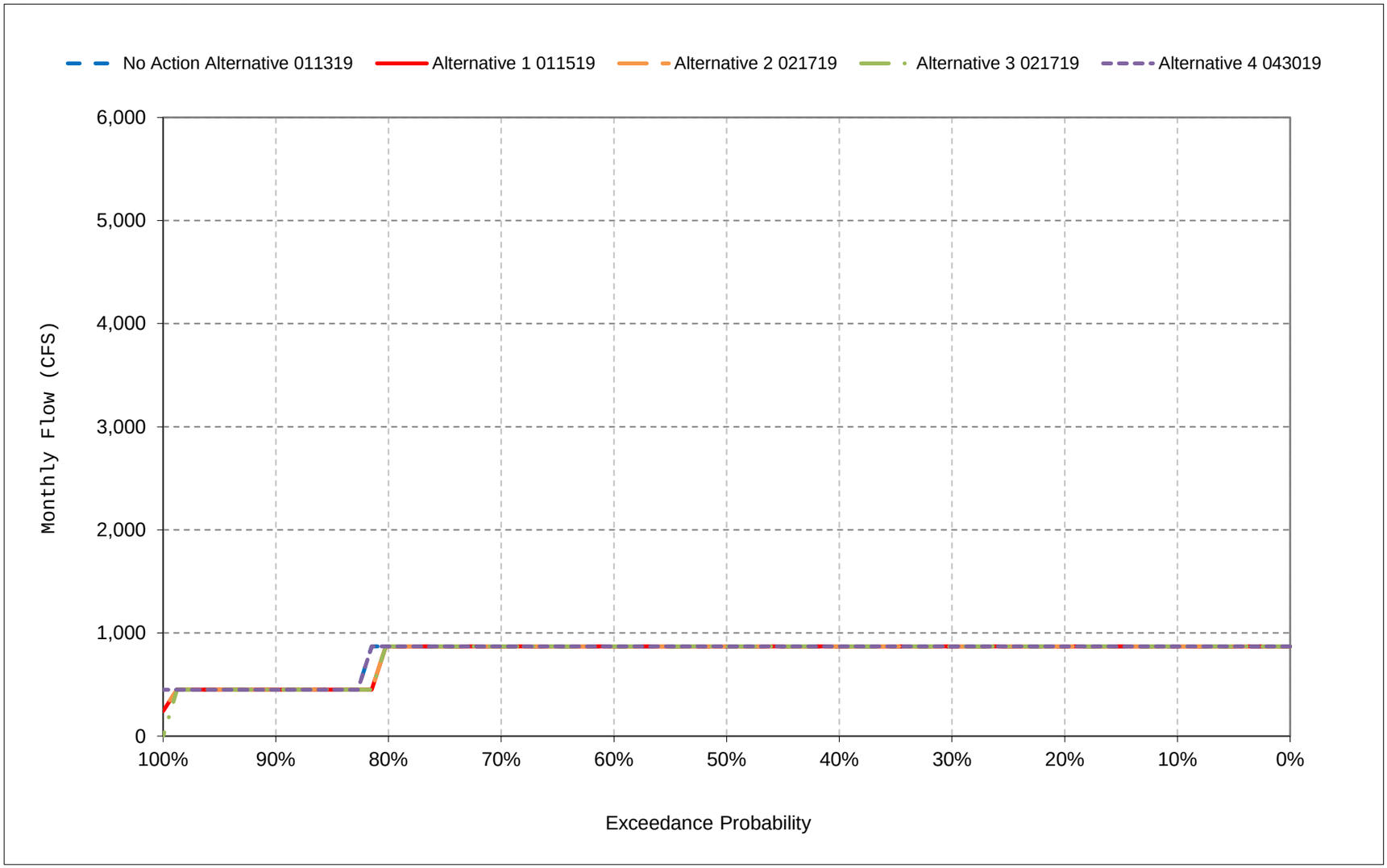
**Figure 12-17. Trinity River Flow below Lewiston, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 12-18. Trinity River Flow below Lewiston, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 14-1. Clear Creek below Whiskeytown Dam Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 20% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 30% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 40% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 50% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 60% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 70% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 80% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 150 | 85 | 85 | 150 |
| 90% | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 237 | 150 | 85 | 85 | 150 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 185 | 186 | 190 | 225 | 207 | 194 | 191 | 265 | 181 | 85 | 85 | 148 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 200 | 200 | 200 | 309 | 249 | 207 | 200 | 277 | 200 | 85 | 85 | 150 |
| Above Normal (16%) | 200 | 200 | 200 | 192 | 196 | 196 | 196 | 277 | 200 | 85 | 85 | 150 |
| Below Normal (13%) | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 274 | 191 | 85 | 85 | 150 |
| Dry (24%) | 188 | 188 | 188 | 190 | 190 | 190 | 190 | 267 | 183 | 85 | 85 | 150 |
| Critical (15%) | 121 | 128 | 154 | 167 | 167 | 167 | 167 | 214 | 111 | 85 | 85 | 133 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 20% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 30% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 40% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 50% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 60% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 70% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 80% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 150 | 85 | 85 | 150 |
| 90% | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 237 | 150 | 85 | 85 | 150 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 187 | 188 | 190 | 225 | 207 | 194 | 191 | 265 | 181 | 85 | 86 | 148 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 200 | 200 | 200 | 309 | 249 | 207 | 200 | 277 | 200 | 85 | 85 | 150 |
| Above Normal (16%) | 200 | 200 | 200 | 192 | 196 | 196 | 196 | 277 | 200 | 85 | 85 | 150 |
| Below Normal (13%) | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 274 | 191 | 85 | 85 | 150 |
| Dry (24%) | 188 | 188 | 188 | 190 | 190 | 190 | 190 | 267 | 183 | 85 | 85 | 150 |
| Critical (15%) | 133 | 141 | 154 | 167 | 167 | 167 | 167 | 214 | 111 | 85 | 94 | 133 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2 | 2 | **0** | **0** | **0** | **0** | **0** | 0 | 0 | 0 | 1 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 0 | 0 | 0 | **0** | **0** | **0** | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 13 | 13 | **0** | **0** | **0** | **0** | **0** | 0 | 0 | 0 | 9 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 14-2. Clear Creek below Whiskeytown Dam Flow, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 20% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 30% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 40% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 50% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 60% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 70% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 80% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 150 | 85 | 85 | 150 |
| 90% | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 237 | 150 | 85 | 85 | 150 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 185 | 186 | 190 | 225 | 207 | 194 | 191 | 265 | 181 | 85 | 85 | 148 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 200 | 200 | 200 | 309 | 249 | 207 | 200 | 277 | 200 | 85 | 85 | 150 |
| Above Normal (16%) | 200 | 200 | 200 | 192 | 196 | 196 | 196 | 277 | 200 | 85 | 85 | 150 |
| Below Normal (13%) | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 274 | 191 | 85 | 85 | 150 |
| Dry (24%) | 188 | 188 | 188 | 190 | 190 | 190 | 190 | 267 | 183 | 85 | 85 | 150 |
| Critical (15%) | 121 | 128 | 154 | 167 | 167 | 167 | 167 | 214 | 111 | 85 | 85 | 133 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 20% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 30% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 40% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 50% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 60% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 70% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 80% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 90% | 50 | 73 | 73 | 87 | 70 | 70 | 70 | 142 | 50 | 50 | 50 | 50 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 50 | 97 | 97 | 134 | 112 | 98 | 94 | 155 | 50 | 50 | 50 | 50 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 50 | 100 | 100 | 216 | 148 | 104 | 92 | 156 | 50 | 50 | 50 | 50 |
| Above Normal (16%) | 50 | 100 | 100 | 95 | 95 | 95 | 95 | 156 | 50 | 50 | 50 | 50 |
| Below Normal (13%) | 50 | 97 | 97 | 100 | 100 | 100 | 100 | 155 | 50 | 50 | 50 | 50 |
| Dry (24%) | 50 | 100 | 100 | 96 | 96 | 96 | 96 | 156 | 50 | 50 | 50 | 50 |
| Critical (15%) | 50 | 80 | 80 | 93 | 93 | 93 | 93 | 146 | 50 | 50 | 50 | 50 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-150** | **-35** | **-35** | **-100** |
| 20% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-150** | **-35** | **-35** | **-100** |
| 30% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-150** | **-35** | **-35** | **-100** |
| 40% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-150** | **-35** | **-35** | **-100** |
| 50% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-150** | **-35** | **-35** | **-100** |
| 60% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-150** | **-35** | **-35** | **-100** |
| 70% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-150** | **-35** | **-35** | **-100** |
| 80% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-100** | **-35** | **-35** | **-100** |
| 90% | **-100** | **-77** | **-77** | **-63** | **-80** | **-80** | **-80** | **-95** | **-100** | **-35** | **-35** | **-100** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-135** | **-89** | **-93** | **-92** | **-95** | **-95** | **-97** | **-110** | **-131** | **-35** | **-35** | **-98** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-150** | **-100** | **-100** | **-93** | **-101** | **-102** | **-108** | **-121** | **-150** | **-35** | **-35** | **-100** |
| Above Normal (16%) | **-150** | **-100** | **-100** | **-97** | **-101** | **-101** | **-101** | **-121** | **-150** | **-35** | **-35** | **-100** |
| Below Normal (13%) | **-145** | **-98** | **-98** | **-95** | **-95** | **-95** | **-95** | **-119** | **-141** | **-35** | **-35** | **-100** |
| Dry (24%) | **-138** | **-88** | **-88** | **-94** | **-95** | **-95** | **-95** | **-111** | **-133** | **-35** | **-35** | **-100** |
| Critical (15%) | **-71** | **-48** | **-74** | **-74** | **-74** | **-74** | **-74** | **-68** | **-61** | **-35** | **-35** | **-83** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 14-3. Clear Creek below Whiskeytown Dam Flow, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 20% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 30% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 40% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 50% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 60% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 70% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 80% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 150 | 85 | 85 | 150 |
| 90% | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 237 | 150 | 85 | 85 | 150 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 185 | 186 | 190 | 225 | 207 | 194 | 191 | 265 | 181 | 85 | 85 | 148 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 200 | 200 | 200 | 309 | 249 | 207 | 200 | 277 | 200 | 85 | 85 | 150 |
| Above Normal (16%) | 200 | 200 | 200 | 192 | 196 | 196 | 196 | 277 | 200 | 85 | 85 | 150 |
| Below Normal (13%) | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 274 | 191 | 85 | 85 | 150 |
| Dry (24%) | 188 | 188 | 188 | 190 | 190 | 190 | 190 | 267 | 183 | 85 | 85 | 150 |
| Critical (15%) | 121 | 128 | 154 | 167 | 167 | 167 | 167 | 214 | 111 | 85 | 85 | 133 |

### Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 20% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 30% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 40% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 50% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 60% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 70% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 80% | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 156 | 50 | 50 | 50 | 50 |
| 90% | 50 | 73 | 73 | 87 | 70 | 70 | 70 | 142 | 50 | 50 | 50 | 50 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 50 | 97 | 97 | 134 | 112 | 98 | 94 | 155 | 50 | 50 | 50 | 50 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 50 | 100 | 100 | 216 | 148 | 104 | 92 | 156 | 50 | 50 | 50 | 50 |
| Above Normal (16%) | 50 | 100 | 100 | 95 | 95 | 95 | 95 | 156 | 50 | 50 | 50 | 50 |
| Below Normal (13%) | 50 | 97 | 97 | 100 | 100 | 100 | 100 | 155 | 50 | 50 | 50 | 50 |
| Dry (24%) | 50 | 100 | 100 | 96 | 96 | 96 | 96 | 156 | 50 | 50 | 50 | 50 |
| Critical (15%) | 50 | 80 | 80 | 93 | 93 | 93 | 93 | 146 | 50 | 50 | 50 | 50 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-150** | **-35** | **-35** | **-100** |
| 20% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-150** | **-35** | **-35** | **-100** |
| 30% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-150** | **-35** | **-35** | **-100** |
| 40% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-150** | **-35** | **-35** | **-100** |
| 50% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-150** | **-35** | **-35** | **-100** |
| 60% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-150** | **-35** | **-35** | **-100** |
| 70% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-150** | **-35** | **-35** | **-100** |
| 80% | **-150** | **-100** | **-100** | **-100** | **-100** | **-100** | **-100** | **-121** | **-100** | **-35** | **-35** | **-100** |
| 90% | **-100** | **-77** | **-77** | **-63** | **-80** | **-80** | **-80** | **-95** | **-100** | **-35** | **-35** | **-100** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-135** | **-89** | **-93** | **-92** | **-95** | **-95** | **-97** | **-110** | **-131** | **-35** | **-35** | **-98** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-150** | **-100** | **-100** | **-93** | **-101** | **-102** | **-108** | **-121** | **-150** | **-35** | **-35** | **-100** |
| Above Normal (16%) | **-150** | **-100** | **-100** | **-97** | **-101** | **-101** | **-101** | **-121** | **-150** | **-35** | **-35** | **-100** |
| Below Normal (13%) | **-145** | **-98** | **-98** | **-95** | **-95** | **-95** | **-95** | **-119** | **-141** | **-35** | **-35** | **-100** |
| Dry (24%) | **-138** | **-88** | **-88** | **-94** | **-95** | **-95** | **-95** | **-111** | **-133** | **-35** | **-35** | **-100** |
| Critical (15%) | **-71** | **-48** | **-74** | **-74** | **-74** | **-74** | **-74** | **-68** | **-61** | **-35** | **-35** | **-83** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 14-4. Clear Creek below Whiskeytown Dam Flow, Monthly Flow

No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 20% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 30% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 40% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 50% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 60% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 70% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 200 | 85 | 85 | 150 |
| 80% | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 277 | 150 | 85 | 85 | 150 |
| 90% | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 237 | 150 | 85 | 85 | 150 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 185 | 186 | 190 | 225 | 207 | 194 | 191 | 265 | 181 | 85 | 85 | 148 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 200 | 200 | 200 | 309 | 249 | 207 | 200 | 277 | 200 | 85 | 85 | 150 |
| Above Normal (16%) | 200 | 200 | 200 | 192 | 196 | 196 | 196 | 277 | 200 | 85 | 85 | 150 |
| Below Normal (13%) | 195 | 195 | 195 | 195 | 195 | 195 | 195 | 274 | 191 | 85 | 85 | 150 |
| Dry (24%) | 188 | 188 | 188 | 190 | 190 | 190 | 190 | 267 | 183 | 85 | 85 | 150 |
| Critical (15%) | 121 | 128 | 154 | 167 | 167 | 167 | 167 | 214 | 111 | 85 | 85 | 133 |

Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 200 | 314 | 853 | 1,022 | 1,442 | 1,030 | 723 | 372 | 200 | 105 | 89 | 150 |
| 20% | 200 | 220 | 522 | 734 | 884 | 764 | 588 | 294 | 200 | 85 | 85 | 150 |
| 30% | 200 | 200 | 377 | 532 | 709 | 585 | 505 | 277 | 200 | 85 | 85 | 150 |
| 40% | 200 | 200 | 249 | 433 | 619 | 445 | 344 | 277 | 200 | 85 | 85 | 150 |
| 50% | 200 | 200 | 200 | 327 | 489 | 384 | 266 | 277 | 200 | 85 | 85 | 150 |
| 60% | 200 | 200 | 200 | 207 | 307 | 306 | 240 | 277 | 200 | 85 | 85 | 150 |
| 70% | 200 | 200 | 200 | 200 | 235 | 244 | 218 | 277 | 200 | 85 | 85 | 150 |
| 80% | 200 | 200 | 200 | 200 | 200 | 212 | 205 | 277 | 150 | 85 | 85 | 150 |
| 90% | 150 | 150 | 150 | 200 | 200 | 200 | 200 | 237 | 150 | 85 | 85 | 150 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 189 | 230 | 373 | 499 | 629 | 520 | 400 | 302 | 188 | 92 | 89 | 148 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 200 | 237 | 383 | 837 | 914 | 757 | 593 | 350 | 214 | 99 | 91 | 152 |
| Above Normal (16%) | 206 | 294 | 425 | 629 | 911 | 638 | 439 | 314 | 209 | 88 | 93 | 150 |
| Below Normal (13%) | 196 | 218 | 331 | 328 | 466 | 310 | 282 | 277 | 191 | 97 | 90 | 150 |
| Dry (24%) | 190 | 232 | 441 | 248 | 400 | 399 | 299 | 289 | 183 | 85 | 85 | 150 |
| Critical (15%) | 135 | 151 | 219 | 199 | 235 | 275 | 218 | 232 | 116 | 88 | 85 | 136 |

Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 114 | 653 | 822 | 1,242 | 830 | 523 | 94 | 0 | 20 | 4 | 0 |
| 20% | 0 | 20 | 322 | 534 | 684 | 564 | 388 | 17 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 177 | 332 | 509 | 385 | 305 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 49 | 233 | 419 | 245 | 144 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 127 | 289 | 184 | 66 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 7 | 107 | 106 | 40 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 35 | 44 | 18 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 12 | 5 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 50 | 50 | 50 | 50 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 4 | 44 | 183 | 273 | 422 | 327 | 209 | 37 | 7 | 7 | 4 | 1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 37 | 183 | 528 | 665 | 550 | 393 | 72 | 14 | 14 | 6 | 2 |
| Above Normal (16%) | 6 | 94 | 225 | 437 | 715 | 442 | 243 | 37 | 9 | 3 | 8 | 0 |
| Below Normal (13%) | 0 | 22 | 135 | 133 | 270 | 114 | 86 | 3 | 0 | 12 | 5 | 0 |
| Dry (24%) | 3 | 45 | 253 | 58 | 210 | 209 | 109 | 22 | 0 | 0 | 0 | 0 |
| Critical (15%) | 14 | 22 | 65 | 32 | 68 | 108 | 52 | 18 | 6 | 3 | 0 | 2 |

a Based on the 82-year simulation period.

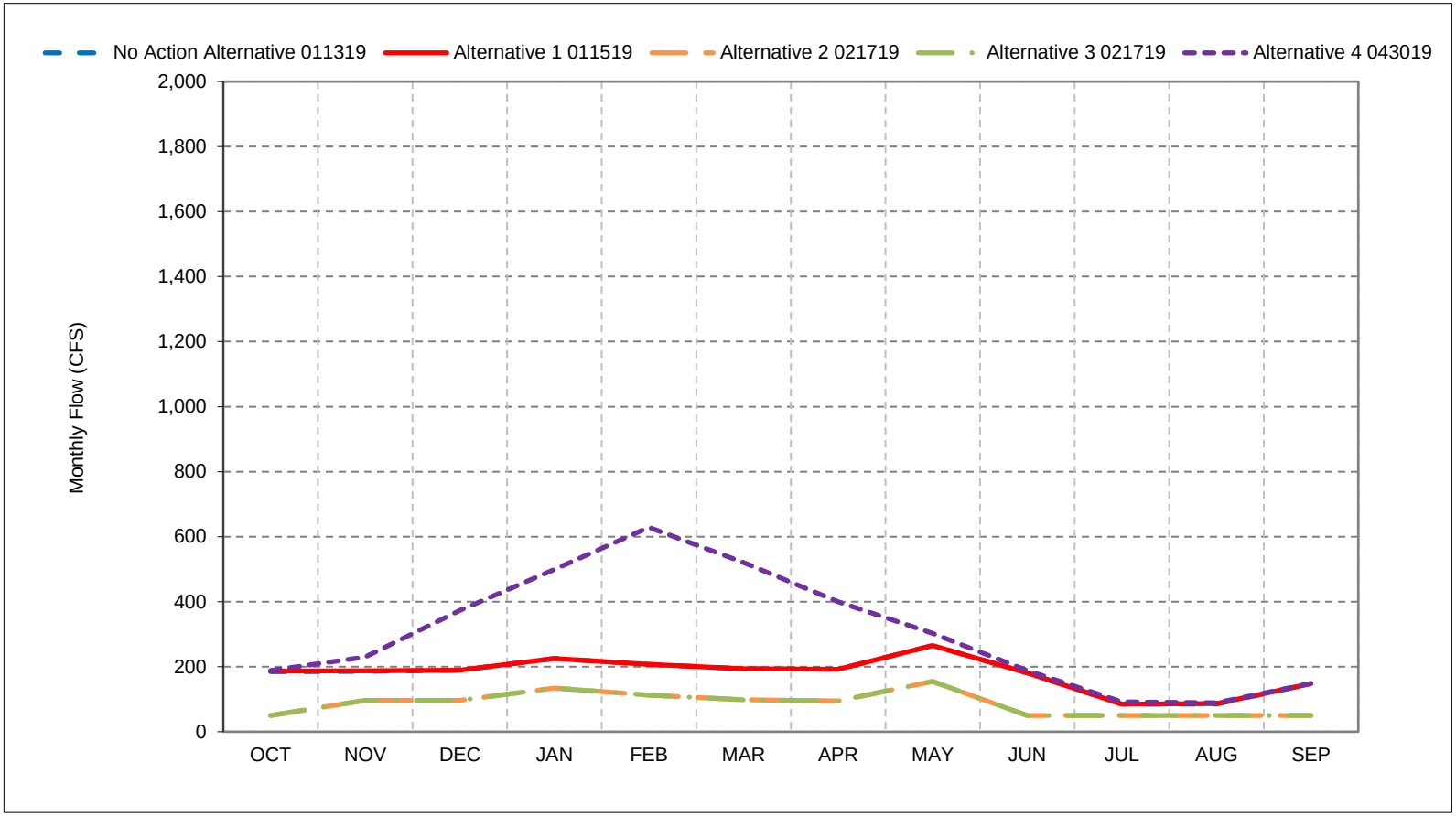
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

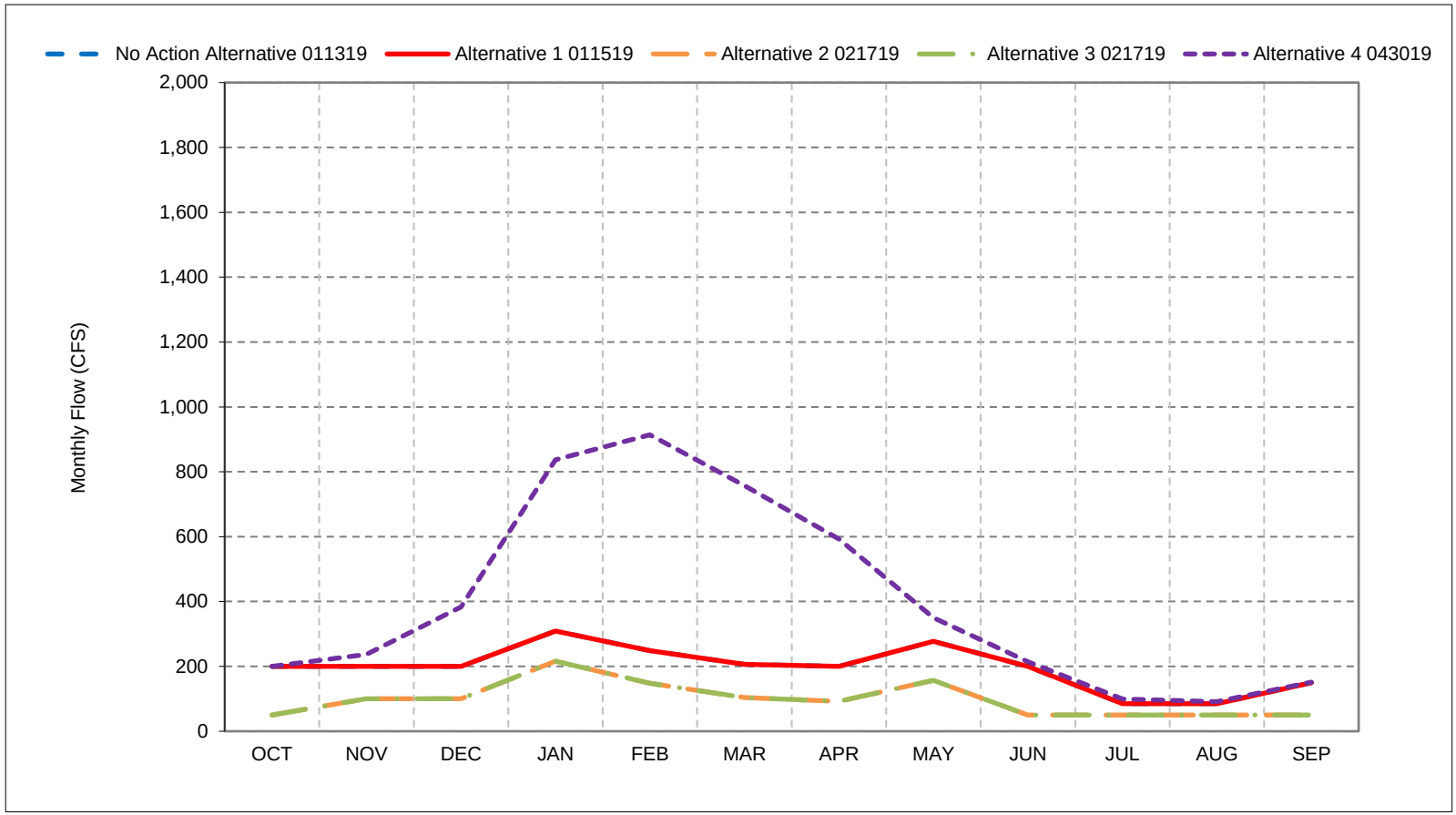
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-1. Clear Creek below Whiskeytown Dam Flow, Long-Term Average Flow



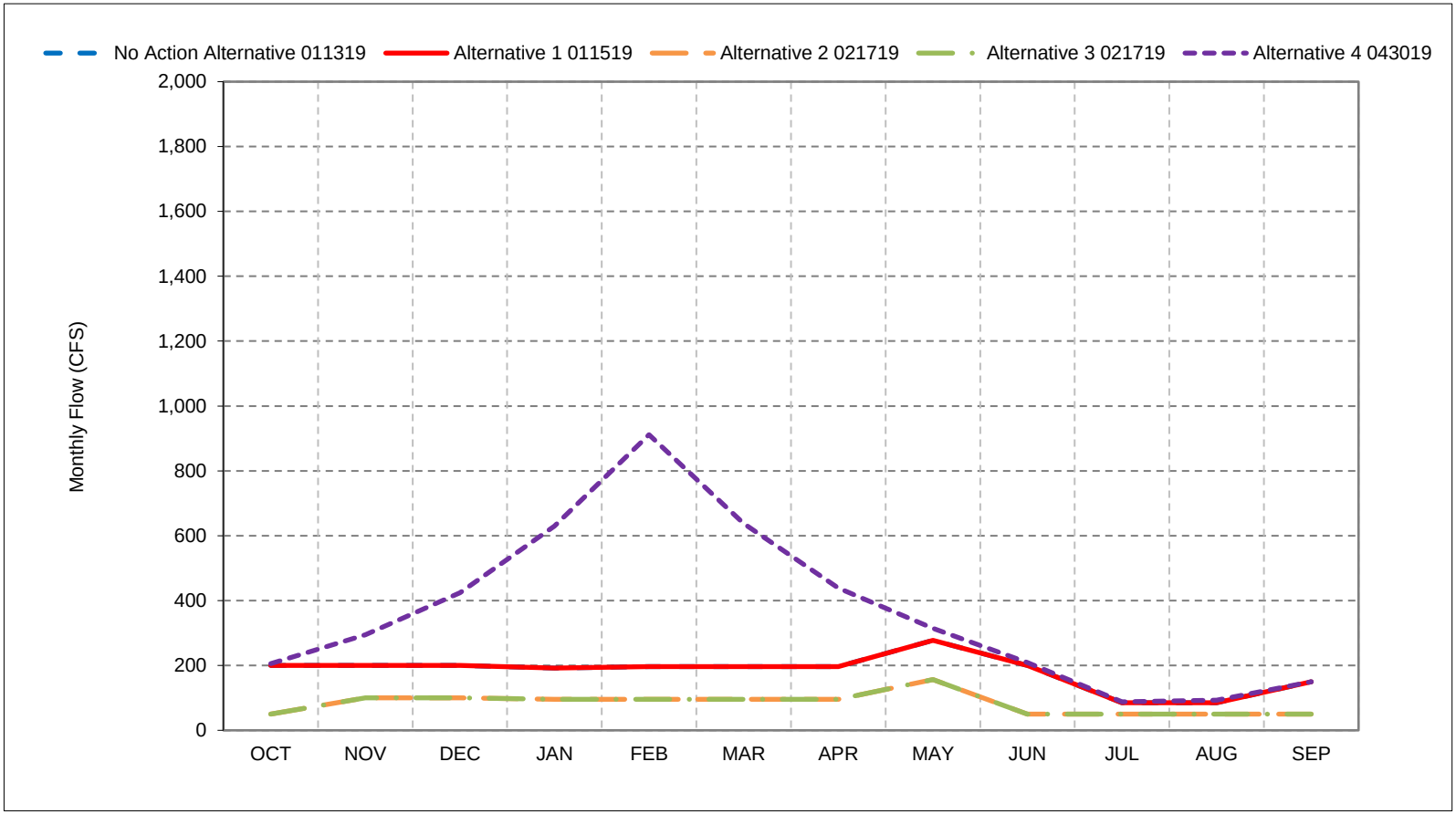

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-2. Clear Creek below Whiskeytown Dam Flow, Wet Year Average Flow



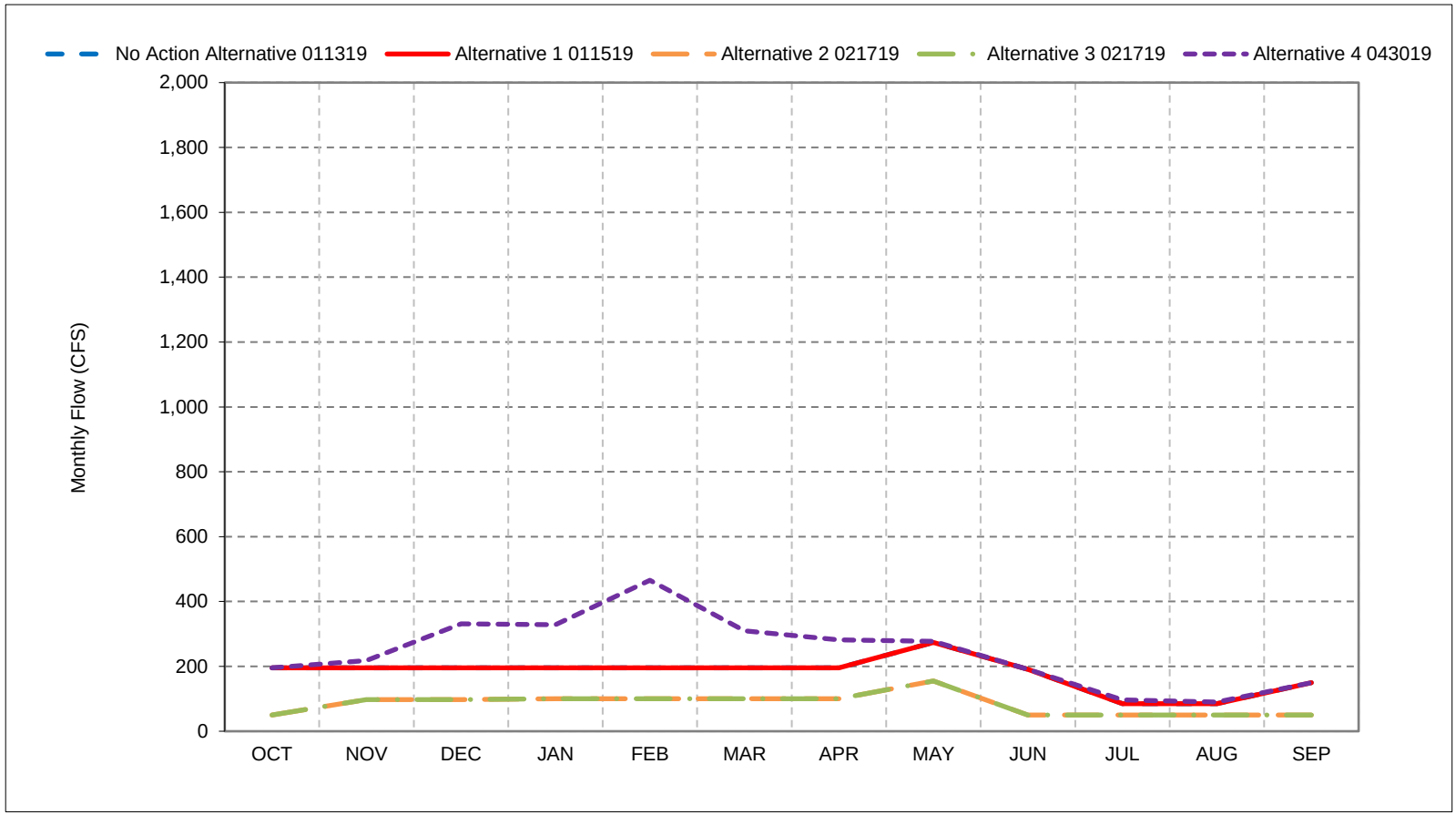

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-3. Clear Creek below Whiskeytown Dam Flow, Above Normal Year Average Flow



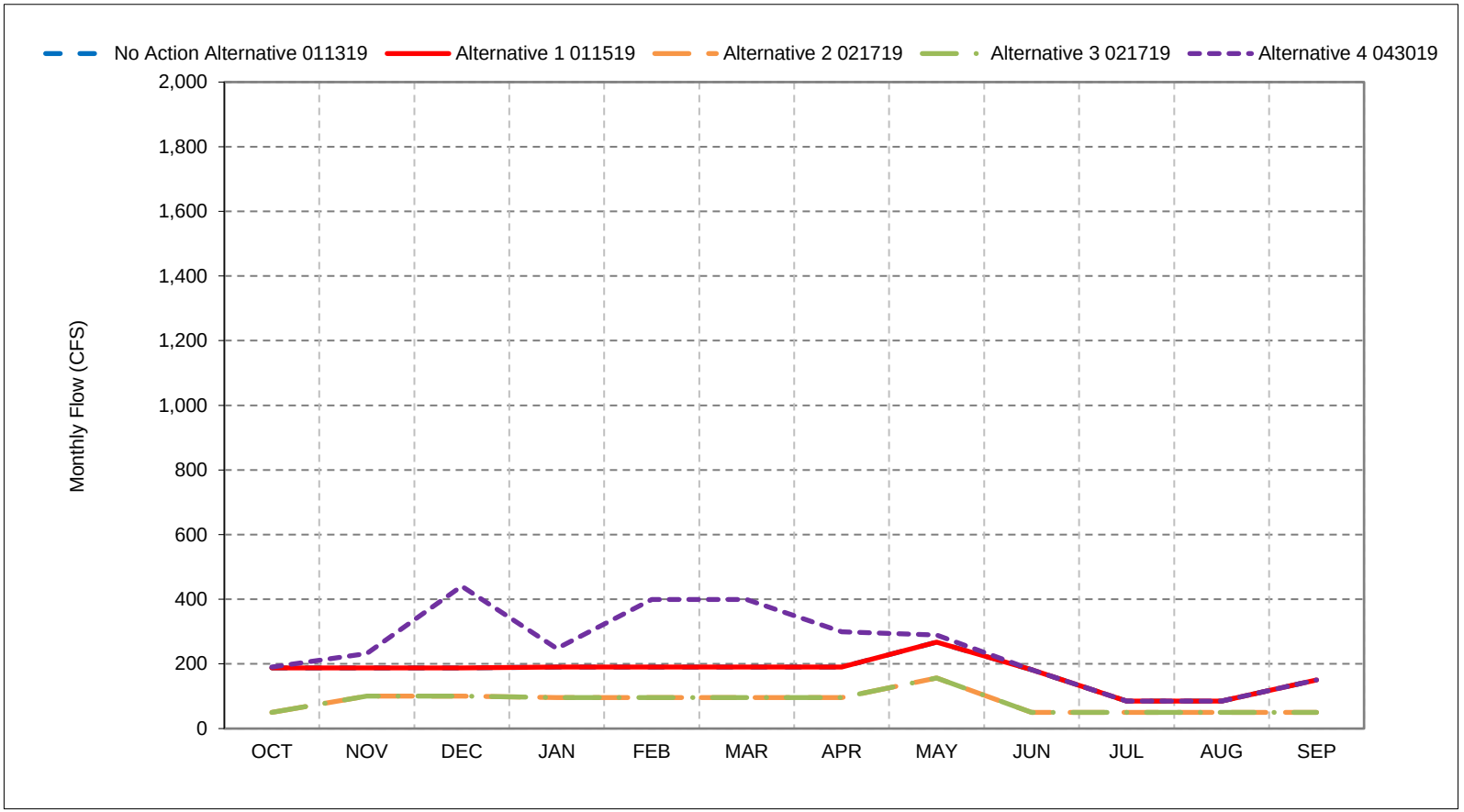

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-4. Clear Creek below Whiskeytown Dam Flow, Below Normal Year Average Flow



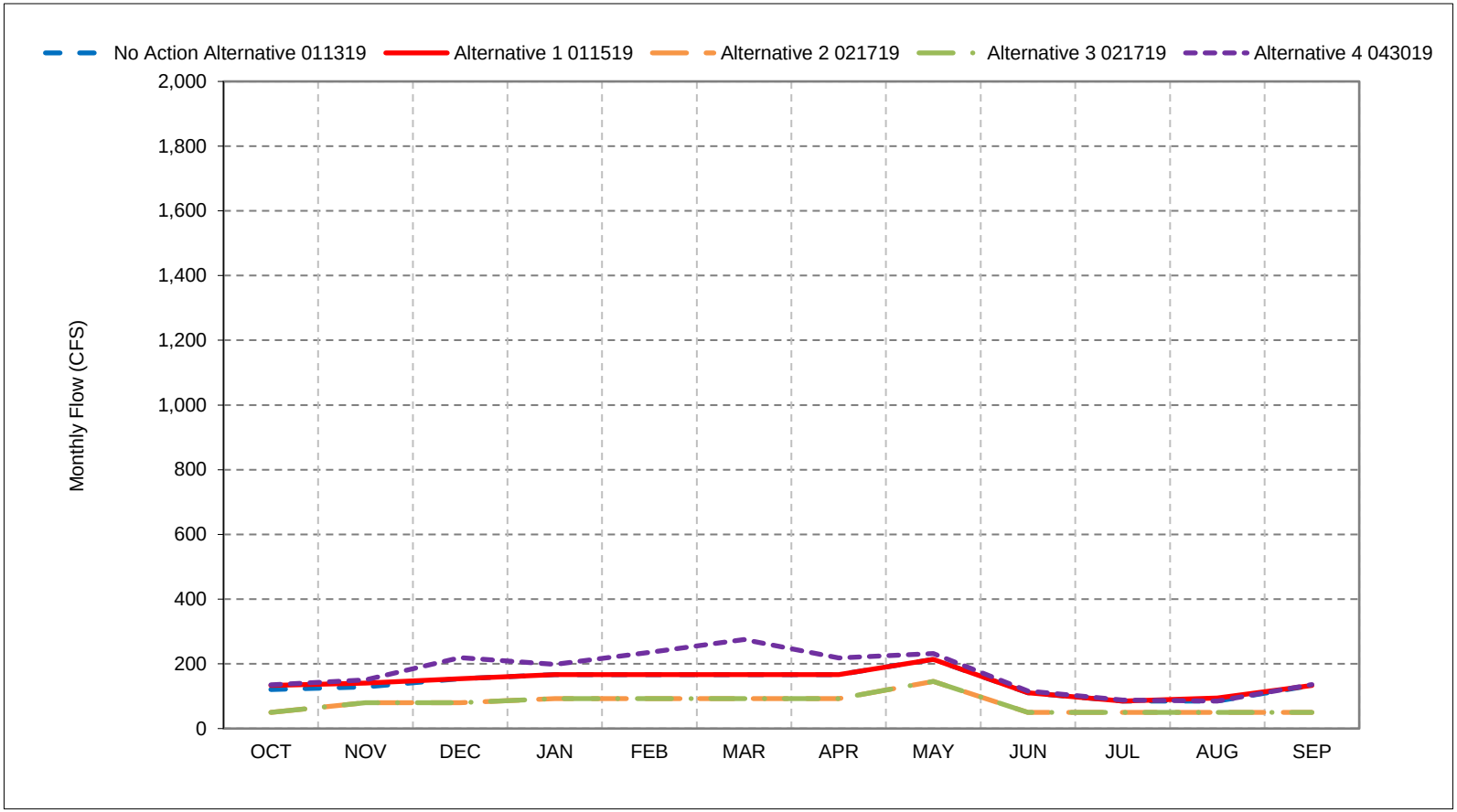

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-5. Clear Creek below Whiskeytown Dam Flow, Dry Year Average Flow



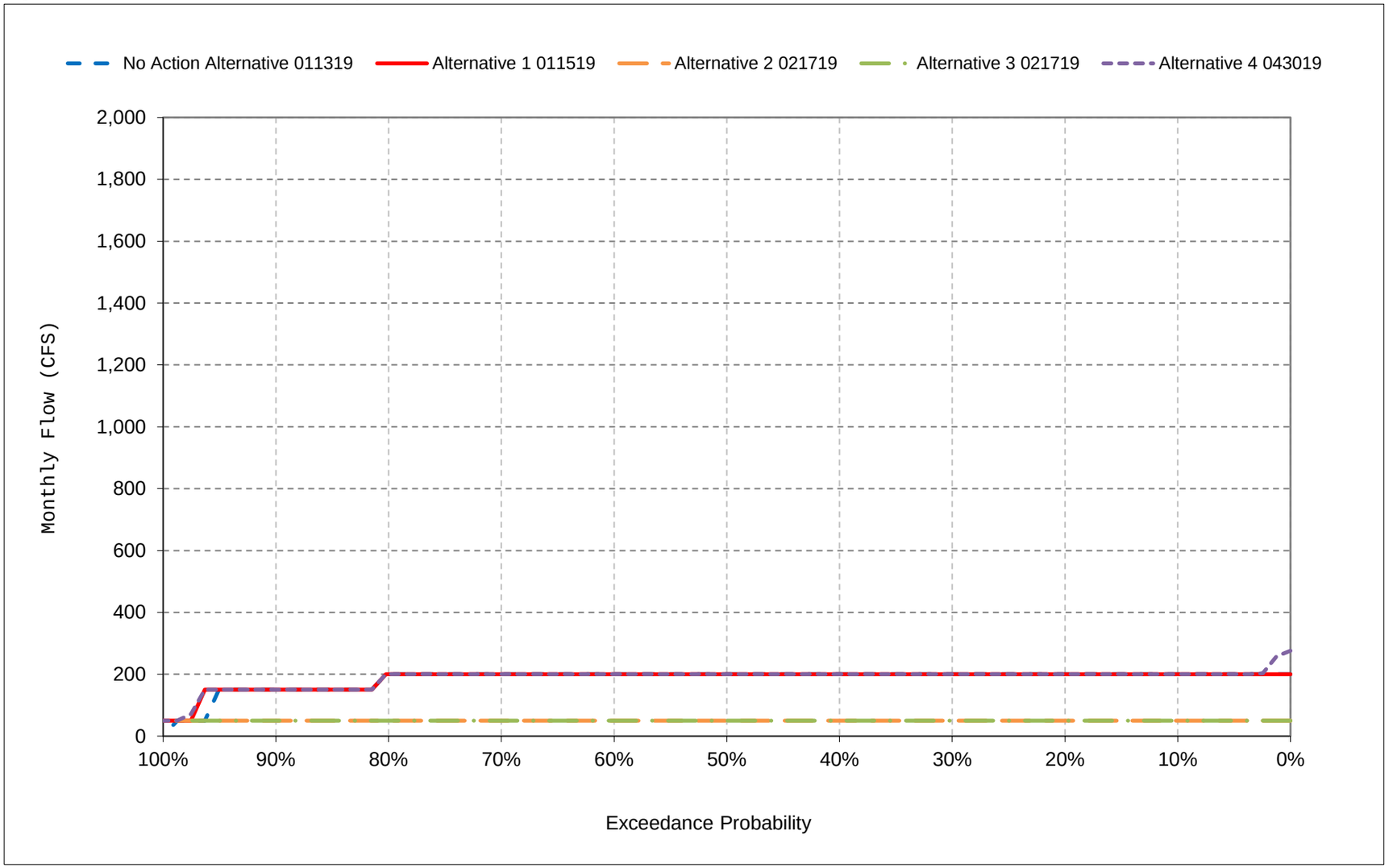

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-6. Clear Creek below Whiskeytown Dam Flow, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

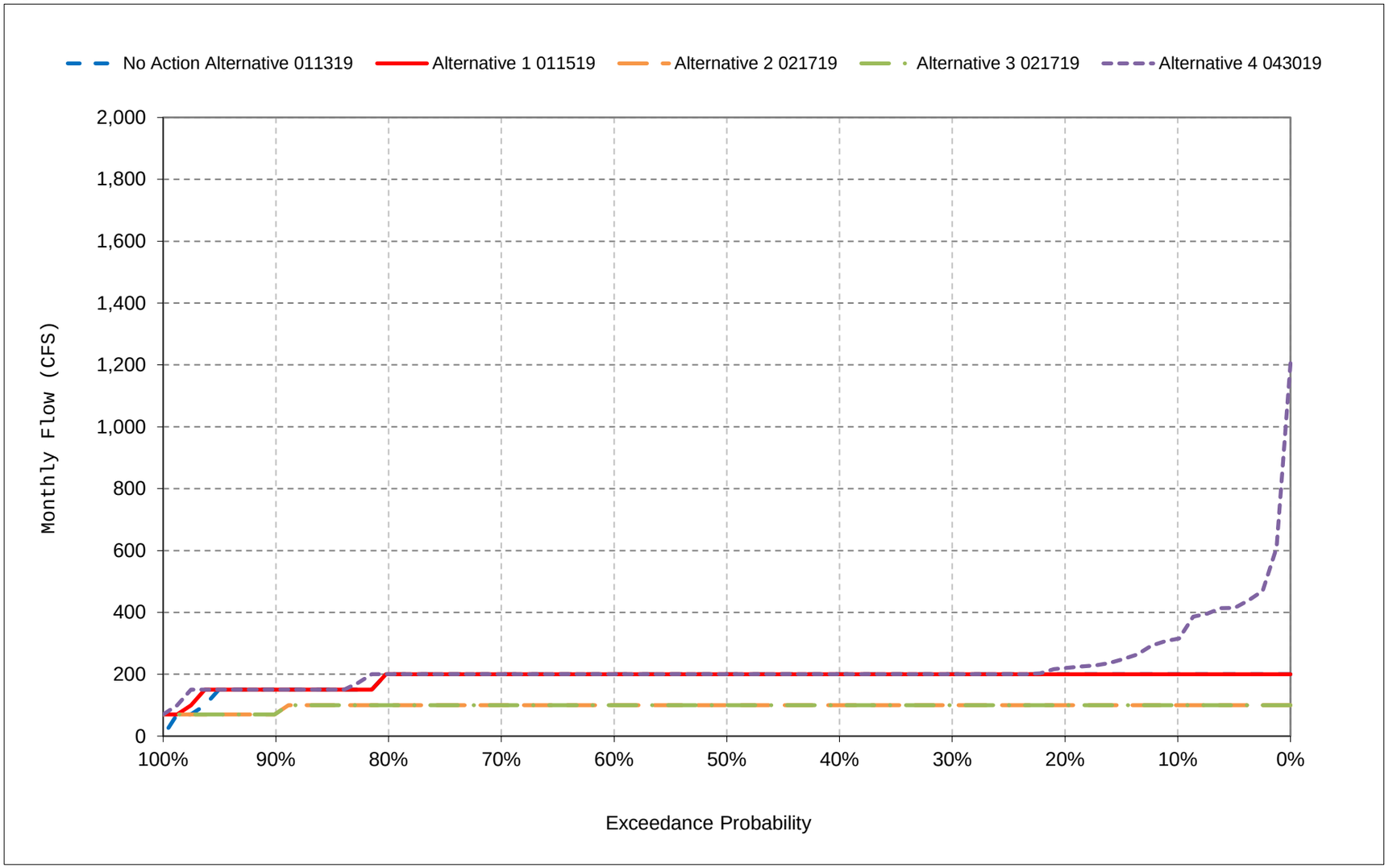
**Figure 14-7. Clear Creek below Whiskeytown Dam Flow, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

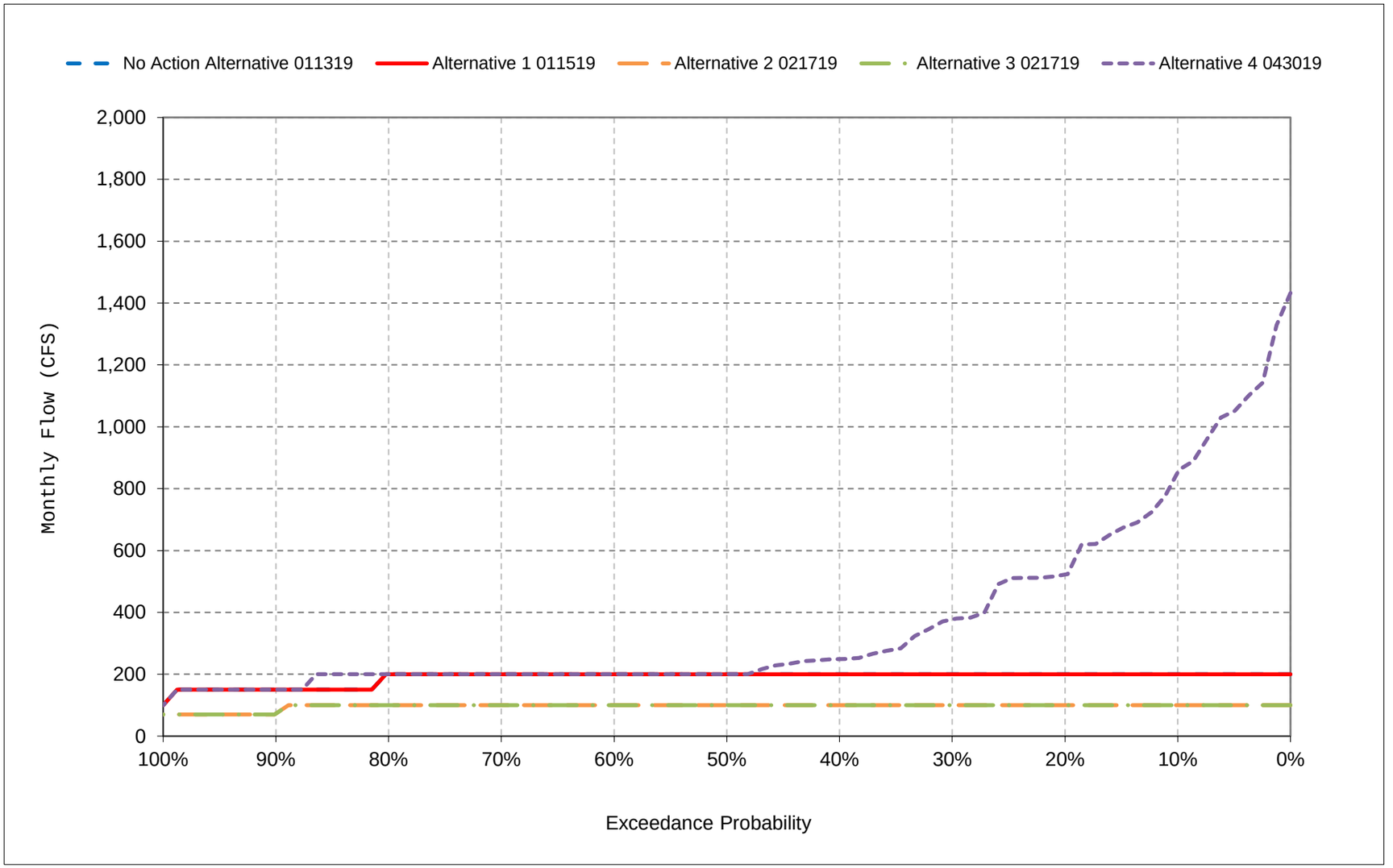
**Figure 14-8. Clear Creek below Whiskeytown Dam Flow, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

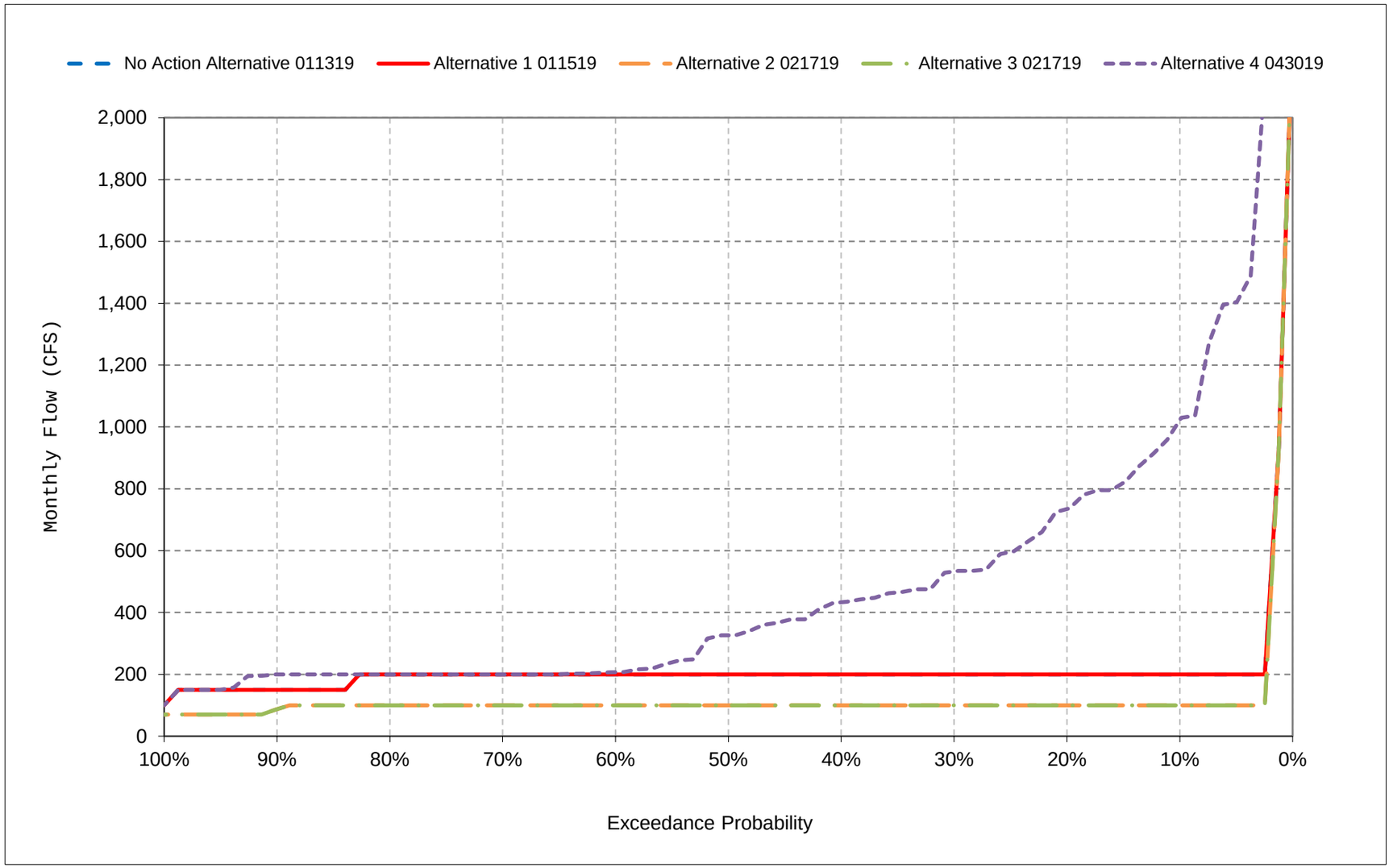
**Figure 14-9. Clear Creek below Whiskeytown Dam Flow, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

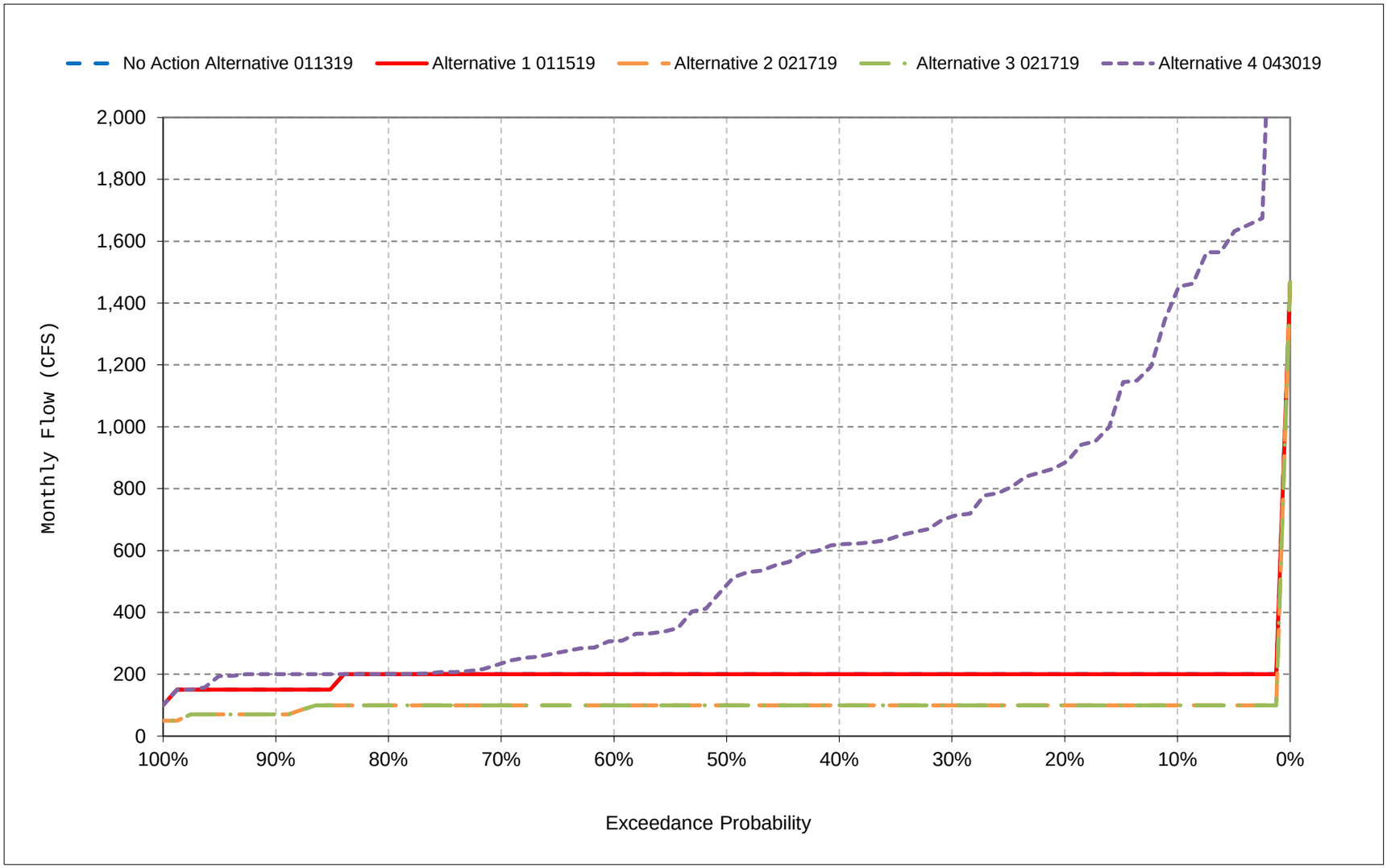
**Figure 14-10. Clear Creek below Whiskeytown Dam Flow, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

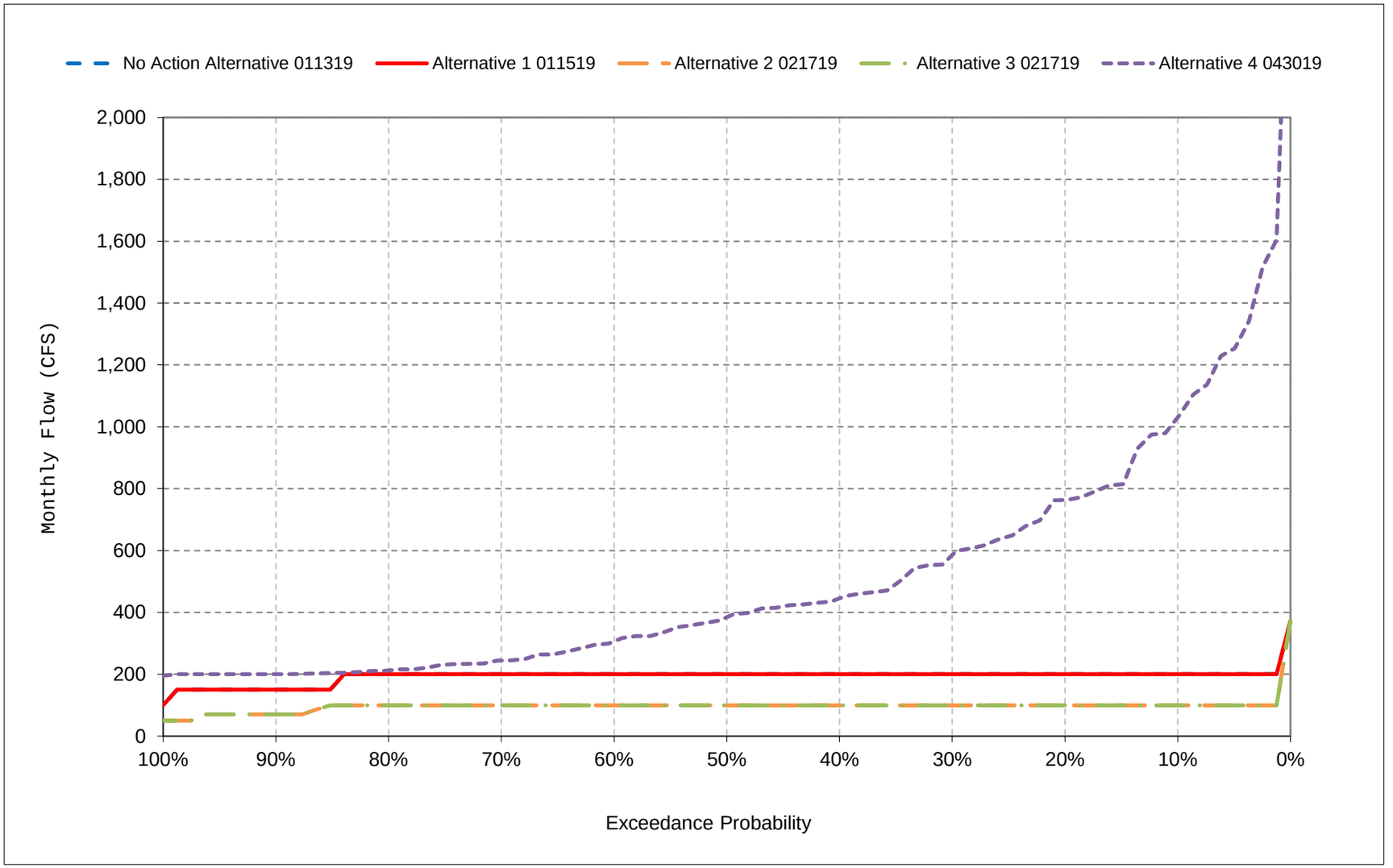
**Figure 14-11. Clear Creek below Whiskeytown Dam Flow, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

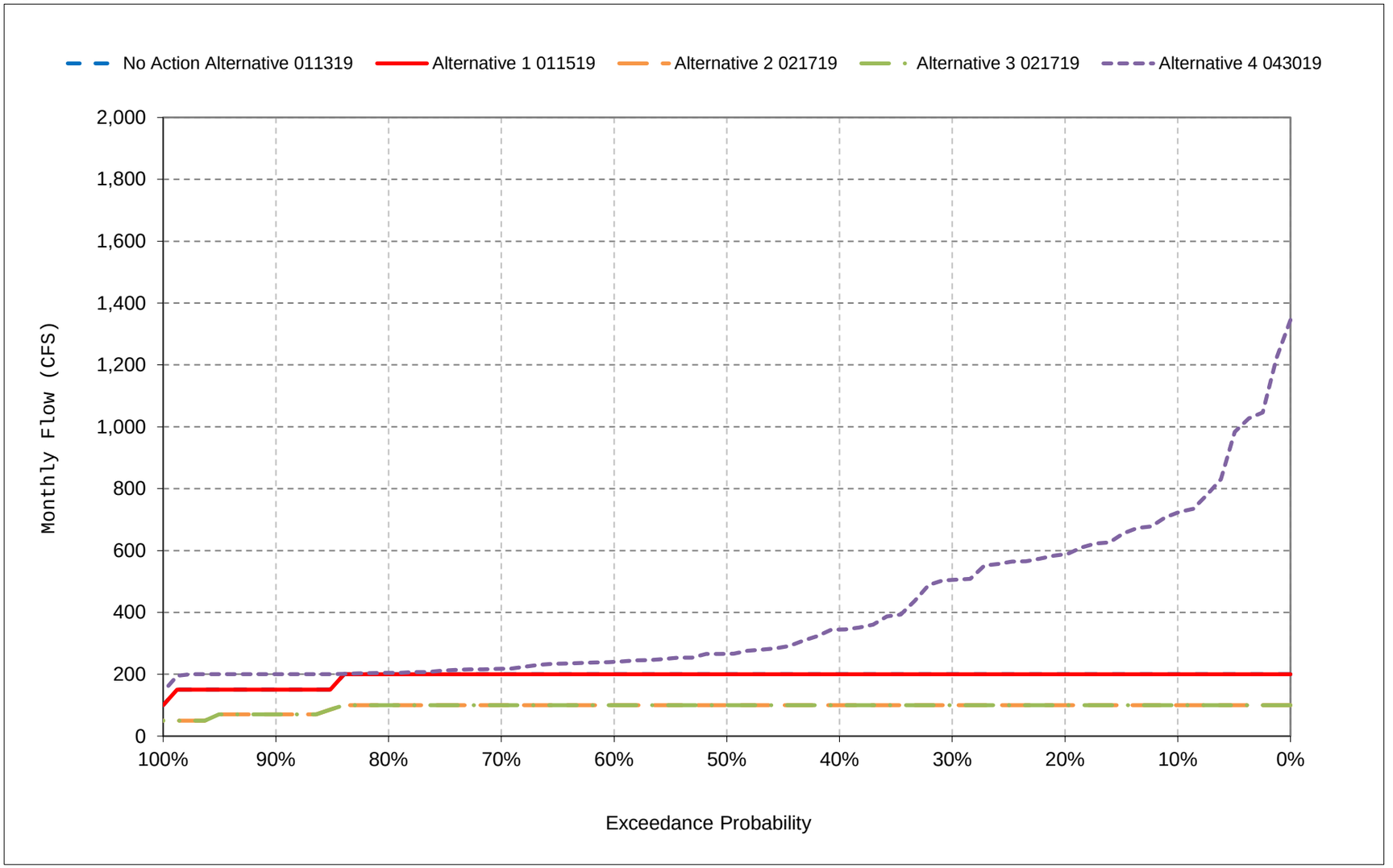
**Figure 14-12. Clear Creek below Whiskeytown Dam Flow, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

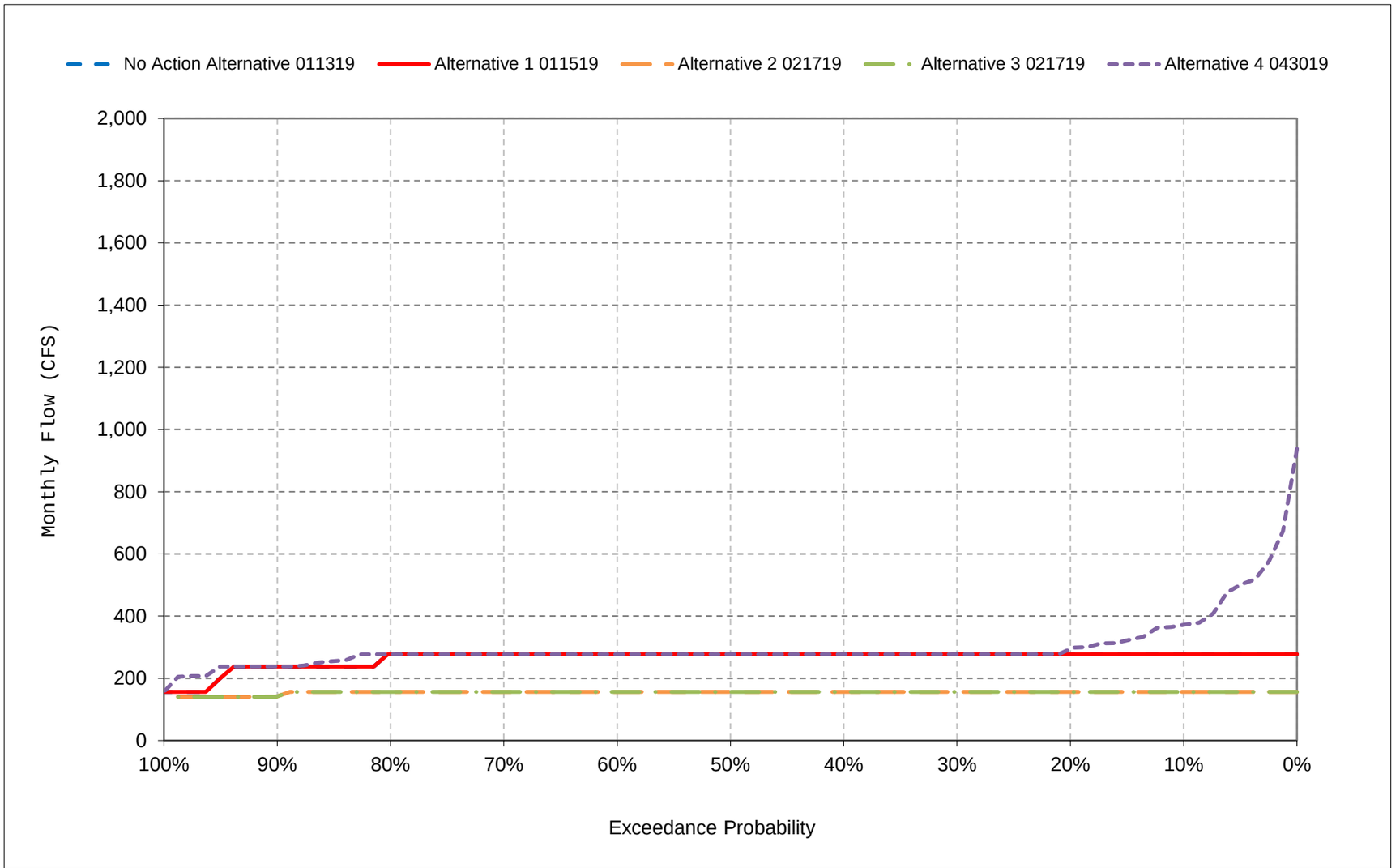
**Figure 14-13. Clear Creek below Whiskeytown Dam Flow, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

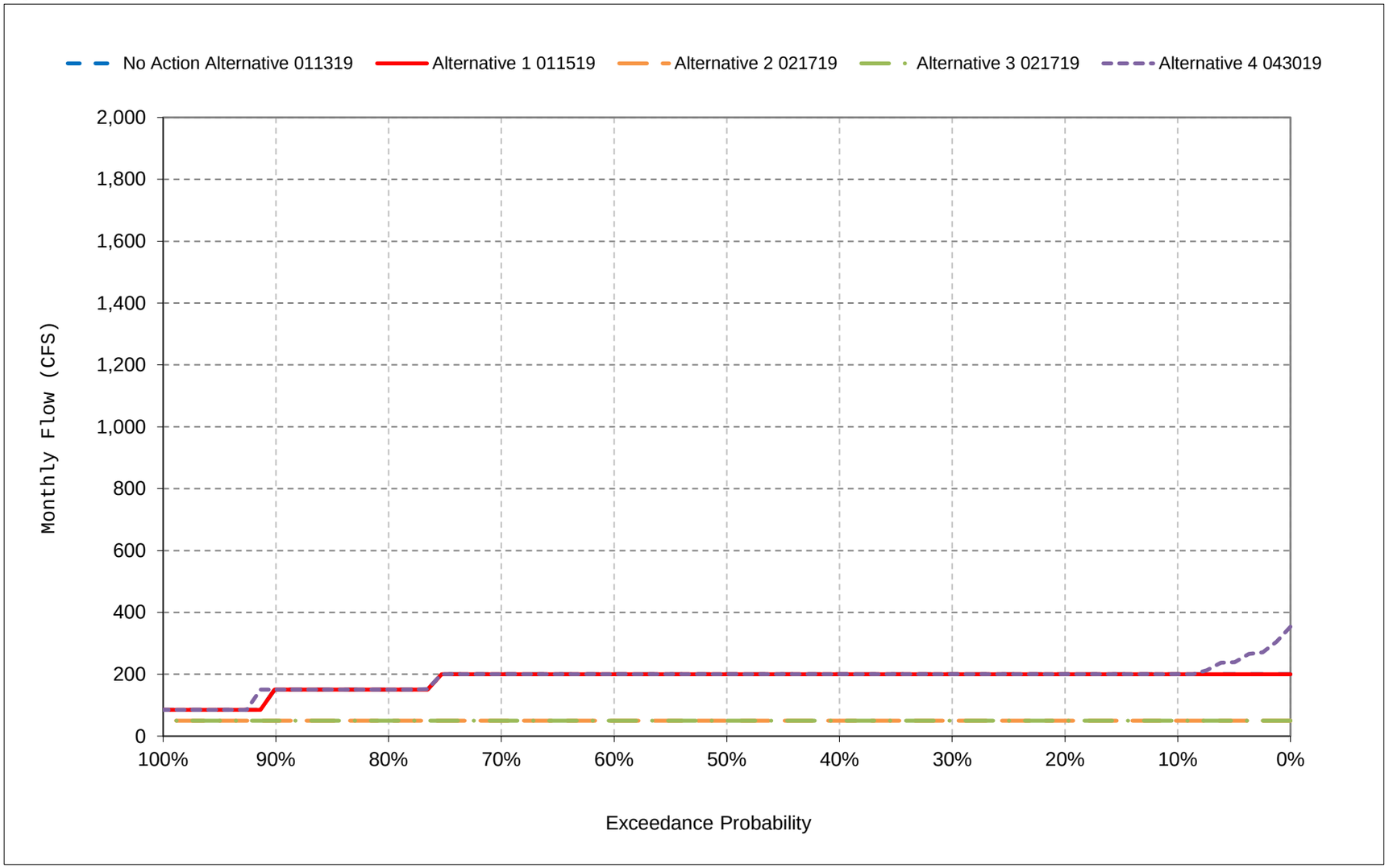
**Figure 14-14. Clear Creek below Whiskeytown Dam Flow, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

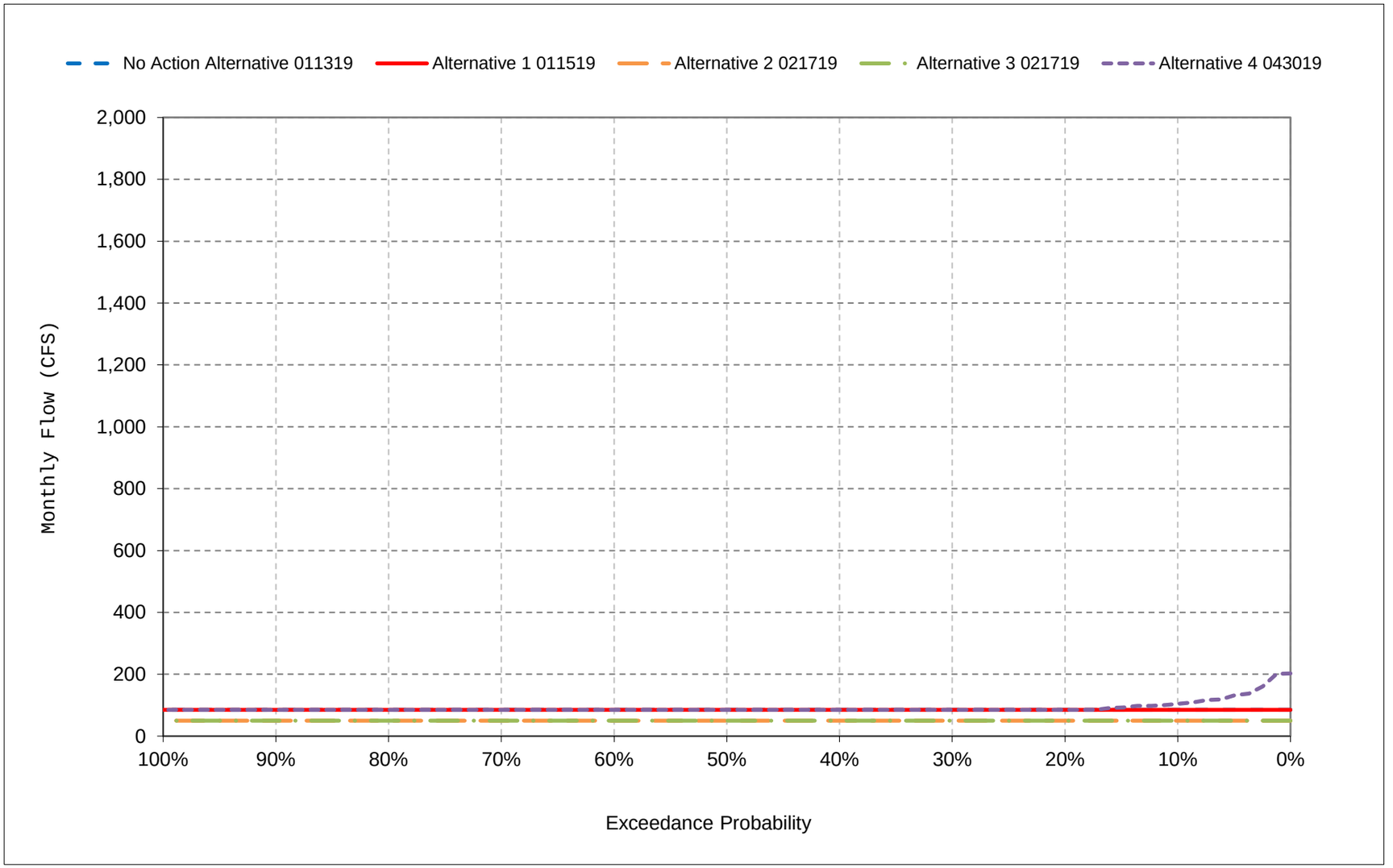
**Figure 14-15. Clear Creek below Whiskeytown Dam Flow, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

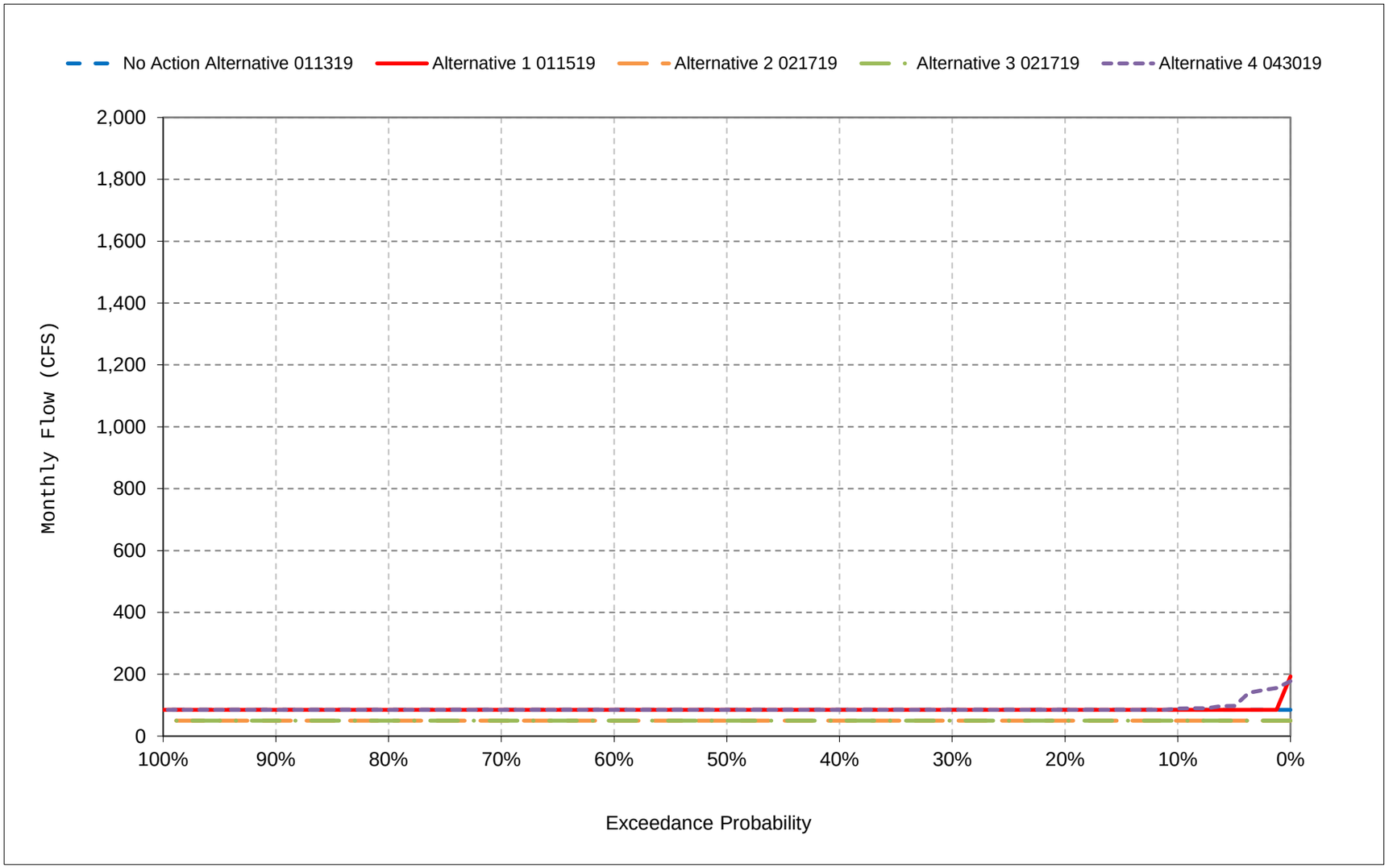
**Figure 14-16. Clear Creek below Whiskeytown Dam Flow, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

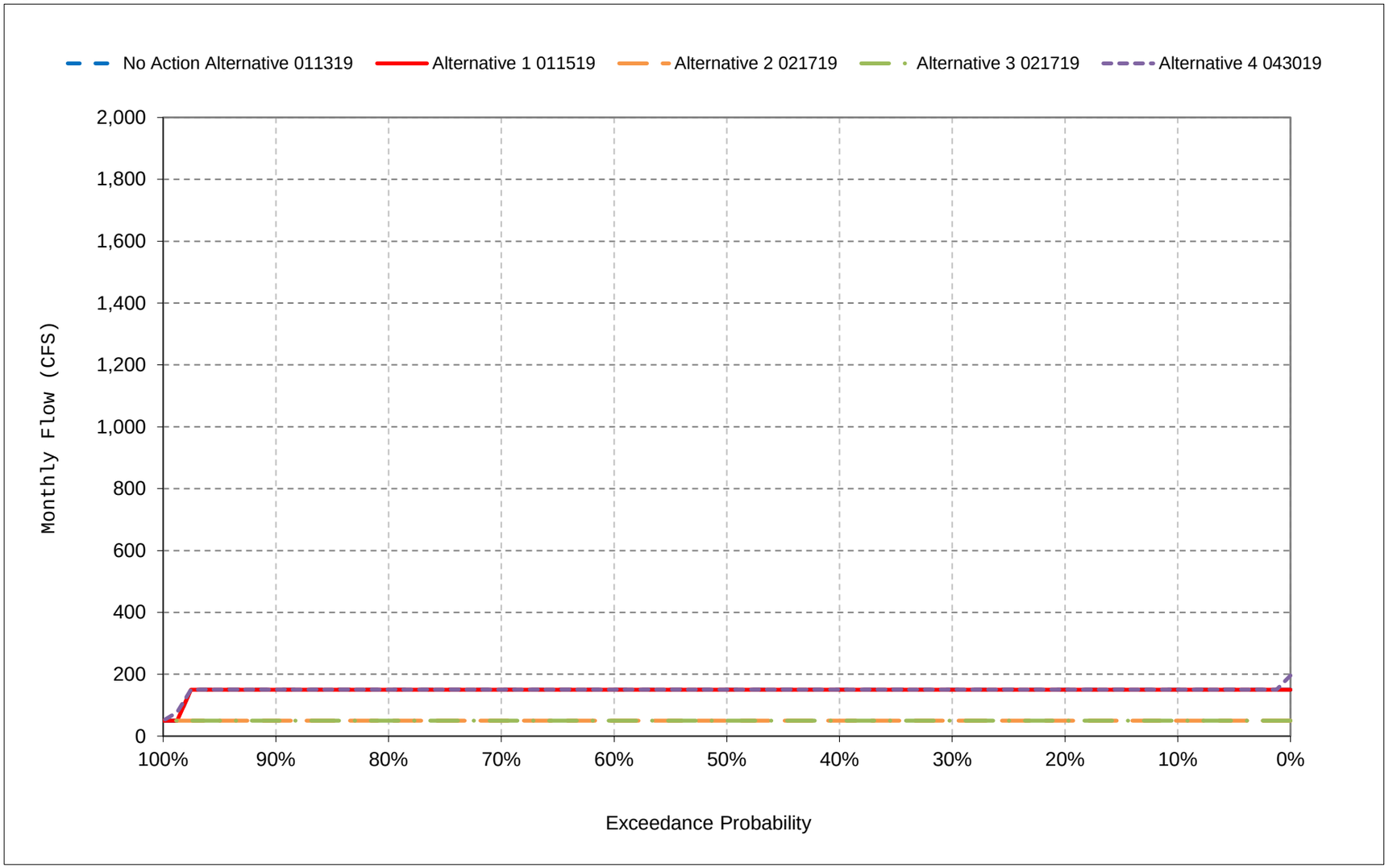
**Figure 14-17. Clear Creek below Whiskeytown Dam Flow, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 14-18. Clear Creek below Whiskeytown Dam Flow, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 15-1. Sacramento River Flow downstream of Keswick Reservoir, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 8,932 | 11,500 | 16,771 | 21,434 | 30,624 | 18,502 | 10,385 | 10,220 | 13,073 | 16,000 | 11,867 | 15,678 |
| 20% | 8,180 | 10,441 | 9,449 | 12,382 | 23,596 | 12,316 | 6,617 | 9,427 | 11,319 | 16,000 | 10,889 | 13,382 |
| 30% | 7,340 | 8,747 | 5,320 | 7,732 | 11,665 | 8,447 | 4,504 | 8,708 | 10,520 | 15,558 | 10,368 | 11,580 |
| 40% | 6,852 | 7,482 | 4,377 | 3,589 | 4,945 | 4,329 | 3,747 | 8,150 | 9,841 | 14,530 | 9,720 | 9,405 |
| 50% | 6,214 | 6,238 | 3,500 | 3,250 | 3,250 | 3,250 | 3,250 | 7,655 | 9,049 | 13,411 | 9,511 | 6,403 |
| 60% | 5,763 | 5,623 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 7,112 | 8,763 | 12,505 | 9,166 | 5,594 |
| 70% | 5,219 | 4,289 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 6,616 | 8,324 | 11,858 | 8,779 | 5,315 |
| 80% | 4,880 | 3,369 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 5,925 | 8,091 | 10,966 | 8,159 | 4,812 |
| 90% | 4,496 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 5,270 | 7,653 | 9,821 | 7,754 | 4,235 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,497 | 7,173 | 6,976 | 8,716 | 11,068 | 8,473 | 5,522 | 7,778 | 9,787 | 13,314 | 9,650 | 8,687 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,908 | 9,796 | 7,444 | 17,876 | 19,288 | 16,127 | 8,458 | 8,662 | 8,940 | 13,440 | 10,474 | 14,063 |
| Above Normal (16%) | 7,054 | 10,124 | 6,406 | 7,629 | 16,401 | 8,534 | 5,221 | 7,925 | 10,359 | 15,316 | 10,494 | 9,972 |
| Below Normal (13%) | 5,842 | 4,960 | 7,558 | 3,285 | 7,149 | 3,925 | 3,803 | 7,867 | 10,930 | 14,421 | 10,624 | 5,493 |
| Dry (24%) | 5,660 | 5,111 | 8,652 | 3,697 | 3,564 | 3,961 | 3,719 | 7,014 | 10,368 | 12,658 | 8,608 | 4,995 |
| Critical (15%) | 4,829 | 3,755 | 3,251 | 3,392 | 3,580 | 3,509 | 4,065 | 6,895 | 8,984 | 10,947 | 7,793 | 4,729 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 8,870 | 7,994 | 19,652 | 24,806 | 30,772 | 19,100 | 10,691 | 10,854 | 14,173 | 16,000 | 11,780 | 9,351 |
| 20% | 8,392 | 6,605 | 12,187 | 15,008 | 21,412 | 12,718 | 6,804 | 10,217 | 12,693 | 16,000 | 10,939 | 7,780 |
| 30% | 7,829 | 6,090 | 6,884 | 9,696 | 12,674 | 9,001 | 5,386 | 9,641 | 11,861 | 15,431 | 10,462 | 6,248 |
| 40% | 6,819 | 5,169 | 4,788 | 5,609 | 6,290 | 6,453 | 3,747 | 8,774 | 10,612 | 14,184 | 9,996 | 5,808 |
| 50% | 6,101 | 4,941 | 4,000 | 3,250 | 4,000 | 3,250 | 3,250 | 8,305 | 10,014 | 13,290 | 9,646 | 5,449 |
| 60% | 5,821 | 4,312 | 3,549 | 3,250 | 3,250 | 3,250 | 3,250 | 7,638 | 9,252 | 12,406 | 9,241 | 5,163 |
| 70% | 5,220 | 4,017 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 6,975 | 8,426 | 11,636 | 8,878 | 4,960 |
| 80% | 4,855 | 3,409 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 6,448 | 8,139 | 10,936 | 8,298 | 4,636 |
| 90% | 4,310 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 5,760 | 7,653 | 9,809 | 7,889 | 4,258 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,461 | 5,627 | 7,922 | 9,498 | 11,428 | 8,880 | 5,618 | 8,309 | 10,429 | 13,220 | 9,769 | 6,186 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,715 | 6,274 | 9,509 | 18,983 | 19,458 | 16,213 | 8,572 | 8,912 | 9,047 | 13,352 | 10,647 | 8,317 |
| Above Normal (16%) | 7,055 | 7,059 | 7,624 | 8,995 | 17,580 | 9,220 | 5,247 | 8,410 | 10,738 | 15,382 | 10,503 | 5,266 |
| Below Normal (13%) | 5,767 | 4,961 | 7,578 | 4,681 | 8,163 | 4,794 | 4,242 | 8,845 | 12,257 | 14,609 | 10,807 | 6,008 |
| Dry (24%) | 5,811 | 5,213 | 9,023 | 3,823 | 3,565 | 4,344 | 3,741 | 7,870 | 11,441 | 12,525 | 8,801 | 4,931 |
| Critical (15%) | 4,823 | 3,977 | 3,288 | 3,368 | 3,460 | 3,933 | 4,012 | 7,131 | 9,729 | 10,481 | 7,737 | 4,820 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-62** | **-3,506** | 2,881 | 3,372 | 149 | 598 | 307 | 634 | 1,100 | 0 | **-87** | **-6,327** |
| 20% | 211 | **-3,836** | 2,738 | 2,626 | **-2,183** | 402 | 187 | 790 | 1,374 | 0 | 50 | **-5,603** |
| 30% | 489 | **-2,657** | 1,564 | 1,963 | 1,009 | 554 | 882 | 933 | 1,340 | **-128** | 94 | **-5,332** |
| 40% | **-33** | **-2,313** | 411 | 2,020 | 1,345 | 2,124 | 0 | 625 | 771 | **-347** | 276 | **-3,597** |
| 50% | **-112** | **-1,297** | 500 | 0 | 750 | 0 | 0 | 649 | 966 | **-122** | 135 | **-953** |
| 60% | 58 | **-1,311** | 299 | 0 | 0 | 0 | 0 | 526 | 489 | **-99** | 75 | **-430** |
| 70% | 1 | **-272** | 0 | 0 | 0 | 0 | 0 | 359 | 102 | **-222** | 99 | **-355** |
| 80% | **-25** | 40 | 0 | 0 | 0 | 0 | 0 | 523 | 48 | **-30** | 139 | **-176** |
| 90% | **-186** | 0 | 0 | 0 | 0 | 0 | 0 | 489 | 1 | **-12** | 135 | 22 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-35** | **-1,545** | 946 | 782 | 360 | 408 | 97 | 530 | 643 | **-93** | 120 | **-2,501** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-193** | **-3,522** | 2,065 | 1,108 | 170 | 85 | 114 | 249 | 106 | **-89** | 173 | **-5,746** |
| Above Normal (16%) | 1 | **-3,065** | 1,218 | 1,366 | 1,179 | 686 | 26 | 484 | 379 | 66 | 9 | **-4,706** |
| Below Normal (13%) | **-75** | 1 | 19 | 1,396 | 1,014 | 869 | 439 | 977 | 1,327 | 188 | 183 | 515 |
| Dry (24%) | 151 | 102 | 370 | 125 | 1 | 383 | 22 | 856 | 1,073 | **-133** | 193 | **-64** |
| Critical (15%) | **-6** | 222 | 38 | **-24** | **-120** | 424 | **-54** | 236 | 746 | **-466** | **-56** | 92 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 15-2. Sacramento River Flow downstream of Keswick Reservoir, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 8,932 | 11,500 | 16,771 | 21,434 | 30,624 | 18,502 | 10,385 | 10,220 | 13,073 | 16,000 | 11,867 | 15,678 |
| 20% | 8,180 | 10,441 | 9,449 | 12,382 | 23,596 | 12,316 | 6,617 | 9,427 | 11,319 | 16,000 | 10,889 | 13,382 |
| 30% | 7,340 | 8,747 | 5,320 | 7,732 | 11,665 | 8,447 | 4,504 | 8,708 | 10,520 | 15,558 | 10,368 | 11,580 |
| 40% | 6,852 | 7,482 | 4,377 | 3,589 | 4,945 | 4,329 | 3,747 | 8,150 | 9,841 | 14,530 | 9,720 | 9,405 |
| 50% | 6,214 | 6,238 | 3,500 | 3,250 | 3,250 | 3,250 | 3,250 | 7,655 | 9,049 | 13,411 | 9,511 | 6,403 |
| 60% | 5,763 | 5,623 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 7,112 | 8,763 | 12,505 | 9,166 | 5,594 |
| 70% | 5,219 | 4,289 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 6,616 | 8,324 | 11,858 | 8,779 | 5,315 |
| 80% | 4,880 | 3,369 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 5,925 | 8,091 | 10,966 | 8,159 | 4,812 |
| 90% | 4,496 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 5,270 | 7,653 | 9,821 | 7,754 | 4,235 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,497 | 7,173 | 6,976 | 8,716 | 11,068 | 8,473 | 5,522 | 7,778 | 9,787 | 13,314 | 9,650 | 8,687 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,908 | 9,796 | 7,444 | 17,876 | 19,288 | 16,127 | 8,458 | 8,662 | 8,940 | 13,440 | 10,474 | 14,063 |
| Above Normal (16%) | 7,054 | 10,124 | 6,406 | 7,629 | 16,401 | 8,534 | 5,221 | 7,925 | 10,359 | 15,316 | 10,494 | 9,972 |
| Below Normal (13%) | 5,842 | 4,960 | 7,558 | 3,285 | 7,149 | 3,925 | 3,803 | 7,867 | 10,930 | 14,421 | 10,624 | 5,493 |
| Dry (24%) | 5,660 | 5,111 | 8,652 | 3,697 | 3,564 | 3,961 | 3,719 | 7,014 | 10,368 | 12,658 | 8,608 | 4,995 |
| Critical (15%) | 4,829 | 3,755 | 3,251 | 3,392 | 3,580 | 3,509 | 4,065 | 6,895 | 8,984 | 10,947 | 7,793 | 4,729 |

## Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,239 | 7,551 | 19,048 | 20,086 | 30,874 | 19,228 | 10,661 | 11,211 | 16,000 | 16,000 | 12,287 | 9,458 |
| 20% | 8,656 | 6,494 | 10,422 | 15,395 | 21,512 | 12,818 | 7,033 | 10,544 | 14,599 | 16,000 | 11,833 | 7,892 |
| 30% | 8,378 | 6,020 | 5,610 | 9,078 | 12,630 | 8,693 | 5,668 | 10,210 | 13,076 | 15,658 | 10,781 | 6,822 |
| 40% | 7,492 | 5,289 | 4,526 | 4,038 | 6,391 | 5,503 | 4,032 | 9,384 | 12,024 | 14,369 | 10,503 | 6,334 |
| 50% | 6,375 | 5,028 | 3,877 | 3,250 | 3,250 | 3,250 | 3,418 | 9,015 | 10,600 | 13,453 | 9,946 | 6,018 |
| 60% | 5,570 | 4,450 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 8,311 | 9,719 | 12,591 | 9,738 | 5,604 |
| 70% | 5,220 | 3,830 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 7,243 | 9,066 | 11,723 | 8,805 | 5,276 |
| 80% | 4,764 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 6,619 | 8,442 | 11,166 | 8,251 | 4,920 |
| 90% | 4,235 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 5,836 | 7,881 | 9,846 | 7,884 | 4,342 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,674 | 5,557 | 7,416 | 9,178 | 11,337 | 8,771 | 5,771 | 8,689 | 11,264 | 13,348 | 10,090 | 6,491 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,820 | 6,264 | 9,226 | 18,273 | 19,655 | 16,290 | 8,670 | 9,102 | 9,965 | 13,319 | 10,917 | 8,068 |
| Above Normal (16%) | 7,759 | 6,585 | 6,681 | 8,676 | 17,568 | 9,023 | 5,293 | 8,707 | 12,953 | 15,316 | 11,081 | 5,931 |
| Below Normal (13%) | 6,002 | 5,023 | 6,956 | 4,539 | 7,365 | 4,813 | 4,425 | 9,445 | 13,201 | 14,747 | 11,942 | 6,723 |
| Dry (24%) | 5,926 | 5,320 | 8,291 | 3,775 | 3,289 | 3,793 | 3,906 | 8,450 | 11,537 | 12,598 | 8,566 | 5,523 |
| Critical (15%) | 4,877 | 3,797 | 3,255 | 3,272 | 3,622 | 4,135 | 4,348 | 7,481 | 10,021 | 11,248 | 8,070 | 5,082 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 307 | **-3,949** | 2,277 | **-1,348** | 251 | 725 | 277 | 991 | 2,927 | 0 | 419 | **-6,221** |
| 20% | 476 | **-3,947** | 973 | 3,013 | **-2,083** | 502 | 416 | 1,117 | 3,280 | 0 | 945 | **-5,491** |
| 30% | 1,038 | **-2,727** | 291 | 1,345 | 964 | 246 | 1,164 | 1,502 | 2,555 | 99 | 413 | **-4,758** |
| 40% | 641 | **-2,193** | 149 | 449 | 1,446 | 1,174 | 285 | 1,235 | 2,184 | **-162** | 783 | **-3,071** |
| 50% | 162 | **-1,210** | 377 | 0 | 0 | 0 | 168 | 1,359 | 1,551 | 42 | 435 | **-385** |
| 60% | **-193** | **-1,172** | 0 | 0 | 0 | 0 | 0 | 1,199 | 955 | 86 | 572 | 10 |
| 70% | 1 | **-459** | 0 | 0 | 0 | 0 | 0 | 627 | 742 | **-135** | 26 | **-40** |
| 80% | **-116** | **-119** | 0 | 0 | 0 | 0 | 0 | 693 | 351 | 200 | 93 | 108 |
| 90% | **-261** | 0 | 0 | 0 | 0 | 0 | 0 | 566 | 228 | 25 | 130 | 107 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 177 | **-1,616** | 440 | 462 | 269 | 299 | 249 | 911 | 1,478 | 35 | 441 | **-2,196** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-88** | **-3,532** | 1,782 | 398 | 367 | 162 | 212 | 439 | 1,025 | **-121** | 443 | **-5,994** |
| Above Normal (16%) | 706 | **-3,539** | 275 | 1,047 | 1,167 | 489 | 72 | 782 | 2,594 | **0** | 587 | **-4,041** |
| Below Normal (13%) | 160 | 63 | **-602** | 1,254 | 216 | 888 | 622 | 1,578 | 2,270 | 326 | 1,318 | 1,230 |
| Dry (24%) | 266 | 209 | **-361** | 77 | **-275** | **-168** | 187 | 1,436 | 1,169 | **-60** | **-41** | 528 |
| Critical (15%) | 48 | 41 | 4 | **-119** | 42 | 626 | 283 | 586 | 1,037 | 302 | 277 | 353 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 15-3. Sacramento River Flow downstream of Keswick Reservoir, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 8,932 | 11,500 | 16,771 | 21,434 | 30,624 | 18,502 | 10,385 | 10,220 | 13,073 | 16,000 | 11,867 | 15,678 |
| 20% | 8,180 | 10,441 | 9,449 | 12,382 | 23,596 | 12,316 | 6,617 | 9,427 | 11,319 | 16,000 | 10,889 | 13,382 |
| 30% | 7,340 | 8,747 | 5,320 | 7,732 | 11,665 | 8,447 | 4,504 | 8,708 | 10,520 | 15,558 | 10,368 | 11,580 |
| 40% | 6,852 | 7,482 | 4,377 | 3,589 | 4,945 | 4,329 | 3,747 | 8,150 | 9,841 | 14,530 | 9,720 | 9,405 |
| 50% | 6,214 | 6,238 | 3,500 | 3,250 | 3,250 | 3,250 | 3,250 | 7,655 | 9,049 | 13,411 | 9,511 | 6,403 |
| 60% | 5,763 | 5,623 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 7,112 | 8,763 | 12,505 | 9,166 | 5,594 |
| 70% | 5,219 | 4,289 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 6,616 | 8,324 | 11,858 | 8,779 | 5,315 |
| 80% | 4,880 | 3,369 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 5,925 | 8,091 | 10,966 | 8,159 | 4,812 |
| 90% | 4,496 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 5,270 | 7,653 | 9,821 | 7,754 | 4,235 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,497 | 7,173 | 6,976 | 8,716 | 11,068 | 8,473 | 5,522 | 7,778 | 9,787 | 13,314 | 9,650 | 8,687 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,908 | 9,796 | 7,444 | 17,876 | 19,288 | 16,127 | 8,458 | 8,662 | 8,940 | 13,440 | 10,474 | 14,063 |
| Above Normal (16%) | 7,054 | 10,124 | 6,406 | 7,629 | 16,401 | 8,534 | 5,221 | 7,925 | 10,359 | 15,316 | 10,494 | 9,972 |
| Below Normal (13%) | 5,842 | 4,960 | 7,558 | 3,285 | 7,149 | 3,925 | 3,803 | 7,867 | 10,930 | 14,421 | 10,624 | 5,493 |
| Dry (24%) | 5,660 | 5,111 | 8,652 | 3,697 | 3,564 | 3,961 | 3,719 | 7,014 | 10,368 | 12,658 | 8,608 | 4,995 |
| Critical (15%) | 4,829 | 3,755 | 3,251 | 3,392 | 3,580 | 3,509 | 4,065 | 6,895 | 8,984 | 10,947 | 7,793 | 4,729 |

### Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,387 | 8,216 | 19,047 | 20,086 | 30,874 | 19,245 | 10,661 | 11,196 | 16,000 | 16,000 | 12,689 | 9,422 |
| 20% | 8,663 | 6,624 | 11,640 | 15,017 | 21,512 | 12,818 | 7,051 | 10,441 | 14,337 | 16,000 | 11,883 | 7,973 |
| 30% | 8,358 | 5,902 | 5,948 | 9,078 | 13,083 | 8,695 | 5,724 | 10,028 | 13,113 | 15,408 | 10,992 | 6,888 |
| 40% | 7,791 | 5,382 | 4,785 | 4,402 | 5,543 | 5,650 | 4,124 | 9,370 | 11,417 | 14,386 | 10,592 | 6,347 |
| 50% | 7,004 | 4,901 | 4,025 | 3,250 | 3,523 | 3,250 | 3,563 | 8,784 | 10,604 | 13,427 | 10,034 | 6,024 |
| 60% | 6,282 | 4,337 | 3,257 | 3,250 | 3,250 | 3,250 | 3,250 | 8,197 | 9,671 | 12,643 | 9,694 | 5,686 |
| 70% | 5,515 | 3,643 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 7,109 | 8,916 | 11,810 | 8,823 | 5,254 |
| 80% | 5,099 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 6,661 | 8,390 | 11,077 | 8,264 | 4,858 |
| 90% | 4,415 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 5,849 | 7,846 | 9,859 | 7,786 | 4,342 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,913 | 5,569 | 7,504 | 9,158 | 11,241 | 8,730 | 5,799 | 8,604 | 11,160 | 13,338 | 10,116 | 6,480 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,989 | 6,310 | 9,404 | 18,174 | 19,555 | 16,272 | 8,739 | 8,800 | 9,868 | 13,374 | 11,111 | 7,933 |
| Above Normal (16%) | 7,419 | 7,008 | 6,967 | 8,552 | 17,410 | 8,984 | 5,287 | 8,742 | 12,699 | 15,337 | 10,986 | 6,088 |
| Below Normal (13%) | 6,410 | 5,043 | 7,003 | 4,495 | 7,253 | 4,813 | 4,472 | 9,460 | 13,093 | 14,731 | 11,723 | 6,770 |
| Dry (24%) | 6,565 | 5,011 | 8,211 | 3,762 | 3,295 | 3,667 | 3,908 | 8,470 | 11,590 | 12,580 | 8,597 | 5,565 |
| Critical (15%) | 5,076 | 3,815 | 3,252 | 3,548 | 3,440 | 4,141 | 4,350 | 7,469 | 9,807 | 11,080 | 8,079 | 5,019 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 455 | **-3,284** | 2,276 | **-1,348** | 250 | 743 | 277 | 976 | 2,927 | 0 | 821 | **-6,257** |
| 20% | 482 | **-3,817** | 2,192 | 2,635 | **-2,083** | 502 | 434 | 1,014 | 3,018 | 0 | 994 | **-5,409** |
| 30% | 1,018 | **-2,845** | 629 | 1,345 | 1,418 | 248 | 1,220 | 1,320 | 2,593 | **-150** | 624 | **-4,692** |
| 40% | 940 | **-2,100** | 409 | 813 | 598 | 1,321 | 377 | 1,220 | 1,576 | **-145** | 872 | **-3,058** |
| 50% | 790 | **-1,337** | 525 | 0 | 273 | 0 | 313 | 1,129 | 1,555 | 16 | 523 | **-378** |
| 60% | 519 | **-1,286** | 7 | 0 | 0 | 0 | 0 | 1,085 | 907 | 138 | 528 | 92 |
| 70% | 296 | **-646** | 0 | 0 | 0 | 0 | 0 | 494 | 592 | **-48** | 44 | **-61** |
| 80% | 219 | **-119** | 0 | 0 | 0 | 0 | 0 | 735 | 299 | 111 | 105 | 46 |
| 90% | **-81** | 0 | 0 | 0 | 0 | 0 | 0 | 579 | 193 | 38 | 32 | 106 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 416 | **-1,604** | 528 | 442 | 172 | 257 | 277 | 826 | 1,374 | 24 | 467 | **-2,207** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 81 | **-3,486** | 1,960 | 299 | 267 | 144 | 281 | 137 | 928 | **-66** | 636 | **-6,130** |
| Above Normal (16%) | 365 | **-3,116** | 560 | 923 | 1,009 | 450 | 67 | 817 | 2,340 | 20 | 492 | **-3,884** |
| Below Normal (13%) | 568 | 82 | **-555** | 1,210 | 104 | 888 | 670 | 1,593 | 2,163 | 310 | 1,099 | 1,277 |
| Dry (24%) | 905 | **-100** | **-441** | 65 | **-269** | **-294** | 188 | 1,455 | 1,222 | **-78** | **-11** | 570 |
| Critical (15%) | 247 | 60 | 1 | 156 | **-140** | 632 | 284 | 574 | 823 | 134 | 286 | 290 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 15-4. Sacramento River Flow downstream of Keswick Reservoir, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 8,932 | 11,500 | 16,771 | 21,434 | 30,624 | 18,502 | 10,385 | 10,220 | 13,073 | 16,000 | 11,867 | 15,678 |
| 20% | 8,180 | 10,441 | 9,449 | 12,382 | 23,596 | 12,316 | 6,617 | 9,427 | 11,319 | 16,000 | 10,889 | 13,382 |
| 30% | 7,340 | 8,747 | 5,320 | 7,732 | 11,665 | 8,447 | 4,504 | 8,708 | 10,520 | 15,558 | 10,368 | 11,580 |
| 40% | 6,852 | 7,482 | 4,377 | 3,589 | 4,945 | 4,329 | 3,747 | 8,150 | 9,841 | 14,530 | 9,720 | 9,405 |
| 50% | 6,214 | 6,238 | 3,500 | 3,250 | 3,250 | 3,250 | 3,250 | 7,655 | 9,049 | 13,411 | 9,511 | 6,403 |
| 60% | 5,763 | 5,623 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 7,112 | 8,763 | 12,505 | 9,166 | 5,594 |
| 70% | 5,219 | 4,289 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 6,616 | 8,324 | 11,858 | 8,779 | 5,315 |
| 80% | 4,880 | 3,369 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 5,925 | 8,091 | 10,966 | 8,159 | 4,812 |
| 90% | 4,496 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 5,270 | 7,653 | 9,821 | 7,754 | 4,235 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,497 | 7,173 | 6,976 | 8,716 | 11,068 | 8,473 | 5,522 | 7,778 | 9,787 | 13,314 | 9,650 | 8,687 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,908 | 9,796 | 7,444 | 17,876 | 19,288 | 16,127 | 8,458 | 8,662 | 8,940 | 13,440 | 10,474 | 14,063 |
| Above Normal (16%) | 7,054 | 10,124 | 6,406 | 7,629 | 16,401 | 8,534 | 5,221 | 7,925 | 10,359 | 15,316 | 10,494 | 9,972 |
| Below Normal (13%) | 5,842 | 4,960 | 7,558 | 3,285 | 7,149 | 3,925 | 3,803 | 7,867 | 10,930 | 14,421 | 10,624 | 5,493 |
| Dry (24%) | 5,660 | 5,111 | 8,652 | 3,697 | 3,564 | 3,961 | 3,719 | 7,014 | 10,368 | 12,658 | 8,608 | 4,995 |
| Critical (15%) | 4,829 | 3,755 | 3,251 | 3,392 | 3,580 | 3,509 | 4,065 | 6,895 | 8,984 | 10,947 | 7,793 | 4,729 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 8,896 | 7,464 | 19,178 | 24,163 | 31,068 | 18,270 | 10,142 | 9,472 | 13,730 | 16,000 | 11,263 | 8,598 |
| 20% | 8,060 | 6,437 | 12,099 | 14,555 | 21,427 | 12,522 | 6,611 | 8,585 | 12,281 | 16,000 | 10,781 | 6,932 |
| 30% | 7,509 | 5,529 | 6,847 | 8,836 | 11,931 | 9,089 | 5,226 | 8,251 | 11,781 | 14,889 | 10,255 | 5,969 |
| 40% | 6,874 | 5,041 | 4,647 | 4,659 | 6,267 | 6,091 | 4,984 | 7,902 | 10,837 | 13,972 | 9,796 | 5,645 |
| 50% | 6,315 | 4,811 | 4,000 | 3,380 | 4,231 | 4,949 | 4,567 | 7,557 | 9,749 | 13,224 | 9,574 | 5,429 |
| 60% | 5,663 | 4,350 | 3,690 | 3,250 | 3,503 | 4,200 | 4,221 | 7,036 | 8,978 | 12,924 | 9,044 | 5,091 |
| 70% | 5,111 | 3,994 | 3,250 | 3,250 | 3,250 | 3,540 | 3,591 | 6,854 | 8,574 | 11,982 | 8,723 | 4,773 |
| 80% | 4,712 | 3,594 | 3,250 | 3,250 | 3,250 | 3,250 | 3,299 | 6,501 | 8,125 | 10,611 | 8,265 | 4,551 |
| 90% | 4,067 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 3,250 | 5,851 | 7,455 | 9,535 | 7,452 | 4,015 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,421 | 5,459 | 7,897 | 9,378 | 11,278 | 8,868 | 5,896 | 7,668 | 10,244 | 13,183 | 9,511 | 5,949 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,691 | 5,944 | 9,310 | 18,843 | 19,046 | 16,035 | 8,971 | 8,392 | 8,982 | 13,465 | 10,556 | 7,890 |
| Above Normal (16%) | 6,874 | 6,741 | 7,500 | 8,481 | 17,447 | 9,470 | 5,684 | 7,650 | 10,275 | 16,012 | 10,398 | 5,499 |
| Below Normal (13%) | 5,718 | 5,127 | 7,669 | 4,892 | 7,936 | 5,125 | 4,468 | 7,834 | 11,667 | 14,401 | 9,930 | 5,092 |
| Dry (24%) | 5,712 | 5,111 | 9,225 | 3,729 | 3,678 | 4,408 | 4,002 | 7,170 | 11,631 | 12,475 | 8,626 | 4,862 |
| Critical (15%) | 5,005 | 3,905 | 3,263 | 3,372 | 3,497 | 3,554 | 3,926 | 6,794 | 9,324 | 9,569 | 7,373 | 4,829 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-36** | **-4,036** | 2,407 | 2,729 | 445 | **-232** | **-243** | **-749** | 657 | 0 | **-604** | **-7,081** |
| 20% | **-120** | **-4,004** | 2,650 | 2,173 | **-2,168** | 206 | **-6** | **-842** | 962 | 0 | **-107** | **-6,450** |
| 30% | 169 | **-3,218** | 1,528 | 1,104 | 266 | 642 | 722 | **-457** | 1,261 | **-670** | **-113** | **-5,611** |
| 40% | 23 | **-2,441** | 271 | 1,070 | 1,322 | 1,762 | 1,237 | **-248** | 996 | **-559** | 76 | **-3,760** |
| 50% | 101 | **-1,427** | 500 | 130 | 981 | 1,699 | 1,317 | **-98** | 700 | **-187** | 63 | **-974** |
| 60% | **-100** | **-1,273** | 440 | 0 | 253 | 950 | 971 | **-76** | 215 | 419 | **-122** | **-503** |
| 70% | **-107** | **-295** | 0 | 0 | 0 | 290 | 341 | 238 | 250 | 125 | **-56** | **-542** |
| 80% | **-167** | 224 | 0 | 0 | 0 | 0 | 49 | 576 | 34 | **-355** | 107 | **-261** |
| 90% | **-429** | 0 | 0 | 0 | 0 | 0 | 0 | 580 | **-198** | **-286** | **-302** | **-220** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-76** | **-1,714** | 921 | 662 | 210 | 396 | 374 | **-111** | 457 | **-131** | **-139** | **-2,738** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-218** | **-3,852** | 1,866 | 968 | **-242** | **-92** | 514 | **-270** | 42 | 24 | 82 | **-6,173** |
| Above Normal (16%) | **-180** | **-3,383** | 1,093 | 851 | 1,046 | 937 | 464 | **-275** | **-83** | 695 | **-95** | **-4,474** |
| Below Normal (13%) | **-124** | 166 | 110 | 1,607 | 787 | 1,200 | 665 | **-33** | 737 | **-20** | **-693** | **-401** |
| Dry (24%) | 51 | **0** | 572 | 31 | 114 | 447 | 283 | 156 | 1,263 | **-183** | 18 | **-133** |
| Critical (15%) | 176 | 149 | 12 | **-20** | **-83** | 45 | **-139** | **-101** | 340 | **-1,378** | **-420** | 100 |

a Based on the 82-year simulation period.

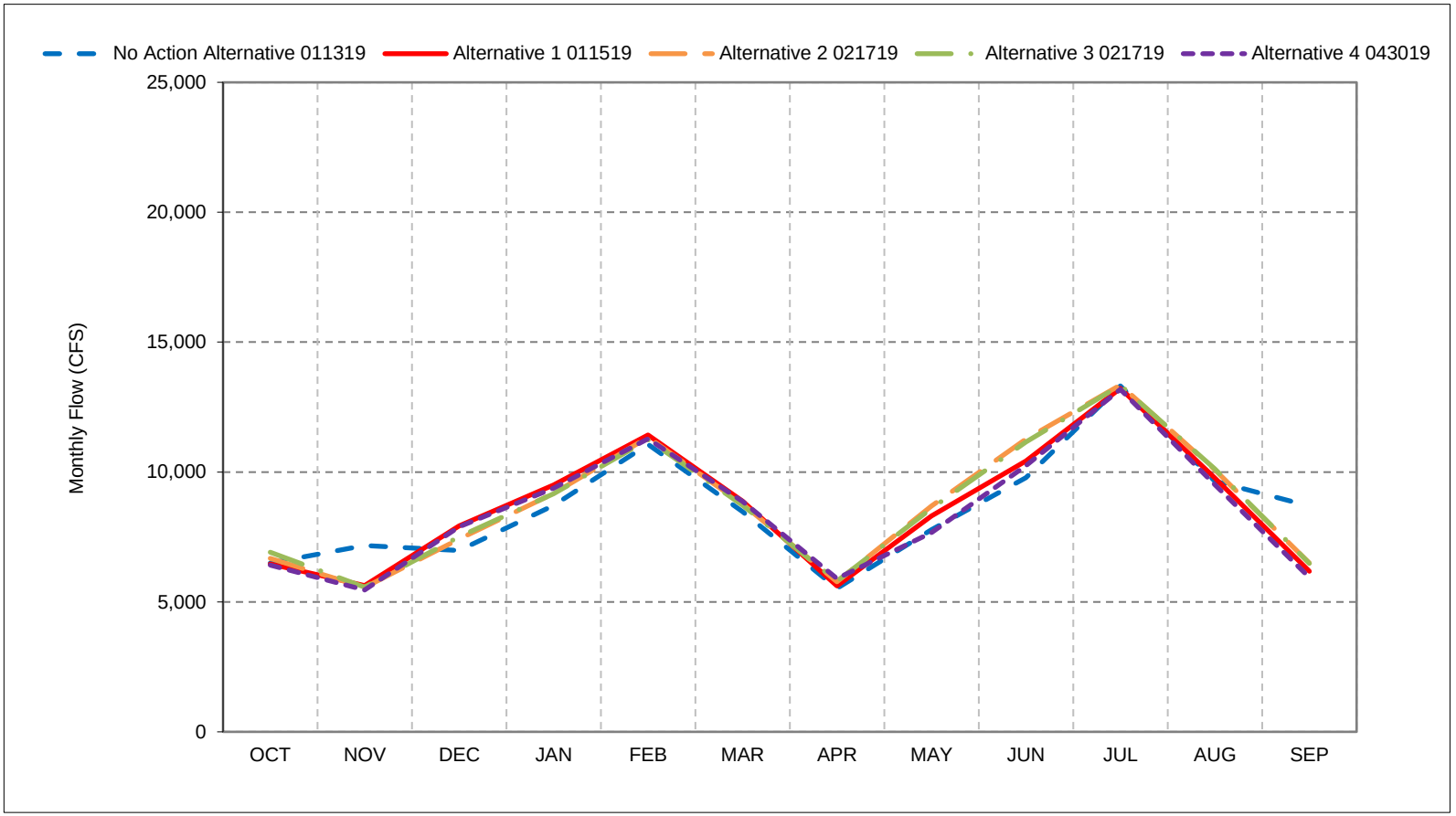
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

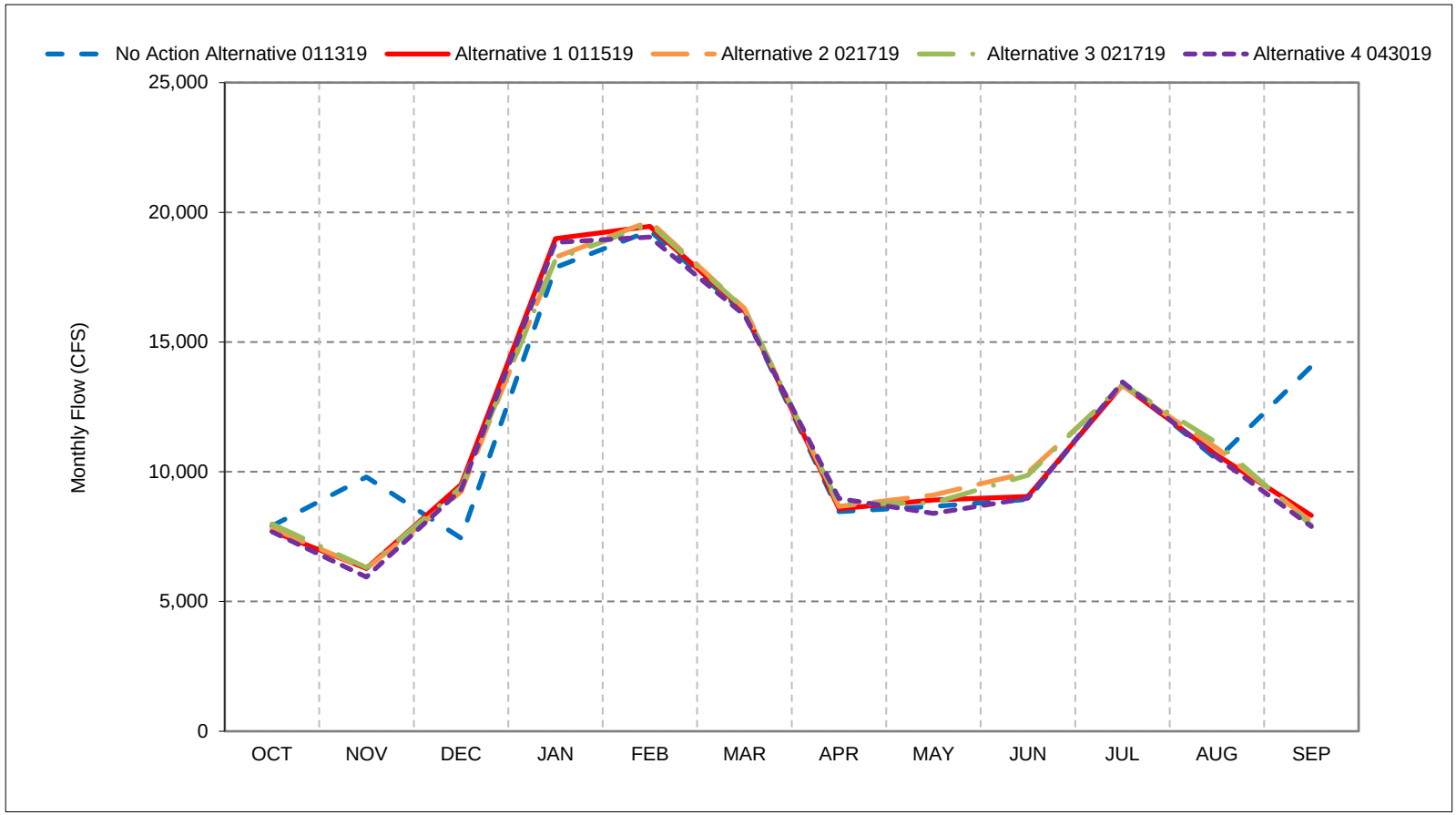
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-1. Sacramento River Flow downstream of Keswick Reservoir, Long-Term Average Flow



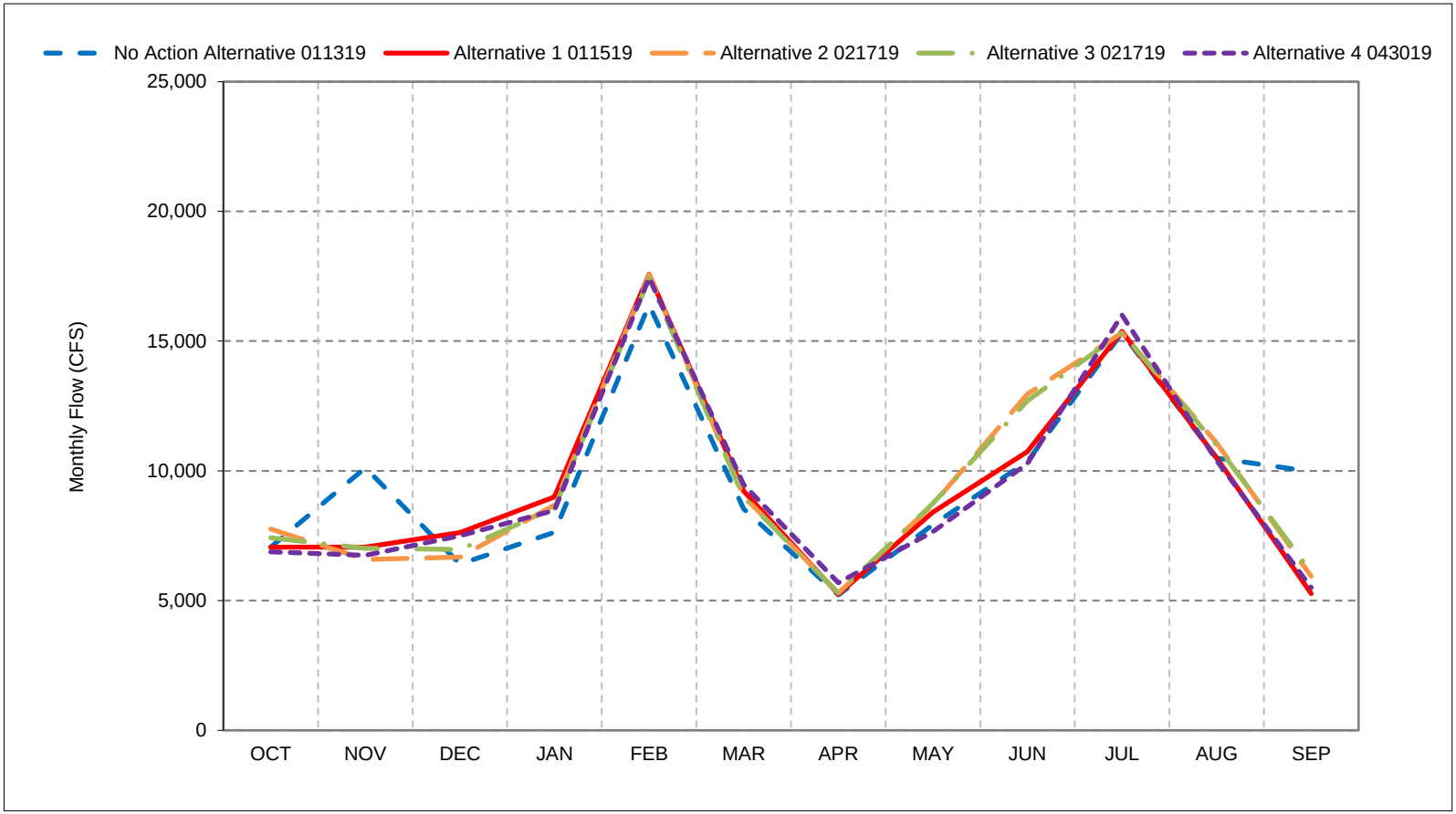

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-2. Sacramento River Flow downstream of Keswick Reservoir, Wet Year Average Flow



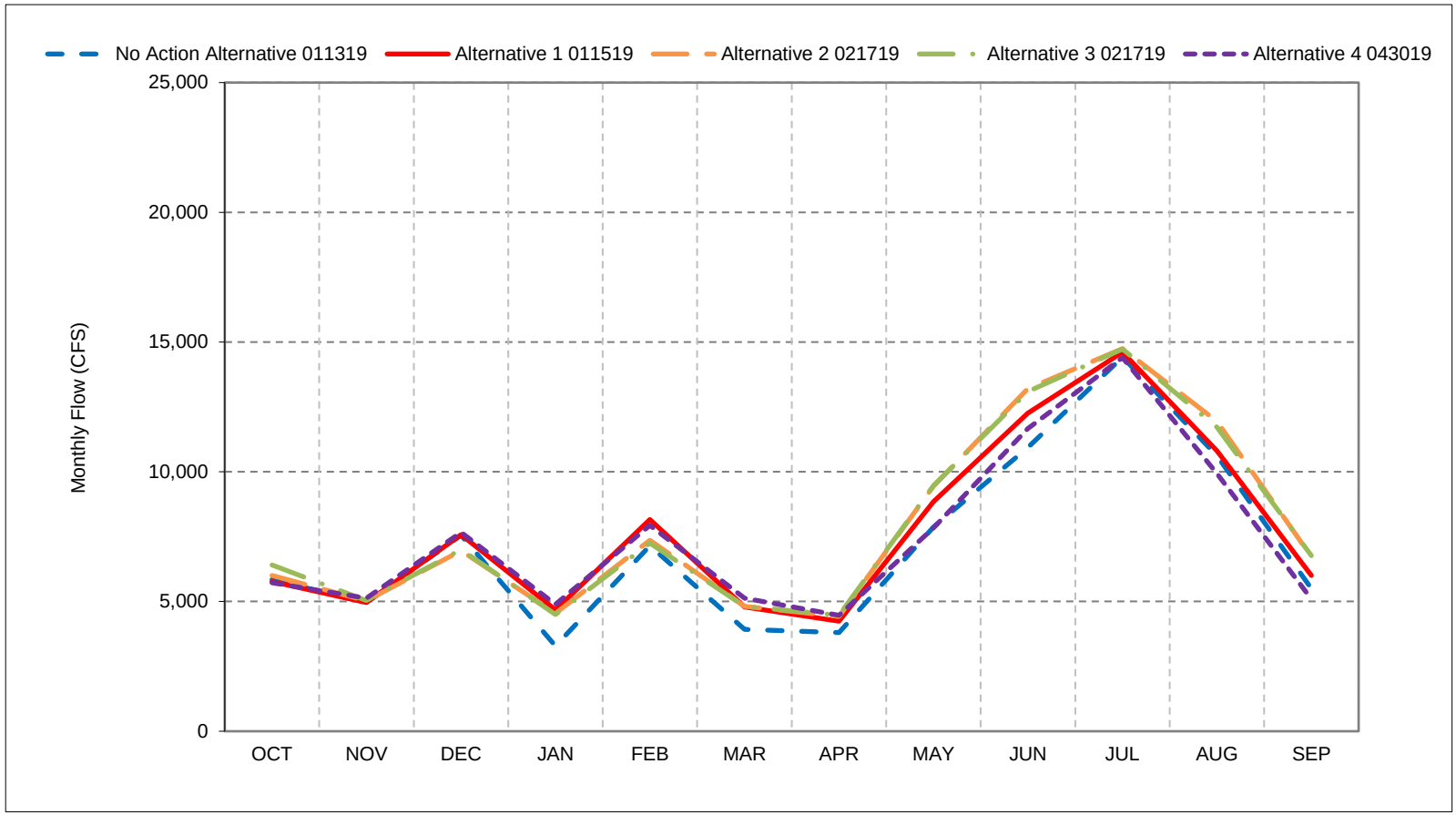

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-3. Sacramento River Flow downstream of Keswick Reservoir, Above Normal Year Averag



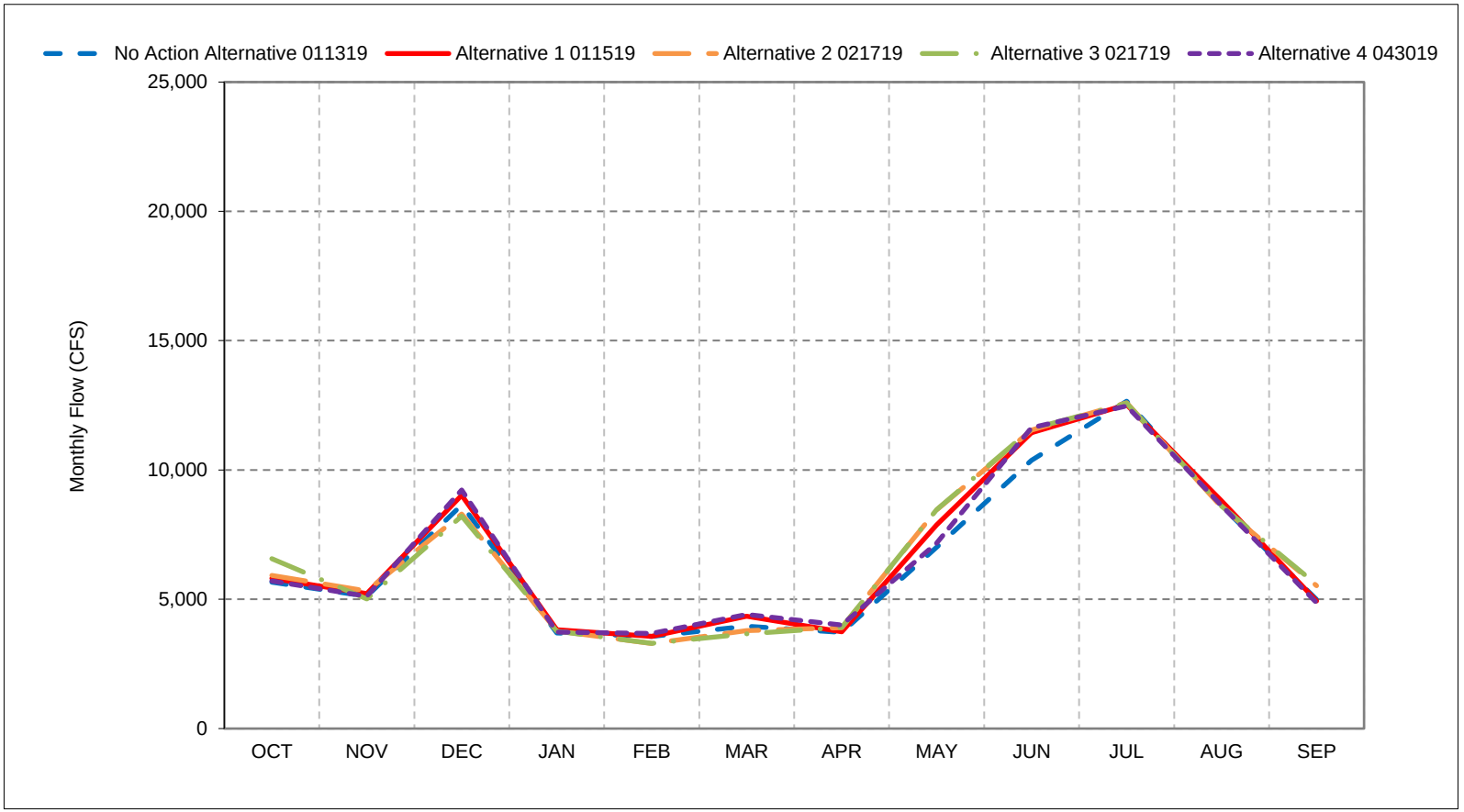

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-4. Sacramento River Flow downstream of Keswick Reservoir, Below Normal Year Averag



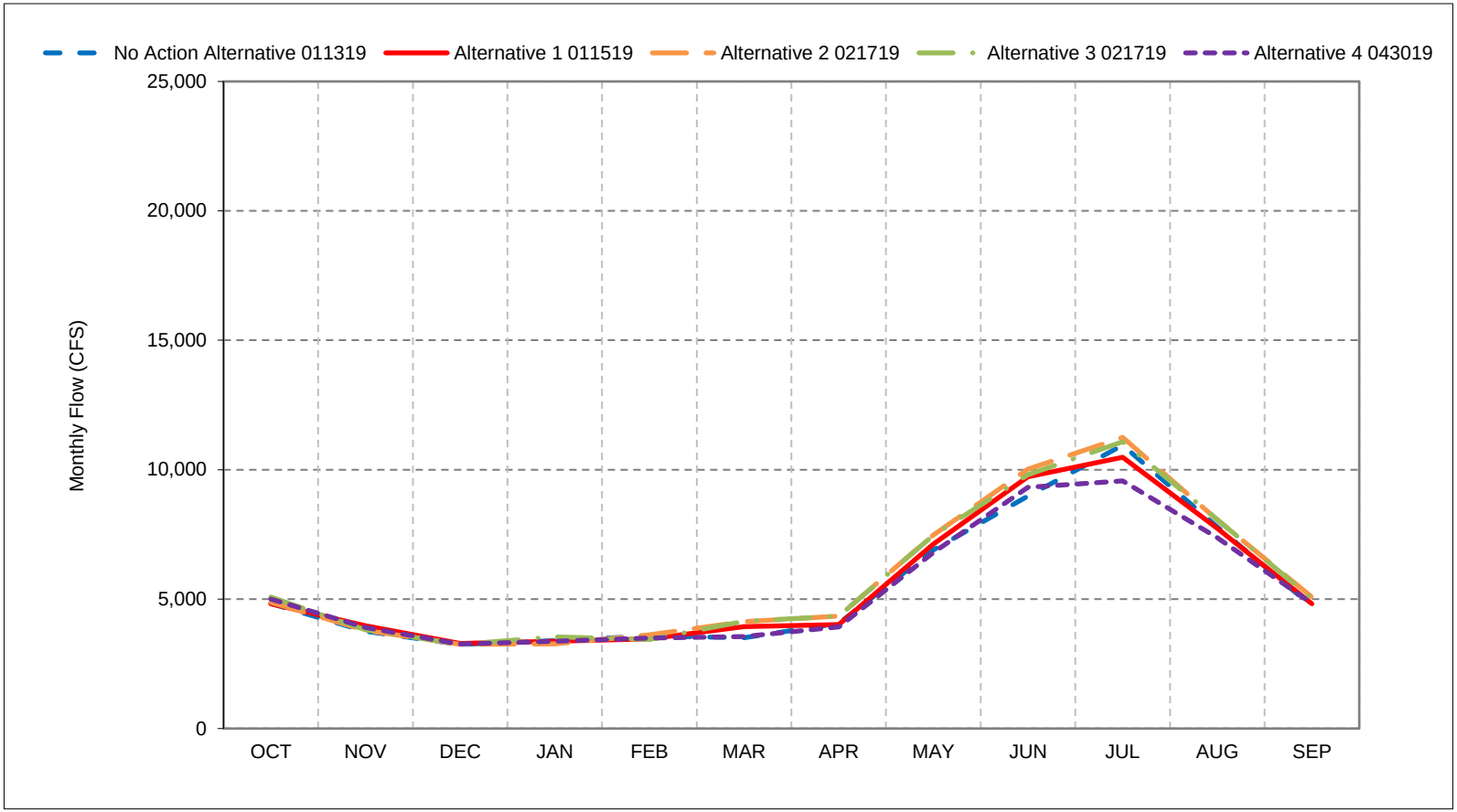

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-5. Sacramento River Flow downstream of Keswick Reservoir, Dry Year Average Flow



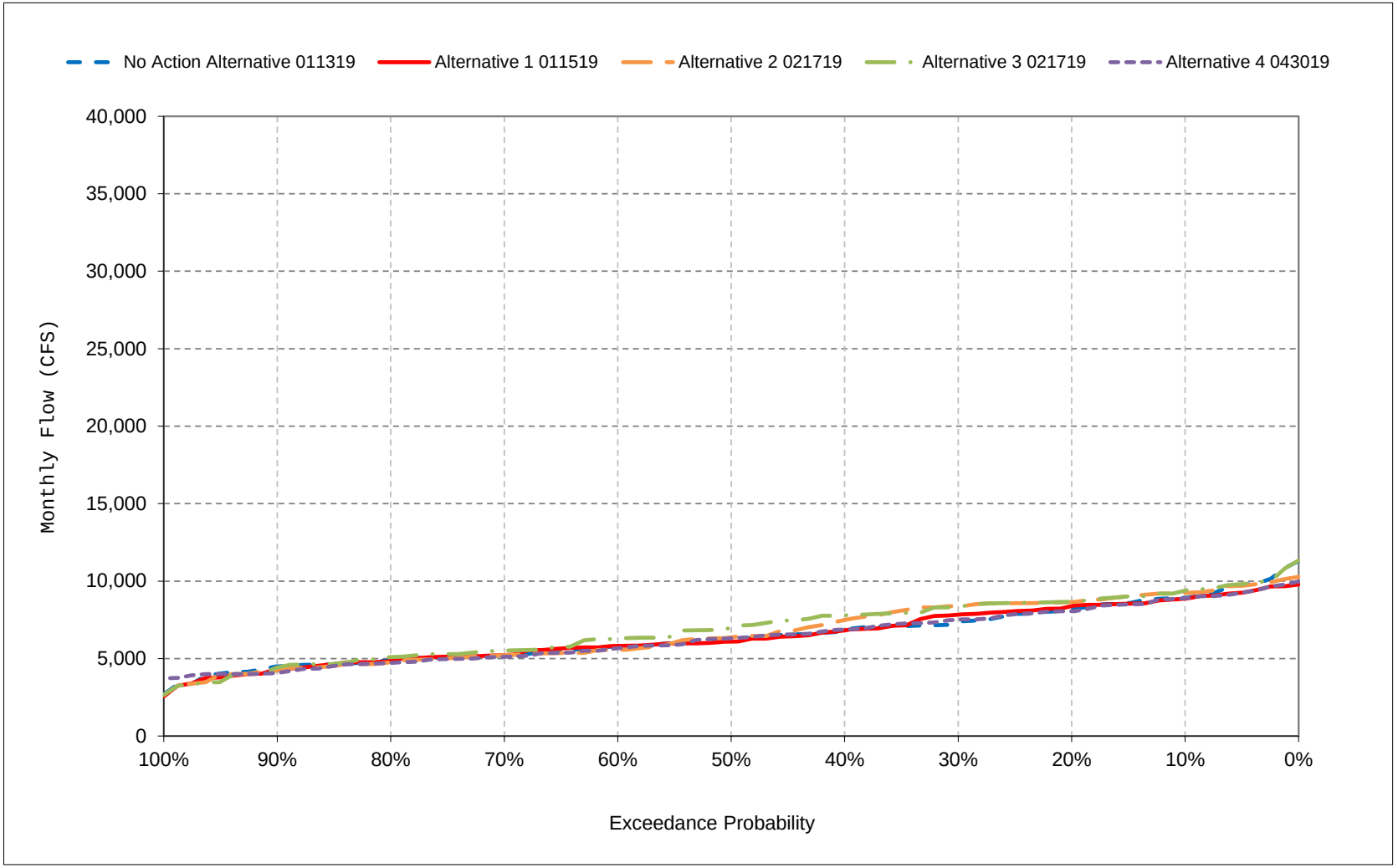

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-6. Sacramento River Flow downstream of Keswick Reservoir, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

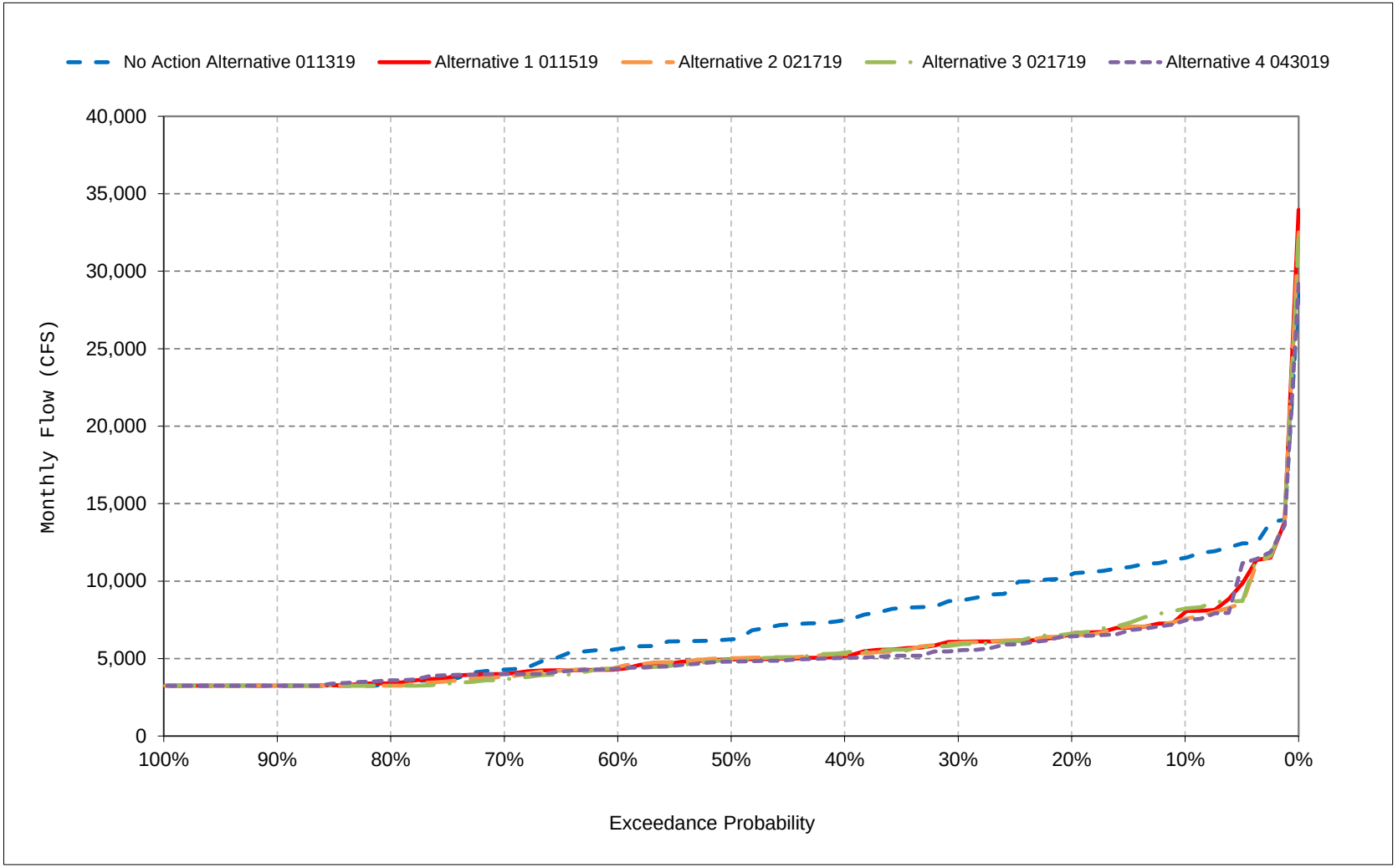
**Figure 15-7. Sacramento River Flow downstream of Keswick Reservoir, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

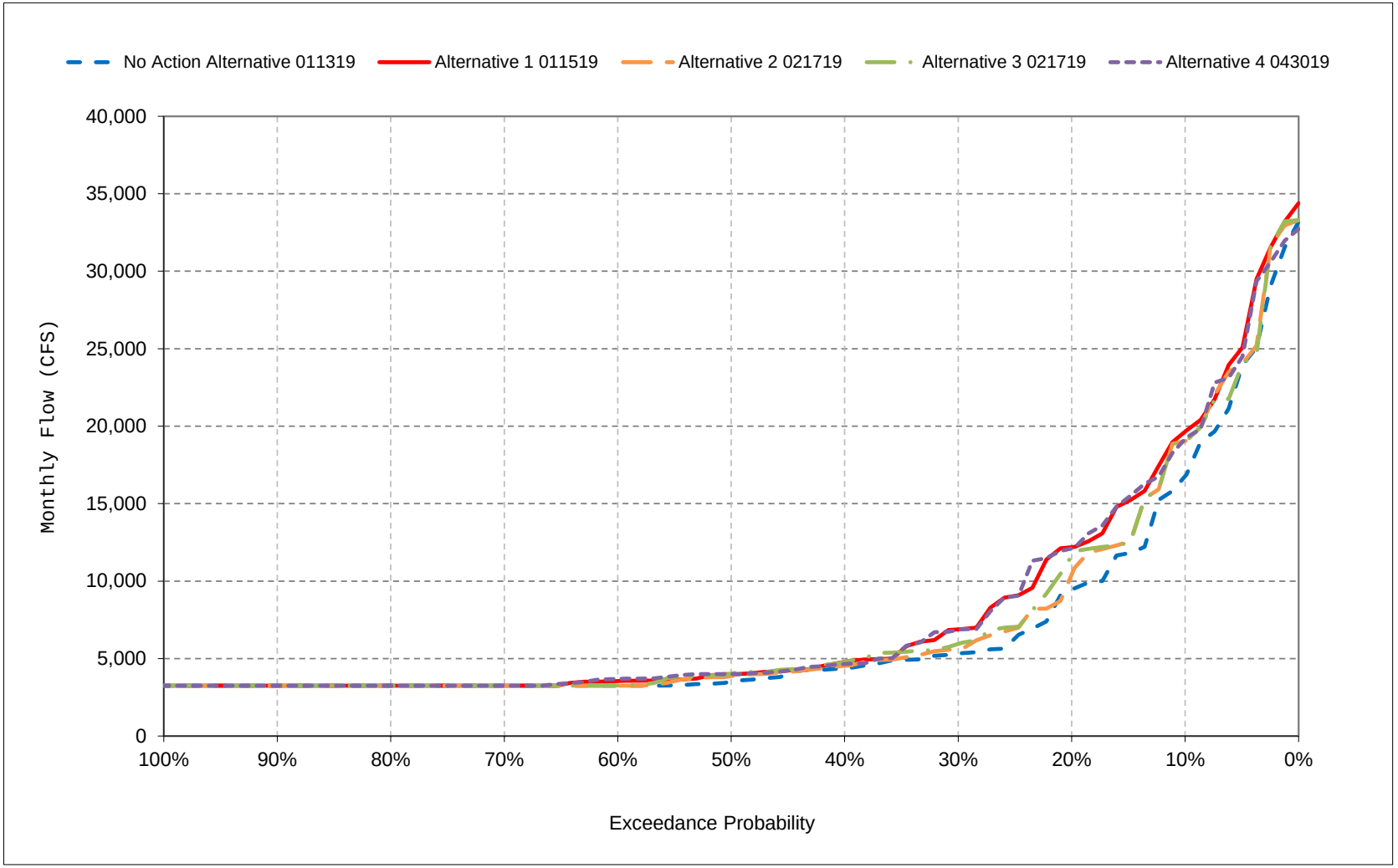
**Figure 15-8. Sacramento River Flow downstream of Keswick Reservoir, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

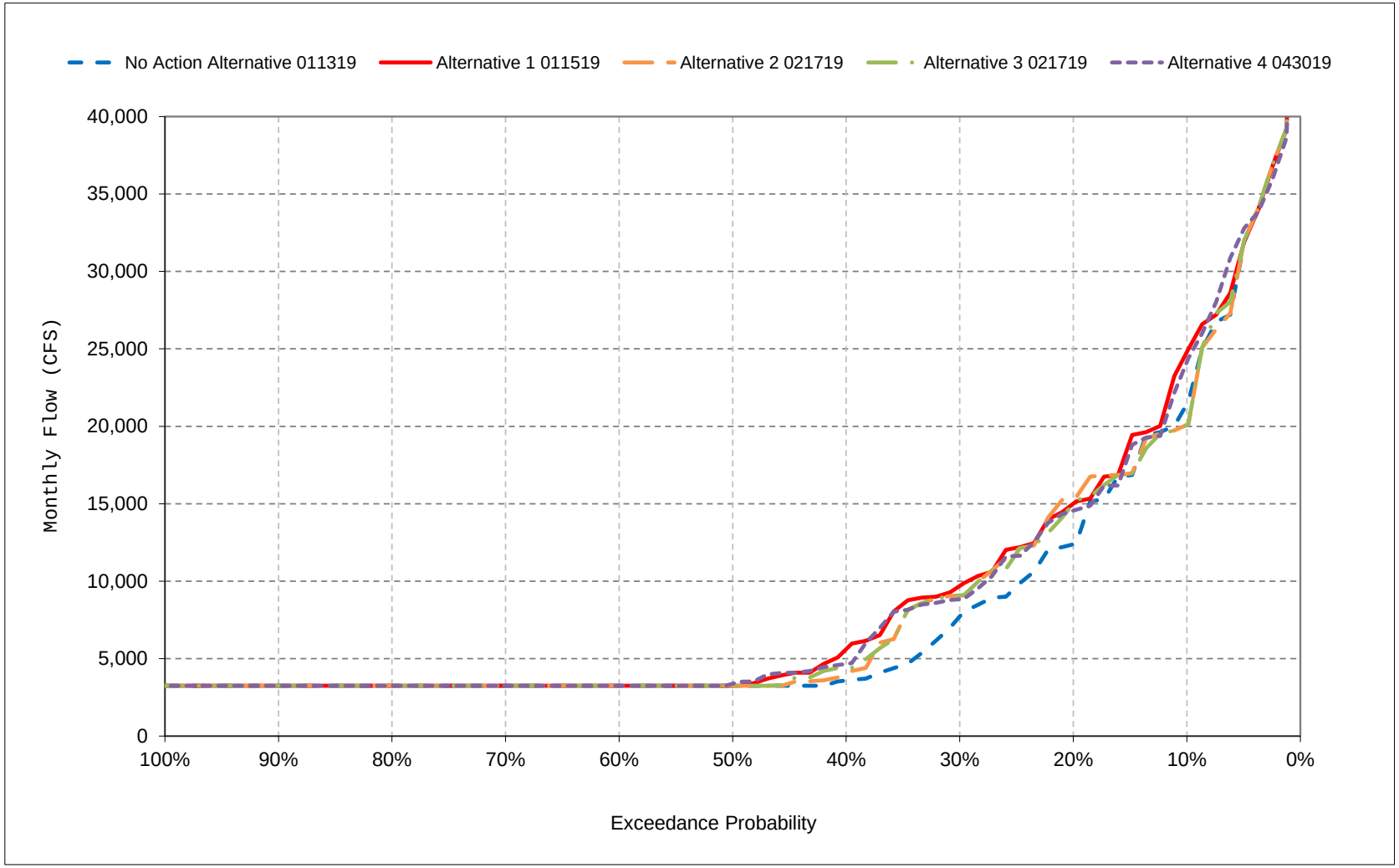
**Figure 15-9. Sacramento River Flow downstream of Keswick Reservoir, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

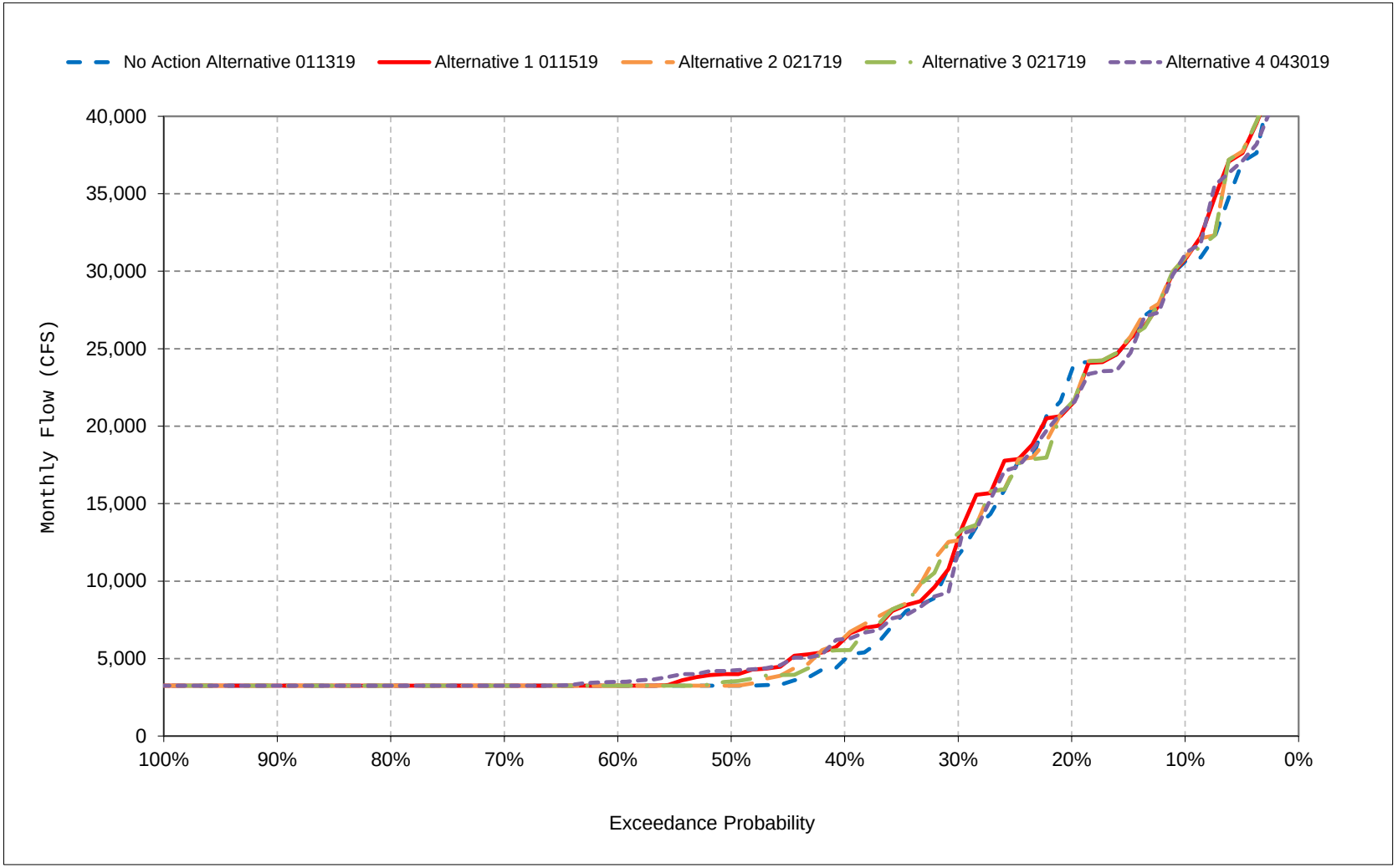
**Figure 15-10. Sacramento River Flow downstream of Keswick Reservoir, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

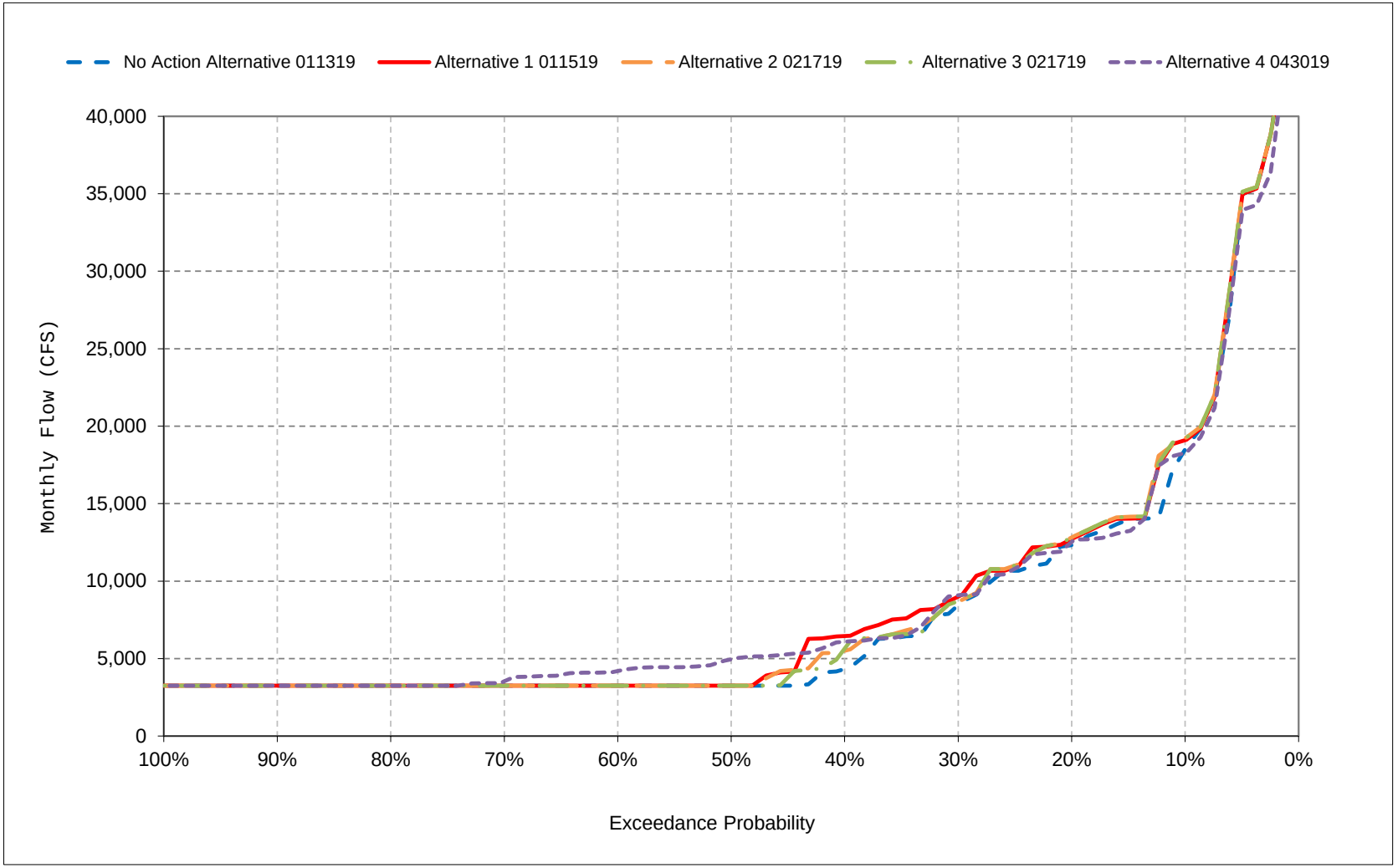
**Figure 15-11. Sacramento River Flow downstream of Keswick Reservoir, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

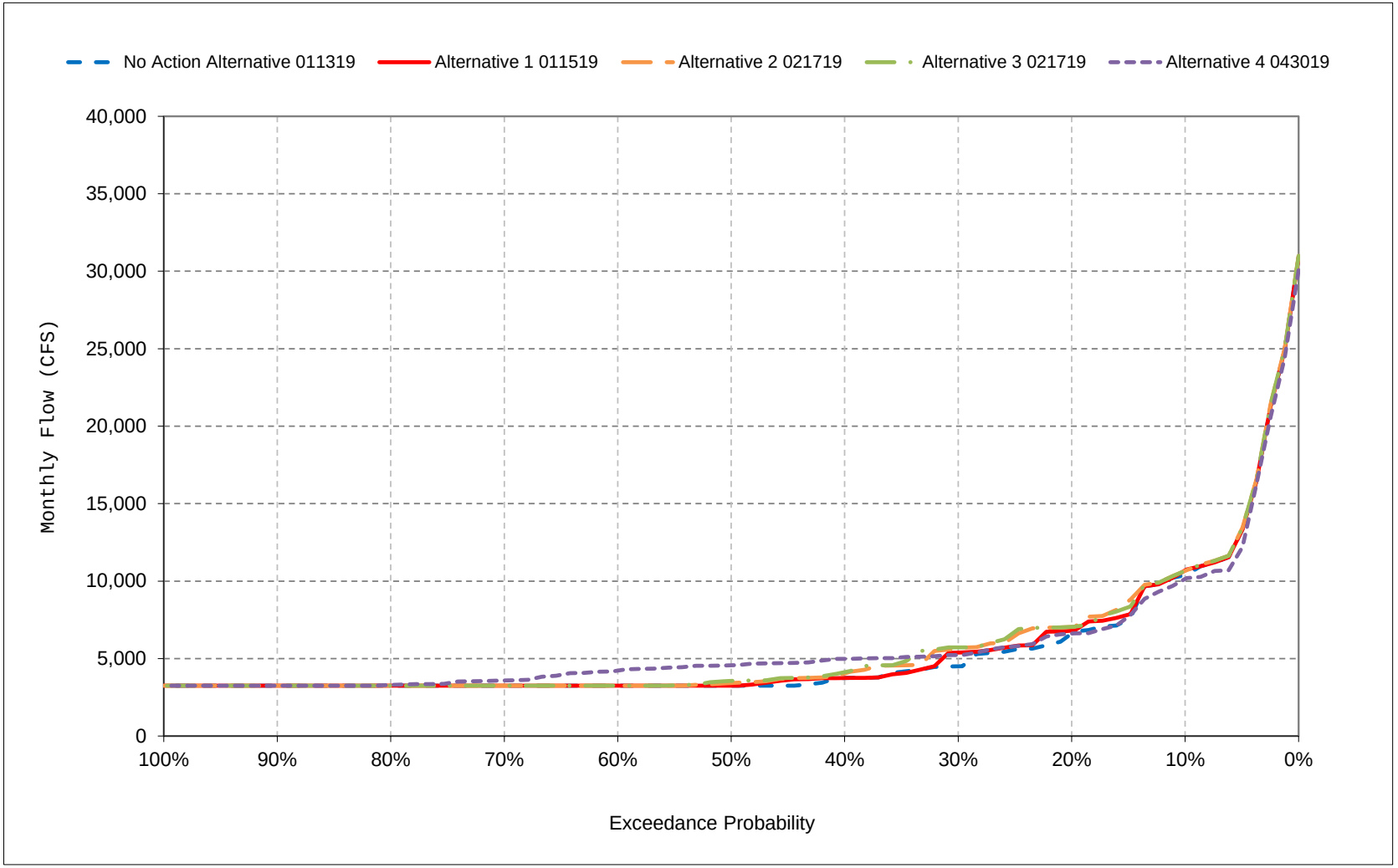
**Figure 15-12. Sacramento River Flow downstream of Keswick Reservoir, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

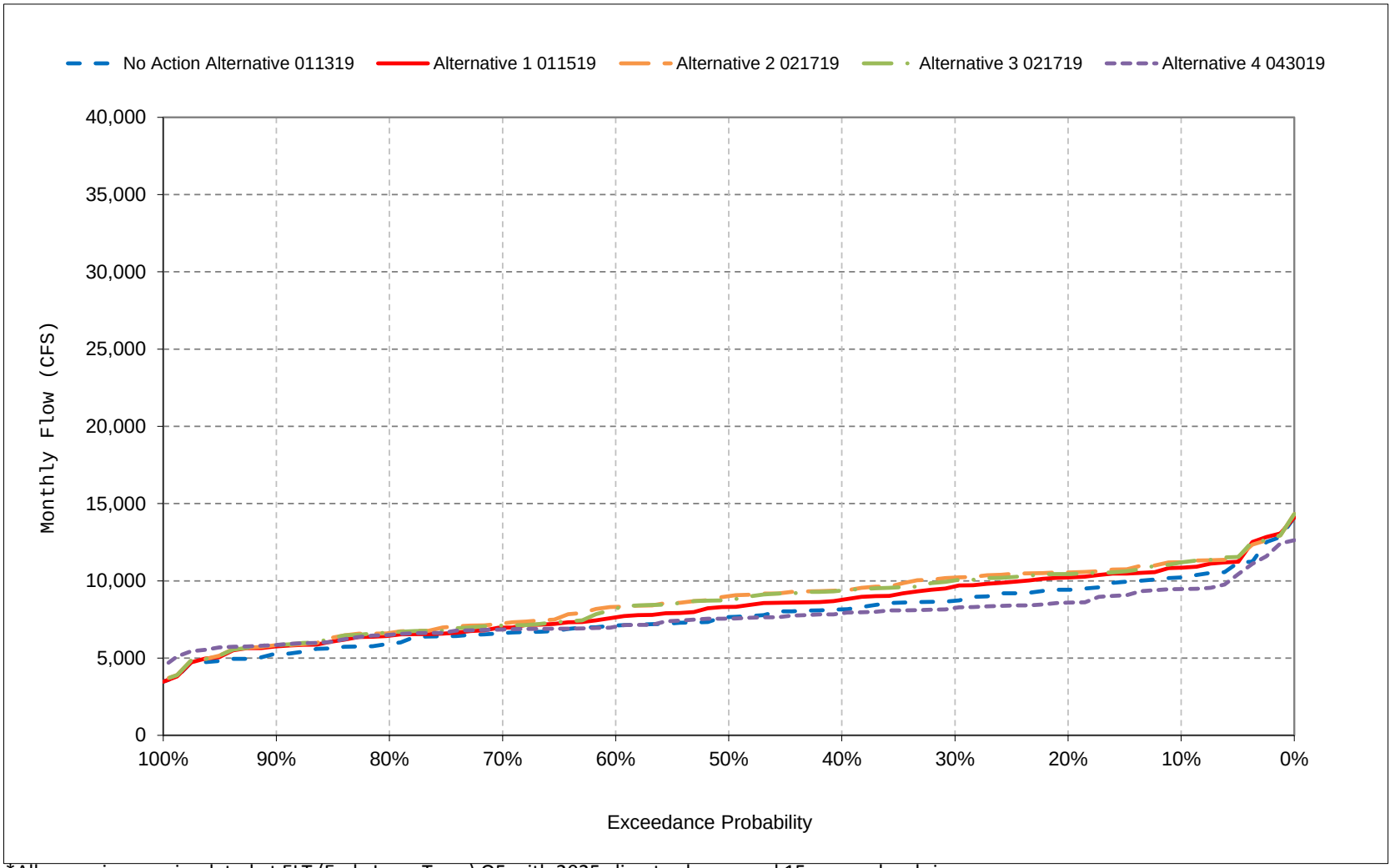
**Figure 15-13. Sacramento River Flow downstream of Keswick Reservoir, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

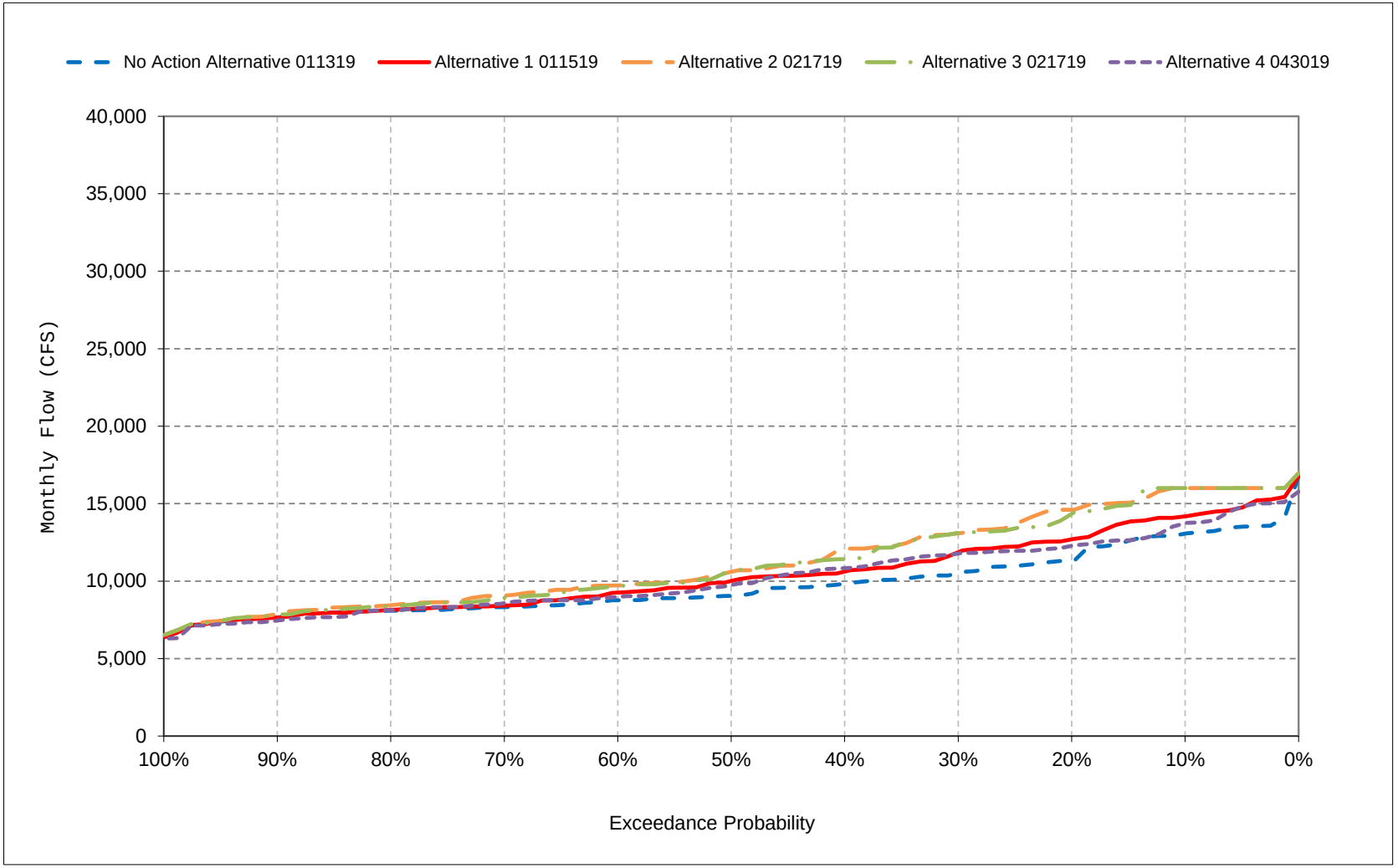
**Figure 15-14. Sacramento River Flow downstream of Keswick Reservoir, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

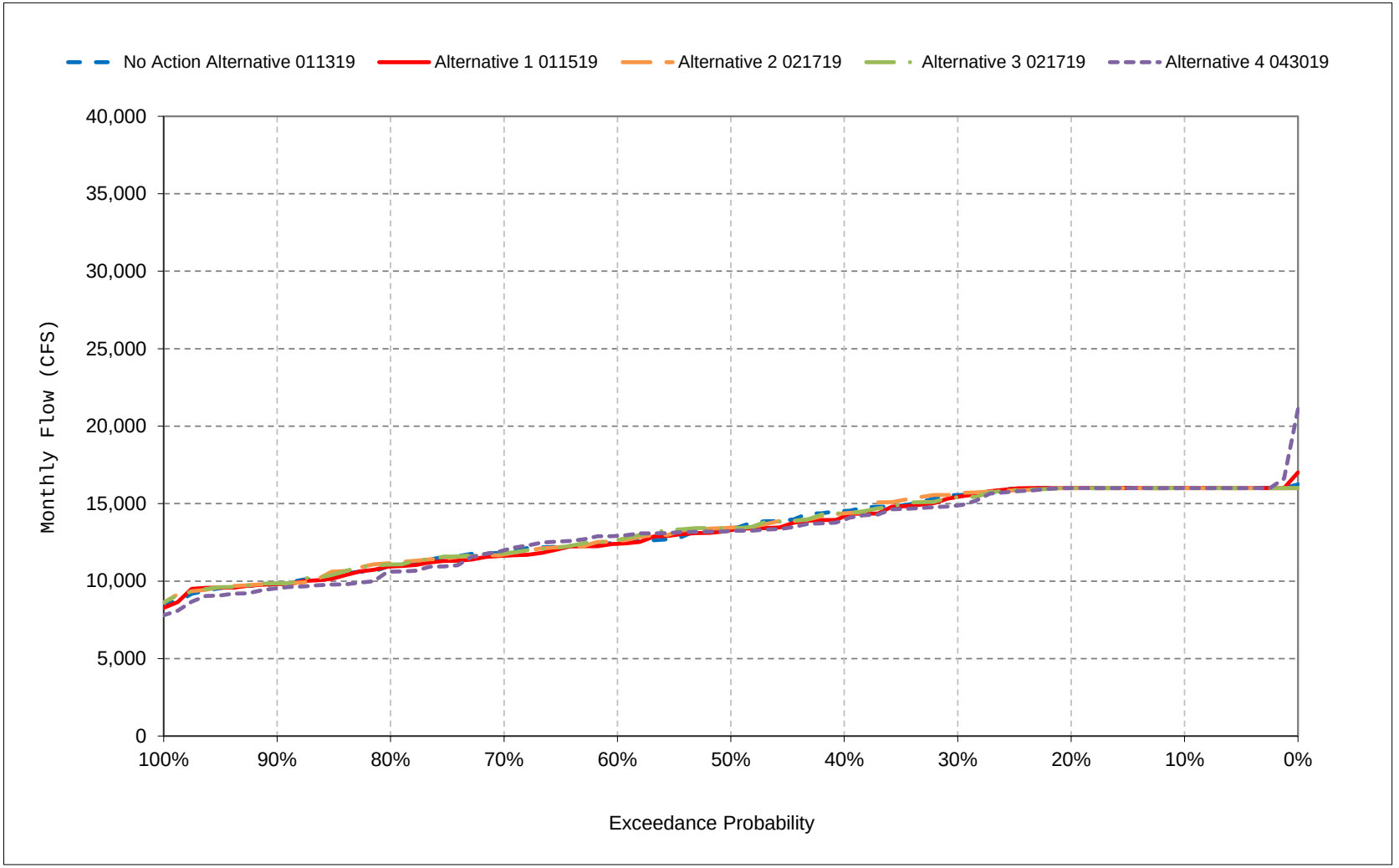
**Figure 15-15. Sacramento River Flow downstream of Keswick Reservoir, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

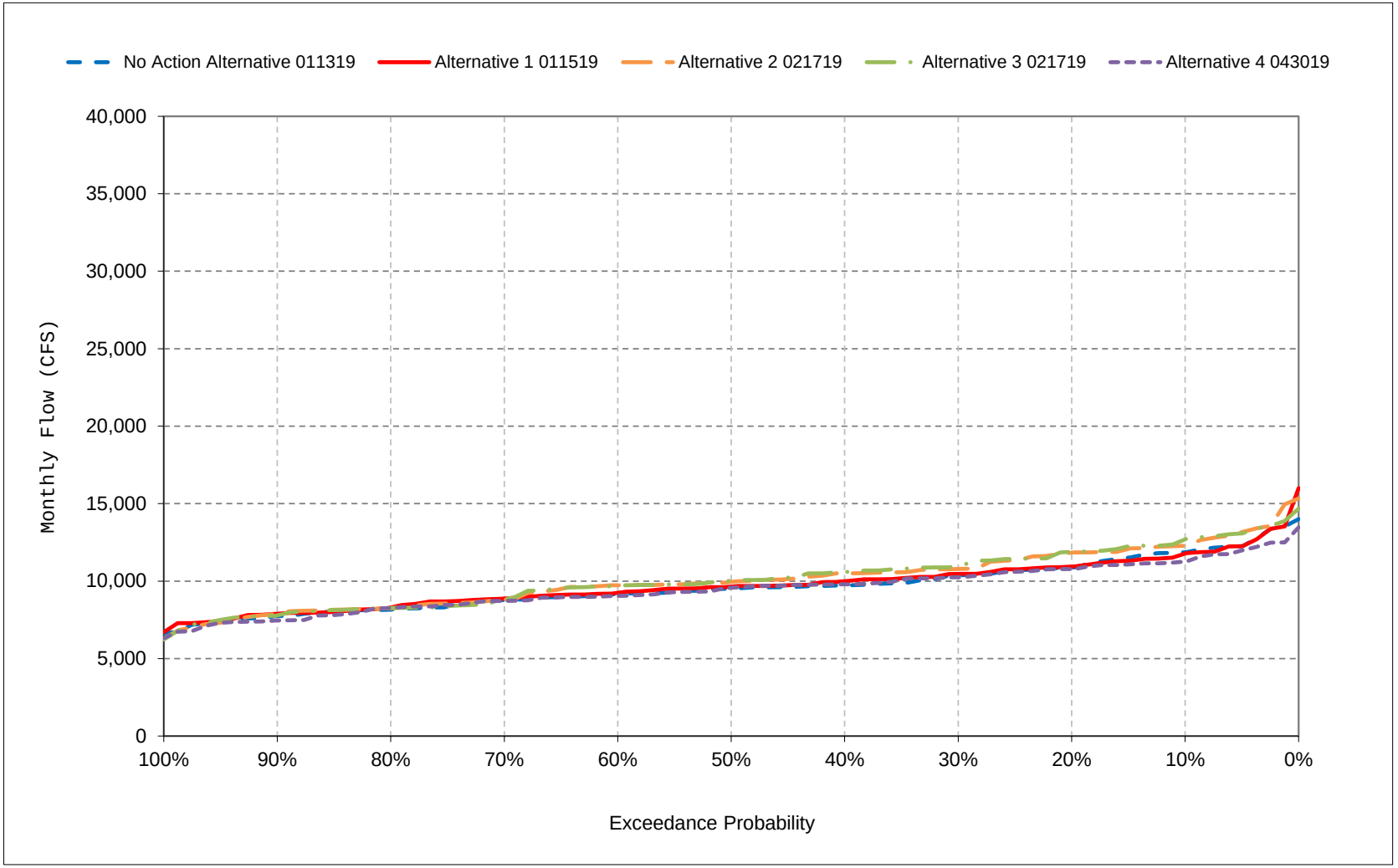
**Figure 15-16. Sacramento River Flow downstream of Keswick Reservoir, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

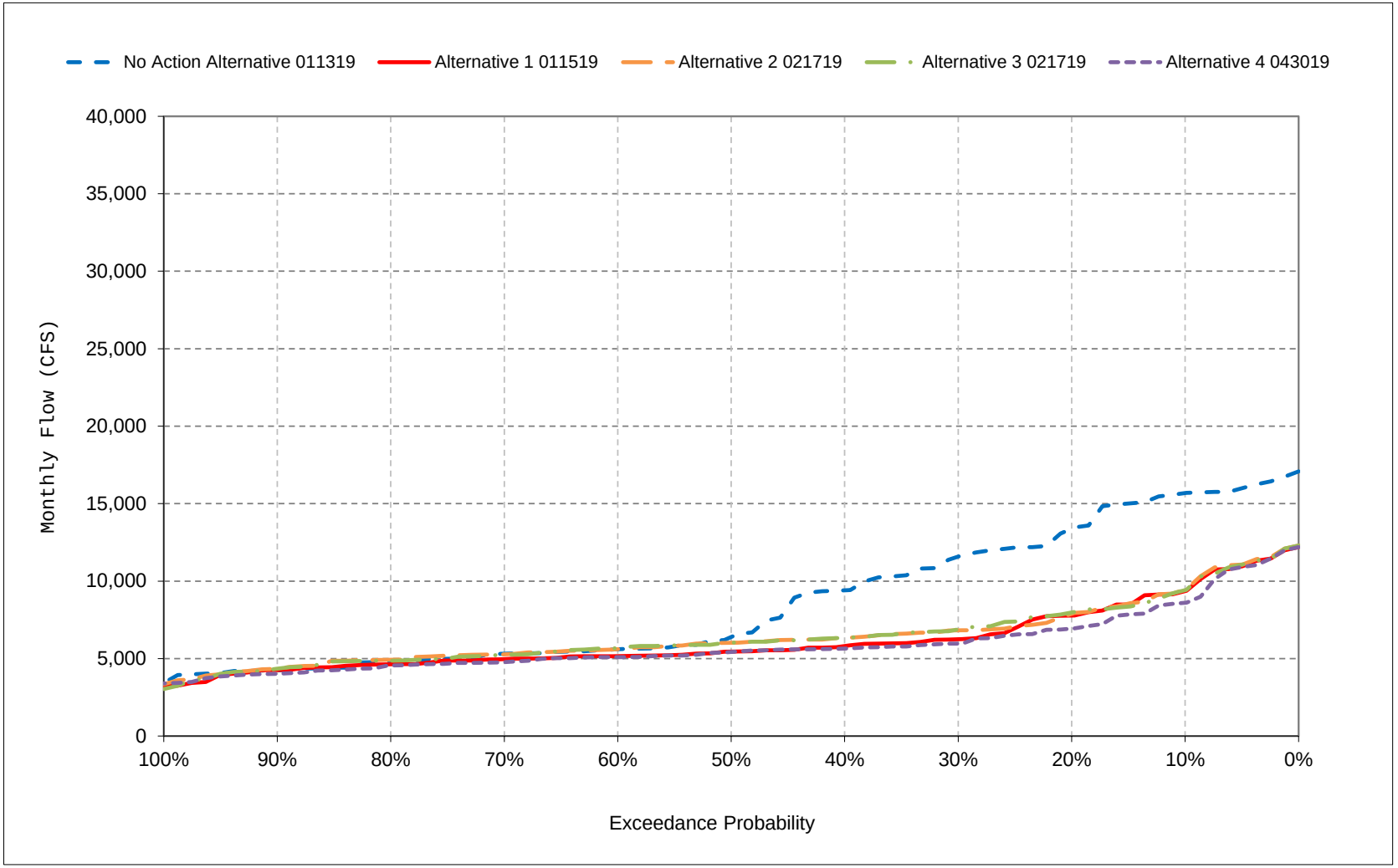
**Figure 15-17. Sacramento River Flow downstream of Keswick Reservoir, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 15-18. Sacramento River Flow downstream of Keswick Reservoir, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 16-1. Sacramento Flow River at Bend Bridge, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,188 | 13,896 | 26,553 | 35,636 | 46,119 | 29,263 | 16,420 | 13,681 | 13,578 | 16,305 | 12,139 | 16,061 |
| 20% | 9,084 | 12,030 | 16,593 | 23,614 | 32,961 | 19,328 | 12,773 | 11,723 | 12,305 | 15,990 | 11,272 | 13,861 |
| 30% | 8,301 | 11,271 | 10,517 | 15,779 | 21,336 | 14,475 | 8,661 | 10,432 | 11,019 | 15,716 | 10,416 | 12,104 |
| 40% | 7,817 | 10,144 | 7,828 | 11,444 | 12,724 | 10,331 | 7,211 | 9,493 | 10,708 | 14,723 | 10,001 | 10,145 |
| 50% | 7,018 | 8,610 | 6,738 | 8,651 | 10,318 | 8,537 | 6,295 | 8,912 | 10,212 | 13,608 | 9,649 | 6,937 |
| 60% | 6,439 | 7,277 | 6,313 | 7,028 | 8,261 | 7,612 | 5,896 | 8,574 | 9,732 | 12,748 | 9,360 | 5,909 |
| 70% | 6,077 | 6,348 | 5,668 | 6,316 | 7,352 | 6,585 | 5,504 | 8,101 | 9,478 | 11,944 | 8,876 | 5,720 |
| 80% | 5,759 | 5,848 | 5,284 | 5,793 | 5,852 | 5,733 | 5,240 | 7,755 | 9,148 | 11,171 | 8,433 | 5,247 |
| 90% | 5,254 | 4,952 | 4,799 | 4,918 | 5,147 | 5,423 | 4,899 | 7,060 | 8,676 | 10,393 | 7,990 | 4,632 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,419 | 9,386 | 11,785 | 15,532 | 18,802 | 14,426 | 9,158 | 9,806 | 10,715 | 13,540 | 9,828 | 9,128 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,864 | 12,201 | 12,212 | 29,328 | 30,808 | 24,888 | 13,988 | 11,641 | 10,455 | 13,909 | 10,733 | 14,543 |
| Above Normal (16%) | 8,036 | 12,488 | 11,050 | 16,297 | 25,999 | 15,923 | 9,620 | 10,248 | 11,192 | 15,414 | 10,652 | 10,421 |
| Below Normal (13%) | 6,917 | 6,667 | 11,741 | 7,401 | 12,565 | 7,255 | 6,371 | 9,297 | 11,634 | 14,499 | 10,741 | 5,970 |
| Dry (24%) | 6,623 | 7,712 | 15,032 | 7,159 | 9,374 | 8,913 | 6,431 | 8,473 | 10,962 | 12,750 | 8,777 | 5,420 |
| Critical (15%) | 5,408 | 5,206 | 6,284 | 6,219 | 6,426 | 5,899 | 5,290 | 8,040 | 9,507 | 11,146 | 7,891 | 5,067 |

### Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,113 | 11,120 | 30,249 | 39,974 | 47,109 | 29,749 | 16,420 | 14,020 | 14,747 | 16,248 | 11,749 | 9,801 |
| 20% | 9,130 | 7,882 | 22,749 | 25,057 | 31,480 | 19,330 | 12,774 | 12,184 | 13,542 | 15,985 | 11,023 | 8,559 |
| 30% | 8,604 | 7,183 | 11,316 | 17,121 | 22,239 | 16,744 | 8,715 | 11,082 | 12,527 | 15,638 | 10,550 | 6,433 |
| 40% | 7,503 | 6,970 | 8,963 | 13,541 | 13,520 | 10,775 | 7,451 | 10,519 | 11,173 | 14,449 | 10,149 | 6,151 |
| 50% | 6,934 | 6,571 | 6,899 | 8,966 | 10,596 | 8,854 | 6,372 | 9,928 | 10,843 | 13,501 | 9,763 | 5,804 |
| 60% | 6,519 | 6,156 | 6,262 | 7,272 | 8,428 | 7,903 | 5,949 | 9,027 | 10,308 | 12,504 | 9,487 | 5,621 |
| 70% | 6,300 | 5,823 | 5,643 | 6,528 | 7,385 | 6,899 | 5,586 | 8,559 | 9,731 | 11,782 | 9,095 | 5,418 |
| 80% | 5,903 | 5,565 | 5,288 | 5,792 | 6,138 | 5,753 | 5,075 | 7,966 | 9,322 | 11,255 | 8,510 | 5,003 |
| 90% | 5,103 | 5,254 | 4,895 | 4,893 | 5,269 | 5,421 | 4,893 | 7,500 | 8,789 | 10,253 | 7,995 | 4,691 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,404 | 7,839 | 12,742 | 16,304 | 19,156 | 14,832 | 9,249 | 10,332 | 11,347 | 13,435 | 9,944 | 6,624 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,706 | 8,671 | 14,298 | 30,417 | 30,972 | 24,975 | 14,102 | 11,890 | 10,558 | 13,818 | 10,905 | 8,795 |
| Above Normal (16%) | 8,074 | 9,414 | 12,288 | 17,657 | 27,168 | 16,604 | 9,643 | 10,735 | 11,564 | 15,475 | 10,658 | 5,712 |
| Below Normal (13%) | 6,837 | 6,670 | 11,764 | 8,790 | 13,567 | 8,117 | 6,796 | 10,255 | 12,936 | 14,658 | 10,906 | 6,477 |
| Dry (24%) | 6,774 | 7,815 | 15,404 | 7,277 | 9,371 | 9,294 | 6,445 | 9,320 | 12,016 | 12,599 | 8,962 | 5,348 |
| Critical (15%) | 5,426 | 5,441 | 6,321 | 6,195 | 6,307 | 6,324 | 5,230 | 8,274 | 10,247 | 10,670 | 7,843 | 5,171 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-76** | **-2,775** | 3,696 | 4,339 | 990 | 486 | 1 | 339 | 1,169 | **-58** | **-390** | **-6,260** |
| 20% | 46 | **-4,148** | 6,156 | 1,442 | **-1,481** | 2 | 1 | 461 | 1,238 | **-5** | **-249** | **-5,302** |
| 30% | 302 | **-4,088** | 799 | 1,342 | 903 | 2,270 | 54 | 649 | 1,509 | **-78** | 134 | **-5,671** |
| 40% | **-313** | **-3,174** | 1,135 | 2,097 | 796 | 444 | 240 | 1,026 | 465 | **-274** | 148 | **-3,994** |
| 50% | **-84** | **-2,040** | 160 | 314 | 278 | 318 | 78 | 1,016 | 631 | **-107** | 114 | **-1,133** |
| 60% | 80 | **-1,121** | **-50** | 244 | 167 | 291 | 53 | 452 | 576 | **-244** | 127 | **-288** |
| 70% | 223 | **-526** | **-25** | 212 | 33 | 314 | 82 | 458 | 253 | **-162** | 219 | **-302** |
| 80% | 144 | **-284** | 3 | **-1** | 285 | 20 | **-165** | 211 | 174 | 84 | 77 | **-244** |
| 90% | **-151** | 303 | 96 | **-25** | 121 | **-3** | **-6** | 440 | 112 | **-140** | 5 | 58 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-15** | **-1,547** | 957 | 772 | 354 | 406 | 91 | 525 | 632 | **-105** | 116 | **-2,504** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-157** | **-3,530** | 2,085 | 1,089 | 164 | 86 | 114 | 249 | 103 | **-92** | 172 | **-5,748** |
| Above Normal (16%) | 39 | **-3,074** | 1,238 | 1,360 | 1,169 | 681 | 23 | 487 | 372 | 60 | 6 | **-4,708** |
| Below Normal (13%) | **-80** | 3 | 23 | 1,389 | 1,003 | 862 | 424 | 957 | 1,302 | 159 | 165 | 506 |
| Dry (24%) | 151 | 103 | 372 | 118 | **-3** | 381 | 14 | 847 | 1,054 | **-151** | 185 | **-72** |
| Critical (15%) | 18 | 235 | 37 | **-25** | **-120** | 425 | **-60** | 234 | 740 | **-476** | **-48** | 104 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 16-2. Sacramento Flow River at Bend Bridge, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,188 | 13,896 | 26,553 | 35,636 | 46,119 | 29,263 | 16,420 | 13,681 | 13,578 | 16,305 | 12,139 | 16,061 |
| 20% | 9,084 | 12,030 | 16,593 | 23,614 | 32,961 | 19,328 | 12,773 | 11,723 | 12,305 | 15,990 | 11,272 | 13,861 |
| 30% | 8,301 | 11,271 | 10,517 | 15,779 | 21,336 | 14,475 | 8,661 | 10,432 | 11,019 | 15,716 | 10,416 | 12,104 |
| 40% | 7,817 | 10,144 | 7,828 | 11,444 | 12,724 | 10,331 | 7,211 | 9,493 | 10,708 | 14,723 | 10,001 | 10,145 |
| 50% | 7,018 | 8,610 | 6,738 | 8,651 | 10,318 | 8,537 | 6,295 | 8,912 | 10,212 | 13,608 | 9,649 | 6,937 |
| 60% | 6,439 | 7,277 | 6,313 | 7,028 | 8,261 | 7,612 | 5,896 | 8,574 | 9,732 | 12,748 | 9,360 | 5,909 |
| 70% | 6,077 | 6,348 | 5,668 | 6,316 | 7,352 | 6,585 | 5,504 | 8,101 | 9,478 | 11,944 | 8,876 | 5,720 |
| 80% | 5,759 | 5,848 | 5,284 | 5,793 | 5,852 | 5,733 | 5,240 | 7,755 | 9,148 | 11,171 | 8,433 | 5,247 |
| 90% | 5,254 | 4,952 | 4,799 | 4,918 | 5,147 | 5,423 | 4,899 | 7,060 | 8,676 | 10,393 | 7,990 | 4,632 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,419 | 9,386 | 11,785 | 15,532 | 18,802 | 14,426 | 9,158 | 9,806 | 10,715 | 13,540 | 9,828 | 9,128 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,864 | 12,201 | 12,212 | 29,328 | 30,808 | 24,888 | 13,988 | 11,641 | 10,455 | 13,909 | 10,733 | 14,543 |
| Above Normal (16%) | 8,036 | 12,488 | 11,050 | 16,297 | 25,999 | 15,923 | 9,620 | 10,248 | 11,192 | 15,414 | 10,652 | 10,421 |
| Below Normal (13%) | 6,917 | 6,667 | 11,741 | 7,401 | 12,565 | 7,255 | 6,371 | 9,297 | 11,634 | 14,499 | 10,741 | 5,970 |
| Dry (24%) | 6,623 | 7,712 | 15,032 | 7,159 | 9,374 | 8,913 | 6,431 | 8,473 | 10,962 | 12,750 | 8,777 | 5,420 |
| Critical (15%) | 5,408 | 5,206 | 6,284 | 6,219 | 6,426 | 5,899 | 5,290 | 8,040 | 9,507 | 11,146 | 7,891 | 5,067 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,102 | 11,008 | 29,650 | 36,288 | 47,109 | 29,731 | 16,433 | 13,870 | 16,066 | 16,237 | 12,490 | 9,783 |
| 20% | 9,453 | 8,732 | 18,580 | 25,232 | 31,477 | 18,705 | 12,728 | 12,358 | 15,296 | 15,937 | 11,722 | 8,029 |
| 30% | 8,838 | 7,263 | 10,519 | 16,741 | 22,553 | 15,152 | 8,699 | 11,557 | 13,602 | 15,665 | 11,074 | 7,168 |
| 40% | 8,195 | 6,864 | 8,545 | 12,436 | 13,402 | 10,661 | 7,428 | 10,939 | 12,292 | 14,412 | 10,554 | 6,588 |
| 50% | 7,237 | 6,459 | 6,863 | 8,673 | 10,522 | 8,778 | 6,879 | 10,438 | 11,072 | 13,779 | 10,194 | 6,375 |
| 60% | 6,497 | 6,114 | 6,246 | 7,061 | 8,402 | 7,708 | 5,956 | 10,001 | 10,732 | 12,523 | 9,819 | 5,984 |
| 70% | 6,019 | 5,680 | 5,625 | 6,388 | 7,353 | 6,637 | 5,531 | 8,755 | 10,280 | 11,903 | 8,947 | 5,612 |
| 80% | 5,631 | 5,200 | 5,200 | 5,339 | 5,755 | 5,704 | 5,158 | 8,203 | 9,581 | 11,377 | 8,493 | 5,333 |
| 90% | 5,050 | 4,962 | 4,636 | 4,783 | 4,979 | 5,346 | 4,836 | 7,502 | 8,795 | 10,216 | 8,137 | 4,673 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,480 | 7,678 | 12,145 | 15,896 | 18,973 | 14,628 | 9,305 | 10,600 | 12,048 | 13,525 | 10,232 | 6,832 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,665 | 8,561 | 13,915 | 29,620 | 31,072 | 24,947 | 14,091 | 11,957 | 11,325 | 13,744 | 11,140 | 8,445 |
| Above Normal (16%) | 8,625 | 8,837 | 11,253 | 17,246 | 27,056 | 16,305 | 9,588 | 10,908 | 13,626 | 15,361 | 11,203 | 6,275 |
| Below Normal (13%) | 6,924 | 6,637 | 11,047 | 8,553 | 12,675 | 8,044 | 6,880 | 10,731 | 13,730 | 14,754 | 12,003 | 7,084 |
| Dry (24%) | 6,748 | 7,835 | 14,585 | 7,139 | 9,002 | 8,651 | 6,521 | 9,790 | 11,979 | 12,642 | 8,697 | 5,846 |
| Critical (15%) | 5,398 | 5,202 | 6,217 | 6,025 | 6,396 | 6,450 | 5,493 | 8,555 | 10,480 | 11,407 | 8,145 | 5,351 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-86** | **-2,888** | 3,097 | 653 | 991 | 468 | 13 | 188 | 2,488 | **-68** | 351 | **-6,278** |
| 20% | 369 | **-3,298** | 1,988 | 1,618 | **-1,483** | **-622** | **-45** | 635 | 2,991 | **-53** | 450 | **-5,832** |
| 30% | 536 | **-4,008** | 2 | 962 | 1,217 | 678 | 38 | 1,125 | 2,583 | **-51** | 658 | **-4,937** |
| 40% | 379 | **-3,280** | 717 | 991 | 678 | 330 | 217 | 1,446 | 1,583 | **-311** | 554 | **-3,557** |
| 50% | 219 | **-2,151** | 124 | 21 | 203 | 241 | 584 | 1,526 | 861 | 171 | 545 | **-562** |
| 60% | 59 | **-1,163** | **-67** | 32 | 141 | 96 | 60 | 1,426 | 1,000 | **-224** | 459 | 75 |
| 70% | **-57** | **-669** | **-43** | 72 | 1 | 52 | 27 | 654 | 801 | **-41** | 70 | **-108** |
| 80% | **-128** | **-649** | **-84** | **-454** | **-98** | **-29** | **-82** | 448 | 433 | 206 | 60 | 85 |
| 90% | **-203** | 10 | **-163** | **-135** | **-168** | **-77** | **-64** | 443 | 119 | **-177** | 147 | 41 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 60 | **-1,708** | 360 | 364 | 171 | 201 | 147 | 794 | 1,333 | **-15** | 403 | **-2,296** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-199** | **-3,640** | 1,702 | 292 | 264 | 58 | 103 | 316 | 870 | **-165** | 407 | **-6,098** |
| Above Normal (16%) | 590 | **-3,651** | 203 | 949 | 1,057 | 381 | **-32** | 660 | 2,433 | **-53** | 551 | **-4,145** |
| Below Normal (13%) | 7 | **-30** | **-694** | 1,152 | 110 | 788 | 508 | 1,434 | 2,097 | 255 | 1,262 | 1,114 |
| Dry (24%) | 125 | 123 | **-448** | **-21** | **-372** | **-262** | 90 | 1,318 | 1,018 | **-108** | **-80** | 426 |
| Critical (15%) | **-9** | **-4** | **-68** | **-195** | **-31** | 551 | 203 | 515 | 972 | 261 | 254 | 284 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 16-3. Sacramento Flow River at Bend Bridge, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,188 | 13,896 | 26,553 | 35,636 | 46,119 | 29,263 | 16,420 | 13,681 | 13,578 | 16,305 | 12,139 | 16,061 |
| 20% | 9,084 | 12,030 | 16,593 | 23,614 | 32,961 | 19,328 | 12,773 | 11,723 | 12,305 | 15,990 | 11,272 | 13,861 |
| 30% | 8,301 | 11,271 | 10,517 | 15,779 | 21,336 | 14,475 | 8,661 | 10,432 | 11,019 | 15,716 | 10,416 | 12,104 |
| 40% | 7,817 | 10,144 | 7,828 | 11,444 | 12,724 | 10,331 | 7,211 | 9,493 | 10,708 | 14,723 | 10,001 | 10,145 |
| 50% | 7,018 | 8,610 | 6,738 | 8,651 | 10,318 | 8,537 | 6,295 | 8,912 | 10,212 | 13,608 | 9,649 | 6,937 |
| 60% | 6,439 | 7,277 | 6,313 | 7,028 | 8,261 | 7,612 | 5,896 | 8,574 | 9,732 | 12,748 | 9,360 | 5,909 |
| 70% | 6,077 | 6,348 | 5,668 | 6,316 | 7,352 | 6,585 | 5,504 | 8,101 | 9,478 | 11,944 | 8,876 | 5,720 |
| 80% | 5,759 | 5,848 | 5,284 | 5,793 | 5,852 | 5,733 | 5,240 | 7,755 | 9,148 | 11,171 | 8,433 | 5,247 |
| 90% | 5,254 | 4,952 | 4,799 | 4,918 | 5,147 | 5,423 | 4,899 | 7,060 | 8,676 | 10,393 | 7,990 | 4,632 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,419 | 9,386 | 11,785 | 15,532 | 18,802 | 14,426 | 9,158 | 9,806 | 10,715 | 13,540 | 9,828 | 9,128 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,864 | 12,201 | 12,212 | 29,328 | 30,808 | 24,888 | 13,988 | 11,641 | 10,455 | 13,909 | 10,733 | 14,543 |
| Above Normal (16%) | 8,036 | 12,488 | 11,050 | 16,297 | 25,999 | 15,923 | 9,620 | 10,248 | 11,192 | 15,414 | 10,652 | 10,421 |
| Below Normal (13%) | 6,917 | 6,667 | 11,741 | 7,401 | 12,565 | 7,255 | 6,371 | 9,297 | 11,634 | 14,499 | 10,741 | 5,970 |
| Dry (24%) | 6,623 | 7,712 | 15,032 | 7,159 | 9,374 | 8,913 | 6,431 | 8,473 | 10,962 | 12,750 | 8,777 | 5,420 |
| Critical (15%) | 5,408 | 5,206 | 6,284 | 6,219 | 6,426 | 5,899 | 5,290 | 8,040 | 9,507 | 11,146 | 7,891 | 5,067 |

### Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,219 | 10,904 | 29,636 | 36,073 | 47,109 | 29,750 | 16,432 | 13,889 | 16,104 | 16,238 | 12,795 | 9,736 |
| 20% | 9,556 | 9,216 | 19,151 | 25,121 | 31,477 | 18,710 | 12,702 | 12,221 | 14,890 | 15,926 | 11,909 | 8,208 |
| 30% | 8,824 | 7,378 | 10,516 | 16,365 | 22,809 | 15,154 | 8,699 | 11,171 | 13,459 | 15,642 | 11,213 | 7,182 |
| 40% | 8,236 | 6,968 | 8,551 | 12,436 | 13,201 | 10,663 | 7,428 | 10,765 | 12,114 | 14,517 | 10,606 | 6,678 |
| 50% | 7,827 | 6,456 | 7,031 | 8,669 | 10,522 | 8,584 | 7,017 | 10,397 | 11,105 | 13,697 | 10,203 | 6,413 |
| 60% | 7,015 | 6,184 | 6,499 | 7,155 | 8,264 | 7,616 | 5,931 | 9,877 | 10,674 | 12,748 | 9,785 | 6,013 |
| 70% | 6,281 | 5,673 | 5,791 | 6,428 | 7,131 | 6,738 | 5,552 | 8,600 | 10,209 | 11,889 | 8,932 | 5,606 |
| 80% | 5,928 | 5,233 | 5,239 | 5,670 | 5,754 | 5,704 | 5,196 | 8,051 | 9,444 | 11,238 | 8,386 | 5,198 |
| 90% | 5,176 | 4,982 | 4,665 | 4,787 | 5,060 | 5,322 | 4,876 | 7,522 | 8,758 | 10,283 | 7,969 | 4,611 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,719 | 7,688 | 12,233 | 15,876 | 18,877 | 14,587 | 9,334 | 10,515 | 11,946 | 13,516 | 10,256 | 6,821 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,835 | 8,606 | 14,092 | 29,521 | 30,973 | 24,929 | 14,160 | 11,656 | 11,230 | 13,800 | 11,334 | 8,309 |
| Above Normal (16%) | 8,283 | 9,263 | 11,534 | 17,122 | 26,899 | 16,267 | 9,582 | 10,942 | 13,371 | 15,383 | 11,107 | 6,432 |
| Below Normal (13%) | 7,331 | 6,652 | 11,095 | 8,506 | 12,564 | 8,045 | 6,928 | 10,749 | 13,625 | 14,740 | 11,786 | 7,134 |
| Dry (24%) | 7,387 | 7,521 | 14,508 | 7,126 | 9,008 | 8,525 | 6,524 | 9,810 | 12,033 | 12,626 | 8,729 | 5,889 |
| Critical (15%) | 5,597 | 5,218 | 6,213 | 6,301 | 6,212 | 6,459 | 5,495 | 8,544 | 10,267 | 11,241 | 8,144 | 5,289 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 31 | **-2,992** | 3,083 | 437 | 990 | 487 | 12 | 208 | 2,526 | **-67** | 656 | **-6,325** |
| 20% | 472 | **-2,814** | 2,559 | 1,507 | **-1,484** | **-618** | **-71** | 498 | 2,585 | **-64** | 638 | **-5,653** |
| 30% | 523 | **-3,893** | **0** | 586 | 1,473 | 679 | 38 | 739 | 2,441 | **-74** | 797 | **-4,922** |
| 40% | 419 | **-3,176** | 723 | 991 | 476 | 331 | 217 | 1,272 | 1,405 | **-207** | 605 | **-3,466** |
| 50% | 809 | **-2,155** | 292 | 18 | 204 | 47 | 722 | 1,485 | 894 | 89 | 554 | **-525** |
| 60% | 577 | **-1,093** | 186 | 126 | 3 | 5 | 35 | 1,302 | 942 | 0 | 425 | 104 |
| 70% | 204 | **-675** | 123 | 112 | **-221** | 152 | 48 | 499 | 730 | **-55** | 55 | **-113** |
| 80% | 169 | **-615** | **-45** | **-123** | **-98** | **-29** | **-44** | 296 | 296 | 66 | **-47** | **-49** |
| 90% | **-78** | 30 | **-134** | **-130** | **-87** | **-102** | **-23** | 463 | 82 | **-109** | **-22** | **-21** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 299 | **-1,698** | 448 | 344 | 74 | 161 | 176 | 709 | 1,231 | **-24** | 428 | **-2,306** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-29** | **-3,595** | 1,880 | 193 | 165 | 41 | 172 | 14 | 775 | **-109** | 601 | **-6,234** |
| Above Normal (16%) | 247 | **-3,224** | 484 | 825 | 900 | 343 | **-38** | 694 | 2,179 | **-32** | 455 | **-3,989** |
| Below Normal (13%) | 414 | **-15** | **-647** | 1,105 | **-1** | 790 | 557 | 1,451 | 1,991 | 241 | 1,044 | 1,164 |
| Dry (24%) | 764 | **-192** | **-524** | **-33** | **-366** | **-388** | 93 | 1,337 | 1,072 | **-124** | **-48** | 468 |
| Critical (15%) | 189 | 13 | **-71** | 81 | **-214** | 560 | 205 | 505 | 760 | 95 | 253 | 222 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 16-4. Sacramento Flow River at Bend Bridge, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,188 | 13,896 | 26,553 | 35,636 | 46,119 | 29,263 | 16,420 | 13,681 | 13,578 | 16,305 | 12,139 | 16,061 |
| 20% | 9,084 | 12,030 | 16,593 | 23,614 | 32,961 | 19,328 | 12,773 | 11,723 | 12,305 | 15,990 | 11,272 | 13,861 |
| 30% | 8,301 | 11,271 | 10,517 | 15,779 | 21,336 | 14,475 | 8,661 | 10,432 | 11,019 | 15,716 | 10,416 | 12,104 |
| 40% | 7,817 | 10,144 | 7,828 | 11,444 | 12,724 | 10,331 | 7,211 | 9,493 | 10,708 | 14,723 | 10,001 | 10,145 |
| 50% | 7,018 | 8,610 | 6,738 | 8,651 | 10,318 | 8,537 | 6,295 | 8,912 | 10,212 | 13,608 | 9,649 | 6,937 |
| 60% | 6,439 | 7,277 | 6,313 | 7,028 | 8,261 | 7,612 | 5,896 | 8,574 | 9,732 | 12,748 | 9,360 | 5,909 |
| 70% | 6,077 | 6,348 | 5,668 | 6,316 | 7,352 | 6,585 | 5,504 | 8,101 | 9,478 | 11,944 | 8,876 | 5,720 |
| 80% | 5,759 | 5,848 | 5,284 | 5,793 | 5,852 | 5,733 | 5,240 | 7,755 | 9,148 | 11,171 | 8,433 | 5,247 |
| 90% | 5,254 | 4,952 | 4,799 | 4,918 | 5,147 | 5,423 | 4,899 | 7,060 | 8,676 | 10,393 | 7,990 | 4,632 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,419 | 9,386 | 11,785 | 15,532 | 18,802 | 14,426 | 9,158 | 9,806 | 10,715 | 13,540 | 9,828 | 9,128 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,864 | 12,201 | 12,212 | 29,328 | 30,808 | 24,888 | 13,988 | 11,641 | 10,455 | 13,909 | 10,733 | 14,543 |
| Above Normal (16%) | 8,036 | 12,488 | 11,050 | 16,297 | 25,999 | 15,923 | 9,620 | 10,248 | 11,192 | 15,414 | 10,652 | 10,421 |
| Below Normal (13%) | 6,917 | 6,667 | 11,741 | 7,401 | 12,565 | 7,255 | 6,371 | 9,297 | 11,634 | 14,499 | 10,741 | 5,970 |
| Dry (24%) | 6,623 | 7,712 | 15,032 | 7,159 | 9,374 | 8,913 | 6,431 | 8,473 | 10,962 | 12,750 | 8,777 | 5,420 |
| Critical (15%) | 5,408 | 5,206 | 6,284 | 6,219 | 6,426 | 5,899 | 5,290 | 8,040 | 9,507 | 11,146 | 7,891 | 5,067 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,728 | 11,244 | 30,144 | 39,648 | 47,716 | 29,750 | 16,407 | 12,070 | 14,282 | 16,203 | 11,390 | 9,185 |
| 20% | 9,000 | 8,102 | 22,931 | 25,054 | 31,896 | 19,306 | 13,739 | 10,781 | 12,980 | 15,967 | 10,926 | 7,308 |
| 30% | 8,360 | 7,207 | 11,525 | 16,741 | 22,236 | 16,806 | 10,561 | 10,312 | 12,315 | 15,393 | 10,424 | 6,351 |
| 40% | 7,974 | 6,880 | 9,242 | 13,863 | 13,661 | 12,740 | 7,967 | 9,679 | 11,289 | 14,311 | 10,034 | 6,159 |
| 50% | 6,905 | 6,412 | 6,898 | 9,543 | 10,638 | 9,806 | 7,132 | 8,987 | 10,798 | 13,405 | 9,668 | 5,711 |
| 60% | 6,331 | 6,168 | 6,259 | 7,351 | 8,526 | 8,372 | 6,315 | 8,791 | 10,191 | 12,933 | 9,389 | 5,465 |
| 70% | 6,049 | 5,815 | 5,641 | 6,529 | 7,502 | 7,365 | 5,738 | 8,375 | 9,761 | 12,243 | 8,917 | 5,253 |
| 80% | 5,576 | 5,384 | 5,253 | 5,819 | 6,482 | 6,228 | 5,216 | 8,092 | 9,209 | 10,818 | 8,382 | 4,923 |
| 90% | 5,236 | 5,146 | 4,870 | 4,933 | 5,283 | 5,050 | 4,946 | 7,524 | 8,582 | 9,626 | 7,618 | 4,482 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,366 | 7,711 | 12,899 | 16,455 | 19,426 | 15,145 | 9,739 | 9,731 | 11,183 | 13,417 | 9,698 | 6,391 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,685 | 8,376 | 14,282 | 30,802 | 31,221 | 25,345 | 14,892 | 11,438 | 10,513 | 13,948 | 10,822 | 8,372 |
| Above Normal (16%) | 7,897 | 9,192 | 12,388 | 17,579 | 27,749 | 17,291 | 10,320 | 10,007 | 11,121 | 16,111 | 10,559 | 5,947 |
| Below Normal (13%) | 6,797 | 6,857 | 11,985 | 9,131 | 13,605 | 8,561 | 7,116 | 9,255 | 12,372 | 14,484 | 10,052 | 5,574 |
| Dry (24%) | 6,679 | 7,757 | 15,858 | 7,238 | 9,693 | 9,564 | 6,816 | 8,645 | 12,220 | 12,557 | 8,795 | 5,286 |
| Critical (15%) | 5,601 | 5,376 | 6,360 | 6,228 | 6,411 | 6,054 | 5,218 | 7,977 | 9,883 | 9,802 | 7,510 | 5,172 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-460** | **-2,652** | 3,590 | 4,012 | 1,598 | 488 | **-13** | **-1,611** | 704 | **-102** | **-749** | **-6,876** |
| 20% | **-84** | **-3,928** | 6,338 | 1,440 | **-1,065** | **-22** | 966 | **-943** | 676 | **-23** | **-346** | **-6,554** |
| 30% | 59 | **-4,064** | 1,008 | 963 | 900 | 2,332 | 1,900 | **-120** | 1,296 | **-323** | 8 | **-5,753** |
| 40% | 157 | **-3,264** | 1,414 | 2,419 | 937 | 2,408 | 756 | 186 | 581 | **-412** | 33 | **-3,986** |
| 50% | **-114** | **-2,198** | 160 | 891 | 320 | 1,270 | 838 | 75 | 587 | **-203** | 19 | **-1,226** |
| 60% | **-108** | **-1,108** | **-54** | 322 | 265 | 761 | 418 | 216 | 458 | 185 | 29 | **-444** |
| 70% | **-27** | **-534** | **-27** | 213 | 150 | 780 | 234 | 274 | 282 | 299 | 41 | **-467** |
| 80% | **-183** | **-464** | **-31** | 26 | 630 | 495 | **-24** | 337 | 61 | **-354** | **-52** | **-324** |
| 90% | **-18** | 194 | 71 | 16 | 136 | **-373** | 47 | 464 | **-94** | **-767** | **-372** | **-150** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-53** | **-1,674** | 1,113 | 923 | 624 | 718 | 581 | **-76** | 468 | **-123** | **-130** | **-2,737** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-178** | **-3,825** | 2,070 | 1,474 | 414 | 457 | 905 | **-204** | 58 | 39 | 89 | **-6,171** |
| Above Normal (16%) | **-139** | **-3,296** | 1,338 | 1,282 | 1,750 | 1,368 | 700 | **-241** | **-71** | 697 | **-93** | **-4,474** |
| Below Normal (13%) | **-120** | 190 | 243 | 1,729 | 1,041 | 1,305 | 745 | **-42** | 739 | **-15** | **-689** | **-396** |
| Dry (24%) | 55 | 45 | 825 | 79 | 318 | 651 | 385 | 172 | 1,258 | **-193** | 18 | **-134** |
| Critical (15%) | 193 | 170 | 76 | 8 | **-15** | 154 | **-73** | **-62** | 375 | **-1,344** | **-381** | 105 |

a Based on the 82-year simulation period.

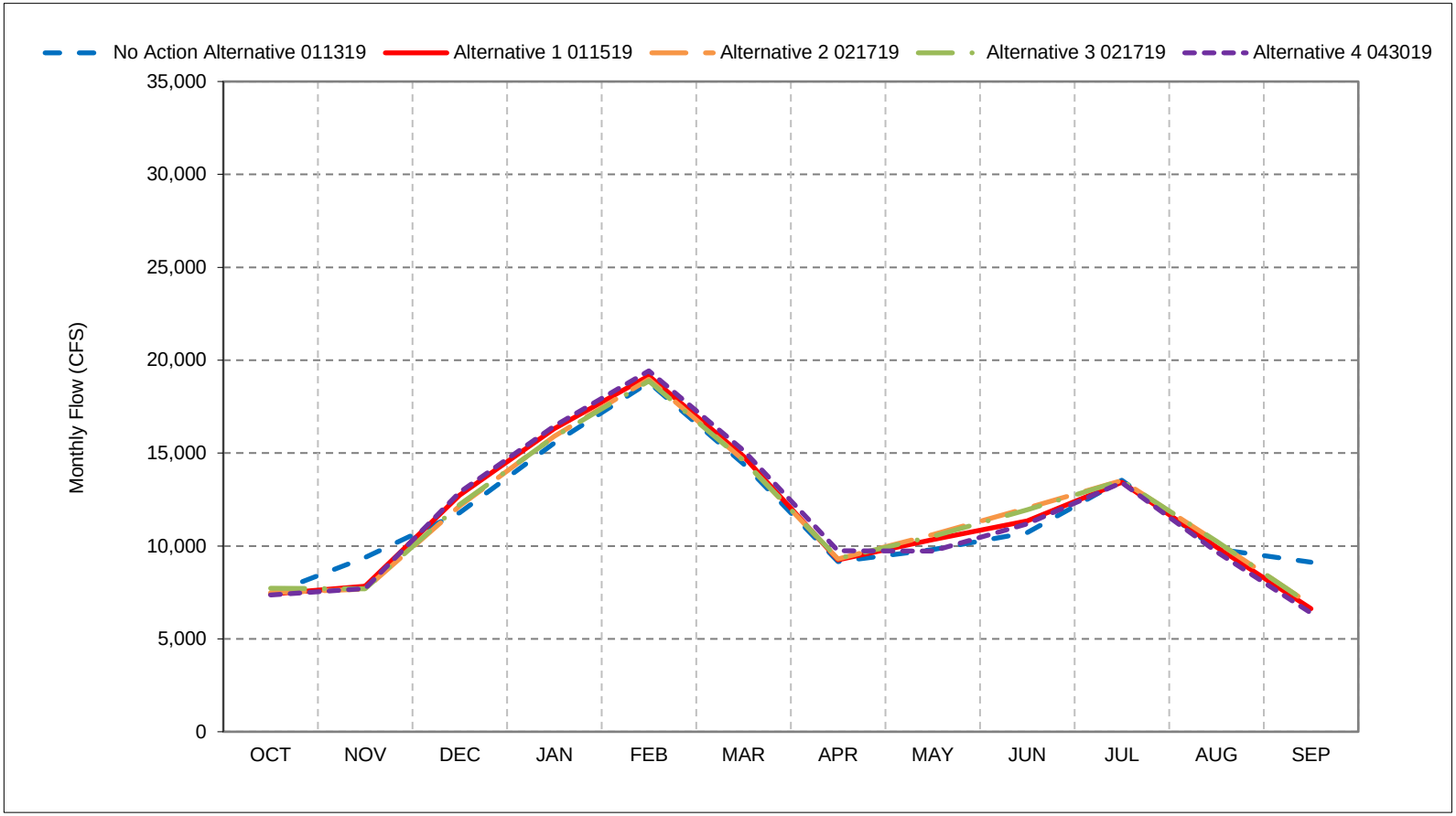
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

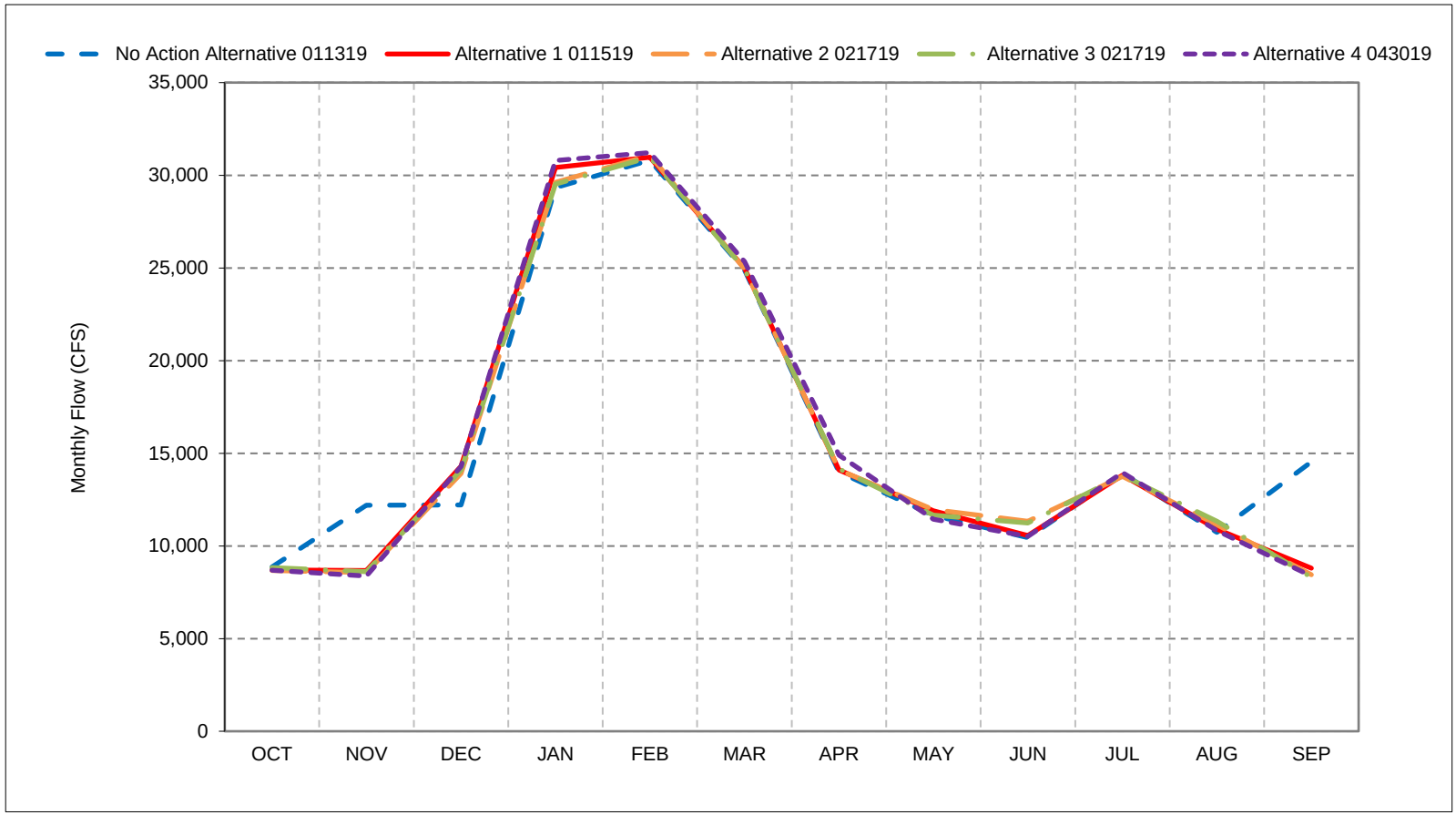
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-1. Sacramento Flow River at Bend Bridge, Long-Term Average Flow



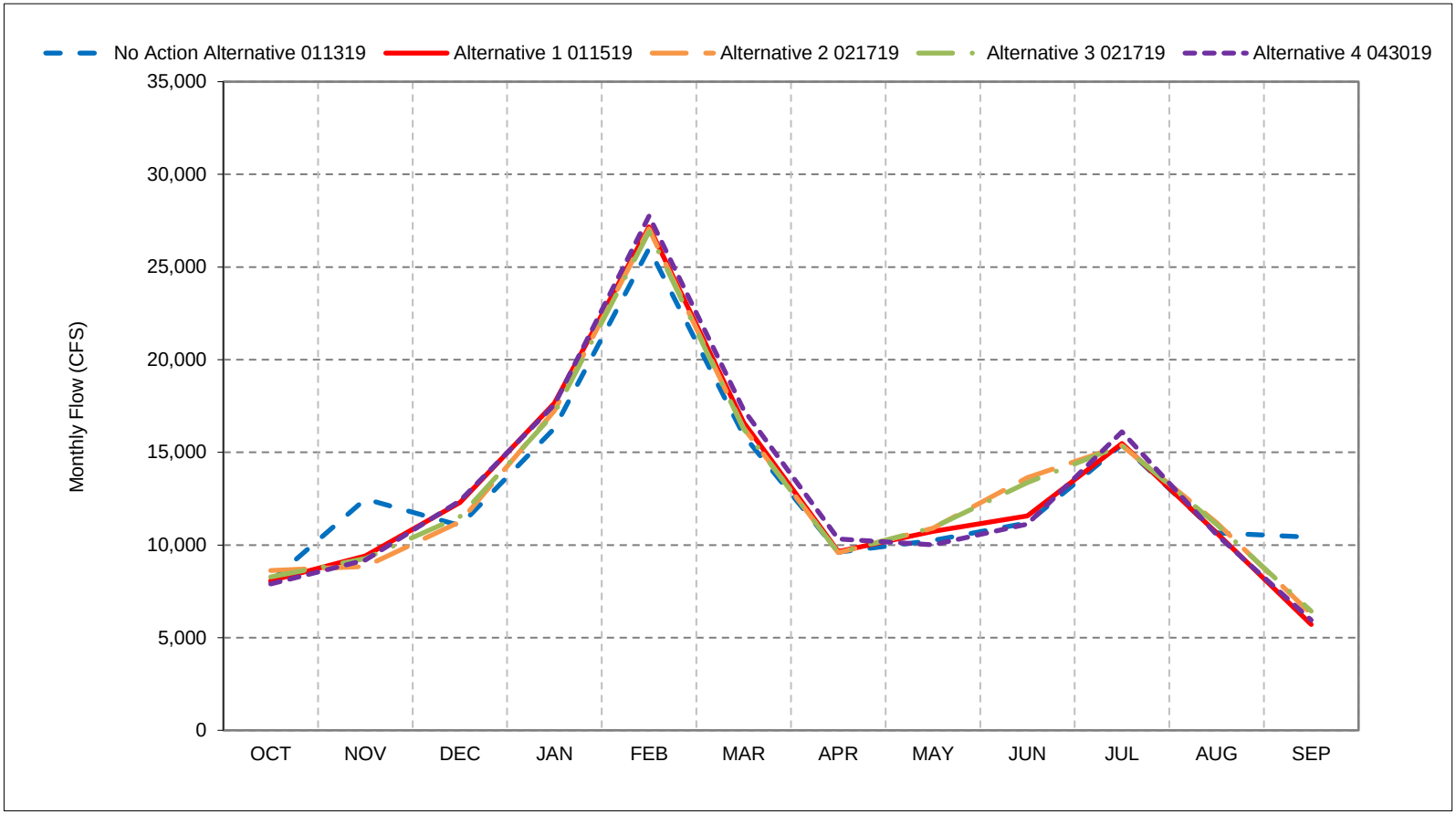

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-2. Sacramento Flow River at Bend Bridge, Wet Year Average Flow



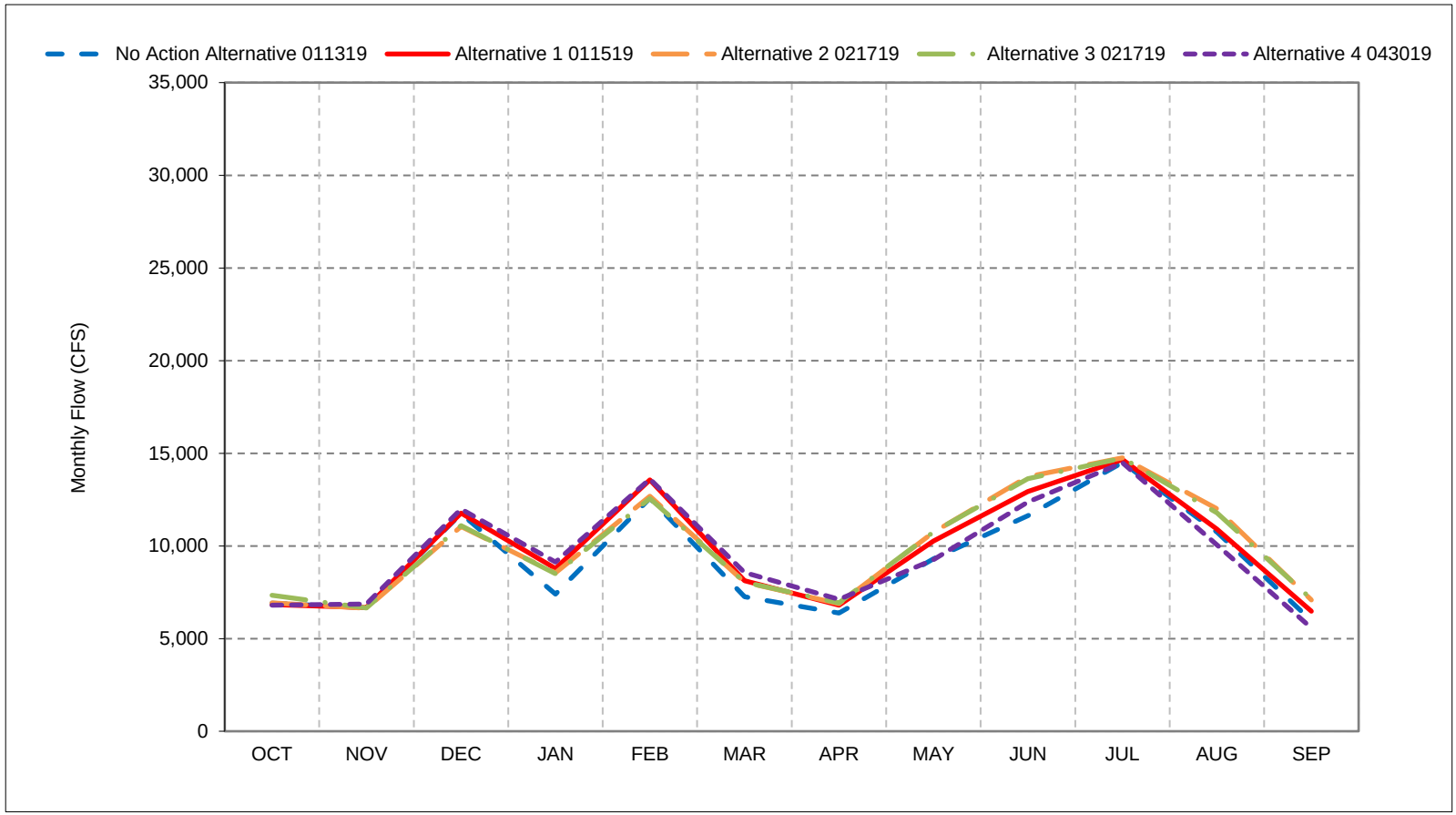

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-3. Sacramento Flow River at Bend Bridge, Above Normal Year Average Flow



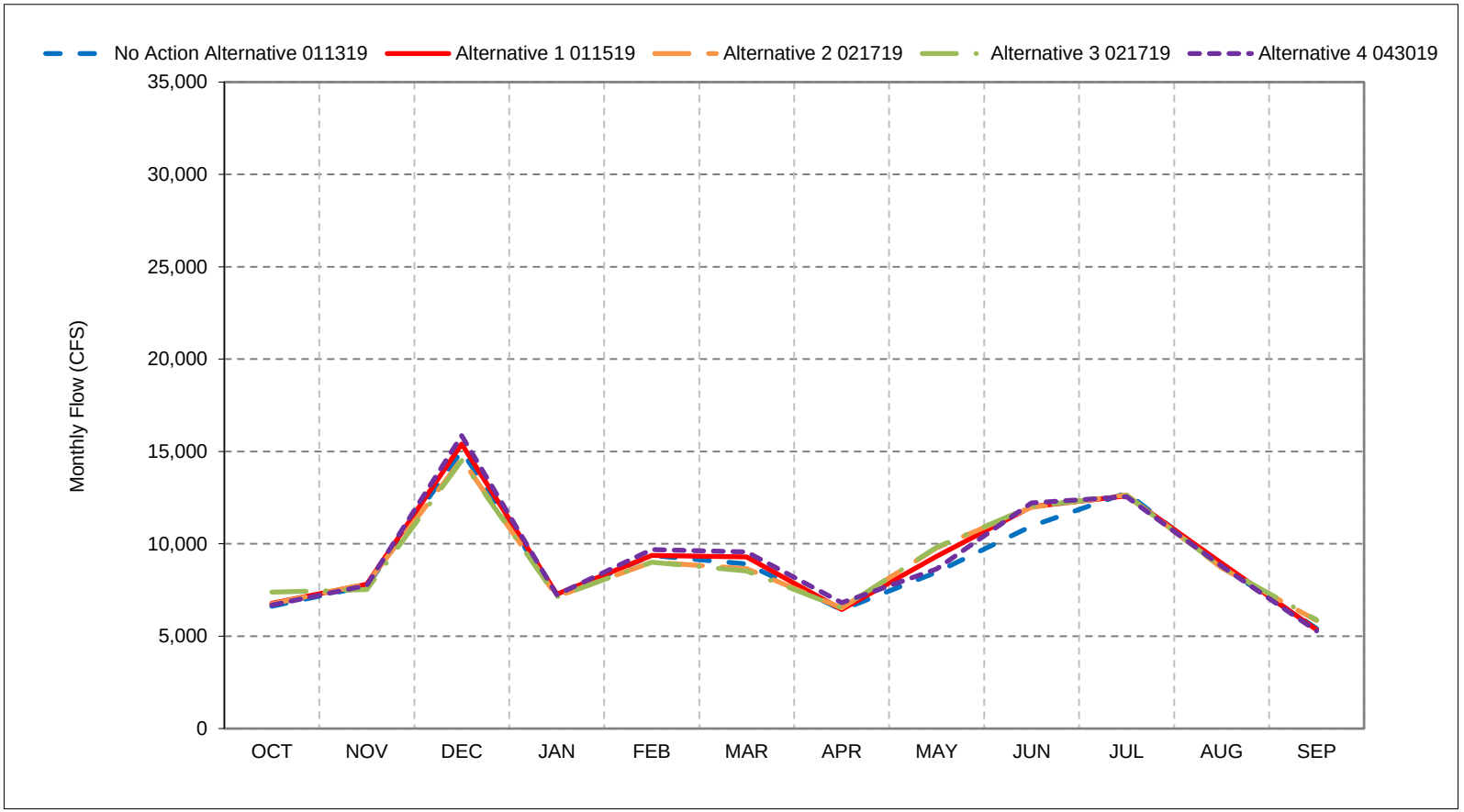

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-4. Sacramento Flow River at Bend Bridge, Below Normal Year Average Flow



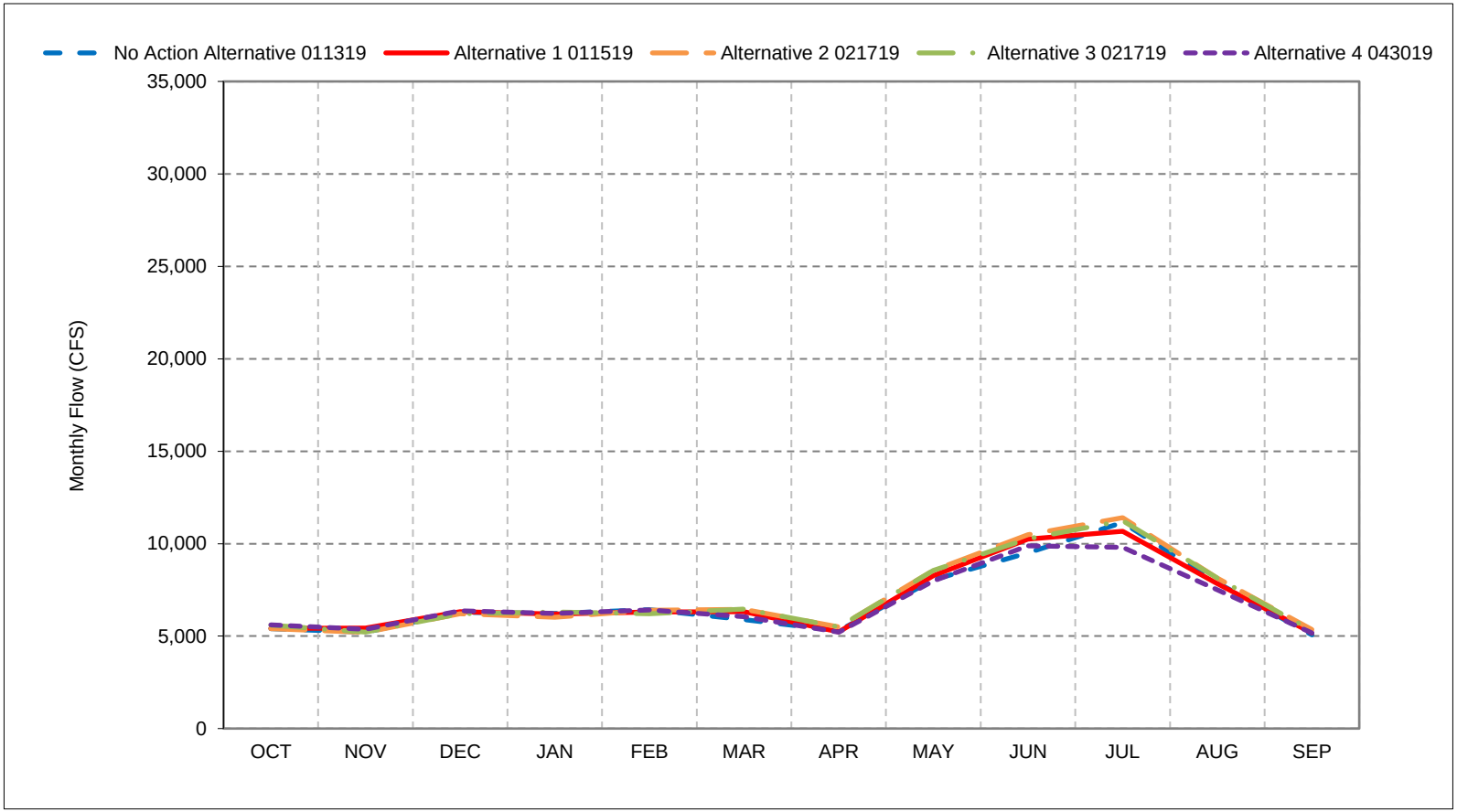

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-5. Sacramento Flow River at Bend Bridge, Dry Year Average Flow



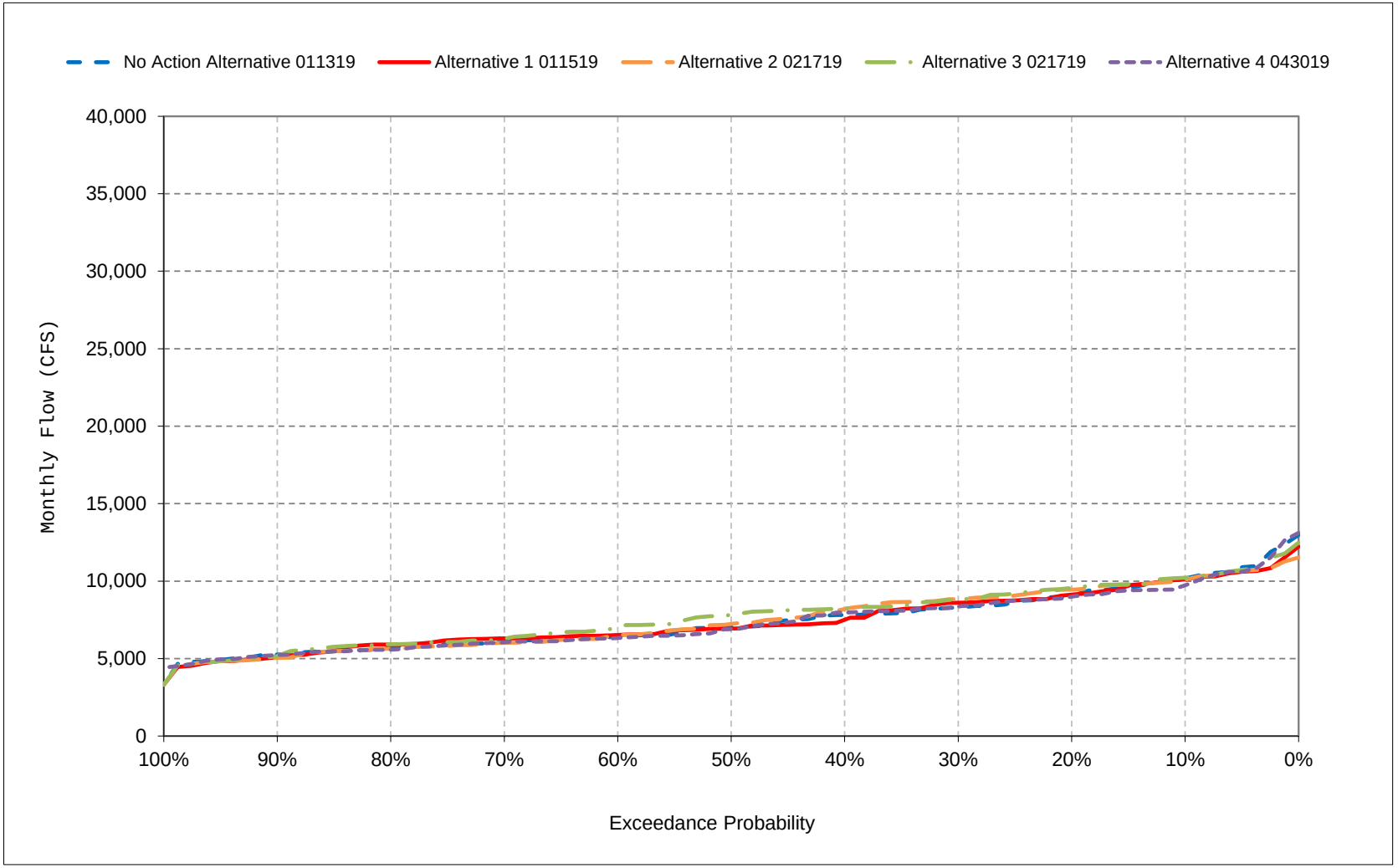

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-6. Sacramento Flow River at Bend Bridge, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

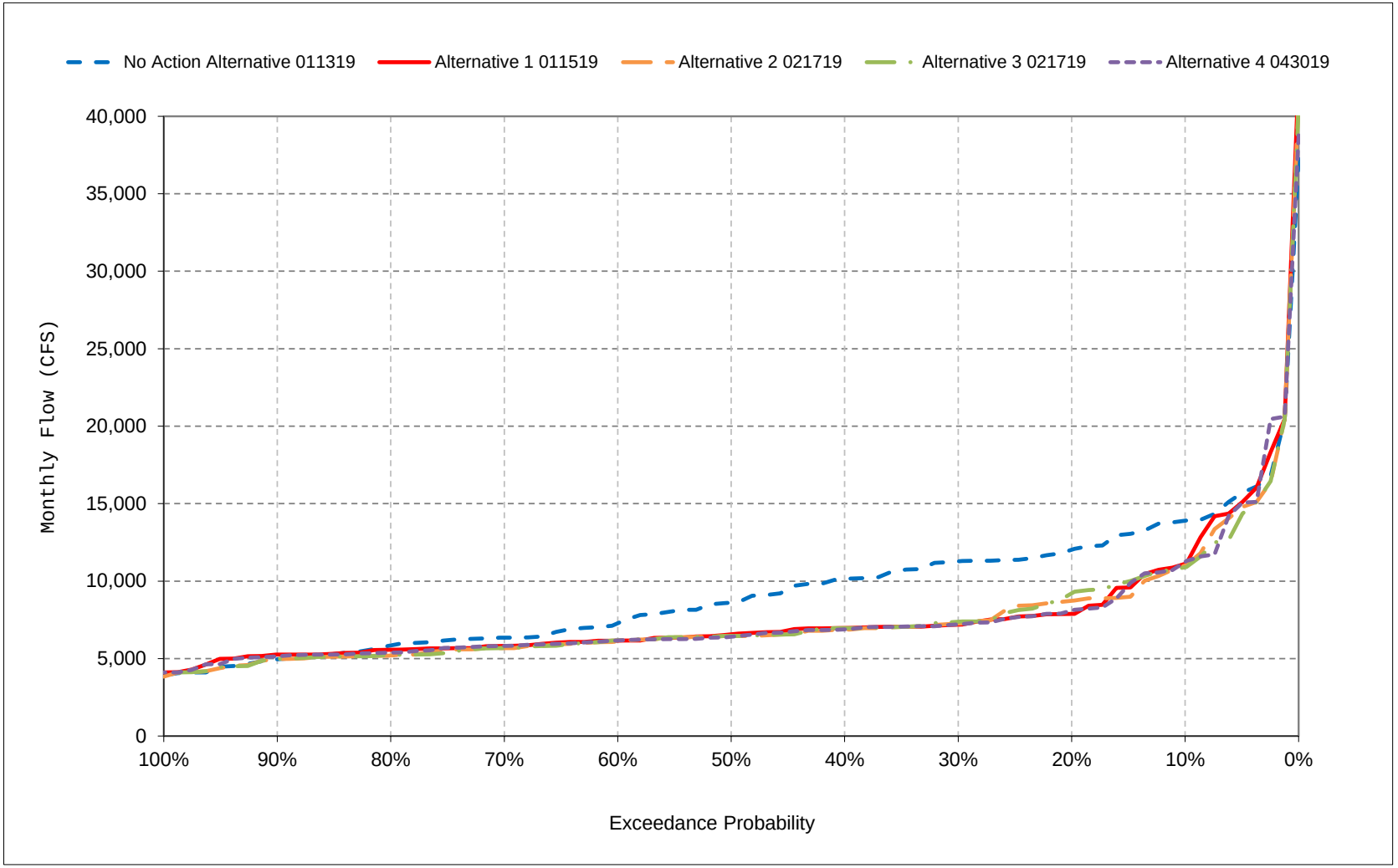
**Figure 16-7. Sacramento Flow River at Bend Bridge, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

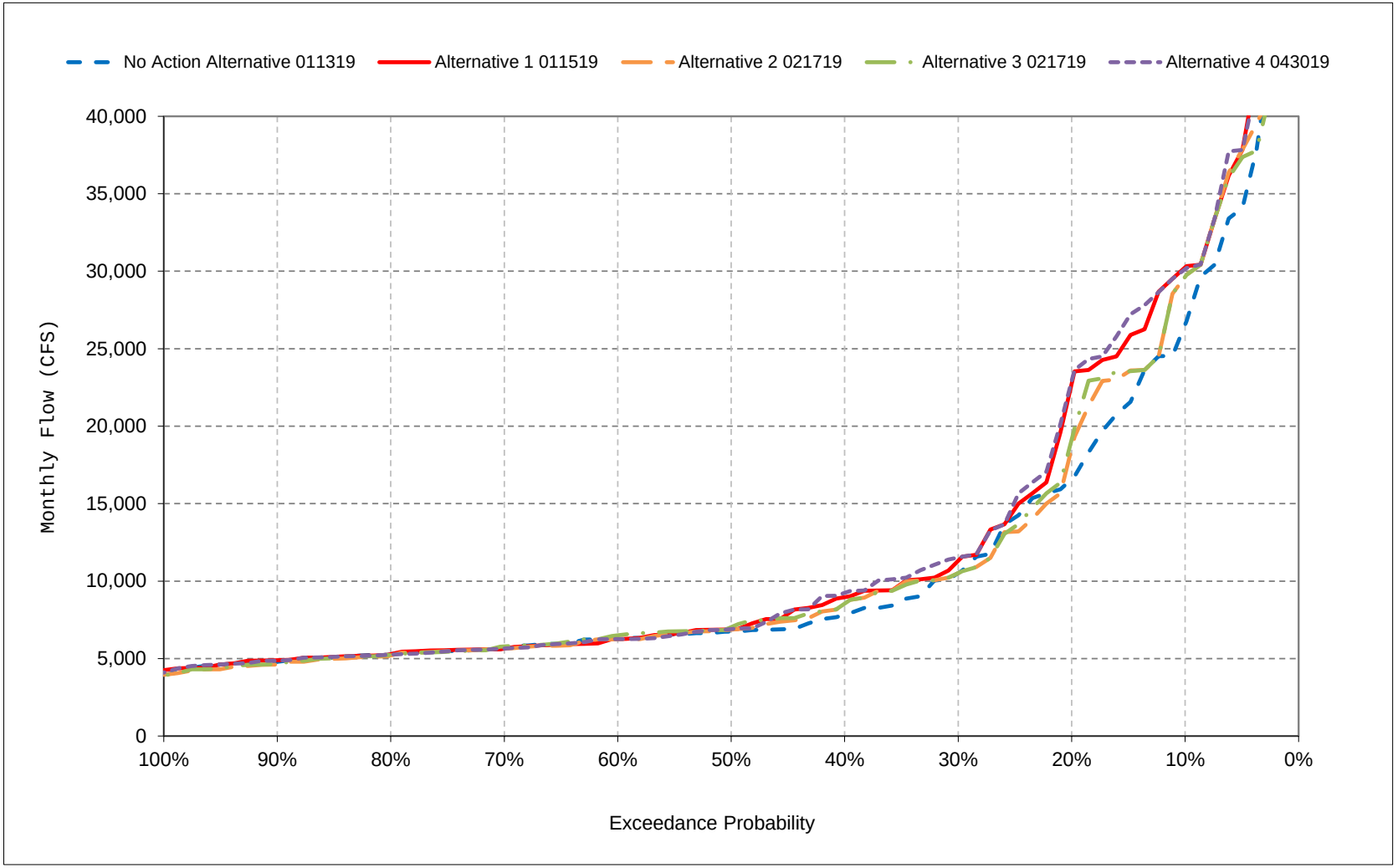
**Figure 16-8. Sacramento Flow River at Bend Bridge, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

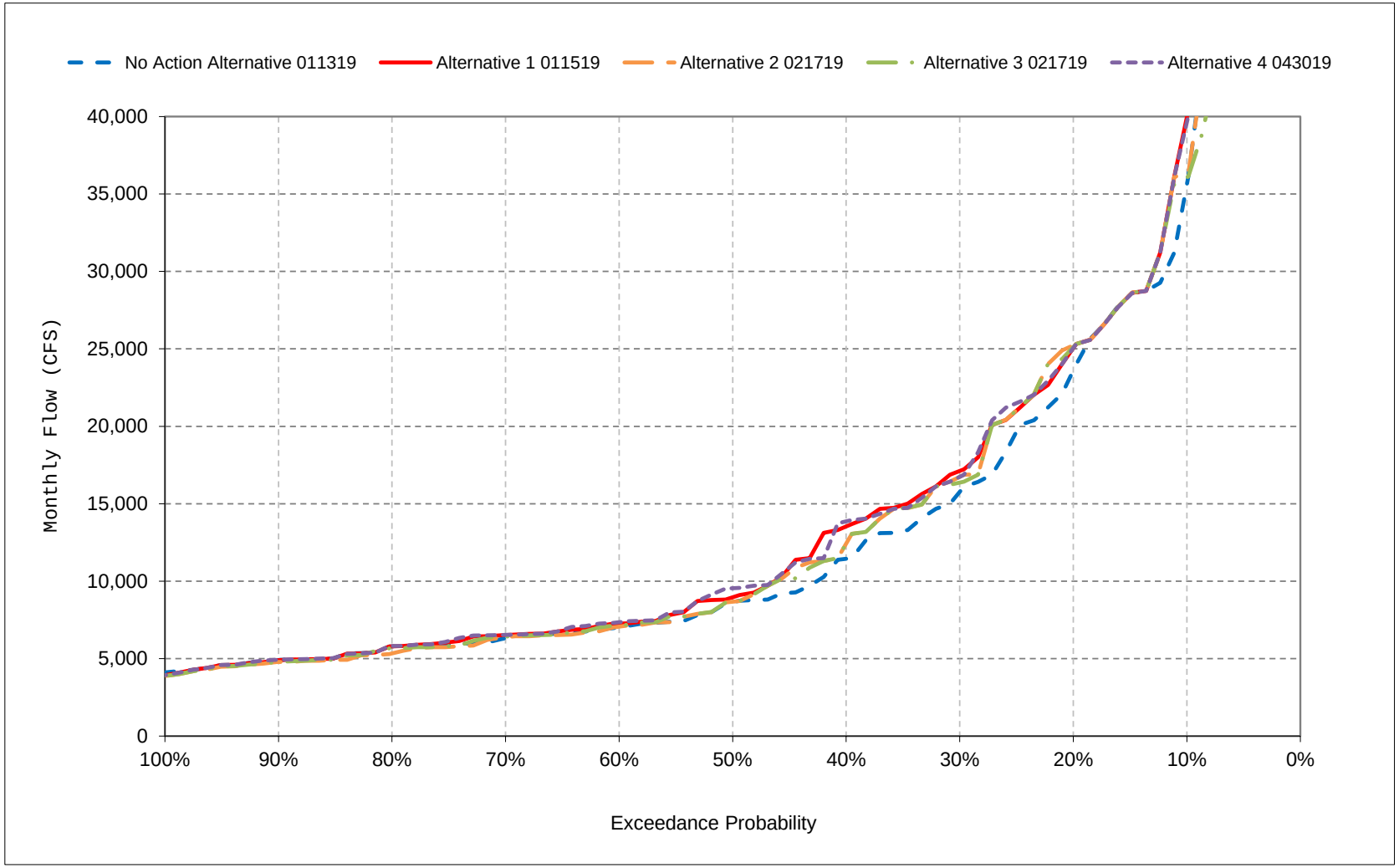
**Figure 16-9. Sacramento Flow River at Bend Bridge, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

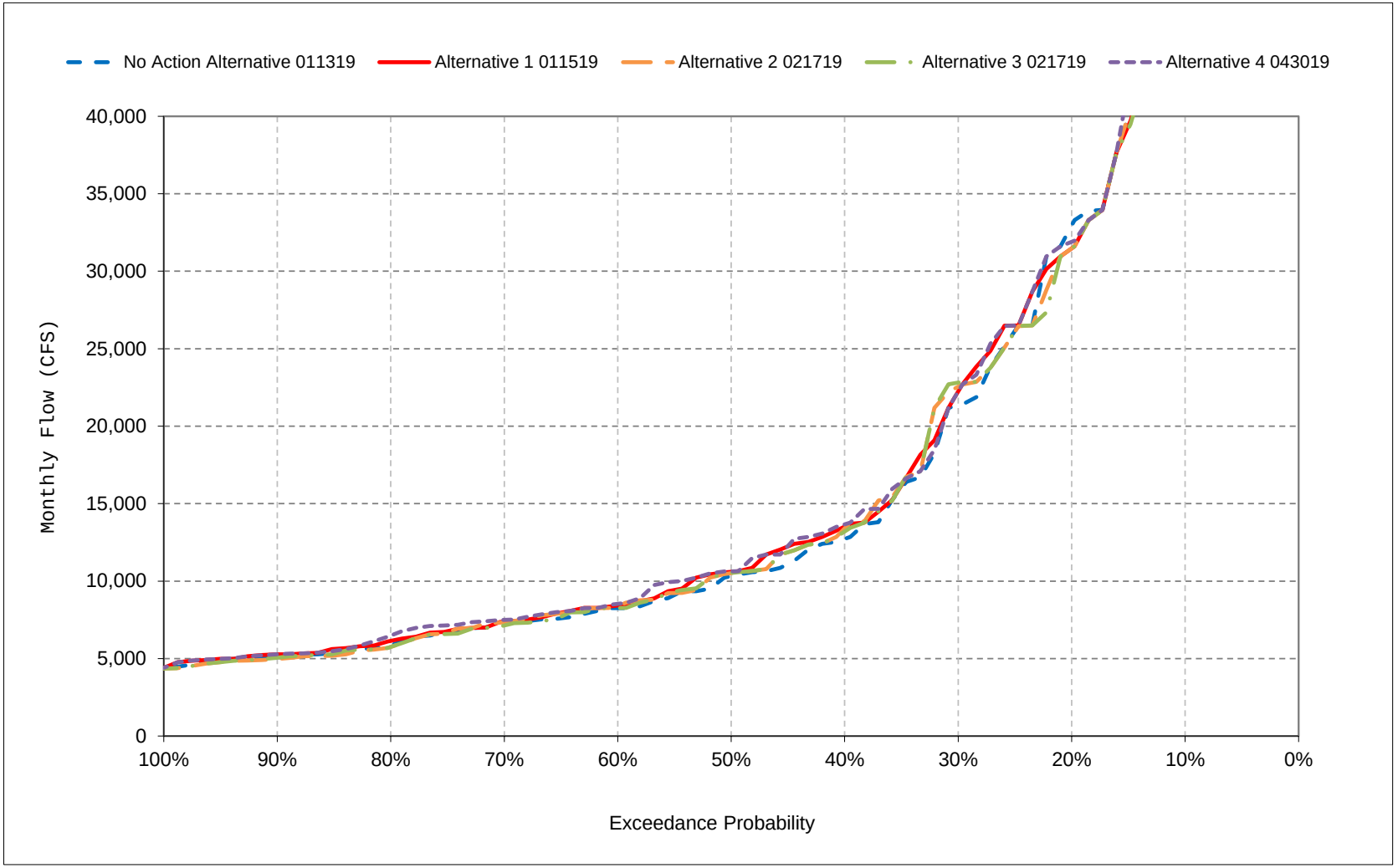
**Figure 16-10. Sacramento Flow River at Bend Bridge, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

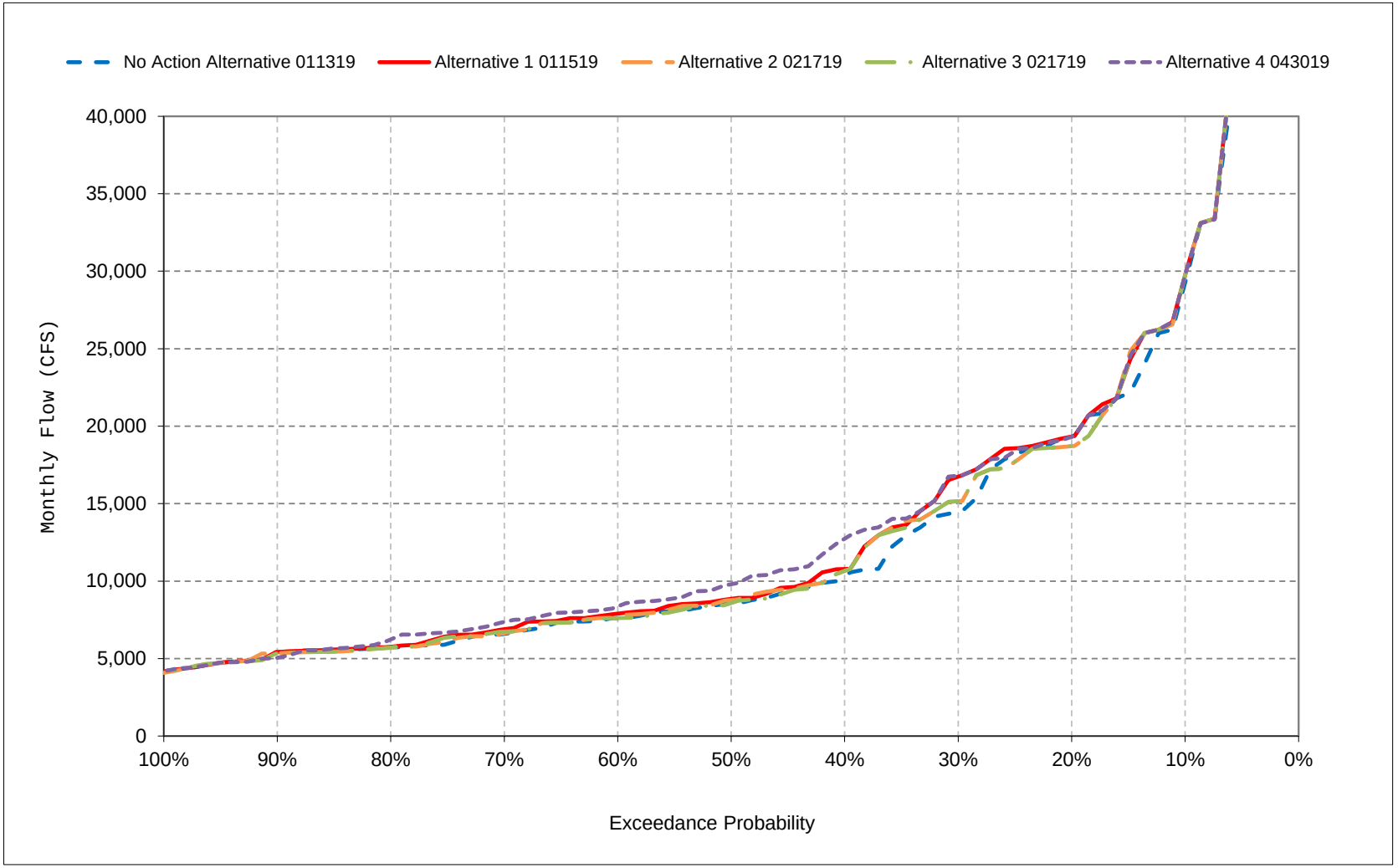
**Figure 16-11. Sacramento Flow River at Bend Bridge, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

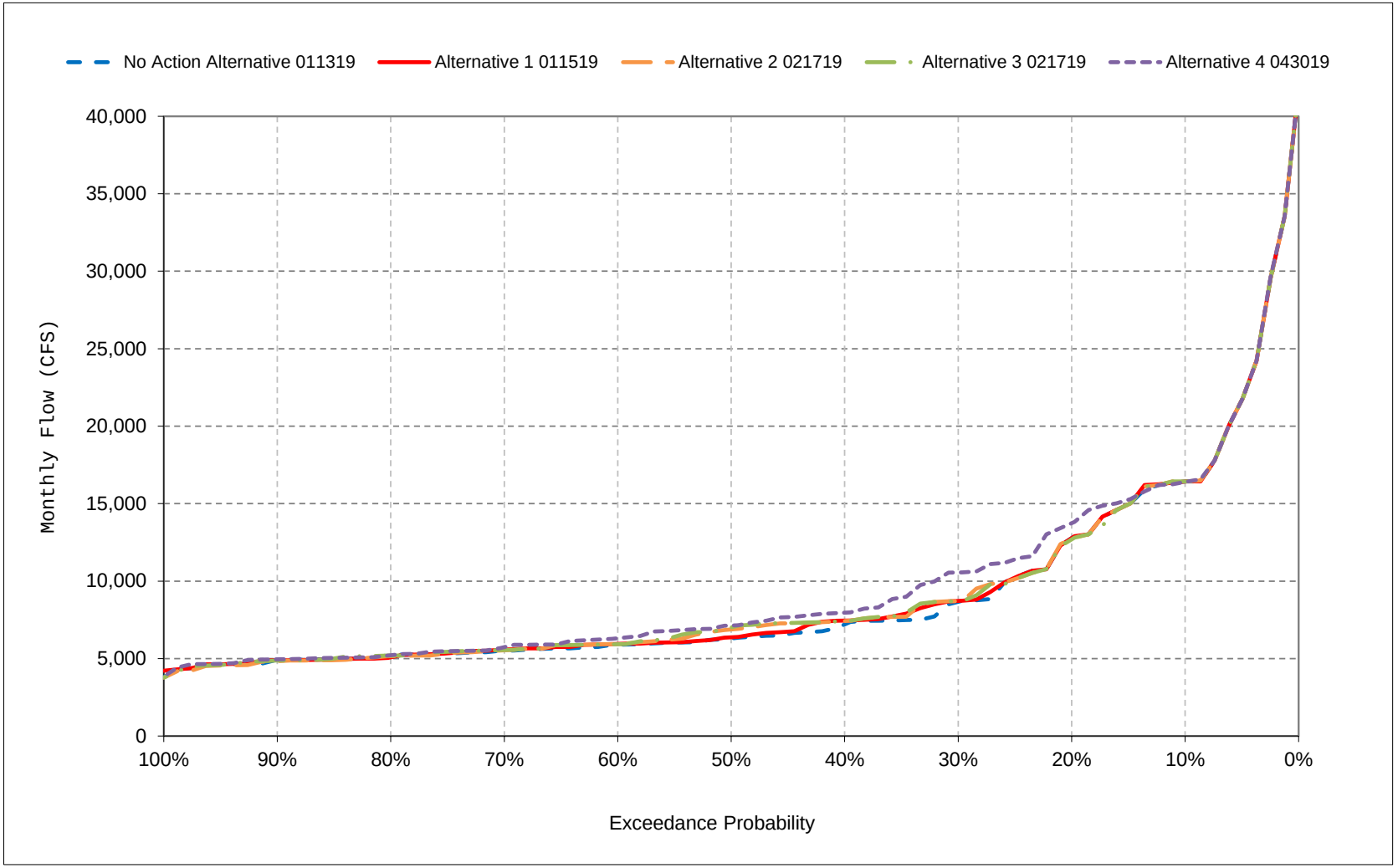
**Figure 16-12. Sacramento Flow River at Bend Bridge, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

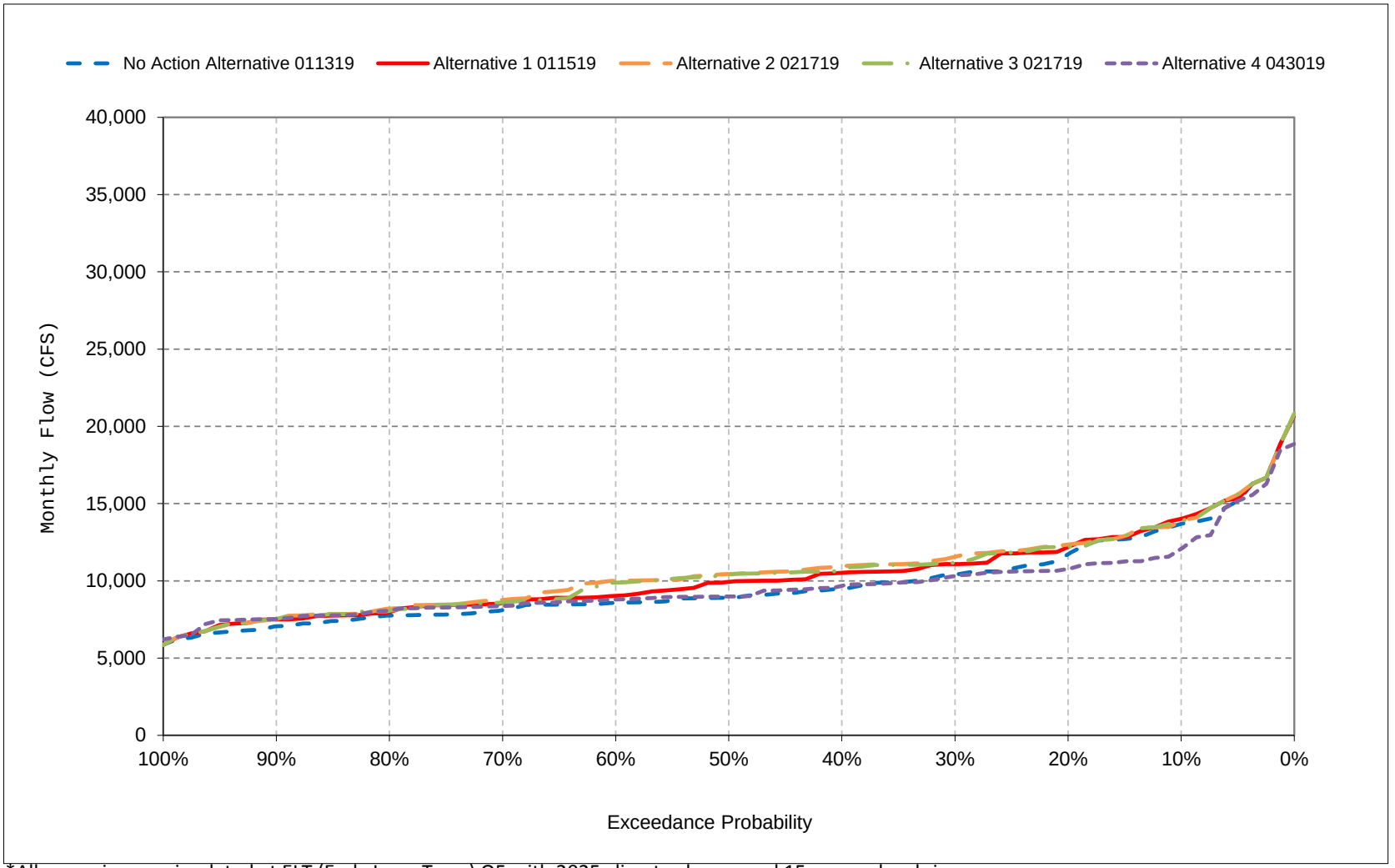
**Figure 16-13. Sacramento Flow River at Bend Bridge, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

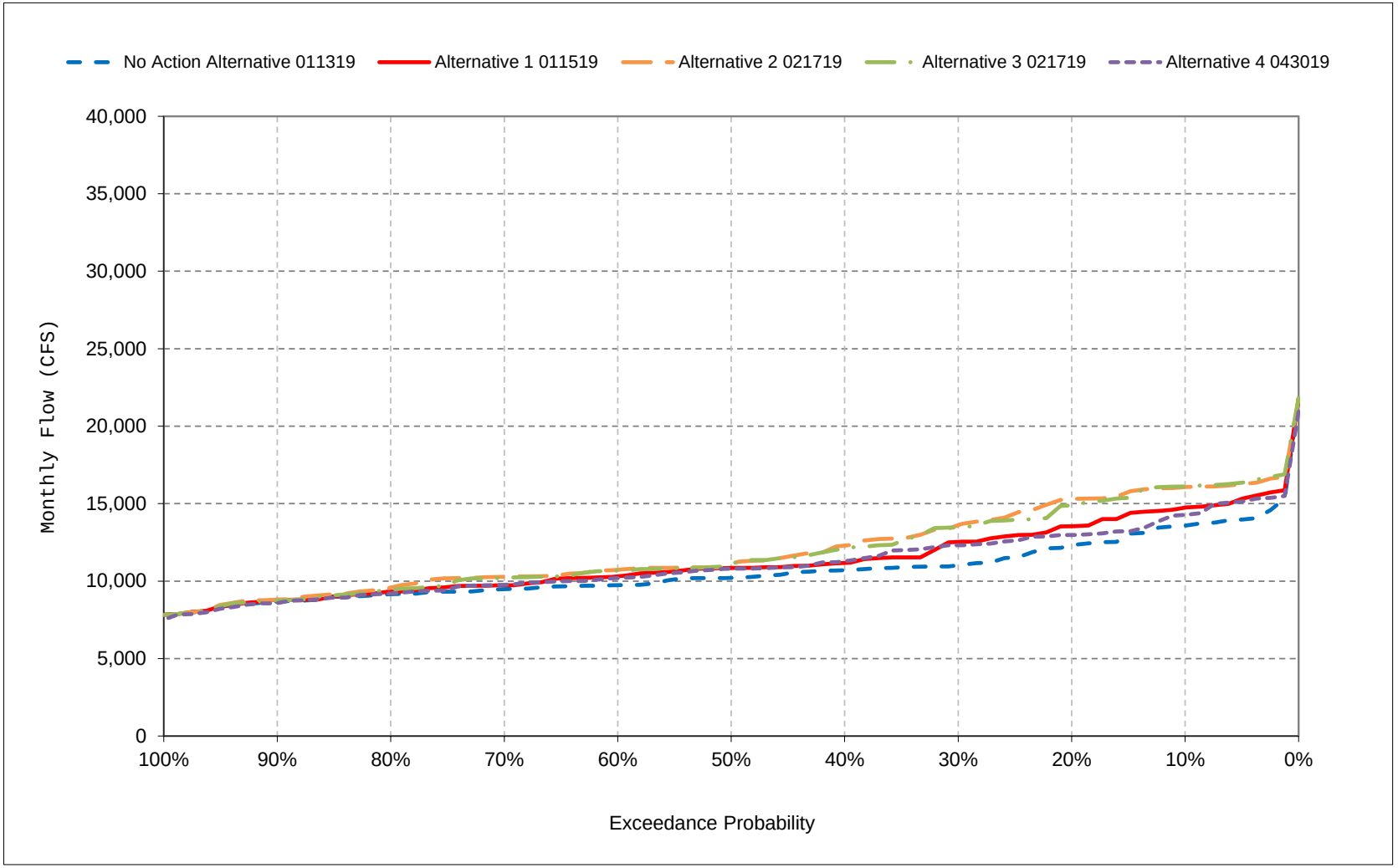
**Figure 16-14. Sacramento Flow River at Bend Bridge, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

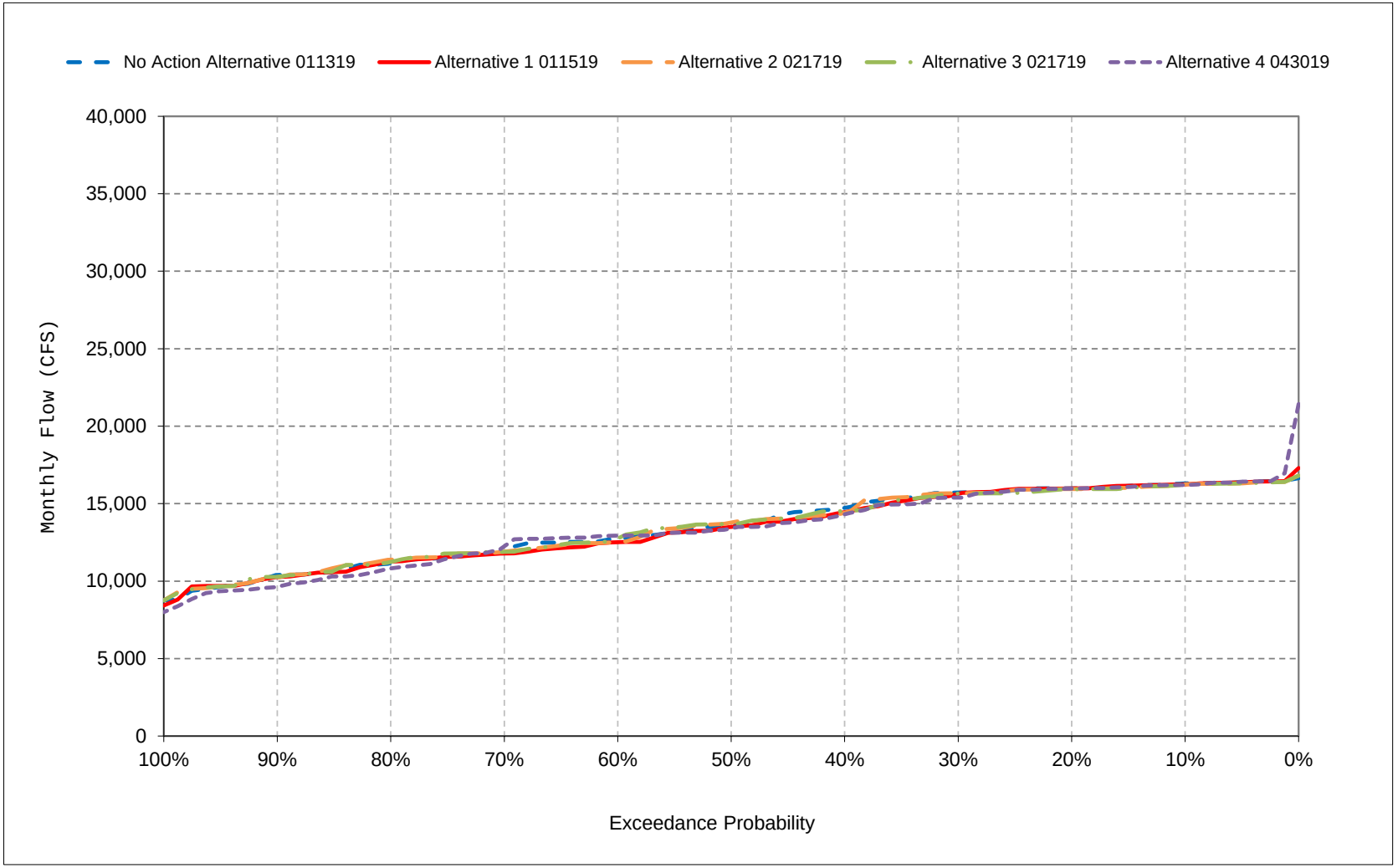
**Figure 16-15. Sacramento Flow River at Bend Bridge, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

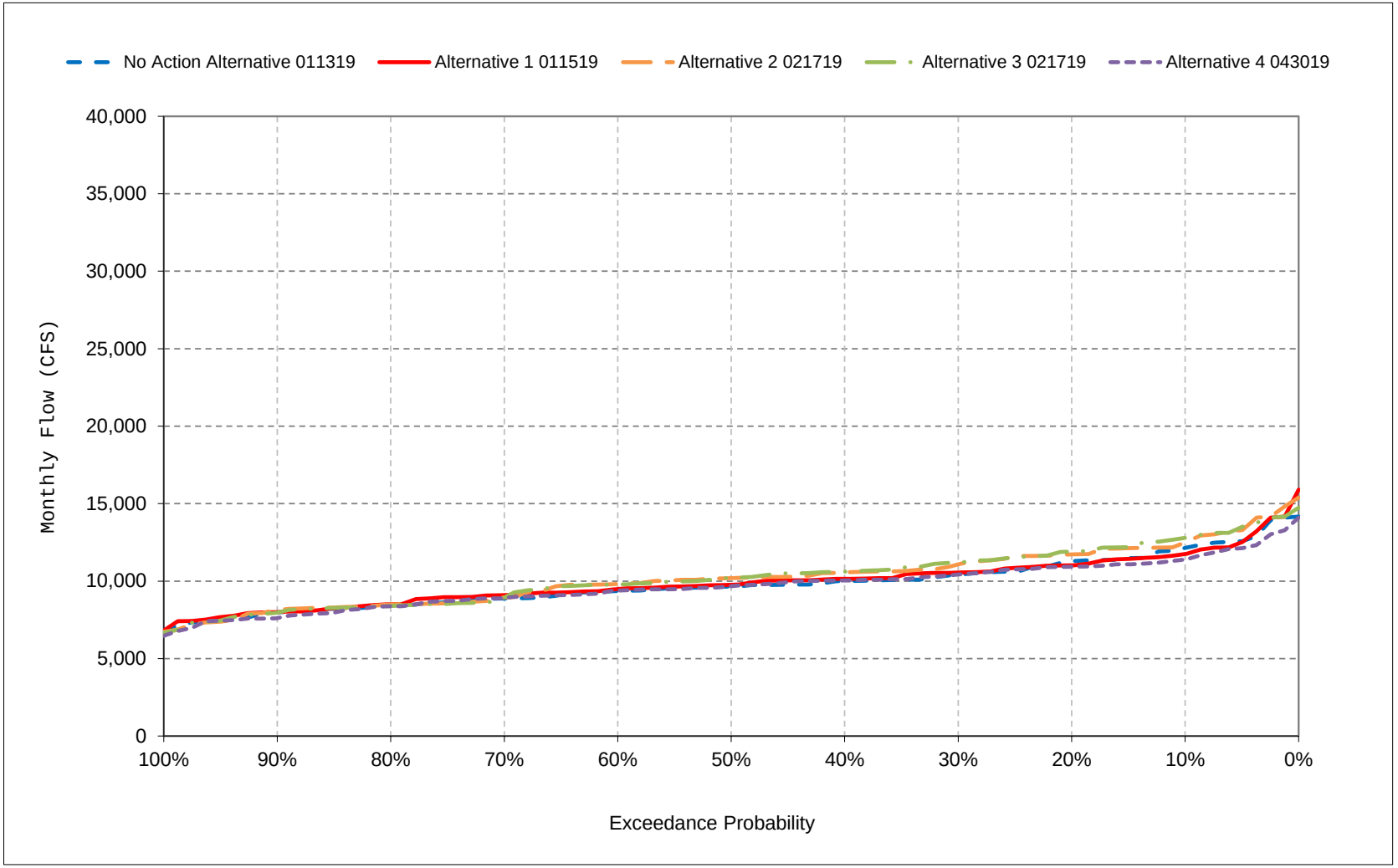
**Figure 16-16. Sacramento Flow River at Bend Bridge, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

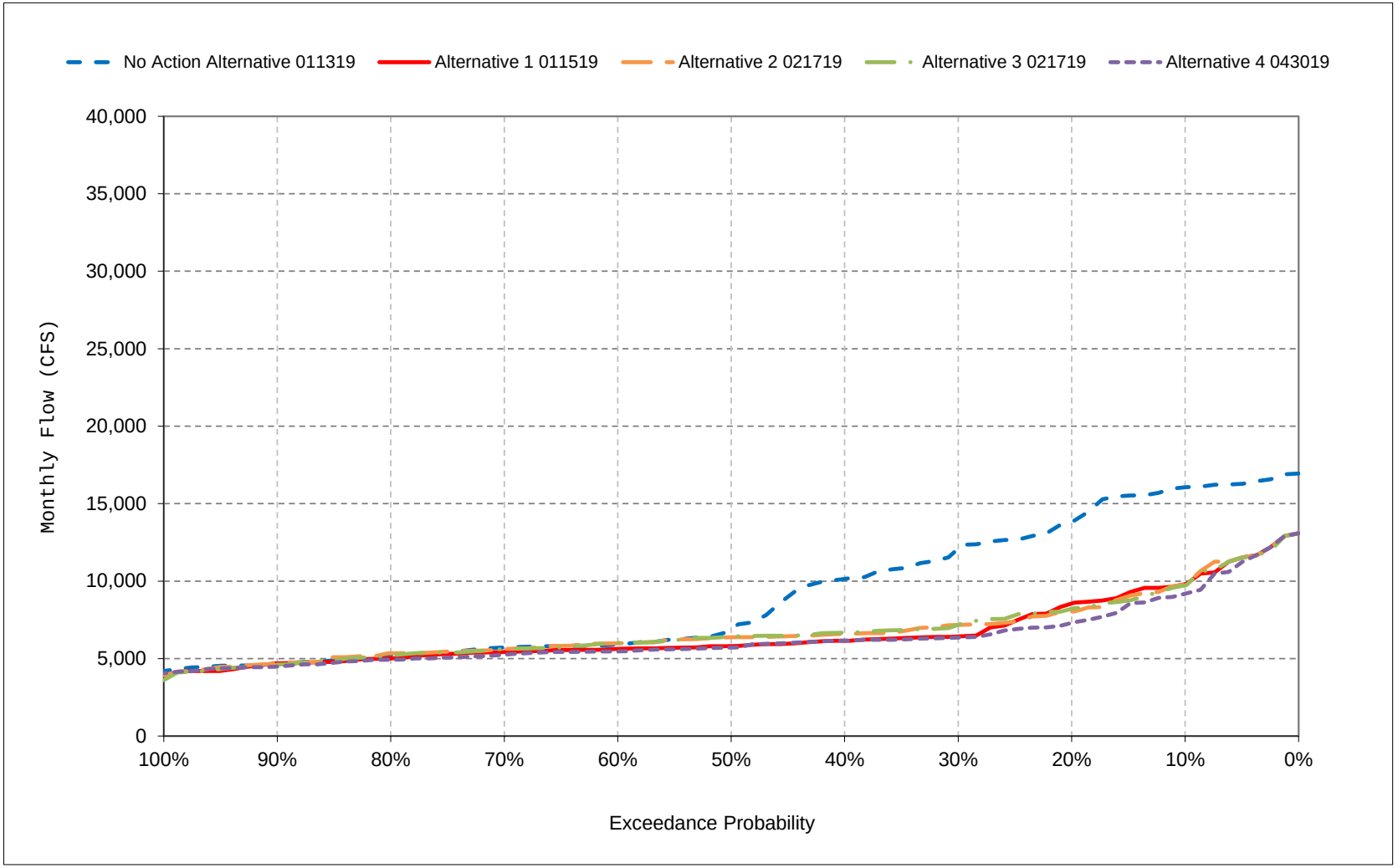
**Figure 16-17. Sacramento Flow River at Bend Bridge, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 16-18. Sacramento Flow River at Bend Bridge, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 17-1. Sacramento River below Red Bluff Diversion Dam Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,011 | 13,916 | 26,964 | 36,349 | 46,951 | 29,624 | 16,603 | 13,148 | 13,015 | 15,428 | 11,307 | 15,876 |
| 20% | 8,935 | 12,026 | 17,059 | 24,191 | 33,406 | 19,585 | 13,008 | 11,101 | 11,689 | 14,953 | 10,296 | 13,688 |
| 30% | 8,162 | 11,326 | 10,713 | 16,195 | 21,743 | 14,565 | 8,528 | 9,878 | 10,416 | 14,727 | 9,580 | 11,816 |
| 40% | 7,682 | 10,236 | 8,070 | 11,649 | 13,058 | 10,522 | 7,061 | 9,105 | 9,881 | 13,944 | 9,184 | 10,012 |
| 50% | 6,903 | 8,639 | 6,795 | 8,852 | 10,563 | 8,716 | 5,988 | 8,579 | 9,465 | 12,881 | 8,934 | 6,775 |
| 60% | 6,301 | 7,375 | 6,327 | 7,152 | 8,447 | 7,747 | 5,541 | 8,064 | 9,136 | 12,165 | 8,564 | 5,835 |
| 70% | 5,951 | 6,380 | 5,760 | 6,395 | 7,537 | 6,651 | 5,292 | 7,736 | 8,721 | 11,138 | 8,375 | 5,549 |
| 80% | 5,687 | 5,854 | 5,334 | 5,869 | 5,964 | 5,772 | 5,044 | 7,317 | 8,297 | 10,215 | 7,926 | 5,122 |
| 90% | 5,150 | 4,954 | 4,820 | 4,974 | 5,202 | 5,471 | 4,657 | 6,623 | 7,926 | 9,607 | 7,749 | 4,515 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,315 | 9,438 | 11,980 | 15,892 | 19,147 | 14,608 | 9,063 | 9,371 | 9,994 | 12,702 | 9,166 | 8,972 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,728 | 12,255 | 12,422 | 29,982 | 31,345 | 25,200 | 14,018 | 11,059 | 9,426 | 12,709 | 9,781 | 14,320 |
| Above Normal (16%) | 7,927 | 12,554 | 11,235 | 16,772 | 26,458 | 16,158 | 9,459 | 9,611 | 10,203 | 14,275 | 9,759 | 10,210 |
| Below Normal (13%) | 6,820 | 6,705 | 11,915 | 7,608 | 12,849 | 7,303 | 6,118 | 8,845 | 10,980 | 13,721 | 10,131 | 5,837 |
| Dry (24%) | 6,538 | 7,784 | 15,279 | 7,303 | 9,573 | 9,042 | 6,326 | 8,214 | 10,498 | 12,221 | 8,358 | 5,349 |
| Critical (15%) | 5,338 | 5,218 | 6,394 | 6,318 | 6,527 | 5,955 | 5,159 | 7,866 | 9,252 | 10,848 | 7,654 | 4,954 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,094 | 11,251 | 30,654 | 41,231 | 47,844 | 30,095 | 16,604 | 13,637 | 14,019 | 15,143 | 11,091 | 9,587 |
| 20% | 9,087 | 7,890 | 23,214 | 25,628 | 32,156 | 19,588 | 13,006 | 11,604 | 12,690 | 14,882 | 10,172 | 8,323 |
| 30% | 8,562 | 7,216 | 11,557 | 17,517 | 22,646 | 16,748 | 8,515 | 10,466 | 11,652 | 14,422 | 9,599 | 6,220 |
| 40% | 7,394 | 7,006 | 9,146 | 13,981 | 13,804 | 10,972 | 7,283 | 9,875 | 10,578 | 13,285 | 9,274 | 6,038 |
| 50% | 6,893 | 6,621 | 7,024 | 9,111 | 10,808 | 9,079 | 6,050 | 9,339 | 9,897 | 12,614 | 8,943 | 5,660 |
| 60% | 6,486 | 6,185 | 6,320 | 7,475 | 8,585 | 7,922 | 5,627 | 8,679 | 9,437 | 11,439 | 8,719 | 5,415 |
| 70% | 6,245 | 5,822 | 5,730 | 6,631 | 7,552 | 6,947 | 5,271 | 8,051 | 9,027 | 11,078 | 8,427 | 5,277 |
| 80% | 5,889 | 5,580 | 5,343 | 5,880 | 6,216 | 5,854 | 4,966 | 7,626 | 8,430 | 10,276 | 8,036 | 4,951 |
| 90% | 5,048 | 5,263 | 4,928 | 4,948 | 5,381 | 5,465 | 4,589 | 7,123 | 7,905 | 9,373 | 7,722 | 4,491 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,340 | 7,880 | 12,937 | 16,664 | 19,500 | 15,011 | 9,122 | 9,847 | 10,550 | 12,510 | 9,209 | 6,451 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,619 | 8,715 | 14,507 | 31,071 | 31,509 | 25,285 | 14,115 | 11,289 | 9,497 | 12,581 | 9,925 | 8,559 |
| Above Normal (16%) | 8,009 | 9,467 | 12,472 | 18,132 | 27,628 | 16,837 | 9,455 | 10,081 | 10,510 | 14,262 | 9,707 | 5,479 |
| Below Normal (13%) | 6,768 | 6,695 | 11,938 | 8,997 | 13,851 | 8,149 | 6,478 | 9,630 | 12,102 | 13,667 | 10,128 | 6,311 |
| Dry (24%) | 6,735 | 7,875 | 15,651 | 7,421 | 9,569 | 9,421 | 6,297 | 9,004 | 11,447 | 11,951 | 8,448 | 5,253 |
| Critical (15%) | 5,374 | 5,449 | 6,431 | 6,293 | 6,407 | 6,376 | 5,075 | 8,072 | 9,956 | 10,328 | 7,542 | 5,058 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 83 | **-2,665** | 3,690 | 4,883 | 893 | 471 | 1 | 489 | 1,004 | **-284** | **-216** | **-6,288** |
| 20% | 152 | **-4,136** | 6,155 | 1,438 | **-1,249** | 2 | **-2** | 503 | 1,001 | **-71** | **-124** | **-5,364** |
| 30% | 399 | **-4,110** | 845 | 1,322 | 903 | 2,182 | **-13** | 588 | 1,236 | **-305** | 19 | **-5,596** |
| 40% | **-288** | **-3,230** | 1,076 | 2,332 | 746 | 450 | 223 | 770 | 697 | **-659** | 90 | **-3,974** |
| 50% | **-10** | **-2,018** | 229 | 260 | 246 | 363 | 61 | 760 | 433 | **-267** | 9 | **-1,115** |
| 60% | 184 | **-1,189** | **-7** | 323 | 138 | 175 | 85 | 615 | 301 | **-726** | 155 | **-420** |
| 70% | 294 | **-559** | **-31** | 236 | 15 | 296 | **-20** | 315 | 306 | **-60** | 52 | **-272** |
| 80% | 202 | **-273** | 9 | 10 | 252 | 82 | **-78** | 309 | 133 | 61 | 110 | **-170** |
| 90% | **-102** | 309 | 108 | **-25** | 179 | **-6** | **-68** | 500 | **-21** | **-235** | **-27** | **-25** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 25 | **-1,557** | 957 | 772 | 353 | 402 | 59 | 476 | 556 | **-192** | 43 | **-2,521** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-109** | **-3,540** | 2,085 | 1,089 | 164 | 85 | 97 | 231 | 71 | **-128** | 144 | **-5,761** |
| Above Normal (16%) | 82 | **-3,087** | 1,238 | 1,360 | 1,169 | 679 | **-3** | 470 | 306 | **-12** | **-52** | **-4,731** |
| Below Normal (13%) | **-52** | **-10** | 23 | 1,389 | 1,002 | 846 | 360 | 785 | 1,122 | **-54** | **-3** | 474 |
| Dry (24%) | 197 | 91 | 372 | 118 | **-4** | 379 | **-29** | 790 | 949 | **-270** | 90 | **-95** |
| Critical (15%) | 35 | 231 | 37 | **-25** | **-120** | 422 | **-84** | 205 | 704 | **-520** | **-112** | 103 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 17-2. Sacramento River below Red Bluff Diversion Dam Flow, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,011 | 13,916 | 26,964 | 36,349 | 46,951 | 29,624 | 16,603 | 13,148 | 13,015 | 15,428 | 11,307 | 15,876 |
| 20% | 8,935 | 12,026 | 17,059 | 24,191 | 33,406 | 19,585 | 13,008 | 11,101 | 11,689 | 14,953 | 10,296 | 13,688 |
| 30% | 8,162 | 11,326 | 10,713 | 16,195 | 21,743 | 14,565 | 8,528 | 9,878 | 10,416 | 14,727 | 9,580 | 11,816 |
| 40% | 7,682 | 10,236 | 8,070 | 11,649 | 13,058 | 10,522 | 7,061 | 9,105 | 9,881 | 13,944 | 9,184 | 10,012 |
| 50% | 6,903 | 8,639 | 6,795 | 8,852 | 10,563 | 8,716 | 5,988 | 8,579 | 9,465 | 12,881 | 8,934 | 6,775 |
| 60% | 6,301 | 7,375 | 6,327 | 7,152 | 8,447 | 7,747 | 5,541 | 8,064 | 9,136 | 12,165 | 8,564 | 5,835 |
| 70% | 5,951 | 6,380 | 5,760 | 6,395 | 7,537 | 6,651 | 5,292 | 7,736 | 8,721 | 11,138 | 8,375 | 5,549 |
| 80% | 5,687 | 5,854 | 5,334 | 5,869 | 5,964 | 5,772 | 5,044 | 7,317 | 8,297 | 10,215 | 7,926 | 5,122 |
| 90% | 5,150 | 4,954 | 4,820 | 4,974 | 5,202 | 5,471 | 4,657 | 6,623 | 7,926 | 9,607 | 7,749 | 4,515 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,315 | 9,438 | 11,980 | 15,892 | 19,147 | 14,608 | 9,063 | 9,371 | 9,994 | 12,702 | 9,166 | 8,972 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,728 | 12,255 | 12,422 | 29,982 | 31,345 | 25,200 | 14,018 | 11,059 | 9,426 | 12,709 | 9,781 | 14,320 |
| Above Normal (16%) | 7,927 | 12,554 | 11,235 | 16,772 | 26,458 | 16,158 | 9,459 | 9,611 | 10,203 | 14,275 | 9,759 | 10,210 |
| Below Normal (13%) | 6,820 | 6,705 | 11,915 | 7,608 | 12,849 | 7,303 | 6,118 | 8,845 | 10,980 | 13,721 | 10,131 | 5,837 |
| Dry (24%) | 6,538 | 7,784 | 15,279 | 7,303 | 9,573 | 9,042 | 6,326 | 8,214 | 10,498 | 12,221 | 8,358 | 5,349 |
| Critical (15%) | 5,338 | 5,218 | 6,394 | 6,318 | 6,527 | 5,955 | 5,159 | 7,866 | 9,252 | 10,848 | 7,654 | 4,954 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,943 | 11,116 | 30,055 | 37,546 | 47,844 | 30,077 | 16,603 | 13,254 | 15,053 | 15,110 | 11,427 | 9,568 |
| 20% | 9,327 | 8,769 | 19,077 | 25,786 | 32,154 | 18,988 | 12,961 | 11,889 | 14,236 | 14,836 | 10,738 | 7,871 |
| 30% | 8,620 | 7,366 | 10,680 | 17,050 | 23,061 | 15,449 | 8,598 | 10,988 | 13,112 | 14,546 | 10,113 | 6,899 |
| 40% | 8,103 | 6,923 | 8,751 | 12,850 | 13,646 | 10,855 | 7,331 | 10,381 | 11,775 | 13,587 | 9,596 | 6,389 |
| 50% | 7,154 | 6,478 | 6,959 | 8,907 | 10,734 | 9,032 | 6,664 | 9,856 | 10,375 | 12,811 | 9,294 | 6,149 |
| 60% | 6,435 | 6,185 | 6,312 | 7,195 | 8,615 | 7,738 | 5,762 | 9,431 | 9,907 | 12,088 | 9,061 | 5,865 |
| 70% | 5,903 | 5,719 | 5,666 | 6,520 | 7,505 | 6,736 | 5,265 | 8,221 | 9,368 | 11,144 | 8,484 | 5,407 |
| 80% | 5,500 | 5,216 | 5,255 | 5,402 | 5,867 | 5,759 | 4,943 | 7,727 | 8,846 | 10,408 | 8,108 | 5,153 |
| 90% | 4,976 | 4,962 | 4,658 | 4,835 | 5,048 | 5,413 | 4,653 | 7,143 | 7,985 | 9,293 | 7,647 | 4,483 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,369 | 7,730 | 12,340 | 16,256 | 19,317 | 14,806 | 9,182 | 10,118 | 11,255 | 12,605 | 9,500 | 6,657 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,524 | 8,615 | 14,124 | 30,274 | 31,609 | 25,257 | 14,102 | 11,359 | 10,257 | 12,501 | 10,155 | 8,208 |
| Above Normal (16%) | 8,510 | 8,903 | 11,437 | 17,721 | 27,515 | 16,537 | 9,390 | 10,253 | 12,554 | 14,130 | 10,237 | 6,037 |
| Below Normal (13%) | 6,809 | 6,674 | 11,220 | 8,760 | 12,958 | 8,073 | 6,572 | 10,078 | 12,874 | 13,738 | 11,206 | 6,916 |
| Dry (24%) | 6,659 | 7,907 | 14,831 | 7,282 | 9,200 | 8,779 | 6,387 | 9,493 | 11,448 | 12,037 | 8,216 | 5,746 |
| Critical (15%) | 5,326 | 5,214 | 6,326 | 6,123 | 6,496 | 6,504 | 5,348 | 8,357 | 10,206 | 11,085 | 7,859 | 5,245 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-68** | **-2,800** | 3,091 | 1,197 | 893 | 453 | 0 | 106 | 2,038 | **-318** | 120 | **-6,308** |
| 20% | 392 | **-3,258** | 2,019 | 1,596 | **-1,252** | **-598** | **-48** | 788 | 2,547 | **-118** | 442 | **-5,817** |
| 30% | 457 | **-3,960** | **-32** | 855 | 1,318 | 884 | 70 | 1,109 | 2,696 | **-181** | 533 | **-4,917** |
| 40% | 420 | **-3,313** | 681 | 1,201 | 587 | 333 | 271 | 1,277 | 1,894 | **-357** | 412 | **-3,624** |
| 50% | 251 | **-2,162** | 163 | 56 | 171 | 316 | 675 | 1,277 | 911 | **-70** | 360 | **-625** |
| 60% | 134 | **-1,189** | **-14** | 43 | 168 | **-9** | 220 | 1,367 | 771 | **-77** | 498 | 30 |
| 70% | **-47** | **-661** | **-95** | 125 | **-32** | 86 | **-26** | 484 | 647 | 6 | 109 | **-142** |
| 80% | **-187** | **-638** | **-79** | **-467** | **-98** | **-14** | **-101** | 409 | 549 | 193 | 182 | 31 |
| 90% | **-174** | 7 | **-162** | **-139** | **-154** | **-58** | **-4** | 520 | 58 | **-315** | **-103** | **-32** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54 | **-1,708** | 360 | 364 | 171 | 197 | 119 | 747 | 1,261 | **-97** | 334 | **-2,315** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-204** | **-3,640** | 1,702 | 292 | 264 | 57 | 84 | 301 | 831 | **-208** | 374 | **-6,112** |
| Above Normal (16%) | 583 | **-3,651** | 203 | 949 | 1,057 | 379 | **-69** | 643 | 2,350 | **-145** | 478 | **-4,172** |
| Below Normal (13%) | **-11** | **-31** | **-694** | 1,152 | 110 | 769 | 454 | 1,233 | 1,894 | 17 | 1,074 | 1,079 |
| Dry (24%) | 121 | 123 | **-448** | **-21** | **-372** | **-264** | 61 | 1,280 | 950 | **-185** | **-142** | 398 |
| Critical (15%) | **-12** | **-4** | **-68** | **-195** | **-31** | 549 | 189 | 491 | 954 | 237 | 205 | 291 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 17-3. Sacramento River below Red Bluff Diversion Dam Flow, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,011 | 13,916 | 26,964 | 36,349 | 46,951 | 29,624 | 16,603 | 13,148 | 13,015 | 15,428 | 11,307 | 15,876 |
| 20% | 8,935 | 12,026 | 17,059 | 24,191 | 33,406 | 19,585 | 13,008 | 11,101 | 11,689 | 14,953 | 10,296 | 13,688 |
| 30% | 8,162 | 11,326 | 10,713 | 16,195 | 21,743 | 14,565 | 8,528 | 9,878 | 10,416 | 14,727 | 9,580 | 11,816 |
| 40% | 7,682 | 10,236 | 8,070 | 11,649 | 13,058 | 10,522 | 7,061 | 9,105 | 9,881 | 13,944 | 9,184 | 10,012 |
| 50% | 6,903 | 8,639 | 6,795 | 8,852 | 10,563 | 8,716 | 5,988 | 8,579 | 9,465 | 12,881 | 8,934 | 6,775 |
| 60% | 6,301 | 7,375 | 6,327 | 7,152 | 8,447 | 7,747 | 5,541 | 8,064 | 9,136 | 12,165 | 8,564 | 5,835 |
| 70% | 5,951 | 6,380 | 5,760 | 6,395 | 7,537 | 6,651 | 5,292 | 7,736 | 8,721 | 11,138 | 8,375 | 5,549 |
| 80% | 5,687 | 5,854 | 5,334 | 5,869 | 5,964 | 5,772 | 5,044 | 7,317 | 8,297 | 10,215 | 7,926 | 5,122 |
| 90% | 5,150 | 4,954 | 4,820 | 4,974 | 5,202 | 5,471 | 4,657 | 6,623 | 7,926 | 9,607 | 7,749 | 4,515 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,315 | 9,438 | 11,980 | 15,892 | 19,147 | 14,608 | 9,063 | 9,371 | 9,994 | 12,702 | 9,166 | 8,972 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,728 | 12,255 | 12,422 | 29,982 | 31,345 | 25,200 | 14,018 | 11,059 | 9,426 | 12,709 | 9,781 | 14,320 |
| Above Normal (16%) | 7,927 | 12,554 | 11,235 | 16,772 | 26,458 | 16,158 | 9,459 | 9,611 | 10,203 | 14,275 | 9,759 | 10,210 |
| Below Normal (13%) | 6,820 | 6,705 | 11,915 | 7,608 | 12,849 | 7,303 | 6,118 | 8,845 | 10,980 | 13,721 | 10,131 | 5,837 |
| Dry (24%) | 6,538 | 7,784 | 15,279 | 7,303 | 9,573 | 9,042 | 6,326 | 8,214 | 10,498 | 12,221 | 8,358 | 5,349 |
| Critical (15%) | 5,338 | 5,218 | 6,394 | 6,318 | 6,527 | 5,955 | 5,159 | 7,866 | 9,252 | 10,848 | 7,654 | 4,954 |

### Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,119 | 11,002 | 30,041 | 36,965 | 47,844 | 30,096 | 16,603 | 13,360 | 15,040 | 15,103 | 12,005 | 9,517 |
| 20% | 9,481 | 9,243 | 19,648 | 25,676 | 32,153 | 19,005 | 12,935 | 11,844 | 14,040 | 14,773 | 10,912 | 7,955 |
| 30% | 8,667 | 7,409 | 10,678 | 16,701 | 23,314 | 15,450 | 8,532 | 10,725 | 12,825 | 14,411 | 10,289 | 7,090 |
| 40% | 8,108 | 6,959 | 8,757 | 12,850 | 13,539 | 10,856 | 7,332 | 10,179 | 11,388 | 13,526 | 9,635 | 6,461 |
| 50% | 7,696 | 6,477 | 7,148 | 8,904 | 10,735 | 8,754 | 6,766 | 9,852 | 10,356 | 12,906 | 9,364 | 6,237 |
| 60% | 6,918 | 6,223 | 6,593 | 7,379 | 8,476 | 7,713 | 5,805 | 9,286 | 9,840 | 12,143 | 9,048 | 5,777 |
| 70% | 6,193 | 5,696 | 5,880 | 6,544 | 7,241 | 6,737 | 5,316 | 8,110 | 9,266 | 11,213 | 8,376 | 5,366 |
| 80% | 5,826 | 5,247 | 5,271 | 5,704 | 5,866 | 5,760 | 5,028 | 7,724 | 8,593 | 10,397 | 8,038 | 5,082 |
| 90% | 5,091 | 4,996 | 4,705 | 4,843 | 5,154 | 5,363 | 4,784 | 7,286 | 7,925 | 9,248 | 7,641 | 4,472 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,609 | 7,739 | 12,428 | 16,236 | 19,221 | 14,765 | 9,221 | 10,041 | 11,158 | 12,602 | 9,534 | 6,651 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,695 | 8,660 | 14,302 | 30,175 | 31,510 | 25,240 | 14,177 | 11,073 | 10,170 | 12,566 | 10,355 | 8,075 |
| Above Normal (16%) | 8,167 | 9,328 | 11,718 | 17,597 | 27,358 | 16,499 | 9,408 | 10,283 | 12,299 | 14,151 | 10,141 | 6,193 |
| Below Normal (13%) | 7,216 | 6,689 | 11,268 | 8,713 | 12,847 | 8,077 | 6,650 | 10,110 | 12,767 | 13,721 | 10,986 | 6,963 |
| Dry (24%) | 7,299 | 7,592 | 14,755 | 7,270 | 9,206 | 8,652 | 6,392 | 9,517 | 11,512 | 12,032 | 8,258 | 5,804 |
| Critical (15%) | 5,526 | 5,231 | 6,323 | 6,399 | 6,313 | 6,513 | 5,355 | 8,351 | 9,999 | 10,927 | 7,893 | 5,187 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 109 | **-2,914** | 3,078 | 616 | 893 | 472 | 0 | 212 | 2,025 | **-325** | 698 | **-6,358** |
| 20% | 545 | **-2,783** | 2,589 | 1,485 | **-1,252** | **-581** | **-73** | 743 | 2,351 | **-180** | 616 | **-5,732** |
| 30% | 504 | **-3,917** | **-35** | 506 | 1,571 | 885 | 4 | 846 | 2,409 | **-315** | 709 | **-4,726** |
| 40% | 426 | **-3,276** | 687 | 1,201 | 480 | 335 | 271 | 1,074 | 1,507 | **-418** | 452 | **-3,551** |
| 50% | 793 | **-2,162** | 353 | 53 | 172 | 38 | 778 | 1,273 | 892 | 25 | 430 | **-538** |
| 60% | 617 | **-1,151** | 266 | 227 | 29 | **-34** | 263 | 1,222 | 705 | **-22** | 484 | **-57** |
| 70% | 242 | **-684** | 120 | 149 | **-296** | 86 | 25 | 374 | 546 | 74 | 1 | **-183** |
| 80% | 139 | **-607** | **-63** | **-165** | **-98** | **-12** | **-16** | 407 | 297 | 182 | 112 | **-40** |
| 90% | **-59** | 42 | **-115** | **-131** | **-48** | **-108** | 127 | 663 | **-1** | **-359** | **-108** | **-43** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 294 | **-1,698** | 448 | 344 | 74 | 157 | 158 | 670 | 1,164 | **-100** | 368 | **-2,321** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-33** | **-3,595** | 1,880 | 193 | 165 | 40 | 158 | 14 | 744 | **-144** | 574 | **-6,245** |
| Above Normal (16%) | 240 | **-3,226** | 484 | 825 | 900 | 341 | **-51** | 672 | 2,096 | **-124** | 382 | **-4,016** |
| Below Normal (13%) | 395 | **-15** | **-647** | 1,105 | **-1** | 773 | 532 | 1,265 | 1,787 | 0 | 855 | 1,126 |
| Dry (24%) | 761 | **-192** | **-524** | **-33** | **-366** | **-390** | 65 | 1,304 | 1,014 | **-189** | **-100** | 456 |
| Critical (15%) | 187 | 13 | **-71** | 81 | **-214** | 558 | 195 | 485 | 747 | 79 | 240 | 232 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 17-4. Sacramento River below Red Bluff Diversion Dam Flow, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,011 | 13,916 | 26,964 | 36,349 | 46,951 | 29,624 | 16,603 | 13,148 | 13,015 | 15,428 | 11,307 | 15,876 |
| 20% | 8,935 | 12,026 | 17,059 | 24,191 | 33,406 | 19,585 | 13,008 | 11,101 | 11,689 | 14,953 | 10,296 | 13,688 |
| 30% | 8,162 | 11,326 | 10,713 | 16,195 | 21,743 | 14,565 | 8,528 | 9,878 | 10,416 | 14,727 | 9,580 | 11,816 |
| 40% | 7,682 | 10,236 | 8,070 | 11,649 | 13,058 | 10,522 | 7,061 | 9,105 | 9,881 | 13,944 | 9,184 | 10,012 |
| 50% | 6,903 | 8,639 | 6,795 | 8,852 | 10,563 | 8,716 | 5,988 | 8,579 | 9,465 | 12,881 | 8,934 | 6,775 |
| 60% | 6,301 | 7,375 | 6,327 | 7,152 | 8,447 | 7,747 | 5,541 | 8,064 | 9,136 | 12,165 | 8,564 | 5,835 |
| 70% | 5,951 | 6,380 | 5,760 | 6,395 | 7,537 | 6,651 | 5,292 | 7,736 | 8,721 | 11,138 | 8,375 | 5,549 |
| 80% | 5,687 | 5,854 | 5,334 | 5,869 | 5,964 | 5,772 | 5,044 | 7,317 | 8,297 | 10,215 | 7,926 | 5,122 |
| 90% | 5,150 | 4,954 | 4,820 | 4,974 | 5,202 | 5,471 | 4,657 | 6,623 | 7,926 | 9,607 | 7,749 | 4,515 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,315 | 9,438 | 11,980 | 15,892 | 19,147 | 14,608 | 9,063 | 9,371 | 9,994 | 12,702 | 9,166 | 8,972 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,728 | 12,255 | 12,422 | 29,982 | 31,345 | 25,200 | 14,018 | 11,059 | 9,426 | 12,709 | 9,781 | 14,320 |
| Above Normal (16%) | 7,927 | 12,554 | 11,235 | 16,772 | 26,458 | 16,158 | 9,459 | 9,611 | 10,203 | 14,275 | 9,759 | 10,210 |
| Below Normal (13%) | 6,820 | 6,705 | 11,915 | 7,608 | 12,849 | 7,303 | 6,118 | 8,845 | 10,980 | 13,721 | 10,131 | 5,837 |
| Dry (24%) | 6,538 | 7,784 | 15,279 | 7,303 | 9,573 | 9,042 | 6,326 | 8,214 | 10,498 | 12,221 | 8,358 | 5,349 |
| Critical (15%) | 5,338 | 5,218 | 6,394 | 6,318 | 6,527 | 5,955 | 5,159 | 7,866 | 9,252 | 10,848 | 7,654 | 4,954 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,675 | 11,377 | 30,548 | 40,905 | 48,302 | 30,097 | 16,600 | 11,476 | 13,897 | 14,990 | 10,525 | 9,024 |
| 20% | 8,890 | 8,122 | 23,331 | 25,617 | 32,584 | 19,564 | 13,931 | 10,351 | 12,381 | 14,872 | 9,981 | 7,078 |
| 30% | 8,330 | 7,235 | 11,697 | 17,176 | 22,643 | 16,888 | 10,467 | 9,814 | 11,782 | 14,393 | 9,580 | 6,212 |
| 40% | 7,856 | 7,002 | 9,393 | 14,365 | 13,890 | 12,870 | 7,943 | 9,130 | 10,610 | 13,518 | 9,231 | 6,034 |
| 50% | 6,859 | 6,438 | 7,016 | 9,767 | 10,851 | 9,972 | 7,006 | 8,710 | 9,850 | 12,694 | 8,961 | 5,628 |
| 60% | 6,300 | 6,181 | 6,319 | 7,490 | 8,660 | 8,467 | 6,119 | 8,273 | 9,356 | 12,362 | 8,684 | 5,406 |
| 70% | 5,986 | 5,817 | 5,666 | 6,658 | 7,645 | 7,468 | 5,531 | 8,106 | 8,904 | 11,282 | 8,361 | 5,127 |
| 80% | 5,514 | 5,390 | 5,315 | 5,883 | 6,635 | 6,144 | 5,121 | 7,646 | 8,529 | 9,998 | 7,919 | 4,808 |
| 90% | 5,188 | 5,153 | 4,910 | 4,997 | 5,396 | 5,110 | 4,929 | 7,429 | 7,902 | 9,299 | 7,588 | 4,463 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,309 | 7,754 | 13,094 | 16,815 | 19,770 | 15,330 | 9,689 | 9,314 | 10,472 | 12,590 | 9,045 | 6,246 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,600 | 8,421 | 14,492 | 31,457 | 31,759 | 25,656 | 14,952 | 10,868 | 9,473 | 12,735 | 9,860 | 8,146 |
| Above Normal (16%) | 7,835 | 9,244 | 12,572 | 18,053 | 28,208 | 17,525 | 10,192 | 9,409 | 10,100 | 14,936 | 9,638 | 5,711 |
| Below Normal (13%) | 6,743 | 6,884 | 12,158 | 9,337 | 13,889 | 8,620 | 6,969 | 8,738 | 11,693 | 13,676 | 9,418 | 5,468 |
| Dry (24%) | 6,645 | 7,817 | 16,104 | 7,382 | 9,891 | 9,691 | 6,695 | 8,366 | 11,721 | 11,988 | 8,344 | 5,210 |
| Critical (15%) | 5,568 | 5,385 | 6,470 | 6,326 | 6,512 | 6,127 | 5,227 | 7,955 | 9,836 | 9,744 | 7,464 | 5,152 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-336** | **-2,539** | 3,585 | 4,556 | 1,352 | 473 | **-2** | **-1,672** | 882 | **-438** | **-782** | **-6,851** |
| 20% | **-45** | **-3,904** | 6,273 | 1,427 | **-821** | **-22** | 922 | **-751** | 692 | **-81** | **-315** | **-6,610** |
| 30% | 167 | **-4,091** | 984 | 981 | 900 | 2,323 | 1,938 | **-64** | 1,366 | **-334** | **-1** | **-5,604** |
| 40% | 174 | **-3,234** | 1,323 | 2,716 | 831 | 2,349 | 882 | 25 | 729 | **-426** | 47 | **-3,978** |
| 50% | **-44** | **-2,201** | 220 | 915 | 288 | 1,255 | 1,018 | 131 | 385 | **-187** | 27 | **-1,147** |
| 60% | **-1** | **-1,193** | **-7** | 338 | 213 | 720 | 577 | 210 | 221 | 196 | 121 | **-429** |
| 70% | 35 | **-563** | **-94** | 263 | 108 | 818 | 239 | 370 | 183 | 144 | **-14** | **-422** |
| 80% | **-173** | **-464** | **-19** | 14 | 671 | 371 | 77 | 328 | 232 | **-217** | **-6** | **-314** |
| 90% | 38 | 199 | 90 | 23 | 194 | **-360** | 272 | 806 | **-25** | **-308** | **-162** | **-53** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-6** | **-1,684** | 1,113 | 923 | 624 | 721 | 626 | **-57** | 478 | **-111** | **-121** | **-2,725** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-127** | **-3,834** | 2,070 | 1,474 | 414 | 456 | 934 | **-191** | 46 | 26 | 79 | **-6,175** |
| Above Normal (16%) | **-92** | **-3,310** | 1,338 | 1,282 | 1,750 | 1,367 | 733 | **-202** | **-103** | 661 | **-121** | **-4,499** |
| Below Normal (13%) | **-78** | 179 | 243 | 1,729 | 1,040 | 1,317 | 851 | **-107** | 712 | **-45** | **-713** | **-369** |
| Dry (24%) | 106 | 33 | 825 | 79 | 318 | 649 | 368 | 153 | 1,223 | **-233** | **-14** | **-138** |
| Critical (15%) | 230 | 166 | 76 | 8 | **-15** | 172 | 68 | 89 | 584 | **-1,104** | **-190** | 197 |

a Based on the 82-year simulation period.

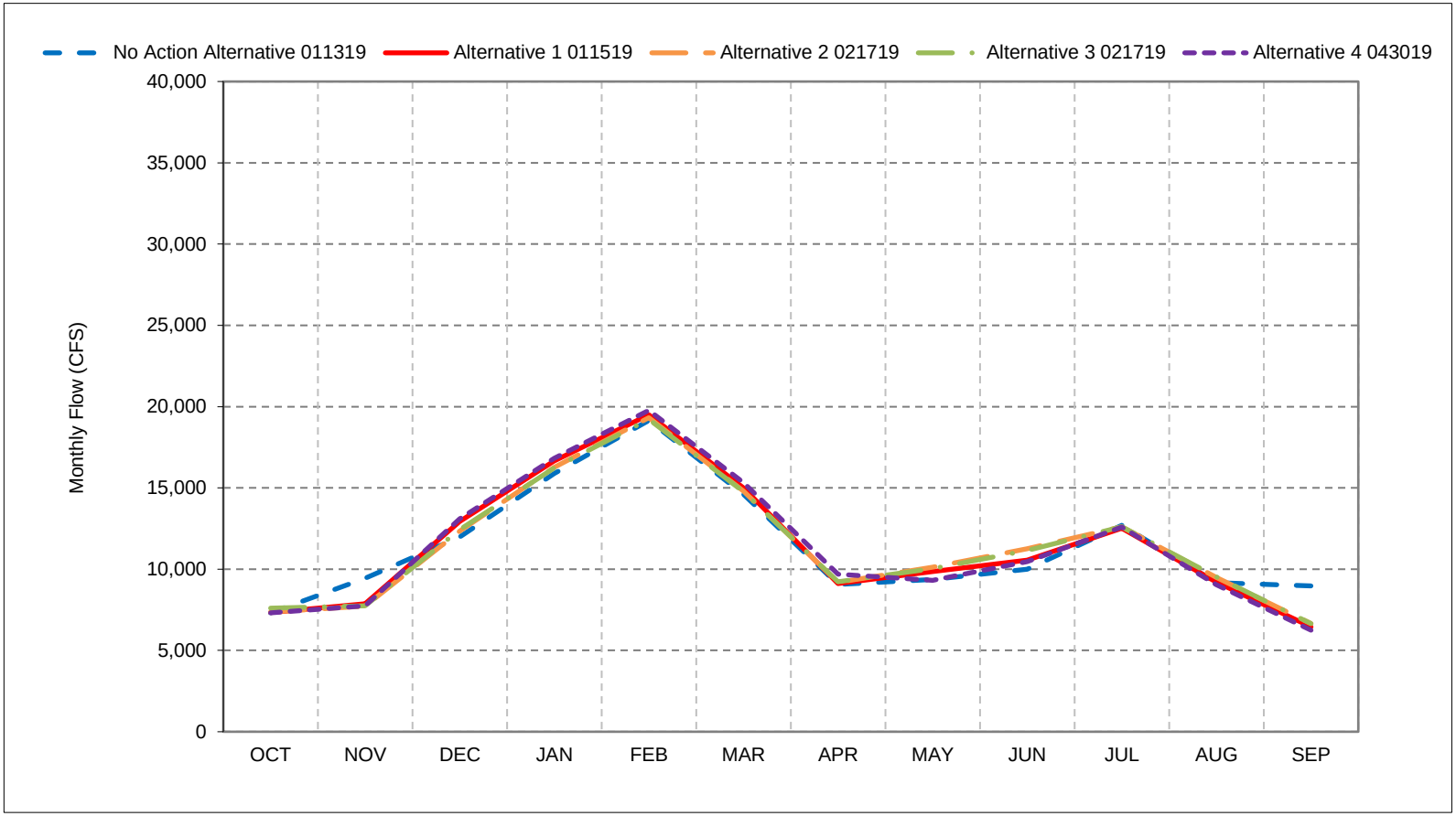
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

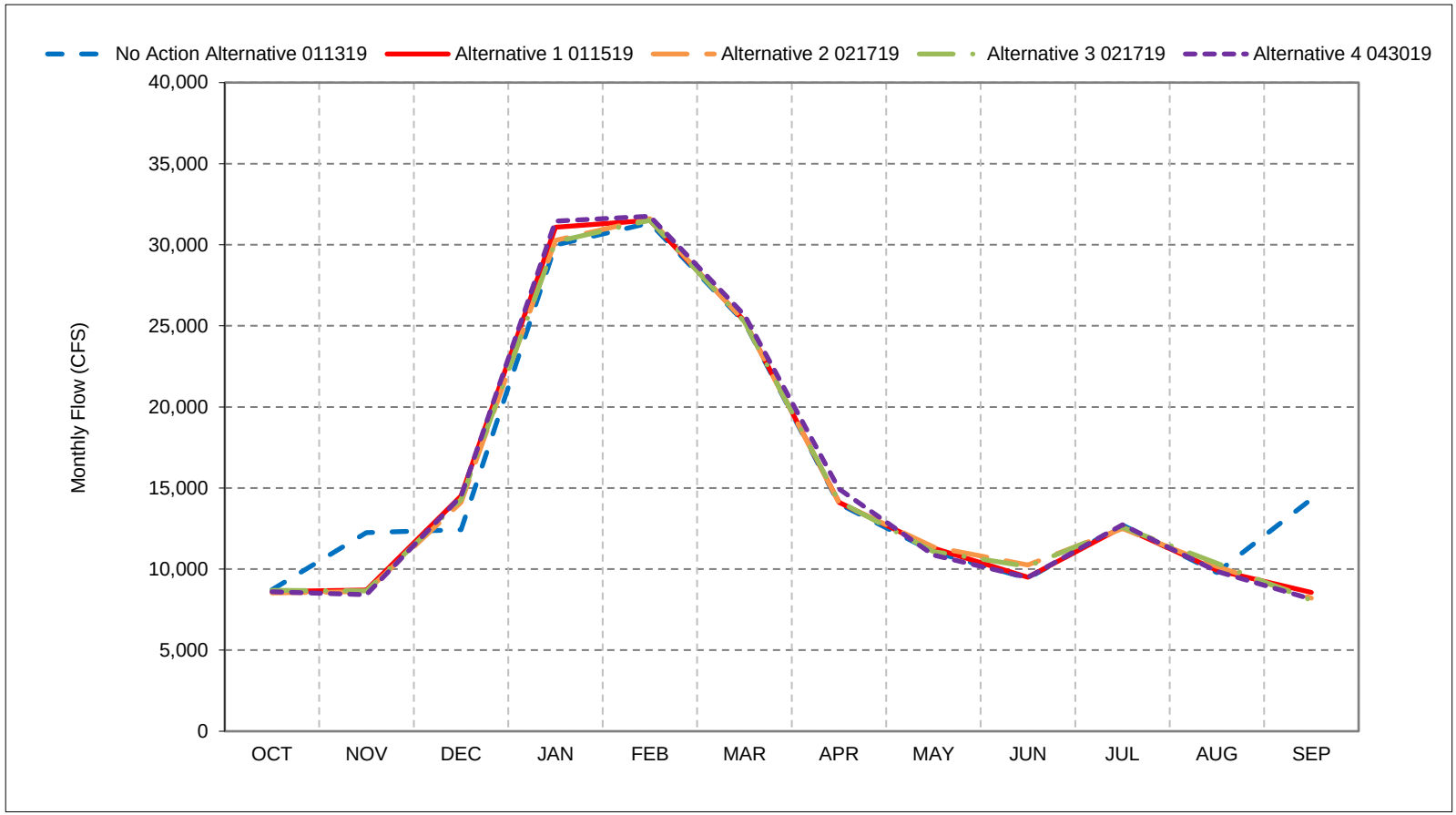
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-1. Sacramento River below Red Bluff Diversion Dam Flow, Long-Term Average Flow



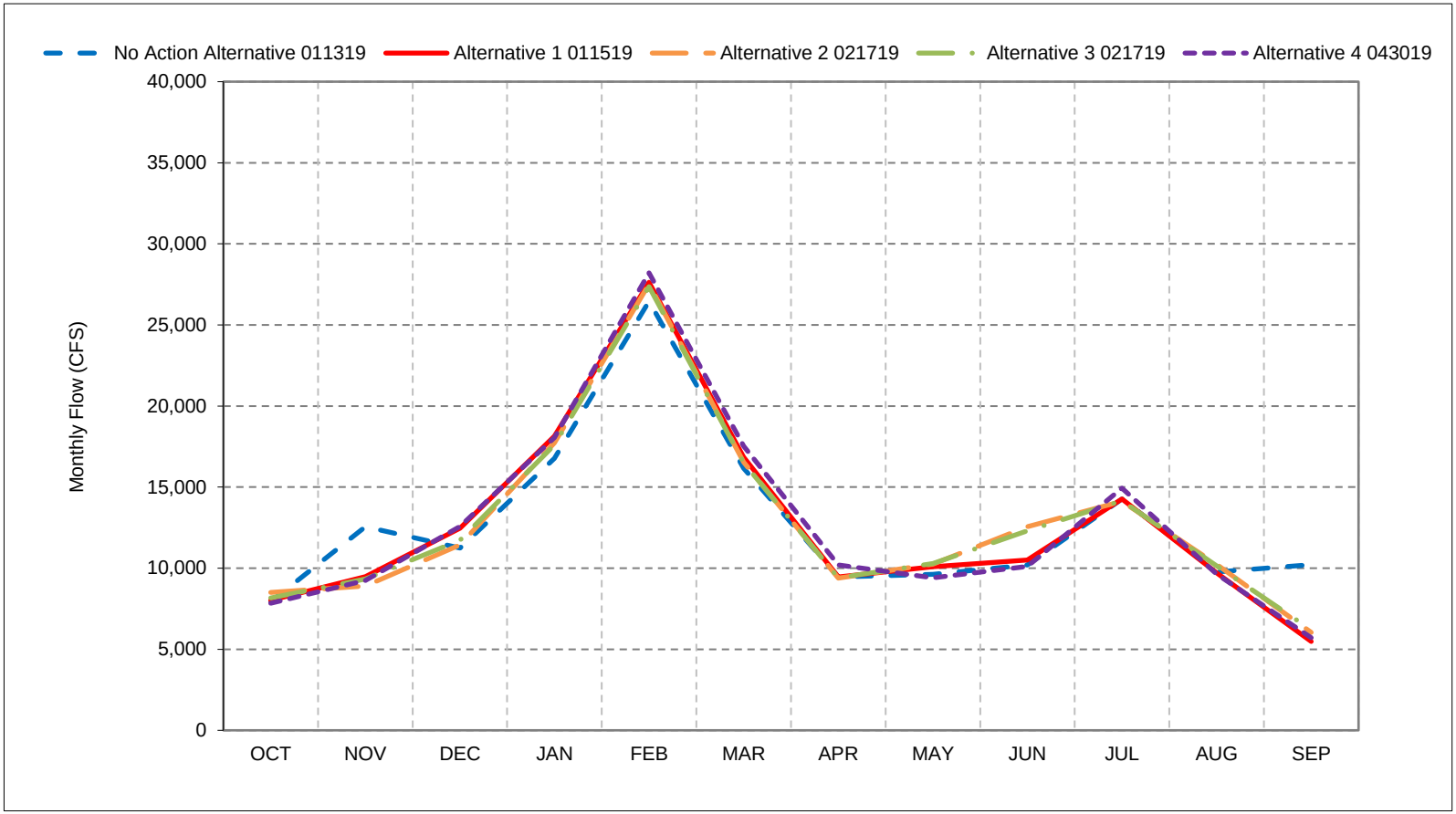

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-2. Sacramento River below Red Bluff Diversion Dam Flow, Wet Year Average Flow



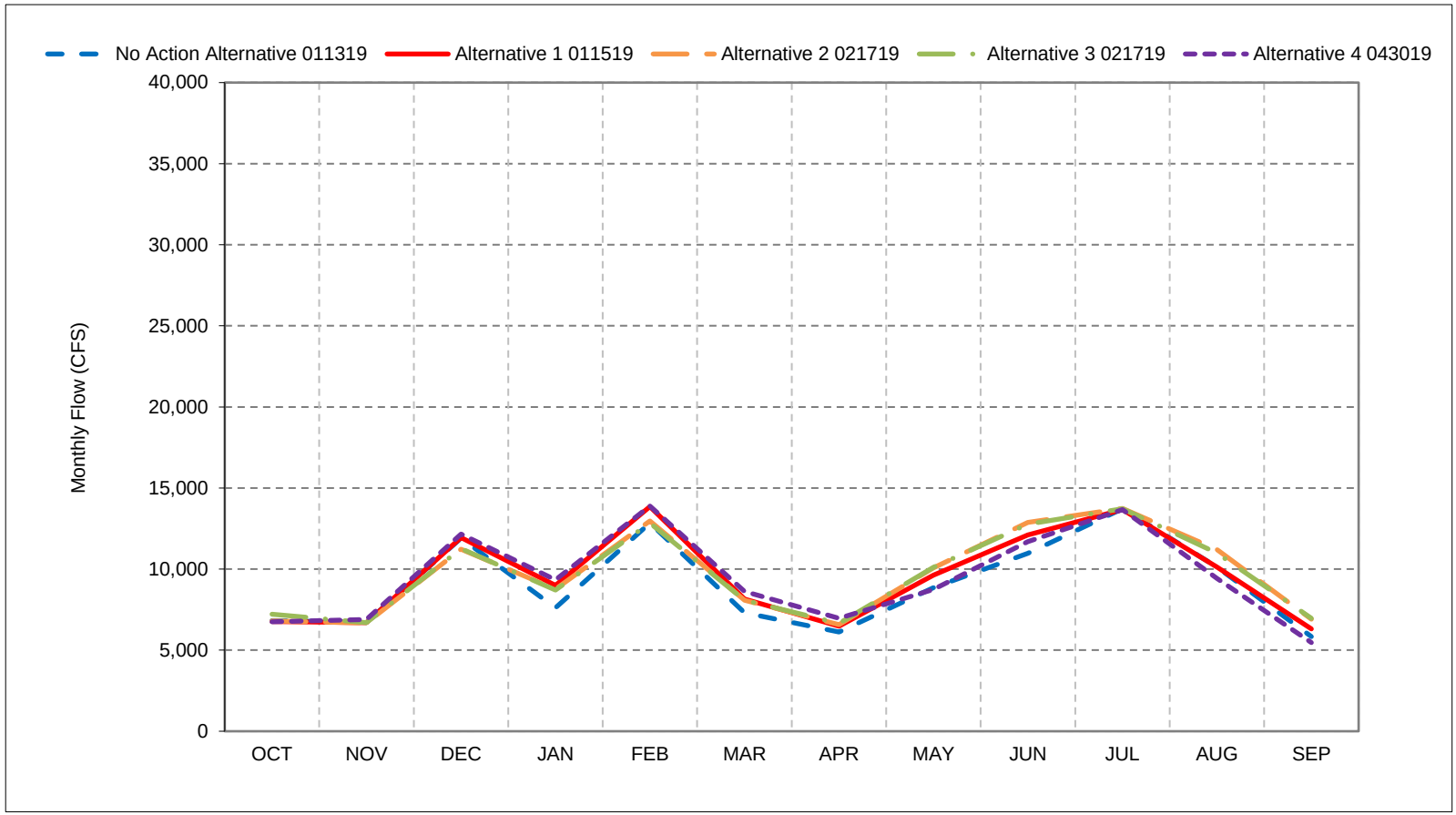

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-3. Sacramento River below Red Bluff Diversion Dam Flow, Above Normal Year Average F



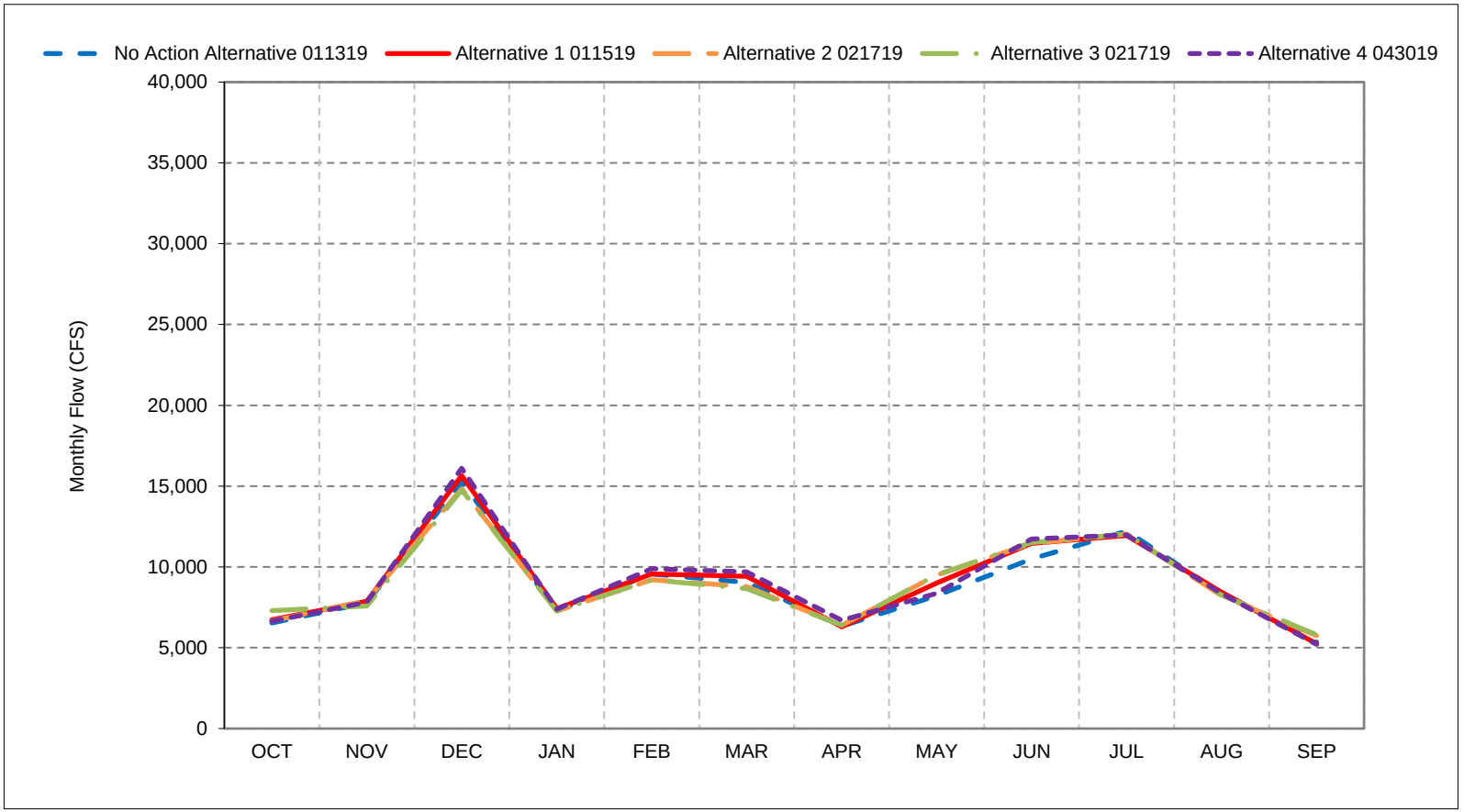

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-4. Sacramento River below Red Bluff Diversion Dam Flow, Below Normal Year Average F



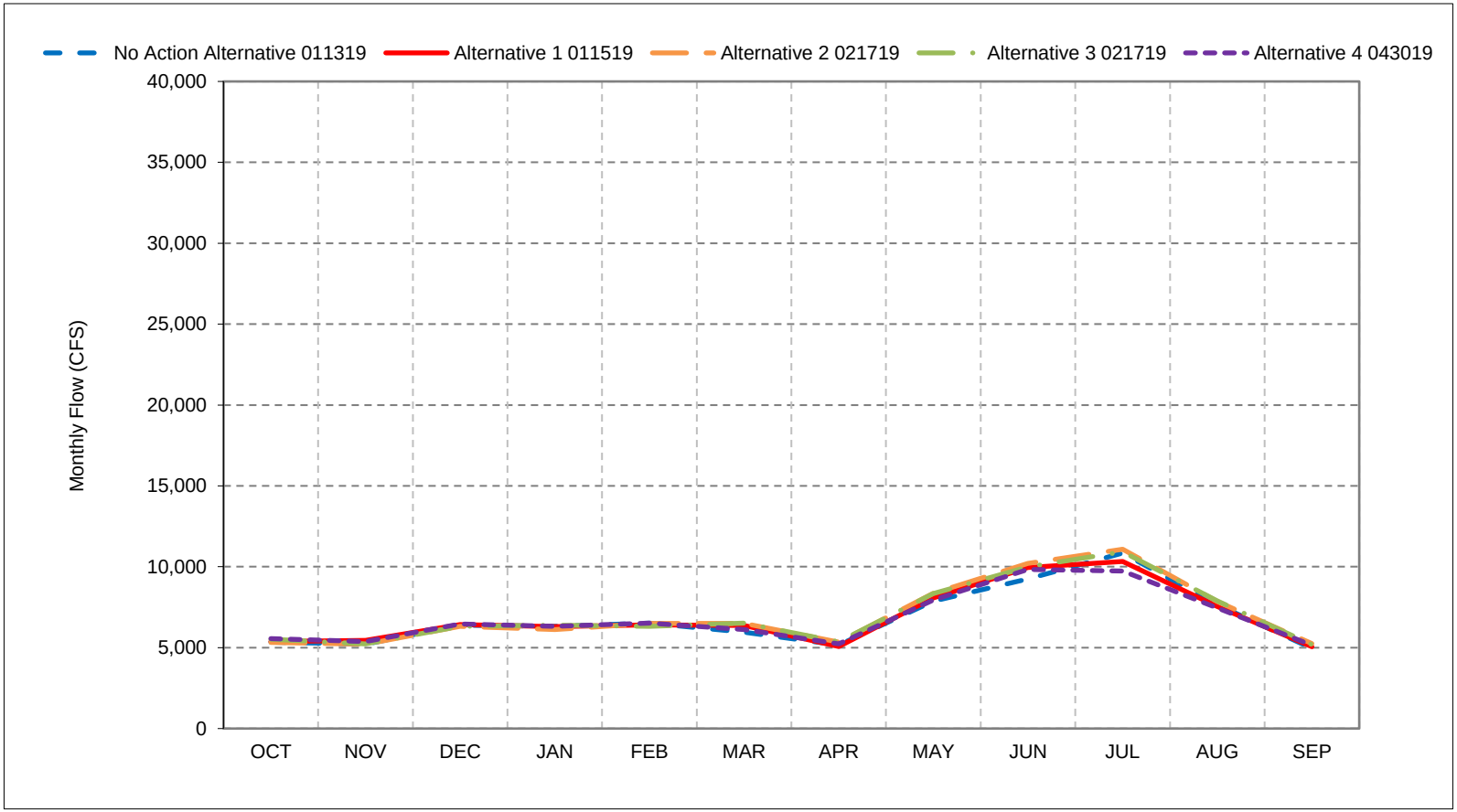

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-5. Sacramento River below Red Bluff Diversion Dam Flow, Dry Year Average Flow



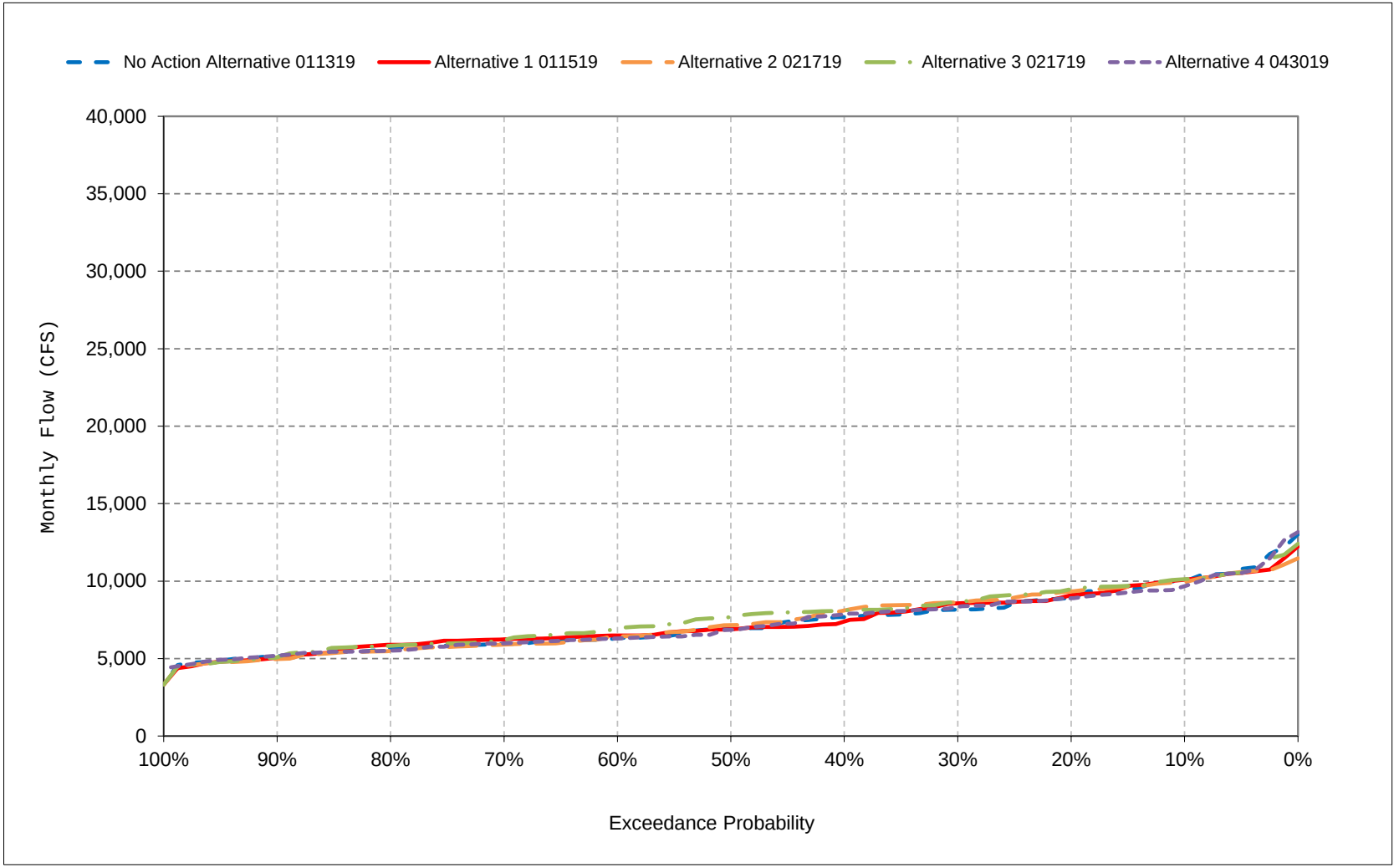

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-6. Sacramento River below Red Bluff Diversion Dam Flow, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

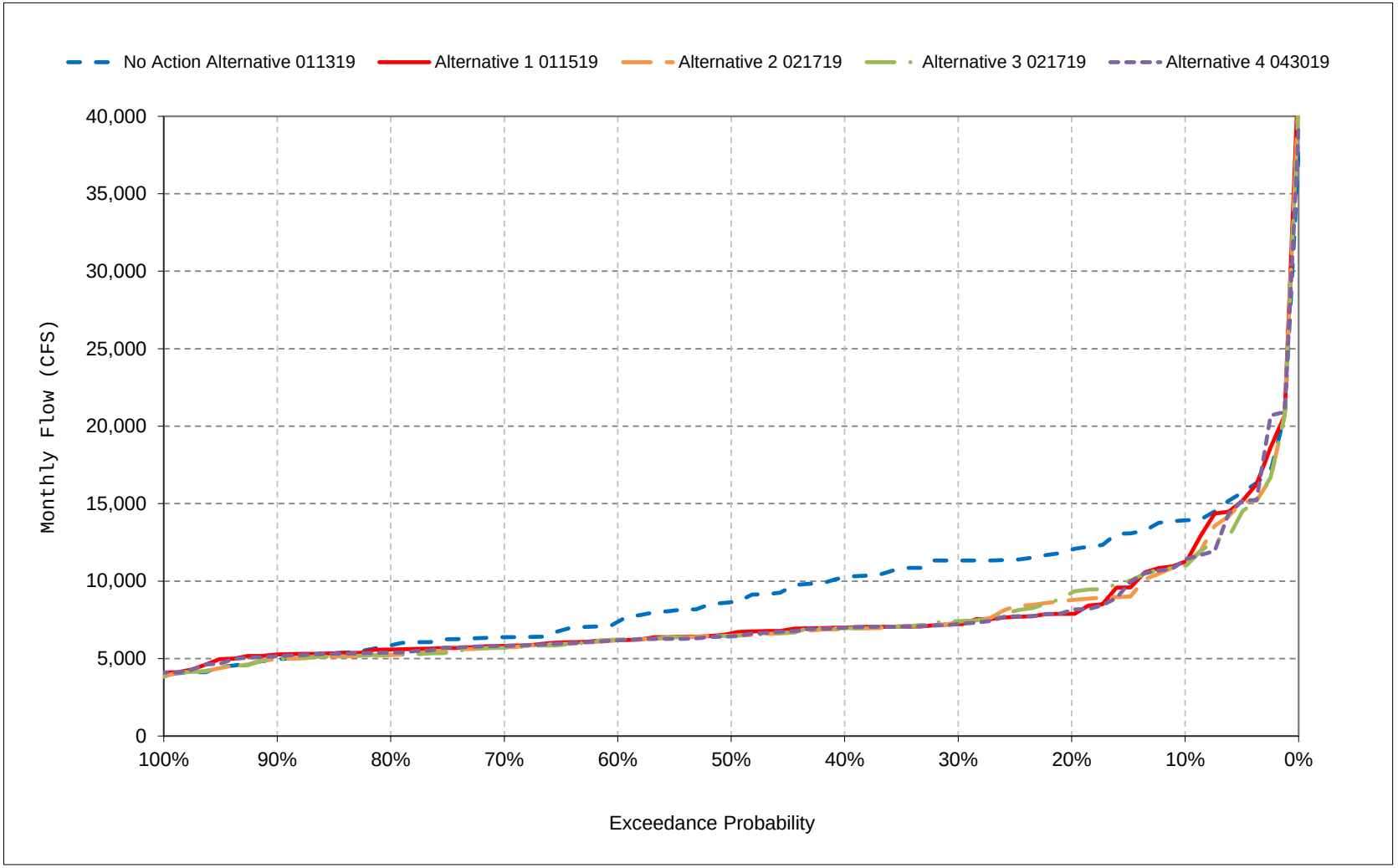
**Figure 17-7. Sacramento River below Red Bluff Diversion Dam Flow, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

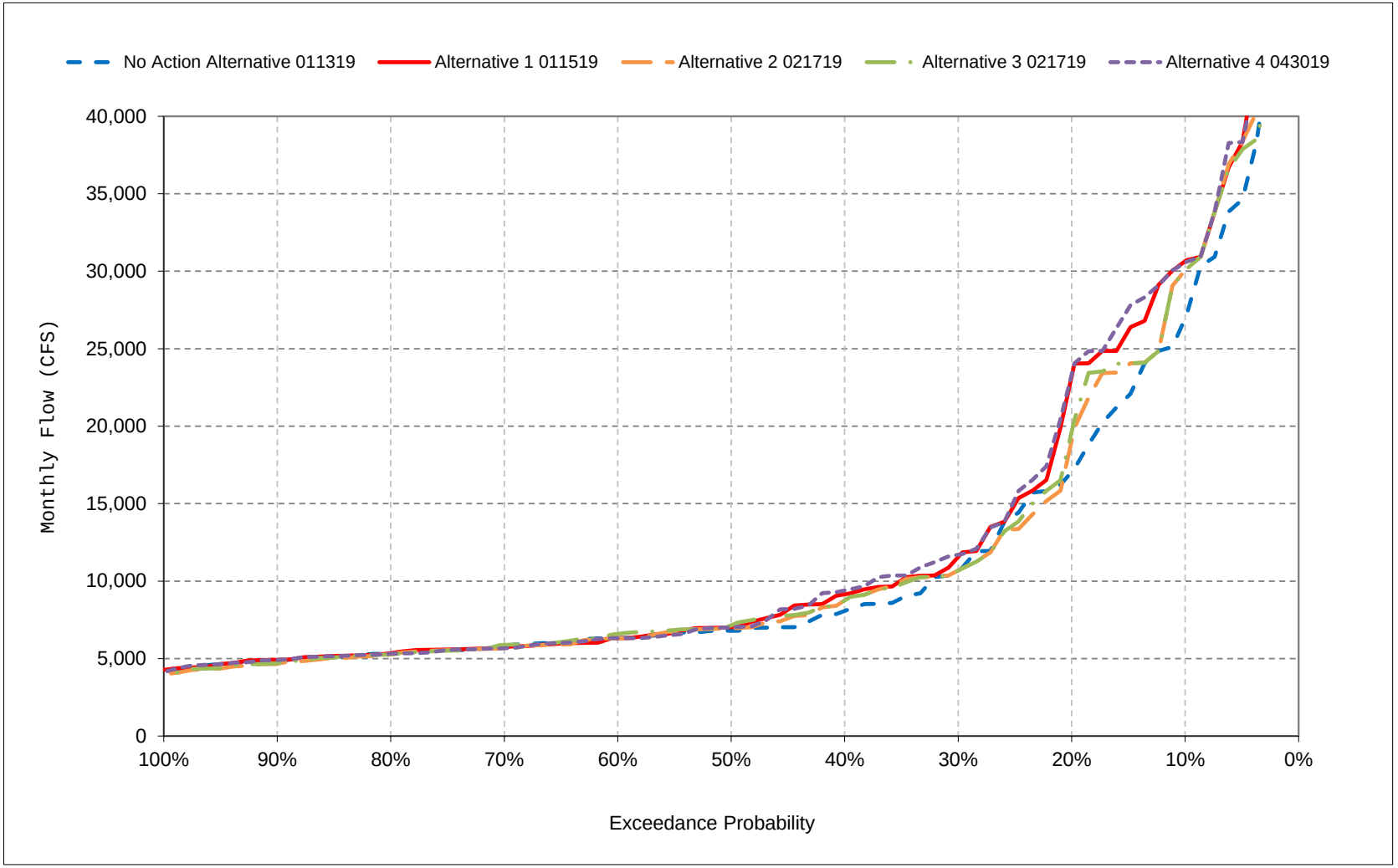
**Figure 17-8. Sacramento River below Red Bluff Diversion Dam Flow, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

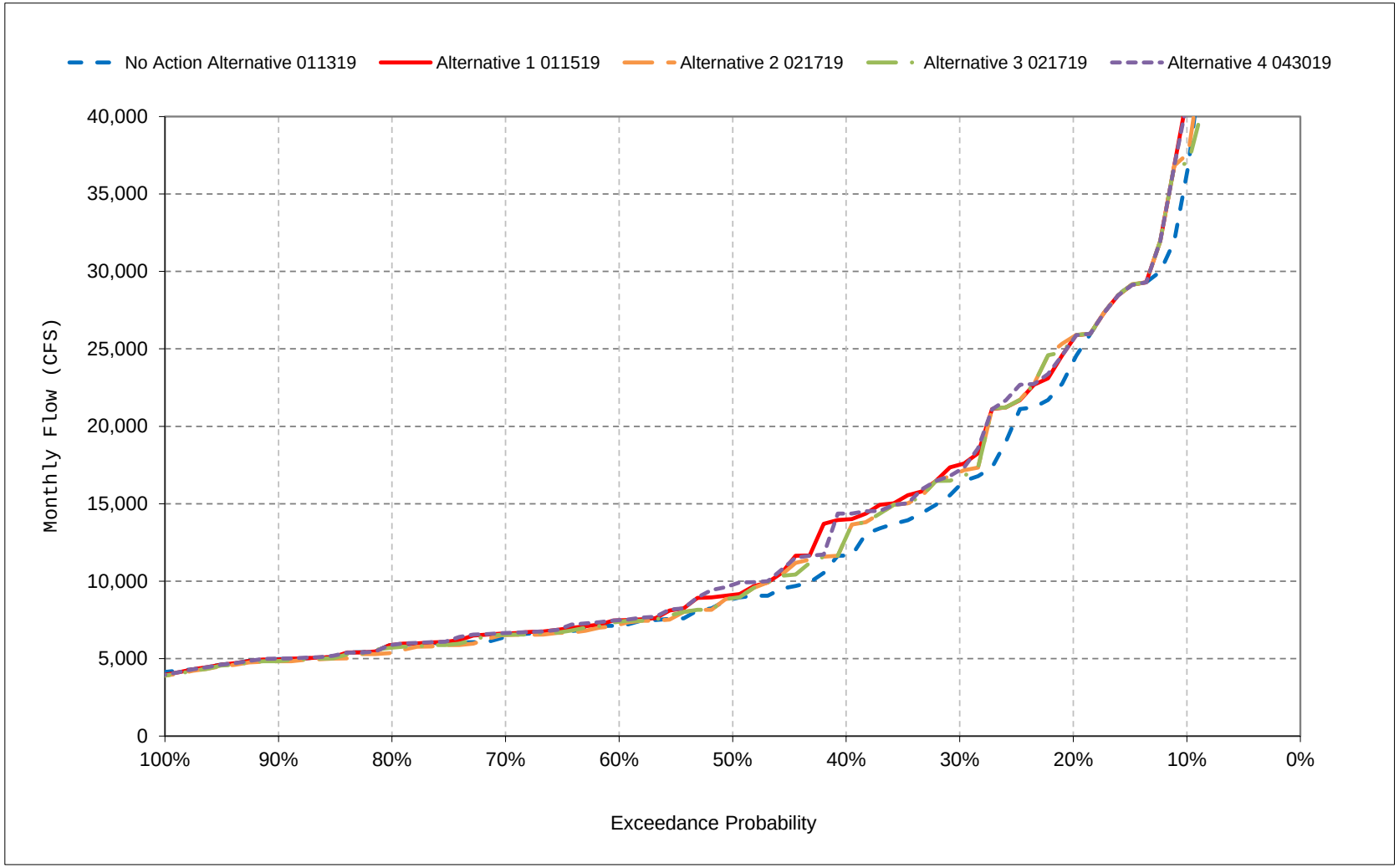
**Figure 17-9. Sacramento River below Red Bluff Diversion Dam Flow, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

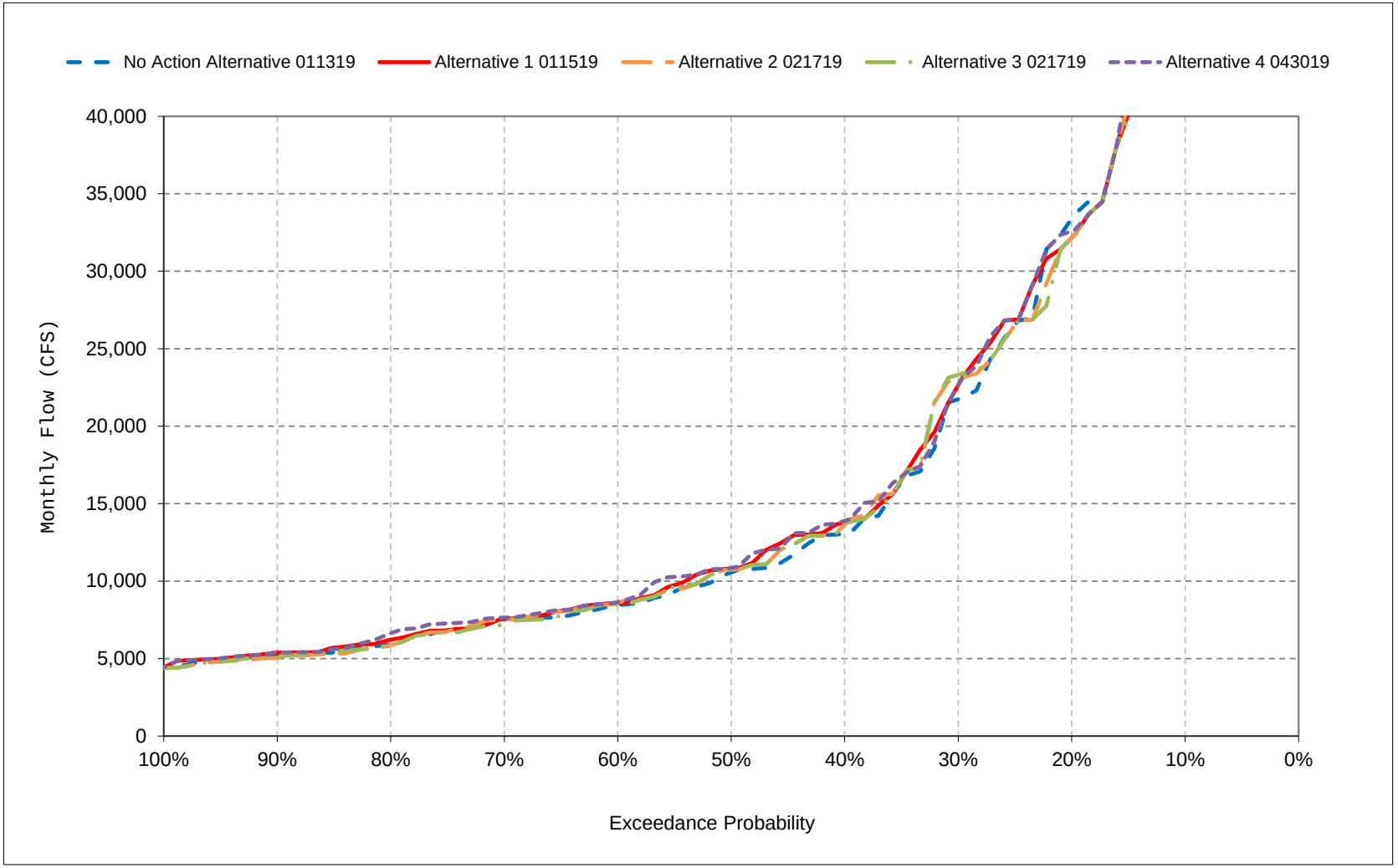
**Figure 17-10. Sacramento River below Red Bluff Diversion Dam Flow, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

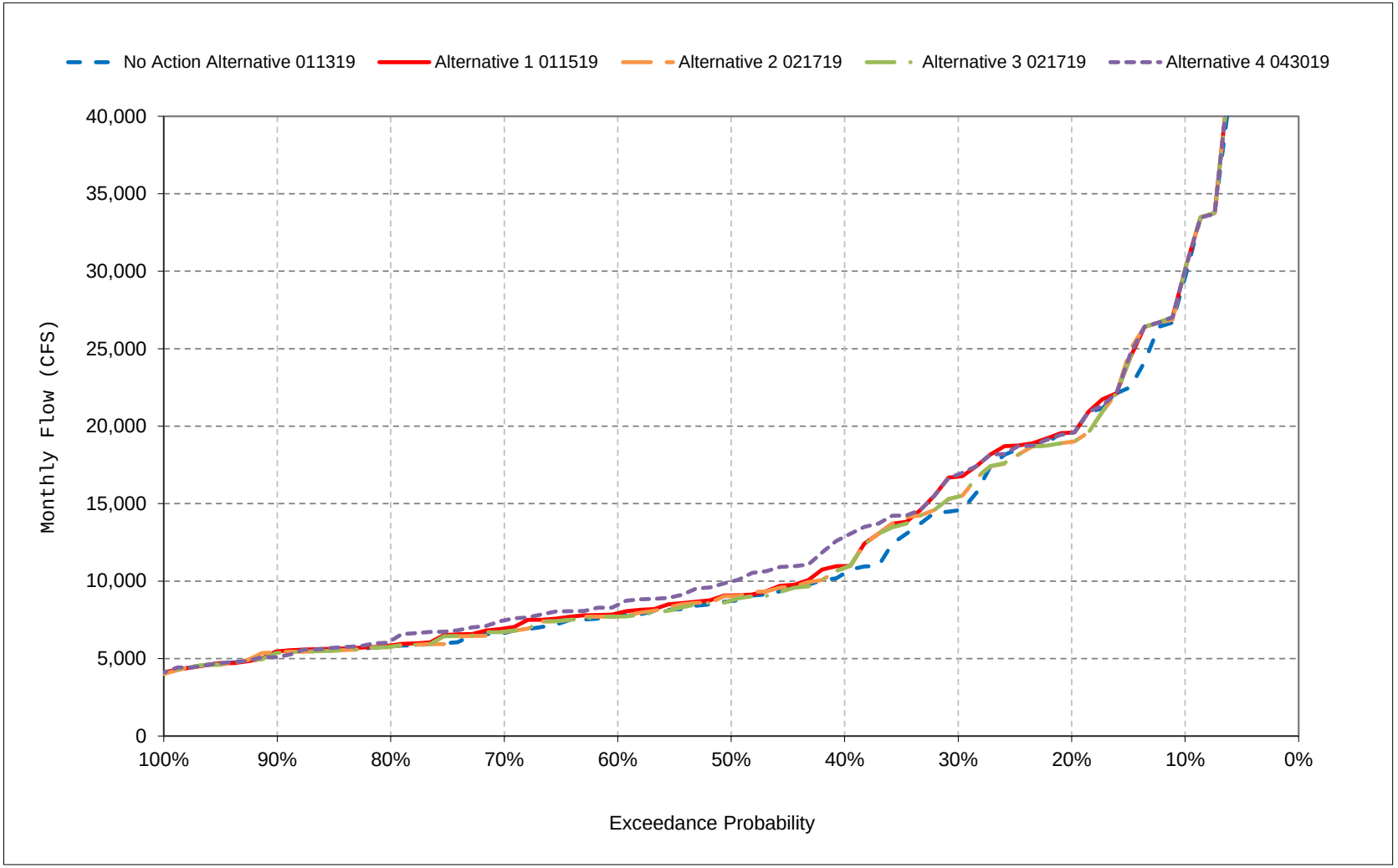
**Figure 17-11. Sacramento River below Red Bluff Diversion Dam Flow, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

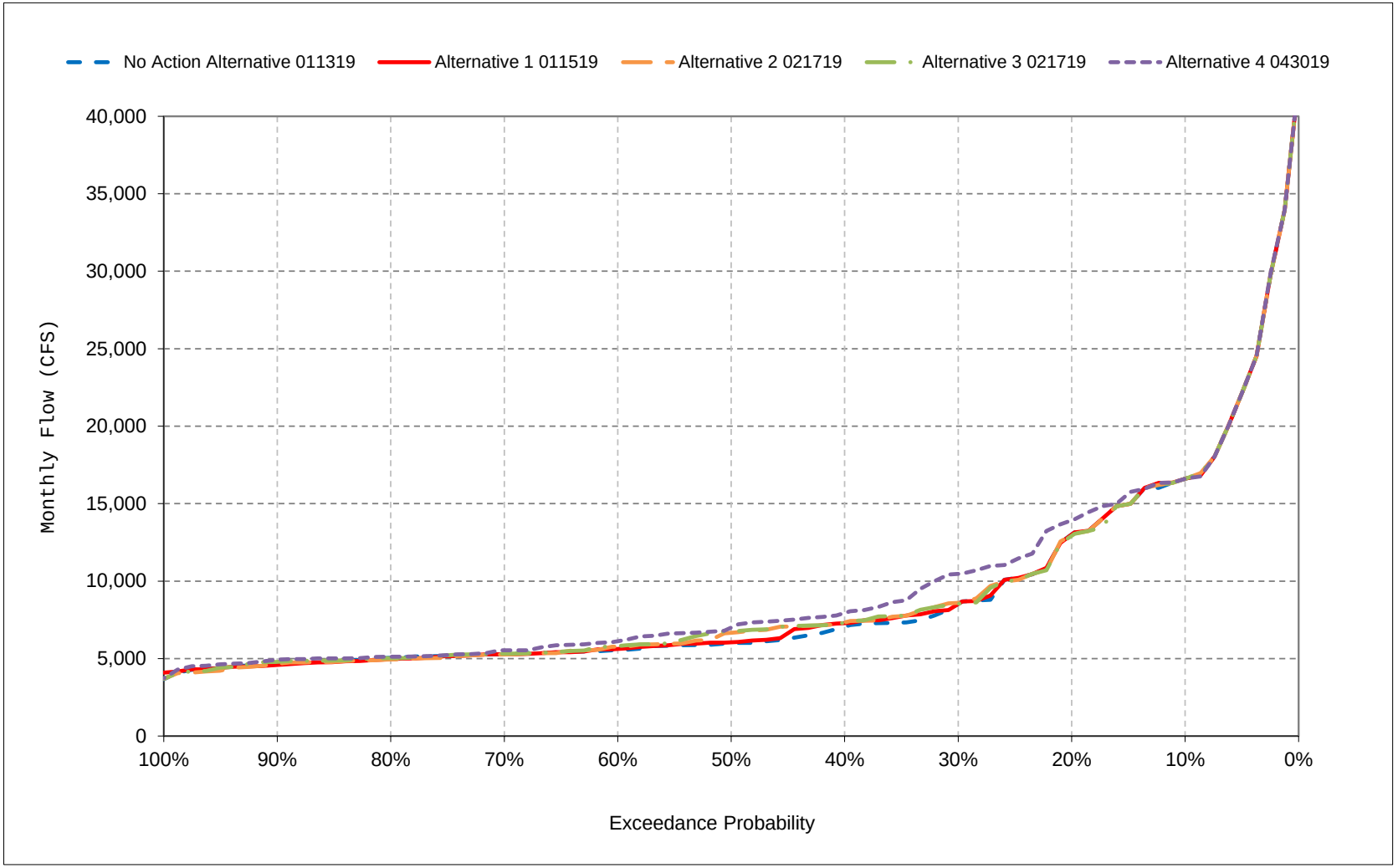
**Figure 17-12. Sacramento River below Red Bluff Diversion Dam Flow, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

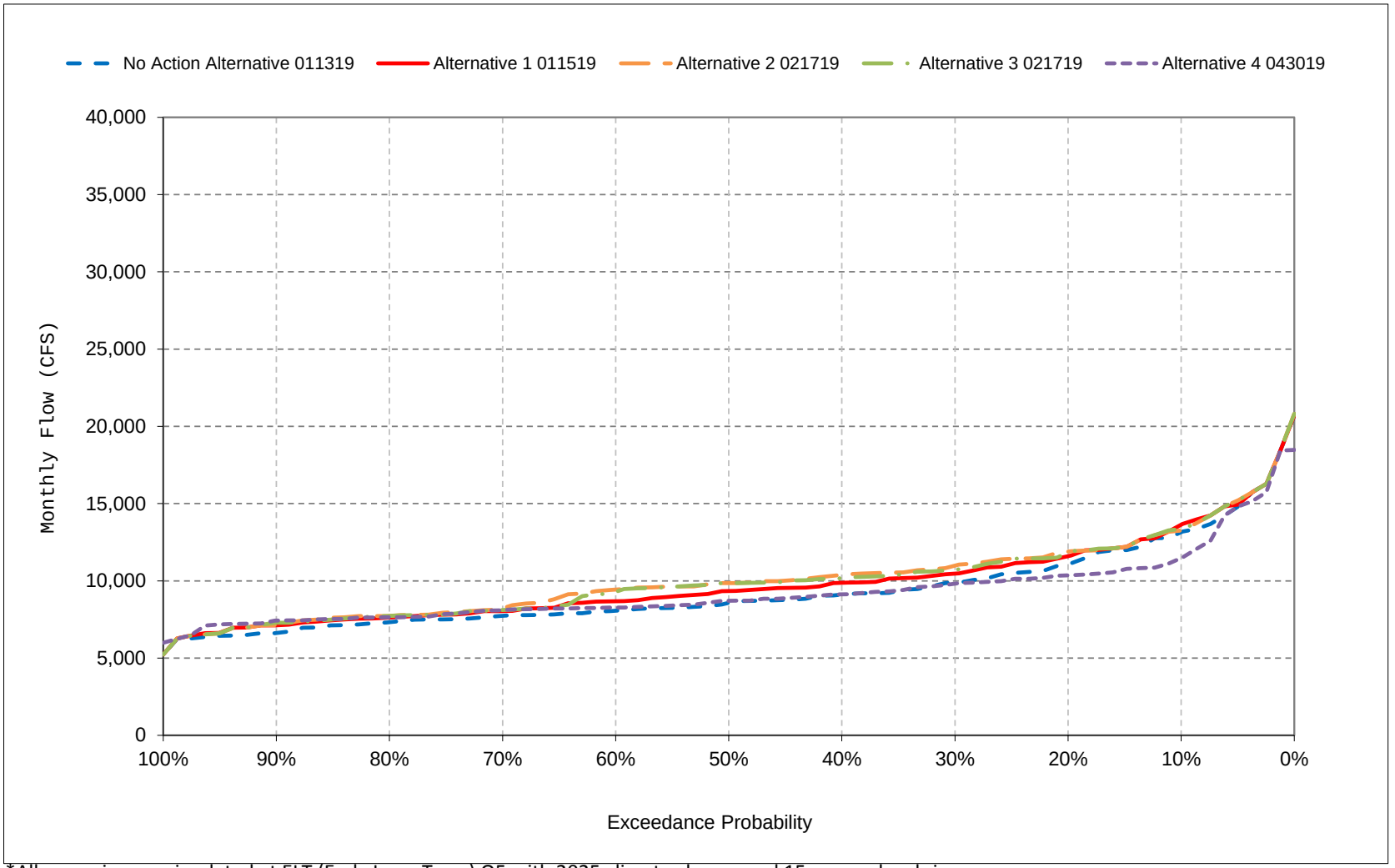
**Figure 17-13. Sacramento River below Red Bluff Diversion Dam Flow, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

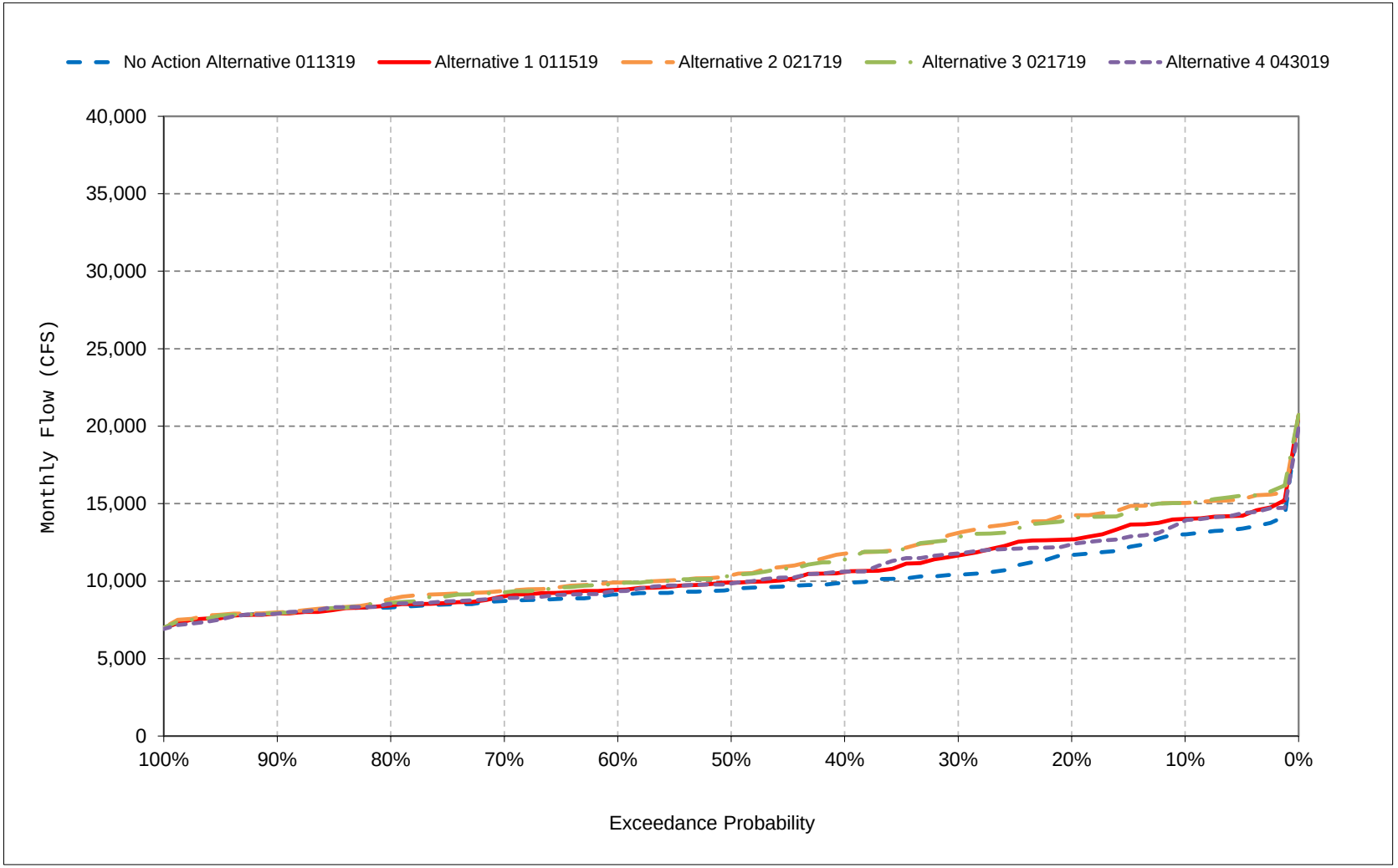
**Figure 17-14. Sacramento River below Red Bluff Diversion Dam Flow, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

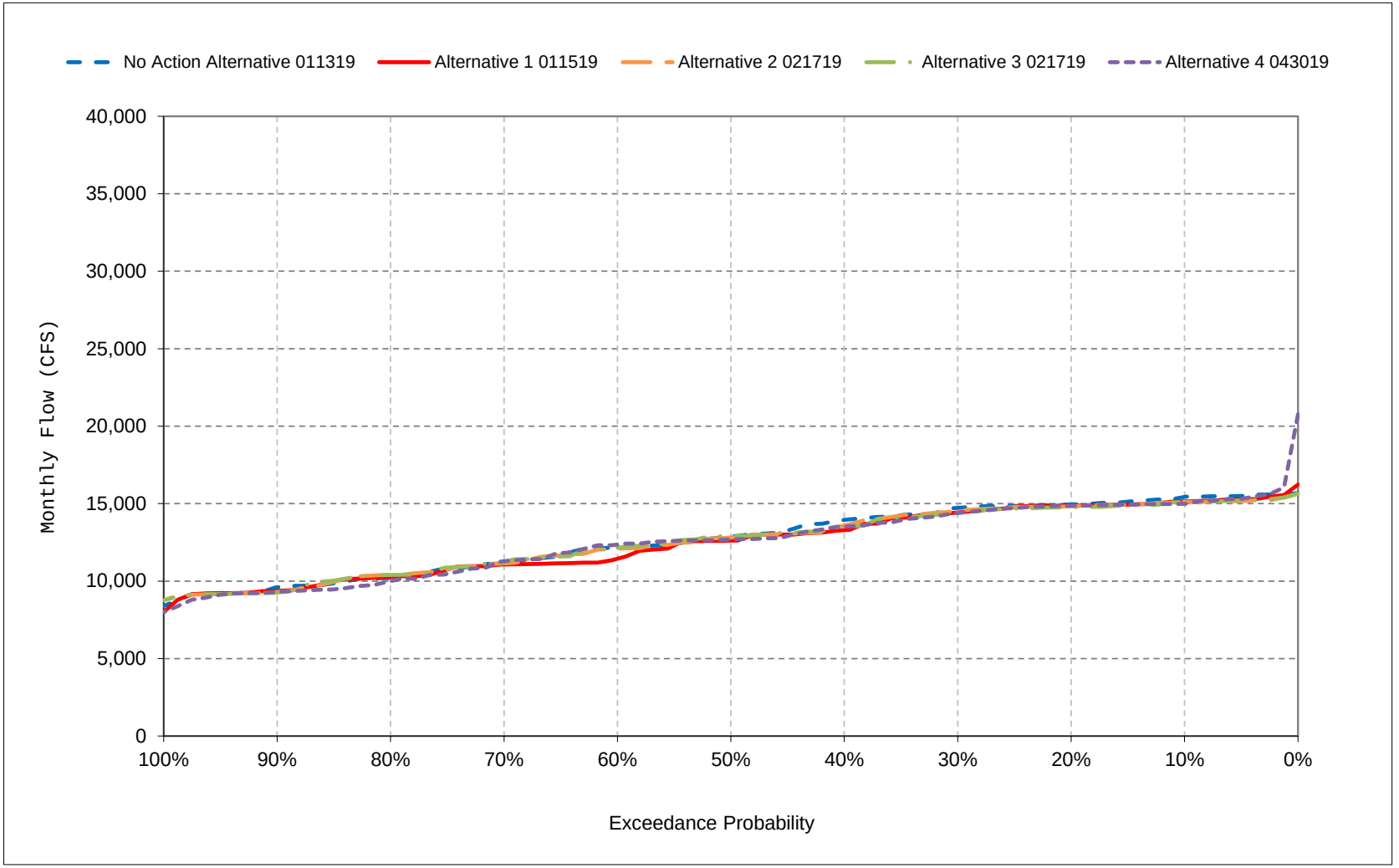
**Figure 17-15. Sacramento River below Red Bluff Diversion Dam Flow, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

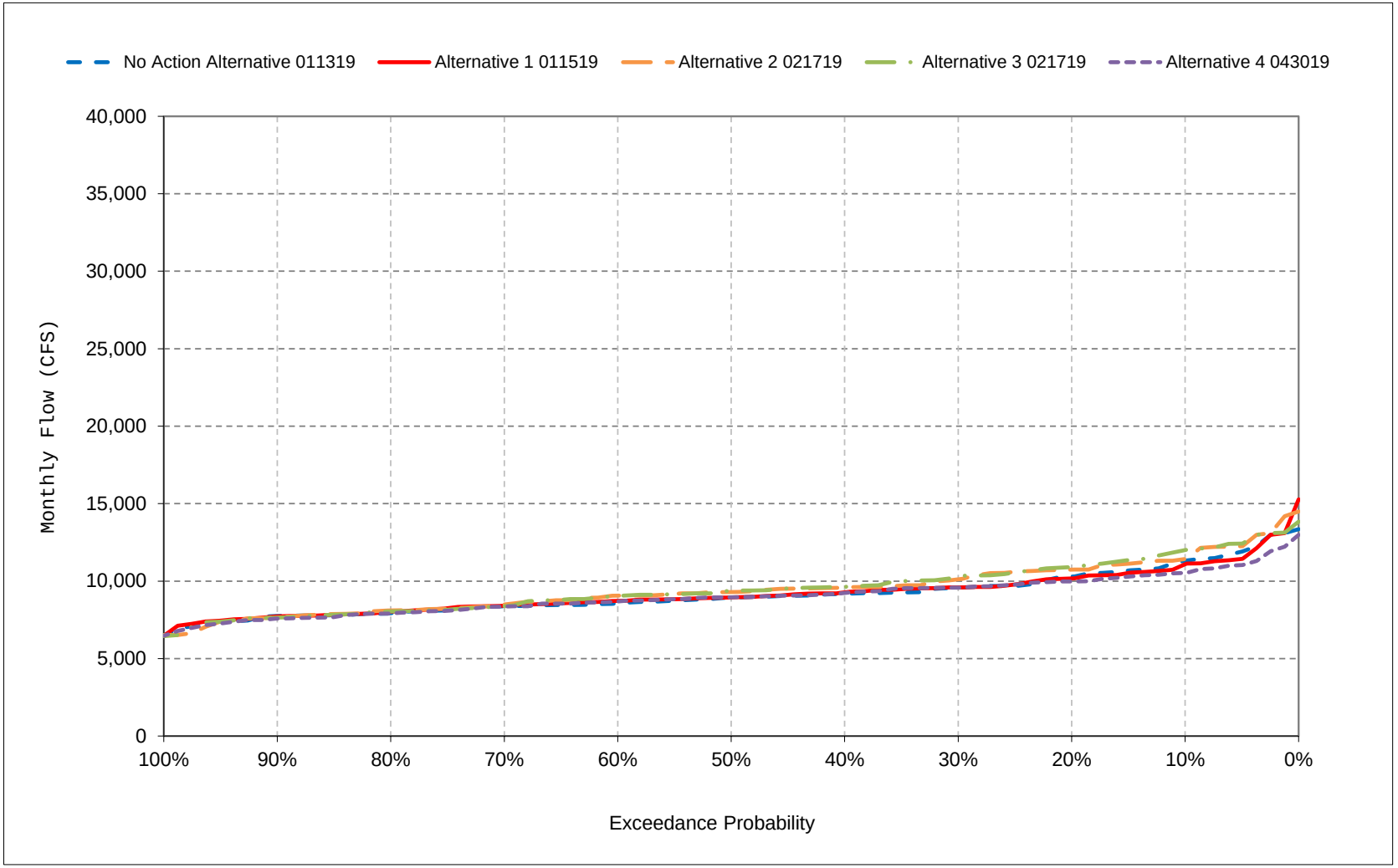
**Figure 17-16. Sacramento River below Red Bluff Diversion Dam Flow, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

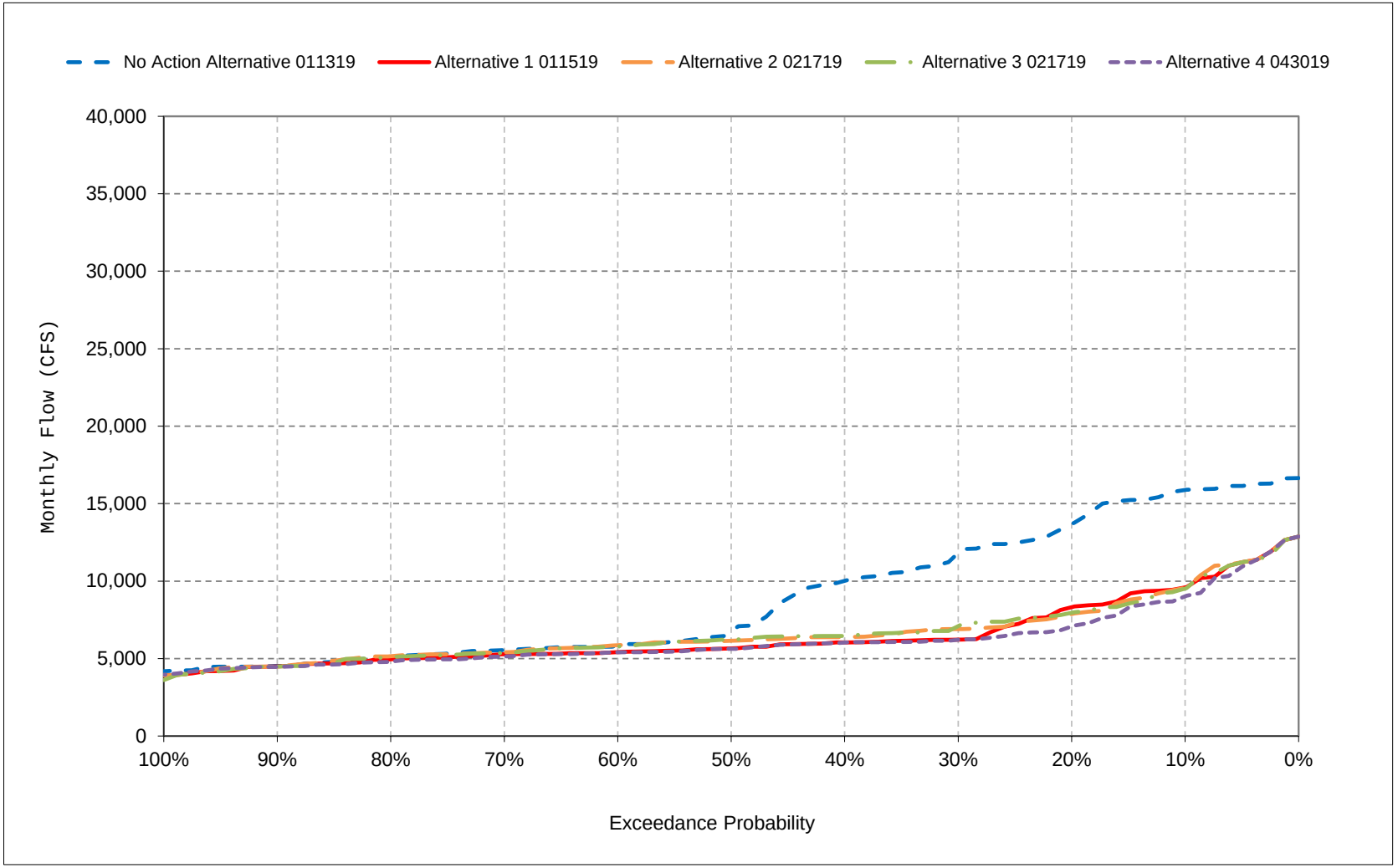
**Figure 17-17. Sacramento River below Red Bluff Diversion Dam Flow, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 17-18. Sacramento River below Red Bluff Diversion Dam Flow, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 18-1. Sacramento River Flow at Hamilton City, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,524 | 14,328 | 30,407 | 40,893 | 51,938 | 33,411 | 19,893 | 13,731 | 10,553 | 12,940 | 9,381 | 15,452 |
| 20% | 8,682 | 11,931 | 19,454 | 26,965 | 36,955 | 22,491 | 15,438 | 11,335 | 9,481 | 12,532 | 8,111 | 13,186 |
| 30% | 7,536 | 11,343 | 11,974 | 18,703 | 23,981 | 17,461 | 9,650 | 8,602 | 8,701 | 12,287 | 7,628 | 11,325 |
| 40% | 7,051 | 10,435 | 9,406 | 13,004 | 15,886 | 12,296 | 7,812 | 7,444 | 8,000 | 11,626 | 7,238 | 9,593 |
| 50% | 6,301 | 8,990 | 7,689 | 10,368 | 11,817 | 10,482 | 7,008 | 7,030 | 7,384 | 10,556 | 6,973 | 6,281 |
| 60% | 5,760 | 7,642 | 6,671 | 8,240 | 9,996 | 9,142 | 6,402 | 6,770 | 7,112 | 9,869 | 6,612 | 5,266 |
| 70% | 5,424 | 6,547 | 6,236 | 7,004 | 8,562 | 7,906 | 5,978 | 6,456 | 6,847 | 8,706 | 6,440 | 4,991 |
| 80% | 5,136 | 5,686 | 5,536 | 6,324 | 7,193 | 6,759 | 5,544 | 5,943 | 6,634 | 7,928 | 6,126 | 4,585 |
| 90% | 4,647 | 4,764 | 4,972 | 5,418 | 5,746 | 6,105 | 5,031 | 5,628 | 6,183 | 7,205 | 5,838 | 4,026 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,818 | 9,677 | 13,293 | 17,980 | 21,539 | 16,715 | 10,435 | 8,497 | 8,101 | 10,326 | 7,230 | 8,472 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,219 | 12,548 | 13,755 | 33,783 | 35,092 | 28,342 | 16,376 | 11,144 | 8,207 | 10,450 | 7,770 | 13,867 |
| Above Normal (16%) | 7,425 | 12,867 | 12,385 | 19,430 | 29,641 | 18,802 | 11,052 | 8,831 | 8,368 | 11,840 | 7,780 | 9,701 |
| Below Normal (13%) | 6,440 | 6,788 | 13,003 | 8,908 | 14,535 | 8,530 | 7,083 | 7,429 | 8,757 | 11,240 | 8,168 | 5,345 |
| Dry (24%) | 5,989 | 8,176 | 17,167 | 8,112 | 11,042 | 10,647 | 7,244 | 6,779 | 8,089 | 9,728 | 6,468 | 4,801 |
| Critical (15%) | 4,854 | 5,153 | 7,089 | 6,934 | 7,312 | 6,875 | 5,290 | 6,238 | 7,000 | 8,573 | 5,874 | 4,436 |

### Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,690 | 11,929 | 34,073 | 46,659 | 52,522 | 33,860 | 19,894 | 13,755 | 11,595 | 12,682 | 9,029 | 9,118 |
| 20% | 8,499 | 8,618 | 25,165 | 28,515 | 35,438 | 23,142 | 15,429 | 11,547 | 10,555 | 12,461 | 8,137 | 7,829 |
| 30% | 7,885 | 7,515 | 12,874 | 19,733 | 24,884 | 19,894 | 9,896 | 9,317 | 9,549 | 12,049 | 7,602 | 5,743 |
| 40% | 6,737 | 7,046 | 10,296 | 16,609 | 16,119 | 13,184 | 8,087 | 8,445 | 8,713 | 11,151 | 7,287 | 5,440 |
| 50% | 6,401 | 6,706 | 7,868 | 10,952 | 12,567 | 11,204 | 7,121 | 7,821 | 8,223 | 10,318 | 7,003 | 5,142 |
| 60% | 5,913 | 6,108 | 6,631 | 8,493 | 10,223 | 9,304 | 6,454 | 7,144 | 7,493 | 9,063 | 6,748 | 4,913 |
| 70% | 5,679 | 5,686 | 5,988 | 7,306 | 8,668 | 8,150 | 5,957 | 6,780 | 7,101 | 8,650 | 6,510 | 4,741 |
| 80% | 5,358 | 5,490 | 5,535 | 6,320 | 7,095 | 6,996 | 5,512 | 6,487 | 6,850 | 7,906 | 6,142 | 4,414 |
| 90% | 4,547 | 5,093 | 5,052 | 5,420 | 5,941 | 6,507 | 4,953 | 5,937 | 6,184 | 7,163 | 5,928 | 3,958 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,856 | 8,130 | 14,251 | 18,753 | 21,892 | 17,117 | 10,495 | 8,963 | 8,653 | 10,133 | 7,276 | 5,954 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,125 | 9,018 | 15,840 | 34,872 | 35,256 | 28,427 | 16,473 | 11,370 | 8,272 | 10,330 | 7,912 | 8,102 |
| Above Normal (16%) | 7,520 | 9,793 | 13,627 | 20,790 | 30,810 | 19,481 | 11,048 | 9,298 | 8,669 | 11,836 | 7,728 | 4,970 |
| Below Normal (13%) | 6,396 | 6,790 | 13,026 | 10,296 | 15,537 | 9,376 | 7,443 | 8,199 | 9,872 | 11,151 | 8,164 | 5,819 |
| Dry (24%) | 6,207 | 8,278 | 17,539 | 8,230 | 11,039 | 11,025 | 7,215 | 7,555 | 9,039 | 9,458 | 6,558 | 4,705 |
| Critical (15%) | 4,889 | 5,388 | 7,126 | 6,909 | 7,192 | 7,297 | 5,207 | 6,434 | 7,699 | 8,053 | 5,789 | 4,568 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 166 | **-2,399** | 3,666 | 5,766 | 584 | 449 | 1 | 24 | 1,043 | **-258** | **-352** | **-6,335** |
| 20% | **-182** | **-3,313** | 5,711 | 1,549 | **-1,517** | 651 | **-9** | 212 | 1,073 | **-71** | 26 | **-5,356** |
| 30% | 349 | **-3,829** | 900 | 1,030 | 903 | 2,433 | 246 | 715 | 848 | **-238** | **-27** | **-5,582** |
| 40% | **-315** | **-3,389** | 890 | 3,605 | 233 | 888 | 275 | 1,001 | 713 | **-475** | 49 | **-4,153** |
| 50% | 100 | **-2,284** | 180 | 585 | 751 | 722 | 113 | 791 | 838 | **-239** | 30 | **-1,140** |
| 60% | 152 | **-1,534** | **-41** | 253 | 227 | 162 | 52 | 373 | 381 | **-806** | 136 | **-353** |
| 70% | 255 | **-861** | **-249** | 302 | 106 | 243 | **-21** | 323 | 254 | **-56** | 70 | **-250** |
| 80% | 222 | **-195** | **-1** | **-4** | **-98** | 237 | **-32** | 544 | 216 | **-22** | 15 | **-171** |
| 90% | **-99** | 329 | 80 | 2 | 196 | 401 | **-78** | 310 | 1 | **-41** | 90 | **-68** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 38 | **-1,547** | 957 | 772 | 353 | 402 | 59 | 467 | 552 | **-192** | 46 | **-2,518** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-94** | **-3,530** | 2,085 | 1,089 | 164 | 85 | 97 | 226 | 65 | **-120** | 142 | **-5,764** |
| Above Normal (16%) | 95 | **-3,074** | 1,243 | 1,360 | 1,169 | 679 | **-3** | 467 | 301 | **-4** | **-52** | **-4,731** |
| Below Normal (13%) | **-44** | 2 | 23 | 1,389 | 1,002 | 846 | 360 | 770 | 1,115 | **-89** | **-4** | 474 |
| Dry (24%) | 219 | 102 | 372 | 118 | **-4** | 379 | **-29** | 776 | 950 | **-270** | 90 | **-95** |
| Critical (15%) | 35 | 235 | 37 | **-25** | **-120** | 422 | **-83** | 196 | 699 | **-520** | **-86** | 132 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 18-2. Sacramento River Flow at Hamilton City, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,524 | 14,328 | 30,407 | 40,893 | 51,938 | 33,411 | 19,893 | 13,731 | 10,553 | 12,940 | 9,381 | 15,452 |
| 20% | 8,682 | 11,931 | 19,454 | 26,965 | 36,955 | 22,491 | 15,438 | 11,335 | 9,481 | 12,532 | 8,111 | 13,186 |
| 30% | 7,536 | 11,343 | 11,974 | 18,703 | 23,981 | 17,461 | 9,650 | 8,602 | 8,701 | 12,287 | 7,628 | 11,325 |
| 40% | 7,051 | 10,435 | 9,406 | 13,004 | 15,886 | 12,296 | 7,812 | 7,444 | 8,000 | 11,626 | 7,238 | 9,593 |
| 50% | 6,301 | 8,990 | 7,689 | 10,368 | 11,817 | 10,482 | 7,008 | 7,030 | 7,384 | 10,556 | 6,973 | 6,281 |
| 60% | 5,760 | 7,642 | 6,671 | 8,240 | 9,996 | 9,142 | 6,402 | 6,770 | 7,112 | 9,869 | 6,612 | 5,266 |
| 70% | 5,424 | 6,547 | 6,236 | 7,004 | 8,562 | 7,906 | 5,978 | 6,456 | 6,847 | 8,706 | 6,440 | 4,991 |
| 80% | 5,136 | 5,686 | 5,536 | 6,324 | 7,193 | 6,759 | 5,544 | 5,943 | 6,634 | 7,928 | 6,126 | 4,585 |
| 90% | 4,647 | 4,764 | 4,972 | 5,418 | 5,746 | 6,105 | 5,031 | 5,628 | 6,183 | 7,205 | 5,838 | 4,026 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,818 | 9,677 | 13,293 | 17,980 | 21,539 | 16,715 | 10,435 | 8,497 | 8,101 | 10,326 | 7,230 | 8,472 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,219 | 12,548 | 13,755 | 33,783 | 35,092 | 28,342 | 16,376 | 11,144 | 8,207 | 10,450 | 7,770 | 13,867 |
| Above Normal (16%) | 7,425 | 12,867 | 12,385 | 19,430 | 29,641 | 18,802 | 11,052 | 8,831 | 8,368 | 11,840 | 7,780 | 9,701 |
| Below Normal (13%) | 6,440 | 6,788 | 13,003 | 8,908 | 14,535 | 8,530 | 7,083 | 7,429 | 8,757 | 11,240 | 8,168 | 5,345 |
| Dry (24%) | 5,989 | 8,176 | 17,167 | 8,112 | 11,042 | 10,647 | 7,244 | 6,779 | 8,089 | 9,728 | 6,468 | 4,801 |
| Critical (15%) | 4,854 | 5,153 | 7,089 | 6,934 | 7,312 | 6,875 | 5,290 | 6,238 | 7,000 | 8,573 | 5,874 | 4,436 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,495 | 11,829 | 33,474 | 44,222 | 52,523 | 33,845 | 19,893 | 13,815 | 12,965 | 12,620 | 9,413 | 9,141 |
| 20% | 8,833 | 8,836 | 22,314 | 28,562 | 35,436 | 21,570 | 15,500 | 11,448 | 11,948 | 12,461 | 8,789 | 7,359 |
| 30% | 8,078 | 7,554 | 12,026 | 18,904 | 25,545 | 18,194 | 9,886 | 10,014 | 10,588 | 12,085 | 8,130 | 6,385 |
| 40% | 7,833 | 6,974 | 10,073 | 15,238 | 16,083 | 13,150 | 8,454 | 8,721 | 9,592 | 11,337 | 7,660 | 5,892 |
| 50% | 6,524 | 6,561 | 7,748 | 10,852 | 12,206 | 10,843 | 7,244 | 8,553 | 8,668 | 10,303 | 7,379 | 5,680 |
| 60% | 5,957 | 6,137 | 6,659 | 8,348 | 10,171 | 9,287 | 6,753 | 7,826 | 8,139 | 9,596 | 7,037 | 5,383 |
| 70% | 5,332 | 5,629 | 6,042 | 7,079 | 8,649 | 7,897 | 6,017 | 7,070 | 7,549 | 8,894 | 6,670 | 4,854 |
| 80% | 5,046 | 5,180 | 5,458 | 6,049 | 7,092 | 6,809 | 5,491 | 6,619 | 7,022 | 8,156 | 6,222 | 4,610 |
| 90% | 4,523 | 4,744 | 4,822 | 5,211 | 5,641 | 6,271 | 5,254 | 5,920 | 6,304 | 7,085 | 5,851 | 4,065 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,873 | 7,971 | 13,654 | 18,344 | 21,709 | 16,912 | 10,554 | 9,232 | 9,354 | 10,229 | 7,569 | 6,163 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,015 | 8,908 | 15,457 | 34,075 | 35,356 | 28,399 | 16,459 | 11,439 | 9,032 | 10,260 | 8,138 | 7,758 |
| Above Normal (16%) | 8,008 | 9,220 | 12,592 | 20,379 | 30,698 | 19,181 | 10,983 | 9,470 | 10,695 | 11,722 | 8,258 | 5,529 |
| Below Normal (13%) | 6,429 | 6,760 | 12,309 | 10,060 | 14,645 | 9,299 | 7,536 | 8,647 | 10,637 | 11,194 | 9,261 | 6,426 |
| Dry (24%) | 6,109 | 8,299 | 16,719 | 8,092 | 10,670 | 10,383 | 7,305 | 8,043 | 9,040 | 9,539 | 6,327 | 5,201 |
| Critical (15%) | 4,848 | 5,149 | 7,021 | 6,739 | 7,281 | 7,424 | 5,479 | 6,714 | 7,948 | 8,809 | 6,111 | 4,753 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-29** | **-2,499** | 3,067 | 3,329 | 585 | 435 | 0 | 84 | 2,413 | **-319** | 31 | **-6,312** |
| 20% | 151 | **-3,095** | 2,860 | 1,597 | **-1,520** | **-921** | 62 | 113 | 2,466 | **-71** | 679 | **-5,827** |
| 30% | 543 | **-3,789** | 52 | 201 | 1,564 | 732 | 237 | 1,412 | 1,887 | **-202** | 502 | **-4,940** |
| 40% | 781 | **-3,461** | 667 | 2,234 | 197 | 854 | 642 | 1,278 | 1,593 | **-289** | 422 | **-3,701** |
| 50% | 223 | **-2,429** | 59 | 485 | 390 | 362 | 236 | 1,523 | 1,283 | **-253** | 406 | **-601** |
| 60% | 196 | **-1,505** | **-12** | 108 | 175 | 145 | 350 | 1,056 | 1,026 | **-272** | 425 | 116 |
| 70% | **-92** | **-917** | **-194** | 75 | 88 | **-9** | 38 | 614 | 702 | 187 | 230 | **-137** |
| 80% | **-90** | **-506** | **-78** | **-275** | **-101** | 50 | **-53** | 676 | 388 | 228 | 96 | 25 |
| 90% | **-124** | **-20** | **-150** | **-208** | **-104** | 166 | 224 | 293 | 122 | **-119** | 14 | 39 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55 | **-1,707** | 361 | 364 | 171 | 197 | 119 | 736 | 1,254 | **-97** | 339 | **-2,309** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-204** | **-3,640** | 1,703 | 292 | 264 | 57 | 84 | 295 | 825 | **-190** | 368 | **-6,109** |
| Above Normal (16%) | 583 | **-3,647** | 208 | 949 | 1,057 | 379 | **-69** | 639 | 2,328 | **-118** | 478 | **-4,172** |
| Below Normal (13%) | **-11** | **-28** | **-694** | 1,152 | 110 | 769 | 454 | 1,218 | 1,880 | **-47** | 1,094 | 1,081 |
| Dry (24%) | 121 | 123 | **-448** | **-21** | **-372** | **-264** | 61 | 1,263 | 951 | **-189** | **-142** | 400 |
| Critical (15%) | **-6** | **-4** | **-68** | **-195** | **-31** | 549 | 189 | 476 | 949 | 237 | 237 | 317 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 18-3. Sacramento River Flow at Hamilton City, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,524 | 14,328 | 30,407 | 40,893 | 51,938 | 33,411 | 19,893 | 13,731 | 10,553 | 12,940 | 9,381 | 15,452 |
| 20% | 8,682 | 11,931 | 19,454 | 26,965 | 36,955 | 22,491 | 15,438 | 11,335 | 9,481 | 12,532 | 8,111 | 13,186 |
| 30% | 7,536 | 11,343 | 11,974 | 18,703 | 23,981 | 17,461 | 9,650 | 8,602 | 8,701 | 12,287 | 7,628 | 11,325 |
| 40% | 7,051 | 10,435 | 9,406 | 13,004 | 15,886 | 12,296 | 7,812 | 7,444 | 8,000 | 11,626 | 7,238 | 9,593 |
| 50% | 6,301 | 8,990 | 7,689 | 10,368 | 11,817 | 10,482 | 7,008 | 7,030 | 7,384 | 10,556 | 6,973 | 6,281 |
| 60% | 5,760 | 7,642 | 6,671 | 8,240 | 9,996 | 9,142 | 6,402 | 6,770 | 7,112 | 9,869 | 6,612 | 5,266 |
| 70% | 5,424 | 6,547 | 6,236 | 7,004 | 8,562 | 7,906 | 5,978 | 6,456 | 6,847 | 8,706 | 6,440 | 4,991 |
| 80% | 5,136 | 5,686 | 5,536 | 6,324 | 7,193 | 6,759 | 5,544 | 5,943 | 6,634 | 7,928 | 6,126 | 4,585 |
| 90% | 4,647 | 4,764 | 4,972 | 5,418 | 5,746 | 6,105 | 5,031 | 5,628 | 6,183 | 7,205 | 5,838 | 4,026 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,818 | 9,677 | 13,293 | 17,980 | 21,539 | 16,715 | 10,435 | 8,497 | 8,101 | 10,326 | 7,230 | 8,472 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 8,219 | 12,548 | 13,755 | 33,783 | 35,092 | 28,342 | 16,376 | 11,144 | 8,207 | 10,450 | 7,770 | 13,867 |
| Above Normal (16%) | 7,425 | 12,867 | 12,385 | 19,430 | 29,641 | 18,802 | 11,052 | 8,831 | 8,368 | 11,840 | 7,780 | 9,701 |
| Below Normal (13%) | 6,440 | 6,788 | 13,003 | 8,908 | 14,535 | 8,530 | 7,083 | 7,429 | 8,757 | 11,240 | 8,168 | 5,345 |
| Dry (24%) | 5,989 | 8,176 | 17,167 | 8,112 | 11,042 | 10,647 | 7,244 | 6,779 | 8,089 | 9,728 | 6,468 | 4,801 |
| Critical (15%) | 4,854 | 5,153 | 7,089 | 6,934 | 7,312 | 6,875 | 5,290 | 6,238 | 7,000 | 8,573 | 5,874 | 4,436 |

### Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,532 | 11,805 | 33,460 | 43,641 | 52,522 | 33,861 | 19,893 | 13,815 | 12,964 | 12,610 | 10,087 | 9,103 |
| 20% | 8,911 | 9,220 | 22,966 | 28,527 | 35,435 | 21,587 | 15,398 | 11,532 | 11,509 | 12,331 | 9,015 | 7,453 |
| 30% | 8,049 | 7,525 | 11,996 | 18,859 | 26,000 | 18,124 | 9,887 | 9,793 | 10,412 | 12,011 | 8,282 | 6,602 |
| 40% | 7,526 | 7,039 | 10,074 | 15,238 | 16,082 | 13,151 | 8,471 | 8,740 | 9,448 | 11,264 | 7,702 | 5,968 |
| 50% | 7,251 | 6,650 | 7,818 | 10,849 | 12,207 | 10,459 | 7,230 | 8,494 | 8,669 | 10,420 | 7,330 | 5,762 |
| 60% | 6,500 | 6,173 | 6,903 | 8,348 | 10,170 | 9,275 | 6,816 | 7,657 | 7,940 | 9,672 | 7,044 | 5,338 |
| 70% | 5,836 | 5,574 | 6,288 | 7,176 | 8,426 | 7,820 | 6,059 | 6,981 | 7,607 | 8,852 | 6,494 | 4,824 |
| 80% | 5,279 | 5,179 | 5,463 | 6,227 | 6,812 | 6,886 | 5,682 | 6,581 | 6,858 | 8,141 | 6,184 | 4,495 |
| 90% | 4,626 | 4,848 | 4,823 | 5,300 | 5,739 | 6,282 | 5,253 | 5,844 | 6,251 | 7,086 | 5,782 | 4,009 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,112 | 7,980 | 13,742 | 18,325 | 21,613 | 16,872 | 10,593 | 9,157 | 9,260 | 10,225 | 7,598 | 6,157 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 8,186 | 8,953 | 15,635 | 33,976 | 35,257 | 28,382 | 16,534 | 11,157 | 8,948 | 10,317 | 8,338 | 7,622 |
| Above Normal (16%) | 7,665 | 9,647 | 12,872 | 20,256 | 30,541 | 19,143 | 11,001 | 9,500 | 10,446 | 11,723 | 8,147 | 5,685 |
| Below Normal (13%) | 6,835 | 6,772 | 12,357 | 10,013 | 14,534 | 9,303 | 7,615 | 8,679 | 10,536 | 11,204 | 9,042 | 6,474 |
| Dry (24%) | 6,750 | 7,984 | 16,643 | 8,080 | 10,676 | 10,257 | 7,309 | 8,065 | 9,104 | 9,535 | 6,376 | 5,260 |
| Critical (15%) | 5,042 | 5,166 | 7,018 | 7,015 | 7,097 | 7,433 | 5,485 | 6,711 | 7,742 | 8,652 | 6,114 | 4,698 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 8 | **-2,523** | 3,053 | 2,748 | 584 | 450 | 0 | 84 | 2,411 | **-329** | 705 | **-6,349** |
| 20% | 230 | **-2,710** | 3,512 | 1,561 | **-1,520** | **-904** | **-40** | 197 | 2,028 | **-201** | 904 | **-5,733** |
| 30% | 514 | **-3,818** | 22 | 156 | 2,019 | 663 | 237 | 1,192 | 1,711 | **-276** | 654 | **-4,724** |
| 40% | 474 | **-3,397** | 668 | 2,234 | 197 | 855 | 659 | 1,296 | 1,448 | **-361** | 464 | **-3,625** |
| 50% | 950 | **-2,341** | 129 | 482 | 390 | **-23** | 222 | 1,464 | 1,284 | **-137** | 357 | **-519** |
| 60% | 740 | **-1,469** | 232 | 108 | 174 | 133 | 414 | 887 | 828 | **-196** | 432 | 72 |
| 70% | 412 | **-973** | 52 | 172 | **-136** | **-87** | 81 | 525 | 760 | 145 | 54 | **-167** |
| 80% | 143 | **-507** | **-73** | **-97** | **-380** | 127 | 138 | 638 | 225 | 213 | 58 | **-90** |
| 90% | **-21** | 84 | **-149** | **-118** | **-6** | 177 | 223 | 216 | 68 | **-119** | **-55** | **-17** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 294 | **-1,697** | 449 | 344 | 74 | 157 | 158 | 661 | 1,160 | **-101** | 368 | **-2,315** |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | **-33** | **-3,595** | 1,881 | 193 | 165 | 40 | 158 | 13 | 741 | **-133** | 568 | **-6,245** |
| Above Normal (16%) | 240 | **-3,220** | 487 | 825 | 900 | 341 | **-51** | 669 | 2,078 | **-117** | 367 | **-4,016** |
| Below Normal (13%) | 395 | **-15** | **-647** | 1,105 | **-1** | 773 | 532 | 1,250 | 1,780 | **-37** | 874 | 1,129 |
| Dry (24%) | 761 | **-192** | **-524** | **-33** | **-366** | **-390** | 65 | 1,286 | 1,016 | **-192** | **-93** | 459 |
| Critical (15%) | 188 | 13 | **-71** | 81 | **-214** | 558 | 195 | 473 | 742 | 79 | 240 | 262 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 18-4. Sacramento River Flow at Hamilton City, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,524 | 14,328 | 30,407 | 40,893 | 51,938 | 33,411 | 19,893 | 13,731 | 10,553 | 12,940 | 9,381 | 15,452 |
| 20% | 8,682 | 11,931 | 19,454 | 26,965 | 36,955 | 22,491 | 15,438 | 11,335 | 9,481 | 12,532 | 8,111 | 13,186 |
| 30% | 7,536 | 11,343 | 11,974 | 18,703 | 23,981 | 17,461 | 9,650 | 8,602 | 8,701 | 12,287 | 7,628 | 11,325 |
| 40% | 7,051 | 10,435 | 9,406 | 13,004 | 15,886 | 12,296 | 7,812 | 7,444 | 8,000 | 11,626 | 7,238 | 9,593 |
| 50% | 6,301 | 8,990 | 7,689 | 10,368 | 11,817 | 10,482 | 7,008 | 7,030 | 7,384 | 10,556 | 6,973 | 6,281 |
| 60% | 5,760 | 7,642 | 6,671 | 8,240 | 9,996 | 9,142 | 6,402 | 6,770 | 7,112 | 9,869 | 6,612 | 5,266 |
| 70% | 5,424 | 6,547 | 6,236 | 7,004 | 8,562 | 7,906 | 5,978 | 6,456 | 6,847 | 8,706 | 6,440 | 4,991 |
| 80% | 5,136 | 5,686 | 5,536 | 6,324 | 7,193 | 6,759 | 5,544 | 5,943 | 6,634 | 7,928 | 6,126 | 4,585 |
| 90% | 4,647 | 4,764 | 4,972 | 5,418 | 5,746 | 6,105 | 5,031 | 5,628 | 6,183 | 7,205 | 5,838 | 4,026 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,818 | 9,677 | 13,293 | 17,980 | 21,539 | 16,715 | 10,435 | 8,497 | 8,101 | 10,326 | 7,230 | 8,472 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 8,219 | 12,548 | 13,755 | 33,783 | 35,092 | 28,342 | 16,376 | 11,144 | 8,207 | 10,450 | 7,770 | 13,867 |
| Above Normal (16%) | 7,425 | 12,867 | 12,385 | 19,430 | 29,641 | 18,802 | 11,052 | 8,831 | 8,368 | 11,840 | 7,780 | 9,701 |
| Below Normal (13%) | 6,440 | 6,788 | 13,003 | 8,908 | 14,535 | 8,530 | 7,083 | 7,429 | 8,757 | 11,240 | 8,168 | 5,345 |
| Dry (24%) | 5,989 | 8,176 | 17,167 | 8,112 | 11,042 | 10,647 | 7,244 | 6,779 | 8,089 | 9,728 | 6,468 | 4,801 |
| Critical (15%) | 4,854 | 5,153 | 7,089 | 6,934 | 7,312 | 6,875 | 5,290 | 6,238 | 7,000 | 8,573 | 5,874 | 4,436 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,186 | 12,078 | 33,967 | 46,664 | 53,224 | 33,862 | 19,667 | 11,565 | 11,286 | 12,606 | 8,448 | 8,447 |
| 20% | 8,534 | 8,269 | 25,770 | 28,663 | 35,464 | 22,447 | 16,544 | 10,528 | 10,238 | 12,386 | 7,910 | 6,644 |
| 30% | 7,715 | 7,618 | 12,902 | 19,606 | 24,881 | 19,883 | 12,139 | 8,537 | 9,535 | 12,049 | 7,622 | 5,673 |
| 40% | 7,274 | 7,014 | 10,428 | 16,276 | 16,583 | 14,926 | 9,704 | 7,782 | 8,905 | 11,087 | 7,295 | 5,476 |
| 50% | 6,311 | 6,550 | 7,885 | 11,158 | 12,740 | 11,751 | 7,998 | 7,422 | 8,099 | 10,283 | 7,042 | 5,151 |
| 60% | 5,786 | 5,998 | 6,660 | 8,615 | 10,306 | 10,038 | 6,857 | 6,905 | 7,606 | 9,859 | 6,727 | 4,884 |
| 70% | 5,487 | 5,695 | 6,035 | 7,304 | 8,768 | 8,698 | 5,986 | 6,609 | 6,987 | 9,001 | 6,411 | 4,551 |
| 80% | 5,135 | 5,289 | 5,484 | 6,352 | 7,544 | 7,226 | 5,531 | 6,372 | 6,758 | 7,626 | 6,000 | 4,340 |
| 90% | 4,637 | 5,118 | 4,954 | 5,413 | 5,951 | 5,960 | 5,193 | 5,932 | 6,164 | 7,049 | 5,812 | 3,981 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,817 | 8,003 | 14,407 | 18,904 | 22,162 | 17,436 | 11,062 | 8,429 | 8,572 | 10,198 | 7,097 | 5,746 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 8,106 | 8,723 | 15,824 | 35,258 | 35,506 | 28,798 | 17,309 | 10,944 | 8,245 | 10,462 | 7,841 | 7,694 |
| Above Normal (16%) | 7,347 | 9,571 | 13,725 | 20,712 | 31,391 | 20,169 | 11,785 | 8,623 | 8,259 | 12,470 | 7,645 | 5,202 |
| Below Normal (13%) | 6,371 | 6,978 | 13,247 | 10,637 | 15,575 | 9,847 | 7,933 | 7,319 | 9,462 | 11,159 | 7,415 | 4,976 |
| Dry (24%) | 6,117 | 8,220 | 17,992 | 8,191 | 11,361 | 11,296 | 7,613 | 6,916 | 9,306 | 9,486 | 6,449 | 4,666 |
| Critical (15%) | 5,024 | 5,324 | 7,165 | 6,942 | 7,296 | 7,047 | 5,357 | 6,313 | 7,579 | 7,469 | 5,678 | 4,621 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-338** | **-2,250** | 3,560 | 5,772 | 1,286 | 451 | **-226** | **-2,166** | 733 | **-334** | **-934** | **-7,006** |
| 20% | **-147** | **-3,662** | 6,316 | 1,697 | **-1,491** | **-43** | 1,106 | **-807** | 757 | **-147** | **-201** | **-6,541** |
| 30% | 179 | **-3,725** | 928 | 903 | 900 | 2,421 | 2,490 | **-65** | 834 | **-238** | **-6** | **-5,652** |
| 40% | 223 | **-3,421** | 1,022 | 3,272 | 697 | 2,630 | 1,892 | 338 | 905 | **-538** | 57 | **-4,118** |
| 50% | 10 | **-2,440** | 196 | 790 | 923 | 1,270 | 990 | 392 | 714 | **-273** | 69 | **-1,130** |
| 60% | 26 | **-1,645** | **-12** | 375 | 310 | 896 | 455 | 135 | 494 | **-9** | 115 | **-382** |
| 70% | 63 | **-852** | **-201** | 300 | 206 | 792 | 8 | 153 | 140 | 295 | **-29** | **-440** |
| 80% | **-1** | **-397** | **-52** | 28 | 352 | 467 | **-13** | 430 | 124 | **-302** | **-127** | **-246** |
| 90% | **-9** | 354 | **-18** | **-5** | 205 | **-145** | 162 | 304 | **-19** | **-156** | **-26** | **-45** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-1** | **-1,674** | 1,114 | 923 | 624 | 721 | 626 | **-67** | 471 | **-128** | **-133** | **-2,726** |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | **-113** | **-3,825** | 2,070 | 1,474 | 414 | 456 | 934 | **-200** | 38 | 12 | 71 | **-6,172** |
| Above Normal (16%) | **-78** | **-3,296** | 1,340 | 1,282 | 1,750 | 1,367 | 733 | **-208** | **-109** | 630 | **-135** | **-4,499** |
| Below Normal (13%) | **-69** | 190 | 243 | 1,729 | 1,040 | 1,317 | 851 | **-110** | 706 | **-81** | **-753** | **-369** |
| Dry (24%) | 128 | 45 | 825 | 79 | 318 | 649 | 369 | 136 | 1,217 | **-242** | **-20** | **-134** |
| Critical (15%) | 170 | 171 | 76 | 8 | **-15** | 172 | 68 | 75 | 579 | **-1,104** | **-197** | 185 |

a Based on the 82-year simulation period.

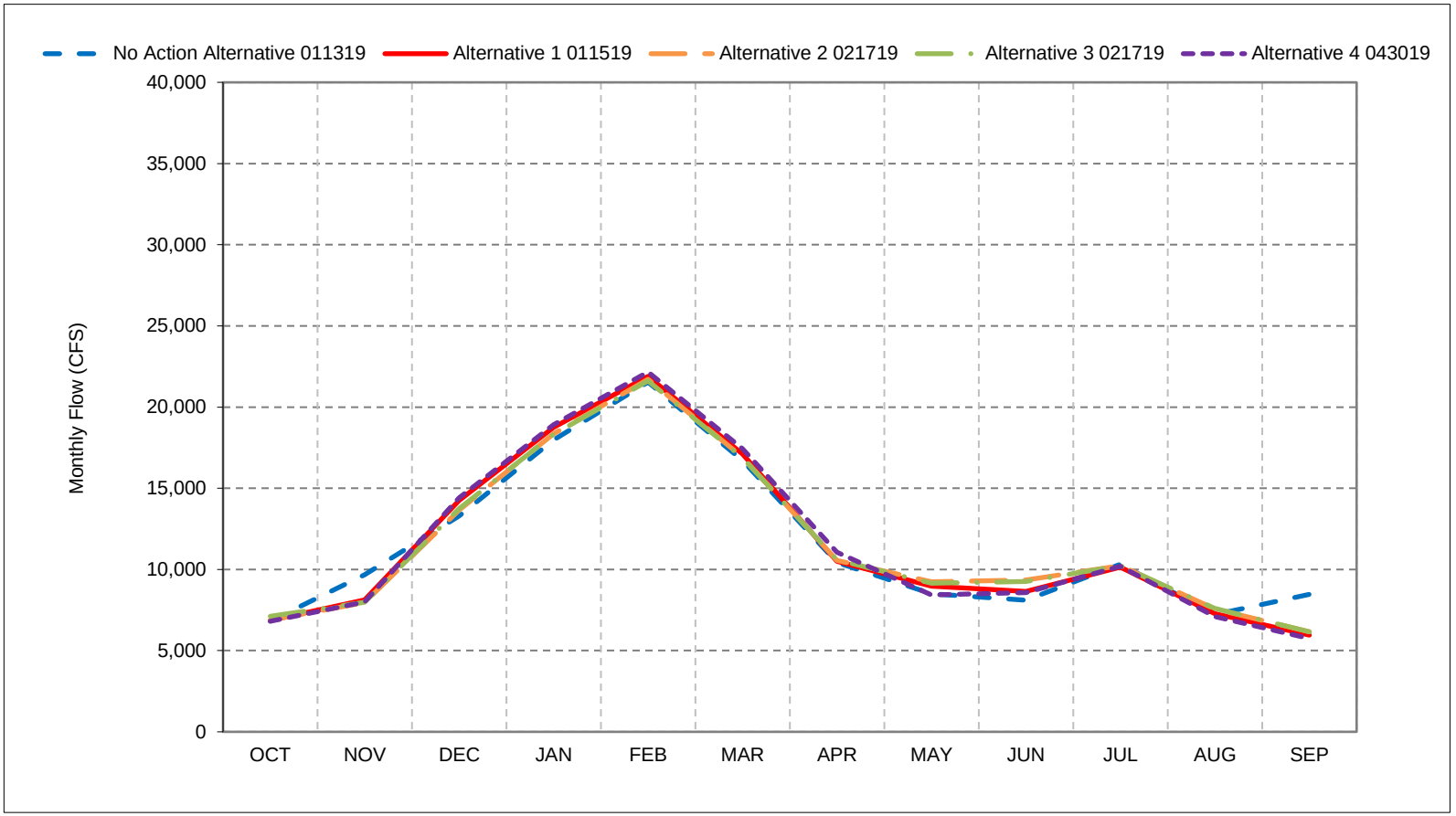
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

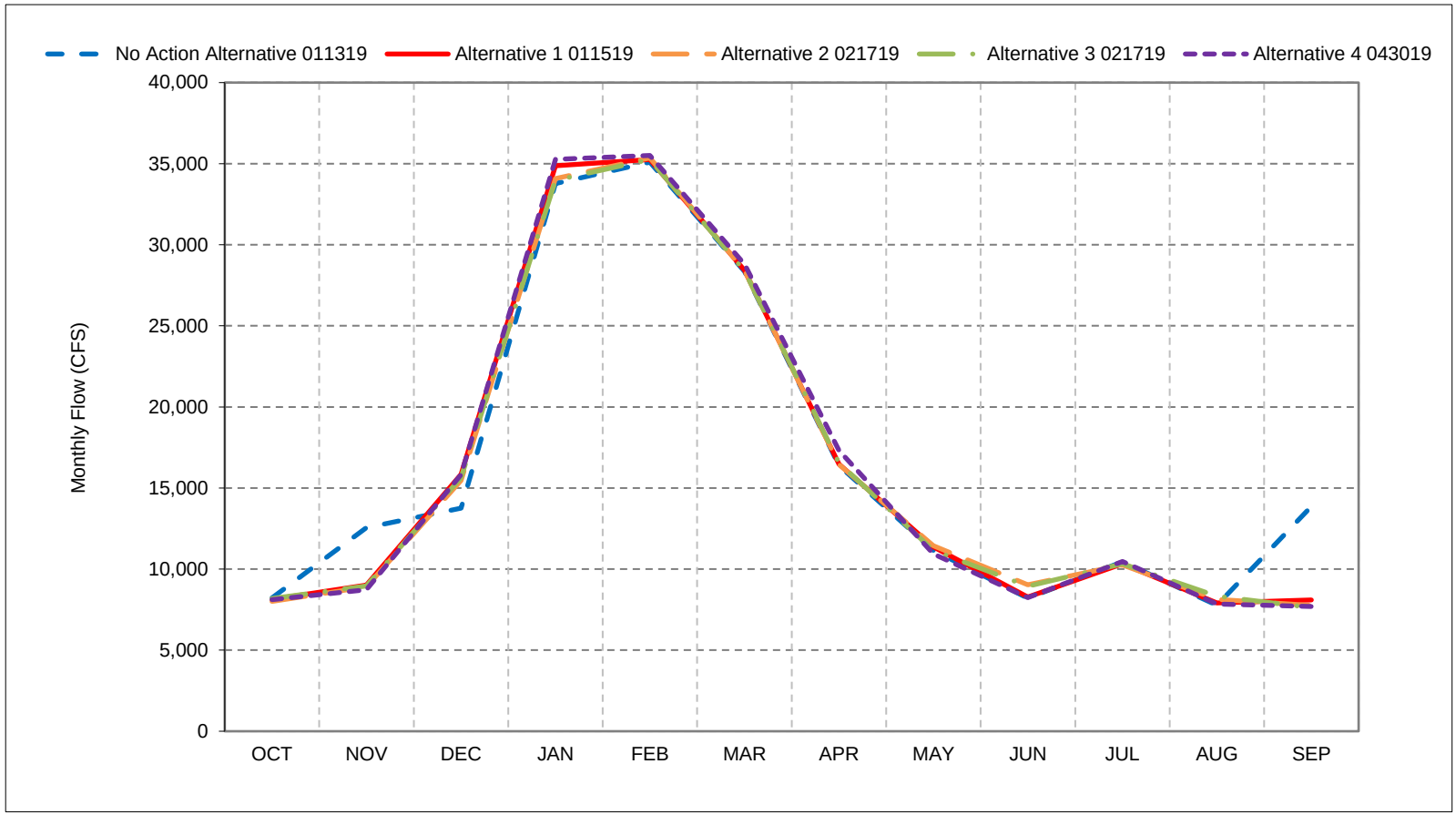
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 18-1. Sacramento River Flow at Hamilton City, Long-Term Average Flow



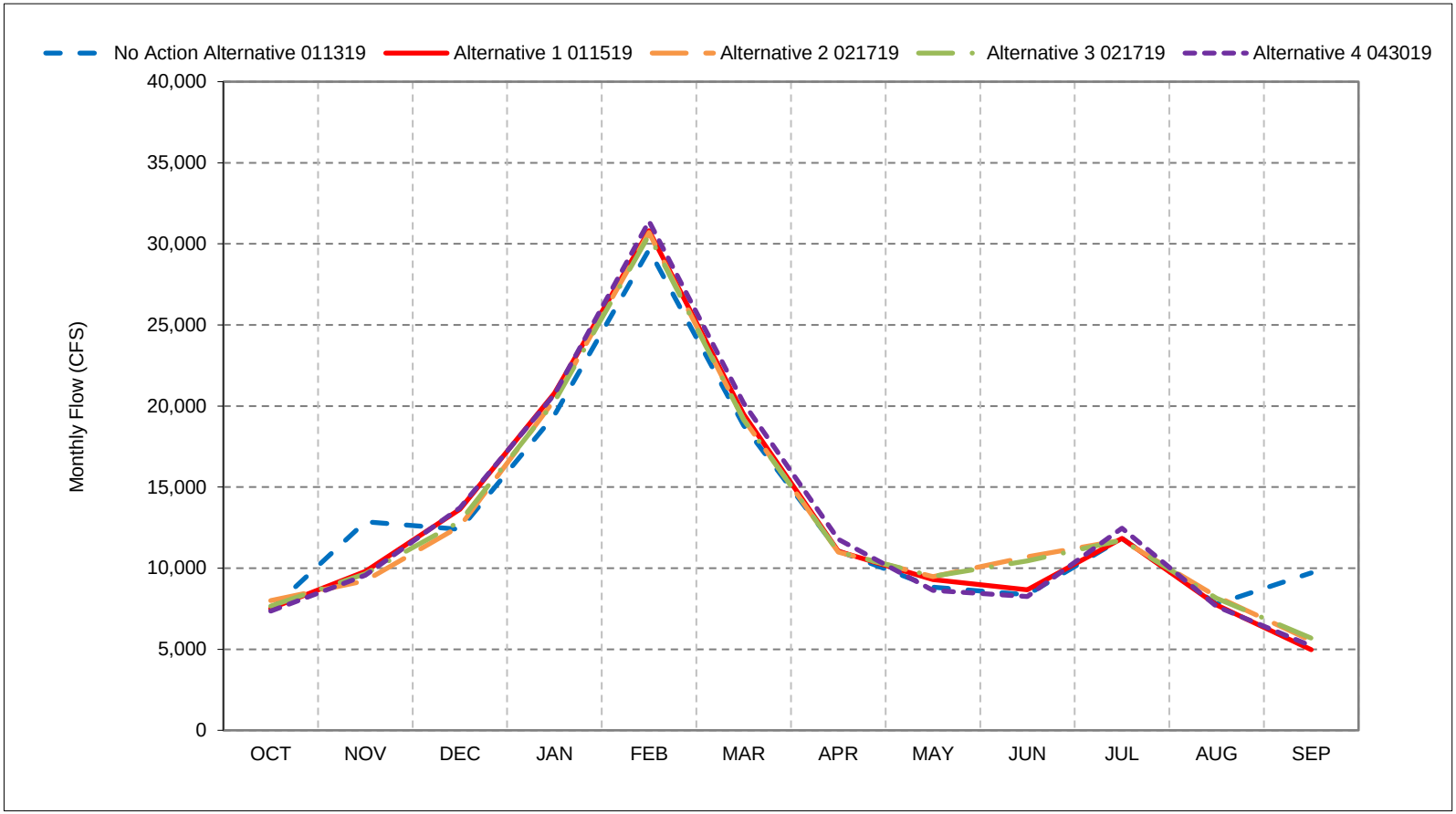

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 18-2. Sacramento River Flow at Hamilton City, Wet Year Average Flow



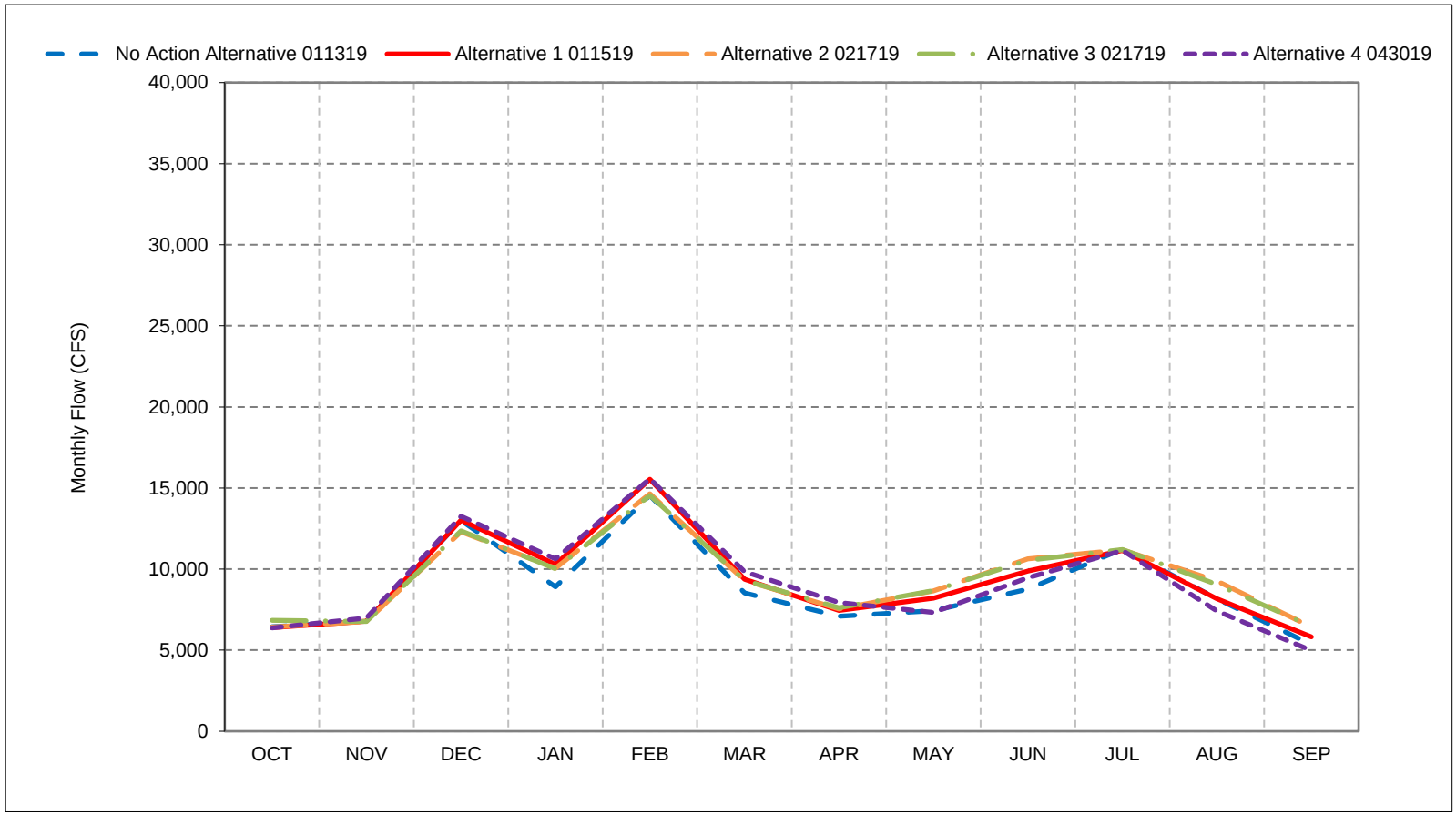

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 18-3. Sacramento River Flow at Hamilton City, Above Normal Year Average Flow



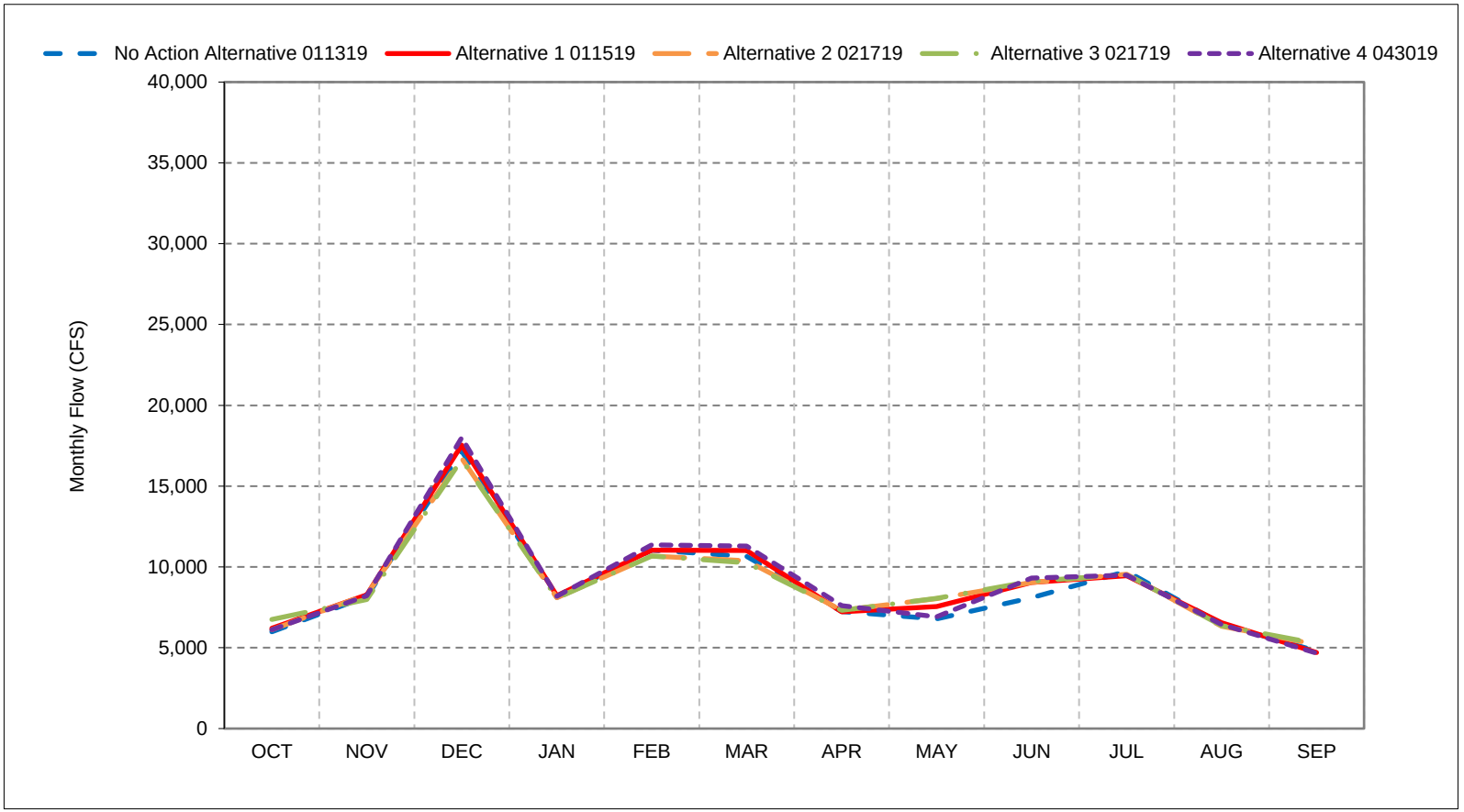

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 18-4. Sacramento River Flow at Hamilton City, Below Normal Year Average Flow



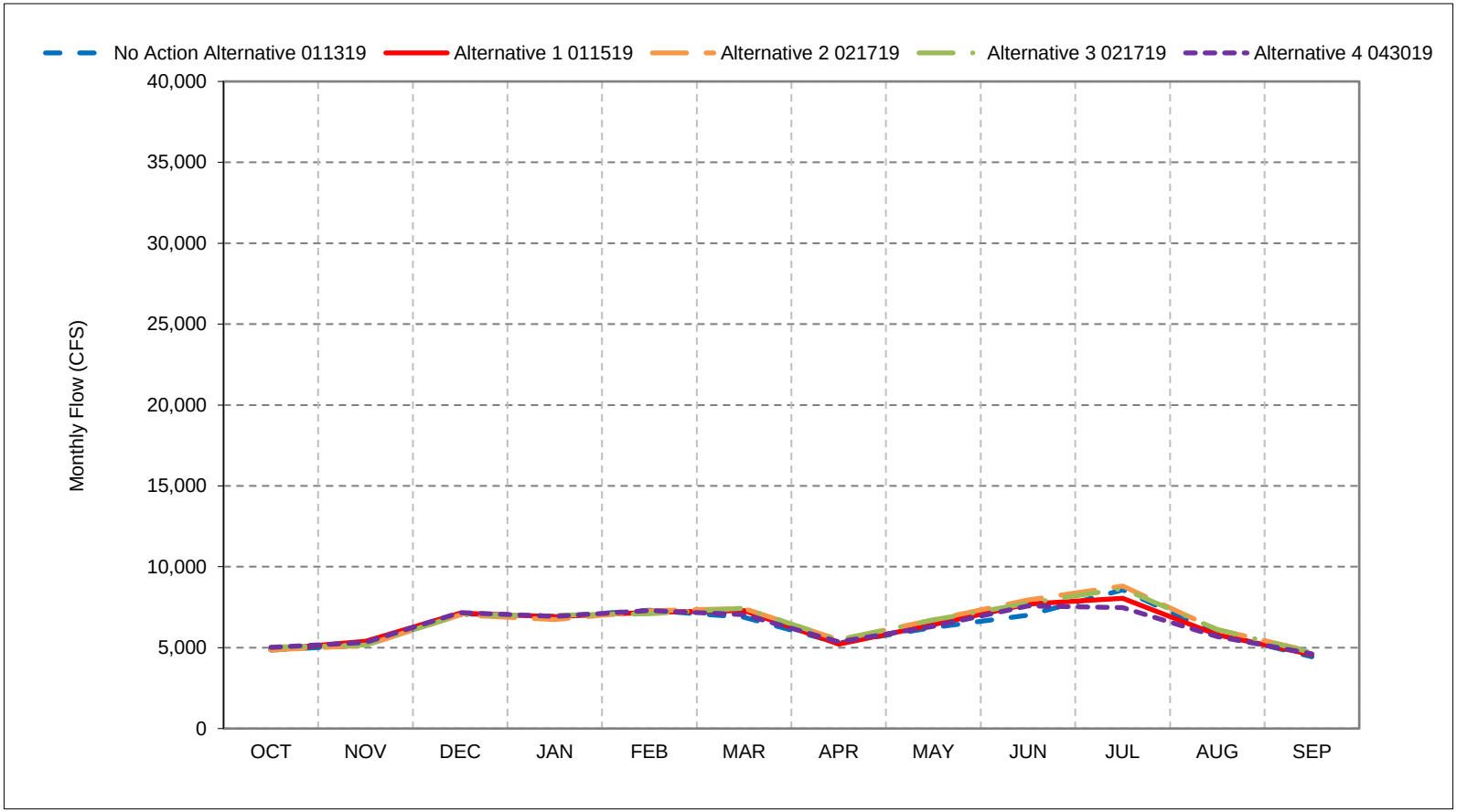

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 18-5. Sacramento River Flow at Hamilton City, Dry Year Average Flow



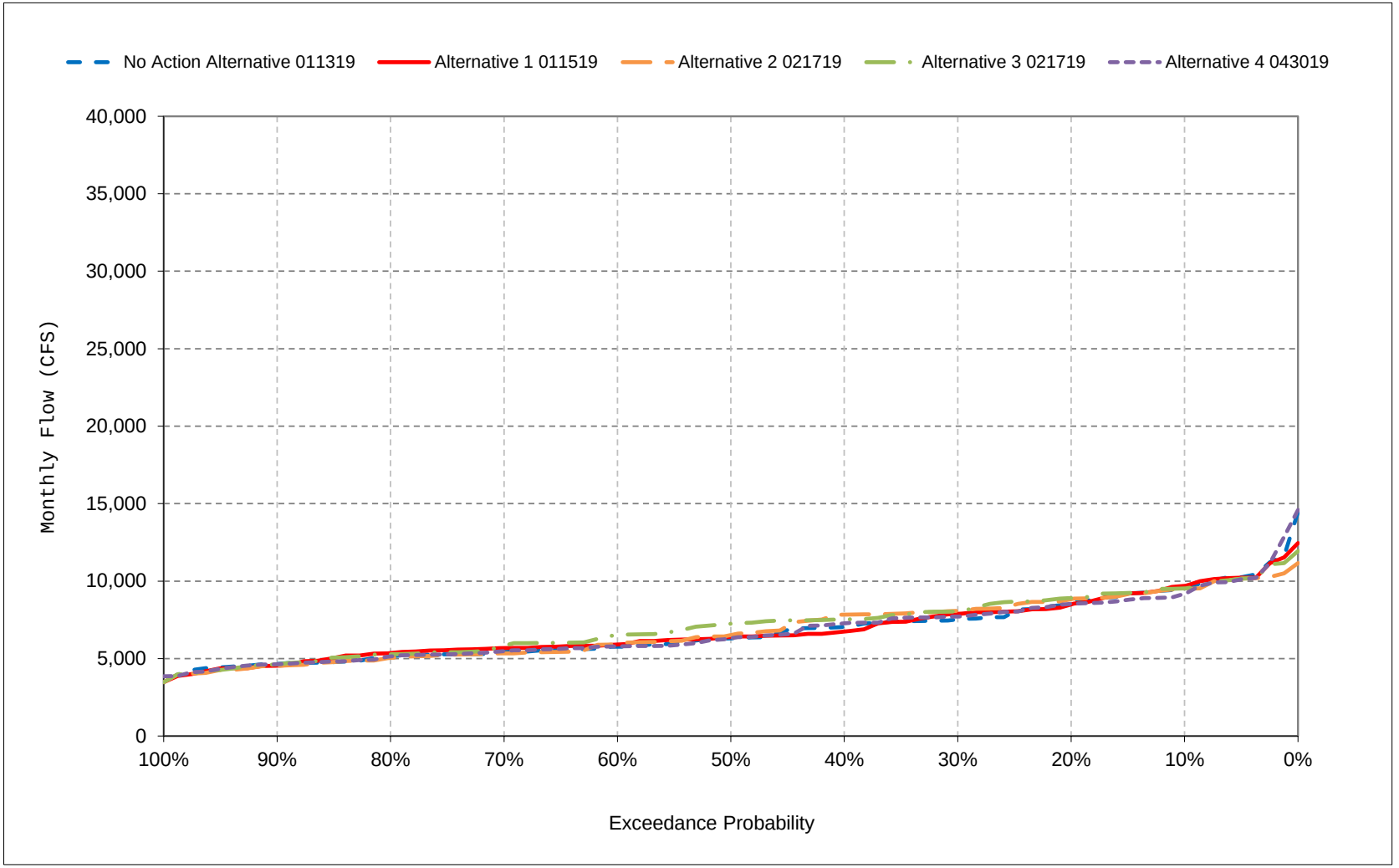

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 18-6. Sacramento River Flow at Hamilton City, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

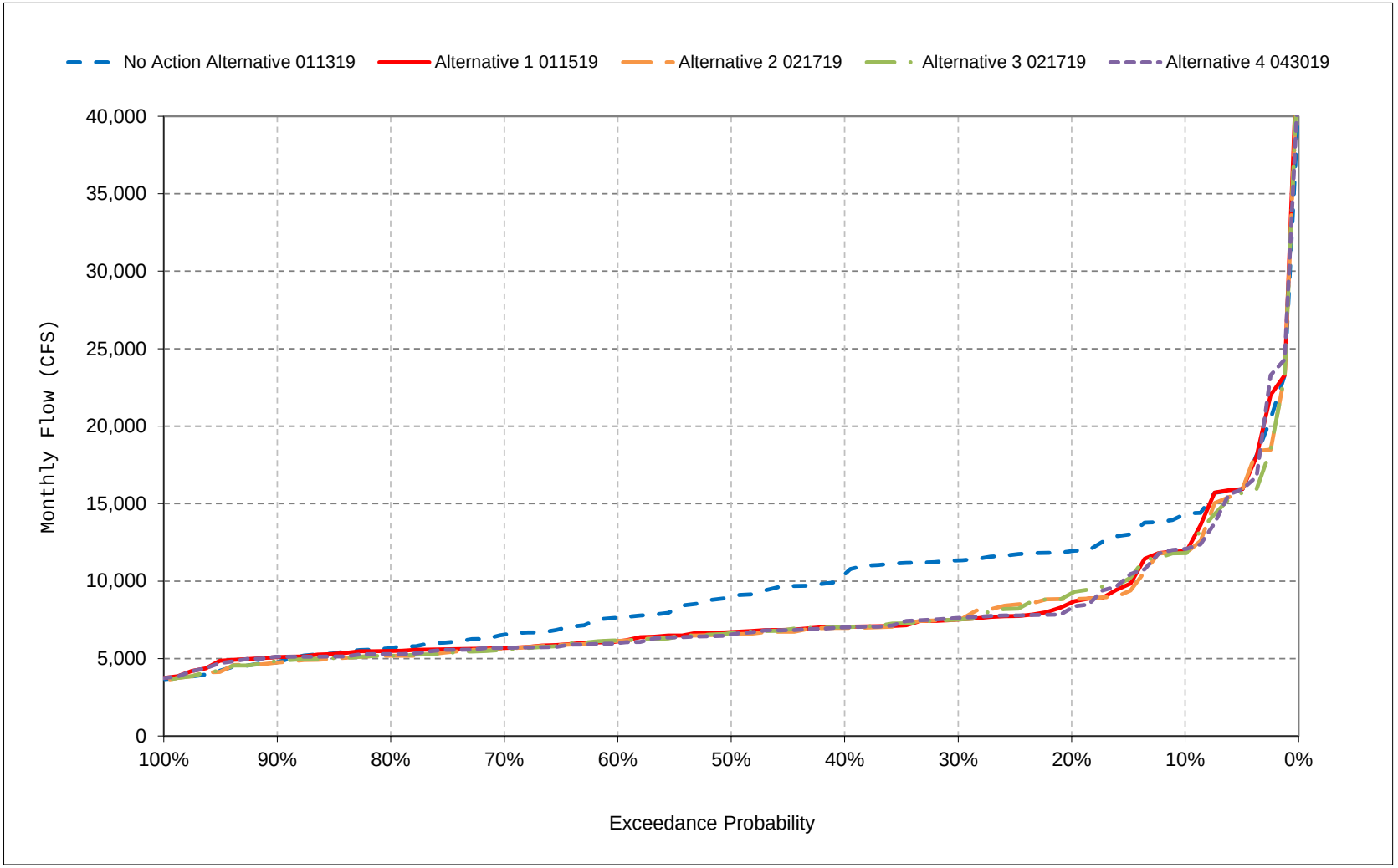
**Figure 18-7. Sacramento River Flow at Hamilton City, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

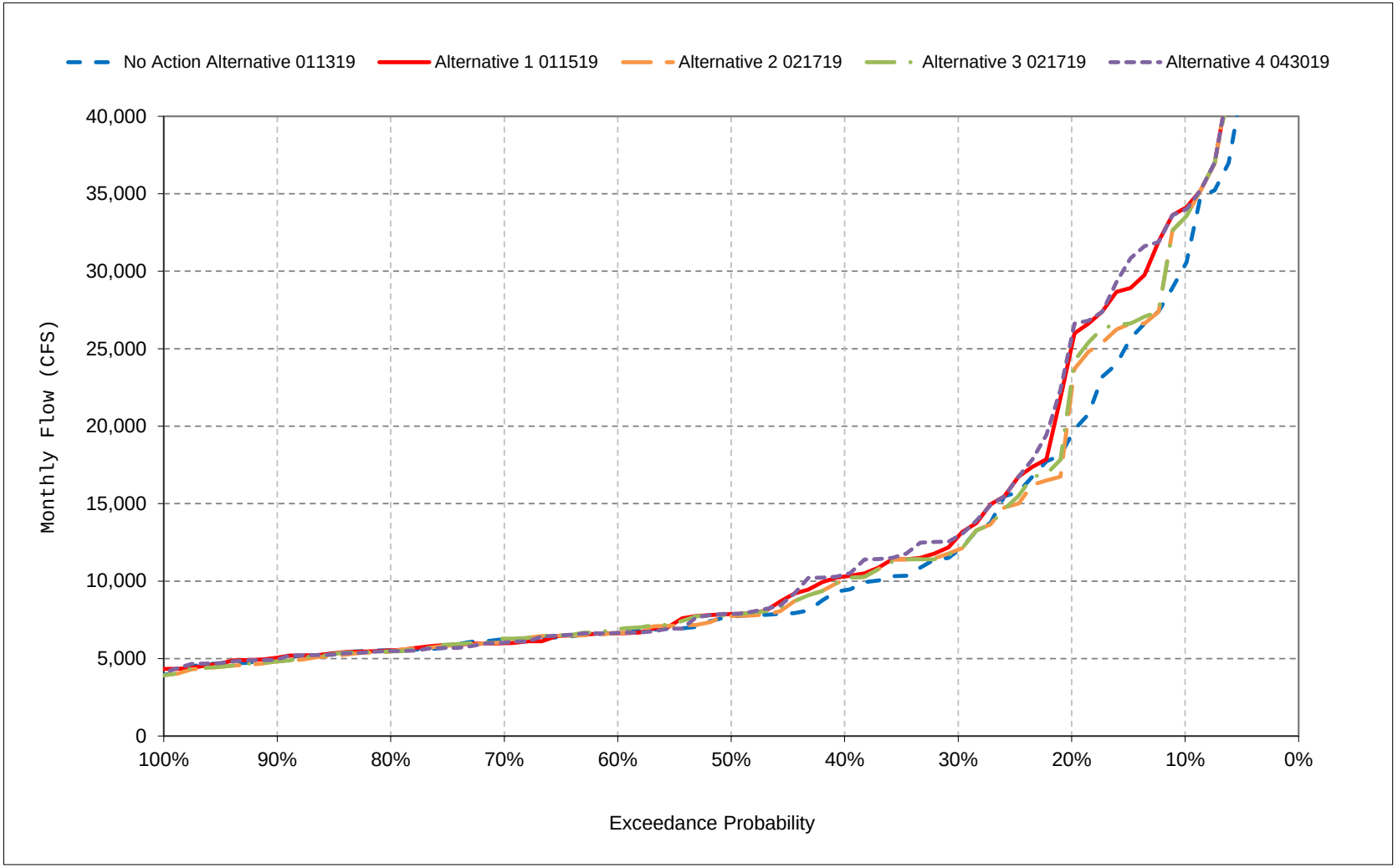
**Figure 18-8. Sacramento River Flow at Hamilton City, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

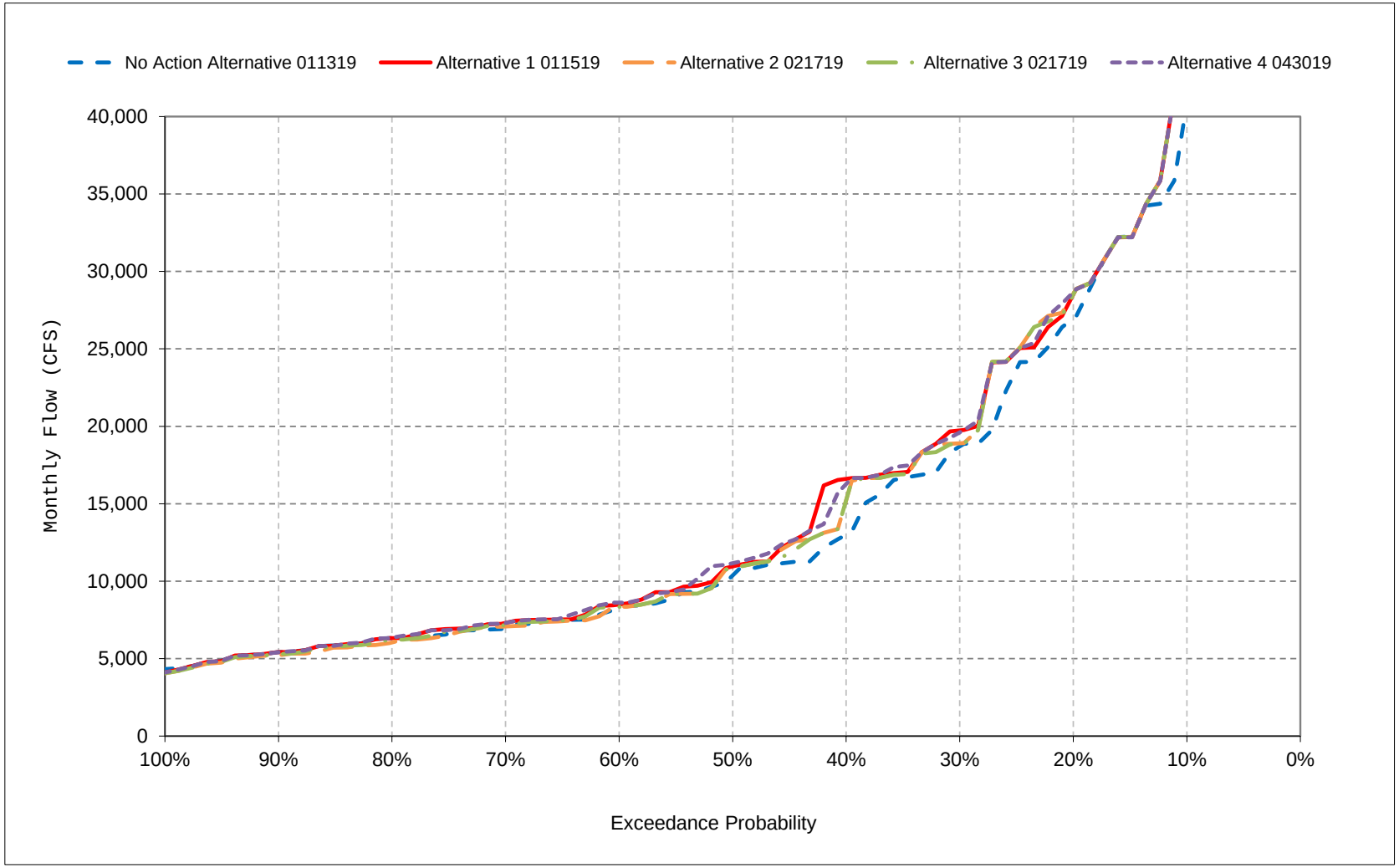
**Figure 18-9. Sacramento River Flow at Hamilton City, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

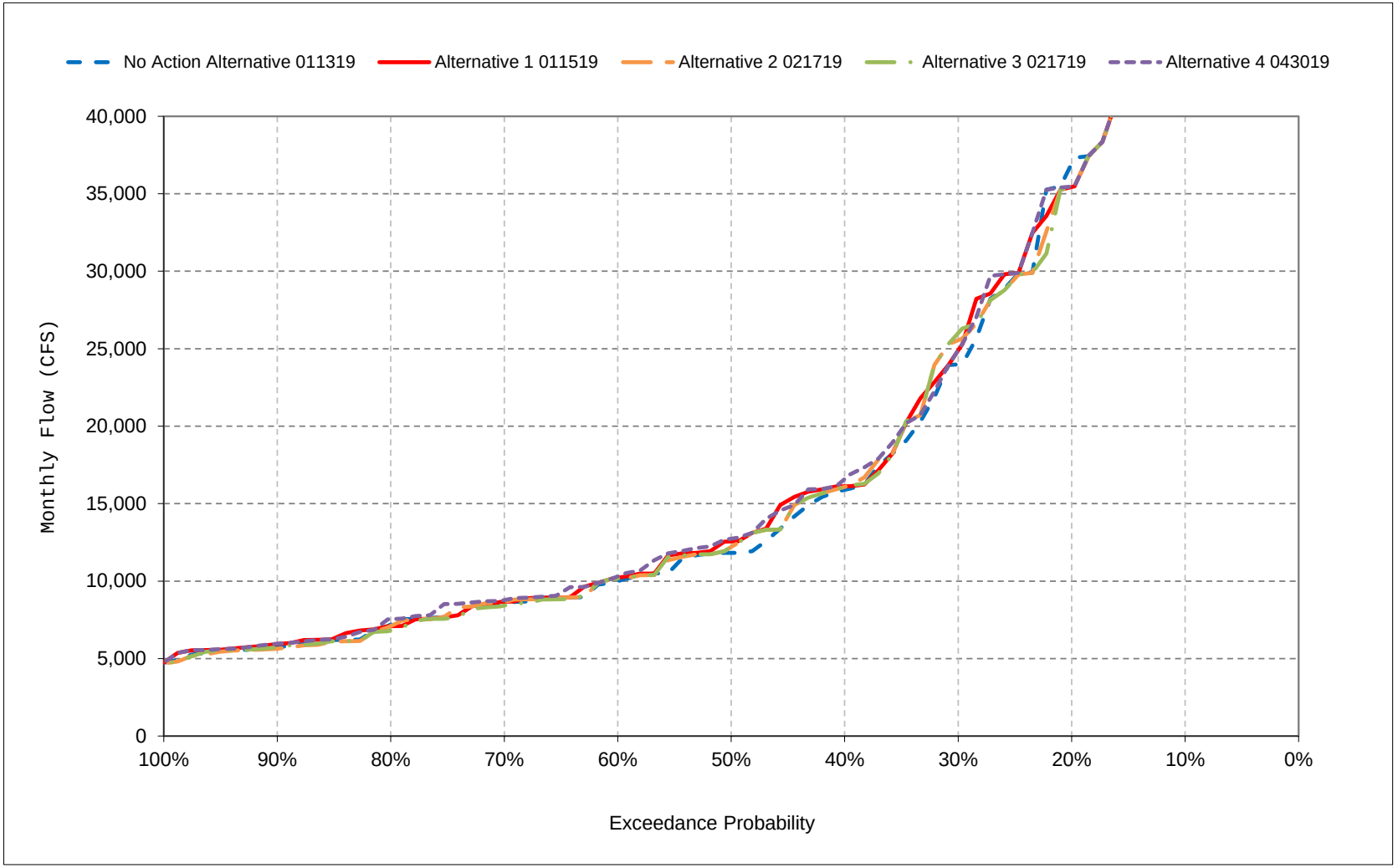
**Figure 18-10. Sacramento River Flow at Hamilton City, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

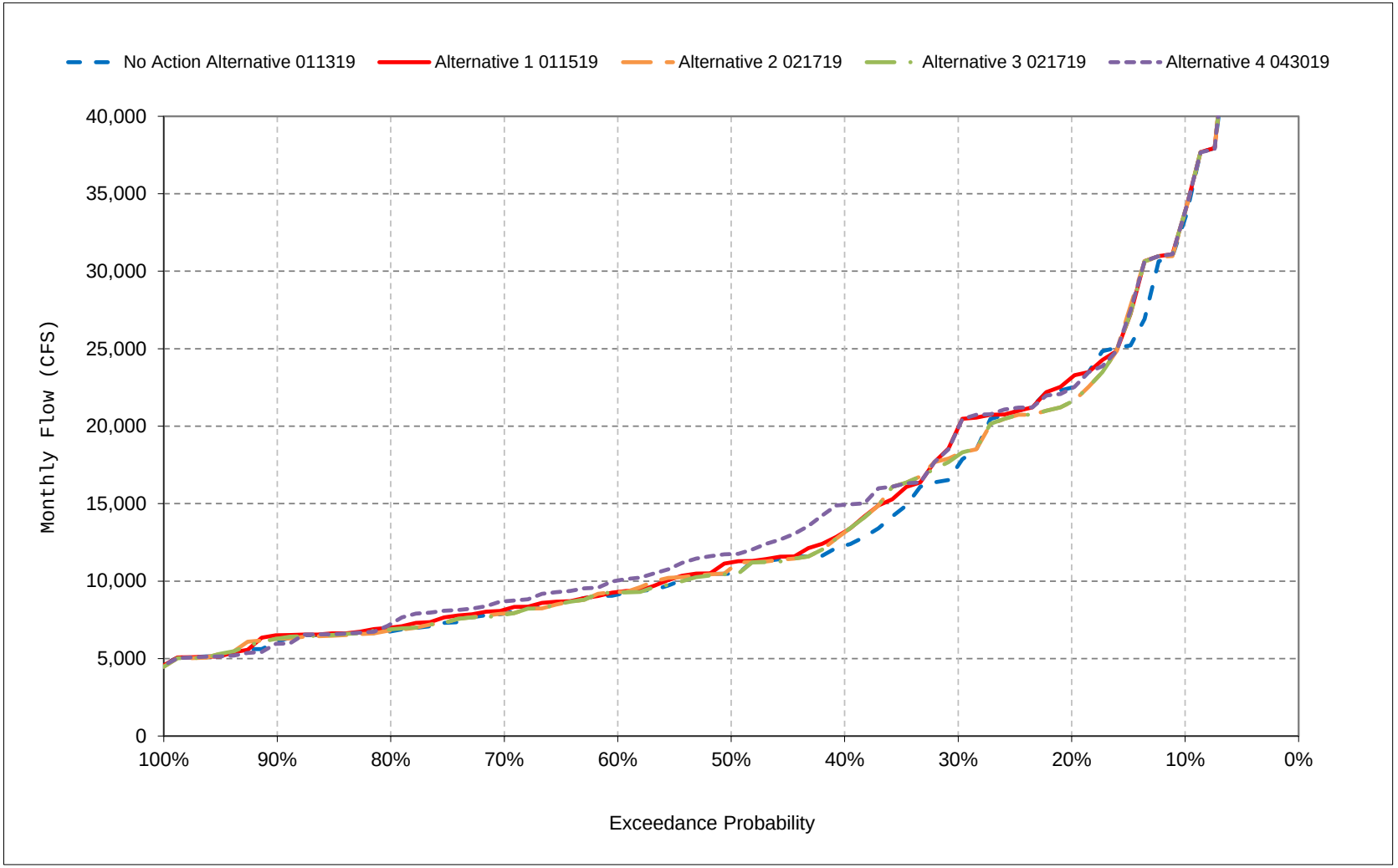
**Figure 18-11. Sacramento River Flow at Hamilton City, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

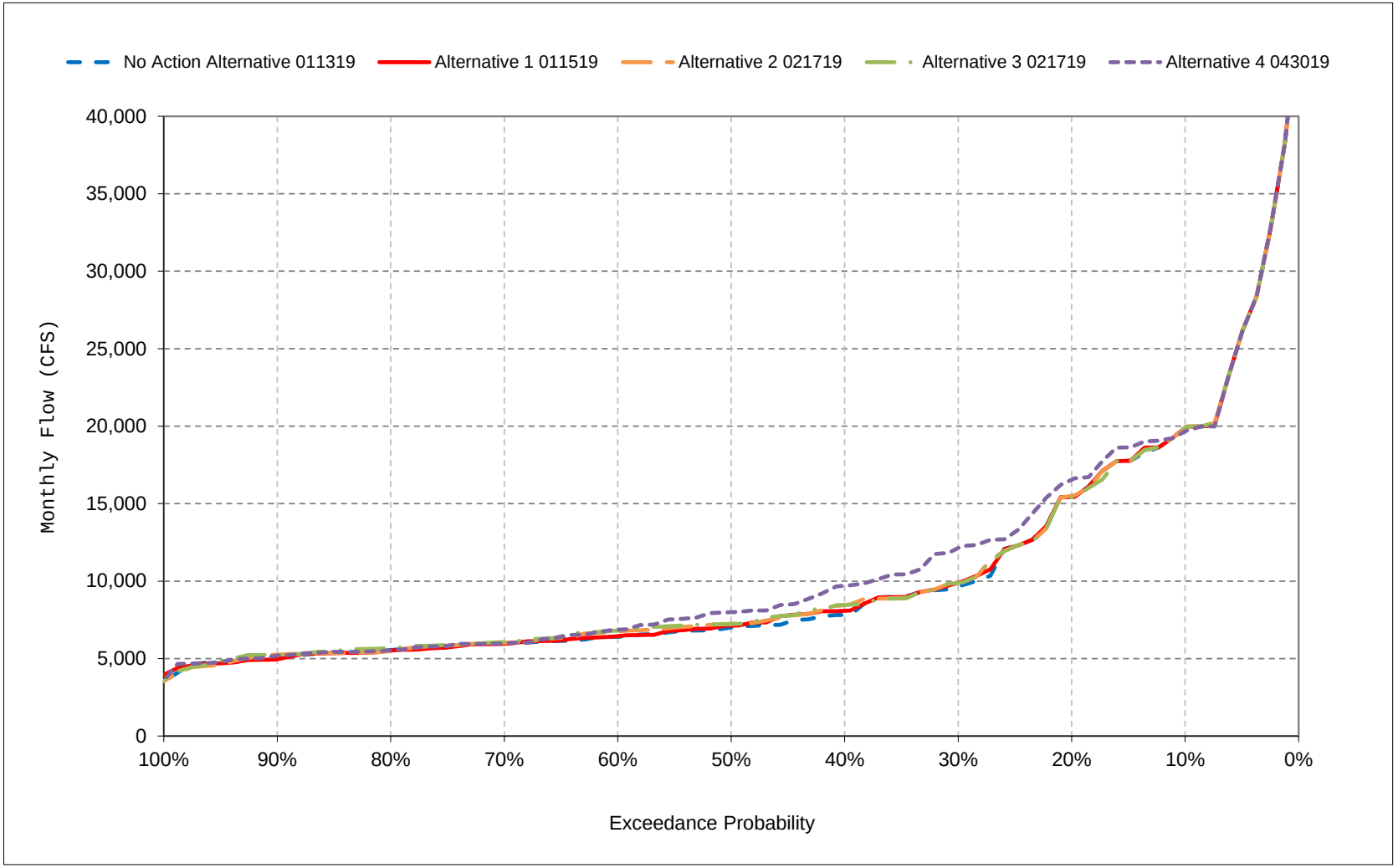
**Figure 18-12. Sacramento River Flow at Hamilton City, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

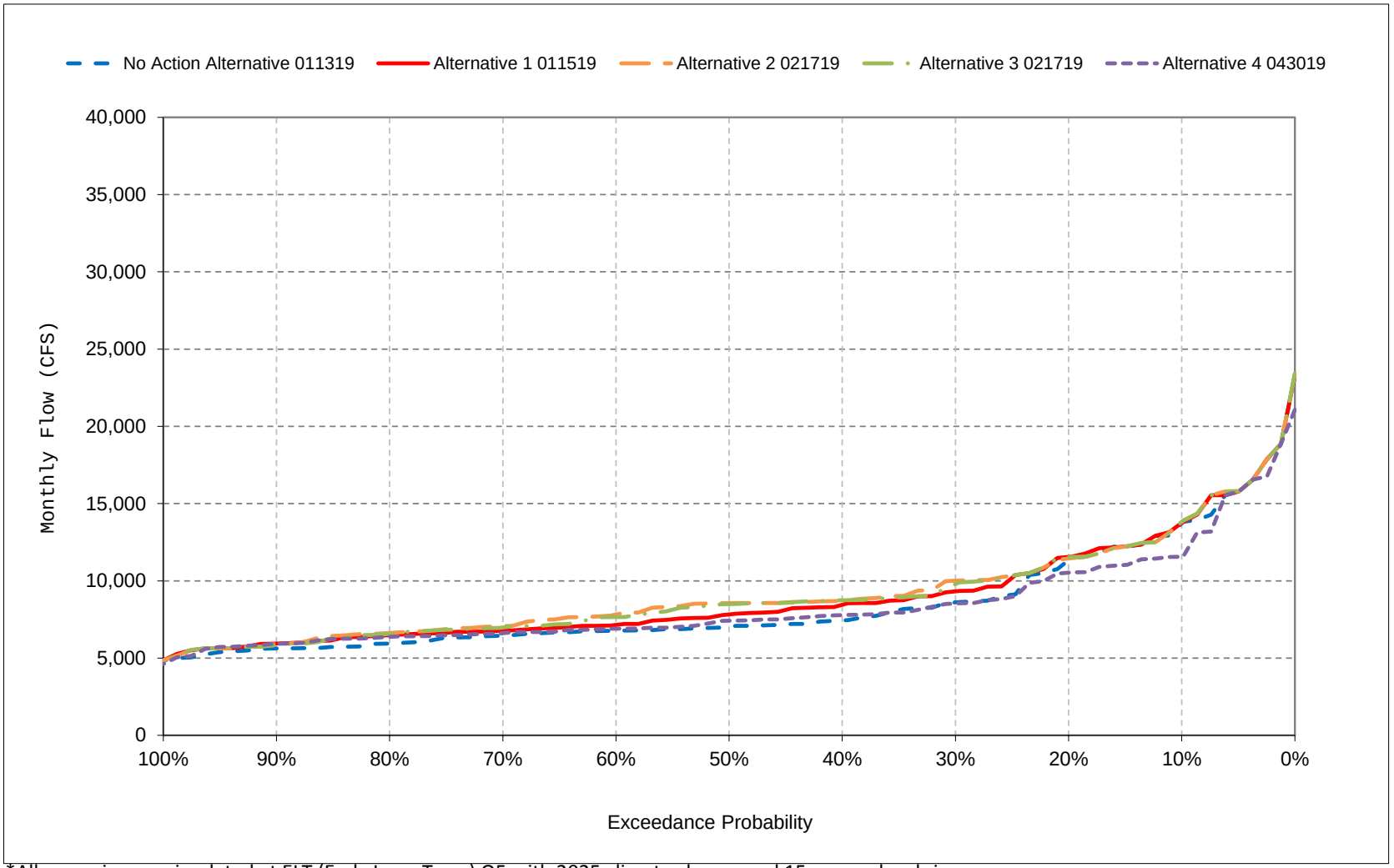
**Figure 18-13. Sacramento River Flow at Hamilton City, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

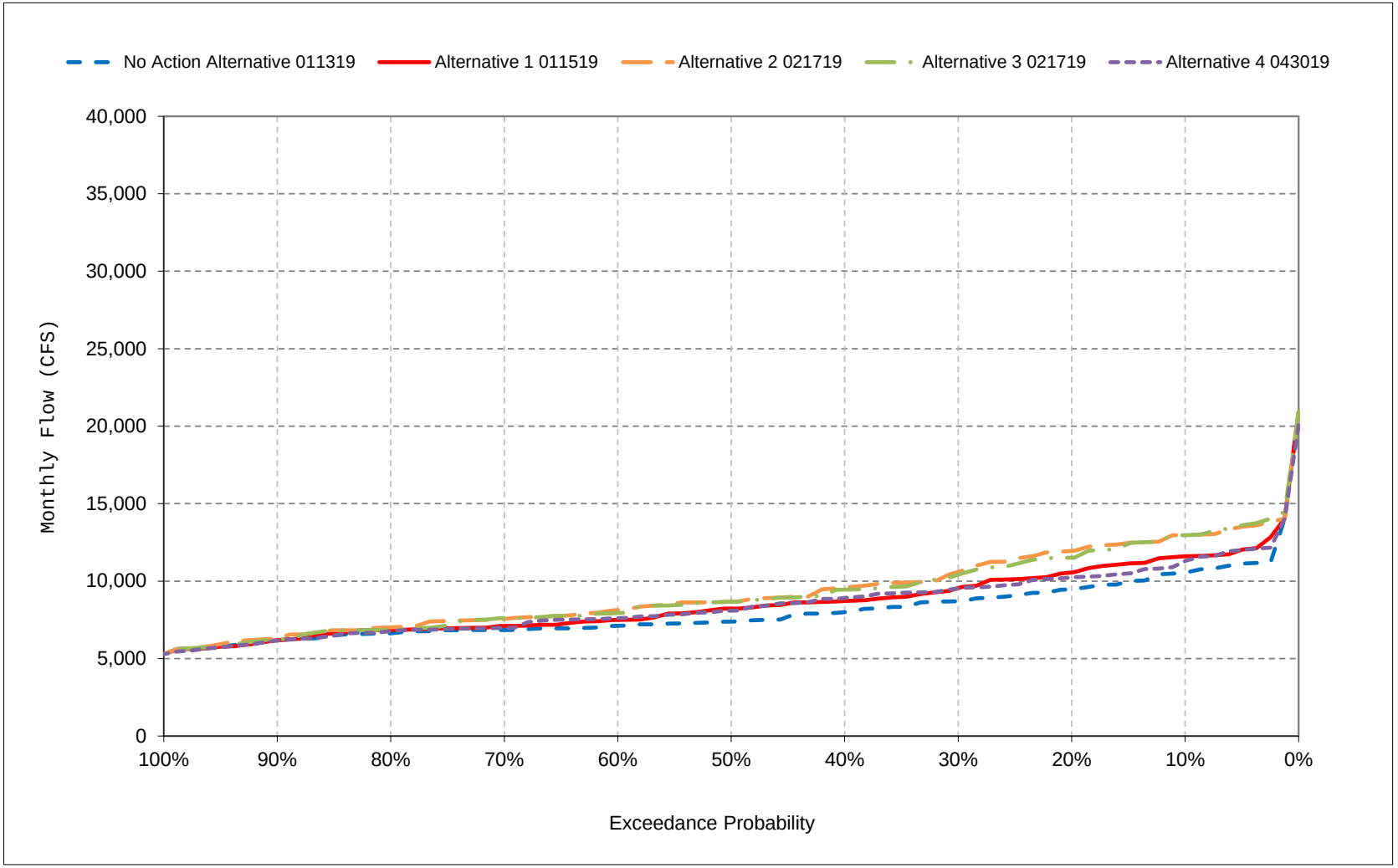
**Figure 18-14. Sacramento River Flow at Hamilton City, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

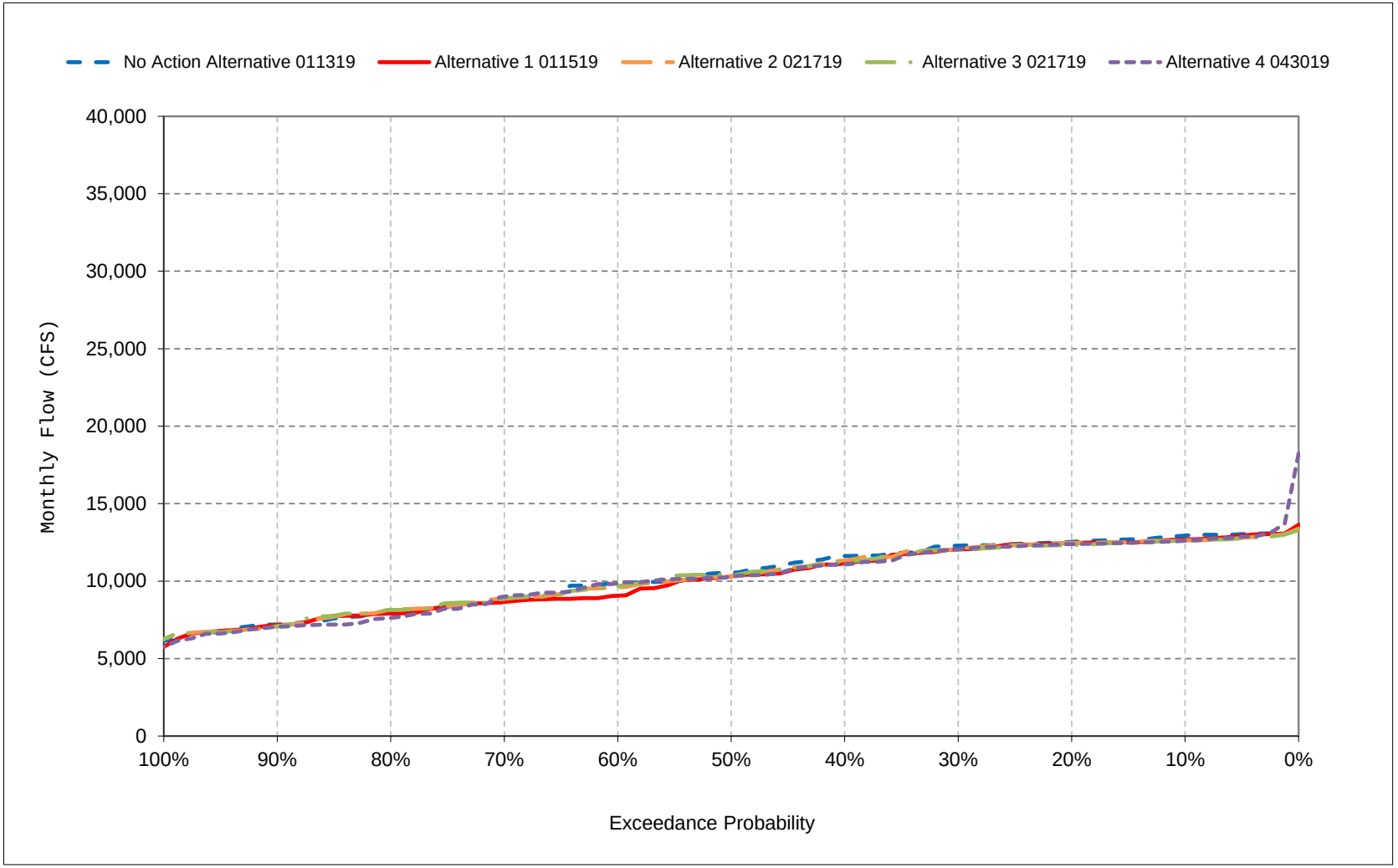
**Figure 18-15. Sacramento River Flow at Hamilton City, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

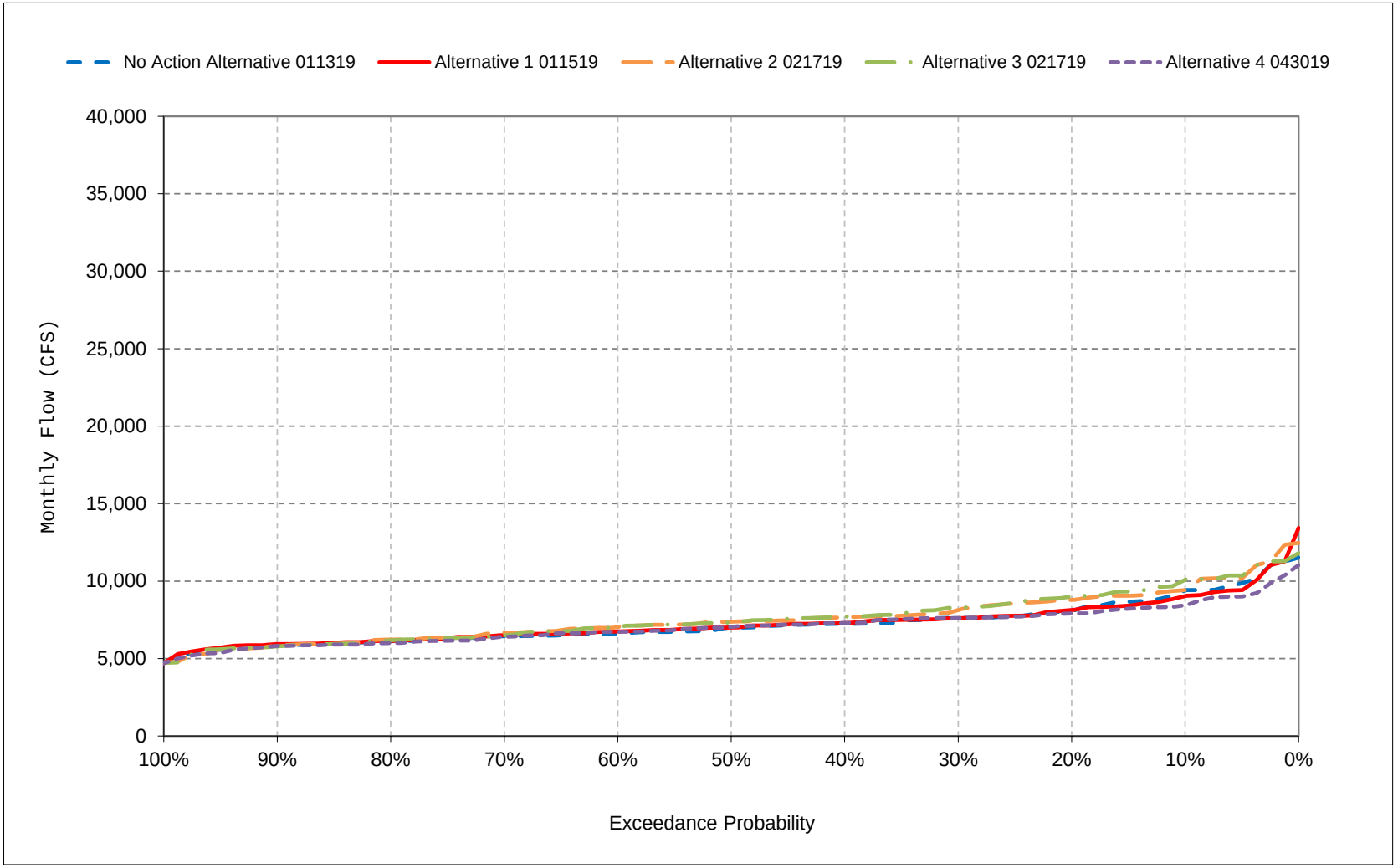
**Figure 18-16. Sacramento River Flow at Hamilton City, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

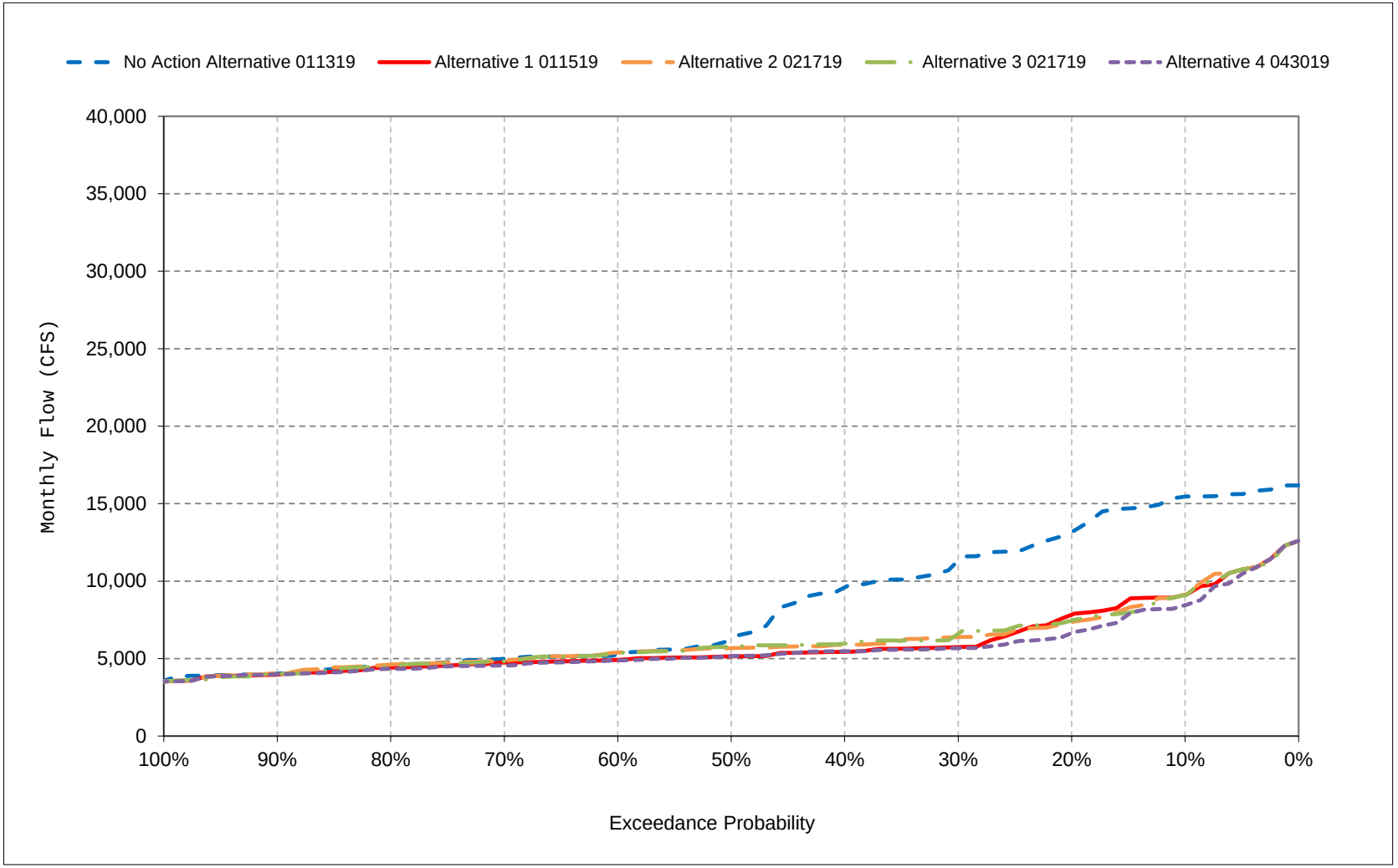
**Figure 18-17. Sacramento River Flow at Hamilton City, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 18-18. Sacramento River Flow at Hamilton City, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 19-1. Sacramento River at Wilkins Slough Flow, Monthly Flow

## No Action Alternative 011319

| Statistic | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,085 | 13,566 | 21,070 | 22,006 | 22,665 | 21,630 | 19,305 | 12,626 | 7,804 | 9,695 | 6,594 | 15,000 |
| 20% | 7,608 | 12,869 | 19,597 | 21,247 | 21,557 | 20,323 | 17,774 | 9,258 | 7,069 | 9,423 | 5,495 | 13,681 |
| 30% | 6,693 | 10,941 | 13,753 | 19,601 | 20,870 | 19,029 | 11,344 | 6,213 | 6,008 | 9,174 | 5,161 | 11,042 |
| 40% | 6,148 | 10,268 | 11,687 | 15,569 | 19,624 | 15,809 | 9,173 | 5,248 | 5,478 | 8,710 | 4,673 | 9,367 |
| 50% | 5,810 | 9,256 | 8,468 | 10,929 | 15,927 | 13,550 | 7,720 | 4,655 | 5,002 | 7,804 | 4,545 | 6,275 |
| 60% | 5,268 | 7,240 | 7,263 | 9,489 | 12,622 | 10,302 | 6,911 | 4,442 | 4,834 | 6,628 | 4,520 | 5,260 |
| 70% | 4,638 | 5,992 | 6,017 | 7,886 | 10,266 | 8,916 | 6,329 | 3,999 | 4,707 | 5,820 | 4,244 | 4,623 |
| 80% | 4,497 | 5,159 | 5,612 | 6,942 | 7,686 | 7,980 | 5,718 | 3,711 | 4,165 | 4,710 | 3,951 | 4,372 |
| 90% | 3,994 | 4,289 | 4,854 | 6,012 | 6,308 | 6,211 | 5,161 | 3,476 | 3,495 | 4,331 | 3,442 | 3,965 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,124 | 9,152 | 11,234 | 13,460 | 15,249 | 13,881 | 10,343 | 6,529 | 5,684 | 7,294 | 4,903 | 8,377 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,511 | 12,176 | 11,622 | 18,870 | 19,567 | 17,810 | 14,598 | 9,612 | 6,426 | 7,574 | 5,293 | 13,916 |
| Above Normal (16%) | 6,711 | 11,184 | 11,185 | 16,976 | 18,484 | 17,432 | 12,412 | 7,174 | 6,171 | 8,650 | 5,448 | 9,654 |
| Below Normal (13%) | 6,046 | 6,466 | 11,361 | 10,381 | 13,627 | 9,842 | 7,454 | 5,489 | 5,958 | 7,948 | 5,637 | 5,132 |
| Dry (24%) | 5,215 | 8,027 | 12,724 | 9,098 | 12,422 | 12,174 | 8,077 | 4,381 | 5,159 | 6,678 | 4,291 | 4,665 |
| Critical (15%) | 4,072 | 4,733 | 7,847 | 8,021 | 8,590 | 8,066 | 5,306 | 3,683 | 4,176 | 5,648 | 3,817 | 4,154 |

## Alternative 1 011519

| Statistic | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,181 | 12,897 | 21,341 | 22,437 | 22,719 | 21,616 | 19,295 | 12,630 | 8,569 | 9,712 | 6,557 | 9,602 |
| 20% | 7,810 | 8,695 | 20,686 | 21,191 | 21,536 | 20,380 | 17,770 | 9,257 | 7,906 | 9,336 | 5,602 | 7,566 |
| 30% | 7,320 | 7,179 | 15,241 | 19,739 | 20,918 | 19,077 | 11,867 | 7,391 | 7,191 | 8,865 | 5,242 | 5,748 |
| 40% | 6,201 | 6,433 | 12,099 | 18,093 | 19,504 | 16,467 | 9,178 | 6,110 | 6,270 | 8,048 | 4,842 | 5,327 |
| 50% | 5,774 | 6,062 | 8,866 | 11,884 | 16,481 | 14,327 | 7,705 | 5,353 | 5,687 | 7,280 | 4,586 | 4,892 |
| 60% | 5,420 | 5,867 | 7,486 | 9,715 | 13,216 | 10,957 | 7,099 | 4,891 | 5,055 | 6,236 | 4,531 | 4,678 |
| 70% | 5,033 | 5,244 | 5,950 | 8,244 | 10,560 | 8,896 | 6,563 | 4,633 | 4,775 | 5,607 | 4,502 | 4,521 |
| 80% | 4,813 | 4,780 | 5,542 | 6,857 | 7,728 | 8,001 | 5,660 | 4,317 | 4,630 | 4,739 | 4,055 | 4,277 |
| 90% | 4,279 | 4,525 | 5,156 | 6,008 | 6,386 | 7,406 | 5,086 | 3,558 | 3,683 | 4,410 | 3,601 | 4,012 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,369 | 7,485 | 11,587 | 13,801 | 15,397 | 14,114 | 10,393 | 6,998 | 6,215 | 7,087 | 4,973 | 5,861 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,748 | 8,561 | 12,436 | 19,016 | 19,589 | 17,809 | 14,692 | 9,833 | 6,480 | 7,456 | 5,443 | 8,143 |
| Above Normal (16%) | 7,140 | 7,623 | 11,560 | 18,020 | 19,043 | 17,543 | 12,411 | 7,649 | 6,450 | 8,644 | 5,406 | 4,930 |
| Below Normal (13%) | 6,084 | 6,474 | 11,387 | 11,282 | 14,081 | 10,582 | 7,801 | 6,255 | 7,050 | 7,831 | 5,668 | 5,622 |
| Dry (24%) | 5,573 | 8,060 | 12,840 | 9,160 | 12,462 | 12,395 | 8,037 | 5,163 | 6,067 | 6,378 | 4,418 | 4,573 |
| Critical (15%) | 4,130 | 4,972 | 7,869 | 7,978 | 8,466 | 8,492 | 5,196 | 3,891 | 4,864 | 5,097 | 3,774 | 4,286 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 96 | **-669** | 271 | 431 | 54 | **-14** | **-10** | 3 | 765 | 16 | **-37** | **-5,398** |
| 20% | 202 | **-4,174** | 1,090 | **-56** | **-21** | 58 | **-5** | **-1** | 837 | **-87** | 107 | **-6,115** |
| 30% | 628 | **-3,763** | 1,489 | 137 | 48 | 48 | 523 | 1,178 | 1,183 | **-309** | 81 | **-5,294** |
| 40% | 54 | **-3,835** | 412 | 2,524 | **-120** | 658 | 5 | 862 | 792 | **-662** | 169 | **-4,040** |
| 50% | **-36** | **-3,194** | 398 | 954 | 554 | 777 | **-15** | 698 | 685 | **-525** | 41 | **-1,383** |
| 60% | 151 | **-1,373** | 223 | 226 | 594 | 655 | 188 | 449 | 221 | **-392** | 12 | **-582** |
| 70% | 395 | **-748** | **-67** | 358 | 294 | **-21** | 234 | 634 | 67 | **-214** | 257 | **-102** |
| 80% | 316 | **-379** | **-70** | **-85** | 42 | 22 | **-58** | 605 | 465 | 30 | 104 | **-95** |
| 90% | 285 | 236 | 302 | **-3** | 78 | 1,195 | **-75** | 82 | 188 | 79 | 159 | 47 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 244 | **-1,667** | 352 | 341 | 148 | 233 | 51 | 469 | 530 | **-208** | 70 | **-2,517** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 237 | **-3,615** | 814 | 146 | 22 | **0** | 94 | 221 | 54 | **-118** | 151 | **-5,773** |
| Above Normal (16%) | 429 | **-3,561** | 375 | 1,044 | 559 | 111 | **-1** | 475 | 279 | **-6** | **-42** | **-4,723** |
| Below Normal (13%) | 38 | 8 | 26 | 901 | 453 | 739 | 348 | 765 | 1,092 | **-117** | 31 | 491 |
| Dry (24%) | 359 | 33 | 116 | 62 | 40 | 221 | **-40** | 782 | 908 | **-300** | 127 | **-92** |
| Critical (15%) | 58 | 239 | 22 | **-43** | **-124** | 427 | **-110** | 207 | 689 | **-551** | **-43** | 132 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 19-2. Sacramento River at Wilkins Slough Flow, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,085 | 13,566 | 21,070 | 22,006 | 22,665 | 21,630 | 19,305 | 12,626 | 7,804 | 9,695 | 6,594 | 15,000 |
| 20% | 7,608 | 12,869 | 19,597 | 21,247 | 21,557 | 20,323 | 17,774 | 9,258 | 7,069 | 9,423 | 5,495 | 13,681 |
| 30% | 6,693 | 10,941 | 13,753 | 19,601 | 20,870 | 19,029 | 11,344 | 6,213 | 6,008 | 9,174 | 5,161 | 11,042 |
| 40% | 6,148 | 10,268 | 11,687 | 15,569 | 19,624 | 15,809 | 9,173 | 5,248 | 5,478 | 8,710 | 4,673 | 9,367 |
| 50% | 5,810 | 9,256 | 8,468 | 10,929 | 15,927 | 13,550 | 7,720 | 4,655 | 5,002 | 7,804 | 4,545 | 6,275 |
| 60% | 5,268 | 7,240 | 7,263 | 9,489 | 12,622 | 10,302 | 6,911 | 4,442 | 4,834 | 6,628 | 4,520 | 5,260 |
| 70% | 4,638 | 5,992 | 6,017 | 7,886 | 10,266 | 8,916 | 6,329 | 3,999 | 4,707 | 5,820 | 4,244 | 4,623 |
| 80% | 4,497 | 5,159 | 5,612 | 6,942 | 7,686 | 7,980 | 5,718 | 3,711 | 4,165 | 4,710 | 3,951 | 4,372 |
| 90% | 3,994 | 4,289 | 4,854 | 6,012 | 6,308 | 6,211 | 5,161 | 3,476 | 3,495 | 4,331 | 3,442 | 3,965 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,124 | 9,152 | 11,234 | 13,460 | 15,249 | 13,881 | 10,343 | 6,529 | 5,684 | 7,294 | 4,903 | 8,377 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,511 | 12,176 | 11,622 | 18,870 | 19,567 | 17,810 | 14,598 | 9,612 | 6,426 | 7,574 | 5,293 | 13,916 |
| Above Normal (16%) | 6,711 | 11,184 | 11,185 | 16,976 | 18,484 | 17,432 | 12,412 | 7,174 | 6,171 | 8,650 | 5,448 | 9,654 |
| Below Normal (13%) | 6,046 | 6,466 | 11,361 | 10,381 | 13,627 | 9,842 | 7,454 | 5,489 | 5,958 | 7,948 | 5,637 | 5,132 |
| Dry (24%) | 5,215 | 8,027 | 12,724 | 9,098 | 12,422 | 12,174 | 8,077 | 4,381 | 5,159 | 6,678 | 4,291 | 4,665 |
| Critical (15%) | 4,072 | 4,733 | 7,847 | 8,021 | 8,590 | 8,066 | 5,306 | 3,683 | 4,176 | 5,648 | 3,817 | 4,154 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,089 | 12,781 | 21,300 | 22,259 | 22,724 | 21,621 | 19,309 | 12,710 | 10,135 | 9,580 | 7,330 | 9,595 |
| 20% | 8,498 | 8,744 | 19,938 | 21,206 | 21,461 | 20,197 | 17,736 | 9,255 | 9,101 | 9,223 | 6,512 | 7,397 |
| 30% | 7,494 | 7,817 | 14,700 | 19,743 | 20,992 | 19,028 | 11,767 | 7,685 | 7,948 | 8,784 | 5,830 | 6,425 |
| 40% | 6,629 | 6,526 | 12,005 | 17,749 | 19,433 | 16,469 | 9,150 | 6,591 | 7,030 | 8,289 | 5,291 | 5,814 |
| 50% | 5,930 | 6,141 | 8,679 | 11,645 | 16,123 | 14,276 | 7,713 | 6,133 | 6,335 | 7,232 | 4,824 | 5,420 |
| 60% | 5,361 | 5,758 | 7,372 | 9,473 | 13,094 | 11,316 | 7,132 | 5,531 | 5,742 | 6,778 | 4,545 | 5,011 |
| 70% | 4,714 | 4,957 | 6,271 | 7,836 | 10,469 | 9,023 | 6,596 | 4,950 | 5,102 | 5,864 | 4,511 | 4,634 |
| 80% | 4,469 | 4,557 | 5,536 | 6,767 | 7,818 | 7,900 | 6,076 | 4,403 | 4,756 | 4,812 | 4,018 | 4,528 |
| 90% | 3,638 | 4,043 | 4,639 | 5,923 | 6,286 | 6,226 | 5,304 | 3,558 | 3,710 | 4,585 | 3,569 | 4,283 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,282 | 7,379 | 11,405 | 13,596 | 15,329 | 14,021 | 10,462 | 7,262 | 6,906 | 7,160 | 5,282 | 6,067 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,547 | 8,450 | 12,284 | 18,868 | 19,583 | 17,786 | 14,684 | 9,903 | 7,239 | 7,355 | 5,691 | 7,796 |
| Above Normal (16%) | 7,503 | 7,157 | 11,329 | 17,508 | 19,060 | 17,407 | 12,361 | 7,824 | 8,469 | 8,448 | 5,983 | 5,480 |
| Below Normal (13%) | 6,019 | 6,446 | 10,958 | 11,107 | 13,832 | 10,522 | 7,898 | 6,691 | 7,795 | 7,851 | 6,785 | 6,187 |
| Dry (24%) | 5,319 | 8,224 | 12,723 | 9,041 | 12,253 | 12,092 | 8,148 | 5,639 | 6,044 | 6,472 | 4,191 | 5,087 |
| Critical (15%) | 4,065 | 4,749 | 7,796 | 7,809 | 8,570 | 8,616 | 5,467 | 4,161 | 5,110 | 5,856 | 4,073 | 4,478 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3 | **-784** | 230 | 252 | 59 | **-9** | 3 | 83 | 2,331 | **-116** | 736 | **-5,405** |
| 20% | 890 | **-4,125** | 341 | **-41** | **-96** | **-125** | **-39** | **-3** | 2,032 | **-200** | 1,017 | **-6,284** |
| 30% | 802 | **-3,124** | 947 | 142 | 122 | **-1** | 422 | 1,472 | 1,940 | **-389** | 668 | **-4,617** |
| 40% | 481 | **-3,742** | 318 | 2,180 | **-191** | 660 | **-23** | 1,342 | 1,552 | **-421** | 618 | **-3,552** |
| 50% | 120 | **-3,115** | 211 | 715 | 196 | 726 | **-7** | 1,478 | 1,334 | **-572** | 279 | **-856** |
| 60% | 93 | **-1,482** | 109 | **-16** | 472 | 1,013 | 220 | 1,089 | 908 | 150 | 25 | **-249** |
| 70% | 76 | **-1,035** | 253 | **-50** | 203 | 106 | 267 | 951 | 395 | 44 | 267 | 11 |
| 80% | **-29** | **-602** | **-75** | **-175** | 133 | **-79** | 358 | 692 | 591 | 102 | 67 | 156 |
| 90% | **-357** | **-246** | **-215** | **-89** | **-22** | 15 | 143 | 82 | 216 | 254 | 127 | 318 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 158 | **-1,773** | 171 | 136 | 80 | 140 | 120 | 733 | 1,221 | **-134** | 378 | **-2,311** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 36 | **-3,727** | 662 | **-2** | 17 | **-23** | 86 | 290 | 813 | **-219** | 399 | **-6,121** |
| Above Normal (16%) | 791 | **-4,028** | 144 | 532 | 576 | **-25** | **-51** | 650 | 2,298 | **-202** | 535 | **-4,174** |
| Below Normal (13%) | **-27** | **-20** | **-403** | 727 | 205 | 680 | 444 | 1,201 | 1,837 | **-97** | 1,148 | 1,056 |
| Dry (24%) | 105 | 197 | **0** | **-58** | **-169** | **-82** | 71 | 1,258 | 885 | **-206** | **-100** | 422 |
| Critical (15%) | **-7** | 16 | **-51** | **-211** | **-20** | 550 | 162 | 478 | 935 | 208 | 256 | 323 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 19-3. Sacramento River at Wilkins Slough Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,085 | 13,566 | 21,070 | 22,006 | 22,665 | 21,630 | 19,305 | 12,626 | 7,804 | 9,695 | 6,594 | 15,000 |
| 20% | 7,608 | 12,869 | 19,597 | 21,247 | 21,557 | 20,323 | 17,774 | 9,258 | 7,069 | 9,423 | 5,495 | 13,681 |
| 30% | 6,693 | 10,941 | 13,753 | 19,601 | 20,870 | 19,029 | 11,344 | 6,213 | 6,008 | 9,174 | 5,161 | 11,042 |
| 40% | 6,148 | 10,268 | 11,687 | 15,569 | 19,624 | 15,809 | 9,173 | 5,248 | 5,478 | 8,710 | 4,673 | 9,367 |
| 50% | 5,810 | 9,256 | 8,468 | 10,929 | 15,927 | 13,550 | 7,720 | 4,655 | 5,002 | 7,804 | 4,545 | 6,275 |
| 60% | 5,268 | 7,240 | 7,263 | 9,489 | 12,622 | 10,302 | 6,911 | 4,442 | 4,834 | 6,628 | 4,520 | 5,260 |
| 70% | 4,638 | 5,992 | 6,017 | 7,886 | 10,266 | 8,916 | 6,329 | 3,999 | 4,707 | 5,820 | 4,244 | 4,623 |
| 80% | 4,497 | 5,159 | 5,612 | 6,942 | 7,686 | 7,980 | 5,718 | 3,711 | 4,165 | 4,710 | 3,951 | 4,372 |
| 90% | 3,994 | 4,289 | 4,854 | 6,012 | 6,308 | 6,211 | 5,161 | 3,476 | 3,495 | 4,331 | 3,442 | 3,965 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,124 | 9,152 | 11,234 | 13,460 | 15,249 | 13,881 | 10,343 | 6,529 | 5,684 | 7,294 | 4,903 | 8,377 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,511 | 12,176 | 11,622 | 18,870 | 19,567 | 17,810 | 14,598 | 9,612 | 6,426 | 7,574 | 5,293 | 13,916 |
| Above Normal (16%) | 6,711 | 11,184 | 11,185 | 16,976 | 18,484 | 17,432 | 12,412 | 7,174 | 6,171 | 8,650 | 5,448 | 9,654 |
| Below Normal (13%) | 6,046 | 6,466 | 11,361 | 10,381 | 13,627 | 9,842 | 7,454 | 5,489 | 5,958 | 7,948 | 5,637 | 5,132 |
| Dry (24%) | 5,215 | 8,027 | 12,724 | 9,098 | 12,422 | 12,174 | 8,077 | 4,381 | 5,159 | 6,678 | 4,291 | 4,665 |
| Critical (15%) | 4,072 | 4,733 | 7,847 | 8,021 | 8,590 | 8,066 | 5,306 | 3,683 | 4,176 | 5,648 | 3,817 | 4,154 |

## Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,091 | 12,739 | 21,296 | 22,226 | 22,724 | 21,622 | 19,308 | 12,710 | 10,184 | 9,494 | 7,752 | 9,555 |
| 20% | 8,424 | 9,145 | 20,067 | 21,206 | 21,469 | 20,205 | 17,693 | 9,256 | 9,015 | 9,157 | 6,631 | 7,520 |
| 30% | 7,888 | 7,542 | 14,646 | 19,697 | 20,991 | 19,028 | 11,769 | 7,672 | 7,826 | 8,772 | 5,813 | 6,298 |
| 40% | 7,171 | 6,563 | 12,028 | 17,745 | 19,413 | 16,473 | 9,145 | 6,453 | 6,933 | 8,332 | 5,521 | 5,787 |
| 50% | 6,402 | 6,233 | 8,690 | 11,190 | 16,230 | 13,884 | 7,855 | 6,012 | 6,390 | 7,417 | 4,953 | 5,423 |
| 60% | 5,839 | 5,813 | 7,493 | 9,470 | 13,095 | 11,087 | 7,188 | 5,328 | 5,507 | 6,891 | 4,555 | 4,981 |
| 70% | 5,245 | 5,034 | 6,249 | 8,061 | 10,468 | 9,025 | 6,765 | 4,885 | 5,073 | 5,866 | 4,485 | 4,651 |
| 80% | 4,574 | 4,562 | 5,552 | 6,772 | 7,459 | 7,896 | 6,062 | 4,317 | 4,738 | 4,942 | 3,898 | 4,522 |
| 90% | 3,984 | 4,180 | 4,722 | 5,918 | 6,352 | 6,802 | 5,332 | 3,558 | 3,683 | 4,629 | 3,445 | 4,065 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,518 | 7,406 | 11,480 | 13,615 | 15,295 | 13,991 | 10,502 | 7,184 | 6,816 | 7,159 | 5,307 | 6,061 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,728 | 8,481 | 12,451 | 18,865 | 19,581 | 17,783 | 14,758 | 9,616 | 7,172 | 7,412 | 5,883 | 7,648 |
| Above Normal (16%) | 7,129 | 7,637 | 11,394 | 17,419 | 19,027 | 17,396 | 12,379 | 7,851 | 8,217 | 8,460 | 5,866 | 5,639 |
| Below Normal (13%) | 6,417 | 6,436 | 11,016 | 11,068 | 13,824 | 10,527 | 7,977 | 6,718 | 7,695 | 7,867 | 6,563 | 6,243 |
| Dry (24%) | 5,958 | 7,982 | 12,741 | 9,034 | 12,260 | 11,964 | 8,156 | 5,659 | 6,106 | 6,465 | 4,241 | 5,144 |
| Critical (15%) | 4,258 | 4,753 | 7,795 | 8,089 | 8,374 | 8,642 | 5,473 | 4,159 | 4,904 | 5,707 | 4,079 | 4,440 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 6 | **-826** | 226 | 220 | 59 | **-8** | 2 | 83 | 2,380 | **-202** | 1,158 | **-5,445** |
| 20% | 816 | **-3,724** | 470 | **-41** | **-87** | **-117** | **-81** | **-2** | 1,946 | **-266** | 1,136 | **-6,161** |
| 30% | 1,196 | **-3,399** | 894 | 96 | 121 | **-1** | 425 | 1,459 | 1,818 | **-402** | 651 | **-4,744** |
| 40% | 1,024 | **-3,704** | 341 | 2,176 | **-211** | 664 | **-27** | 1,205 | 1,454 | **-377** | 848 | **-3,580** |
| 50% | 592 | **-3,023** | 221 | 260 | 303 | 334 | 135 | 1,357 | 1,388 | **-388** | 408 | **-852** |
| 60% | 571 | **-1,427** | 231 | **-19** | 472 | 785 | 277 | 886 | 673 | 263 | 35 | **-279** |
| 70% | 607 | **-958** | 232 | 175 | 202 | 108 | 436 | 885 | 365 | 46 | 241 | 28 |
| 80% | 77 | **-597** | **-59** | **-170** | **-227** | **-83** | 344 | 605 | 573 | 232 | **-54** | 150 |
| 90% | **-10** | **-109** | **-132** | **-93** | 44 | 591 | 171 | 82 | 188 | 298 | 3 | 100 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 393 | **-1,746** | 246 | 155 | 46 | 111 | 159 | 655 | 1,131 | **-136** | 404 | **-2,316** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 217 | **-3,695** | 828 | **-4** | 14 | **-27** | 159 | 4 | 745 | **-162** | 590 | **-6,268** |
| Above Normal (16%) | 417 | **-3,547** | 210 | 443 | 543 | **-36** | **-33** | 677 | 2,047 | **-190** | 418 | **-4,014** |
| Below Normal (13%) | 372 | **-30** | **-345** | 687 | 197 | 685 | 523 | 1,229 | 1,737 | **-81** | 926 | 1,111 |
| Dry (24%) | 743 | **-46** | 17 | **-65** | **-161** | **-210** | 79 | 1,278 | 947 | **-213** | **-50** | 480 |
| Critical (15%) | 186 | 20 | **-52** | 68 | **-216** | 576 | 167 | 476 | 729 | 60 | 262 | 285 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 19-4. Sacramento River at Wilkins Slough Flow, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,085 | 13,566 | 21,070 | 22,006 | 22,665 | 21,630 | 19,305 | 12,626 | 7,804 | 9,695 | 6,594 | 15,000 |
| 20% | 7,608 | 12,869 | 19,597 | 21,247 | 21,557 | 20,323 | 17,774 | 9,258 | 7,069 | 9,423 | 5,495 | 13,681 |
| 30% | 6,693 | 10,941 | 13,753 | 19,601 | 20,870 | 19,029 | 11,344 | 6,213 | 6,008 | 9,174 | 5,161 | 11,042 |
| 40% | 6,148 | 10,268 | 11,687 | 15,569 | 19,624 | 15,809 | 9,173 | 5,248 | 5,478 | 8,710 | 4,673 | 9,367 |
| 50% | 5,810 | 9,256 | 8,468 | 10,929 | 15,927 | 13,550 | 7,720 | 4,655 | 5,002 | 7,804 | 4,545 | 6,275 |
| 60% | 5,268 | 7,240 | 7,263 | 9,489 | 12,622 | 10,302 | 6,911 | 4,442 | 4,834 | 6,628 | 4,520 | 5,260 |
| 70% | 4,638 | 5,992 | 6,017 | 7,886 | 10,266 | 8,916 | 6,329 | 3,999 | 4,707 | 5,820 | 4,244 | 4,623 |
| 80% | 4,497 | 5,159 | 5,612 | 6,942 | 7,686 | 7,980 | 5,718 | 3,711 | 4,165 | 4,710 | 3,951 | 4,372 |
| 90% | 3,994 | 4,289 | 4,854 | 6,012 | 6,308 | 6,211 | 5,161 | 3,476 | 3,495 | 4,331 | 3,442 | 3,965 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,124 | 9,152 | 11,234 | 13,460 | 15,249 | 13,881 | 10,343 | 6,529 | 5,684 | 7,294 | 4,903 | 8,377 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,511 | 12,176 | 11,622 | 18,870 | 19,567 | 17,810 | 14,598 | 9,612 | 6,426 | 7,574 | 5,293 | 13,916 |
| Above Normal (16%) | 6,711 | 11,184 | 11,185 | 16,976 | 18,484 | 17,432 | 12,412 | 7,174 | 6,171 | 8,650 | 5,448 | 9,654 |
| Below Normal (13%) | 6,046 | 6,466 | 11,361 | 10,381 | 13,627 | 9,842 | 7,454 | 5,489 | 5,958 | 7,948 | 5,637 | 5,132 |
| Dry (24%) | 5,215 | 8,027 | 12,724 | 9,098 | 12,422 | 12,174 | 8,077 | 4,381 | 5,159 | 6,678 | 4,291 | 4,665 |
| Critical (15%) | 4,072 | 4,733 | 7,847 | 8,021 | 8,590 | 8,066 | 5,306 | 3,683 | 4,176 | 5,648 | 3,817 | 4,154 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,139 | 12,837 | 21,333 | 22,424 | 22,716 | 21,621 | 19,272 | 11,449 | 8,253 | 9,693 | 5,823 | 8,950 |
| 20% | 7,720 | 9,246 | 20,705 | 21,185 | 21,605 | 20,304 | 18,243 | 8,113 | 7,749 | 9,148 | 5,427 | 6,704 |
| 30% | 7,251 | 7,322 | 15,430 | 19,598 | 20,881 | 19,189 | 14,430 | 6,159 | 7,187 | 8,784 | 5,248 | 5,631 |
| 40% | 6,612 | 6,275 | 12,889 | 17,933 | 19,610 | 17,180 | 10,390 | 5,460 | 6,247 | 8,065 | 4,918 | 5,319 |
| 50% | 5,812 | 5,983 | 8,770 | 12,332 | 16,457 | 15,159 | 8,773 | 4,842 | 5,772 | 7,208 | 4,577 | 4,892 |
| 60% | 5,414 | 5,629 | 7,538 | 9,800 | 13,412 | 12,135 | 7,547 | 4,674 | 5,306 | 6,777 | 4,529 | 4,685 |
| 70% | 4,853 | 5,202 | 5,904 | 8,172 | 11,060 | 9,806 | 6,560 | 4,510 | 4,866 | 5,921 | 4,406 | 4,549 |
| 80% | 4,546 | 4,858 | 5,324 | 6,923 | 7,555 | 8,157 | 5,630 | 4,066 | 4,342 | 4,629 | 3,857 | 4,128 |
| 90% | 4,014 | 4,378 | 4,852 | 6,015 | 6,424 | 5,769 | 5,111 | 3,459 | 3,649 | 4,219 | 3,411 | 3,870 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,319 | 7,399 | 11,640 | 13,795 | 15,489 | 14,390 | 10,903 | 6,477 | 6,173 | 7,146 | 4,787 | 5,659 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,731 | 8,227 | 12,360 | 19,086 | 19,761 | 18,166 | 15,402 | 9,482 | 6,502 | 7,586 | 5,366 | 7,739 |
| Above Normal (16%) | 6,923 | 7,682 | 11,680 | 17,775 | 19,057 | 17,928 | 13,212 | 6,945 | 6,090 | 9,288 | 5,289 | 5,169 |
| Below Normal (13%) | 6,082 | 6,616 | 11,415 | 11,444 | 14,026 | 11,043 | 8,122 | 5,367 | 6,684 | 7,842 | 4,903 | 4,810 |
| Dry (24%) | 5,480 | 8,067 | 13,034 | 9,102 | 12,597 | 12,717 | 8,409 | 4,512 | 6,372 | 6,379 | 4,306 | 4,538 |
| Critical (15%) | 4,219 | 4,901 | 7,919 | 8,000 | 8,528 | 8,232 | 5,361 | 3,754 | 4,750 | 4,513 | 3,686 | 4,327 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 54 | **-729** | 264 | 417 | 51 | **-9** | **-33** | **-1,178** | 449 | **-3** | **-771** | **-6,050** |
| 20% | 112 | **-3,623** | 1,109 | **-62** | 48 | **-18** | 468 | **-1,145** | 679 | **-276** | **-69** | **-6,977** |
| 30% | 558 | **-3,620** | 1,677 | **-3** | 12 | 160 | 3,086 | **-53** | 1,179 | **-389** | 87 | **-5,411** |
| 40% | 464 | **-3,993** | 1,202 | 2,364 | **-14** | 1,371 | 1,217 | 211 | 769 | **-644** | 246 | **-4,048** |
| 50% | 2 | **-3,273** | 302 | 1,403 | 530 | 1,608 | 1,053 | 187 | 770 | **-597** | 32 | **-1,383** |
| 60% | 145 | **-1,612** | 275 | 312 | 790 | 1,832 | 636 | 232 | 472 | 149 | 9 | **-575** |
| 70% | 215 | **-790** | **-114** | 286 | 794 | 889 | 231 | 511 | 159 | 101 | 161 | **-74** |
| 80% | 49 | **-301** | **-287** | **-19** | **-131** | 177 | **-88** | 355 | 176 | **-81** | **-95** | **-244** |
| 90% | 19 | 90 | **-2** | 3 | 115 | **-442** | **-50** | **-17** | 154 | **-112** | **-32** | **-96** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 194 | **-1,753** | 406 | 336 | 239 | 509 | 561 | **-52** | 488 | **-148** | **-116** | **-2,718** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 220 | **-3,950** | 738 | 216 | 194 | 356 | 804 | **-131** | 75 | 12 | 73 | **-6,177** |
| Above Normal (16%) | 211 | **-3,502** | 496 | 799 | 573 | 496 | 800 | **-229** | **-81** | 638 | **-159** | **-4,485** |
| Below Normal (13%) | 36 | 150 | 54 | 1,063 | 399 | 1,201 | 669 | **-122** | 727 | **-106** | **-734** | **-322** |
| Dry (24%) | 266 | 39 | 310 | 3 | 175 | 543 | 332 | 131 | 1,213 | **-299** | 15 | **-126** |
| Critical (15%) | 147 | 168 | 72 | **-20** | **-62** | 166 | 56 | 71 | 574 | **-1,134** | **-130** | 172 |

a Based on the 82-year simulation period.

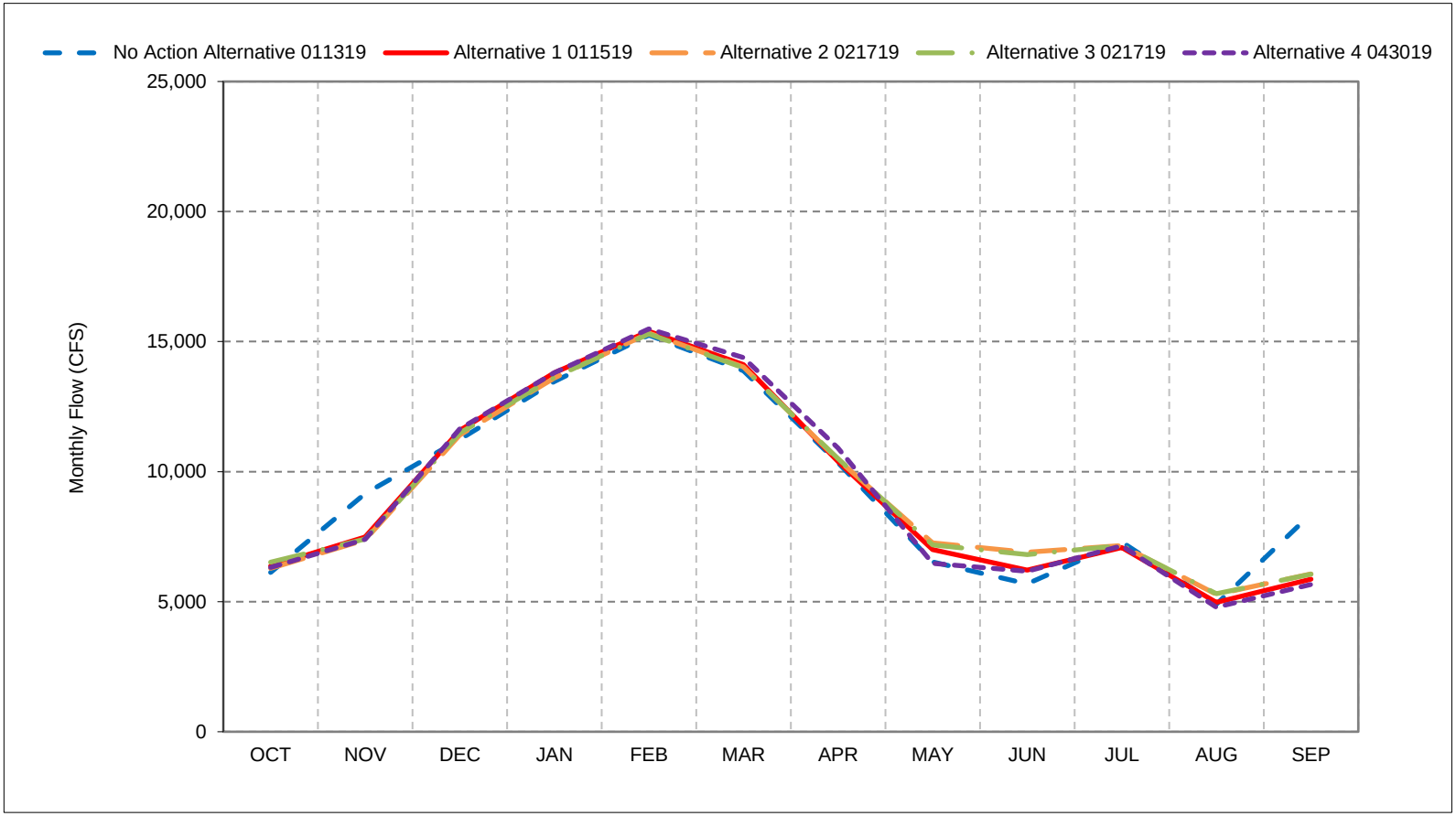
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

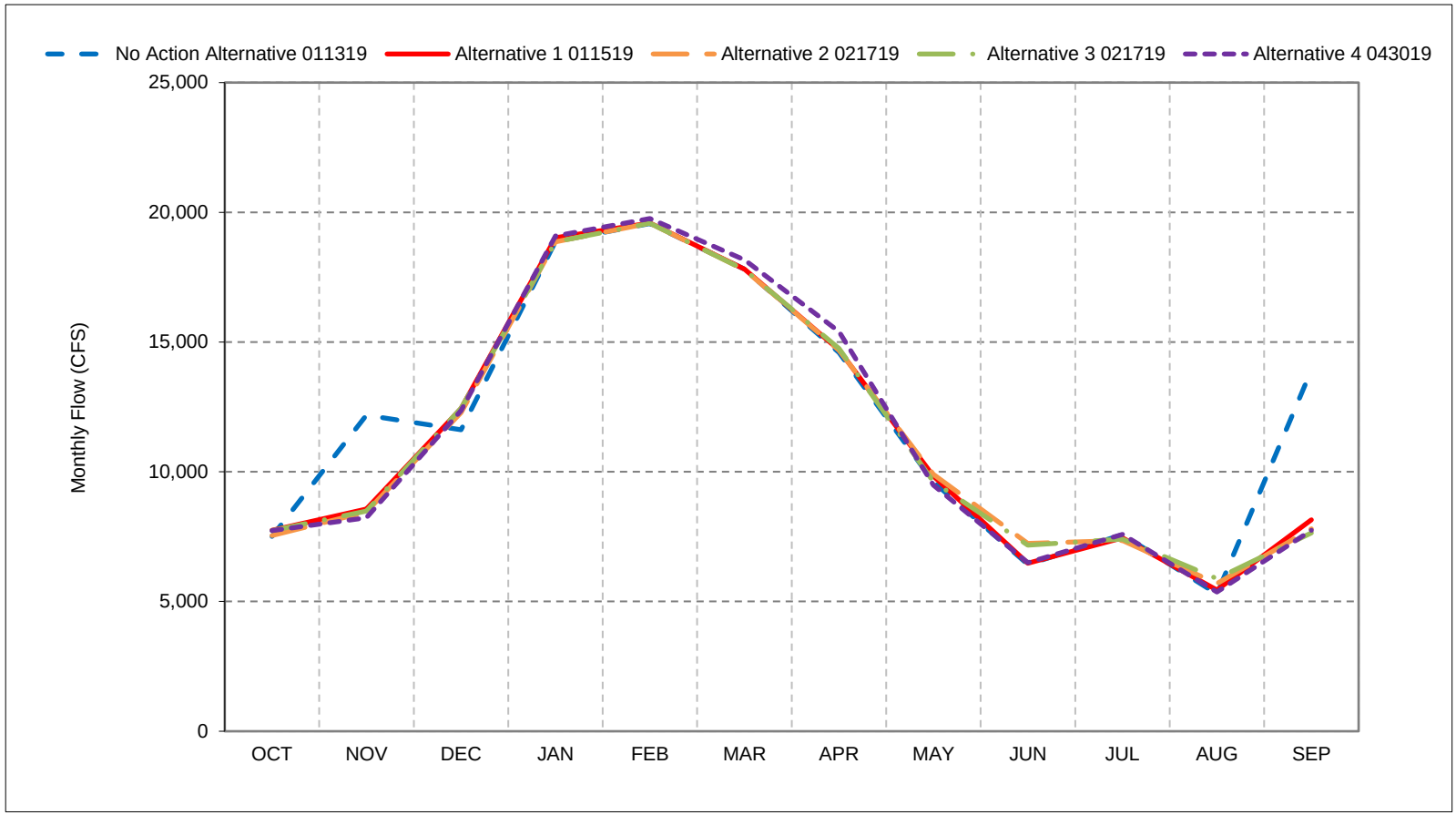
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 19-1. Sacramento River at Wilkins Slough Flow, Long-Term Average Flow



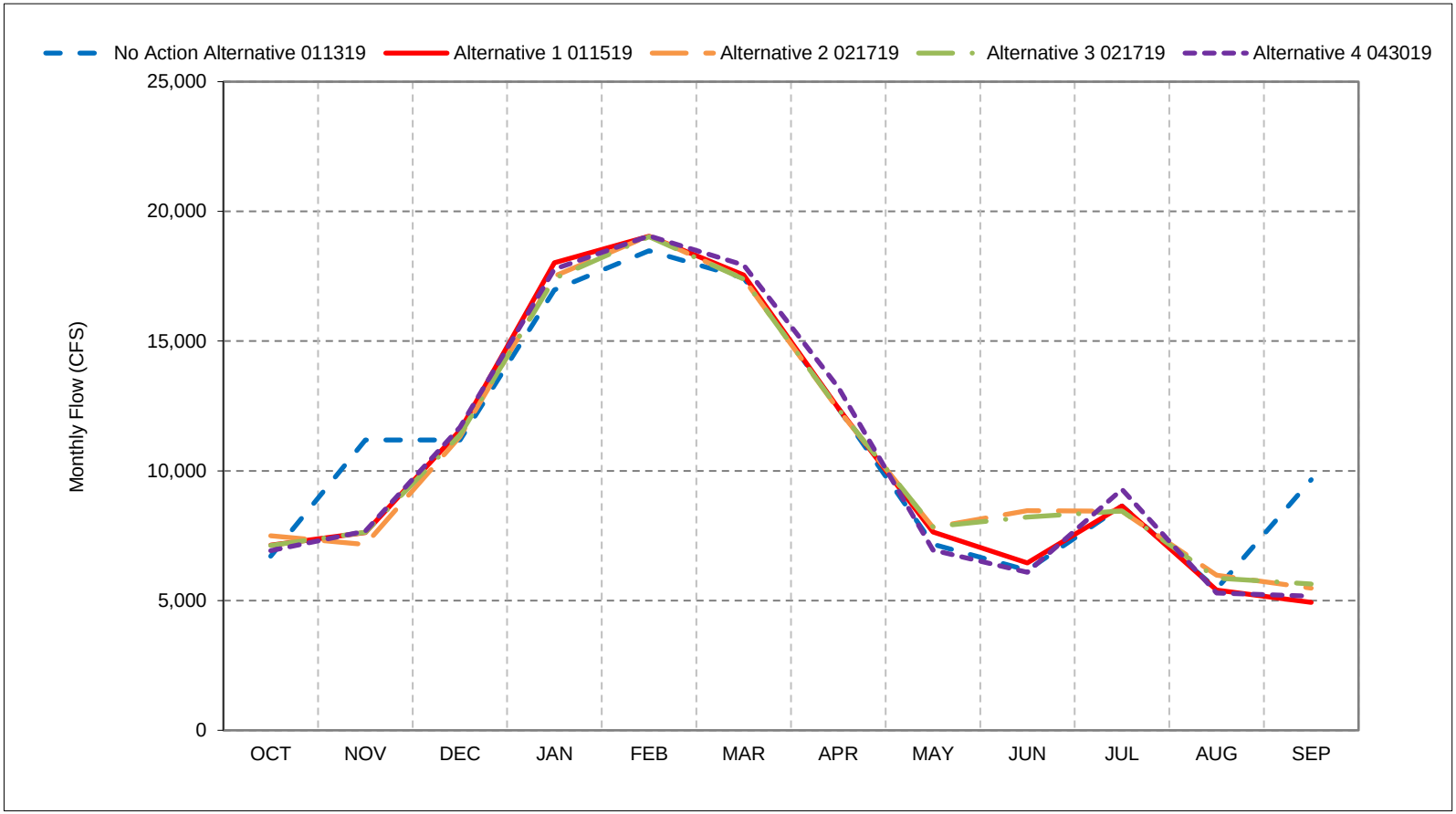

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 19-2. Sacramento River at Wilkins Slough Flow, Wet Year Average Flow



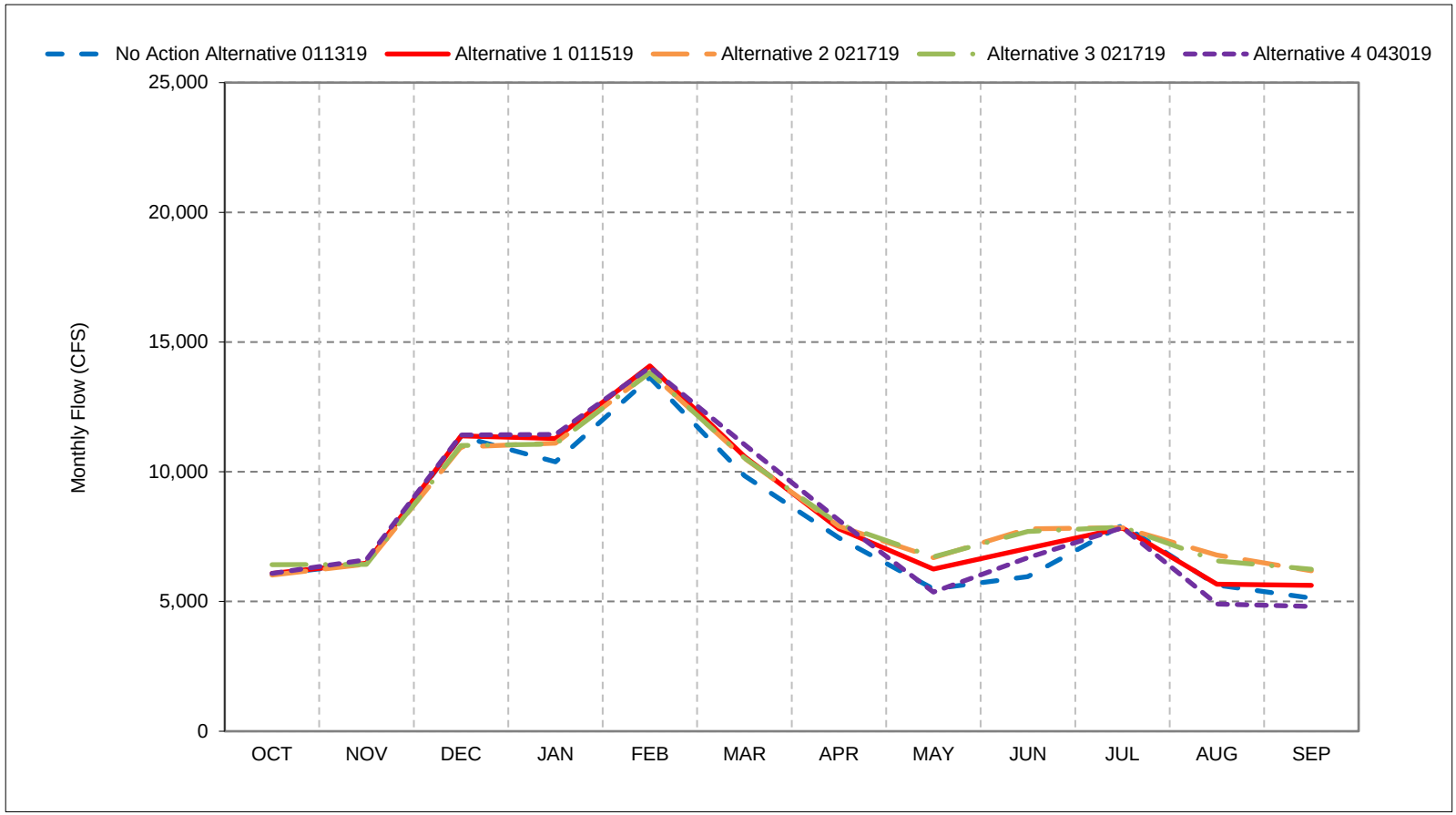

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 19-3. Sacramento River at Wilkins Slough Flow, Above Normal Year Average Flow



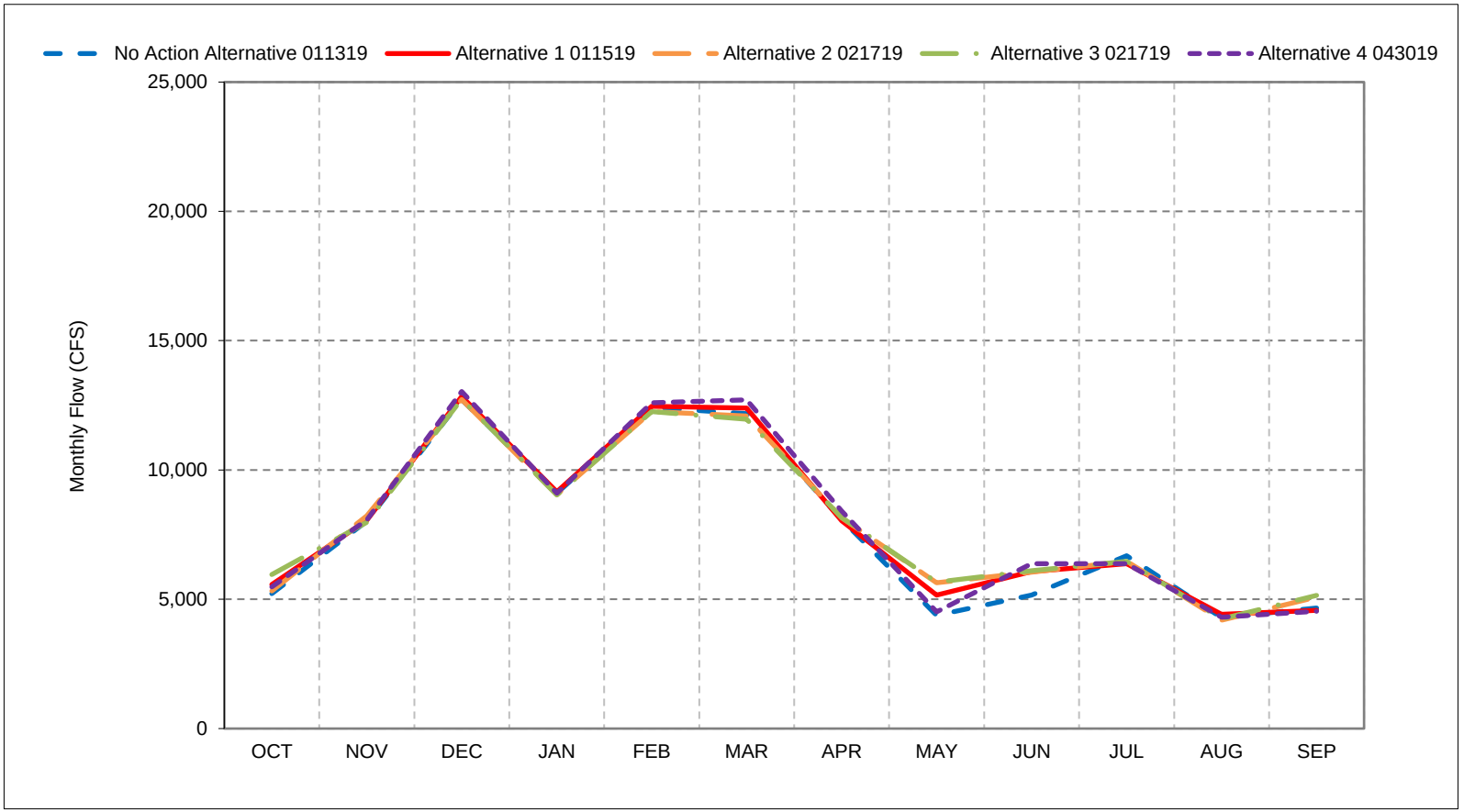

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 19-4. Sacramento River at Wilkins Slough Flow, Below Normal Year Average Flow



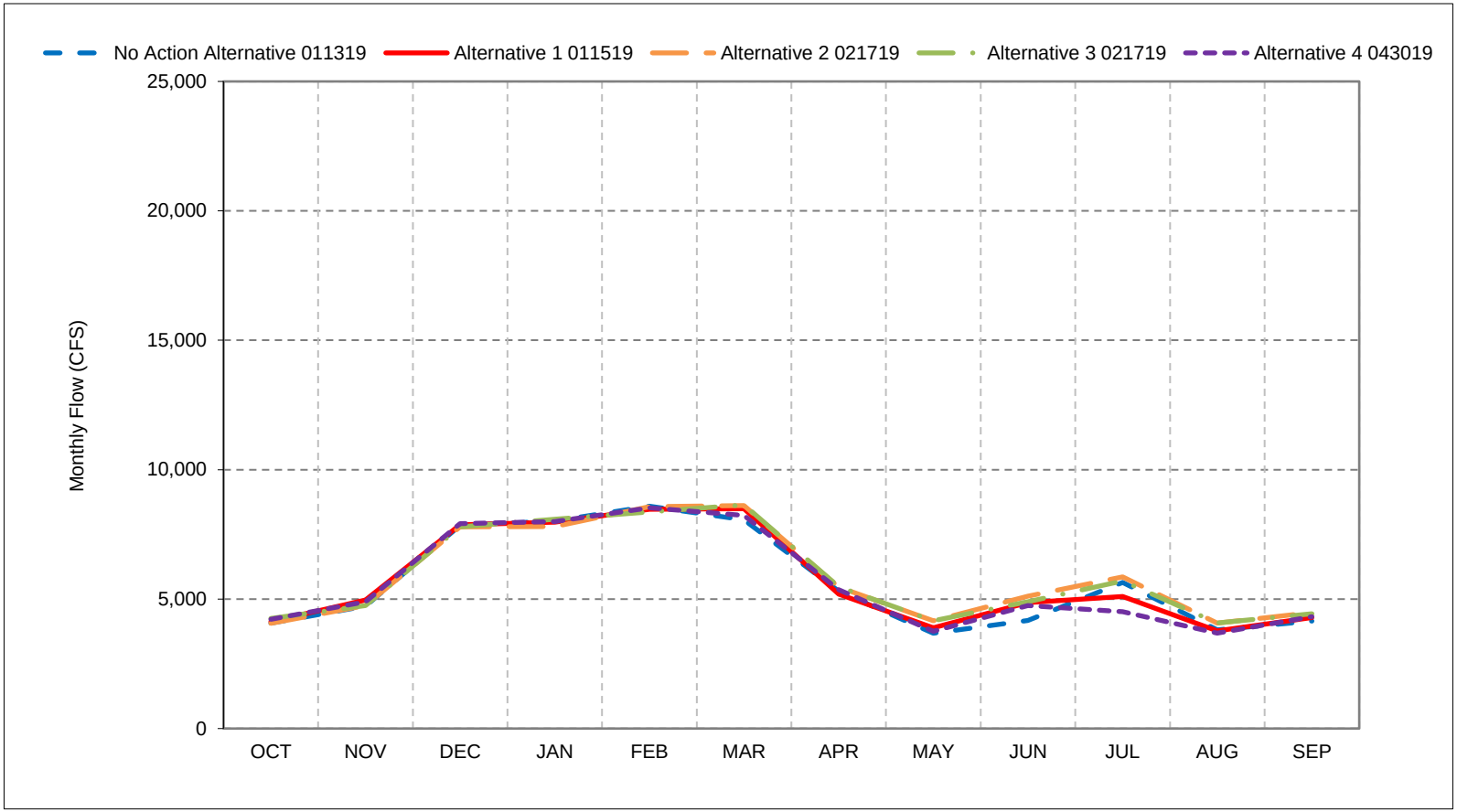

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 19-5. Sacramento River at Wilkins Slough Flow, Dry Year Average Flow



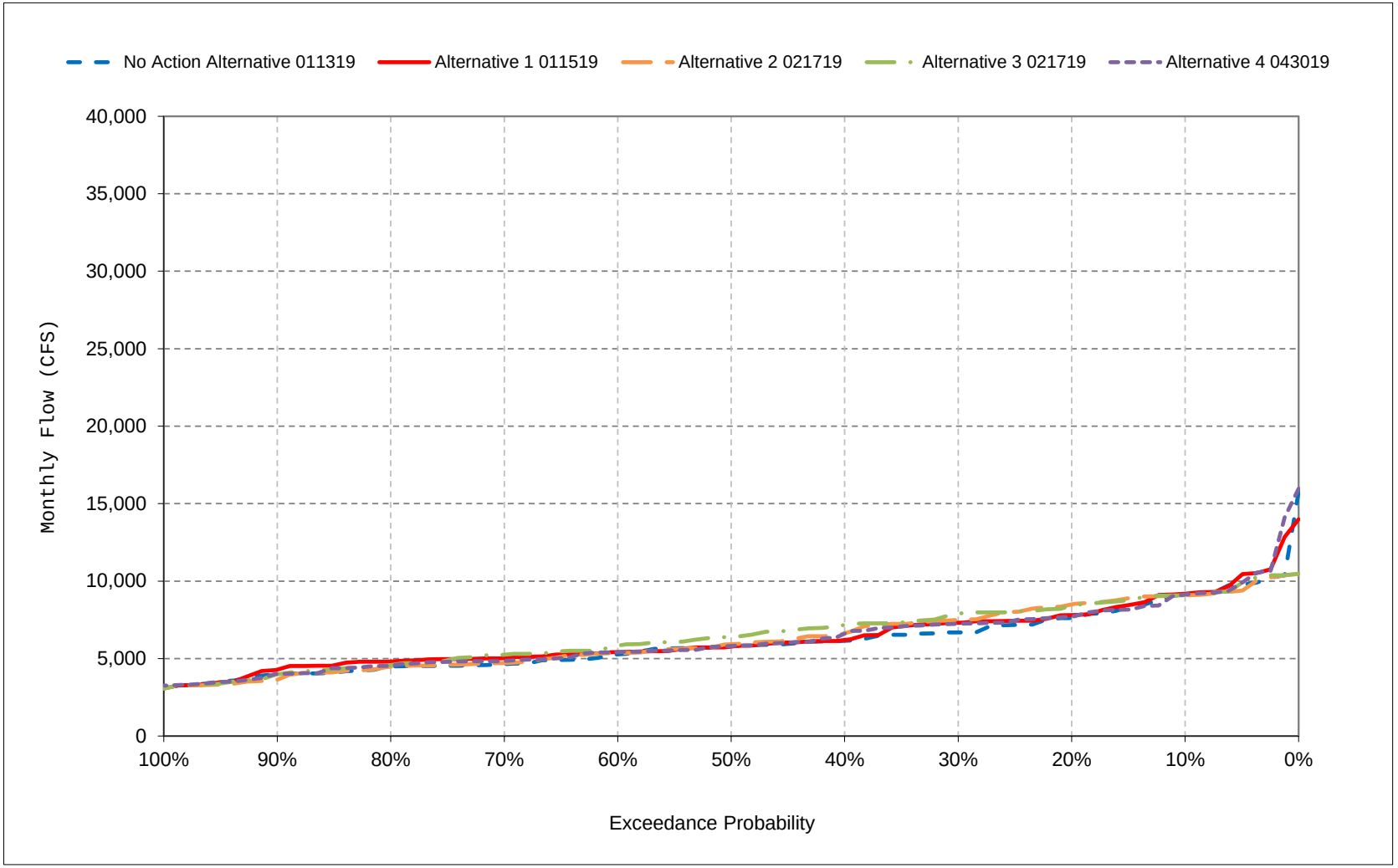

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 19-6. Sacramento River at Wilkins Slough Flow, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

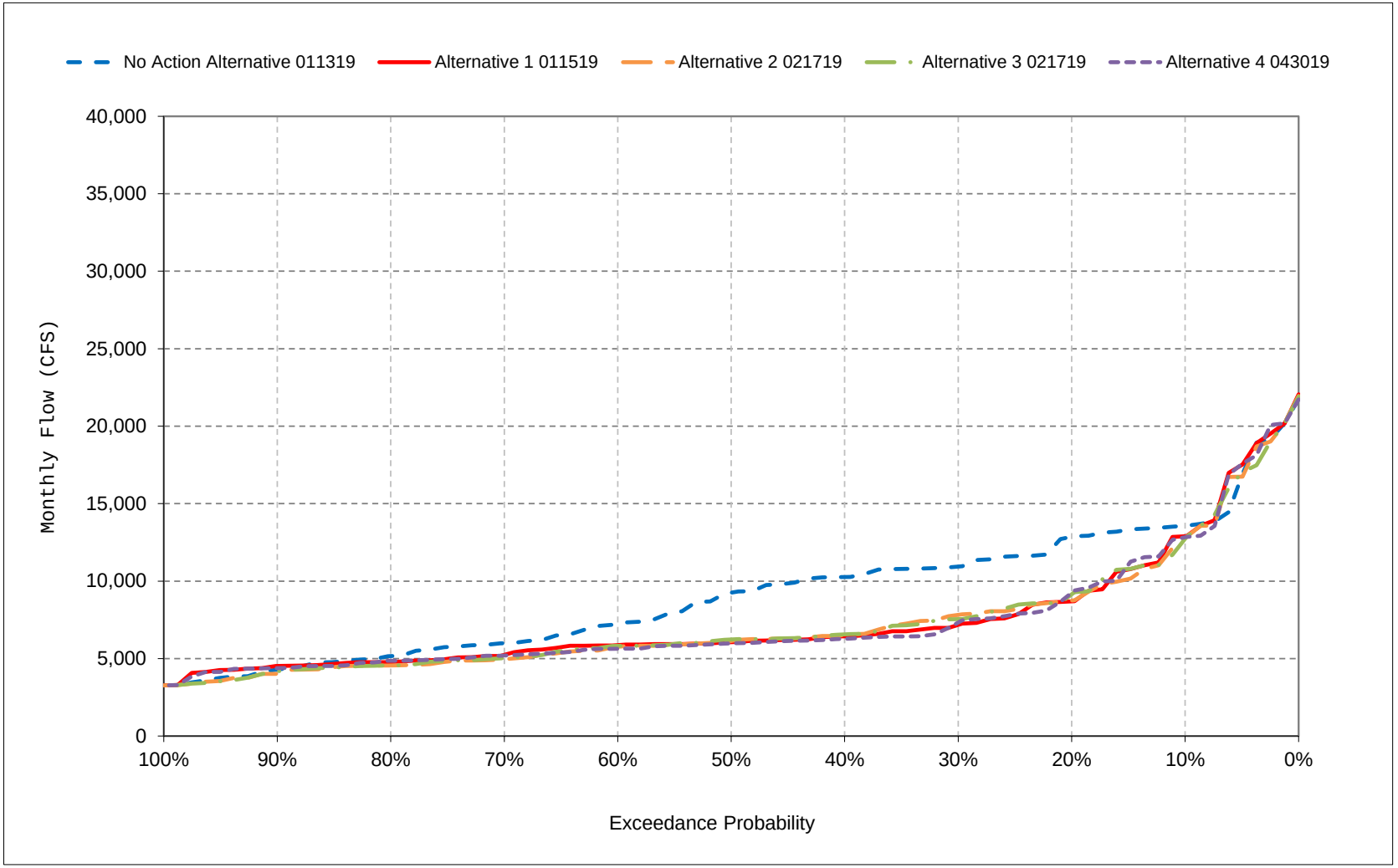
**Figure 19-7. Sacramento River at Wilkins Slough Flow, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

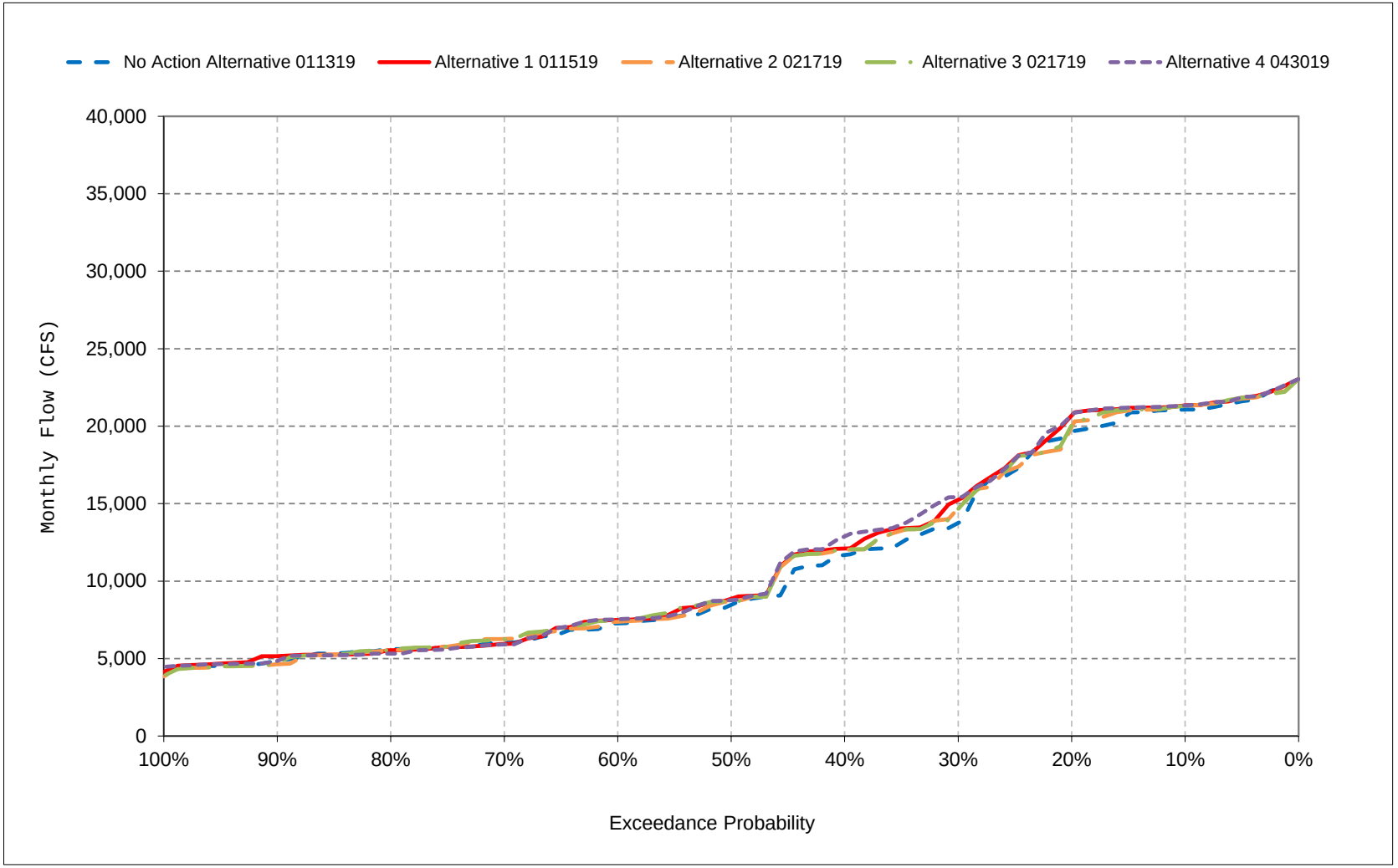
**Figure 19-8. Sacramento River at Wilkins Slough Flow, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

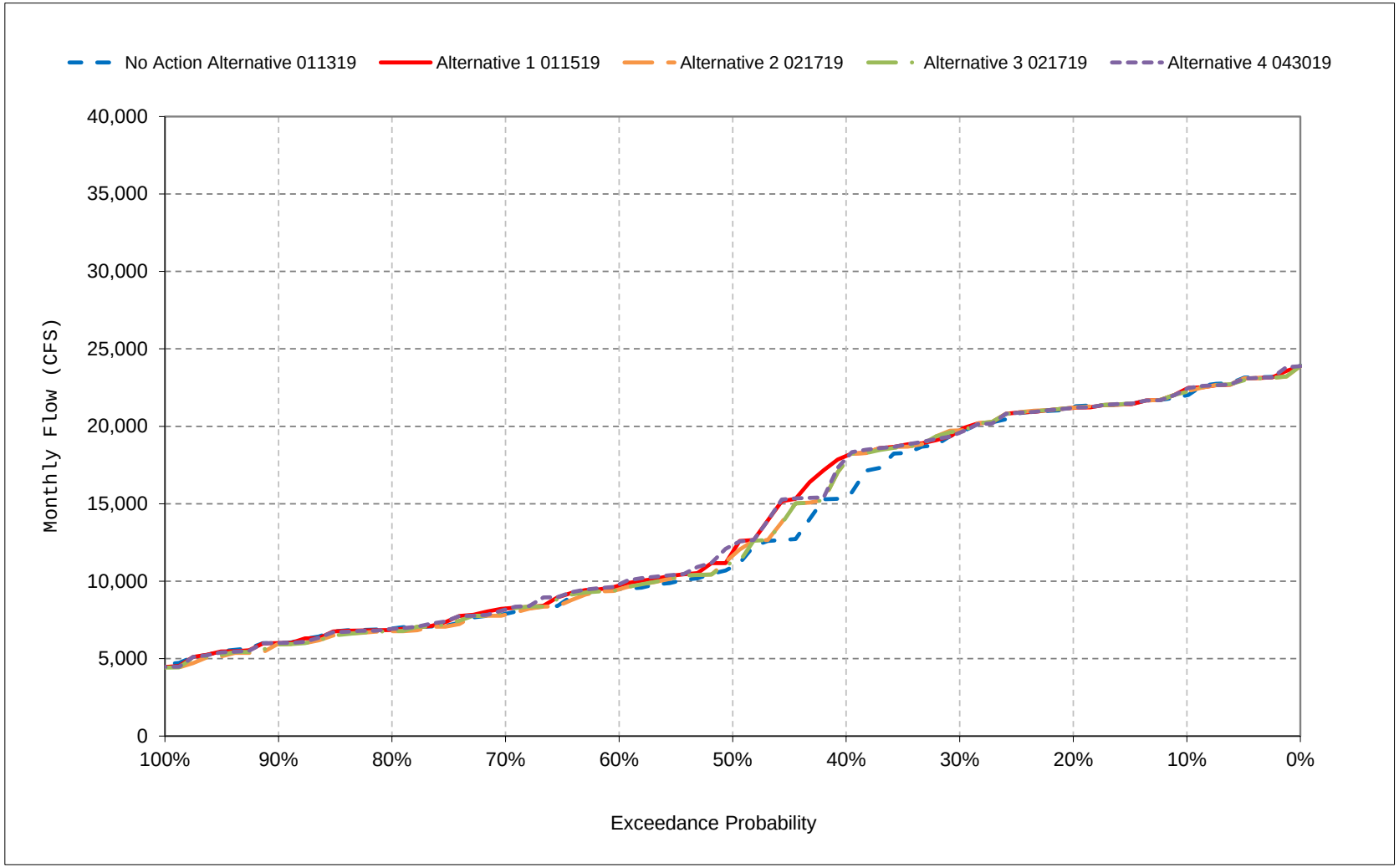
**Figure 19-9. Sacramento River at Wilkins Slough Flow, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

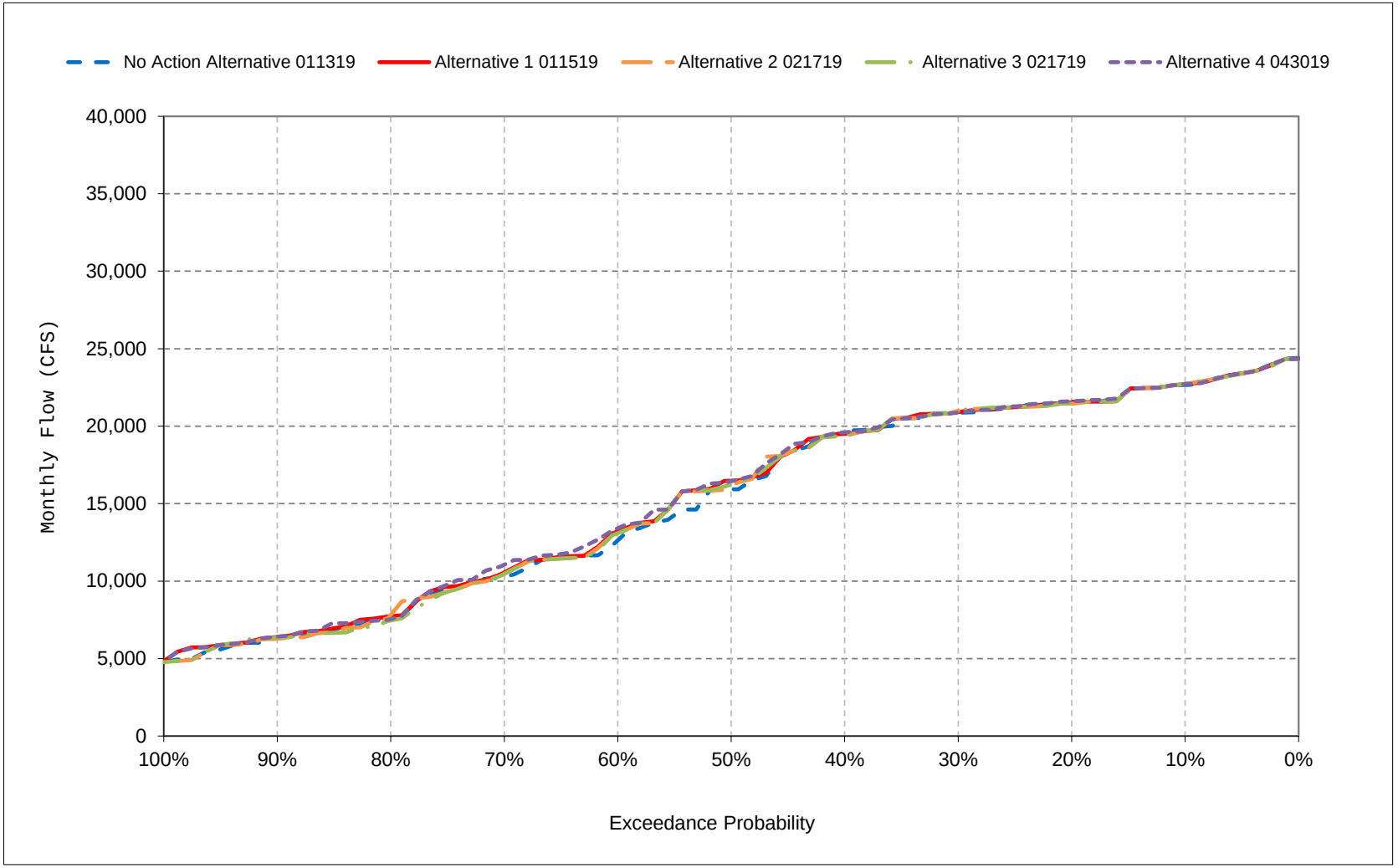
**Figure 19-10. Sacramento River at Wilkins Slough Flow, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

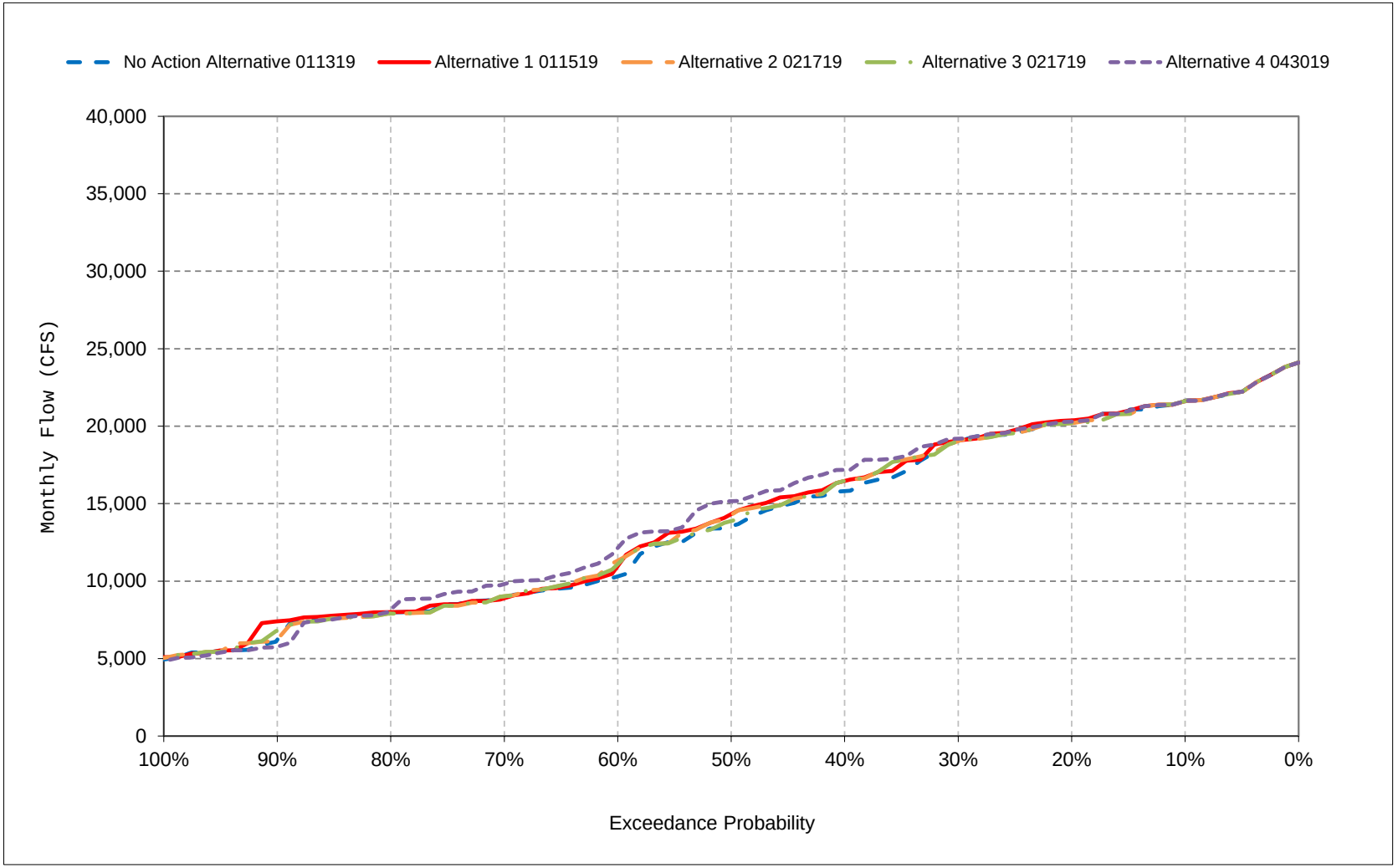
**Figure 19-11. Sacramento River at Wilkins Slough Flow, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

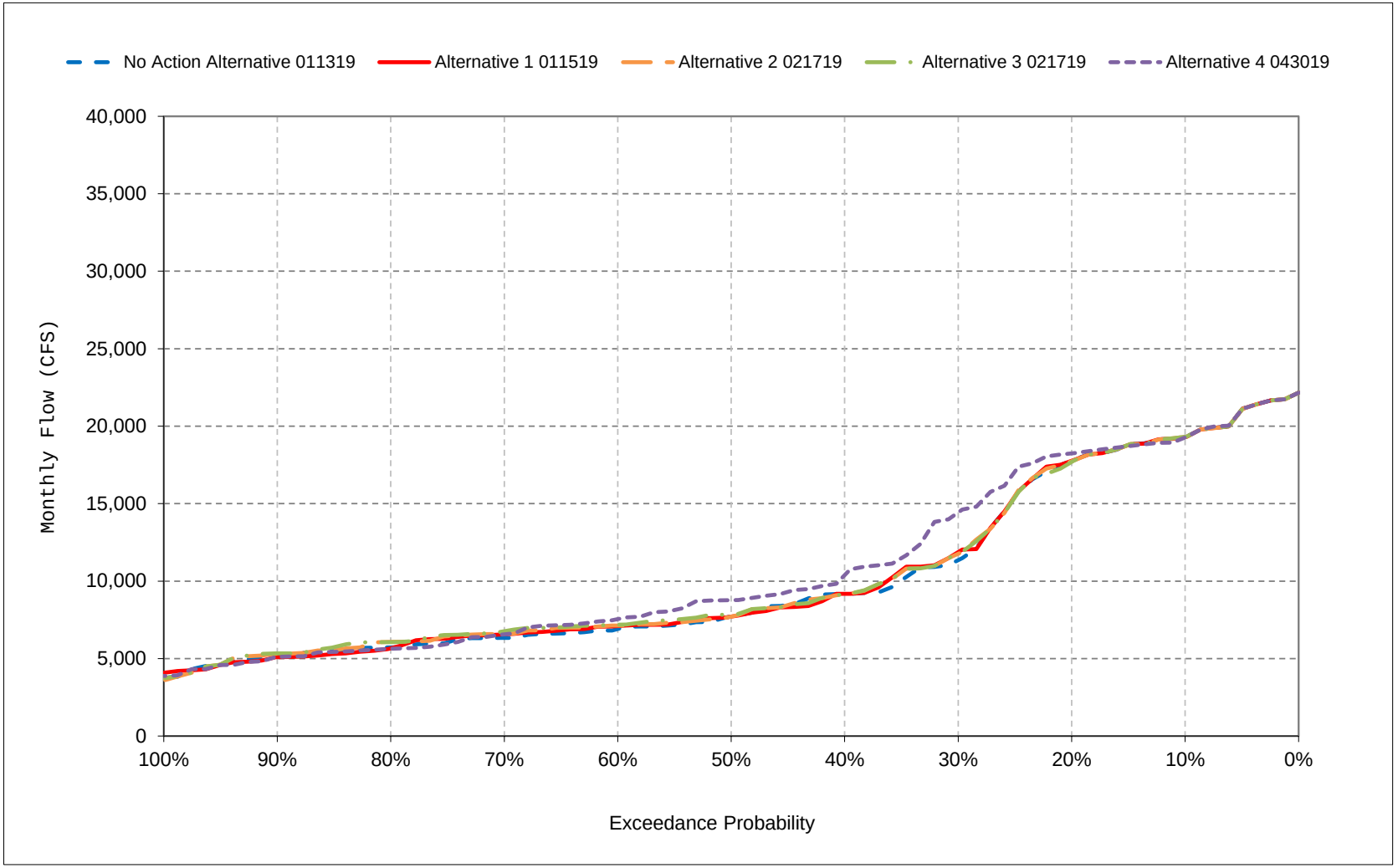
**Figure 19-12. Sacramento River at Wilkins Slough Flow, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

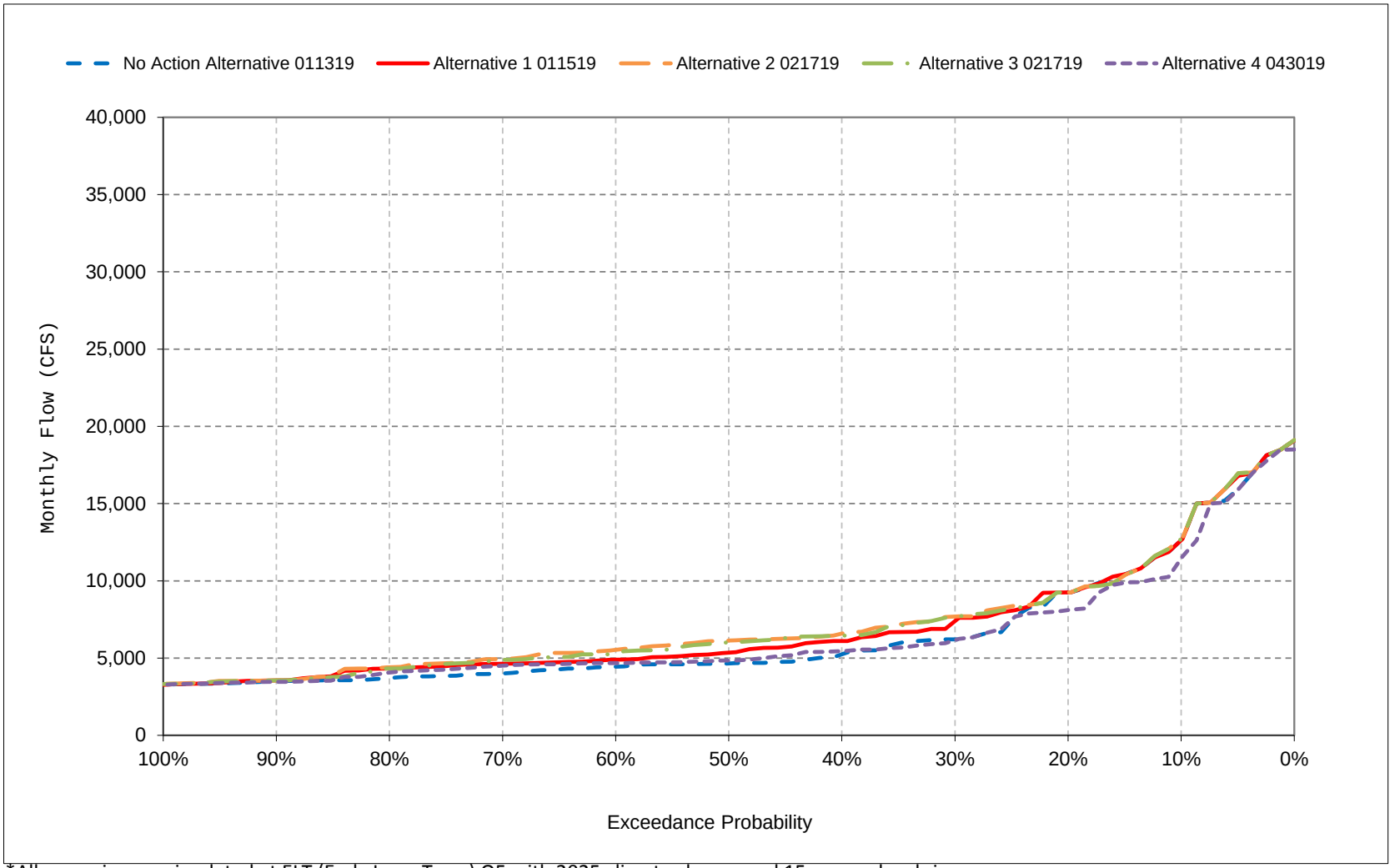
**Figure 19-13. Sacramento River at Wilkins Slough Flow, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

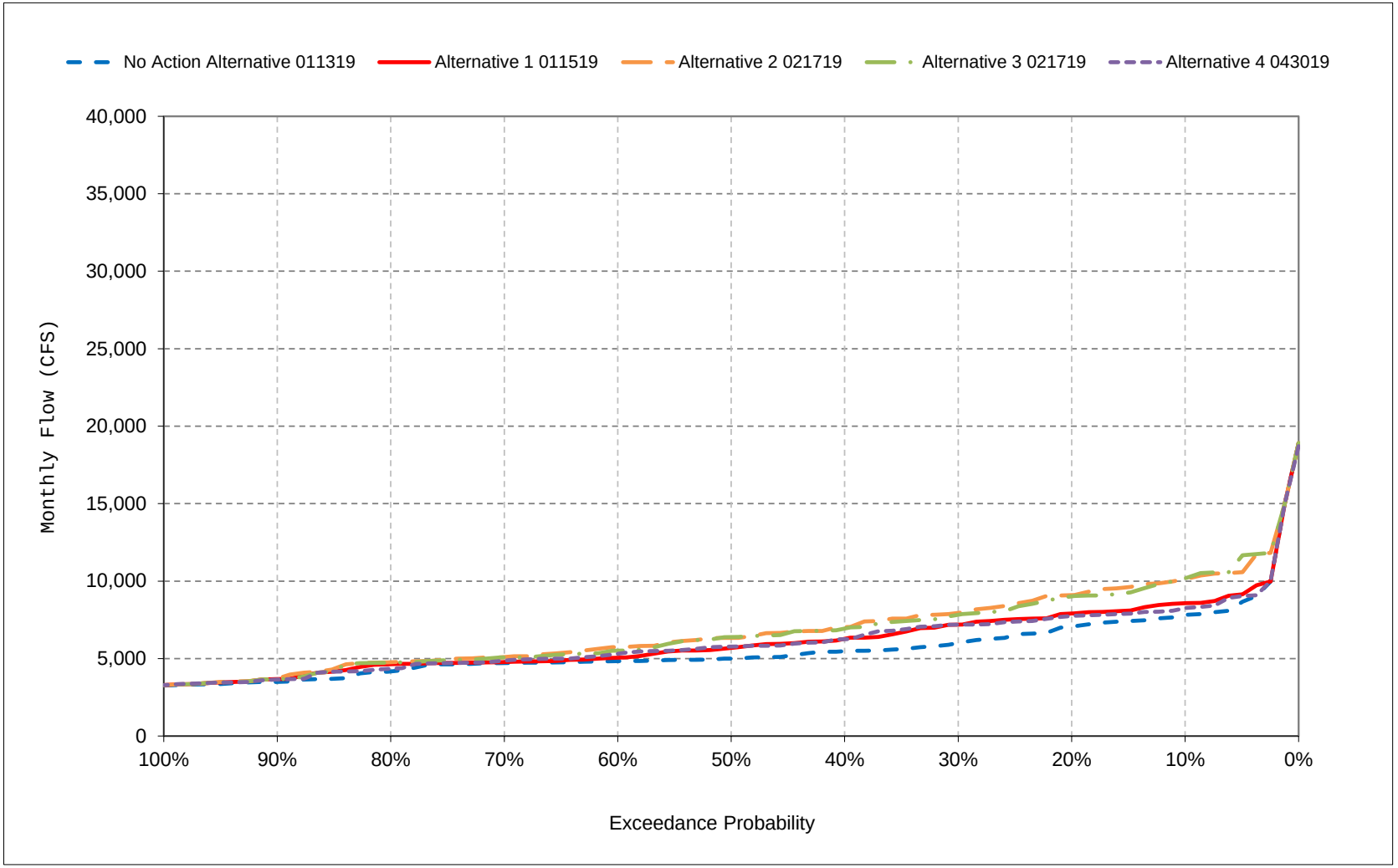
**Figure 19-14. Sacramento River at Wilkins Slough Flow, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

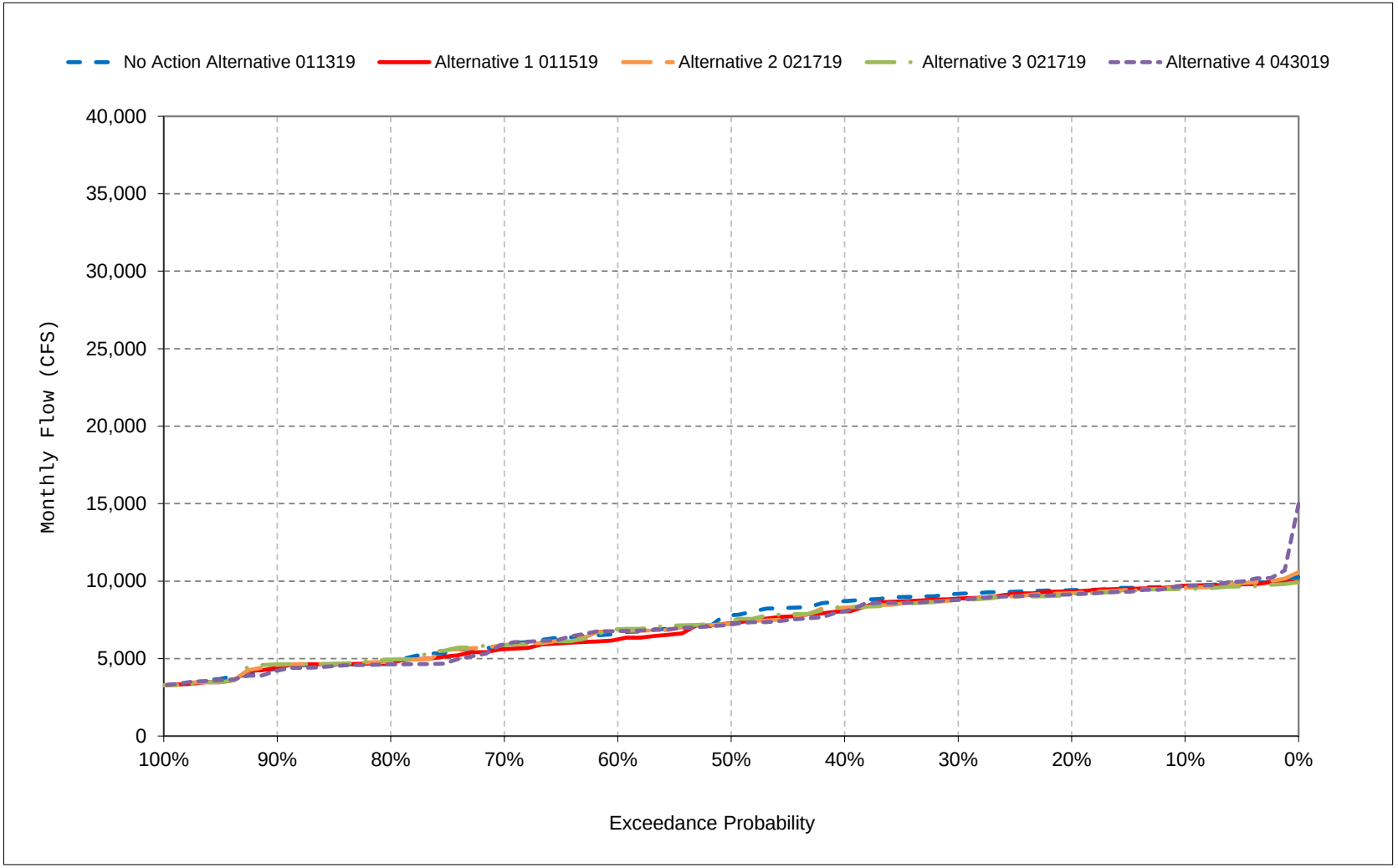
**Figure 19-15. Sacramento River at Wilkins Slough Flow, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

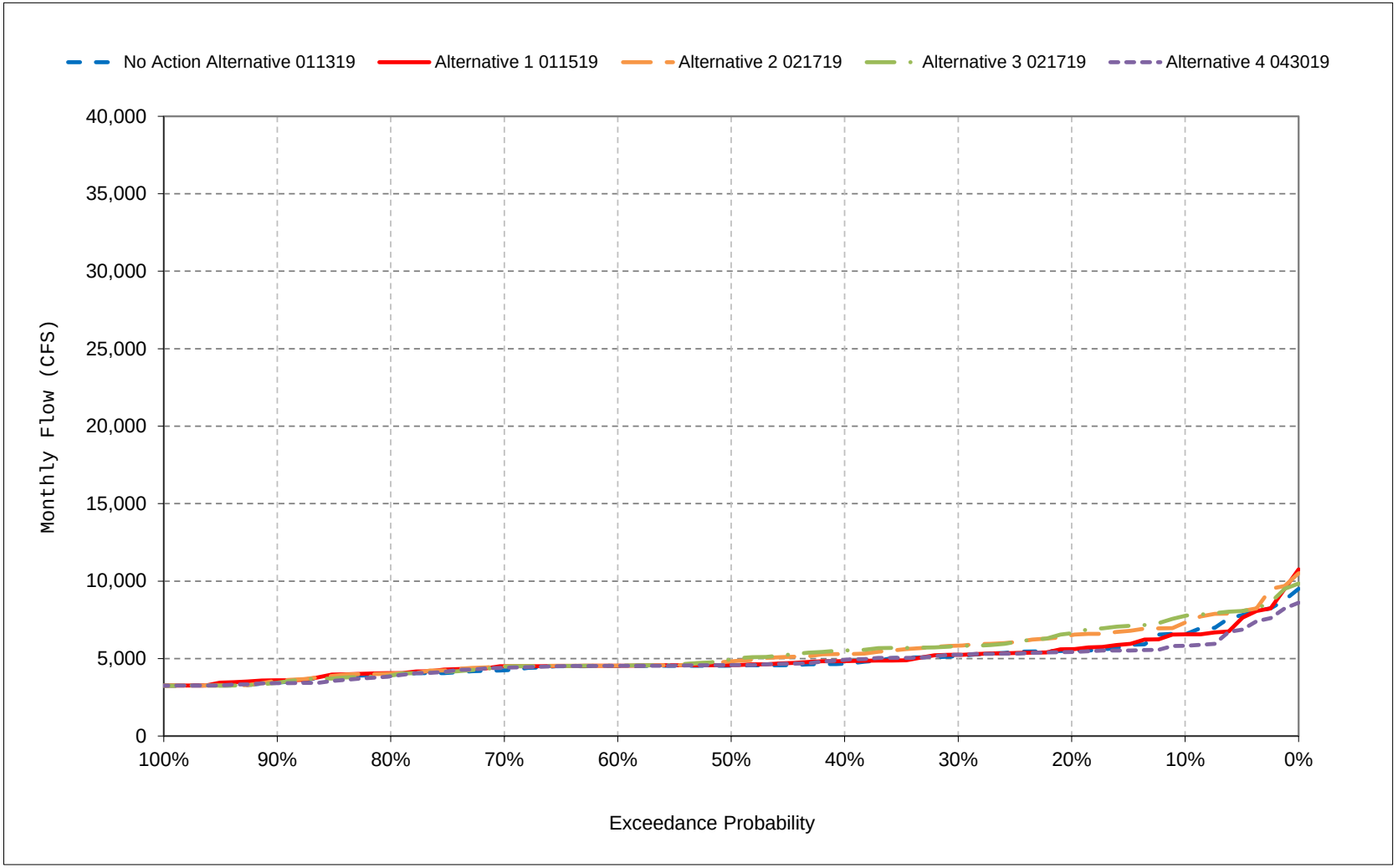
**Figure 19-16. Sacramento River at Wilkins Slough Flow, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

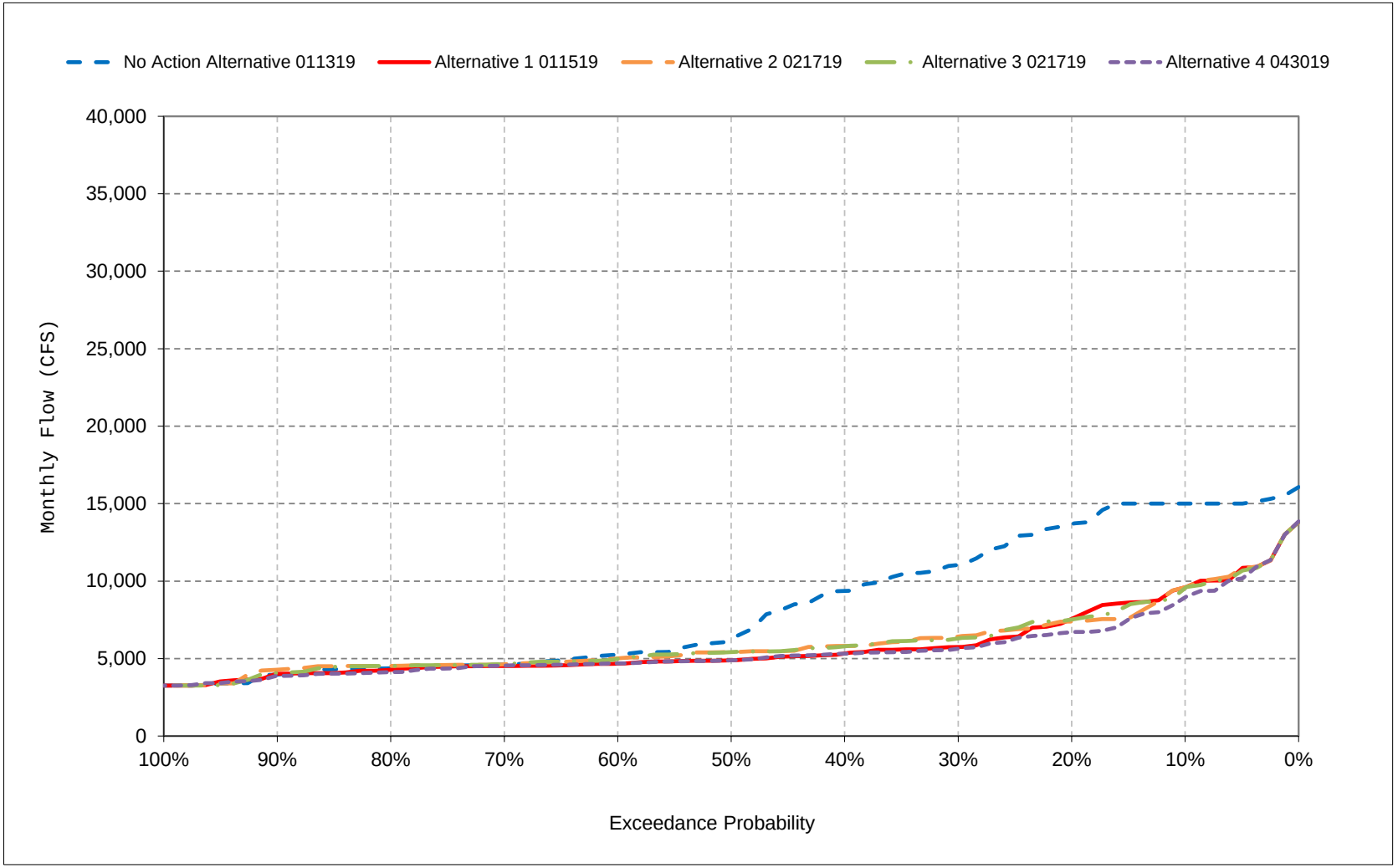
**Figure 19-17. Sacramento River at Wilkins Slough Flow, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 19-18. Sacramento River at Wilkins Slough Flow, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 21-1. Feather River Flow downstream of Thermalito, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,000 | 2,500 | 5,018 | 13,760 | 17,606 | 14,415 | 8,407 | 8,325 | 5,575 | 9,607 | 7,960 | 9,472 |
| 20% | 4,000 | 2,500 | 3,321 | 2,011 | 11,135 | 8,902 | 3,686 | 5,400 | 4,238 | 9,053 | 7,531 | 8,992 |
| 30% | 4,000 | 2,426 | 2,087 | 1,700 | 4,284 | 6,734 | 2,554 | 3,081 | 3,871 | 8,782 | 7,277 | 7,869 |
| 40% | 3,034 | 1,826 | 1,700 | 1,700 | 1,700 | 4,737 | 1,605 | 2,427 | 3,235 | 8,422 | 6,212 | 7,419 |
| 50% | 1,762 | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,153 | 1,996 | 2,947 | 8,000 | 4,705 | 3,893 |
| 60% | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,000 | 1,420 | 2,667 | 7,392 | 2,848 | 1,736 |
| 70% | 1,700 | 1,200 | 1,700 | 1,200 | 1,700 | 1,700 | 1,000 | 1,000 | 2,450 | 4,752 | 2,261 | 1,203 |
| 80% | 1,200 | 1,200 | 1,200 | 960 | 1,200 | 1,000 | 1,000 | 1,000 | 2,189 | 3,844 | 1,900 | 1,007 |
| 90% | 900 | 900 | 900 | 900 | 900 | 800 | 758 | 1,000 | 1,716 | 3,226 | 1,410 | 1,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,473 | 1,970 | 2,802 | 4,459 | 5,438 | 6,099 | 3,050 | 3,479 | 3,340 | 6,888 | 4,625 | 4,841 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,811 | 3,024 | 4,380 | 10,636 | 12,626 | 13,568 | 6,591 | 6,937 | 3,748 | 7,115 | 5,721 | 8,774 |
| Above Normal (16%) | 3,362 | 2,151 | 2,430 | 2,389 | 4,133 | 6,286 | 2,129 | 2,013 | 2,140 | 8,734 | 7,622 | 7,550 |
| Below Normal (13%) | 1,589 | 1,564 | 1,575 | 1,595 | 1,589 | 1,907 | 1,279 | 1,880 | 2,604 | 8,687 | 5,874 | 2,506 |
| Dry (24%) | 1,388 | 1,310 | 2,388 | 1,360 | 1,505 | 1,299 | 1,139 | 1,816 | 4,103 | 6,399 | 1,899 | 1,305 |
| Critical (15%) | 1,234 | 965 | 1,600 | 1,108 | 1,360 | 1,554 | 1,184 | 1,814 | 3,162 | 3,566 | 2,402 | 1,420 |

### Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,000 | 2,500 | 5,380 | 13,768 | 18,491 | 14,399 | 8,408 | 8,271 | 6,433 | 9,812 | 7,864 | 5,604 |
| 20% | 3,963 | 2,469 | 3,501 | 2,739 | 11,947 | 10,484 | 3,603 | 5,387 | 5,100 | 9,307 | 7,588 | 4,860 |
| 30% | 3,350 | 1,700 | 2,492 | 1,700 | 6,891 | 7,392 | 2,577 | 3,566 | 4,645 | 9,002 | 7,153 | 3,787 |
| 40% | 2,035 | 1,700 | 1,700 | 1,700 | 1,807 | 5,124 | 1,633 | 3,176 | 4,239 | 8,702 | 6,560 | 2,195 |
| 50% | 1,748 | 1,700 | 1,700 | 1,700 | 1,700 | 2,483 | 1,187 | 2,489 | 3,886 | 8,075 | 4,652 | 1,349 |
| 60% | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,000 | 1,917 | 3,420 | 7,255 | 2,835 | 1,198 |
| 70% | 1,700 | 1,200 | 1,700 | 1,200 | 1,700 | 1,700 | 1,000 | 1,143 | 2,980 | 4,356 | 2,253 | 1,059 |
| 80% | 1,200 | 1,200 | 1,200 | 960 | 1,200 | 1,000 | 1,000 | 1,000 | 2,559 | 3,673 | 1,888 | 1,000 |
| 90% | 900 | 900 | 900 | 900 | 900 | 800 | 758 | 1,000 | 2,145 | 3,212 | 1,578 | 1,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,275 | 1,888 | 3,169 | 4,765 | 5,948 | 6,399 | 3,063 | 3,745 | 3,974 | 6,925 | 4,671 | 2,569 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,116 | 2,832 | 5,556 | 11,597 | 13,163 | 13,954 | 6,587 | 7,086 | 4,039 | 7,190 | 5,539 | 2,614 |
| Above Normal (16%) | 3,404 | 2,024 | 2,406 | 2,389 | 4,833 | 7,250 | 2,205 | 2,265 | 2,649 | 9,083 | 7,563 | 5,401 |
| Below Normal (13%) | 1,593 | 1,564 | 1,564 | 1,607 | 3,317 | 2,064 | 1,278 | 2,387 | 3,520 | 9,244 | 6,623 | 2,470 |
| Dry (24%) | 1,402 | 1,310 | 2,397 | 1,360 | 1,505 | 1,309 | 1,126 | 2,179 | 5,129 | 5,966 | 2,004 | 1,444 |
| Critical (15%) | 1,307 | 959 | 1,583 | 1,108 | 1,341 | 1,563 | 1,221 | 1,959 | 3,759 | 3,483 | 2,317 | 1,367 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 362 | 9 | 885 | **-17** | 1 | **-53** | 858 | 205 | **-96** | **-3,868** |
| 20% | **-37** | **-31** | 180 | 728 | 812 | 1,582 | **-83** | **-13** | 862 | 255 | 57 | **-4,133** |
| 30% | **-650** | **-726** | 405 | 0 | 2,606 | 657 | 24 | 484 | 775 | 220 | **-123** | **-4,082** |
| 40% | **-999** | **-126** | 0 | 0 | 107 | 387 | 28 | 750 | 1,004 | 281 | 347 | **-5,224** |
| 50% | **-13** | 0 | 0 | 0 | 0 | 783 | 34 | 493 | 940 | 74 | **-54** | **-2,544** |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 497 | 753 | **-137** | **-13** | **-538** |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 143 | 531 | **-396** | **-8** | **-145** |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 370 | **-171** | **-12** | **-7** |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 429 | **-13** | 168 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-199** | **-82** | 367 | 306 | 510 | 300 | 13 | 265 | 634 | 36 | 47 | **-2,272** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-694** | **-192** | 1,176 | 961 | 537 | 386 | **-4** | 150 | 291 | 75 | **-182** | **-6,159** |
| Above Normal (16%) | 43 | **-127** | **-24** | **-1** | 701 | 965 | 76 | 253 | 510 | 349 | **-59** | **-2,149** |
| Below Normal (13%) | 4 | 0 | **-10** | 12 | 1,729 | 157 | **-1** | 507 | 916 | 558 | 749 | **-36** |
| Dry (24%) | 14 | 0 | 8 | 0 | **0** | 10 | **-12** | 363 | 1,027 | **-433** | 105 | 139 |
| Critical (15%) | 74 | **-7** | **-17** | 0 | **-20** | 9 | 37 | 145 | 597 | **-83** | **-86** | **-53** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 21-2. Feather River Flow downstream of Thermalito, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,000 | 2,500 | 5,018 | 13,760 | 17,606 | 14,415 | 8,407 | 8,325 | 5,575 | 9,607 | 7,960 | 9,472 |
| 20% | 4,000 | 2,500 | 3,321 | 2,011 | 11,135 | 8,902 | 3,686 | 5,400 | 4,238 | 9,053 | 7,531 | 8,992 |
| 30% | 4,000 | 2,426 | 2,087 | 1,700 | 4,284 | 6,734 | 2,554 | 3,081 | 3,871 | 8,782 | 7,277 | 7,869 |
| 40% | 3,034 | 1,826 | 1,700 | 1,700 | 1,700 | 4,737 | 1,605 | 2,427 | 3,235 | 8,422 | 6,212 | 7,419 |
| 50% | 1,762 | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,153 | 1,996 | 2,947 | 8,000 | 4,705 | 3,893 |
| 60% | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,000 | 1,420 | 2,667 | 7,392 | 2,848 | 1,736 |
| 70% | 1,700 | 1,200 | 1,700 | 1,200 | 1,700 | 1,700 | 1,000 | 1,000 | 2,450 | 4,752 | 2,261 | 1,203 |
| 80% | 1,200 | 1,200 | 1,200 | 960 | 1,200 | 1,000 | 1,000 | 1,000 | 2,189 | 3,844 | 1,900 | 1,007 |
| 90% | 900 | 900 | 900 | 900 | 900 | 800 | 758 | 1,000 | 1,716 | 3,226 | 1,410 | 1,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,473 | 1,970 | 2,802 | 4,459 | 5,438 | 6,099 | 3,050 | 3,479 | 3,340 | 6,888 | 4,625 | 4,841 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,811 | 3,024 | 4,380 | 10,636 | 12,626 | 13,568 | 6,591 | 6,937 | 3,748 | 7,115 | 5,721 | 8,774 |
| Above Normal (16%) | 3,362 | 2,151 | 2,430 | 2,389 | 4,133 | 6,286 | 2,129 | 2,013 | 2,140 | 8,734 | 7,622 | 7,550 |
| Below Normal (13%) | 1,589 | 1,564 | 1,575 | 1,595 | 1,589 | 1,907 | 1,279 | 1,880 | 2,604 | 8,687 | 5,874 | 2,506 |
| Dry (24%) | 1,388 | 1,310 | 2,388 | 1,360 | 1,505 | 1,299 | 1,139 | 1,816 | 4,103 | 6,399 | 1,899 | 1,305 |
| Critical (15%) | 1,234 | 965 | 1,600 | 1,108 | 1,360 | 1,554 | 1,184 | 1,814 | 3,162 | 3,566 | 2,402 | 1,420 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,000 | 2,500 | 5,312 | 14,314 | 19,581 | 14,789 | 8,407 | 8,325 | 8,724 | 9,415 | 7,792 | 5,490 |
| 20% | 4,000 | 2,500 | 3,425 | 2,795 | 11,479 | 10,484 | 3,602 | 6,126 | 7,147 | 8,811 | 6,873 | 4,227 |
| 30% | 3,809 | 1,700 | 2,531 | 1,700 | 6,134 | 7,174 | 2,646 | 4,099 | 6,017 | 8,354 | 5,253 | 3,469 |
| 40% | 2,800 | 1,700 | 1,707 | 1,700 | 1,808 | 5,134 | 1,671 | 3,377 | 5,336 | 7,679 | 3,837 | 2,052 |
| 50% | 1,972 | 1,700 | 1,700 | 1,700 | 1,700 | 2,500 | 1,180 | 2,515 | 4,876 | 6,727 | 3,031 | 1,318 |
| 60% | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,000 | 2,193 | 4,341 | 4,885 | 2,472 | 1,144 |
| 70% | 1,700 | 1,257 | 1,700 | 1,200 | 1,700 | 1,700 | 1,000 | 1,454 | 3,959 | 4,268 | 2,051 | 1,012 |
| 80% | 1,200 | 1,200 | 1,200 | 960 | 1,200 | 1,005 | 1,000 | 1,000 | 2,976 | 3,555 | 1,778 | 1,000 |
| 90% | 949 | 900 | 900 | 900 | 900 | 800 | 758 | 1,000 | 2,352 | 3,065 | 1,297 | 1,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,455 | 1,936 | 3,163 | 4,831 | 5,902 | 6,363 | 3,072 | 3,929 | 5,161 | 6,268 | 3,887 | 2,436 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,562 | 2,934 | 5,558 | 11,761 | 13,062 | 13,825 | 6,590 | 7,161 | 4,604 | 6,763 | 4,518 | 2,586 |
| Above Normal (16%) | 3,214 | 2,001 | 2,334 | 2,388 | 4,845 | 7,203 | 2,205 | 2,433 | 4,361 | 8,821 | 6,750 | 4,916 |
| Below Normal (13%) | 1,856 | 1,682 | 1,571 | 1,712 | 3,148 | 2,065 | 1,339 | 3,011 | 7,224 | 7,505 | 3,981 | 2,156 |
| Dry (24%) | 1,441 | 1,310 | 2,401 | 1,360 | 1,505 | 1,343 | 1,125 | 2,347 | 6,064 | 4,952 | 2,053 | 1,408 |
| Critical (15%) | 1,474 | 980 | 1,604 | 1,108 | 1,390 | 1,594 | 1,223 | 2,025 | 3,841 | 3,490 | 2,390 | 1,395 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 294 | 554 | 1,975 | 374 | 0 | 0 | 3,149 | **-192** | **-168** | **-3,982** |
| 20% | 0 | 0 | 104 | 784 | 344 | 1,582 | **-84** | 726 | 2,908 | **-242** | **-658** | **-4,766** |
| 30% | **-191** | **-726** | 444 | 0 | 1,849 | 440 | 92 | 1,018 | 2,146 | **-428** | **-2,024** | **-4,400** |
| 40% | **-233** | **-126** | 7 | 0 | 108 | 396 | 66 | 950 | 2,101 | **-742** | **-2,375** | **-5,367** |
| 50% | 210 | 0 | 0 | 0 | 0 | 800 | 27 | 519 | 1,930 | **-1,273** | **-1,675** | **-2,575** |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 773 | 1,673 | **-2,507** | **-376** | **-593** |
| 70% | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 454 | 1,509 | **-485** | **-210** | **-192** |
| 80% | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 787 | **-289** | **-122** | **-7** |
| 90% | 49 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 636 | **-161** | **-113** | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-18** | **-34** | 361 | 372 | 464 | 264 | 22 | 450 | 1,821 | **-620** | **-738** | **-2,405** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-248** | **-90** | 1,178 | 1,125 | 436 | 256 | **-1** | 224 | 856 | **-351** | **-1,202** | **-6,187** |
| Above Normal (16%) | **-147** | **-150** | **-96** | **-1** | 712 | 917 | 76 | 421 | 2,221 | 87 | **-872** | **-2,634** |
| Below Normal (13%) | 267 | 118 | **-4** | 117 | 1,559 | 157 | 60 | 1,130 | 4,620 | **-1,182** | **-1,893** | **-349** |
| Dry (24%) | 53 | 0 | 12 | 0 | **0** | 44 | **-13** | 531 | 1,962 | **-1,446** | 154 | 103 |
| Critical (15%) | 240 | 14 | 4 | 0 | 30 | 40 | 39 | 211 | 679 | **-77** | **-13** | **-25** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 21-3. Feather River Flow downstream of Thermalito, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,000 | 2,500 | 5,018 | 13,760 | 17,606 | 14,415 | 8,407 | 8,325 | 5,575 | 9,607 | 7,960 | 9,472 |
| 20% | 4,000 | 2,500 | 3,321 | 2,011 | 11,135 | 8,902 | 3,686 | 5,400 | 4,238 | 9,053 | 7,531 | 8,992 |
| 30% | 4,000 | 2,426 | 2,087 | 1,700 | 4,284 | 6,734 | 2,554 | 3,081 | 3,871 | 8,782 | 7,277 | 7,869 |
| 40% | 3,034 | 1,826 | 1,700 | 1,700 | 1,700 | 4,737 | 1,605 | 2,427 | 3,235 | 8,422 | 6,212 | 7,419 |
| 50% | 1,762 | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,153 | 1,996 | 2,947 | 8,000 | 4,705 | 3,893 |
| 60% | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,000 | 1,420 | 2,667 | 7,392 | 2,848 | 1,736 |
| 70% | 1,700 | 1,200 | 1,700 | 1,200 | 1,700 | 1,700 | 1,000 | 1,000 | 2,450 | 4,752 | 2,261 | 1,203 |
| 80% | 1,200 | 1,200 | 1,200 | 960 | 1,200 | 1,000 | 1,000 | 1,000 | 2,189 | 3,844 | 1,900 | 1,007 |
| 90% | 900 | 900 | 900 | 900 | 900 | 800 | 758 | 1,000 | 1,716 | 3,226 | 1,410 | 1,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,473 | 1,970 | 2,802 | 4,459 | 5,438 | 6,099 | 3,050 | 3,479 | 3,340 | 6,888 | 4,625 | 4,841 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,811 | 3,024 | 4,380 | 10,636 | 12,626 | 13,568 | 6,591 | 6,937 | 3,748 | 7,115 | 5,721 | 8,774 |
| Above Normal (16%) | 3,362 | 2,151 | 2,430 | 2,389 | 4,133 | 6,286 | 2,129 | 2,013 | 2,140 | 8,734 | 7,622 | 7,550 |
| Below Normal (13%) | 1,589 | 1,564 | 1,575 | 1,595 | 1,589 | 1,907 | 1,279 | 1,880 | 2,604 | 8,687 | 5,874 | 2,506 |
| Dry (24%) | 1,388 | 1,310 | 2,388 | 1,360 | 1,505 | 1,299 | 1,139 | 1,816 | 4,103 | 6,399 | 1,899 | 1,305 |
| Critical (15%) | 1,234 | 965 | 1,600 | 1,108 | 1,360 | 1,554 | 1,184 | 1,814 | 3,162 | 3,566 | 2,402 | 1,420 |

### Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,000 | 2,500 | 5,363 | 14,314 | 19,704 | 14,873 | 8,407 | 8,305 | 8,093 | 9,270 | 7,615 | 5,272 |
| 20% | 4,000 | 2,500 | 3,931 | 2,799 | 11,482 | 10,484 | 3,602 | 6,050 | 6,786 | 8,867 | 6,348 | 4,399 |
| 30% | 3,960 | 1,979 | 2,737 | 1,700 | 6,249 | 7,198 | 2,680 | 4,046 | 5,921 | 8,354 | 4,721 | 3,133 |
| 40% | 3,252 | 1,700 | 1,700 | 1,700 | 2,148 | 5,140 | 1,776 | 3,283 | 5,319 | 7,682 | 3,558 | 2,463 |
| 50% | 1,952 | 1,700 | 1,700 | 1,700 | 1,700 | 2,500 | 1,179 | 2,543 | 4,706 | 6,824 | 2,874 | 1,323 |
| 60% | 1,761 | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,000 | 1,992 | 4,231 | 5,040 | 2,325 | 1,117 |
| 70% | 1,700 | 1,257 | 1,700 | 1,216 | 1,700 | 1,700 | 1,000 | 1,450 | 3,760 | 4,309 | 2,054 | 1,056 |
| 80% | 1,223 | 1,200 | 1,200 | 960 | 1,200 | 1,000 | 1,000 | 1,000 | 3,270 | 3,478 | 1,747 | 1,000 |
| 90% | 908 | 900 | 900 | 900 | 900 | 800 | 758 | 1,000 | 2,206 | 2,940 | 1,110 | 1,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,528 | 1,952 | 3,261 | 4,879 | 5,927 | 6,416 | 3,078 | 3,904 | 5,029 | 6,248 | 3,740 | 2,456 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,553 | 2,990 | 5,775 | 11,894 | 13,060 | 13,967 | 6,598 | 6,992 | 4,687 | 6,791 | 3,993 | 2,725 |
| Above Normal (16%) | 3,476 | 1,987 | 2,530 | 2,389 | 4,916 | 7,248 | 2,205 | 2,408 | 3,943 | 8,816 | 6,831 | 4,881 |
| Below Normal (13%) | 1,973 | 1,678 | 1,571 | 1,733 | 3,307 | 2,065 | 1,349 | 2,972 | 6,836 | 7,761 | 4,084 | 1,963 |
| Dry (24%) | 1,506 | 1,310 | 2,389 | 1,364 | 1,505 | 1,348 | 1,133 | 2,515 | 6,043 | 4,712 | 2,046 | 1,393 |
| Critical (15%) | 1,496 | 986 | 1,608 | 1,123 | 1,341 | 1,590 | 1,226 | 2,005 | 3,601 | 3,462 | 2,349 | 1,467 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 346 | 554 | 2,098 | 458 | 0 | **-19** | 2,519 | **-337** | **-345** | **-4,200** |
| 20% | 0 | 0 | 610 | 788 | 347 | 1,582 | **-84** | 650 | 2,548 | **-185** | **-1,183** | **-4,594** |
| 30% | **-40** | **-448** | 651 | 0 | 1,965 | 463 | 126 | 965 | 2,050 | **-428** | **-2,555** | **-4,735** |
| 40% | 218 | **-126** | 0 | 0 | 448 | 402 | 171 | 857 | 2,084 | **-740** | **-2,654** | **-4,956** |
| 50% | 190 | 0 | 0 | 0 | 0 | 800 | 26 | 547 | 1,759 | **-1,176** | **-1,831** | **-2,570** |
| 60% | 61 | 0 | 0 | 0 | 0 | 0 | 0 | 573 | 1,564 | **-2,352** | **-523** | **-619** |
| 70% | 0 | 57 | 0 | 16 | 0 | 0 | 0 | 450 | 1,310 | **-443** | **-207** | **-148** |
| 80% | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,081 | **-366** | **-153** | **-7** |
| 90% | 8 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 490 | **-286** | **-300** | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55 | **-18** | 459 | 420 | 489 | 317 | 29 | 425 | 1,689 | **-641** | **-885** | **-2,385** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-258** | **-34** | 1,395 | 1,258 | 434 | 398 | 7 | 56 | 939 | **-324** | **-1,727** | **-6,048** |
| Above Normal (16%) | 114 | **-164** | 100 | **0** | 784 | 962 | 76 | 396 | 1,803 | 82 | **-790** | **-2,669** |
| Below Normal (13%) | 384 | 114 | **-4** | 139 | 1,719 | 157 | 70 | 1,091 | 4,232 | **-926** | **-1,790** | **-543** |
| Dry (24%) | 118 | 0 | 1 | 4 | **0** | 49 | **-6** | 699 | 1,940 | **-1,687** | 147 | 88 |
| Critical (15%) | 262 | 21 | 8 | 15 | **-20** | 36 | 42 | 190 | 439 | **-105** | **-54** | 47 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 21-4. Feather River Flow downstream of Thermalito, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,000 | 2,500 | 5,018 | 13,760 | 17,606 | 14,415 | 8,407 | 8,325 | 5,575 | 9,607 | 7,960 | 9,472 |
| 20% | 4,000 | 2,500 | 3,321 | 2,011 | 11,135 | 8,902 | 3,686 | 5,400 | 4,238 | 9,053 | 7,531 | 8,992 |
| 30% | 4,000 | 2,426 | 2,087 | 1,700 | 4,284 | 6,734 | 2,554 | 3,081 | 3,871 | 8,782 | 7,277 | 7,869 |
| 40% | 3,034 | 1,826 | 1,700 | 1,700 | 1,700 | 4,737 | 1,605 | 2,427 | 3,235 | 8,422 | 6,212 | 7,419 |
| 50% | 1,762 | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,153 | 1,996 | 2,947 | 8,000 | 4,705 | 3,893 |
| 60% | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,700 | 1,000 | 1,420 | 2,667 | 7,392 | 2,848 | 1,736 |
| 70% | 1,700 | 1,200 | 1,700 | 1,200 | 1,700 | 1,700 | 1,000 | 1,000 | 2,450 | 4,752 | 2,261 | 1,203 |
| 80% | 1,200 | 1,200 | 1,200 | 960 | 1,200 | 1,000 | 1,000 | 1,000 | 2,189 | 3,844 | 1,900 | 1,007 |
| 90% | 900 | 900 | 900 | 900 | 900 | 800 | 758 | 1,000 | 1,716 | 3,226 | 1,410 | 1,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,473 | 1,970 | 2,802 | 4,459 | 5,438 | 6,099 | 3,050 | 3,479 | 3,340 | 6,888 | 4,625 | 4,841 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,811 | 3,024 | 4,380 | 10,636 | 12,626 | 13,568 | 6,591 | 6,937 | 3,748 | 7,115 | 5,721 | 8,774 |
| Above Normal (16%) | 3,362 | 2,151 | 2,430 | 2,389 | 4,133 | 6,286 | 2,129 | 2,013 | 2,140 | 8,734 | 7,622 | 7,550 |
| Below Normal (13%) | 1,589 | 1,564 | 1,575 | 1,595 | 1,589 | 1,907 | 1,279 | 1,880 | 2,604 | 8,687 | 5,874 | 2,506 |
| Dry (24%) | 1,388 | 1,310 | 2,388 | 1,360 | 1,505 | 1,299 | 1,139 | 1,816 | 4,103 | 6,399 | 1,899 | 1,305 |
| Critical (15%) | 1,234 | 965 | 1,600 | 1,108 | 1,360 | 1,554 | 1,184 | 1,814 | 3,162 | 3,566 | 2,402 | 1,420 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,000 | 2,500 | 4,894 | 13,585 | 17,887 | 13,988 | 8,816 | 8,479 | 5,566 | 9,143 | 7,922 | 4,898 |
| 20% | 3,379 | 2,219 | 3,178 | 3,897 | 11,329 | 9,112 | 7,221 | 6,676 | 4,640 | 8,844 | 7,499 | 3,916 |
| 30% | 2,197 | 1,865 | 2,551 | 2,381 | 5,693 | 6,571 | 5,651 | 4,286 | 4,099 | 8,341 | 6,575 | 2,621 |
| 40% | 1,853 | 1,700 | 1,866 | 1,795 | 3,638 | 5,257 | 4,867 | 3,071 | 3,760 | 8,068 | 4,987 | 1,554 |
| 50% | 1,700 | 1,700 | 1,700 | 1,700 | 2,440 | 4,382 | 3,500 | 2,682 | 3,411 | 7,497 | 2,970 | 1,242 |
| 60% | 1,700 | 1,700 | 1,700 | 1,700 | 1,843 | 2,404 | 2,324 | 2,348 | 3,203 | 6,560 | 2,255 | 1,071 |
| 70% | 1,700 | 1,200 | 1,700 | 1,485 | 1,700 | 1,700 | 1,352 | 1,999 | 2,705 | 4,215 | 1,955 | 1,000 |
| 80% | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | 1,700 | 1,000 | 1,502 | 2,450 | 3,496 | 1,642 | 1,000 |
| 90% | 900 | 900 | 900 | 900 | 900 | 820 | 1,000 | 1,095 | 2,000 | 2,819 | 1,253 | 1,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,119 | 1,938 | 3,089 | 4,830 | 5,922 | 6,603 | 4,565 | 4,087 | 3,618 | 6,489 | 4,165 | 2,171 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,870 | 2,794 | 5,341 | 11,396 | 12,705 | 13,718 | 8,304 | 7,630 | 3,498 | 7,013 | 5,567 | 2,518 |
| Above Normal (16%) | 2,674 | 1,921 | 2,125 | 2,109 | 4,343 | 7,068 | 5,364 | 3,536 | 2,580 | 8,245 | 7,378 | 4,819 |
| Below Normal (13%) | 2,175 | 1,648 | 1,953 | 2,515 | 3,017 | 3,789 | 3,895 | 2,568 | 3,604 | 8,375 | 3,436 | 1,226 |
| Dry (24%) | 1,406 | 1,583 | 2,306 | 1,497 | 2,355 | 1,650 | 1,595 | 2,051 | 4,373 | 5,502 | 1,792 | 1,040 |
| Critical (15%) | 1,029 | 959 | 1,600 | 1,226 | 1,545 | 1,516 | 1,163 | 1,790 | 3,758 | 3,365 | 2,271 | 1,301 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | **-123** | **-175** | 281 | **-427** | 409 | 154 | **-8** | **-464** | **-38** | **-4,574** |
| 20% | **-621** | **-281** | **-143** | 1,887 | 194 | 211 | 3,534 | 1,276 | 401 | **-209** | **-32** | **-5,076** |
| 30% | **-1,803** | **-562** | 465 | 681 | 1,408 | **-163** | 3,097 | 1,204 | 229 | **-441** | **-701** | **-5,248** |
| 40% | **-1,180** | **-126** | 166 | 95 | 1,938 | 520 | 3,262 | 644 | 525 | **-354** | **-1,225** | **-5,865** |
| 50% | **-62** | 0 | 0 | 0 | 740 | 2,682 | 2,347 | 686 | 465 | **-503** | **-1,736** | **-2,652** |
| 60% | 0 | 0 | 0 | 0 | 143 | 704 | 1,324 | 928 | 536 | **-833** | **-593** | **-665** |
| 70% | 0 | 0 | 0 | 285 | 0 | 0 | 352 | 999 | 255 | **-537** | **-306** | **-203** |
| 80% | 0 | 0 | 0 | 240 | 0 | 700 | 0 | 502 | 261 | **-349** | **-258** | **-7** |
| 90% | 0 | 0 | 0 | 0 | 0 | 20 | 242 | 95 | 284 | **-407** | **-157** | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-354** | **-32** | 287 | 371 | 484 | 504 | 1,515 | 608 | 278 | **-400** | **-459** | **-2,670** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-941** | **-230** | 961 | 760 | 79 | 150 | 1,713 | 694 | **-250** | **-102** | **-153** | **-6,255** |
| Above Normal (16%) | **-687** | **-229** | **-305** | **-281** | 210 | 782 | 3,235 | 1,523 | 441 | **-489** | **-244** | **-2,731** |
| Below Normal (13%) | 586 | 85 | 378 | 920 | 1,428 | 1,882 | 2,616 | 688 | 1,000 | **-311** | **-2,438** | **-1,279** |
| Dry (24%) | 18 | 273 | **-83** | 137 | 850 | 351 | 456 | 235 | 270 | **-896** | **-107** | **-265** |
| Critical (15%) | **-205** | **-6** | **0** | 118 | 185 | **-38** | **-21** | **-24** | 596 | **-201** | **-131** | **-119** |

a Based on the 82-year simulation period.

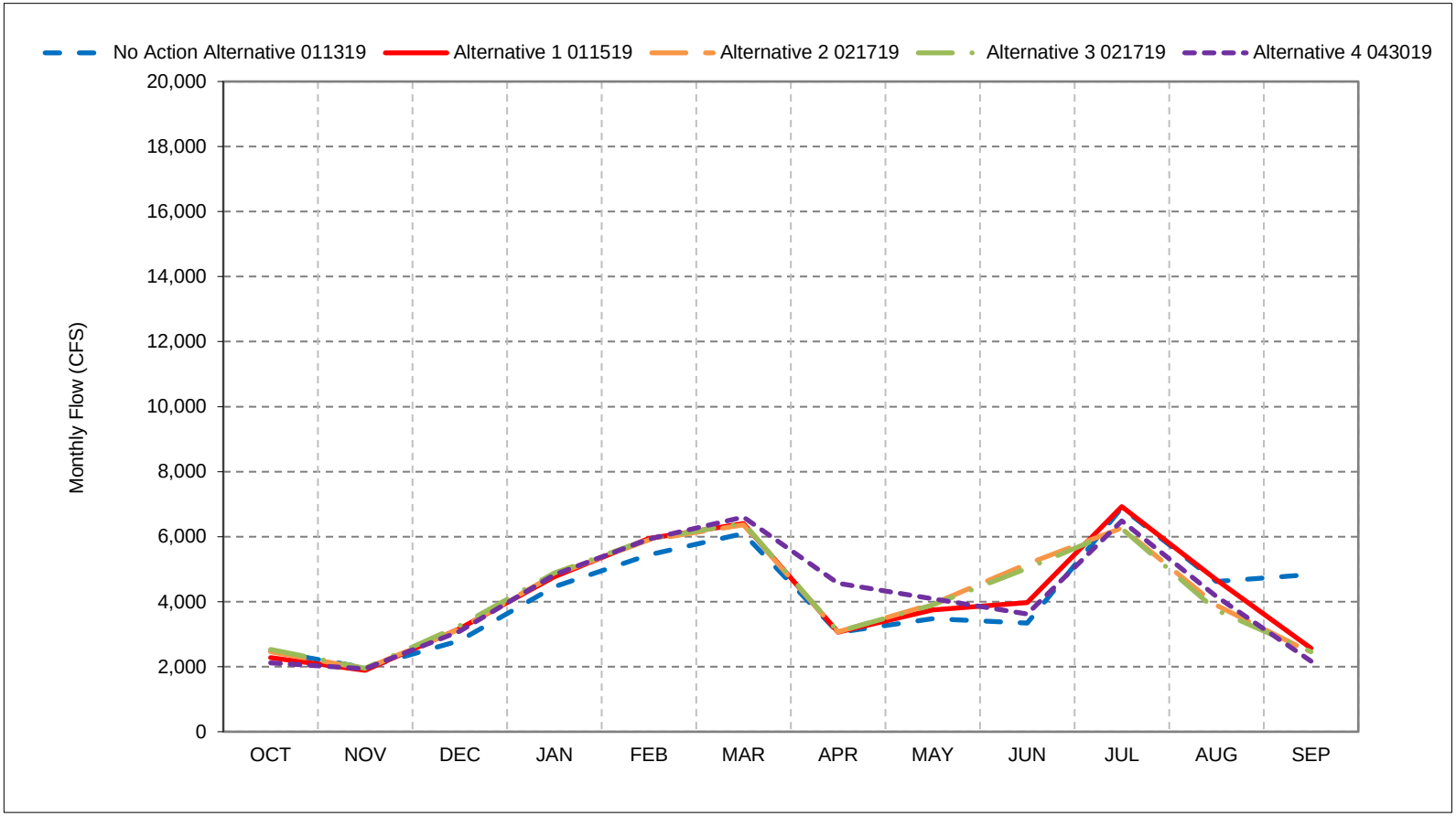
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

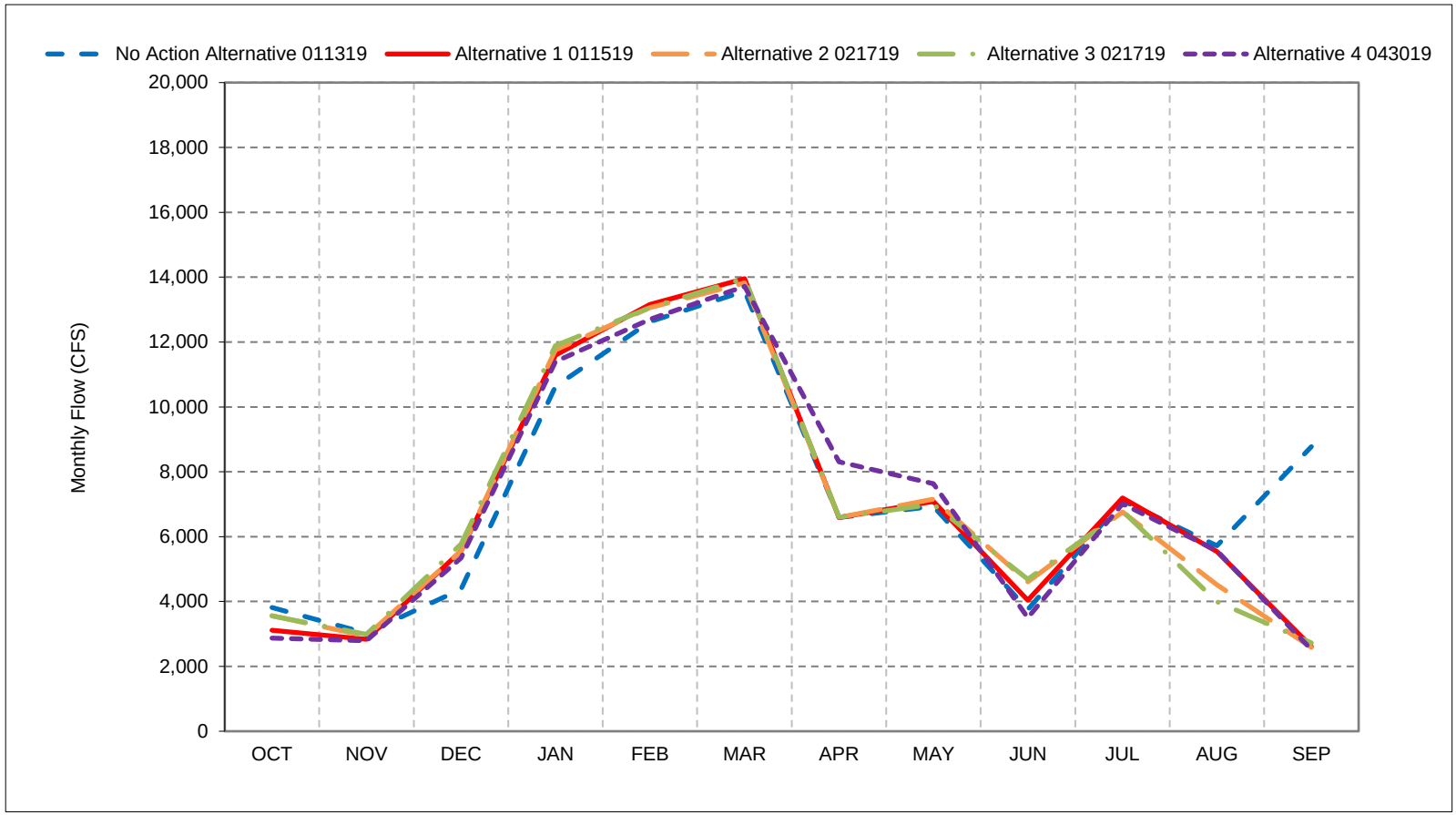
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 21-1. Feather River Flow downstream of Thermalito, Long-Term Average Flow



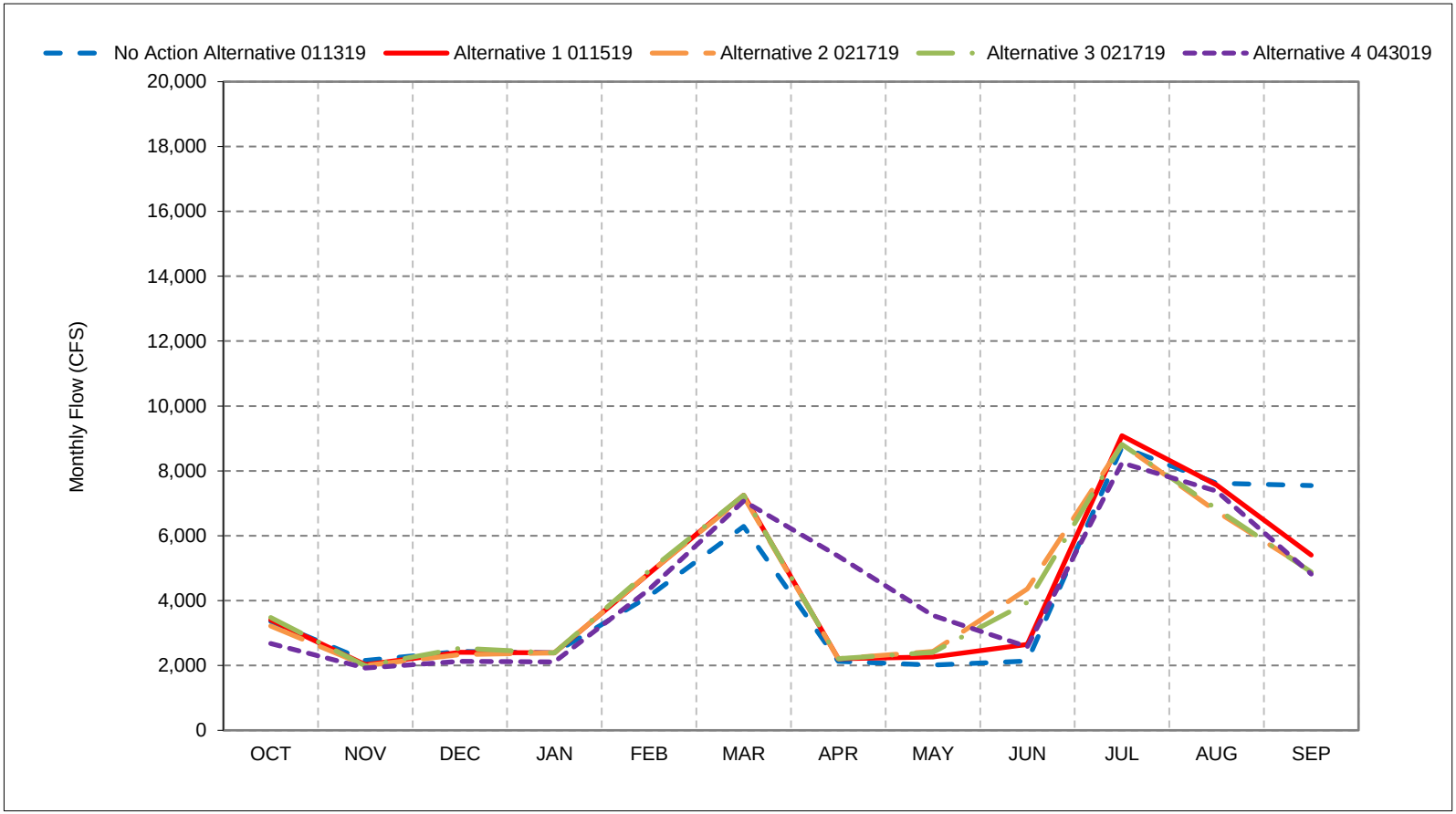

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 21-2. Feather River Flow downstream of Thermalito, Wet Year Average Flow



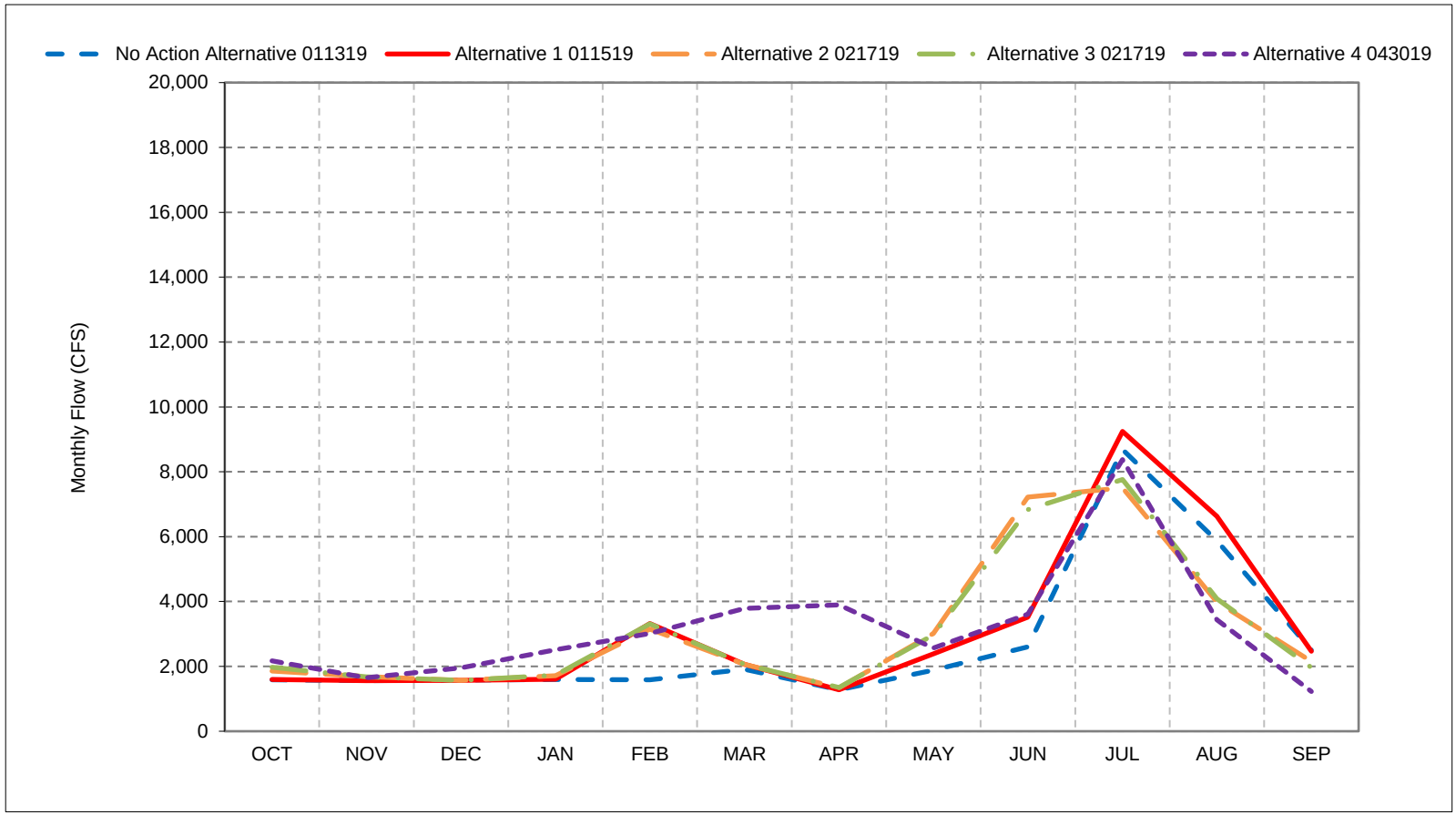

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 21-3. Feather River Flow downstream of Thermalito, Above Normal Year Average Flow



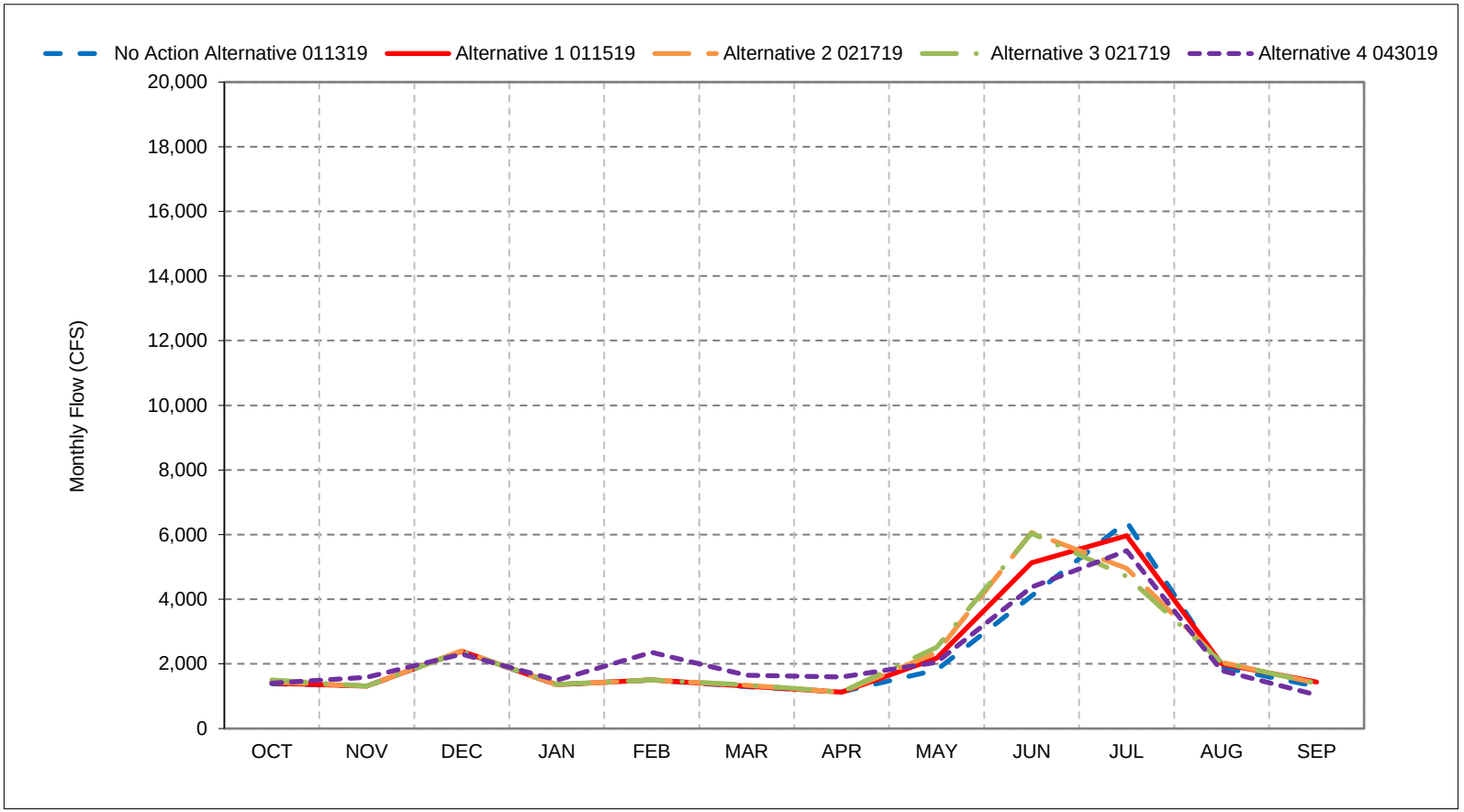

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 21-4. Feather River Flow downstream of Thermalito, Below Normal Year Average Flow



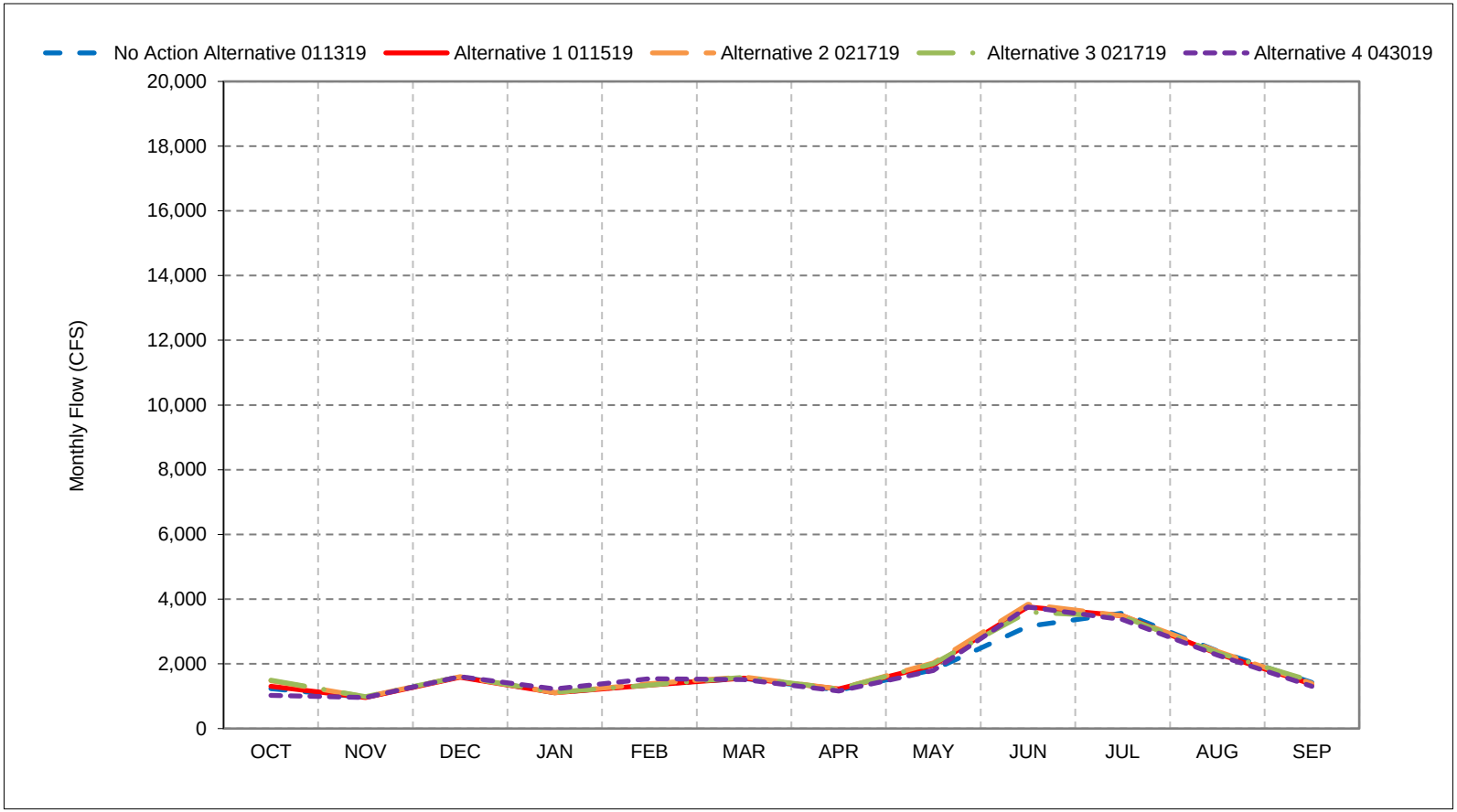

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 21-5. Feather River Flow downstream of Thermalito, Dry Year Average Flow



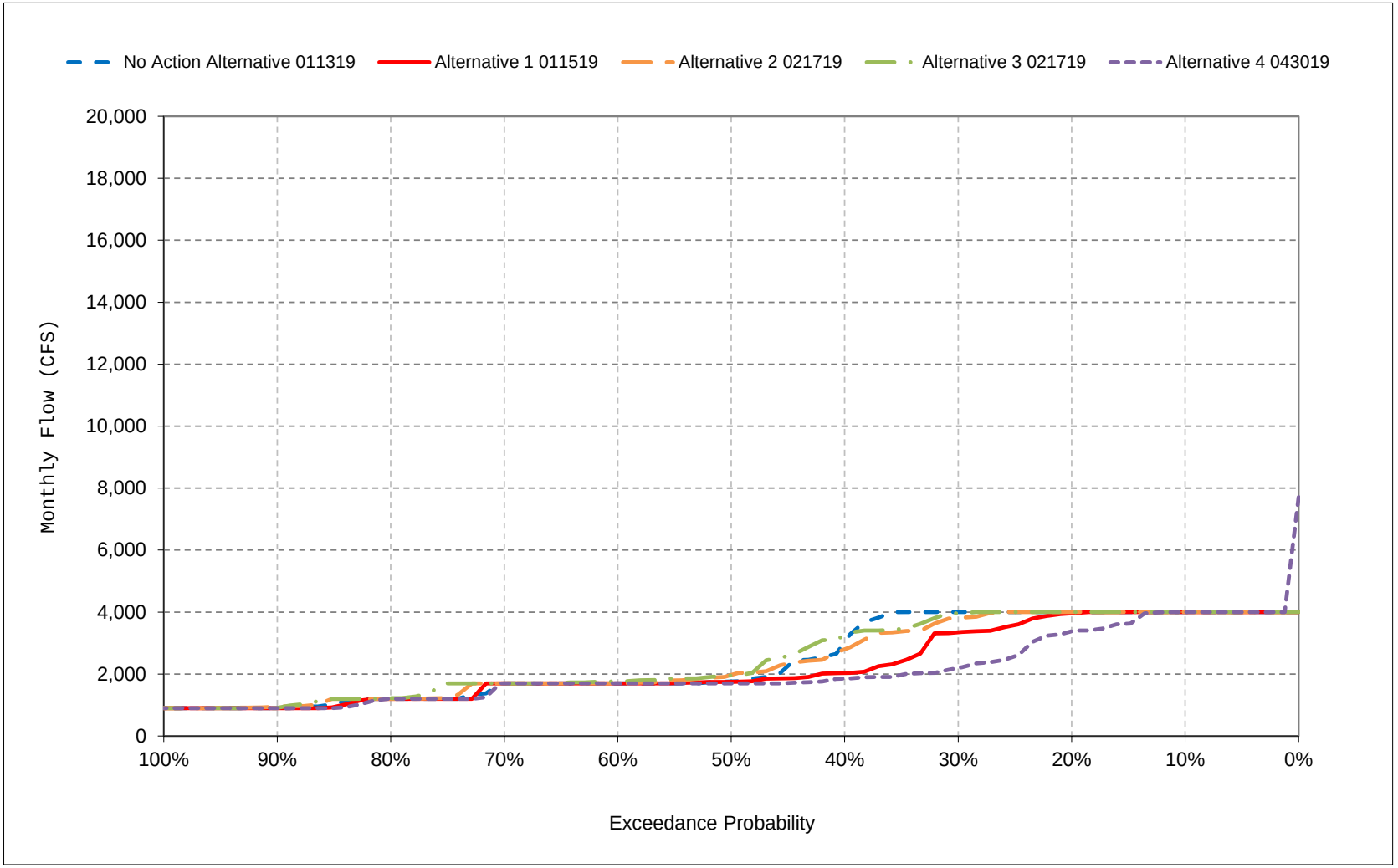

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 21-6. Feather River Flow downstream of Thermalito, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

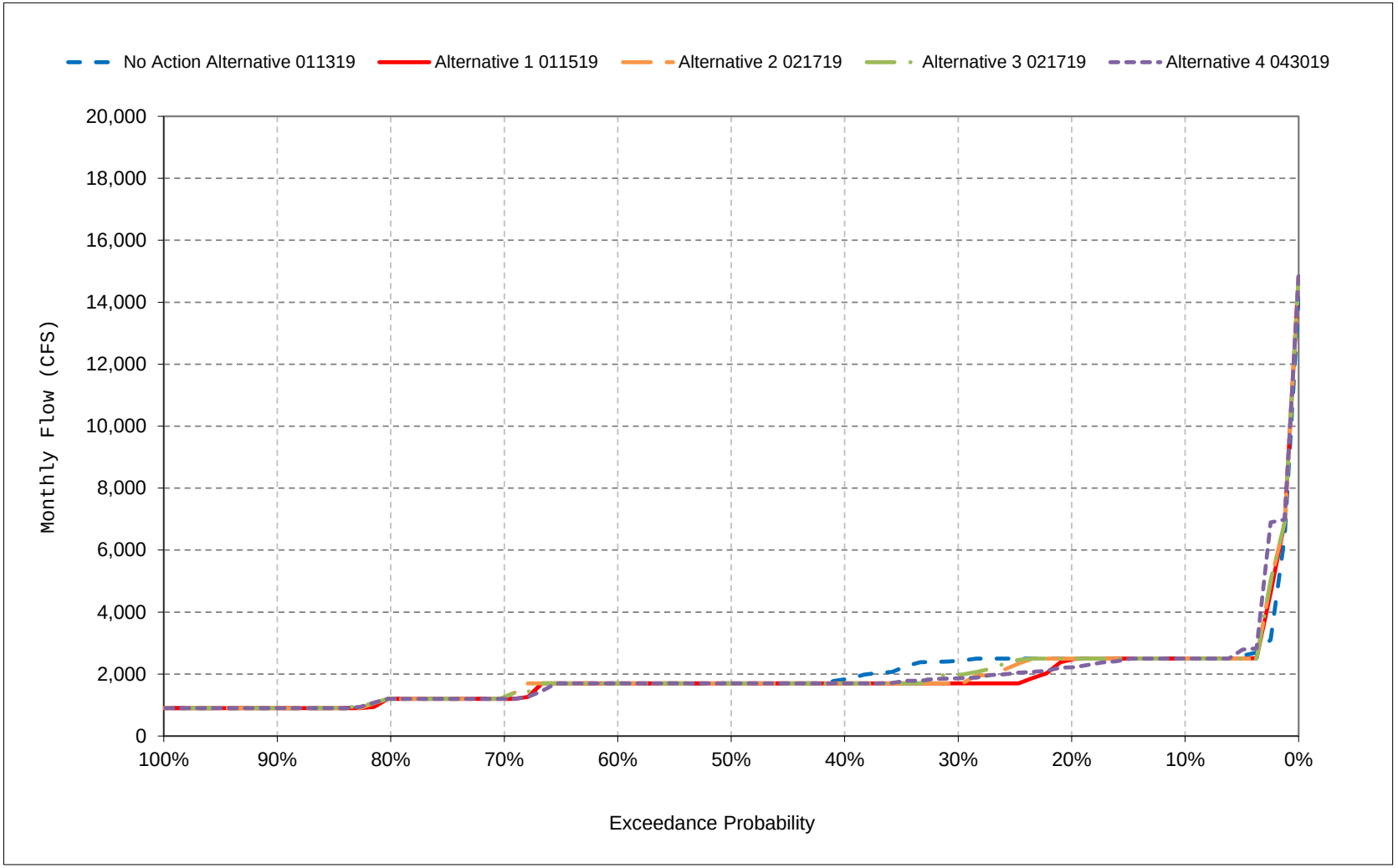
**Figure 21-7. Feather River Flow downstream of Thermalito, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

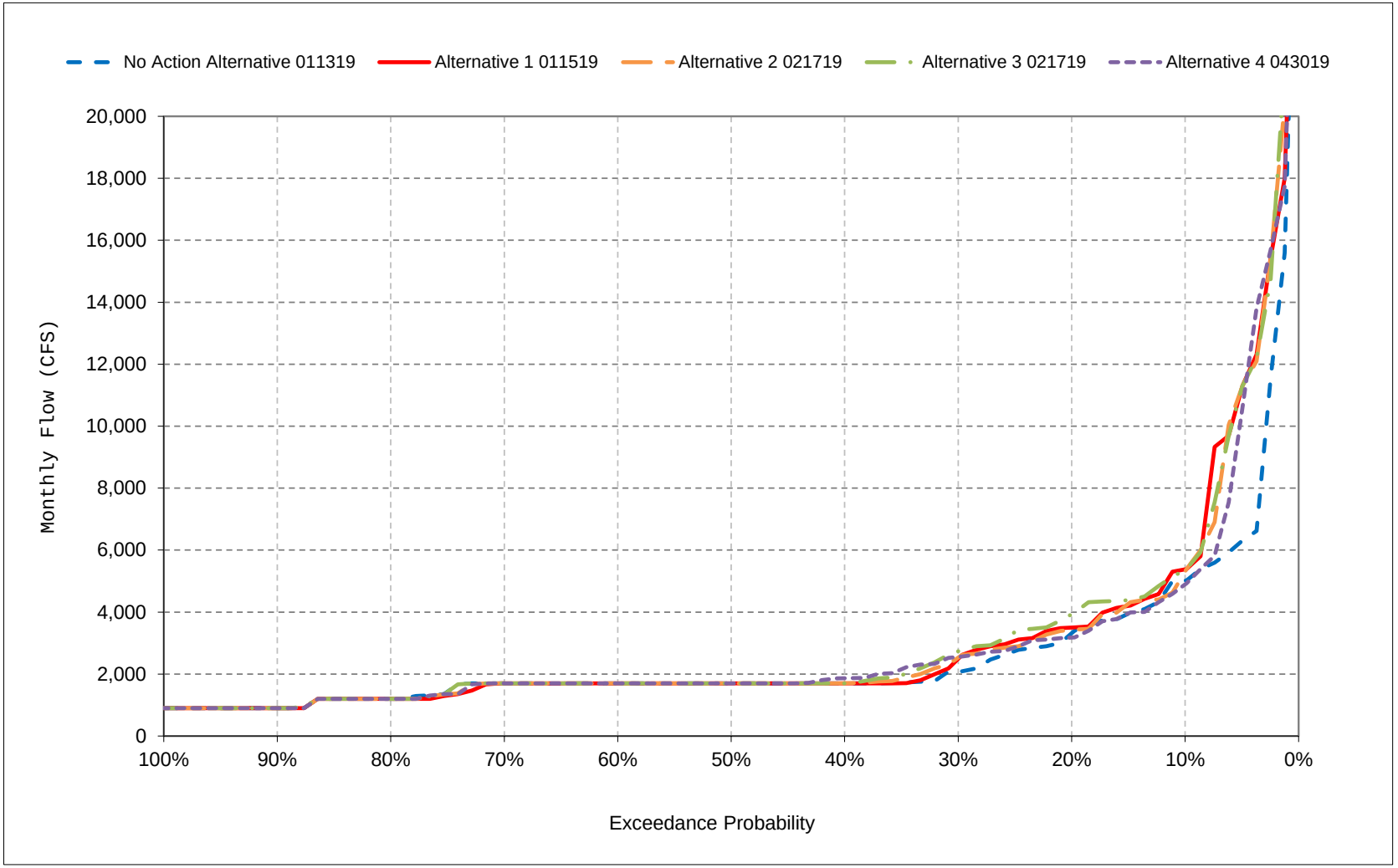
**Figure 21-8. Feather River Flow downstream of Thermalito, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

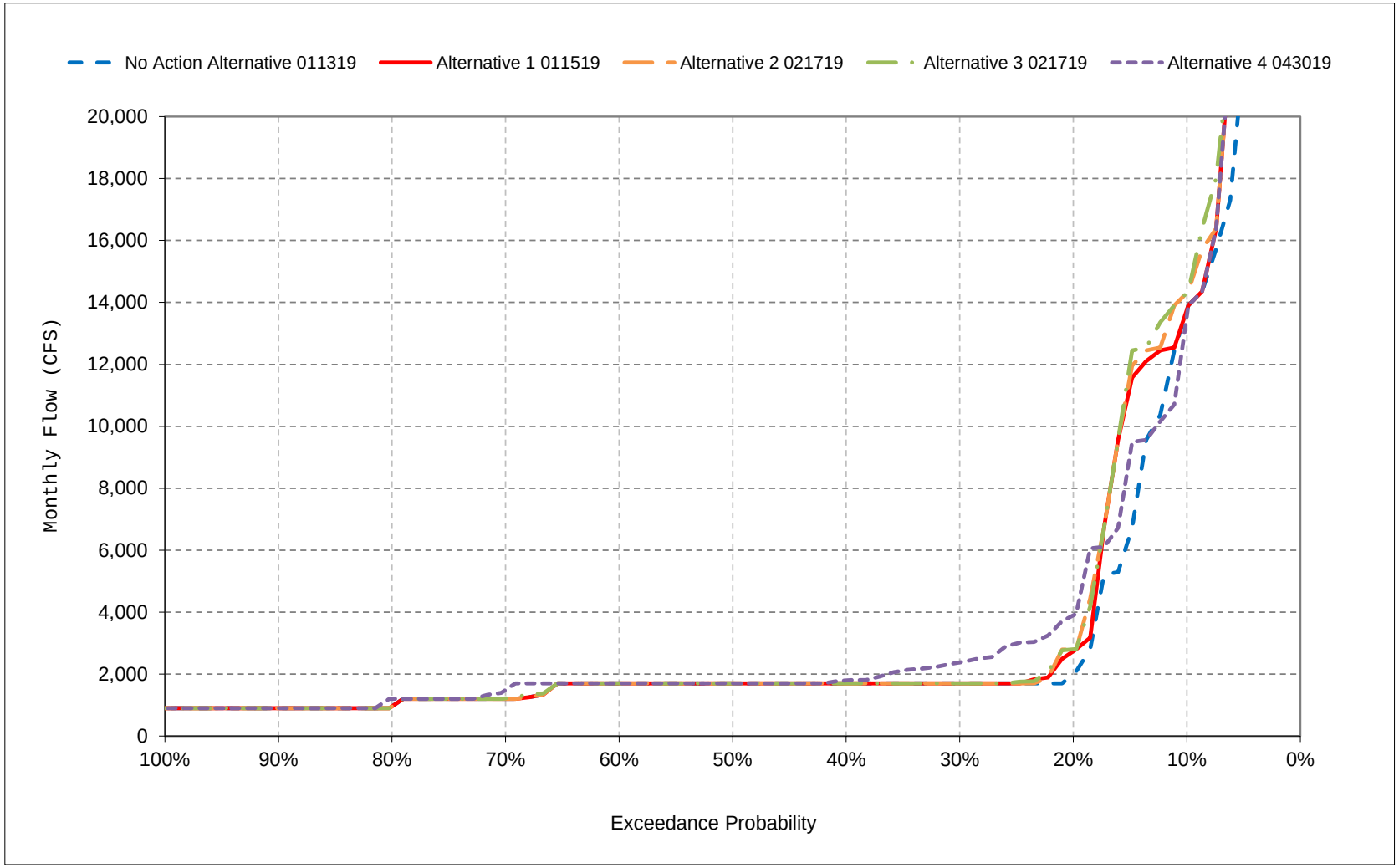
**Figure 21-9. Feather River Flow downstream of Thermalito, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

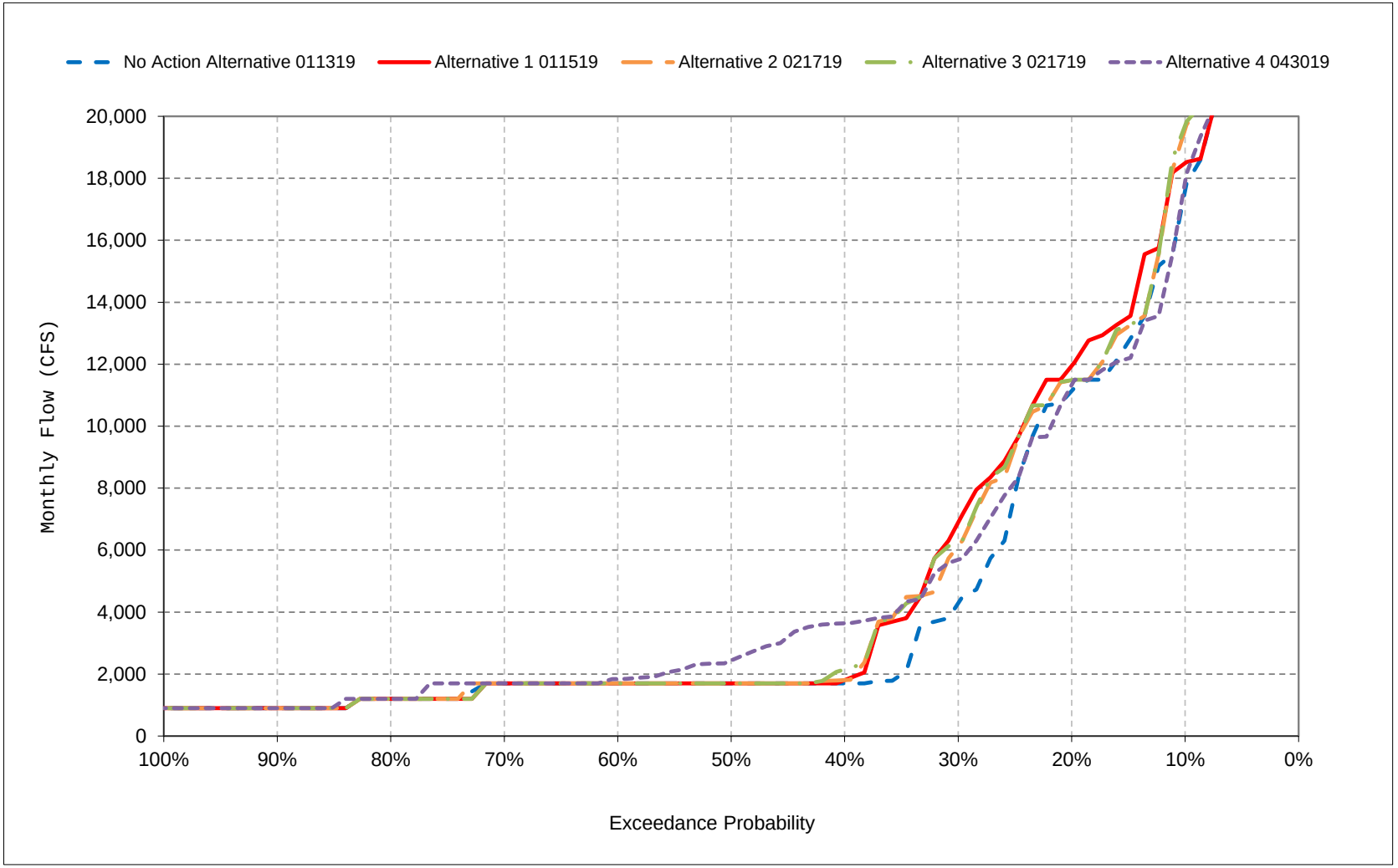
**Figure 21-10. Feather River Flow downstream of Thermalito, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

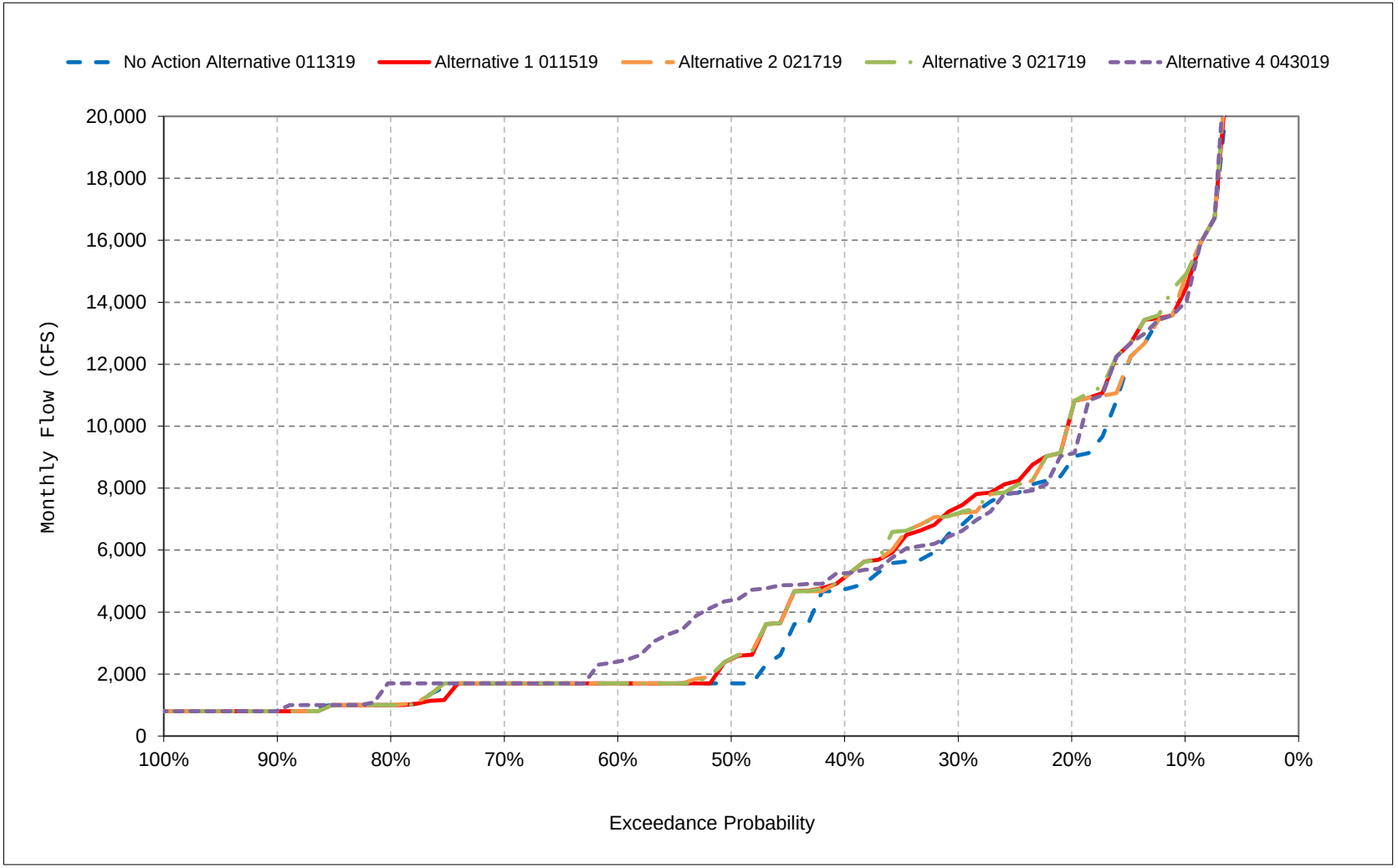
**Figure 21-11. Feather River Flow downstream of Thermalito, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

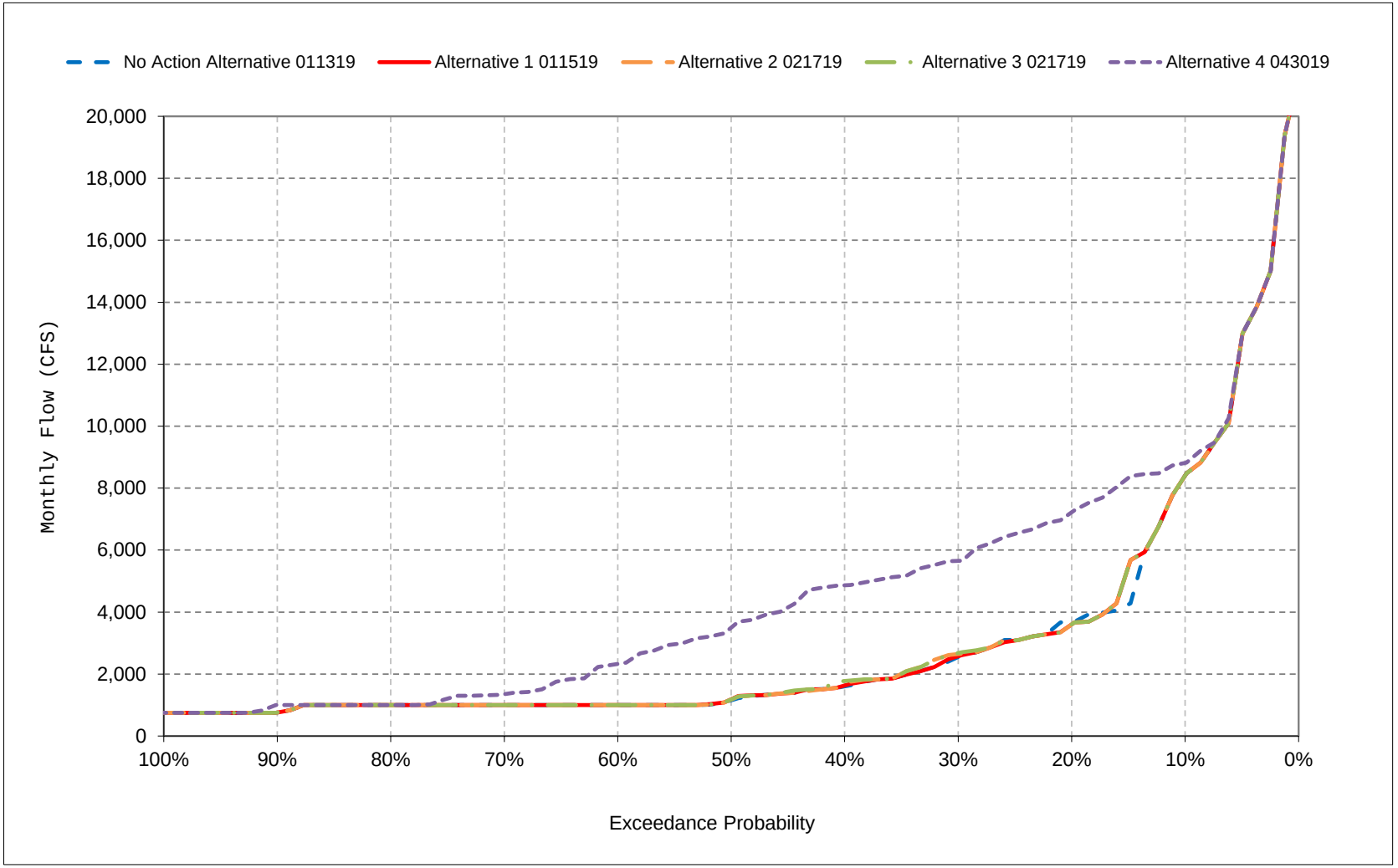
**Figure 21-12. Feather River Flow downstream of Thermalito, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

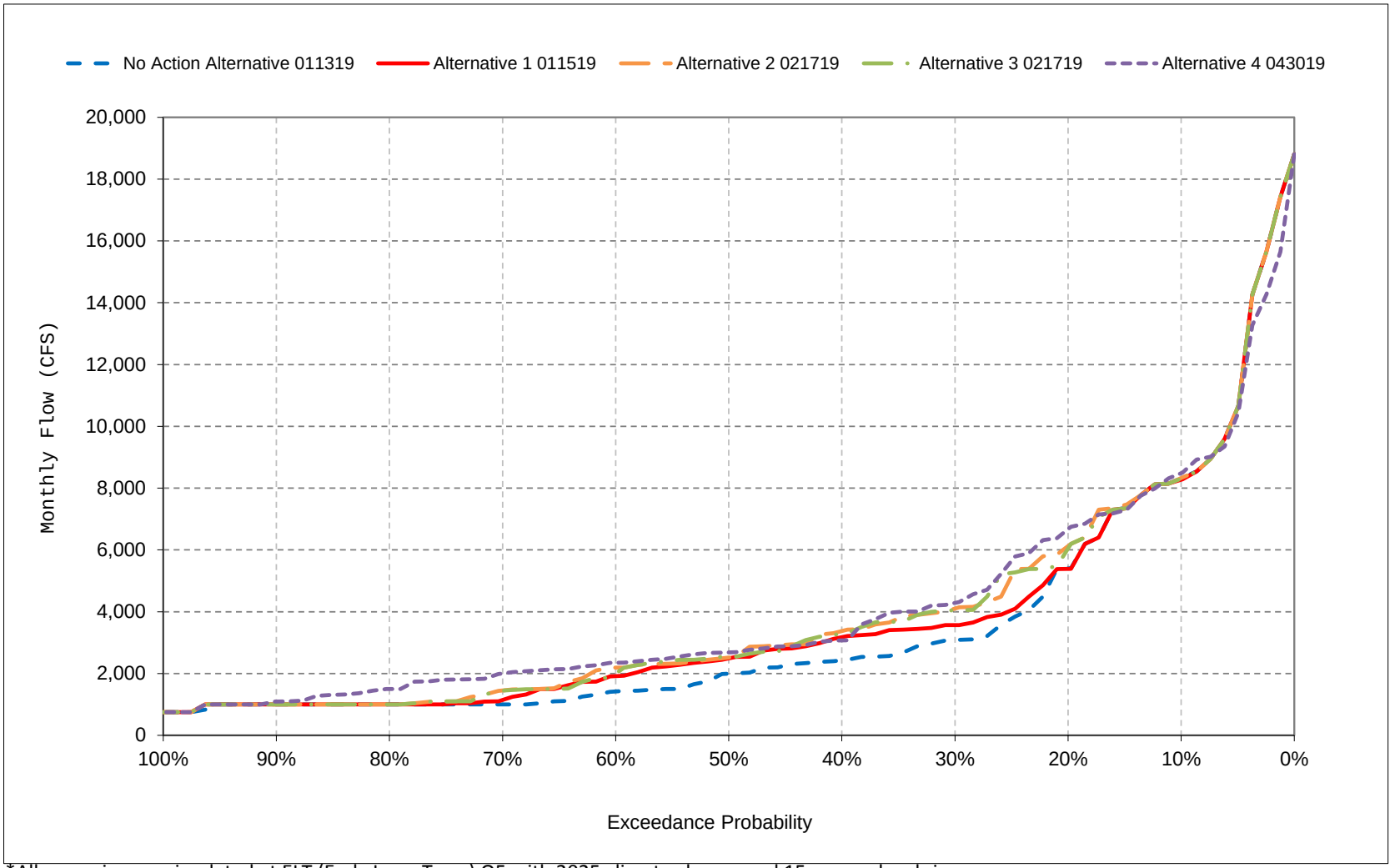
**Figure 21-13. Feather River Flow downstream of Thermalito, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

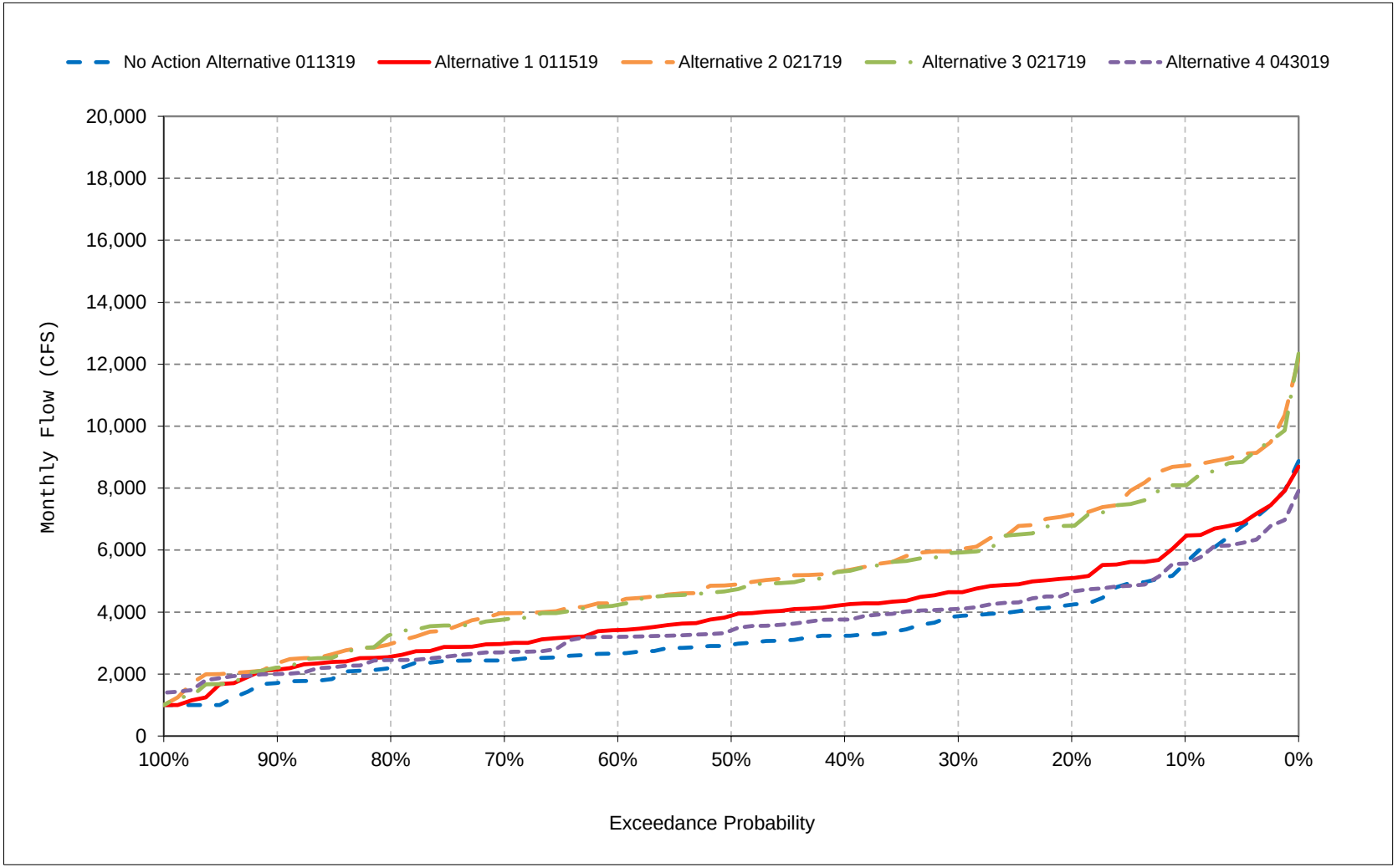
**Figure 21-14. Feather River Flow downstream of Thermalito, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

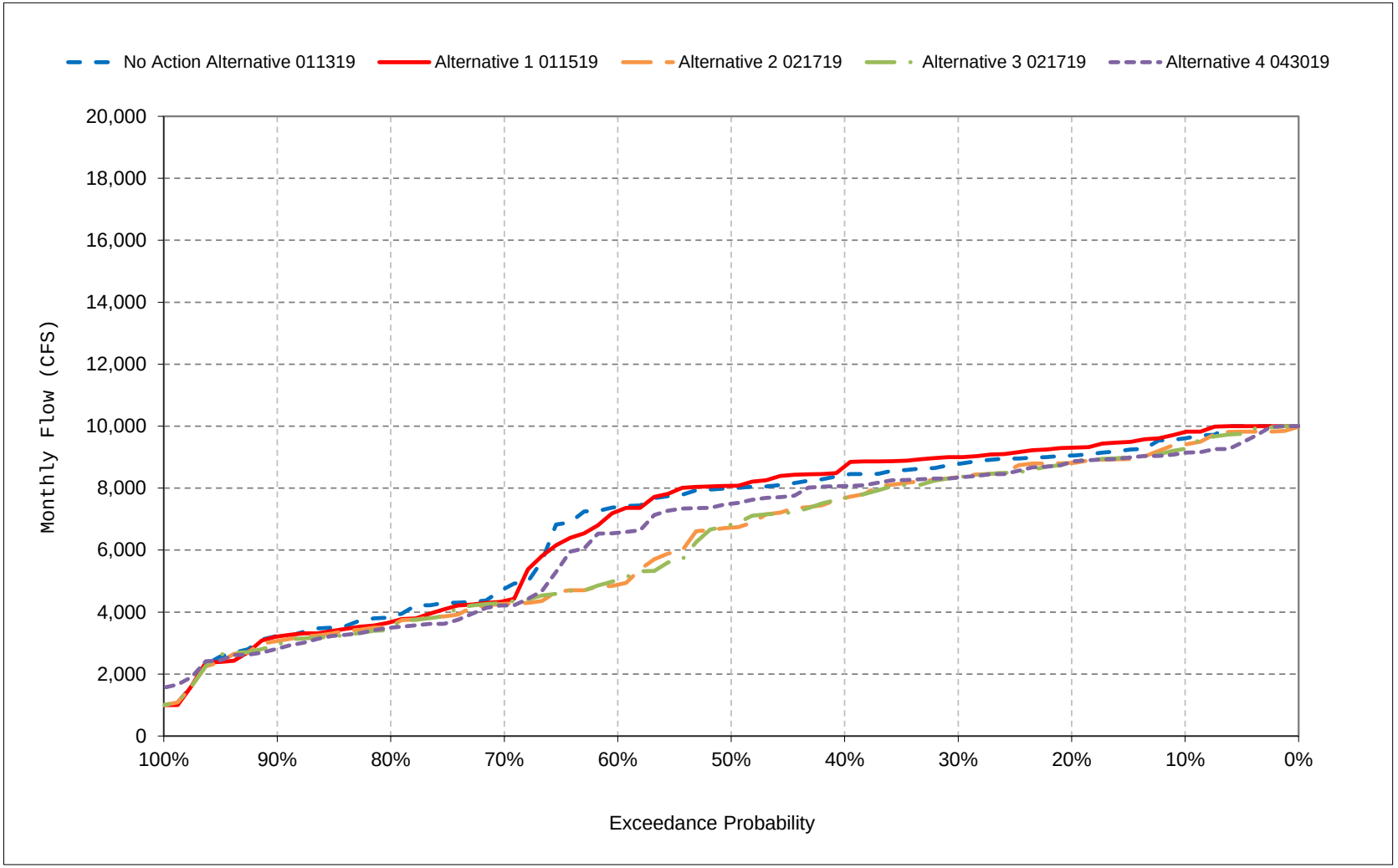
**Figure 21-15. Feather River Flow downstream of Thermalito, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

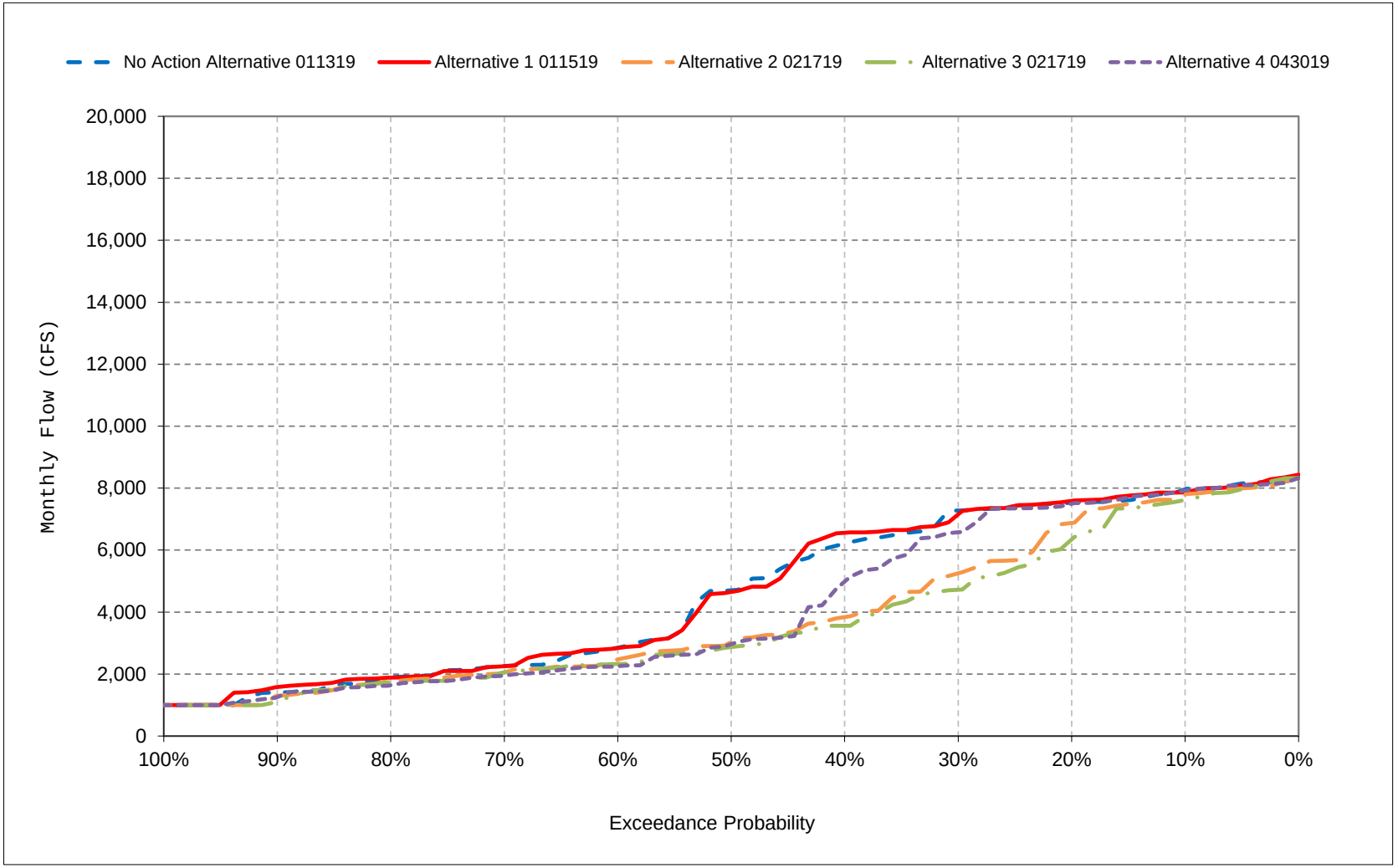
**Figure 21-16. Feather River Flow downstream of Thermalito, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

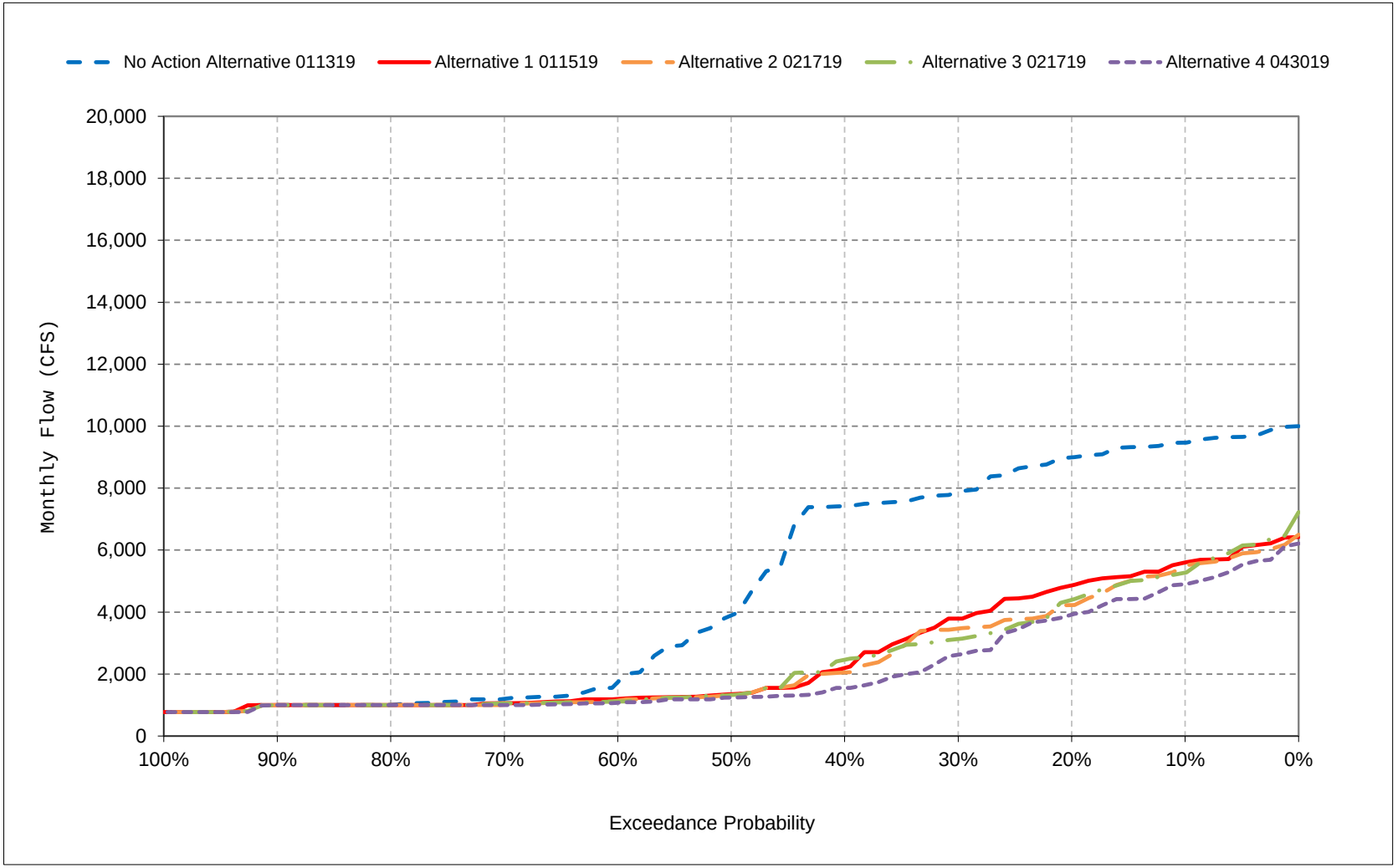
**Figure 21-17. Feather River Flow downstream of Thermalito, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 21-18. Feather River Flow downstream of Thermalito, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 22-1. Feather River at Sacramento River Confluence Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,771 | 4,662 | 10,758 | 23,582 | 33,696 | 31,622 | 20,964 | 15,603 | 9,008 | 9,734 | 8,603 | 11,413 |
| 20% | 4,500 | 3,132 | 6,608 | 16,878 | 24,867 | 21,198 | 11,924 | 10,225 | 6,123 | 9,430 | 8,347 | 11,004 |
| 30% | 3,945 | 2,893 | 4,943 | 10,861 | 16,465 | 13,726 | 8,375 | 6,606 | 5,106 | 8,874 | 8,015 | 9,872 |
| 40% | 3,450 | 2,648 | 3,867 | 8,535 | 11,070 | 11,442 | 6,524 | 4,917 | 4,506 | 8,659 | 7,235 | 9,069 |
| 50% | 2,514 | 2,404 | 3,265 | 5,369 | 6,814 | 8,320 | 5,725 | 4,423 | 3,908 | 8,075 | 6,139 | 6,110 |
| 60% | 2,076 | 2,184 | 2,676 | 4,544 | 5,322 | 5,671 | 4,106 | 3,879 | 3,489 | 7,286 | 3,146 | 3,109 |
| 70% | 1,758 | 1,793 | 1,937 | 3,715 | 4,240 | 4,169 | 3,607 | 3,551 | 3,316 | 5,113 | 2,534 | 2,832 |
| 80% | 1,602 | 1,445 | 1,700 | 2,922 | 2,615 | 3,230 | 3,033 | 2,937 | 2,944 | 3,792 | 2,342 | 2,609 |
| 90% | 1,397 | 1,212 | 1,206 | 2,274 | 1,736 | 2,301 | 2,800 | 2,800 | 2,442 | 2,767 | 2,153 | 2,530 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,974 | 2,923 | 5,614 | 11,560 | 13,513 | 13,355 | 8,710 | 7,260 | 5,251 | 6,975 | 5,380 | 6,541 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 4,197 | 3,846 | 8,266 | 23,743 | 27,715 | 25,043 | 16,023 | 13,872 | 8,211 | 7,810 | 6,891 | 10,812 |
| Above Normal (16%) | 3,893 | 3,150 | 4,191 | 11,529 | 13,491 | 18,430 | 9,251 | 5,612 | 3,678 | 8,640 | 8,429 | 9,395 |
| Below Normal (13%) | 2,966 | 2,514 | 4,204 | 4,187 | 6,827 | 5,807 | 4,598 | 4,369 | 3,545 | 8,705 | 6,515 | 4,337 |
| Dry (24%) | 1,746 | 2,840 | 6,157 | 4,376 | 4,912 | 5,511 | 4,583 | 4,059 | 4,554 | 6,192 | 2,566 | 3,068 |
| Critical (15%) | 1,385 | 1,187 | 1,800 | 3,929 | 3,226 | 2,529 | 2,926 | 2,702 | 3,269 | 3,081 | 2,453 | 2,005 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,702 | 4,660 | 13,489 | 23,633 | 33,863 | 31,638 | 20,966 | 15,602 | 9,547 | 9,827 | 8,648 | 7,353 |
| 20% | 4,233 | 2,929 | 6,229 | 18,543 | 24,930 | 21,189 | 12,534 | 10,221 | 7,059 | 9,521 | 8,316 | 6,918 |
| 30% | 3,557 | 2,729 | 5,012 | 11,249 | 17,550 | 15,218 | 8,280 | 6,636 | 5,641 | 9,300 | 7,997 | 6,088 |
| 40% | 2,718 | 2,346 | 3,903 | 8,535 | 12,313 | 12,863 | 6,523 | 5,400 | 5,126 | 8,759 | 7,272 | 3,842 |
| 50% | 2,264 | 2,209 | 3,313 | 5,400 | 7,072 | 8,371 | 5,723 | 4,821 | 4,813 | 8,224 | 5,692 | 3,101 |
| 60% | 1,900 | 1,951 | 2,476 | 4,565 | 5,242 | 5,673 | 4,109 | 4,422 | 4,563 | 7,288 | 3,272 | 2,830 |
| 70% | 1,700 | 1,716 | 1,910 | 3,795 | 4,241 | 4,164 | 3,609 | 3,978 | 4,112 | 5,573 | 2,629 | 2,684 |
| 80% | 1,611 | 1,447 | 1,696 | 2,920 | 2,614 | 3,228 | 2,917 | 3,583 | 3,679 | 3,375 | 2,295 | 2,585 |
| 90% | 1,279 | 1,214 | 1,207 | 2,286 | 1,734 | 2,298 | 2,800 | 2,800 | 2,955 | 2,804 | 2,019 | 2,360 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,788 | 2,839 | 5,981 | 11,885 | 14,045 | 13,671 | 8,724 | 7,528 | 5,888 | 7,006 | 5,397 | 4,249 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,531 | 3,652 | 9,438 | 24,717 | 28,267 | 25,442 | 16,022 | 14,026 | 8,510 | 7,879 | 6,677 | 4,656 |
| Above Normal (16%) | 3,949 | 3,013 | 4,168 | 11,549 | 14,203 | 19,400 | 9,324 | 5,868 | 4,189 | 8,989 | 8,371 | 7,248 |
| Below Normal (13%) | 2,975 | 2,517 | 4,198 | 4,225 | 8,587 | 5,992 | 4,599 | 4,879 | 4,461 | 9,270 | 7,276 | 4,308 |
| Dry (24%) | 1,760 | 2,841 | 6,166 | 4,385 | 4,942 | 5,532 | 4,571 | 4,424 | 5,580 | 5,742 | 2,585 | 3,116 |
| Critical (15%) | 1,460 | 1,180 | 1,784 | 3,966 | 3,233 | 2,565 | 2,963 | 2,850 | 3,868 | 2,996 | 2,368 | 1,952 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-69** | **-2** | 2,731 | 51 | 167 | 15 | 3 | **0** | 539 | 94 | 45 | **-4,060** |
| 20% | **-266** | **-203** | **-379** | 1,664 | 62 | **-9** | 610 | **-4** | 936 | 91 | **-31** | **-4,086** |
| 30% | **-389** | **-164** | 69 | 388 | 1,085 | 1,492 | **-95** | 30 | 535 | 426 | **-18** | **-3,784** |
| 40% | **-732** | **-301** | 35 | **-1** | 1,242 | 1,421 | **-1** | 483 | 620 | 100 | 37 | **-5,227** |
| 50% | **-249** | **-195** | 48 | 31 | 258 | 51 | **-2** | 398 | 905 | 149 | **-447** | **-3,009** |
| 60% | **-176** | **-233** | **-201** | 20 | **-80** | 3 | 4 | 543 | 1,074 | 3 | 126 | **-279** |
| 70% | **-58** | **-77** | **-27** | 81 | 0 | **-5** | 1 | 427 | 796 | 460 | 95 | **-148** |
| 80% | 9 | 1 | **-4** | **-2** | **-1** | **-2** | **-116** | 646 | 735 | **-418** | **-46** | **-24** |
| 90% | **-119** | 2 | 0 | 12 | **-2** | **-2** | 0 | 0 | 512 | 37 | **-134** | **-170** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-187** | **-84** | 367 | 325 | 532 | 316 | 14 | 268 | 636 | 31 | 17 | **-2,292** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-666** | **-194** | 1,172 | 974 | 552 | 399 | **-1** | 154 | 299 | 68 | **-215** | **-6,156** |
| Above Normal (16%) | 56 | **-137** | **-23** | 20 | 712 | 970 | 74 | 256 | 511 | 348 | **-58** | **-2,147** |
| Below Normal (13%) | 8 | 4 | **-7** | 38 | 1,760 | 185 | 0 | 510 | 916 | 565 | 761 | **-30** |
| Dry (24%) | 14 | 1 | 9 | 9 | 29 | 21 | **-12** | 365 | 1,025 | **-450** | 19 | 48 |
| Critical (15%) | 75 | **-8** | **-16** | 37 | 6 | 37 | 37 | 147 | 599 | **-85** | **-84** | **-53** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 22-2. Feather River at Sacramento River Confluence Flow, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,771 | 4,662 | 10,758 | 23,582 | 33,696 | 31,622 | 20,964 | 15,603 | 9,008 | 9,734 | 8,603 | 11,413 |
| 20% | 4,500 | 3,132 | 6,608 | 16,878 | 24,867 | 21,198 | 11,924 | 10,225 | 6,123 | 9,430 | 8,347 | 11,004 |
| 30% | 3,945 | 2,893 | 4,943 | 10,861 | 16,465 | 13,726 | 8,375 | 6,606 | 5,106 | 8,874 | 8,015 | 9,872 |
| 40% | 3,450 | 2,648 | 3,867 | 8,535 | 11,070 | 11,442 | 6,524 | 4,917 | 4,506 | 8,659 | 7,235 | 9,069 |
| 50% | 2,514 | 2,404 | 3,265 | 5,369 | 6,814 | 8,320 | 5,725 | 4,423 | 3,908 | 8,075 | 6,139 | 6,110 |
| 60% | 2,076 | 2,184 | 2,676 | 4,544 | 5,322 | 5,671 | 4,106 | 3,879 | 3,489 | 7,286 | 3,146 | 3,109 |
| 70% | 1,758 | 1,793 | 1,937 | 3,715 | 4,240 | 4,169 | 3,607 | 3,551 | 3,316 | 5,113 | 2,534 | 2,832 |
| 80% | 1,602 | 1,445 | 1,700 | 2,922 | 2,615 | 3,230 | 3,033 | 2,937 | 2,944 | 3,792 | 2,342 | 2,609 |
| 90% | 1,397 | 1,212 | 1,206 | 2,274 | 1,736 | 2,301 | 2,800 | 2,800 | 2,442 | 2,767 | 2,153 | 2,530 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,974 | 2,923 | 5,614 | 11,560 | 13,513 | 13,355 | 8,710 | 7,260 | 5,251 | 6,975 | 5,380 | 6,541 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 4,197 | 3,846 | 8,266 | 23,743 | 27,715 | 25,043 | 16,023 | 13,872 | 8,211 | 7,810 | 6,891 | 10,812 |
| Above Normal (16%) | 3,893 | 3,150 | 4,191 | 11,529 | 13,491 | 18,430 | 9,251 | 5,612 | 3,678 | 8,640 | 8,429 | 9,395 |
| Below Normal (13%) | 2,966 | 2,514 | 4,204 | 4,187 | 6,827 | 5,807 | 4,598 | 4,369 | 3,545 | 8,705 | 6,515 | 4,337 |
| Dry (24%) | 1,746 | 2,840 | 6,157 | 4,376 | 4,912 | 5,511 | 4,583 | 4,059 | 4,554 | 6,192 | 2,566 | 3,068 |
| Critical (15%) | 1,385 | 1,187 | 1,800 | 3,929 | 3,226 | 2,529 | 2,926 | 2,702 | 3,269 | 3,081 | 2,453 | 2,005 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,736 | 4,660 | 13,489 | 23,632 | 33,759 | 31,623 | 20,967 | 15,604 | 11,612 | 9,442 | 8,459 | 7,539 |
| 20% | 4,402 | 2,948 | 6,765 | 18,790 | 24,606 | 21,200 | 12,534 | 10,221 | 8,893 | 9,011 | 7,981 | 6,619 |
| 30% | 3,761 | 2,822 | 4,992 | 11,250 | 17,541 | 14,704 | 8,278 | 7,701 | 8,202 | 8,628 | 6,208 | 5,493 |
| 40% | 3,042 | 2,512 | 3,960 | 8,537 | 12,110 | 12,859 | 6,523 | 5,841 | 6,800 | 7,924 | 4,774 | 3,842 |
| 50% | 2,539 | 2,273 | 2,989 | 5,371 | 7,043 | 8,291 | 5,725 | 5,092 | 6,291 | 6,911 | 3,603 | 2,977 |
| 60% | 2,260 | 2,009 | 2,480 | 4,544 | 5,240 | 5,551 | 4,115 | 4,555 | 5,685 | 5,182 | 3,025 | 2,836 |
| 70% | 1,859 | 1,713 | 1,912 | 3,715 | 4,244 | 4,321 | 3,615 | 4,161 | 5,112 | 4,434 | 2,537 | 2,733 |
| 80% | 1,636 | 1,450 | 1,700 | 2,906 | 2,643 | 3,228 | 3,081 | 3,635 | 4,232 | 3,575 | 2,351 | 2,579 |
| 90% | 1,431 | 1,215 | 1,207 | 2,286 | 1,968 | 2,303 | 2,800 | 2,807 | 3,361 | 2,780 | 2,080 | 2,492 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,970 | 2,884 | 5,975 | 11,910 | 13,953 | 13,605 | 8,734 | 7,713 | 7,078 | 6,362 | 4,680 | 4,154 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,977 | 3,753 | 9,439 | 24,824 | 28,127 | 25,285 | 16,023 | 14,099 | 9,069 | 7,467 | 5,746 | 4,630 |
| Above Normal (16%) | 3,761 | 2,991 | 4,096 | 11,528 | 14,205 | 19,342 | 9,324 | 6,035 | 5,901 | 8,717 | 7,561 | 6,769 |
| Below Normal (13%) | 3,240 | 2,634 | 4,197 | 4,307 | 8,386 | 5,958 | 4,661 | 5,503 | 8,164 | 7,502 | 4,657 | 4,019 |
| Dry (24%) | 1,802 | 2,845 | 6,173 | 4,352 | 4,865 | 5,528 | 4,573 | 4,595 | 6,516 | 4,737 | 2,729 | 3,175 |
| Critical (15%) | 1,628 | 1,181 | 1,803 | 3,912 | 3,220 | 2,550 | 2,970 | 2,919 | 3,983 | 3,081 | 2,523 | 2,047 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-35** | **-3** | 2,730 | 50 | 63 | 0 | 3 | 1 | 2,603 | **-292** | **-144** | **-3,874** |
| 20% | **-98** | **-183** | 157 | 1,912 | **-261** | 2 | 610 | **-4** | 2,770 | **-419** | **-366** | **-4,385** |
| 30% | **-184** | **-71** | 49 | 388 | 1,076 | 979 | **-97** | 1,095 | 3,095 | **-246** | **-1,807** | **-4,378** |
| 40% | **-407** | **-136** | 93 | 1 | 1,040 | 1,417 | **-1** | 924 | 2,295 | **-735** | **-2,462** | **-5,227** |
| 50% | 25 | **-132** | **-276** | 2 | 229 | **-29** | 1 | 669 | 2,383 | **-1,164** | **-2,536** | **-3,133** |
| 60% | 184 | **-176** | **-196** | 0 | **-82** | **-119** | 9 | 675 | 2,196 | **-2,104** | **-121** | **-273** |
| 70% | 101 | **-80** | **-25** | 0 | 3 | 153 | 7 | 610 | 1,796 | **-678** | 4 | **-99** |
| 80% | 34 | 4 | 0 | **-16** | 28 | **-2** | 48 | 699 | 1,288 | **-217** | 9 | **-30** |
| 90% | 34 | 3 | 0 | 13 | 232 | 2 | 0 | 7 | 918 | 13 | **-72** | **-38** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-5** | **-39** | 361 | 350 | 441 | 249 | 24 | 453 | 1,827 | **-612** | **-700** | **-2,387** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-219** | **-93** | 1,174 | 1,081 | 412 | 242 | 0 | 226 | 858 | **-343** | **-1,145** | **-6,182** |
| Above Normal (16%) | **-132** | **-159** | **-95** | **-1** | 714 | 912 | 73 | 423 | 2,223 | 77 | **-868** | **-2,626** |
| Below Normal (13%) | 273 | 120 | **-7** | 121 | 1,558 | 152 | 63 | 1,134 | 4,619 | **-1,202** | **-1,858** | **-318** |
| Dry (24%) | 56 | 4 | 17 | **-23** | **-48** | 17 | **-10** | 535 | 1,962 | **-1,454** | 163 | 106 |
| Critical (15%) | 243 | **-7** | 3 | **-17** | **-6** | 22 | 44 | 217 | 714 | 0 | 70 | 42 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 22-3. Feather River at Sacramento River Confluence Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,771 | 4,662 | 10,758 | 23,582 | 33,696 | 31,622 | 20,964 | 15,603 | 9,008 | 9,734 | 8,603 | 11,413 |
| 20% | 4,500 | 3,132 | 6,608 | 16,878 | 24,867 | 21,198 | 11,924 | 10,225 | 6,123 | 9,430 | 8,347 | 11,004 |
| 30% | 3,945 | 2,893 | 4,943 | 10,861 | 16,465 | 13,726 | 8,375 | 6,606 | 5,106 | 8,874 | 8,015 | 9,872 |
| 40% | 3,450 | 2,648 | 3,867 | 8,535 | 11,070 | 11,442 | 6,524 | 4,917 | 4,506 | 8,659 | 7,235 | 9,069 |
| 50% | 2,514 | 2,404 | 3,265 | 5,369 | 6,814 | 8,320 | 5,725 | 4,423 | 3,908 | 8,075 | 6,139 | 6,110 |
| 60% | 2,076 | 2,184 | 2,676 | 4,544 | 5,322 | 5,671 | 4,106 | 3,879 | 3,489 | 7,286 | 3,146 | 3,109 |
| 70% | 1,758 | 1,793 | 1,937 | 3,715 | 4,240 | 4,169 | 3,607 | 3,551 | 3,316 | 5,113 | 2,534 | 2,832 |
| 80% | 1,602 | 1,445 | 1,700 | 2,922 | 2,615 | 3,230 | 3,033 | 2,937 | 2,944 | 3,792 | 2,342 | 2,609 |
| 90% | 1,397 | 1,212 | 1,206 | 2,274 | 1,736 | 2,301 | 2,800 | 2,800 | 2,442 | 2,767 | 2,153 | 2,530 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,974 | 2,923 | 5,614 | 11,560 | 13,513 | 13,355 | 8,710 | 7,260 | 5,251 | 6,975 | 5,380 | 6,541 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 4,197 | 3,846 | 8,266 | 23,743 | 27,715 | 25,043 | 16,023 | 13,872 | 8,211 | 7,810 | 6,891 | 10,812 |
| Above Normal (16%) | 3,893 | 3,150 | 4,191 | 11,529 | 13,491 | 18,430 | 9,251 | 5,612 | 3,678 | 8,640 | 8,429 | 9,395 |
| Below Normal (13%) | 2,966 | 2,514 | 4,204 | 4,187 | 6,827 | 5,807 | 4,598 | 4,369 | 3,545 | 8,705 | 6,515 | 4,337 |
| Dry (24%) | 1,746 | 2,840 | 6,157 | 4,376 | 4,912 | 5,511 | 4,583 | 4,059 | 4,554 | 6,192 | 2,566 | 3,068 |
| Critical (15%) | 1,385 | 1,187 | 1,800 | 3,929 | 3,226 | 2,529 | 2,926 | 2,702 | 3,269 | 3,081 | 2,453 | 2,005 |

## Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,778 | 4,660 | 13,488 | 23,858 | 33,680 | 31,623 | 20,967 | 15,604 | 11,261 | 9,531 | 8,539 | 7,431 |
| 20% | 4,505 | 2,946 | 6,852 | 18,790 | 24,946 | 21,194 | 12,530 | 10,221 | 8,527 | 8,997 | 7,603 | 6,744 |
| 30% | 3,949 | 2,756 | 5,059 | 11,251 | 17,536 | 16,563 | 8,280 | 7,361 | 7,856 | 8,628 | 5,843 | 5,140 |
| 40% | 3,339 | 2,537 | 4,002 | 8,537 | 12,110 | 12,675 | 6,523 | 5,937 | 6,761 | 7,868 | 4,872 | 4,248 |
| 50% | 2,637 | 2,295 | 3,314 | 5,371 | 7,046 | 8,334 | 5,725 | 5,173 | 5,967 | 6,755 | 3,638 | 2,977 |
| 60% | 2,281 | 2,085 | 2,413 | 4,544 | 5,239 | 5,554 | 4,115 | 4,532 | 5,572 | 5,326 | 2,911 | 2,837 |
| 70% | 1,815 | 1,712 | 2,015 | 3,715 | 4,243 | 4,346 | 3,618 | 4,073 | 5,078 | 4,301 | 2,477 | 2,720 |
| 80% | 1,694 | 1,448 | 1,700 | 2,908 | 2,614 | 3,228 | 3,080 | 3,393 | 4,734 | 3,572 | 2,255 | 2,577 |
| 90% | 1,430 | 1,214 | 1,207 | 2,289 | 1,870 | 2,302 | 2,800 | 2,806 | 3,467 | 2,801 | 2,038 | 2,492 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 3,043 | 2,899 | 6,072 | 11,958 | 13,978 | 13,656 | 8,740 | 7,689 | 6,947 | 6,343 | 4,533 | 4,174 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,965 | 3,809 | 9,656 | 24,956 | 28,125 | 25,426 | 16,032 | 13,931 | 9,154 | 7,495 | 5,223 | 4,777 |
| Above Normal (16%) | 4,024 | 2,976 | 4,292 | 11,527 | 14,277 | 19,387 | 9,324 | 6,011 | 5,483 | 8,714 | 7,647 | 6,733 |
| Below Normal (13%) | 3,358 | 2,629 | 4,197 | 4,330 | 8,546 | 5,957 | 4,671 | 5,464 | 7,775 | 7,759 | 4,745 | 3,811 |
| Dry (24%) | 1,867 | 2,844 | 6,161 | 4,355 | 4,865 | 5,533 | 4,580 | 4,763 | 6,494 | 4,497 | 2,726 | 3,159 |
| Critical (15%) | 1,651 | 1,182 | 1,803 | 3,927 | 3,171 | 2,545 | 2,973 | 2,899 | 3,744 | 3,054 | 2,482 | 2,120 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 7 | **-2** | 2,730 | 276 | **-16** | 1 | 3 | 1 | 2,253 | **-203** | **-64** | **-3,982** |
| 20% | 5 | **-185** | 244 | 1,912 | 79 | **-4** | 606 | **-4** | 2,404 | **-433** | **-744** | **-4,260** |
| 30% | 3 | **-137** | 116 | 390 | 1,071 | 2,838 | **-95** | 756 | 2,750 | **-246** | **-2,172** | **-4,732** |
| 40% | **-110** | **-110** | 134 | 2 | 1,040 | 1,233 | **-1** | 1,020 | 2,255 | **-791** | **-2,363** | **-4,821** |
| 50% | 123 | **-110** | 49 | 2 | 232 | 13 | 1 | 750 | 2,059 | **-1,320** | **-2,501** | **-3,133** |
| 60% | 204 | **-99** | **-263** | 0 | **-82** | **-117** | 9 | 652 | 2,083 | **-1,959** | **-234** | **-272** |
| 70% | 57 | **-80** | 78 | 0 | 3 | 177 | 11 | 522 | 1,762 | **-812** | **-56** | **-112** |
| 80% | 92 | 3 | 0 | **-14** | **-2** | **-2** | 47 | 457 | 1,790 | **-221** | **-87** | **-32** |
| 90% | 32 | 2 | 0 | 16 | 134 | 2 | 0 | 6 | 1,024 | 34 | **-115** | **-38** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 69 | **-24** | 458 | 398 | 465 | 301 | 30 | 429 | 1,695 | **-632** | **-847** | **-2,367** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-231** | **-37** | 1,391 | 1,213 | 410 | 383 | 9 | 59 | 943 | **-315** | **-1,668** | **-6,035** |
| Above Normal (16%) | 131 | **-175** | 101 | **-2** | 786 | 957 | 74 | 399 | 1,805 | 74 | **-782** | **-2,662** |
| Below Normal (13%) | 391 | 116 | **-7** | 143 | 1,719 | 150 | 73 | 1,095 | 4,230 | **-946** | **-1,770** | **-526** |
| Dry (24%) | 122 | 4 | 5 | **-20** | **-47** | 22 | **-3** | 703 | 1,940 | **-1,695** | 160 | 91 |
| Critical (15%) | 266 | **-5** | 3 | **-2** | **-55** | 16 | 47 | 196 | 474 | **-26** | 29 | 115 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 22-4. Feather River at Sacramento River Confluence Flow, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,771 | 4,662 | 10,758 | 23,582 | 33,696 | 31,622 | 20,964 | 15,603 | 9,008 | 9,734 | 8,603 | 11,413 |
| 20% | 4,500 | 3,132 | 6,608 | 16,878 | 24,867 | 21,198 | 11,924 | 10,225 | 6,123 | 9,430 | 8,347 | 11,004 |
| 30% | 3,945 | 2,893 | 4,943 | 10,861 | 16,465 | 13,726 | 8,375 | 6,606 | 5,106 | 8,874 | 8,015 | 9,872 |
| 40% | 3,450 | 2,648 | 3,867 | 8,535 | 11,070 | 11,442 | 6,524 | 4,917 | 4,506 | 8,659 | 7,235 | 9,069 |
| 50% | 2,514 | 2,404 | 3,265 | 5,369 | 6,814 | 8,320 | 5,725 | 4,423 | 3,908 | 8,075 | 6,139 | 6,110 |
| 60% | 2,076 | 2,184 | 2,676 | 4,544 | 5,322 | 5,671 | 4,106 | 3,879 | 3,489 | 7,286 | 3,146 | 3,109 |
| 70% | 1,758 | 1,793 | 1,937 | 3,715 | 4,240 | 4,169 | 3,607 | 3,551 | 3,316 | 5,113 | 2,534 | 2,832 |
| 80% | 1,602 | 1,445 | 1,700 | 2,922 | 2,615 | 3,230 | 3,033 | 2,937 | 2,944 | 3,792 | 2,342 | 2,609 |
| 90% | 1,397 | 1,212 | 1,206 | 2,274 | 1,736 | 2,301 | 2,800 | 2,800 | 2,442 | 2,767 | 2,153 | 2,530 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,974 | 2,923 | 5,614 | 11,560 | 13,513 | 13,355 | 8,710 | 7,260 | 5,251 | 6,975 | 5,380 | 6,541 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 4,197 | 3,846 | 8,266 | 23,743 | 27,715 | 25,043 | 16,023 | 13,872 | 8,211 | 7,810 | 6,891 | 10,812 |
| Above Normal (16%) | 3,893 | 3,150 | 4,191 | 11,529 | 13,491 | 18,430 | 9,251 | 5,612 | 3,678 | 8,640 | 8,429 | 9,395 |
| Below Normal (13%) | 2,966 | 2,514 | 4,204 | 4,187 | 6,827 | 5,807 | 4,598 | 4,369 | 3,545 | 8,705 | 6,515 | 4,337 |
| Dry (24%) | 1,746 | 2,840 | 6,157 | 4,376 | 4,912 | 5,511 | 4,583 | 4,059 | 4,554 | 6,192 | 2,566 | 3,068 |
| Critical (15%) | 1,385 | 1,187 | 1,800 | 3,929 | 3,226 | 2,529 | 2,926 | 2,702 | 3,269 | 3,081 | 2,453 | 2,005 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,528 | 4,709 | 13,250 | 24,019 | 33,713 | 31,934 | 22,961 | 15,834 | 7,958 | 9,213 | 8,275 | 6,819 |
| 20% | 3,374 | 2,932 | 6,565 | 17,339 | 23,291 | 21,633 | 15,033 | 12,539 | 6,571 | 8,702 | 7,992 | 5,855 |
| 30% | 2,690 | 2,610 | 4,975 | 12,000 | 16,663 | 15,325 | 11,770 | 8,182 | 5,389 | 8,329 | 7,268 | 4,383 |
| 40% | 2,528 | 2,327 | 3,721 | 8,882 | 12,583 | 12,347 | 10,115 | 6,405 | 4,770 | 7,775 | 5,669 | 3,492 |
| 50% | 2,212 | 2,167 | 2,917 | 5,865 | 8,837 | 9,339 | 7,208 | 5,200 | 4,408 | 7,108 | 2,901 | 2,987 |
| 60% | 1,868 | 2,005 | 2,405 | 4,855 | 6,812 | 7,125 | 5,576 | 4,284 | 4,113 | 6,246 | 2,434 | 2,591 |
| 70% | 1,700 | 1,727 | 1,850 | 3,974 | 5,325 | 5,261 | 3,689 | 3,677 | 3,752 | 4,484 | 2,092 | 2,577 |
| 80% | 1,515 | 1,445 | 1,695 | 3,244 | 3,218 | 3,781 | 3,219 | 2,861 | 3,348 | 3,124 | 1,956 | 2,559 |
| 90% | 1,248 | 1,275 | 1,206 | 2,720 | 2,150 | 2,604 | 2,800 | 2,800 | 2,806 | 2,492 | 1,735 | 2,278 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,630 | 2,885 | 5,898 | 12,190 | 14,288 | 14,117 | 10,199 | 7,804 | 5,451 | 6,320 | 4,536 | 3,781 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,283 | 3,610 | 9,221 | 24,768 | 28,068 | 25,440 | 17,708 | 14,462 | 7,908 | 7,445 | 6,226 | 4,539 |
| Above Normal (16%) | 3,219 | 2,913 | 3,890 | 11,505 | 13,981 | 19,479 | 12,475 | 7,047 | 3,867 | 7,847 | 7,840 | 6,648 |
| Below Normal (13%) | 3,557 | 2,591 | 4,578 | 5,393 | 8,612 | 7,933 | 7,126 | 5,025 | 4,528 | 8,127 | 3,669 | 2,932 |
| Dry (24%) | 1,761 | 3,109 | 6,068 | 4,740 | 6,075 | 6,133 | 5,026 | 4,243 | 4,771 | 5,006 | 2,077 | 2,601 |
| Critical (15%) | 1,177 | 1,182 | 1,799 | 4,330 | 3,654 | 2,752 | 2,903 | 2,678 | 3,825 | 2,763 | 2,188 | 1,774 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-243** | 47 | 2,491 | 438 | 17 | 312 | 1,998 | 232 | **-1,050** | **-521** | **-328** | **-4,595** |
| 20% | **-1,126** | **-200** | **-43** | 461 | **-1,576** | 435 | 3,110 | 2,314 | 449 | **-728** | **-355** | **-5,149** |
| 30% | **-1,255** | **-282** | 32 | 1,139 | 198 | 1,599 | 3,395 | 1,576 | 283 | **-545** | **-747** | **-5,489** |
| 40% | **-922** | **-320** | **-146** | 346 | 1,513 | 905 | 3,590 | 1,488 | 264 | **-884** | **-1,566** | **-5,577** |
| 50% | **-302** | **-237** | **-348** | 496 | 2,023 | 1,019 | 1,483 | 777 | 500 | **-967** | **-3,238** | **-3,124** |
| 60% | **-208** | **-180** | **-271** | 311 | 1,490 | 1,454 | 1,470 | 404 | 624 | **-1,040** | **-711** | **-518** |
| 70% | **-58** | **-65** | **-87** | 259 | 1,085 | 1,093 | 81 | 125 | 435 | **-628** | **-442** | **-255** |
| 80% | **-86** | **-1** | **-5** | 322 | 603 | 551 | 185 | **-75** | 404 | **-668** | **-386** | **-50** |
| 90% | **-150** | 63 | **0** | 446 | 414 | 304 | 0 | 0 | 363 | **-275** | **-417** | **-253** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-344** | **-38** | 284 | 630 | 775 | 762 | 1,489 | 544 | 200 | **-654** | **-844** | **-2,761** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-914** | **-236** | 956 | 1,025 | 353 | 397 | 1,685 | 590 | **-303** | **-365** | **-666** | **-6,273** |
| Above Normal (16%) | **-674** | **-238** | **-301** | **-24** | 490 | 1,049 | 3,224 | 1,435 | 189 | **-793** | **-589** | **-2,747** |
| Below Normal (13%) | 590 | 77 | 374 | 1,206 | 1,785 | 2,126 | 2,527 | 657 | 983 | **-577** | **-2,847** | **-1,405** |
| Dry (24%) | 16 | 269 | **-88** | 365 | 1,162 | 622 | 443 | 184 | 216 | **-1,186** | **-489** | **-468** |
| Critical (15%) | **-208** | **-5** | **-1** | 400 | 428 | 223 | **-23** | **-25** | 555 | **-318** | **-265** | **-231** |

a Based on the 82-year simulation period.

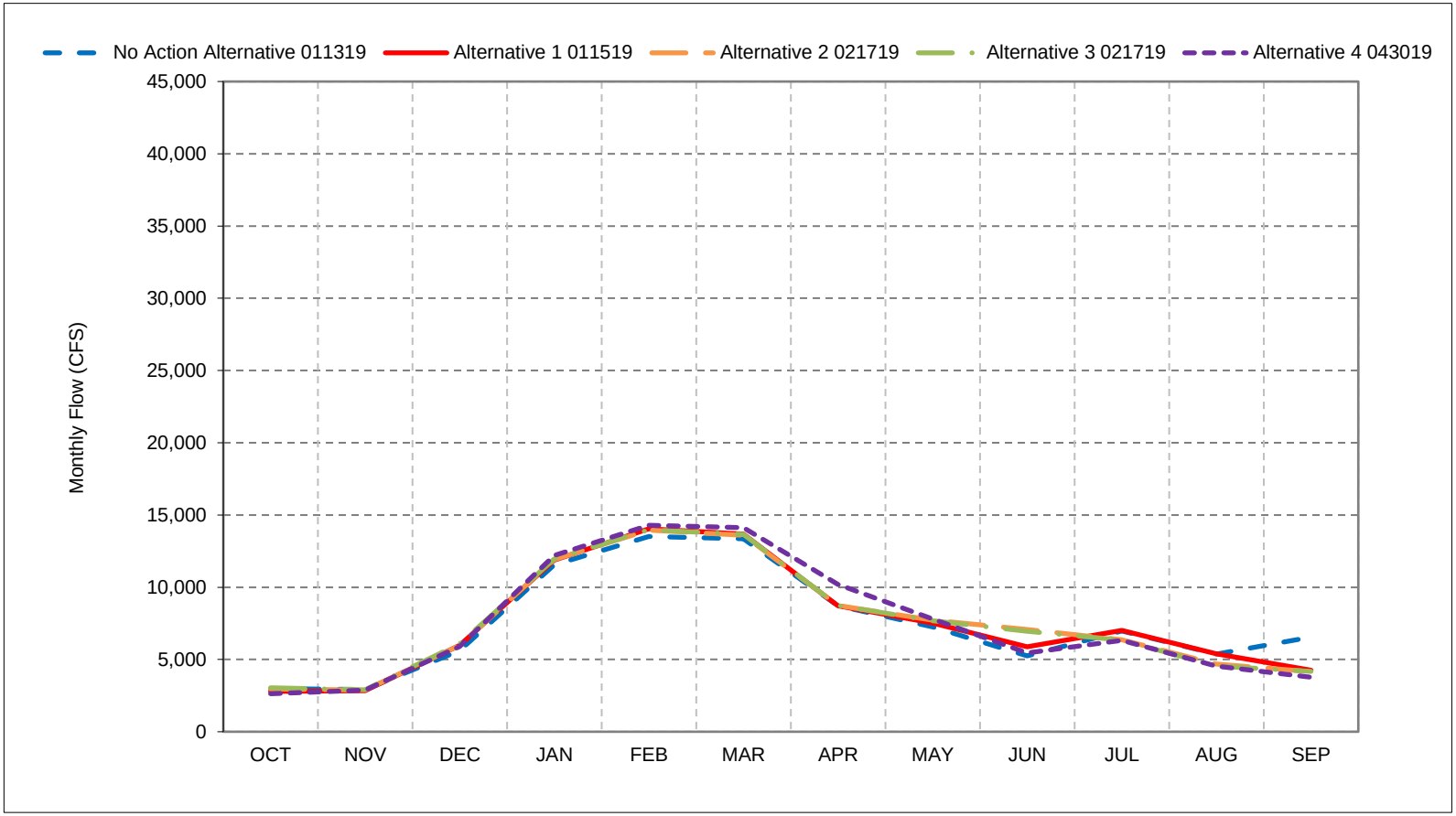
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

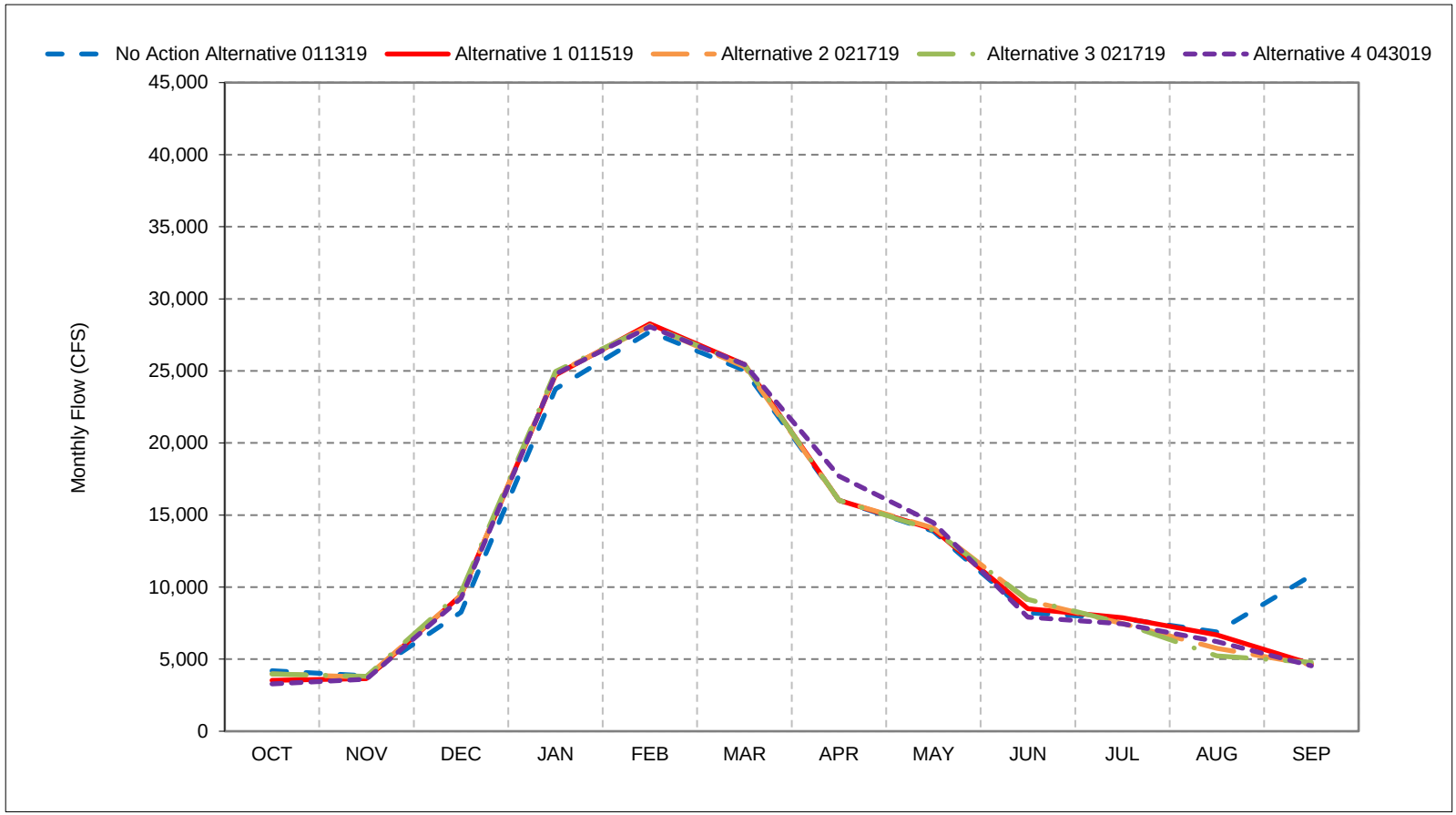
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 22-1. Feather River at Sacramento River Confluence Flow, Long-Term Average Flow



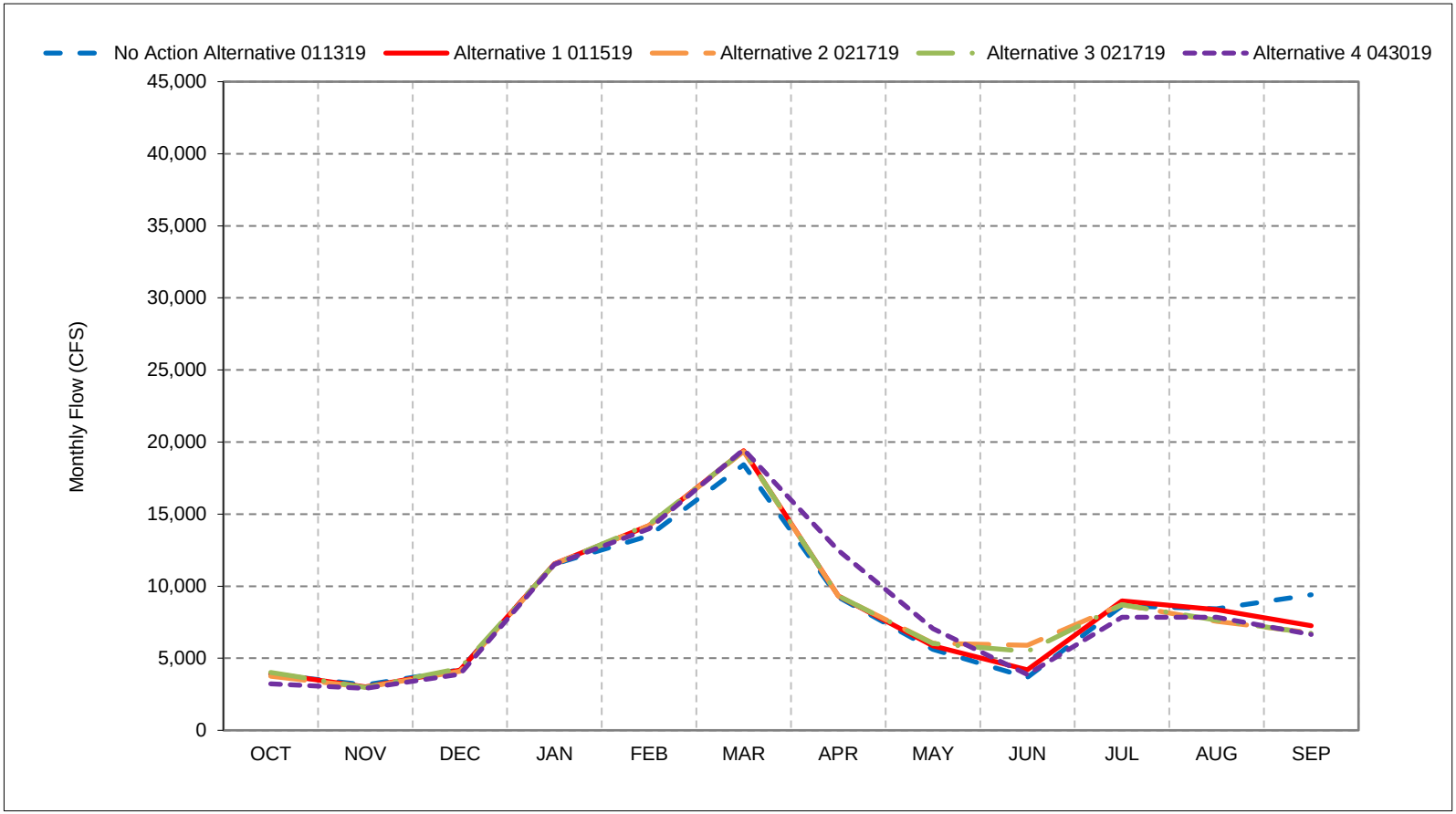

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 22-2. Feather River at Sacramento River Confluence Flow, Wet Year Average Flow



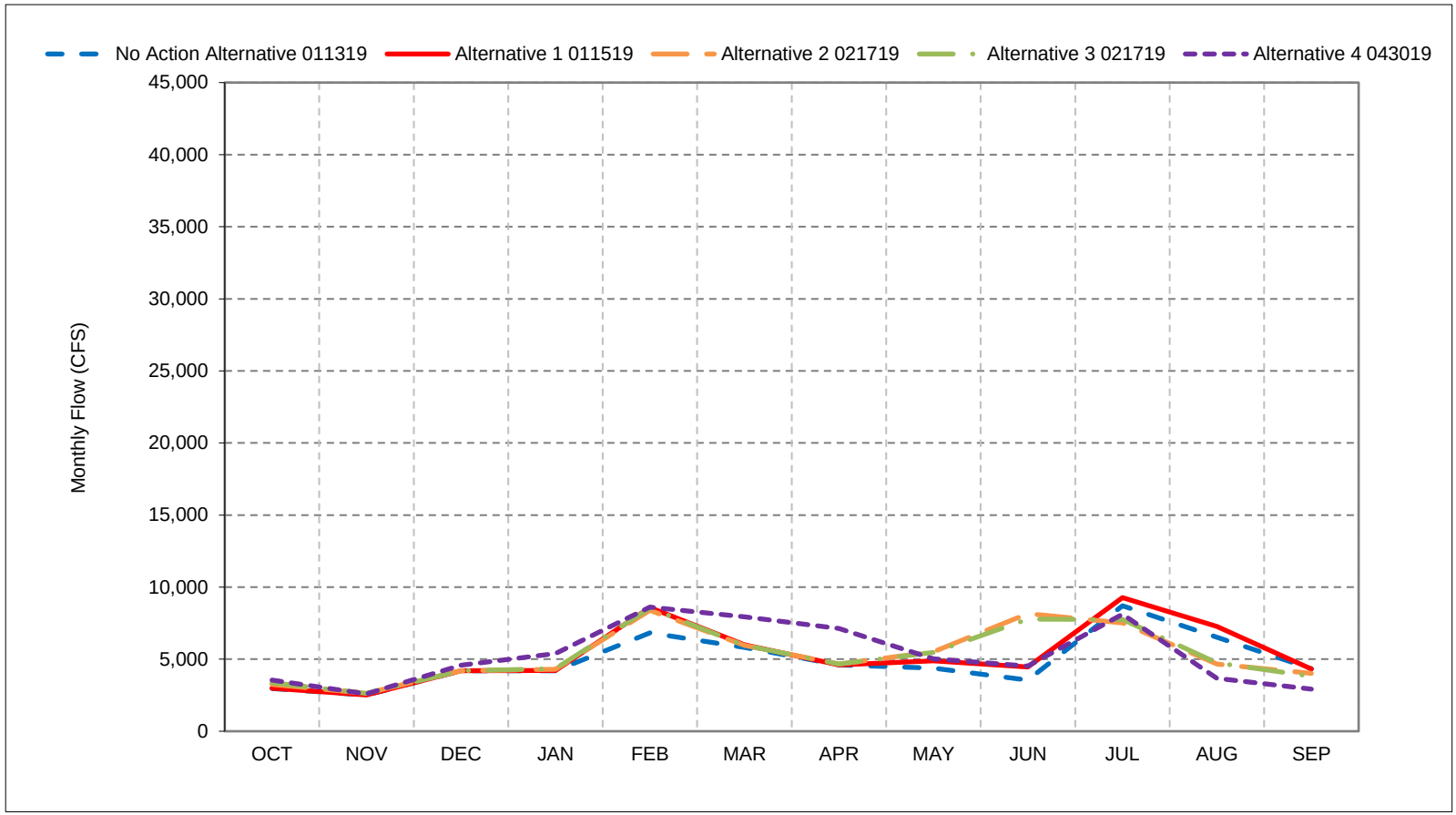

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 22-3. Feather River at Sacramento River Confluence Flow, Above Normal Year Average Flov



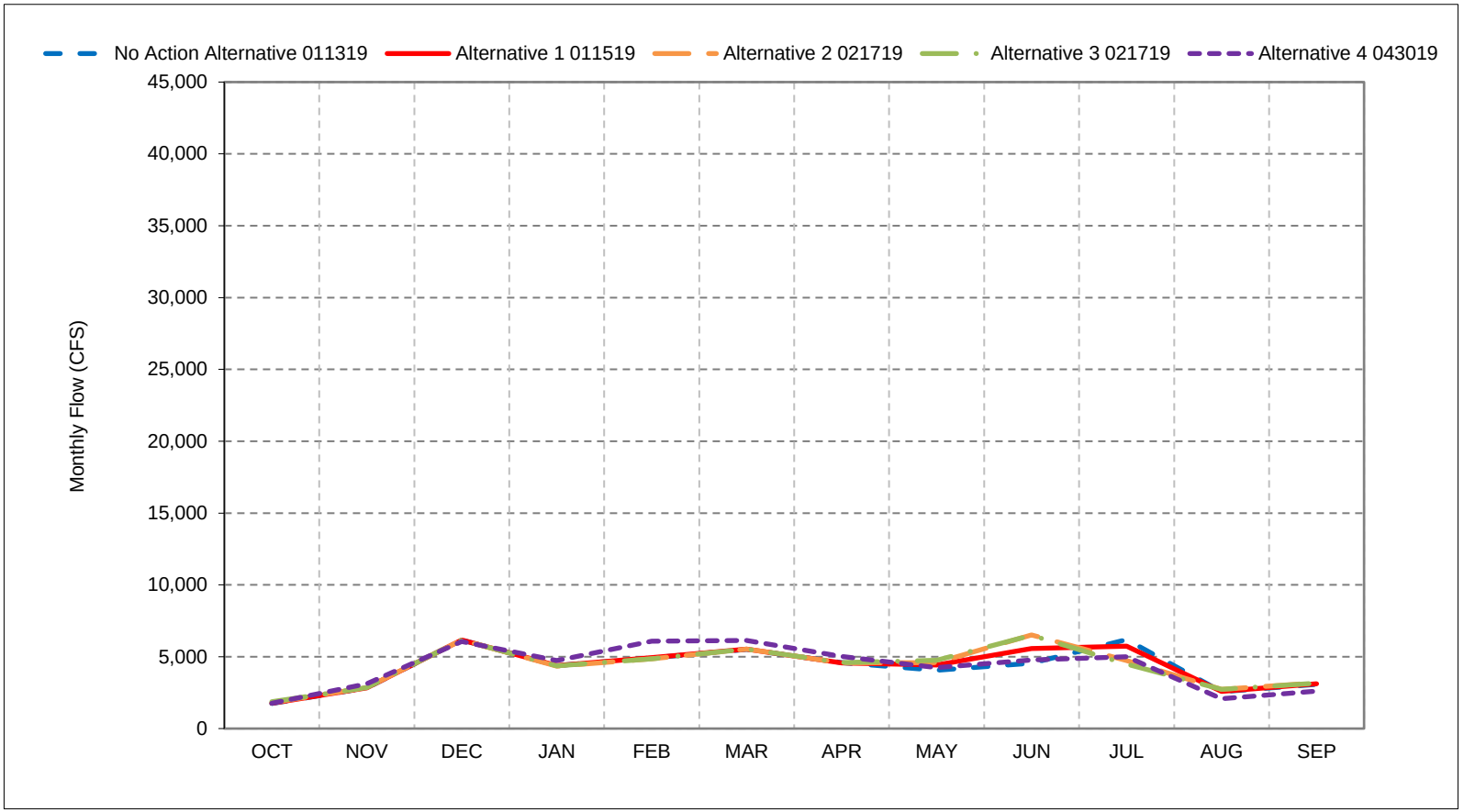

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 22-4. Feather River at Sacramento River Confluence Flow, Below Normal Year Average Flow



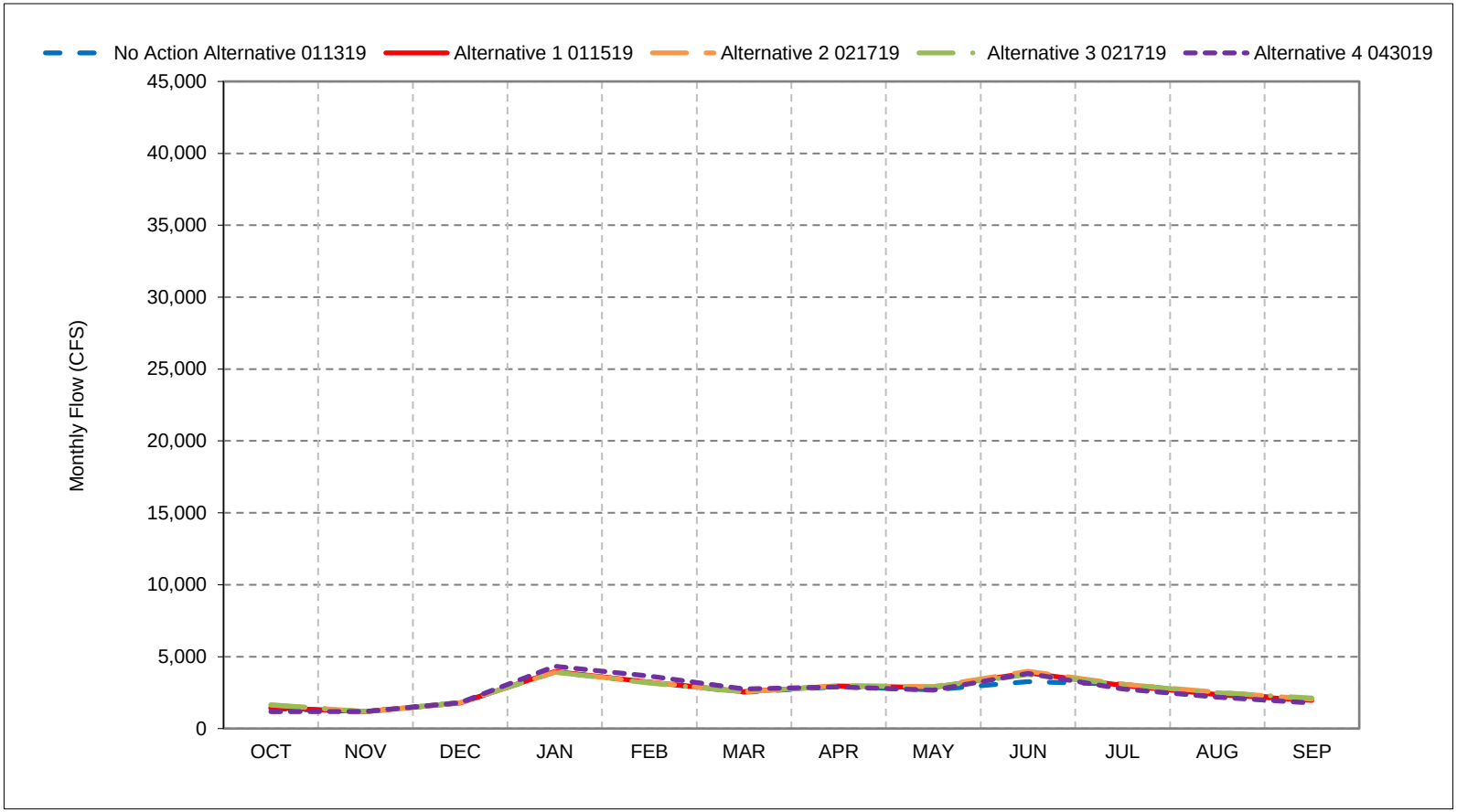

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 22-5. Feather River at Sacramento River Confluence Flow, Dry Year Average Flow



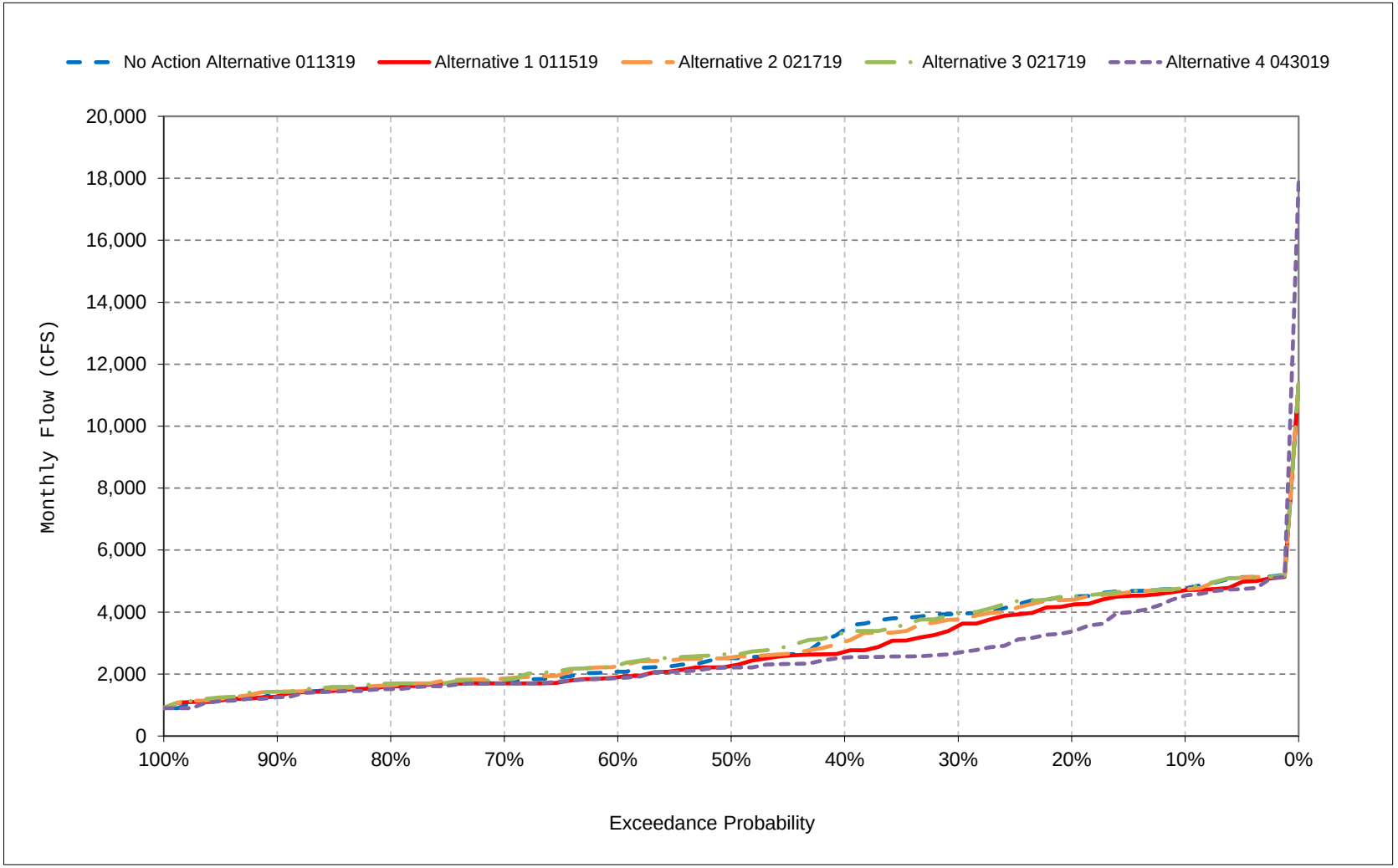

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 22-6. Feather River at Sacramento River Confluence Flow, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

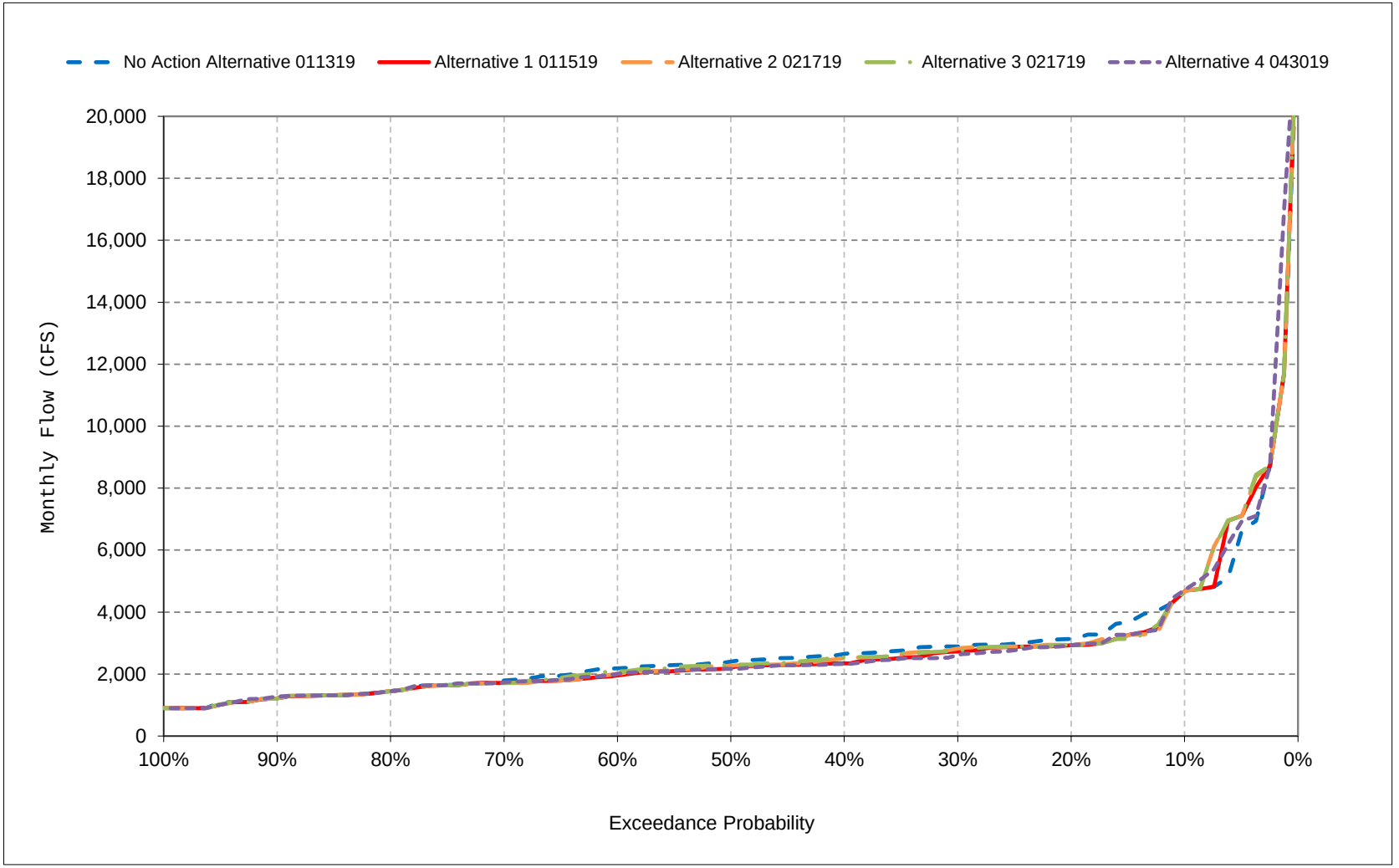
**Figure 22-7. Feather River at Sacramento River Confluence Flow, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

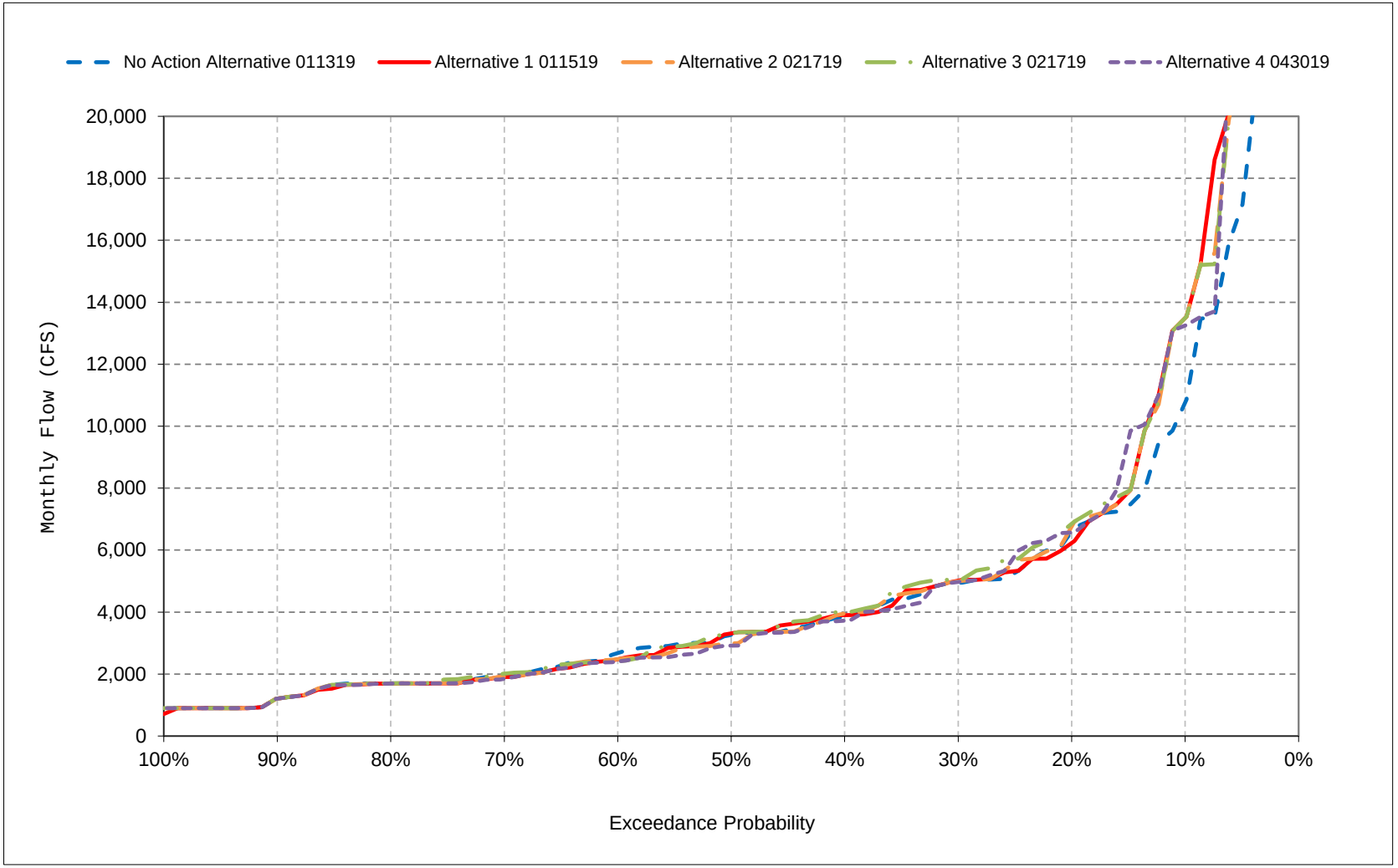
**Figure 22-8. Feather River at Sacramento River Confluence Flow, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

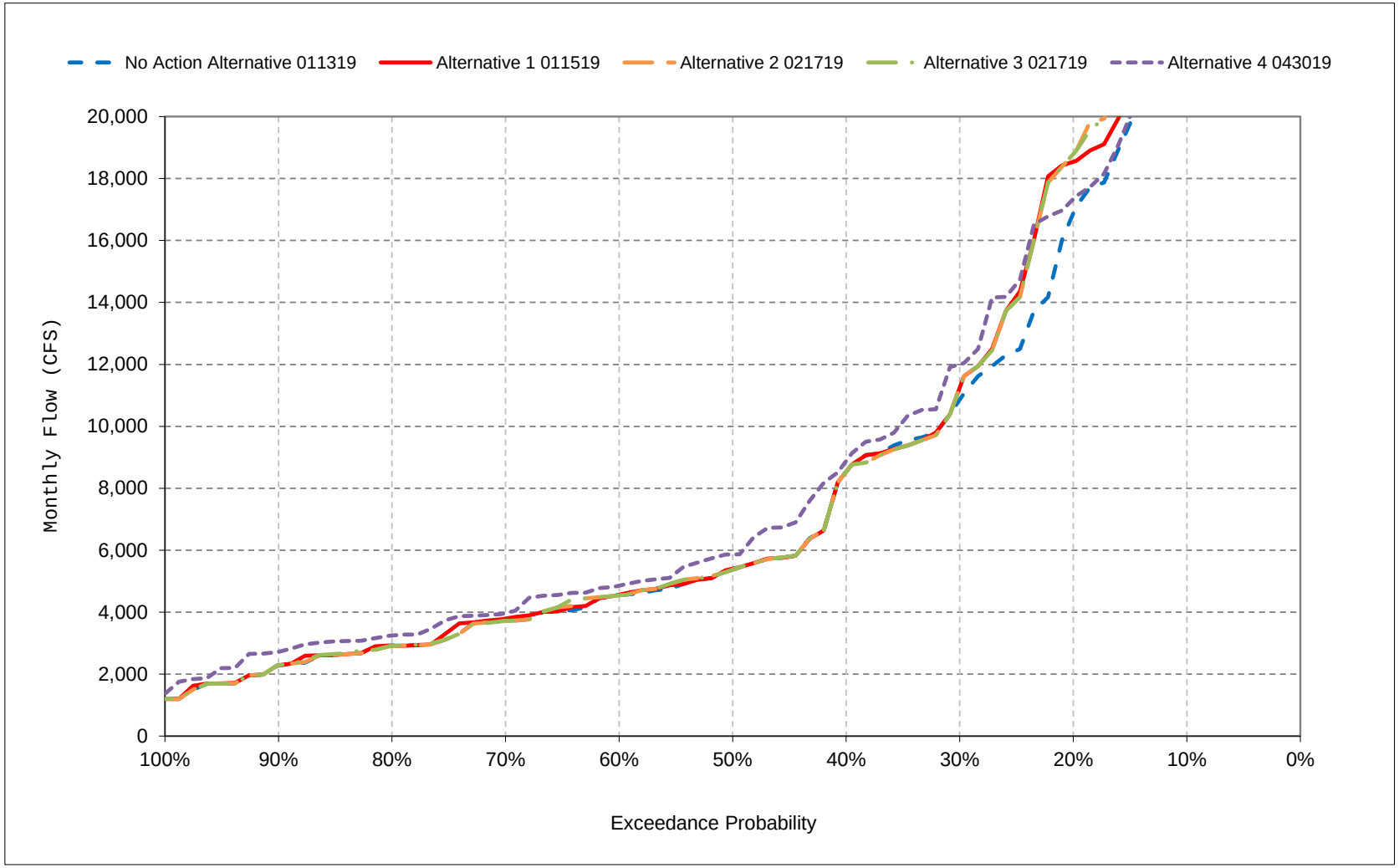
**Figure 22-9. Feather River at Sacramento River Confluence Flow, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

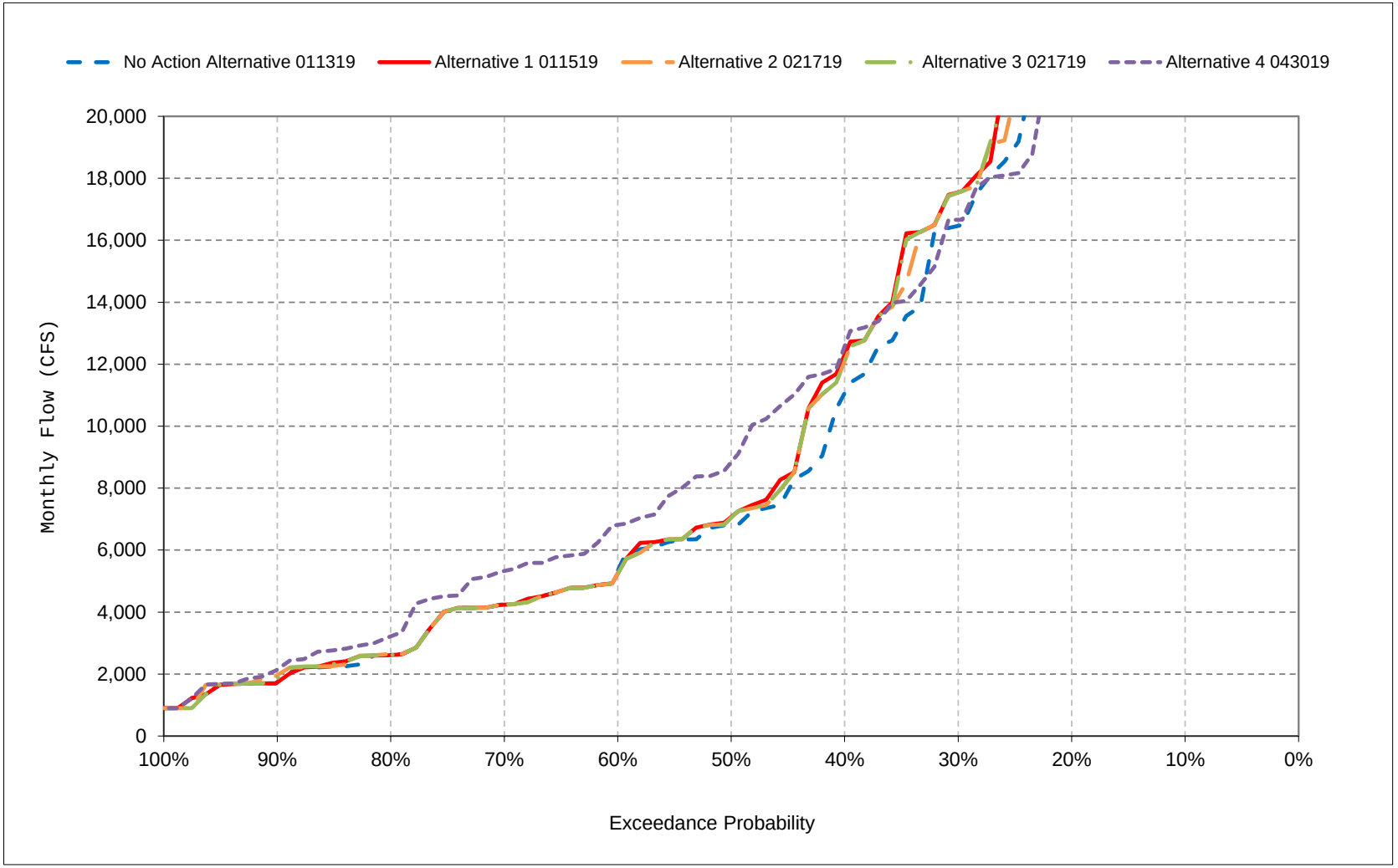
**Figure 22-10. Feather River at Sacramento River Confluence Flow, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

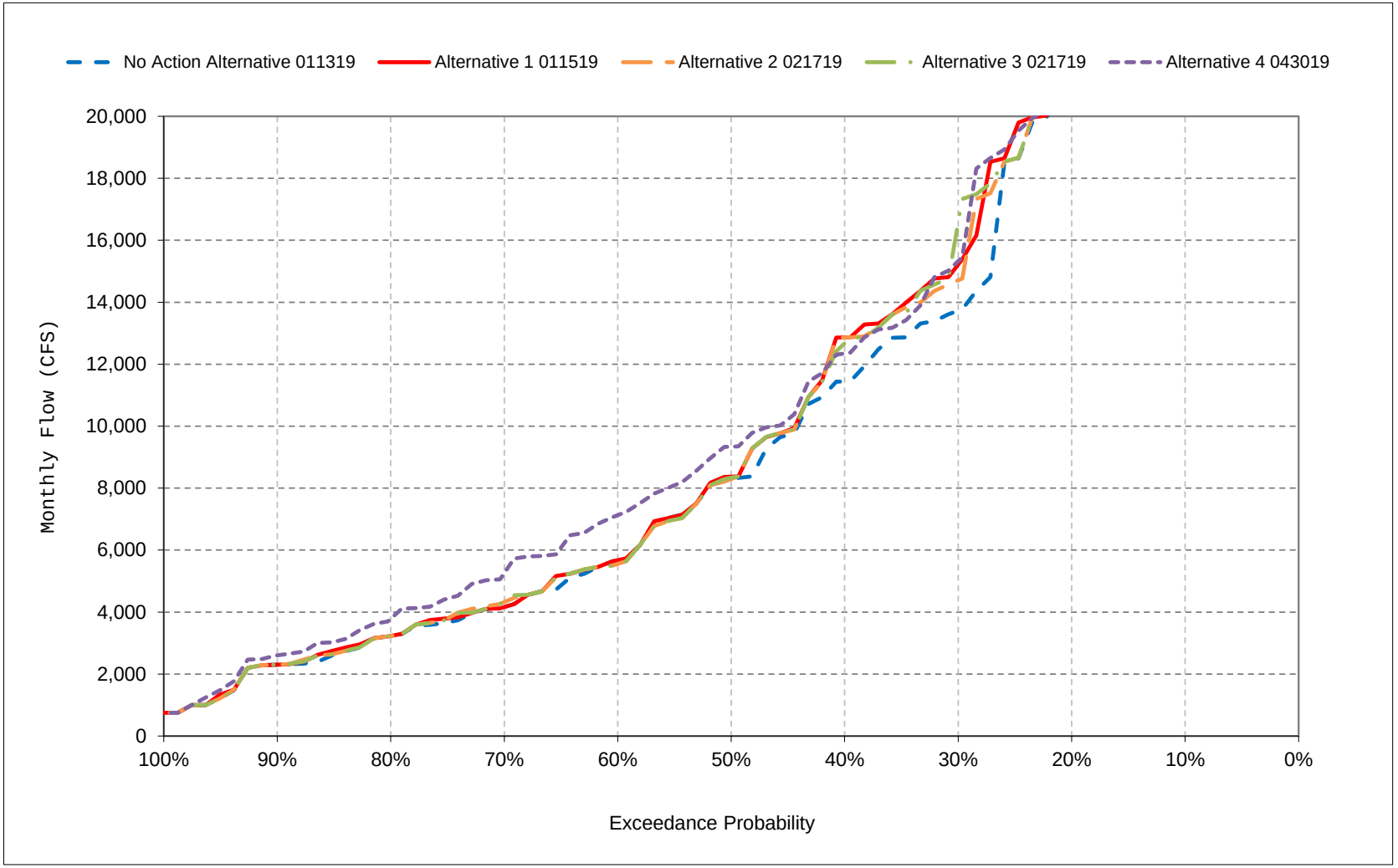
**Figure 22-11. Feather River at Sacramento River Confluence Flow, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

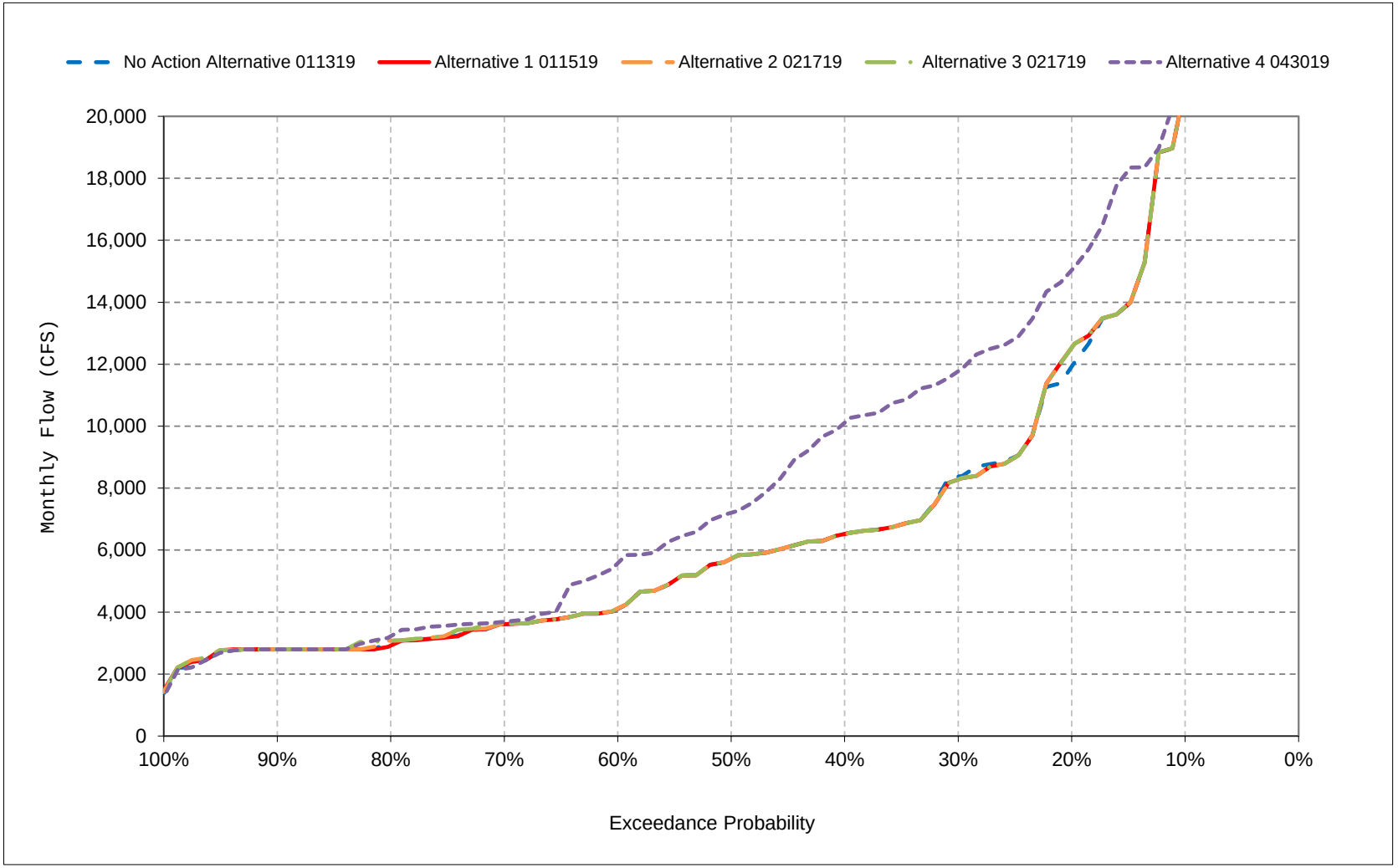
**Figure 22-12. Feather River at Sacramento River Confluence Flow, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

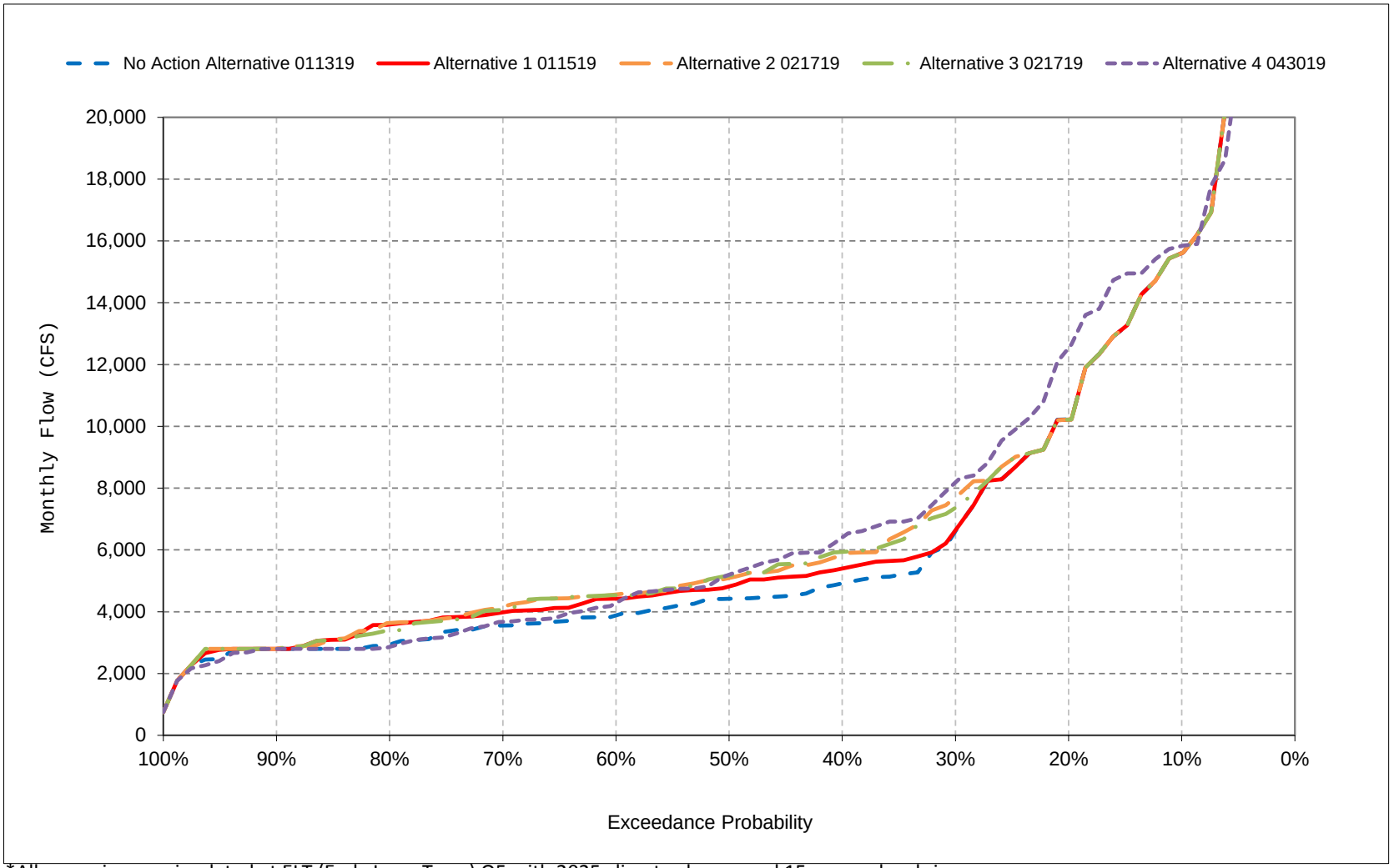
**Figure 22-13. Feather River at Sacramento River Confluence Flow, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

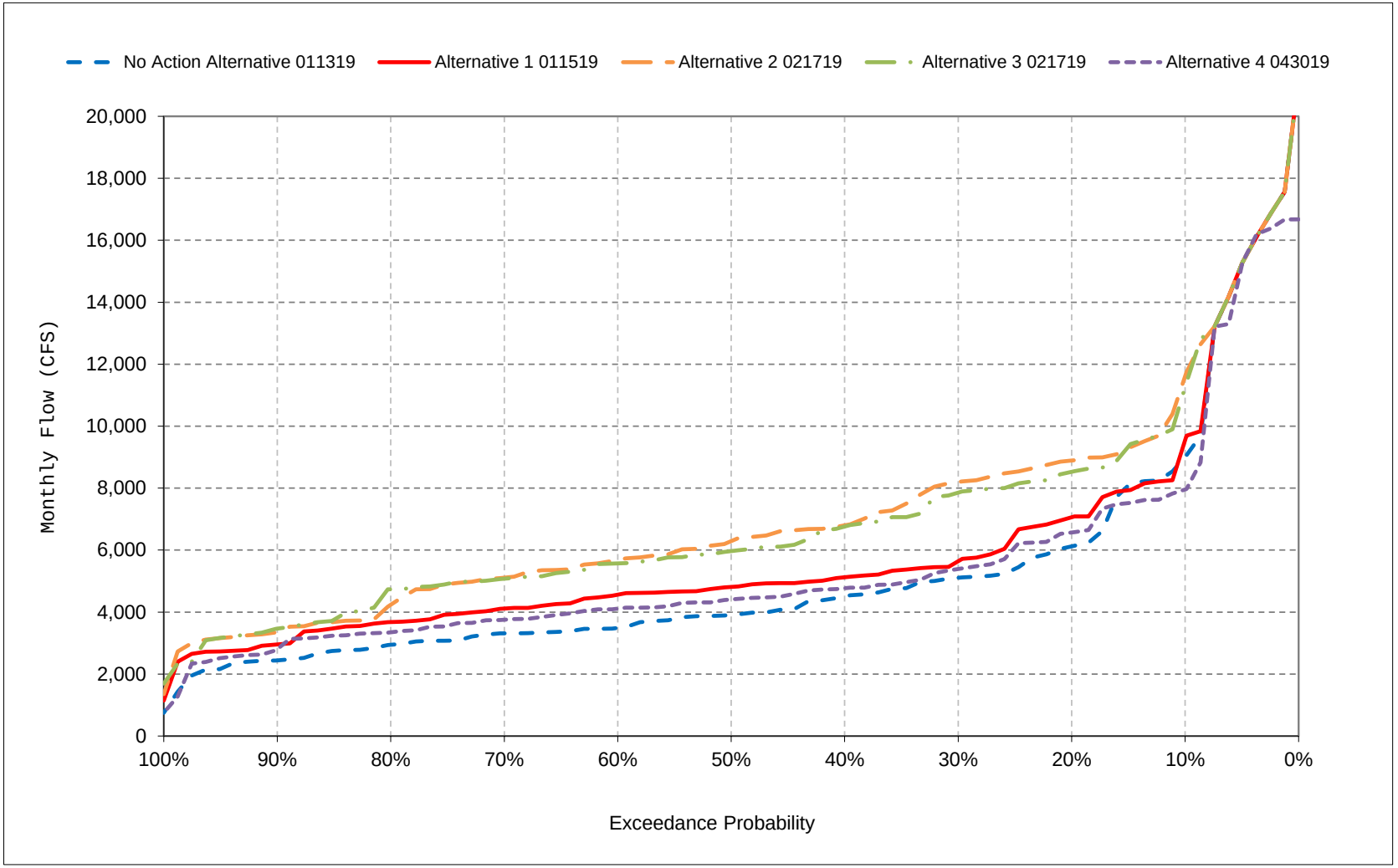
**Figure 22-14. Feather River at Sacramento River Confluence Flow, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

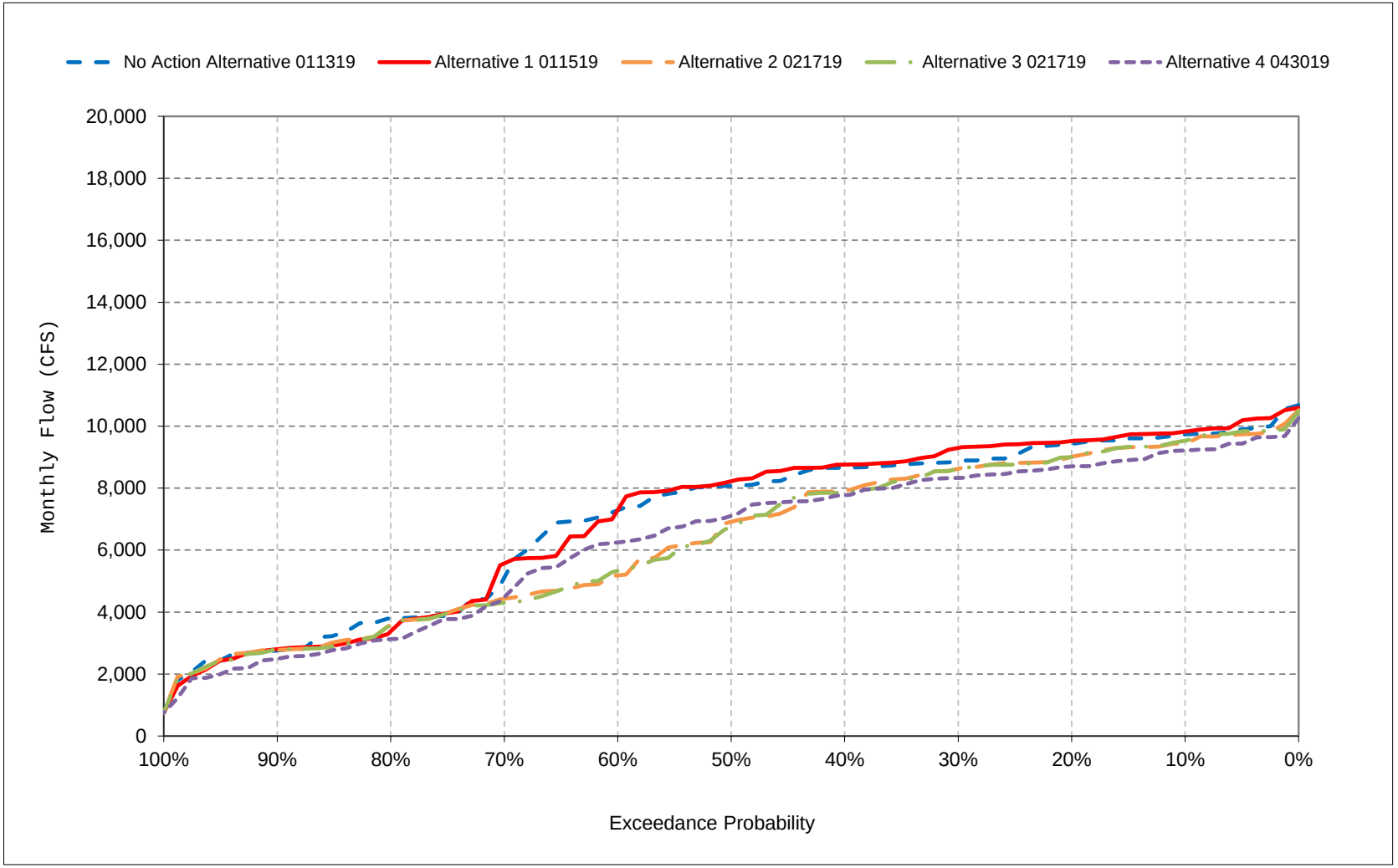
**Figure 22-15. Feather River at Sacramento River Confluence Flow, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

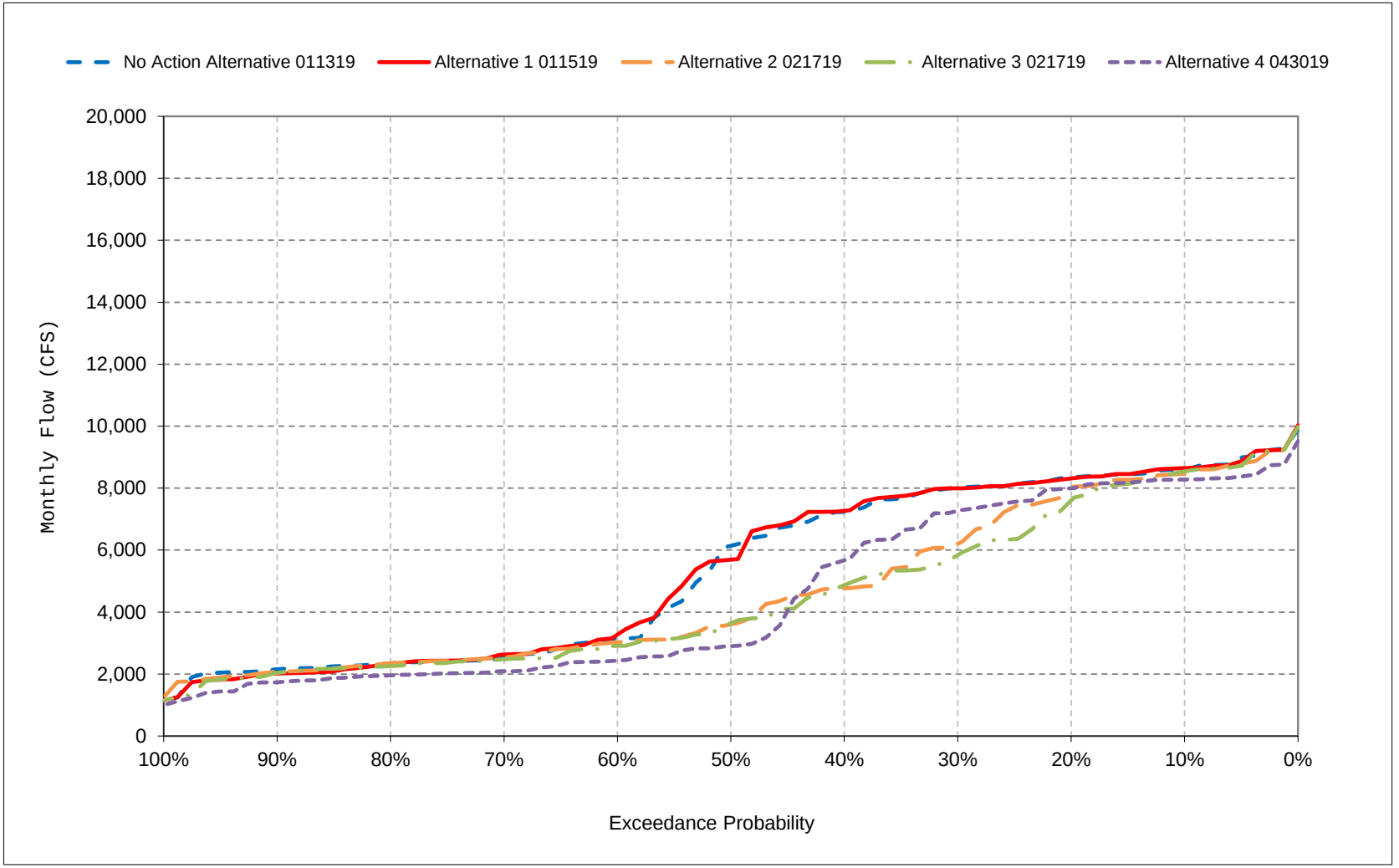
**Figure 22-16. Feather River at Sacramento River Confluence Flow, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

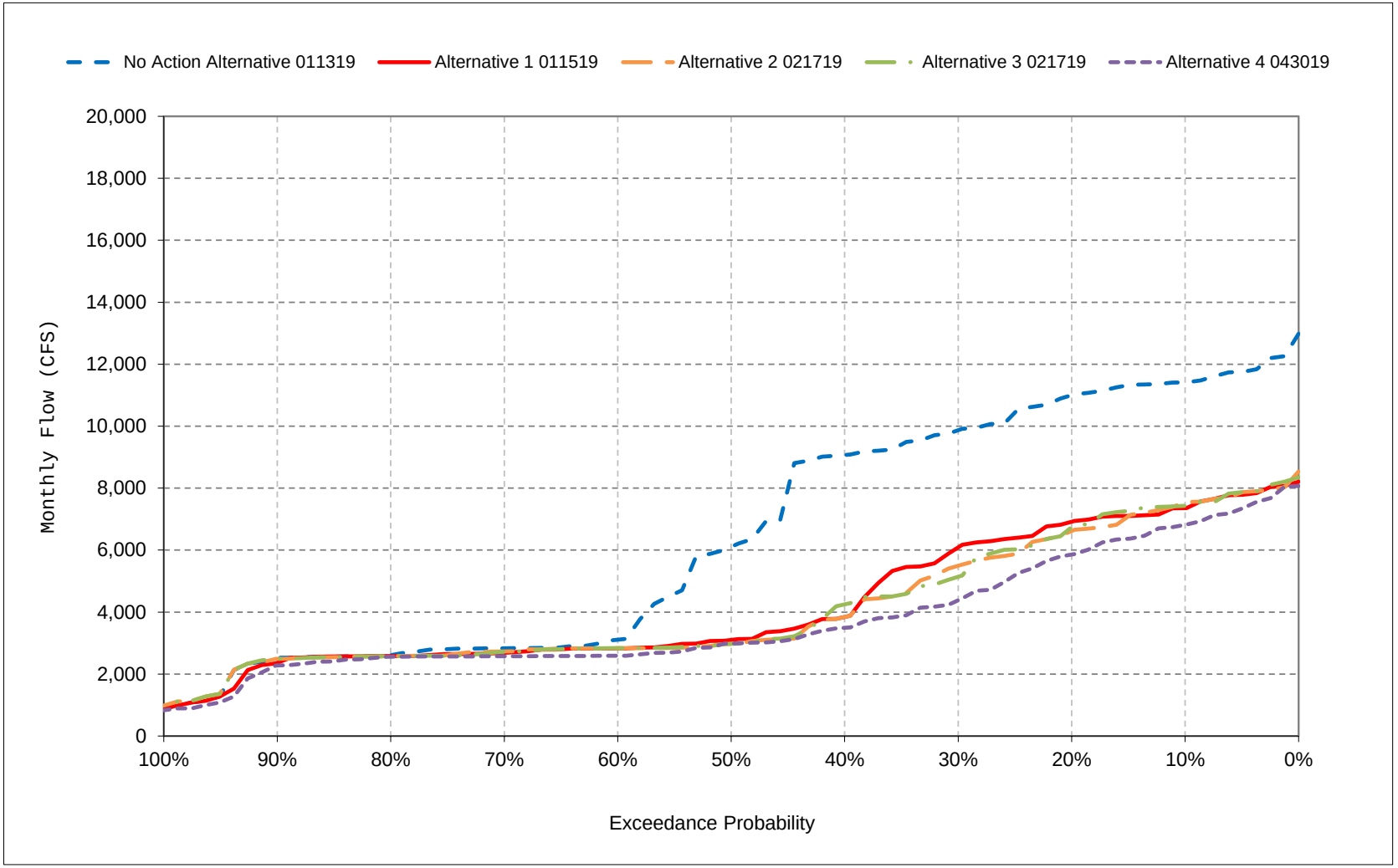
**Figure 22-17. Feather River at Sacramento River Confluence Flow, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 22-18. Feather River at Sacramento River Confluence Flow, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 24-1. Fremont Weir Spills, Monthly Spills

## No Action Alternative 011319

| | Monthly Spills (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 301 | 7,187 | 24,201 | 44,517 | 14,376 | 1,904 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 75 | 2,202 | 9,905 | 14,249 | 4,769 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 53 | 505 | 4,192 | 6,128 | 2,111 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 23 | 138 | 907 | 3,893 | 1,029 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 5 | 91 | 485 | 2,331 | 296 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 20 | 202 | 910 | 144 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 8 | 37 | 336 | 82 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 15 | 93 | 15 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 4 | 40 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 18 | 375 | 3,007 | 8,766 | 12,004 | 6,631 | 1,213 | 51 | 7 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 478 | 4,305 | 24,513 | 28,643 | 17,559 | 3,706 | 161 | 22 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 807 | 1,037 | 5,129 | 13,268 | 5,785 | 184 | 1 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 136 | 23 | 2,233 | 354 | 3,020 | 241 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 377 | 4,792 | 455 | 1,510 | 443 | 38 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | 2 | 66 | 150 | 308 | 42 | 0 | 0 | 0 | 0 | 0 | 0 |

## Alternative 1 011519

| | Monthly Spills (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 448 | 9,441 | 29,156 | 45,271 | 15,313 | 1,896 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 40 | 3,176 | 9,909 | 13,394 | 4,463 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 9 | 602 | 4,204 | 8,702 | 2,600 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 161 | 1,258 | 4,388 | 1,030 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 91 | 664 | 2,140 | 347 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 21 | 224 | 1,034 | 164 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 6 | 51 | 321 | 82 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 19 | 101 | 15 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 4 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 18 | 428 | 3,531 | 9,140 | 12,483 | 6,809 | 1,213 | 51 | 7 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 496 | 5,689 | 25,558 | 29,184 | 17,864 | 3,706 | 161 | 22 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 1,063 | 1,402 | 5,263 | 14,451 | 6,185 | 184 | 1 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 132 | 22 | 2,219 | 504 | 3,987 | 308 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 405 | 4,912 | 461 | 1,479 | 480 | 38 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | 2 | 64 | 154 | 297 | 42 | 0 | 0 | 0 | 0 | 0 | 0 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Spills (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 147 | 2,255 | 4,955 | 754 | 938 | **-8** | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | **-35** | 974 | 5 | **-854** | **-306** | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | **-44** | 97 | 12 | 2,574 | 489 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | **-23** | 23 | 351 | 494 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | **-5** | **0** | 179 | **-192** | 51 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | **0** | 1 | 22 | 124 | 20 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | **-2** | 14 | **-14** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 4 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | **0** | **-10** | **0** | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | 53 | 524 | 374 | 480 | 178 | **0** | 0 | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 18 | 1,384 | 1,044 | 541 | 305 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 256 | 365 | 134 | 1,183 | 400 | **-1** | **0** | 0 | 0 | 0 | 0 |
| Below Normal (13%) | **-3** | **-1** | **-14** | 150 | 967 | 67 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 28 | 121 | 6 | **-31** | 37 | **0** | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | **0** | **-1** | 4 | **-11** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 24-2. Fremont Weir Spills, Monthly Spills

### No Action Alternative 011319

| | Monthly Spills (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 301 | 7,187 | 24,201 | 44,517 | 14,376 | 1,904 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 75 | 2,202 | 9,905 | 14,249 | 4,769 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 53 | 505 | 4,192 | 6,128 | 2,111 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 23 | 138 | 907 | 3,893 | 1,029 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 5 | 91 | 485 | 2,331 | 296 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 20 | 202 | 910 | 144 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 8 | 37 | 336 | 82 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 15 | 93 | 15 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 4 | 40 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 18 | 375 | 3,007 | 8,766 | 12,004 | 6,631 | 1,213 | 51 | 7 | 0 | 0 | 0 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 0 | 478 | 4,305 | 24,513 | 28,643 | 17,559 | 3,706 | 161 | 22 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 807 | 1,037 | 5,129 | 13,268 | 5,785 | 184 | 1 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 136 | 23 | 2,233 | 354 | 3,020 | 241 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 377 | 4,792 | 455 | 1,510 | 443 | 38 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | 2 | 66 | 150 | 308 | 42 | 0 | 0 | 0 | 0 | 0 | 0 |

### Alternative 2 021719

| | Monthly Spills (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 460 | 9,299 | 29,758 | 45,403 | 15,307 | 1,847 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 35 | 2,242 | 9,985 | 12,633 | 4,478 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 14 | 579 | 4,207 | 7,368 | 2,355 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 1 | 158 | 1,249 | 4,380 | 891 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 85 | 631 | 2,321 | 347 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 18 | 220 | 941 | 145 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 4 | 34 | 310 | 81 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 13 | 69 | 18 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 5 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 8 | 399 | 3,383 | 8,973 | 12,374 | 6,740 | 1,213 | 51 | 7 | 0 | 0 | 0 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 0 | 493 | 5,661 | 25,076 | 29,195 | 17,742 | 3,706 | 161 | 22 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 981 | 1,073 | 5,195 | 14,318 | 6,111 | 179 | 1 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 56 | 21 | 2,144 | 494 | 3,439 | 306 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 344 | 4,594 | 454 | 1,406 | 404 | 37 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | 2 | 65 | 146 | 294 | 45 | 0 | 0 | 0 | 0 | 0 | 0 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Spills (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 159 | 2,113 | 5,557 | 886 | 931 | -57 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | -39 | 40 | 81 | -1,615 | -292 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | -39 | 74 | 15 | 1,240 | 244 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | -22 | 20 | 342 | 487 | -138 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | -5 | -6 | 146 | -10 | 51 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | -2 | 18 | 31 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | -3 | -3 | -25 | -1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | -2 | -25 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 1 | -5 | -1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -11 | 24 | 375 | 207 | 371 | 109 | -1 | 0 | 0 | 0 | 0 | 0 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 0 | 15 | 1,356 | 563 | 553 | 183 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 174 | 35 | 65 | 1,051 | 326 | -5 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | -80 | -2 | -89 | 139 | 420 | 65 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | -32 | -198 | -1 | -104 | -38 | -1 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | 0 | -1 | -4 | -14 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 24-3. Fremont Weir Spills, Monthly Spills

## No Action Alternative 011319

| | Monthly Spills (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 301 | 7,187 | 24,201 | 44,517 | 14,376 | 1,904 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 75 | 2,202 | 9,905 | 14,249 | 4,769 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 53 | 505 | 4,192 | 6,128 | 2,111 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 23 | 138 | 907 | 3,893 | 1,029 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 5 | 91 | 485 | 2,331 | 296 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 20 | 202 | 910 | 144 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 8 | 37 | 336 | 82 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 15 | 93 | 15 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 4 | 40 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 18 | 375 | 3,007 | 8,766 | 12,004 | 6,631 | 1,213 | 51 | 7 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 478 | 4,305 | 24,513 | 28,643 | 17,559 | 3,706 | 161 | 22 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 807 | 1,037 | 5,129 | 13,268 | 5,785 | 184 | 1 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 136 | 23 | 2,233 | 354 | 3,020 | 241 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 377 | 4,792 | 455 | 1,510 | 443 | 38 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | 2 | 66 | 150 | 308 | 42 | 0 | 0 | 0 | 0 | 0 | 0 |

## Alternative 3 021719

| | Monthly Spills (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 413 | 9,297 | 30,135 | 44,795 | 15,241 | 1,843 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 45 | 2,253 | 10,186 | 12,730 | 4,982 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 8 | 575 | 4,205 | 7,627 | 2,335 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 158 | 1,219 | 4,380 | 895 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 103 | 599 | 2,318 | 318 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 23 | 221 | 974 | 145 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 4 | 37 | 303 | 81 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 15 | 68 | 15 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 5 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7 | 386 | 3,380 | 8,968 | 12,344 | 6,763 | 1,213 | 51 | 7 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 492 | 5,714 | 25,071 | 29,104 | 17,783 | 3,706 | 162 | 22 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 962 | 1,129 | 5,185 | 14,288 | 6,172 | 179 | 1 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 53 | 22 | 2,129 | 484 | 3,475 | 307 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 306 | 4,489 | 453 | 1,406 | 404 | 37 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | 2 | 64 | 149 | 289 | 44 | 0 | 0 | 0 | 0 | 0 | 0 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Spills (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 112 | 2,111 | 5,934 | 278 | 866 | **-61** | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | **-29** | 51 | 281 | **-1,518** | 213 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | **-45** | 70 | 13 | 1,499 | 225 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | **-23** | 20 | 312 | 487 | **-134** | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | **-5** | 12 | 115 | **-13** | 22 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | **0** | 3 | 19 | 64 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | **-3** | **0** | **-33** | **-1** | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 1 | **-25** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 1 | **-4** | **-1** | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-11** | 12 | 373 | 202 | 341 | 132 | **-1** | 0 | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 14 | 1,408 | 558 | 461 | 225 | 0 | 1 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 155 | 92 | 56 | 1,020 | 386 | **-5** | **0** | 0 | 0 | 0 | 0 |
| Below Normal (13%) | **-83** | **0** | **-104** | 129 | 455 | 66 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | **-71** | **-303** | **-2** | **-104** | **-39** | **-1** | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | **0** | **-1** | **-1** | **-19** | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 24-4. Fremont Weir Spills, Monthly Spills

### No Action Alternative 011319

| | Monthly Spills (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 301 | 7,187 | 24,201 | 44,517 | 14,376 | 1,904 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 75 | 2,202 | 9,905 | 14,249 | 4,769 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 53 | 505 | 4,192 | 6,128 | 2,111 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 23 | 138 | 907 | 3,893 | 1,029 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 5 | 91 | 485 | 2,331 | 296 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 20 | 202 | 910 | 144 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 8 | 37 | 336 | 82 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 15 | 93 | 15 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 4 | 40 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 18 | 375 | 3,007 | 8,766 | 12,004 | 6,631 | 1,213 | 51 | 7 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 478 | 4,305 | 24,513 | 28,643 | 17,559 | 3,706 | 161 | 22 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 807 | 1,037 | 5,129 | 13,268 | 5,785 | 184 | 1 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 136 | 23 | 2,233 | 354 | 3,020 | 241 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 377 | 4,792 | 455 | 1,510 | 443 | 38 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | 2 | 66 | 150 | 308 | 42 | 0 | 0 | 0 | 0 | 0 | 0 |

### Alternative 4 043019

| | Monthly Spills (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 525 | 8,918 | 30,187 | 45,049 | 15,528 | 2,001 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 46 | 3,158 | 10,085 | 14,197 | 5,000 | 10 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 8 | 681 | 4,141 | 8,270 | 2,468 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 163 | 1,451 | 4,420 | 1,338 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 102 | 754 | 2,693 | 405 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 23 | 288 | 1,176 | 210 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 3 | 65 | 542 | 111 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 24 | 111 | 18 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 6 | 32 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 49 | 409 | 3,546 | 9,273 | 12,469 | 6,901 | 1,232 | 42 | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 494 | 5,673 | 25,843 | 29,072 | 17,981 | 3,721 | 131 | 1 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 855 | 1,244 | 5,292 | 14,246 | 6,311 | 247 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 368 | 23 | 2,300 | 716 | 3,913 | 474 | 17 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 463 | 5,047 | 488 | 1,719 | 524 | 43 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | 2 | 68 | 172 | 333 | 49 | 0 | 0 | 0 | 0 | 0 | 0 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Spills (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 224 | 1,731 | 5,986 | 532 | 1,152 | 97 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | **-28** | 956 | 180 | **-52** | 231 | 10 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | **-45** | 176 | **-51** | 2,142 | 357 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | **-22** | 25 | 544 | 527 | 309 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | **-5** | 11 | 269 | 362 | 109 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | **0** | 3 | 86 | 265 | 66 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | **-4** | 28 | 206 | 29 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 10 | 17 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 2 | **-8** | 7 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 31 | 34 | 538 | 507 | 466 | 270 | 18 | **-10** | **-7** | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 16 | 1,368 | 1,330 | 429 | 422 | 15 | **-30** | **-21** | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 49 | 207 | 163 | 978 | 526 | 62 | **-1** | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 232 | 1 | 67 | 362 | 894 | 233 | 17 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 86 | 255 | 32 | 209 | 82 | 5 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | **0** | 3 | 22 | 25 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

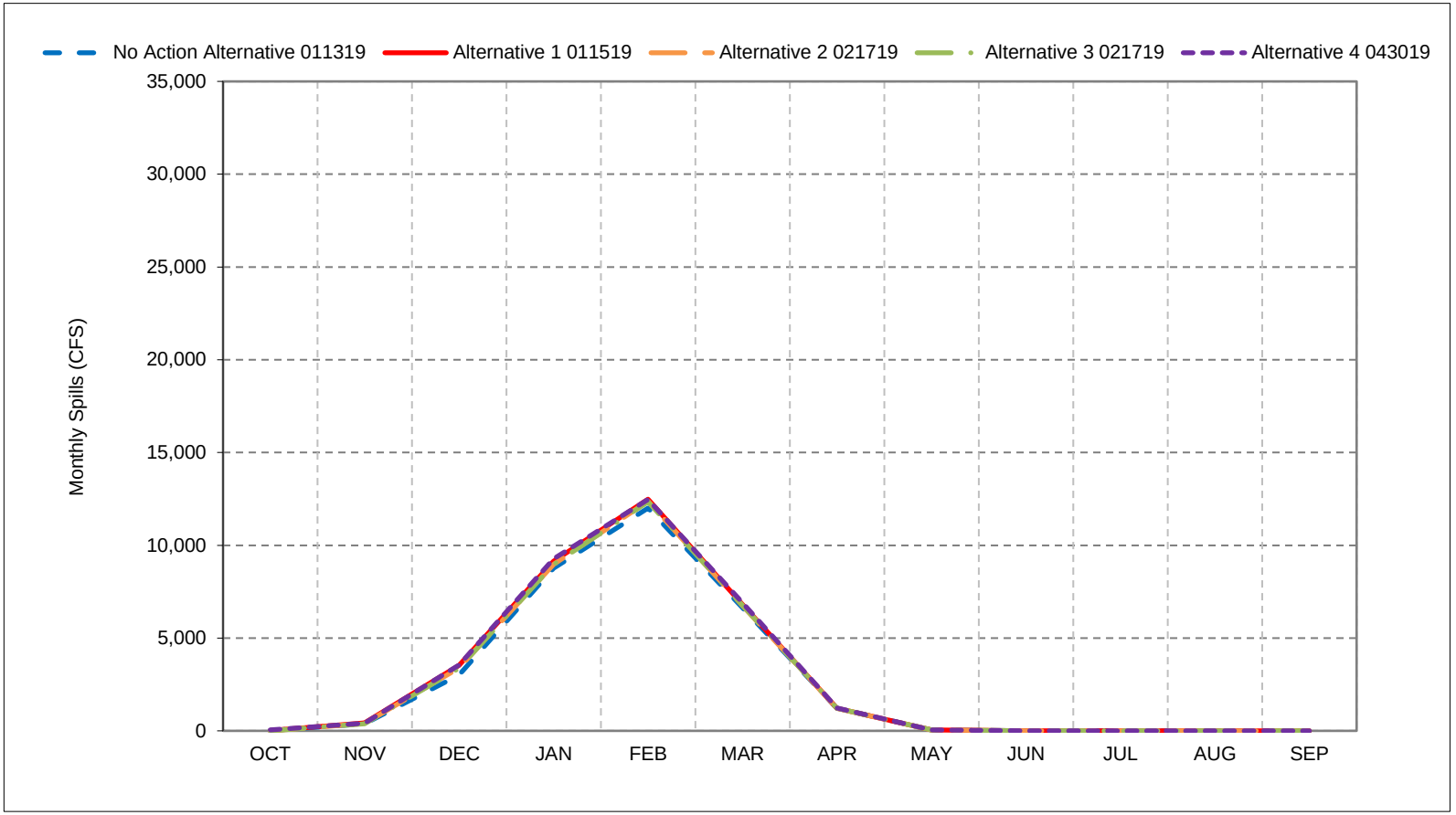
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

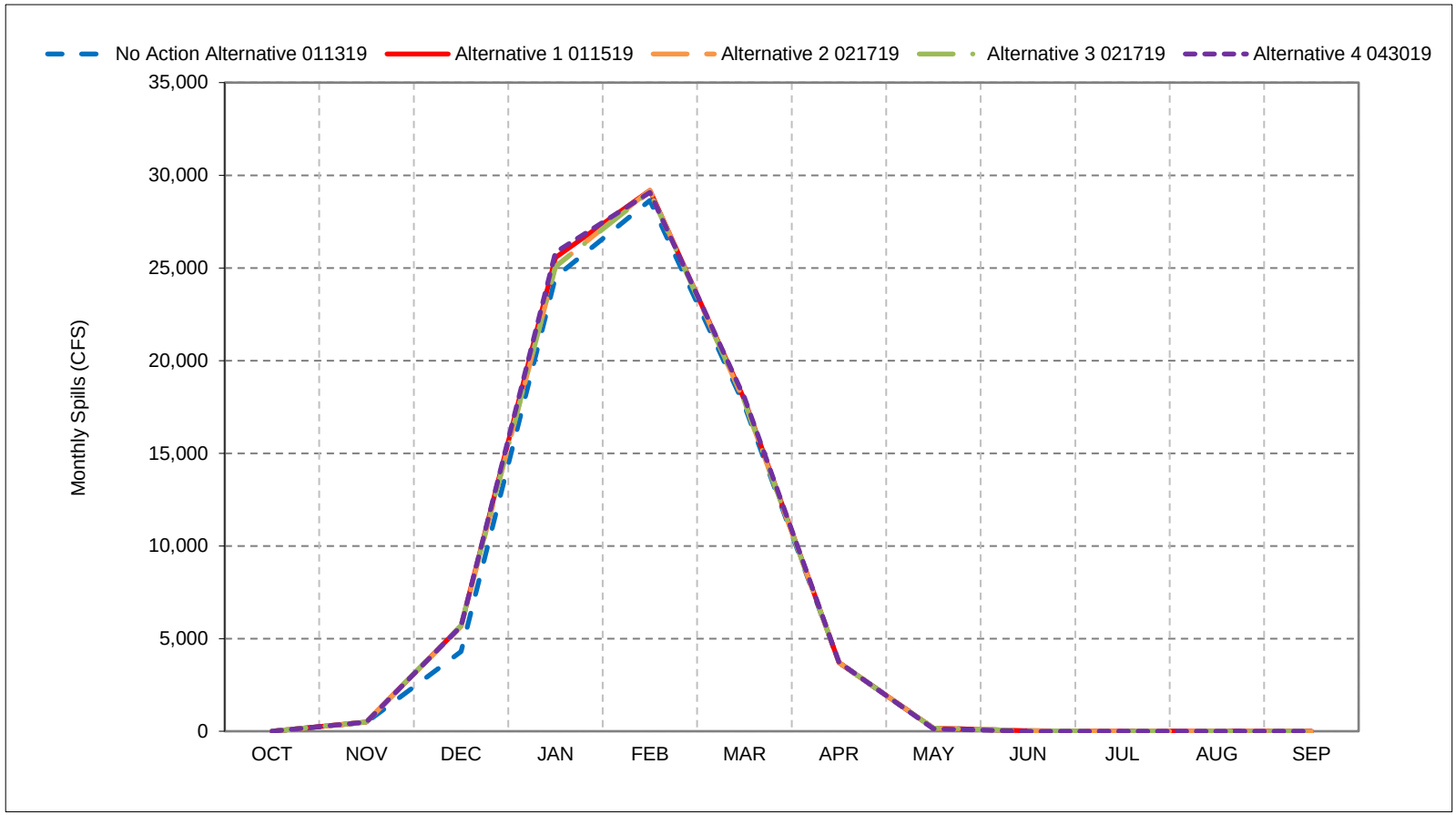
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 24-1. Fremont Weir Spills, Long-Term Average Spills



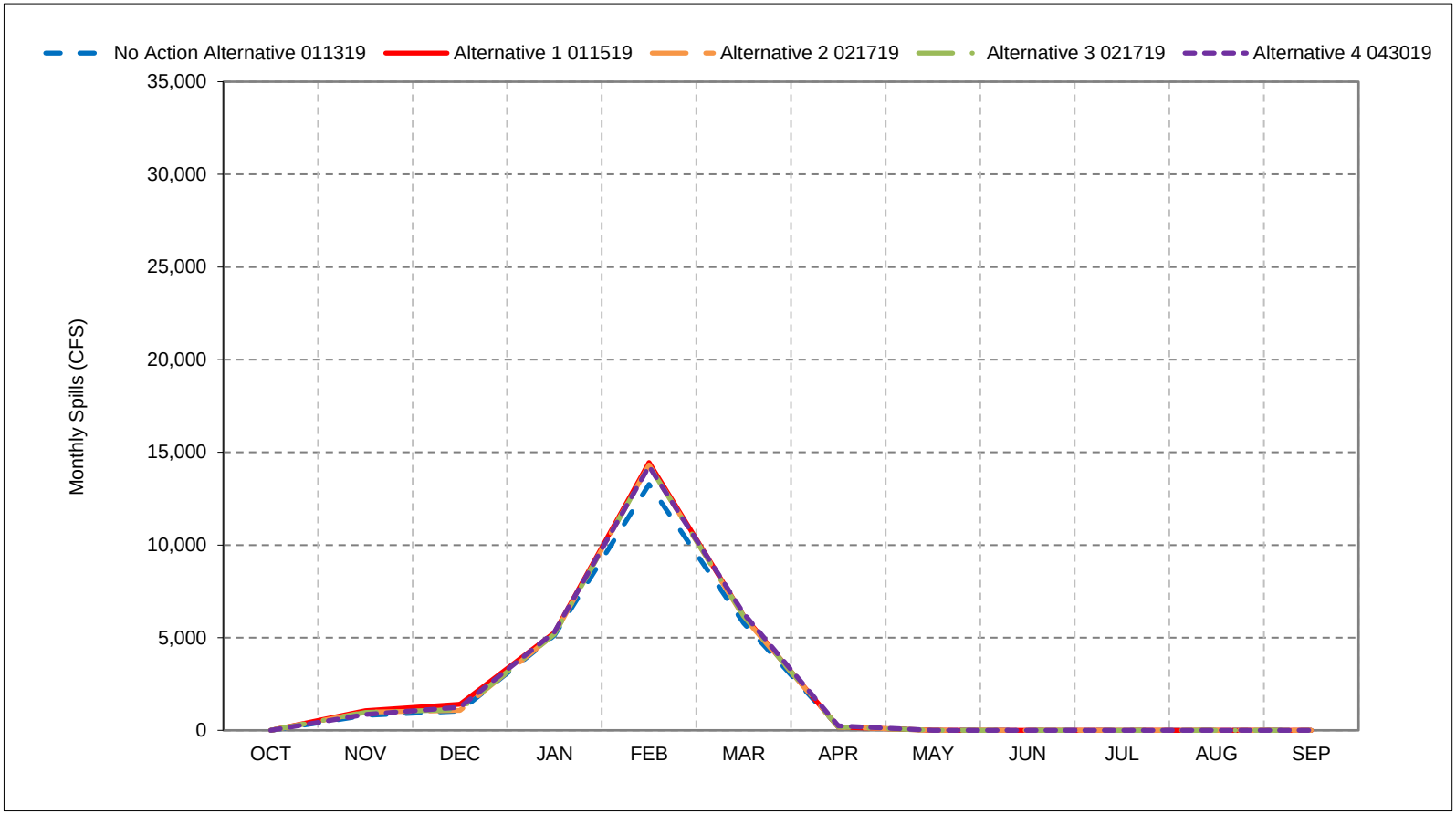

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 24-2. Fremont Weir Spills, Wet Year Average Spills



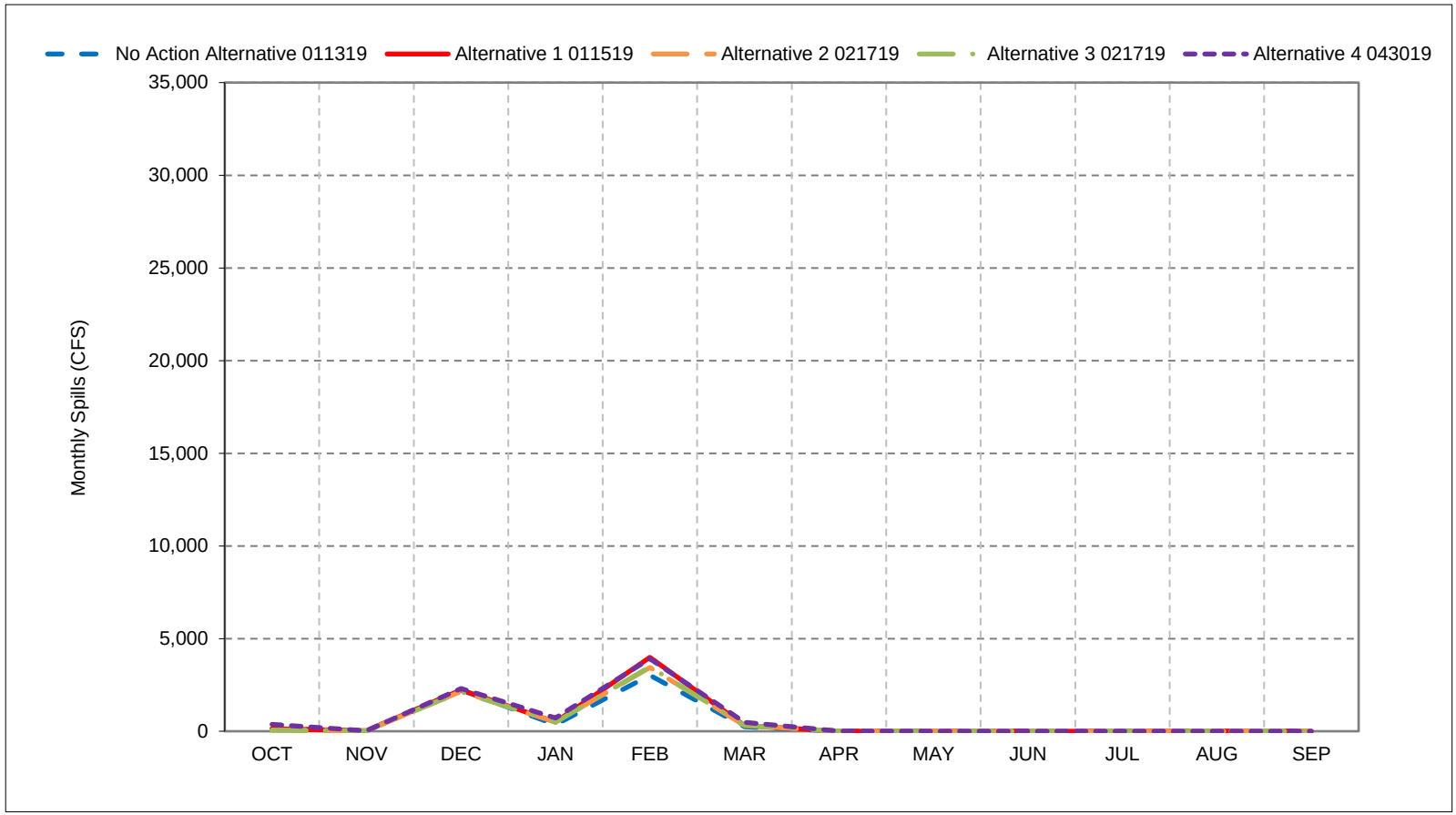

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 24-3. Fremont Weir Spills, Above Normal Year Average Spills



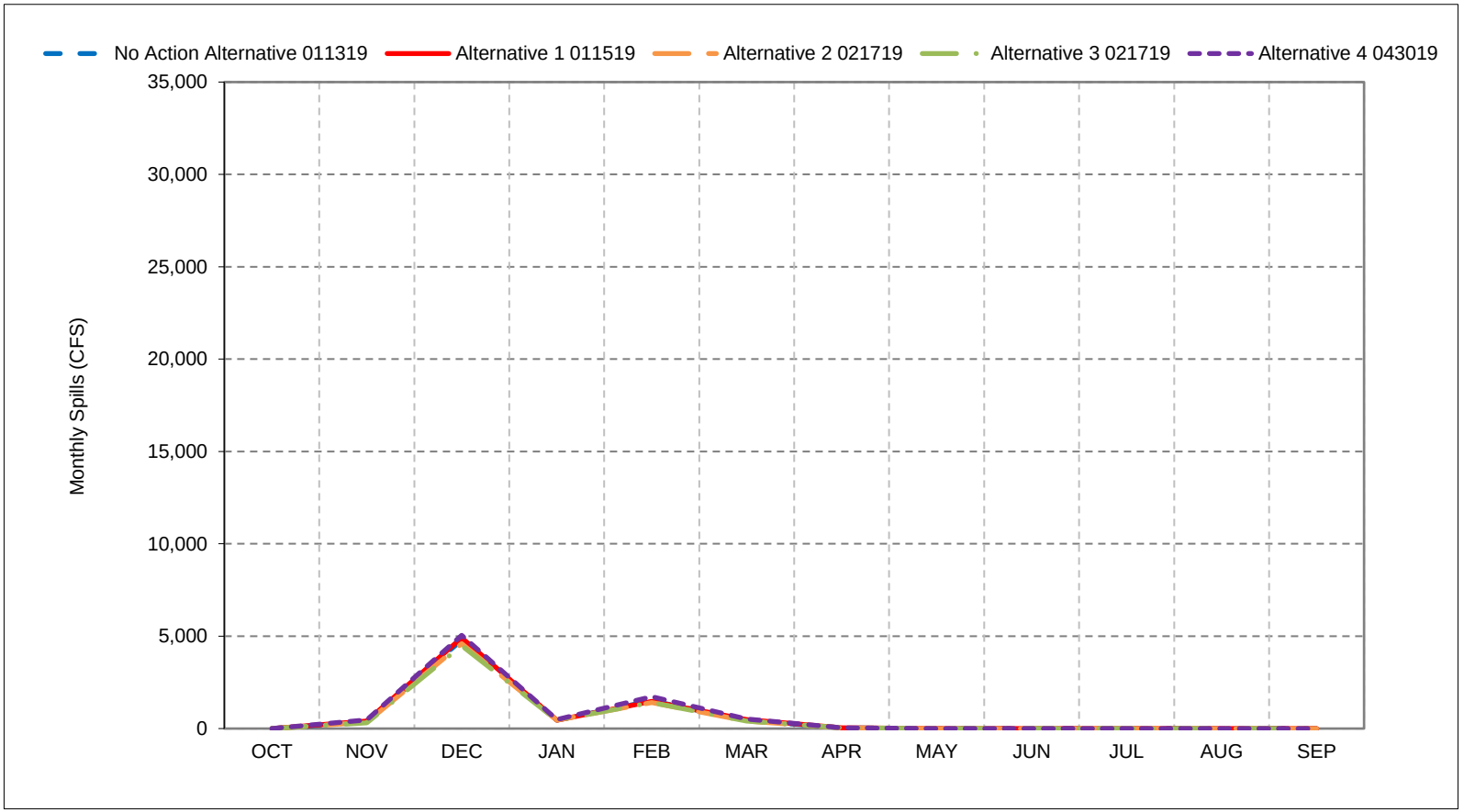

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 24-4. Fremont Weir Spills, Below Normal Year Average Spills



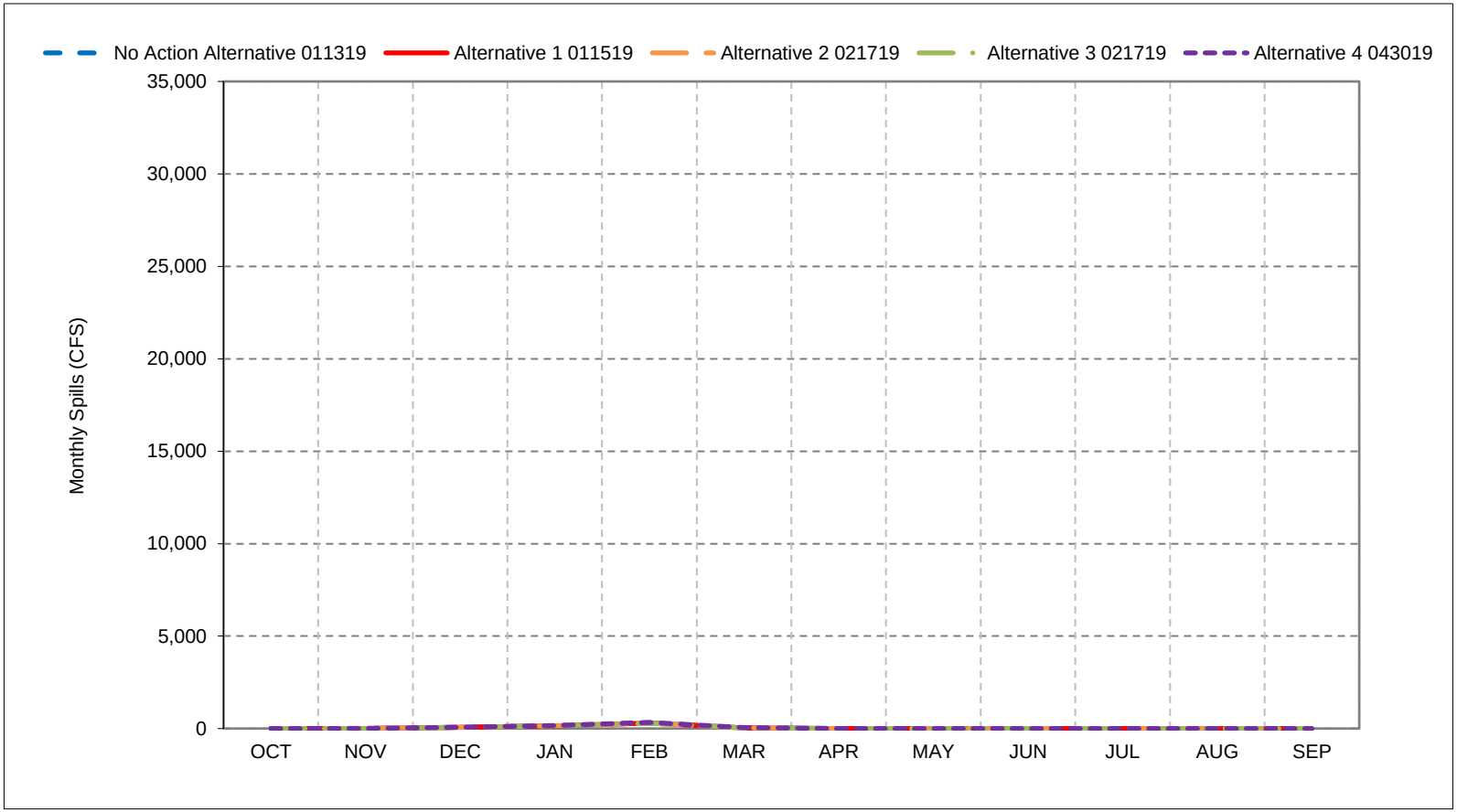

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 24-5. Fremont Weir Spills, Dry Year Average Spills



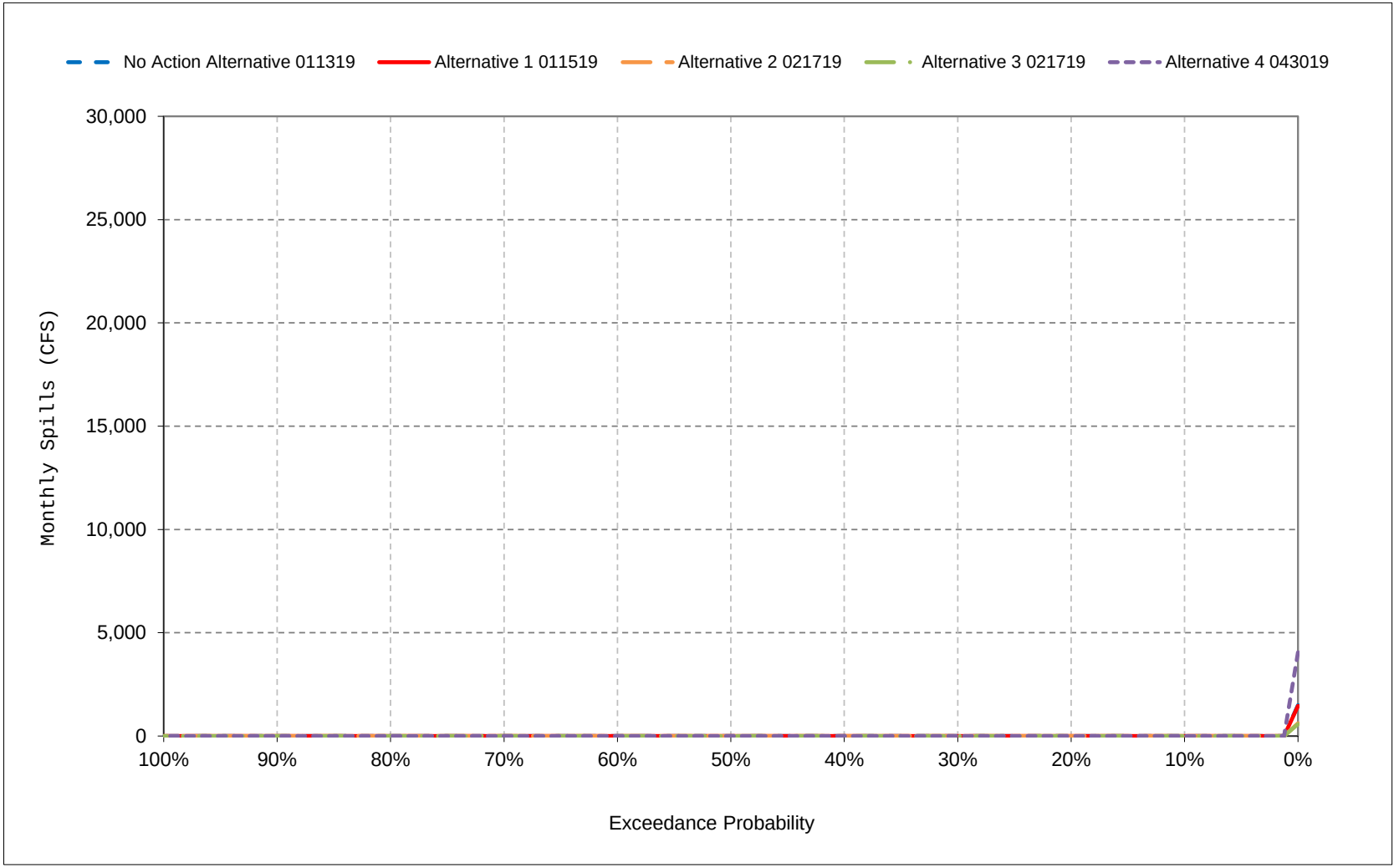

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 24-6. Fremont Weir Spills, Critical Year Average Spills




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

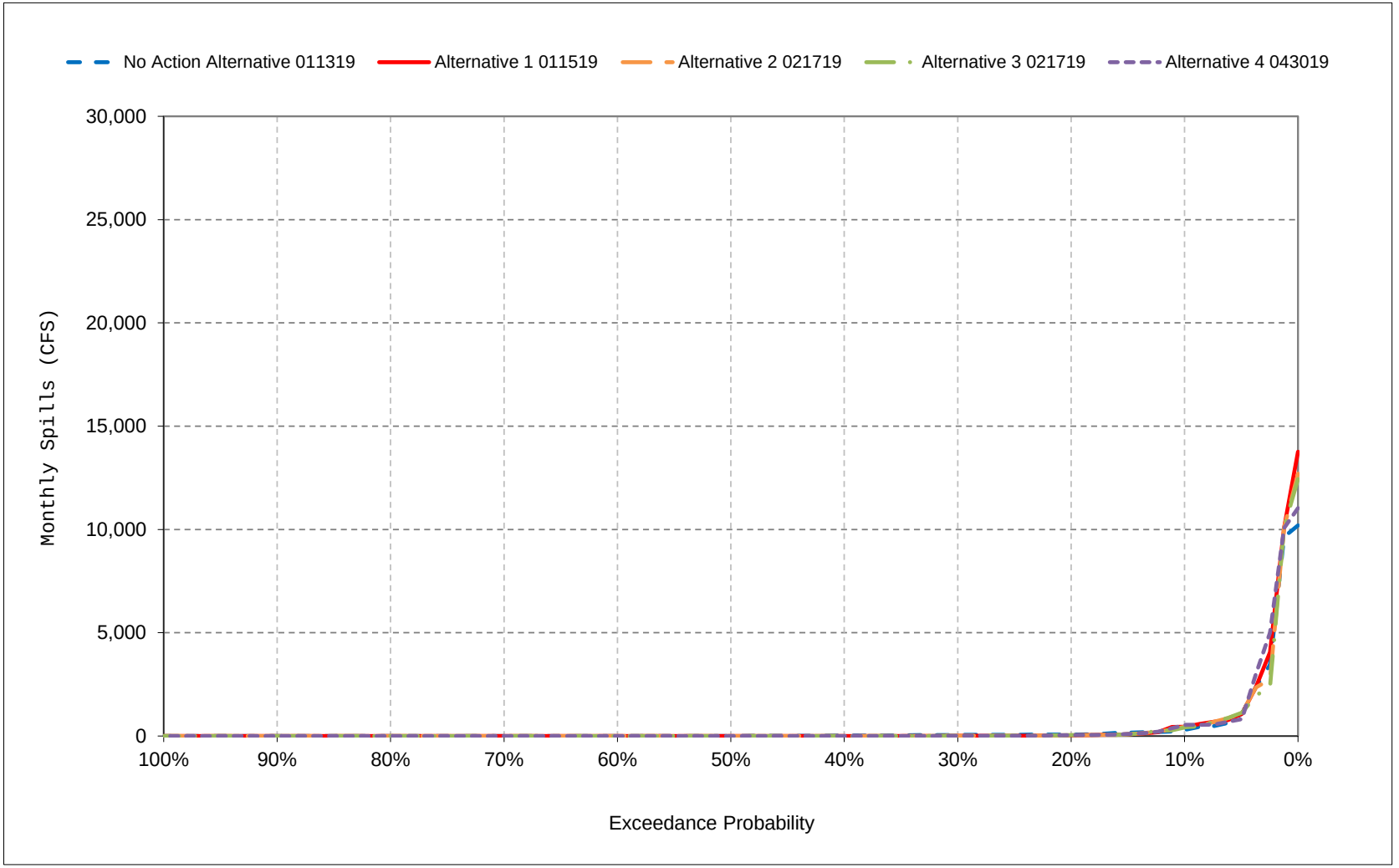
**Figure 24-7. Fremont Weir Spills, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

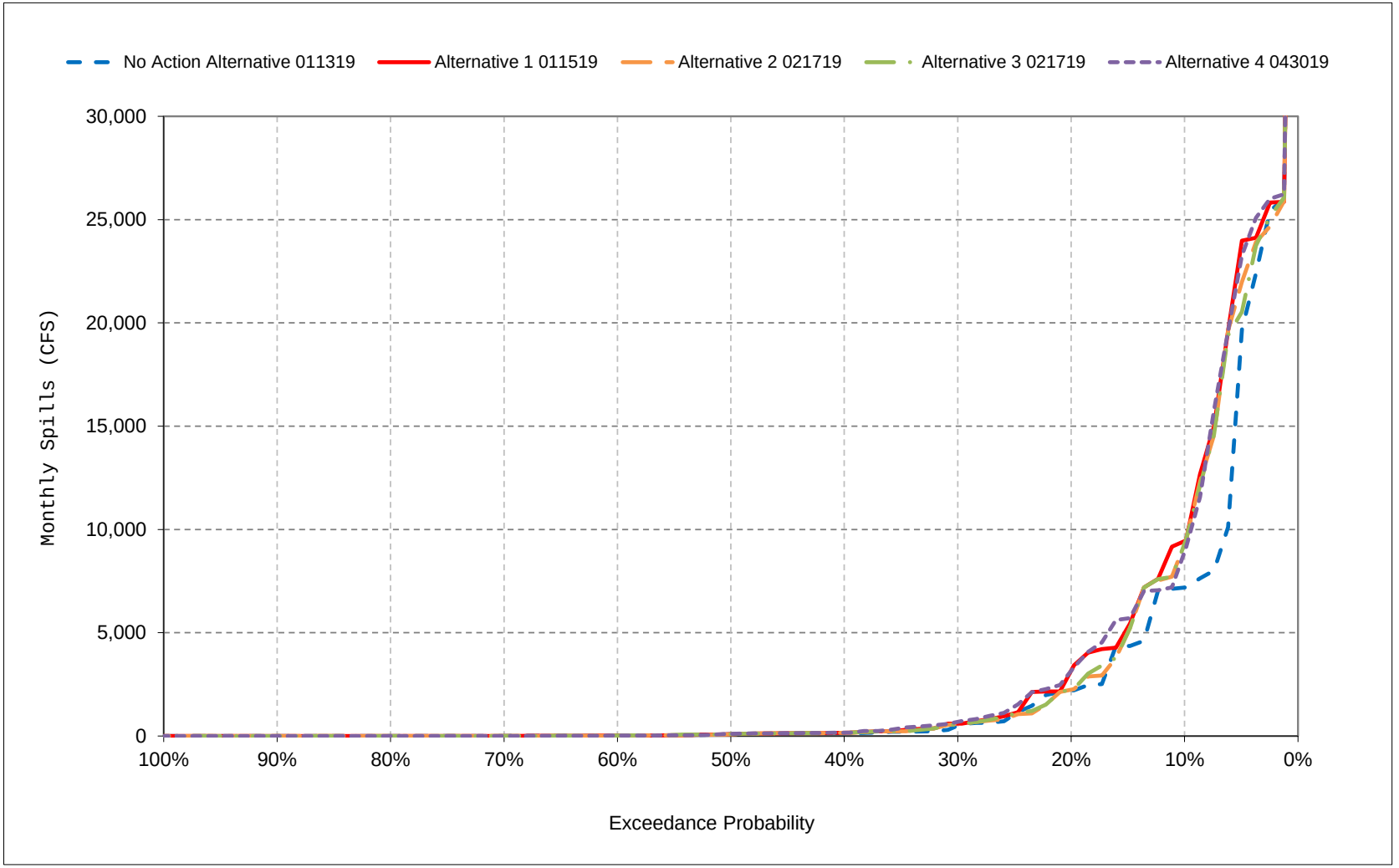
**Figure 24-8. Fremont Weir Spills, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

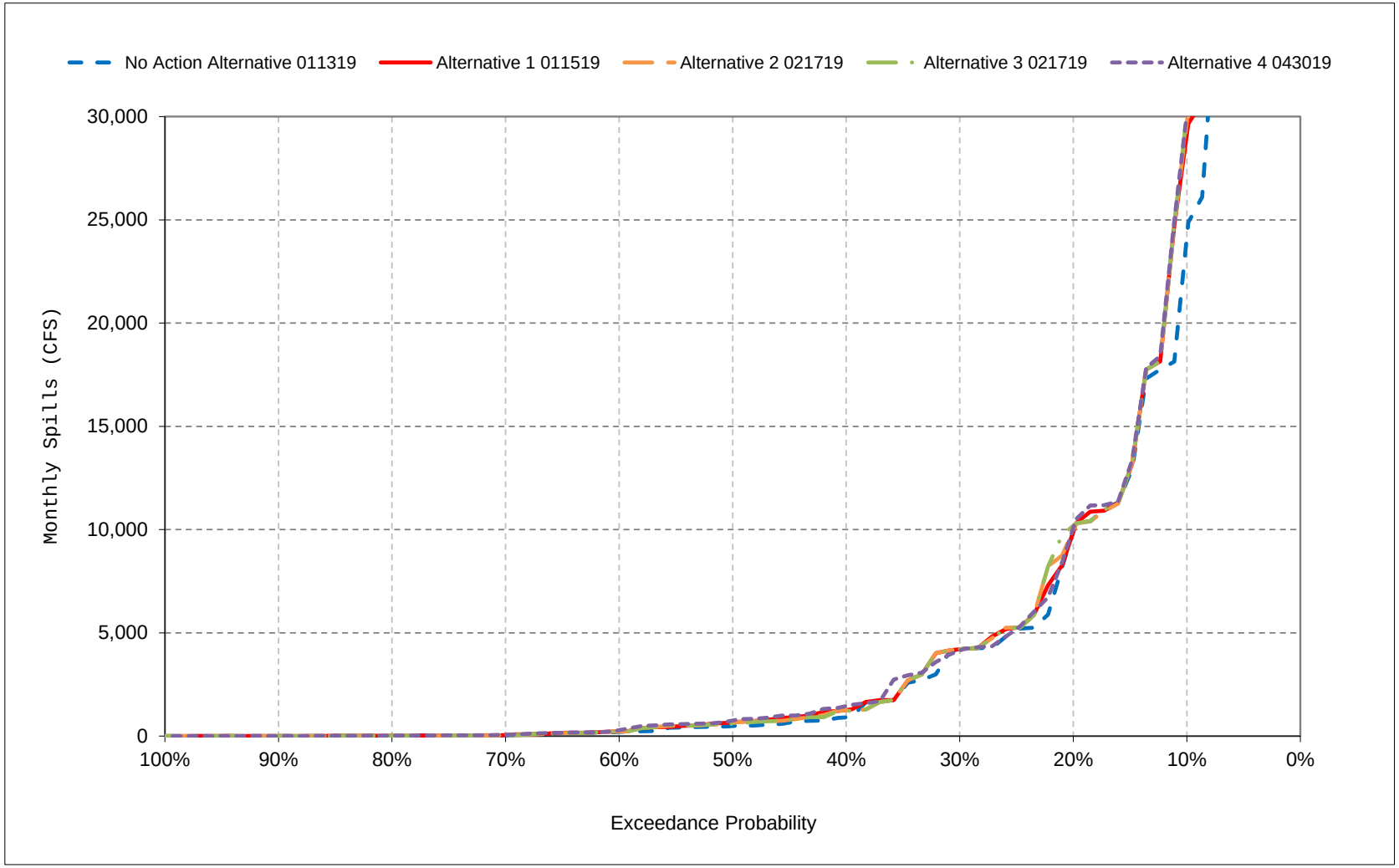
**Figure 24-9. Fremont Weir Spills, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

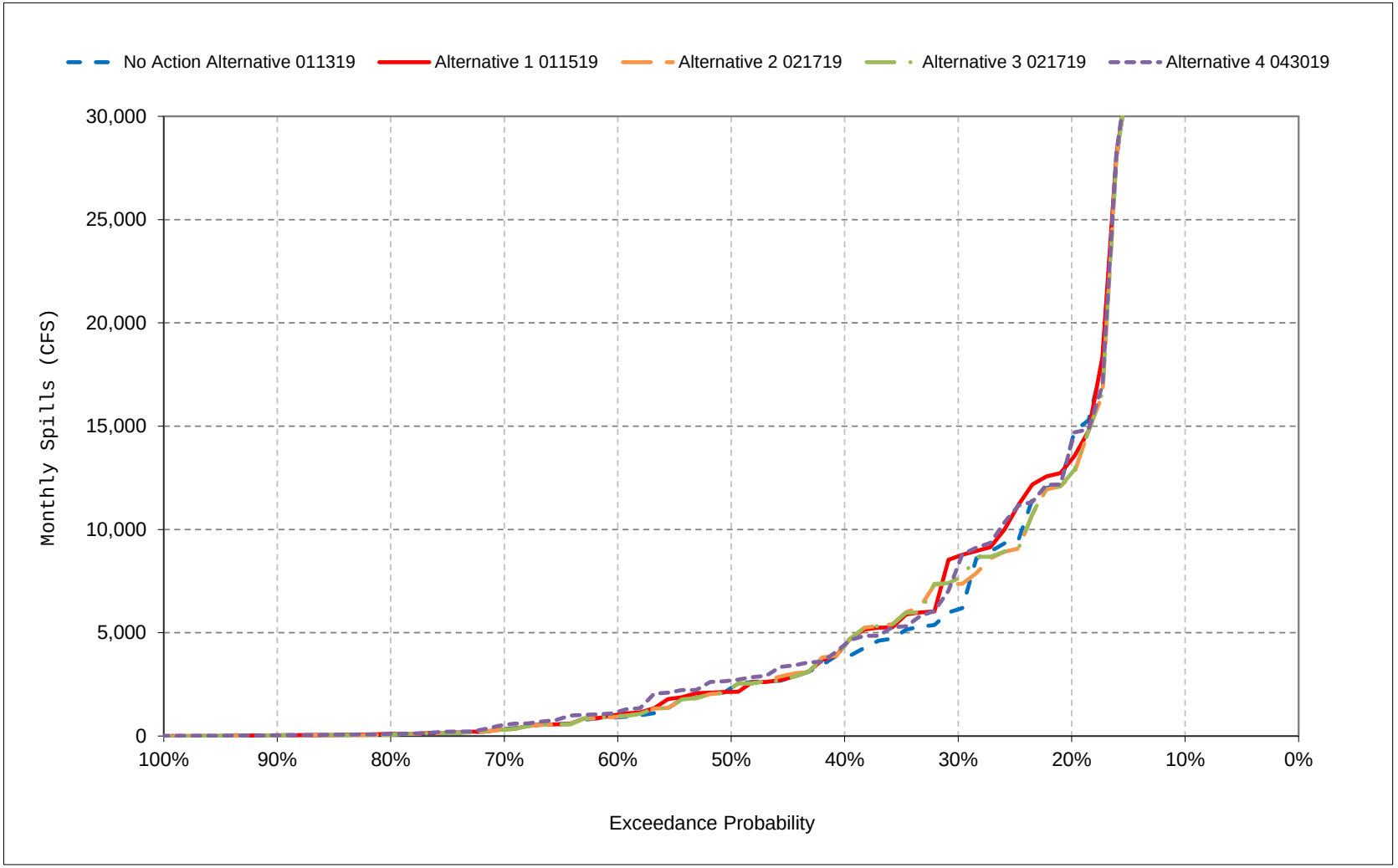
**Figure 24-10. Fremont Weir Spills, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

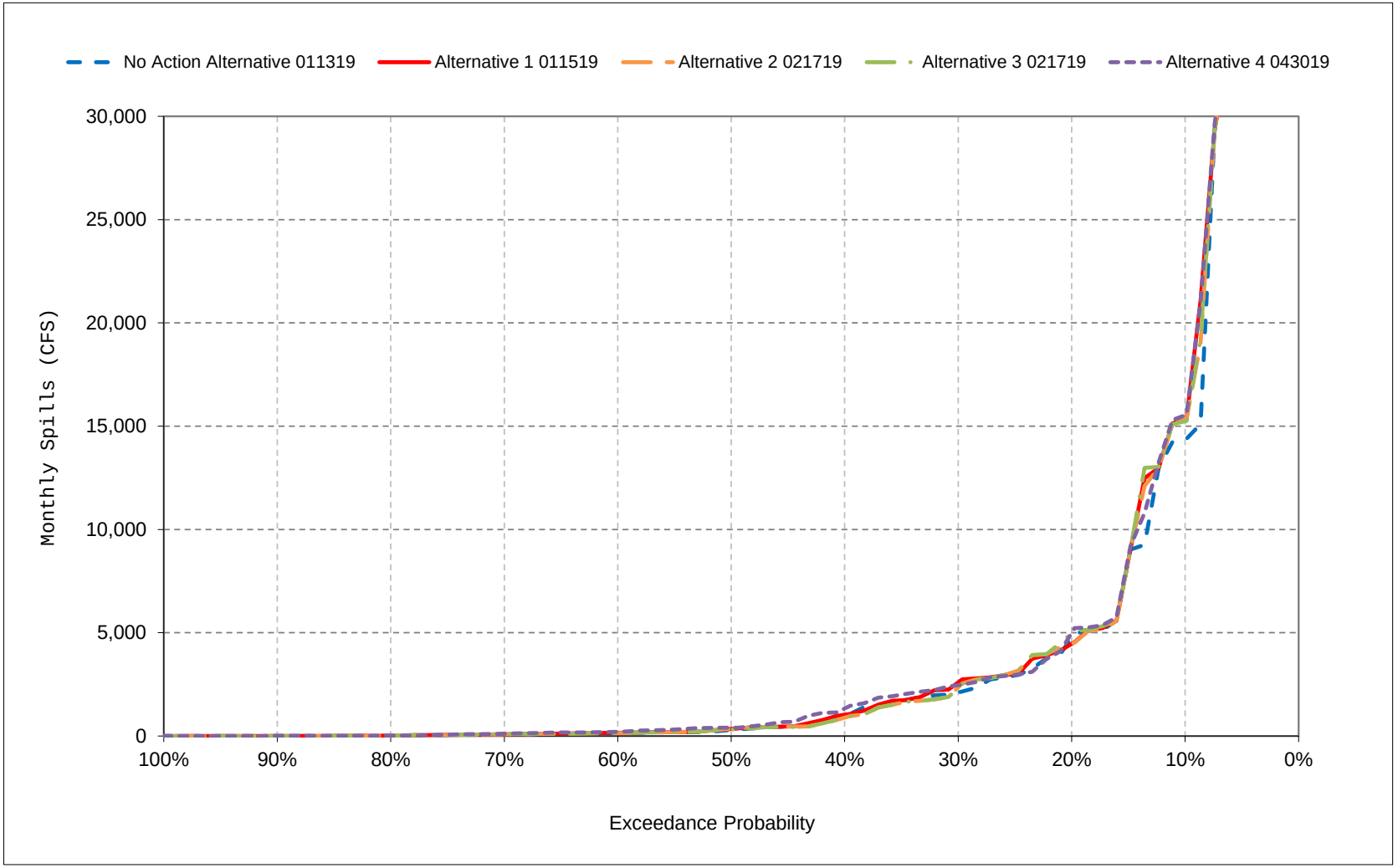
**Figure 24-11. Fremont Weir Spills, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

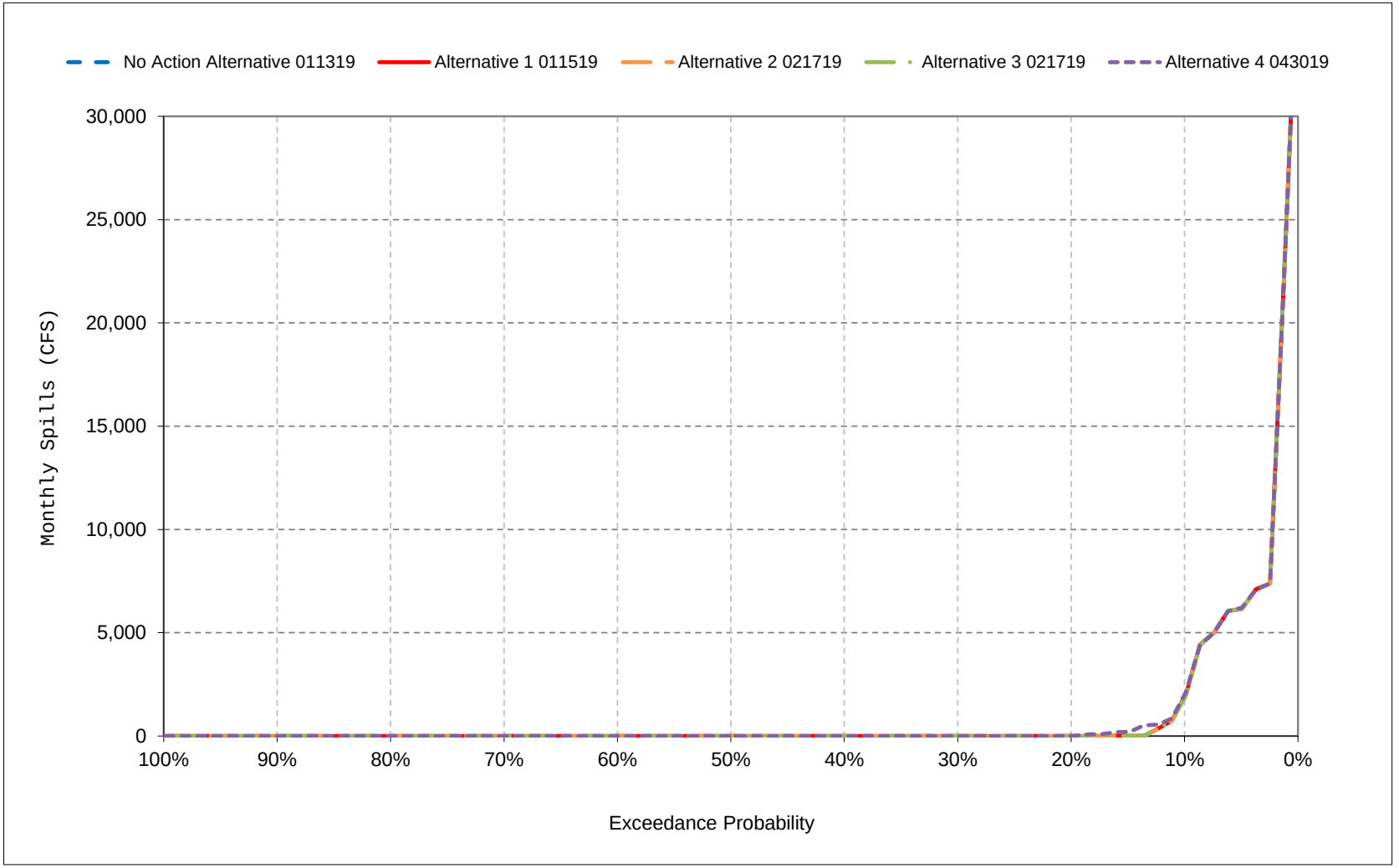
**Figure 24-12. Fremont Weir Spills, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

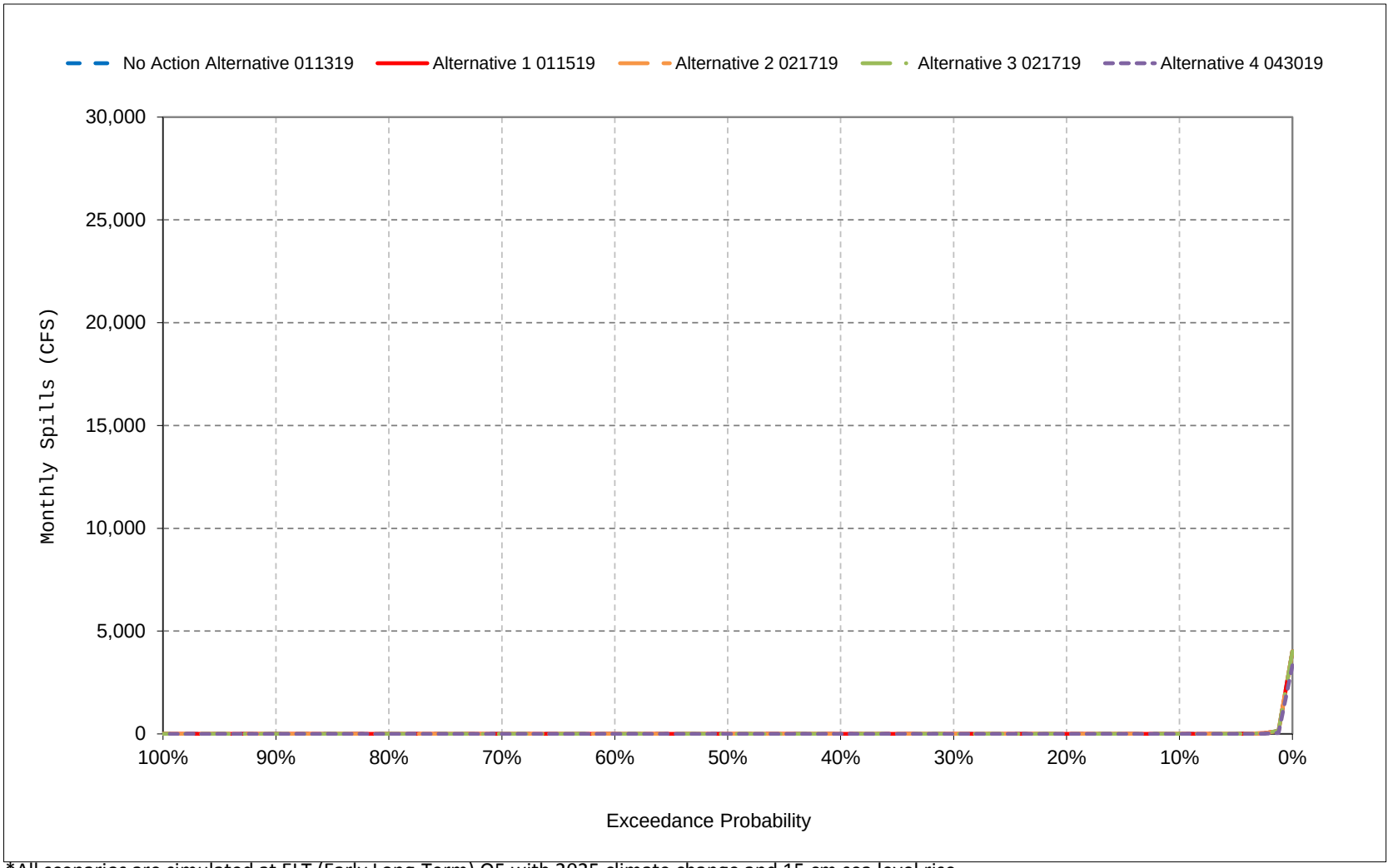
**Figure 24-13. Fremont Weir Spills, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

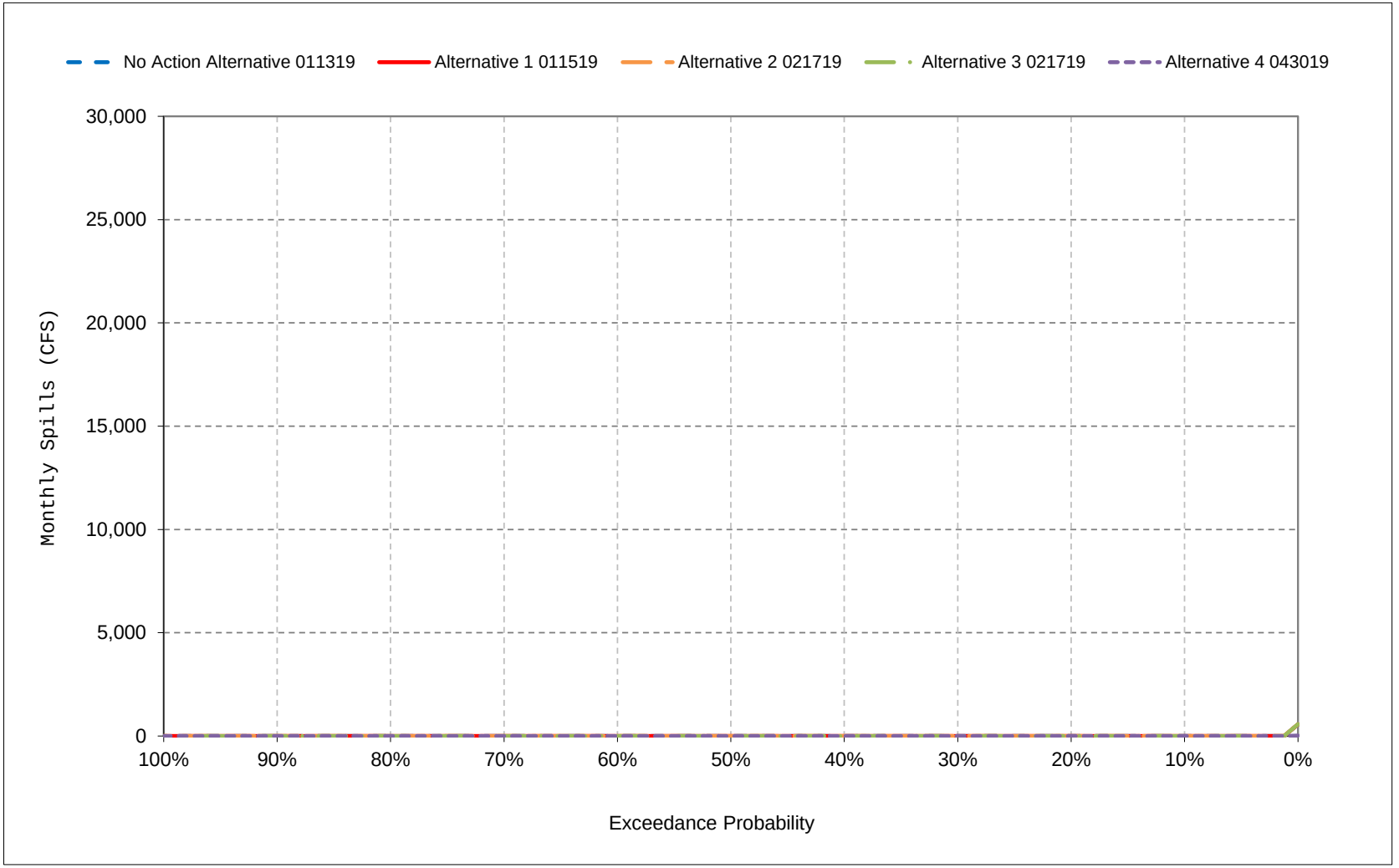
**Figure 24-14. Fremont Weir Spills, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

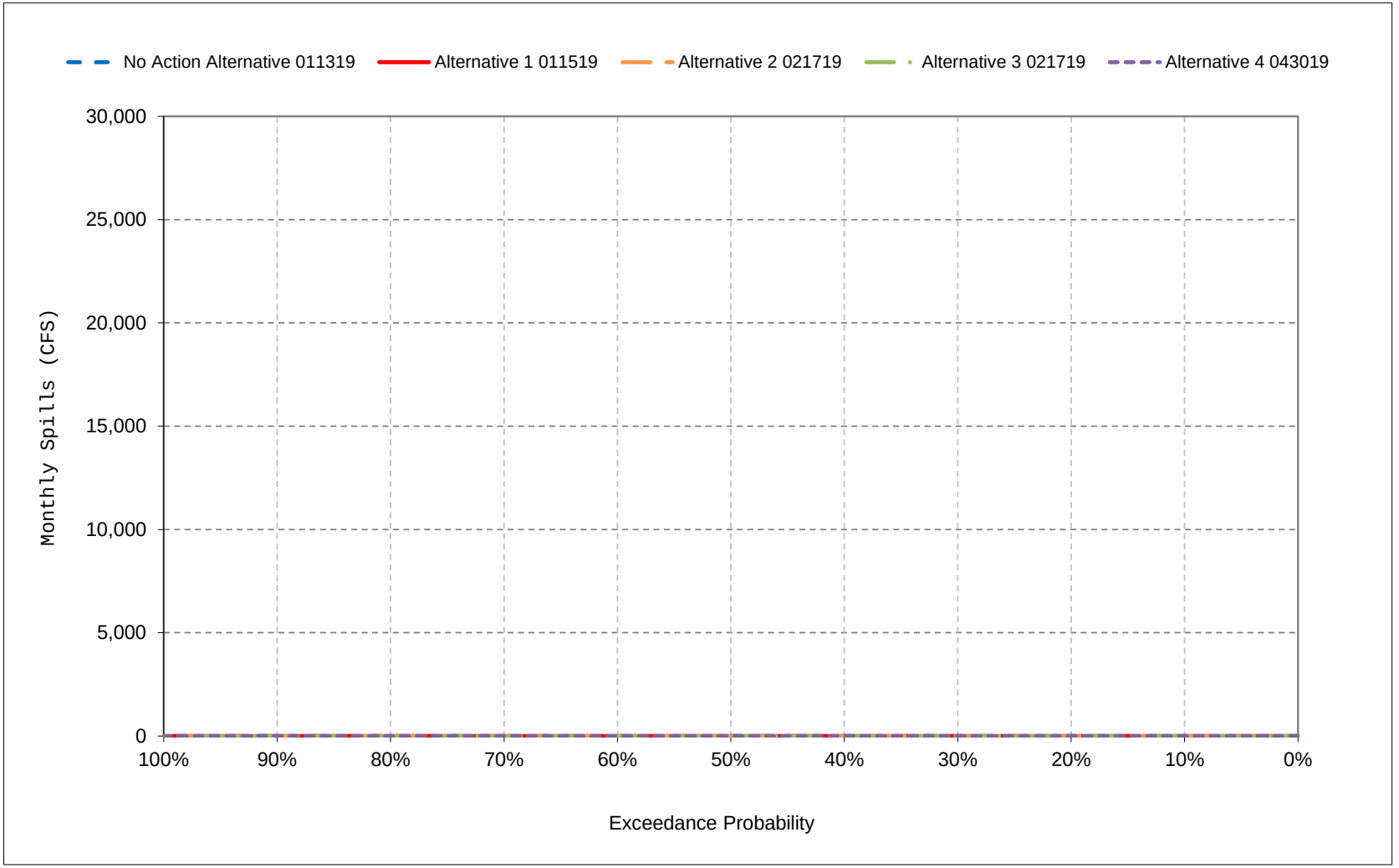
**Figure 24-15. Fremont Weir Spills, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

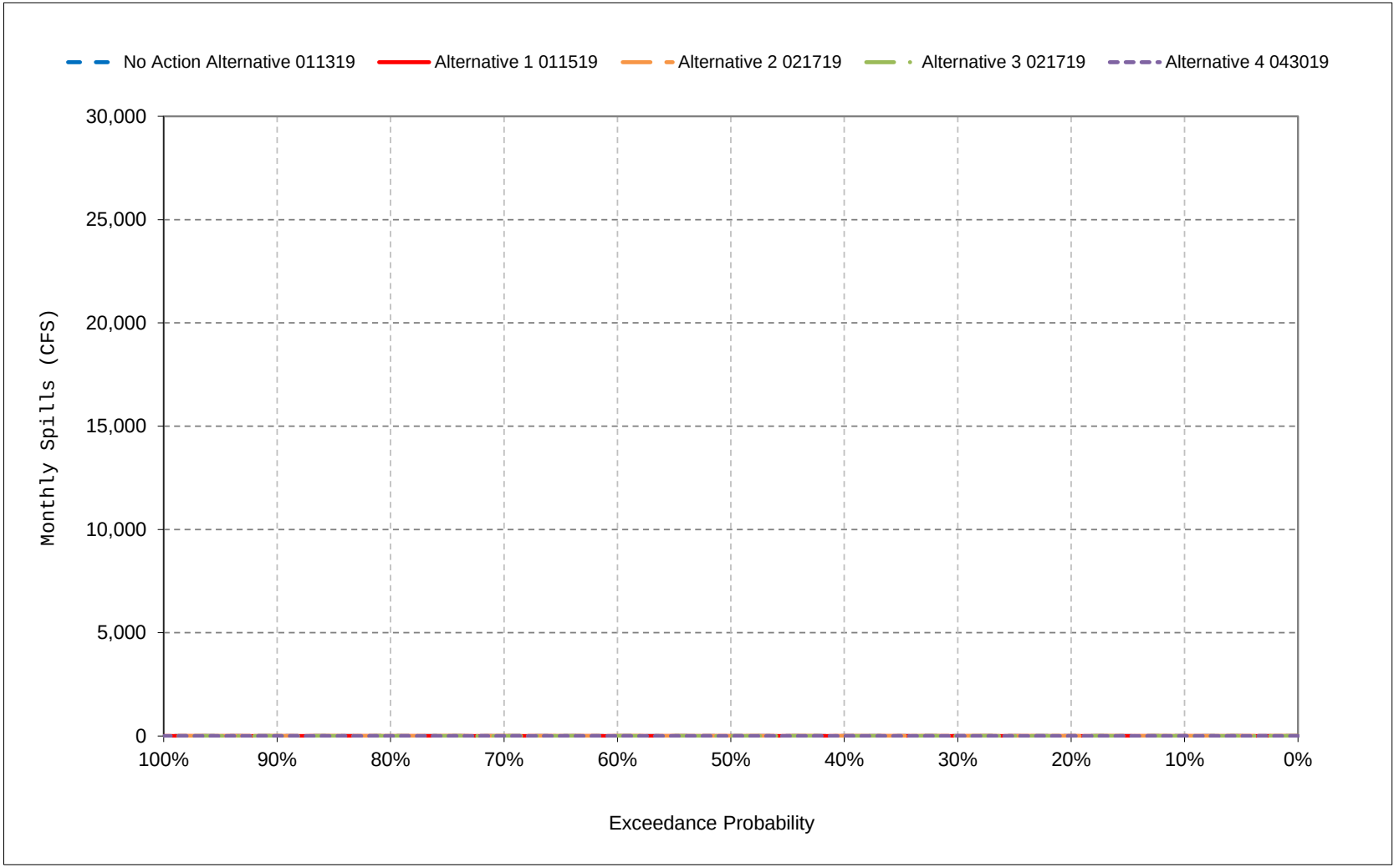
**Figure 24-16. Fremont Weir Spills, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

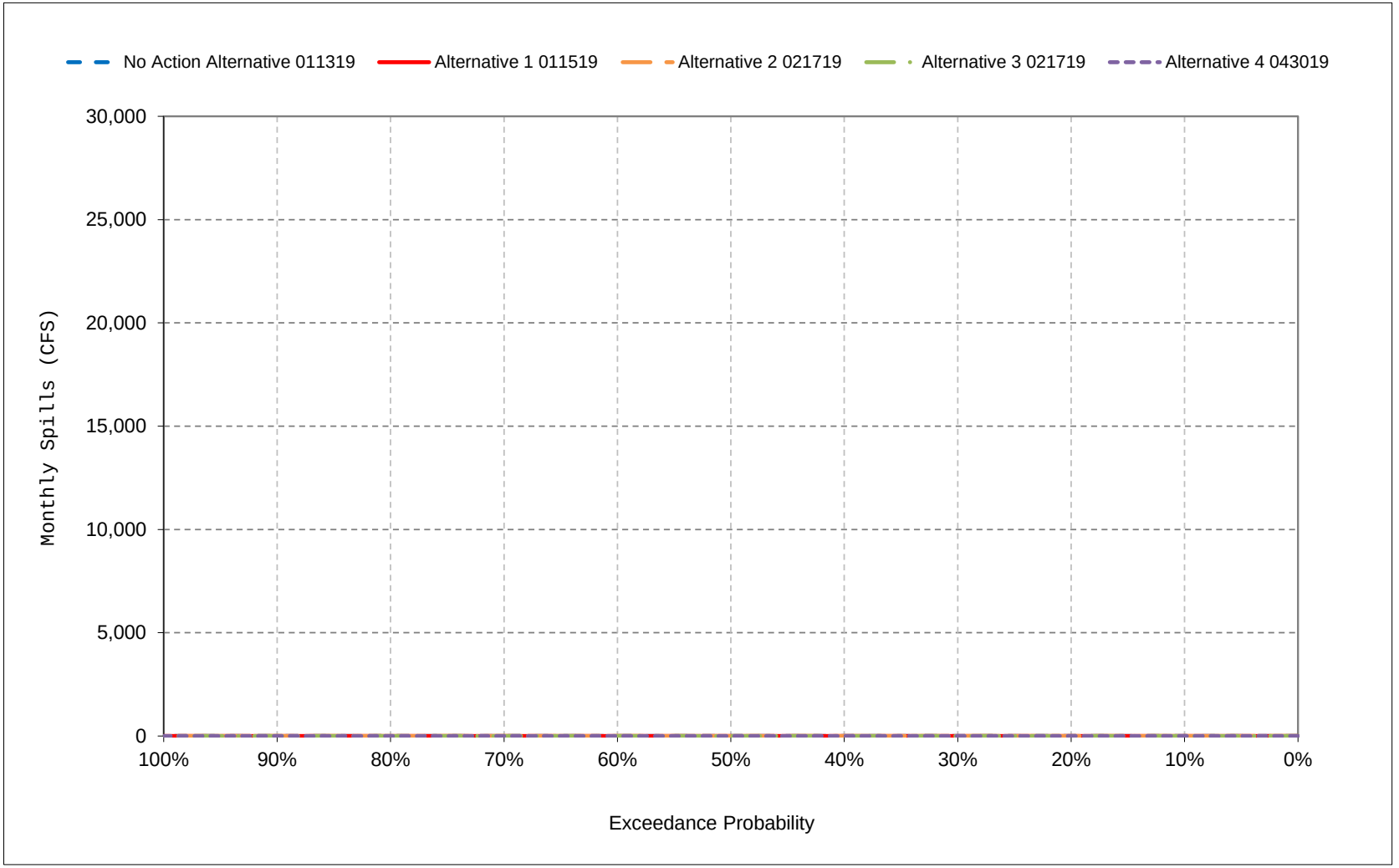
**Figure 24-17. Fremont Weir Spills, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 24-18. Fremont Weir Spills, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 25-1. Yolo Bypass Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 63 | 809 | 11,129 | 34,648 | 52,391 | 18,726 | 7,044 | 243 | 68 | 48 | 183 | 247 |
| 20% | 61 | 183 | 4,918 | 14,959 | 20,814 | 8,859 | 3,162 | 78 | 68 | 48 | 55 | 125 |
| 30% | 58 | 82 | 1,543 | 7,015 | 11,267 | 4,861 | 1,068 | 73 | 68 | 48 | 55 | 59 |
| 40% | 53 | 58 | 462 | 3,161 | 6,859 | 2,901 | 229 | 70 | 68 | 48 | 55 | 59 |
| 50% | 45 | 33 | 293 | 901 | 4,170 | 1,135 | 135 | 68 | 67 | 48 | 55 | 59 |
| 60% | 40 | 18 | 138 | 490 | 1,552 | 437 | 111 | 65 | 67 | 48 | 55 | 59 |
| 70% | 29 | 9 | 51 | 273 | 580 | 187 | 88 | 63 | 66 | 48 | 55 | 58 |
| 80% | 16 | 5 | 18 | 76 | 184 | 90 | 78 | 59 | 64 | 48 | 55 | 56 |
| 90% | 4 | 0 | 1 | 37 | 68 | 37 | 56 | 53 | 62 | 48 | 54 | 52 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 124 | 552 | 4,394 | 11,835 | 15,819 | 9,271 | 2,651 | 210 | 88 | 48 | 101 | 115 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 86 | 746 | 5,586 | 31,695 | 36,486 | 23,473 | 6,899 | 453 | 135 | 48 | 147 | 209 |
| Above Normal (16%) | 38 | 927 | 1,909 | 8,363 | 17,697 | 8,800 | 1,823 | 185 | 66 | 48 | 92 | 65 |
| Below Normal (13%) | 556 | 117 | 3,567 | 927 | 4,807 | 657 | 234 | 69 | 66 | 48 | 130 | 92 |
| Dry (24%) | 40 | 610 | 7,304 | 1,097 | 2,875 | 1,223 | 522 | 75 | 67 | 48 | 61 | 70 |
| Critical (15%) | 42 | 29 | 410 | 465 | 671 | 320 | 105 | 67 | 65 | 48 | 55 | 61 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 63 | 857 | 13,922 | 37,216 | 52,602 | 24,480 | 7,044 | 243 | 68 | 48 | 160 | 127 |
| 20% | 61 | 159 | 5,783 | 15,734 | 21,983 | 8,877 | 3,162 | 78 | 68 | 48 | 55 | 59 |
| 30% | 58 | 62 | 1,649 | 7,148 | 11,557 | 5,312 | 1,068 | 73 | 68 | 48 | 55 | 59 |
| 40% | 53 | 36 | 463 | 3,255 | 9,181 | 2,933 | 229 | 70 | 68 | 48 | 55 | 59 |
| 50% | 45 | 10 | 283 | 1,469 | 4,067 | 1,251 | 135 | 68 | 67 | 48 | 55 | 59 |
| 60% | 39 | 8 | 163 | 523 | 2,182 | 469 | 111 | 65 | 67 | 48 | 55 | 59 |
| 70% | 29 | 5 | 51 | 284 | 576 | 240 | 88 | 63 | 66 | 48 | 55 | 57 |
| 80% | 15 | 2 | 20 | 93 | 213 | 104 | 78 | 59 | 64 | 48 | 55 | 55 |
| 90% | 4 | 0 | 0 | 19 | 67 | 45 | 56 | 53 | 62 | 48 | 54 | 52 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 88 | 608 | 4,980 | 12,251 | 16,336 | 9,480 | 2,650 | 211 | 88 | 48 | 101 | 71 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 86 | 794 | 7,054 | 32,787 | 37,029 | 23,784 | 6,900 | 453 | 135 | 48 | 147 | 73 |
| Above Normal (16%) | 38 | 1,165 | 2,294 | 8,573 | 18,973 | 9,220 | 1,822 | 185 | 66 | 48 | 92 | 65 |
| Below Normal (13%) | 298 | 116 | 3,551 | 1,181 | 5,973 | 806 | 234 | 69 | 66 | 48 | 130 | 92 |
| Dry (24%) | 37 | 621 | 7,558 | 1,108 | 2,822 | 1,321 | 520 | 75 | 67 | 48 | 57 | 70 |
| Critical (15%) | 42 | 29 | 410 | 461 | 664 | 321 | 105 | 67 | 65 | 48 | 55 | 58 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 48 | 2,792 | 2,568 | 210 | 5,754 | 0 | 0 | 0 | 0 | **-23** | **-120** |
| 20% | 0 | **-24** | 866 | 775 | 1,169 | 18 | 0 | 0 | 0 | 0 | 0 | **-66** |
| 30% | 0 | **-20** | 106 | 134 | 290 | 451 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | **-22** | 1 | 95 | 2,323 | 32 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | **-22** | **-10** | 568 | **-103** | 115 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | **-1** | **-9** | 26 | 32 | 629 | 32 | 0 | 0 | 0 | 0 | 0 | **-1** |
| 70% | 0 | **-4** | 1 | 11 | **-5** | 52 | 0 | 0 | 0 | 0 | 0 | **-1** |
| 80% | **-1** | **-3** | 2 | 17 | 29 | 14 | 0 | 0 | 0 | 0 | 0 | **-1** |
| 90% | **0** | **0** | **-1** | **-18** | **-1** | 8 | 0 | 0 | 0 | 0 | 0 | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-35** | 56 | 586 | 416 | 517 | 209 | **0** | 0 | 0 | 0 | **-1** | **-44** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 48 | 1,467 | 1,092 | 543 | 311 | 0 | 0 | 0 | 0 | 0 | **-137** |
| Above Normal (16%) | 0 | 238 | 385 | 209 | 1,275 | 420 | **-1** | **0** | 0 | 0 | 0 | 0 |
| Below Normal (13%) | **-258** | **-1** | **-16** | 254 | 1,166 | 149 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | **-3** | 11 | 254 | 11 | **-53** | 98 | **-2** | 0 | 0 | 0 | **-4** | 0 |
| Critical (15%) | 0 | **0** | 0 | **-4** | **-7** | 2 | 0 | 0 | 0 | 0 | 0 | **-4** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 25-2. Yolo Bypass Flow, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 63 | 809 | 11,129 | 34,648 | 52,391 | 18,726 | 7,044 | 243 | 68 | 48 | 183 | 247 |
| 20% | 61 | 183 | 4,918 | 14,959 | 20,814 | 8,859 | 3,162 | 78 | 68 | 48 | 55 | 125 |
| 30% | 58 | 82 | 1,543 | 7,015 | 11,267 | 4,861 | 1,068 | 73 | 68 | 48 | 55 | 59 |
| 40% | 53 | 58 | 462 | 3,161 | 6,859 | 2,901 | 229 | 70 | 68 | 48 | 55 | 59 |
| 50% | 45 | 33 | 293 | 901 | 4,170 | 1,135 | 135 | 68 | 67 | 48 | 55 | 59 |
| 60% | 40 | 18 | 138 | 490 | 1,552 | 437 | 111 | 65 | 67 | 48 | 55 | 59 |
| 70% | 29 | 9 | 51 | 273 | 580 | 187 | 88 | 63 | 66 | 48 | 55 | 58 |
| 80% | 16 | 5 | 18 | 76 | 184 | 90 | 78 | 59 | 64 | 48 | 55 | 56 |
| 90% | 4 | 0 | 1 | 37 | 68 | 37 | 56 | 53 | 62 | 48 | 54 | 52 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 124 | 552 | 4,394 | 11,835 | 15,819 | 9,271 | 2,651 | 210 | 88 | 48 | 101 | 115 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 86 | 746 | 5,586 | 31,695 | 36,486 | 23,473 | 6,899 | 453 | 135 | 48 | 147 | 209 |
| Above Normal (16%) | 38 | 927 | 1,909 | 8,363 | 17,697 | 8,800 | 1,823 | 185 | 66 | 48 | 92 | 65 |
| Below Normal (13%) | 556 | 117 | 3,567 | 927 | 4,807 | 657 | 234 | 69 | 66 | 48 | 130 | 92 |
| Dry (24%) | 40 | 610 | 7,304 | 1,097 | 2,875 | 1,223 | 522 | 75 | 67 | 48 | 61 | 70 |
| Critical (15%) | 42 | 29 | 410 | 465 | 671 | 320 | 105 | 67 | 65 | 48 | 55 | 61 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 63 | 859 | 13,915 | 37,351 | 53,749 | 22,992 | 7,044 | 244 | 68 | 48 | 183 | 127 |
| 20% | 61 | 159 | 4,657 | 15,661 | 20,606 | 8,878 | 3,162 | 78 | 68 | 48 | 55 | 59 |
| 30% | 58 | 51 | 1,400 | 7,150 | 11,280 | 5,283 | 1,068 | 73 | 68 | 48 | 55 | 59 |
| 40% | 53 | 26 | 426 | 3,153 | 9,440 | 2,896 | 229 | 70 | 68 | 48 | 55 | 59 |
| 50% | 45 | 10 | 268 | 1,197 | 4,005 | 1,241 | 135 | 68 | 67 | 48 | 55 | 59 |
| 60% | 40 | 8 | 164 | 523 | 2,144 | 443 | 111 | 65 | 67 | 48 | 55 | 59 |
| 70% | 29 | 5 | 47 | 280 | 570 | 236 | 88 | 63 | 66 | 48 | 55 | 57 |
| 80% | 16 | 1 | 15 | 57 | 208 | 101 | 78 | 59 | 64 | 48 | 55 | 55 |
| 90% | 4 | 0 | 0 | 17 | 65 | 49 | 56 | 53 | 62 | 48 | 54 | 52 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 78 | 590 | 4,776 | 12,055 | 16,223 | 9,399 | 2,651 | 211 | 88 | 48 | 101 | 71 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 86 | 807 | 7,025 | 32,241 | 37,032 | 23,641 | 6,900 | 454 | 135 | 48 | 147 | 73 |
| Above Normal (16%) | 38 | 1,097 | 1,944 | 8,451 | 18,844 | 9,136 | 1,818 | 185 | 66 | 48 | 92 | 65 |
| Below Normal (13%) | 216 | 115 | 3,398 | 1,169 | 5,379 | 804 | 243 | 69 | 66 | 48 | 130 | 92 |
| Dry (24%) | 41 | 577 | 7,083 | 1,099 | 2,767 | 1,228 | 521 | 75 | 67 | 48 | 61 | 70 |
| Critical (15%) | 42 | 26 | 387 | 457 | 664 | 324 | 105 | 67 | 65 | 48 | 55 | 58 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 50 | 2,786 | 2,703 | 1,358 | 4,266 | 0 | 1 | 0 | 0 | 0 | **-120** |
| 20% | 0 | **-24** | **-261** | 702 | **-208** | 19 | 0 | 0 | 0 | 0 | 0 | **-66** |
| 30% | 0 | **-31** | **-143** | 136 | 14 | 422 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | **-32** | **-37** | **-8** | 2,581 | **-5** | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | **-23** | **-25** | 295 | **-165** | 105 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | **-9** | 26 | 32 | 592 | 6 | 0 | 0 | 0 | 0 | 0 | **-1** |
| 70% | 0 | **-4** | **-3** | 6 | **-11** | 49 | 0 | 0 | 0 | 0 | 0 | **-1** |
| 80% | 0 | **-4** | **-3** | **-20** | 24 | 11 | 0 | 0 | 0 | 0 | 0 | **-1** |
| 90% | 0 | **0** | **-1** | **-20** | **-3** | 13 | 0 | 0 | 0 | 0 | 0 | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-45** | 38 | 382 | 219 | 404 | 128 | 0 | 0 | 0 | 0 | 0 | **-44** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 61 | 1,439 | 547 | 546 | 168 | 0 | 0 | 0 | 0 | 0 | **-137** |
| Above Normal (16%) | 0 | 170 | 36 | 88 | 1,147 | 336 | **-5** | **0** | 0 | 0 | 0 | 0 |
| Below Normal (13%) | **-340** | **-2** | **-169** | 243 | 571 | 147 | 9 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 1 | **-33** | **-220** | 3 | **-109** | 5 | **-1** | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | **-2** | **-23** | **-8** | **-7** | 4 | 0 | 0 | 0 | 0 | 0 | **-4** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 25-3. Yolo Bypass Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 63 | 809 | 11,129 | 34,648 | 52,391 | 18,726 | 7,044 | 243 | 68 | 48 | 183 | 247 |
| 20% | 61 | 183 | 4,918 | 14,959 | 20,814 | 8,859 | 3,162 | 78 | 68 | 48 | 55 | 125 |
| 30% | 58 | 82 | 1,543 | 7,015 | 11,267 | 4,861 | 1,068 | 73 | 68 | 48 | 55 | 59 |
| 40% | 53 | 58 | 462 | 3,161 | 6,859 | 2,901 | 229 | 70 | 68 | 48 | 55 | 59 |
| 50% | 45 | 33 | 293 | 901 | 4,170 | 1,135 | 135 | 68 | 67 | 48 | 55 | 59 |
| 60% | 40 | 18 | 138 | 490 | 1,552 | 437 | 111 | 65 | 67 | 48 | 55 | 59 |
| 70% | 29 | 9 | 51 | 273 | 580 | 187 | 88 | 63 | 66 | 48 | 55 | 58 |
| 80% | 16 | 5 | 18 | 76 | 184 | 90 | 78 | 59 | 64 | 48 | 55 | 56 |
| 90% | 4 | 0 | 1 | 37 | 68 | 37 | 56 | 53 | 62 | 48 | 54 | 52 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 124 | 552 | 4,394 | 11,835 | 15,819 | 9,271 | 2,651 | 210 | 88 | 48 | 101 | 115 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 86 | 746 | 5,586 | 31,695 | 36,486 | 23,473 | 6,899 | 453 | 135 | 48 | 147 | 209 |
| Above Normal (16%) | 38 | 927 | 1,909 | 8,363 | 17,697 | 8,800 | 1,823 | 185 | 66 | 48 | 92 | 65 |
| Below Normal (13%) | 556 | 117 | 3,567 | 927 | 4,807 | 657 | 234 | 69 | 66 | 48 | 130 | 92 |
| Dry (24%) | 40 | 610 | 7,304 | 1,097 | 2,875 | 1,223 | 522 | 75 | 67 | 48 | 61 | 70 |
| Critical (15%) | 42 | 29 | 410 | 465 | 671 | 320 | 105 | 67 | 65 | 48 | 55 | 61 |

## Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64 | 870 | 13,923 | 37,453 | 53,819 | 23,279 | 7,044 | 244 | 68 | 48 | 183 | 127 |
| 20% | 62 | 182 | 4,667 | 16,496 | 21,346 | 8,878 | 3,162 | 78 | 68 | 48 | 55 | 59 |
| 30% | 60 | 66 | 1,544 | 7,151 | 11,394 | 5,287 | 1,068 | 73 | 68 | 48 | 55 | 59 |
| 40% | 54 | 41 | 429 | 3,153 | 9,475 | 2,897 | 229 | 70 | 68 | 48 | 55 | 59 |
| 50% | 47 | 25 | 268 | 1,197 | 3,972 | 1,240 | 125 | 68 | 67 | 48 | 55 | 59 |
| 60% | 42 | 10 | 165 | 523 | 2,146 | 443 | 111 | 65 | 67 | 48 | 55 | 59 |
| 70% | 32 | 7 | 66 | 280 | 570 | 236 | 88 | 63 | 66 | 48 | 55 | 57 |
| 80% | 18 | 5 | 29 | 87 | 180 | 101 | 78 | 59 | 64 | 48 | 55 | 55 |
| 90% | 9 | 0 | 0 | 37 | 62 | 49 | 56 | 53 | 62 | 48 | 54 | 52 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 81 | 585 | 4,772 | 12,060 | 16,190 | 9,422 | 2,647 | 211 | 88 | 48 | 100 | 71 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 86 | 809 | 7,082 | 32,250 | 36,931 | 23,683 | 6,896 | 454 | 135 | 48 | 143 | 73 |
| Above Normal (16%) | 45 | 1,090 | 2,009 | 8,447 | 18,814 | 9,198 | 1,811 | 185 | 66 | 48 | 92 | 65 |
| Below Normal (13%) | 221 | 137 | 3,381 | 1,159 | 5,408 | 805 | 234 | 69 | 66 | 48 | 130 | 92 |
| Dry (24%) | 44 | 544 | 6,956 | 1,109 | 2,768 | 1,228 | 521 | 75 | 67 | 48 | 61 | 70 |
| Critical (15%) | 42 | 31 | 397 | 470 | 660 | 324 | 105 | 67 | 65 | 48 | 55 | 58 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1 | 61 | 2,794 | 2,805 | 1,427 | 4,553 | 0 | 1 | 0 | 0 | 0 | **-120** |
| 20% | 1 | **-1** | **-250** | 1,537 | 531 | 19 | 0 | 0 | 0 | 0 | 0 | **-66** |
| 30% | 2 | **-16** | 1 | 136 | 127 | 426 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 1 | **-17** | **-33** | **-8** | 2,616 | **-5** | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 2 | **-8** | **-26** | 295 | **-198** | 105 | **-10** | 0 | 0 | 0 | 0 | 0 |
| 60% | 3 | **-8** | 27 | 32 | 594 | 6 | **-1** | 0 | 0 | 0 | 0 | **-1** |
| 70% | 3 | **-2** | 16 | 7 | **-10** | 49 | 0 | 0 | 0 | 0 | 0 | **-1** |
| 80% | 2 | **0** | 11 | 11 | **-4** | 11 | 0 | 0 | 0 | 0 | 0 | **-1** |
| 90% | 4 | 0 | **-1** | 0 | **-6** | 13 | 0 | 0 | 0 | 0 | 0 | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-43** | 33 | 378 | 224 | 371 | 151 | **-3** | 0 | 0 | 0 | **-1** | **-44** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 64 | 1,496 | 555 | 445 | 210 | **-4** | 1 | 0 | 0 | **-4** | **-137** |
| Above Normal (16%) | 6 | 163 | 100 | 84 | 1,117 | 399 | **-12** | **0** | 0 | 0 | 0 | 0 |
| Below Normal (13%) | **-335** | 20 | **-186** | 233 | 601 | 148 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 4 | **-66** | **-348** | 12 | **-107** | 5 | **-1** | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | 3 | **-13** | 5 | **-11** | 4 | 0 | 0 | 0 | 0 | 0 | **-4** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 25-4. Yolo Bypass Flow, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 63 | 809 | 11,129 | 34,648 | 52,391 | 18,726 | 7,044 | 243 | 68 | 48 | 183 | 247 |
| 20% | 61 | 183 | 4,918 | 14,959 | 20,814 | 8,859 | 3,162 | 78 | 68 | 48 | 55 | 125 |
| 30% | 58 | 82 | 1,543 | 7,015 | 11,267 | 4,861 | 1,068 | 73 | 68 | 48 | 55 | 59 |
| 40% | 53 | 58 | 462 | 3,161 | 6,859 | 2,901 | 229 | 70 | 68 | 48 | 55 | 59 |
| 50% | 45 | 33 | 293 | 901 | 4,170 | 1,135 | 135 | 68 | 67 | 48 | 55 | 59 |
| 60% | 40 | 18 | 138 | 490 | 1,552 | 437 | 111 | 65 | 67 | 48 | 55 | 59 |
| 70% | 29 | 9 | 51 | 273 | 580 | 187 | 88 | 63 | 66 | 48 | 55 | 58 |
| 80% | 16 | 5 | 18 | 76 | 184 | 90 | 78 | 59 | 64 | 48 | 55 | 56 |
| 90% | 4 | 0 | 1 | 37 | 68 | 37 | 56 | 53 | 62 | 48 | 54 | 52 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 124 | 552 | 4,394 | 11,835 | 15,819 | 9,271 | 2,651 | 210 | 88 | 48 | 101 | 115 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 86 | 746 | 5,586 | 31,695 | 36,486 | 23,473 | 6,899 | 453 | 135 | 48 | 147 | 209 |
| Above Normal (16%) | 38 | 927 | 1,909 | 8,363 | 17,697 | 8,800 | 1,823 | 185 | 66 | 48 | 92 | 65 |
| Below Normal (13%) | 556 | 117 | 3,567 | 927 | 4,807 | 657 | 234 | 69 | 66 | 48 | 130 | 92 |
| Dry (24%) | 40 | 610 | 7,304 | 1,097 | 2,875 | 1,223 | 522 | 75 | 67 | 48 | 61 | 70 |
| Critical (15%) | 42 | 29 | 410 | 465 | 671 | 320 | 105 | 67 | 65 | 48 | 55 | 61 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 63 | 857 | 13,522 | 37,541 | 52,871 | 24,732 | 7,045 | 147 | 68 | 48 | 183 | 127 |
| 20% | 61 | 159 | 5,766 | 15,312 | 20,678 | 9,008 | 3,257 | 78 | 68 | 48 | 55 | 59 |
| 30% | 57 | 62 | 1,778 | 6,465 | 10,852 | 5,182 | 1,264 | 73 | 68 | 48 | 55 | 59 |
| 40% | 53 | 34 | 464 | 3,250 | 9,081 | 3,279 | 224 | 70 | 68 | 48 | 55 | 59 |
| 50% | 45 | 10 | 302 | 1,572 | 4,646 | 1,318 | 125 | 68 | 67 | 48 | 55 | 59 |
| 60% | 39 | 9 | 151 | 555 | 2,336 | 608 | 111 | 64 | 67 | 48 | 55 | 59 |
| 70% | 29 | 5 | 52 | 341 | 594 | 273 | 89 | 63 | 66 | 48 | 55 | 58 |
| 80% | 15 | 2 | 22 | 105 | 227 | 121 | 78 | 58 | 64 | 48 | 55 | 55 |
| 90% | 4 | 0 | 2 | 25 | 76 | 45 | 56 | 53 | 62 | 48 | 54 | 52 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 155 | 590 | 5,004 | 12,387 | 16,329 | 9,591 | 2,711 | 200 | 81 | 48 | 101 | 72 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 86 | 792 | 7,036 | 33,090 | 36,924 | 23,919 | 6,997 | 423 | 114 | 48 | 147 | 73 |
| Above Normal (16%) | 38 | 956 | 2,205 | 8,584 | 18,788 | 9,372 | 1,886 | 184 | 66 | 48 | 92 | 65 |
| Below Normal (13%) | 794 | 118 | 3,634 | 1,392 | 5,898 | 1,048 | 251 | 69 | 66 | 48 | 130 | 92 |
| Dry (24%) | 37 | 688 | 7,687 | 1,135 | 3,073 | 1,363 | 593 | 70 | 67 | 48 | 61 | 70 |
| Critical (15%) | 42 | 29 | 416 | 482 | 698 | 328 | 105 | 67 | 65 | 48 | 55 | 61 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 48 | 2,392 | 2,894 | 480 | 6,006 | 1 | **-95** | 0 | 0 | 0 | **-120** |
| 20% | **0** | **-25** | 849 | 353 | **-136** | 149 | 95 | **0** | 0 | 0 | 0 | **-66** |
| 30% | **-1** | **-20** | 235 | **-549** | **-415** | 321 | 196 | **0** | 0 | 0 | 0 | 0 |
| 40% | **0** | **-24** | 2 | 89 | 2,223 | 377 | **-5** | **0** | 0 | 0 | 0 | 0 |
| 50% | **0** | **-23** | 9 | 670 | 476 | 183 | **-10** | **0** | 0 | 0 | 0 | 0 |
| 60% | **-1** | **-9** | 13 | 65 | 784 | 170 | **-1** | **0** | 0 | 0 | 0 | **0** |
| 70% | 0 | **-4** | 1 | 68 | 14 | 85 | 0 | **0** | 0 | 0 | 0 | **-1** |
| 80% | **-1** | **-3** | 4 | 29 | 42 | 31 | 0 | **0** | 0 | 0 | 0 | **-1** |
| 90% | **0** | **0** | 1 | **-12** | 7 | 8 | 0 | **-1** | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 31 | 38 | 610 | 551 | 510 | 320 | 60 | **-11** | **-7** | 0 | 0 | **-43** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 46 | 1,450 | 1,395 | 438 | 446 | 97 | **-30** | **-21** | 0 | 0 | **-137** |
| Above Normal (16%) | 0 | 29 | 296 | 221 | 1,091 | 572 | 63 | **-1** | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 238 | 1 | 66 | 465 | 1,091 | 391 | 17 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | **-3** | 77 | 384 | 38 | 198 | 140 | 71 | **-5** | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | **0** | 6 | 17 | 27 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

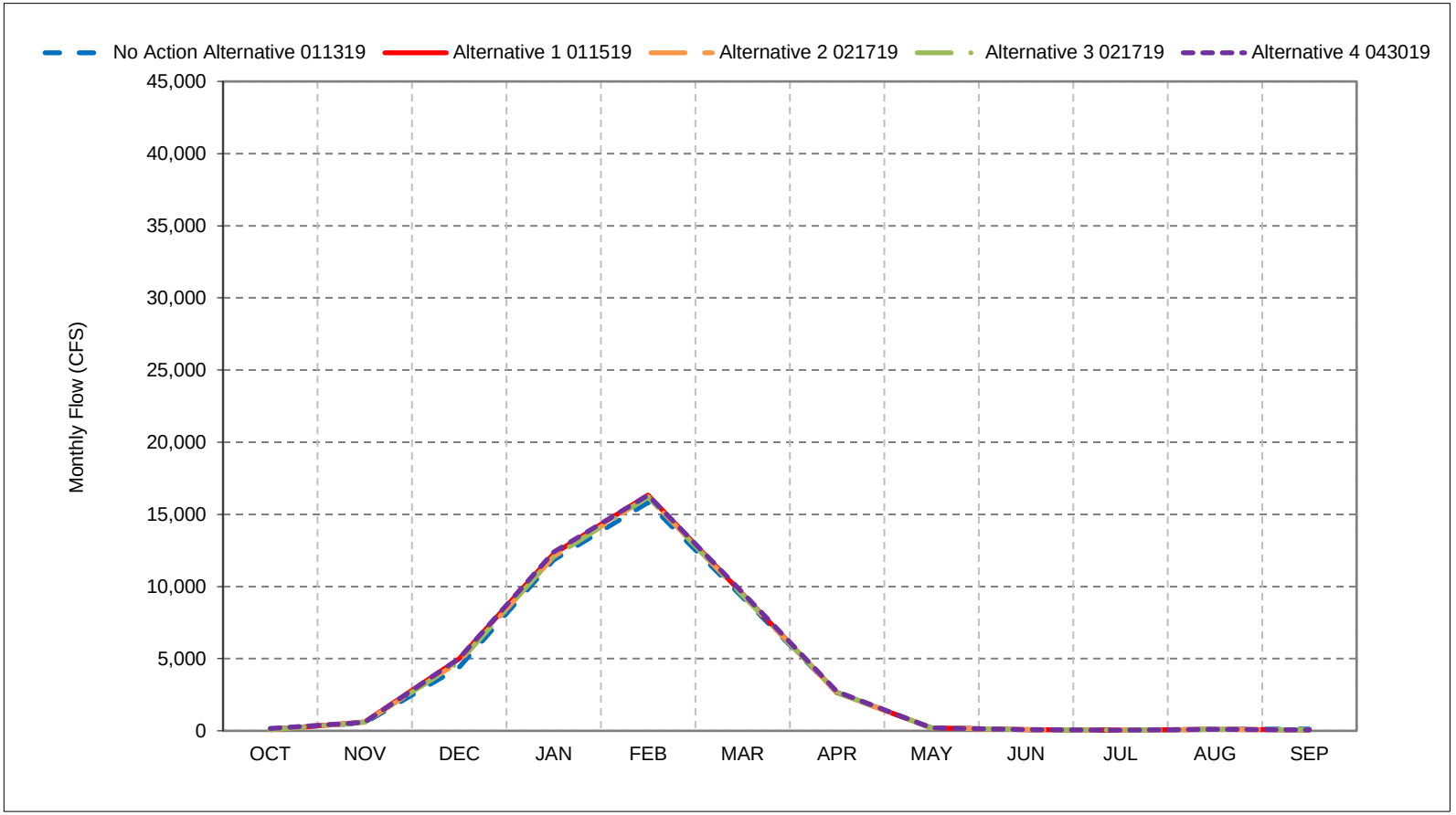
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

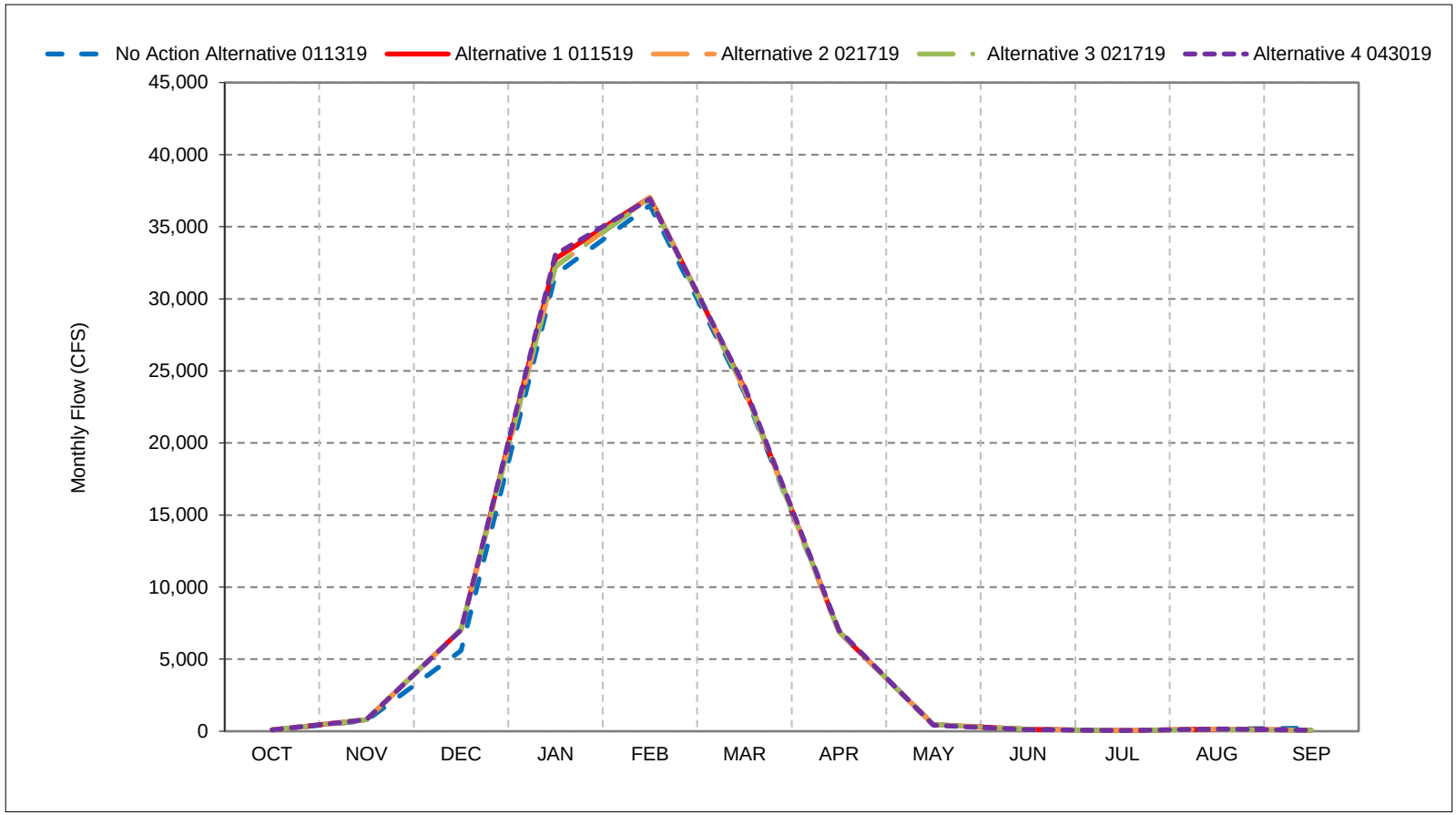
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 25-1. Yolo Bypass Flow, Long-Term Average Flow



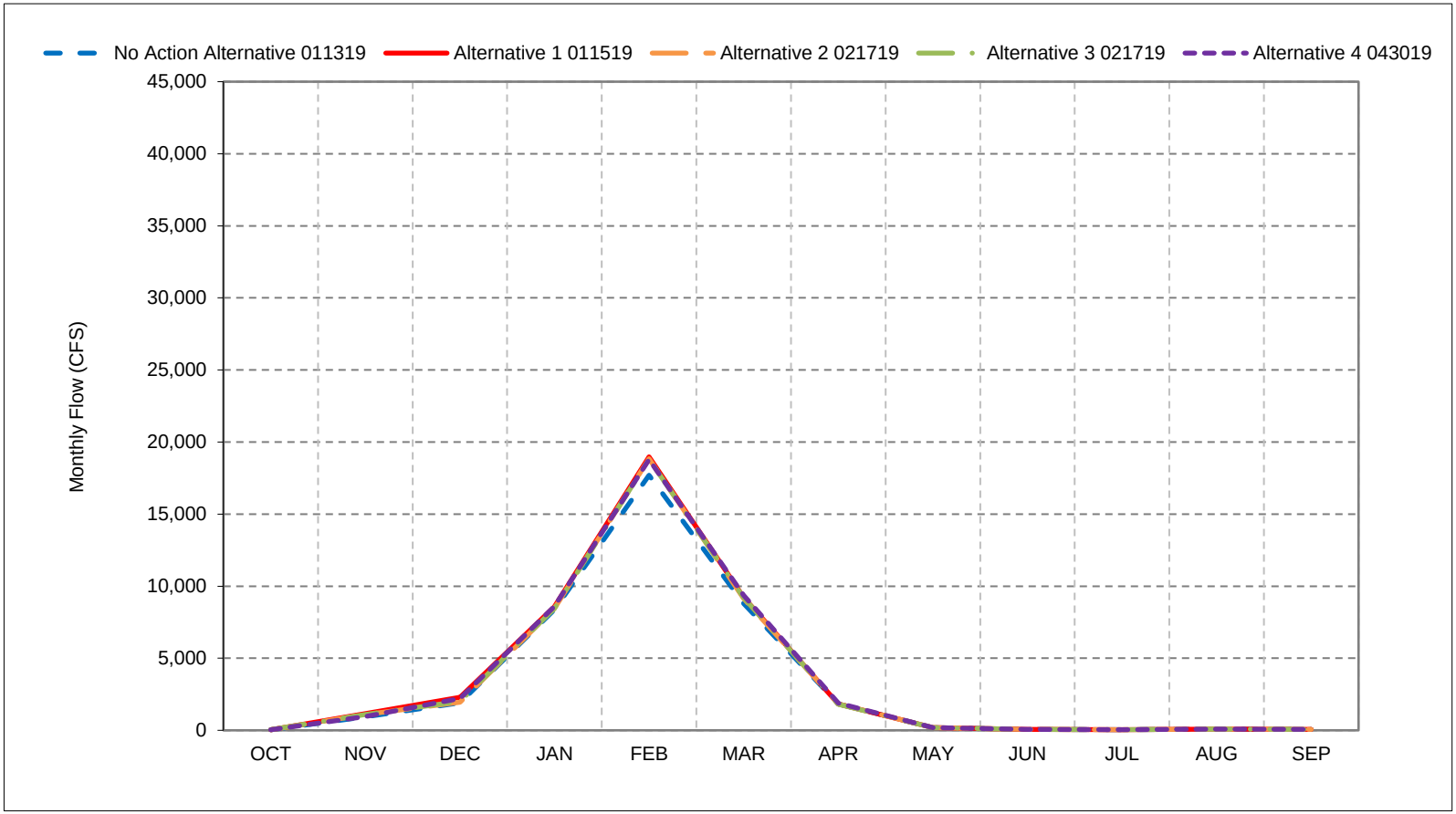

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 25-2. Yolo Bypass Flow, Wet Year Average Flow



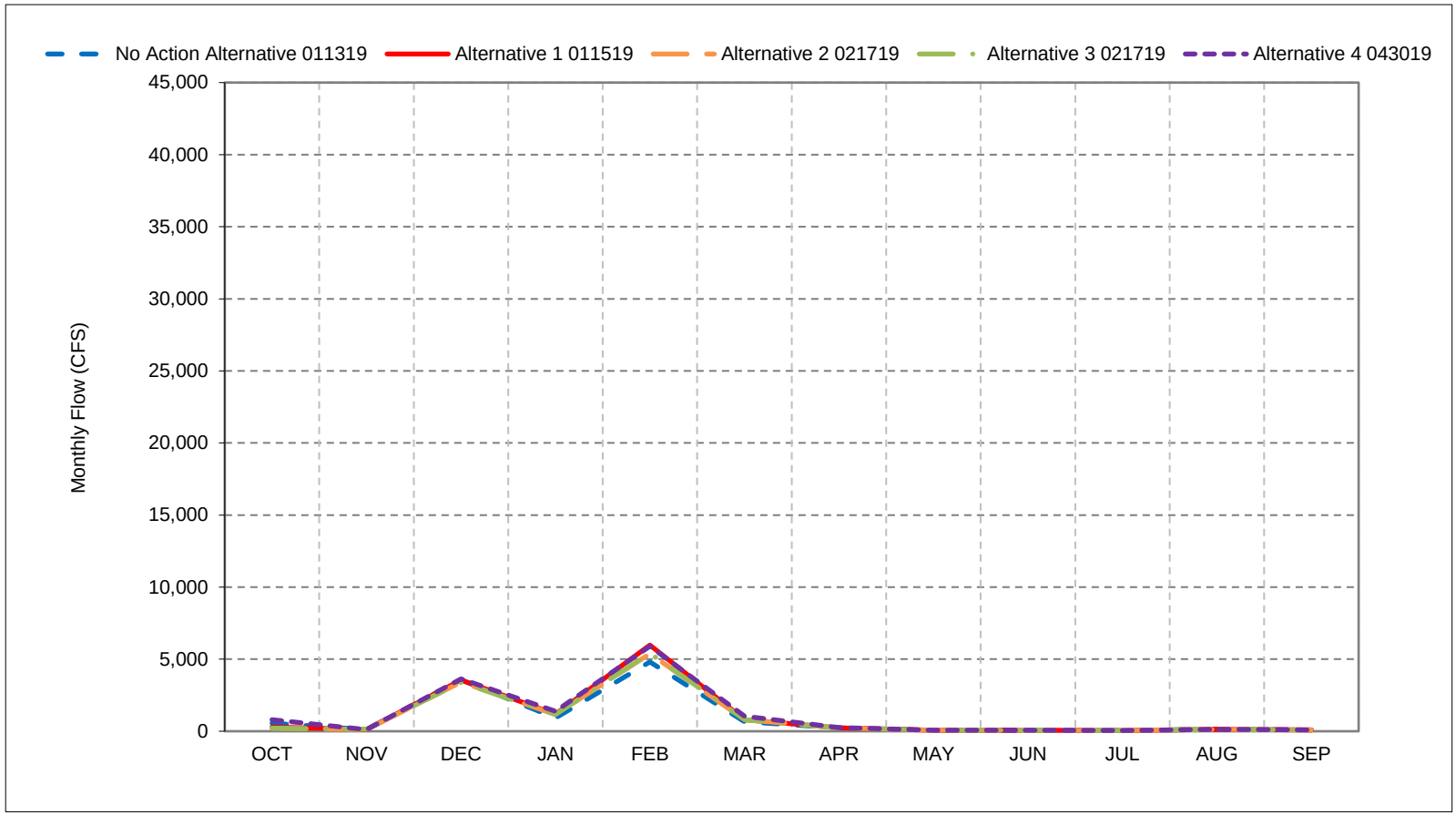

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 25-3. Yolo Bypass Flow, Above Normal Year Average Flow



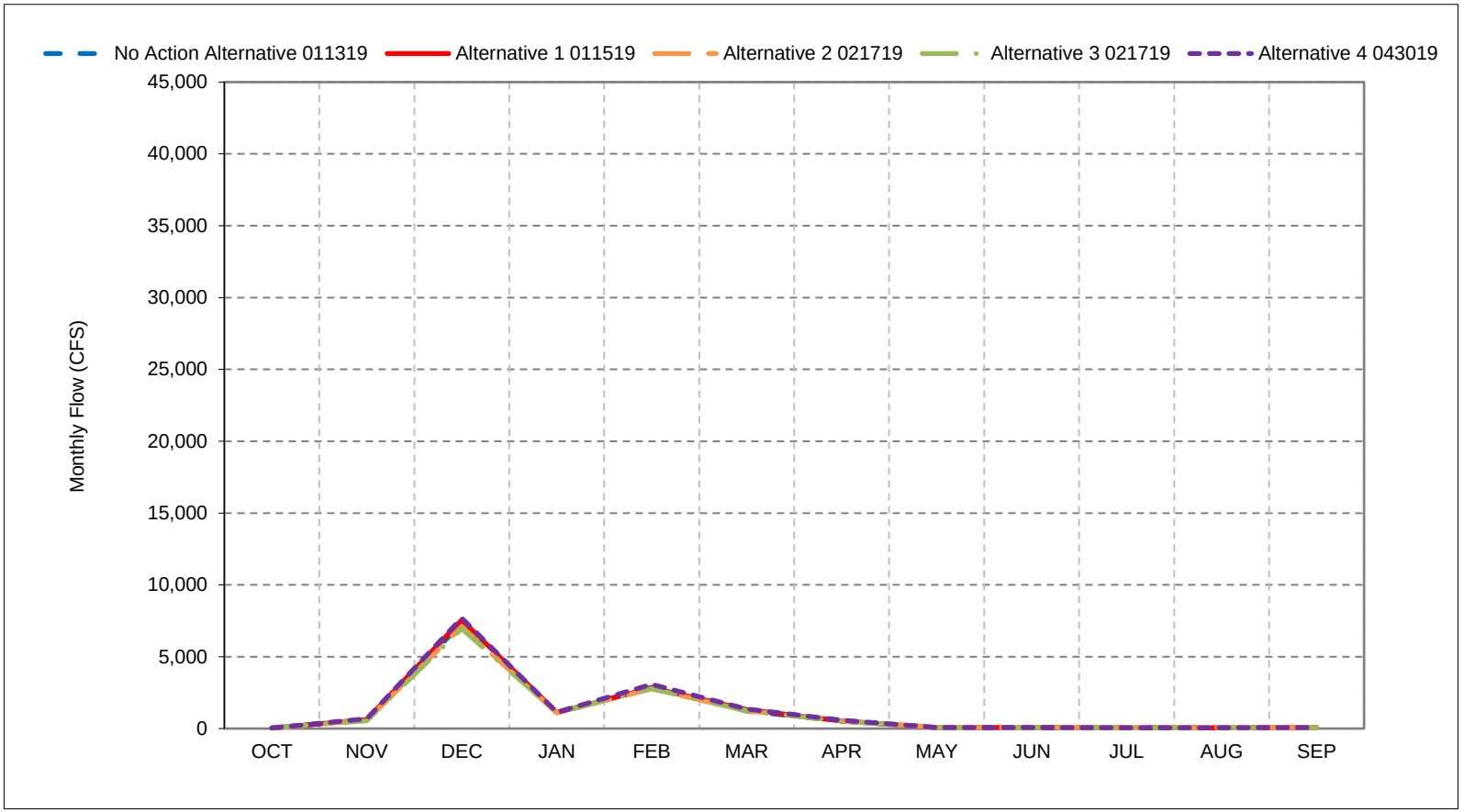

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 25-4. Yolo Bypass Flow, Below Normal Year Average Flow



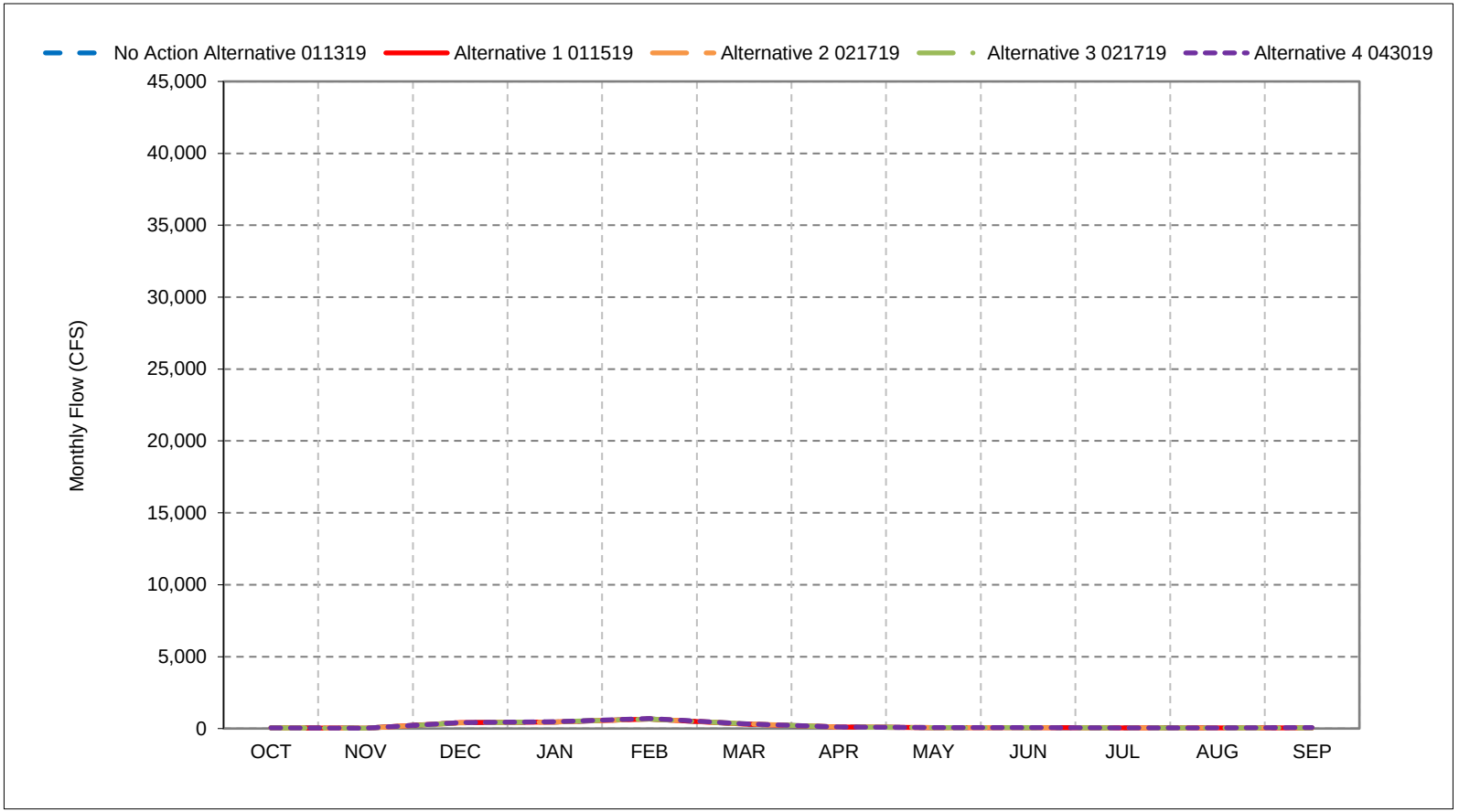

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 25-5. Yolo Bypass Flow, Dry Year Average Flow



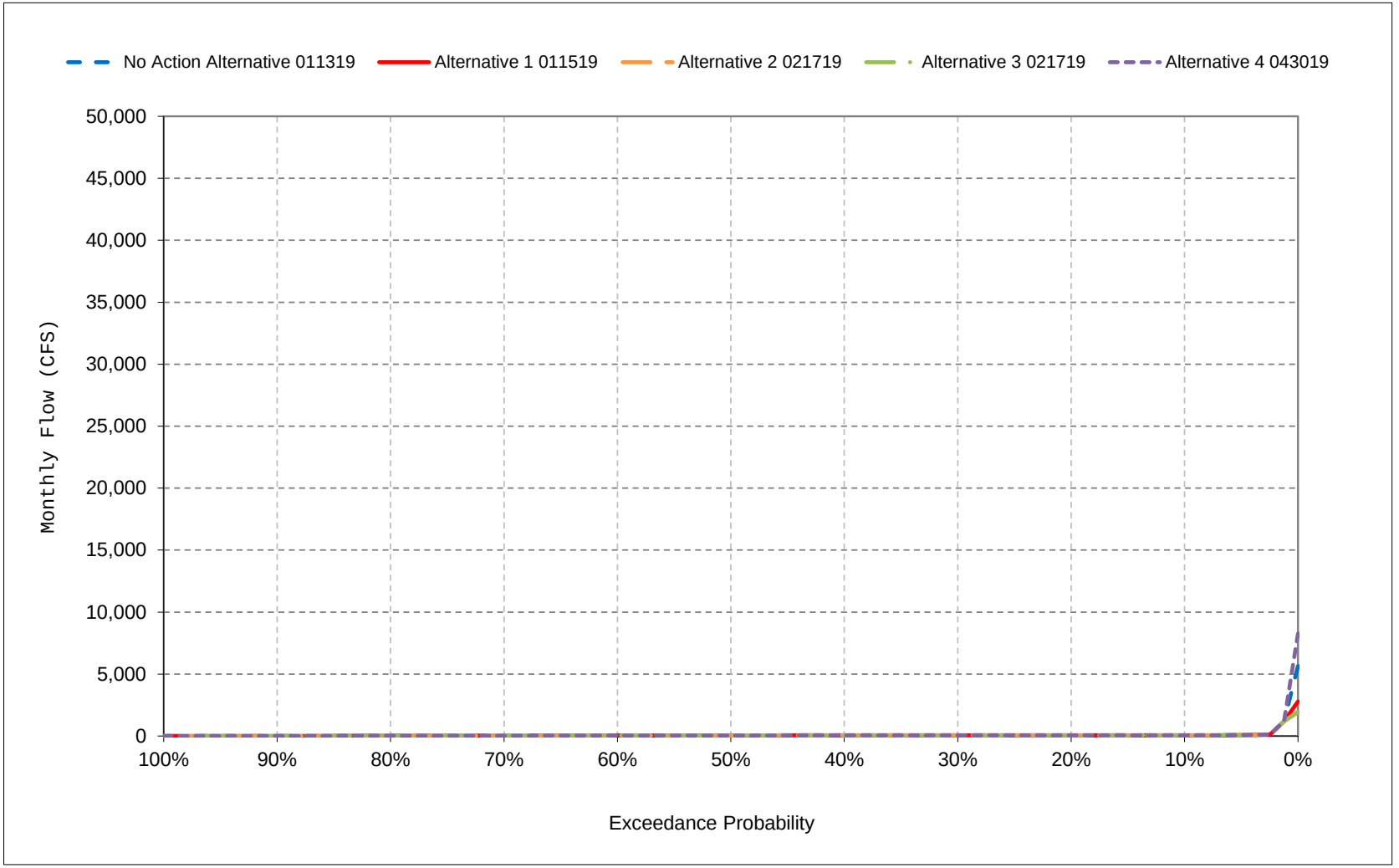

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 25-6. Yolo Bypass Flow, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

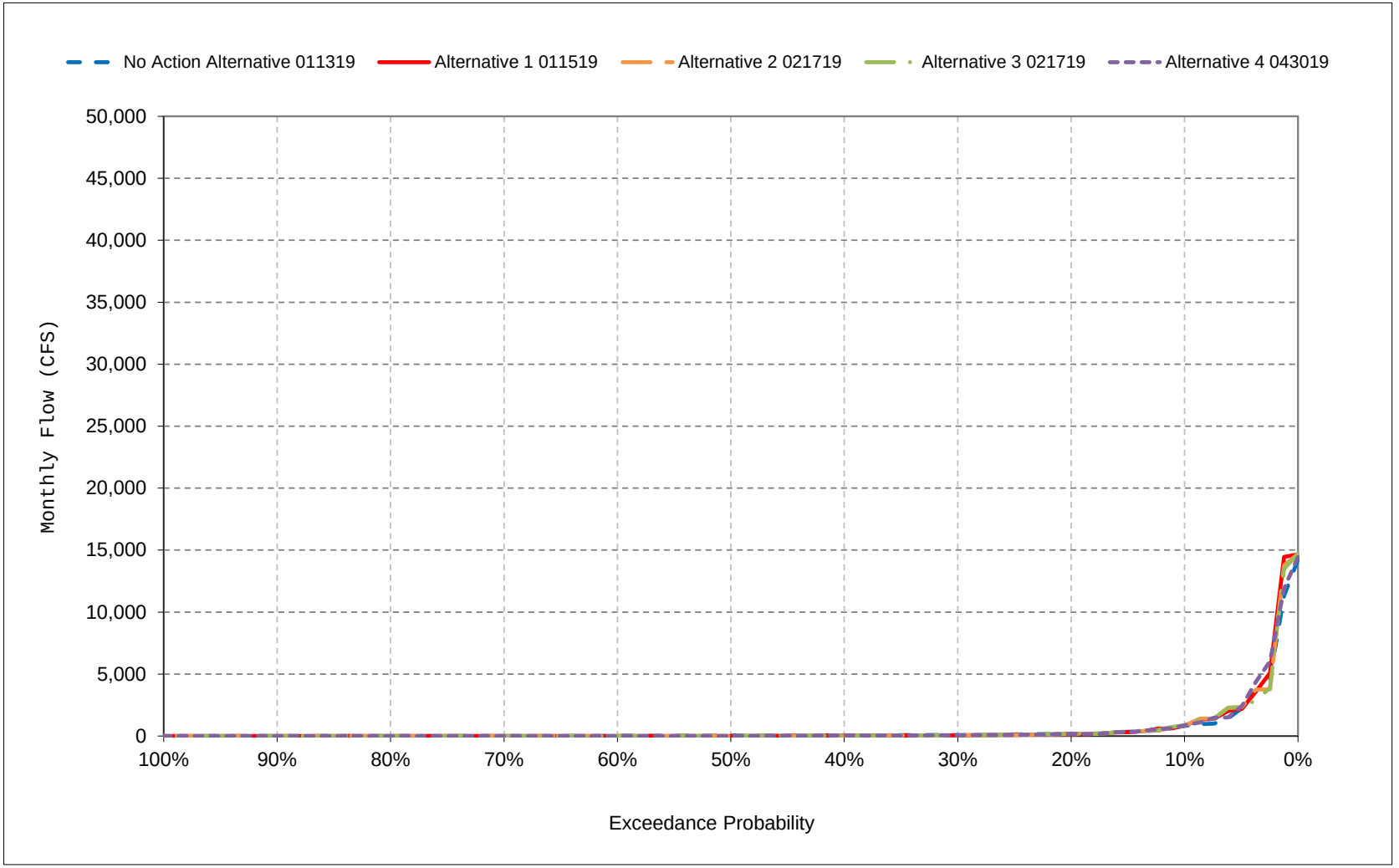
**Figure 25-7. Yolo Bypass Flow, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

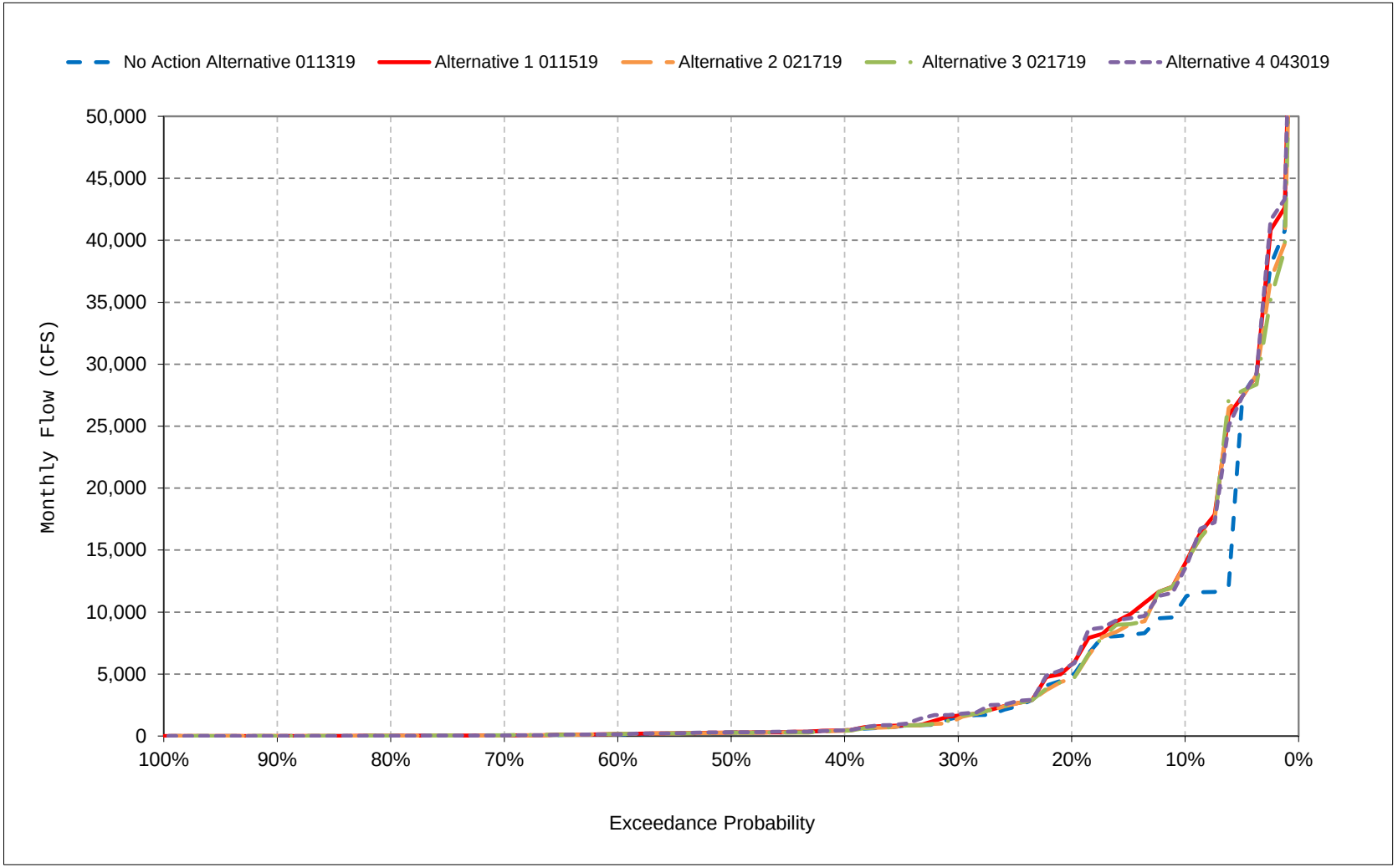
**Figure 25-8. Yolo Bypass Flow, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

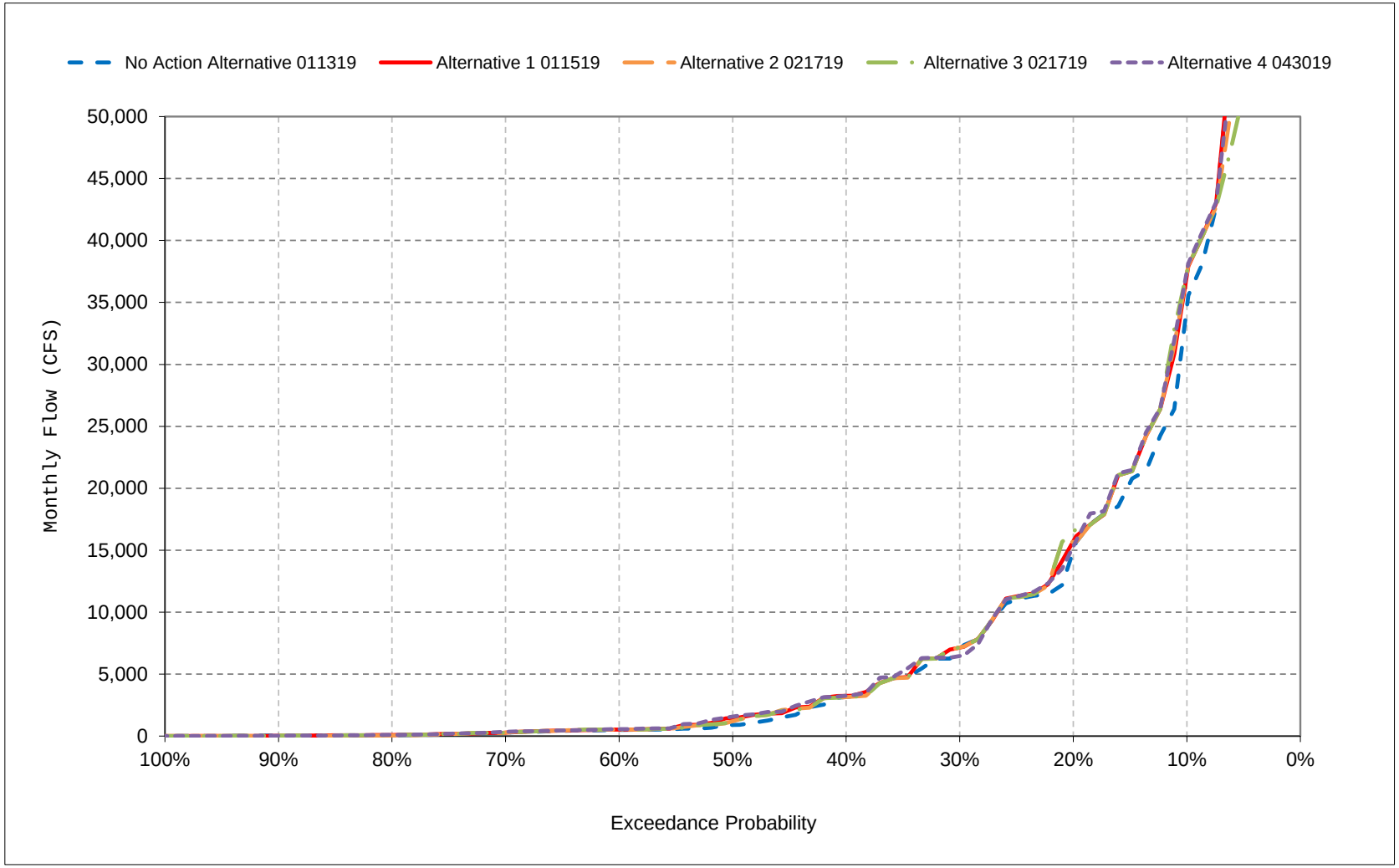
**Figure 25-9. Yolo Bypass Flow, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

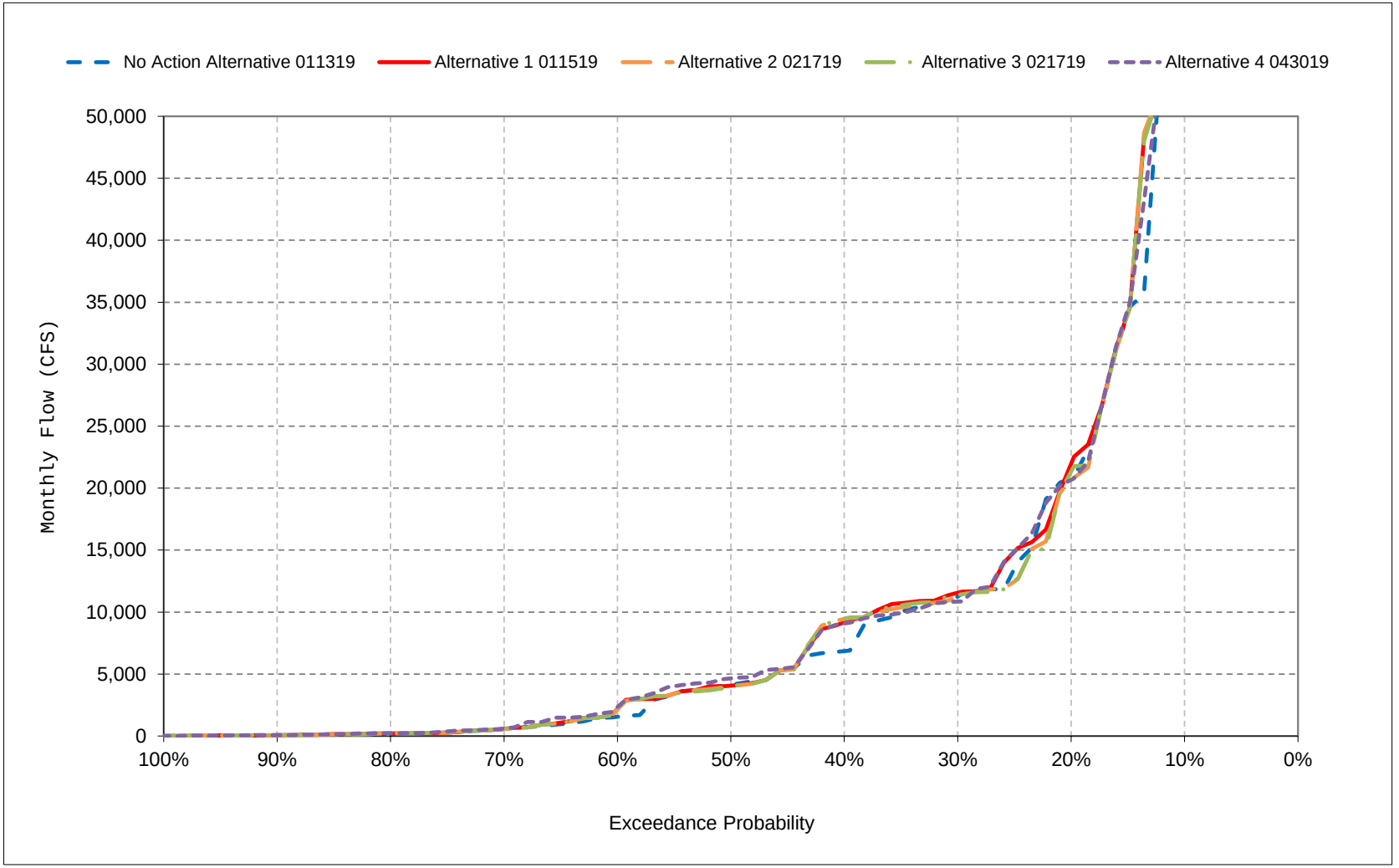
**Figure 25-10. Yolo Bypass Flow, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

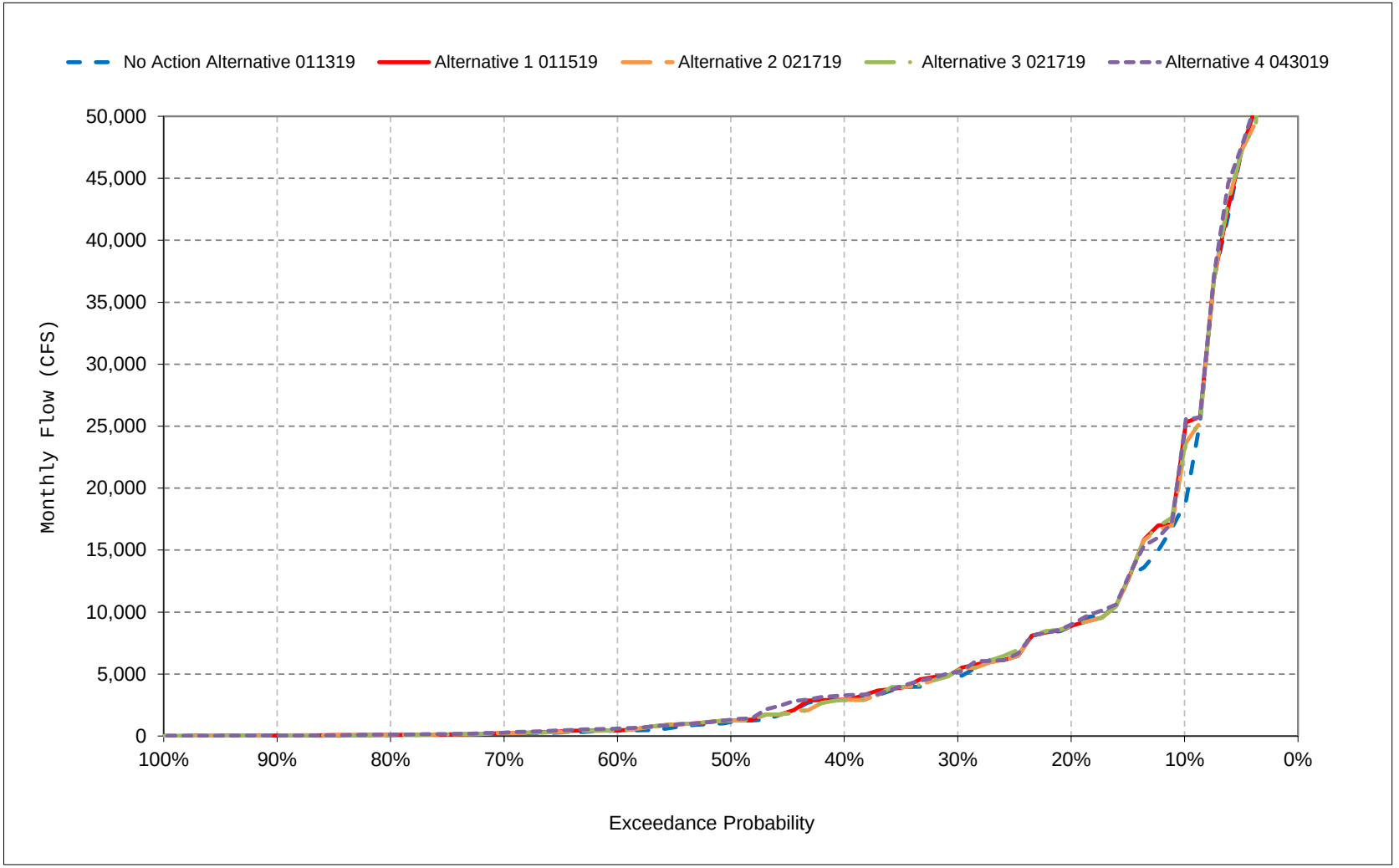
**Figure 25-11. Yolo Bypass Flow, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

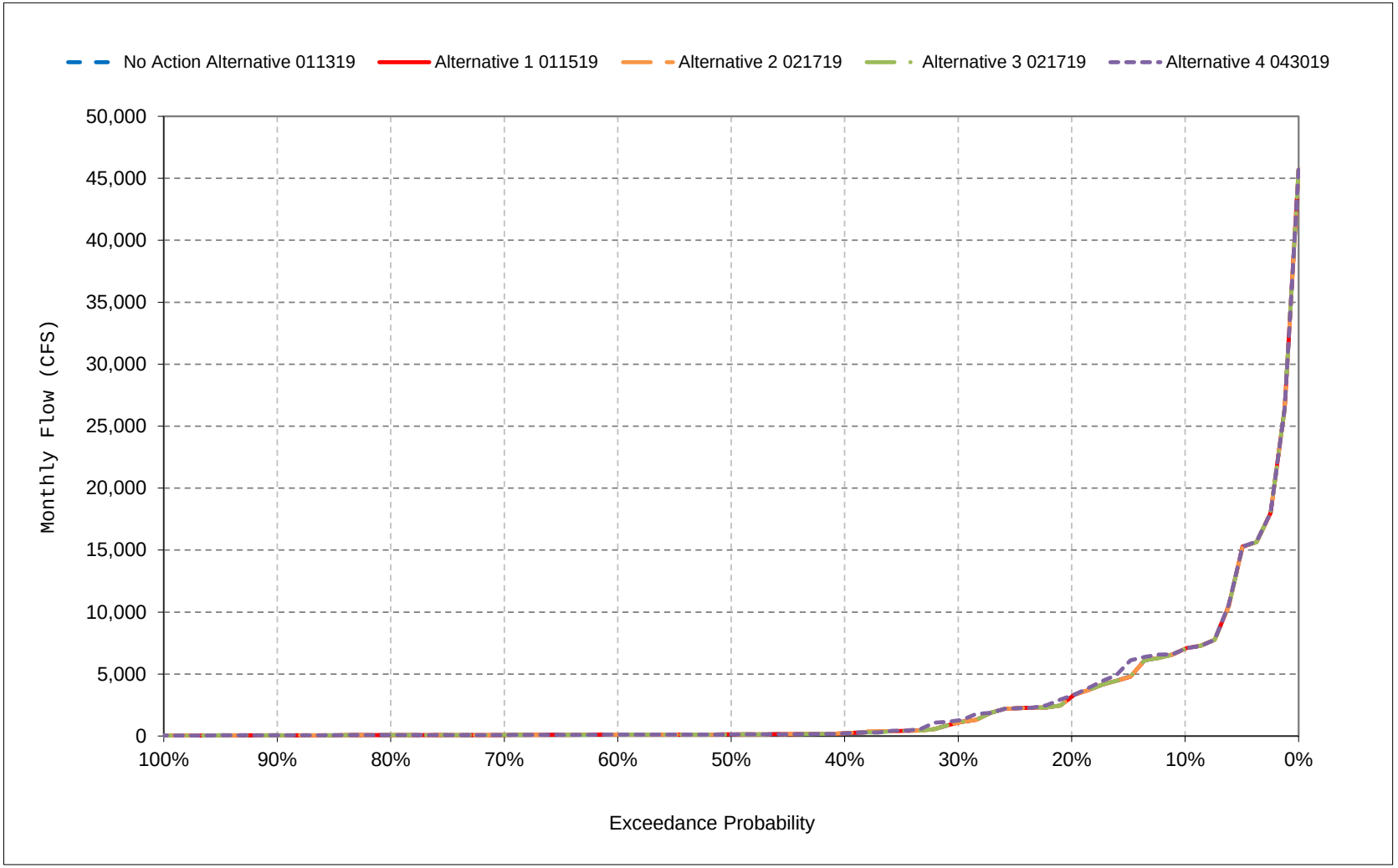
**Figure 25-12. Yolo Bypass Flow, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

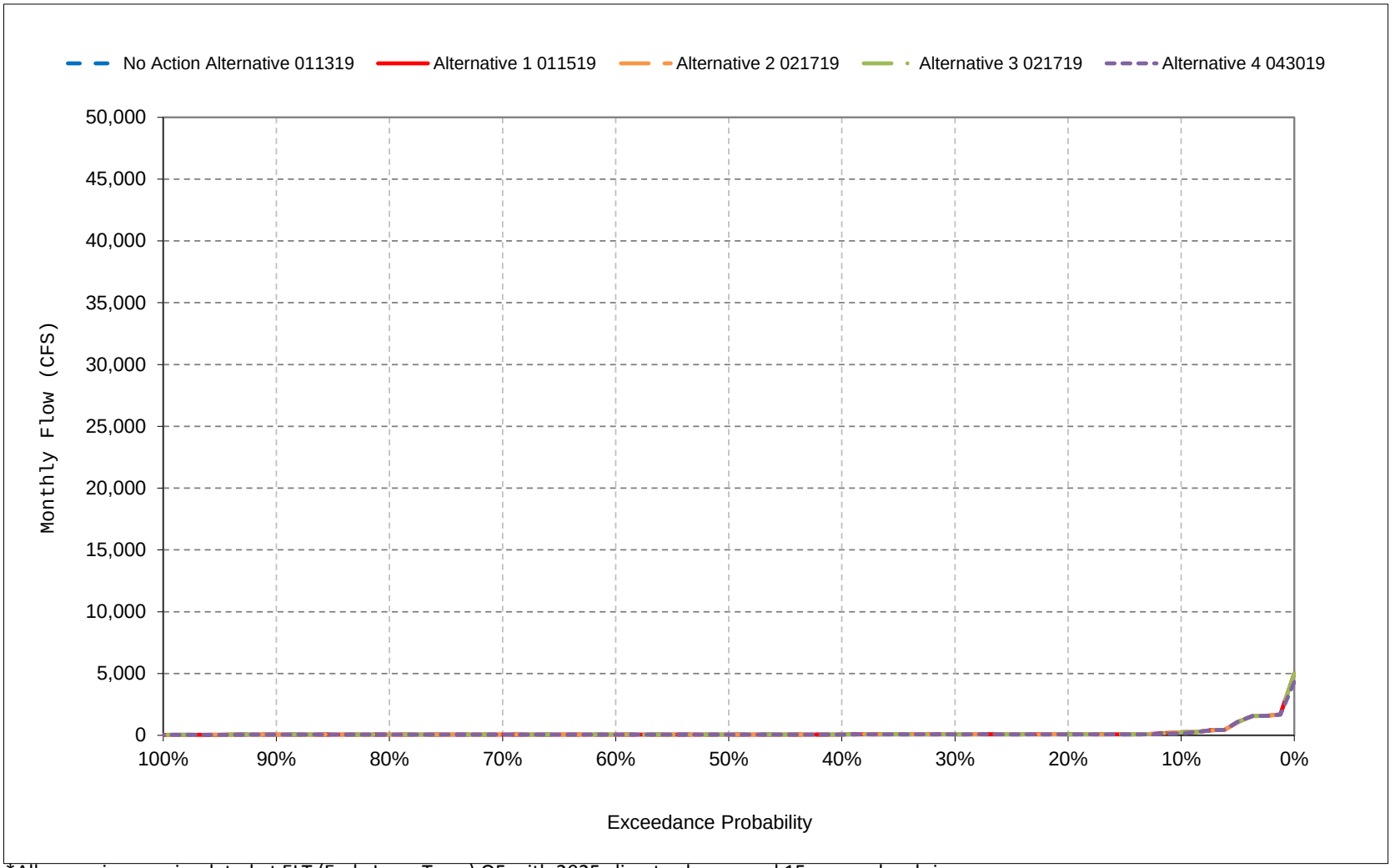
**Figure 25-13. Yolo Bypass Flow, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

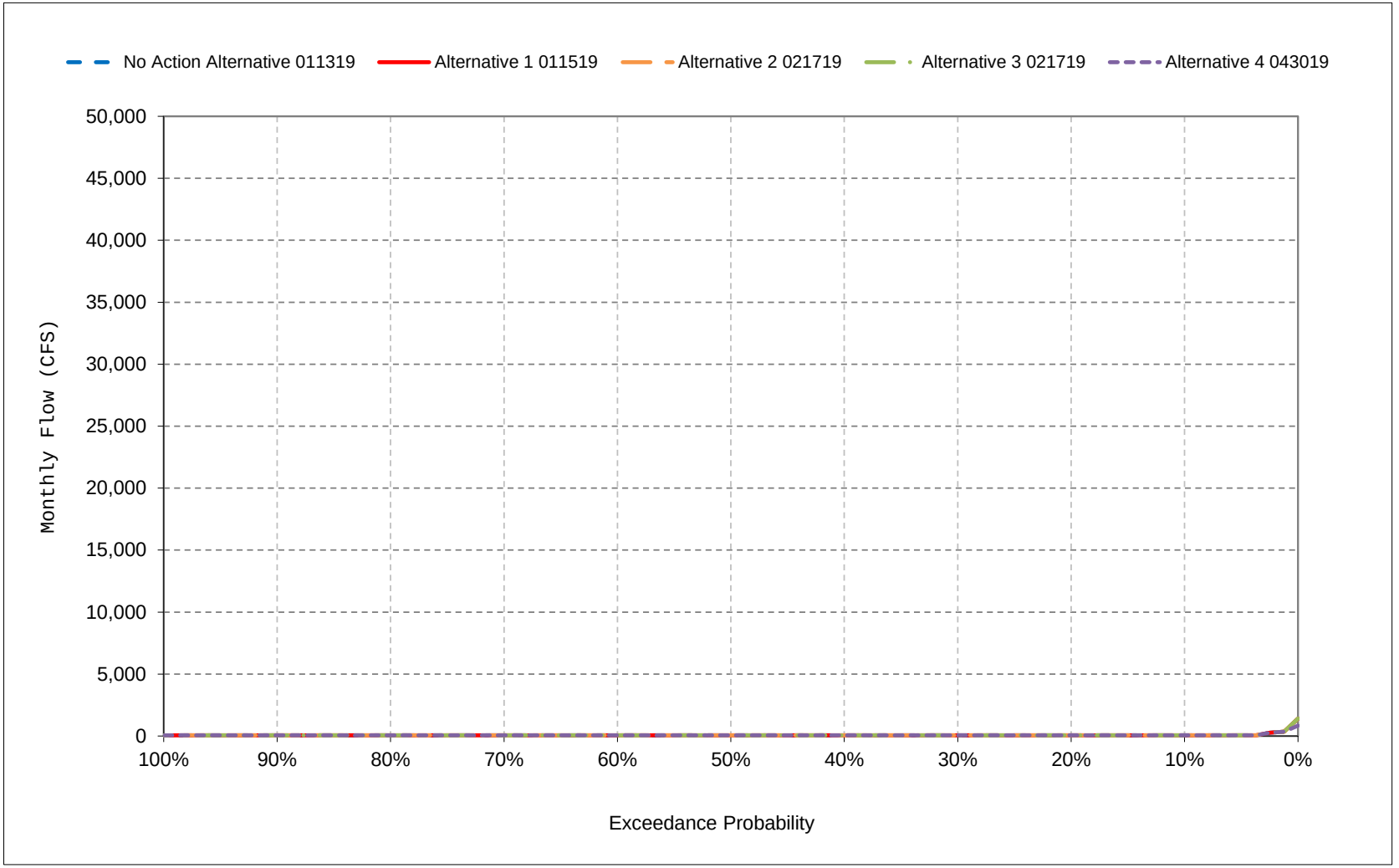
**Figure 25-14. Yolo Bypass Flow, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

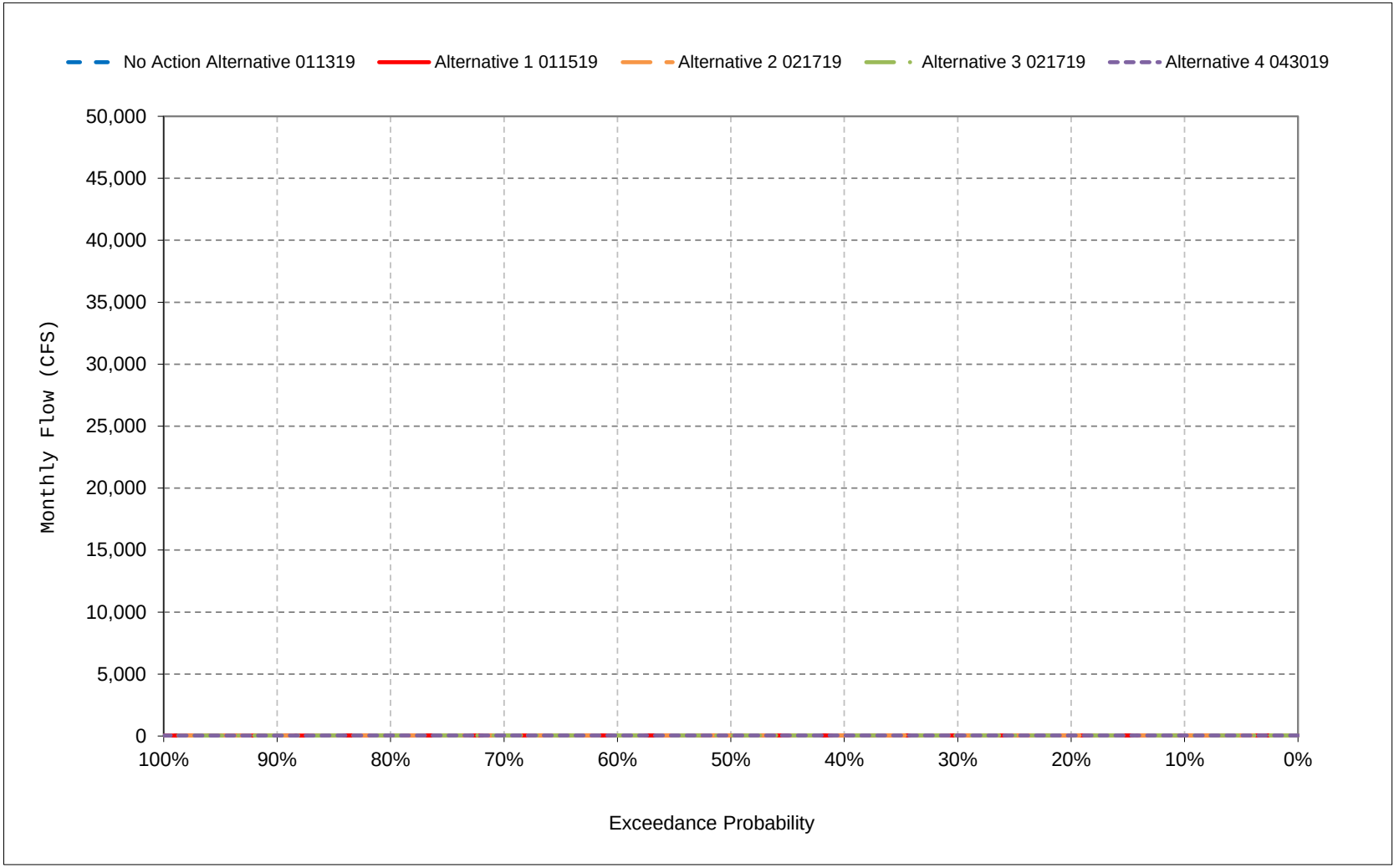
**Figure 25-15. Yolo Bypass Flow, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

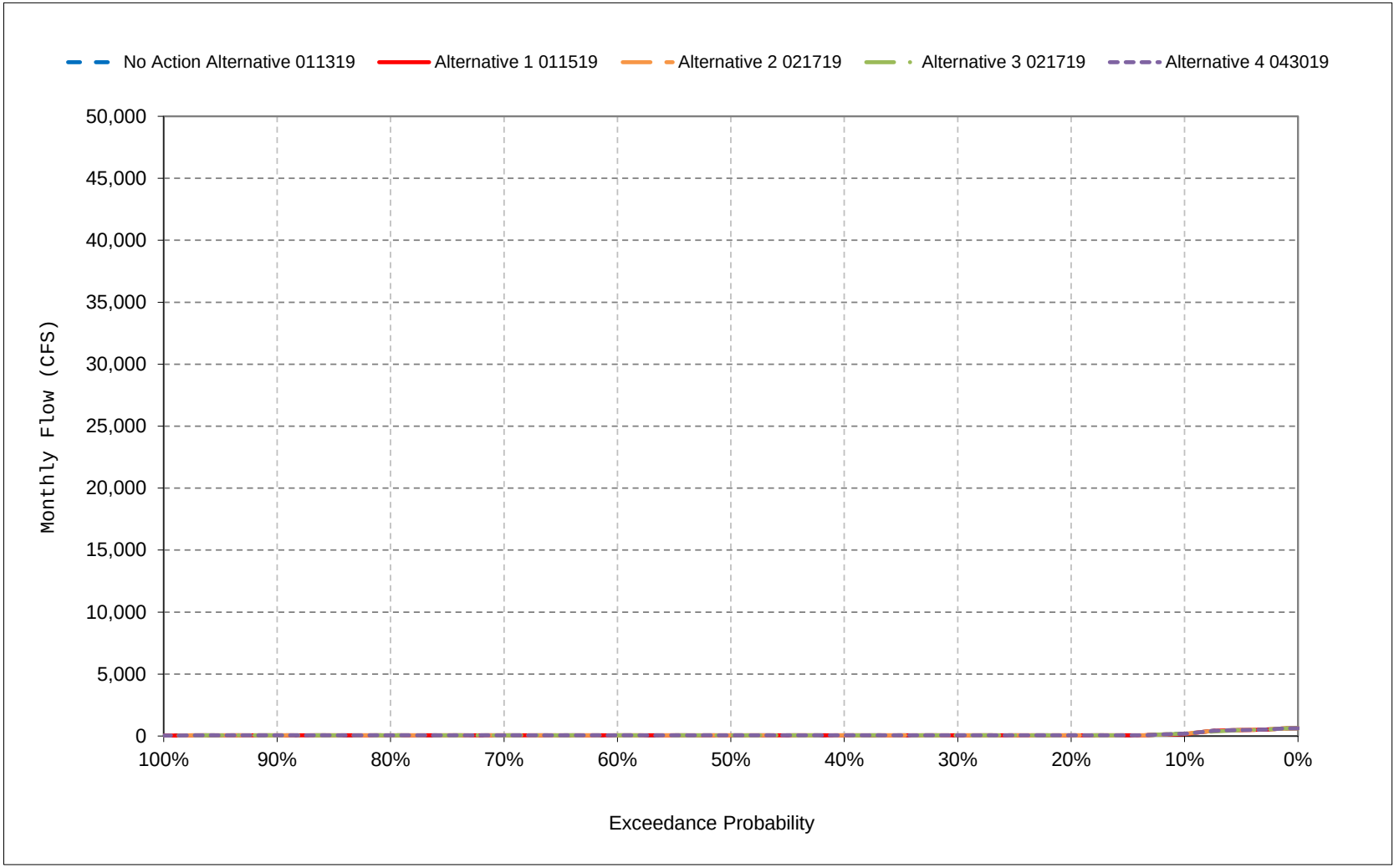
**Figure 25-16. Yolo Bypass Flow, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

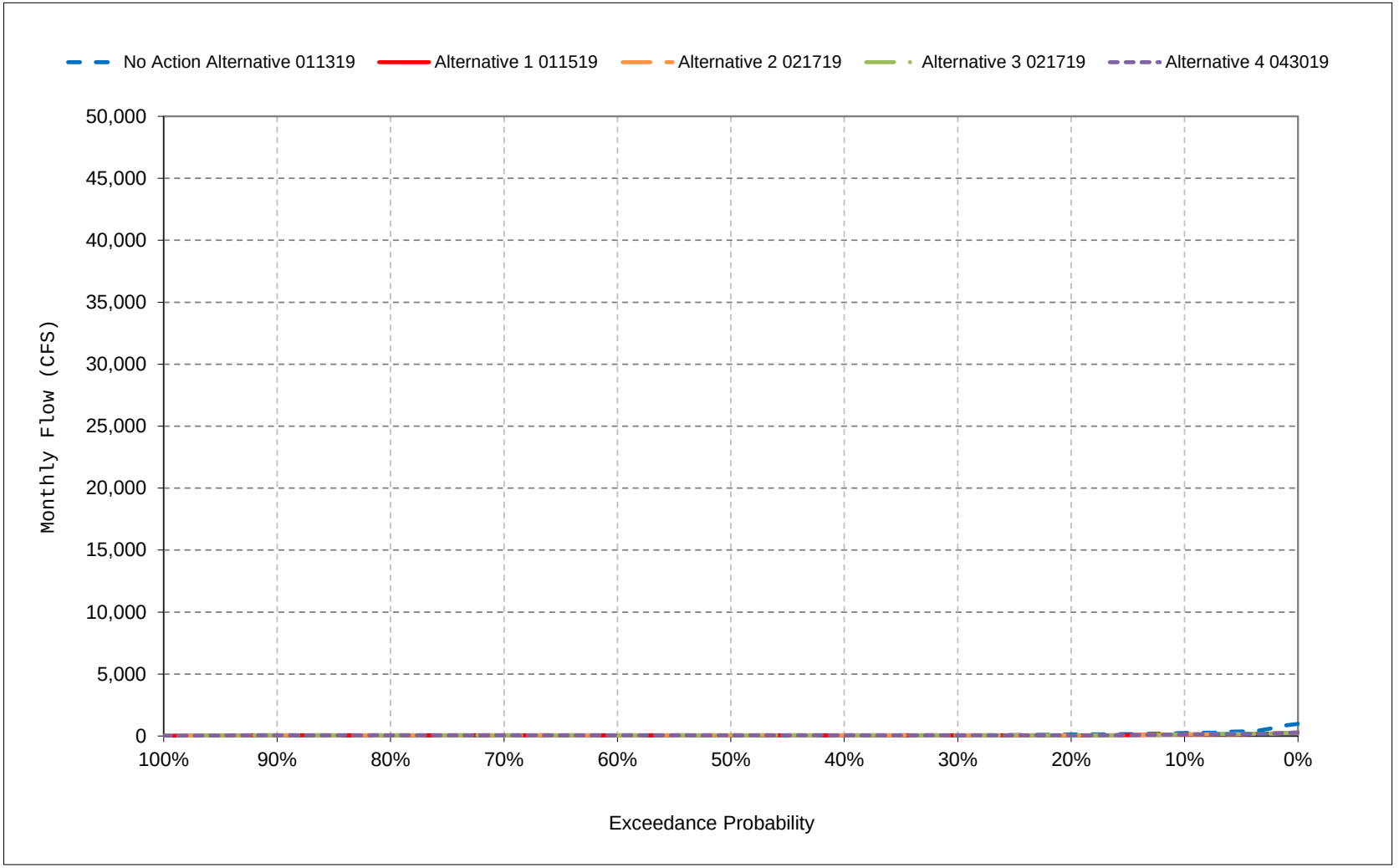
**Figure 25-17. Yolo Bypass Flow, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 25-18. Yolo Bypass Flow, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 27-1. American River below Nimbus Dam Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,741 | 3,756 | 8,397 | 12,142 | 14,637 | 9,735 | 6,685 | 7,387 | 4,560 | 5,480 | 2,916 | 3,219 |
| 20% | 1,997 | 3,254 | 3,830 | 7,660 | 10,885 | 6,795 | 5,026 | 4,409 | 3,679 | 4,822 | 2,438 | 2,808 |
| 30% | 1,639 | 2,599 | 2,285 | 5,538 | 7,067 | 5,020 | 4,431 | 3,523 | 3,146 | 3,854 | 1,953 | 2,438 |
| 40% | 1,500 | 2,149 | 2,000 | 3,503 | 5,724 | 4,151 | 3,391 | 2,648 | 2,662 | 3,358 | 1,750 | 2,077 |
| 50% | 1,500 | 1,925 | 2,000 | 1,750 | 2,905 | 2,971 | 2,486 | 1,899 | 2,219 | 2,836 | 1,750 | 1,670 |
| 60% | 1,500 | 1,683 | 2,000 | 1,700 | 1,771 | 2,249 | 2,044 | 1,750 | 1,857 | 2,512 | 1,750 | 1,533 |
| 70% | 1,500 | 1,559 | 1,730 | 1,700 | 1,445 | 1,750 | 1,747 | 1,632 | 1,750 | 1,989 | 1,634 | 1,515 |
| 80% | 1,051 | 1,128 | 1,211 | 1,468 | 1,268 | 833 | 876 | 1,067 | 1,162 | 1,750 | 1,151 | 808 |
| 90% | 800 | 800 | 800 | 950 | 945 | 800 | 800 | 800 | 800 | 886 | 800 | 800 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,679 | 2,500 | 3,676 | 5,045 | 5,836 | 4,233 | 3,338 | 3,035 | 2,687 | 3,018 | 1,812 | 1,926 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,330 | 3,667 | 4,420 | 10,469 | 10,458 | 7,190 | 5,483 | 5,489 | 4,154 | 3,449 | 2,372 | 2,955 |
| Above Normal (16%) | 1,634 | 2,171 | 2,828 | 5,591 | 7,610 | 5,914 | 3,524 | 2,486 | 2,489 | 4,679 | 1,830 | 1,966 |
| Below Normal (13%) | 1,572 | 1,996 | 2,991 | 2,228 | 4,824 | 2,152 | 2,387 | 1,967 | 2,065 | 3,803 | 1,585 | 1,389 |
| Dry (24%) | 1,344 | 2,391 | 5,298 | 1,549 | 2,173 | 2,442 | 2,162 | 1,870 | 2,018 | 2,226 | 1,630 | 1,315 |
| Critical (15%) | 971 | 969 | 905 | 1,108 | 934 | 896 | 1,320 | 1,231 | 1,406 | 887 | 1,089 | 1,163 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,825 | 4,392 | 10,055 | 12,142 | 14,637 | 10,410 | 6,685 | 7,387 | 4,560 | 4,602 | 2,973 | 1,916 |
| 20% | 1,534 | 3,485 | 4,672 | 7,854 | 10,946 | 6,796 | 5,026 | 4,409 | 3,679 | 3,915 | 2,460 | 1,750 |
| 30% | 1,500 | 2,236 | 2,606 | 5,650 | 7,486 | 5,020 | 4,397 | 3,523 | 3,255 | 3,493 | 2,006 | 1,750 |
| 40% | 1,500 | 2,000 | 2,195 | 3,503 | 5,724 | 4,144 | 3,282 | 2,602 | 2,873 | 2,941 | 1,817 | 1,750 |
| 50% | 1,500 | 2,000 | 2,000 | 2,152 | 3,557 | 3,000 | 2,494 | 1,863 | 2,519 | 2,720 | 1,750 | 1,750 |
| 60% | 1,500 | 1,923 | 2,000 | 1,613 | 2,696 | 2,234 | 2,096 | 1,565 | 2,094 | 2,379 | 1,750 | 1,750 |
| 70% | 1,159 | 1,159 | 1,813 | 1,400 | 1,750 | 1,750 | 1,469 | 1,495 | 1,673 | 1,890 | 1,671 | 1,669 |
| 80% | 749 | 730 | 802 | 1,400 | 1,400 | 1,442 | 1,017 | 1,144 | 1,212 | 1,750 | 1,511 | 1,545 |
| 90% | 595 | 588 | 626 | 714 | 1,388 | 953 | 953 | 953 | 784 | 968 | 877 | 880 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,376 | 2,485 | 3,905 | 5,106 | 6,081 | 4,367 | 3,340 | 3,024 | 2,771 | 2,771 | 1,867 | 1,628 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,789 | 3,979 | 5,132 | 10,620 | 10,566 | 7,189 | 5,453 | 5,456 | 4,288 | 3,131 | 2,388 | 1,839 |
| Above Normal (16%) | 1,535 | 2,125 | 2,921 | 5,730 | 7,949 | 6,117 | 3,478 | 2,463 | 2,657 | 4,232 | 1,872 | 1,763 |
| Below Normal (13%) | 1,348 | 1,693 | 2,886 | 2,284 | 5,585 | 2,322 | 2,434 | 2,070 | 2,211 | 3,537 | 1,903 | 1,604 |
| Dry (24%) | 1,078 | 2,233 | 5,424 | 1,540 | 2,172 | 2,600 | 2,118 | 1,817 | 2,044 | 1,950 | 1,677 | 1,537 |
| Critical (15%) | 832 | 787 | 715 | 1,013 | 1,307 | 1,173 | 1,480 | 1,249 | 1,334 | 1,073 | 1,017 | 1,196 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-916** | 636 | 1,658 | 0 | 0 | 675 | 0 | 0 | 0 | **-878** | 57 | **-1,303** |
| 20% | **-463** | 231 | 842 | 195 | 61 | 1 | 0 | 0 | 0 | **-907** | 22 | **-1,058** |
| 30% | **-139** | **-363** | 321 | 111 | 419 | 0 | **-34** | **0** | 109 | **-361** | 53 | **-688** |
| 40% | 0 | **-149** | 195 | **0** | **0** | **-7** | **-109** | **-46** | 212 | **-418** | 67 | **-327** |
| 50% | 0 | 75 | 0 | 402 | 651 | 28 | 8 | **-35** | 300 | **-116** | 0 | 80 |
| 60% | 0 | 239 | 0 | **-87** | 924 | **-15** | 52 | **-185** | 237 | **-133** | 0 | 217 |
| 70% | **-341** | **-400** | 83 | **-300** | 305 | 0 | **-278** | **-137** | **-77** | **-99** | 37 | 154 |
| 80% | **-302** | **-399** | **-409** | **-68** | 132 | 609 | 141 | 76 | 50 | 0 | 361 | 737 |
| 90% | **-205** | **-212** | **-174** | **-236** | 442 | 153 | 153 | 153 | **-16** | 82 | 77 | 80 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-303** | **-14** | 229 | 62 | 244 | 134 | 2 | **-10** | 85 | **-247** | 55 | **-298** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-541** | 311 | 712 | 152 | 108 | **-1** | **-30** | **-33** | 134 | **-318** | 16 | **-1,117** |
| Above Normal (16%) | **-99** | **-46** | 93 | 139 | 338 | 204 | **-46** | **-23** | 168 | **-447** | 43 | **-204** |
| Below Normal (13%) | **-224** | **-303** | **-105** | 56 | 762 | 169 | 47 | 103 | 146 | **-266** | 318 | 215 |
| Dry (24%) | **-266** | **-158** | 126 | **-9** | **-1** | 158 | **-44** | **-53** | 26 | **-276** | 47 | 222 |
| Critical (15%) | **-140** | **-182** | **-190** | **-95** | 373 | 276 | 160 | 18 | **-73** | 186 | **-72** | 33 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 27-2. American River below Nimbus Dam Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,741 | 3,756 | 8,397 | 12,142 | 14,637 | 9,735 | 6,685 | 7,387 | 4,560 | 5,480 | 2,916 | 3,219 |
| 20% | 1,997 | 3,254 | 3,830 | 7,660 | 10,885 | 6,795 | 5,026 | 4,409 | 3,679 | 4,822 | 2,438 | 2,808 |
| 30% | 1,639 | 2,599 | 2,285 | 5,538 | 7,067 | 5,020 | 4,431 | 3,523 | 3,146 | 3,854 | 1,953 | 2,438 |
| 40% | 1,500 | 2,149 | 2,000 | 3,503 | 5,724 | 4,151 | 3,391 | 2,648 | 2,662 | 3,358 | 1,750 | 2,077 |
| 50% | 1,500 | 1,925 | 2,000 | 1,750 | 2,905 | 2,971 | 2,486 | 1,899 | 2,219 | 2,836 | 1,750 | 1,670 |
| 60% | 1,500 | 1,683 | 2,000 | 1,700 | 1,771 | 2,249 | 2,044 | 1,750 | 1,857 | 2,512 | 1,750 | 1,533 |
| 70% | 1,500 | 1,559 | 1,730 | 1,700 | 1,445 | 1,750 | 1,747 | 1,632 | 1,750 | 1,989 | 1,634 | 1,515 |
| 80% | 1,051 | 1,128 | 1,211 | 1,468 | 1,268 | 833 | 876 | 1,067 | 1,162 | 1,750 | 1,151 | 808 |
| 90% | 800 | 800 | 800 | 950 | 945 | 800 | 800 | 800 | 800 | 886 | 800 | 800 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,679 | 2,500 | 3,676 | 5,045 | 5,836 | 4,233 | 3,338 | 3,035 | 2,687 | 3,018 | 1,812 | 1,926 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,330 | 3,667 | 4,420 | 10,469 | 10,458 | 7,190 | 5,483 | 5,489 | 4,154 | 3,449 | 2,372 | 2,955 |
| Above Normal (16%) | 1,634 | 2,171 | 2,828 | 5,591 | 7,610 | 5,914 | 3,524 | 2,486 | 2,489 | 4,679 | 1,830 | 1,966 |
| Below Normal (13%) | 1,572 | 1,996 | 2,991 | 2,228 | 4,824 | 2,152 | 2,387 | 1,967 | 2,065 | 3,803 | 1,585 | 1,389 |
| Dry (24%) | 1,344 | 2,391 | 5,298 | 1,549 | 2,173 | 2,442 | 2,162 | 1,870 | 2,018 | 2,226 | 1,630 | 1,315 |
| Critical (15%) | 971 | 969 | 905 | 1,108 | 934 | 896 | 1,320 | 1,231 | 1,406 | 887 | 1,089 | 1,163 |

## Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,952 | 3,780 | 10,051 | 12,142 | 14,637 | 9,735 | 6,685 | 7,387 | 5,235 | 4,997 | 2,922 | 1,922 |
| 20% | 1,655 | 3,235 | 3,926 | 7,854 | 10,794 | 6,780 | 5,026 | 4,409 | 4,359 | 4,504 | 2,605 | 1,717 |
| 30% | 1,500 | 2,249 | 2,693 | 5,748 | 7,296 | 5,020 | 4,397 | 3,523 | 3,672 | 3,827 | 2,338 | 1,535 |
| 40% | 1,500 | 1,925 | 2,000 | 3,503 | 5,724 | 4,146 | 3,275 | 2,947 | 3,451 | 2,958 | 1,750 | 1,533 |
| 50% | 1,500 | 1,743 | 2,000 | 1,911 | 3,485 | 3,017 | 2,519 | 2,197 | 2,879 | 2,744 | 1,750 | 1,533 |
| 60% | 1,500 | 1,553 | 1,783 | 1,700 | 2,532 | 1,986 | 2,124 | 1,850 | 2,472 | 2,494 | 1,750 | 1,533 |
| 70% | 1,329 | 1,329 | 1,397 | 1,700 | 1,446 | 1,750 | 1,750 | 1,747 | 2,057 | 2,019 | 1,487 | 1,493 |
| 80% | 1,031 | 1,031 | 1,227 | 1,231 | 1,275 | 956 | 1,024 | 1,397 | 1,679 | 1,753 | 850 | 808 |
| 90% | 800 | 800 | 800 | 873 | 850 | 800 | 800 | 965 | 947 | 809 | 623 | 800 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,457 | 2,391 | 3,808 | 5,057 | 5,968 | 4,246 | 3,364 | 3,150 | 3,107 | 2,938 | 1,798 | 1,455 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,820 | 3,745 | 5,074 | 10,424 | 10,566 | 7,189 | 5,481 | 5,543 | 4,444 | 3,106 | 2,558 | 1,688 |
| Above Normal (16%) | 1,426 | 1,742 | 2,613 | 5,622 | 7,945 | 6,074 | 3,504 | 2,576 | 3,598 | 4,693 | 1,785 | 1,476 |
| Below Normal (13%) | 1,188 | 1,524 | 2,702 | 2,396 | 5,188 | 2,168 | 2,380 | 2,174 | 3,064 | 3,834 | 1,715 | 1,410 |
| Dry (24%) | 1,433 | 2,406 | 5,281 | 1,541 | 2,160 | 2,397 | 2,175 | 2,028 | 2,150 | 2,182 | 1,431 | 1,336 |
| Critical (15%) | 992 | 933 | 915 | 1,111 | 924 | 878 | 1,511 | 1,352 | 1,311 | 1,112 | 857 | 1,167 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-790** | 24 | 1,654 | 0 | **0** | 0 | 0 | 0 | 675 | **-482** | 6 | **-1,297** |
| 20% | **-342** | **-19** | 96 | 195 | **-91** | **-15** | 0 | 0 | 679 | **-318** | 166 | **-1,091** |
| 30% | **-139** | **-350** | 408 | 209 | 229 | 0 | **-34** | **0** | 526 | **-26** | 385 | **-903** |
| 40% | 0 | **-224** | 0 | **0** | **0** | **-5** | **-116** | 299 | 790 | **-400** | 0 | **-544** |
| 50% | 0 | **-182** | 0 | 161 | 580 | 45 | 33 | 298 | 660 | **-92** | 0 | **-137** |
| 60% | 0 | **-130** | **-217** | 0 | 761 | **-263** | 80 | 100 | 615 | **-18** | 0 | 0 |
| 70% | **-171** | **-229** | **-332** | 0 | 1 | 0 | 3 | 114 | 307 | 31 | **-147** | **-22** |
| 80% | **-19** | **-97** | 16 | **-238** | 8 | 123 | 148 | 330 | 516 | 3 | **-300** | 0 |
| 90% | 0 | 0 | 0 | **-77** | **-95** | 0 | 0 | 165 | 147 | **-77** | **-177** | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-222** | **-108** | 132 | 12 | 131 | 14 | 26 | 115 | 420 | **-80** | **-13** | **-471** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-511** | 77 | 654 | **-44** | 108 | **-1** | **-2** | 53 | 290 | **-343** | 186 | **-1,267** |
| Above Normal (16%) | **-208** | **-429** | **-215** | 32 | 334 | 160 | **-20** | 90 | 1,109 | 14 | **-45** | **-490** |
| Below Normal (13%) | **-384** | **-472** | **-289** | 168 | 364 | 16 | **-7** | 207 | 999 | 32 | 129 | 21 |
| Dry (24%) | 89 | 15 | **-17** | **-8** | **-13** | **-45** | 13 | 158 | 132 | **-43** | **-199** | 21 |
| Critical (15%) | 21 | **-36** | 10 | 3 | **-10** | **-18** | 191 | 122 | **-95** | 225 | **-232** | 3 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 27-3. American River below Nimbus Dam Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,741 | 3,756 | 8,397 | 12,142 | 14,637 | 9,735 | 6,685 | 7,387 | 4,560 | 5,480 | 2,916 | 3,219 |
| 20% | 1,997 | 3,254 | 3,830 | 7,660 | 10,885 | 6,795 | 5,026 | 4,409 | 3,679 | 4,822 | 2,438 | 2,808 |
| 30% | 1,639 | 2,599 | 2,285 | 5,538 | 7,067 | 5,020 | 4,431 | 3,523 | 3,146 | 3,854 | 1,953 | 2,438 |
| 40% | 1,500 | 2,149 | 2,000 | 3,503 | 5,724 | 4,151 | 3,391 | 2,648 | 2,662 | 3,358 | 1,750 | 2,077 |
| 50% | 1,500 | 1,925 | 2,000 | 1,750 | 2,905 | 2,971 | 2,486 | 1,899 | 2,219 | 2,836 | 1,750 | 1,670 |
| 60% | 1,500 | 1,683 | 2,000 | 1,700 | 1,771 | 2,249 | 2,044 | 1,750 | 1,857 | 2,512 | 1,750 | 1,533 |
| 70% | 1,500 | 1,559 | 1,730 | 1,700 | 1,445 | 1,750 | 1,747 | 1,632 | 1,750 | 1,989 | 1,634 | 1,515 |
| 80% | 1,051 | 1,128 | 1,211 | 1,468 | 1,268 | 833 | 876 | 1,067 | 1,162 | 1,750 | 1,151 | 808 |
| 90% | 800 | 800 | 800 | 950 | 945 | 800 | 800 | 800 | 800 | 886 | 800 | 800 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,679 | 2,500 | 3,676 | 5,045 | 5,836 | 4,233 | 3,338 | 3,035 | 2,687 | 3,018 | 1,812 | 1,926 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,330 | 3,667 | 4,420 | 10,469 | 10,458 | 7,190 | 5,483 | 5,489 | 4,154 | 3,449 | 2,372 | 2,955 |
| Above Normal (16%) | 1,634 | 2,171 | 2,828 | 5,591 | 7,610 | 5,914 | 3,524 | 2,486 | 2,489 | 4,679 | 1,830 | 1,966 |
| Below Normal (13%) | 1,572 | 1,996 | 2,991 | 2,228 | 4,824 | 2,152 | 2,387 | 1,967 | 2,065 | 3,803 | 1,585 | 1,389 |
| Dry (24%) | 1,344 | 2,391 | 5,298 | 1,549 | 2,173 | 2,442 | 2,162 | 1,870 | 2,018 | 2,226 | 1,630 | 1,315 |
| Critical (15%) | 971 | 969 | 905 | 1,108 | 934 | 896 | 1,320 | 1,231 | 1,406 | 887 | 1,089 | 1,163 |

## Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,012 | 3,829 | 10,051 | 12,142 | 14,637 | 9,735 | 6,685 | 7,387 | 4,768 | 5,237 | 3,035 | 1,966 |
| 20% | 1,638 | 3,232 | 3,912 | 7,854 | 10,777 | 6,780 | 5,026 | 4,409 | 3,990 | 4,474 | 2,588 | 1,712 |
| 30% | 1,500 | 2,156 | 2,647 | 5,793 | 7,296 | 5,020 | 4,397 | 3,523 | 3,626 | 3,952 | 2,218 | 1,533 |
| 40% | 1,500 | 1,925 | 2,000 | 3,502 | 5,724 | 4,149 | 3,276 | 2,944 | 3,227 | 2,961 | 1,811 | 1,533 |
| 50% | 1,500 | 1,748 | 2,000 | 1,807 | 3,478 | 2,993 | 2,519 | 2,190 | 2,891 | 2,701 | 1,750 | 1,533 |
| 60% | 1,500 | 1,549 | 1,807 | 1,700 | 2,595 | 1,984 | 2,124 | 1,792 | 2,471 | 2,518 | 1,750 | 1,533 |
| 70% | 1,368 | 1,368 | 1,432 | 1,700 | 1,445 | 1,750 | 1,750 | 1,747 | 2,112 | 2,008 | 1,493 | 1,493 |
| 80% | 1,055 | 1,055 | 1,169 | 1,286 | 1,149 | 973 | 1,380 | 1,386 | 1,619 | 1,750 | 942 | 800 |
| 90% | 800 | 800 | 800 | 806 | 804 | 800 | 800 | 944 | 935 | 843 | 624 | 687 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,484 | 2,409 | 3,811 | 5,081 | 5,957 | 4,245 | 3,371 | 3,140 | 3,050 | 2,939 | 1,807 | 1,453 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,878 | 3,711 | 5,085 | 10,505 | 10,588 | 7,189 | 5,481 | 5,492 | 4,448 | 3,240 | 2,494 | 1,624 |
| Above Normal (16%) | 1,402 | 1,708 | 2,597 | 5,634 | 7,955 | 6,069 | 3,504 | 2,578 | 3,315 | 4,760 | 1,952 | 1,607 |
| Below Normal (13%) | 1,277 | 1,641 | 2,768 | 2,399 | 5,167 | 2,169 | 2,426 | 2,191 | 2,983 | 3,543 | 1,680 | 1,427 |
| Dry (24%) | 1,437 | 2,473 | 5,272 | 1,521 | 2,123 | 2,392 | 2,198 | 2,038 | 2,147 | 2,219 | 1,424 | 1,319 |
| Critical (15%) | 985 | 942 | 889 | 1,124 | 871 | 878 | 1,479 | 1,361 | 1,303 | 963 | 917 | 1,163 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-729** | 73 | 1,654 | 0 | **0** | 0 | 0 | 0 | 209 | **-242** | 119 | **-1,253** |
| 20% | **-360** | **-22** | 82 | 195 | **-108** | **-15** | 0 | 0 | 310 | **-348** | 150 | **-1,096** |
| 30% | **-139** | **-443** | 362 | 254 | 229 | 0 | **-34** | **0** | 480 | 98 | 265 | **-905** |
| 40% | 0 | **-224** | 0 | **-1** | **0** | **-2** | **-115** | 297 | 565 | **-397** | 61 | **-544** |
| 50% | 0 | **-177** | 0 | 57 | 573 | 22 | 33 | 292 | 671 | **-136** | 0 | **-137** |
| 60% | 0 | **-134** | **-193** | 0 | 823 | **-265** | 80 | 42 | 614 | 6 | 0 | 0 |
| 70% | **-132** | **-191** | **-297** | 0 | 0 | 0 | 3 | 114 | 362 | 19 | **-141** | **-22** |
| 80% | 4 | **-73** | **-42** | **-182** | **-118** | 139 | 504 | 318 | 457 | 0 | **-208** | **-8** |
| 90% | 0 | 0 | 0 | **-144** | **-141** | 0 | 0 | 144 | 135 | **-43** | **-176** | **-113** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-195** | **-91** | 136 | 37 | 120 | 12 | 34 | 105 | 364 | **-79** | **-4** | **-473** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-453** | 43 | 665 | 36 | 130 | **-1** | **-2** | 3 | 294 | **-209** | 123 | **-1,332** |
| Above Normal (16%) | **-232** | **-463** | **-231** | 43 | 345 | 156 | **-20** | 92 | 826 | 81 | 122 | **-359** |
| Below Normal (13%) | **-295** | **-355** | **-223** | 171 | 343 | 17 | 38 | 224 | 919 | **-260** | 95 | 38 |
| Dry (24%) | 93 | 82 | **-26** | **-28** | **-50** | **-50** | 36 | 168 | 129 | **-7** | **-205** | 4 |
| Critical (15%) | 14 | **-27** | **-16** | 16 | **-64** | **-18** | 160 | 130 | **-104** | 76 | **-173** | **0** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 27-4. American River below Nimbus Dam Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,741 | 3,756 | 8,397 | 12,142 | 14,637 | 9,735 | 6,685 | 7,387 | 4,560 | 5,480 | 2,916 | 3,219 |
| 20% | 1,997 | 3,254 | 3,830 | 7,660 | 10,885 | 6,795 | 5,026 | 4,409 | 3,679 | 4,822 | 2,438 | 2,808 |
| 30% | 1,639 | 2,599 | 2,285 | 5,538 | 7,067 | 5,020 | 4,431 | 3,523 | 3,146 | 3,854 | 1,953 | 2,438 |
| 40% | 1,500 | 2,149 | 2,000 | 3,503 | 5,724 | 4,151 | 3,391 | 2,648 | 2,662 | 3,358 | 1,750 | 2,077 |
| 50% | 1,500 | 1,925 | 2,000 | 1,750 | 2,905 | 2,971 | 2,486 | 1,899 | 2,219 | 2,836 | 1,750 | 1,670 |
| 60% | 1,500 | 1,683 | 2,000 | 1,700 | 1,771 | 2,249 | 2,044 | 1,750 | 1,857 | 2,512 | 1,750 | 1,533 |
| 70% | 1,500 | 1,559 | 1,730 | 1,700 | 1,445 | 1,750 | 1,747 | 1,632 | 1,750 | 1,989 | 1,634 | 1,515 |
| 80% | 1,051 | 1,128 | 1,211 | 1,468 | 1,268 | 833 | 876 | 1,067 | 1,162 | 1,750 | 1,151 | 808 |
| 90% | 800 | 800 | 800 | 950 | 945 | 800 | 800 | 800 | 800 | 886 | 800 | 800 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,679 | 2,500 | 3,676 | 5,045 | 5,836 | 4,233 | 3,338 | 3,035 | 2,687 | 3,018 | 1,812 | 1,926 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,330 | 3,667 | 4,420 | 10,469 | 10,458 | 7,190 | 5,483 | 5,489 | 4,154 | 3,449 | 2,372 | 2,955 |
| Above Normal (16%) | 1,634 | 2,171 | 2,828 | 5,591 | 7,610 | 5,914 | 3,524 | 2,486 | 2,489 | 4,679 | 1,830 | 1,966 |
| Below Normal (13%) | 1,572 | 1,996 | 2,991 | 2,228 | 4,824 | 2,152 | 2,387 | 1,967 | 2,065 | 3,803 | 1,585 | 1,389 |
| Dry (24%) | 1,344 | 2,391 | 5,298 | 1,549 | 2,173 | 2,442 | 2,162 | 1,870 | 2,018 | 2,226 | 1,630 | 1,315 |
| Critical (15%) | 971 | 969 | 905 | 1,108 | 934 | 896 | 1,320 | 1,231 | 1,406 | 887 | 1,089 | 1,163 |

## Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,975 | 4,130 | 10,055 | 12,142 | 14,637 | 10,410 | 6,685 | 7,387 | 4,560 | 4,573 | 2,901 | 1,909 |
| 20% | 1,676 | 3,252 | 5,026 | 7,854 | 10,946 | 6,789 | 5,239 | 5,500 | 3,258 | 4,021 | 2,011 | 1,750 |
| 30% | 1,500 | 2,099 | 2,886 | 5,845 | 7,343 | 4,906 | 4,641 | 4,736 | 2,932 | 3,228 | 1,946 | 1,750 |
| 40% | 1,500 | 2,000 | 2,000 | 3,793 | 5,741 | 4,122 | 3,650 | 3,059 | 2,557 | 2,823 | 1,750 | 1,750 |
| 50% | 1,500 | 2,000 | 2,000 | 2,155 | 3,803 | 2,998 | 2,728 | 2,182 | 2,250 | 2,518 | 1,750 | 1,750 |
| 60% | 1,500 | 1,883 | 2,000 | 1,603 | 2,710 | 1,991 | 1,954 | 1,638 | 1,913 | 2,387 | 1,750 | 1,750 |
| 70% | 1,344 | 1,159 | 1,813 | 1,400 | 1,750 | 1,750 | 1,424 | 1,348 | 1,500 | 1,997 | 1,733 | 1,663 |
| 80% | 749 | 730 | 857 | 1,400 | 1,400 | 1,411 | 962 | 1,057 | 1,028 | 1,750 | 1,513 | 1,513 |
| 90% | 607 | 588 | 633 | 714 | 1,387 | 953 | 953 | 953 | 783 | 959 | 880 | 820 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,430 | 2,369 | 3,914 | 5,136 | 6,103 | 4,337 | 3,462 | 3,329 | 2,565 | 2,731 | 1,834 | 1,610 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,846 | 3,752 | 5,129 | 10,627 | 10,569 | 7,190 | 5,620 | 5,807 | 4,116 | 3,038 | 2,358 | 1,837 |
| Above Normal (16%) | 1,548 | 2,123 | 2,936 | 5,880 | 7,958 | 6,116 | 3,591 | 3,006 | 2,256 | 4,104 | 1,929 | 1,749 |
| Below Normal (13%) | 1,299 | 1,677 | 3,070 | 2,290 | 5,552 | 2,323 | 2,674 | 2,268 | 2,042 | 3,165 | 1,929 | 1,628 |
| Dry (24%) | 1,112 | 2,060 | 5,343 | 1,575 | 2,226 | 2,519 | 2,239 | 2,095 | 1,781 | 2,092 | 1,547 | 1,532 |
| Critical (15%) | 1,048 | 785 | 736 | 979 | 1,386 | 1,108 | 1,408 | 1,342 | 1,324 | 1,245 | 987 | 1,082 |

## Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-767** | 374 | 1,658 | 0 | 0 | 675 | 0 | 0 | 0 | **-906** | **-15** | **-1,310** |
| 20% | **-322** | **-2** | 1,196 | 195 | 61 | **-5** | 213 | 1,091 | **-422** | **-801** | **-427** | **-1,058** |
| 30% | **-139** | **-500** | 601 | 307 | 276 | **-114** | 210 | 1,214 | **-214** | **-626** | **-7** | **-688** |
| 40% | 0 | **-149** | 0 | 290 | 17 | **-30** | 259 | 411 | **-105** | **-535** | 0 | **-327** |
| 50% | 0 | 75 | 0 | 405 | 897 | 26 | 242 | 284 | 31 | **-318** | 0 | 80 |
| 60% | 0 | 200 | 0 | **-97** | 938 | **-258** | **-90** | **-112** | 56 | **-125** | 0 | 217 |
| 70% | **-156** | **-400** | 83 | **-300** | 305 | 0 | **-323** | **-285** | **-250** | 8 | 99 | 148 |
| 80% | **-302** | **-399** | **-354** | **-68** | 132 | 578 | 86 | **-10** | **-134** | 0 | 363 | 705 |
| 90% | **-193** | **-212** | **-167** | **-236** | 442 | 153 | 153 | 153 | **-17** | 74 | 80 | 20 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-249** | **-131** | 239 | 92 | 267 | 105 | 124 | 295 | **-122** | **-287** | 23 | **-316** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-484** | 85 | 709 | 158 | 110 | **0** | 137 | 318 | **-38** | **-411** | **-14** | **-1,118** |
| Above Normal (16%) | **-87** | **-48** | 108 | 289 | 348 | 203 | 67 | 519 | **-233** | **-576** | 100 | **-218** |
| Below Normal (13%) | **-273** | **-319** | 79 | 62 | 728 | 170 | 287 | 301 | **-23** | **-638** | 344 | 239 |
| Dry (24%) | **-232** | **-331** | 45 | 26 | 53 | 78 | 77 | 226 | **-237** | **-134** | **-83** | 217 |
| Critical (15%) | 77 | **-184** | **-169** | **-129** | 452 | 211 | 88 | 111 | **-83** | 358 | **-102** | **-81** |

a Based on the 82-year simulation period.

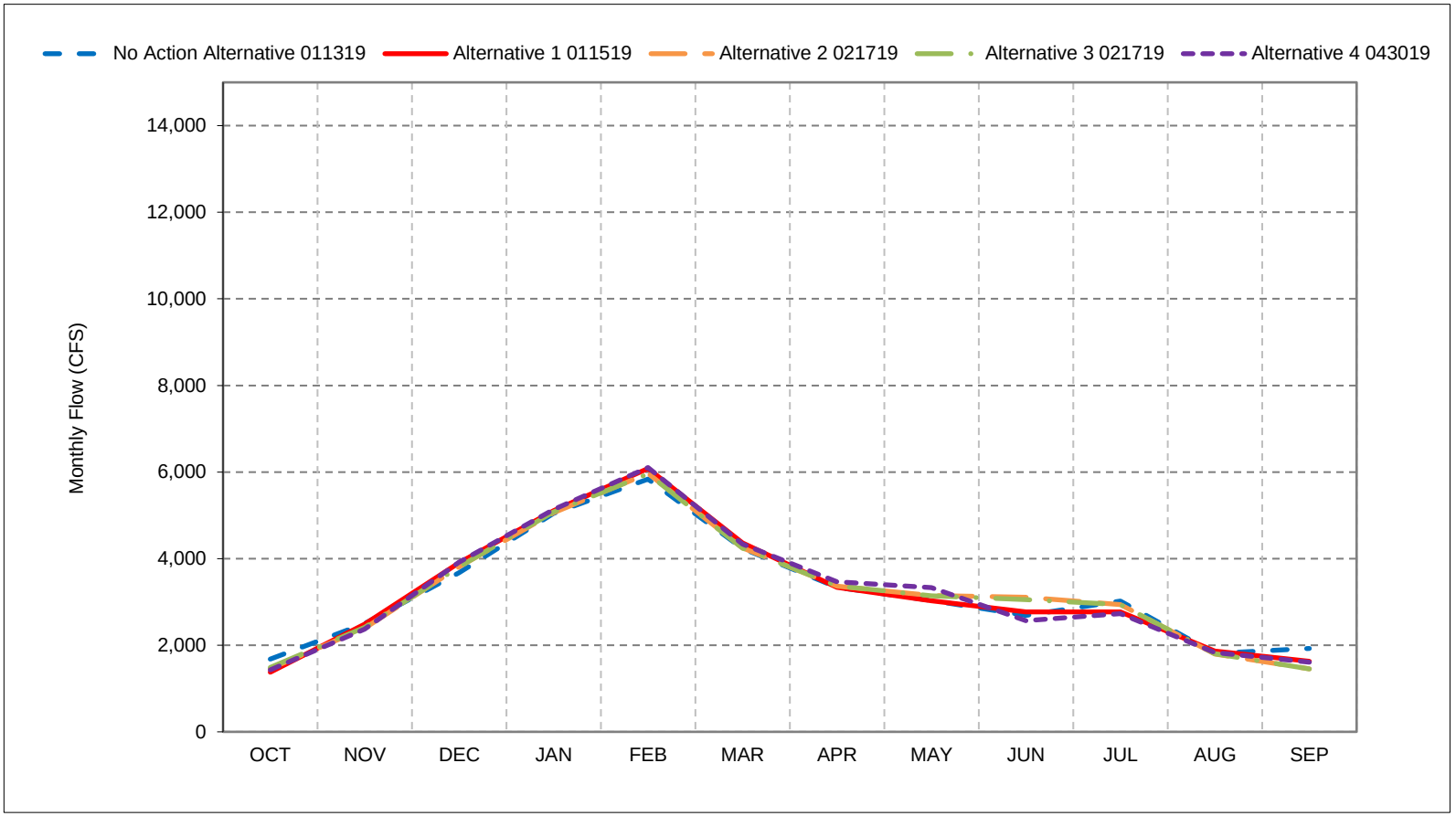
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

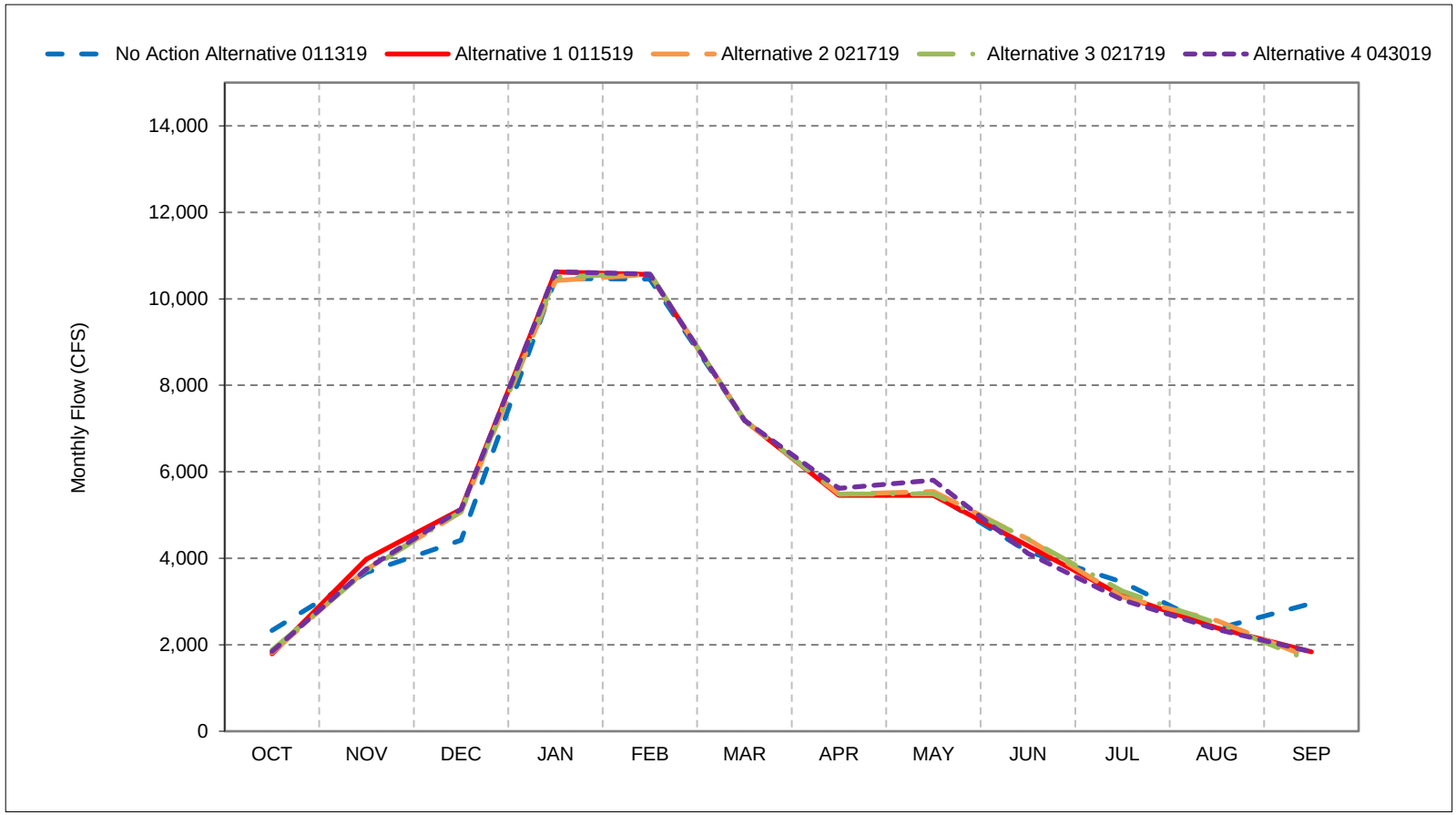
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 27-1. American River below Nimbus Dam Flow, Long-Term Average Flow



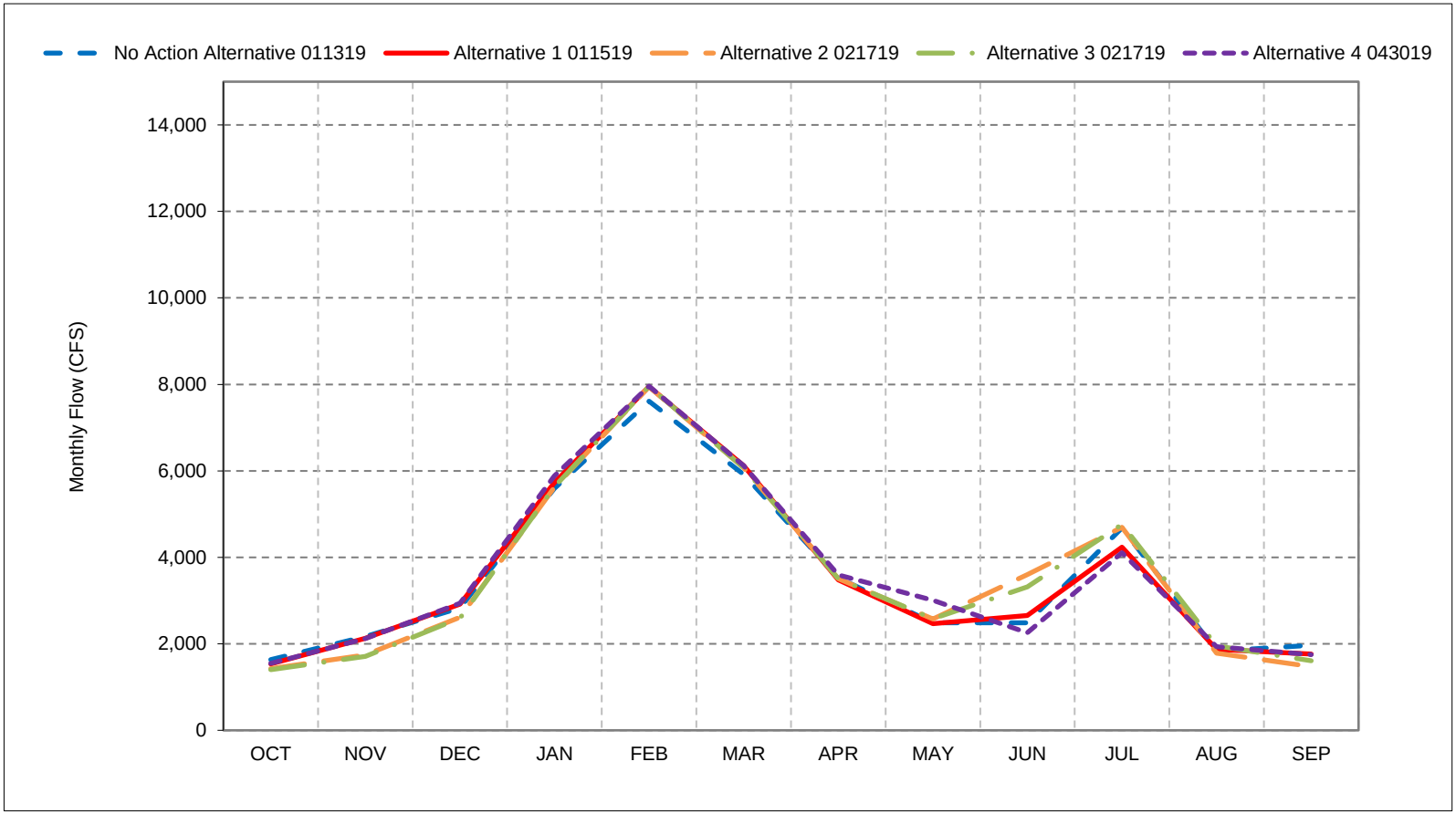

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 27-2. American River below Nimbus Dam Flow, Wet Year Average Flow



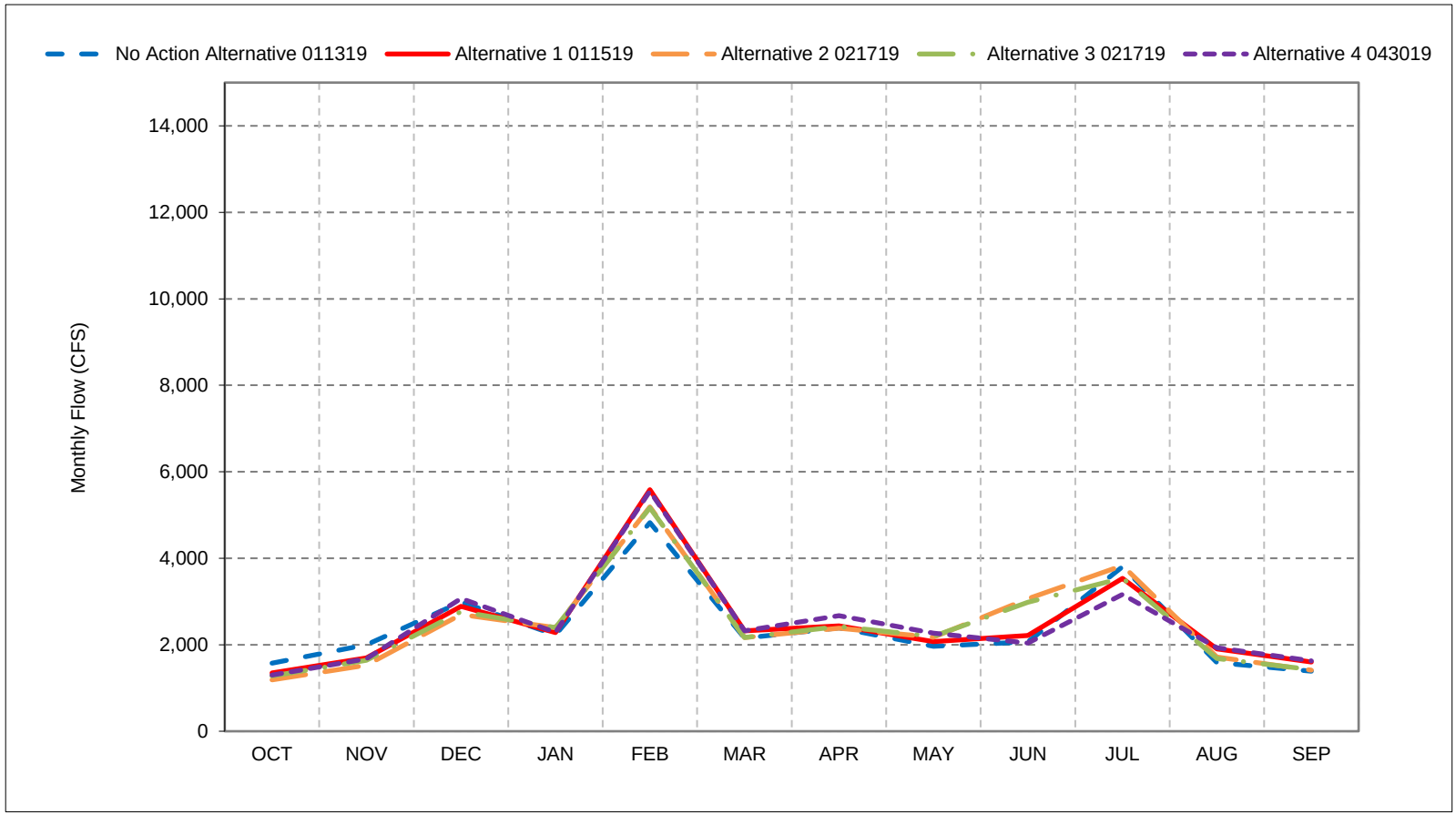

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 27-3. American River below Nimbus Dam Flow, Above Normal Year Average Flow



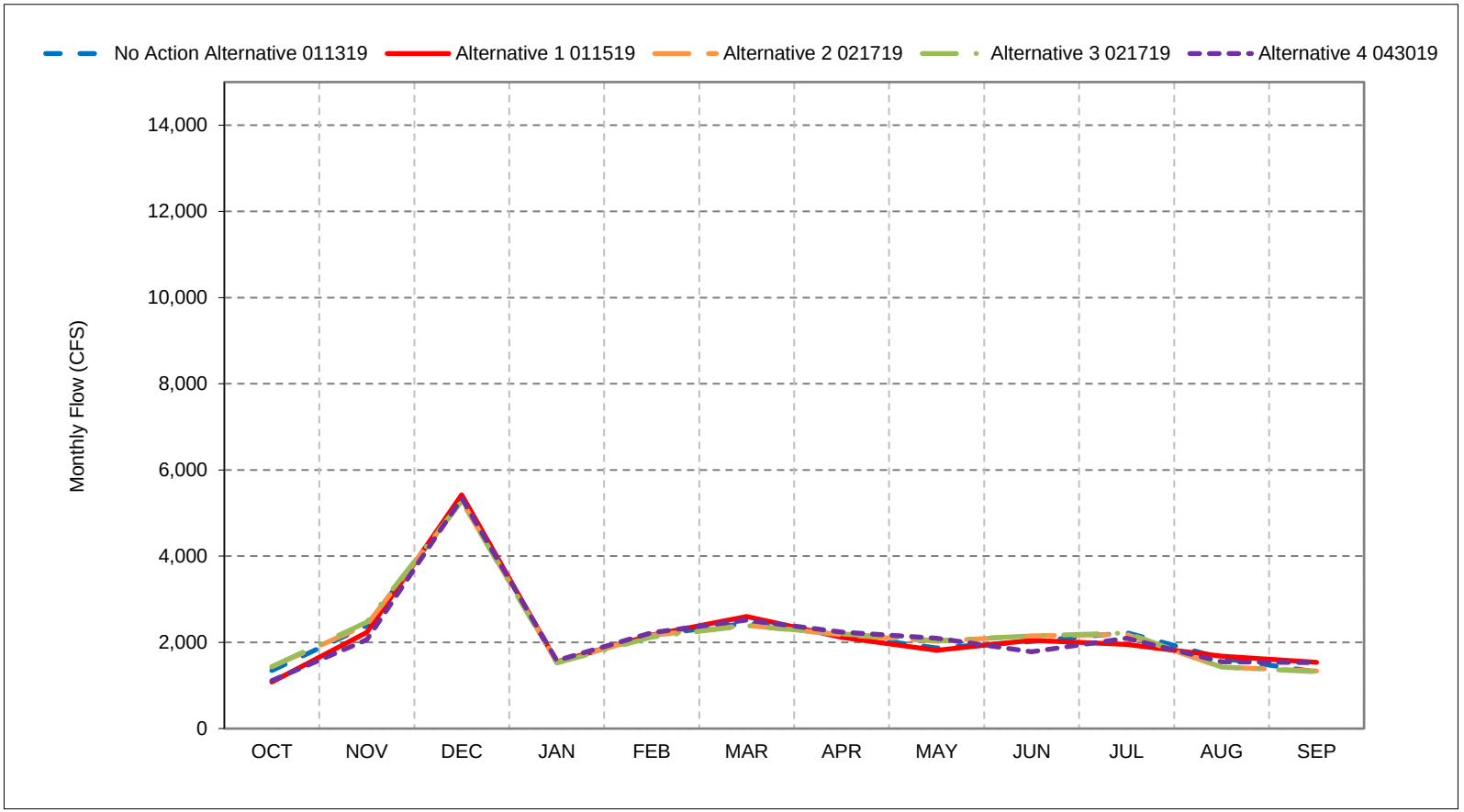

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 27-4. American River below Nimbus Dam Flow, Below Normal Year Average Flow



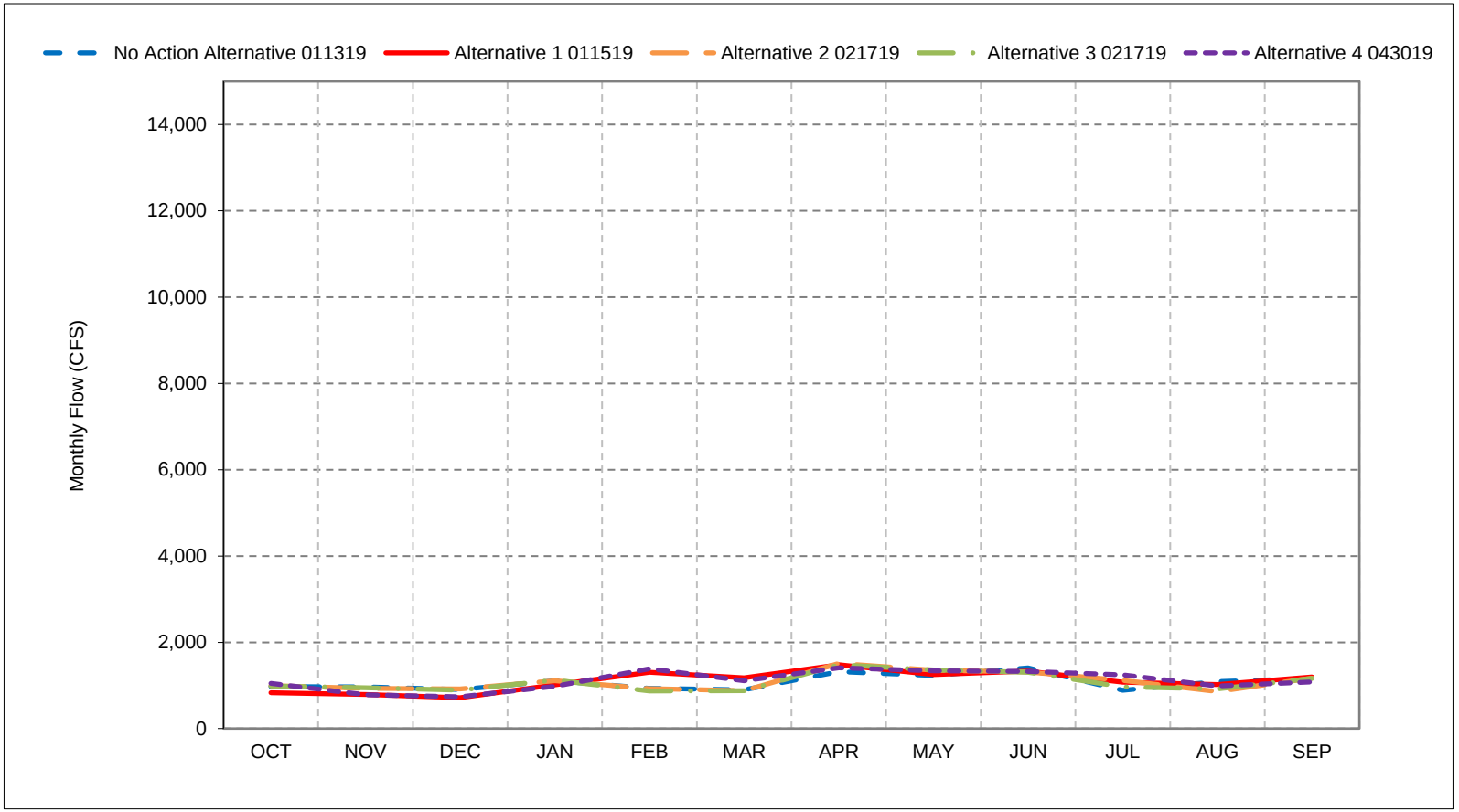

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 27-5. American River below Nimbus Dam Flow, Dry Year Average Flow



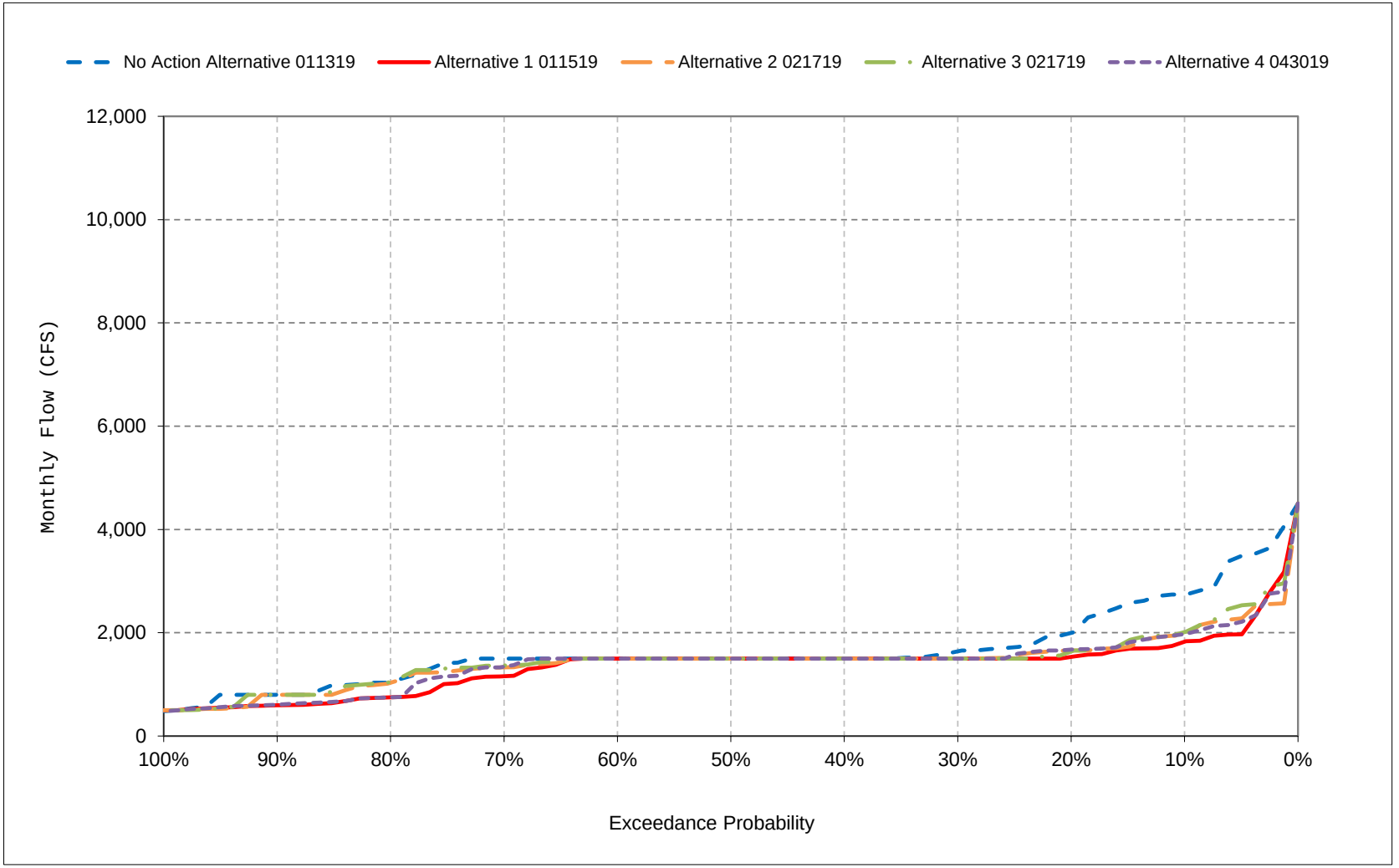

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 27-6. American River below Nimbus Dam Flow, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

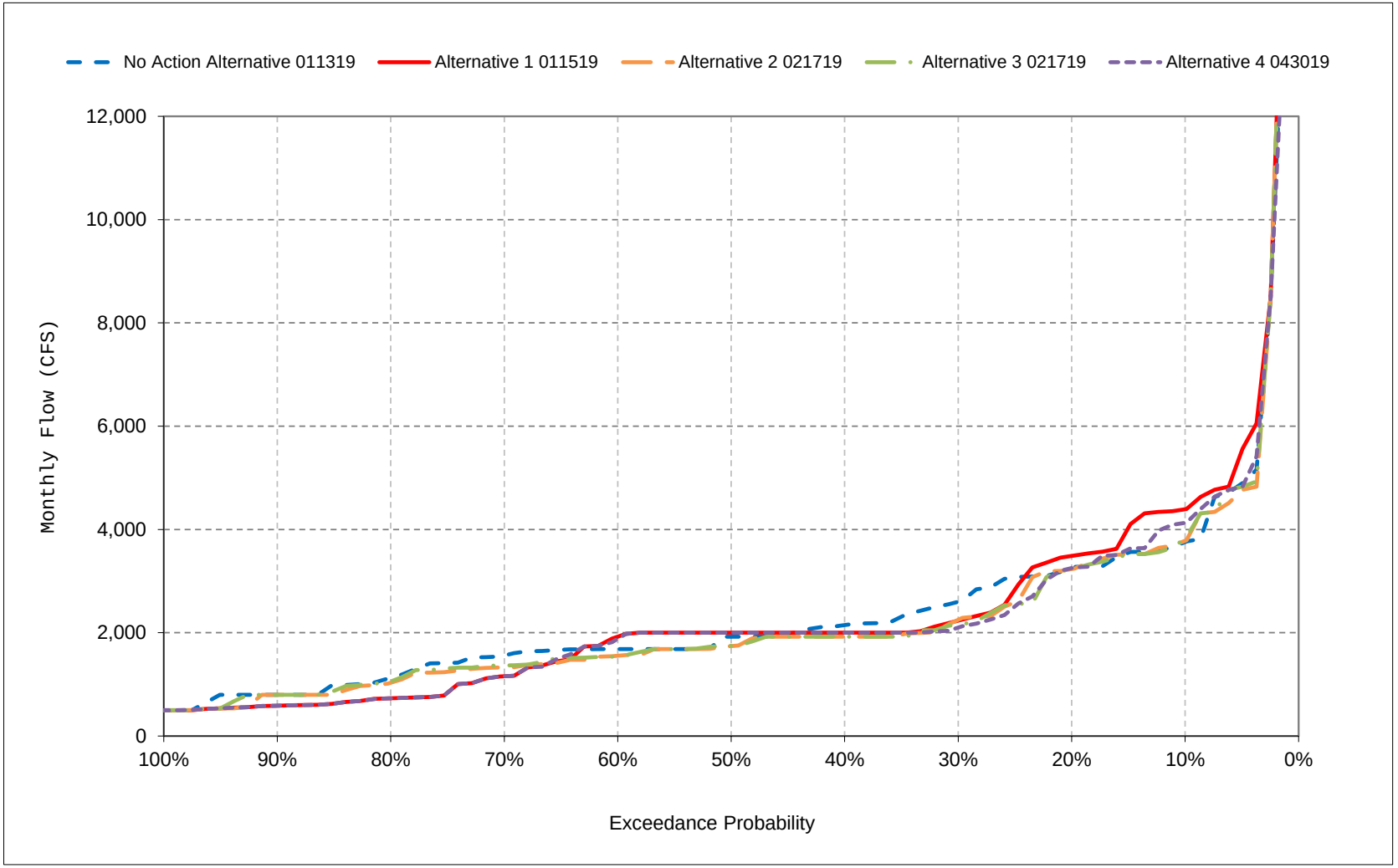
**Figure 27-7. American River below Nimbus Dam Flow, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

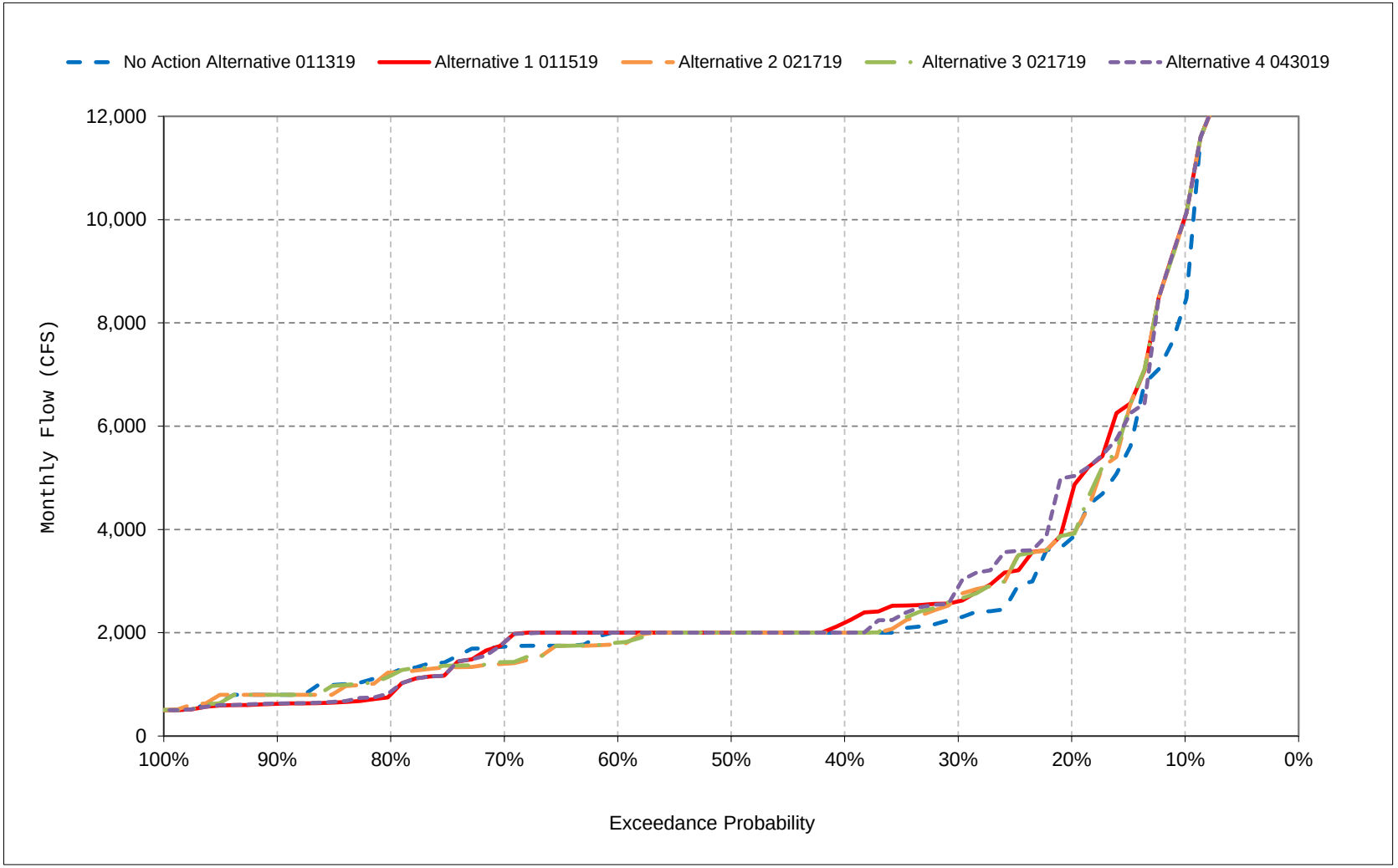
**Figure 27-8. American River below Nimbus Dam Flow, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

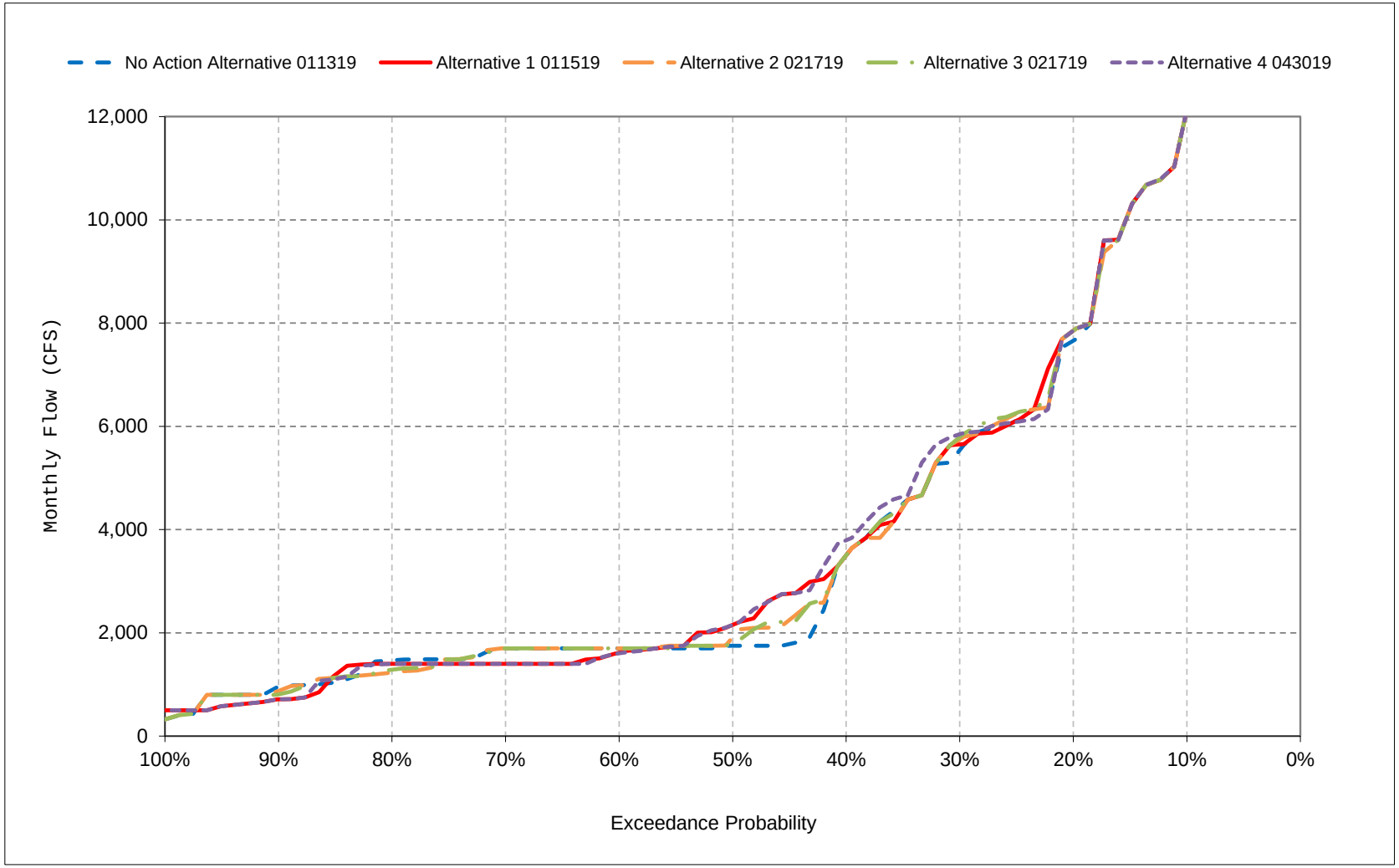
**Figure 27-9. American River below Nimbus Dam Flow, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

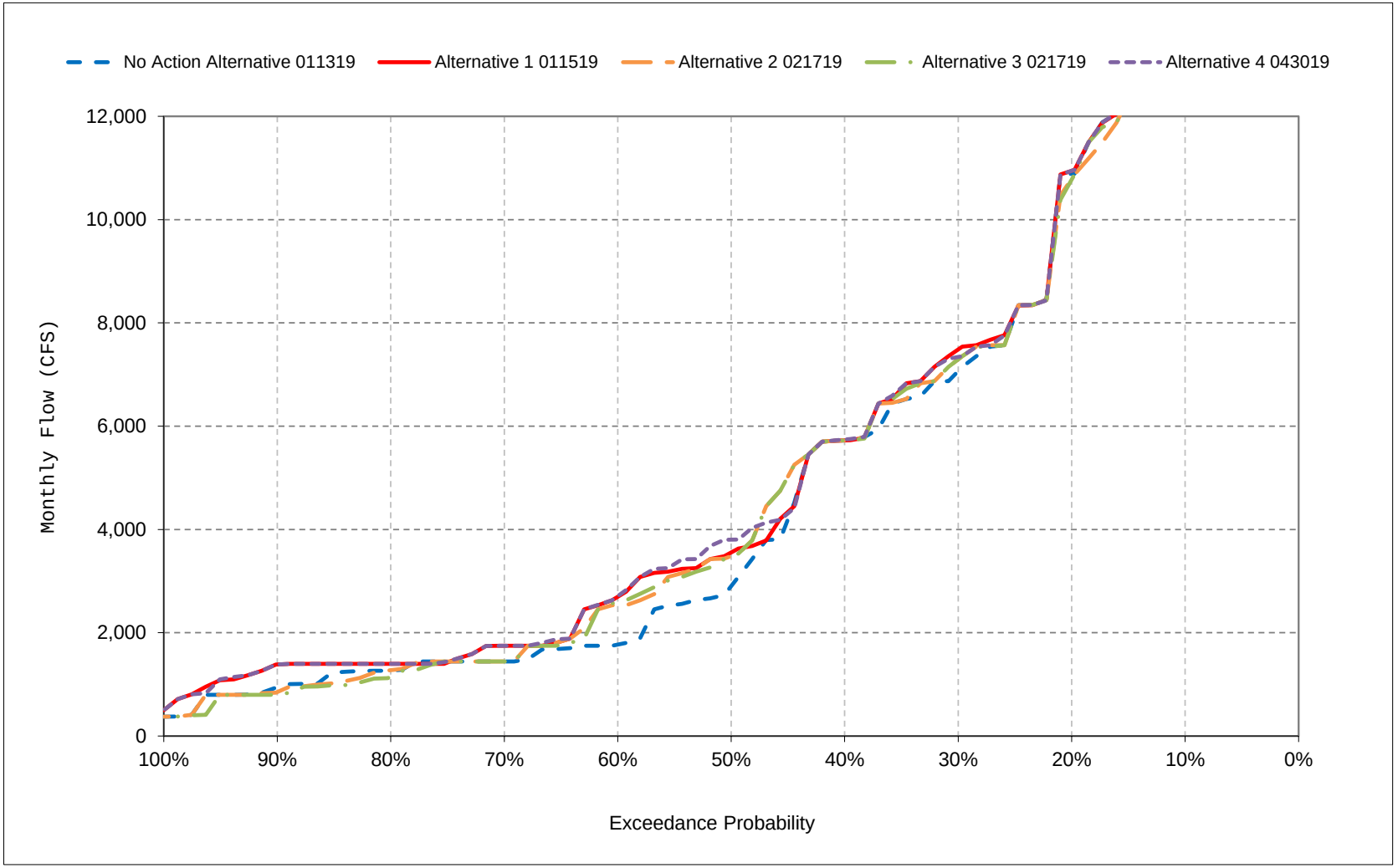
**Figure 27-10. American River below Nimbus Dam Flow, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

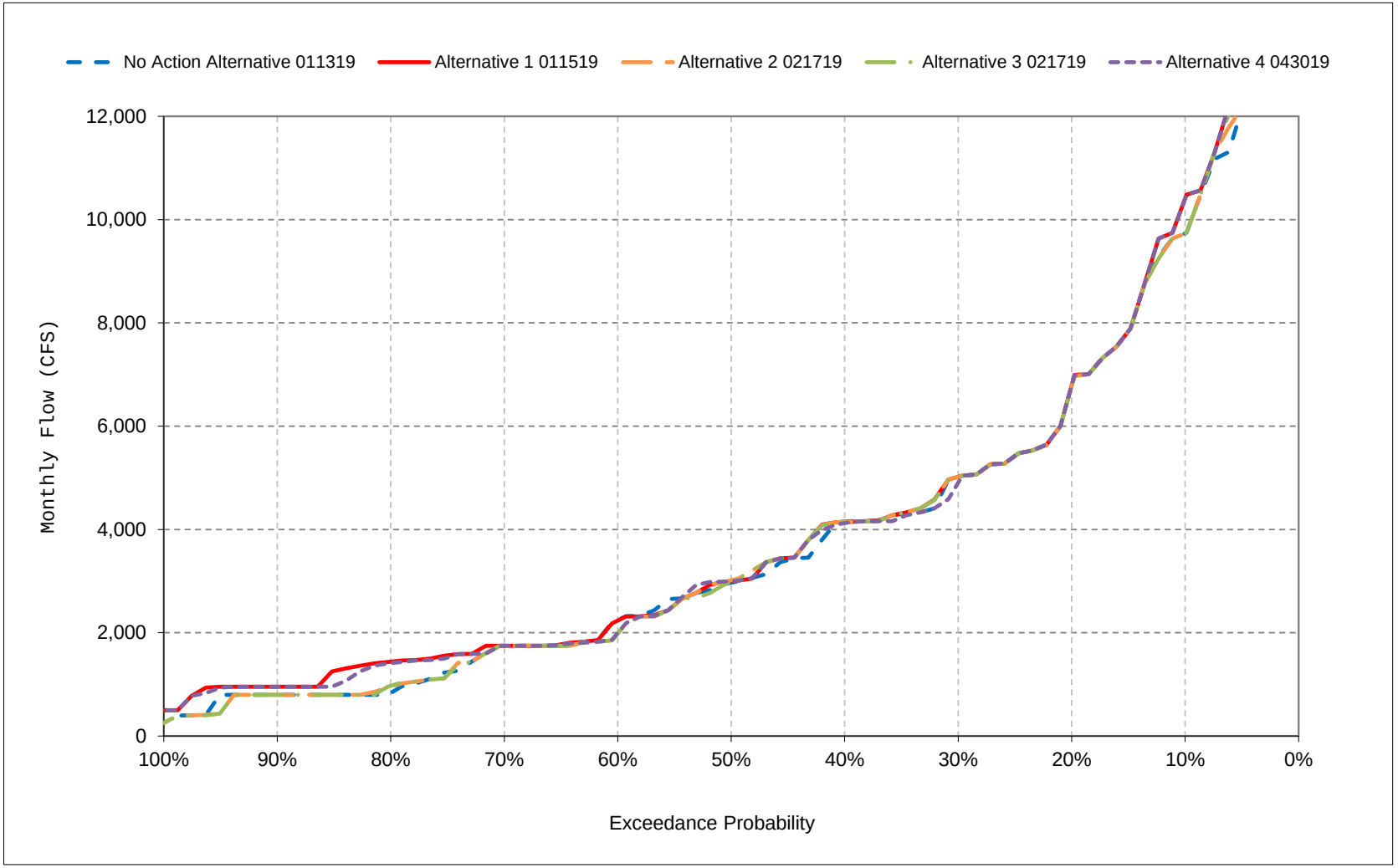
**Figure 27-11. American River below Nimbus Dam Flow, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

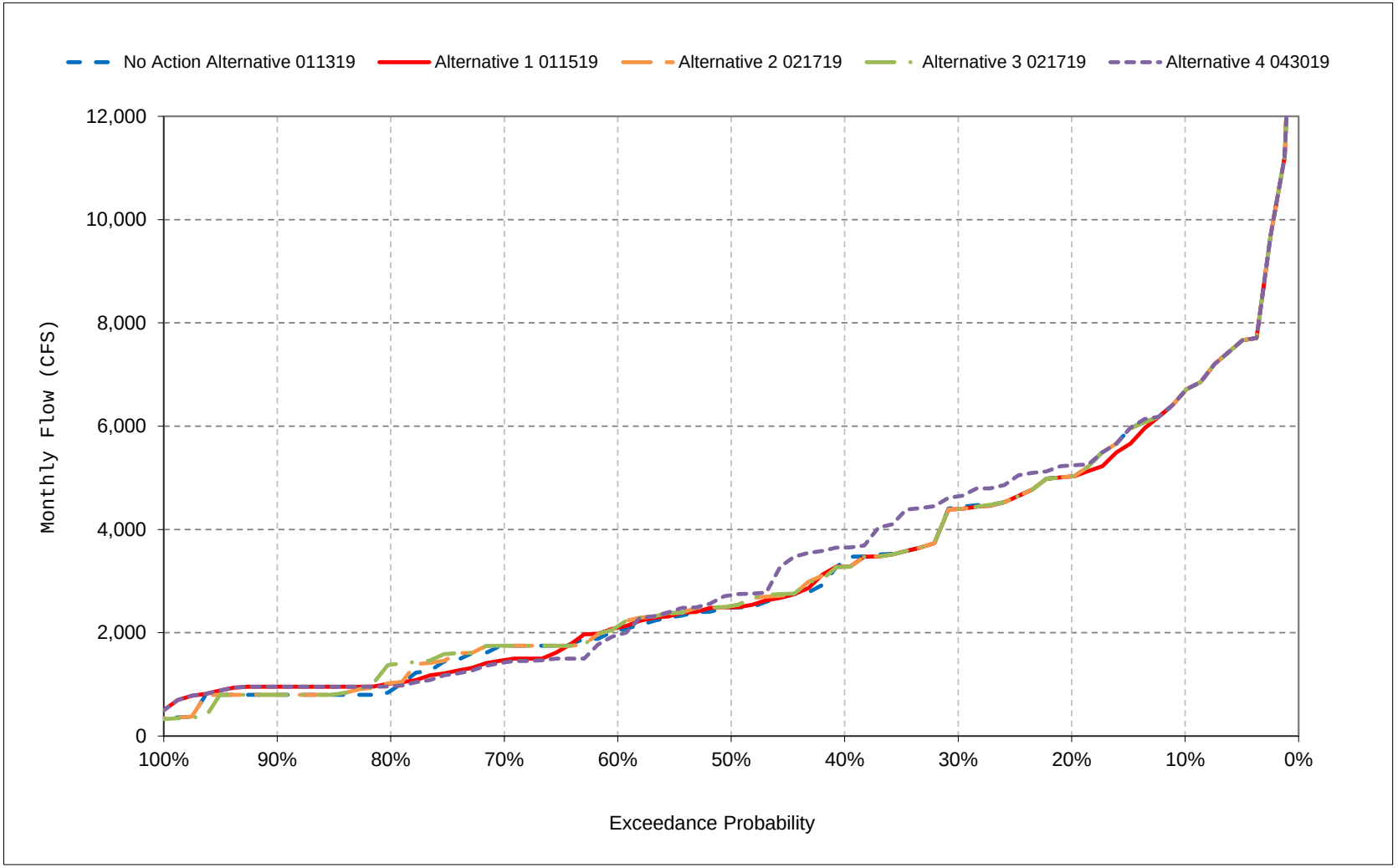
**Figure 27-12. American River below Nimbus Dam Flow, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

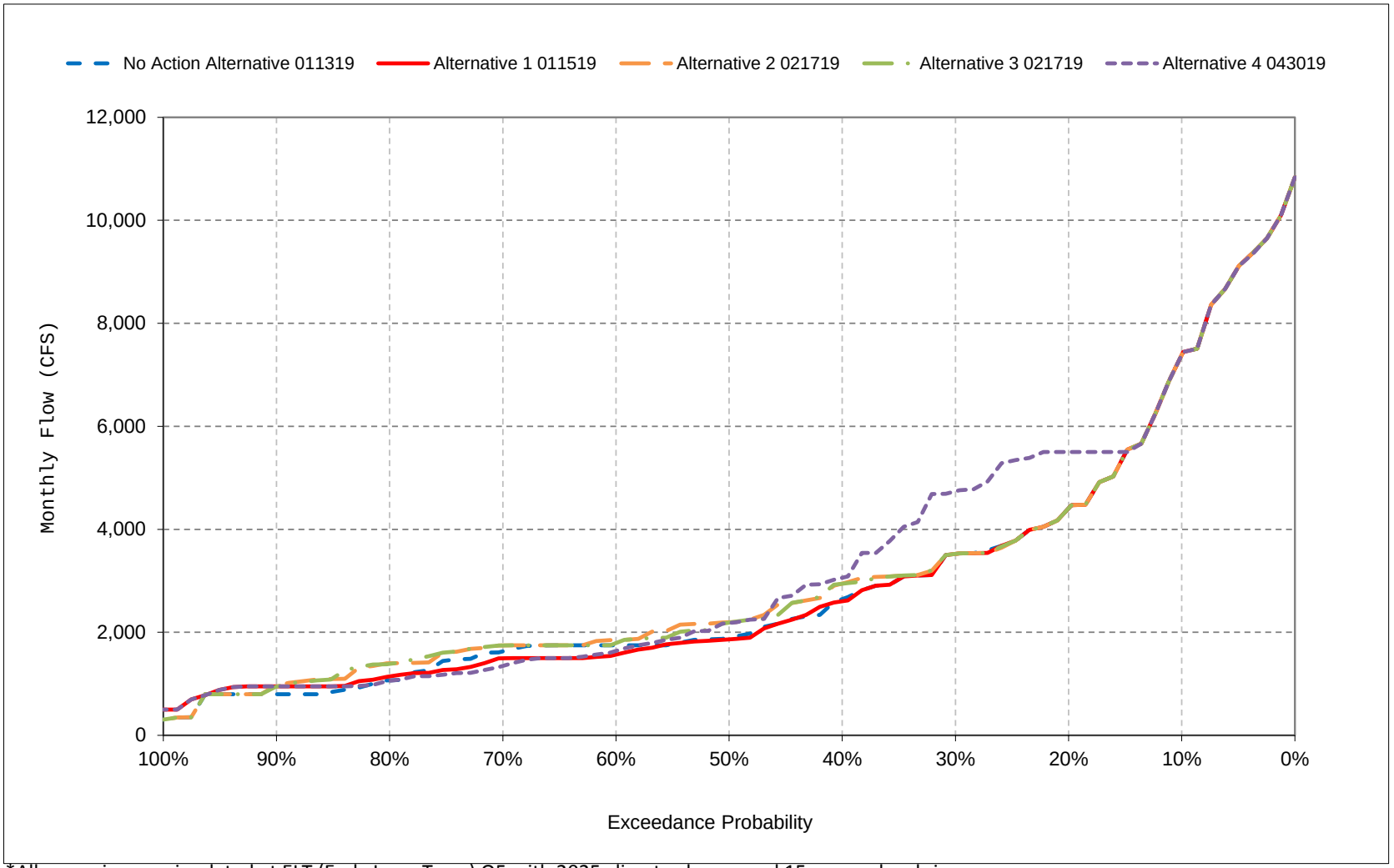
**Figure 27-13. American River below Nimbus Dam Flow, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

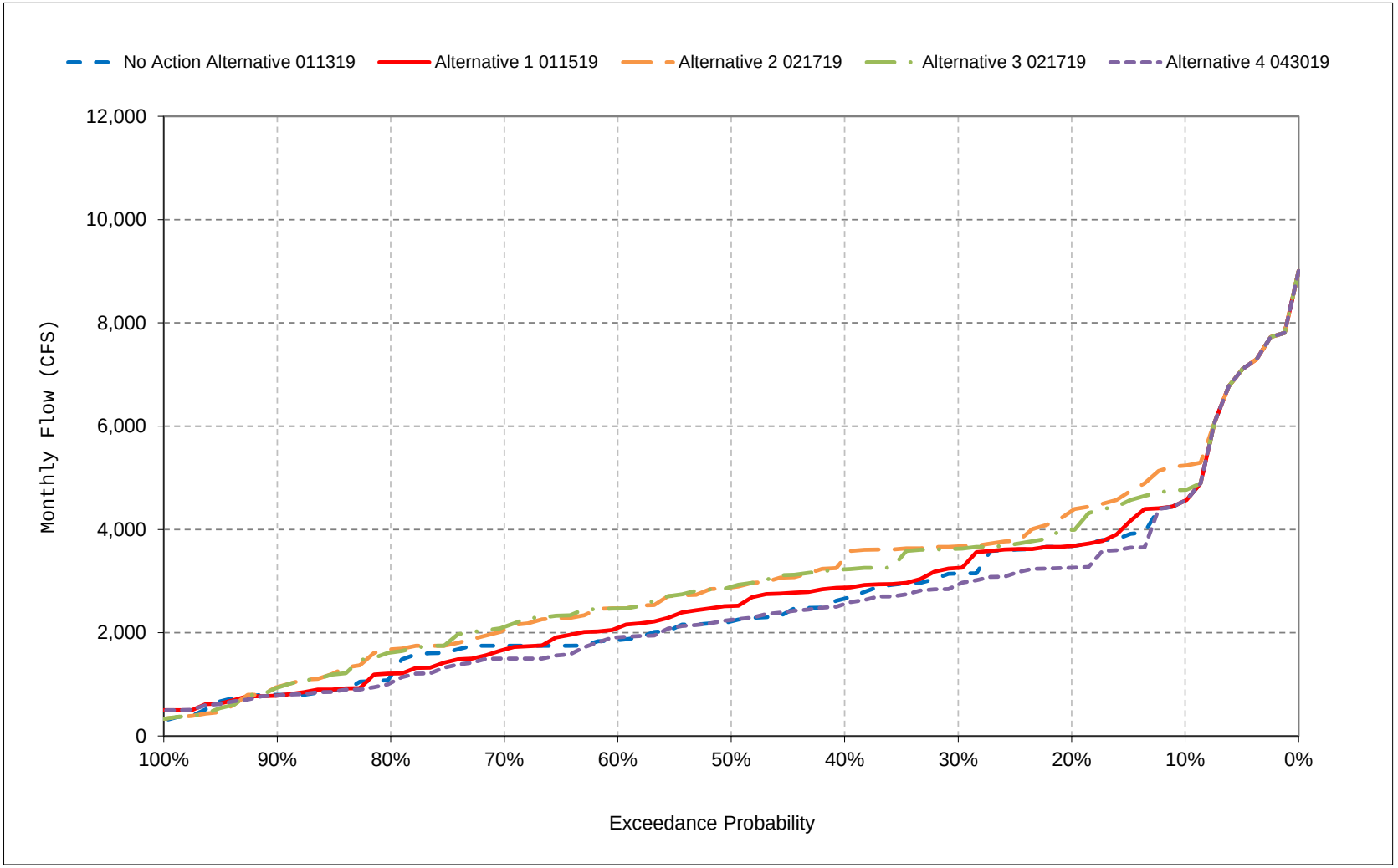
**Figure 27-14. American River below Nimbus Dam Flow, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

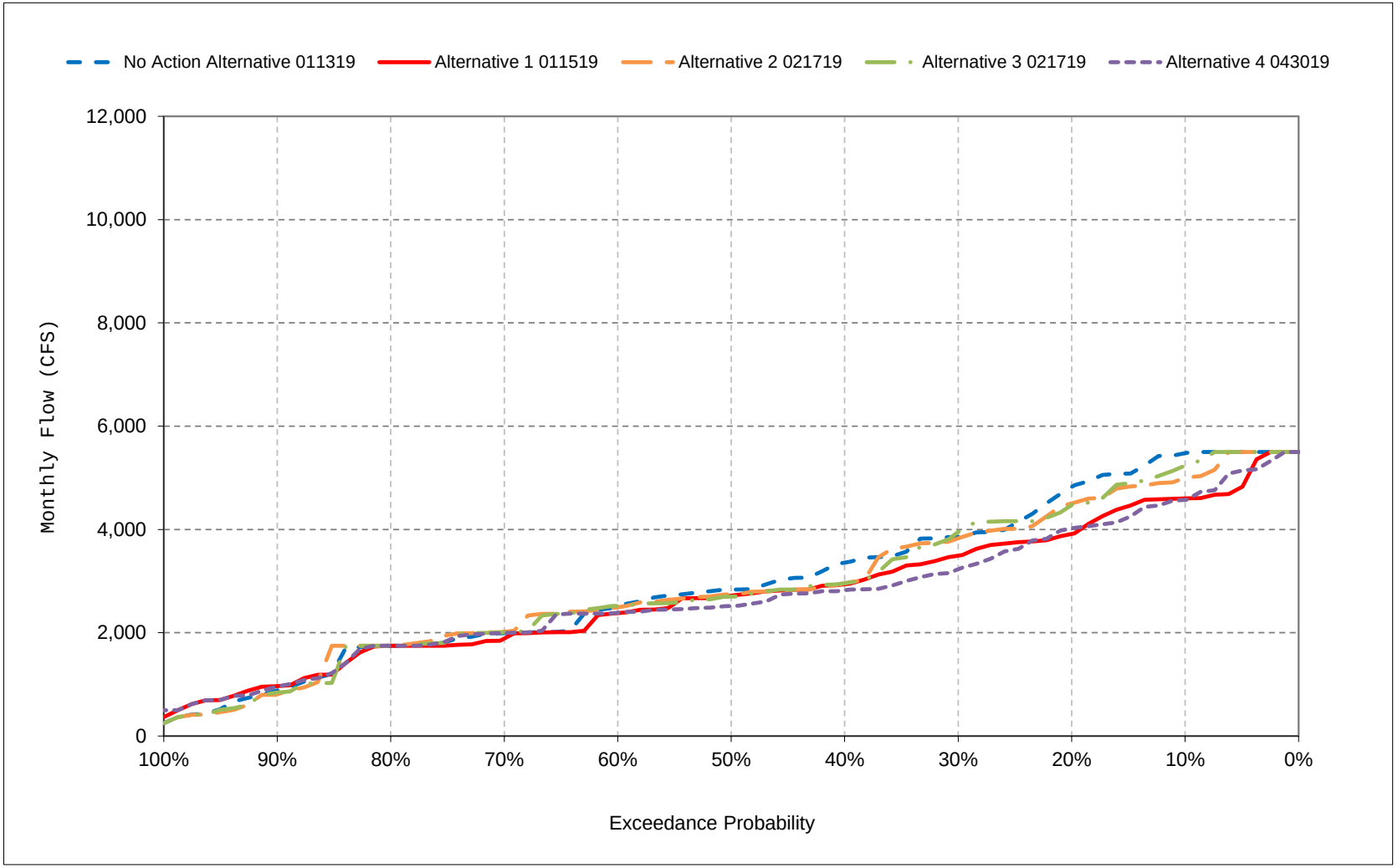
**Figure 27-15. American River below Nimbus Dam Flow, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

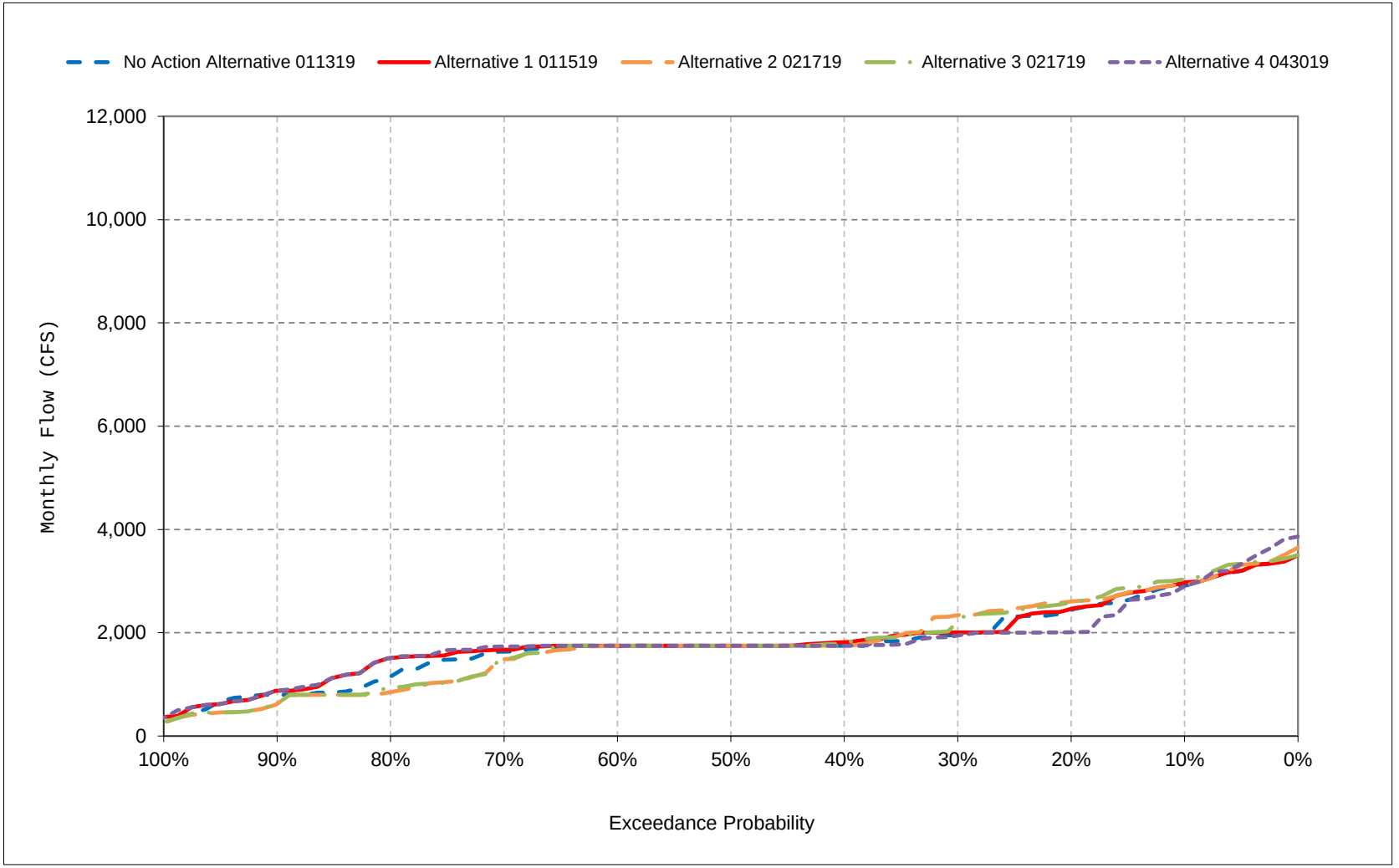
**Figure 27-16. American River below Nimbus Dam Flow, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

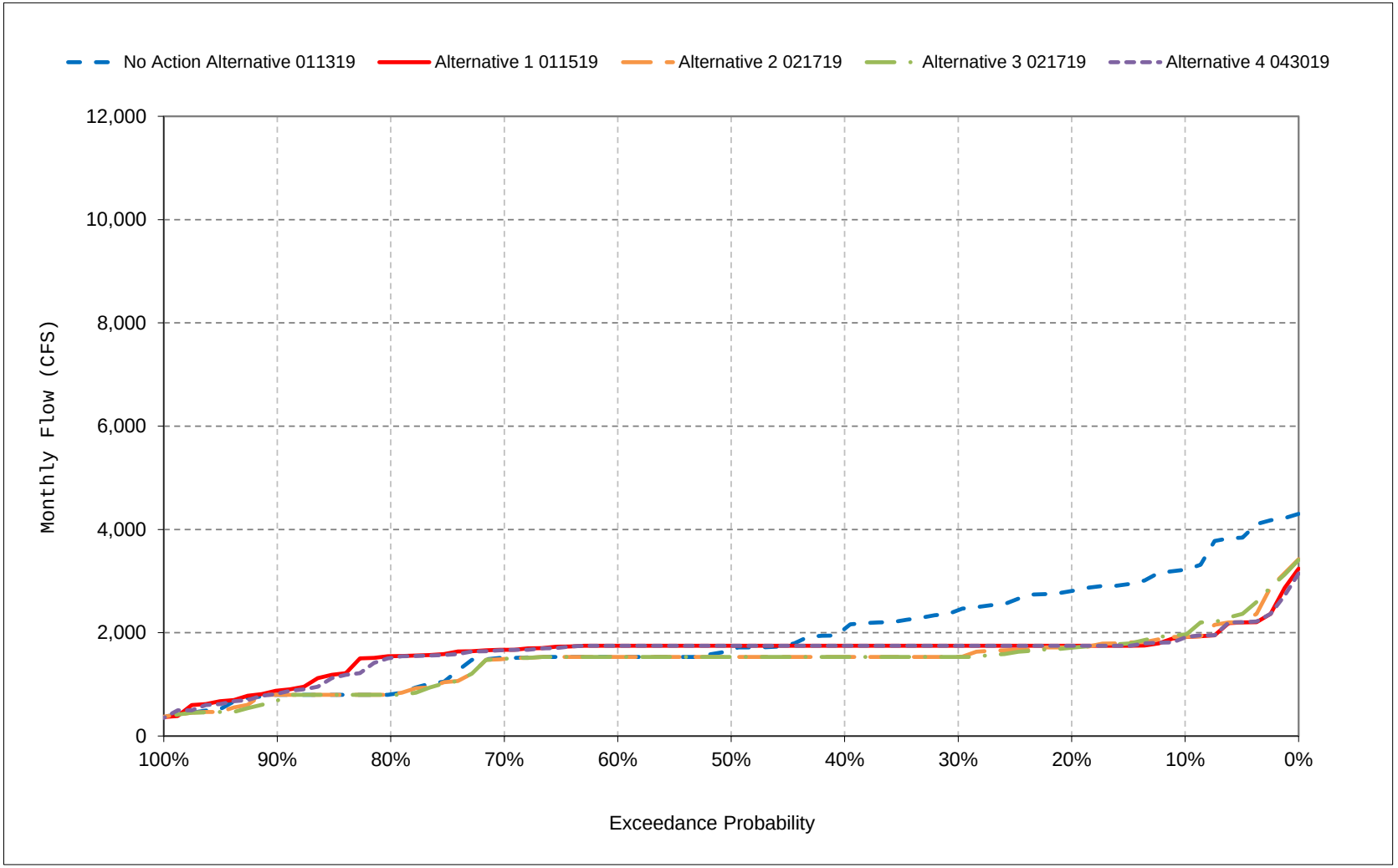
**Figure 27-17. American River below Nimbus Dam Flow, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 27-18. American River below Nimbus Dam Flow, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 28-1. American River at H Street, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,436 | 3,529 | 8,214 | 11,989 | 14,510 | 9,475 | 6,247 | 6,818 | 3,852 | 4,842 | 2,337 | 2,753 |
| 20% | 1,854 | 3,050 | 3,613 | 7,335 | 10,688 | 6,579 | 4,612 | 3,824 | 3,062 | 4,225 | 1,875 | 2,381 |
| 30% | 1,474 | 2,341 | 2,077 | 5,318 | 6,812 | 4,827 | 3,948 | 3,000 | 2,892 | 3,243 | 1,693 | 2,026 |
| 40% | 1,364 | 1,996 | 1,887 | 3,415 | 5,506 | 3,858 | 3,000 | 2,437 | 2,413 | 2,707 | 1,503 | 1,750 |
| 50% | 1,343 | 1,763 | 1,859 | 1,598 | 2,664 | 2,821 | 2,275 | 1,697 | 1,970 | 2,173 | 1,486 | 1,463 |
| 60% | 1,330 | 1,547 | 1,825 | 1,560 | 1,612 | 2,057 | 1,843 | 1,547 | 1,615 | 1,813 | 1,476 | 1,332 |
| 70% | 1,316 | 1,476 | 1,579 | 1,514 | 1,323 | 1,573 | 1,527 | 1,439 | 1,502 | 1,748 | 1,393 | 1,316 |
| 80% | 919 | 973 | 1,082 | 1,308 | 1,150 | 715 | 717 | 870 | 938 | 1,484 | 925 | 648 |
| 90% | 650 | 687 | 707 | 822 | 783 | 622 | 619 | 612 | 565 | 630 | 551 | 599 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,499 | 2,341 | 3,538 | 4,886 | 5,643 | 4,033 | 3,057 | 2,732 | 2,328 | 2,531 | 1,474 | 1,637 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,098 | 3,470 | 4,257 | 10,282 | 10,189 | 6,940 | 5,145 | 5,068 | 3,669 | 2,891 | 1,951 | 2,548 |
| Above Normal (16%) | 1,464 | 2,015 | 2,699 | 5,444 | 7,426 | 5,688 | 3,174 | 2,204 | 2,156 | 4,051 | 1,515 | 1,677 |
| Below Normal (13%) | 1,410 | 1,845 | 2,841 | 2,064 | 4,659 | 1,952 | 2,136 | 1,686 | 1,719 | 3,224 | 1,265 | 1,158 |
| Dry (24%) | 1,194 | 2,257 | 5,157 | 1,415 | 2,023 | 2,292 | 1,935 | 1,633 | 1,735 | 1,811 | 1,320 | 1,106 |
| Critical (15%) | 829 | 842 | 828 | 964 | 799 | 749 | 1,118 | 1,028 | 1,159 | 665 | 846 | 943 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,660 | 4,262 | 9,951 | 11,969 | 14,510 | 10,212 | 6,247 | 6,818 | 3,855 | 3,964 | 2,386 | 1,700 |
| 20% | 1,414 | 3,281 | 4,509 | 7,617 | 10,744 | 6,579 | 4,613 | 3,831 | 3,062 | 3,270 | 1,883 | 1,554 |
| 30% | 1,358 | 2,000 | 2,435 | 5,445 | 7,106 | 4,824 | 3,947 | 3,000 | 2,996 | 2,863 | 1,750 | 1,547 |
| 40% | 1,343 | 1,875 | 1,982 | 3,412 | 5,494 | 3,888 | 3,000 | 2,395 | 2,619 | 2,321 | 1,550 | 1,547 |
| 50% | 1,329 | 1,853 | 1,869 | 1,986 | 3,391 | 2,841 | 2,309 | 1,645 | 2,255 | 2,084 | 1,497 | 1,541 |
| 60% | 1,324 | 1,778 | 1,846 | 1,443 | 2,437 | 2,035 | 1,897 | 1,376 | 1,851 | 1,750 | 1,484 | 1,538 |
| 70% | 990 | 1,064 | 1,681 | 1,255 | 1,584 | 1,583 | 1,268 | 1,270 | 1,437 | 1,638 | 1,425 | 1,469 |
| 80% | 612 | 620 | 655 | 1,238 | 1,273 | 1,333 | 840 | 965 | 971 | 1,478 | 1,254 | 1,345 |
| 90% | 445 | 459 | 500 | 579 | 1,221 | 802 | 769 | 756 | 548 | 735 | 625 | 693 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,218 | 2,335 | 3,761 | 4,943 | 5,883 | 4,163 | 3,060 | 2,721 | 2,408 | 2,285 | 1,535 | 1,413 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,620 | 3,789 | 4,952 | 10,425 | 10,296 | 6,938 | 5,115 | 5,036 | 3,777 | 2,572 | 1,982 | 1,600 |
| Above Normal (16%) | 1,378 | 1,990 | 2,793 | 5,578 | 7,752 | 5,885 | 3,147 | 2,181 | 2,323 | 3,603 | 1,561 | 1,562 |
| Below Normal (13%) | 1,190 | 1,552 | 2,740 | 2,113 | 5,408 | 2,115 | 2,181 | 1,789 | 1,896 | 2,918 | 1,556 | 1,409 |
| Dry (24%) | 925 | 2,106 | 5,278 | 1,402 | 2,021 | 2,450 | 1,889 | 1,581 | 1,762 | 1,575 | 1,385 | 1,328 |
| Critical (15%) | 689 | 654 | 641 | 870 | 1,168 | 1,020 | 1,272 | 1,043 | 1,079 | 842 | 770 | 994 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-776** | 732 | 1,737 | **-20** | **0** | 737 | **0** | 0 | 3 | **-878** | 49 | **-1,053** |
| 20% | **-440** | 231 | 896 | 282 | 56 | 0 | 1 | 7 | 0 | **-955** | 8 | **-826** |
| 30% | **-116** | **-341** | 358 | 127 | 294 | **-3** | **-1** | 0 | 104 | **-380** | 57 | **-479** |
| 40% | **-22** | **-121** | 95 | **-3** | **-12** | 30 | 0 | **-42** | 206 | **-386** | 47 | **-203** |
| 50% | **-14** | 90 | 10 | 388 | 727 | 20 | 34 | **-53** | 284 | **-89** | 11 | 78 |
| 60% | **-5** | 231 | 21 | **-117** | 826 | **-22** | 54 | **-171** | 236 | **-63** | 8 | 206 |
| 70% | **-326** | **-412** | 103 | **-260** | 262 | 10 | **-259** | **-169** | **-65** | **-110** | 32 | 153 |
| 80% | **-307** | **-353** | **-427** | **-69** | 123 | 617 | 123 | 96 | 33 | **-5** | 329 | 697 |
| 90% | **-205** | **-227** | **-207** | **-243** | 438 | 180 | 150 | 144 | **-17** | 105 | 74 | 94 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-281** | **-6** | 224 | 56 | 240 | 131 | 4 | **-11** | 80 | **-245** | 61 | **-224** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-478** | 320 | 695 | 143 | 107 | **-2** | **-30** | **-33** | 108 | **-319** | 31 | **-948** |
| Above Normal (16%) | **-86** | **-25** | 94 | 134 | 326 | 197 | **-28** | **-23** | 168 | **-449** | 46 | **-115** |
| Below Normal (13%) | **-220** | **-293** | **-102** | 49 | 749 | 163 | 45 | 102 | 177 | **-307** | 291 | 251 |
| Dry (24%) | **-268** | **-151** | 121 | **-13** | **-1** | 158 | **-46** | **-53** | 27 | **-236** | 64 | 221 |
| Critical (15%) | **-140** | **-188** | **-187** | **-93** | 369 | 271 | 154 | 15 | **-80** | 177 | **-77** | 51 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 28-2. American River at H Street, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,436 | 3,529 | 8,214 | 11,989 | 14,510 | 9,475 | 6,247 | 6,818 | 3,852 | 4,842 | 2,337 | 2,753 |
| 20% | 1,854 | 3,050 | 3,613 | 7,335 | 10,688 | 6,579 | 4,612 | 3,824 | 3,062 | 4,225 | 1,875 | 2,381 |
| 30% | 1,474 | 2,341 | 2,077 | 5,318 | 6,812 | 4,827 | 3,948 | 3,000 | 2,892 | 3,243 | 1,693 | 2,026 |
| 40% | 1,364 | 1,996 | 1,887 | 3,415 | 5,506 | 3,858 | 3,000 | 2,437 | 2,413 | 2,707 | 1,503 | 1,750 |
| 50% | 1,343 | 1,763 | 1,859 | 1,598 | 2,664 | 2,821 | 2,275 | 1,697 | 1,970 | 2,173 | 1,486 | 1,463 |
| 60% | 1,330 | 1,547 | 1,825 | 1,560 | 1,612 | 2,057 | 1,843 | 1,547 | 1,615 | 1,813 | 1,476 | 1,332 |
| 70% | 1,316 | 1,476 | 1,579 | 1,514 | 1,323 | 1,573 | 1,527 | 1,439 | 1,502 | 1,748 | 1,393 | 1,316 |
| 80% | 919 | 973 | 1,082 | 1,308 | 1,150 | 715 | 717 | 870 | 938 | 1,484 | 925 | 648 |
| 90% | 650 | 687 | 707 | 822 | 783 | 622 | 619 | 612 | 565 | 630 | 551 | 599 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,499 | 2,341 | 3,538 | 4,886 | 5,643 | 4,033 | 3,057 | 2,732 | 2,328 | 2,531 | 1,474 | 1,637 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,098 | 3,470 | 4,257 | 10,282 | 10,189 | 6,940 | 5,145 | 5,068 | 3,669 | 2,891 | 1,951 | 2,548 |
| Above Normal (16%) | 1,464 | 2,015 | 2,699 | 5,444 | 7,426 | 5,688 | 3,174 | 2,204 | 2,156 | 4,051 | 1,515 | 1,677 |
| Below Normal (13%) | 1,410 | 1,845 | 2,841 | 2,064 | 4,659 | 1,952 | 2,136 | 1,686 | 1,719 | 3,224 | 1,265 | 1,158 |
| Dry (24%) | 1,194 | 2,257 | 5,157 | 1,415 | 2,023 | 2,292 | 1,935 | 1,633 | 1,735 | 1,811 | 1,320 | 1,106 |
| Critical (15%) | 829 | 842 | 828 | 964 | 799 | 749 | 1,118 | 1,028 | 1,159 | 665 | 846 | 943 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,771 | 3,653 | 9,947 | 11,969 | 14,510 | 9,476 | 6,247 | 6,818 | 4,614 | 4,353 | 2,355 | 1,713 |
| 20% | 1,501 | 3,016 | 3,774 | 7,618 | 10,521 | 6,579 | 4,613 | 3,824 | 3,646 | 3,885 | 2,034 | 1,520 |
| 30% | 1,365 | 2,050 | 2,473 | 5,492 | 6,812 | 4,827 | 3,947 | 3,000 | 3,034 | 3,201 | 1,751 | 1,369 |
| 40% | 1,350 | 1,788 | 1,882 | 3,416 | 5,507 | 3,874 | 3,000 | 2,724 | 3,000 | 2,321 | 1,507 | 1,334 |
| 50% | 1,334 | 1,627 | 1,853 | 1,783 | 3,301 | 2,858 | 2,344 | 1,999 | 2,615 | 2,107 | 1,491 | 1,330 |
| 60% | 1,329 | 1,452 | 1,632 | 1,576 | 2,292 | 1,795 | 1,917 | 1,644 | 2,222 | 1,802 | 1,479 | 1,325 |
| 70% | 1,203 | 1,221 | 1,290 | 1,517 | 1,328 | 1,574 | 1,535 | 1,524 | 1,786 | 1,750 | 1,226 | 1,292 |
| 80% | 873 | 930 | 1,123 | 1,102 | 1,162 | 777 | 847 | 1,202 | 1,436 | 1,506 | 594 | 648 |
| 90% | 642 | 653 | 701 | 729 | 767 | 631 | 627 | 771 | 710 | 576 | 392 | 602 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,294 | 2,241 | 3,668 | 4,896 | 5,771 | 4,044 | 3,086 | 2,847 | 2,702 | 2,428 | 1,444 | 1,239 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,632 | 3,558 | 4,899 | 10,235 | 10,297 | 6,938 | 5,143 | 5,122 | 3,917 | 2,546 | 2,068 | 1,457 |
| Above Normal (16%) | 1,272 | 1,608 | 2,488 | 5,473 | 7,749 | 5,842 | 3,173 | 2,294 | 3,121 | 4,056 | 1,470 | 1,277 |
| Below Normal (13%) | 1,046 | 1,385 | 2,564 | 2,229 | 5,009 | 1,965 | 2,129 | 1,894 | 2,647 | 3,207 | 1,337 | 1,197 |
| Dry (24%) | 1,271 | 2,270 | 5,139 | 1,405 | 2,010 | 2,244 | 1,949 | 1,791 | 1,865 | 1,745 | 1,170 | 1,129 |
| Critical (15%) | 851 | 806 | 838 | 966 | 789 | 731 | 1,309 | 1,148 | 1,060 | 832 | 619 | 950 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-665** | 124 | 1,733 | **-20** | **0** | 0 | **0** | 0 | 762 | **-489** | 18 | **-1,040** |
| 20% | **-353** | **-34** | 161 | 283 | **-167** | 0 | 1 | 0 | 584 | **-340** | 159 | **-861** |
| 30% | **-108** | **-291** | 396 | 174 | 0 | 1 | **-1** | 0 | 142 | **-42** | 58 | **-656** |
| 40% | **-14** | **-207** | **-4** | 1 | 1 | 16 | 0 | 287 | 587 | **-386** | 4 | **-416** |
| 50% | **-9** | **-136** | **-6** | 186 | 637 | 36 | 69 | 301 | 645 | **-66** | 5 | **-133** |
| 60% | **-1** | **-96** | **-193** | 16 | 681 | **-262** | 74 | 97 | 607 | **-11** | 3 | **-7** |
| 70% | **-113** | **-255** | **-289** | 2 | 6 | 0 | 9 | 85 | 283 | 2 | **-167** | **-24** |
| 80% | **-46** | **-44** | 41 | **-206** | 12 | 62 | 130 | 332 | 498 | 22 | **-330** | 0 |
| 90% | **-8** | **-34** | **-6** | **-93** | **-16** | 9 | 8 | 159 | 146 | **-54** | **-159** | 2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-205** | **-100** | 130 | 10 | 128 | 11 | 29 | 115 | 374 | **-103** | **-30** | **-398** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-466** | 88 | 642 | **-47** | 108 | **-2** | **-2** | 53 | 248 | **-345** | 117 | **-1,091** |
| Above Normal (16%) | **-192** | **-407** | **-211** | 28 | 323 | 153 | **-2** | 90 | 965 | 4 | **-45** | **-401** |
| Below Normal (13%) | **-364** | **-459** | **-277** | 165 | 350 | 13 | **-7** | 208 | 928 | **-17** | 73 | 39 |
| Dry (24%) | 78 | 14 | **-17** | **-10** | **-13** | **-48** | 14 | 158 | 131 | **-66** | **-150** | 23 |
| Critical (15%) | 21 | **-36** | 11 | 2 | **-10** | **-18** | 191 | 120 | **-99** | 166 | **-227** | 7 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 28-3. American River at H Street, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,436 | 3,529 | 8,214 | 11,989 | 14,510 | 9,475 | 6,247 | 6,818 | 3,852 | 4,842 | 2,337 | 2,753 |
| 20% | 1,854 | 3,050 | 3,613 | 7,335 | 10,688 | 6,579 | 4,612 | 3,824 | 3,062 | 4,225 | 1,875 | 2,381 |
| 30% | 1,474 | 2,341 | 2,077 | 5,318 | 6,812 | 4,827 | 3,948 | 3,000 | 2,892 | 3,243 | 1,693 | 2,026 |
| 40% | 1,364 | 1,996 | 1,887 | 3,415 | 5,506 | 3,858 | 3,000 | 2,437 | 2,413 | 2,707 | 1,503 | 1,750 |
| 50% | 1,343 | 1,763 | 1,859 | 1,598 | 2,664 | 2,821 | 2,275 | 1,697 | 1,970 | 2,173 | 1,486 | 1,463 |
| 60% | 1,330 | 1,547 | 1,825 | 1,560 | 1,612 | 2,057 | 1,843 | 1,547 | 1,615 | 1,813 | 1,476 | 1,332 |
| 70% | 1,316 | 1,476 | 1,579 | 1,514 | 1,323 | 1,573 | 1,527 | 1,439 | 1,502 | 1,748 | 1,393 | 1,316 |
| 80% | 919 | 973 | 1,082 | 1,308 | 1,150 | 715 | 717 | 870 | 938 | 1,484 | 925 | 648 |
| 90% | 650 | 687 | 707 | 822 | 783 | 622 | 619 | 612 | 565 | 630 | 551 | 599 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,499 | 2,341 | 3,538 | 4,886 | 5,643 | 4,033 | 3,057 | 2,732 | 2,328 | 2,531 | 1,474 | 1,637 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,098 | 3,470 | 4,257 | 10,282 | 10,189 | 6,940 | 5,145 | 5,068 | 3,669 | 2,891 | 1,951 | 2,548 |
| Above Normal (16%) | 1,464 | 2,015 | 2,699 | 5,444 | 7,426 | 5,688 | 3,174 | 2,204 | 2,156 | 4,051 | 1,515 | 1,677 |
| Below Normal (13%) | 1,410 | 1,845 | 2,841 | 2,064 | 4,659 | 1,952 | 2,136 | 1,686 | 1,719 | 3,224 | 1,265 | 1,158 |
| Dry (24%) | 1,194 | 2,257 | 5,157 | 1,415 | 2,023 | 2,292 | 1,935 | 1,633 | 1,735 | 1,811 | 1,320 | 1,106 |
| Critical (15%) | 829 | 842 | 828 | 964 | 799 | 749 | 1,118 | 1,028 | 1,159 | 665 | 846 | 943 |

## Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,870 | 3,702 | 9,954 | 11,969 | 14,510 | 9,476 | 6,247 | 6,818 | 4,133 | 4,626 | 2,438 | 1,750 |
| 20% | 1,489 | 3,011 | 3,761 | 7,618 | 10,504 | 6,579 | 4,613 | 3,824 | 3,402 | 3,836 | 2,004 | 1,498 |
| 30% | 1,360 | 2,000 | 2,421 | 5,492 | 6,812 | 4,827 | 3,947 | 3,000 | 3,000 | 3,307 | 1,750 | 1,348 |
| 40% | 1,342 | 1,789 | 1,879 | 3,418 | 5,491 | 3,878 | 3,000 | 2,719 | 2,973 | 2,323 | 1,564 | 1,334 |
| 50% | 1,331 | 1,621 | 1,847 | 1,693 | 3,252 | 2,842 | 2,344 | 1,974 | 2,645 | 2,052 | 1,499 | 1,330 |
| 60% | 1,328 | 1,470 | 1,664 | 1,569 | 2,389 | 1,795 | 1,917 | 1,607 | 2,215 | 1,866 | 1,476 | 1,324 |
| 70% | 1,219 | 1,249 | 1,333 | 1,514 | 1,315 | 1,570 | 1,535 | 1,532 | 1,872 | 1,750 | 1,232 | 1,292 |
| 80% | 907 | 958 | 1,058 | 1,155 | 1,010 | 794 | 1,212 | 1,191 | 1,378 | 1,501 | 698 | 622 |
| 90% | 647 | 647 | 682 | 704 | 713 | 631 | 626 | 752 | 698 | 609 | 394 | 494 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,321 | 2,258 | 3,670 | 4,919 | 5,760 | 4,042 | 3,093 | 2,837 | 2,664 | 2,433 | 1,460 | 1,234 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,689 | 3,527 | 4,908 | 10,315 | 10,318 | 6,938 | 5,143 | 5,071 | 3,936 | 2,680 | 2,039 | 1,393 |
| Above Normal (16%) | 1,246 | 1,575 | 2,472 | 5,484 | 7,759 | 5,837 | 3,173 | 2,296 | 2,895 | 4,125 | 1,610 | 1,388 |
| Below Normal (13%) | 1,135 | 1,500 | 2,628 | 2,222 | 4,988 | 1,966 | 2,174 | 1,910 | 2,566 | 2,916 | 1,305 | 1,215 |
| Dry (24%) | 1,279 | 2,337 | 5,129 | 1,386 | 1,973 | 2,240 | 1,972 | 1,801 | 1,881 | 1,781 | 1,163 | 1,112 |
| Critical (15%) | 843 | 815 | 812 | 979 | 735 | 732 | 1,278 | 1,157 | 1,051 | 712 | 679 | 945 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-565** | 172 | 1,741 | **-20** | **0** | 0 | **0** | 0 | 282 | **-216** | 101 | **-1,003** |
| 20% | **-365** | **-39** | 148 | 283 | **-185** | 0 | 1 | 0 | 341 | **-390** | 130 | **-882** |
| 30% | **-114** | **-341** | 344 | 173 | 0 | 1 | **-1** | 0 | 108 | 64 | 57 | **-677** |
| 40% | **-22** | **-207** | **-8** | 2 | **-15** | 21 | 0 | 283 | 560 | **-384** | 61 | **-416** |
| 50% | **-12** | **-142** | **-12** | 95 | 588 | 20 | 69 | 277 | 675 | **-121** | 13 | **-133** |
| 60% | **-2** | **-77** | **-161** | 9 | 778 | **-262** | 74 | 60 | 601 | 53 | 0 | **-8** |
| 70% | **-98** | **-226** | **-246** | 0 | **-7** | **-4** | 9 | 93 | 369 | 2 | **-161** | **-24** |
| 80% | **-12** | **-15** | **-24** | **-153** | **-140** | 78 | 495 | 321 | 440 | 17 | **-227** | **-26** |
| 90% | **-3** | **-40** | **-25** | **-119** | **-69** | 9 | 6 | 140 | 134 | **-21** | **-157** | **-106** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-178** | **-82** | 133 | 33 | 117 | 10 | 37 | 105 | 336 | **-97** | **-14** | **-403** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-409** | 57 | 651 | 32 | 129 | **-2** | **-2** | 3 | 268 | **-212** | 88 | **-1,154** |
| Above Normal (16%) | **-218** | **-440** | **-227** | 40 | 334 | 149 | **-1** | 92 | 739 | 74 | 95 | **-290** |
| Below Normal (13%) | **-276** | **-344** | **-213** | 158 | 329 | 13 | 38 | 224 | 847 | **-308** | 41 | 57 |
| Dry (24%) | 86 | 81 | **-27** | **-29** | **-50** | **-52** | 37 | 167 | 147 | **-29** | **-157** | 6 |
| Critical (15%) | 14 | **-27** | **-16** | 15 | **-64** | **-17** | 160 | 129 | **-108** | 46 | **-167** | 2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 28-4. American River at H Street, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,436 | 3,529 | 8,214 | 11,989 | 14,510 | 9,475 | 6,247 | 6,818 | 3,852 | 4,842 | 2,337 | 2,753 |
| 20% | 1,854 | 3,050 | 3,613 | 7,335 | 10,688 | 6,579 | 4,612 | 3,824 | 3,062 | 4,225 | 1,875 | 2,381 |
| 30% | 1,474 | 2,341 | 2,077 | 5,318 | 6,812 | 4,827 | 3,948 | 3,000 | 2,892 | 3,243 | 1,693 | 2,026 |
| 40% | 1,364 | 1,996 | 1,887 | 3,415 | 5,506 | 3,858 | 3,000 | 2,437 | 2,413 | 2,707 | 1,503 | 1,750 |
| 50% | 1,343 | 1,763 | 1,859 | 1,598 | 2,664 | 2,821 | 2,275 | 1,697 | 1,970 | 2,173 | 1,486 | 1,463 |
| 60% | 1,330 | 1,547 | 1,825 | 1,560 | 1,612 | 2,057 | 1,843 | 1,547 | 1,615 | 1,813 | 1,476 | 1,332 |
| 70% | 1,316 | 1,476 | 1,579 | 1,514 | 1,323 | 1,573 | 1,527 | 1,439 | 1,502 | 1,748 | 1,393 | 1,316 |
| 80% | 919 | 973 | 1,082 | 1,308 | 1,150 | 715 | 717 | 870 | 938 | 1,484 | 925 | 648 |
| 90% | 650 | 687 | 707 | 822 | 783 | 622 | 619 | 612 | 565 | 630 | 551 | 599 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,499 | 2,341 | 3,538 | 4,886 | 5,643 | 4,033 | 3,057 | 2,732 | 2,328 | 2,531 | 1,474 | 1,637 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,098 | 3,470 | 4,257 | 10,282 | 10,189 | 6,940 | 5,145 | 5,068 | 3,669 | 2,891 | 1,951 | 2,548 |
| Above Normal (16%) | 1,464 | 2,015 | 2,699 | 5,444 | 7,426 | 5,688 | 3,174 | 2,204 | 2,156 | 4,051 | 1,515 | 1,677 |
| Below Normal (13%) | 1,410 | 1,845 | 2,841 | 2,064 | 4,659 | 1,952 | 2,136 | 1,686 | 1,719 | 3,224 | 1,265 | 1,158 |
| Dry (24%) | 1,194 | 2,257 | 5,157 | 1,415 | 2,023 | 2,292 | 1,935 | 1,633 | 1,735 | 1,811 | 1,320 | 1,106 |
| Critical (15%) | 829 | 842 | 828 | 964 | 799 | 749 | 1,118 | 1,028 | 1,159 | 665 | 846 | 943 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,818 | 3,909 | 9,951 | 11,969 | 14,510 | 10,212 | 6,247 | 6,818 | 3,852 | 3,964 | 2,327 | 1,693 |
| 20% | 1,498 | 2,985 | 4,876 | 7,617 | 10,744 | 6,579 | 4,904 | 4,980 | 3,000 | 3,399 | 1,750 | 1,554 |
| 30% | 1,366 | 1,979 | 2,683 | 5,589 | 7,103 | 4,672 | 4,204 | 4,215 | 2,658 | 2,590 | 1,693 | 1,547 |
| 40% | 1,353 | 1,875 | 1,904 | 3,743 | 5,502 | 3,849 | 3,201 | 2,837 | 2,290 | 2,178 | 1,507 | 1,546 |
| 50% | 1,336 | 1,850 | 1,867 | 1,989 | 3,655 | 2,869 | 2,522 | 1,965 | 1,975 | 1,919 | 1,499 | 1,545 |
| 60% | 1,327 | 1,746 | 1,842 | 1,444 | 2,450 | 1,805 | 1,761 | 1,462 | 1,636 | 1,758 | 1,488 | 1,536 |
| 70% | 1,198 | 1,064 | 1,681 | 1,252 | 1,581 | 1,573 | 1,225 | 1,139 | 1,239 | 1,733 | 1,475 | 1,467 |
| 80% | 612 | 620 | 752 | 1,220 | 1,273 | 1,264 | 813 | 861 | 790 | 1,491 | 1,257 | 1,343 |
| 90% | 460 | 454 | 504 | 579 | 1,221 | 788 | 756 | 756 | 547 | 723 | 647 | 638 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,267 | 2,220 | 3,774 | 4,973 | 5,905 | 4,134 | 3,167 | 3,002 | 2,238 | 2,234 | 1,527 | 1,396 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,665 | 3,566 | 4,954 | 10,431 | 10,298 | 6,938 | 5,259 | 5,361 | 3,657 | 2,466 | 1,979 | 1,599 |
| Above Normal (16%) | 1,391 | 1,988 | 2,807 | 5,729 | 7,760 | 5,884 | 3,239 | 2,672 | 1,972 | 3,506 | 1,619 | 1,548 |
| Below Normal (13%) | 1,147 | 1,543 | 2,924 | 2,119 | 5,374 | 2,116 | 2,410 | 1,984 | 1,761 | 2,619 | 1,618 | 1,433 |
| Dry (24%) | 959 | 1,937 | 5,202 | 1,437 | 2,076 | 2,369 | 1,995 | 1,827 | 1,513 | 1,661 | 1,287 | 1,324 |
| Critical (15%) | 897 | 650 | 661 | 836 | 1,247 | 954 | 1,201 | 1,136 | 1,097 | 953 | 762 | 880 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-617** | 379 | 1,737 | **-20** | **0** | 737 | **0** | 0 | 0 | **-878** | **-10** | **-1,060** |
| 20% | **-356** | **-65** | 1,263 | 282 | 56 | 0 | 292 | 1,156 | **-62** | **-826** | **-125** | **-826** |
| 30% | **-108** | **-362** | 606 | 271 | 291 | **-154** | 256 | 1,215 | **-234** | **-653** | **0** | **-479** |
| 40% | **-12** | **-121** | 18 | 328 | **-4** | **-9** | 201 | 400 | **-124** | **-529** | 4 | **-204** |
| 50% | **-7** | 87 | 8 | 391 | 991 | 48 | 246 | 267 | 5 | **-254** | 14 | 81 |
| 60% | **-3** | 199 | 17 | **-116** | 838 | **-252** | **-82** | **-85** | 21 | **-55** | 13 | 204 |
| 70% | **-118** | **-412** | 103 | **-262** | 258 | 0 | **-302** | **-300** | **-263** | **-15** | 82 | 151 |
| 80% | **-307** | **-353** | **-330** | **-87** | 123 | 549 | 97 | **-9** | **-148** | 7 | 333 | 695 |
| 90% | **-191** | **-233** | **-203** | **-243** | 438 | 165 | 137 | 144 | **-18** | 93 | 96 | 38 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-232** | **-120** | 236 | 86 | 262 | 101 | 110 | 270 | **-90** | **-297** | 52 | **-241** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-434** | 96 | 697 | 149 | 109 | **-1** | 114 | 293 | **-12** | **-425** | 28 | **-949** |
| Above Normal (16%) | **-73** | **-27** | 108 | 284 | 334 | 196 | 65 | 468 | **-184** | **-546** | 104 | **-130** |
| Below Normal (13%) | **-263** | **-301** | 83 | 55 | 716 | 164 | 274 | 298 | 42 | **-605** | 353 | 275 |
| Dry (24%) | **-235** | **-320** | 45 | 22 | 53 | 77 | 60 | 194 | **-221** | **-150** | **-33** | 218 |
| Critical (15%) | 68 | **-192** | **-166** | **-127** | 448 | 205 | 83 | 108 | **-62** | 288 | **-84** | **-63** |

a Based on the 82-year simulation period.

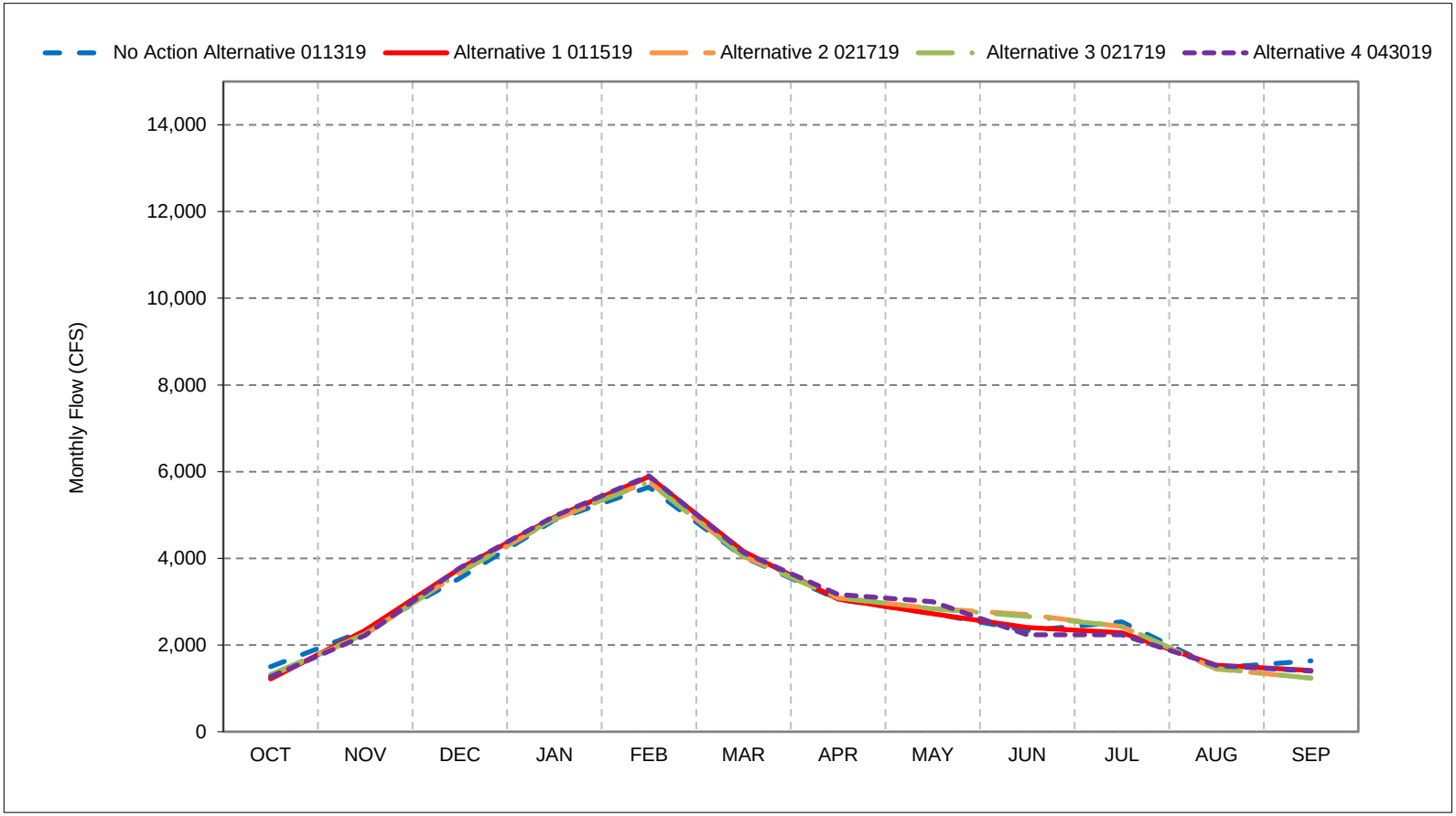
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

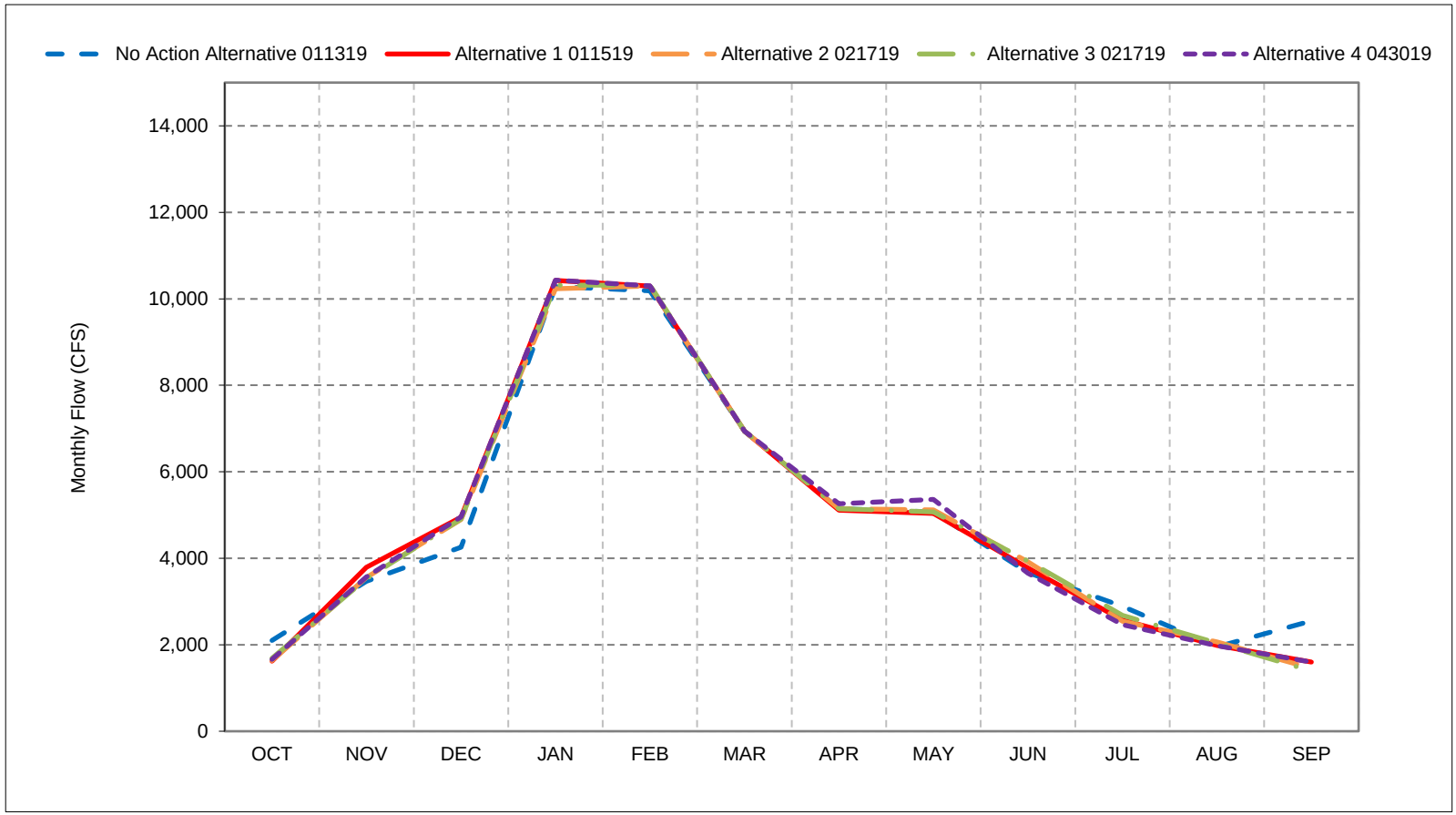
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 28-1. American River at H Street, Long-Term Average Flow



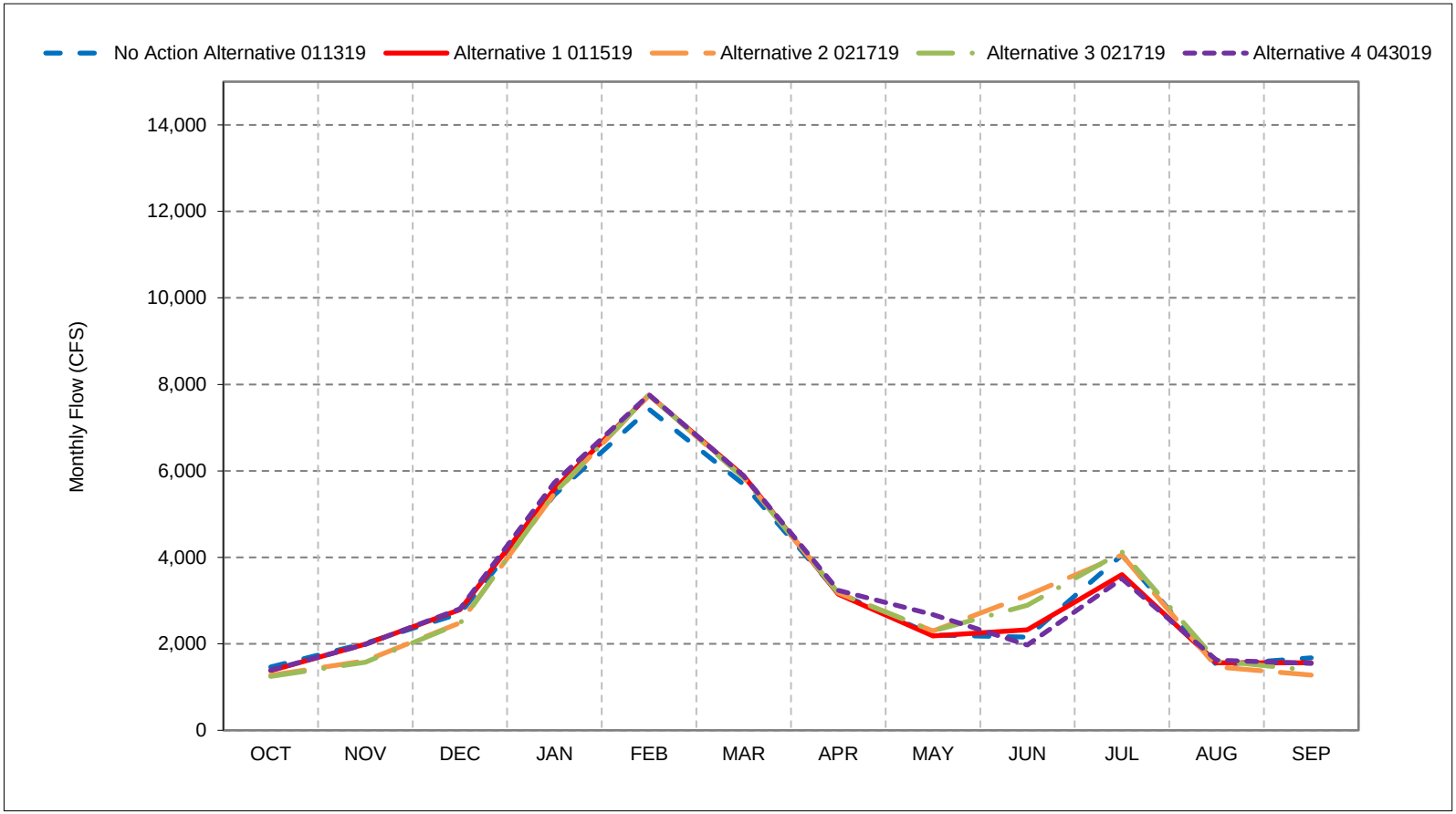

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 28-2. American River at H Street, Wet Year Average Flow



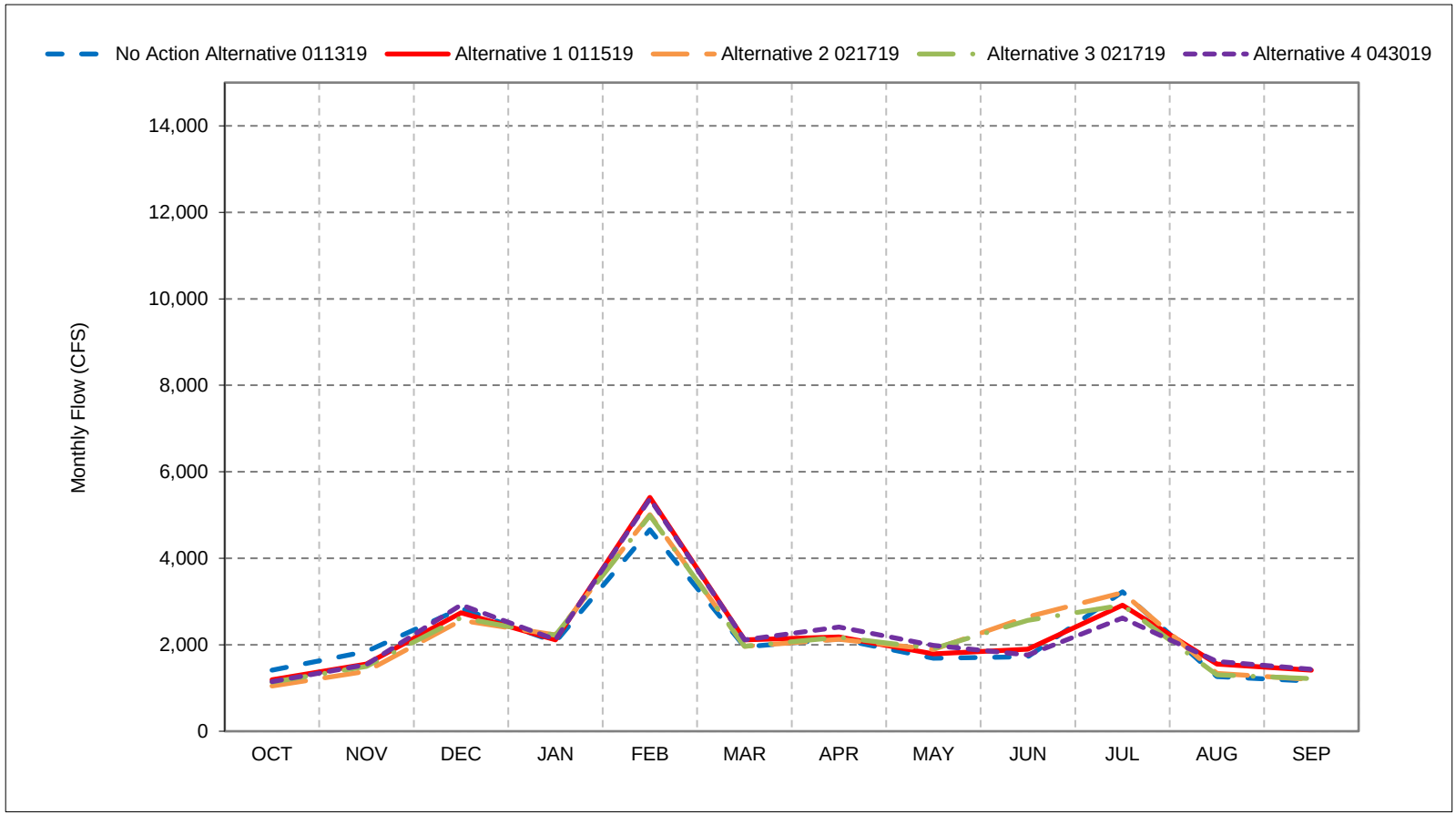

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 28-3. American River at H Street, Above Normal Year Average Flow



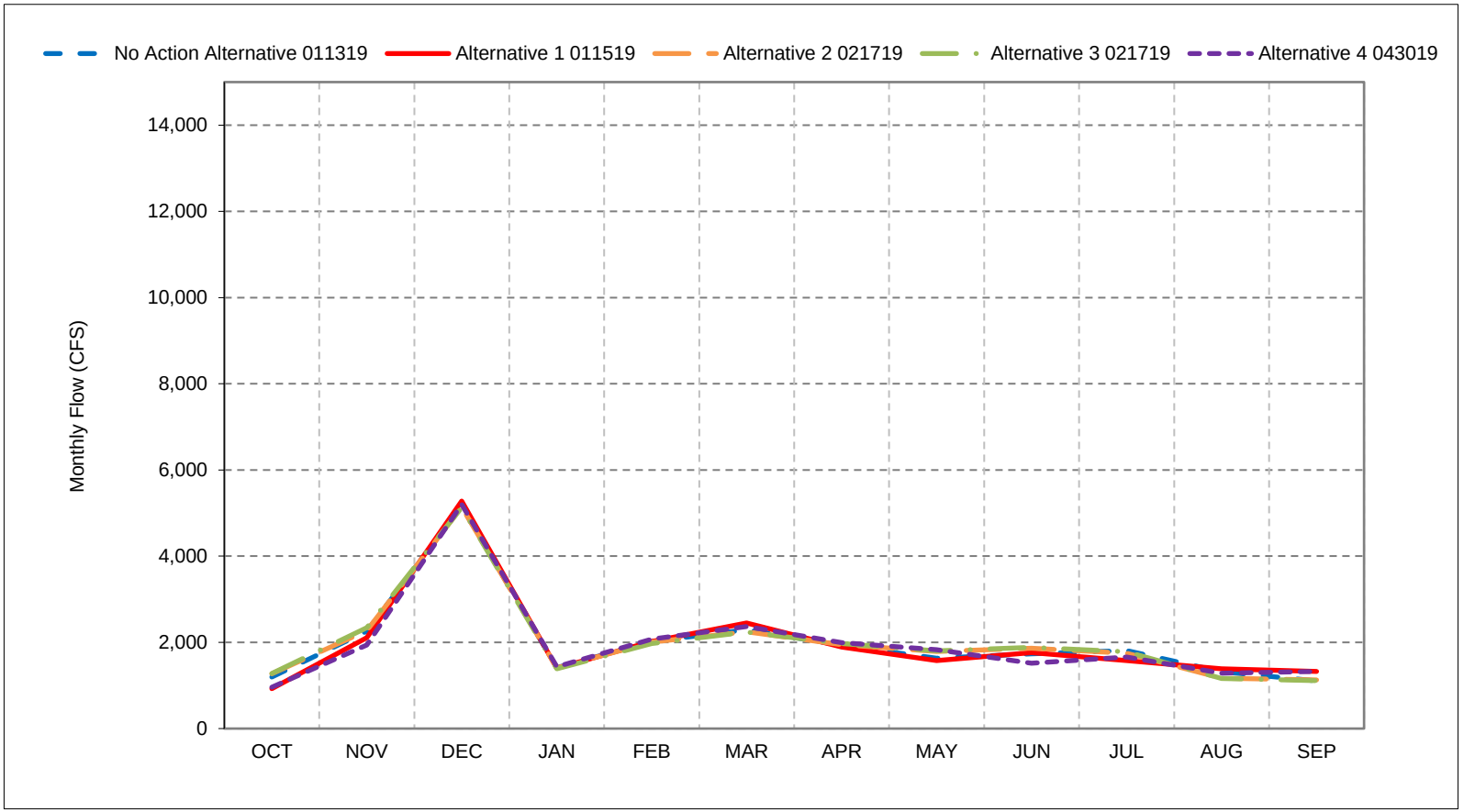

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 28-4. American River at H Street, Below Normal Year Average Flow



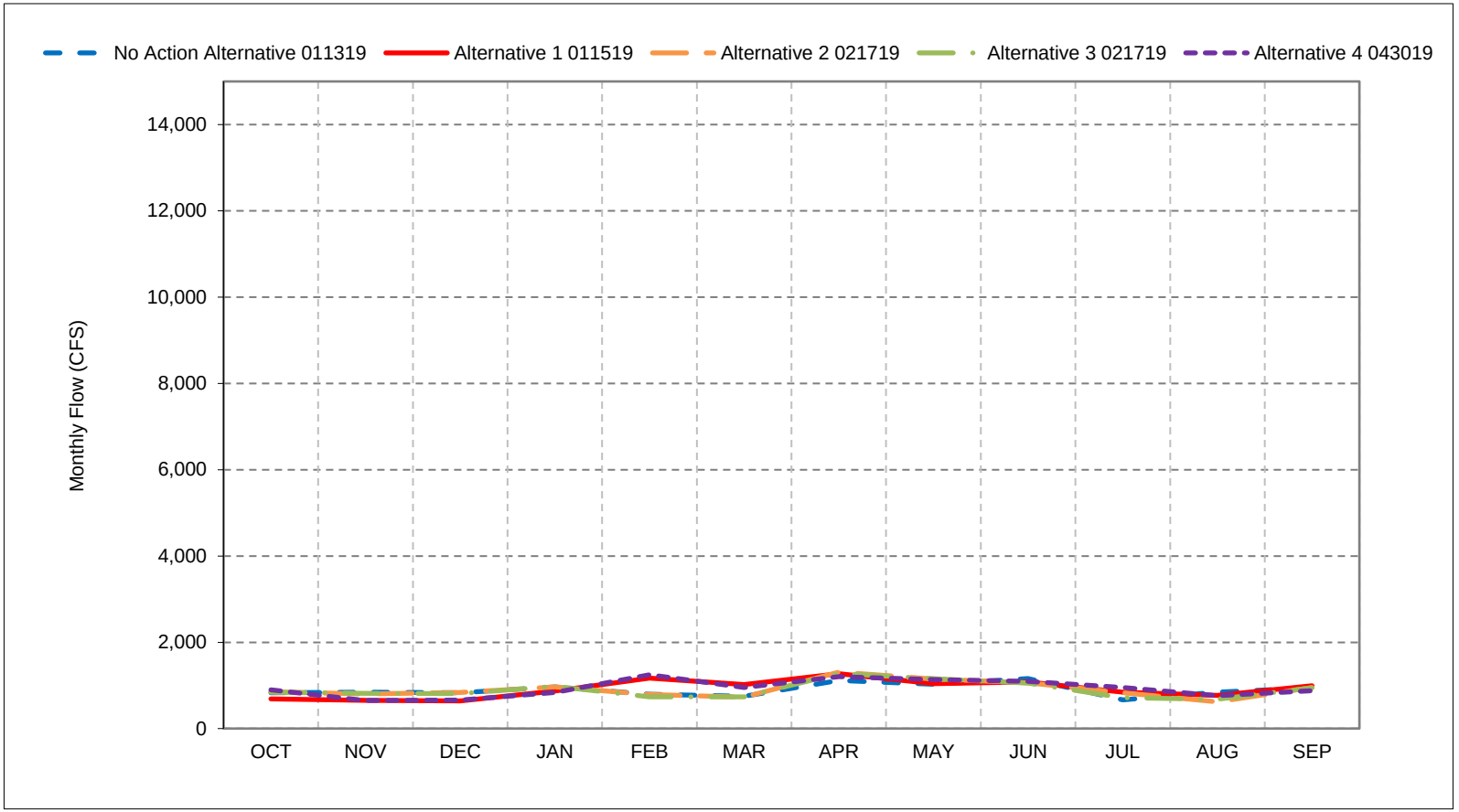

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 28-5. American River at H Street, Dry Year Average Flow



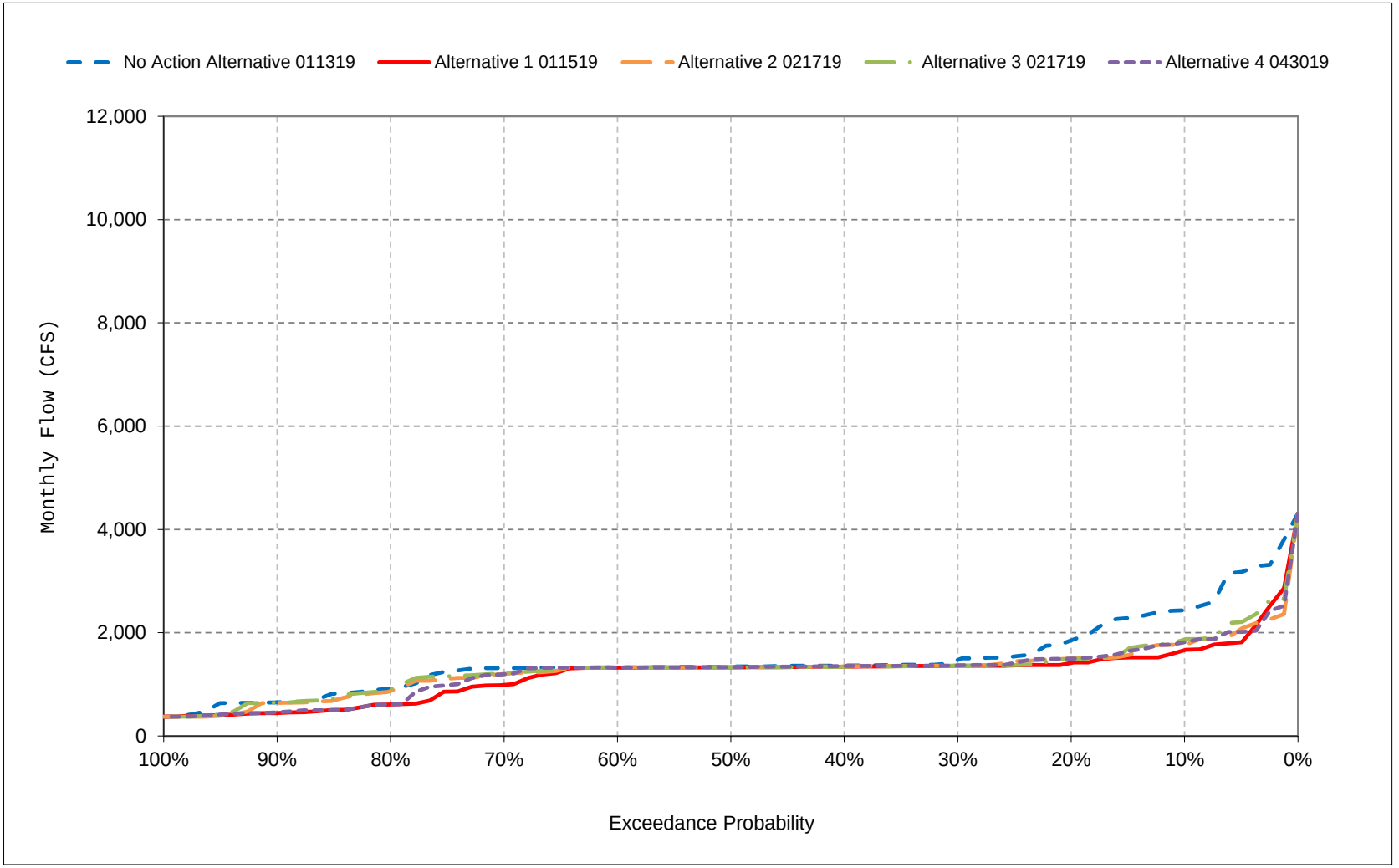

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 28-6. American River at H Street, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

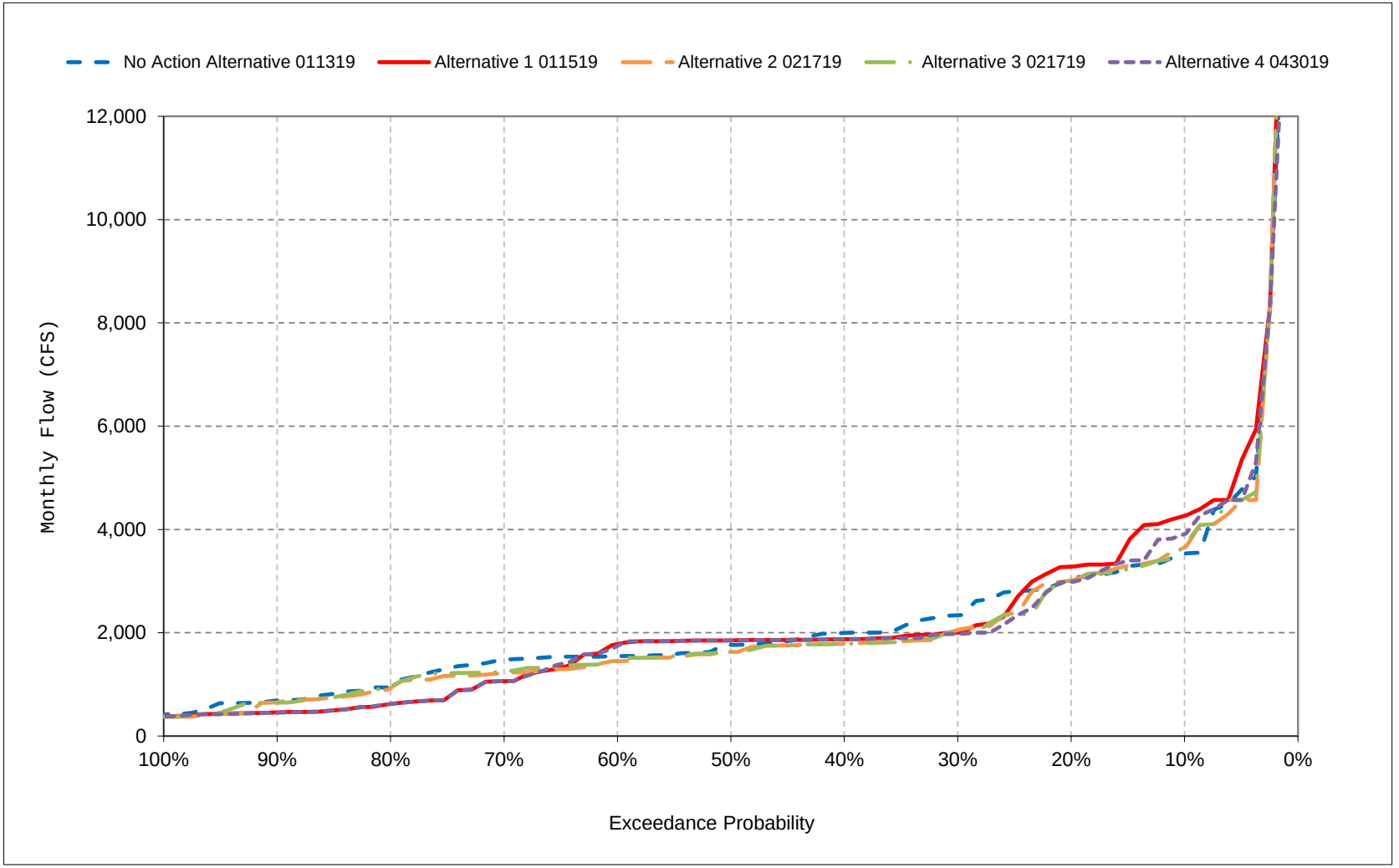
**Figure 28-7. American River at H Street, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

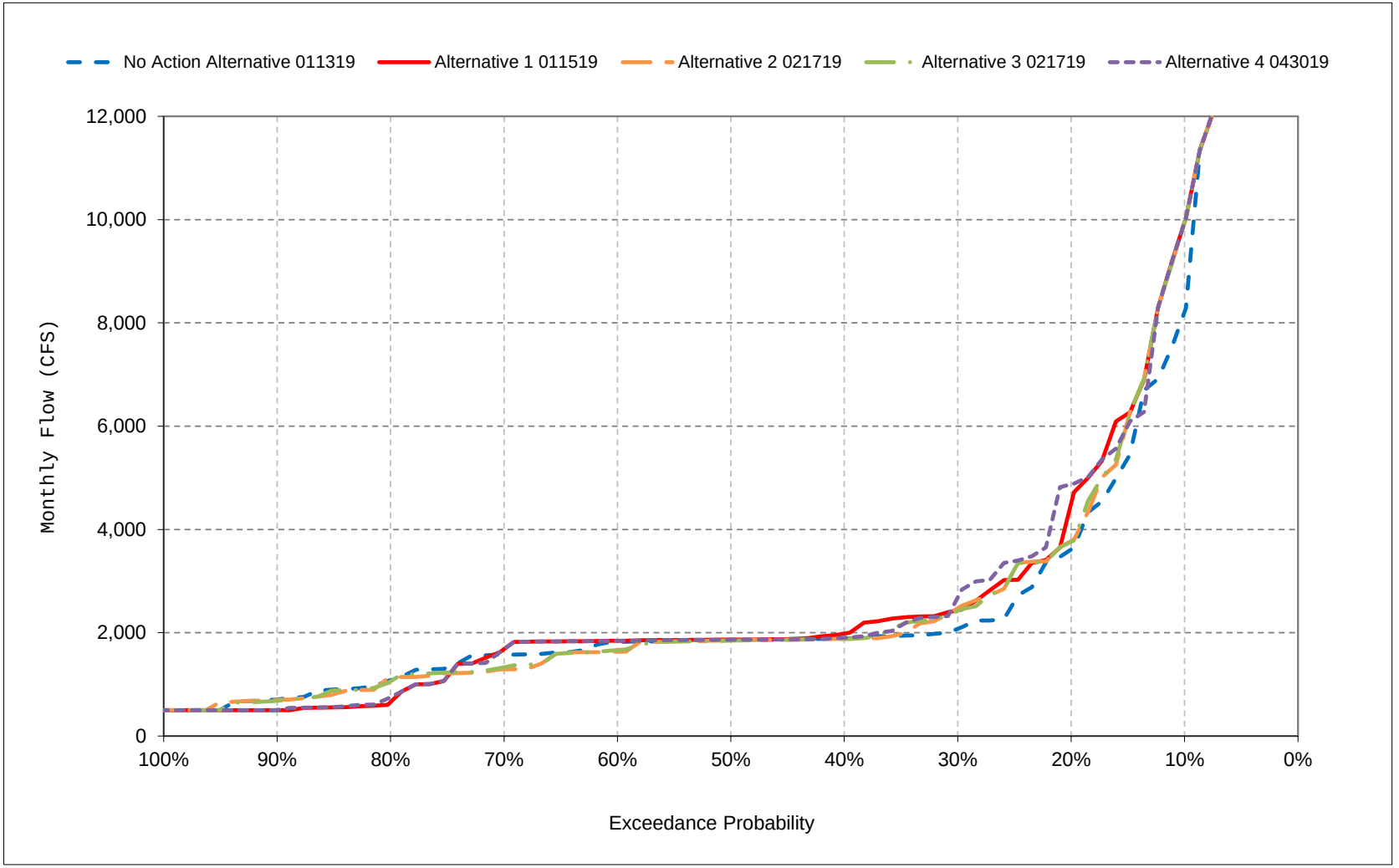
**Figure 28-8. American River at H Street, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

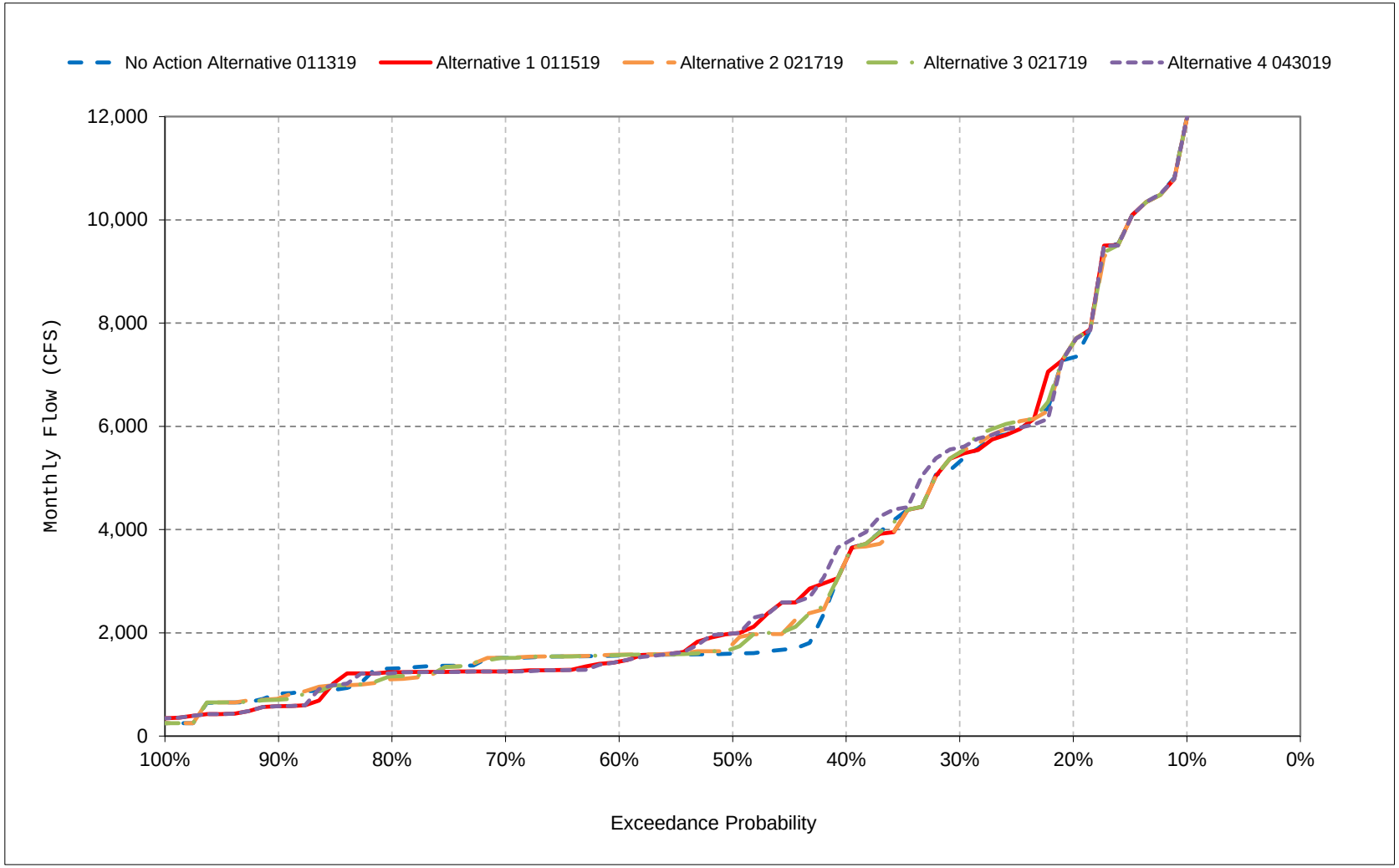
**Figure 28-9. American River at H Street, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

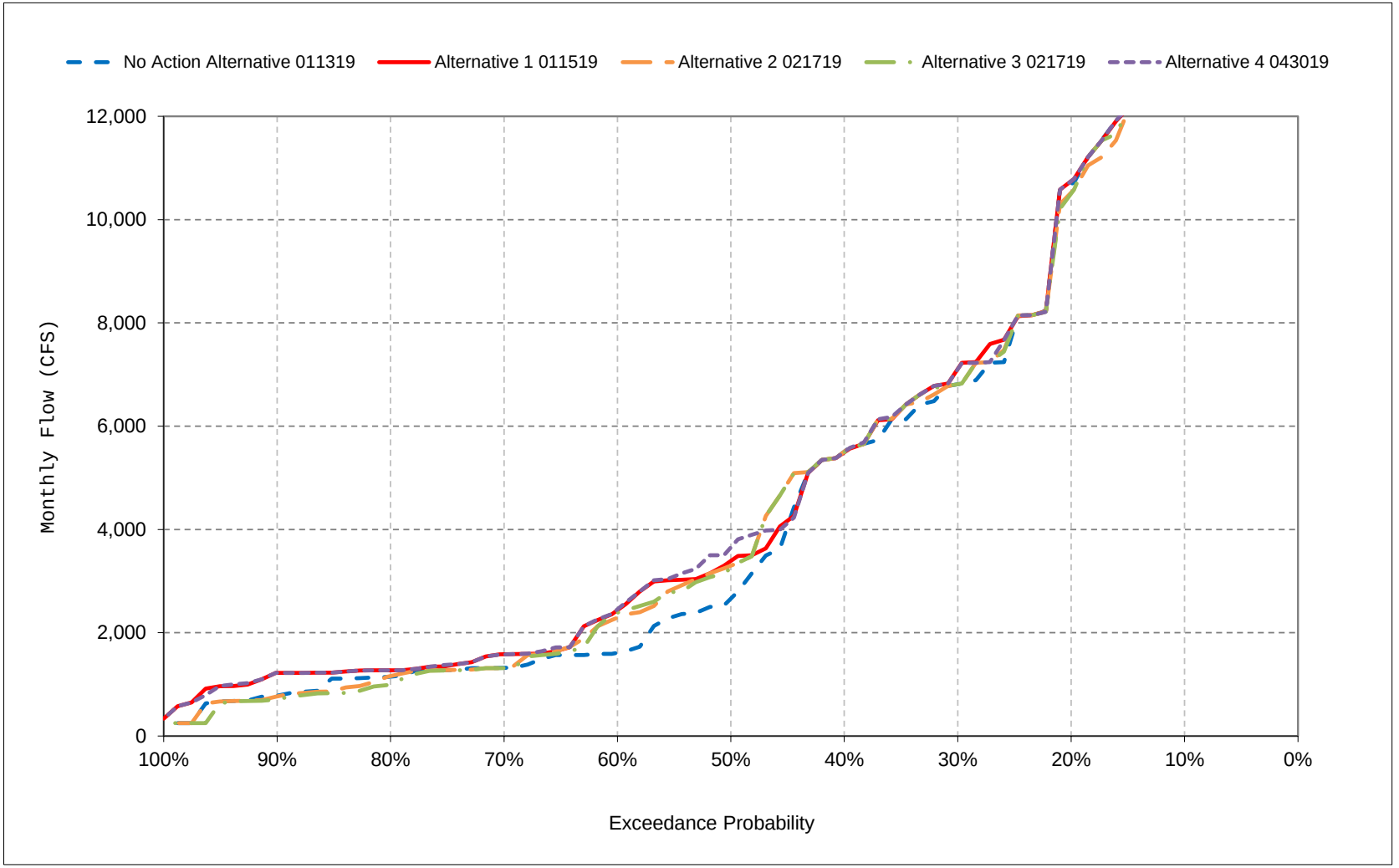
**Figure 28-10. American River at H Street, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

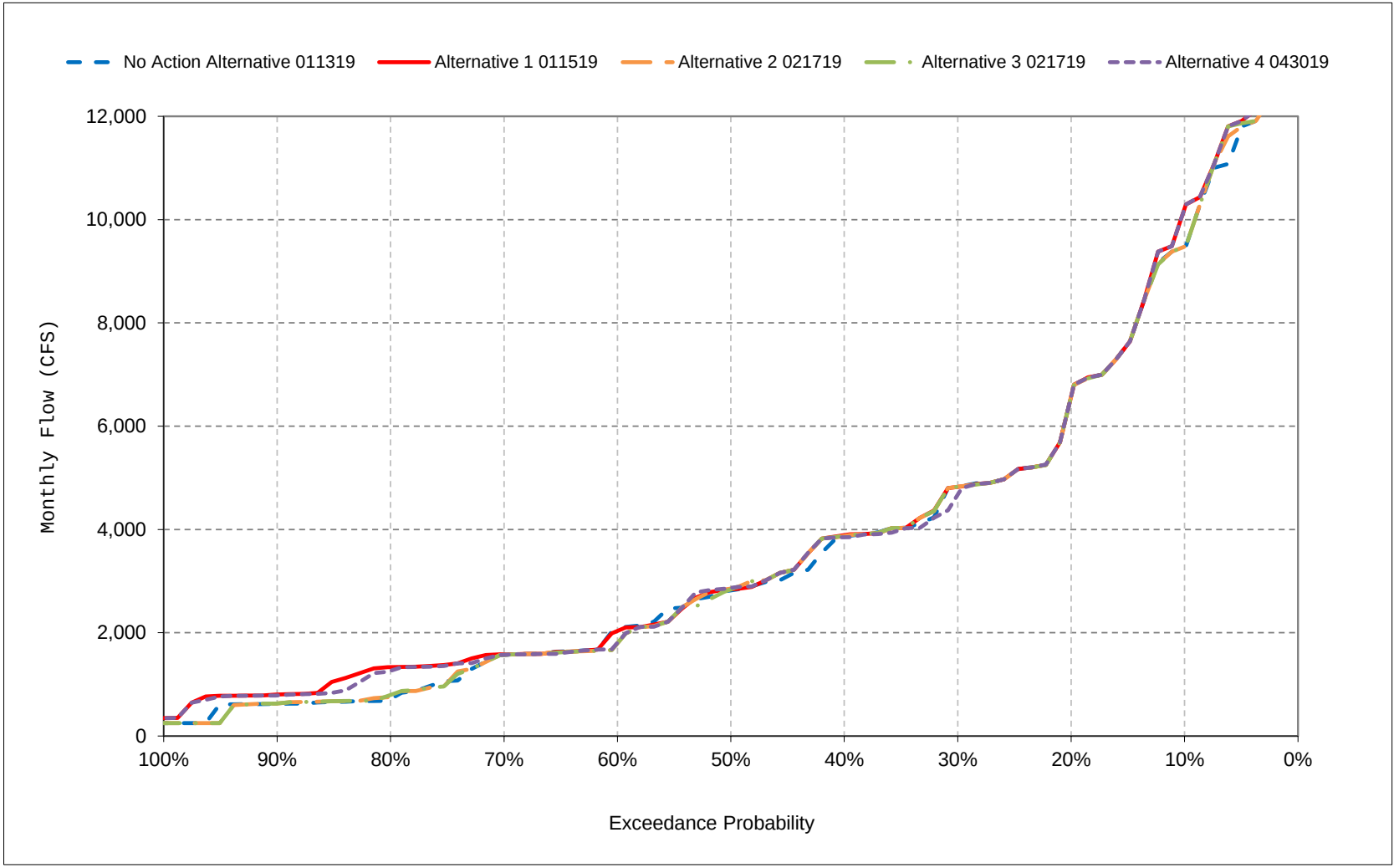
**Figure 28-11. American River at H Street, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

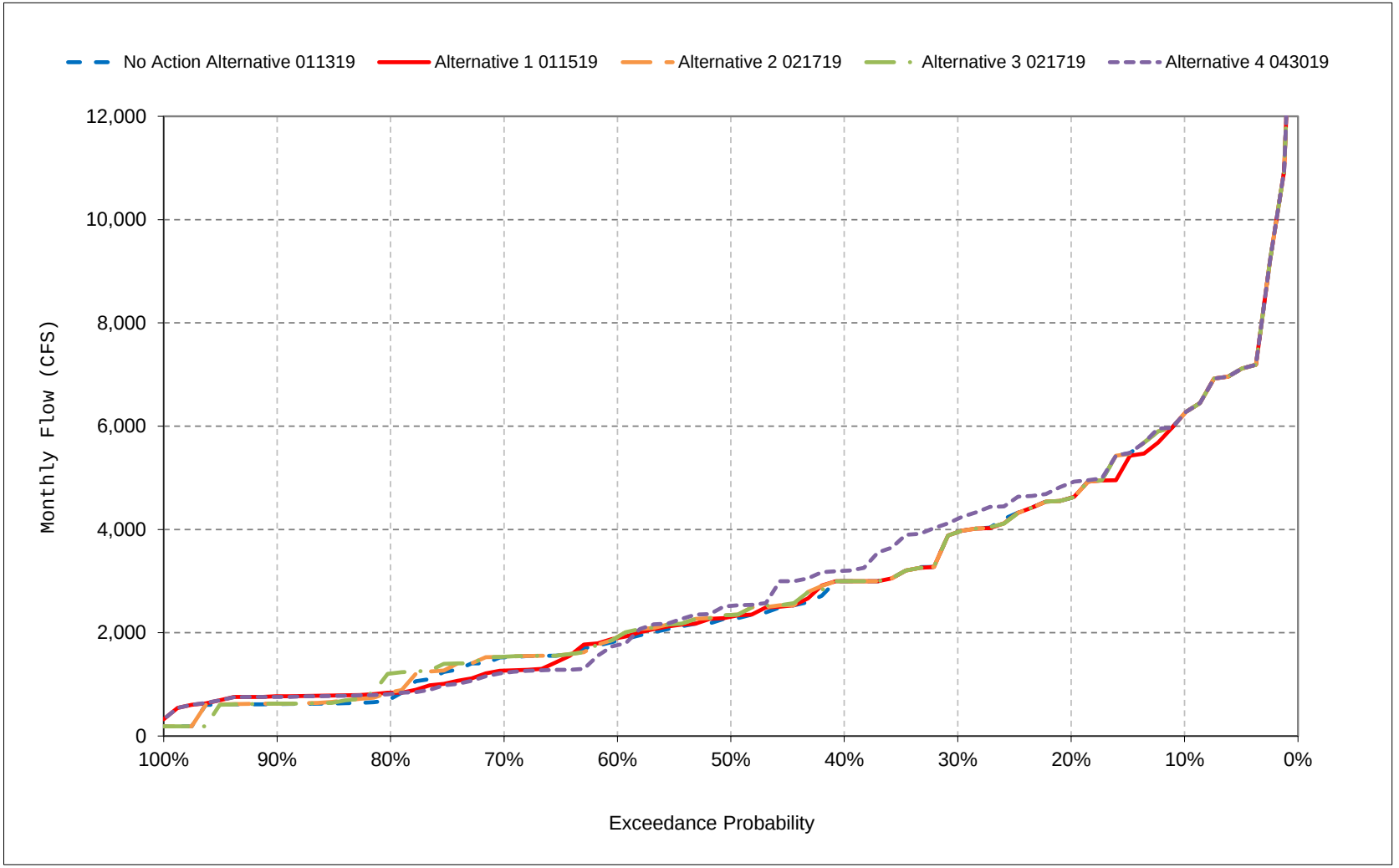
**Figure 28-12. American River at H Street, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

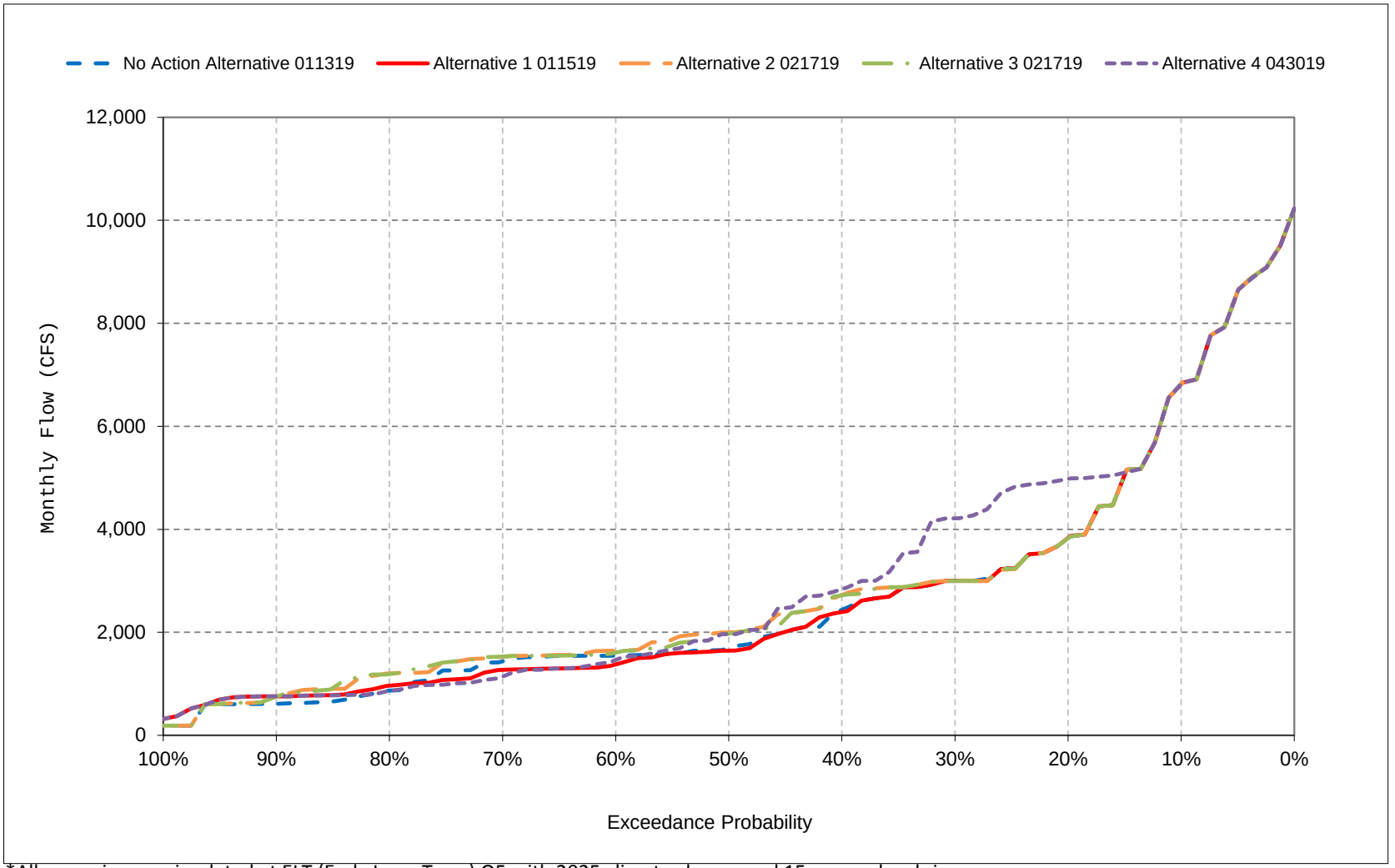
**Figure 28-13. American River at H Street, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

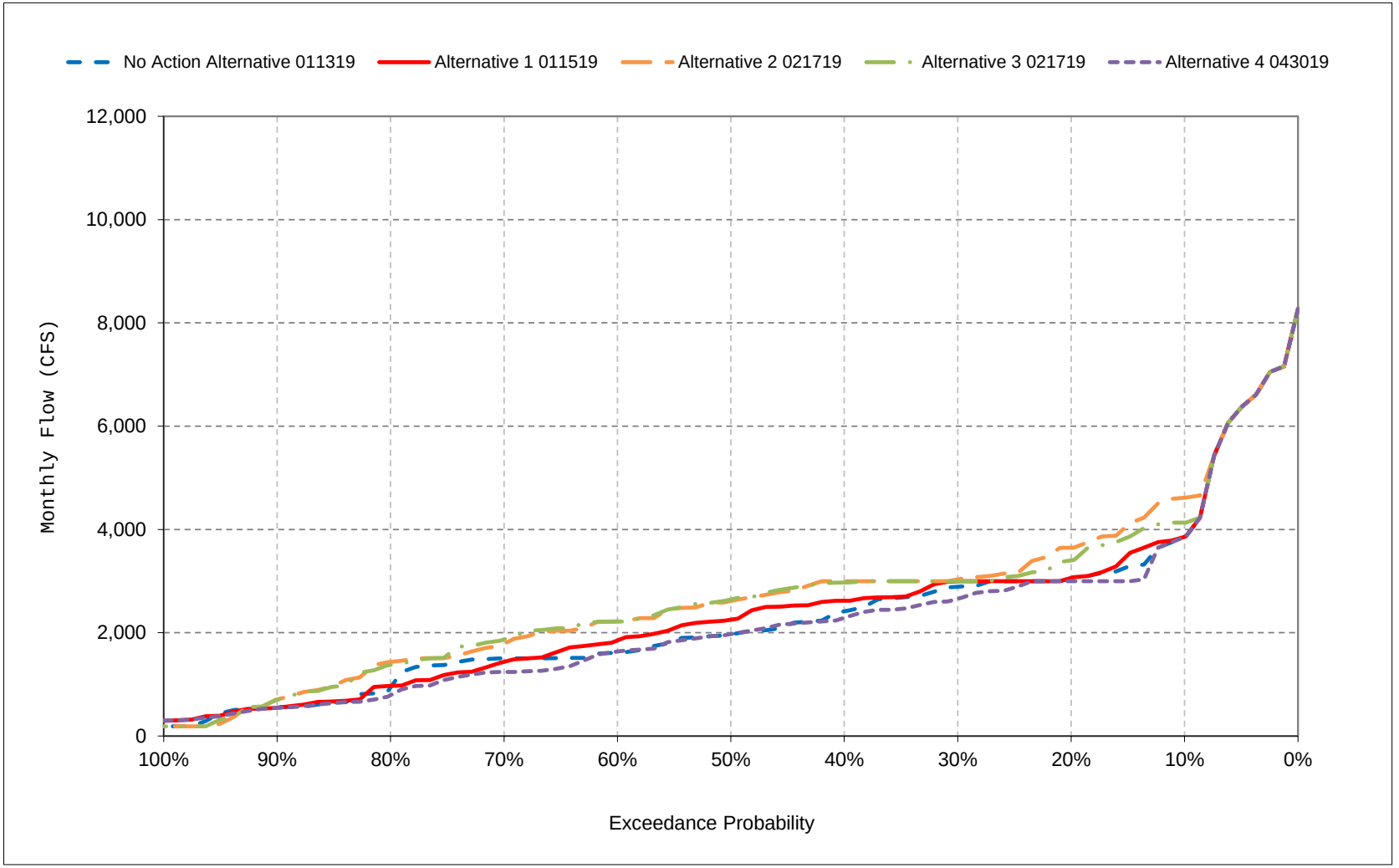
**Figure 28-14. American River at H Street, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

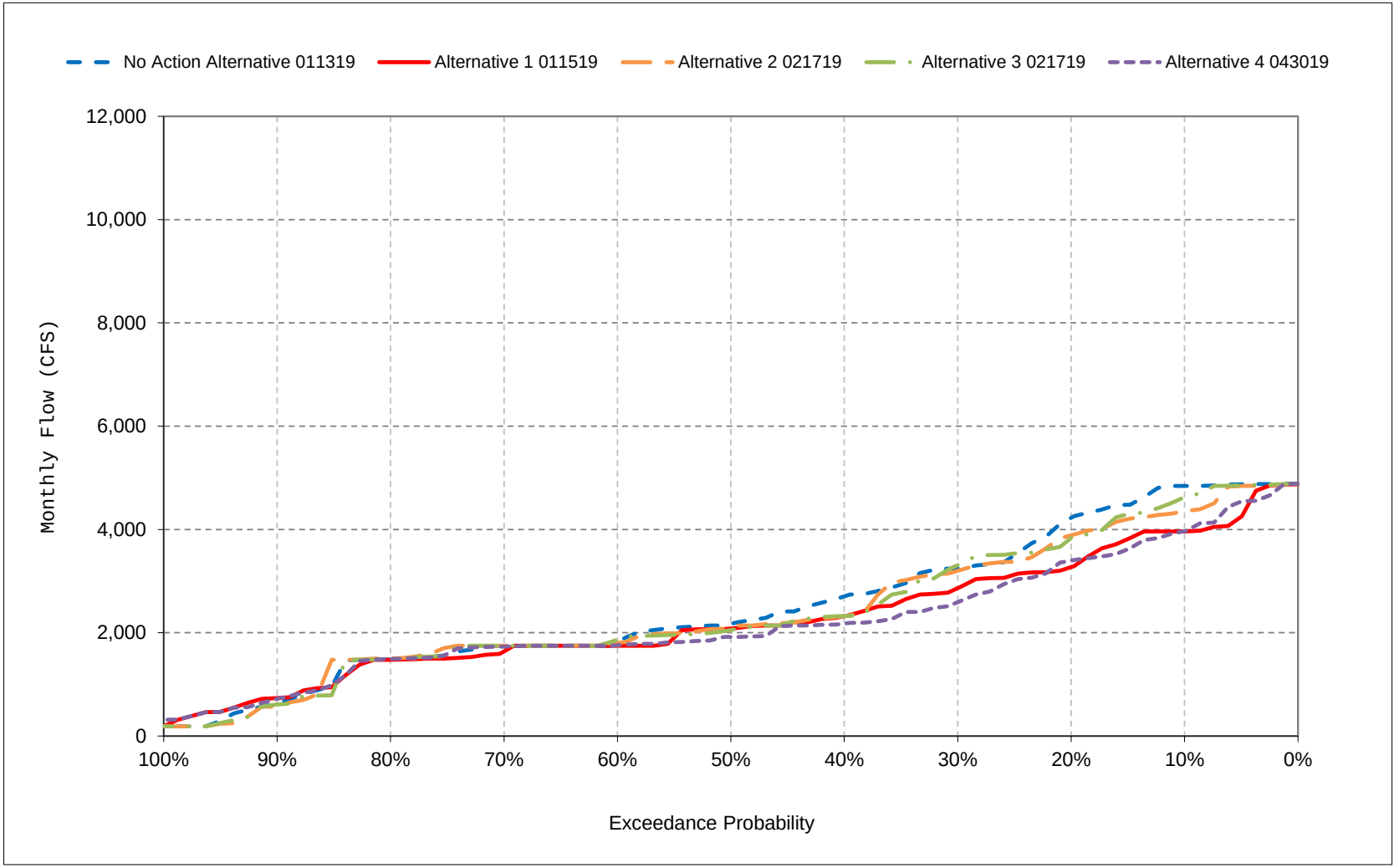
**Figure 28-15. American River at H Street, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

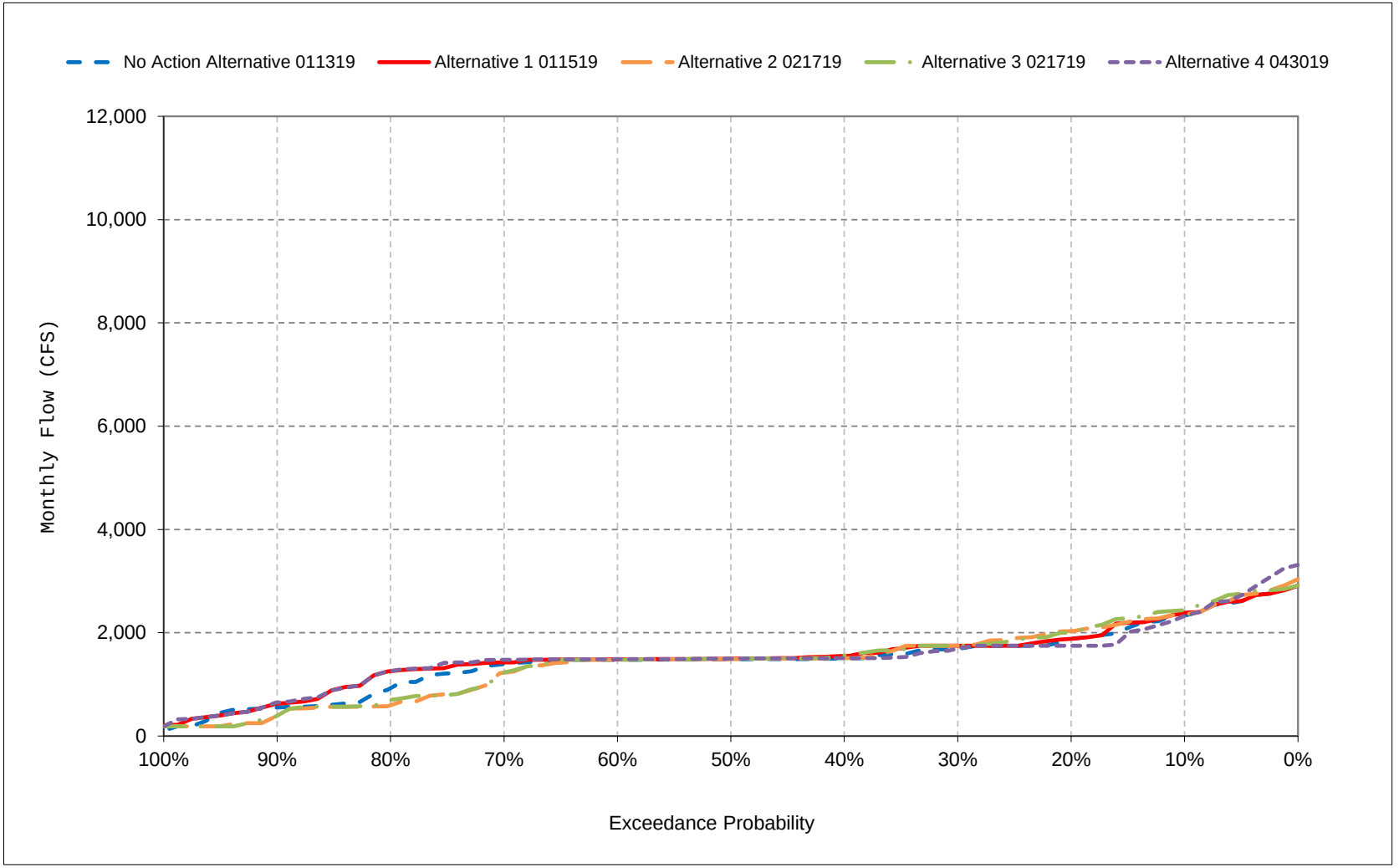
**Figure 28-16. American River at H Street, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

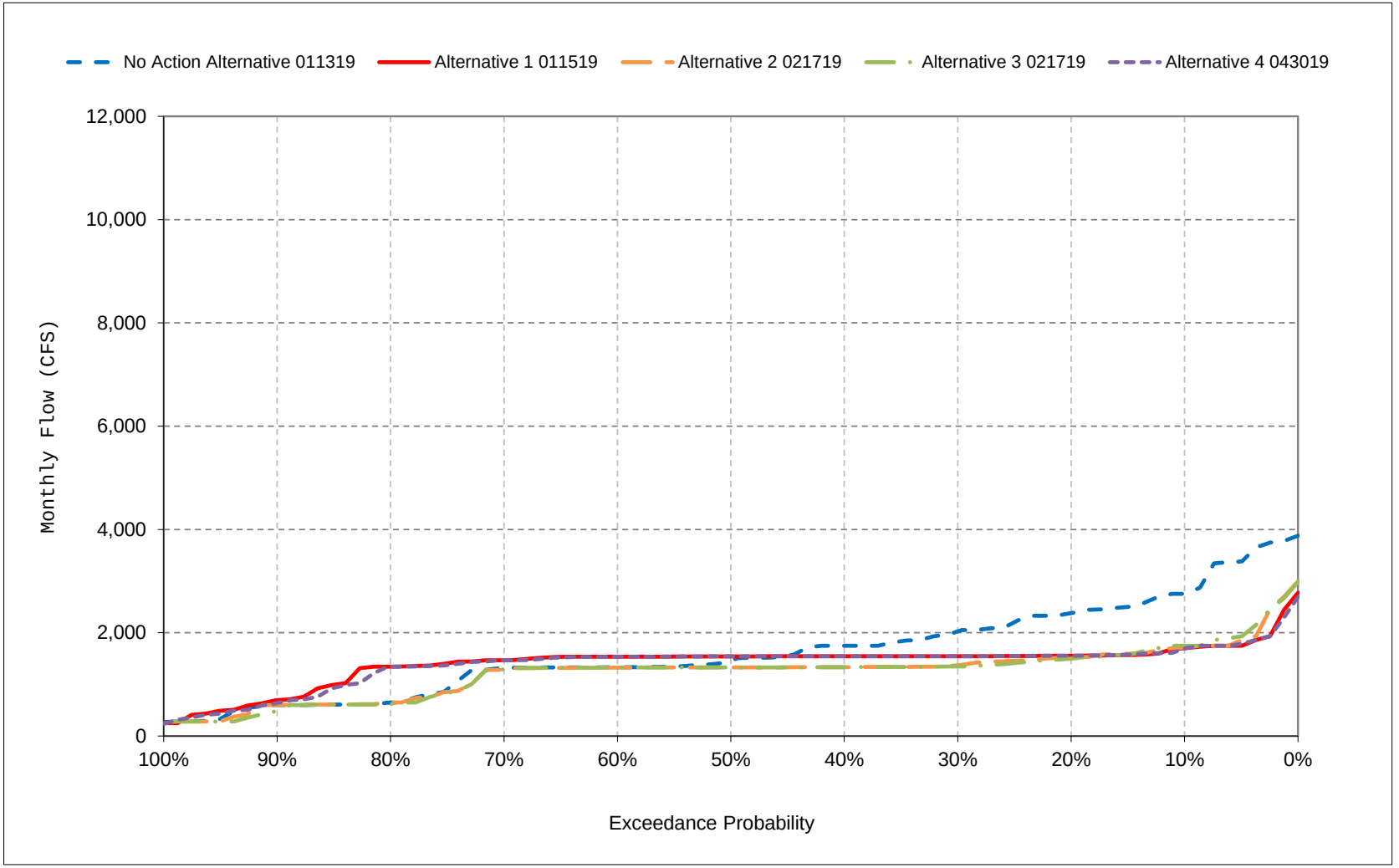
**Figure 28-17. American River at H Street, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 28-18. American River at H Street, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 29-1. Sacramento River Flow at Freeport, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15,462 | 21,542 | 50,195 | 65,000 | 69,738 | 64,827 | 52,557 | 38,629 | 20,654 | 24,529 | 16,958 | 29,451 |
| 20% | 14,044 | 19,263 | 33,944 | 53,965 | 62,372 | 53,989 | 38,721 | 28,054 | 16,178 | 24,220 | 16,568 | 28,488 |
| 30% | 13,243 | 18,443 | 21,814 | 38,469 | 50,812 | 41,513 | 25,293 | 16,030 | 14,030 | 22,824 | 16,070 | 22,484 |
| 40% | 12,565 | 17,044 | 18,066 | 26,010 | 43,892 | 31,089 | 22,500 | 13,503 | 13,452 | 19,748 | 15,786 | 21,731 |
| 50% | 10,356 | 15,471 | 15,521 | 20,258 | 33,254 | 25,635 | 17,541 | 12,283 | 13,093 | 18,800 | 15,154 | 13,854 |
| 60% | 9,121 | 13,204 | 14,767 | 18,165 | 25,442 | 20,351 | 14,960 | 11,617 | 12,619 | 17,152 | 13,722 | 10,719 |
| 70% | 8,177 | 10,428 | 13,379 | 14,854 | 20,069 | 18,975 | 12,827 | 10,835 | 11,599 | 15,974 | 9,484 | 9,942 |
| 80% | 8,049 | 9,328 | 10,586 | 13,023 | 16,348 | 15,258 | 11,444 | 10,120 | 10,846 | 14,200 | 8,685 | 9,222 |
| 90% | 6,584 | 7,187 | 9,357 | 11,911 | 14,293 | 11,409 | 10,248 | 8,753 | 10,213 | 11,139 | 8,013 | 7,852 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 11,186 | 15,887 | 22,809 | 30,928 | 38,059 | 32,551 | 24,579 | 18,164 | 14,924 | 18,430 | 13,274 | 17,499 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 14,487 | 20,839 | 25,490 | 50,073 | 56,989 | 49,902 | 39,427 | 30,325 | 20,392 | 20,230 | 16,023 | 28,227 |
| Above Normal (16%) | 12,640 | 18,546 | 21,946 | 39,237 | 47,178 | 43,037 | 27,296 | 17,159 | 13,494 | 22,946 | 16,776 | 21,852 |
| Below Normal (13%) | 11,241 | 12,285 | 21,153 | 18,490 | 31,200 | 18,881 | 15,326 | 13,084 | 12,970 | 21,656 | 14,896 | 11,740 |
| Dry (24%) | 8,663 | 14,783 | 26,842 | 17,323 | 24,217 | 22,503 | 16,820 | 11,656 | 12,947 | 16,257 | 9,702 | 9,771 |
| Critical (15%) | 6,614 | 7,420 | 12,728 | 14,524 | 16,520 | 12,876 | 10,882 | 8,406 | 9,709 | 10,301 | 7,988 | 7,702 |

### Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 14,332 | 24,078 | 52,760 | 65,882 | 70,031 | 64,878 | 52,583 | 38,630 | 20,650 | 24,438 | 16,984 | 15,507 |
| 20% | 13,867 | 14,883 | 36,616 | 56,798 | 62,813 | 54,088 | 38,727 | 28,053 | 16,842 | 23,610 | 16,813 | 14,883 |
| 30% | 12,674 | 13,625 | 23,713 | 41,897 | 52,576 | 42,854 | 25,427 | 17,030 | 15,485 | 22,414 | 16,194 | 14,471 |
| 40% | 11,942 | 12,714 | 18,423 | 27,487 | 46,456 | 31,354 | 22,393 | 14,552 | 15,130 | 19,701 | 15,857 | 14,254 |
| 50% | 10,513 | 11,405 | 15,591 | 22,879 | 33,864 | 26,172 | 17,544 | 13,630 | 14,771 | 18,138 | 15,377 | 13,809 |
| 60% | 9,168 | 10,889 | 15,135 | 18,779 | 25,320 | 21,156 | 14,084 | 12,654 | 14,170 | 17,343 | 14,046 | 11,248 |
| 70% | 8,353 | 10,011 | 13,160 | 14,762 | 21,000 | 19,022 | 12,814 | 12,007 | 13,642 | 14,601 | 9,840 | 9,903 |
| 80% | 8,043 | 8,549 | 10,627 | 12,867 | 17,363 | 15,741 | 11,667 | 11,158 | 12,511 | 12,484 | 8,967 | 9,147 |
| 90% | 6,578 | 7,476 | 9,473 | 12,066 | 14,543 | 11,855 | 10,756 | 9,959 | 11,510 | 10,526 | 7,795 | 7,837 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 10,965 | 14,008 | 23,811 | 31,611 | 38,640 | 33,182 | 24,646 | 18,902 | 16,177 | 18,032 | 13,434 | 12,456 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 13,466 | 17,131 | 28,084 | 51,103 | 57,254 | 50,062 | 39,492 | 30,674 | 20,886 | 19,883 | 15,978 | 15,383 |
| Above Normal (16%) | 13,023 | 14,792 | 22,969 | 40,490 | 48,085 | 44,453 | 27,323 | 17,873 | 14,454 | 22,948 | 16,722 | 14,777 |
| Below Normal (13%) | 11,334 | 11,867 | 21,060 | 19,669 | 33,481 | 19,910 | 15,723 | 14,481 | 15,126 | 21,888 | 16,031 | 12,421 |
| Dry (24%) | 8,787 | 14,566 | 27,075 | 17,377 | 24,294 | 22,951 | 16,725 | 12,769 | 14,905 | 15,224 | 9,912 | 9,951 |
| Critical (15%) | 6,608 | 7,423 | 12,546 | 14,427 | 16,719 | 13,619 | 10,964 | 8,785 | 10,921 | 9,842 | 7,847 | 7,804 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-1,129** | 2,536 | 2,565 | 882 | 293 | 52 | 25 | 0 | **-4** | **-91** | 26 | **-13,944** |
| 20% | **-177** | **-4,380** | 2,672 | 2,833 | 441 | 99 | 6 | **-1** | 664 | **-610** | 245 | **-13,605** |
| 30% | **-569** | **-4,818** | 1,899 | 3,428 | 1,764 | 1,342 | 135 | 1,000 | 1,455 | **-411** | 124 | **-8,013** |
| 40% | **-624** | **-4,330** | 357 | 1,477 | 2,563 | 264 | **-107** | 1,050 | 1,678 | **-47** | 70 | **-7,477** |
| 50% | 156 | **-4,066** | 70 | 2,621 | 610 | 537 | 4 | 1,348 | 1,678 | **-663** | 223 | **-44** |
| 60% | 48 | **-2,315** | 368 | 613 | **-122** | 805 | **-876** | 1,037 | 1,550 | 191 | 324 | 529 |
| 70% | 176 | **-417** | **-219** | **-92** | 931 | 47 | **-13** | 1,172 | 2,043 | **-1,373** | 355 | **-39** |
| 80% | **-6** | **-779** | 41 | **-157** | 1,015 | 482 | 222 | 1,038 | 1,665 | **-1,715** | 282 | **-74** |
| 90% | **-6** | 288 | 116 | 155 | 250 | 447 | 509 | 1,206 | 1,298 | **-613** | **-218** | **-15** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-221** | **-1,879** | 1,002 | 682 | 582 | 631 | 67 | 738 | 1,253 | **-398** | 160 | **-5,044** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-1,021** | **-3,708** | 2,594 | 1,031 | 265 | 161 | 65 | 349 | 494 | **-347** | **-45** | **-12,843** |
| Above Normal (16%) | 383 | **-3,754** | 1,023 | 1,253 | 908 | 1,416 | 26 | 714 | 960 | 2 | **-54** | **-7,075** |
| Below Normal (13%) | 94 | **-418** | **-93** | 1,178 | 2,281 | 1,028 | 397 | 1,397 | 2,157 | 232 | 1,135 | 681 |
| Dry (24%) | 124 | **-217** | 232 | 55 | 78 | 449 | **-94** | 1,113 | 1,958 | **-1,034** | 211 | 181 |
| Critical (15%) | **-7** | 3 | **-182** | **-97** | 198 | 742 | 82 | 379 | 1,211 | **-459** | **-142** | 102 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 29-2. Sacramento River Flow at Freeport, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15,462 | 21,542 | 50,195 | 65,000 | 69,738 | 64,827 | 52,557 | 38,629 | 20,654 | 24,529 | 16,958 | 29,451 |
| 20% | 14,044 | 19,263 | 33,944 | 53,965 | 62,372 | 53,989 | 38,721 | 28,054 | 16,178 | 24,220 | 16,568 | 28,488 |
| 30% | 13,243 | 18,443 | 21,814 | 38,469 | 50,812 | 41,513 | 25,293 | 16,030 | 14,030 | 22,824 | 16,070 | 22,484 |
| 40% | 12,565 | 17,044 | 18,066 | 26,010 | 43,892 | 31,089 | 22,500 | 13,503 | 13,452 | 19,748 | 15,786 | 21,731 |
| 50% | 10,356 | 15,471 | 15,521 | 20,258 | 33,254 | 25,635 | 17,541 | 12,283 | 13,093 | 18,800 | 15,154 | 13,854 |
| 60% | 9,121 | 13,204 | 14,767 | 18,165 | 25,442 | 20,351 | 14,960 | 11,617 | 12,619 | 17,152 | 13,722 | 10,719 |
| 70% | 8,177 | 10,428 | 13,379 | 14,854 | 20,069 | 18,975 | 12,827 | 10,835 | 11,599 | 15,974 | 9,484 | 9,942 |
| 80% | 8,049 | 9,328 | 10,586 | 13,023 | 16,348 | 15,258 | 11,444 | 10,120 | 10,846 | 14,200 | 8,685 | 9,222 |
| 90% | 6,584 | 7,187 | 9,357 | 11,911 | 14,293 | 11,409 | 10,248 | 8,753 | 10,213 | 11,139 | 8,013 | 7,852 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 11,186 | 15,887 | 22,809 | 30,928 | 38,059 | 32,551 | 24,579 | 18,164 | 14,924 | 18,430 | 13,274 | 17,499 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 14,487 | 20,839 | 25,490 | 50,073 | 56,989 | 49,902 | 39,427 | 30,325 | 20,392 | 20,230 | 16,023 | 28,227 |
| Above Normal (16%) | 12,640 | 18,546 | 21,946 | 39,237 | 47,178 | 43,037 | 27,296 | 17,159 | 13,494 | 22,946 | 16,776 | 21,852 |
| Below Normal (13%) | 11,241 | 12,285 | 21,153 | 18,490 | 31,200 | 18,881 | 15,326 | 13,084 | 12,970 | 21,656 | 14,896 | 11,740 |
| Dry (24%) | 8,663 | 14,783 | 26,842 | 17,323 | 24,217 | 22,503 | 16,820 | 11,656 | 12,947 | 16,257 | 9,702 | 9,771 |
| Critical (15%) | 6,614 | 7,420 | 12,728 | 14,524 | 16,520 | 12,876 | 10,882 | 8,406 | 9,709 | 10,301 | 7,988 | 7,702 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 14,718 | 21,707 | 51,282 | 65,738 | 69,547 | 64,870 | 52,558 | 38,641 | 23,686 | 24,413 | 17,069 | 15,663 |
| 20% | 14,252 | 14,790 | 34,731 | 56,741 | 62,257 | 54,086 | 38,739 | 28,050 | 21,808 | 22,357 | 16,573 | 14,877 |
| 30% | 13,450 | 13,678 | 22,719 | 41,889 | 52,620 | 42,199 | 25,183 | 17,931 | 20,075 | 21,127 | 15,602 | 14,240 |
| 40% | 11,993 | 13,396 | 18,811 | 28,095 | 46,434 | 31,437 | 22,294 | 15,724 | 18,863 | 18,932 | 15,086 | 13,863 |
| 50% | 10,372 | 11,404 | 15,642 | 22,624 | 33,427 | 25,816 | 17,479 | 14,727 | 17,452 | 17,832 | 14,281 | 12,978 |
| 60% | 9,452 | 10,540 | 14,263 | 18,418 | 25,309 | 20,979 | 14,512 | 13,524 | 16,522 | 16,373 | 12,010 | 11,361 |
| 70% | 8,865 | 9,971 | 12,729 | 14,788 | 20,571 | 18,917 | 12,764 | 12,865 | 15,245 | 14,572 | 9,968 | 10,284 |
| 80% | 8,145 | 8,715 | 11,088 | 12,902 | 16,298 | 15,156 | 12,063 | 11,923 | 13,154 | 12,714 | 8,651 | 9,428 |
| 90% | 6,640 | 7,109 | 9,871 | 11,767 | 14,079 | 11,720 | 11,407 | 10,829 | 11,477 | 11,221 | 8,088 | 8,092 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 11,159 | 13,950 | 23,348 | 31,398 | 38,376 | 32,881 | 24,750 | 19,485 | 18,398 | 17,621 | 12,955 | 12,396 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 13,763 | 17,006 | 27,690 | 50,793 | 57,186 | 50,019 | 39,511 | 30,911 | 22,362 | 19,359 | 15,459 | 14,847 |
| Above Normal (16%) | 13,094 | 14,015 | 21,973 | 40,086 | 48,126 | 44,130 | 27,295 | 18,335 | 19,143 | 22,943 | 16,398 | 14,564 |
| Below Normal (13%) | 11,449 | 11,924 | 20,326 | 19,641 | 32,558 | 19,675 | 15,821 | 15,652 | 20,432 | 20,334 | 14,414 | 12,504 |
| Dry (24%) | 8,926 | 14,974 | 26,627 | 17,254 | 23,928 | 22,215 | 16,896 | 13,632 | 15,924 | 14,542 | 9,527 | 10,332 |
| Critical (15%) | 6,878 | 7,409 | 12,735 | 14,314 | 16,474 | 13,441 | 11,285 | 9,240 | 11,265 | 10,737 | 8,173 | 8,078 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-743** | 165 | 1,087 | 738 | **-190** | 43 | 1 | 12 | 3,032 | **-116** | 112 | **-13,788** |
| 20% | 207 | **-4,473** | 788 | 2,776 | **-115** | 97 | 19 | **-4** | 5,629 | **-1,863** | 5 | **-13,611** |
| 30% | 207 | **-4,765** | 905 | 3,420 | 1,809 | 686 | **-110** | 1,901 | 6,046 | **-1,697** | **-468** | **-8,245** |
| 40% | **-573** | **-3,648** | 745 | 2,085 | 2,542 | 348 | **-206** | 2,222 | 5,411 | **-816** | **-700** | **-7,868** |
| 50% | 16 | **-4,068** | 120 | 2,365 | 173 | 181 | **-62** | 2,444 | 4,359 | **-969** | **-873** | **-876** |
| 60% | 332 | **-2,664** | **-503** | 252 | **-133** | 628 | **-449** | 1,907 | 3,902 | **-779** | **-1,712** | 642 |
| 70% | 688 | **-457** | **-650** | **-66** | 502 | **-58** | **-63** | 2,030 | 3,647 | **-1,402** | 483 | 342 |
| 80% | 95 | **-613** | 502 | **-121** | **-50** | **-102** | 618 | 1,803 | 2,309 | **-1,485** | **-34** | 207 |
| 90% | 56 | **-79** | 514 | **-144** | **-214** | 312 | 1,159 | 2,076 | 1,265 | 82 | 74 | 240 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-27** | **-1,937** | 540 | 470 | 318 | 329 | 171 | 1,321 | 3,475 | **-809** | **-319** | **-5,104** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-724** | **-3,833** | 2,200 | 721 | 196 | 117 | 85 | 586 | 1,971 | **-871** | **-564** | **-13,380** |
| Above Normal (16%) | 455 | **-4,531** | 27 | 849 | 948 | 1,093 | **-2** | 1,176 | 5,649 | **-4** | **-378** | **-7,288** |
| Below Normal (13%) | 208 | **-361** | **-828** | 1,150 | 1,359 | 793 | 495 | 2,567 | 7,462 | **-1,322** | **-482** | 763 |
| Dry (24%) | 263 | 191 | **-215** | **-69** | **-289** | **-288** | 77 | 1,976 | 2,976 | **-1,715** | **-175** | 561 |
| Critical (15%) | 264 | **-11** | 7 | **-210** | **-46** | 565 | 403 | 835 | 1,555 | 436 | 185 | 376 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 29-3. Sacramento River Flow at Freeport, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15,462 | 21,542 | 50,195 | 65,000 | 69,738 | 64,827 | 52,557 | 38,629 | 20,654 | 24,529 | 16,958 | 29,451 |
| 20% | 14,044 | 19,263 | 33,944 | 53,965 | 62,372 | 53,989 | 38,721 | 28,054 | 16,178 | 24,220 | 16,568 | 28,488 |
| 30% | 13,243 | 18,443 | 21,814 | 38,469 | 50,812 | 41,513 | 25,293 | 16,030 | 14,030 | 22,824 | 16,070 | 22,484 |
| 40% | 12,565 | 17,044 | 18,066 | 26,010 | 43,892 | 31,089 | 22,500 | 13,503 | 13,452 | 19,748 | 15,786 | 21,731 |
| 50% | 10,356 | 15,471 | 15,521 | 20,258 | 33,254 | 25,635 | 17,541 | 12,283 | 13,093 | 18,800 | 15,154 | 13,854 |
| 60% | 9,121 | 13,204 | 14,767 | 18,165 | 25,442 | 20,351 | 14,960 | 11,617 | 12,619 | 17,152 | 13,722 | 10,719 |
| 70% | 8,177 | 10,428 | 13,379 | 14,854 | 20,069 | 18,975 | 12,827 | 10,835 | 11,599 | 15,974 | 9,484 | 9,942 |
| 80% | 8,049 | 9,328 | 10,586 | 13,023 | 16,348 | 15,258 | 11,444 | 10,120 | 10,846 | 14,200 | 8,685 | 9,222 |
| 90% | 6,584 | 7,187 | 9,357 | 11,911 | 14,293 | 11,409 | 10,248 | 8,753 | 10,213 | 11,139 | 8,013 | 7,852 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 11,186 | 15,887 | 22,809 | 30,928 | 38,059 | 32,551 | 24,579 | 18,164 | 14,924 | 18,430 | 13,274 | 17,499 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 14,487 | 20,839 | 25,490 | 50,073 | 56,989 | 49,902 | 39,427 | 30,325 | 20,392 | 20,230 | 16,023 | 28,227 |
| Above Normal (16%) | 12,640 | 18,546 | 21,946 | 39,237 | 47,178 | 43,037 | 27,296 | 17,159 | 13,494 | 22,946 | 16,776 | 21,852 |
| Below Normal (13%) | 11,241 | 12,285 | 21,153 | 18,490 | 31,200 | 18,881 | 15,326 | 13,084 | 12,970 | 21,656 | 14,896 | 11,740 |
| Dry (24%) | 8,663 | 14,783 | 26,842 | 17,323 | 24,217 | 22,503 | 16,820 | 11,656 | 12,947 | 16,257 | 9,702 | 9,771 |
| Critical (15%) | 6,614 | 7,420 | 12,728 | 14,524 | 16,520 | 12,876 | 10,882 | 8,406 | 9,709 | 10,301 | 7,988 | 7,702 |

### Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 14,718 | 22,087 | 51,133 | 65,826 | 69,976 | 64,855 | 52,058 | 38,640 | 23,232 | 24,509 | 17,056 | 15,735 |
| 20% | 14,251 | 15,047 | 35,062 | 56,731 | 62,266 | 54,087 | 38,741 | 28,049 | 20,867 | 22,889 | 16,561 | 15,036 |
| 30% | 13,510 | 13,708 | 23,231 | 41,892 | 52,471 | 42,163 | 25,202 | 17,918 | 19,810 | 21,124 | 15,163 | 14,405 |
| 40% | 12,657 | 13,435 | 18,741 | 28,072 | 46,295 | 31,449 | 22,413 | 15,274 | 17,939 | 19,526 | 14,888 | 13,520 |
| 50% | 11,244 | 11,557 | 15,663 | 22,393 | 33,444 | 25,816 | 17,475 | 14,406 | 16,975 | 18,162 | 13,981 | 12,494 |
| 60% | 10,376 | 10,647 | 14,825 | 18,430 | 25,310 | 20,985 | 14,513 | 13,429 | 16,073 | 15,949 | 11,740 | 11,273 |
| 70% | 9,431 | 10,047 | 13,571 | 15,103 | 20,646 | 18,913 | 12,917 | 12,659 | 14,693 | 13,739 | 9,846 | 10,368 |
| 80% | 8,259 | 8,687 | 10,459 | 12,995 | 16,304 | 14,706 | 12,108 | 12,110 | 13,050 | 12,558 | 8,651 | 9,404 |
| 90% | 6,888 | 6,976 | 9,870 | 11,731 | 13,735 | 11,726 | 11,413 | 10,797 | 11,573 | 11,142 | 8,030 | 8,098 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 11,500 | 13,983 | 23,535 | 31,448 | 38,325 | 32,870 | 24,807 | 19,371 | 18,118 | 17,604 | 12,841 | 12,412 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 13,989 | 17,055 | 28,038 | 50,912 | 57,213 | 50,098 | 39,598 | 30,402 | 22,382 | 19,548 | 15,073 | 14,792 |
| Above Normal (16%) | 12,996 | 14,427 | 22,344 | 39,986 | 48,086 | 44,071 | 27,320 | 18,341 | 18,185 | 22,995 | 16,531 | 14,816 |
| Below Normal (13%) | 12,056 | 12,012 | 20,442 | 19,584 | 32,537 | 19,681 | 15,964 | 15,657 | 19,856 | 20,434 | 14,232 | 12,368 |
| Dry (24%) | 9,630 | 14,723 | 26,659 | 17,221 | 23,889 | 22,090 | 16,935 | 13,831 | 15,960 | 14,332 | 9,581 | 10,361 |
| Critical (15%) | 7,096 | 7,416 | 12,694 | 14,612 | 16,191 | 13,464 | 11,262 | 9,224 | 10,810 | 10,412 | 8,166 | 8,107 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-743** | 545 | 938 | 826 | 238 | 28 | **-499** | 11 | 2,578 | **-20** | 99 | **-13,716** |
| 20% | 207 | **-4,216** | 1,118 | 2,766 | **-106** | 97 | 21 | **-5** | 4,689 | **-1,331** | **-7** | **-13,452** |
| 30% | 267 | **-4,735** | 1,417 | 3,423 | 1,659 | 650 | **-91** | 1,888 | 5,780 | **-1,700** | **-907** | **-8,079** |
| 40% | 91 | **-3,609** | 675 | 2,062 | 2,403 | 360 | **-87** | 1,772 | 4,487 | **-222** | **-898** | **-8,211** |
| 50% | 888 | **-3,914** | 142 | 2,135 | 190 | 180 | **-65** | 2,123 | 3,881 | **-639** | **-1,173** | **-1,360** |
| 60% | 1,256 | **-2,557** | 59 | 265 | **-132** | 634 | **-447** | 1,812 | 3,454 | **-1,203** | **-1,982** | 554 |
| 70% | 1,254 | **-381** | 192 | 250 | 577 | **-63** | 90 | 1,825 | 3,094 | **-2,235** | 362 | 426 |
| 80% | 209 | **-641** | **-127** | **-28** | **-44** | **-552** | 664 | 1,990 | 2,204 | **-1,642** | **-34** | 182 |
| 90% | 304 | **-212** | 513 | **-180** | **-557** | 317 | 1,165 | 2,044 | 1,361 | 2 | 16 | 246 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 314 | **-1,905** | 726 | 519 | 266 | 319 | 228 | 1,207 | 3,194 | **-826** | **-433** | **-5,088** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-498** | **-3,784** | 2,548 | 839 | 224 | 196 | 172 | 77 | 1,991 | **-682** | **-950** | **-13,435** |
| Above Normal (16%) | 356 | **-4,119** | 398 | 749 | 908 | 1,034 | 24 | 1,182 | 4,691 | 49 | **-245** | **-7,036** |
| Below Normal (13%) | 816 | **-273** | **-712** | 1,094 | 1,337 | 800 | 638 | 2,573 | 6,886 | **-1,222** | **-663** | 628 |
| Dry (24%) | 967 | **-60** | **-183** | **-102** | **-328** | **-413** | 115 | 2,175 | 3,013 | **-1,925** | **-121** | 590 |
| Critical (15%) | 482 | **-4** | **-33** | 88 | **-329** | 587 | 380 | 818 | 1,101 | 111 | 177 | 405 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 29-4. Sacramento River Flow at Freeport, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15,462 | 21,542 | 50,195 | 65,000 | 69,738 | 64,827 | 52,557 | 38,629 | 20,654 | 24,529 | 16,958 | 29,451 |
| 20% | 14,044 | 19,263 | 33,944 | 53,965 | 62,372 | 53,989 | 38,721 | 28,054 | 16,178 | 24,220 | 16,568 | 28,488 |
| 30% | 13,243 | 18,443 | 21,814 | 38,469 | 50,812 | 41,513 | 25,293 | 16,030 | 14,030 | 22,824 | 16,070 | 22,484 |
| 40% | 12,565 | 17,044 | 18,066 | 26,010 | 43,892 | 31,089 | 22,500 | 13,503 | 13,452 | 19,748 | 15,786 | 21,731 |
| 50% | 10,356 | 15,471 | 15,521 | 20,258 | 33,254 | 25,635 | 17,541 | 12,283 | 13,093 | 18,800 | 15,154 | 13,854 |
| 60% | 9,121 | 13,204 | 14,767 | 18,165 | 25,442 | 20,351 | 14,960 | 11,617 | 12,619 | 17,152 | 13,722 | 10,719 |
| 70% | 8,177 | 10,428 | 13,379 | 14,854 | 20,069 | 18,975 | 12,827 | 10,835 | 11,599 | 15,974 | 9,484 | 9,942 |
| 80% | 8,049 | 9,328 | 10,586 | 13,023 | 16,348 | 15,258 | 11,444 | 10,120 | 10,846 | 14,200 | 8,685 | 9,222 |
| 90% | 6,584 | 7,187 | 9,357 | 11,911 | 14,293 | 11,409 | 10,248 | 8,753 | 10,213 | 11,139 | 8,013 | 7,852 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 11,186 | 15,887 | 22,809 | 30,928 | 38,059 | 32,551 | 24,579 | 18,164 | 14,924 | 18,430 | 13,274 | 17,499 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 14,487 | 20,839 | 25,490 | 50,073 | 56,989 | 49,902 | 39,427 | 30,325 | 20,392 | 20,230 | 16,023 | 28,227 |
| Above Normal (16%) | 12,640 | 18,546 | 21,946 | 39,237 | 47,178 | 43,037 | 27,296 | 17,159 | 13,494 | 22,946 | 16,776 | 21,852 |
| Below Normal (13%) | 11,241 | 12,285 | 21,153 | 18,490 | 31,200 | 18,881 | 15,326 | 13,084 | 12,970 | 21,656 | 14,896 | 11,740 |
| Dry (24%) | 8,663 | 14,783 | 26,842 | 17,323 | 24,217 | 22,503 | 16,820 | 11,656 | 12,947 | 16,257 | 9,702 | 9,771 |
| Critical (15%) | 6,614 | 7,420 | 12,728 | 14,524 | 16,520 | 12,876 | 10,882 | 8,406 | 9,709 | 10,301 | 7,988 | 7,702 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 13,995 | 23,482 | 54,713 | 65,934 | 69,812 | 64,942 | 55,447 | 36,677 | 20,801 | 22,837 | 16,502 | 15,353 |
| 20% | 13,540 | 15,272 | 37,832 | 55,751 | 62,363 | 54,285 | 41,545 | 29,351 | 15,595 | 22,825 | 15,978 | 14,595 |
| 30% | 12,405 | 13,530 | 24,906 | 41,614 | 52,342 | 43,246 | 31,896 | 20,069 | 14,858 | 21,629 | 15,668 | 14,100 |
| 40% | 10,969 | 12,049 | 19,270 | 29,239 | 46,104 | 34,434 | 27,077 | 15,870 | 14,583 | 19,015 | 14,880 | 13,738 |
| 50% | 9,805 | 11,068 | 15,596 | 23,722 | 35,485 | 27,807 | 20,973 | 13,738 | 13,914 | 17,900 | 12,854 | 11,185 |
| 60% | 8,773 | 10,412 | 14,127 | 19,805 | 27,010 | 23,225 | 16,385 | 11,761 | 13,488 | 16,752 | 10,232 | 9,962 |
| 70% | 8,267 | 9,665 | 12,647 | 16,199 | 22,154 | 19,863 | 13,245 | 11,149 | 12,586 | 14,591 | 9,026 | 9,564 |
| 80% | 8,013 | 8,696 | 10,186 | 13,187 | 17,456 | 15,636 | 11,471 | 10,256 | 12,002 | 12,597 | 8,635 | 8,923 |
| 90% | 6,584 | 6,991 | 9,464 | 12,170 | 14,708 | 11,974 | 10,419 | 8,670 | 11,050 | 9,536 | 7,762 | 7,664 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 10,738 | 13,818 | 23,869 | 31,942 | 39,162 | 33,803 | 26,769 | 19,010 | 15,503 | 17,326 | 12,321 | 11,762 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 13,262 | 16,556 | 27,877 | 51,240 | 57,376 | 50,296 | 42,112 | 31,158 | 20,164 | 19,458 | 15,417 | 14,863 |
| Above Normal (16%) | 12,077 | 14,676 | 22,869 | 40,509 | 48,656 | 45,065 | 31,264 | 18,974 | 13,365 | 22,149 | 16,132 | 14,400 |
| Below Normal (13%) | 11,363 | 12,075 | 21,717 | 20,887 | 33,641 | 22,076 | 19,022 | 13,977 | 14,658 | 20,323 | 11,653 | 10,243 |
| Dry (24%) | 8,718 | 14,538 | 27,237 | 17,679 | 25,502 | 23,695 | 17,625 | 12,266 | 14,142 | 14,643 | 9,096 | 9,379 |
| Critical (15%) | 6,613 | 7,350 | 12,625 | 14,756 | 17,239 | 13,464 | 11,000 | 8,583 | 10,762 | 9,206 | 7,473 | 7,547 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-1,467** | 1,939 | 4,518 | 934 | 74 | 115 | 2,890 | **-1,953** | 147 | **-1,692** | **-455** | **-14,098** |
| 20% | **-504** | **-3,991** | 3,888 | 1,786 | **-9** | 295 | 2,824 | 1,298 | **-583** | **-1,395** | **-590** | **-13,894** |
| 30% | **-838** | **-4,913** | 3,092 | 3,145 | 1,530 | 1,733 | 6,604 | 4,039 | 828 | **-1,195** | **-402** | **-8,384** |
| 40% | **-1,597** | **-4,995** | 1,204 | 3,230 | 2,212 | 3,345 | 4,577 | 2,367 | 1,131 | **-733** | **-906** | **-7,993** |
| 50% | **-551** | **-4,404** | 75 | 3,464 | 2,231 | 2,171 | 3,432 | 1,455 | 820 | **-901** | **-2,300** | **-2,669** |
| 60% | **-347** | **-2,792** | **-639** | 1,640 | 1,568 | 2,874 | 1,425 | 143 | 868 | **-400** | **-3,490** | **-757** |
| 70% | 90 | **-762** | **-732** | 1,345 | 2,085 | 888 | 418 | 314 | 987 | **-1,383** | **-458** | **-378** |
| 80% | **-36** | **-633** | **-400** | 164 | 1,108 | 378 | 27 | 136 | 1,156 | **-1,603** | **-50** | **-299** |
| 90% | 0 | **-196** | 107 | 259 | 415 | 565 | 172 | **-83** | 837 | **-1,603** | **-251** | **-188** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-448** | **-2,070** | 1,060 | 1,014 | 1,103 | 1,252 | 2,190 | 846 | 579 | **-1,104** | **-952** | **-5,738** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-1,225** | **-4,283** | 2,387 | 1,168 | 387 | 394 | 2,685 | 833 | **-228** | **-772** | **-606** | **-13,364** |
| Above Normal (16%) | **-562** | **-3,870** | 923 | 1,272 | 1,478 | 2,028 | 3,967 | 1,815 | **-129** | **-798** | **-644** | **-7,452** |
| Below Normal (13%) | 123 | **-210** | 564 | 2,396 | 2,442 | 3,195 | 3,696 | 892 | 1,688 | **-1,333** | **-3,243** | **-1,497** |
| Dry (24%) | 55 | **-245** | 395 | 356 | 1,286 | 1,193 | 806 | 610 | 1,194 | **-1,614** | **-606** | **-392** |
| Critical (15%) | **-1** | **-69** | **-102** | 232 | 718 | 588 | 118 | 177 | 1,053 | **-1,095** | **-516** | **-155** |

a Based on the 82-year simulation period.

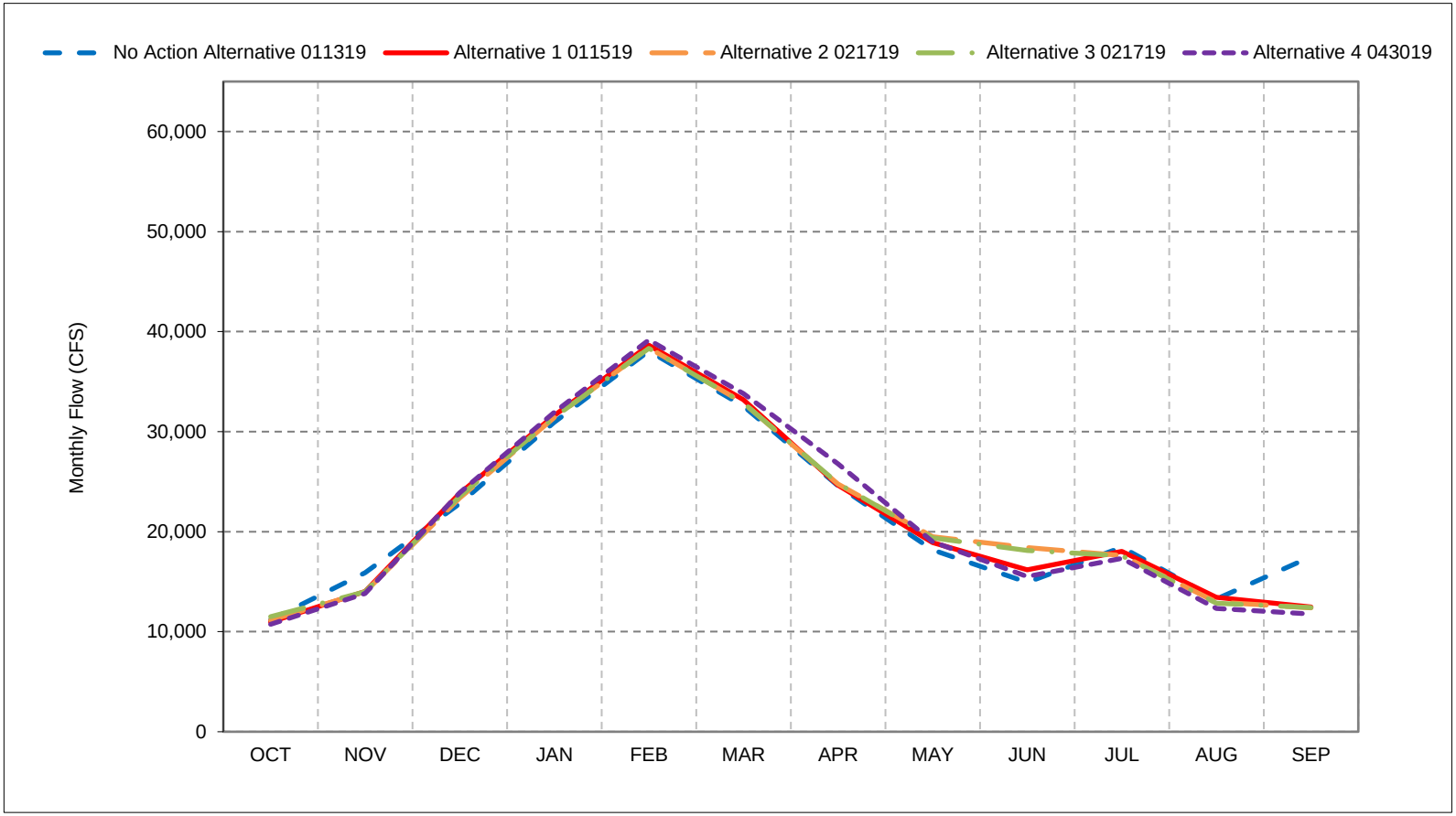
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

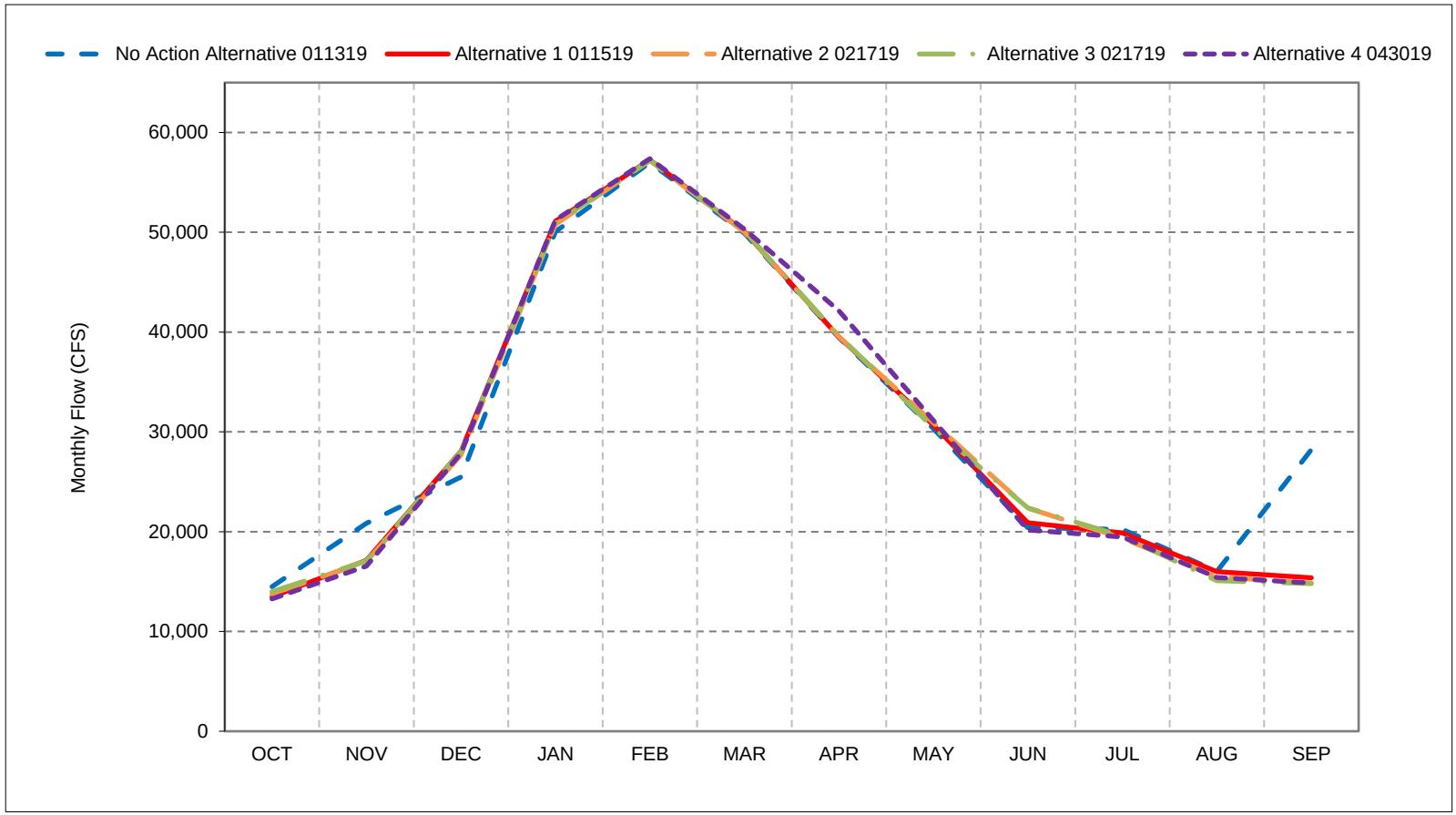
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 29-1. Sacramento River Flow at Freeport, Long-Term Average Flow



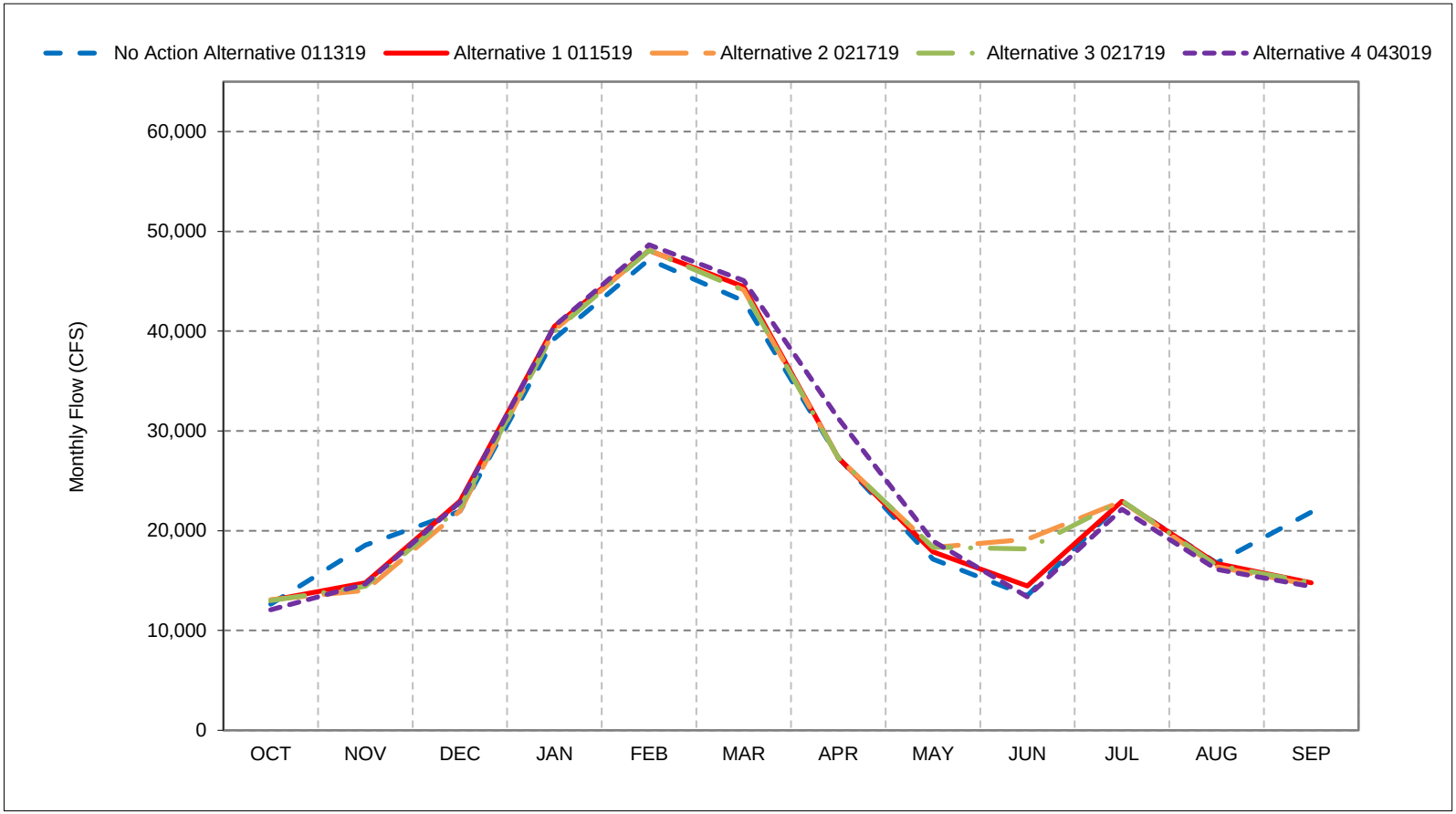

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 29-2. Sacramento River Flow at Freeport, Wet Year Average Flow



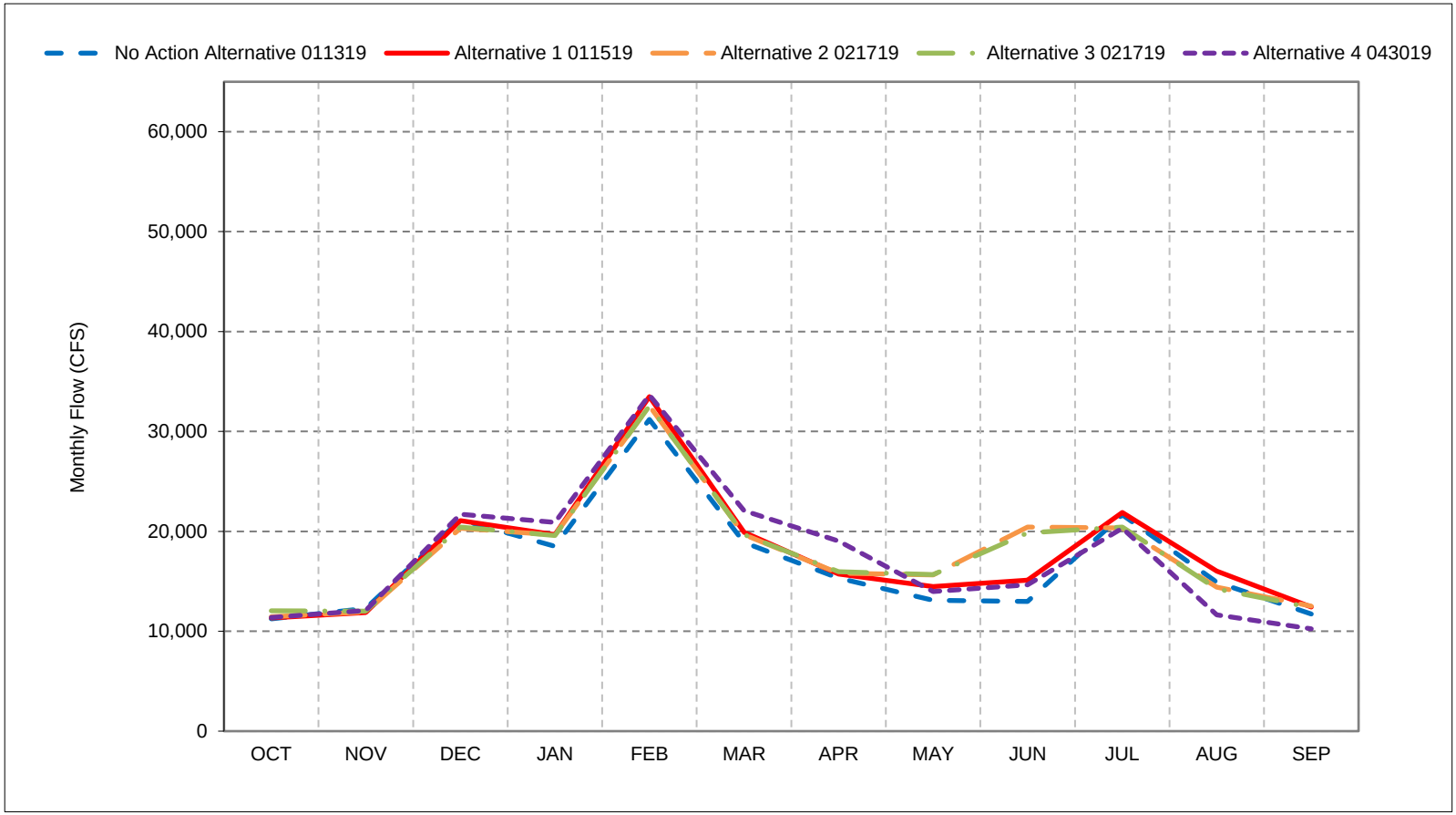

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 29-3. Sacramento River Flow at Freeport, Above Normal Year Average Flow



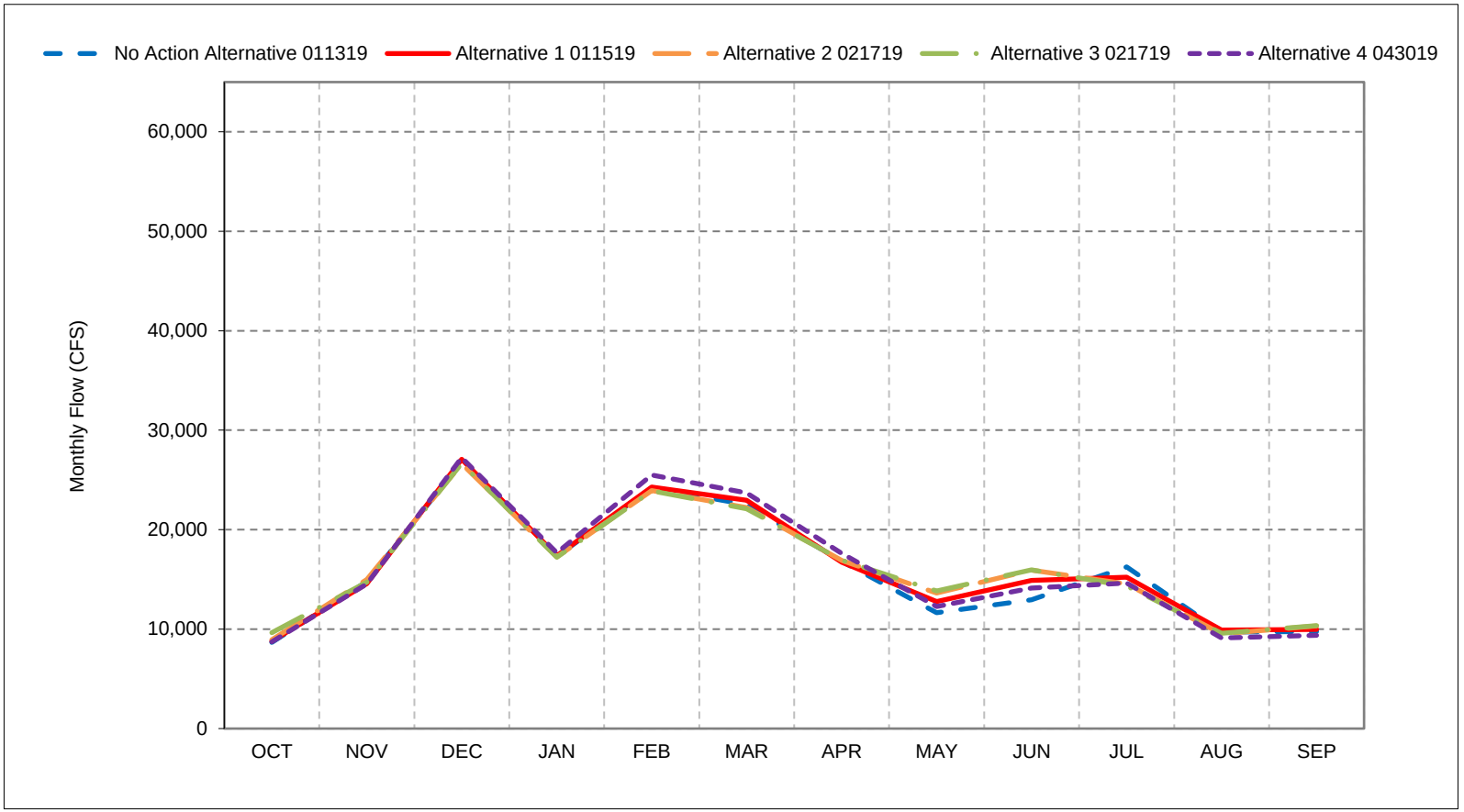

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 29-4. Sacramento River Flow at Freeport, Below Normal Year Average Flow



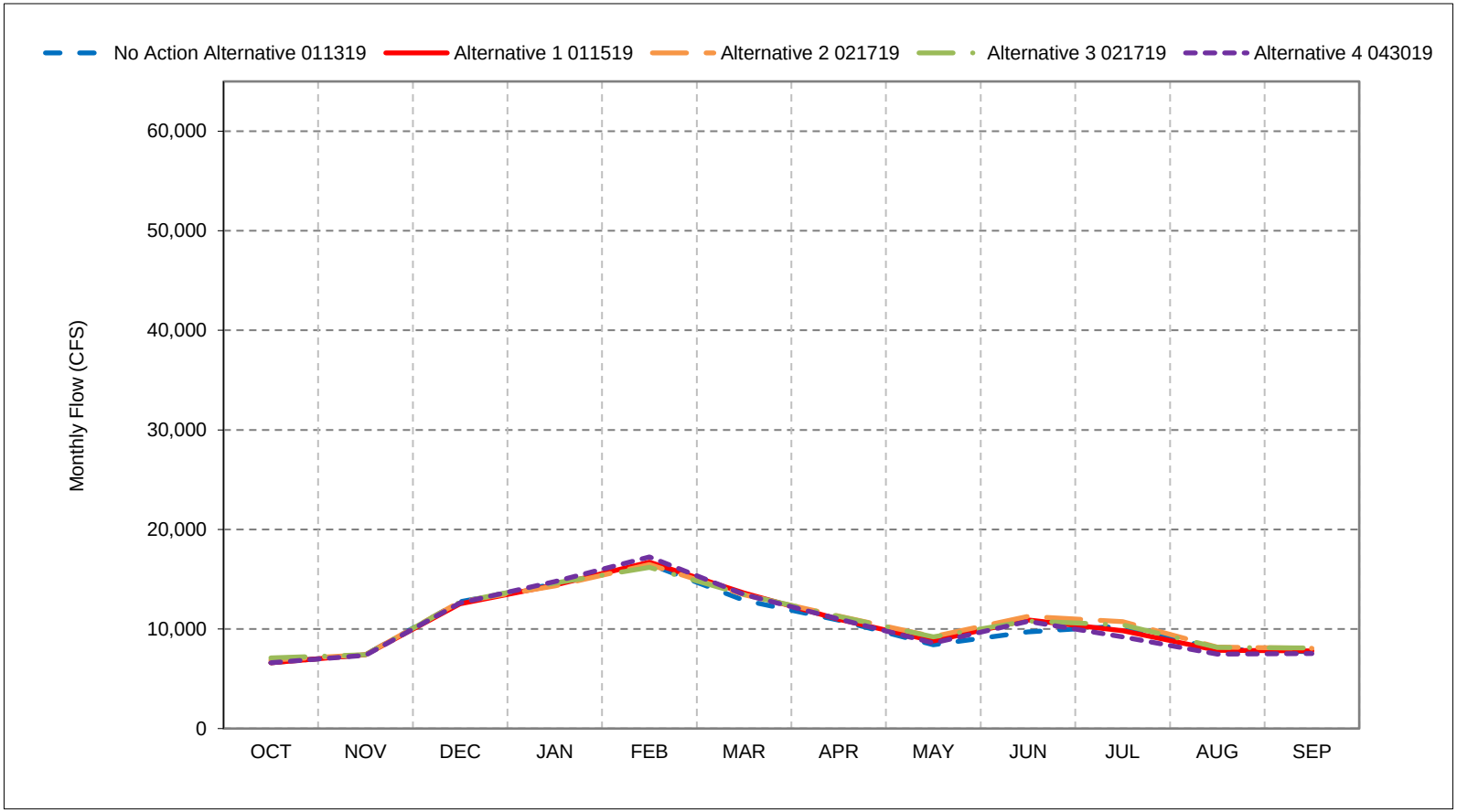

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 29-5. Sacramento River Flow at Freeport, Dry Year Average Flow



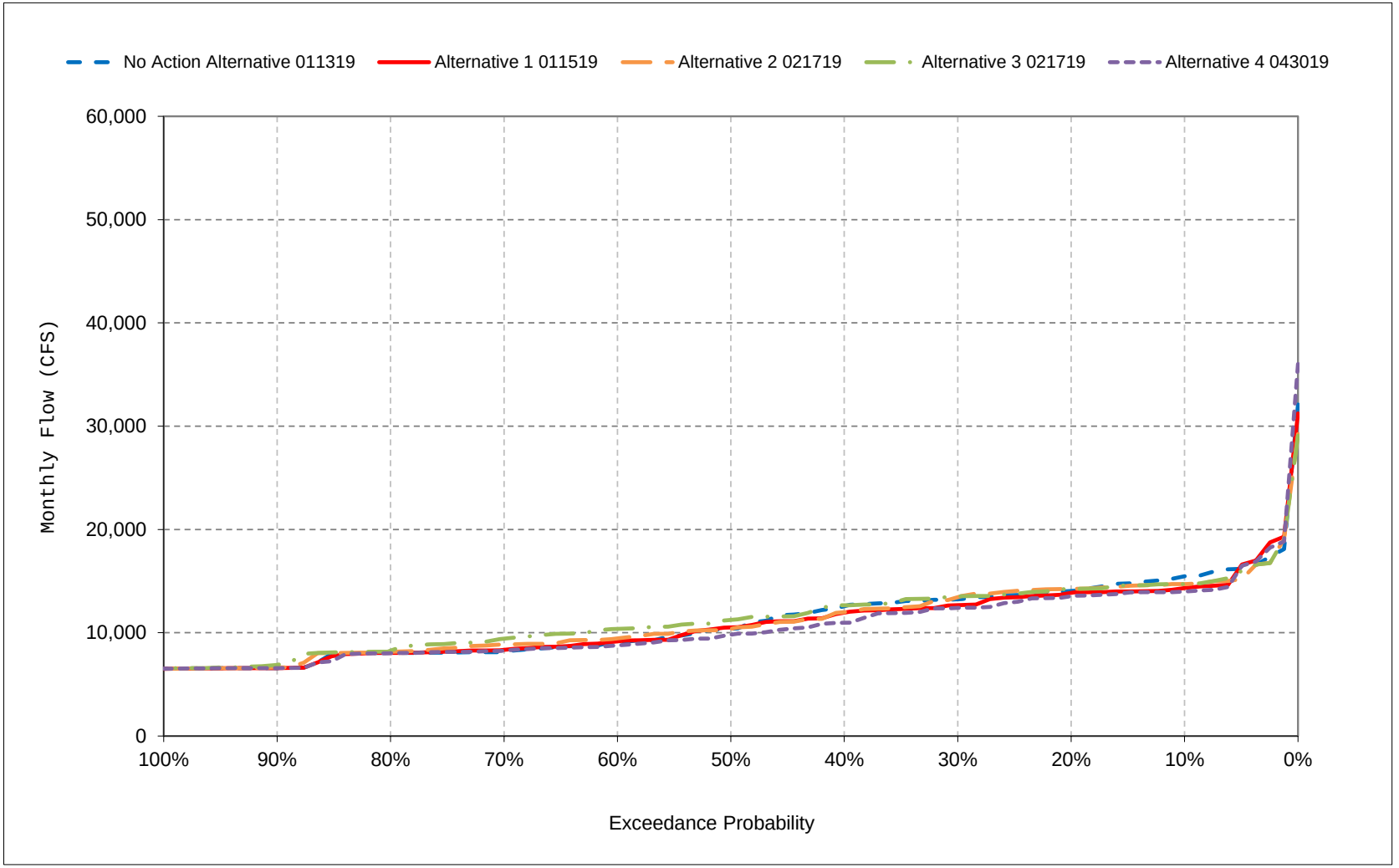

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 29-6. Sacramento River Flow at Freeport, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

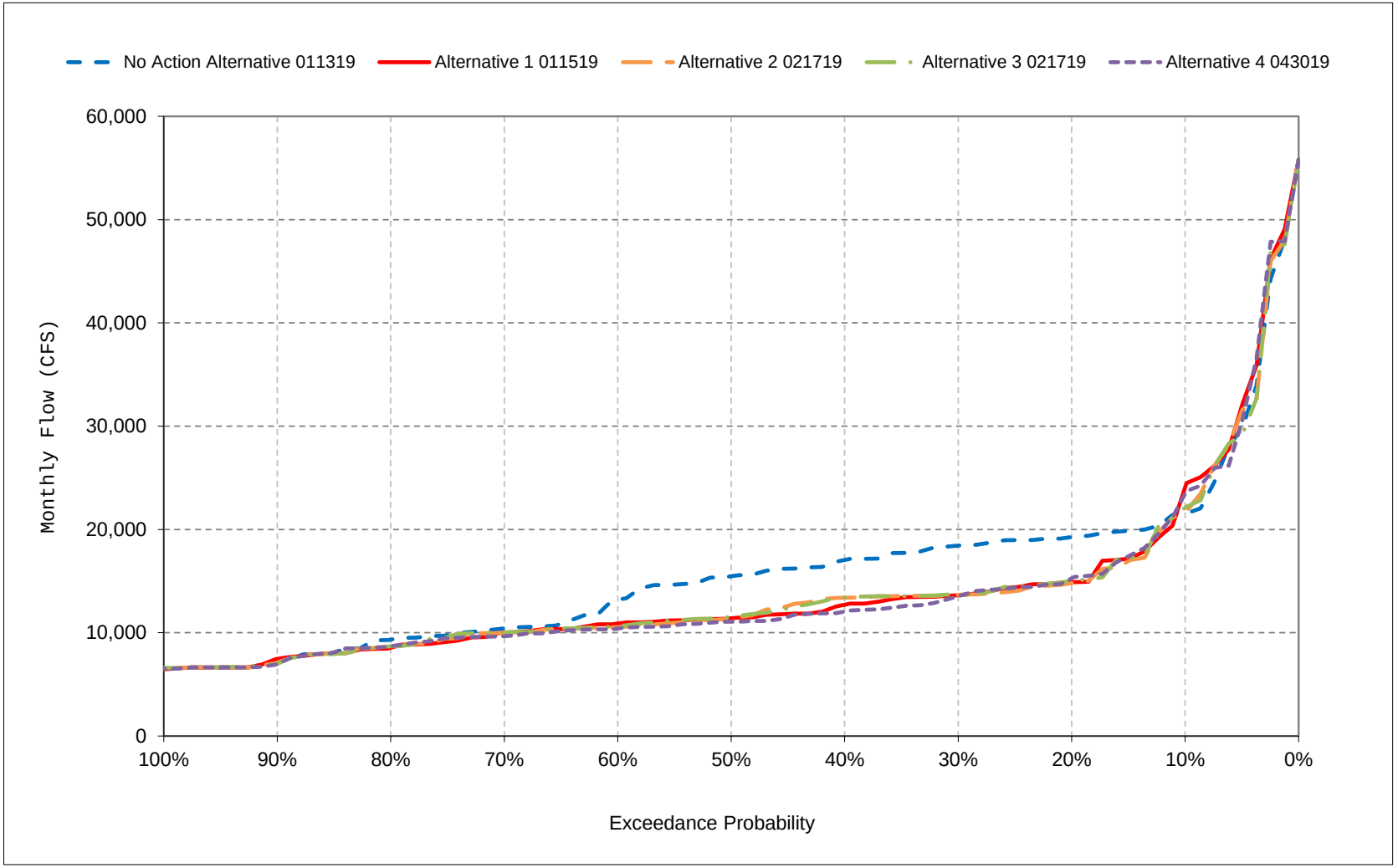
**Figure 29-7. Sacramento River Flow at Freeport, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

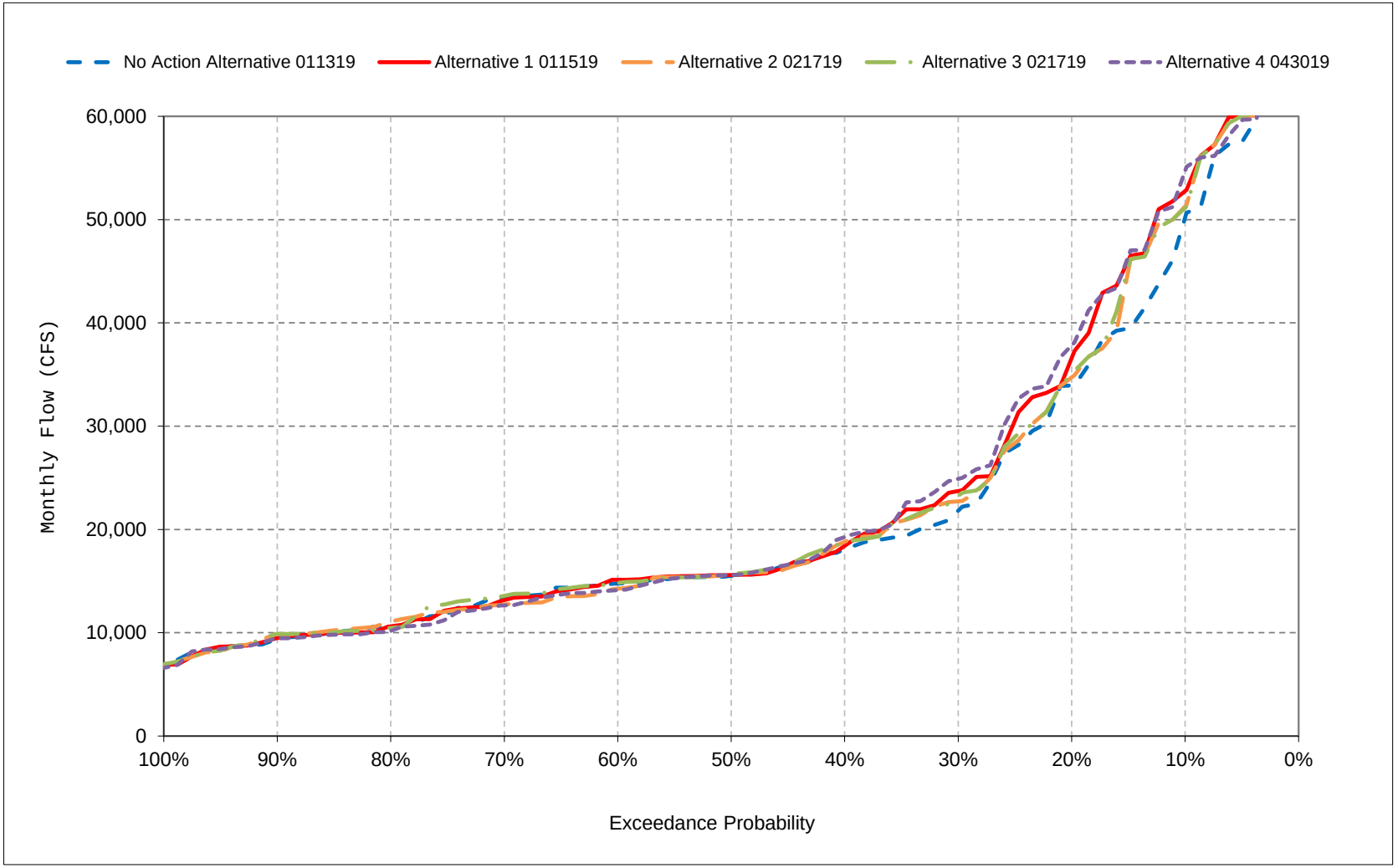
**Figure 29-8. Sacramento River Flow at Freeport, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

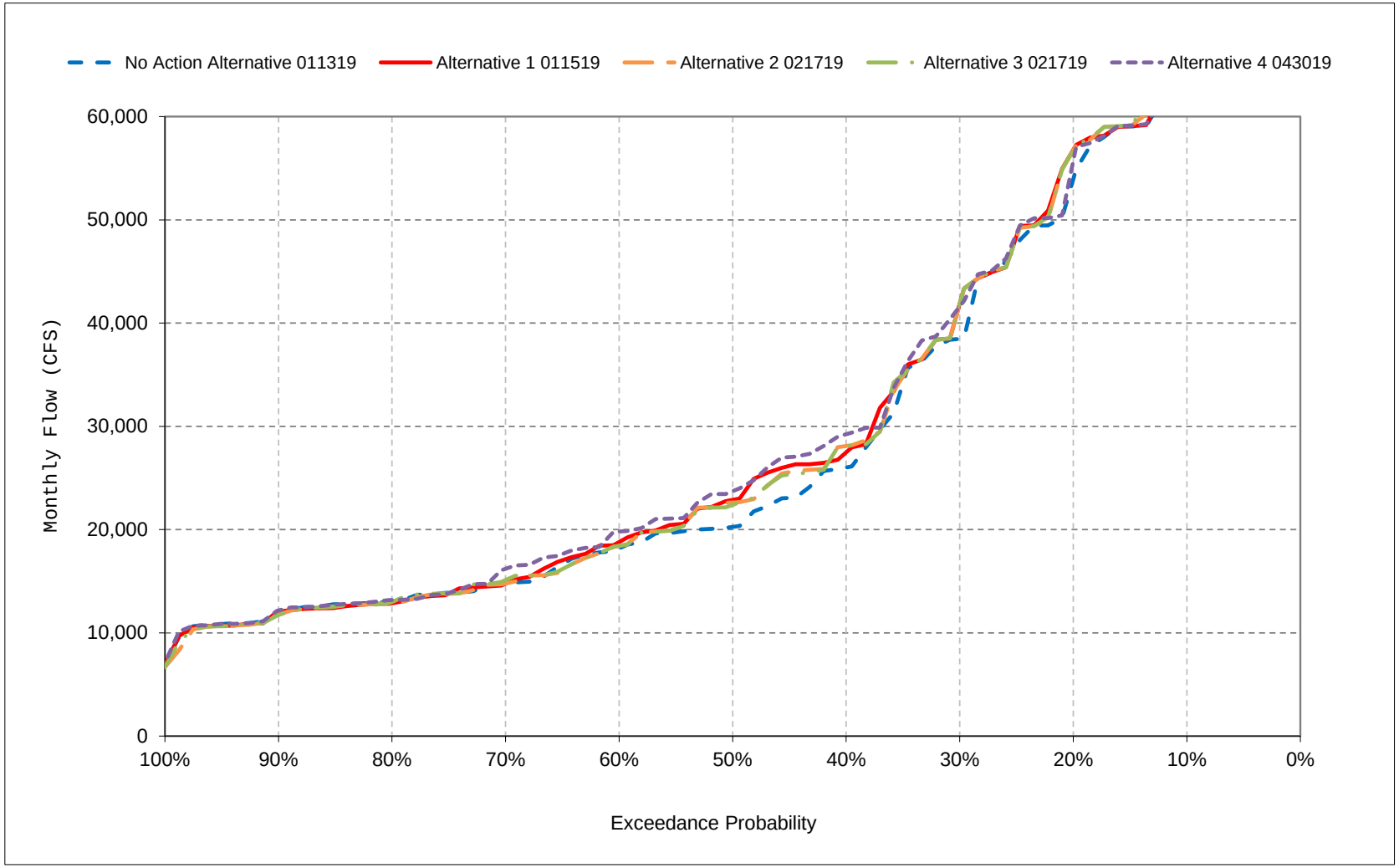
**Figure 29-9. Sacramento River Flow at Freeport, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

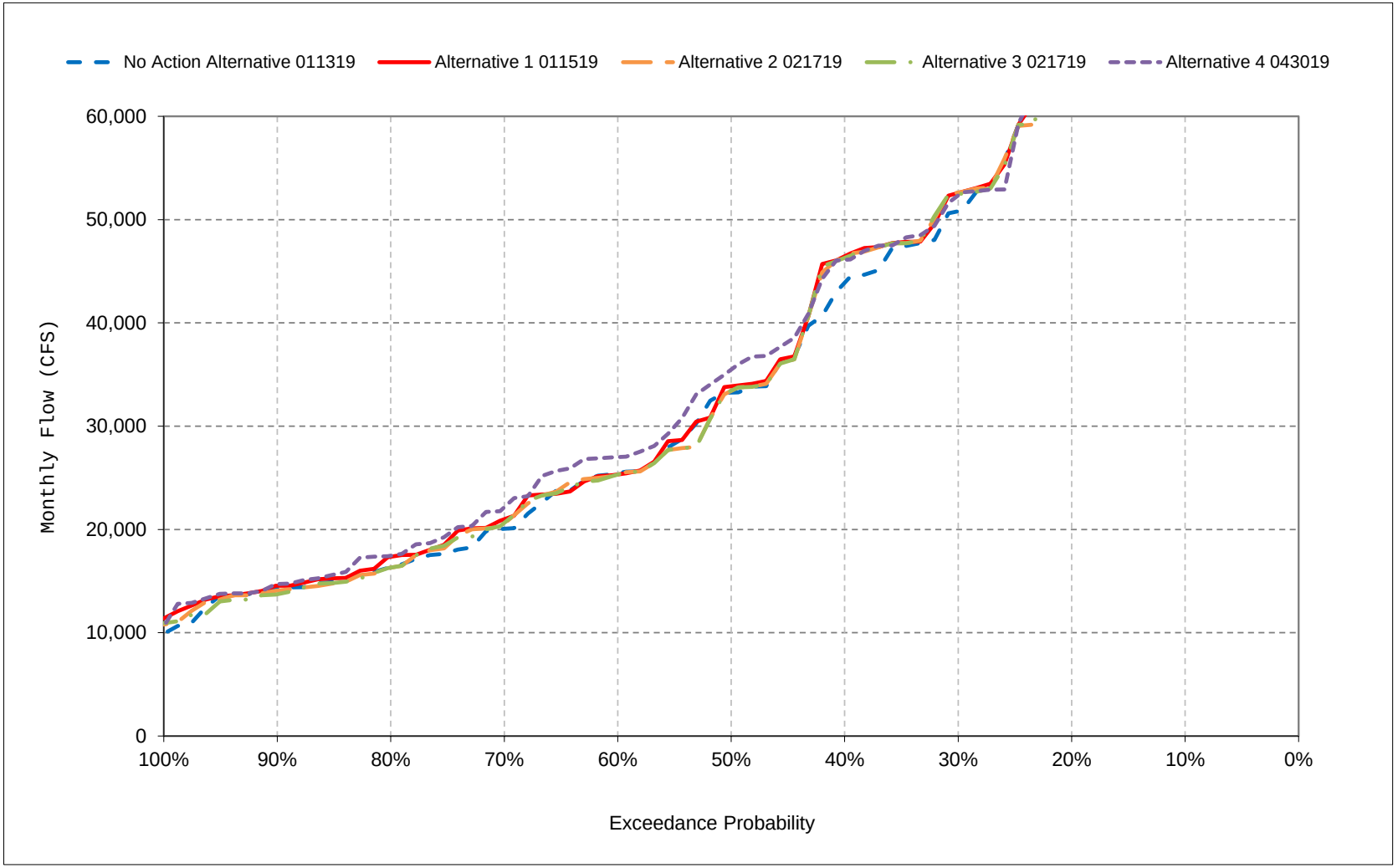
**Figure 29-10. Sacramento River Flow at Freeport, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

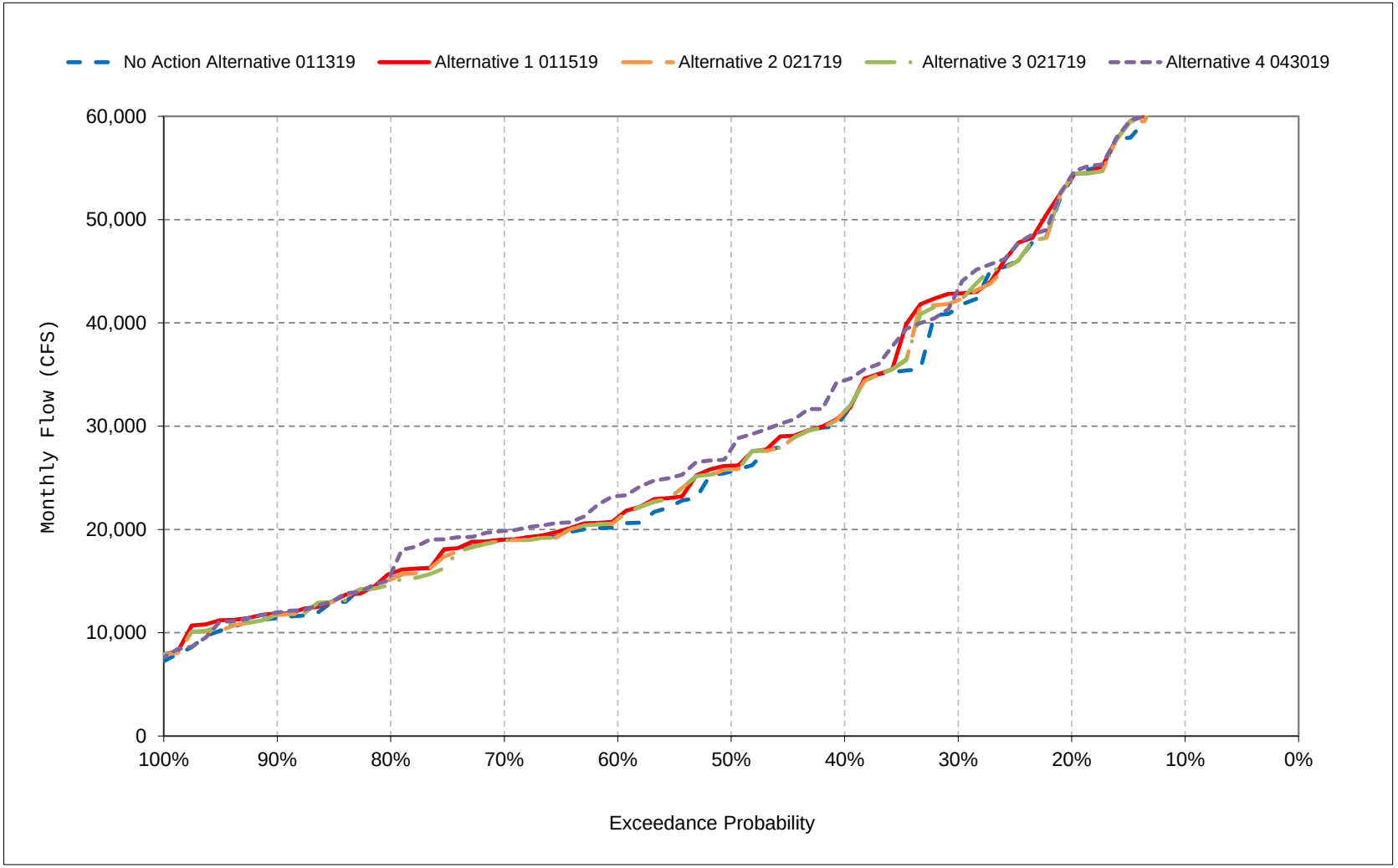
**Figure 29-11. Sacramento River Flow at Freeport, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

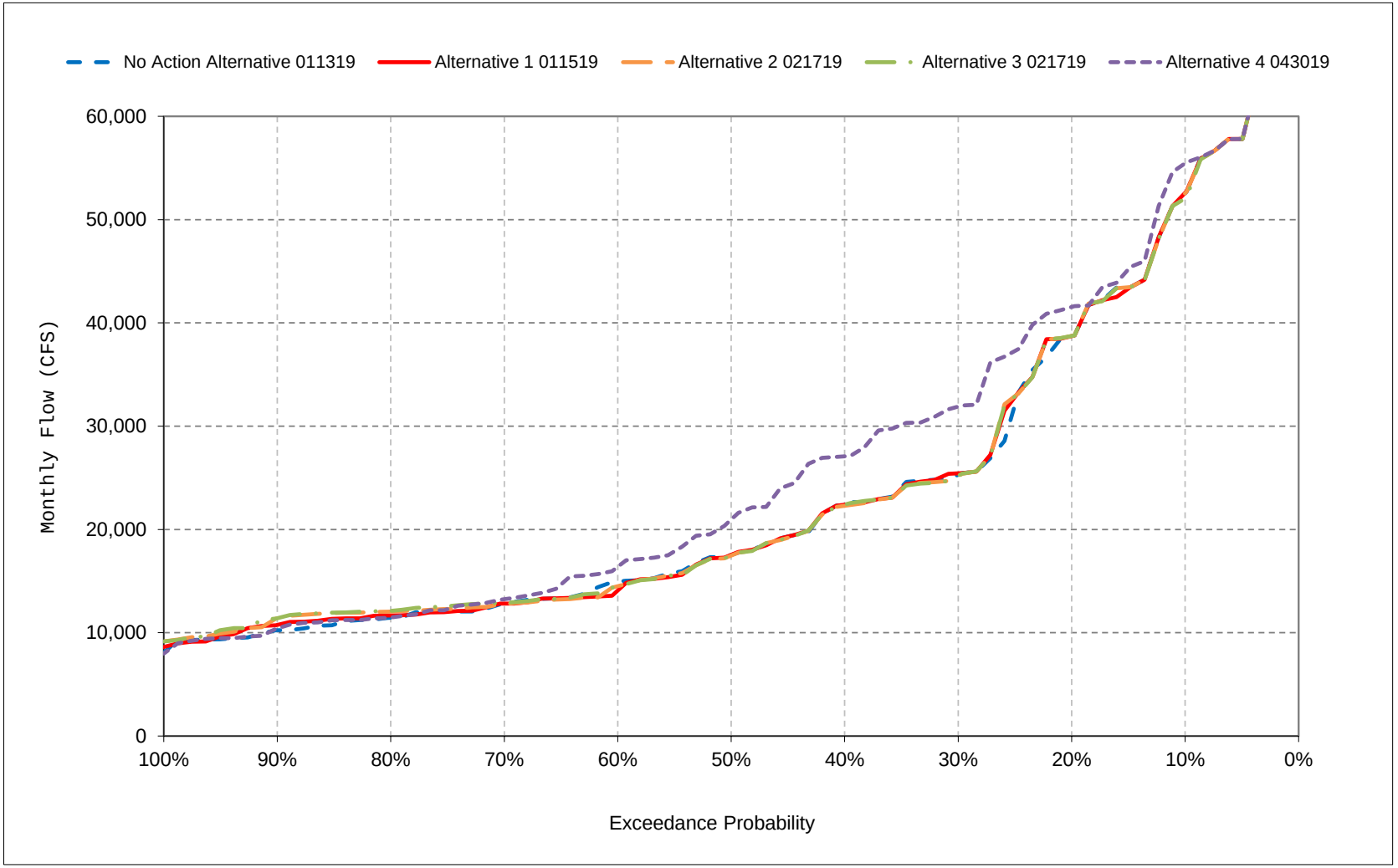
**Figure 29-12. Sacramento River Flow at Freeport, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

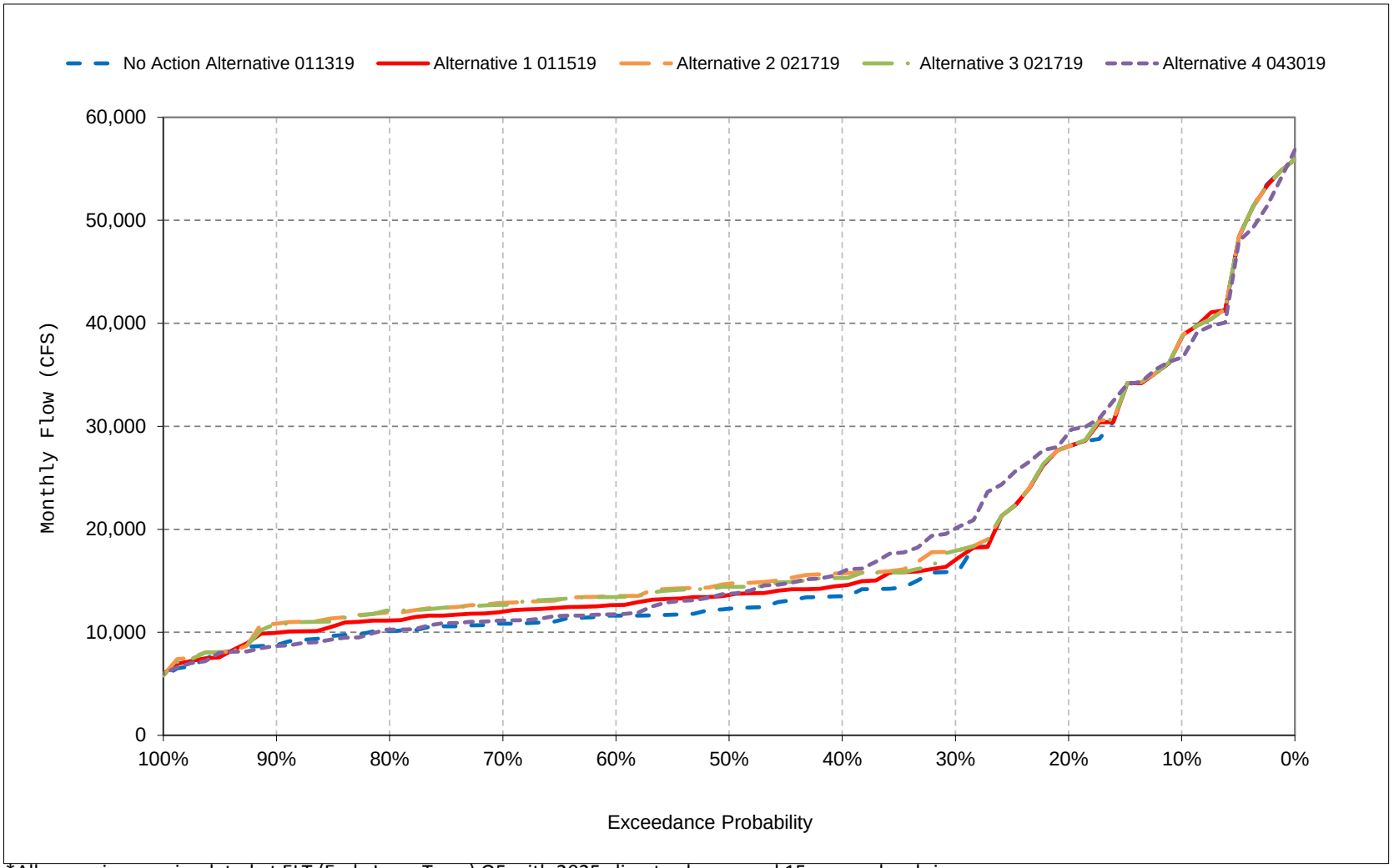
**Figure 29-13. Sacramento River Flow at Freeport, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

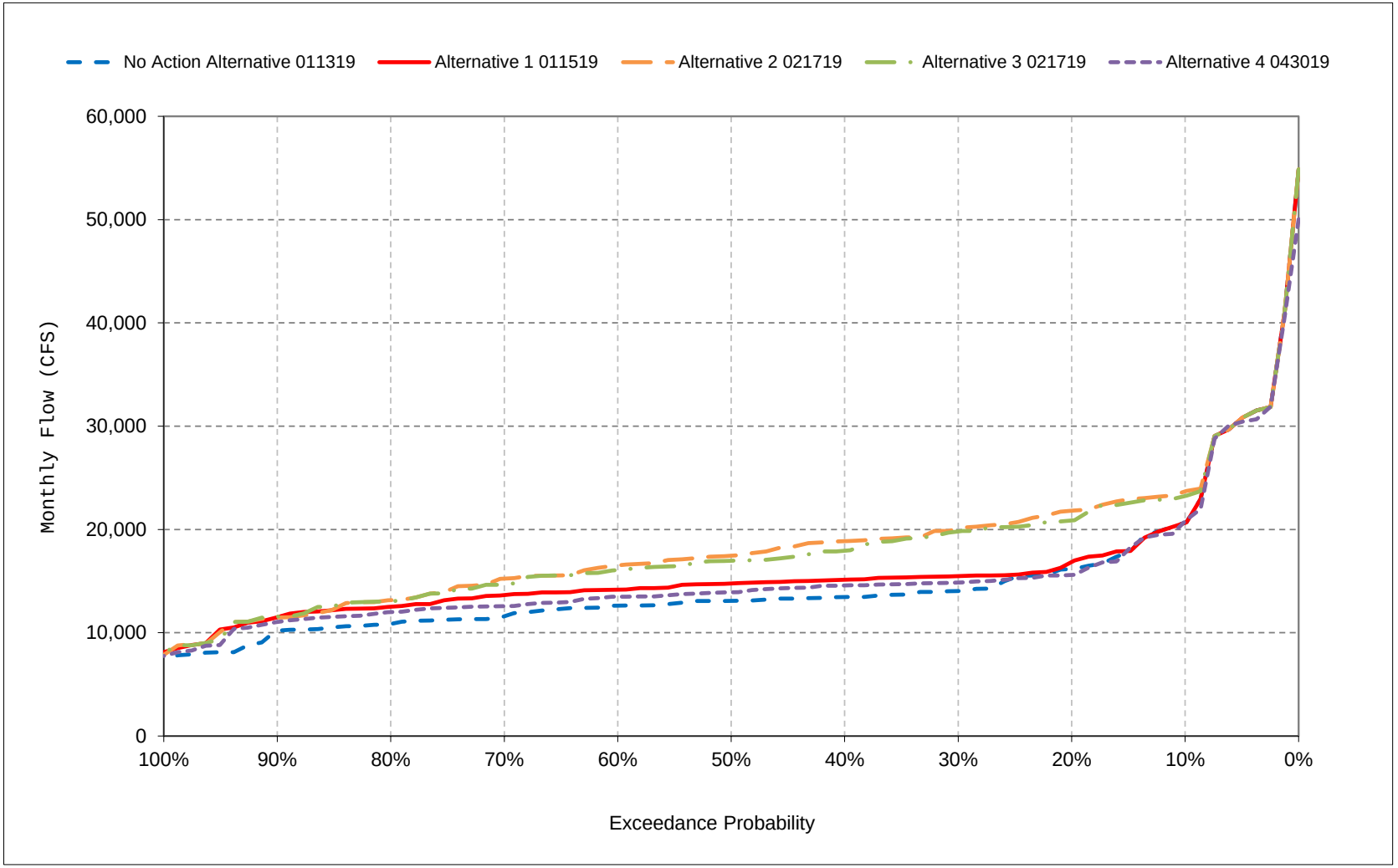
**Figure 29-14. Sacramento River Flow at Freeport, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

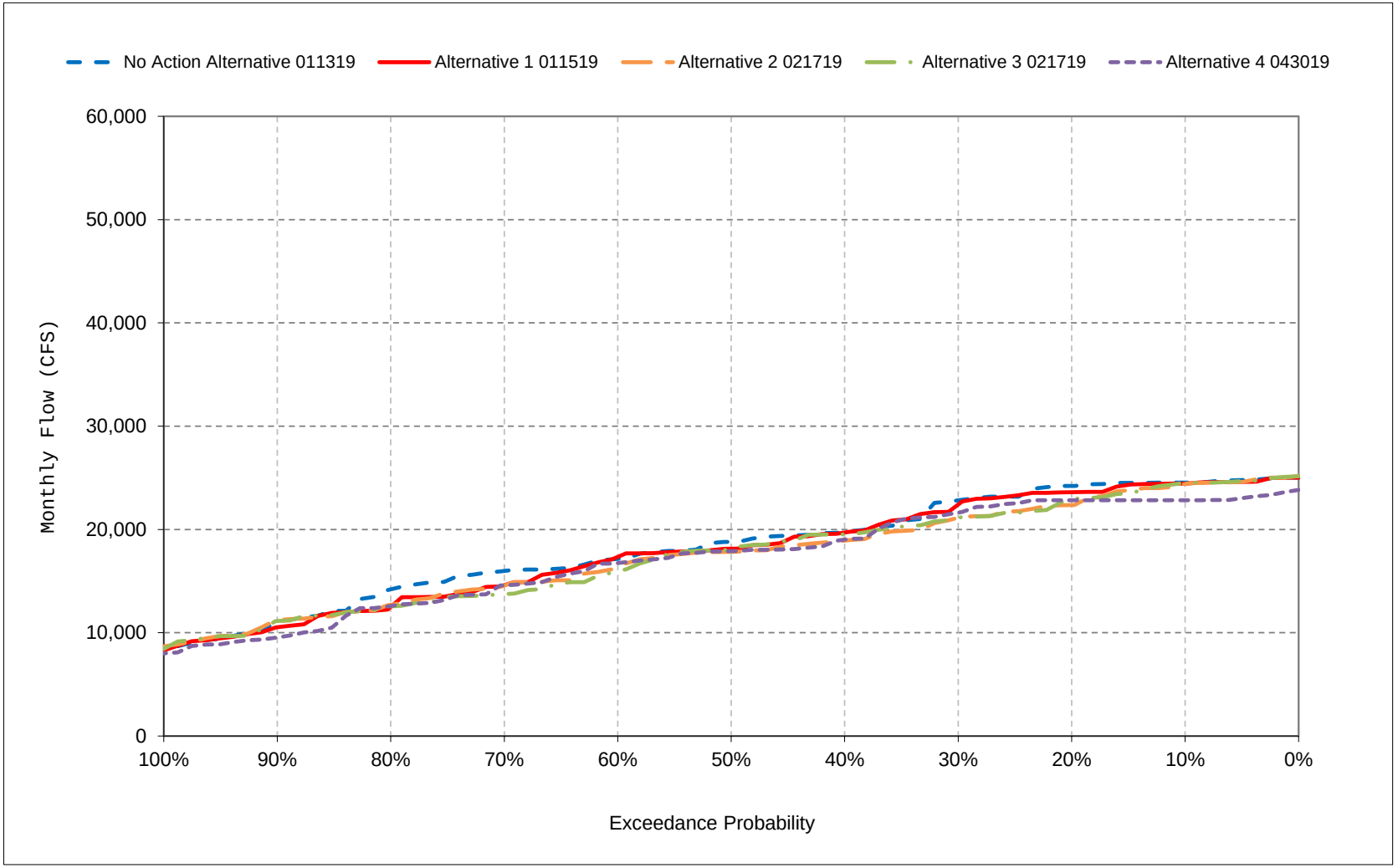
**Figure 29-15. Sacramento River Flow at Freeport, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

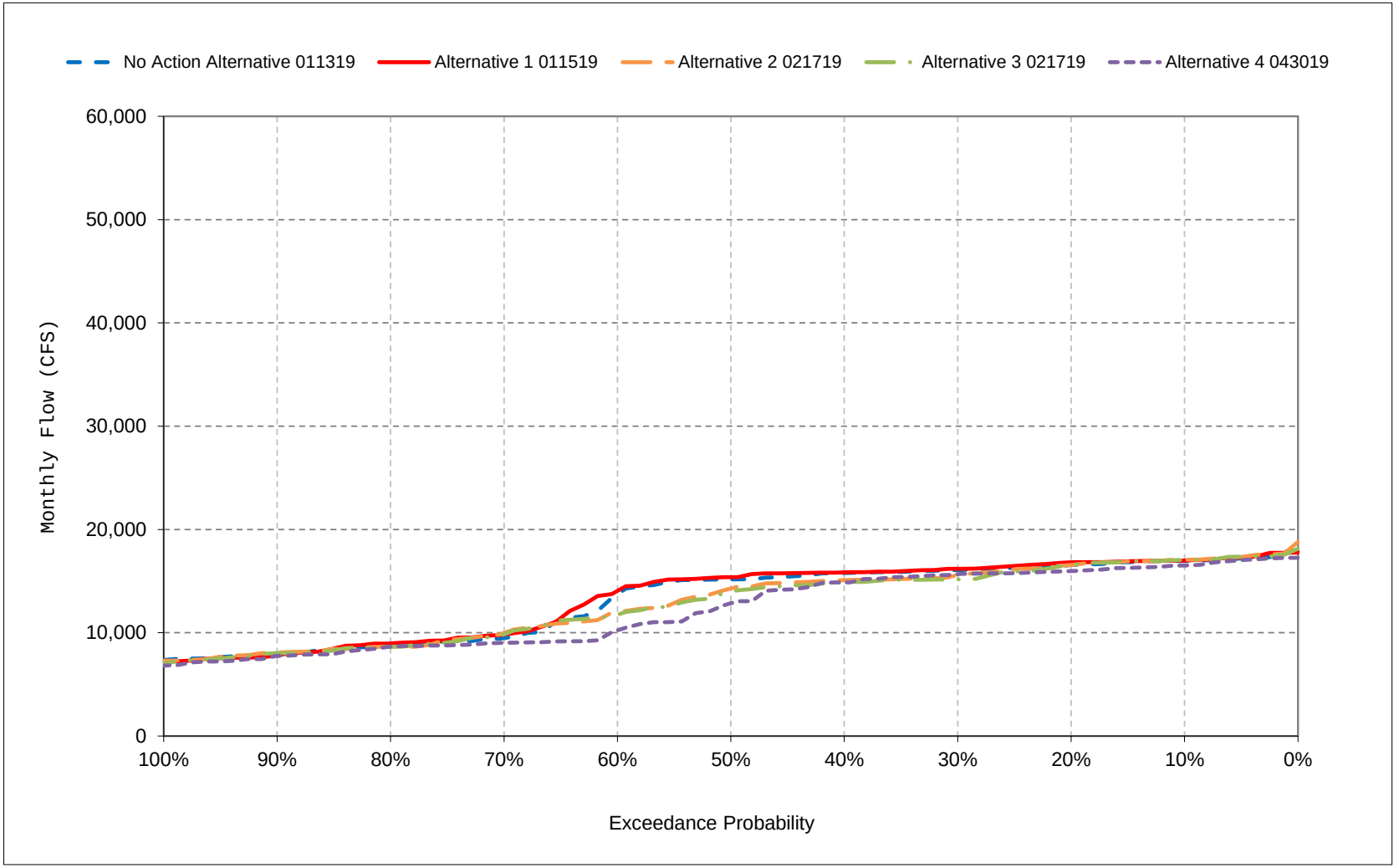
**Figure 29-16. Sacramento River Flow at Freeport, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

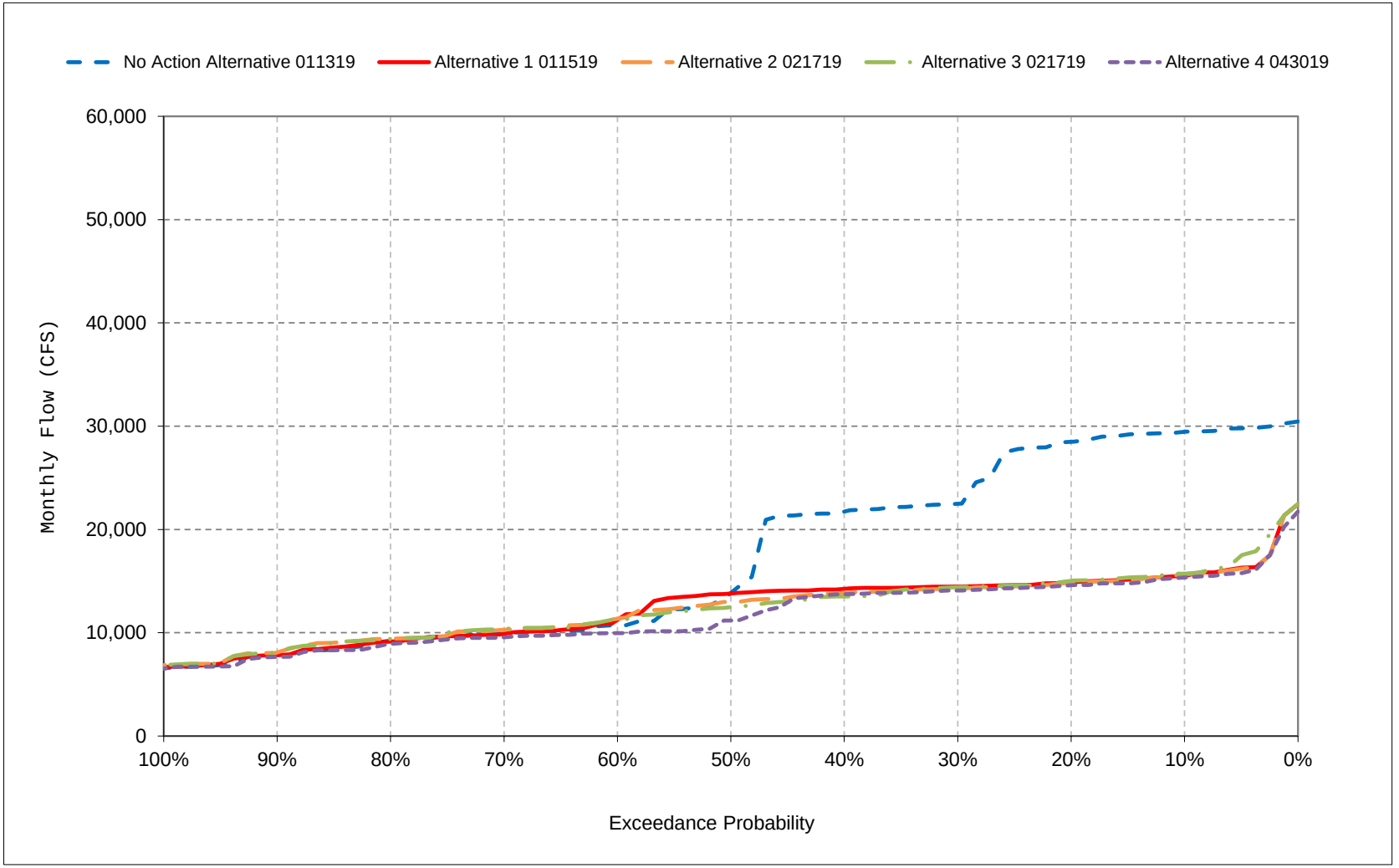
**Figure 29-17. Sacramento River Flow at Freeport, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 29-18. Sacramento River Flow at Freeport, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 32-1. Sacramento River Flow at Rio Vista, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,903 | 18,621 | 59,795 | 90,564 | 115,622 | 71,578 | 54,378 | 32,151 | 12,575 | 14,373 | 9,715 | 24,126 |
| 20% | 9,306 | 15,531 | 33,264 | 59,683 | 75,065 | 54,949 | 36,578 | 22,549 | 9,094 | 14,177 | 9,404 | 23,512 |
| 30% | 8,161 | 14,419 | 18,523 | 43,955 | 55,187 | 40,265 | 21,104 | 12,100 | 7,689 | 13,172 | 9,064 | 13,705 |
| 40% | 7,316 | 12,489 | 14,842 | 26,557 | 44,175 | 28,903 | 18,471 | 9,826 | 7,217 | 11,136 | 8,880 | 13,181 |
| 50% | 5,735 | 11,579 | 11,994 | 18,547 | 31,939 | 22,096 | 13,814 | 8,905 | 7,070 | 10,495 | 8,499 | 7,859 |
| 60% | 4,792 | 8,535 | 10,708 | 15,222 | 22,703 | 16,751 | 11,378 | 8,179 | 6,674 | 9,382 | 7,525 | 5,753 |
| 70% | 4,218 | 6,479 | 9,550 | 12,124 | 16,606 | 15,413 | 9,541 | 7,439 | 5,981 | 8,554 | 4,533 | 5,220 |
| 80% | 4,000 | 5,692 | 7,002 | 10,482 | 13,230 | 12,084 | 8,411 | 6,993 | 5,455 | 7,381 | 4,009 | 4,655 |
| 90% | 3,002 | 4,020 | 5,869 | 9,375 | 11,472 | 8,470 | 7,390 | 5,834 | 5,003 | 5,254 | 3,547 | 3,742 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,803 | 12,324 | 22,567 | 38,108 | 48,140 | 36,365 | 22,467 | 14,144 | 8,825 | 10,214 | 7,177 | 11,805 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 9,583 | 17,176 | 25,983 | 75,058 | 85,434 | 65,804 | 39,726 | 24,976 | 13,818 | 11,436 | 9,084 | 22,317 |
| Above Normal (16%) | 7,713 | 15,026 | 19,270 | 42,094 | 58,153 | 44,982 | 23,982 | 13,276 | 7,294 | 13,278 | 9,560 | 13,242 |
| Below Normal (13%) | 7,280 | 8,368 | 20,237 | 16,001 | 31,094 | 15,702 | 11,888 | 9,515 | 6,899 | 12,387 | 8,321 | 6,414 |
| Dry (24%) | 4,590 | 11,315 | 29,228 | 15,265 | 23,021 | 19,563 | 13,598 | 8,341 | 6,885 | 8,752 | 4,700 | 5,065 |
| Critical (15%) | 3,044 | 4,194 | 9,768 | 12,070 | 13,978 | 10,189 | 7,912 | 5,532 | 4,668 | 4,694 | 3,547 | 3,651 |

### Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,384 | 20,662 | 62,958 | 91,677 | 115,656 | 77,071 | 54,377 | 32,151 | 12,572 | 14,334 | 9,804 | 8,888 |
| 20% | 8,619 | 11,055 | 38,523 | 60,974 | 75,487 | 54,947 | 36,575 | 22,548 | 9,584 | 13,694 | 9,567 | 8,470 |
| 30% | 7,739 | 9,566 | 20,330 | 44,843 | 58,999 | 40,588 | 21,437 | 12,834 | 8,648 | 12,851 | 9,257 | 8,251 |
| 40% | 6,684 | 8,216 | 15,394 | 27,131 | 49,242 | 29,199 | 18,422 | 10,894 | 8,385 | 11,033 | 8,989 | 8,083 |
| 50% | 5,773 | 7,254 | 11,933 | 20,320 | 32,162 | 22,882 | 13,788 | 9,791 | 8,275 | 10,047 | 8,647 | 7,749 |
| 60% | 4,820 | 6,725 | 10,886 | 15,734 | 23,301 | 18,362 | 10,714 | 9,134 | 7,740 | 9,463 | 7,584 | 6,077 |
| 70% | 4,374 | 6,150 | 9,445 | 12,270 | 17,373 | 15,474 | 9,528 | 8,748 | 7,365 | 7,604 | 4,935 | 5,129 |
| 80% | 4,097 | 5,125 | 7,042 | 10,453 | 14,113 | 12,292 | 8,636 | 7,938 | 6,551 | 6,151 | 4,272 | 4,638 |
| 90% | 3,000 | 4,173 | 6,002 | 9,384 | 11,555 | 8,900 | 7,830 | 6,806 | 5,932 | 4,751 | 3,388 | 3,767 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,557 | 10,461 | 24,033 | 39,117 | 49,161 | 37,124 | 22,527 | 14,786 | 9,707 | 9,943 | 7,286 | 6,871 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,830 | 13,269 | 29,718 | 77,045 | 86,207 | 66,254 | 39,782 | 25,280 | 14,166 | 11,200 | 9,052 | 8,843 |
| Above Normal (16%) | 7,686 | 11,579 | 20,554 | 43,391 | 60,217 | 46,632 | 24,004 | 13,898 | 7,967 | 13,280 | 9,523 | 8,422 |
| Below Normal (13%) | 7,107 | 8,033 | 20,157 | 17,278 | 34,240 | 16,744 | 12,240 | 10,726 | 8,412 | 12,545 | 9,091 | 6,878 |
| Dry (24%) | 4,674 | 11,178 | 29,684 | 15,323 | 23,035 | 20,050 | 13,515 | 9,307 | 8,260 | 8,048 | 4,846 | 5,186 |
| Critical (15%) | 3,040 | 4,199 | 9,617 | 11,982 | 14,137 | 10,848 | 7,991 | 5,867 | 5,529 | 4,381 | 3,448 | 3,717 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-1,518** | 2,041 | 3,163 | 1,113 | 34 | 5,494 | **-1** | 0 | **-3** | **-39** | 88 | **-15,238** |
| 20% | **-688** | **-4,476** | 5,259 | 1,291 | 422 | **-2** | **-3** | **-1** | 490 | **-483** | 164 | **-15,042** |
| 30% | **-422** | **-4,852** | 1,807 | 888 | 3,813 | 323 | 333 | 734 | 959 | **-321** | 193 | **-5,453** |
| 40% | **-632** | **-4,273** | 552 | 574 | 5,068 | 296 | **-49** | 1,068 | 1,168 | **-103** | 109 | **-5,098** |
| 50% | 39 | **-4,325** | **-61** | 1,773 | 223 | 786 | **-26** | 886 | 1,205 | **-448** | 149 | **-110** |
| 60% | 27 | **-1,810** | 178 | 512 | 598 | 1,611 | **-663** | 954 | 1,066 | 81 | 59 | 324 |
| 70% | 156 | **-329** | **-106** | 146 | 767 | 61 | **-13** | 1,309 | 1,383 | **-949** | 402 | **-91** |
| 80% | 97 | **-566** | 40 | **-29** | 883 | 208 | 225 | 945 | 1,097 | **-1,230** | 263 | **-17** |
| 90% | **-2** | 153 | 133 | 9 | 83 | 431 | 441 | 973 | 929 | **-503** | **-159** | 25 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-246** | **-1,863** | 1,466 | 1,008 | 1,021 | 759 | 60 | 642 | 882 | **-271** | 109 | **-4,935** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-752** | **-3,908** | 3,735 | 1,987 | 773 | 450 | 57 | 304 | 348 | **-236** | **-32** | **-13,474** |
| Above Normal (16%) | **-27** | **-3,447** | 1,285 | 1,297 | 2,064 | 1,650 | 22 | 621 | 673 | 1 | **-37** | **-4,820** |
| Below Normal (13%) | **-172** | **-335** | **-80** | 1,277 | 3,146 | 1,042 | 352 | 1,211 | 1,514 | 158 | 771 | 464 |
| Dry (24%) | 83 | **-137** | 456 | 58 | 14 | 487 | **-83** | 967 | 1,376 | **-704** | 146 | 121 |
| Critical (15%) | **-3** | 5 | **-151** | **-89** | 159 | 659 | 78 | 336 | 861 | **-313** | **-99** | 66 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Table 32-2. Sacramento River Flow at Rio Vista, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,903 | 18,621 | 59,795 | 90,564 | 115,622 | 71,578 | 54,378 | 32,151 | 12,575 | 14,373 | 9,715 | 24,126 |
| 20% | 9,306 | 15,531 | 33,264 | 59,683 | 75,065 | 54,949 | 36,578 | 22,549 | 9,094 | 14,177 | 9,404 | 23,512 |
| 30% | 8,161 | 14,419 | 18,523 | 43,955 | 55,187 | 40,265 | 21,104 | 12,100 | 7,689 | 13,172 | 9,064 | 13,705 |
| 40% | 7,316 | 12,489 | 14,842 | 26,557 | 44,175 | 28,903 | 18,471 | 9,826 | 7,217 | 11,136 | 8,880 | 13,181 |
| 50% | 5,735 | 11,579 | 11,994 | 18,547 | 31,939 | 22,096 | 13,814 | 8,905 | 7,070 | 10,495 | 8,499 | 7,859 |
| 60% | 4,792 | 8,535 | 10,708 | 15,222 | 22,703 | 16,751 | 11,378 | 8,179 | 6,674 | 9,382 | 7,525 | 5,753 |
| 70% | 4,218 | 6,479 | 9,550 | 12,124 | 16,606 | 15,413 | 9,541 | 7,439 | 5,981 | 8,554 | 4,533 | 5,220 |
| 80% | 4,000 | 5,692 | 7,002 | 10,482 | 13,230 | 12,084 | 8,411 | 6,993 | 5,455 | 7,381 | 4,009 | 4,655 |
| 90% | 3,002 | 4,020 | 5,869 | 9,375 | 11,472 | 8,470 | 7,390 | 5,834 | 5,003 | 5,254 | 3,547 | 3,742 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,803 | 12,324 | 22,567 | 38,108 | 48,140 | 36,365 | 22,467 | 14,144 | 8,825 | 10,214 | 7,177 | 11,805 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 9,583 | 17,176 | 25,983 | 75,058 | 85,434 | 65,804 | 39,726 | 24,976 | 13,818 | 11,436 | 9,084 | 22,317 |
| Above Normal (16%) | 7,713 | 15,026 | 19,270 | 42,094 | 58,153 | 44,982 | 23,982 | 13,276 | 7,294 | 13,278 | 9,560 | 13,242 |
| Below Normal (13%) | 7,280 | 8,368 | 20,237 | 16,001 | 31,094 | 15,702 | 11,888 | 9,515 | 6,899 | 12,387 | 8,321 | 6,414 |
| Dry (24%) | 4,590 | 11,315 | 29,228 | 15,265 | 23,021 | 19,563 | 13,598 | 8,341 | 6,885 | 8,752 | 4,700 | 5,065 |
| Critical (15%) | 3,044 | 4,194 | 9,768 | 12,070 | 13,978 | 10,189 | 7,912 | 5,532 | 4,668 | 4,694 | 3,547 | 3,651 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 8,506 | 15,812 | 60,937 | 91,776 | 115,805 | 74,940 | 54,379 | 32,162 | 14,450 | 14,254 | 9,741 | 9,008 |
| 20% | 8,183 | 9,686 | 35,251 | 60,935 | 73,321 | 54,860 | 36,663 | 22,545 | 13,074 | 12,864 | 9,496 | 8,465 |
| 30% | 7,691 | 8,748 | 17,381 | 44,833 | 55,616 | 40,272 | 21,054 | 13,723 | 11,900 | 12,103 | 8,946 | 8,130 |
| 40% | 6,642 | 8,488 | 13,428 | 26,972 | 48,595 | 29,036 | 18,415 | 11,857 | 10,991 | 10,513 | 8,323 | 7,823 |
| 50% | 5,641 | 7,085 | 11,070 | 18,222 | 31,898 | 22,707 | 13,728 | 10,917 | 10,083 | 9,861 | 7,827 | 7,214 |
| 60% | 4,919 | 6,478 | 9,925 | 14,215 | 23,182 | 18,181 | 11,044 | 9,889 | 9,449 | 8,782 | 6,284 | 6,158 |
| 70% | 4,525 | 6,004 | 8,371 | 11,443 | 17,319 | 15,357 | 9,601 | 9,299 | 8,570 | 7,601 | 4,875 | 5,405 |
| 80% | 4,016 | 5,113 | 7,059 | 9,435 | 13,185 | 11,797 | 8,935 | 8,605 | 7,047 | 6,233 | 3,955 | 4,773 |
| 90% | 3,000 | 3,968 | 6,189 | 8,536 | 11,314 | 8,753 | 8,323 | 7,552 | 5,870 | 5,414 | 3,583 | 3,996 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,201 | 9,965 | 22,880 | 38,195 | 48,823 | 36,784 | 22,621 | 15,296 | 11,278 | 9,666 | 6,960 | 6,830 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 7,883 | 12,590 | 28,927 | 76,061 | 86,150 | 66,073 | 39,799 | 25,486 | 15,210 | 10,841 | 8,700 | 8,477 |
| Above Normal (16%) | 7,393 | 10,543 | 18,677 | 42,627 | 60,124 | 46,267 | 23,976 | 14,299 | 11,278 | 13,274 | 9,302 | 8,277 |
| Below Normal (13%) | 6,998 | 7,588 | 18,857 | 16,646 | 32,845 | 16,538 | 12,334 | 11,744 | 12,159 | 11,508 | 7,989 | 6,934 |
| Dry (24%) | 4,600 | 10,988 | 28,291 | 14,299 | 22,665 | 19,319 | 13,670 | 10,070 | 8,984 | 7,585 | 4,584 | 5,445 |
| Critical (15%) | 3,203 | 4,123 | 9,005 | 10,931 | 13,949 | 10,716 | 8,283 | 6,266 | 5,772 | 4,991 | 3,670 | 3,903 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-2,397** | **-2,809** | 1,142 | 1,211 | 183 | 3,363 | 1 | 11 | 1,876 | **-119** | 26 | **-15,118** |
| 20% | **-1,123** | **-5,845** | 1,987 | 1,252 | **-1,745** | **-89** | 85 | **-4** | 3,980 | **-1,313** | 93 | **-15,047** |
| 30% | **-470** | **-5,670** | **-1,142** | 878 | 429 | 7 | **-51** | 1,623 | 4,210 | **-1,069** | **-118** | **-5,575** |
| 40% | **-674** | **-4,001** | **-1,414** | 416 | 4,420 | 133 | **-56** | 2,031 | 3,774 | **-624** | **-556** | **-5,358** |
| 50% | **-94** | **-4,494** | **-924** | **-325** | **-40** | 611 | **-86** | 2,012 | 3,013 | **-634** | **-672** | **-645** |
| 60% | 127 | **-2,057** | **-783** | **-1,007** | 478 | 1,430 | **-333** | 1,710 | 2,775 | **-600** | **-1,241** | 405 |
| 70% | 307 | **-474** | **-1,179** | **-681** | 713 | **-57** | 60 | 1,860 | 2,589 | **-953** | 342 | 186 |
| 80% | 16 | **-579** | 57 | **-1,047** | **-45** | **-287** | 524 | 1,612 | 1,592 | **-1,148** | **-54** | 118 |
| 90% | **-2** | **-52** | 320 | **-839** | **-158** | 283 | 933 | 1,718 | 868 | 160 | 35 | 254 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-602** | **-2,360** | 314 | 87 | 683 | 419 | 154 | 1,152 | 2,452 | **-549** | **-217** | **-4,976** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-1,699** | **-4,586** | 2,944 | 1,003 | 716 | 269 | 74 | 510 | 1,392 | **-595** | **-384** | **-13,839** |
| Above Normal (16%) | **-321** | **-4,484** | **-593** | 533 | 1,971 | 1,285 | **-7** | 1,023 | 3,984 | **-5** | **-258** | **-4,966** |
| Below Normal (13%) | **-282** | **-781** | **-1,381** | 646 | 1,751 | 836 | 446 | 2,229 | 5,261 | **-879** | **-331** | 520 |
| Dry (24%) | 10 | **-327** | **-937** | **-965** | **-355** | **-244** | 72 | 1,730 | 2,099 | **-1,167** | **-116** | 380 |
| Critical (15%) | 159 | **-72** | **-763** | **-1,139** | **-29** | 526 | 370 | 734 | 1,104 | 297 | 123 | 253 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Table 32-3. Sacramento River Flow at Rio Vista, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,903 | 18,621 | 59,795 | 90,564 | 115,622 | 71,578 | 54,378 | 32,151 | 12,575 | 14,373 | 9,715 | 24,126 |
| 20% | 9,306 | 15,531 | 33,264 | 59,683 | 75,065 | 54,949 | 36,578 | 22,549 | 9,094 | 14,177 | 9,404 | 23,512 |
| 30% | 8,161 | 14,419 | 18,523 | 43,955 | 55,187 | 40,265 | 21,104 | 12,100 | 7,689 | 13,172 | 9,064 | 13,705 |
| 40% | 7,316 | 12,489 | 14,842 | 26,557 | 44,175 | 28,903 | 18,471 | 9,826 | 7,217 | 11,136 | 8,880 | 13,181 |
| 50% | 5,735 | 11,579 | 11,994 | 18,547 | 31,939 | 22,096 | 13,814 | 8,905 | 7,070 | 10,495 | 8,499 | 7,859 |
| 60% | 4,792 | 8,535 | 10,708 | 15,222 | 22,703 | 16,751 | 11,378 | 8,179 | 6,674 | 9,382 | 7,525 | 5,753 |
| 70% | 4,218 | 6,479 | 9,550 | 12,124 | 16,606 | 15,413 | 9,541 | 7,439 | 5,981 | 8,554 | 4,533 | 5,220 |
| 80% | 4,000 | 5,692 | 7,002 | 10,482 | 13,230 | 12,084 | 8,411 | 6,993 | 5,455 | 7,381 | 4,009 | 4,655 |
| 90% | 3,002 | 4,020 | 5,869 | 9,375 | 11,472 | 8,470 | 7,390 | 5,834 | 5,003 | 5,254 | 3,547 | 3,742 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,803 | 12,324 | 22,567 | 38,108 | 48,140 | 36,365 | 22,467 | 14,144 | 8,825 | 10,214 | 7,177 | 11,805 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 9,583 | 17,176 | 25,983 | 75,058 | 85,434 | 65,804 | 39,726 | 24,976 | 13,818 | 11,436 | 9,084 | 22,317 |
| Above Normal (16%) | 7,713 | 15,026 | 19,270 | 42,094 | 58,153 | 44,982 | 23,982 | 13,276 | 7,294 | 13,278 | 9,560 | 13,242 |
| Below Normal (13%) | 7,280 | 8,368 | 20,237 | 16,001 | 31,094 | 15,702 | 11,888 | 9,515 | 6,899 | 12,387 | 8,321 | 6,414 |
| Dry (24%) | 4,590 | 11,315 | 29,228 | 15,265 | 23,021 | 19,563 | 13,598 | 8,341 | 6,885 | 8,752 | 4,700 | 5,065 |
| Critical (15%) | 3,044 | 4,194 | 9,768 | 12,070 | 13,978 | 10,189 | 7,912 | 5,532 | 4,668 | 4,694 | 3,547 | 3,651 |

### Alternative 3 030519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,511 | 16,751 | 60,930 | 92,017 | 116,096 | 76,743 | 54,664 | 32,456 | 15,270 | 15,590 | 10,806 | 10,057 |
| 20% | 9,174 | 10,555 | 35,658 | 62,491 | 73,758 | 55,149 | 36,947 | 22,845 | 13,644 | 14,397 | 10,462 | 9,623 |
| 30% | 8,611 | 9,515 | 18,428 | 45,130 | 55,897 | 40,539 | 21,421 | 13,992 | 12,695 | 13,281 | 9,649 | 9,171 |
| 40% | 8,055 | 9,272 | 14,155 | 27,307 | 49,450 | 29,346 | 18,719 | 11,672 | 11,453 | 12,104 | 9,238 | 8,593 |
| 50% | 7,030 | 8,062 | 11,762 | 19,055 | 32,176 | 23,029 | 14,051 | 10,960 | 10,653 | 11,098 | 8,617 | 7,831 |
| 60% | 6,439 | 7,262 | 10,841 | 14,816 | 23,474 | 18,483 | 11,352 | 10,198 | 10,015 | 9,576 | 7,268 | 6,981 |
| 70% | 5,739 | 6,764 | 9,644 | 12,063 | 17,623 | 15,661 | 10,011 | 9,522 | 9,169 | 7,979 | 5,835 | 6,274 |
| 80% | 4,879 | 5,649 | 7,471 | 10,169 | 13,532 | 11,700 | 9,438 | 9,068 | 7,834 | 7,202 | 4,933 | 5,623 |
| 90% | 3,977 | 4,469 | 6,774 | 8,999 | 11,327 | 9,078 | 8,626 | 7,765 | 6,855 | 6,260 | 4,495 | 4,881 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,252 | 10,630 | 23,565 | 38,649 | 49,081 | 37,107 | 22,979 | 15,511 | 11,979 | 10,759 | 7,865 | 7,756 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 9,017 | 13,339 | 29,711 | 76,457 | 86,363 | 66,474 | 40,186 | 25,342 | 16,016 | 12,103 | 9,444 | 9,447 |
| Above Normal (16%) | 8,333 | 11,543 | 19,642 | 42,884 | 60,413 | 46,619 | 24,291 | 14,617 | 11,593 | 14,547 | 10,455 | 9,451 |
| Below Normal (13%) | 8,188 | 8,354 | 19,487 | 17,015 | 33,189 | 16,850 | 12,769 | 12,046 | 12,790 | 12,731 | 8,840 | 7,805 |
| Dry (24%) | 5,734 | 11,401 | 28,710 | 14,818 | 22,950 | 19,506 | 14,010 | 10,553 | 9,942 | 8,490 | 5,538 | 6,336 |
| Critical (15%) | 3,931 | 4,575 | 9,662 | 11,691 | 14,148 | 11,080 | 8,586 | 6,617 | 6,300 | 5,717 | 4,627 | 4,574 |

### Alternative 3 030519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-1,391** | **-1,870** | 1,135 | 1,453 | 474 | 5,166 | 286 | 305 | 2,696 | 1,217 | 1,091 | **-14,070** |
| 20% | **-133** | **-4,976** | 2,394 | 2,808 | **-1,308** | 200 | 369 | 297 | 4,551 | 220 | 1,058 | **-13,889** |
| 30% | 450 | **-4,903** | **-95** | 1,176 | 711 | 274 | 317 | 1,892 | 5,006 | 109 | 585 | **-4,534** |
| 40% | 739 | **-3,217** | **-687** | 751 | 5,275 | 443 | 248 | 1,846 | 4,236 | 967 | 358 | **-4,588** |
| 50% | 1,295 | **-3,517** | **-232** | 508 | 237 | 933 | 237 | 2,055 | 3,583 | 603 | 118 | **-28** |
| 60% | 1,647 | **-1,273** | 133 | **-407** | 770 | 1,732 | **-26** | 2,019 | 3,340 | 194 | **-256** | 1,228 |
| 70% | 1,522 | 285 | 94 | **-61** | 1,017 | 247 | 470 | 2,084 | 3,187 | **-574** | 1,302 | 1,054 |
| 80% | 879 | **-43** | 469 | **-313** | 302 | **-384** | 1,027 | 2,075 | 2,379 | **-179** | 924 | 968 |
| 90% | 976 | 449 | 905 | **-376** | **-145** | 608 | 1,236 | 1,931 | 1,852 | 1,007 | 947 | 1,139 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 449 | **-1,694** | 998 | 540 | 941 | 742 | 512 | 1,367 | 3,153 | 544 | 688 | **-4,050** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-566** | **-3,838** | 3,728 | 1,398 | 929 | 670 | 460 | 366 | 2,198 | 667 | 360 | **-12,869** |
| Above Normal (16%) | 620 | **-3,483** | 372 | 790 | 2,260 | 1,637 | 308 | 1,340 | 4,298 | 1,268 | 895 | **-3,791** |
| Below Normal (13%) | 909 | **-14** | **-751** | 1,015 | 2,094 | 1,147 | 881 | 2,531 | 5,892 | 343 | 519 | 1,391 |
| Dry (24%) | 1,144 | 86 | **-518** | **-447** | **-71** | **-57** | 412 | 2,212 | 3,058 | **-262** | 838 | 1,271 |
| Critical (15%) | 888 | 381 | **-106** | **-379** | 170 | 890 | 674 | 1,085 | 1,632 | 1,023 | 1,080 | 923 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Table 32-4. Sacramento River Flow at Rio Vista, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,903 | 18,621 | 59,795 | 90,564 | 115,622 | 71,578 | 54,378 | 32,151 | 12,575 | 14,373 | 9,715 | 24,126 |
| 20% | 9,306 | 15,531 | 33,264 | 59,683 | 75,065 | 54,949 | 36,578 | 22,549 | 9,094 | 14,177 | 9,404 | 23,512 |
| 30% | 8,161 | 14,419 | 18,523 | 43,955 | 55,187 | 40,265 | 21,104 | 12,100 | 7,689 | 13,172 | 9,064 | 13,705 |
| 40% | 7,316 | 12,489 | 14,842 | 26,557 | 44,175 | 28,903 | 18,471 | 9,826 | 7,217 | 11,136 | 8,880 | 13,181 |
| 50% | 5,735 | 11,579 | 11,994 | 18,547 | 31,939 | 22,096 | 13,814 | 8,905 | 7,070 | 10,495 | 8,499 | 7,859 |
| 60% | 4,792 | 8,535 | 10,708 | 15,222 | 22,703 | 16,751 | 11,378 | 8,179 | 6,674 | 9,382 | 7,525 | 5,753 |
| 70% | 4,218 | 6,479 | 9,550 | 12,124 | 16,606 | 15,413 | 9,541 | 7,439 | 5,981 | 8,554 | 4,533 | 5,220 |
| 80% | 4,000 | 5,692 | 7,002 | 10,482 | 13,230 | 12,084 | 8,411 | 6,993 | 5,455 | 7,381 | 4,009 | 4,655 |
| 90% | 3,002 | 4,020 | 5,869 | 9,375 | 11,472 | 8,470 | 7,390 | 5,834 | 5,003 | 5,254 | 3,547 | 3,742 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,803 | 12,324 | 22,567 | 38,108 | 48,140 | 36,365 | 22,467 | 14,144 | 8,825 | 10,214 | 7,177 | 11,805 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 9,583 | 17,176 | 25,983 | 75,058 | 85,434 | 65,804 | 39,726 | 24,976 | 13,818 | 11,436 | 9,084 | 22,317 |
| Above Normal (16%) | 7,713 | 15,026 | 19,270 | 42,094 | 58,153 | 44,982 | 23,982 | 13,276 | 7,294 | 13,278 | 9,560 | 13,242 |
| Below Normal (13%) | 7,280 | 8,368 | 20,237 | 16,001 | 31,094 | 15,702 | 11,888 | 9,515 | 6,899 | 12,387 | 8,321 | 6,414 |
| Dry (24%) | 4,590 | 11,315 | 29,228 | 15,265 | 23,021 | 19,563 | 13,598 | 8,341 | 6,885 | 8,752 | 4,700 | 5,065 |
| Critical (15%) | 3,044 | 4,194 | 9,768 | 12,070 | 13,978 | 10,189 | 7,912 | 5,532 | 4,668 | 4,694 | 3,547 | 3,651 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 9,360 | 20,034 | 59,650 | 92,000 | 115,963 | 76,742 | 54,544 | 31,346 | 12,603 | 13,218 | 9,577 | 8,797 |
| 20% | 8,538 | 11,412 | 40,134 | 62,313 | 74,142 | 55,226 | 38,665 | 23,757 | 8,790 | 13,168 | 9,031 | 8,301 |
| 30% | 7,310 | 8,869 | 21,355 | 44,785 | 55,193 | 40,680 | 27,894 | 15,706 | 8,306 | 12,392 | 8,721 | 7,969 |
| 40% | 6,236 | 7,662 | 16,006 | 27,848 | 48,175 | 29,700 | 22,562 | 12,005 | 8,015 | 10,638 | 8,260 | 7,689 |
| 50% | 5,226 | 6,989 | 12,035 | 21,150 | 33,493 | 24,825 | 17,351 | 10,119 | 7,544 | 9,828 | 6,765 | 6,065 |
| 60% | 4,580 | 6,404 | 10,622 | 16,918 | 24,658 | 20,256 | 12,745 | 8,440 | 7,251 | 9,074 | 5,305 | 5,274 |
| 70% | 4,164 | 6,058 | 8,845 | 13,092 | 18,603 | 16,137 | 10,006 | 7,821 | 6,640 | 7,575 | 4,200 | 4,898 |
| 80% | 4,000 | 5,292 | 6,854 | 10,491 | 14,388 | 12,269 | 8,356 | 7,041 | 6,199 | 6,310 | 3,970 | 4,530 |
| 90% | 3,000 | 3,791 | 5,904 | 9,601 | 11,689 | 8,960 | 7,458 | 5,634 | 5,573 | 4,215 | 3,367 | 3,552 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,432 | 10,290 | 24,117 | 39,540 | 49,607 | 37,770 | 24,428 | 14,867 | 9,216 | 9,462 | 6,529 | 6,399 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 8,564 | 12,763 | 29,545 | 77,467 | 86,207 | 66,592 | 42,155 | 25,670 | 13,596 | 10,910 | 8,669 | 8,488 |
| Above Normal (16%) | 7,033 | 11,274 | 20,394 | 43,419 | 60,528 | 47,314 | 27,491 | 14,850 | 7,201 | 12,735 | 9,121 | 8,165 |
| Below Normal (13%) | 7,692 | 8,279 | 20,795 | 18,547 | 34,301 | 18,868 | 15,114 | 10,289 | 8,090 | 11,479 | 6,114 | 5,394 |
| Dry (24%) | 4,612 | 11,231 | 29,958 | 15,612 | 24,335 | 20,734 | 14,365 | 8,860 | 7,728 | 7,652 | 4,292 | 4,800 |
| Critical (15%) | 3,043 | 4,141 | 9,701 | 12,289 | 14,629 | 10,702 | 8,015 | 5,686 | 5,420 | 3,948 | 3,193 | 3,545 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-1,542** | 1,413 | **-145** | 1,436 | 341 | 5,165 | 165 | **-805** | 28 | **-1,155** | **-139** | **-15,329** |
| 20% | **-768** | **-4,120** | 6,869 | 2,630 | **-923** | 276 | 2,087 | 1,209 | **-304** | **-1,009** | **-373** | **-15,211** |
| 30% | **-851** | **-5,549** | 2,832 | 830 | 7 | 415 | 6,790 | 3,606 | 616 | **-780** | **-343** | **-5,735** |
| 40% | **-1,081** | **-4,827** | 1,163 | 1,291 | 4,001 | 797 | 4,091 | 2,179 | 798 | **-498** | **-620** | **-5,492** |
| 50% | **-509** | **-4,590** | 41 | 2,603 | 1,554 | 2,729 | 3,537 | 1,214 | 474 | **-667** | **-1,734** | **-1,795** |
| 60% | **-212** | **-2,131** | **-86** | 1,696 | 1,954 | 3,505 | 1,367 | 261 | 577 | **-308** | **-2,219** | **-480** |
| 70% | **-54** | **-421** | **-705** | 968 | 1,997 | 724 | 465 | 383 | 658 | **-979** | **-333** | **-322** |
| 80% | 0 | **-400** | **-148** | 9 | 1,159 | 185 | **-55** | 49 | 745 | **-1,071** | **-39** | **-125** |
| 90% | **-1** | **-229** | 35 | 226 | 217 | 491 | 68 | **-199** | 570 | **-1,039** | **-180** | **-191** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-370** | **-2,034** | 1,551 | 1,432 | 1,468 | 1,405 | 1,961 | 723 | 390 | **-752** | **-648** | **-5,406** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-1,018** | **-4,413** | 3,562 | 2,409 | 774 | 788 | 2,429 | 694 | **-222** | **-526** | **-415** | **-13,829** |
| Above Normal (16%) | **-680** | **-3,753** | 1,125 | 1,325 | 2,374 | 2,333 | 3,509 | 1,574 | **-93** | **-544** | **-439** | **-5,077** |
| Below Normal (13%) | 412 | **-90** | 557 | 2,546 | 3,207 | 3,166 | 3,226 | 774 | 1,191 | **-908** | **-2,206** | **-1,020** |
| Dry (24%) | 22 | **-84** | 729 | 348 | 1,314 | 1,171 | 767 | 520 | 844 | **-1,099** | **-408** | **-265** |
| Critical (15%) | **-1** | **-53** | **-67** | 218 | 651 | 512 | 103 | 154 | 752 | **-746** | **-354** | **-106** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

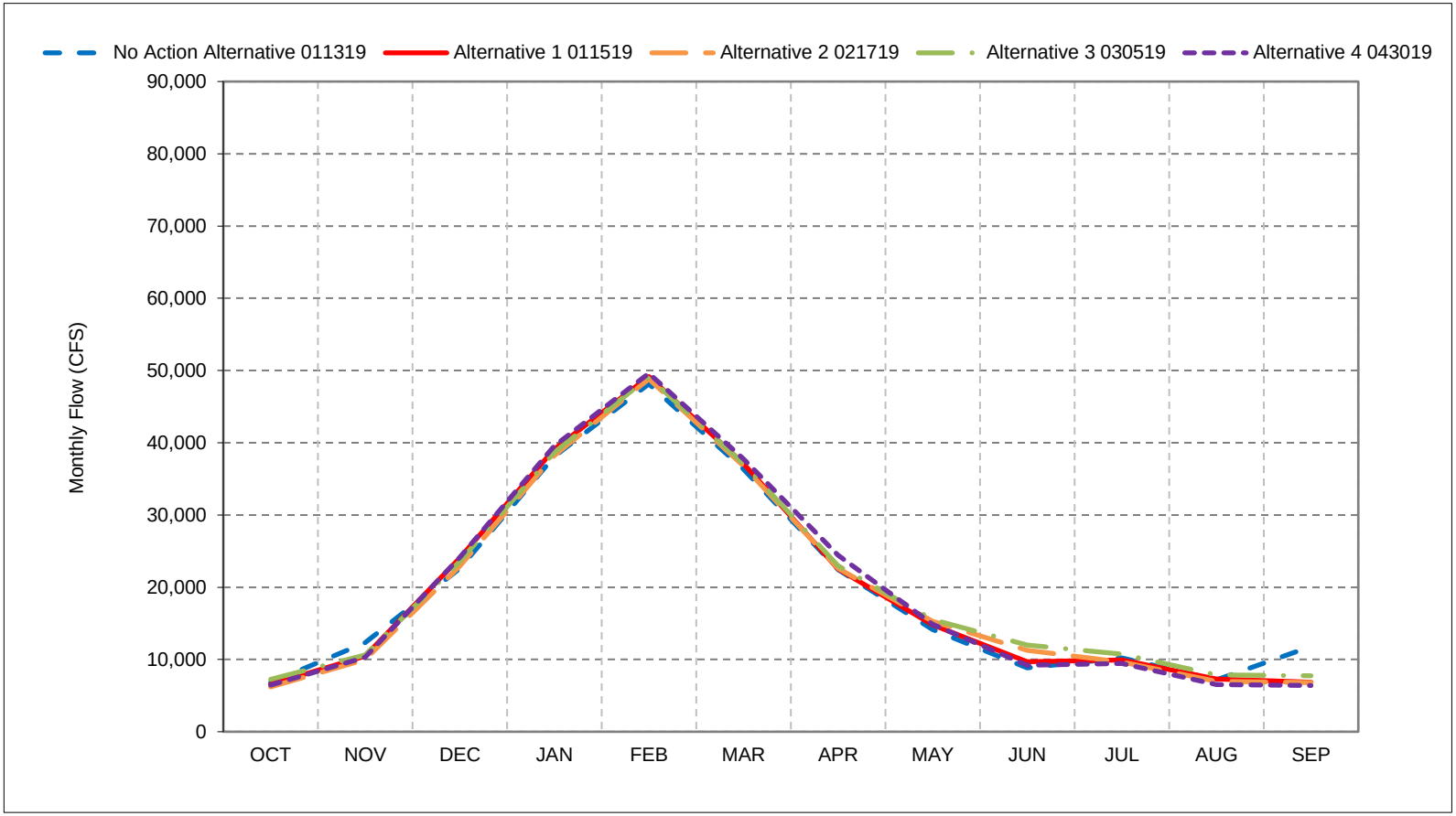
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

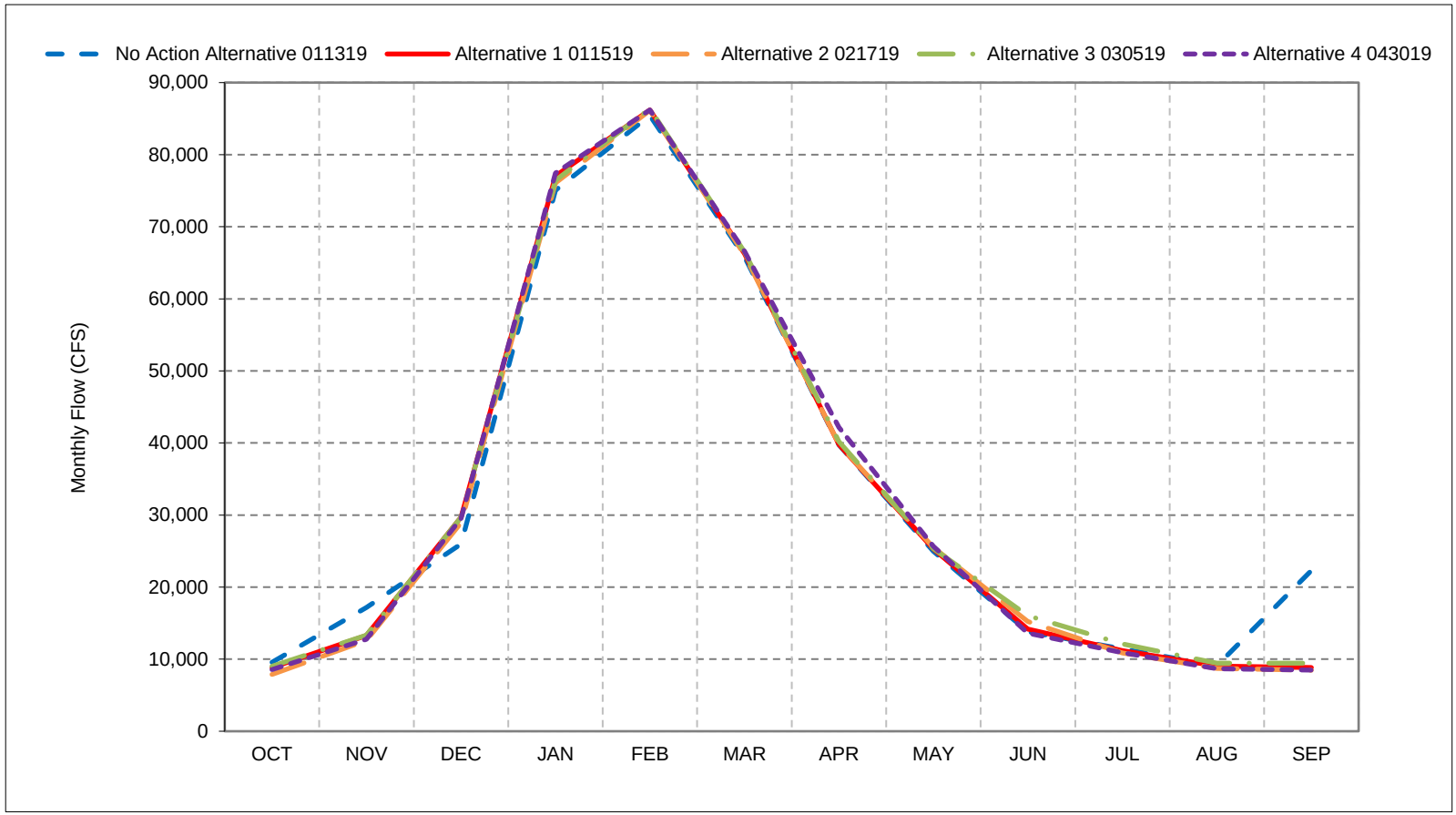
f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Figure 32-1. Sacramento River Flow at Rio Vista, Long-Term Average Flow



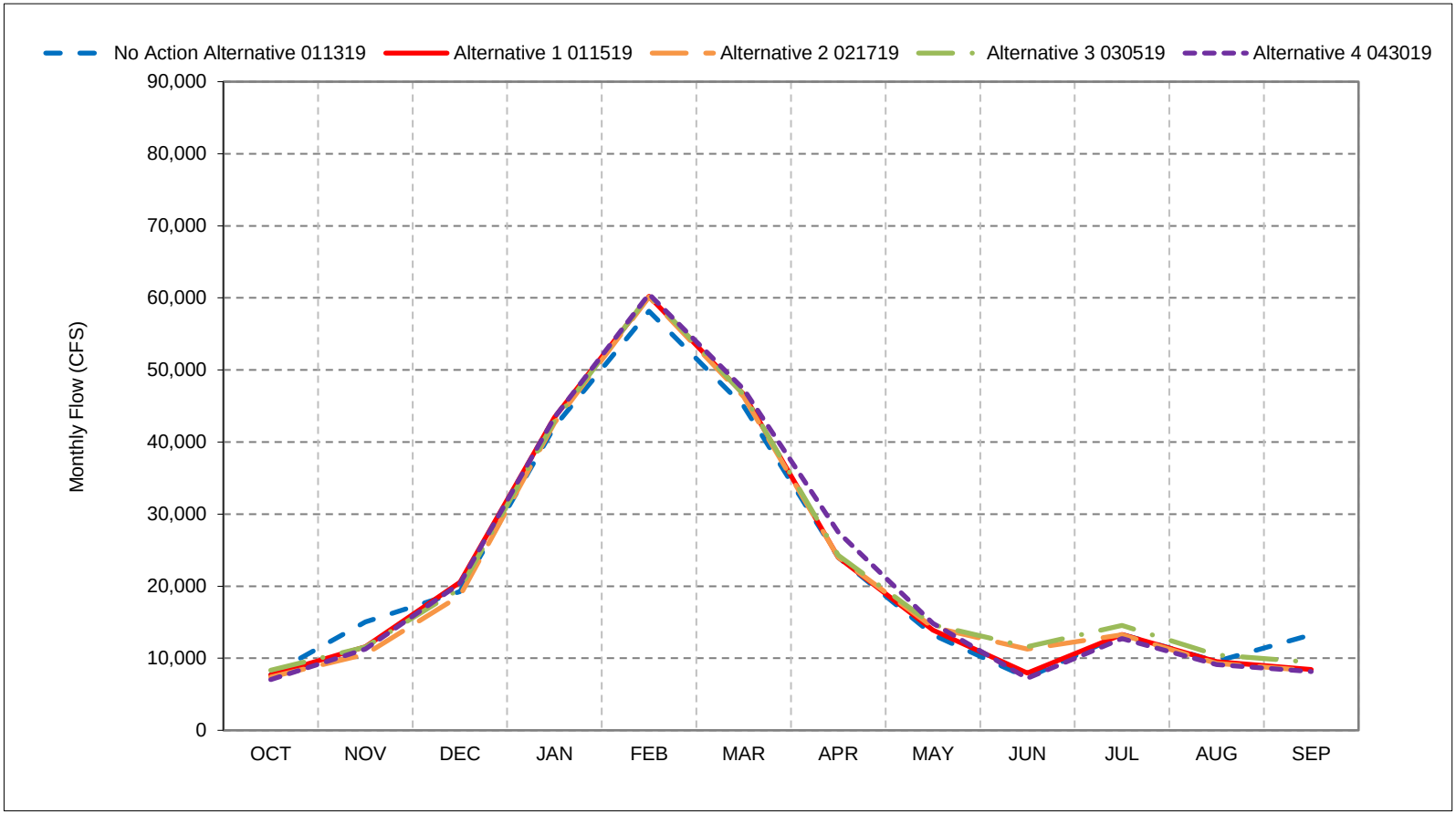

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Figure 32-2. Sacramento River Flow at Rio Vista, Wet Year Average Flow



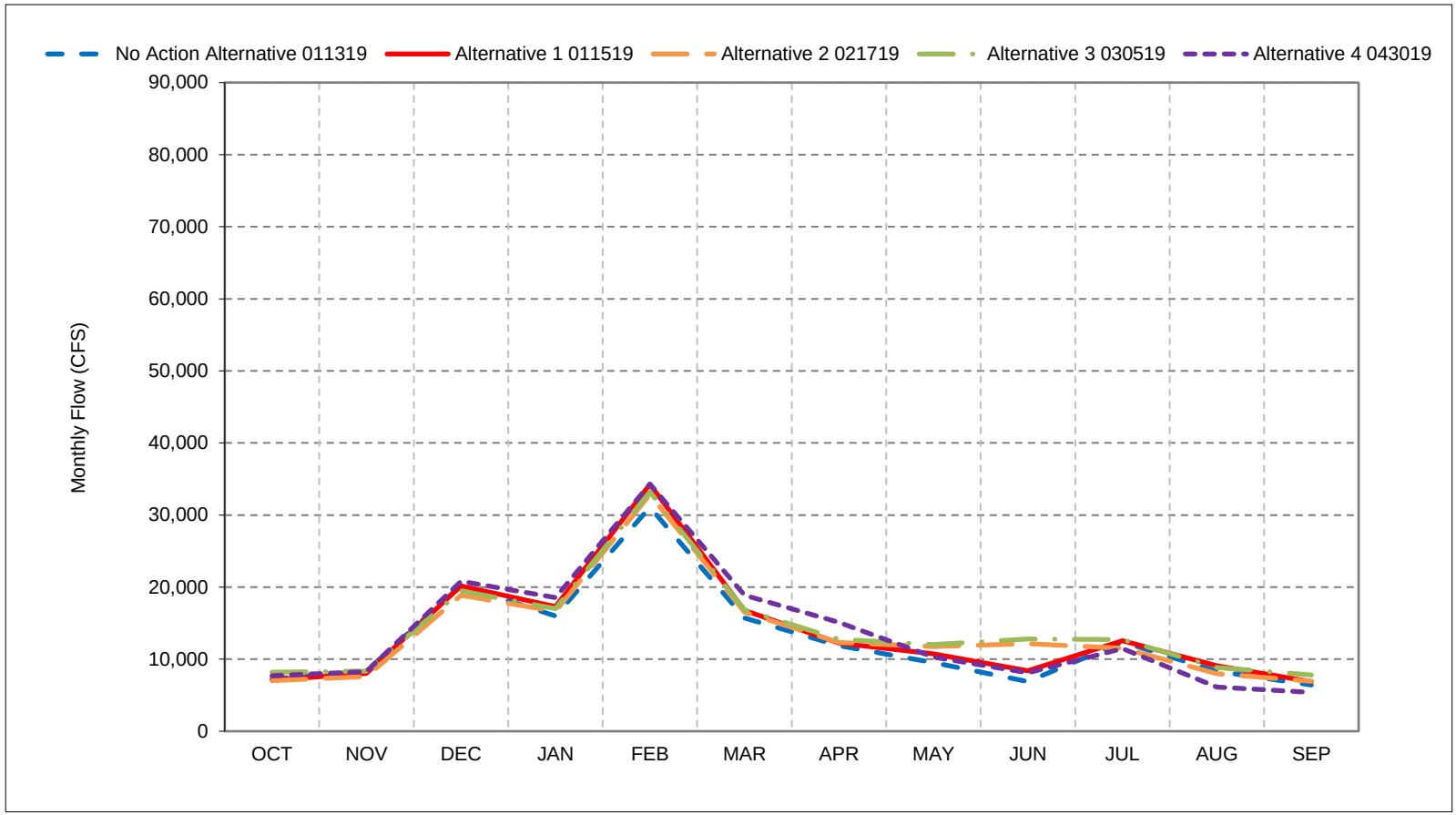

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Figure 32-3. Sacramento River Flow at Rio Vista, Above Normal Year Average Flow



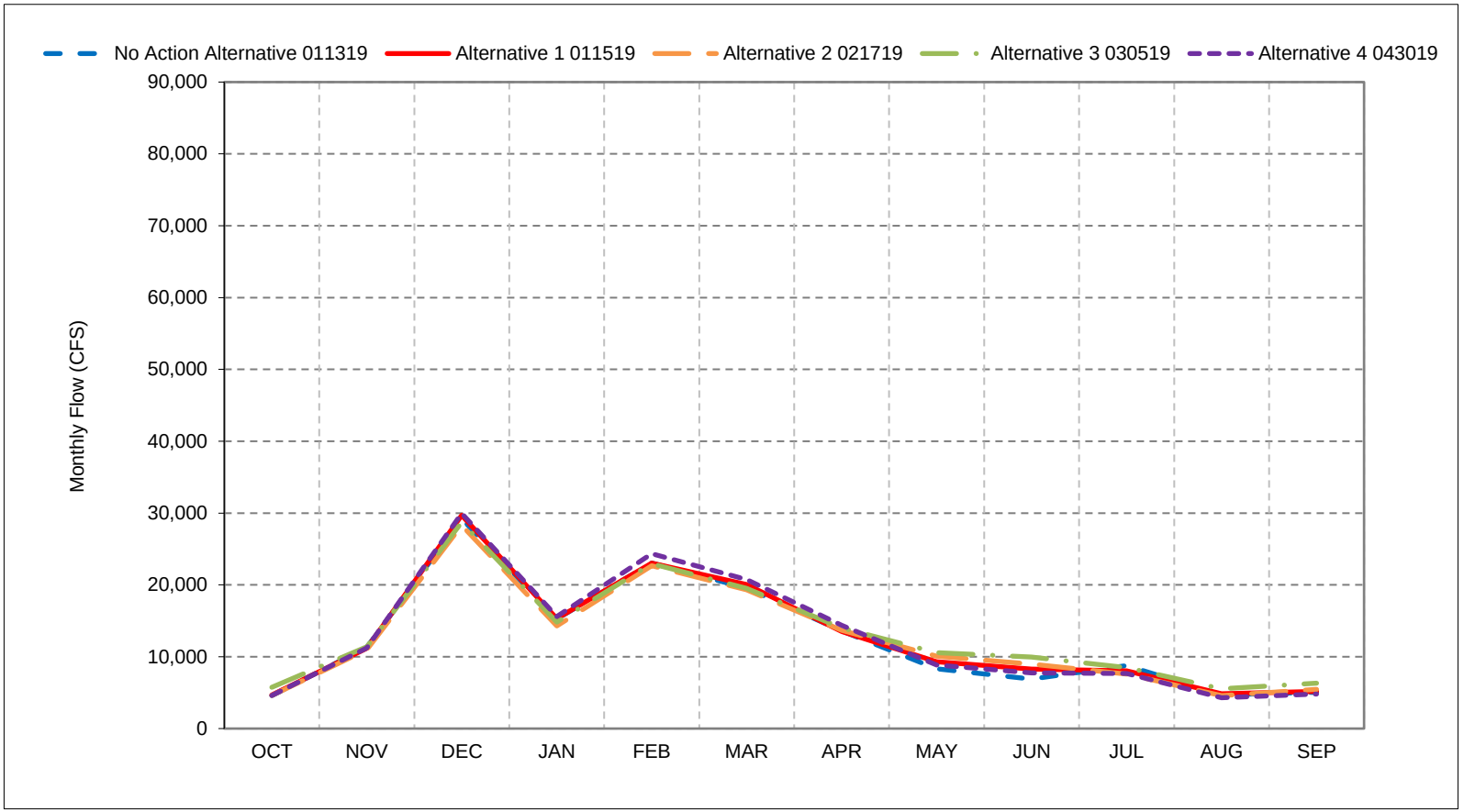

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Figure 32-4. Sacramento River Flow at Rio Vista, Below Normal Year Average Flow



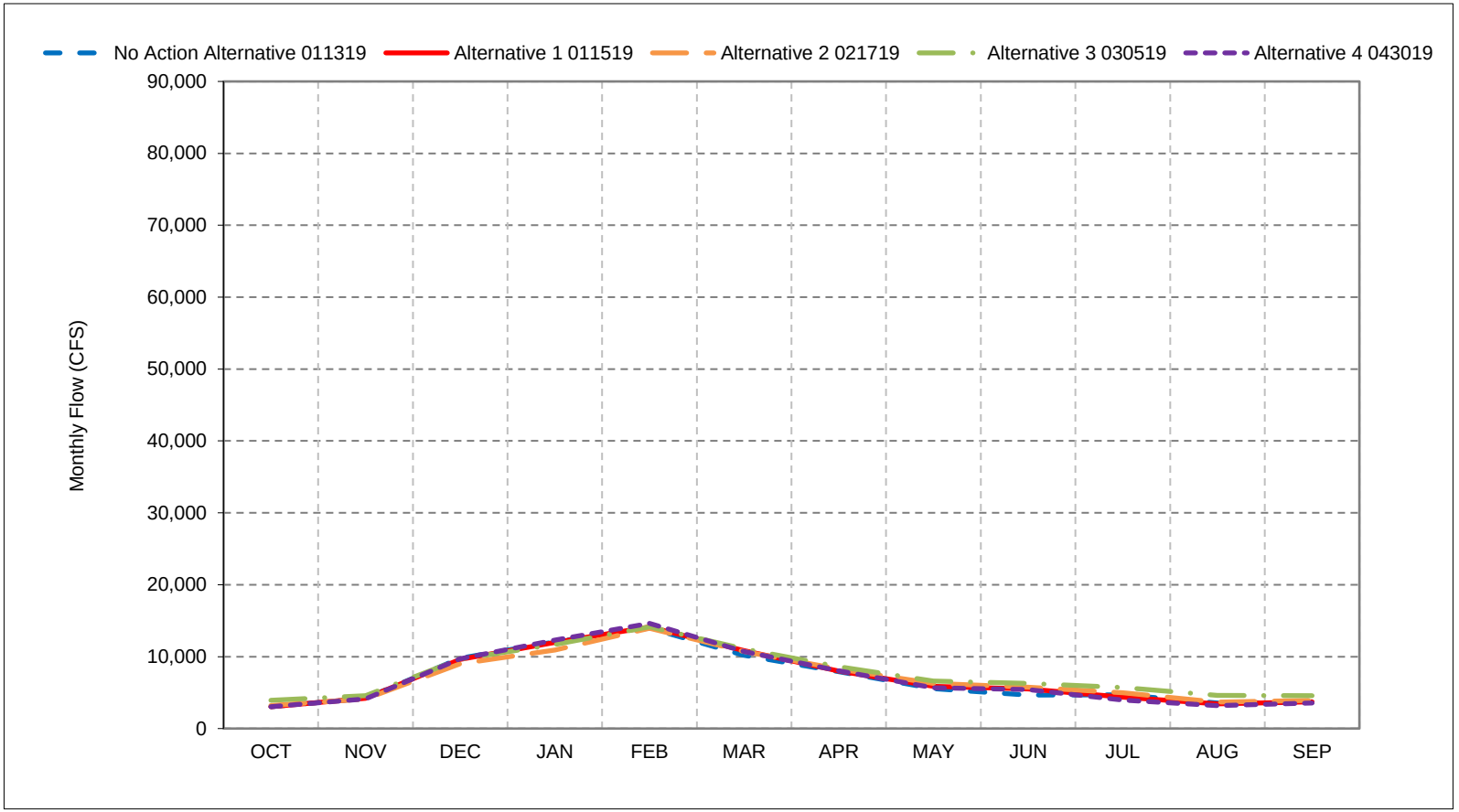

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Figure 32-5. Sacramento River Flow at Rio Vista, Dry Year Average Flow



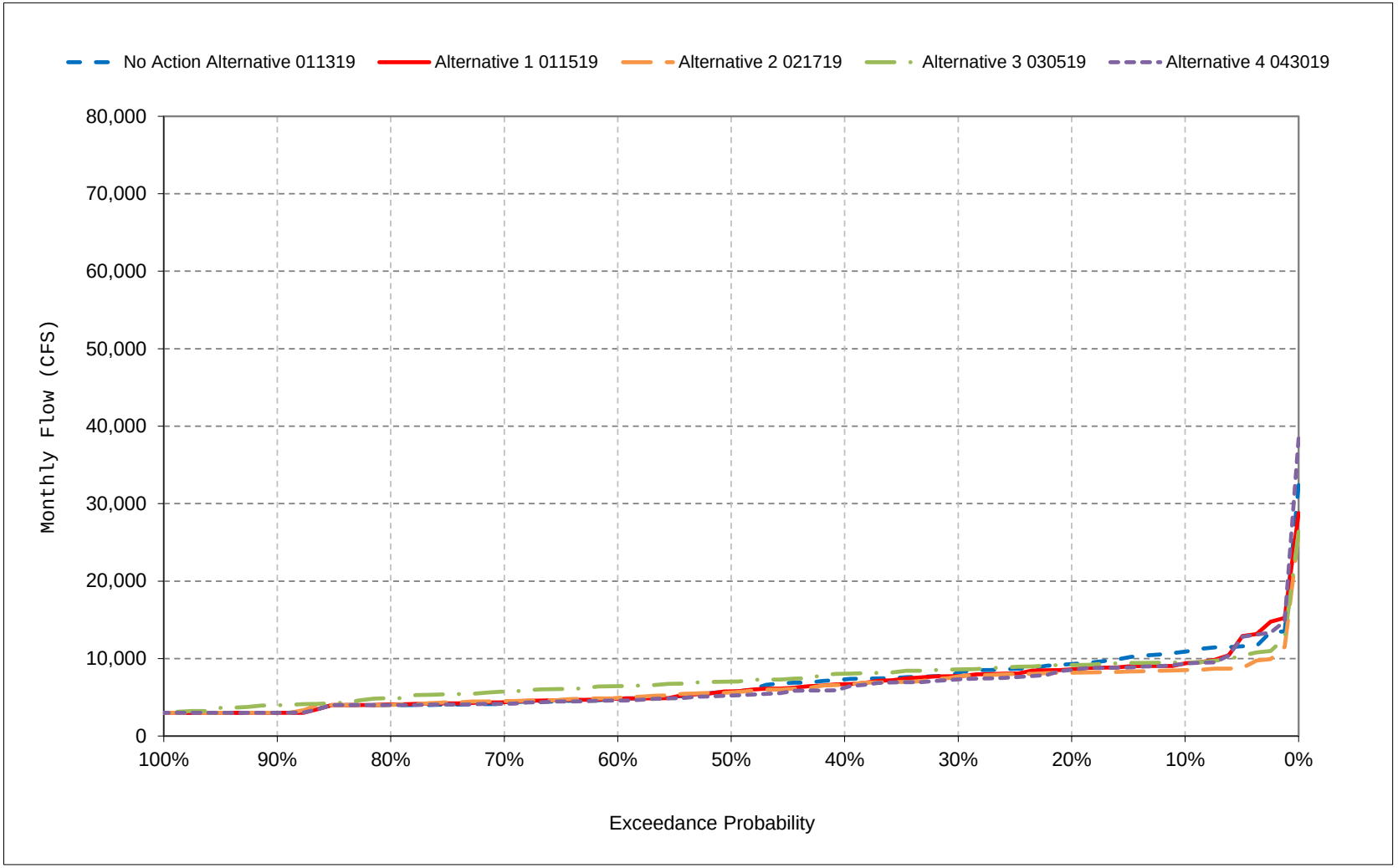

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Figure 32-6. Sacramento River Flow at Rio Vista, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 32-7. Sacramento River Flow at Rio Vista, October**

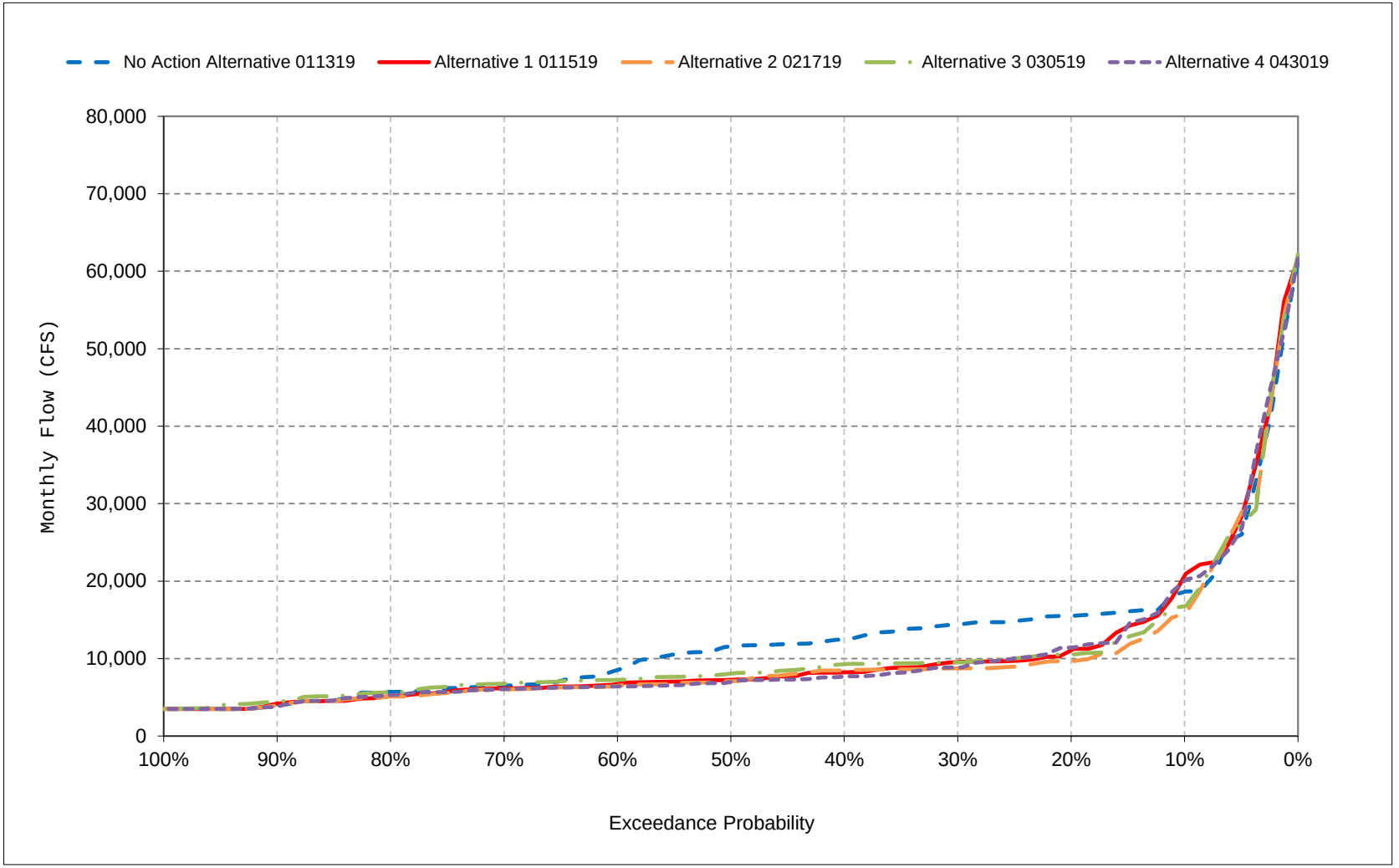



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 32-8. Sacramento River Flow at Rio Vista, November**

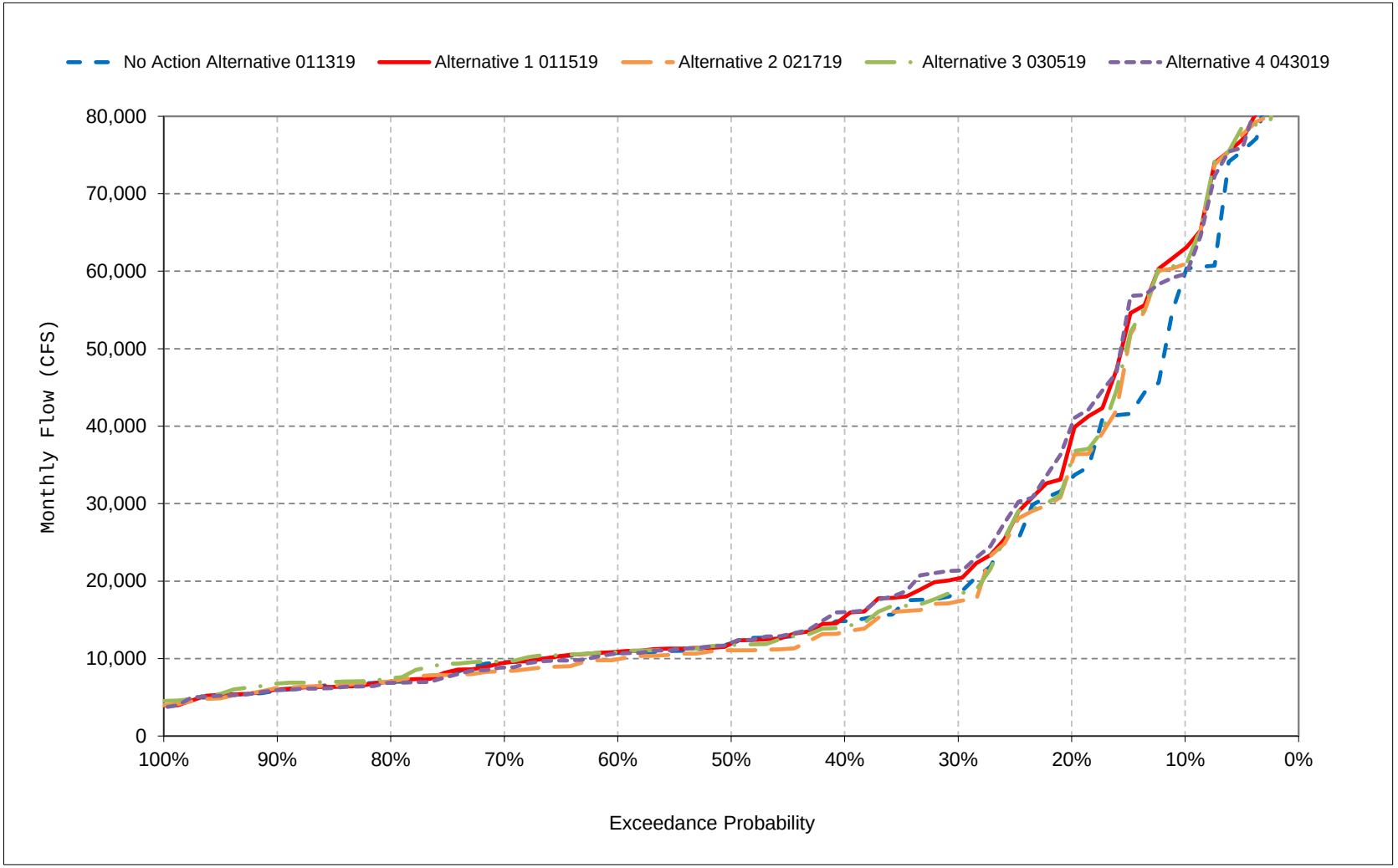



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 32-9. Sacramento River Flow at Rio Vista, December**

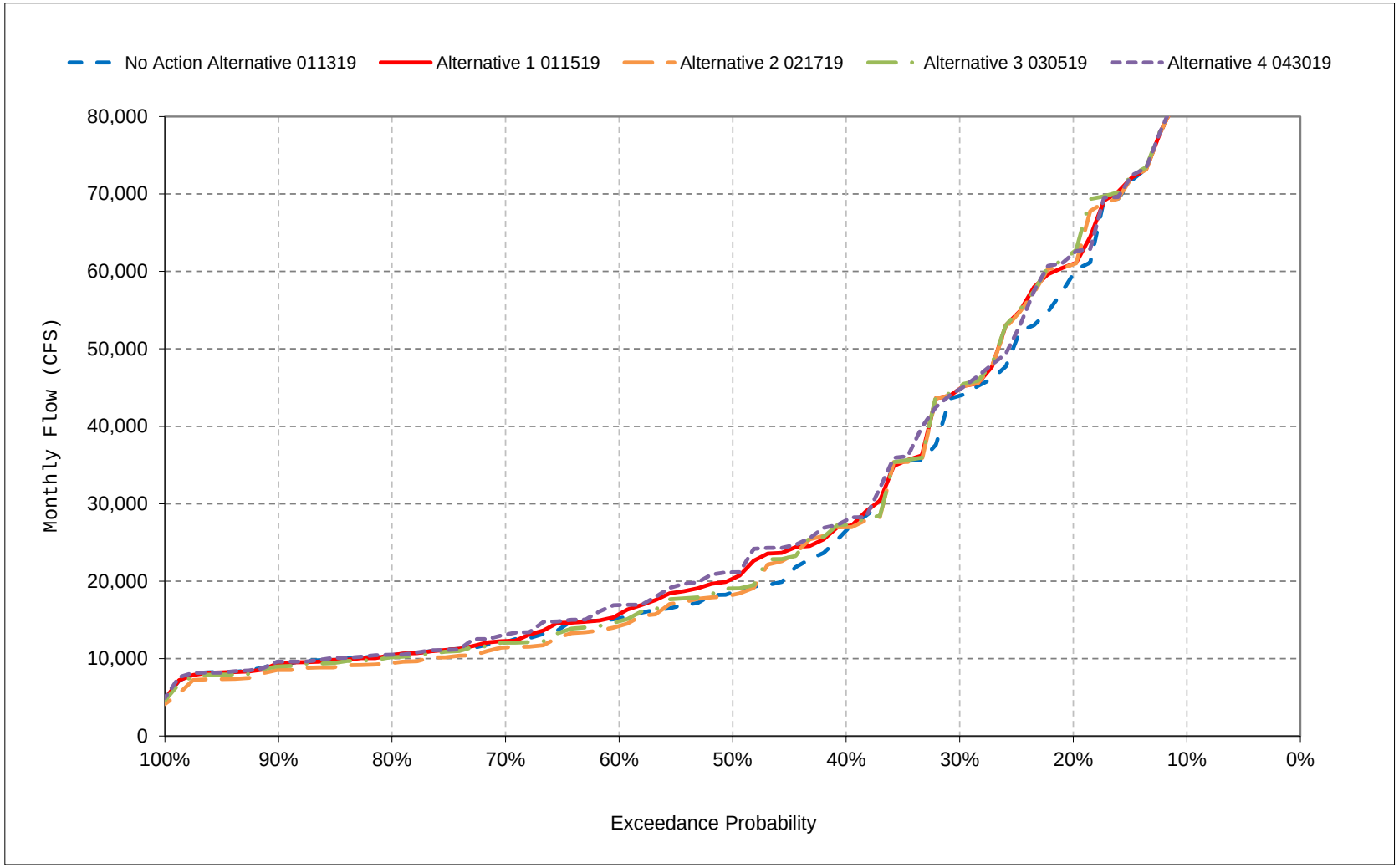



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 32-10. Sacramento River Flow at Rio Vista, January**

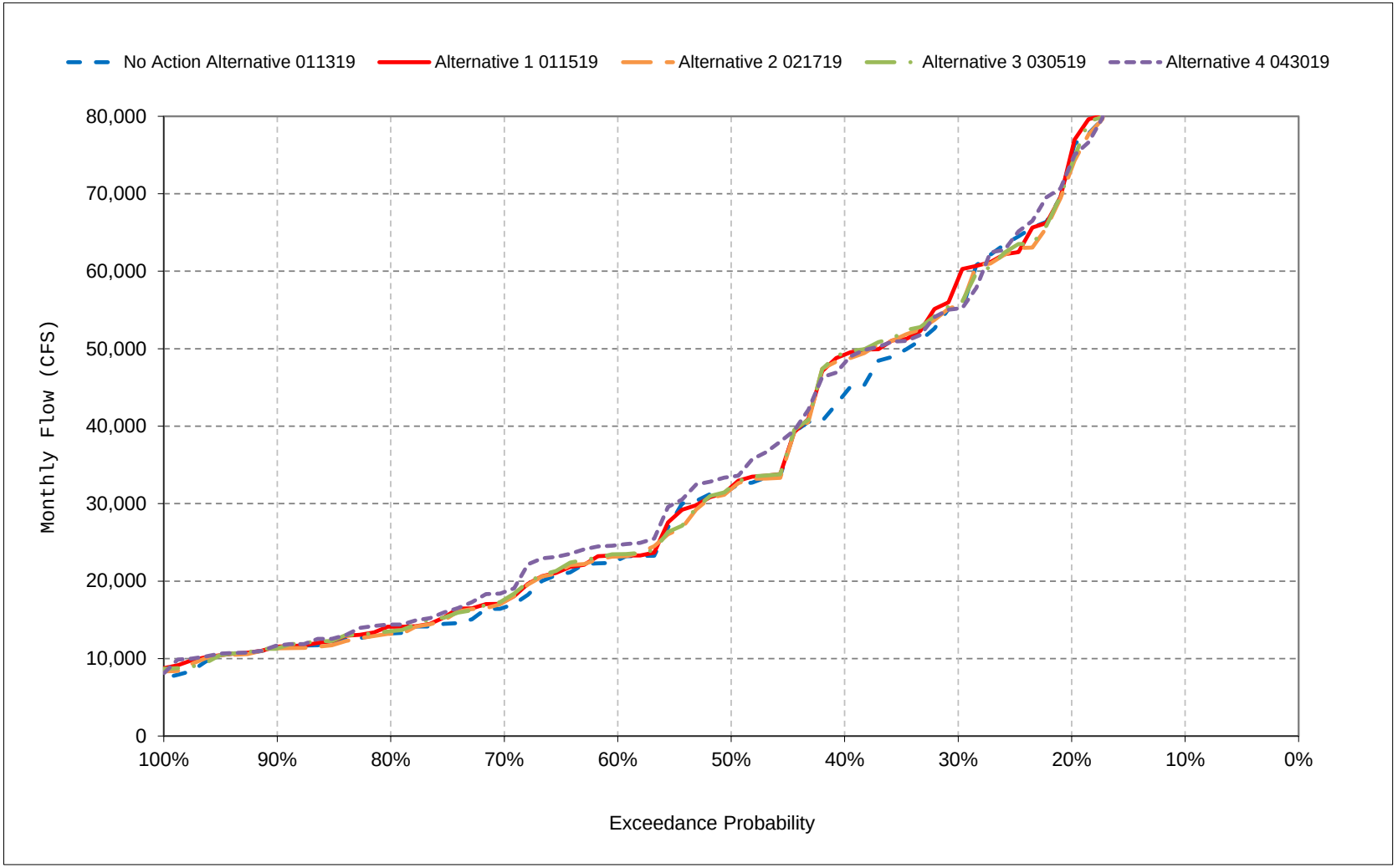



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 32-11. Sacramento River Flow at Rio Vista, February**

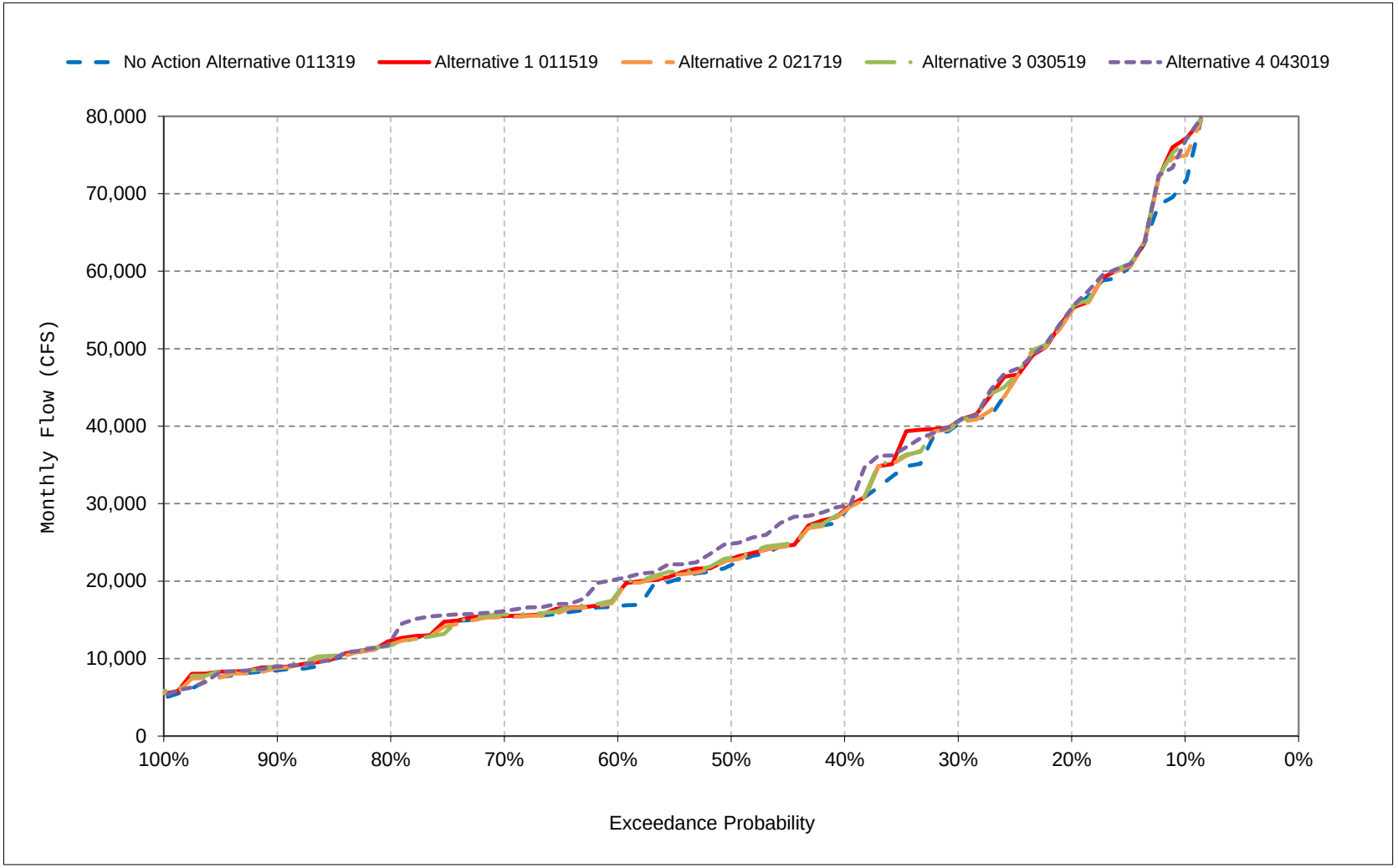



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 32-12. Sacramento River Flow at Rio Vista, March**

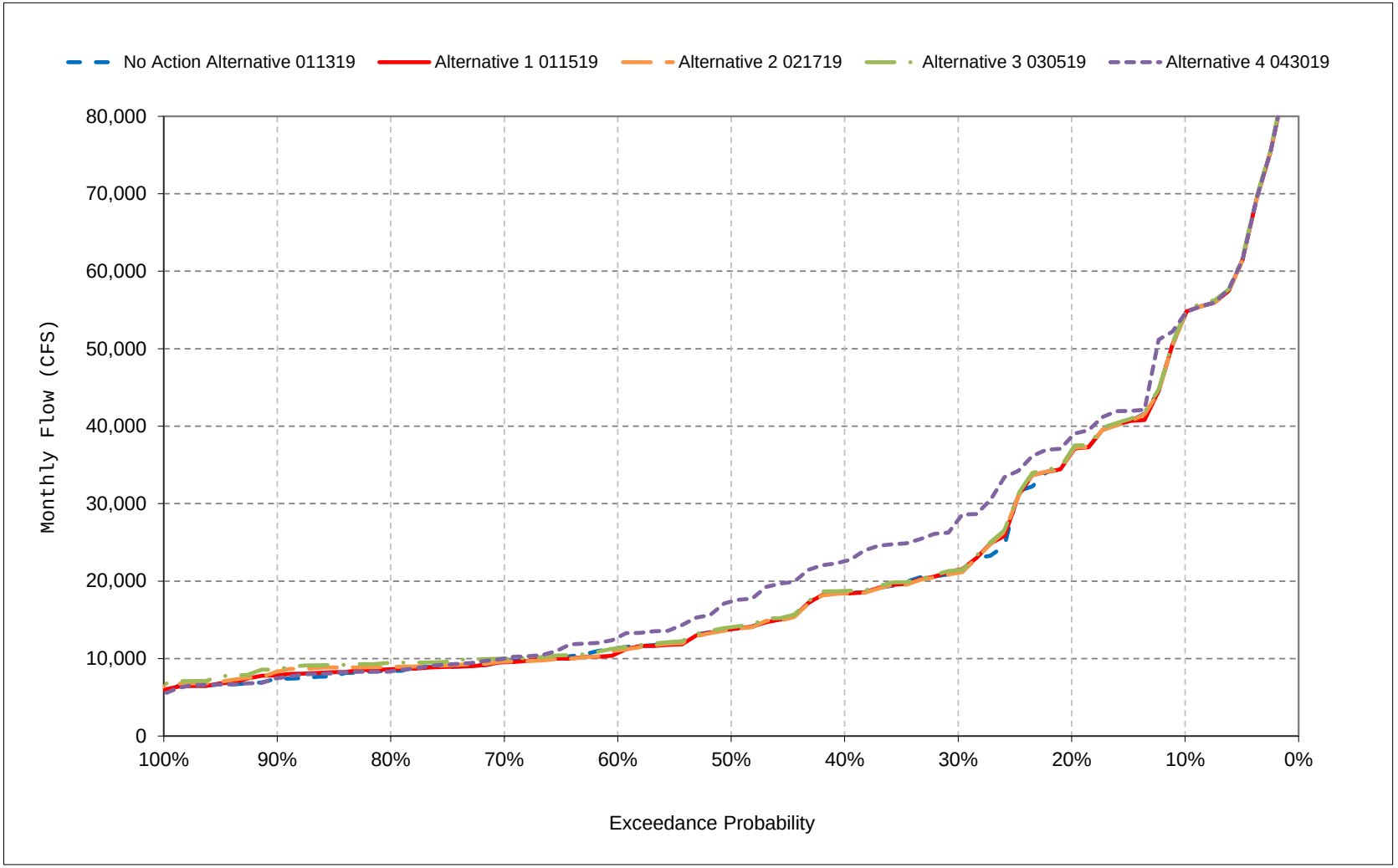



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 32-13. Sacramento River Flow at Rio Vista, April**

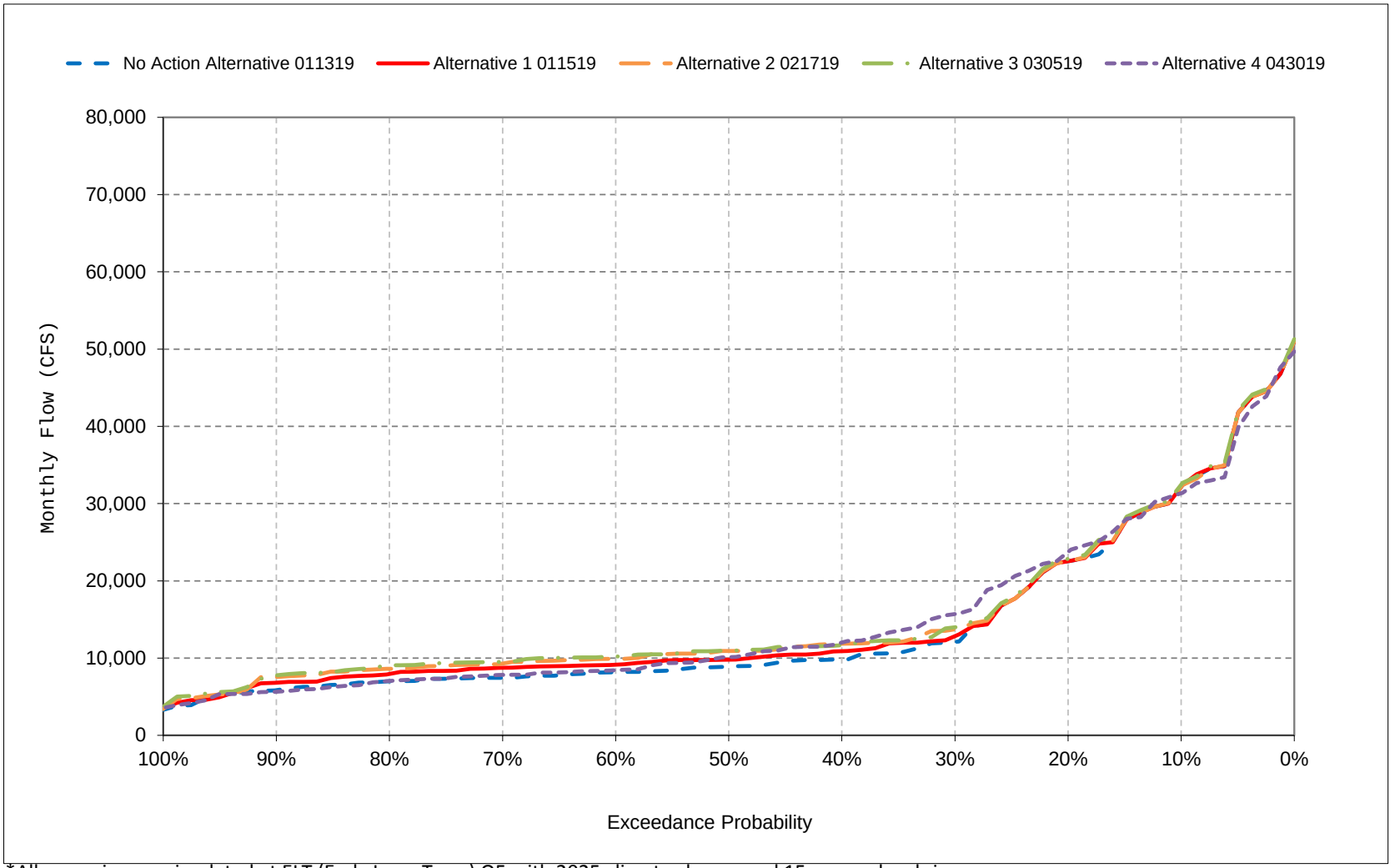



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 32-14. Sacramento River Flow at Rio Vista, May**

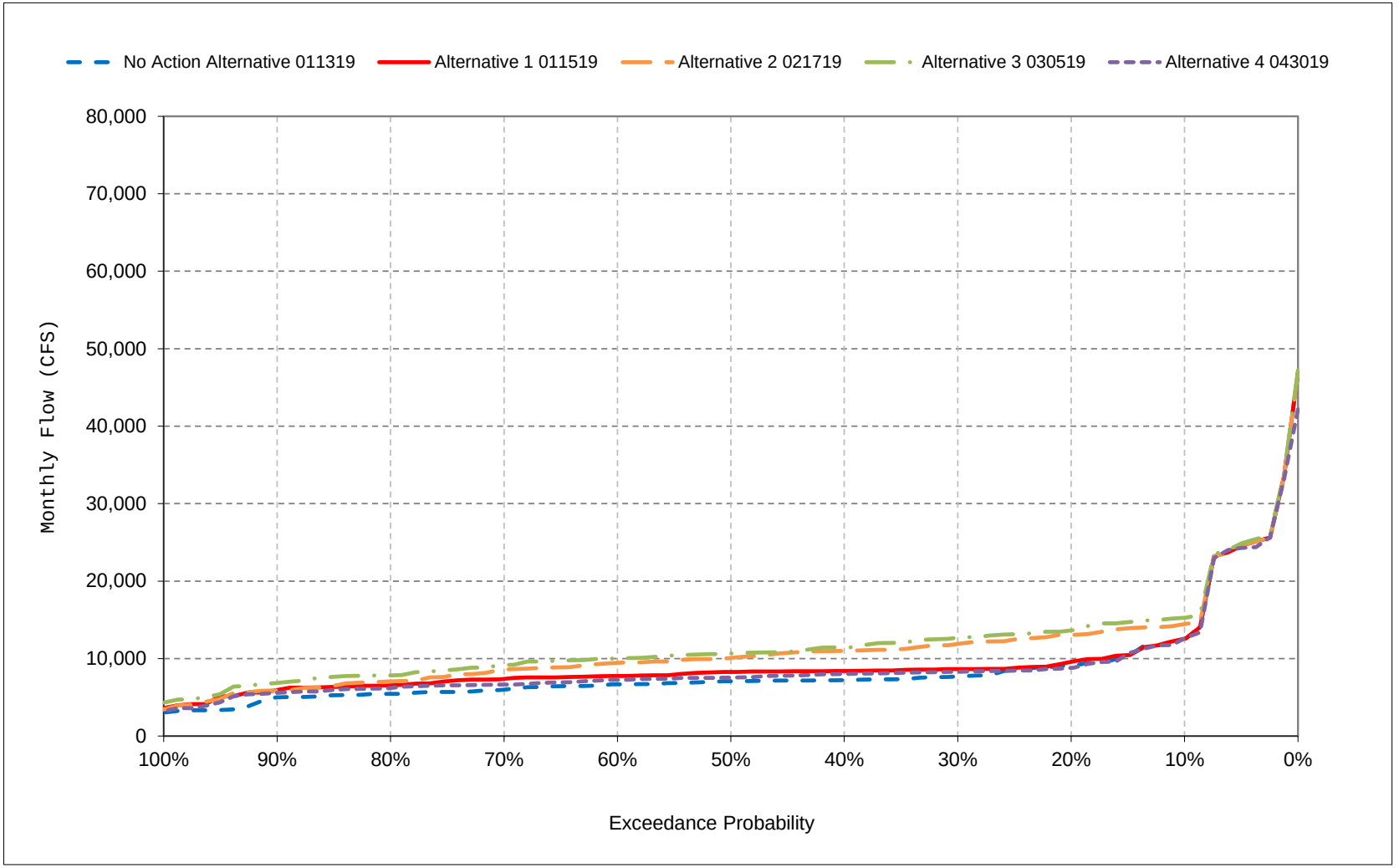



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 32-15. Sacramento River Flow at Rio Vista, June**

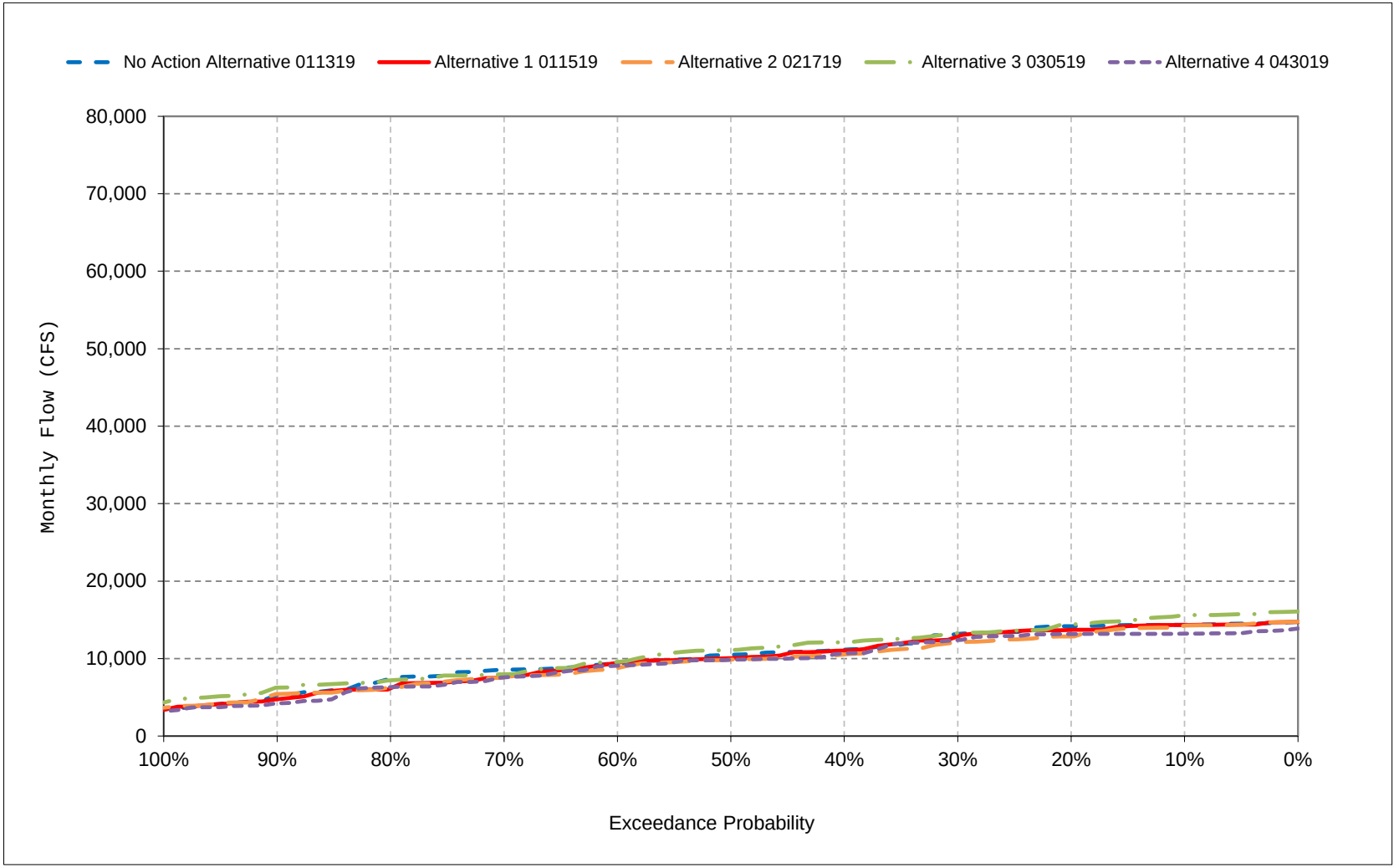



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 32-16. Sacramento River Flow at Rio Vista, July**

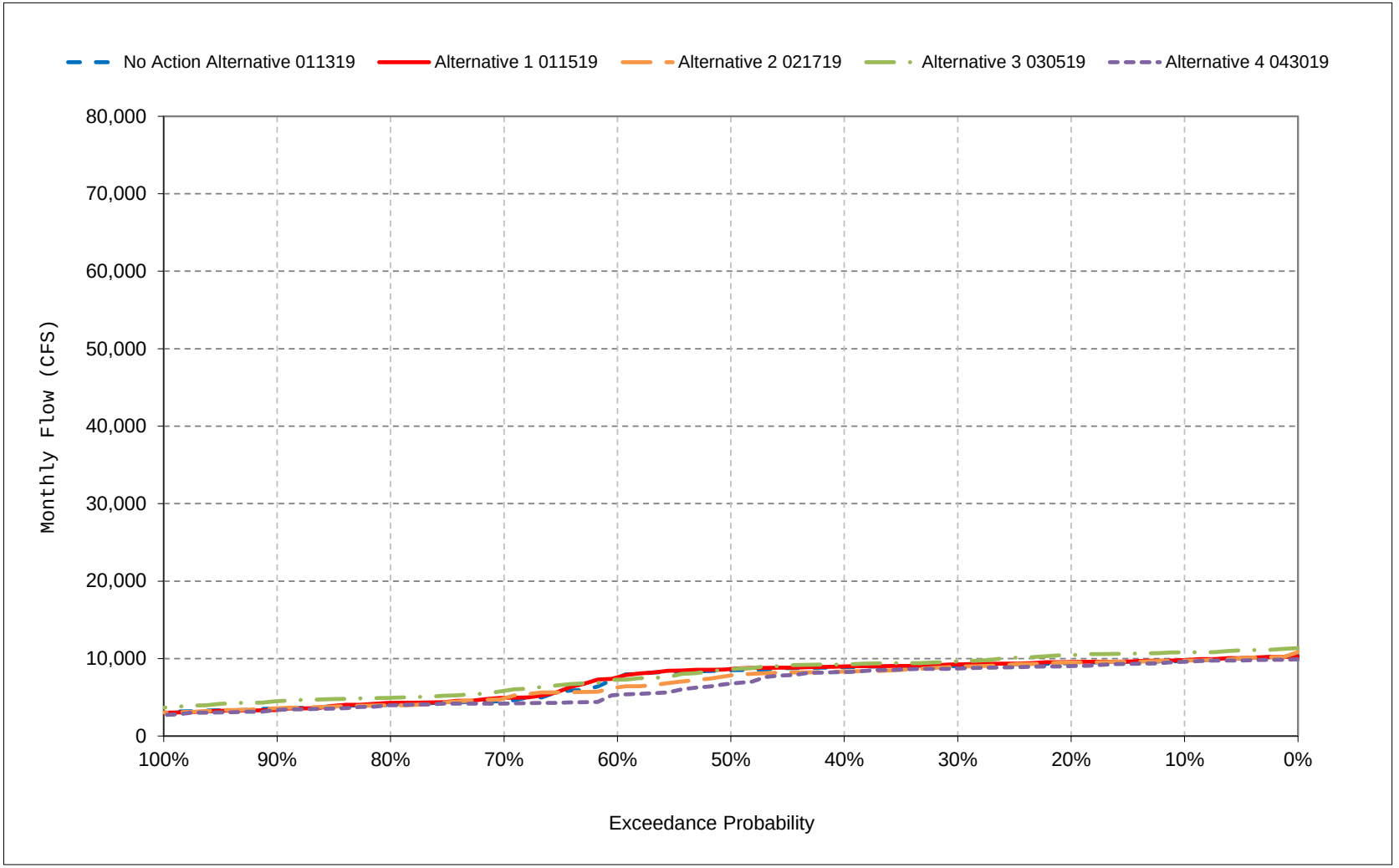



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 32-17. Sacramento River Flow at Rio Vista, August**

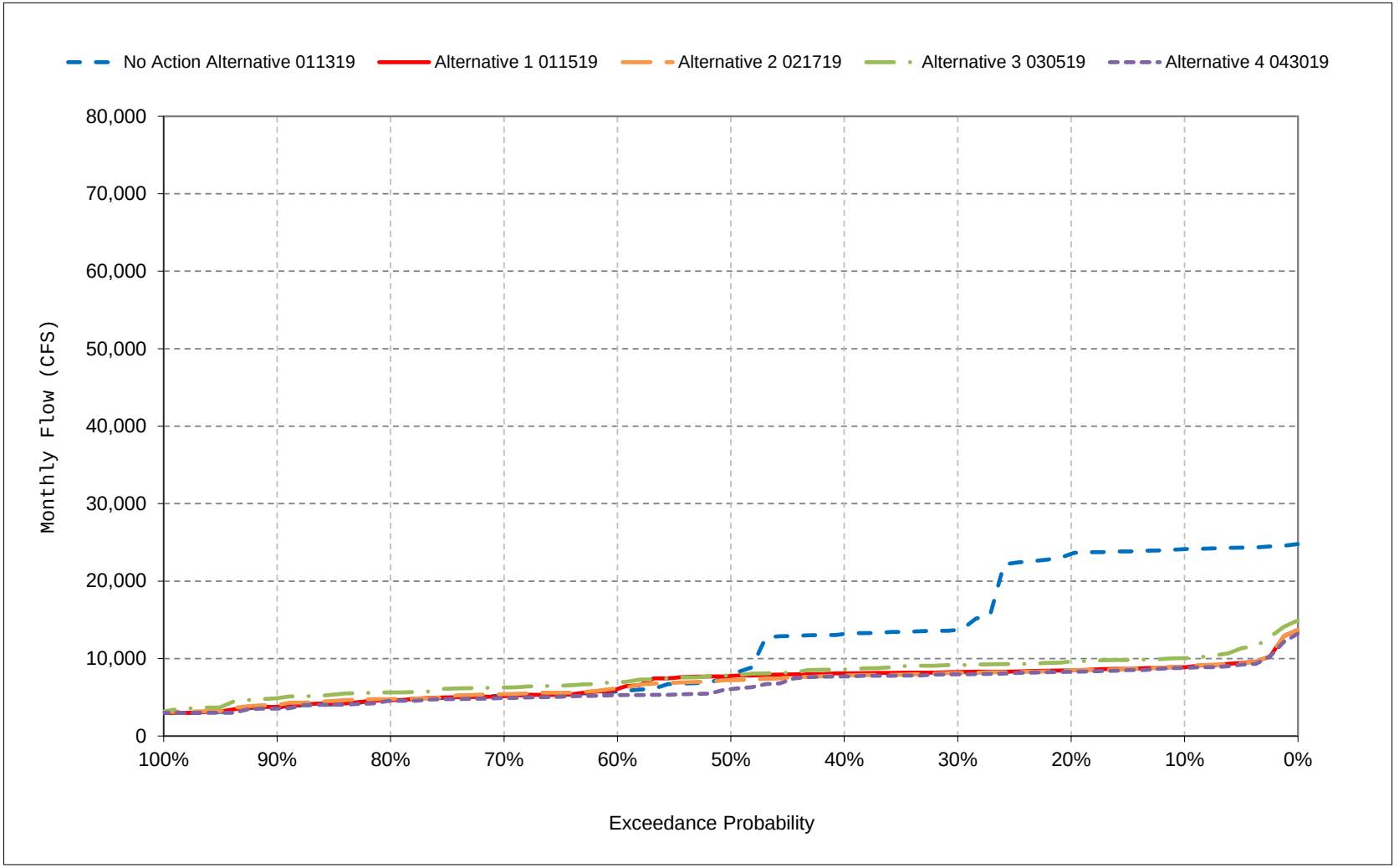



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 32-18. Sacramento River Flow at Rio Vista, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

# Table 33-1. San Joaquin River Flow at Gravelly Ford, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 191 | 344 | 230 | 728 | 2,696 | 2,726 | 4,098 | 3,406 | 2,892 | 121 | 121 | 140 |
| 20% | 191 | 344 | 230 | 258 | 807 | 1,072 | 3,100 | 1,774 | 1,646 | 121 | 121 | 140 |
| 30% | 191 | 344 | 230 | 251 | 355 | 925 | 3,100 | 497 | 320 | 121 | 121 | 140 |
| 40% | 191 | 344 | 230 | 251 | 253 | 886 | 2,821 | 160 | 160 | 121 | 121 | 140 |
| 50% | 191 | 344 | 230 | 251 | 253 | 886 | 1,858 | 160 | 160 | 121 | 121 | 140 |
| 60% | 191 | 344 | 230 | 251 | 249 | 886 | 1,393 | 160 | 160 | 121 | 121 | 140 |
| 70% | 191 | 344 | 230 | 251 | 249 | 886 | 1,131 | 160 | 160 | 121 | 121 | 140 |
| 80% | 191 | 344 | 230 | 251 | 249 | 886 | 668 | 160 | 160 | 121 | 121 | 140 |
| 90% | 191 | 344 | 230 | 251 | 249 | 886 | 238 | 160 | 160 | 121 | 121 | 140 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 179 | 337 | 371 | 586 | 781 | 1,320 | 2,280 | 1,071 | 912 | 301 | 113 | 134 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 191 | 409 | 610 | 1,602 | 2,227 | 2,567 | 4,661 | 3,580 | 3,182 | 930 | 121 | 140 |
| Above Normal (24%) | 191 | 344 | 234 | 322 | 563 | 1,123 | 2,867 | 688 | 414 | 121 | 121 | 140 |
| Below Normal (10%) | 191 | 344 | 230 | 330 | 250 | 886 | 1,922 | 160 | 160 | 121 | 121 | 140 |
| Dry (16%) | 191 | 344 | 539 | 251 | 250 | 886 | 1,150 | 160 | 160 | 121 | 121 | 140 |
| Critical (27%) | 147 | 261 | 255 | 240 | 239 | 835 | 486 | 122 | 122 | 94 | 94 | 117 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 191 | 344 | 230 | 728 | 2,696 | 2,726 | 4,098 | 3,406 | 2,892 | 121 | 121 | 140 |
| 20% | 191 | 344 | 230 | 258 | 807 | 1,072 | 3,100 | 1,774 | 1,646 | 121 | 121 | 140 |
| 30% | 191 | 344 | 230 | 251 | 355 | 925 | 3,100 | 497 | 320 | 121 | 121 | 140 |
| 40% | 191 | 344 | 230 | 251 | 253 | 886 | 2,821 | 160 | 160 | 121 | 121 | 140 |
| 50% | 191 | 344 | 230 | 251 | 253 | 886 | 1,858 | 160 | 160 | 121 | 121 | 140 |
| 60% | 191 | 344 | 230 | 251 | 249 | 886 | 1,393 | 160 | 160 | 121 | 121 | 140 |
| 70% | 191 | 344 | 230 | 251 | 249 | 886 | 1,131 | 160 | 160 | 121 | 121 | 140 |
| 80% | 191 | 344 | 230 | 251 | 249 | 886 | 668 | 160 | 160 | 121 | 121 | 140 |
| 90% | 191 | 344 | 230 | 251 | 249 | 886 | 238 | 160 | 160 | 121 | 121 | 140 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 179 | 337 | 371 | 586 | 781 | 1,320 | 2,280 | 1,071 | 912 | 301 | 113 | 134 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 191 | 409 | 610 | 1,602 | 2,227 | 2,567 | 4,661 | 3,580 | 3,182 | 930 | 121 | 140 |
| Above Normal (24%) | 191 | 344 | 234 | 322 | 563 | 1,123 | 2,867 | 688 | 414 | 121 | 121 | 140 |
| Below Normal (10%) | 191 | 344 | 230 | 330 | 250 | 886 | 1,922 | 160 | 160 | 121 | 121 | 140 |
| Dry (16%) | 191 | 344 | 539 | 251 | 250 | 886 | 1,150 | 160 | 160 | 121 | 121 | 140 |
| Critical (27%) | 147 | 261 | 255 | 240 | 239 | 835 | 486 | 122 | 122 | 94 | 94 | 117 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (27%) | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 33-2. San Joaquin River Flow at Gravelly Ford, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 191 | 344 | 230 | 728 | 2,696 | 2,726 | 4,098 | 3,406 | 2,892 | 121 | 121 | 140 |
| 20% | 191 | 344 | 230 | 258 | 807 | 1,072 | 3,100 | 1,774 | 1,646 | 121 | 121 | 140 |
| 30% | 191 | 344 | 230 | 251 | 355 | 925 | 3,100 | 497 | 320 | 121 | 121 | 140 |
| 40% | 191 | 344 | 230 | 251 | 253 | 886 | 2,821 | 160 | 160 | 121 | 121 | 140 |
| 50% | 191 | 344 | 230 | 251 | 253 | 886 | 1,858 | 160 | 160 | 121 | 121 | 140 |
| 60% | 191 | 344 | 230 | 251 | 249 | 886 | 1,393 | 160 | 160 | 121 | 121 | 140 |
| 70% | 191 | 344 | 230 | 251 | 249 | 886 | 1,131 | 160 | 160 | 121 | 121 | 140 |
| 80% | 191 | 344 | 230 | 251 | 249 | 886 | 668 | 160 | 160 | 121 | 121 | 140 |
| 90% | 191 | 344 | 230 | 251 | 249 | 886 | 238 | 160 | 160 | 121 | 121 | 140 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 179 | 337 | 371 | 586 | 781 | 1,320 | 2,280 | 1,071 | 912 | 301 | 113 | 134 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 191 | 409 | 610 | 1,602 | 2,227 | 2,567 | 4,661 | 3,580 | 3,182 | 930 | 121 | 140 |
| Above Normal (24%) | 191 | 344 | 234 | 322 | 563 | 1,123 | 2,867 | 688 | 414 | 121 | 121 | 140 |
| Below Normal (10%) | 191 | 344 | 230 | 330 | 250 | 886 | 1,922 | 160 | 160 | 121 | 121 | 140 |
| Dry (16%) | 191 | 344 | 539 | 251 | 250 | 886 | 1,150 | 160 | 160 | 121 | 121 | 140 |
| Critical (27%) | 147 | 261 | 255 | 240 | 239 | 835 | 486 | 122 | 122 | 94 | 94 | 117 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 191 | 344 | 230 | 728 | 2,696 | 2,726 | 4,098 | 3,406 | 2,892 | 121 | 121 | 140 |
| 20% | 191 | 344 | 230 | 258 | 807 | 1,072 | 3,100 | 1,774 | 1,646 | 121 | 121 | 140 |
| 30% | 191 | 344 | 230 | 251 | 355 | 925 | 3,100 | 497 | 320 | 121 | 121 | 140 |
| 40% | 191 | 344 | 230 | 251 | 253 | 886 | 2,821 | 160 | 160 | 121 | 121 | 140 |
| 50% | 191 | 344 | 230 | 251 | 253 | 886 | 1,858 | 160 | 160 | 121 | 121 | 140 |
| 60% | 191 | 344 | 230 | 251 | 249 | 886 | 1,393 | 160 | 160 | 121 | 121 | 140 |
| 70% | 191 | 344 | 230 | 251 | 249 | 886 | 1,131 | 160 | 160 | 121 | 121 | 140 |
| 80% | 191 | 344 | 230 | 251 | 249 | 886 | 668 | 160 | 160 | 121 | 121 | 140 |
| 90% | 191 | 344 | 230 | 251 | 249 | 886 | 238 | 160 | 160 | 121 | 121 | 140 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 179 | 337 | 371 | 586 | 781 | 1,320 | 2,280 | 1,071 | 912 | 301 | 113 | 134 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 191 | 409 | 610 | 1,602 | 2,227 | 2,567 | 4,661 | 3,580 | 3,182 | 930 | 121 | 140 |
| Above Normal (24%) | 191 | 344 | 234 | 322 | 563 | 1,123 | 2,867 | 688 | 414 | 121 | 121 | 140 |
| Below Normal (10%) | 191 | 344 | 230 | 330 | 250 | 886 | 1,922 | 160 | 160 | 121 | 121 | 140 |
| Dry (16%) | 191 | 344 | 539 | 251 | 250 | 886 | 1,150 | 160 | 160 | 121 | 121 | 140 |
| Critical (27%) | 147 | 261 | 255 | 240 | 239 | 835 | 486 | 122 | 122 | 94 | 94 | 117 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (27%) | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 33-3. San Joaquin River Flow at Gravelly Ford, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 191 | 344 | 230 | 728 | 2,696 | 2,726 | 4,098 | 3,406 | 2,892 | 121 | 121 | 140 |
| 20% | 191 | 344 | 230 | 258 | 807 | 1,072 | 3,100 | 1,774 | 1,646 | 121 | 121 | 140 |
| 30% | 191 | 344 | 230 | 251 | 355 | 925 | 3,100 | 497 | 320 | 121 | 121 | 140 |
| 40% | 191 | 344 | 230 | 251 | 253 | 886 | 2,821 | 160 | 160 | 121 | 121 | 140 |
| 50% | 191 | 344 | 230 | 251 | 253 | 886 | 1,858 | 160 | 160 | 121 | 121 | 140 |
| 60% | 191 | 344 | 230 | 251 | 249 | 886 | 1,393 | 160 | 160 | 121 | 121 | 140 |
| 70% | 191 | 344 | 230 | 251 | 249 | 886 | 1,131 | 160 | 160 | 121 | 121 | 140 |
| 80% | 191 | 344 | 230 | 251 | 249 | 886 | 668 | 160 | 160 | 121 | 121 | 140 |
| 90% | 191 | 344 | 230 | 251 | 249 | 886 | 238 | 160 | 160 | 121 | 121 | 140 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 179 | 337 | 371 | 586 | 781 | 1,320 | 2,280 | 1,071 | 912 | 301 | 113 | 134 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 191 | 409 | 610 | 1,602 | 2,227 | 2,567 | 4,661 | 3,580 | 3,182 | 930 | 121 | 140 |
| Above Normal (24%) | 191 | 344 | 234 | 322 | 563 | 1,123 | 2,867 | 688 | 414 | 121 | 121 | 140 |
| Below Normal (10%) | 191 | 344 | 230 | 330 | 250 | 886 | 1,922 | 160 | 160 | 121 | 121 | 140 |
| Dry (16%) | 191 | 344 | 539 | 251 | 250 | 886 | 1,150 | 160 | 160 | 121 | 121 | 140 |
| Critical (27%) | 147 | 261 | 255 | 240 | 239 | 835 | 486 | 122 | 122 | 94 | 94 | 117 |

### Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 191 | 344 | 230 | 728 | 2,696 | 2,726 | 4,098 | 3,406 | 2,892 | 121 | 121 | 140 |
| 20% | 191 | 344 | 230 | 258 | 807 | 1,072 | 3,100 | 1,774 | 1,646 | 121 | 121 | 140 |
| 30% | 191 | 344 | 230 | 251 | 354 | 925 | 3,100 | 497 | 320 | 121 | 121 | 140 |
| 40% | 191 | 344 | 230 | 251 | 253 | 886 | 2,821 | 160 | 160 | 121 | 121 | 140 |
| 50% | 191 | 344 | 230 | 251 | 253 | 886 | 1,858 | 160 | 160 | 121 | 121 | 140 |
| 60% | 191 | 344 | 230 | 251 | 249 | 886 | 1,393 | 160 | 160 | 121 | 121 | 140 |
| 70% | 191 | 344 | 230 | 251 | 249 | 886 | 1,131 | 160 | 160 | 121 | 121 | 140 |
| 80% | 191 | 344 | 230 | 251 | 249 | 886 | 668 | 160 | 160 | 121 | 121 | 140 |
| 90% | 191 | 344 | 230 | 251 | 249 | 886 | 238 | 160 | 160 | 121 | 121 | 140 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 179 | 337 | 371 | 586 | 781 | 1,320 | 2,280 | 1,071 | 912 | 301 | 113 | 134 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 191 | 409 | 610 | 1,602 | 2,227 | 2,567 | 4,661 | 3,580 | 3,182 | 930 | 121 | 140 |
| Above Normal (24%) | 191 | 344 | 234 | 322 | 563 | 1,123 | 2,867 | 688 | 414 | 121 | 121 | 140 |
| Below Normal (10%) | 191 | 344 | 230 | 330 | 250 | 886 | 1,922 | 160 | 160 | 121 | 121 | 140 |
| Dry (16%) | 191 | 344 | 539 | 251 | 250 | 886 | 1,150 | 160 | 160 | 121 | 121 | 140 |
| Critical (27%) | 147 | 261 | 255 | 240 | 239 | 835 | 486 | 122 | 122 | 94 | 94 | 117 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (27%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 33-4. San Joaquin River Flow at Gravelly Ford, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 191 | 344 | 230 | 728 | 2,696 | 2,726 | 4,098 | 3,406 | 2,892 | 121 | 121 | 140 |
| 20% | 191 | 344 | 230 | 258 | 807 | 1,072 | 3,100 | 1,774 | 1,646 | 121 | 121 | 140 |
| 30% | 191 | 344 | 230 | 251 | 355 | 925 | 3,100 | 497 | 320 | 121 | 121 | 140 |
| 40% | 191 | 344 | 230 | 251 | 253 | 886 | 2,821 | 160 | 160 | 121 | 121 | 140 |
| 50% | 191 | 344 | 230 | 251 | 253 | 886 | 1,858 | 160 | 160 | 121 | 121 | 140 |
| 60% | 191 | 344 | 230 | 251 | 249 | 886 | 1,393 | 160 | 160 | 121 | 121 | 140 |
| 70% | 191 | 344 | 230 | 251 | 249 | 886 | 1,131 | 160 | 160 | 121 | 121 | 140 |
| 80% | 191 | 344 | 230 | 251 | 249 | 886 | 668 | 160 | 160 | 121 | 121 | 140 |
| 90% | 191 | 344 | 230 | 251 | 249 | 886 | 238 | 160 | 160 | 121 | 121 | 140 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 179 | 337 | 371 | 586 | 781 | 1,320 | 2,280 | 1,071 | 912 | 301 | 113 | 134 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 191 | 409 | 610 | 1,602 | 2,227 | 2,567 | 4,661 | 3,580 | 3,182 | 930 | 121 | 140 |
| Above Normal (24%) | 191 | 344 | 234 | 322 | 563 | 1,123 | 2,867 | 688 | 414 | 121 | 121 | 140 |
| Below Normal (10%) | 191 | 344 | 230 | 330 | 250 | 886 | 1,922 | 160 | 160 | 121 | 121 | 140 |
| Dry (16%) | 191 | 344 | 539 | 251 | 250 | 886 | 1,150 | 160 | 160 | 121 | 121 | 140 |
| Critical (27%) | 147 | 261 | 255 | 240 | 239 | 835 | 486 | 122 | 122 | 94 | 94 | 117 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 191 | 344 | 230 | 728 | 2,696 | 2,726 | 4,098 | 3,406 | 2,892 | 121 | 121 | 140 |
| 20% | 191 | 344 | 230 | 258 | 807 | 1,072 | 3,100 | 1,774 | 1,646 | 121 | 121 | 140 |
| 30% | 191 | 344 | 230 | 251 | 355 | 925 | 3,100 | 497 | 320 | 121 | 121 | 140 |
| 40% | 191 | 344 | 230 | 251 | 253 | 886 | 2,821 | 160 | 160 | 121 | 121 | 140 |
| 50% | 191 | 344 | 230 | 251 | 253 | 886 | 1,858 | 160 | 160 | 121 | 121 | 140 |
| 60% | 191 | 344 | 230 | 251 | 249 | 886 | 1,393 | 160 | 160 | 121 | 121 | 140 |
| 70% | 191 | 344 | 230 | 251 | 249 | 886 | 1,131 | 160 | 160 | 121 | 121 | 140 |
| 80% | 191 | 344 | 230 | 251 | 249 | 886 | 668 | 160 | 160 | 121 | 121 | 140 |
| 90% | 191 | 344 | 230 | 251 | 249 | 886 | 238 | 160 | 160 | 121 | 121 | 140 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 179 | 337 | 371 | 586 | 781 | 1,320 | 2,280 | 1,071 | 912 | 301 | 113 | 134 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 191 | 409 | 610 | 1,602 | 2,227 | 2,567 | 4,661 | 3,580 | 3,182 | 930 | 121 | 140 |
| Above Normal (24%) | 191 | 344 | 234 | 322 | 563 | 1,123 | 2,867 | 688 | 414 | 121 | 121 | 140 |
| Below Normal (10%) | 191 | 344 | 230 | 330 | 250 | 886 | 1,922 | 160 | 160 | 121 | 121 | 140 |
| Dry (16%) | 191 | 344 | 539 | 251 | 250 | 886 | 1,150 | 160 | 160 | 121 | 121 | 140 |
| Critical (27%) | 147 | 261 | 255 | 240 | 239 | 835 | 486 | 122 | 122 | 94 | 94 | 117 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (27%) | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

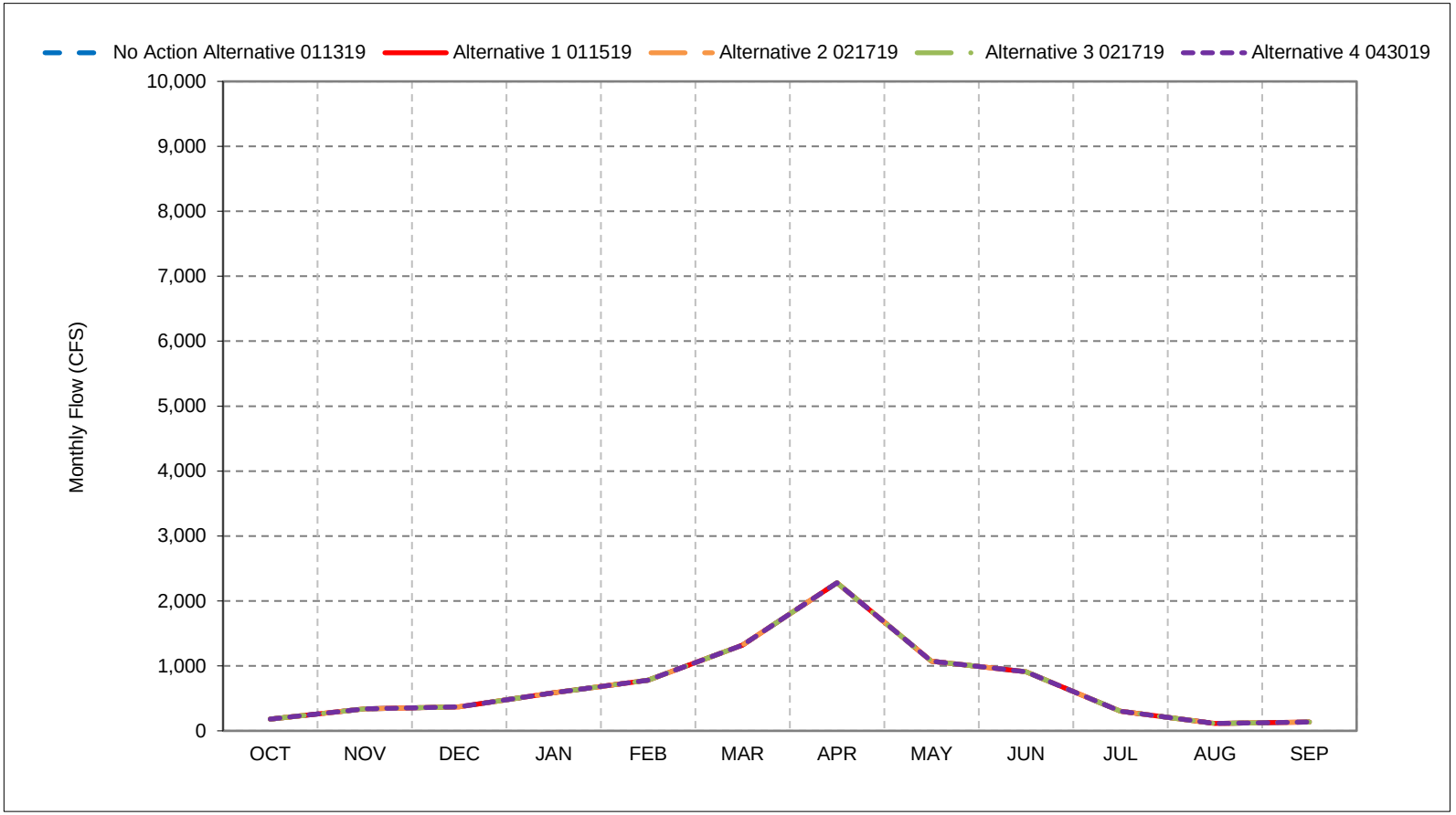
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

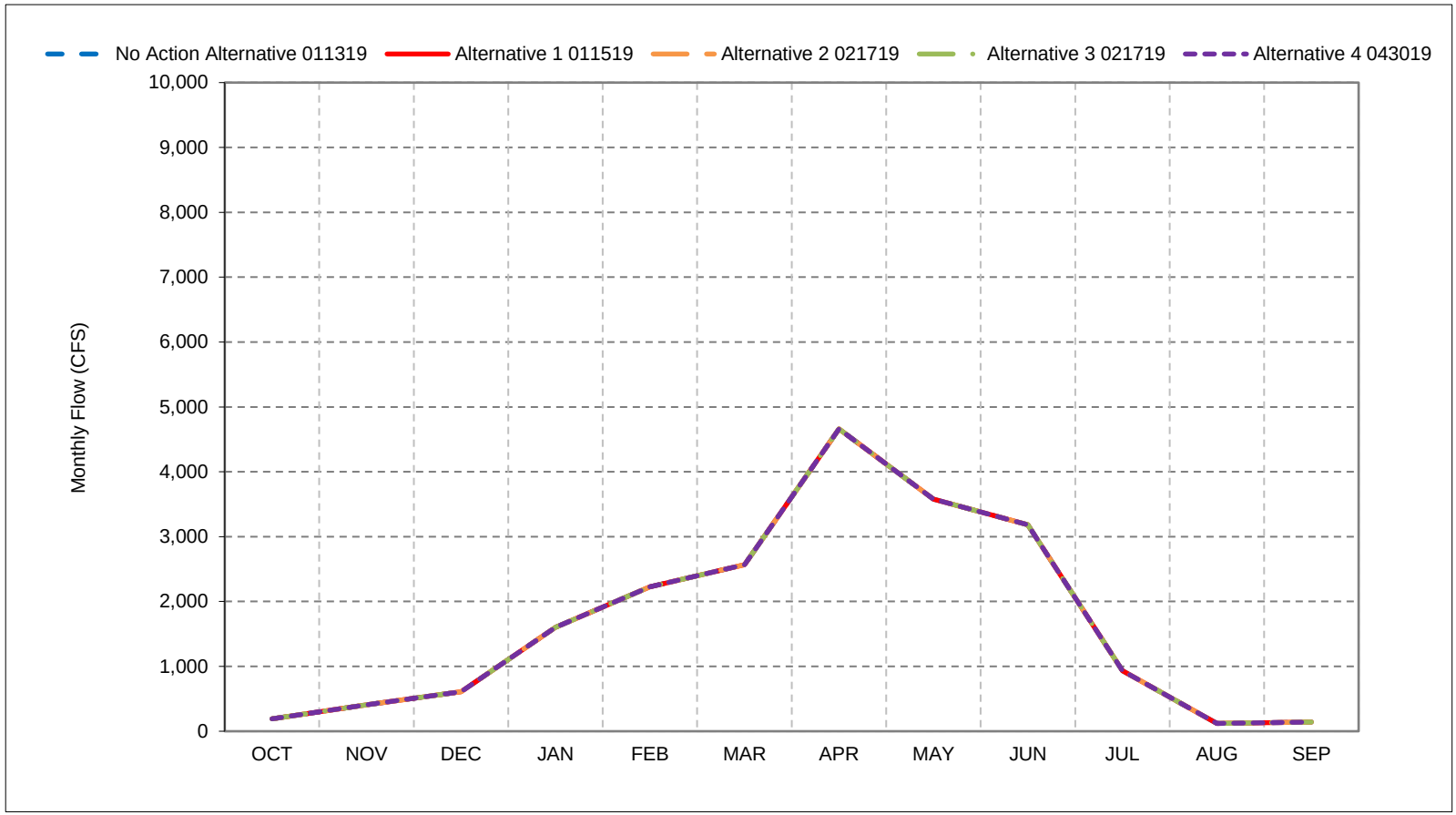
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 33-1. San Joaquin River Flow at Gravelly Ford, Long-Term Average Flow



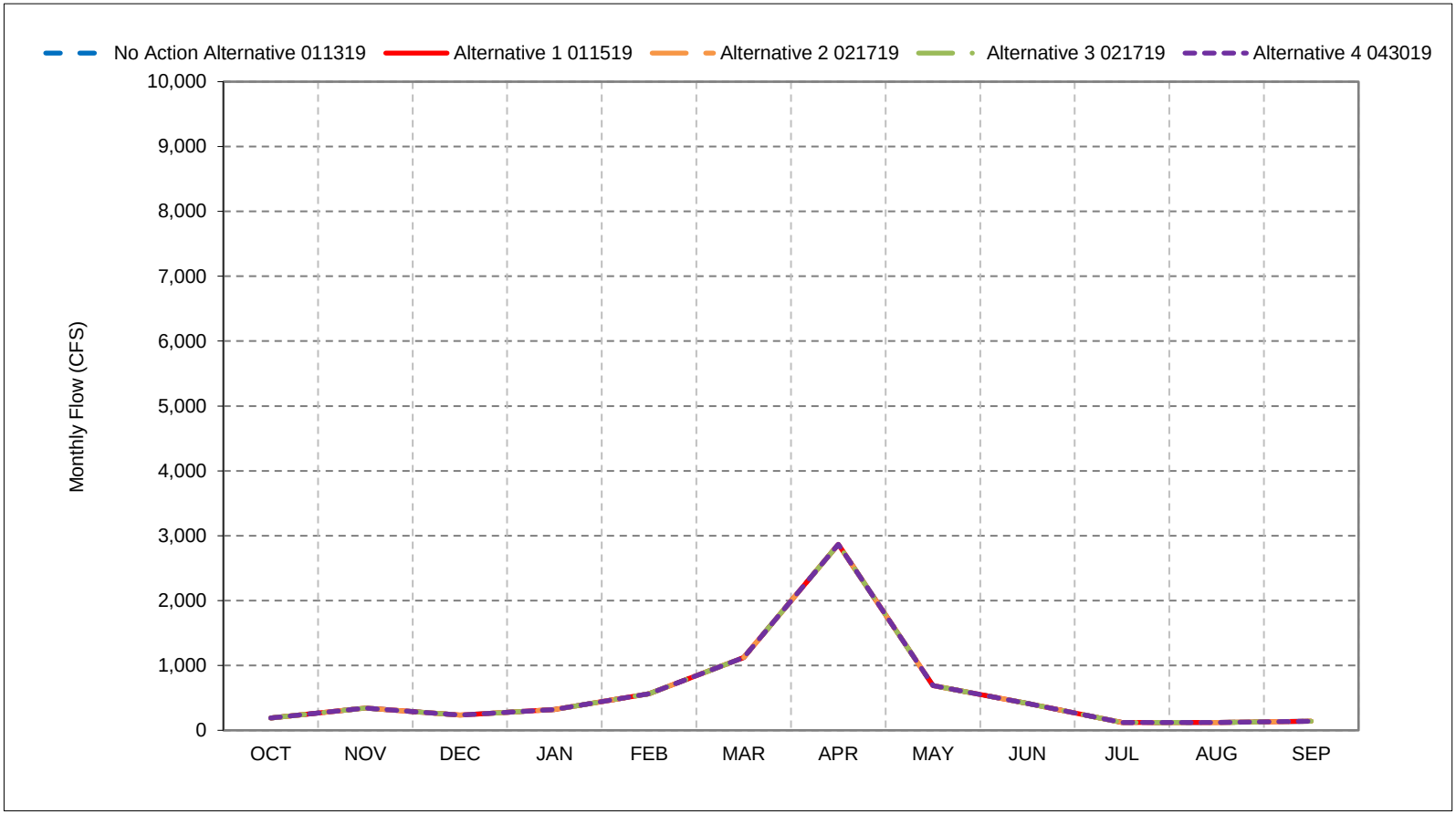

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 33-2. San Joaquin River Flow at Gravelly Ford, Wet Year Average Flow



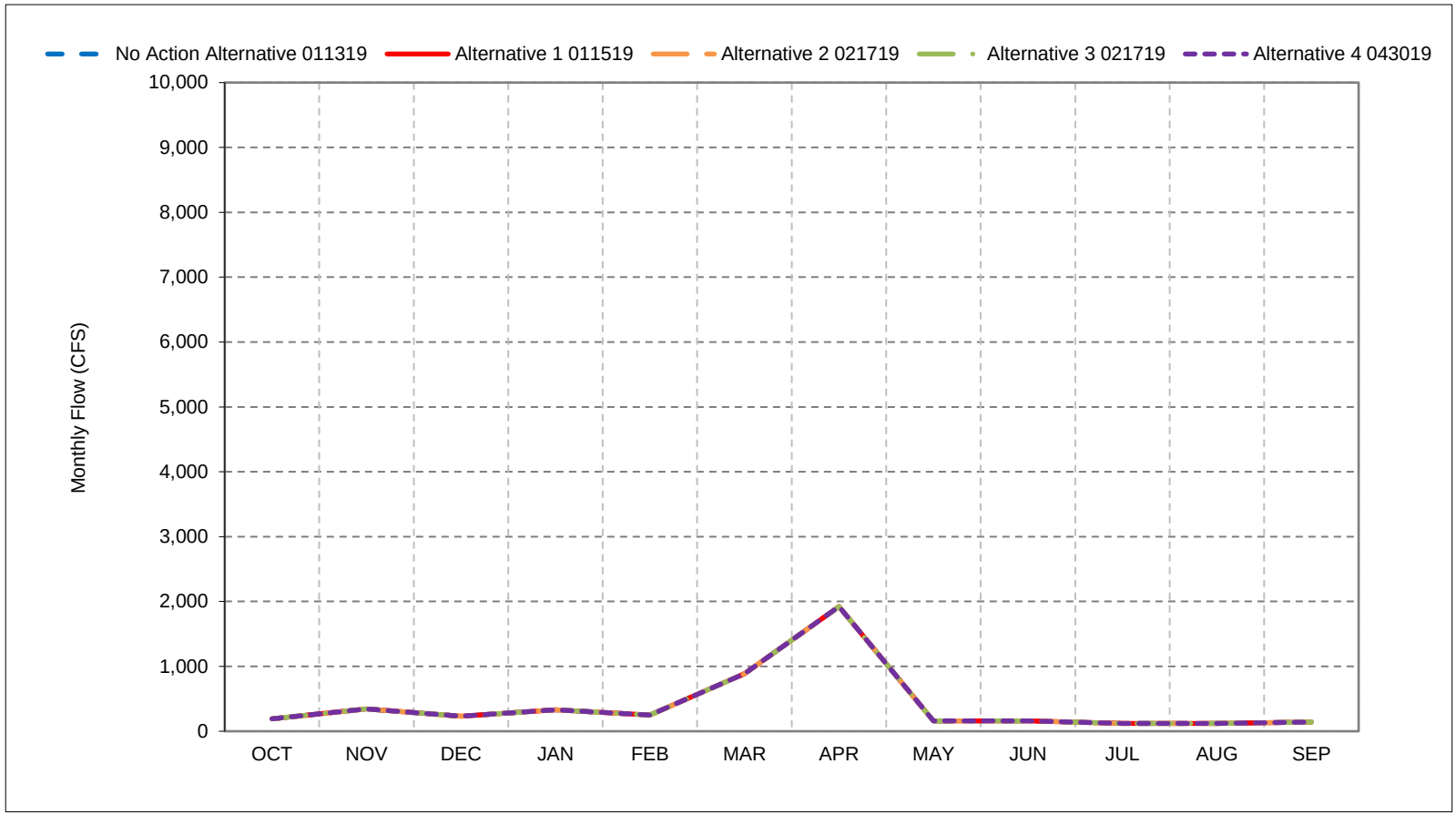

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 33-3. San Joaquin River Flow at Gravelly Ford, Above Normal Year Average Flow



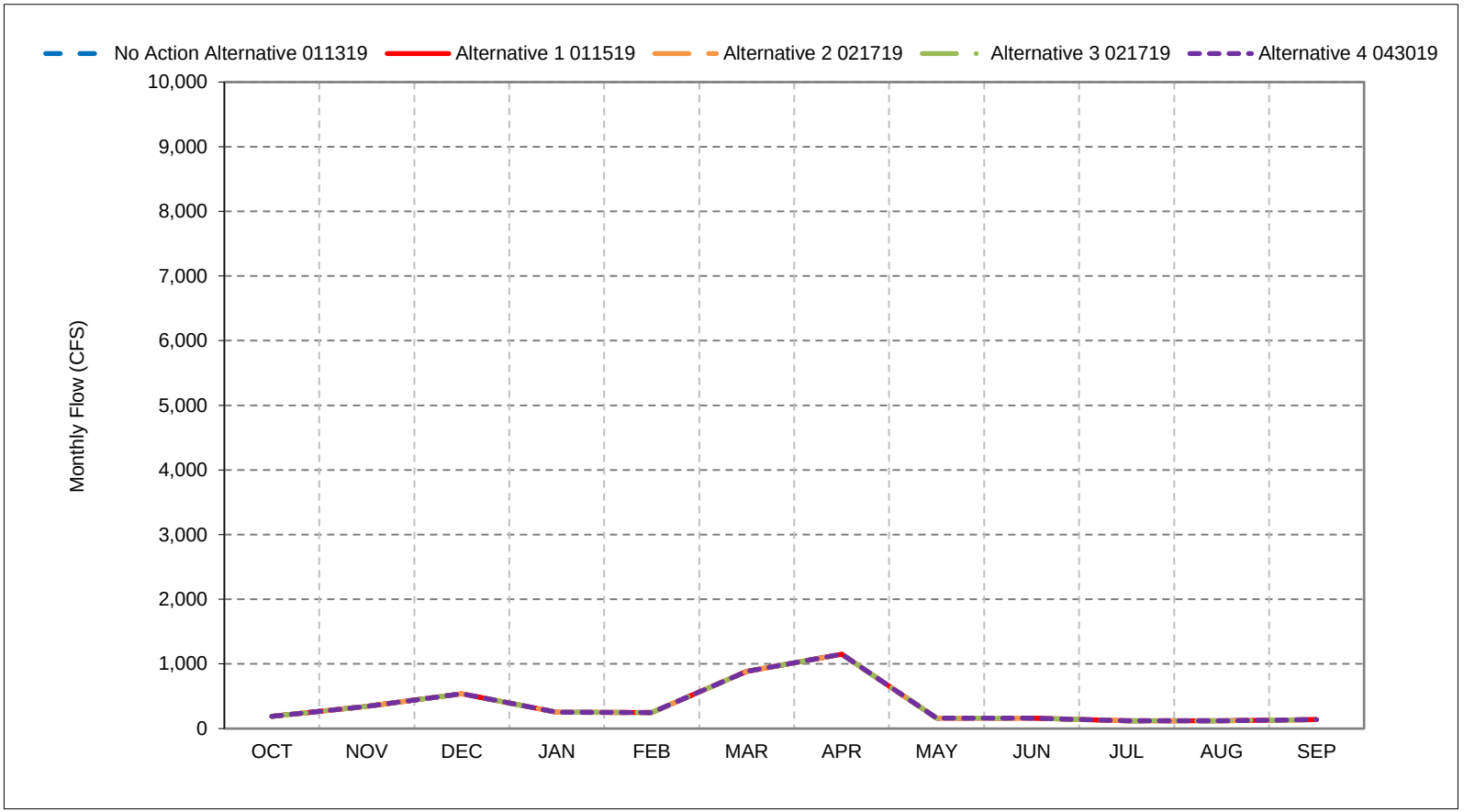

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 33-4. San Joaquin River Flow at Gravelly Ford, Below Normal Year Average Flow



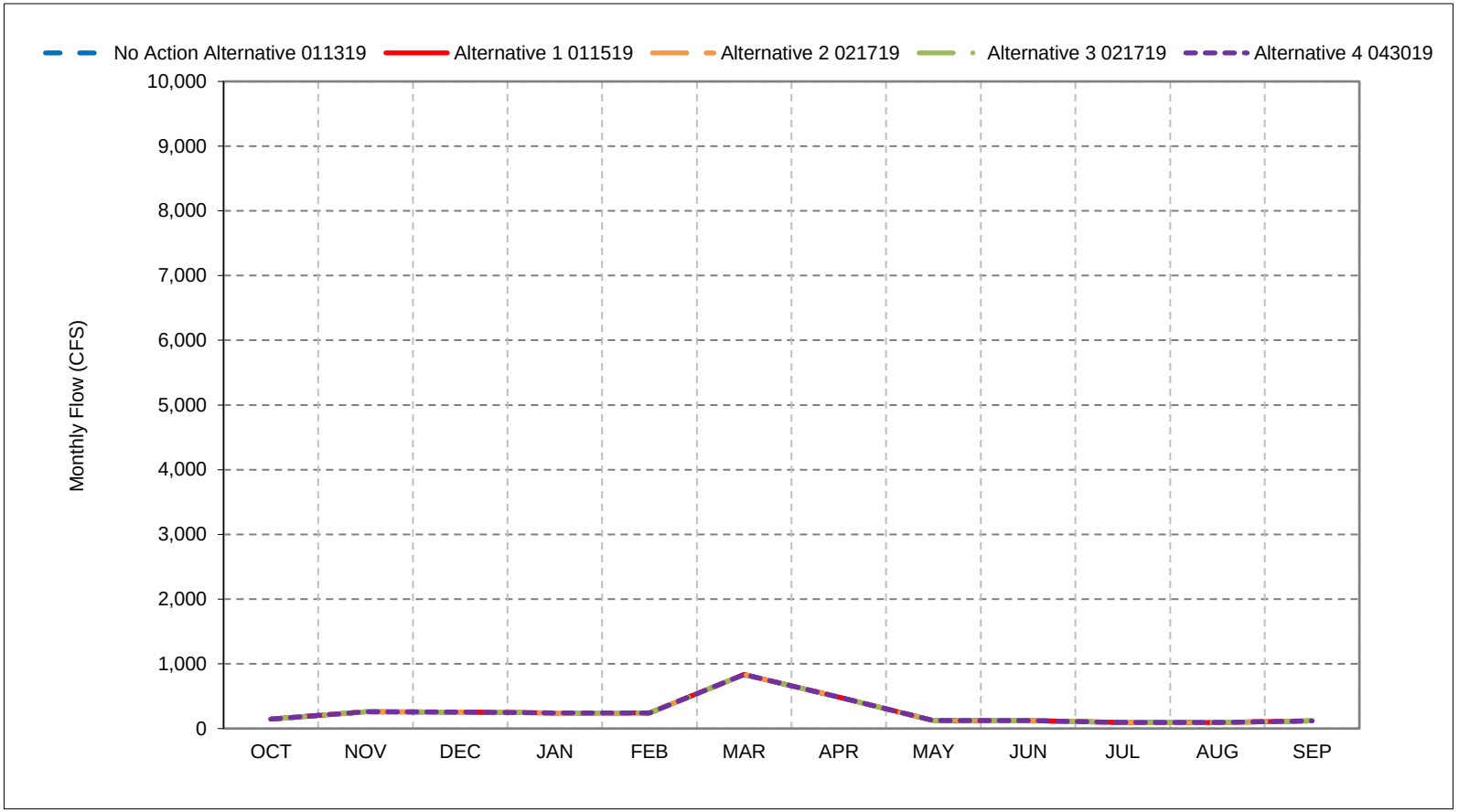

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 33-5. San Joaquin River Flow at Gravelly Ford, Dry Year Average Flow



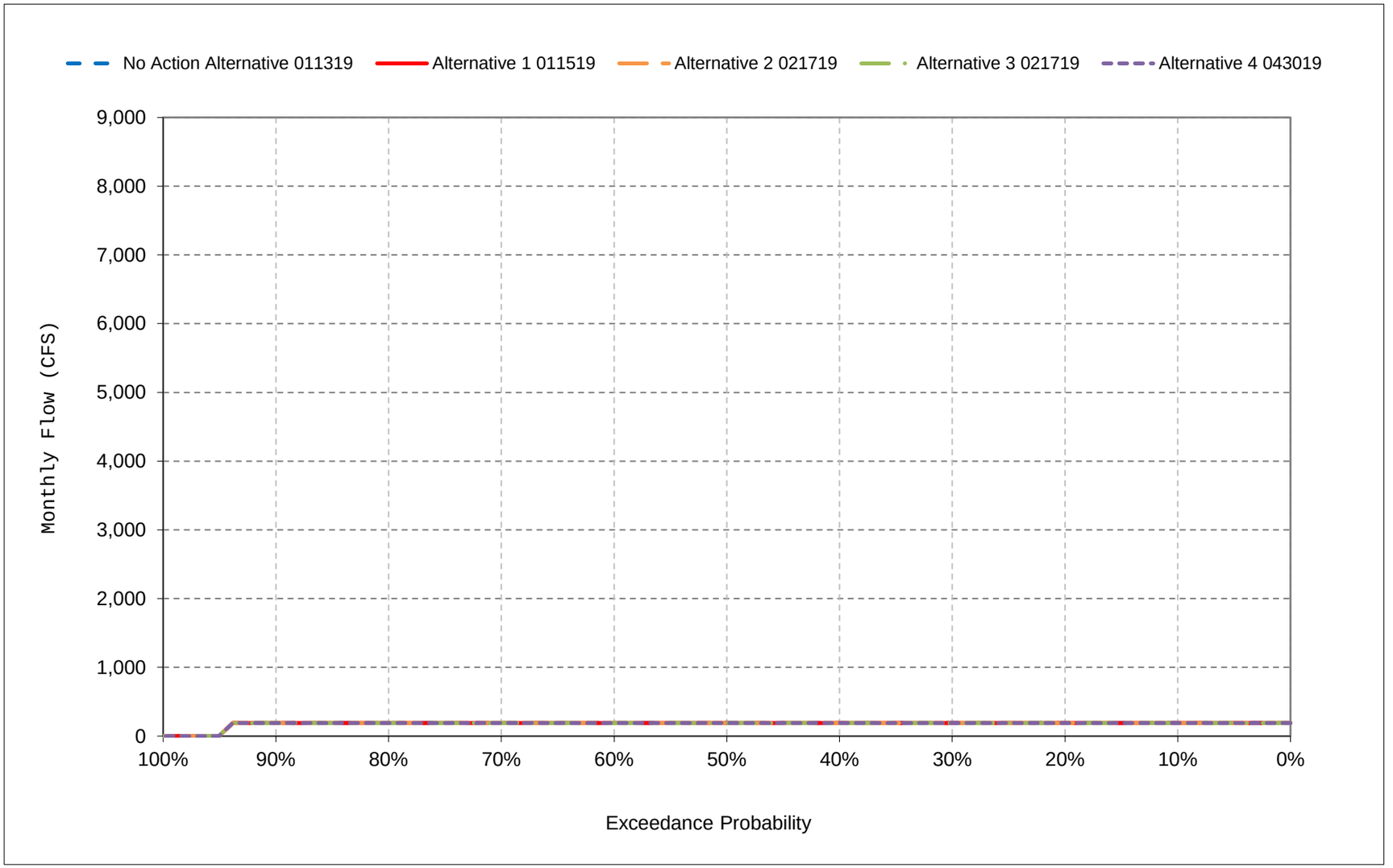

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 33-6. San Joaquin River Flow at Gravelly Ford, Critical Year Average Flow




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

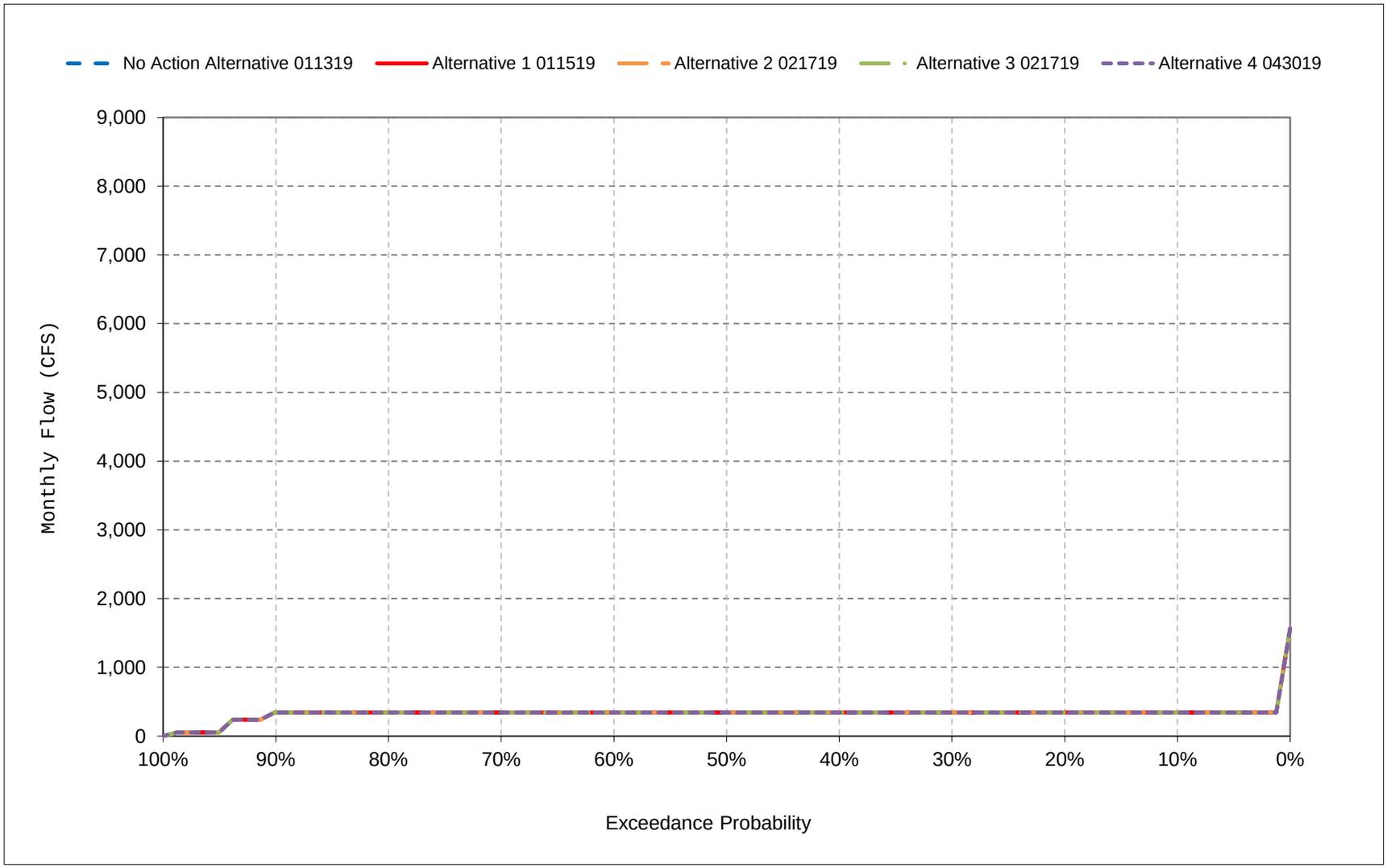
**Figure 33-7. San Joaquin River Flow at Gravelly Ford, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

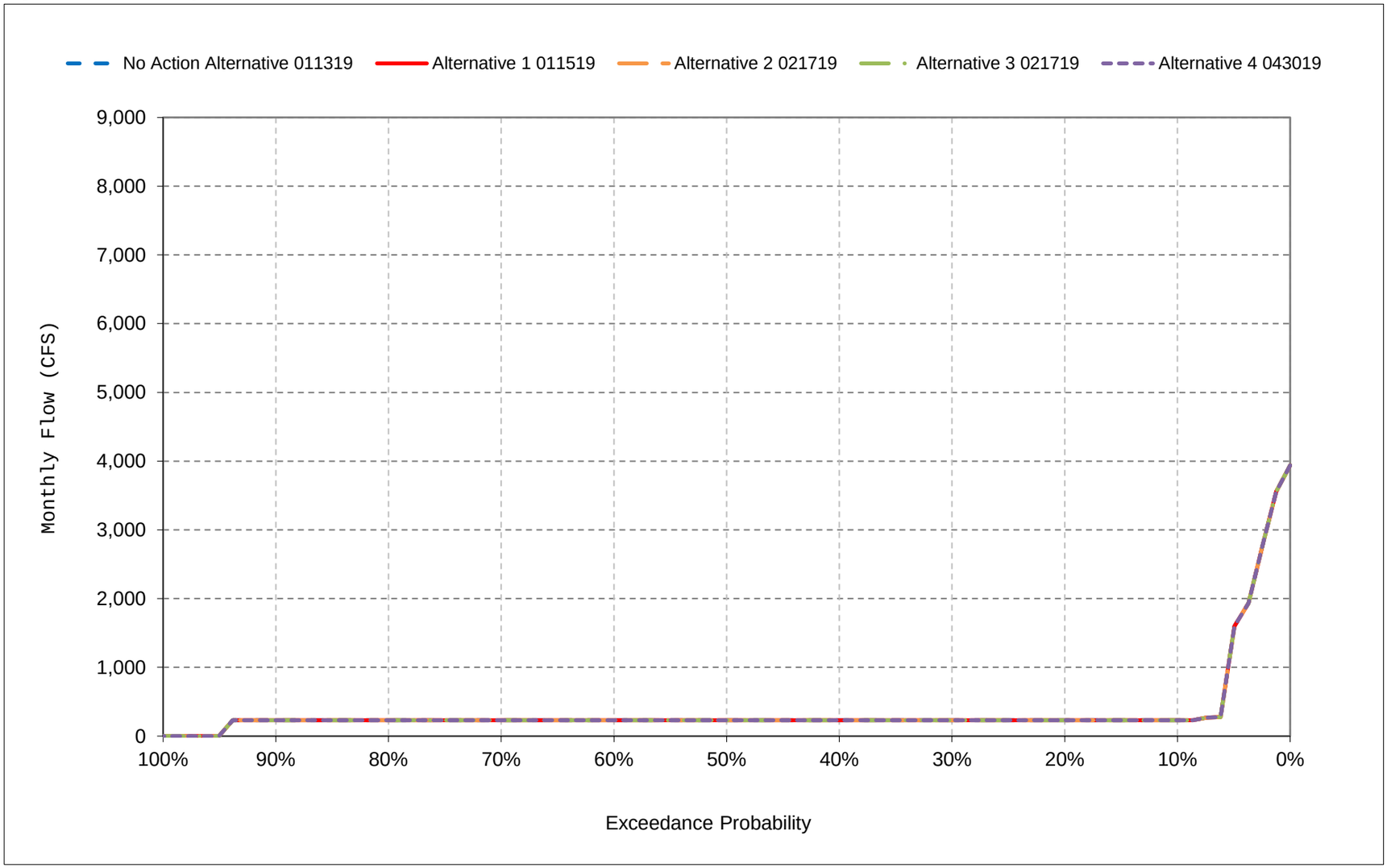
**Figure 33-8. San Joaquin River Flow at Gravelly Ford, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

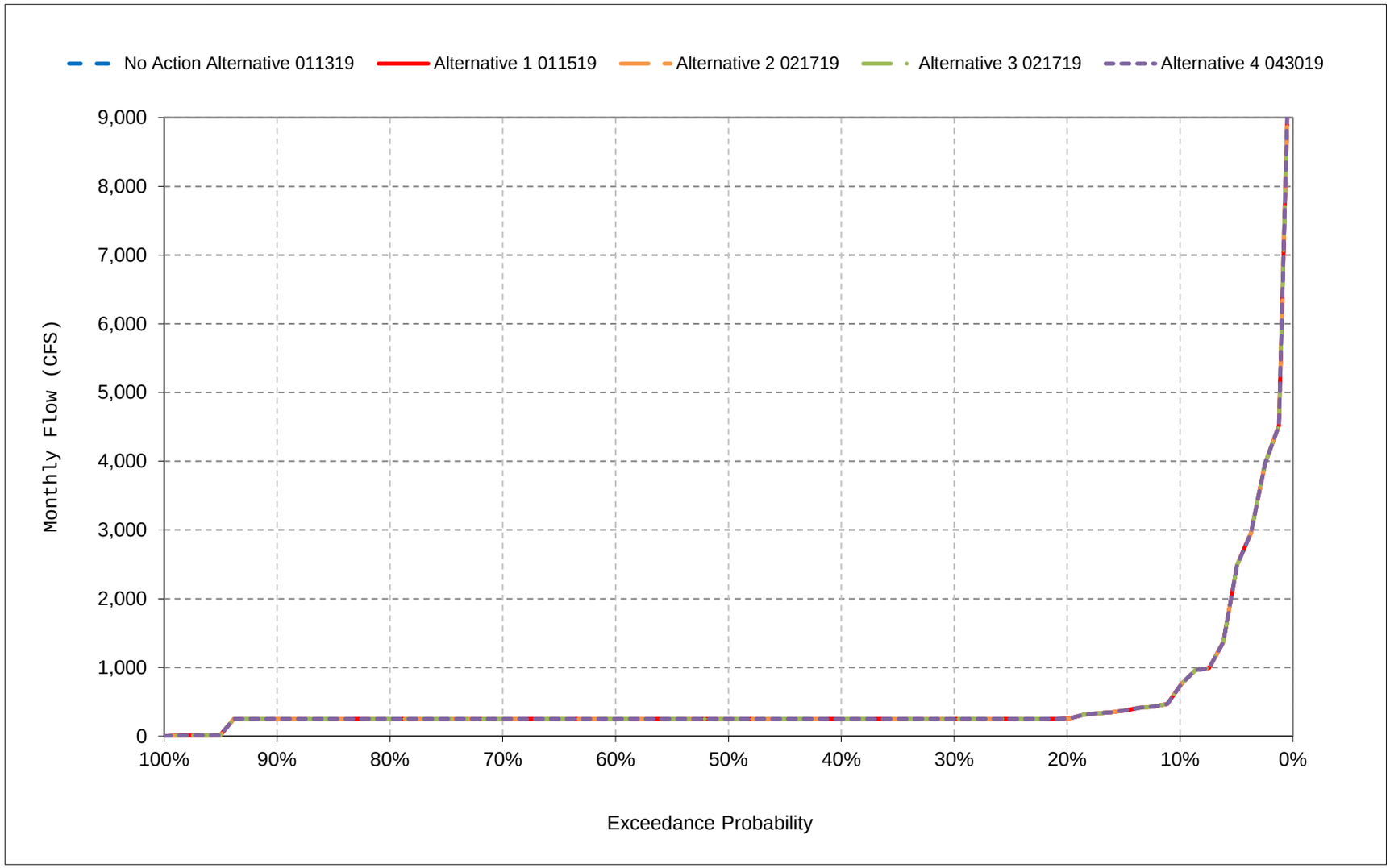
**Figure 33-9. San Joaquin River Flow at Gravelly Ford, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

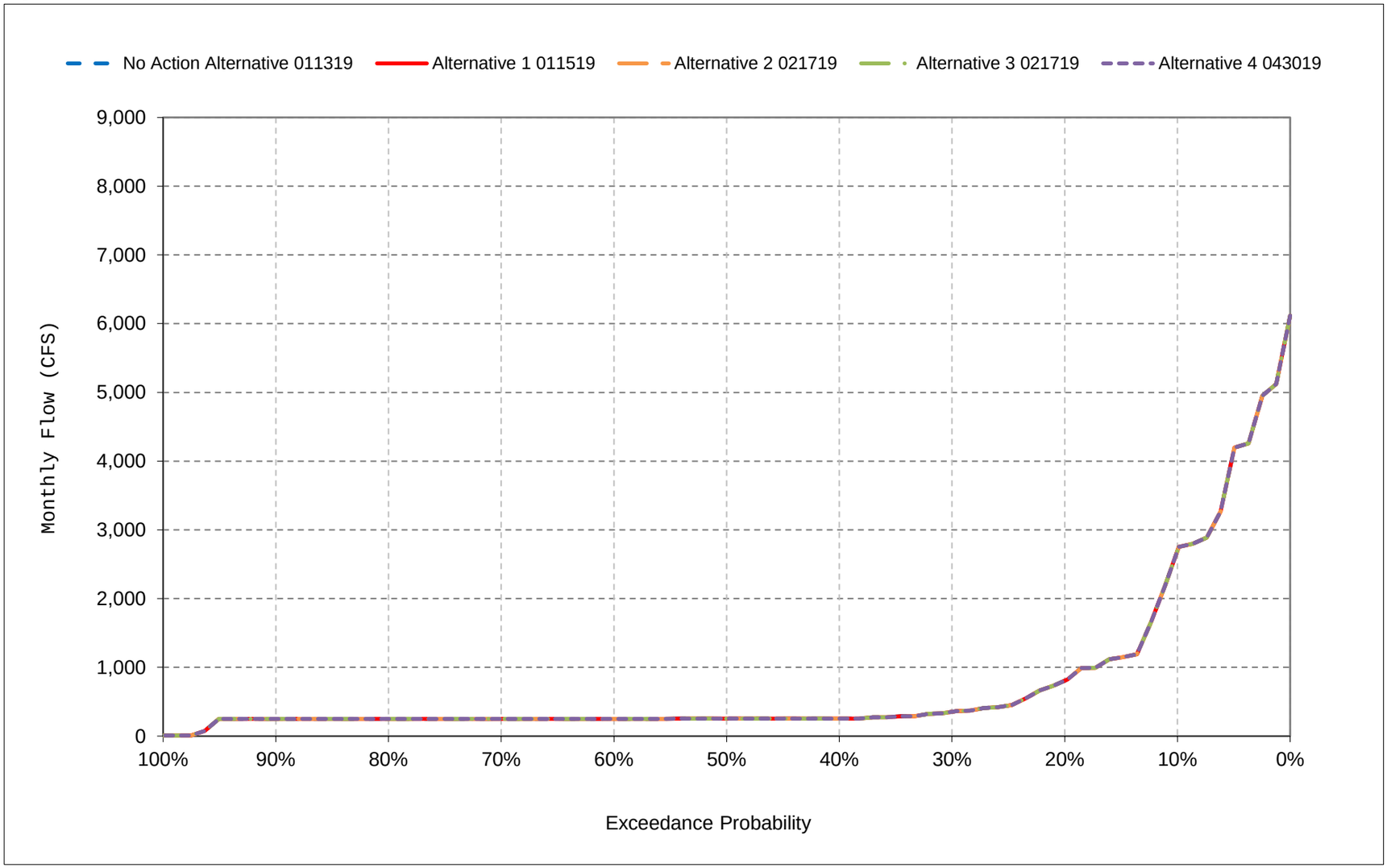
**Figure 33-10. San Joaquin River Flow at Gravelly Ford, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

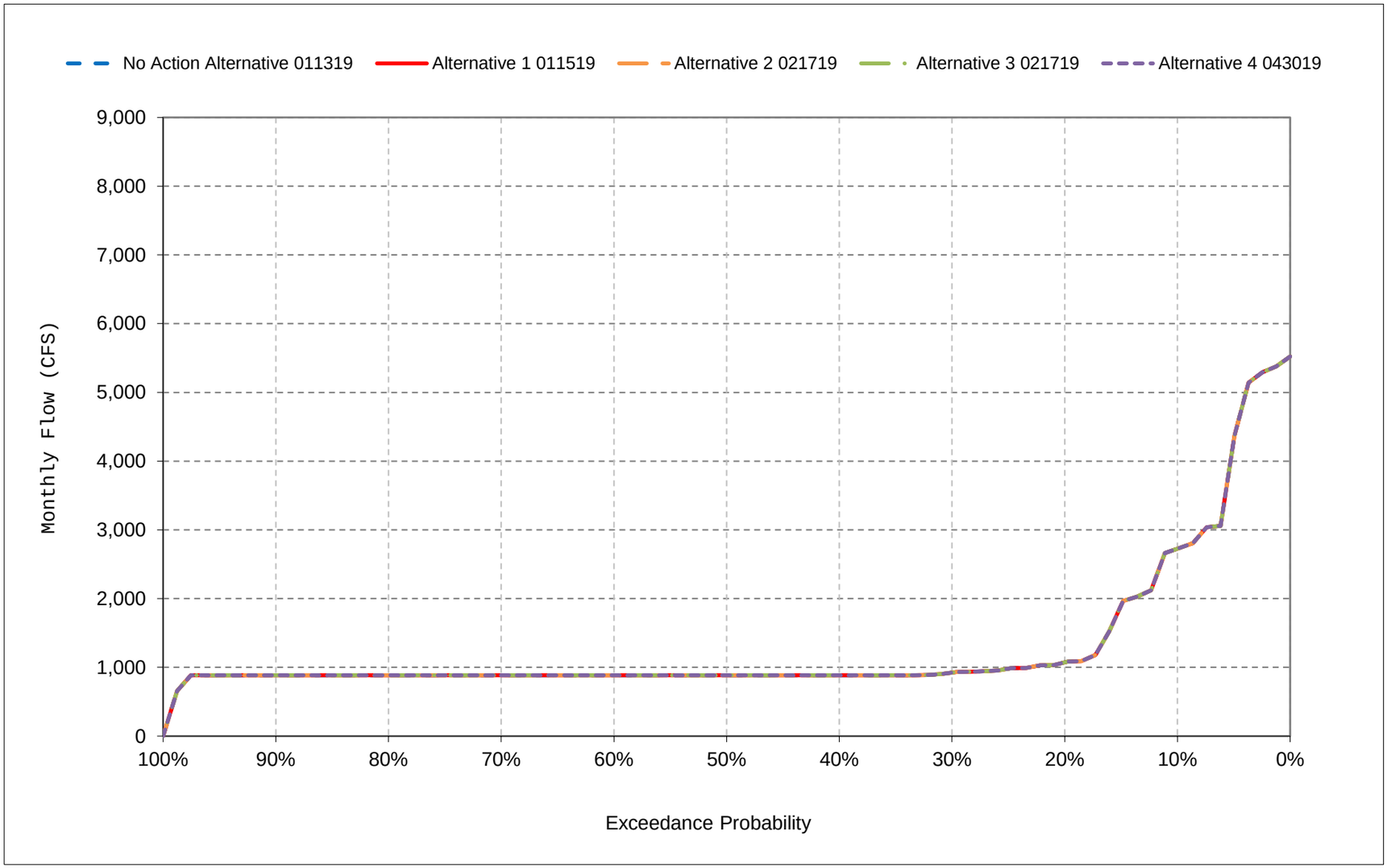
**Figure 33-11. San Joaquin River Flow at Gravelly Ford, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

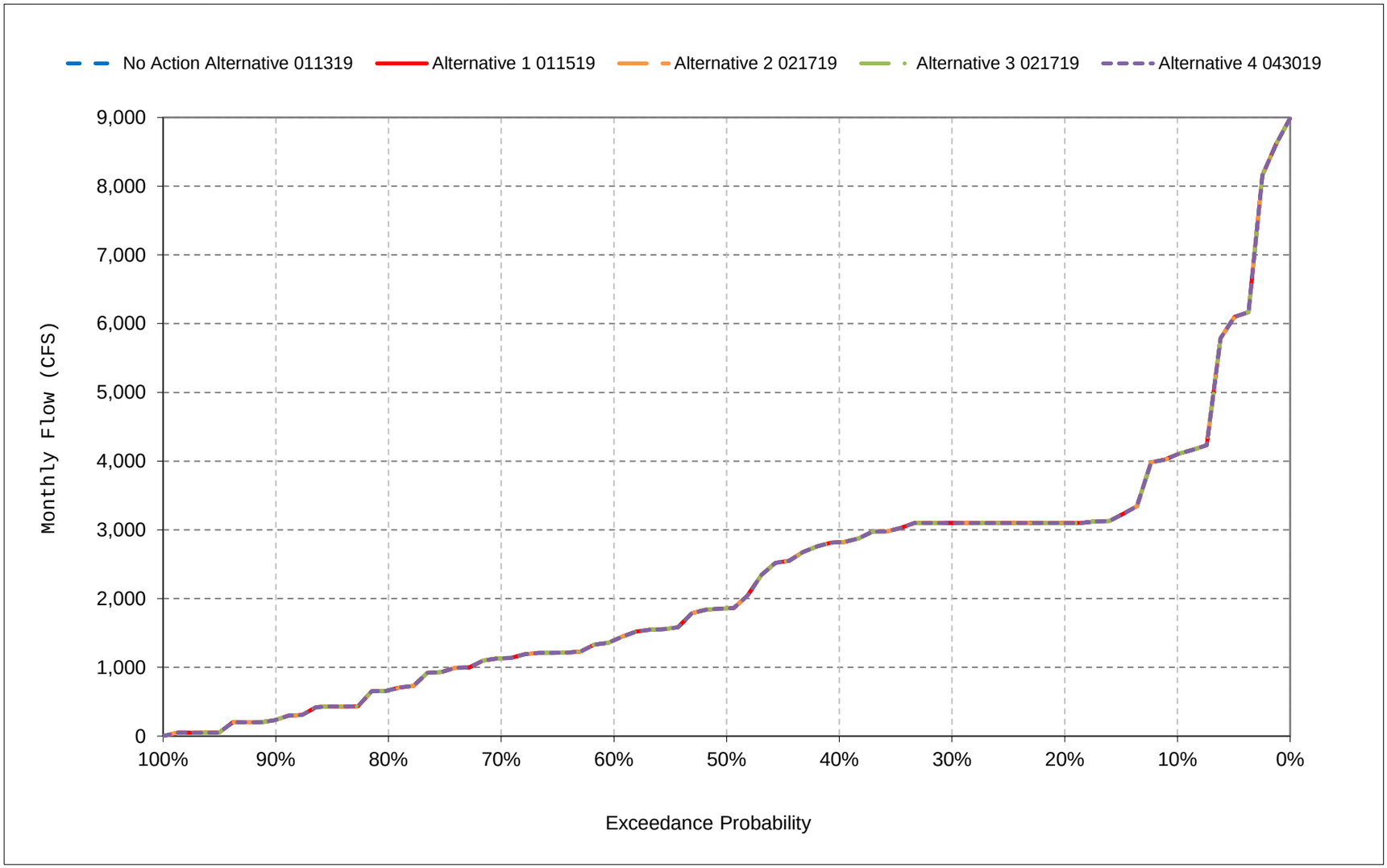
**Figure 33-12. San Joaquin River Flow at Gravelly Ford, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

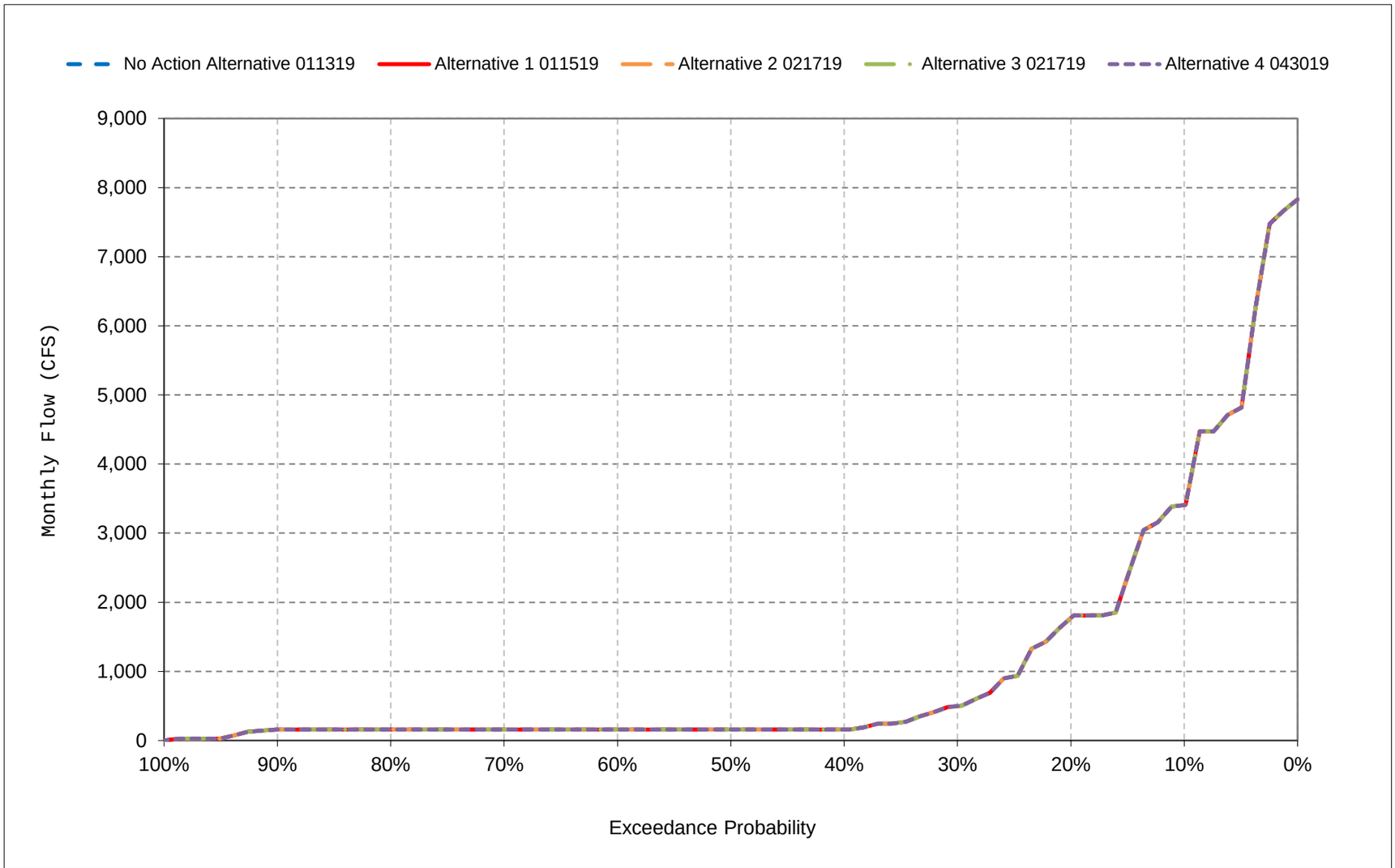
**Figure 33-13. San Joaquin River Flow at Gravelly Ford, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

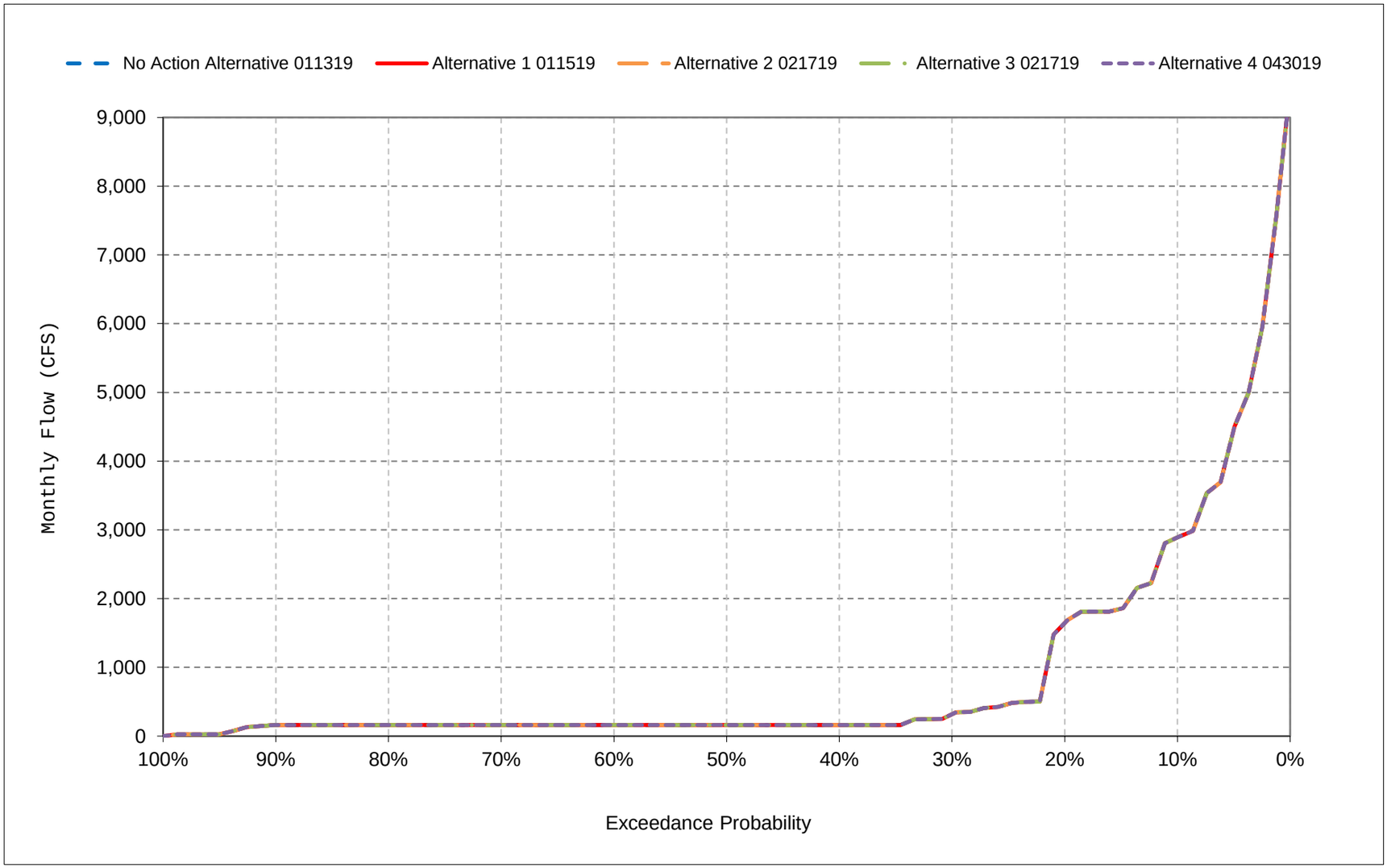
**Figure 33-14. San Joaquin River Flow at Gravelly Ford, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

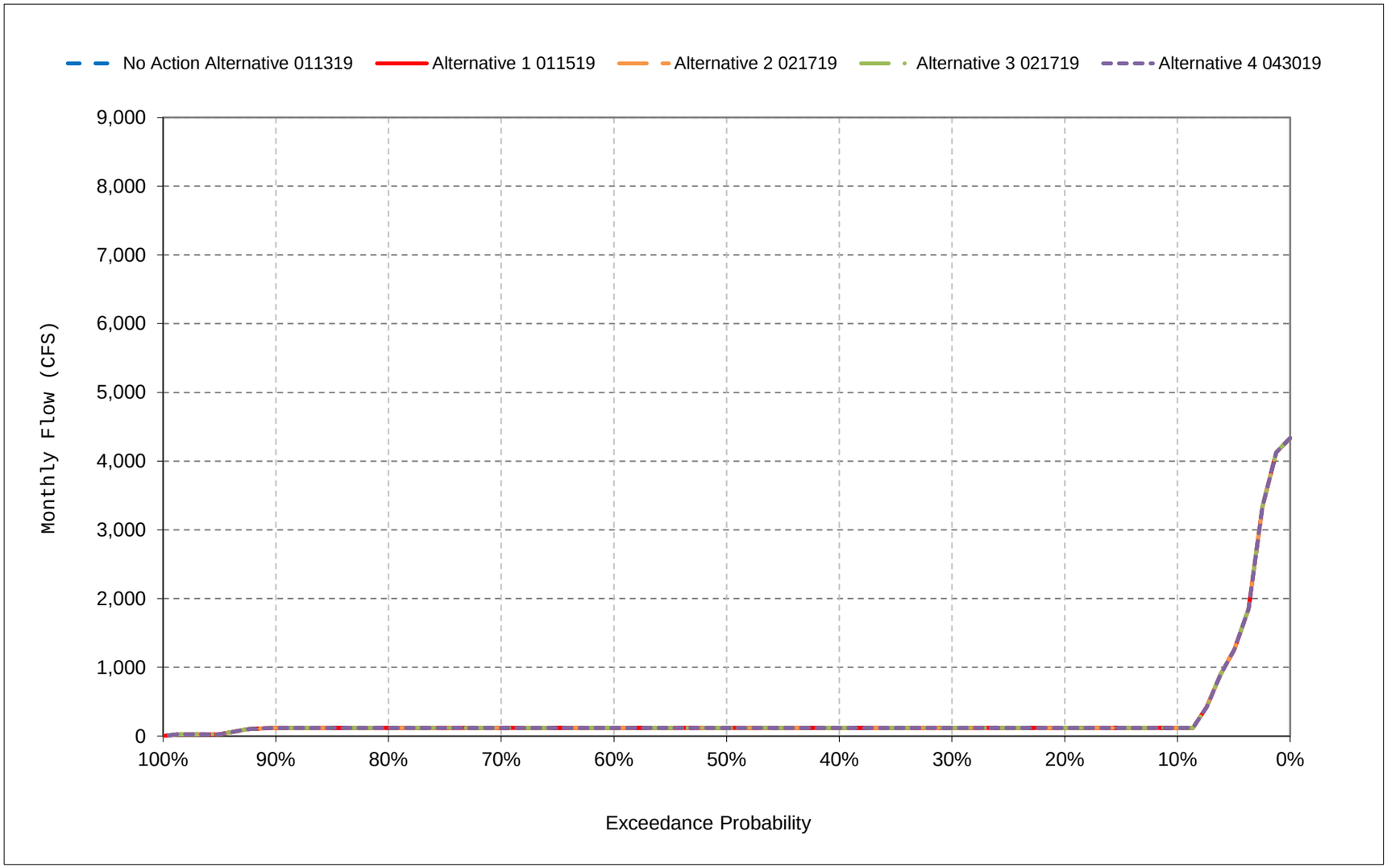
**Figure 33-15. San Joaquin River Flow at Gravelly Ford, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

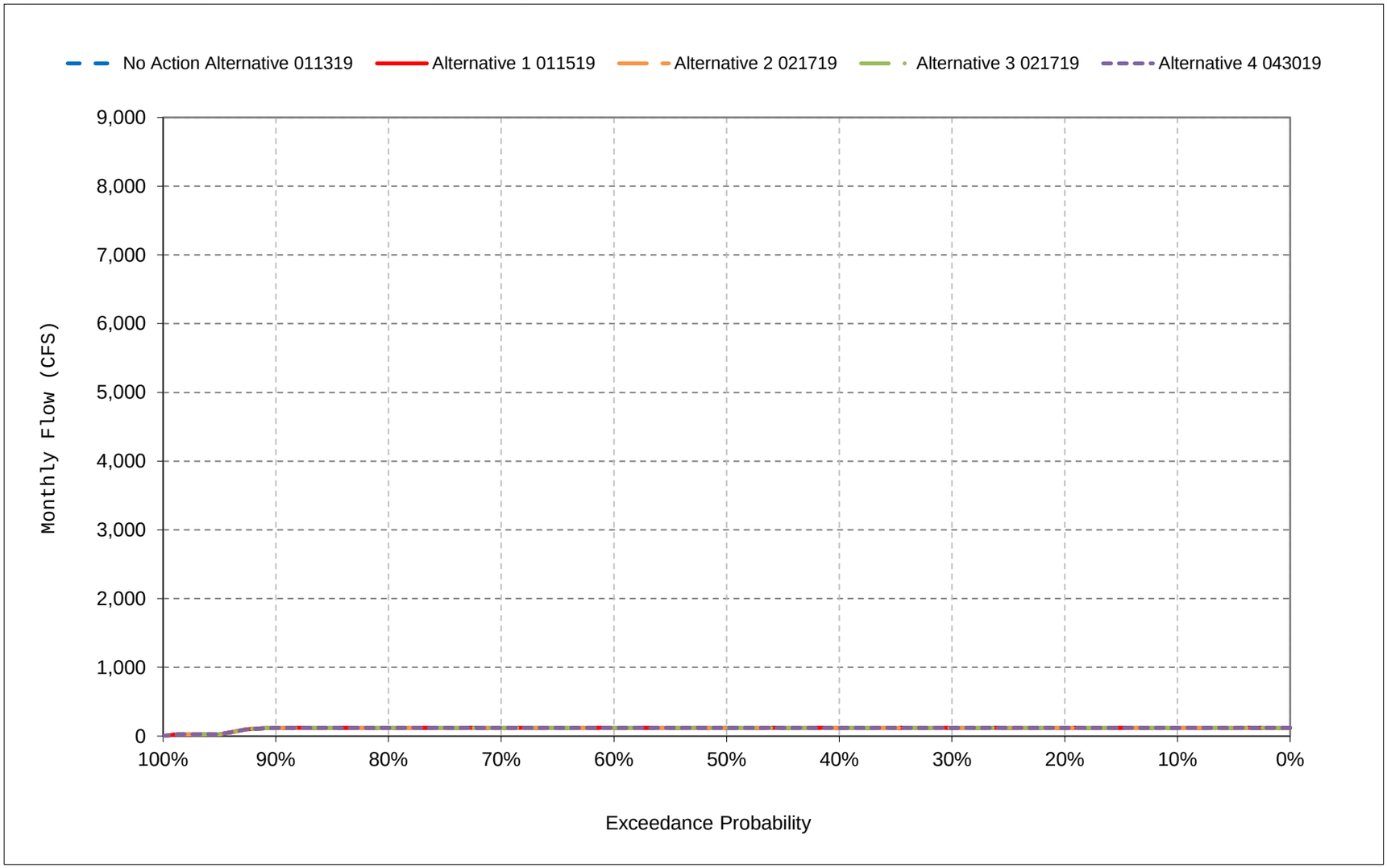
**Figure 33-16. San Joaquin River Flow at Gravelly Ford, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

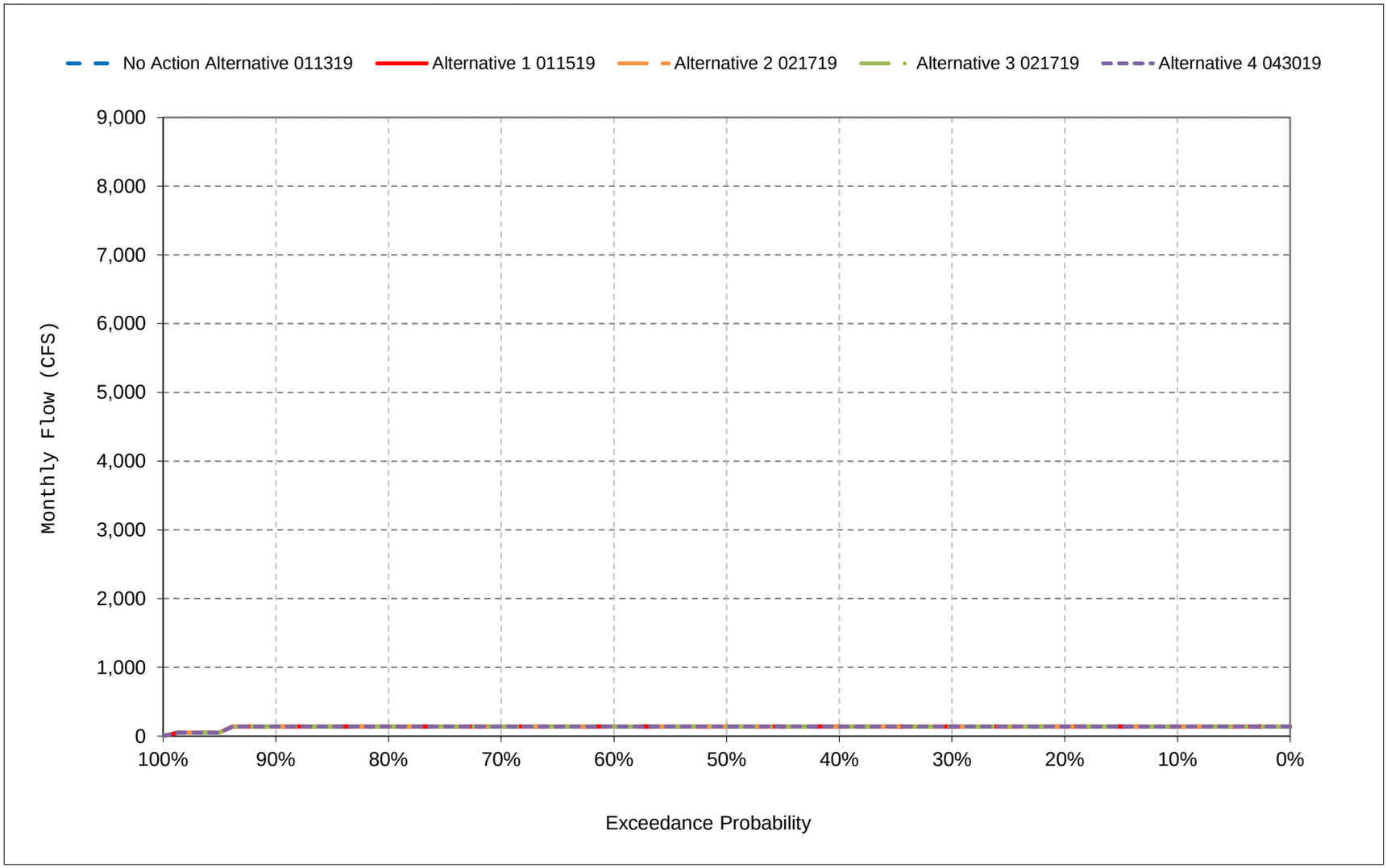
**Figure 33-17. San Joaquin River Flow at Gravelly Ford, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 33-18. San Joaquin River Flow at Gravelly Ford, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 34-1. San Joaquin River Flow below Sack Dam, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 86 | 232 | 123 | 1,034 | 1,172 | 1,492 | 3,803 | 3,955 | 1,706 | 20 | 20 | 38 |
| 20% | 86 | 232 | 123 | 143 | 377 | 747 | 2,850 | 1,432 | 457 | 20 | 20 | 38 |
| 30% | 86 | 232 | 123 | 143 | 145 | 747 | 2,850 | 137 | 138 | 20 | 20 | 38 |
| 40% | 86 | 232 | 123 | 143 | 145 | 747 | 2,585 | 57 | 57 | 20 | 20 | 38 |
| 50% | 86 | 232 | 123 | 143 | 142 | 747 | 1,670 | 57 | 57 | 20 | 20 | 38 |
| 60% | 86 | 232 | 123 | 143 | 142 | 747 | 1,228 | 57 | 57 | 20 | 20 | 38 |
| 70% | 86 | 232 | 123 | 143 | 142 | 747 | 980 | 57 | 57 | 20 | 20 | 38 |
| 80% | 86 | 232 | 123 | 143 | 142 | 747 | 539 | 57 | 57 | 20 | 20 | 38 |
| 90% | 86 | 232 | 123 | 143 | 142 | 747 | 131 | 57 | 57 | 20 | 20 | 38 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 86 | 263 | 274 | 456 | 493 | 1,041 | 2,074 | 806 | 584 | 67 | 18 | 36 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 110 | 442 | 610 | 1,262 | 1,519 | 1,987 | 4,330 | 3,074 | 2,204 | 231 | 20 | 38 |
| Above Normal (24%) | 86 | 232 | 167 | 302 | 293 | 826 | 2,631 | 280 | 199 | 20 | 20 | 38 |
| Below Normal (10%) | 86 | 232 | 123 | 310 | 107 | 747 | 1,731 | 57 | 57 | 20 | 20 | 38 |
| Dry (16%) | 86 | 232 | 260 | 143 | 142 | 747 | 998 | 57 | 57 | 20 | 20 | 38 |
| Critical (27%) | 67 | 165 | 147 | 137 | 136 | 703 | 380 | 39 | 40 | 13 | 13 | 29 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 86 | 232 | 123 | 1,033 | 1,160 | 1,488 | 3,802 | 3,955 | 1,706 | 20 | 20 | 38 |
| 20% | 86 | 232 | 123 | 143 | 381 | 747 | 2,850 | 1,429 | 457 | 20 | 20 | 38 |
| 30% | 86 | 232 | 123 | 143 | 145 | 747 | 2,850 | 137 | 138 | 20 | 20 | 38 |
| 40% | 86 | 232 | 123 | 143 | 145 | 747 | 2,585 | 57 | 57 | 20 | 20 | 38 |
| 50% | 86 | 232 | 123 | 143 | 142 | 747 | 1,670 | 57 | 57 | 20 | 20 | 38 |
| 60% | 86 | 232 | 123 | 143 | 142 | 747 | 1,228 | 57 | 57 | 20 | 20 | 38 |
| 70% | 86 | 232 | 123 | 143 | 142 | 747 | 980 | 57 | 57 | 20 | 20 | 38 |
| 80% | 86 | 232 | 123 | 143 | 142 | 747 | 539 | 57 | 57 | 20 | 20 | 38 |
| 90% | 86 | 232 | 123 | 143 | 142 | 747 | 131 | 57 | 57 | 20 | 20 | 38 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 86 | 263 | 274 | 455 | 491 | 1,040 | 2,073 | 805 | 584 | 67 | 18 | 36 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 110 | 442 | 610 | 1,260 | 1,511 | 1,982 | 4,327 | 3,072 | 2,203 | 230 | 20 | 38 |
| Above Normal (24%) | 86 | 232 | 167 | 301 | 292 | 825 | 2,631 | 279 | 199 | 20 | 20 | 38 |
| Below Normal (10%) | 86 | 232 | 123 | 310 | 107 | 747 | 1,731 | 57 | 57 | 20 | 20 | 38 |
| Dry (16%) | 86 | 232 | 260 | 143 | 142 | 747 | 998 | 57 | 57 | 20 | 20 | 38 |
| Critical (27%) | 67 | 165 | 147 | 137 | 136 | 703 | 380 | 39 | 40 | 13 | 13 | 29 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | **0** | **-12** | **-3** | **-1** | **0** | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 4 | 0 | 0 | **-3** | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | **0** | **0** | **-2** | **-1** | **-1** | **-1** | **0** | **0** | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | **0** | **-1** | **-7** | **-4** | **-3** | **-2** | **-1** | **0** | 0 | 0 |
| Above Normal (24%) | 0 | 0 | **0** | **0** | **-1** | **-1** | **0** | **-1** | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (27%) | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 34-2. San Joaquin River Flow below Sack Dam, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 86 | 232 | 123 | 1,034 | 1,172 | 1,492 | 3,803 | 3,955 | 1,706 | 20 | 20 | 38 |
| 20% | 86 | 232 | 123 | 143 | 377 | 747 | 2,850 | 1,432 | 457 | 20 | 20 | 38 |
| 30% | 86 | 232 | 123 | 143 | 145 | 747 | 2,850 | 137 | 138 | 20 | 20 | 38 |
| 40% | 86 | 232 | 123 | 143 | 145 | 747 | 2,585 | 57 | 57 | 20 | 20 | 38 |
| 50% | 86 | 232 | 123 | 143 | 142 | 747 | 1,670 | 57 | 57 | 20 | 20 | 38 |
| 60% | 86 | 232 | 123 | 143 | 142 | 747 | 1,228 | 57 | 57 | 20 | 20 | 38 |
| 70% | 86 | 232 | 123 | 143 | 142 | 747 | 980 | 57 | 57 | 20 | 20 | 38 |
| 80% | 86 | 232 | 123 | 143 | 142 | 747 | 539 | 57 | 57 | 20 | 20 | 38 |
| 90% | 86 | 232 | 123 | 143 | 142 | 747 | 131 | 57 | 57 | 20 | 20 | 38 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 86 | 263 | 274 | 456 | 493 | 1,041 | 2,074 | 806 | 584 | 67 | 18 | 36 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 110 | 442 | 610 | 1,262 | 1,519 | 1,987 | 4,330 | 3,074 | 2,204 | 231 | 20 | 38 |
| Above Normal (24%) | 86 | 232 | 167 | 302 | 293 | 826 | 2,631 | 280 | 199 | 20 | 20 | 38 |
| Below Normal (10%) | 86 | 232 | 123 | 310 | 107 | 747 | 1,731 | 57 | 57 | 20 | 20 | 38 |
| Dry (16%) | 86 | 232 | 260 | 143 | 142 | 747 | 998 | 57 | 57 | 20 | 20 | 38 |
| Critical (27%) | 67 | 165 | 147 | 137 | 136 | 703 | 380 | 39 | 40 | 13 | 13 | 29 |

## Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 86 | 232 | 123 | 1,033 | 1,155 | 1,488 | 3,802 | 3,953 | 1,706 | 20 | 20 | 38 |
| 20% | 86 | 232 | 123 | 143 | 356 | 747 | 2,850 | 1,429 | 457 | 20 | 20 | 38 |
| 30% | 86 | 232 | 123 | 143 | 145 | 747 | 2,850 | 137 | 138 | 20 | 20 | 38 |
| 40% | 86 | 232 | 123 | 143 | 145 | 747 | 2,585 | 57 | 57 | 20 | 20 | 38 |
| 50% | 86 | 232 | 123 | 143 | 142 | 747 | 1,670 | 57 | 57 | 20 | 20 | 38 |
| 60% | 86 | 232 | 123 | 143 | 142 | 747 | 1,228 | 57 | 57 | 20 | 20 | 38 |
| 70% | 86 | 232 | 123 | 143 | 142 | 747 | 980 | 57 | 57 | 20 | 20 | 38 |
| 80% | 86 | 232 | 123 | 143 | 142 | 747 | 539 | 57 | 57 | 20 | 20 | 38 |
| 90% | 86 | 232 | 123 | 143 | 142 | 747 | 131 | 57 | 57 | 20 | 20 | 38 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 86 | 263 | 274 | 455 | 490 | 1,040 | 2,073 | 805 | 584 | 67 | 18 | 36 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 110 | 442 | 610 | 1,260 | 1,507 | 1,981 | 4,326 | 3,071 | 2,203 | 230 | 20 | 38 |
| Above Normal (24%) | 86 | 232 | 167 | 301 | 292 | 825 | 2,631 | 279 | 199 | 20 | 20 | 38 |
| Below Normal (10%) | 86 | 232 | 123 | 310 | 107 | 747 | 1,731 | 57 | 57 | 20 | 20 | 38 |
| Dry (16%) | 86 | 232 | 260 | 143 | 142 | 747 | 998 | 57 | 57 | 20 | 20 | 38 |
| Critical (27%) | 67 | 165 | 147 | 137 | 136 | 703 | 380 | 39 | 40 | 13 | 13 | 29 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | -1 | -17 | -4 | -2 | -2 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | -22 | 0 | 0 | -3 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | 0 | -3 | -2 | -1 | -1 | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | -1 | -12 | -6 | -4 | -3 | -1 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | -1 | -1 | 0 | -1 | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (27%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 34-3. San Joaquin River Flow below Sack Dam, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 86 | 232 | 123 | 1,034 | 1,172 | 1,492 | 3,803 | 3,955 | 1,706 | 20 | 20 | 38 |
| 20% | 86 | 232 | 123 | 143 | 377 | 747 | 2,850 | 1,432 | 457 | 20 | 20 | 38 |
| 30% | 86 | 232 | 123 | 143 | 145 | 747 | 2,850 | 137 | 138 | 20 | 20 | 38 |
| 40% | 86 | 232 | 123 | 143 | 145 | 747 | 2,585 | 57 | 57 | 20 | 20 | 38 |
| 50% | 86 | 232 | 123 | 143 | 142 | 747 | 1,670 | 57 | 57 | 20 | 20 | 38 |
| 60% | 86 | 232 | 123 | 143 | 142 | 747 | 1,228 | 57 | 57 | 20 | 20 | 38 |
| 70% | 86 | 232 | 123 | 143 | 142 | 747 | 980 | 57 | 57 | 20 | 20 | 38 |
| 80% | 86 | 232 | 123 | 143 | 142 | 747 | 539 | 57 | 57 | 20 | 20 | 38 |
| 90% | 86 | 232 | 123 | 143 | 142 | 747 | 131 | 57 | 57 | 20 | 20 | 38 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 86 | 263 | 274 | 456 | 493 | 1,041 | 2,074 | 806 | 584 | 67 | 18 | 36 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 110 | 442 | 610 | 1,262 | 1,519 | 1,987 | 4,330 | 3,074 | 2,204 | 231 | 20 | 38 |
| Above Normal (24%) | 86 | 232 | 167 | 302 | 293 | 826 | 2,631 | 280 | 199 | 20 | 20 | 38 |
| Below Normal (10%) | 86 | 232 | 123 | 310 | 107 | 747 | 1,731 | 57 | 57 | 20 | 20 | 38 |
| Dry (16%) | 86 | 232 | 260 | 143 | 142 | 747 | 998 | 57 | 57 | 20 | 20 | 38 |
| Critical (27%) | 67 | 165 | 147 | 137 | 136 | 703 | 380 | 39 | 40 | 13 | 13 | 29 |

### Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 86 | 232 | 123 | 1,033 | 1,155 | 1,488 | 3,801 | 3,954 | 1,706 | 20 | 20 | 38 |
| 20% | 86 | 232 | 123 | 143 | 358 | 747 | 2,850 | 1,429 | 457 | 20 | 20 | 38 |
| 30% | 86 | 232 | 123 | 143 | 145 | 747 | 2,850 | 137 | 138 | 20 | 20 | 38 |
| 40% | 86 | 232 | 123 | 143 | 145 | 747 | 2,585 | 57 | 57 | 20 | 20 | 38 |
| 50% | 86 | 232 | 123 | 143 | 142 | 747 | 1,670 | 57 | 57 | 20 | 20 | 38 |
| 60% | 86 | 232 | 123 | 143 | 142 | 747 | 1,228 | 57 | 57 | 20 | 20 | 38 |
| 70% | 86 | 232 | 123 | 143 | 142 | 747 | 980 | 57 | 57 | 20 | 20 | 38 |
| 80% | 86 | 232 | 123 | 143 | 142 | 747 | 539 | 57 | 57 | 20 | 20 | 38 |
| 90% | 86 | 232 | 123 | 143 | 142 | 747 | 131 | 57 | 57 | 20 | 20 | 38 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 86 | 263 | 274 | 455 | 490 | 1,040 | 2,073 | 805 | 584 | 67 | 18 | 36 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 110 | 442 | 610 | 1,260 | 1,508 | 1,981 | 4,326 | 3,072 | 2,203 | 230 | 20 | 38 |
| Above Normal (24%) | 86 | 232 | 167 | 301 | 292 | 825 | 2,631 | 279 | 199 | 20 | 20 | 38 |
| Below Normal (10%) | 86 | 232 | 123 | 310 | 107 | 747 | 1,731 | 57 | 57 | 20 | 20 | 38 |
| Dry (16%) | 86 | 232 | 260 | 143 | 142 | 747 | 998 | 57 | 57 | 20 | 20 | 38 |
| Critical (27%) | 67 | 165 | 147 | 137 | 136 | 703 | 380 | 39 | 40 | 13 | 13 | 29 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | -1 | -18 | -4 | -2 | -1 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | -19 | 0 | 0 | -3 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | 0 | -3 | -1 | -1 | -1 | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | -1 | -11 | -5 | -4 | -2 | -1 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | -1 | -1 | 0 | -1 | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (27%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 34-4. San Joaquin River Flow below Sack Dam, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 86 | 232 | 123 | 1,034 | 1,172 | 1,492 | 3,803 | 3,955 | 1,706 | 20 | 20 | 38 |
| 20% | 86 | 232 | 123 | 143 | 377 | 747 | 2,850 | 1,432 | 457 | 20 | 20 | 38 |
| 30% | 86 | 232 | 123 | 143 | 145 | 747 | 2,850 | 137 | 138 | 20 | 20 | 38 |
| 40% | 86 | 232 | 123 | 143 | 145 | 747 | 2,585 | 57 | 57 | 20 | 20 | 38 |
| 50% | 86 | 232 | 123 | 143 | 142 | 747 | 1,670 | 57 | 57 | 20 | 20 | 38 |
| 60% | 86 | 232 | 123 | 143 | 142 | 747 | 1,228 | 57 | 57 | 20 | 20 | 38 |
| 70% | 86 | 232 | 123 | 143 | 142 | 747 | 980 | 57 | 57 | 20 | 20 | 38 |
| 80% | 86 | 232 | 123 | 143 | 142 | 747 | 539 | 57 | 57 | 20 | 20 | 38 |
| 90% | 86 | 232 | 123 | 143 | 142 | 747 | 131 | 57 | 57 | 20 | 20 | 38 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 86 | 263 | 274 | 456 | 493 | 1,041 | 2,074 | 806 | 584 | 67 | 18 | 36 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 110 | 442 | 610 | 1,262 | 1,519 | 1,987 | 4,330 | 3,074 | 2,204 | 231 | 20 | 38 |
| Above Normal (24%) | 86 | 232 | 167 | 302 | 293 | 826 | 2,631 | 280 | 199 | 20 | 20 | 38 |
| Below Normal (10%) | 86 | 232 | 123 | 310 | 107 | 747 | 1,731 | 57 | 57 | 20 | 20 | 38 |
| Dry (16%) | 86 | 232 | 260 | 143 | 142 | 747 | 998 | 57 | 57 | 20 | 20 | 38 |
| Critical (27%) | 67 | 165 | 147 | 137 | 136 | 703 | 380 | 39 | 40 | 13 | 13 | 29 |

## Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 86 | 232 | 123 | 1,035 | 1,186 | 1,492 | 3,806 | 3,955 | 1,706 | 20 | 20 | 38 |
| 20% | 86 | 232 | 123 | 143 | 391 | 747 | 2,850 | 1,429 | 457 | 20 | 20 | 38 |
| 30% | 86 | 232 | 123 | 143 | 145 | 747 | 2,850 | 137 | 138 | 20 | 20 | 38 |
| 40% | 86 | 232 | 123 | 143 | 145 | 747 | 2,585 | 57 | 57 | 20 | 20 | 38 |
| 50% | 86 | 232 | 123 | 143 | 142 | 747 | 1,670 | 57 | 57 | 20 | 20 | 38 |
| 60% | 86 | 232 | 123 | 143 | 142 | 747 | 1,228 | 57 | 57 | 20 | 20 | 38 |
| 70% | 86 | 232 | 123 | 143 | 142 | 747 | 980 | 57 | 57 | 20 | 20 | 38 |
| 80% | 86 | 232 | 123 | 143 | 142 | 747 | 539 | 57 | 57 | 20 | 20 | 38 |
| 90% | 86 | 232 | 123 | 143 | 142 | 747 | 131 | 57 | 57 | 20 | 20 | 38 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 86 | 263 | 274 | 455 | 493 | 1,041 | 2,073 | 805 | 584 | 67 | 18 | 36 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 110 | 442 | 610 | 1,261 | 1,519 | 1,985 | 4,327 | 3,072 | 2,203 | 230 | 20 | 38 |
| Above Normal (24%) | 86 | 232 | 167 | 302 | 293 | 826 | 2,631 | 279 | 199 | 20 | 20 | 38 |
| Below Normal (10%) | 86 | 232 | 123 | 310 | 107 | 747 | 1,731 | 57 | 57 | 20 | 20 | 38 |
| Dry (16%) | 86 | 232 | 260 | 143 | 142 | 747 | 998 | 57 | 57 | 20 | 20 | 38 |
| Critical (27%) | 67 | 165 | 147 | 137 | 136 | 703 | 380 | 39 | 40 | 13 | 13 | 29 |

## Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 1 | 13 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 13 | 0 | 0 | -3 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | **0** | **-1** | **0** | **-2** | **-2** | **-2** | **-1** | **0** | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | **0** | **-1** | 0 | 0 | **0** | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (27%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

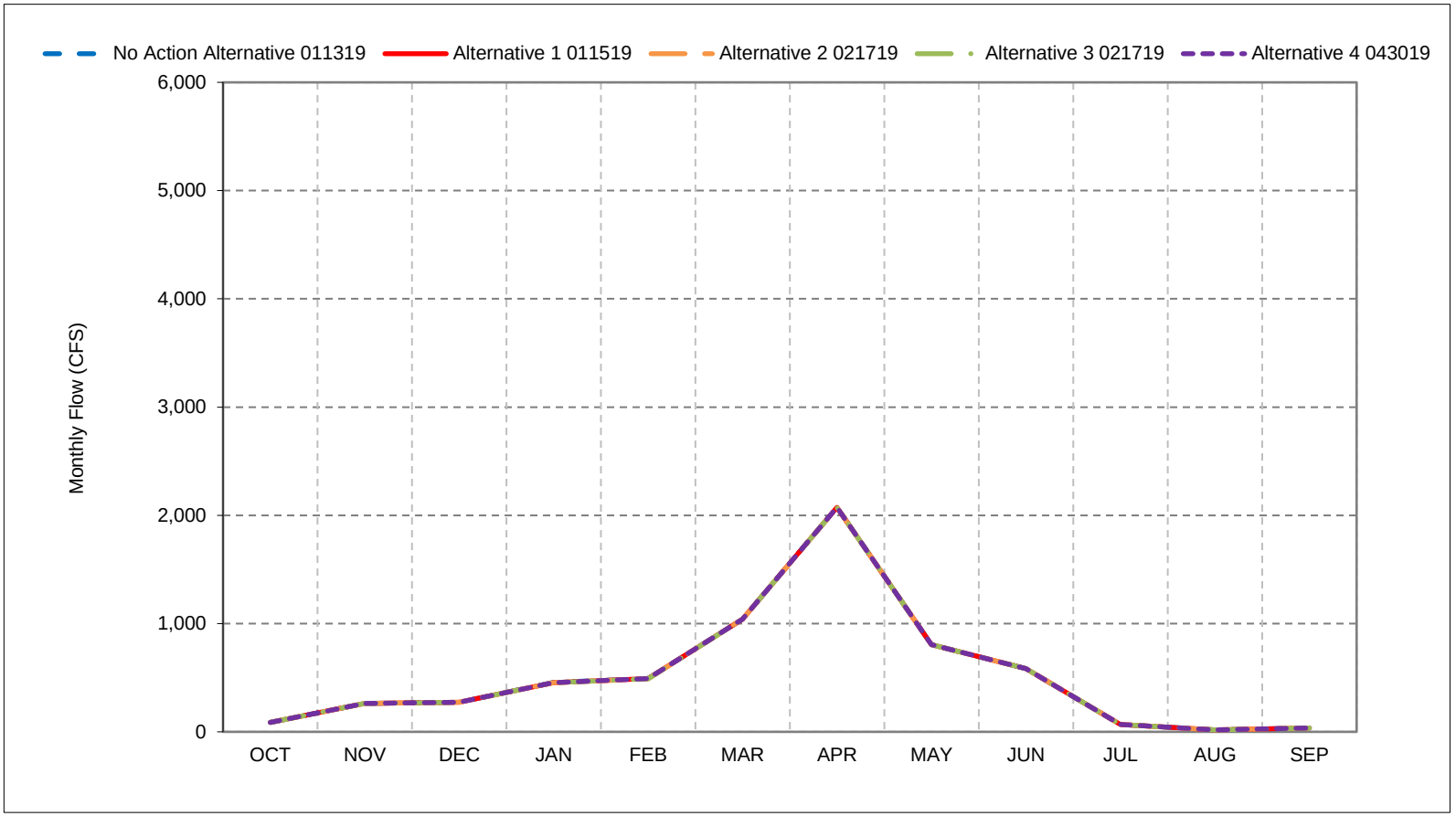
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

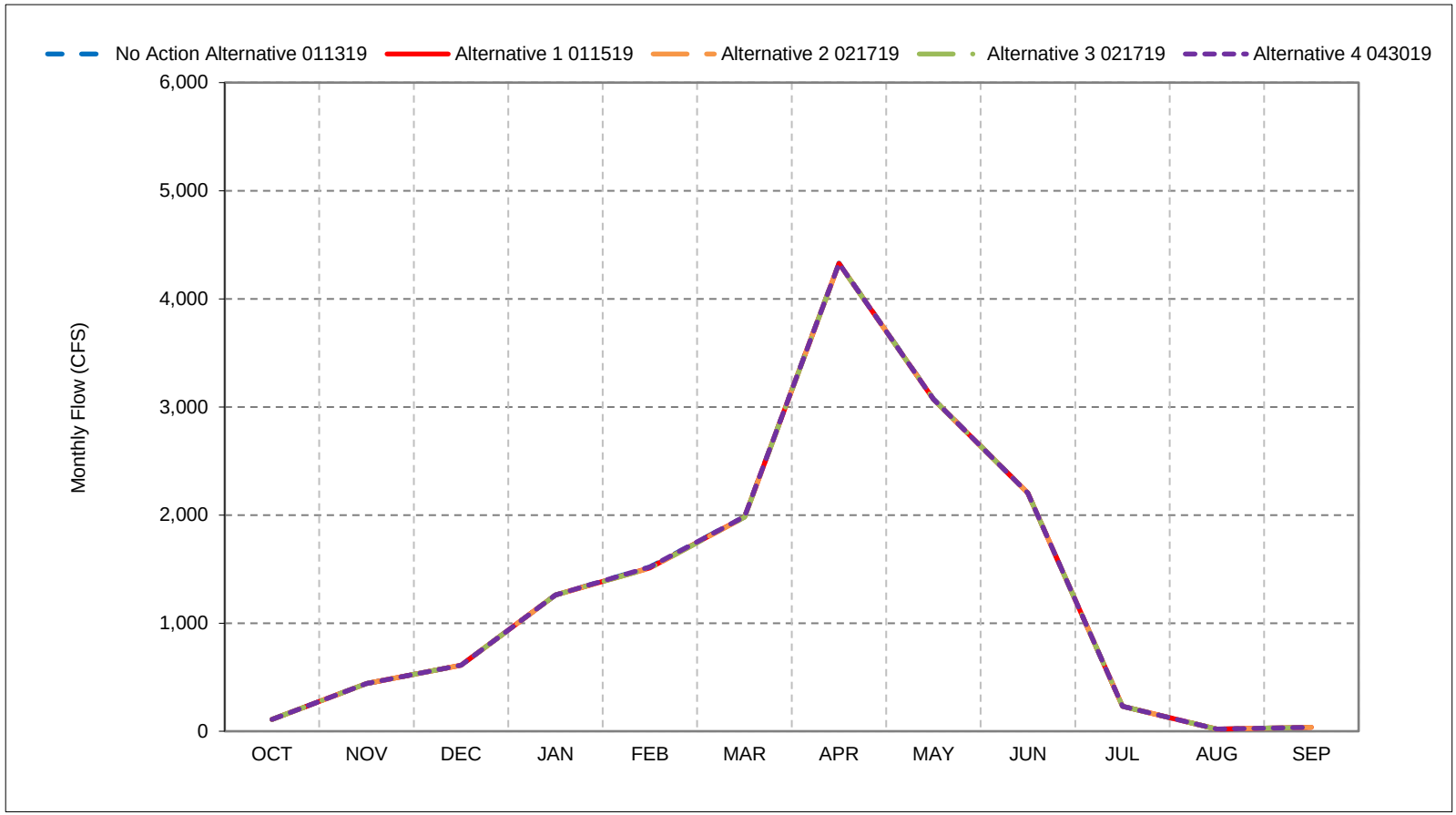
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 34-1. San Joaquin River Flow below Sack Dam, Long-Term Average Flow



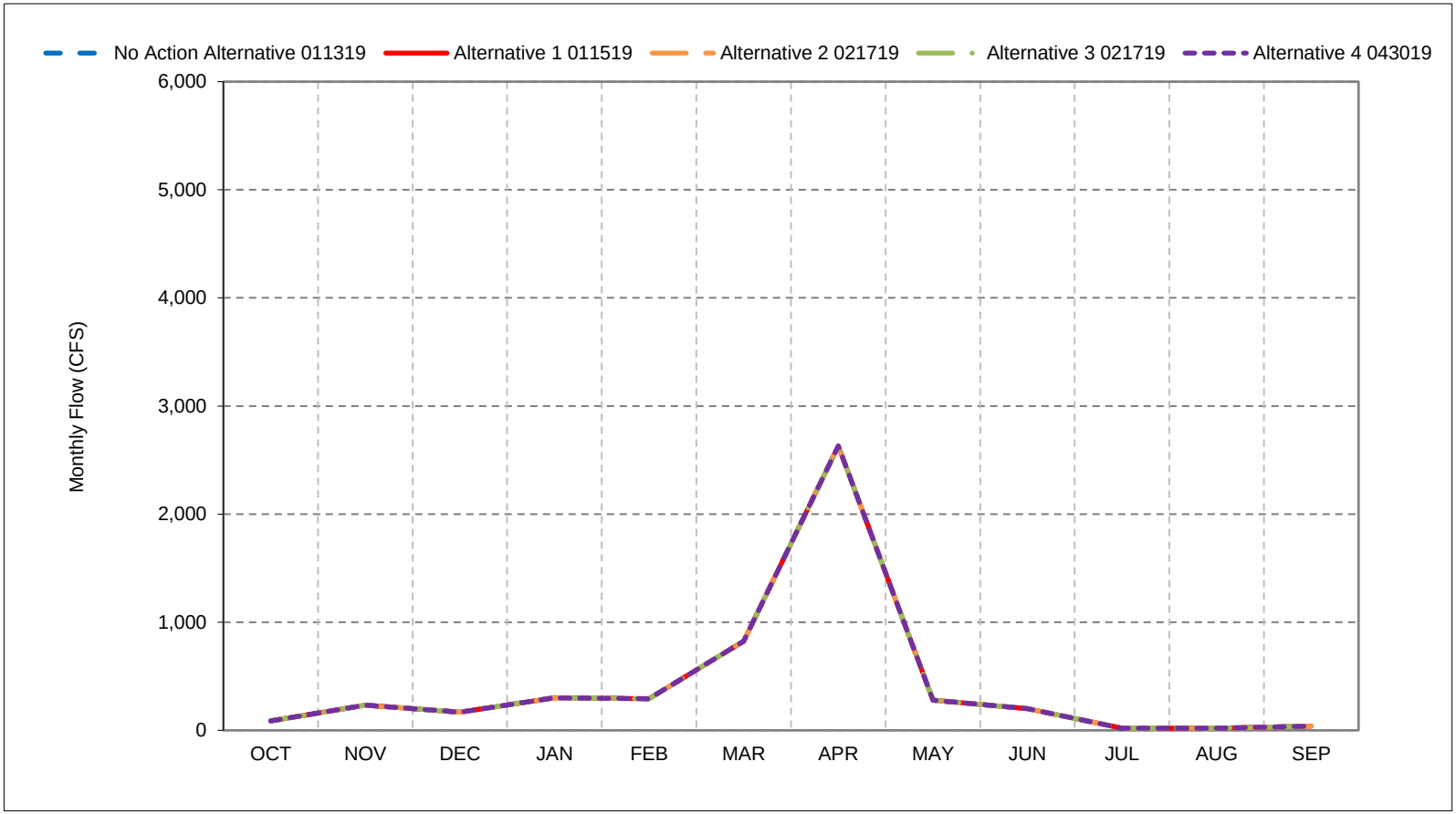

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 34-2. San Joaquin River Flow below Sack Dam, Wet Year Average Flow



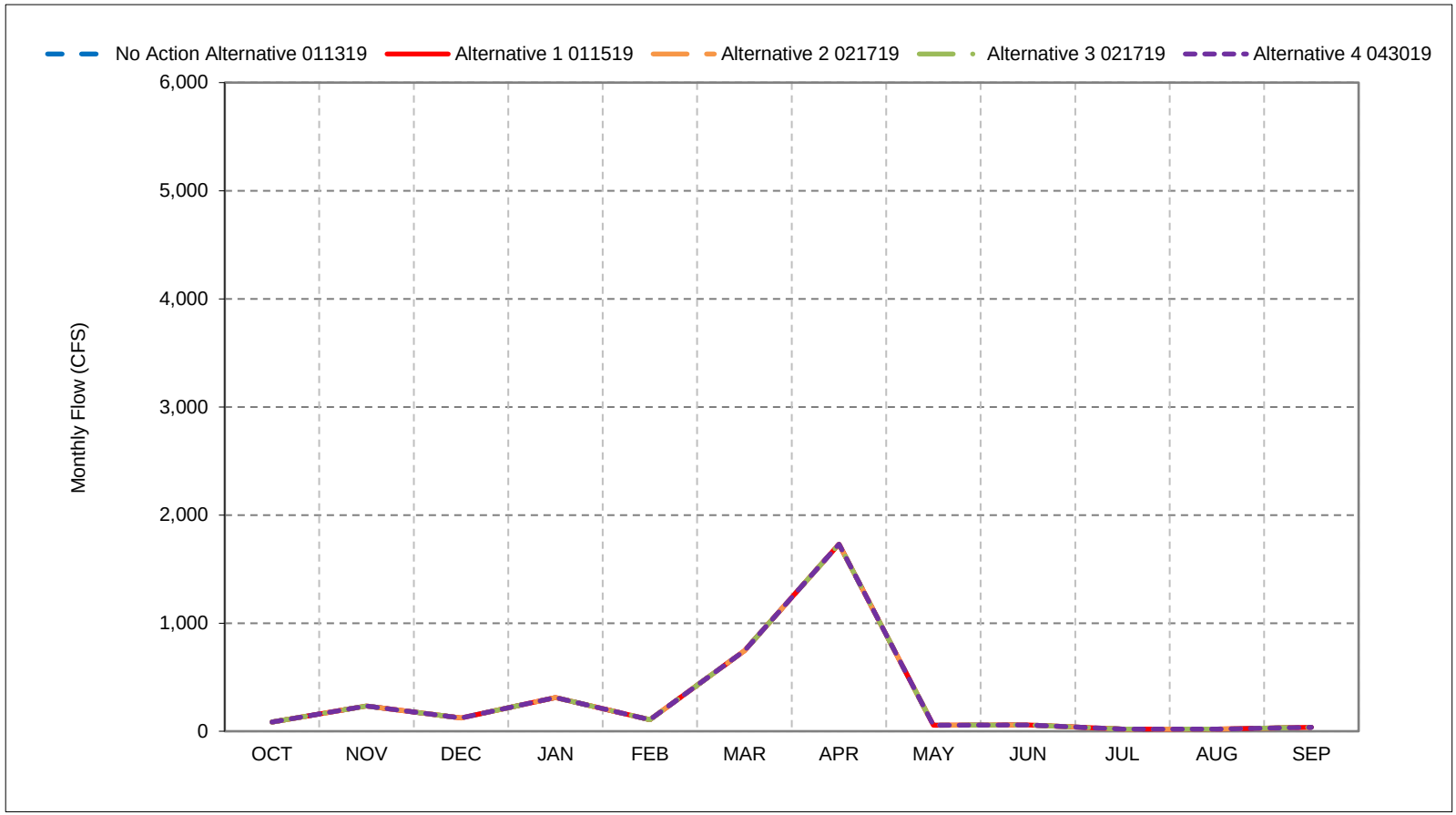

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 34-3. San Joaquin River Flow below Sack Dam, Above Normal Year Average Flow



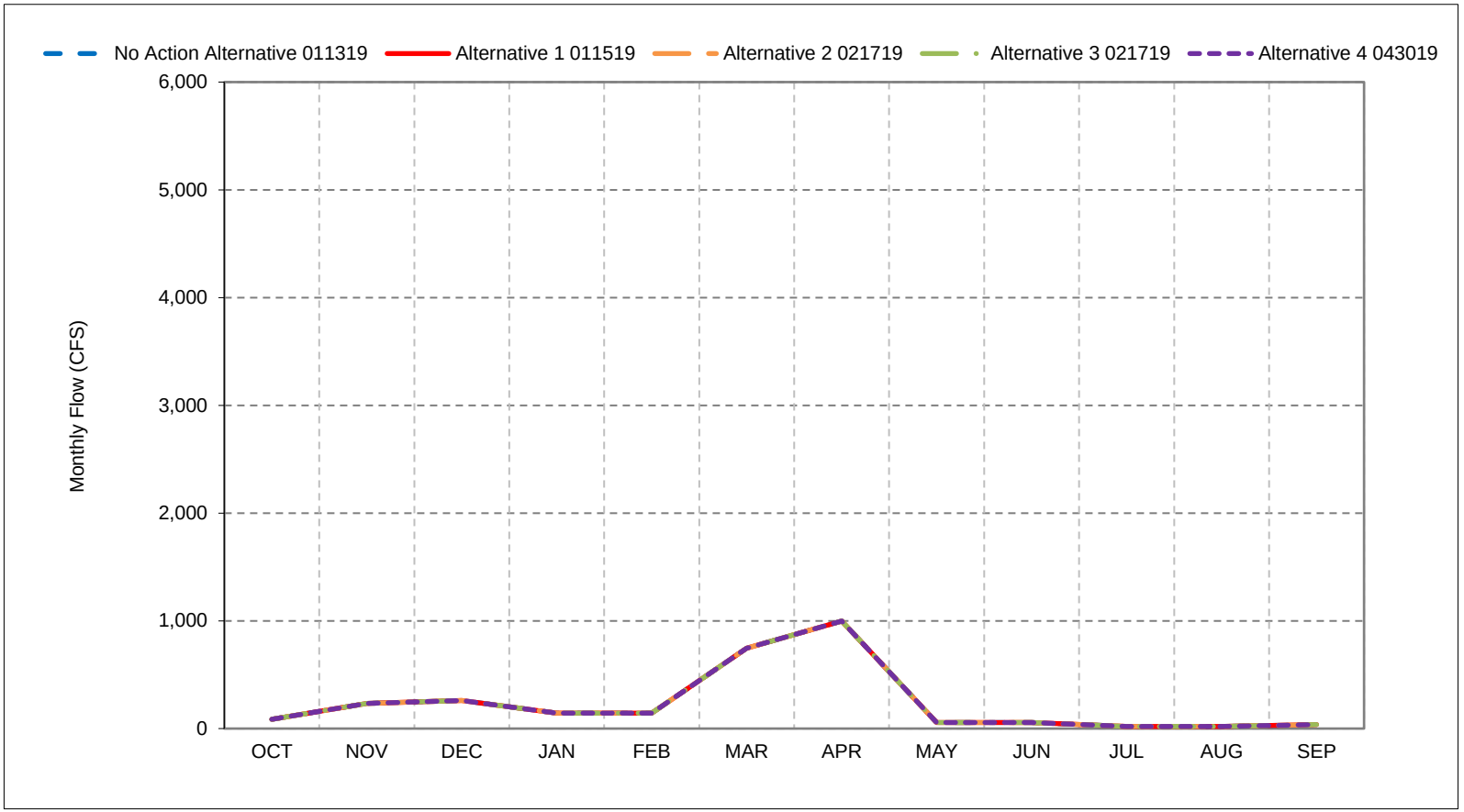

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 34-4. San Joaquin River Flow below Sack Dam, Below Normal Year Average Flow



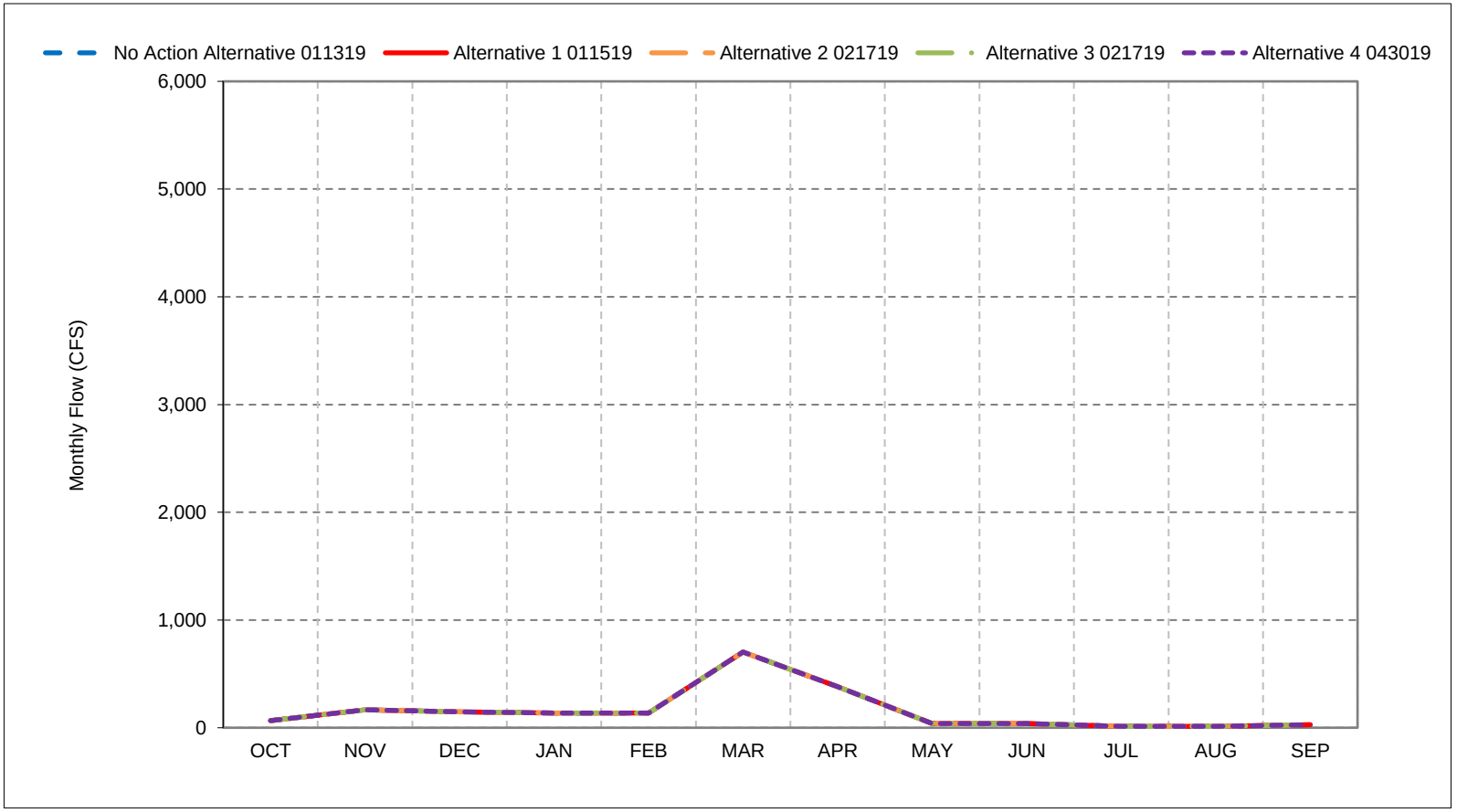

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 34-5. San Joaquin River Flow below Sack Dam, Dry Year Average Flow



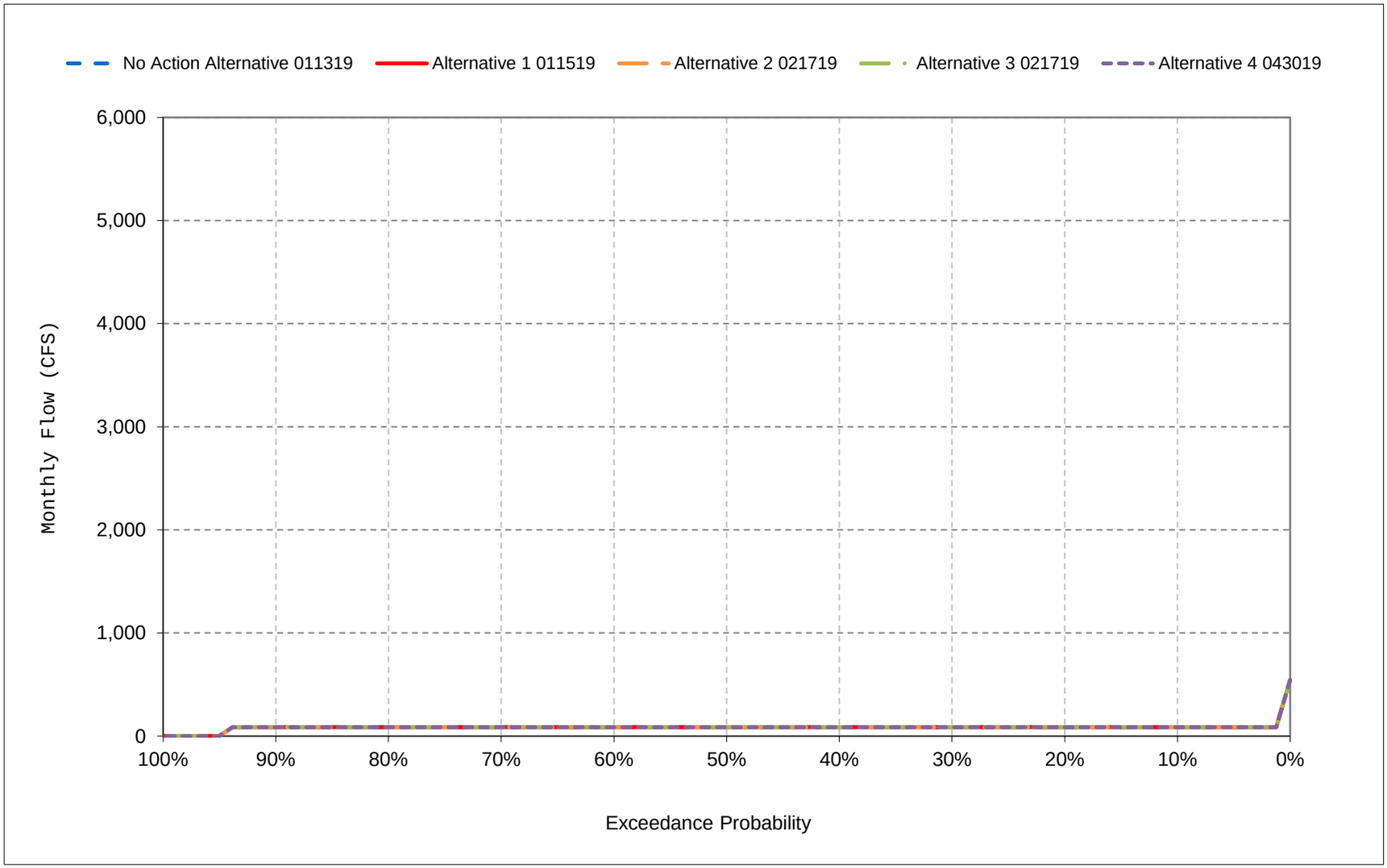

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 34-6. San Joaquin River Flow below Sack Dam, Critical Year Average Flow




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

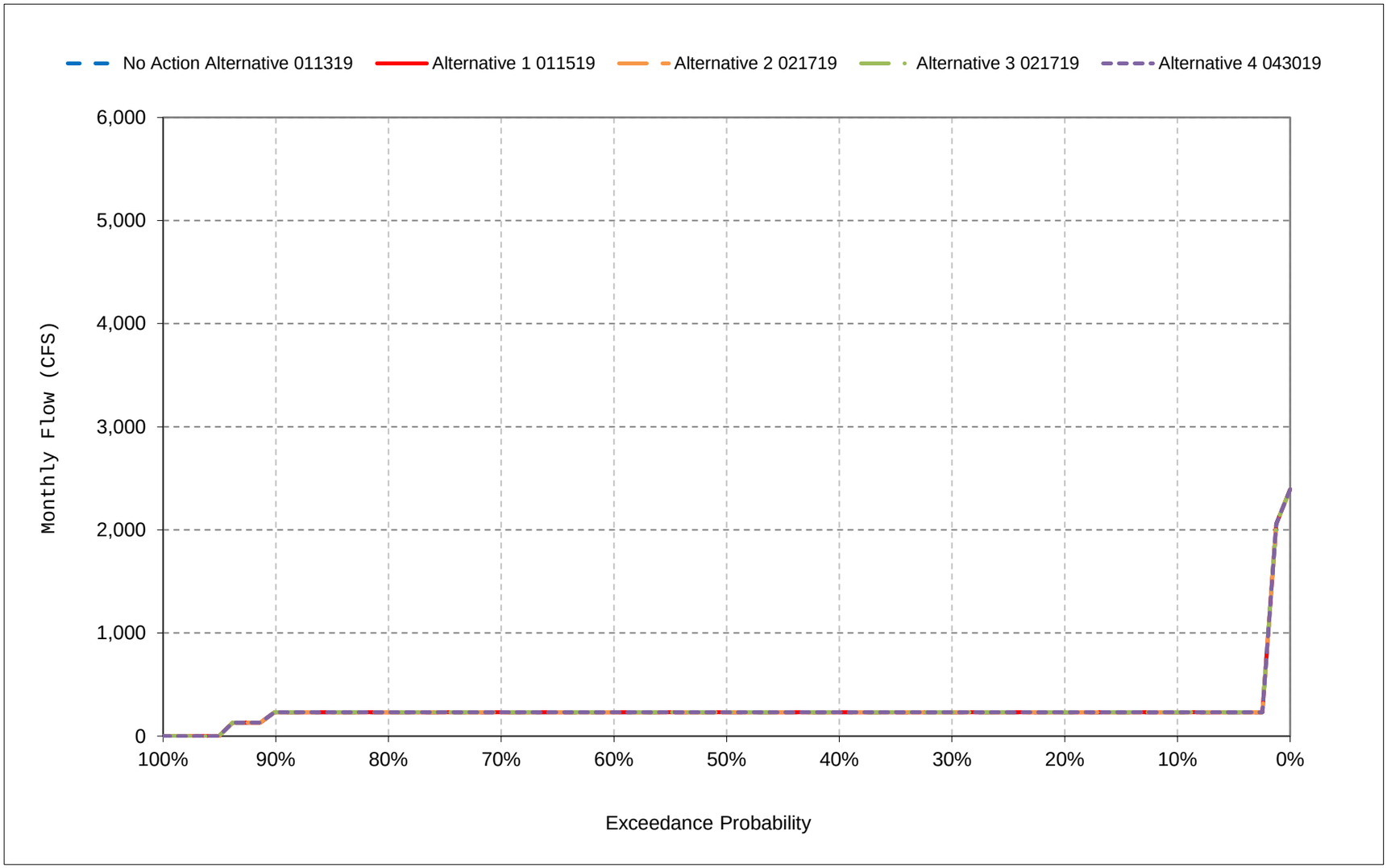
**Figure 34-7. San Joaquin River Flow below Sack Dam, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

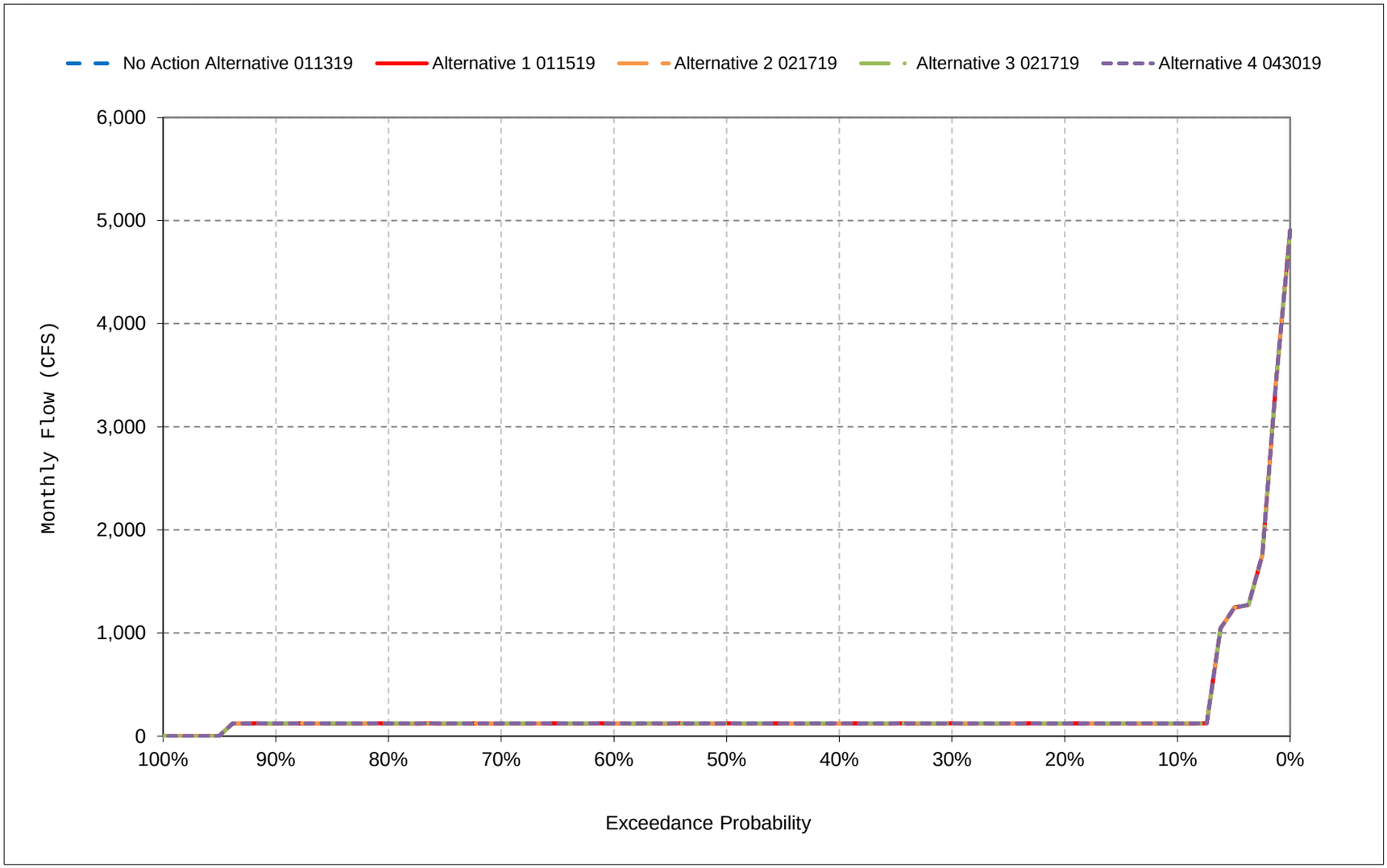
**Figure 34-8. San Joaquin River Flow below Sack Dam, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

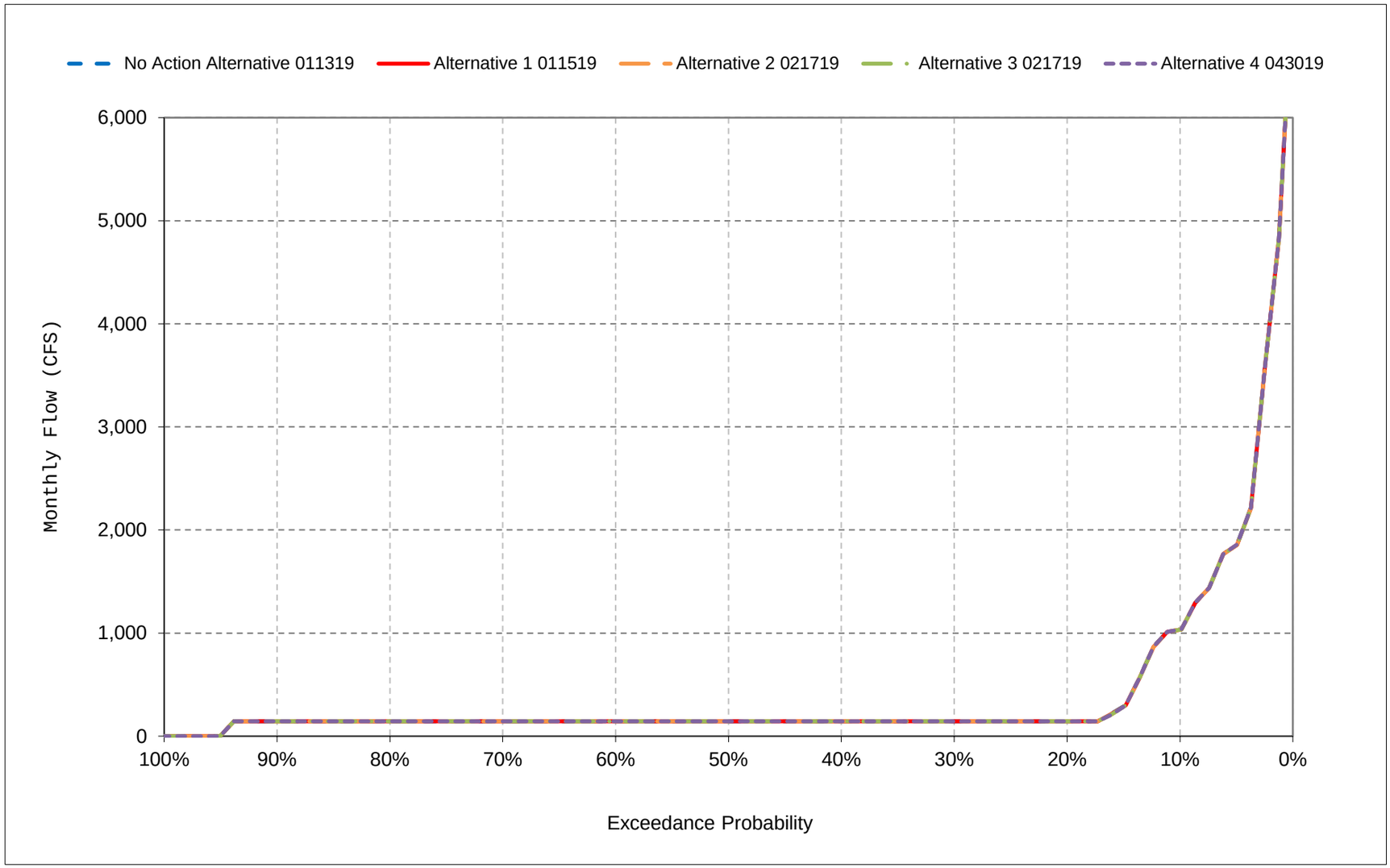
**Figure 34-9. San Joaquin River Flow below Sack Dam, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

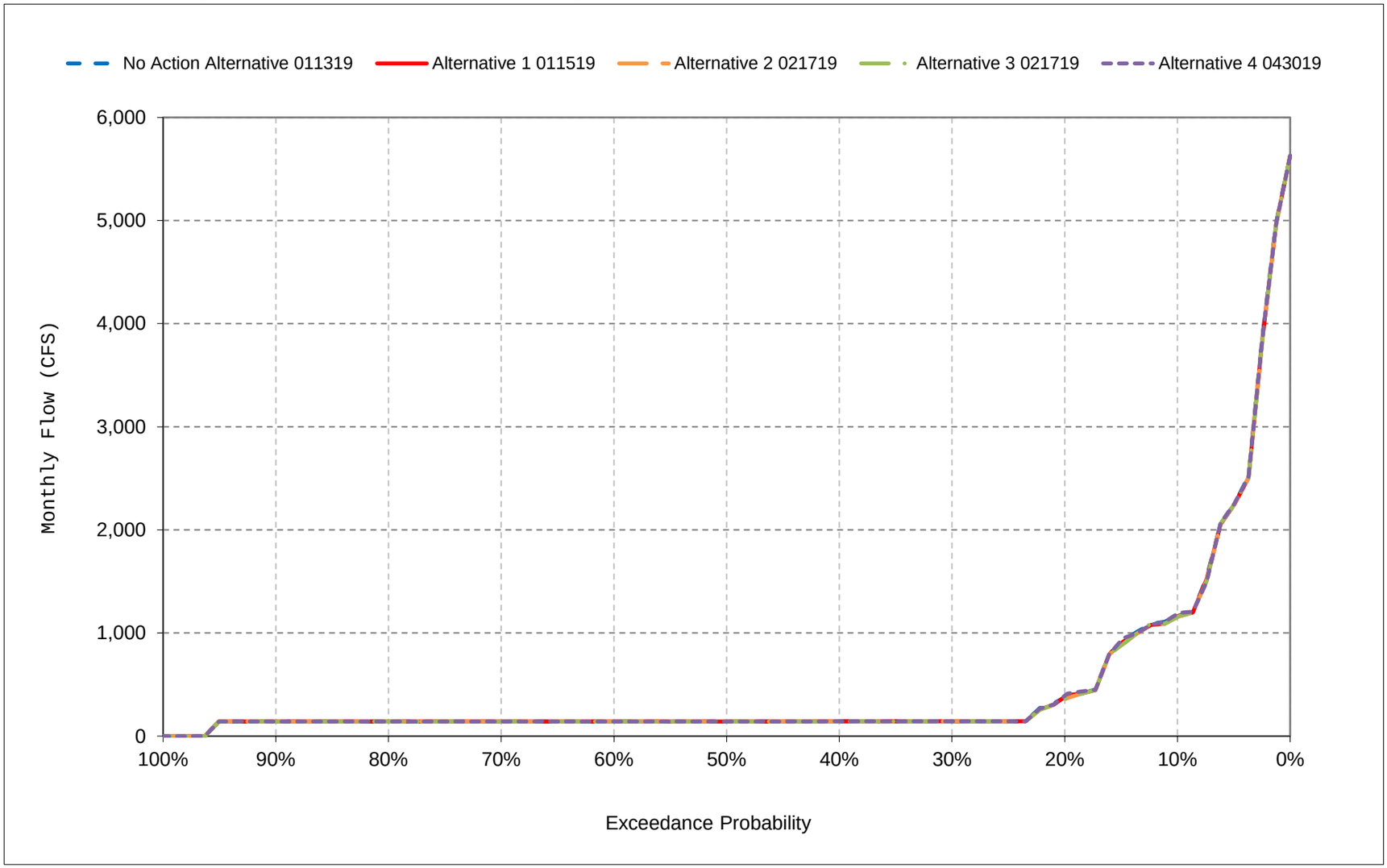
**Figure 34-10. San Joaquin River Flow below Sack Dam, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

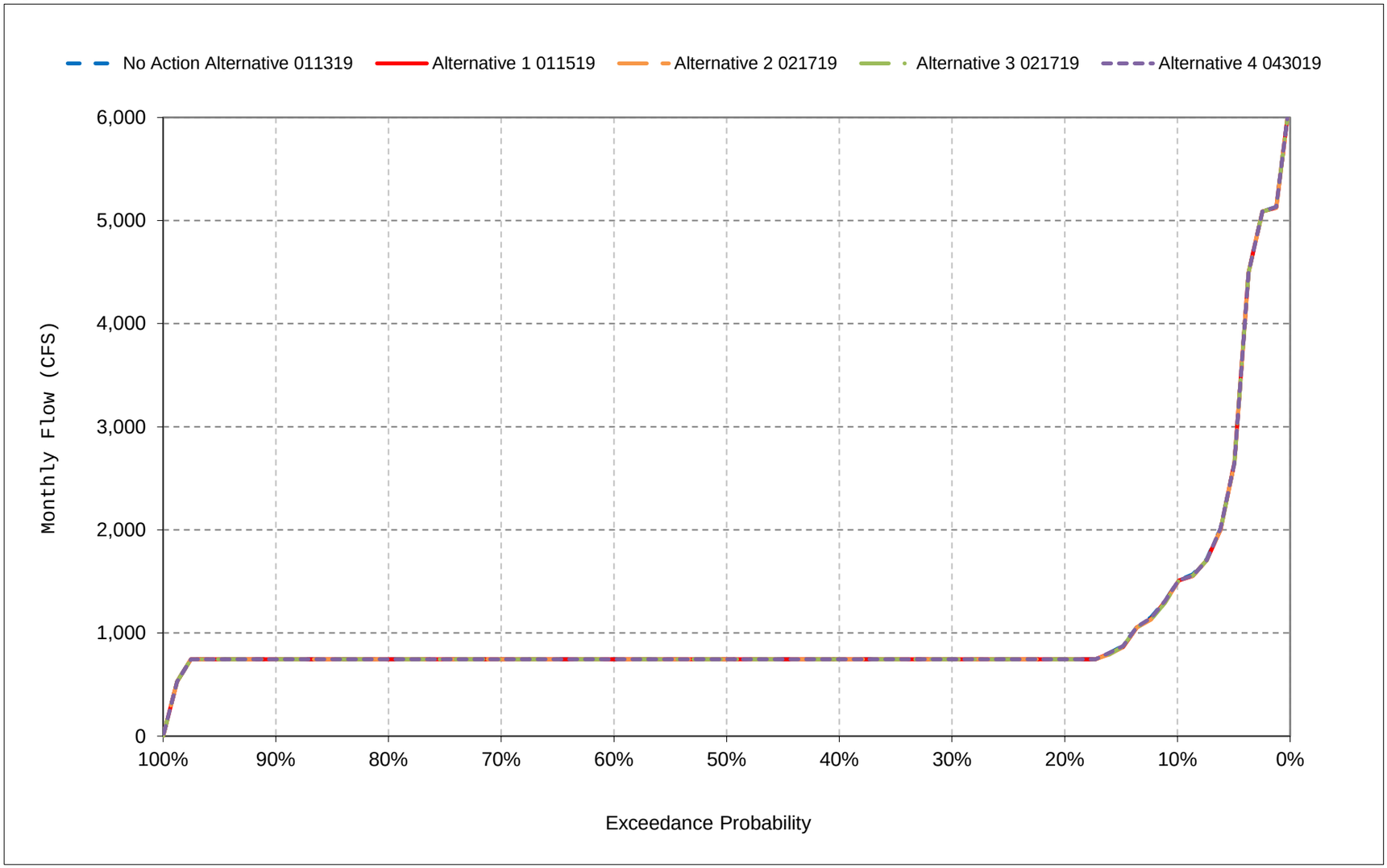
**Figure 34-11. San Joaquin River Flow below Sack Dam, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

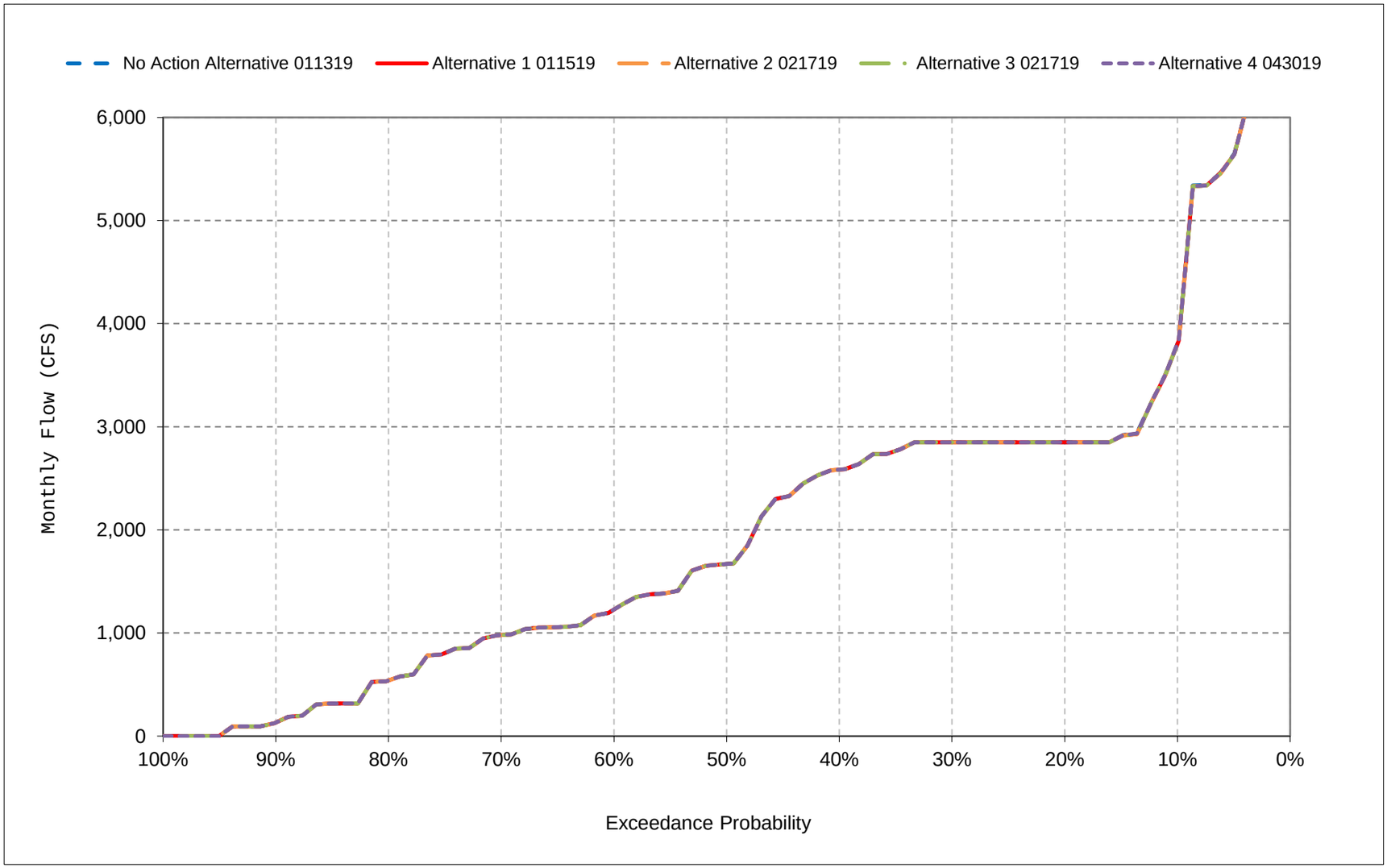
**Figure 34-12. San Joaquin River Flow below Sack Dam, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

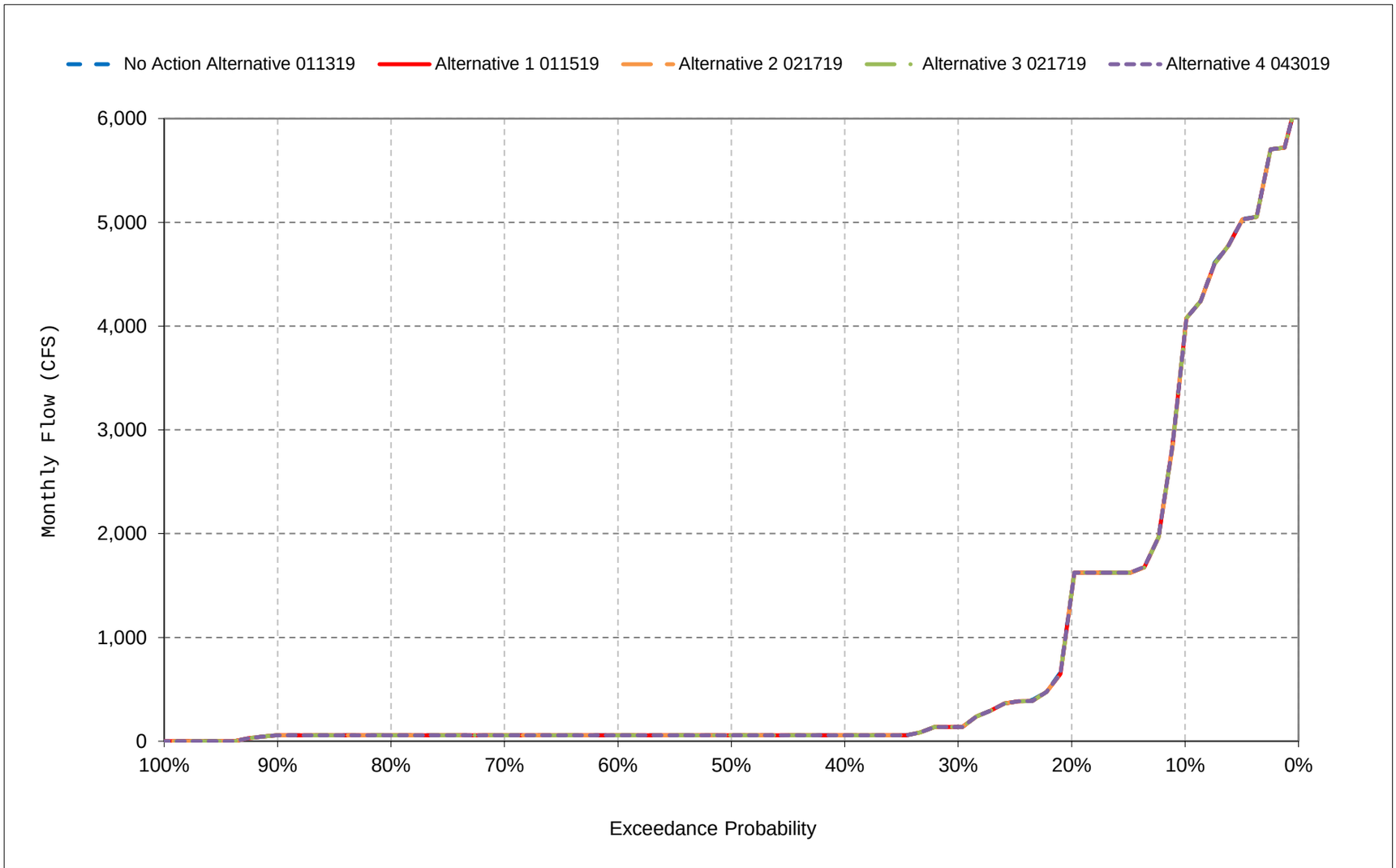
**Figure 34-13. San Joaquin River Flow below Sack Dam, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

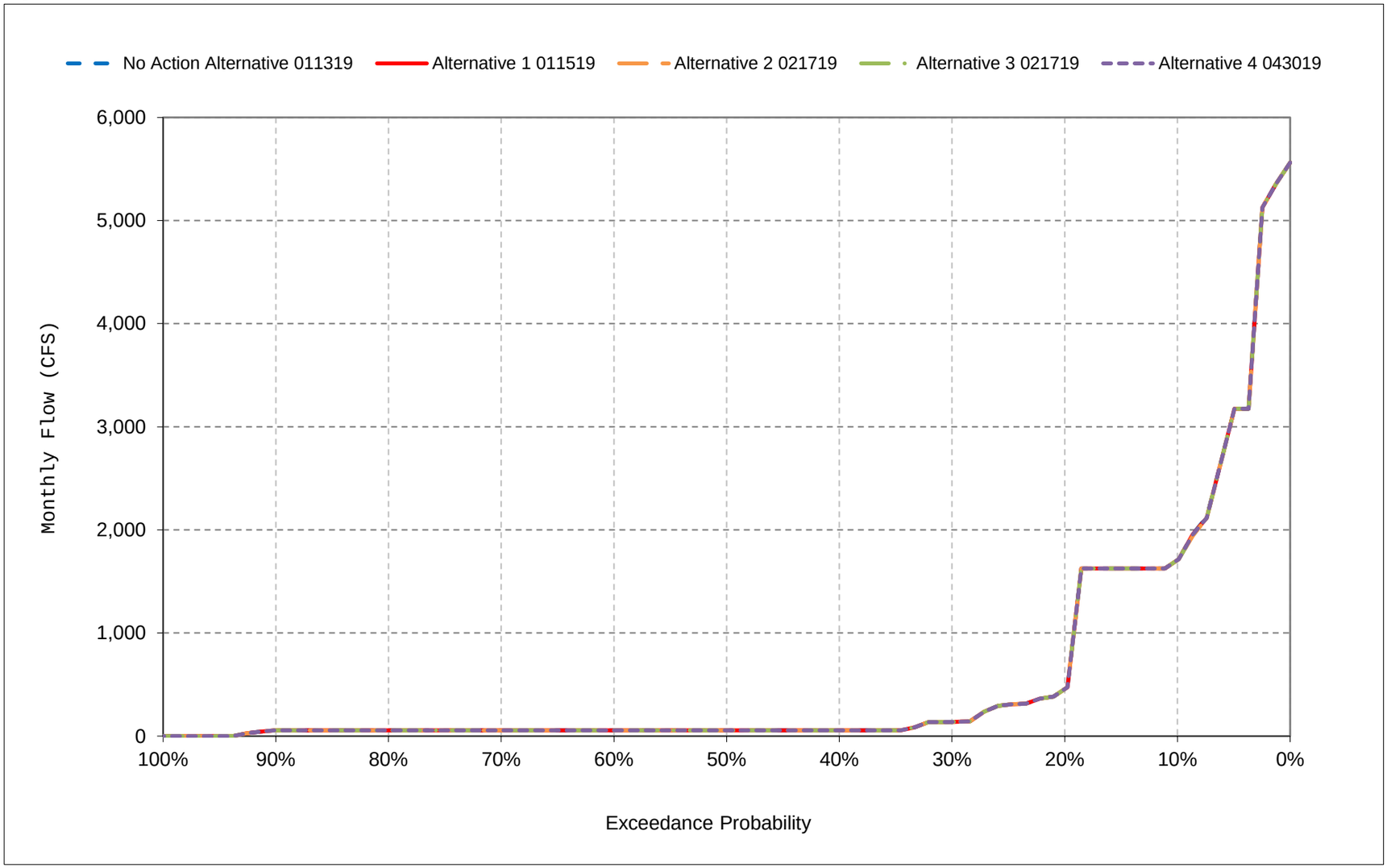
**Figure 34-14. San Joaquin River Flow below Sack Dam, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

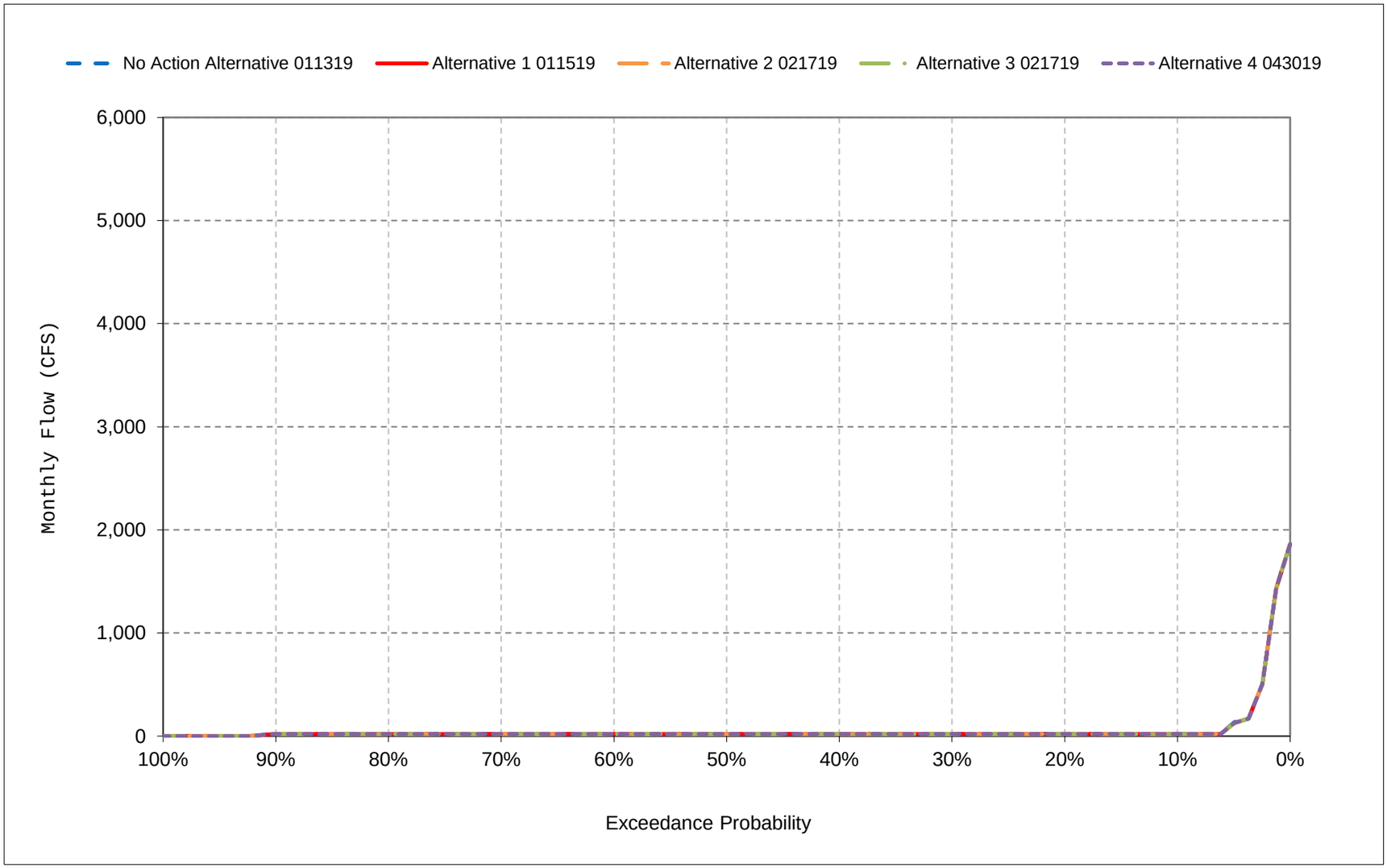
**Figure 34-15. San Joaquin River Flow below Sack Dam, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

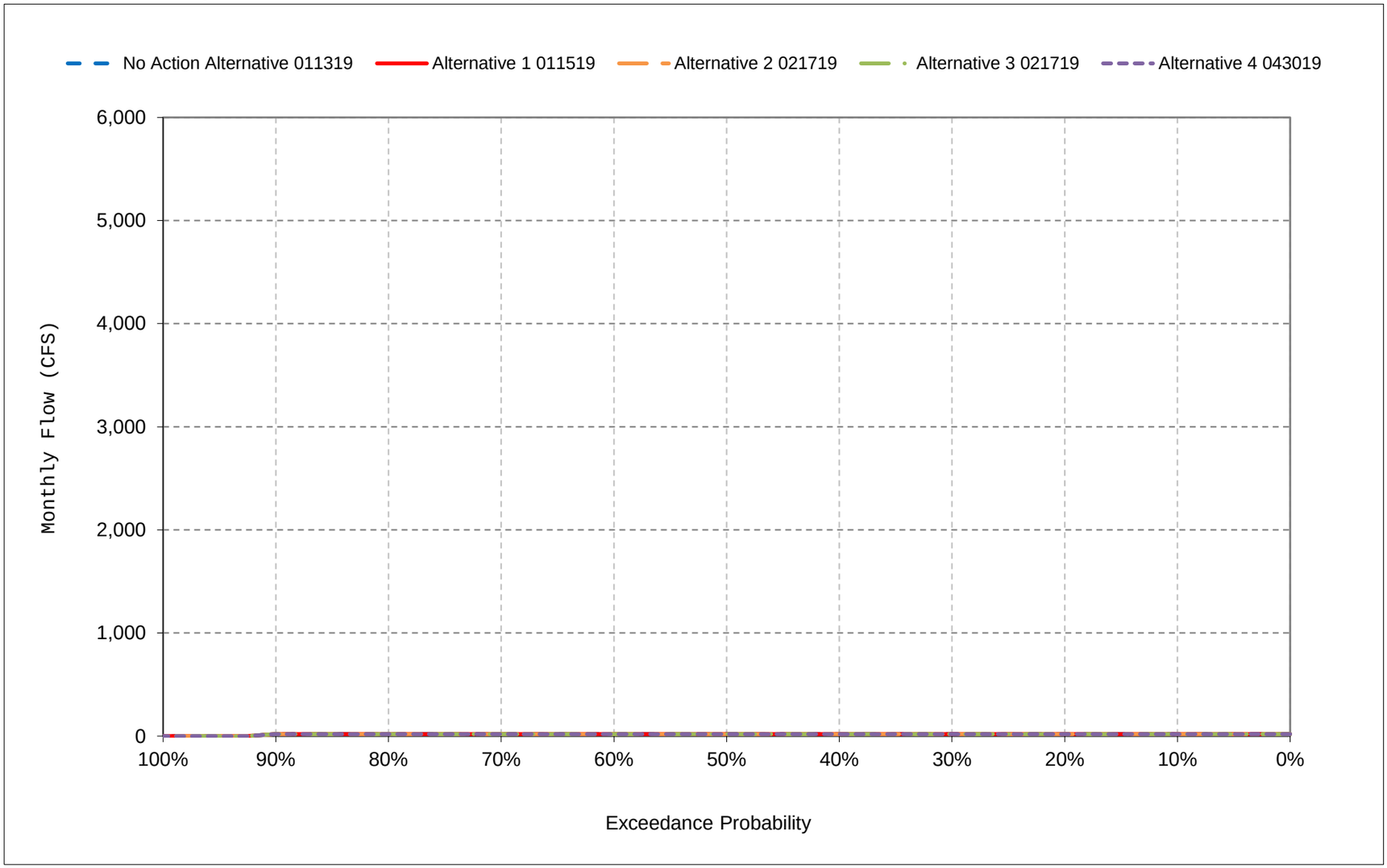
**Figure 34-16. San Joaquin River Flow below Sack Dam, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

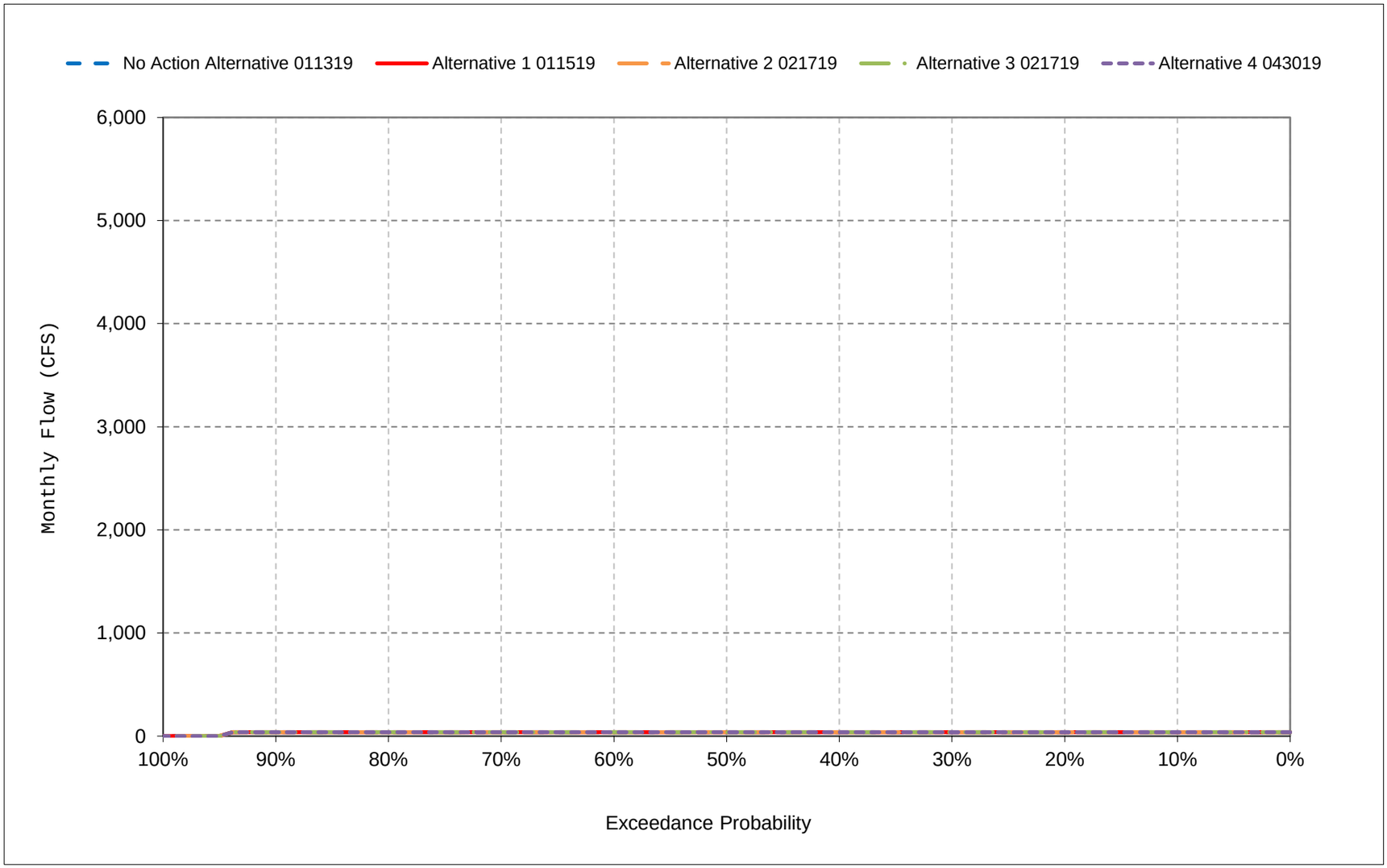
**Figure 34-17. San Joaquin River Flow below Sack Dam, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 34-18. San Joaquin River Flow below Sack Dam, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 35-1. San Joaquin River Flow below confluence with Merced , Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 961 | 1,382 | 3,009 | 4,426 | 9,524 | 6,041 | 7,446 | 8,097 | 4,050 | 1,658 | 1,016 | 1,095 |
| 20% | 792 | 1,288 | 1,482 | 2,766 | 4,303 | 3,738 | 4,295 | 2,720 | 2,395 | 825 | 906 | 994 |
| 30% | 691 | 1,174 | 1,020 | 1,845 | 3,057 | 2,816 | 3,740 | 1,705 | 670 | 269 | 306 | 891 |
| 40% | 660 | 1,114 | 970 | 1,219 | 2,315 | 2,088 | 3,330 | 786 | 495 | 216 | 208 | 605 |
| 50% | 587 | 1,087 | 935 | 1,002 | 1,583 | 1,813 | 2,337 | 577 | 425 | 161 | 152 | 555 |
| 60% | 559 | 1,064 | 902 | 926 | 1,421 | 1,608 | 1,761 | 459 | 371 | 148 | 134 | 535 |
| 70% | 504 | 1,034 | 890 | 852 | 1,222 | 1,478 | 1,262 | 398 | 297 | 106 | 118 | 521 |
| 80% | 486 | 1,004 | 870 | 819 | 1,116 | 1,378 | 858 | 321 | 220 | 34 | 74 | 496 |
| 90% | 438 | 895 | 810 | 748 | 1,018 | 1,273 | 326 | 229 | 131 | 0 | 10 | 444 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 675 | 1,231 | 1,665 | 2,463 | 3,542 | 3,231 | 3,315 | 2,314 | 1,701 | 656 | 379 | 700 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 949 | 1,697 | 2,787 | 6,113 | 8,349 | 7,546 | 7,760 | 7,496 | 5,902 | 2,282 | 936 | 1,096 |
| Above Normal (24%) | 774 | 1,233 | 1,481 | 2,160 | 3,818 | 2,934 | 3,713 | 1,572 | 799 | 329 | 453 | 781 |
| Below Normal (10%) | 568 | 1,090 | 995 | 1,445 | 1,865 | 1,766 | 2,281 | 563 | 473 | 177 | 157 | 532 |
| Dry (16%) | 529 | 1,121 | 1,638 | 1,000 | 1,270 | 1,565 | 1,414 | 416 | 307 | 120 | 129 | 522 |
| Critical (27%) | 463 | 939 | 1,130 | 819 | 1,092 | 1,293 | 615 | 270 | 164 | 40 | 61 | 451 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 961 | 1,382 | 3,009 | 4,424 | 9,511 | 6,040 | 7,443 | 8,097 | 4,050 | 1,659 | 1,016 | 1,095 |
| 20% | 792 | 1,288 | 1,482 | 2,766 | 4,303 | 3,738 | 4,295 | 2,721 | 2,395 | 827 | 907 | 994 |
| 30% | 691 | 1,174 | 1,020 | 1,844 | 3,057 | 2,816 | 3,740 | 1,702 | 671 | 271 | 307 | 892 |
| 40% | 660 | 1,114 | 970 | 1,219 | 2,318 | 2,088 | 3,330 | 787 | 496 | 217 | 209 | 605 |
| 50% | 588 | 1,087 | 935 | 1,002 | 1,584 | 1,813 | 2,338 | 578 | 426 | 162 | 153 | 555 |
| 60% | 560 | 1,064 | 902 | 926 | 1,421 | 1,608 | 1,762 | 460 | 372 | 148 | 135 | 536 |
| 70% | 504 | 1,034 | 890 | 852 | 1,222 | 1,478 | 1,262 | 399 | 297 | 107 | 119 | 522 |
| 80% | 486 | 1,004 | 870 | 819 | 1,116 | 1,378 | 858 | 321 | 220 | 35 | 74 | 496 |
| 90% | 438 | 895 | 810 | 748 | 1,018 | 1,273 | 326 | 229 | 131 | 0 | 10 | 444 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 675 | 1,231 | 1,665 | 2,462 | 3,540 | 3,230 | 3,315 | 2,314 | 1,702 | 657 | 380 | 700 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 949 | 1,697 | 2,786 | 6,112 | 8,342 | 7,541 | 7,758 | 7,495 | 5,902 | 2,282 | 936 | 1,096 |
| Above Normal (24%) | 774 | 1,233 | 1,481 | 2,159 | 3,816 | 2,933 | 3,713 | 1,572 | 800 | 330 | 454 | 781 |
| Below Normal (10%) | 568 | 1,090 | 995 | 1,445 | 1,865 | 1,766 | 2,282 | 564 | 475 | 179 | 158 | 533 |
| Dry (16%) | 529 | 1,121 | 1,638 | 1,000 | 1,270 | 1,565 | 1,415 | 417 | 308 | 121 | 130 | 523 |
| Critical (27%) | 463 | 939 | 1,130 | 819 | 1,092 | 1,293 | 615 | 270 | 164 | 40 | 61 | 451 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | -2 | -14 | -1 | -2 | 0 | 0 | 1 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -3 | 1 | 2 | 1 | 1 |
| 40% | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 2 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | 0 | -2 | -1 | 0 | 0 | 1 | 1 | 1 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | -1 | -7 | -4 | -2 | -1 | 0 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | -1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |
| Critical (27%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 35-2. San Joaquin River Flow below confluence with Merced , Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 961 | 1,382 | 3,009 | 4,426 | 9,524 | 6,041 | 7,446 | 8,097 | 4,050 | 1,658 | 1,016 | 1,095 |
| 20% | 792 | 1,288 | 1,482 | 2,766 | 4,303 | 3,738 | 4,295 | 2,720 | 2,395 | 825 | 906 | 994 |
| 30% | 691 | 1,174 | 1,020 | 1,845 | 3,057 | 2,816 | 3,740 | 1,705 | 670 | 269 | 306 | 891 |
| 40% | 660 | 1,114 | 970 | 1,219 | 2,315 | 2,088 | 3,330 | 786 | 495 | 216 | 208 | 605 |
| 50% | 587 | 1,087 | 935 | 1,002 | 1,583 | 1,813 | 2,337 | 577 | 425 | 161 | 152 | 555 |
| 60% | 559 | 1,064 | 902 | 926 | 1,421 | 1,608 | 1,761 | 459 | 371 | 148 | 134 | 535 |
| 70% | 504 | 1,034 | 890 | 852 | 1,222 | 1,478 | 1,262 | 398 | 297 | 106 | 118 | 521 |
| 80% | 486 | 1,004 | 870 | 819 | 1,116 | 1,378 | 858 | 321 | 220 | 34 | 74 | 496 |
| 90% | 438 | 895 | 810 | 748 | 1,018 | 1,273 | 326 | 229 | 131 | 0 | 10 | 444 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 675 | 1,231 | 1,665 | 2,463 | 3,542 | 3,231 | 3,315 | 2,314 | 1,701 | 656 | 379 | 700 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 949 | 1,697 | 2,787 | 6,113 | 8,349 | 7,546 | 7,760 | 7,496 | 5,902 | 2,282 | 936 | 1,096 |
| Above Normal (24%) | 774 | 1,233 | 1,481 | 2,160 | 3,818 | 2,934 | 3,713 | 1,572 | 799 | 329 | 453 | 781 |
| Below Normal (10%) | 568 | 1,090 | 995 | 1,445 | 1,865 | 1,766 | 2,281 | 563 | 473 | 177 | 157 | 532 |
| Dry (16%) | 529 | 1,121 | 1,638 | 1,000 | 1,270 | 1,565 | 1,414 | 416 | 307 | 120 | 129 | 522 |
| Critical (27%) | 463 | 939 | 1,130 | 819 | 1,092 | 1,293 | 615 | 270 | 164 | 40 | 61 | 451 |

## Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 961 | 1,382 | 3,009 | 4,424 | 9,510 | 6,040 | 7,437 | 8,097 | 4,050 | 1,658 | 1,017 | 1,095 |
| 20% | 792 | 1,288 | 1,482 | 2,766 | 4,303 | 3,738 | 4,296 | 2,721 | 2,395 | 827 | 907 | 994 |
| 30% | 691 | 1,174 | 1,020 | 1,844 | 3,057 | 2,816 | 3,740 | 1,702 | 671 | 271 | 307 | 892 |
| 40% | 660 | 1,114 | 971 | 1,219 | 2,305 | 2,088 | 3,331 | 788 | 497 | 217 | 209 | 605 |
| 50% | 588 | 1,087 | 935 | 1,002 | 1,584 | 1,812 | 2,338 | 579 | 426 | 163 | 153 | 555 |
| 60% | 560 | 1,064 | 902 | 926 | 1,421 | 1,609 | 1,762 | 460 | 373 | 149 | 136 | 536 |
| 70% | 504 | 1,034 | 890 | 852 | 1,222 | 1,478 | 1,262 | 400 | 297 | 108 | 120 | 522 |
| 80% | 486 | 1,004 | 870 | 820 | 1,115 | 1,378 | 858 | 322 | 220 | 35 | 72 | 496 |
| 90% | 438 | 895 | 810 | 748 | 1,018 | 1,273 | 326 | 230 | 131 | 0 | 11 | 444 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 675 | 1,232 | 1,665 | 2,462 | 3,539 | 3,230 | 3,315 | 2,314 | 1,702 | 657 | 380 | 701 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 949 | 1,697 | 2,786 | 6,112 | 8,338 | 7,540 | 7,757 | 7,494 | 5,901 | 2,283 | 936 | 1,096 |
| Above Normal (24%) | 774 | 1,233 | 1,481 | 2,159 | 3,817 | 2,933 | 3,714 | 1,572 | 800 | 330 | 454 | 781 |
| Below Normal (10%) | 568 | 1,090 | 995 | 1,445 | 1,865 | 1,766 | 2,282 | 565 | 476 | 180 | 159 | 533 |
| Dry (16%) | 529 | 1,121 | 1,638 | 1,000 | 1,270 | 1,565 | 1,415 | 418 | 309 | 122 | 131 | 523 |
| Critical (27%) | 463 | 939 | 1,130 | 819 | 1,092 | 1,293 | 615 | 270 | 164 | 40 | 61 | 451 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | -2 | -14 | -1 | -8 | 0 | 0 | 1 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 1 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 1 | -3 | 1 | 2 | 1 | 1 |
| 40% | 0 | 0 | 0 | 0 | -9 | 0 | 1 | 1 | 2 | 1 | 2 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | -1 | 1 | 1 | 1 | 2 | 1 | 1 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 2 | 1 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 3 | 0 |
| 80% | 0 | 0 | 0 | 0 | -1 | 0 | 1 | 1 | 0 | 0 | -2 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | 0 | -3 | -1 | 0 | 0 | 1 | 1 | 1 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | -1 | -12 | -6 | -3 | -3 | -1 | 0 | 1 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | -1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 3 | 2 | 1 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 2 | 2 | 1 |
| Critical (27%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 35-3. San Joaquin River Flow below confluence with Merced , Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 961 | 1,382 | 3,009 | 4,426 | 9,524 | 6,041 | 7,446 | 8,097 | 4,050 | 1,658 | 1,016 | 1,095 |
| 20% | 792 | 1,288 | 1,482 | 2,766 | 4,303 | 3,738 | 4,295 | 2,720 | 2,395 | 825 | 906 | 994 |
| 30% | 691 | 1,174 | 1,020 | 1,845 | 3,057 | 2,816 | 3,740 | 1,705 | 670 | 269 | 306 | 891 |
| 40% | 660 | 1,114 | 970 | 1,219 | 2,315 | 2,088 | 3,330 | 786 | 495 | 216 | 208 | 605 |
| 50% | 587 | 1,087 | 935 | 1,002 | 1,583 | 1,813 | 2,337 | 577 | 425 | 161 | 152 | 555 |
| 60% | 559 | 1,064 | 902 | 926 | 1,421 | 1,608 | 1,761 | 459 | 371 | 148 | 134 | 535 |
| 70% | 504 | 1,034 | 890 | 852 | 1,222 | 1,478 | 1,262 | 398 | 297 | 106 | 118 | 521 |
| 80% | 486 | 1,004 | 870 | 819 | 1,116 | 1,378 | 858 | 321 | 220 | 34 | 74 | 496 |
| 90% | 438 | 895 | 810 | 748 | 1,018 | 1,273 | 326 | 229 | 131 | 0 | 10 | 444 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 675 | 1,231 | 1,665 | 2,463 | 3,542 | 3,231 | 3,315 | 2,314 | 1,701 | 656 | 379 | 700 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 949 | 1,697 | 2,787 | 6,113 | 8,349 | 7,546 | 7,760 | 7,496 | 5,902 | 2,282 | 936 | 1,096 |
| Above Normal (24%) | 774 | 1,233 | 1,481 | 2,160 | 3,818 | 2,934 | 3,713 | 1,572 | 799 | 329 | 453 | 781 |
| Below Normal (10%) | 568 | 1,090 | 995 | 1,445 | 1,865 | 1,766 | 2,281 | 563 | 473 | 177 | 157 | 532 |
| Dry (16%) | 529 | 1,121 | 1,638 | 1,000 | 1,270 | 1,565 | 1,414 | 416 | 307 | 120 | 129 | 522 |
| Critical (27%) | 463 | 939 | 1,130 | 819 | 1,092 | 1,293 | 615 | 270 | 164 | 40 | 61 | 451 |

## Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 961 | 1,382 | 3,009 | 4,424 | 9,511 | 6,040 | 7,440 | 8,097 | 4,050 | 1,659 | 1,017 | 1,095 |
| 20% | 792 | 1,288 | 1,482 | 2,766 | 4,303 | 3,738 | 4,296 | 2,721 | 2,395 | 827 | 907 | 994 |
| 30% | 691 | 1,174 | 1,020 | 1,844 | 3,057 | 2,816 | 3,740 | 1,702 | 671 | 271 | 307 | 892 |
| 40% | 660 | 1,114 | 971 | 1,219 | 2,307 | 2,088 | 3,331 | 788 | 496 | 217 | 209 | 605 |
| 50% | 588 | 1,087 | 935 | 1,002 | 1,584 | 1,811 | 2,338 | 579 | 426 | 163 | 153 | 556 |
| 60% | 560 | 1,064 | 902 | 926 | 1,421 | 1,609 | 1,762 | 460 | 374 | 149 | 136 | 536 |
| 70% | 503 | 1,034 | 890 | 852 | 1,222 | 1,478 | 1,262 | 399 | 297 | 107 | 120 | 522 |
| 80% | 486 | 1,004 | 870 | 820 | 1,114 | 1,378 | 858 | 322 | 220 | 35 | 70 | 496 |
| 90% | 438 | 895 | 810 | 748 | 1,018 | 1,273 | 326 | 230 | 131 | 0 | 11 | 444 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 675 | 1,232 | 1,665 | 2,462 | 3,539 | 3,230 | 3,315 | 2,314 | 1,702 | 657 | 380 | 700 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 949 | 1,697 | 2,786 | 6,112 | 8,338 | 7,540 | 7,757 | 7,495 | 5,902 | 2,282 | 936 | 1,096 |
| Above Normal (24%) | 774 | 1,233 | 1,481 | 2,159 | 3,817 | 2,933 | 3,714 | 1,572 | 800 | 330 | 454 | 781 |
| Below Normal (10%) | 568 | 1,090 | 995 | 1,445 | 1,865 | 1,766 | 2,282 | 565 | 475 | 180 | 159 | 533 |
| Dry (16%) | 529 | 1,121 | 1,638 | 1,000 | 1,270 | 1,565 | 1,415 | 418 | 309 | 122 | 131 | 523 |
| Critical (27%) | 463 | 939 | 1,130 | 819 | 1,092 | 1,293 | 615 | 270 | 164 | 40 | 61 | 451 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | -2 | -14 | -1 | -6 | 0 | 0 | 1 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 1 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 1 | -3 | 1 | 2 | 1 | 1 |
| 40% | 0 | 0 | 0 | 0 | -8 | 0 | 1 | 1 | 2 | 1 | 2 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | -1 | 1 | 1 | 1 | 2 | 1 | 1 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 2 | 1 |
| 70% | -1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 3 | 0 |
| 80% | 0 | 0 | 0 | 0 | -2 | 0 | 1 | 1 | 0 | 1 | -4 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | 0 | -3 | -1 | 0 | 0 | 1 | 1 | 1 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | 0 | -1 | -11 | -5 | -3 | -2 | -1 | 0 | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | 0 | -1 | -1 | 1 | 0 | 1 | 1 | 1 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 3 | 2 | 1 |
| Dry (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 2 | 2 | 1 |
| Critical (27%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 35-4. San Joaquin River Flow below confluence with Merced , Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 961 | 1,382 | 3,009 | 4,426 | 9,524 | 6,041 | 7,446 | 8,097 | 4,050 | 1,658 | 1,016 | 1,095 |
| 20% | 792 | 1,288 | 1,482 | 2,766 | 4,303 | 3,738 | 4,295 | 2,720 | 2,395 | 825 | 906 | 994 |
| 30% | 691 | 1,174 | 1,020 | 1,845 | 3,057 | 2,816 | 3,740 | 1,705 | 670 | 269 | 306 | 891 |
| 40% | 660 | 1,114 | 970 | 1,219 | 2,315 | 2,088 | 3,330 | 786 | 495 | 216 | 208 | 605 |
| 50% | 587 | 1,087 | 935 | 1,002 | 1,583 | 1,813 | 2,337 | 577 | 425 | 161 | 152 | 555 |
| 60% | 559 | 1,064 | 902 | 926 | 1,421 | 1,608 | 1,761 | 459 | 371 | 148 | 134 | 535 |
| 70% | 504 | 1,034 | 890 | 852 | 1,222 | 1,478 | 1,262 | 398 | 297 | 106 | 118 | 521 |
| 80% | 486 | 1,004 | 870 | 819 | 1,116 | 1,378 | 858 | 321 | 220 | 34 | 74 | 496 |
| 90% | 438 | 895 | 810 | 748 | 1,018 | 1,273 | 326 | 229 | 131 | 0 | 10 | 444 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 675 | 1,231 | 1,665 | 2,463 | 3,542 | 3,231 | 3,315 | 2,314 | 1,701 | 656 | 379 | 700 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 949 | 1,697 | 2,787 | 6,113 | 8,349 | 7,546 | 7,760 | 7,496 | 5,902 | 2,282 | 936 | 1,096 |
| Above Normal (24%) | 774 | 1,233 | 1,481 | 2,160 | 3,818 | 2,934 | 3,713 | 1,572 | 799 | 329 | 453 | 781 |
| Below Normal (10%) | 568 | 1,090 | 995 | 1,445 | 1,865 | 1,766 | 2,281 | 563 | 473 | 177 | 157 | 532 |
| Dry (16%) | 529 | 1,121 | 1,638 | 1,000 | 1,270 | 1,565 | 1,414 | 416 | 307 | 120 | 129 | 522 |
| Critical (27%) | 463 | 939 | 1,130 | 819 | 1,092 | 1,293 | 615 | 270 | 164 | 40 | 61 | 451 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 961 | 1,382 | 3,009 | 4,425 | 9,513 | 6,040 | 7,442 | 8,097 | 4,050 | 1,658 | 1,016 | 1,095 |
| 20% | 792 | 1,288 | 1,482 | 2,766 | 4,303 | 3,738 | 4,296 | 2,720 | 2,395 | 826 | 907 | 994 |
| 30% | 691 | 1,174 | 1,020 | 1,845 | 3,057 | 2,816 | 3,739 | 1,702 | 670 | 270 | 306 | 891 |
| 40% | 660 | 1,114 | 970 | 1,219 | 2,331 | 2,088 | 3,330 | 787 | 495 | 216 | 208 | 605 |
| 50% | 588 | 1,087 | 935 | 1,002 | 1,584 | 1,813 | 2,337 | 577 | 425 | 161 | 152 | 554 |
| 60% | 559 | 1,064 | 902 | 926 | 1,421 | 1,608 | 1,761 | 459 | 371 | 148 | 134 | 535 |
| 70% | 504 | 1,034 | 890 | 852 | 1,222 | 1,478 | 1,262 | 398 | 296 | 106 | 118 | 521 |
| 80% | 486 | 1,004 | 870 | 819 | 1,116 | 1,378 | 858 | 321 | 219 | 34 | 74 | 496 |
| 90% | 438 | 895 | 810 | 748 | 1,018 | 1,273 | 326 | 229 | 130 | 0 | 9 | 444 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 675 | 1,231 | 1,665 | 2,462 | 3,542 | 3,231 | 3,315 | 2,313 | 1,701 | 656 | 379 | 700 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 949 | 1,697 | 2,787 | 6,112 | 8,349 | 7,544 | 7,758 | 7,495 | 5,902 | 2,282 | 936 | 1,096 |
| Above Normal (24%) | 774 | 1,233 | 1,481 | 2,159 | 3,817 | 2,934 | 3,713 | 1,572 | 799 | 329 | 453 | 781 |
| Below Normal (10%) | 568 | 1,090 | 995 | 1,445 | 1,865 | 1,766 | 2,281 | 563 | 473 | 177 | 157 | 532 |
| Dry (16%) | 529 | 1,121 | 1,638 | 1,000 | 1,270 | 1,565 | 1,414 | 416 | 307 | 120 | 128 | 522 |
| Critical (27%) | 463 | 939 | 1,130 | 819 | 1,092 | 1,293 | 615 | 270 | 163 | 40 | 60 | 451 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | **0** | 0 | **-1** | **-12** | **-1** | **-4** | 0 | 0 | 1 | **0** | 0 |
| 20% | 0 | **0** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **-3** | 1 | 0 | 1 | 0 |
| 40% | **0** | 0 | 0 | **0** | 16 | **0** | 0 | 1 | 0 | 0 | **0** | 0 |
| 50% | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **-1** | **0** | 0 | 1 | **0** |
| 60% | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** | **0** | 0 | 0 | **-1** |
| 70% | 0 | 0 | 0 | 0 | **0** | 0 | **0** | **0** | **-1** | 1 | 0 | 0 |
| 80% | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **-1** | **0** | **0** | **0** |
| 90% | 0 | **0** | 0 | **0** | **0** | 0 | 0 | **0** | **0** | 0 | **0** | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | **0** | 0 | **0** | **0** | **0** | **0** | **-1** | **0** | **0** | **0** | **0** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 0 | 0 | **0** | **-1** | **0** | **-2** | **-2** | **-2** | **0** | **0** | 0 | 0 |
| Above Normal (24%) | 0 | 0 | 0 | **0** | **-1** | 0 | 0 | **0** | 0 | 0 | 0 | 0 |
| Below Normal (10%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (16%) | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **-1** | **-1** | **-1** | **-1** | **0** |
| Critical (27%) | **0** | **0** | 0 | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

a Based on the 82-year simulation period.

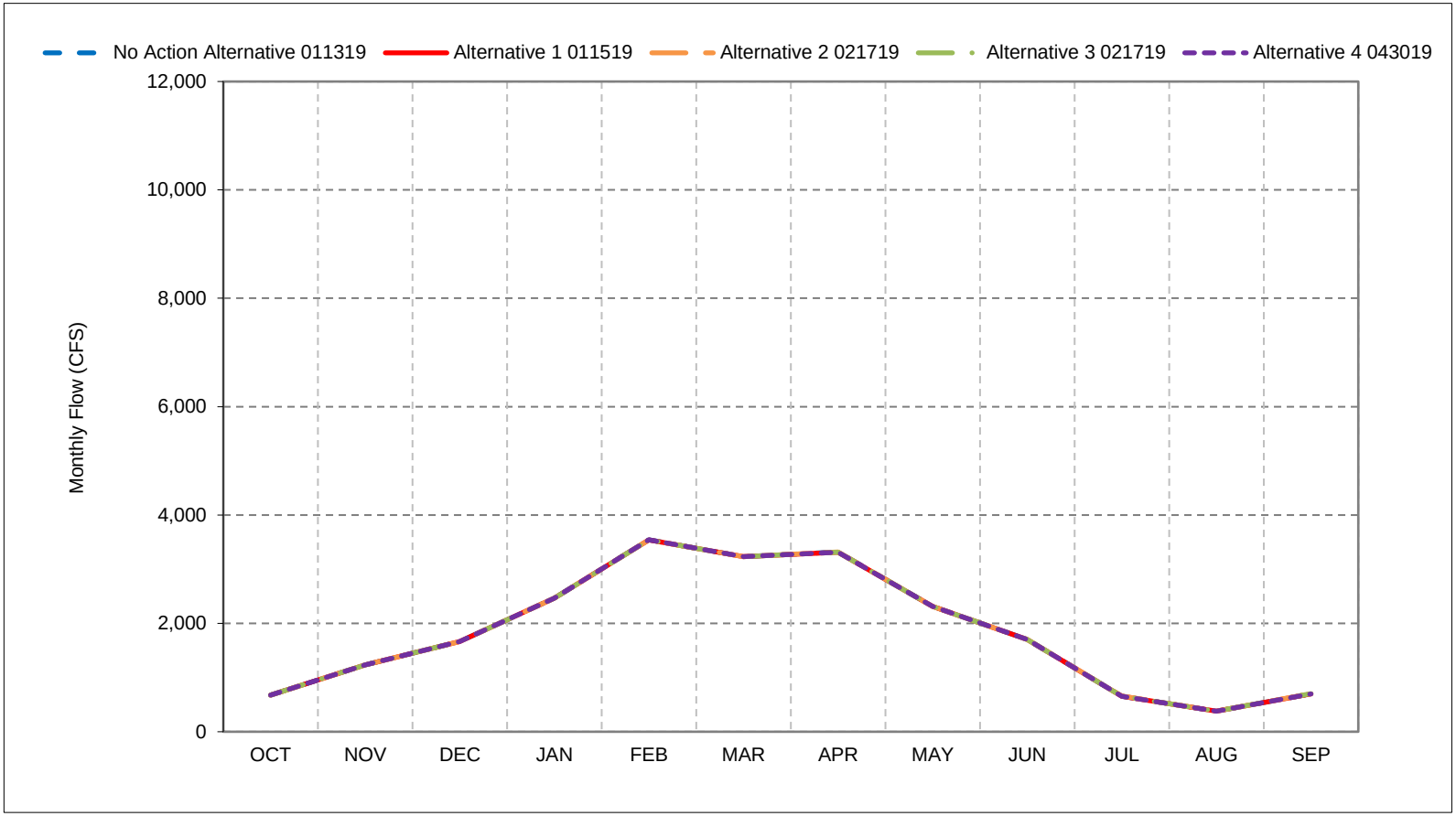
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

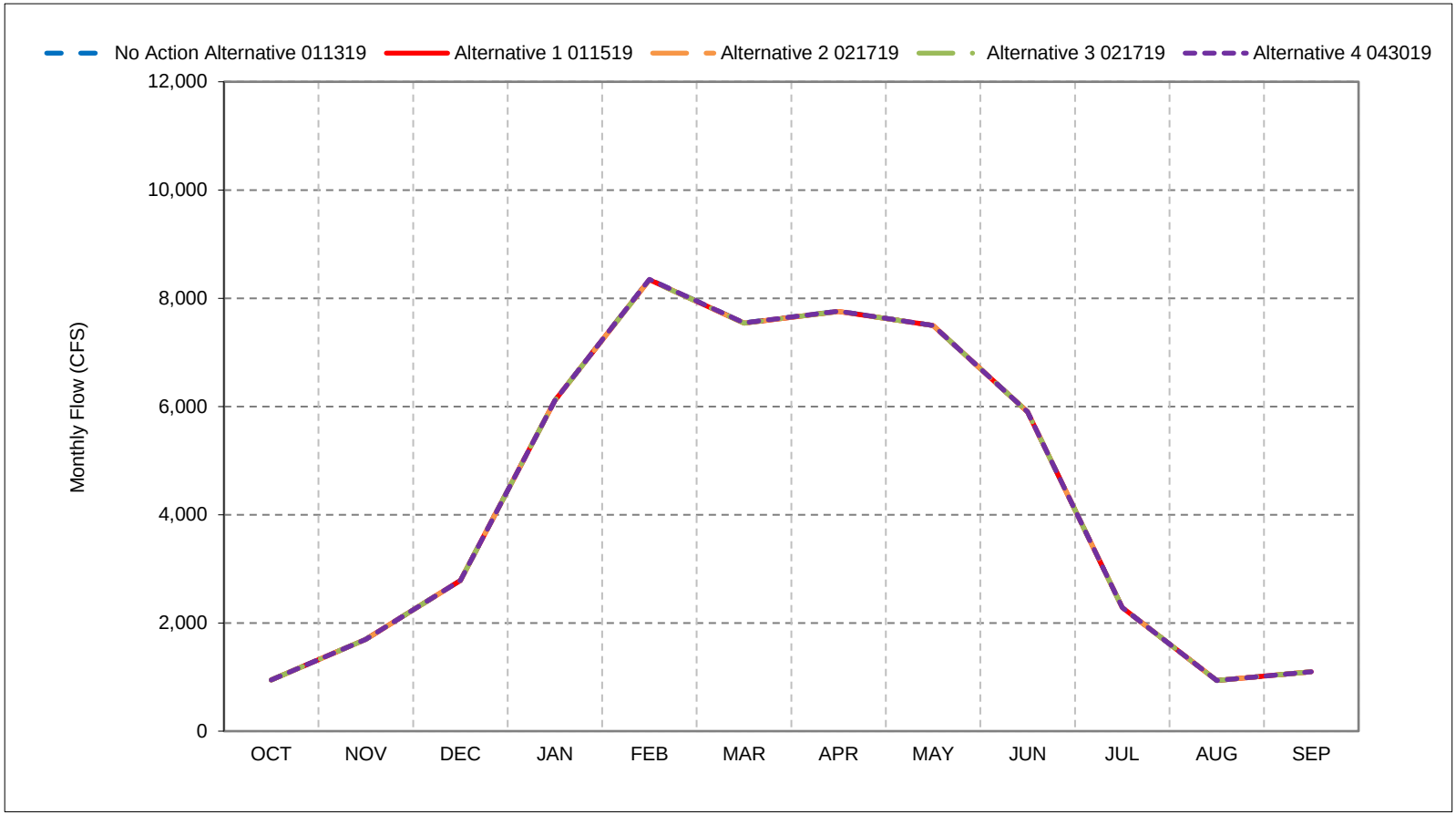
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 35-1. San Joaquin River Flow below confluence with Merced , Long-Term Average Flow



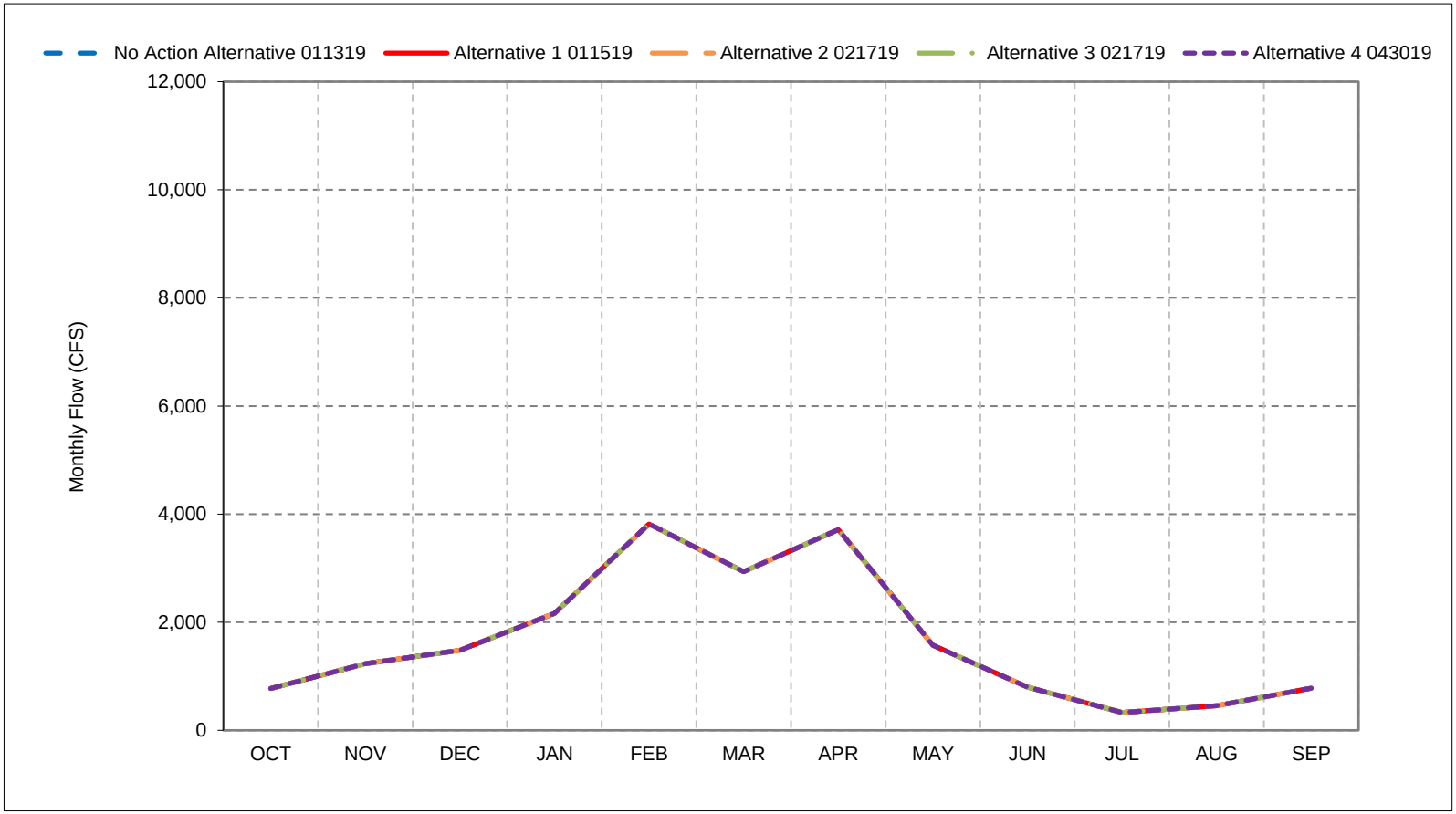

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 35-2. San Joaquin River Flow below confluence with Merced , Wet Year Average Flow



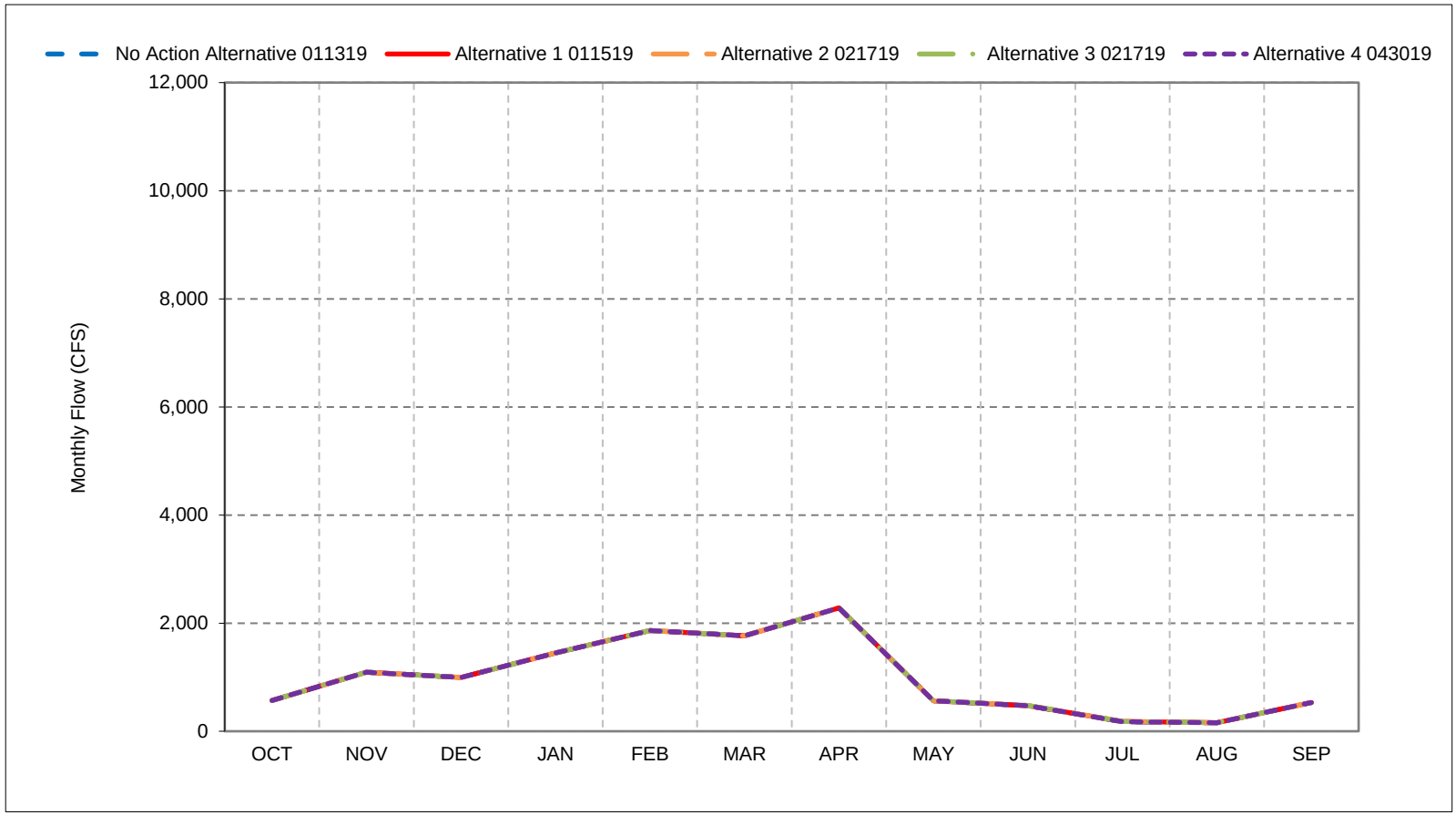

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 35-3. San Joaquin River Flow below confluence with Merced , Above Normal Year Average



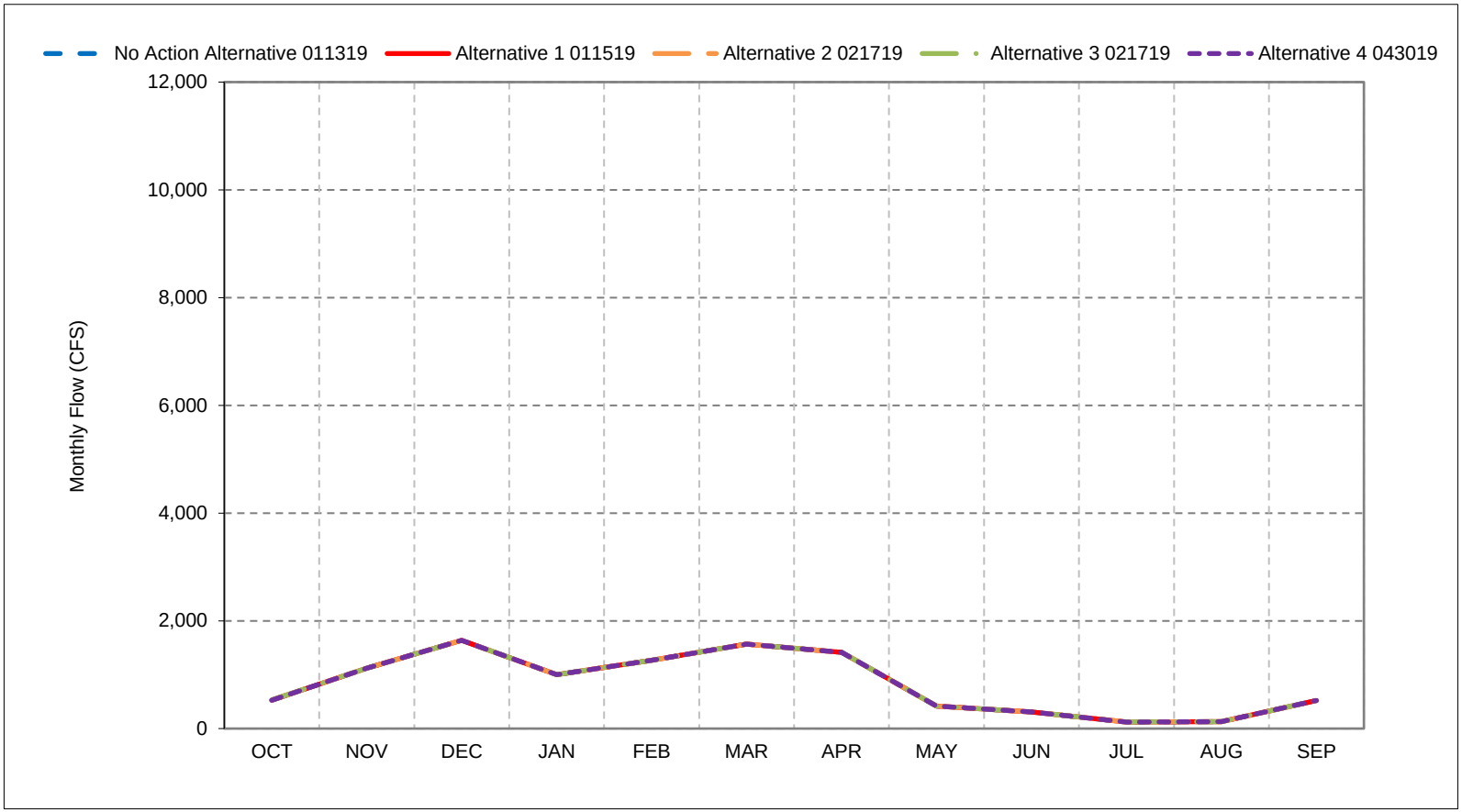

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 35-4. San Joaquin River Flow below confluence with Merced , Below Normal Year Average I



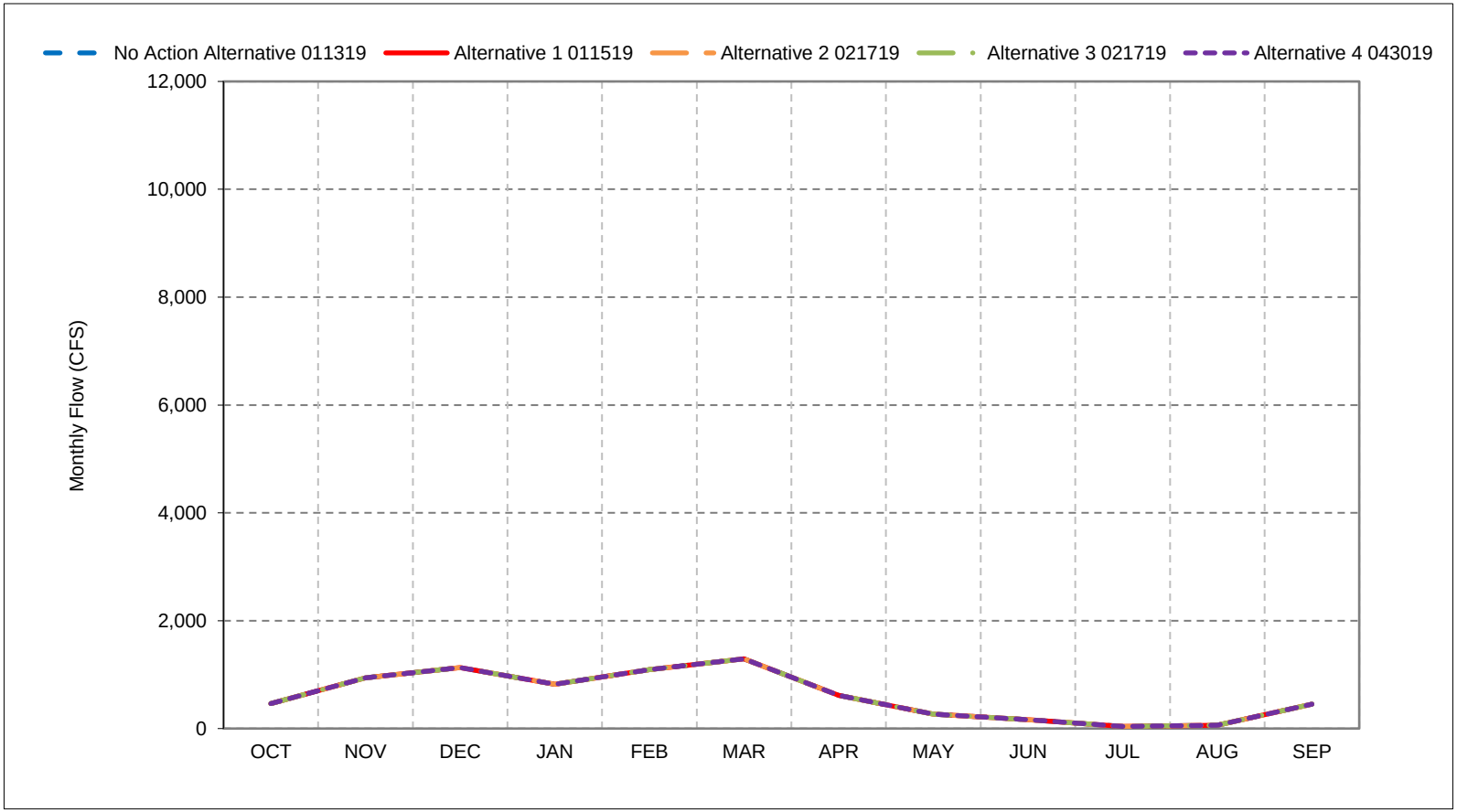

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 35-5. San Joaquin River Flow below confluence with Merced , Dry Year Average Flow



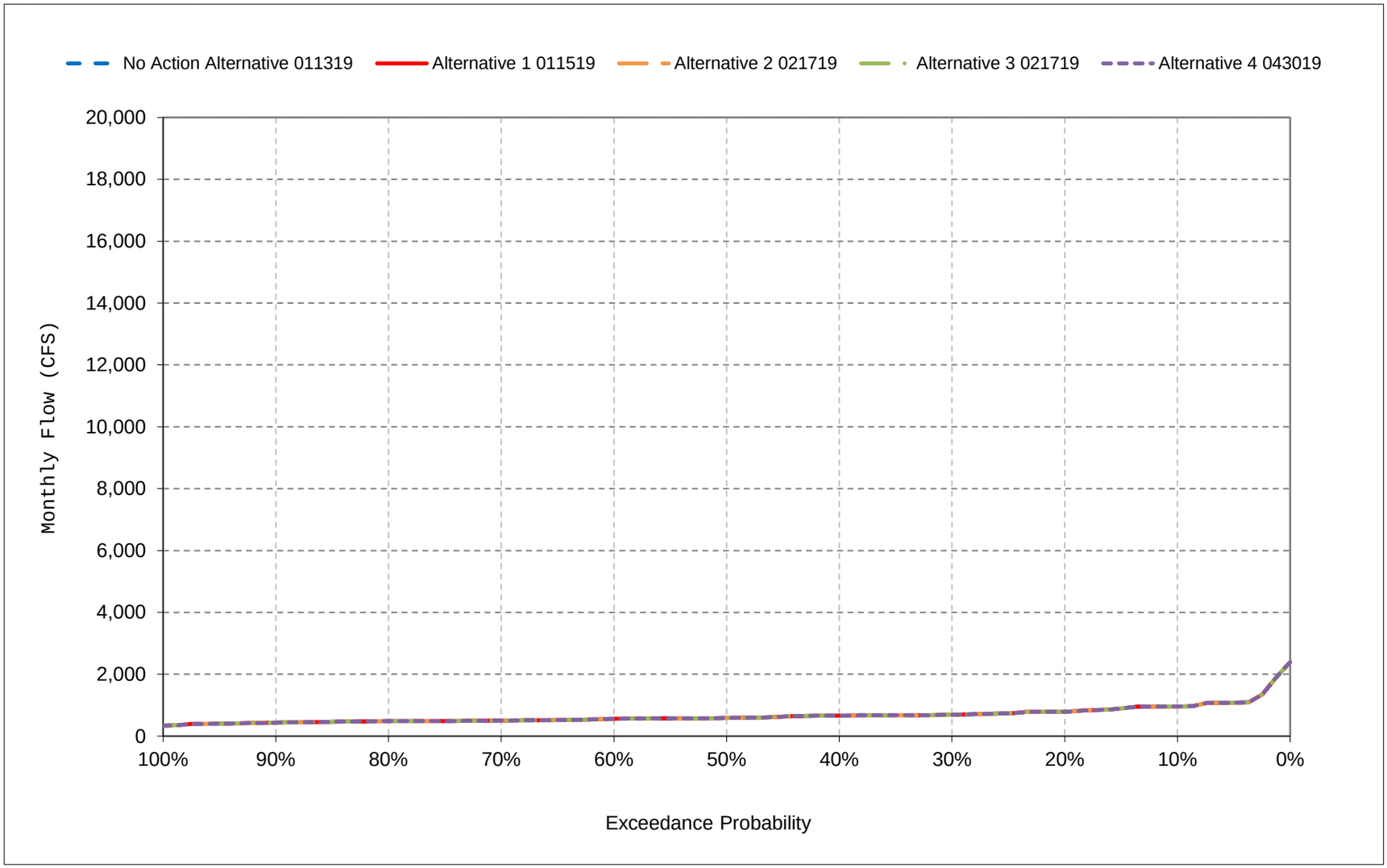

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 35-6. San Joaquin River Flow below confluence with Merced , Critical Year Average Flow




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

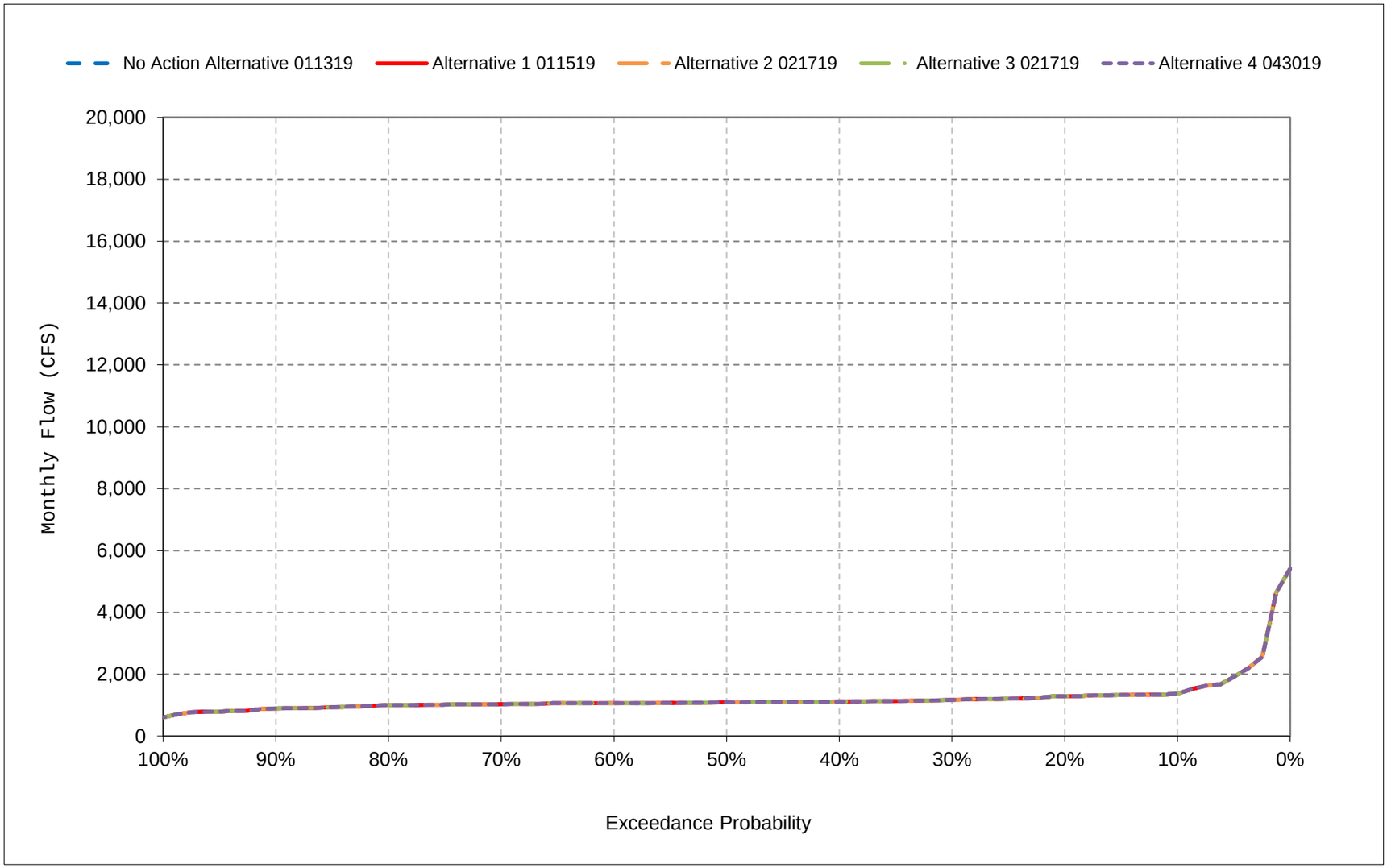
**Figure 35-7. San Joaquin River Flow below confluence with Merced , October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

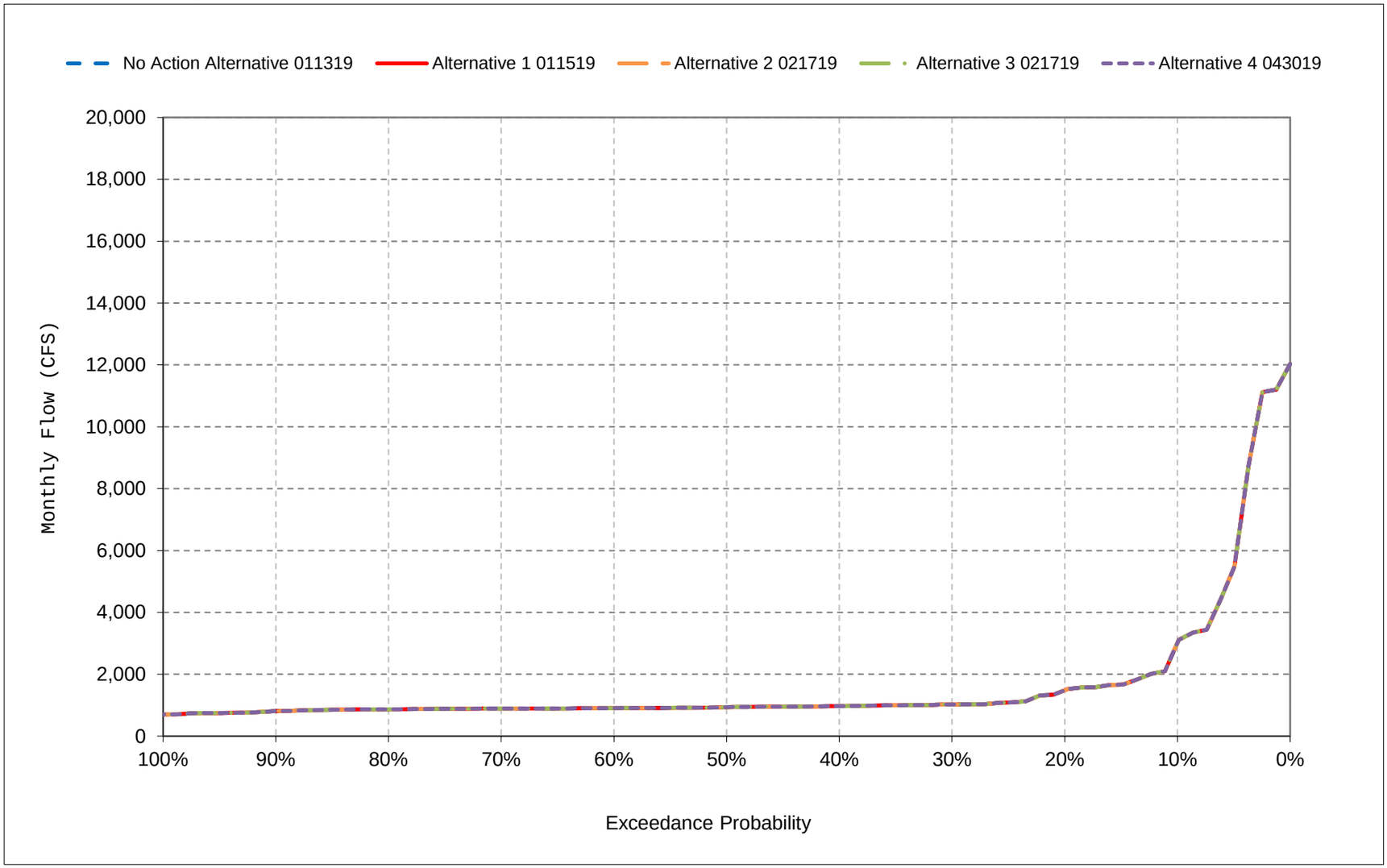
**Figure 35-8. San Joaquin River Flow below confluence with Merced , November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

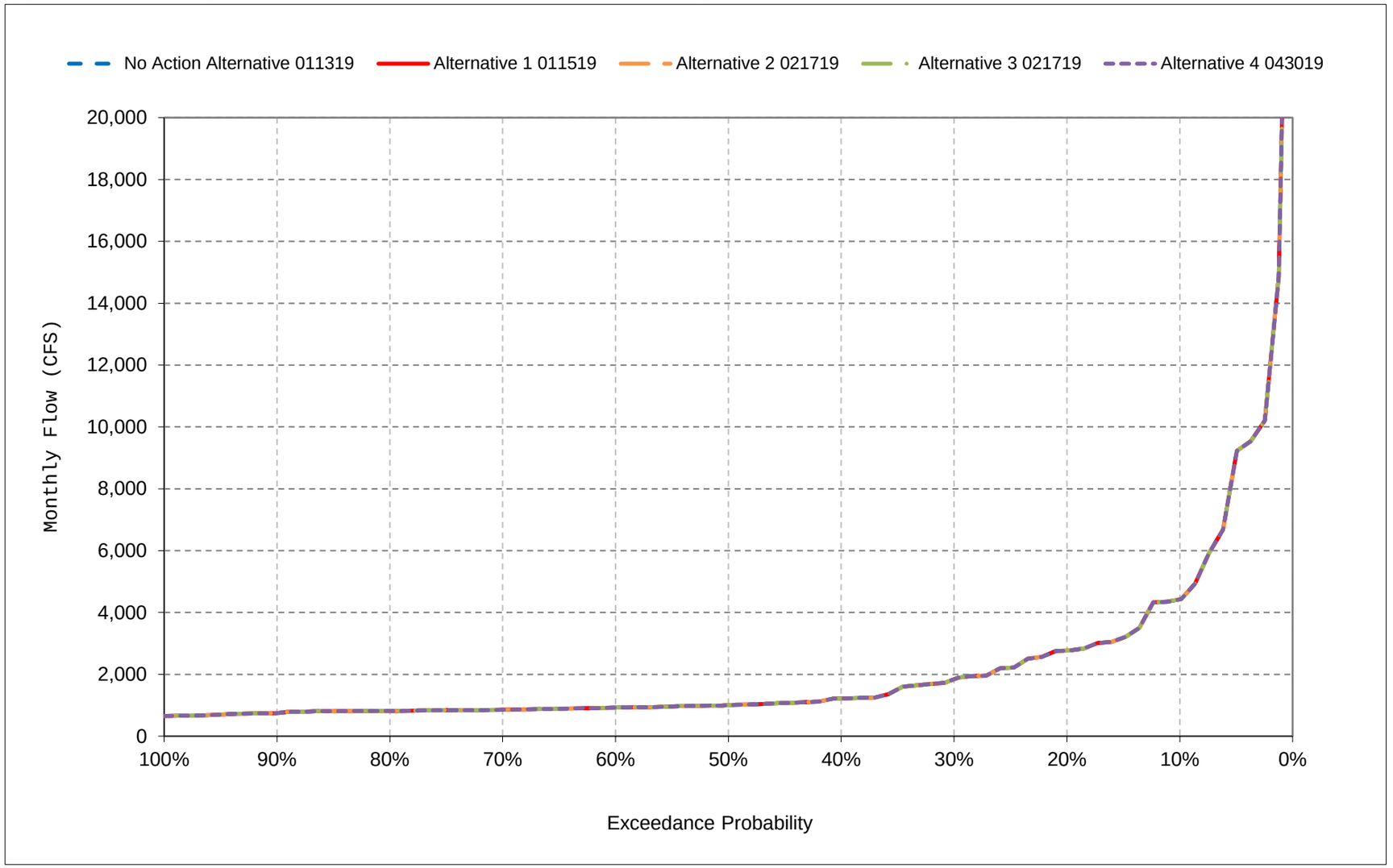
**Figure 35-9. San Joaquin River Flow below confluence with Merced , December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

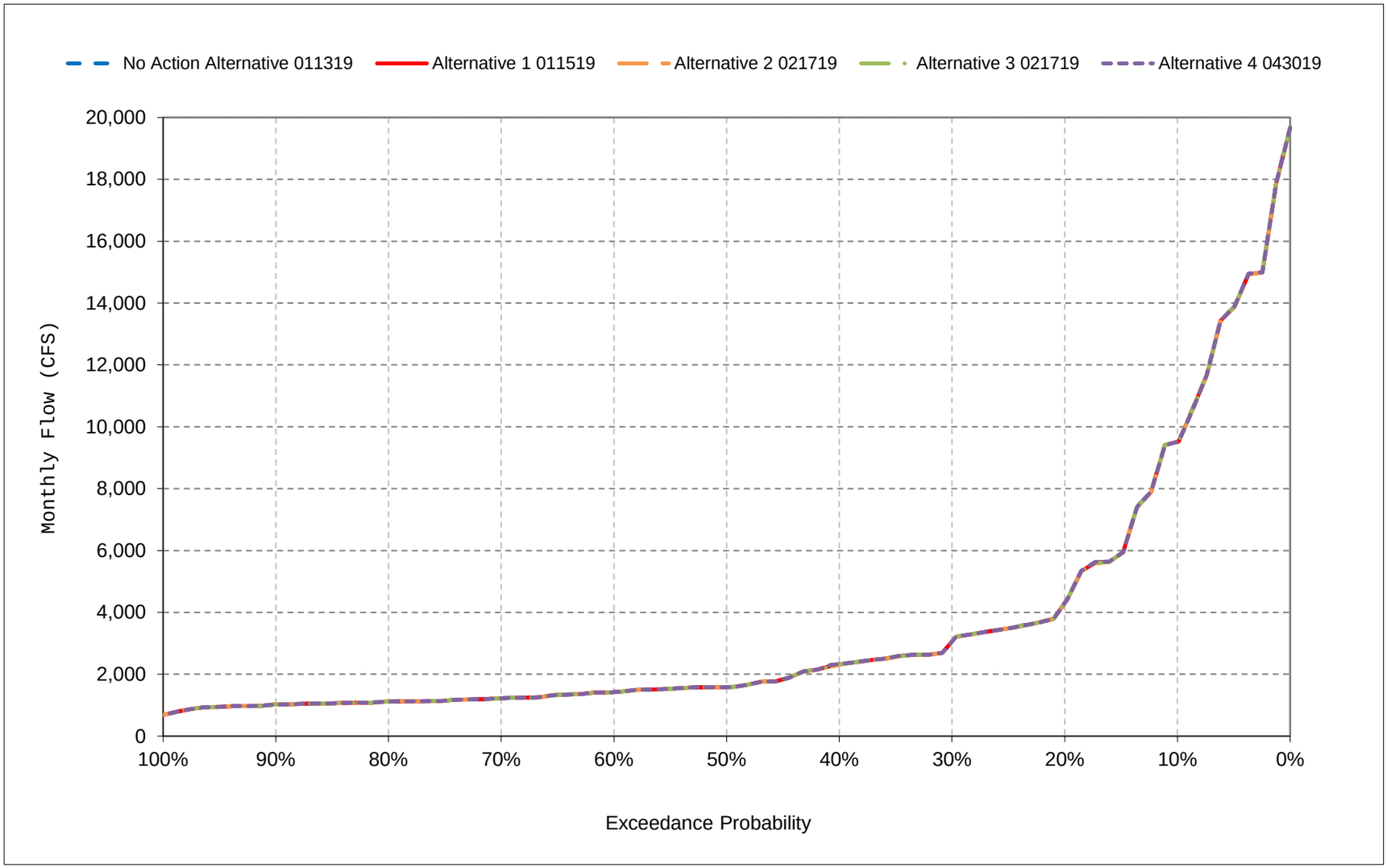
**Figure 35-10. San Joaquin River Flow below confluence with Merced , January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

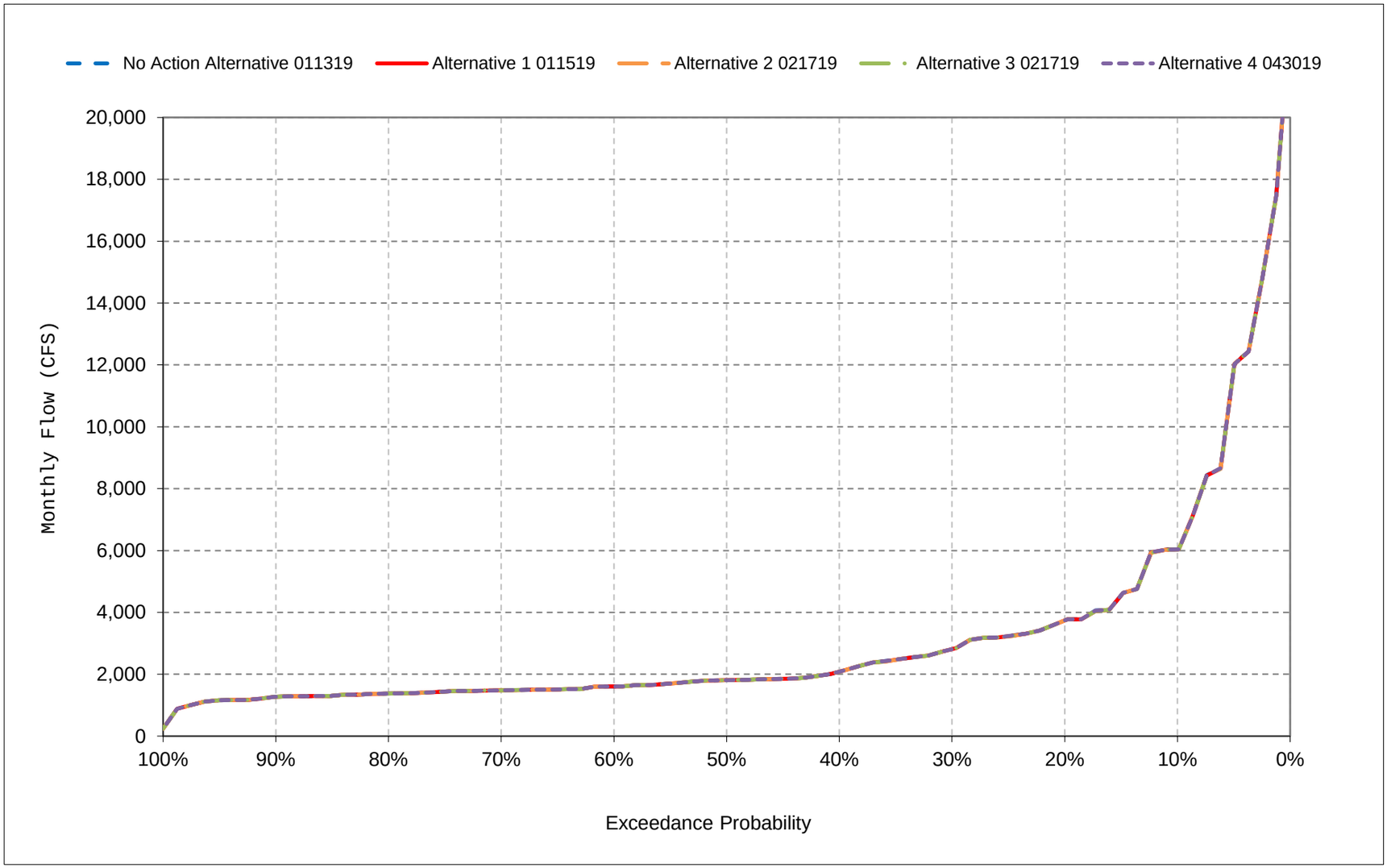
**Figure 35-11. San Joaquin River Flow below confluence with Merced , February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

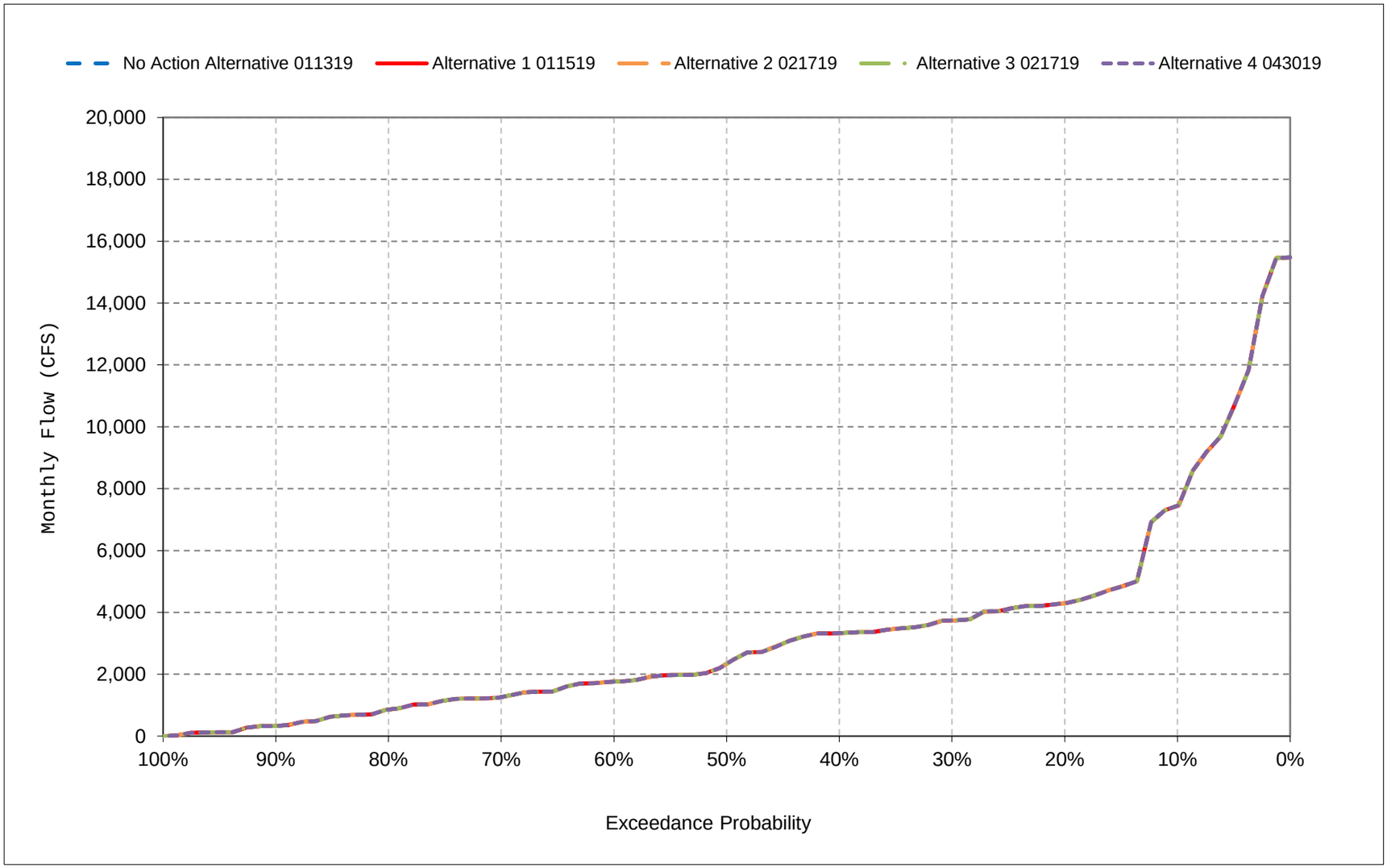
**Figure 35-12. San Joaquin River Flow below confluence with Merced , March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

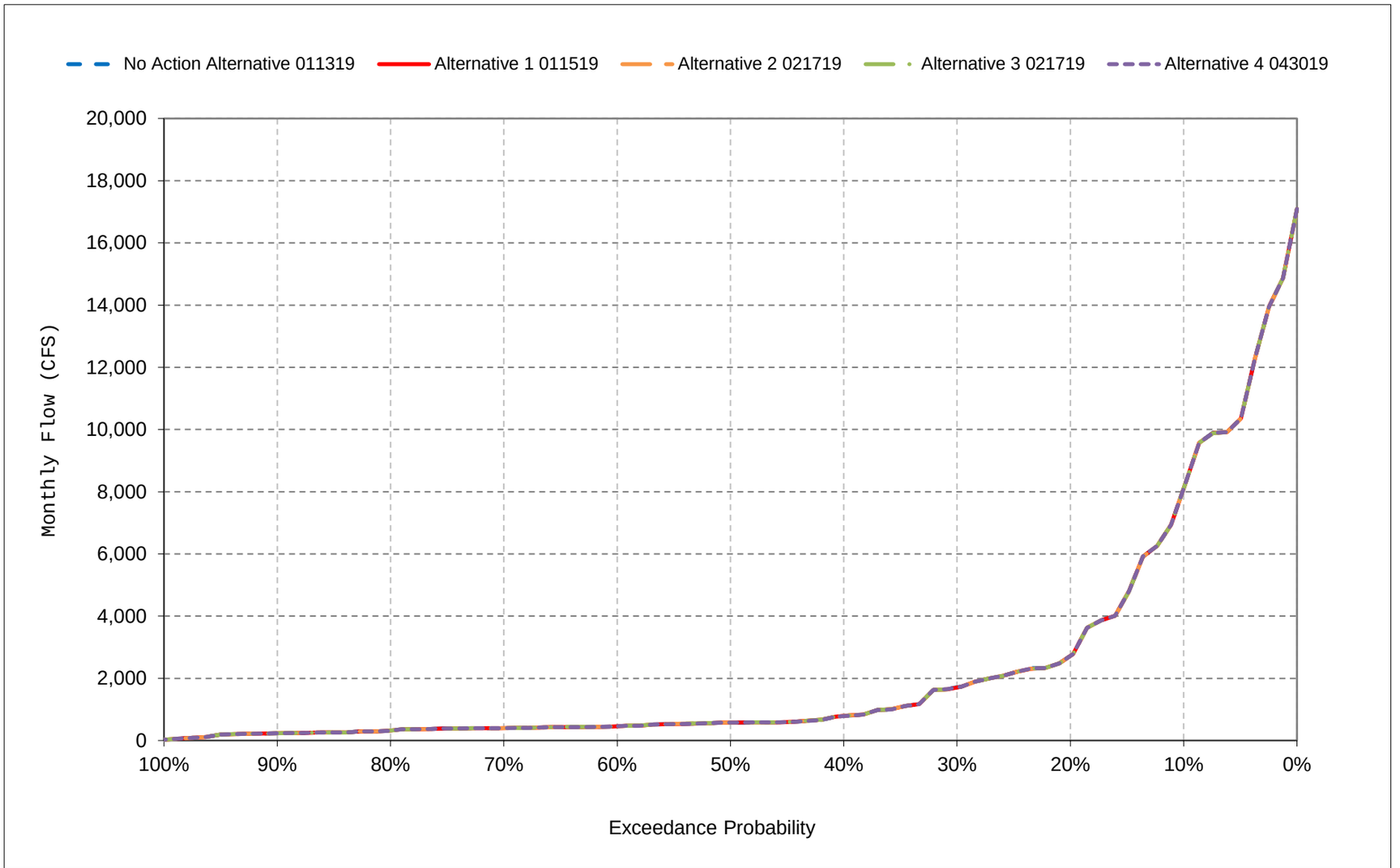
**Figure 35-13. San Joaquin River Flow below confluence with Merced , April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

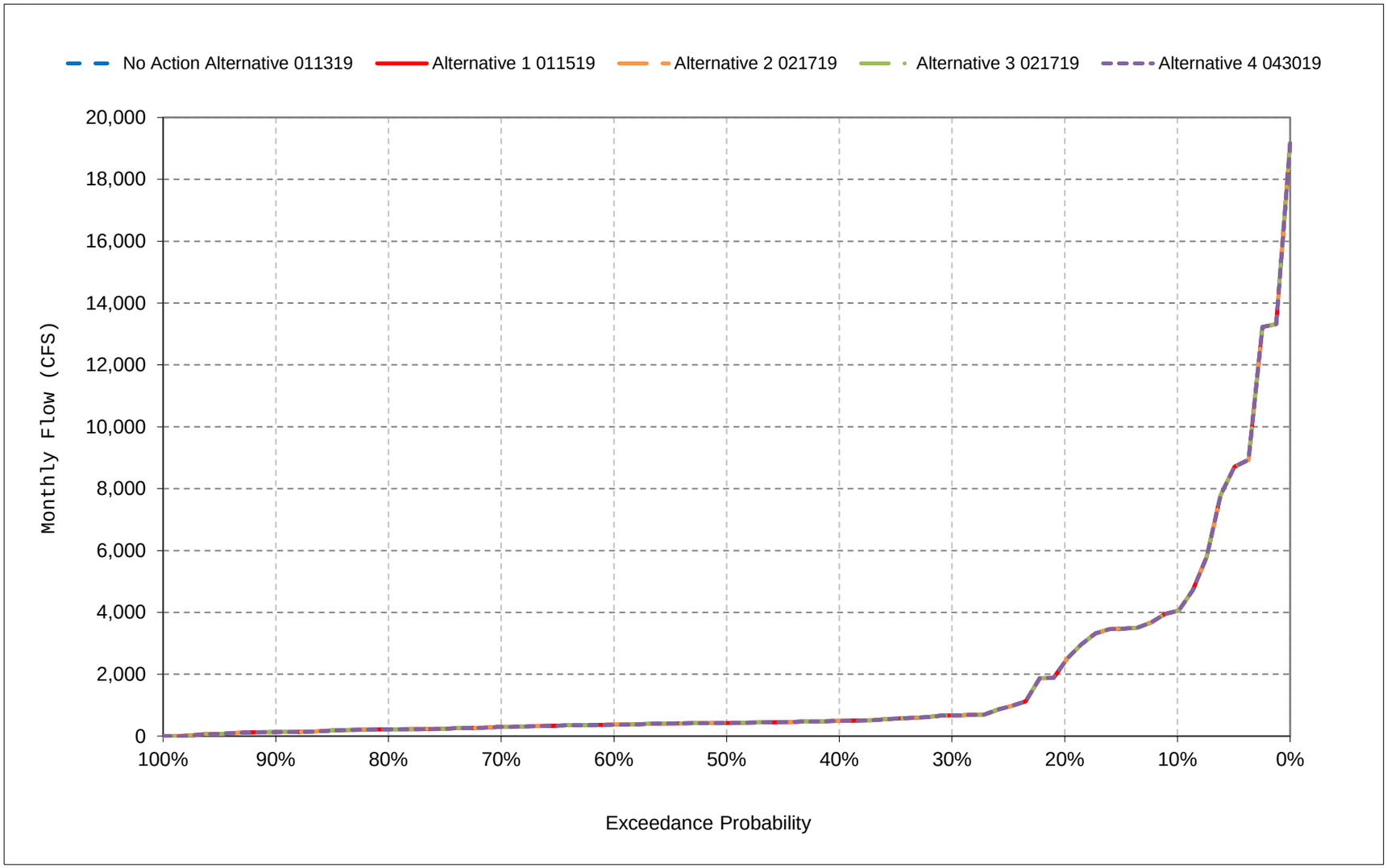
**Figure 35-14. San Joaquin River Flow below confluence with Merced , May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

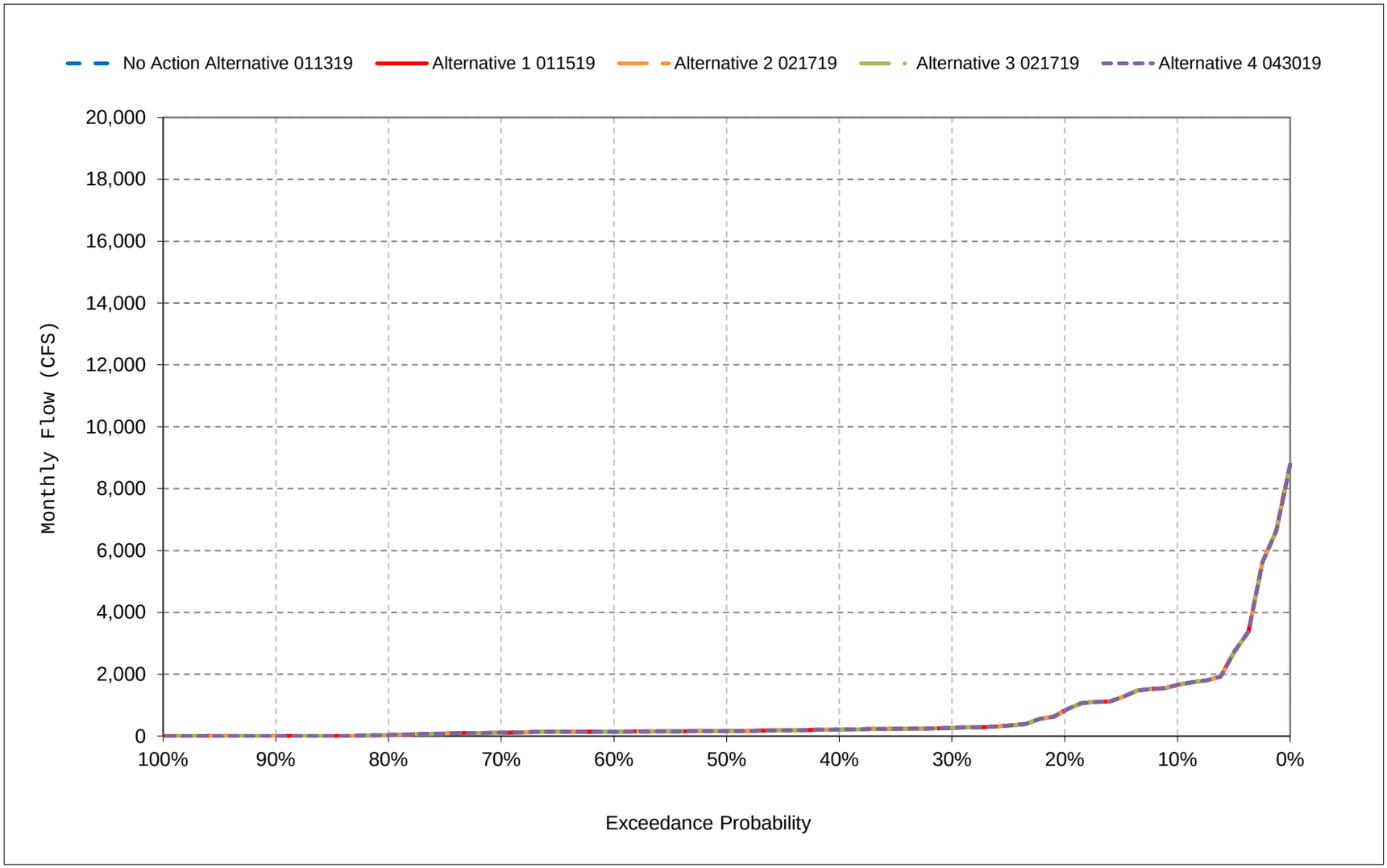
**Figure 35-15. San Joaquin River Flow below confluence with Merced , June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

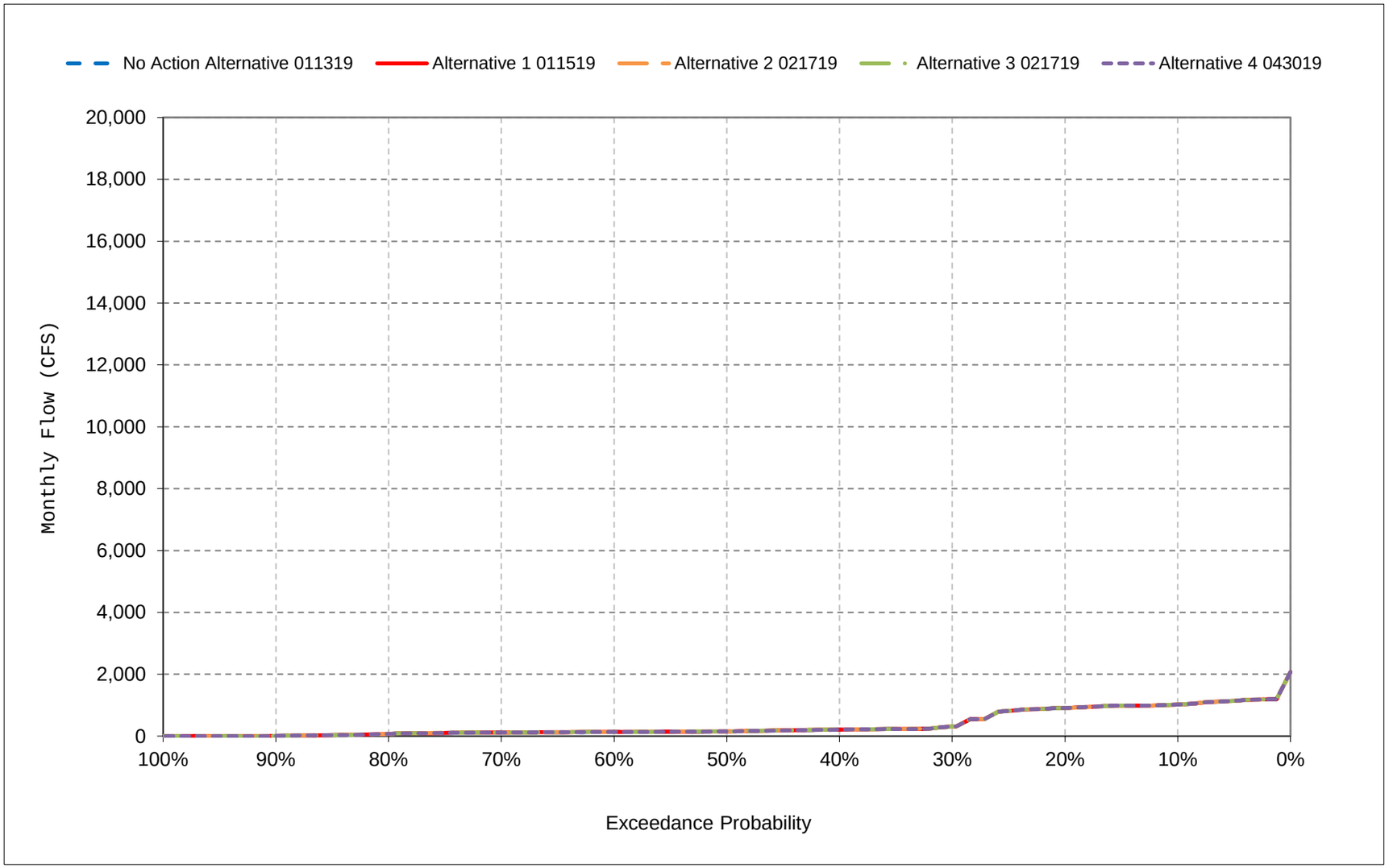
**Figure 35-16. San Joaquin River Flow below confluence with Merced , July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

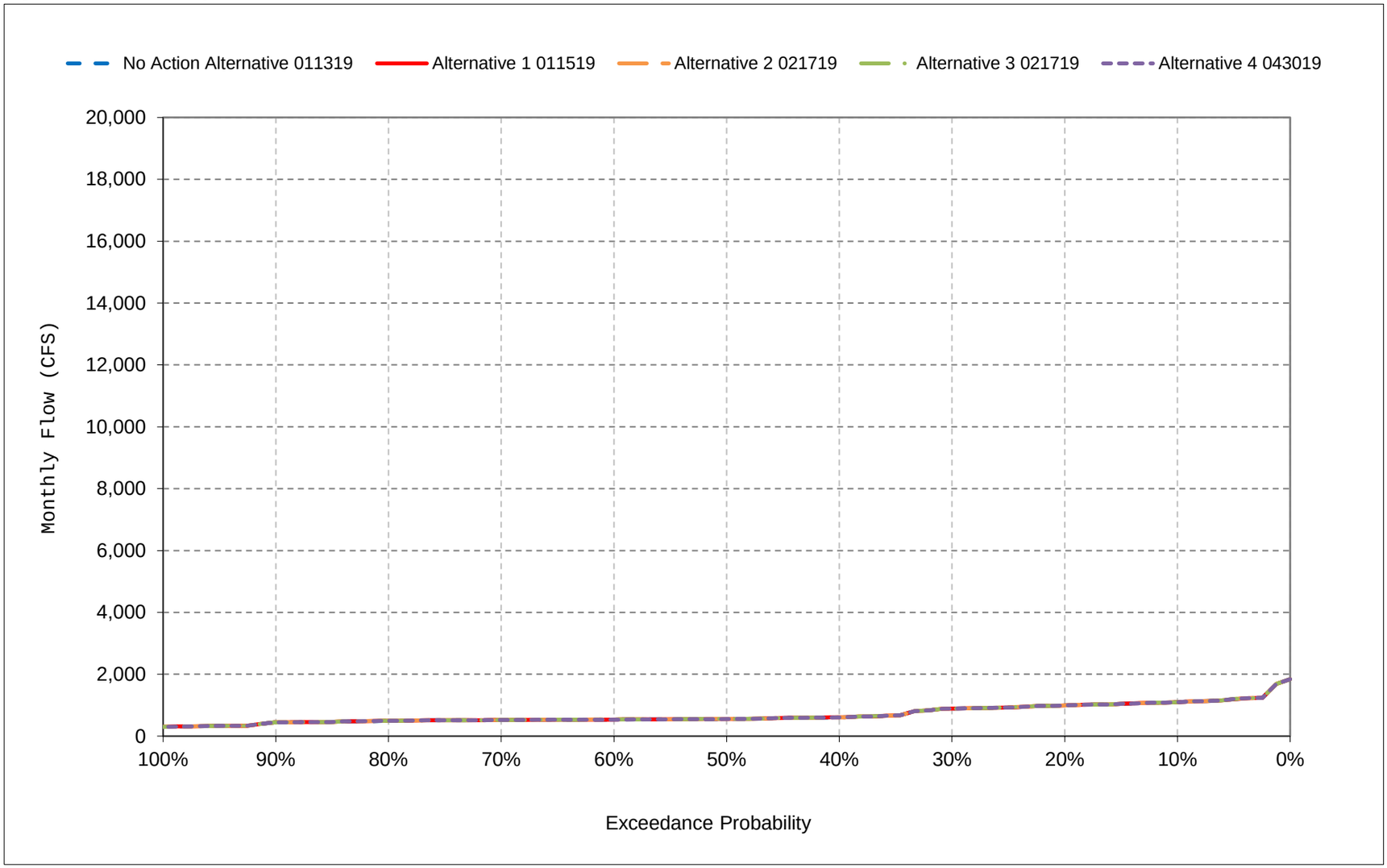
**Figure 35-17. San Joaquin River Flow below confluence with Merced , August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 35-18. San Joaquin River Flow below confluence with Merced , September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 37-1. Stanislaus River Flow below Goodwin, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 837 | 290 | 306 | 358 | 897 | 1,648 | 1,633 | 1,929 | 1,100 | 429 | 392 | 390 |
| 20% | 797 | 200 | 218 | 232 | 405 | 1,521 | 1,553 | 1,555 | 1,089 | 318 | 300 | 300 |
| 30% | 774 | 200 | 200 | 232 | 282 | 440 | 1,553 | 1,294 | 940 | 300 | 283 | 250 |
| 40% | 774 | 200 | 200 | 226 | 236 | 200 | 1,400 | 1,242 | 853 | 300 | 283 | 250 |
| 50% | 774 | 200 | 200 | 226 | 236 | 200 | 1,400 | 1,242 | 363 | 275 | 283 | 250 |
| 60% | 636 | 200 | 200 | 219 | 229 | 200 | 812 | 918 | 363 | 265 | 283 | 249 |
| 70% | 636 | 200 | 200 | 219 | 229 | 200 | 767 | 705 | 294 | 265 | 283 | 249 |
| 80% | 578 | 200 | 200 | 214 | 221 | 200 | 767 | 631 | 262 | 265 | 283 | 249 |
| 90% | 577 | 200 | 200 | 213 | 215 | 200 | 504 | 547 | 255 | 265 | 283 | 249 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 723 | 278 | 367 | 519 | 593 | 754 | 1,159 | 1,124 | 680 | 395 | 362 | 351 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 859 | 532 | 863 | 999 | 1,193 | 2,014 | 1,536 | 1,691 | 1,140 | 716 | 639 | 692 |
| Above Normal (24%) | 728 | 205 | 212 | 664 | 676 | 645 | 1,224 | 1,146 | 959 | 353 | 292 | 267 |
| Below Normal (10%) | 752 | 200 | 202 | 282 | 346 | 365 | 1,454 | 1,201 | 475 | 269 | 285 | 256 |
| Dry (16%) | 677 | 200 | 200 | 234 | 313 | 200 | 1,030 | 930 | 375 | 276 | 277 | 245 |
| Critical (27%) | 614 | 200 | 236 | 227 | 255 | 234 | 742 | 700 | 282 | 272 | 264 | 231 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 797 | 200 | 306 | 552 | 2,259 | 1,528 | 1,572 | 1,555 | 940 | 300 | 300 | 300 |
| 20% | 797 | 200 | 200 | 232 | 294 | 1,521 | 1,553 | 1,555 | 940 | 300 | 300 | 300 |
| 30% | 774 | 200 | 200 | 230 | 236 | 675 | 1,553 | 1,242 | 363 | 265 | 283 | 250 |
| 40% | 774 | 200 | 200 | 226 | 229 | 200 | 1,400 | 1,242 | 363 | 265 | 283 | 250 |
| 50% | 774 | 200 | 200 | 226 | 229 | 200 | 1,400 | 1,242 | 363 | 265 | 283 | 250 |
| 60% | 636 | 200 | 200 | 226 | 229 | 200 | 972 | 819 | 255 | 265 | 283 | 249 |
| 70% | 636 | 200 | 200 | 219 | 221 | 200 | 767 | 631 | 255 | 265 | 283 | 249 |
| 80% | 577 | 200 | 200 | 213 | 214 | 200 | 466 | 400 | 200 | 200 | 200 | 200 |
| 90% | 577 | 200 | 200 | 213 | 214 | 200 | 460 | 400 | 200 | 200 | 200 | 200 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 718 | 272 | 341 | 549 | 722 | 762 | 1,147 | 1,036 | 566 | 378 | 338 | 339 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 854 | 508 | 735 | 1,003 | 1,750 | 2,189 | 1,475 | 1,665 | 1,499 | 834 | 625 | 691 |
| Above Normal (24%) | 774 | 202 | 223 | 694 | 695 | 577 | 1,571 | 1,255 | 363 | 265 | 283 | 258 |
| Below Normal (10%) | 774 | 200 | 202 | 546 | 528 | 247 | 1,610 | 1,242 | 363 | 265 | 283 | 250 |
| Dry (16%) | 626 | 200 | 209 | 224 | 228 | 200 | 825 | 655 | 256 | 255 | 270 | 241 |
| Critical (27%) | 578 | 200 | 236 | 220 | 222 | 218 | 501 | 445 | 200 | 200 | 200 | 198 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-41** | **-90** | 0 | 194 | 1,362 | **-121** | **-62** | **-375** | **-160** | **-129** | **-92** | **-90** |
| 20% | 0 | 0 | **-18** | 0 | **-111** | 0 | 0 | 0 | **-149** | **-18** | 0 | 0 |
| 30% | 0 | 0 | 0 | **-2** | **-46** | 236 | 0 | **-52** | **-577** | **-35** | **0** | 0 |
| 40% | 0 | 0 | 0 | 0 | **-7** | 0 | 0 | 0 | **-490** | **-35** | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | **-7** | 0 | 0 | 0 | 0 | **-10** | 0 | 0 |
| 60% | 0 | 0 | 0 | 6 | 0 | 0 | 160 | **-99** | **-108** | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | **-7** | 0 | 0 | **-75** | **-38** | 0 | 0 | 0 |
| 80% | **-1** | 0 | 0 | **-1** | **-7** | 0 | **-300** | **-231** | **-62** | **-65** | **-83** | **-49** |
| 90% | 0 | 0 | 0 | 0 | **-1** | 0 | **-44** | **-147** | **-55** | **-65** | **-83** | **-49** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-4** | **-6** | **-26** | 31 | 129 | 8 | **-11** | **-87** | **-114** | **-17** | **-24** | **-13** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **-5** | **-24** | **-128** | 4 | 557 | 175 | **-61** | **-26** | 359 | 118 | **-14** | **-1** |
| Above Normal (24%) | 46 | **-3** | 11 | 31 | 20 | **-68** | 347 | 109 | **-596** | **-88** | **-9** | **-9** |
| Below Normal (10%) | 22 | 0 | 0 | 264 | 183 | **-118** | 156 | 41 | **-111** | **-4** | **-2** | **-6** |
| Dry (16%) | **-51** | 0 | 9 | **-10** | **-86** | 0 | **-205** | **-274** | **-119** | **-21** | **-6** | **-4** |
| Critical (27%) | **-36** | 0 | 0 | **-7** | **-33** | **-15** | **-241** | **-255** | **-82** | **-72** | **-64** | **-33** |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

# Table 37-2. Stanislaus River Flow below Goodwin, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 837 | 290 | 306 | 358 | 897 | 1,648 | 1,633 | 1,929 | 1,100 | 429 | 392 | 390 |
| 20% | 797 | 200 | 218 | 232 | 405 | 1,521 | 1,553 | 1,555 | 1,089 | 318 | 300 | 300 |
| 30% | 774 | 200 | 200 | 232 | 282 | 440 | 1,553 | 1,294 | 940 | 300 | 283 | 250 |
| 40% | 774 | 200 | 200 | 226 | 236 | 200 | 1,400 | 1,242 | 853 | 300 | 283 | 250 |
| 50% | 774 | 200 | 200 | 226 | 236 | 200 | 1,400 | 1,242 | 363 | 275 | 283 | 250 |
| 60% | 636 | 200 | 200 | 219 | 229 | 200 | 812 | 918 | 363 | 265 | 283 | 249 |
| 70% | 636 | 200 | 200 | 219 | 229 | 200 | 767 | 705 | 294 | 265 | 283 | 249 |
| 80% | 578 | 200 | 200 | 214 | 221 | 200 | 767 | 631 | 262 | 265 | 283 | 249 |
| 90% | 577 | 200 | 200 | 213 | 215 | 200 | 504 | 547 | 255 | 265 | 283 | 249 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 723 | 278 | 367 | 519 | 593 | 754 | 1,159 | 1,124 | 680 | 395 | 362 | 351 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 859 | 532 | 863 | 999 | 1,193 | 2,014 | 1,536 | 1,691 | 1,140 | 716 | 639 | 692 |
| Above Normal (24%) | 728 | 205 | 212 | 664 | 676 | 645 | 1,224 | 1,146 | 959 | 353 | 292 | 267 |
| Below Normal (10%) | 752 | 200 | 202 | 282 | 346 | 365 | 1,454 | 1,201 | 475 | 269 | 285 | 256 |
| Dry (16%) | 677 | 200 | 200 | 234 | 313 | 200 | 1,030 | 930 | 375 | 276 | 277 | 245 |
| Critical (27%) | 614 | 200 | 236 | 227 | 255 | 234 | 742 | 700 | 282 | 272 | 264 | 231 |

## Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 333 | 296 | 609 | 1,252 | 3,443 | 1,596 | 1,179 | 1,145 | 1,516 | 977 | 1,246 | 1,386 |
| 20% | 250 | 296 | 296 | 468 | 1,383 | 622 | 1,179 | 1,145 | 1,021 | 320 | 283 | 249 |
| 30% | 170 | 233 | 292 | 296 | 867 | 296 | 843 | 794 | 649 | 286 | 283 | 249 |
| 40% | 117 | 203 | 227 | 207 | 365 | 231 | 563 | 670 | 314 | 265 | 283 | 249 |
| 50% | 110 | 200 | 200 | 144 | 283 | 128 | 472 | 558 | 265 | 265 | 283 | 249 |
| 60% | 110 | 200 | 200 | 125 | 230 | 125 | 416 | 477 | 255 | 265 | 283 | 249 |
| 70% | 110 | 200 | 200 | 125 | 157 | 125 | 383 | 459 | 255 | 265 | 283 | 249 |
| 80% | 110 | 200 | 200 | 125 | 125 | 125 | 383 | 416 | 255 | 265 | 283 | 249 |
| 90% | 110 | 200 | 200 | 125 | 125 | 125 | 383 | 371 | 255 | 265 | 283 | 249 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 201 | 304 | 437 | 571 | 1,033 | 609 | 678 | 761 | 751 | 467 | 426 | 428 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 438 | 613 | 1,119 | 1,109 | 2,749 | 1,660 | 1,169 | 1,371 | 1,635 | 1,065 | 908 | 1,029 |
| Above Normal (24%) | 166 | 232 | 258 | 797 | 873 | 579 | 685 | 752 | 875 | 313 | 283 | 249 |
| Below Normal (10%) | 116 | 203 | 206 | 405 | 589 | 188 | 477 | 458 | 331 | 265 | 283 | 249 |
| Dry (16%) | 110 | 200 | 200 | 240 | 441 | 125 | 427 | 514 | 344 | 277 | 283 | 249 |
| Critical (27%) | 110 | 200 | 232 | 158 | 206 | 167 | 471 | 498 | 268 | 276 | 276 | 244 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-504** | 6 | 304 | 893 | 2,546 | **-52** | **-454** | **-784** | 416 | 548 | 854 | 996 |
| 20% | **-547** | 96 | 78 | 235 | 978 | **-899** | **-374** | **-409** | **-68** | 3 | **-17** | **-51** |
| 30% | **-604** | 33 | 92 | 64 | 585 | **-143** | **-711** | **-500** | **-291** | **-14** | **0** | **-1** |
| 40% | **-658** | 3 | 27 | **-19** | 129 | 31 | **-837** | **-572** | **-539** | **-35** | 0 | **-1** |
| 50% | **-664** | **0** | **0** | **-82** | 48 | **-72** | **-928** | **-684** | **-98** | **-10** | 0 | **-1** |
| 60% | **-526** | **0** | **0** | **-95** | 2 | **-75** | **-396** | **-440** | **-108** | 0 | 0 | 0 |
| 70% | **-526** | **0** | **0** | **-95** | **-71** | **-75** | **-384** | **-247** | **-38** | 0 | 0 | 0 |
| 80% | **-468** | **0** | **0** | **-89** | **-97** | **-75** | **-384** | **-215** | **-7** | 0 | 0 | 0 |
| 90% | **-468** | **0** | **0** | **-88** | **-90** | **-75** | **-121** | **-177** | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-522** | 26 | 70 | 53 | 440 | **-145** | **-480** | **-363** | 71 | 72 | 64 | 77 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **-421** | 81 | 256 | 111 | 1,556 | **-355** | **-367** | **-321** | 495 | 350 | 270 | 337 |
| Above Normal (24%) | **-563** | 27 | 46 | 133 | 197 | **-66** | **-540** | **-393** | **-84** | **-40** | **-9** | **-18** |
| Below Normal (10%) | **-637** | 3 | 3 | 123 | 243 | **-177** | **-978** | **-743** | **-144** | **-4** | **-2** | **-7** |
| Dry (16%) | **-567** | **0** | **0** | 6 | 128 | **-75** | **-602** | **-416** | **-31** | 1 | 6 | 3 |
| Critical (27%) | **-504** | **0** | **-4** | **-68** | **-49** | **-67** | **-271** | **-202** | **-15** | 5 | 12 | 13 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

# Table 37-3. Stanislaus River Flow below Goodwin, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 837 | 290 | 306 | 358 | 897 | 1,648 | 1,633 | 1,929 | 1,100 | 429 | 392 | 390 |
| 20% | 797 | 200 | 218 | 232 | 405 | 1,521 | 1,553 | 1,555 | 1,089 | 318 | 300 | 300 |
| 30% | 774 | 200 | 200 | 232 | 282 | 440 | 1,553 | 1,294 | 940 | 300 | 283 | 250 |
| 40% | 774 | 200 | 200 | 226 | 236 | 200 | 1,400 | 1,242 | 853 | 300 | 283 | 250 |
| 50% | 774 | 200 | 200 | 226 | 236 | 200 | 1,400 | 1,242 | 363 | 275 | 283 | 250 |
| 60% | 636 | 200 | 200 | 219 | 229 | 200 | 812 | 918 | 363 | 265 | 283 | 249 |
| 70% | 636 | 200 | 200 | 219 | 229 | 200 | 767 | 705 | 294 | 265 | 283 | 249 |
| 80% | 578 | 200 | 200 | 214 | 221 | 200 | 767 | 631 | 262 | 265 | 283 | 249 |
| 90% | 577 | 200 | 200 | 213 | 215 | 200 | 504 | 547 | 255 | 265 | 283 | 249 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 723 | 278 | 367 | 519 | 593 | 754 | 1,159 | 1,124 | 680 | 395 | 362 | 351 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 859 | 532 | 863 | 999 | 1,193 | 2,014 | 1,536 | 1,691 | 1,140 | 716 | 639 | 692 |
| Above Normal (24%) | 728 | 205 | 212 | 664 | 676 | 645 | 1,224 | 1,146 | 959 | 353 | 292 | 267 |
| Below Normal (10%) | 752 | 200 | 202 | 282 | 346 | 365 | 1,454 | 1,201 | 475 | 269 | 285 | 256 |
| Dry (16%) | 677 | 200 | 200 | 234 | 313 | 200 | 1,030 | 930 | 375 | 276 | 277 | 245 |
| Critical (27%) | 614 | 200 | 236 | 227 | 255 | 234 | 742 | 700 | 282 | 272 | 264 | 231 |

## Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 333 | 296 | 609 | 1,252 | 3,443 | 1,596 | 1,179 | 1,145 | 1,516 | 977 | 1,246 | 1,386 |
| 20% | 250 | 296 | 296 | 468 | 1,382 | 622 | 1,179 | 1,145 | 1,021 | 320 | 283 | 249 |
| 30% | 170 | 233 | 292 | 296 | 867 | 296 | 843 | 794 | 649 | 286 | 283 | 249 |
| 40% | 117 | 203 | 227 | 207 | 365 | 231 | 563 | 670 | 316 | 265 | 283 | 249 |
| 50% | 110 | 200 | 200 | 144 | 283 | 128 | 472 | 558 | 265 | 265 | 283 | 249 |
| 60% | 110 | 200 | 200 | 125 | 230 | 125 | 416 | 477 | 255 | 265 | 283 | 249 |
| 70% | 110 | 200 | 200 | 125 | 157 | 125 | 383 | 458 | 255 | 265 | 283 | 249 |
| 80% | 110 | 200 | 200 | 125 | 125 | 125 | 383 | 416 | 255 | 265 | 283 | 249 |
| 90% | 110 | 200 | 200 | 125 | 125 | 125 | 383 | 371 | 255 | 265 | 283 | 249 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 201 | 304 | 437 | 571 | 1,033 | 609 | 678 | 761 | 751 | 467 | 426 | 428 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 438 | 613 | 1,119 | 1,109 | 2,749 | 1,660 | 1,169 | 1,371 | 1,635 | 1,065 | 908 | 1,029 |
| Above Normal (24%) | 166 | 232 | 258 | 797 | 873 | 579 | 685 | 752 | 876 | 313 | 283 | 249 |
| Below Normal (10%) | 116 | 203 | 206 | 405 | 589 | 188 | 477 | 458 | 331 | 265 | 283 | 249 |
| Dry (16%) | 110 | 200 | 200 | 240 | 441 | 125 | 427 | 514 | 344 | 277 | 283 | 249 |
| Critical (27%) | 110 | 200 | 232 | 158 | 206 | 167 | 471 | 498 | 268 | 276 | 276 | 244 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-504** | 6 | 304 | 894 | 2,546 | **-52** | **-454** | **-784** | 416 | 548 | 854 | 996 |
| 20% | **-547** | 96 | 78 | 235 | 977 | **-899** | **-374** | **-409** | **-68** | 3 | **-17** | **-51** |
| 30% | **-604** | 33 | 92 | 64 | 585 | **-143** | **-711** | **-500** | **-291** | **-14** | **0** | **-1** |
| 40% | **-658** | 3 | 27 | **-19** | 129 | 31 | **-837** | **-572** | **-537** | **-35** | 0 | **-1** |
| 50% | **-664** | **0** | **0** | **-82** | 48 | **-72** | **-928** | **-684** | **-98** | **-10** | 0 | **-1** |
| 60% | **-526** | **0** | **0** | **-95** | 2 | **-75** | **-396** | **-440** | **-108** | 0 | 0 | 0 |
| 70% | **-526** | **0** | **0** | **-95** | **-71** | **-75** | **-384** | **-247** | **-38** | 0 | 0 | 0 |
| 80% | **-468** | **0** | **0** | **-89** | **-97** | **-75** | **-384** | **-215** | **-7** | 0 | 0 | 0 |
| 90% | **-468** | **0** | **0** | **-88** | **-90** | **-75** | **-121** | **-177** | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-522** | 26 | 70 | 53 | 440 | **-145** | **-480** | **-363** | 71 | 72 | 64 | 77 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **-421** | 81 | 256 | 111 | 1,556 | **-355** | **-367** | **-320** | 495 | 350 | 270 | 337 |
| Above Normal (24%) | **-563** | 27 | 46 | 133 | 197 | **-66** | **-540** | **-393** | **-84** | **-40** | **-9** | **-18** |
| Below Normal (10%) | **-637** | 3 | 3 | 123 | 243 | **-177** | **-978** | **-743** | **-144** | **-4** | **-2** | **-7** |
| Dry (16%) | **-567** | **0** | **0** | 6 | 128 | **-75** | **-602** | **-416** | **-31** | 0 | 6 | 3 |
| Critical (27%) | **-504** | **0** | **-4** | **-68** | **-49** | **-67** | **-271** | **-202** | **-14** | 5 | 12 | 13 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

# Table 37-4. Stanislaus River Flow below Goodwin, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 837 | 290 | 306 | 358 | 897 | 1,648 | 1,633 | 1,929 | 1,100 | 429 | 392 | 390 |
| 20% | 797 | 200 | 218 | 232 | 405 | 1,521 | 1,553 | 1,555 | 1,089 | 318 | 300 | 300 |
| 30% | 774 | 200 | 200 | 232 | 282 | 440 | 1,553 | 1,294 | 940 | 300 | 283 | 250 |
| 40% | 774 | 200 | 200 | 226 | 236 | 200 | 1,400 | 1,242 | 853 | 300 | 283 | 250 |
| 50% | 774 | 200 | 200 | 226 | 236 | 200 | 1,400 | 1,242 | 363 | 275 | 283 | 250 |
| 60% | 636 | 200 | 200 | 219 | 229 | 200 | 812 | 918 | 363 | 265 | 283 | 249 |
| 70% | 636 | 200 | 200 | 219 | 229 | 200 | 767 | 705 | 294 | 265 | 283 | 249 |
| 80% | 578 | 200 | 200 | 214 | 221 | 200 | 767 | 631 | 262 | 265 | 283 | 249 |
| 90% | 577 | 200 | 200 | 213 | 215 | 200 | 504 | 547 | 255 | 265 | 283 | 249 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 723 | 278 | 367 | 519 | 593 | 754 | 1,159 | 1,124 | 680 | 395 | 362 | 351 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 859 | 532 | 863 | 999 | 1,193 | 2,014 | 1,536 | 1,691 | 1,140 | 716 | 639 | 692 |
| Above Normal (24%) | 728 | 205 | 212 | 664 | 676 | 645 | 1,224 | 1,146 | 959 | 353 | 292 | 267 |
| Below Normal (10%) | 752 | 200 | 202 | 282 | 346 | 365 | 1,454 | 1,201 | 475 | 269 | 285 | 256 |
| Dry (16%) | 677 | 200 | 200 | 234 | 313 | 200 | 1,030 | 930 | 375 | 276 | 277 | 245 |
| Critical (27%) | 614 | 200 | 236 | 227 | 255 | 234 | 742 | 700 | 282 | 272 | 264 | 231 |

## Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 797 | 200 | 306 | 552 | 2,259 | 1,528 | 1,572 | 1,555 | 940 | 300 | 300 | 300 |
| 20% | 797 | 200 | 200 | 232 | 294 | 1,521 | 1,553 | 1,555 | 940 | 300 | 300 | 300 |
| 30% | 774 | 200 | 200 | 230 | 236 | 675 | 1,553 | 1,242 | 363 | 265 | 283 | 250 |
| 40% | 774 | 200 | 200 | 226 | 229 | 200 | 1,400 | 1,242 | 363 | 265 | 283 | 250 |
| 50% | 774 | 200 | 200 | 226 | 229 | 200 | 1,400 | 1,242 | 363 | 265 | 283 | 250 |
| 60% | 636 | 200 | 200 | 226 | 229 | 200 | 972 | 819 | 255 | 265 | 283 | 249 |
| 70% | 636 | 200 | 200 | 219 | 221 | 200 | 767 | 631 | 255 | 265 | 283 | 249 |
| 80% | 577 | 200 | 200 | 213 | 214 | 200 | 466 | 400 | 200 | 200 | 200 | 200 |
| 90% | 577 | 200 | 200 | 213 | 214 | 200 | 460 | 400 | 200 | 200 | 200 | 200 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 718 | 272 | 341 | 549 | 722 | 762 | 1,147 | 1,036 | 566 | 378 | 338 | 339 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 854 | 508 | 735 | 1,003 | 1,750 | 2,189 | 1,475 | 1,665 | 1,499 | 834 | 625 | 691 |
| Above Normal (24%) | 774 | 202 | 223 | 694 | 695 | 577 | 1,571 | 1,255 | 363 | 265 | 283 | 258 |
| Below Normal (10%) | 774 | 200 | 202 | 546 | 528 | 247 | 1,610 | 1,242 | 363 | 265 | 283 | 250 |
| Dry (16%) | 626 | 200 | 209 | 224 | 228 | 200 | 825 | 655 | 256 | 255 | 270 | 241 |
| Critical (27%) | 578 | 200 | 236 | 220 | 222 | 218 | 501 | 445 | 200 | 200 | 200 | 198 |

## Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-41** | **-90** | 0 | 194 | 1,362 | **-121** | **-62** | **-375** | **-160** | **-129** | **-92** | **-90** |
| 20% | 0 | 0 | **-18** | 0 | **-111** | 0 | 0 | 0 | **-149** | **-18** | 0 | 0 |
| 30% | 0 | 0 | 0 | **-2** | **-46** | 236 | 0 | **-52** | **-577** | **-35** | **0** | 0 |
| 40% | 0 | 0 | 0 | 0 | **-7** | 0 | 0 | 0 | **-490** | **-35** | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | **-7** | 0 | 0 | 0 | 0 | **-10** | 0 | 0 |
| 60% | 0 | 0 | 0 | 6 | 0 | 0 | 160 | **-99** | **-108** | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | **-7** | 0 | 0 | **-75** | **-38** | 0 | 0 | 0 |
| 80% | **-1** | 0 | 0 | **-1** | **-7** | 0 | **-300** | **-231** | **-62** | **-65** | **-83** | **-49** |
| 90% | 0 | 0 | 0 | 0 | **-1** | 0 | **-44** | **-147** | **-55** | **-65** | **-83** | **-49** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-4** | **-6** | **-26** | 31 | 129 | 8 | **-11** | **-87** | **-114** | **-17** | **-24** | **-13** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **-5** | **-24** | **-128** | 4 | 557 | 175 | **-61** | **-26** | 359 | 118 | **-14** | **-1** |
| Above Normal (24%) | 46 | **-3** | 11 | 31 | 20 | **-68** | 347 | 109 | **-596** | **-88** | **-9** | **-9** |
| Below Normal (10%) | 22 | 0 | 0 | 264 | 183 | **-118** | 156 | 41 | **-111** | **-4** | **-2** | **-6** |
| Dry (16%) | **-51** | 0 | 9 | **-10** | **-86** | 0 | **-205** | **-274** | **-119** | **-21** | **-6** | **-4** |
| Critical (27%) | **-36** | 0 | 0 | **-7** | **-33** | **-15** | **-241** | **-255** | **-82** | **-72** | **-64** | **-33** |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

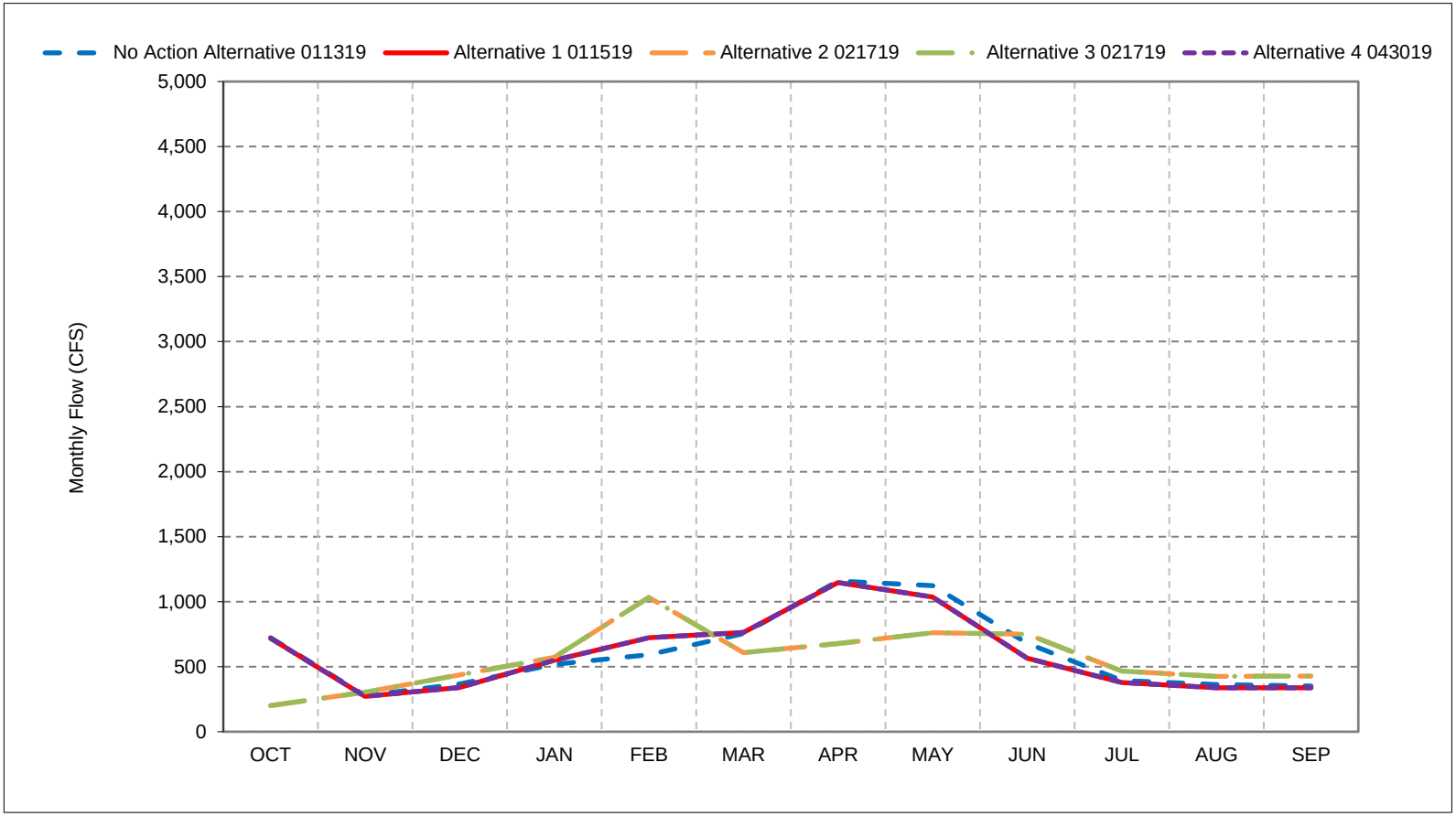
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

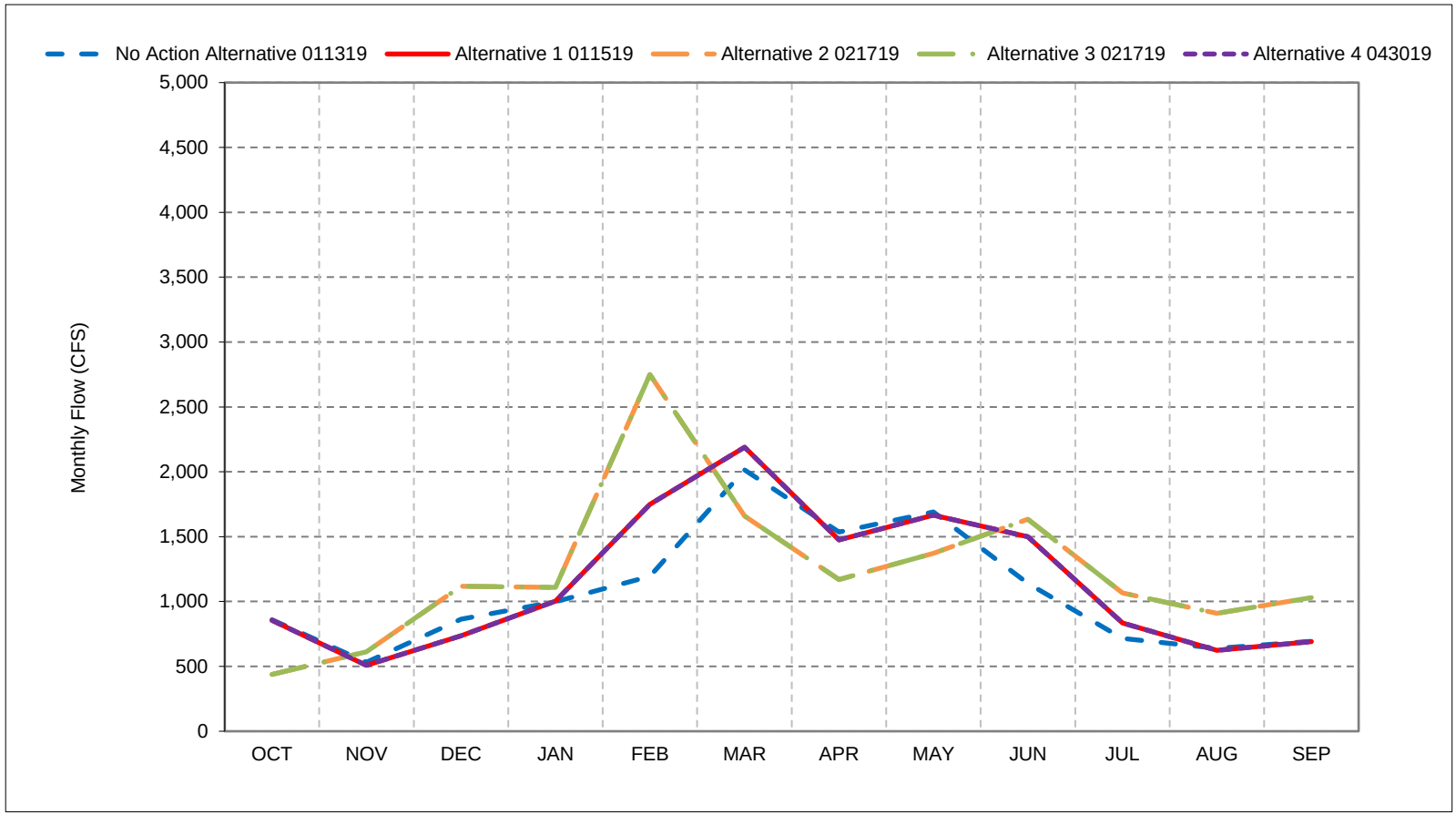
f New Melones forecasts are used as the basis of water operations.

## Figure 37-1. Stanislaus River Flow below Goodwin, Long-Term Average Flow



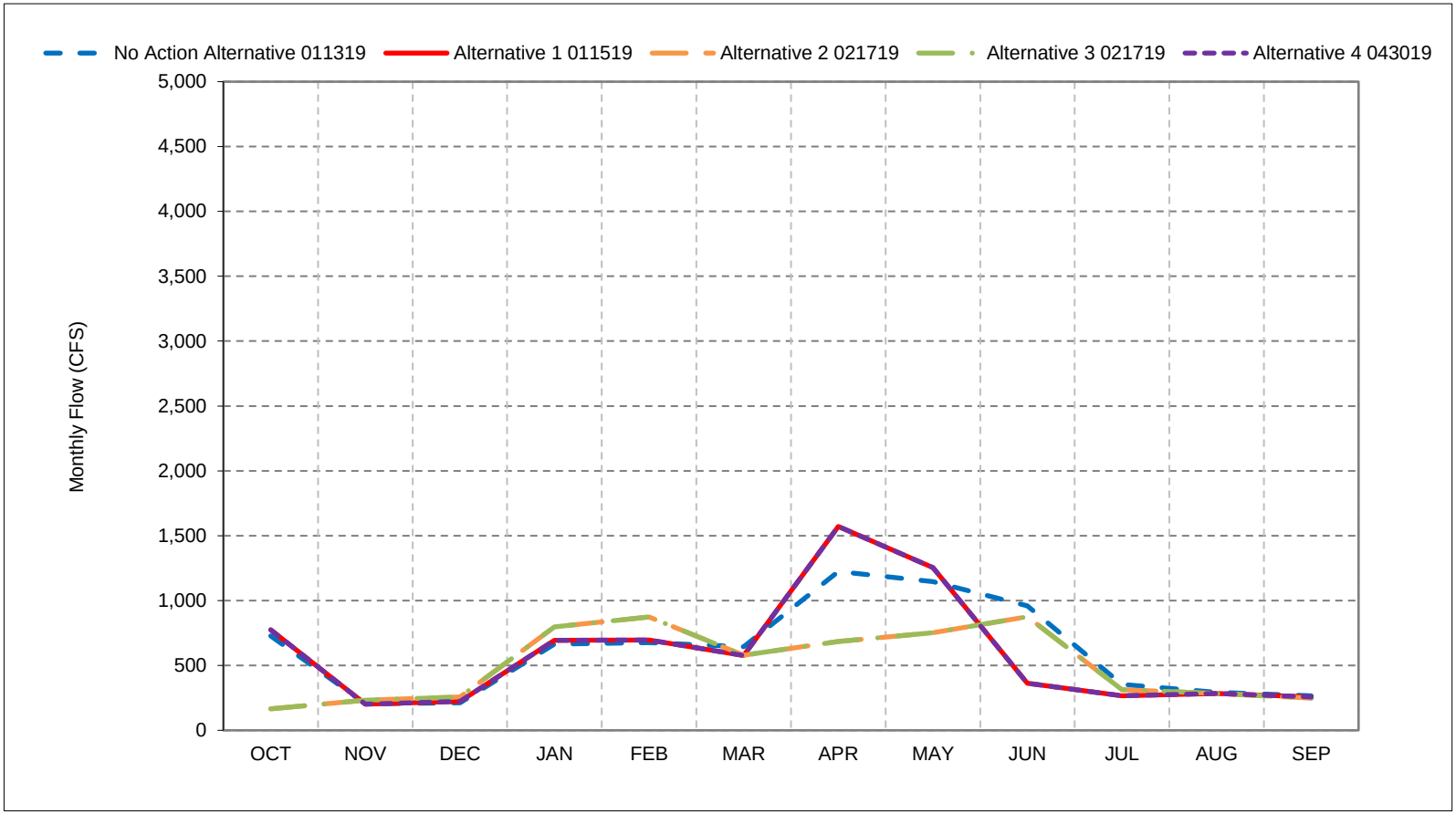

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 37-2. Stanislaus River Flow below Goodwin, Wet Year Average Flow



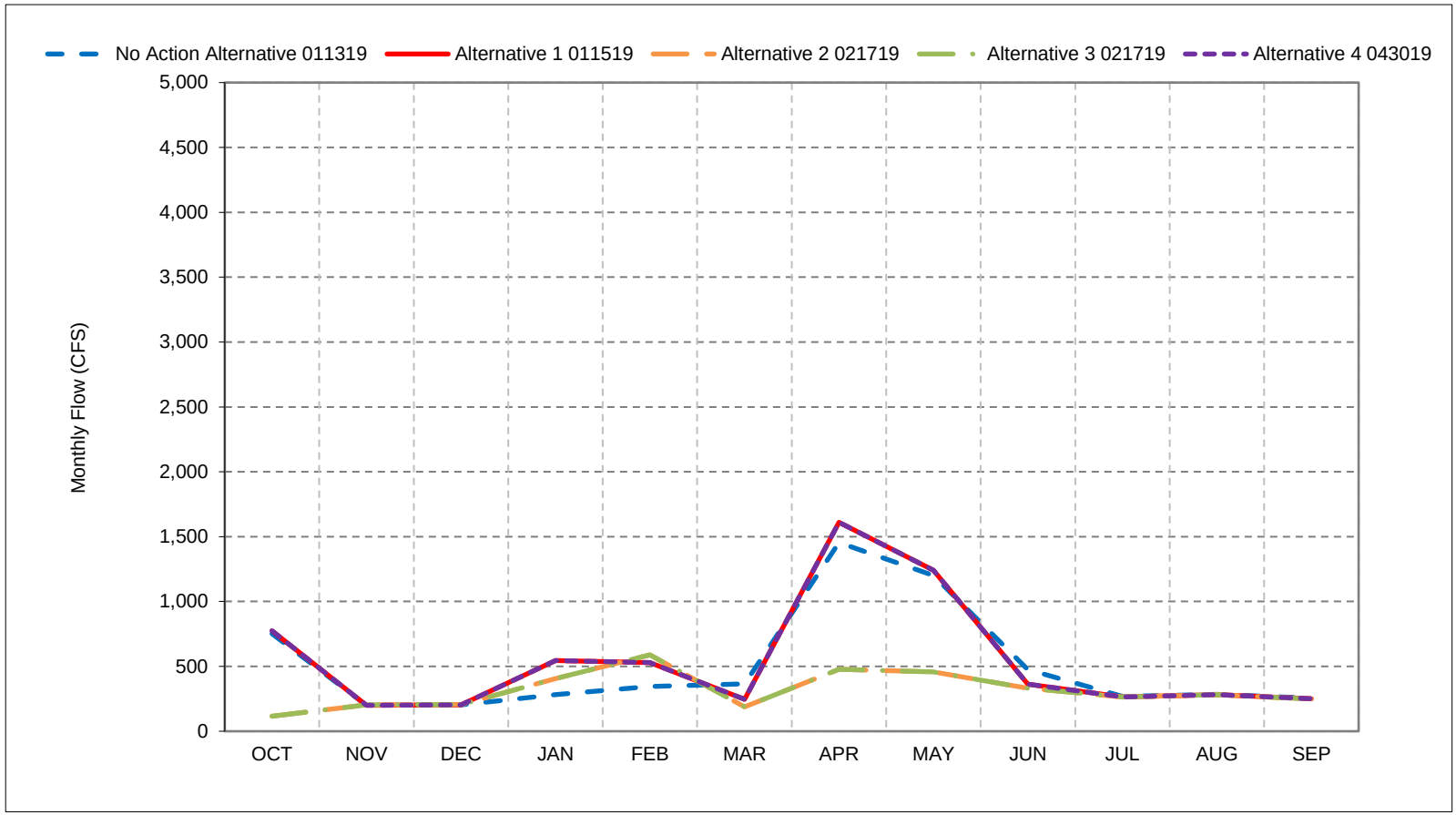

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 37-3. Stanislaus River Flow below Goodwin, Above Normal Year Average Flow



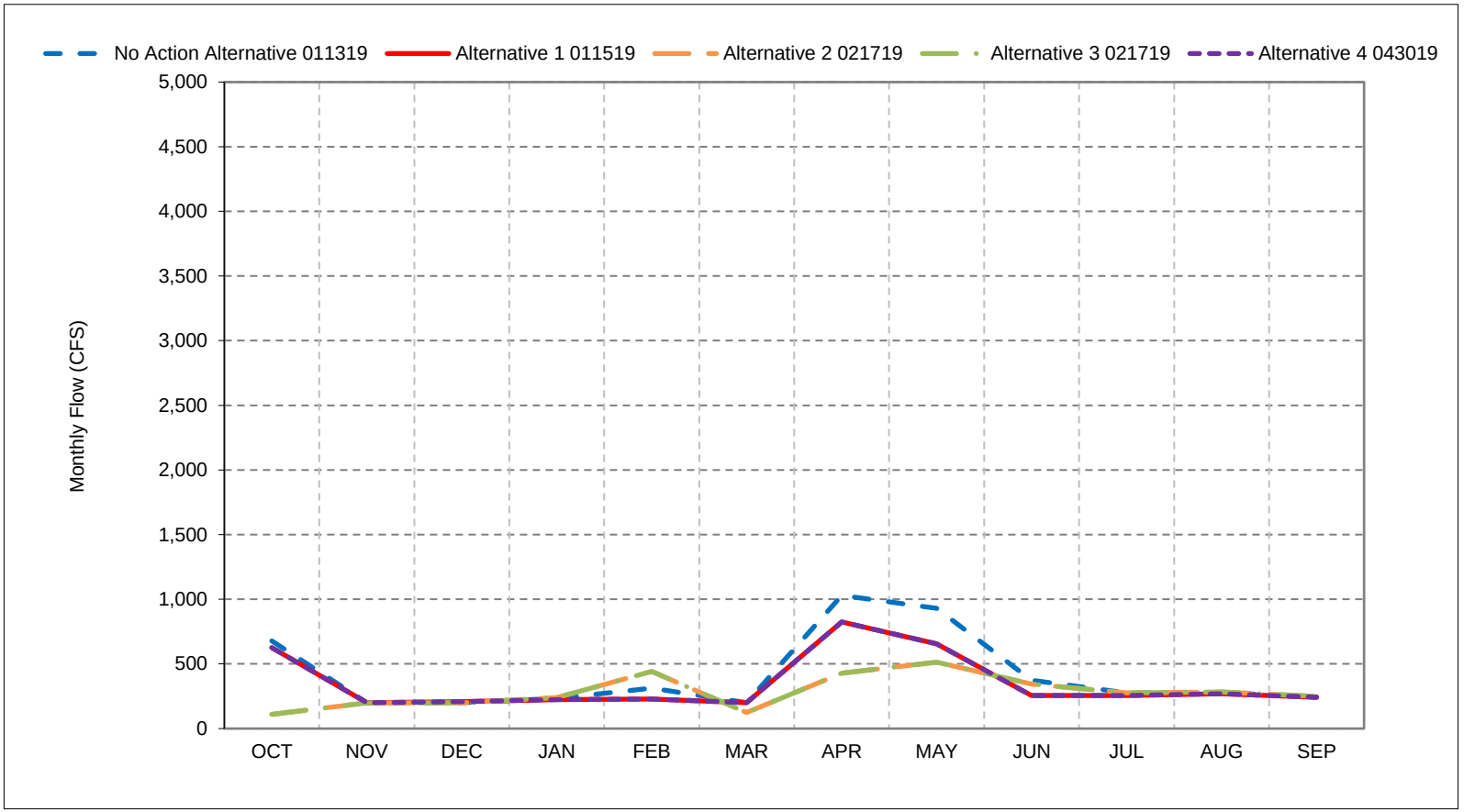

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 37-4. Stanislaus River Flow below Goodwin, Below Normal Year Average Flow



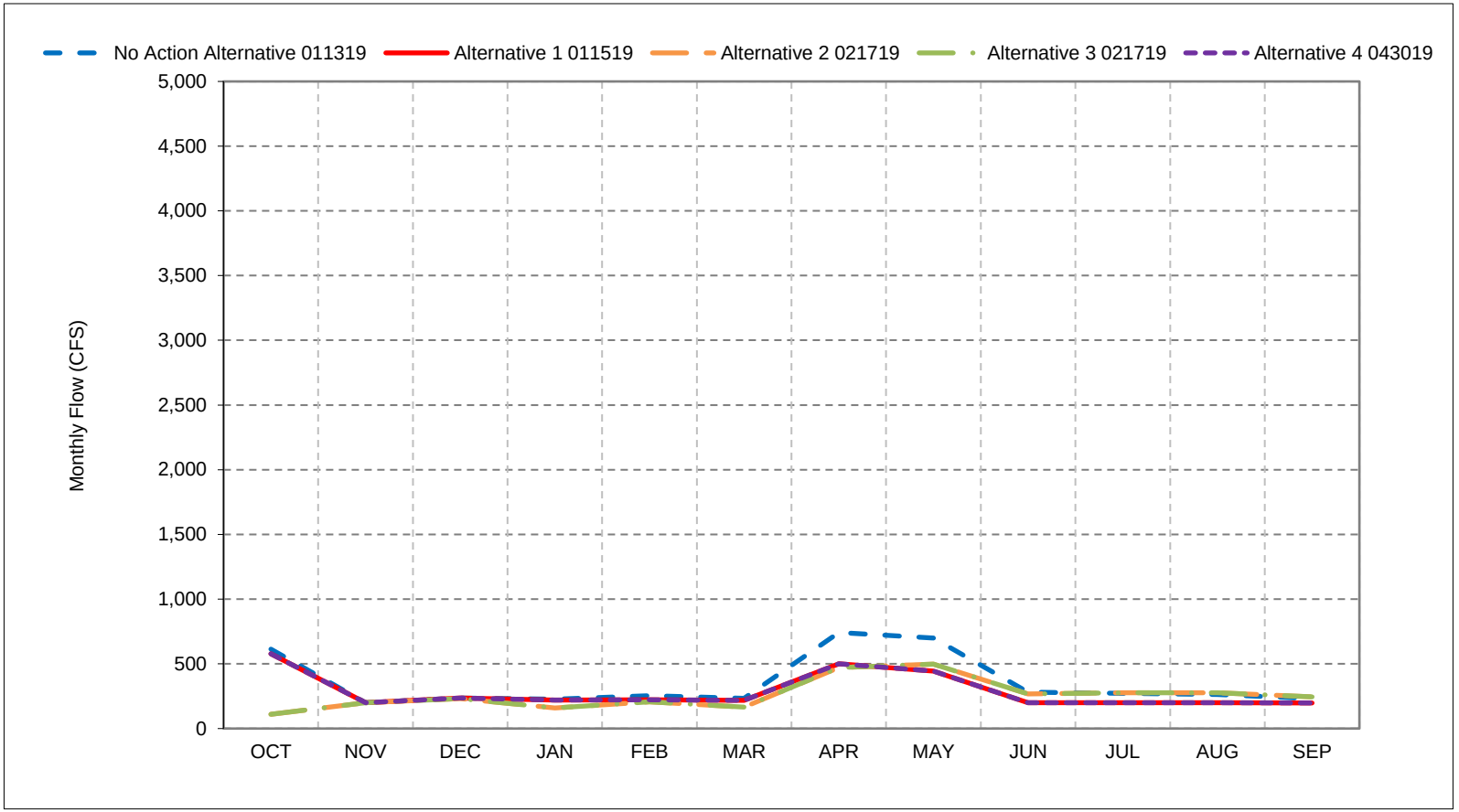

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 37-5. Stanislaus River Flow below Goodwin, Dry Year Average Flow



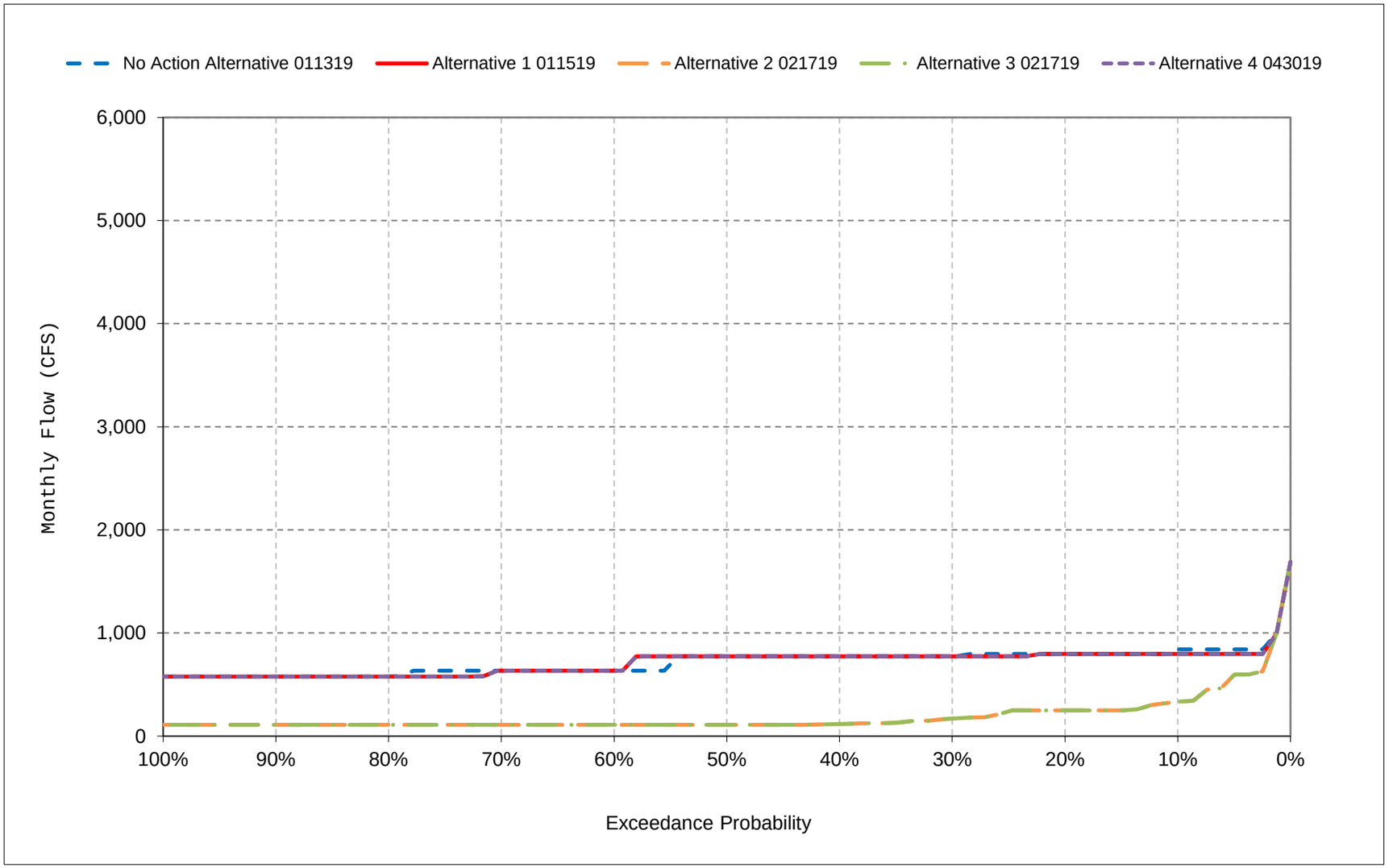

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 37-6. Stanislaus River Flow below Goodwin, Critical Year Average Flow




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

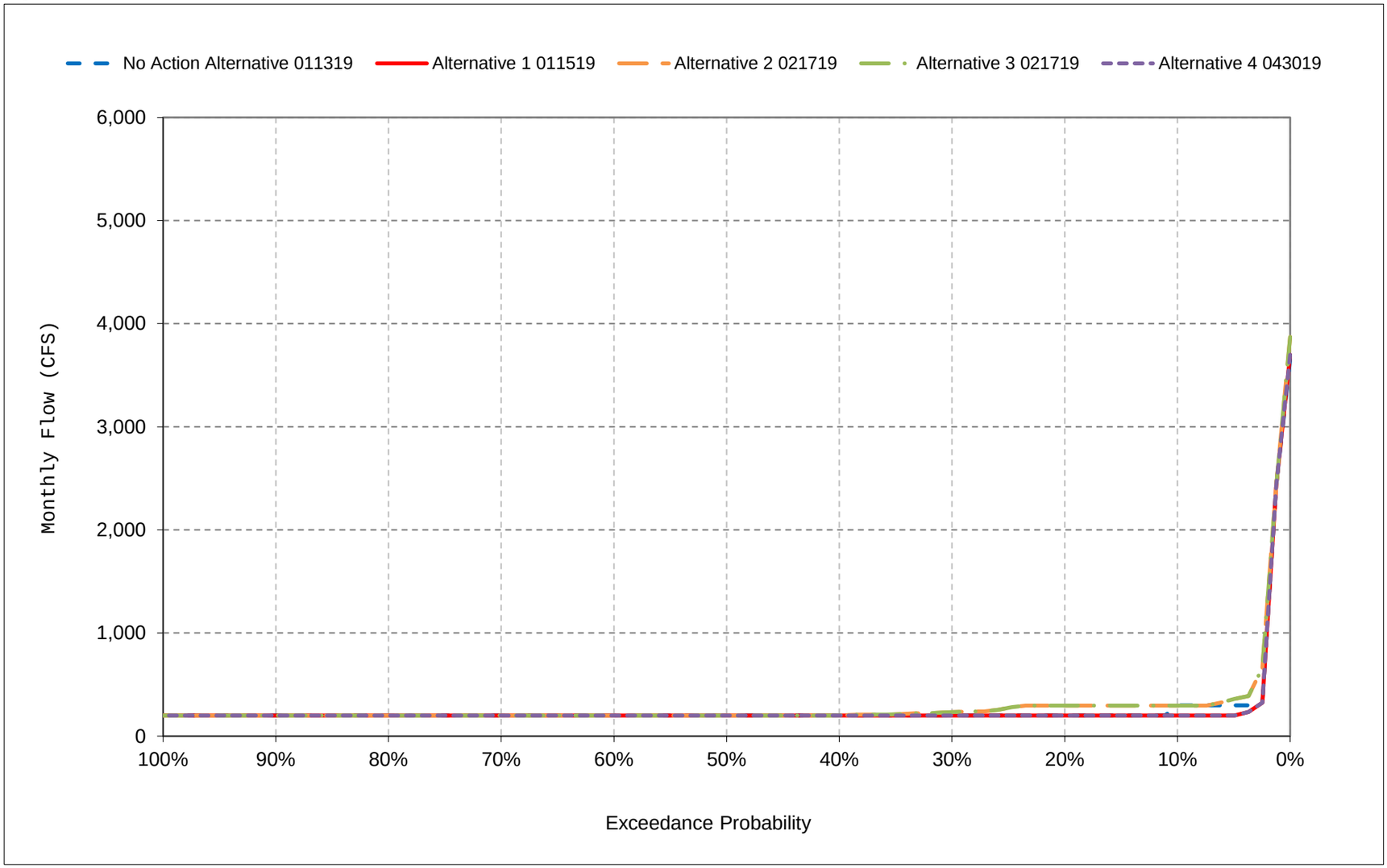
**Figure 37-7. Stanislaus River Flow below Goodwin, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

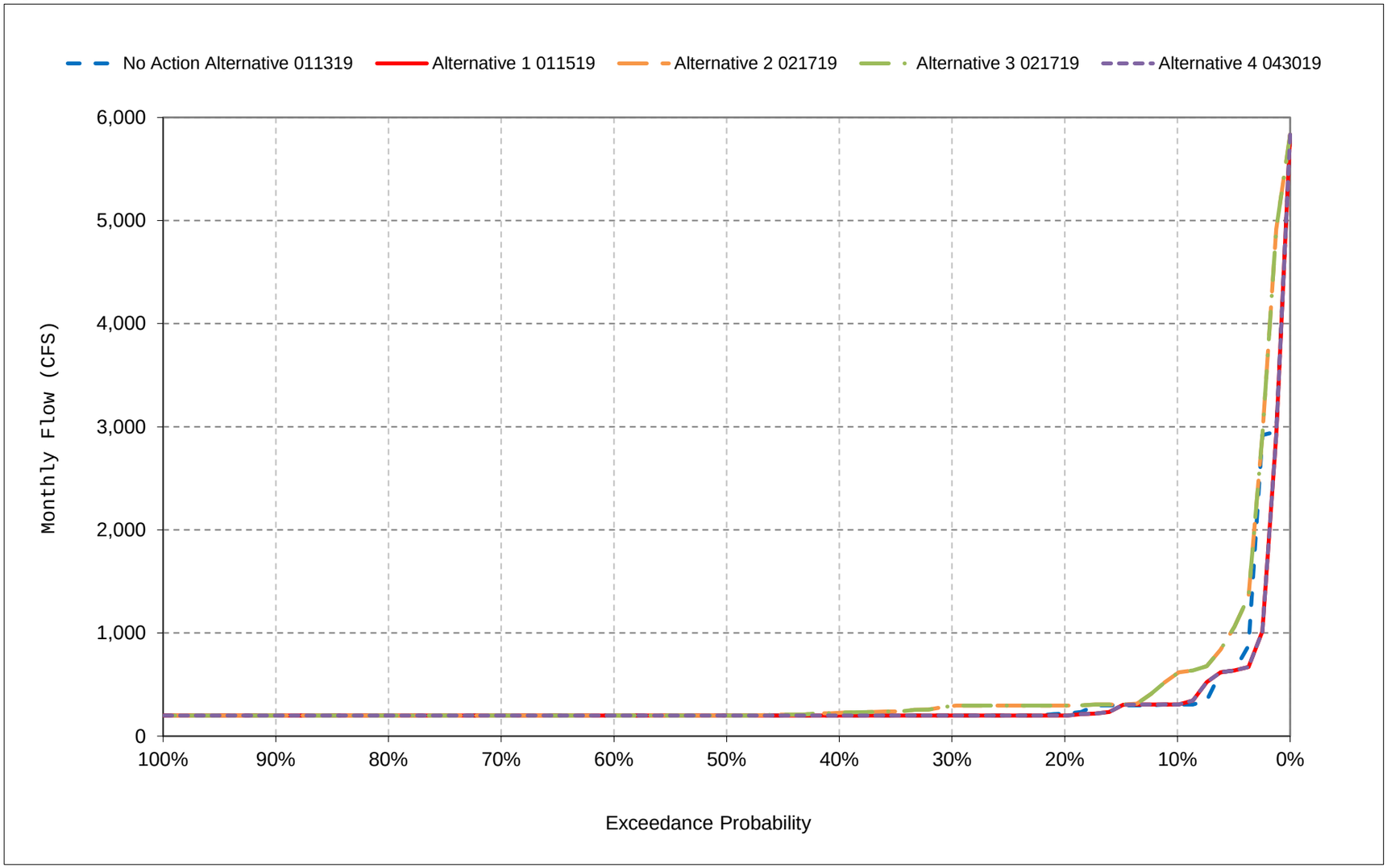
**Figure 37-8. Stanislaus River Flow below Goodwin, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

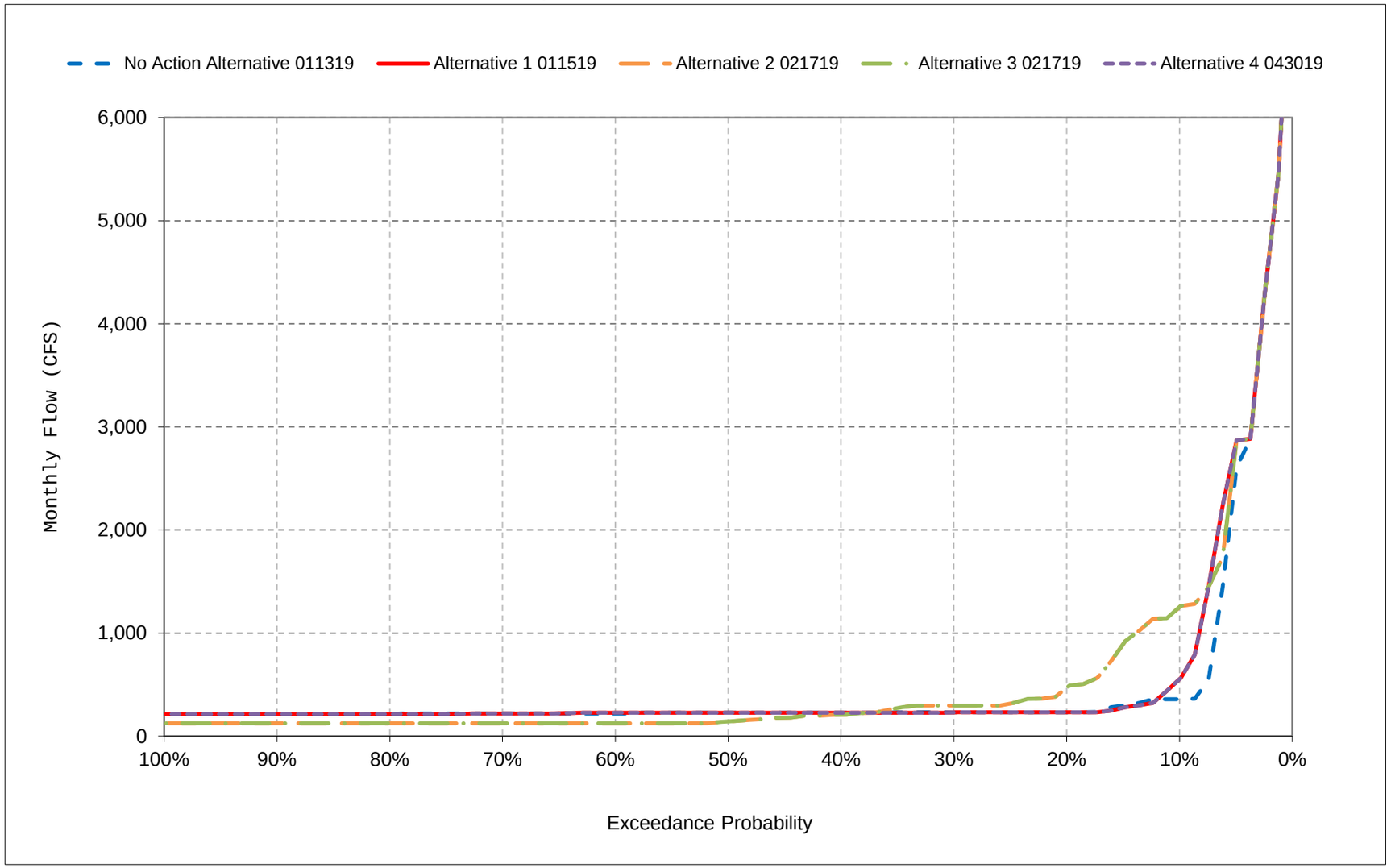
**Figure 37-9. Stanislaus River Flow below Goodwin, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

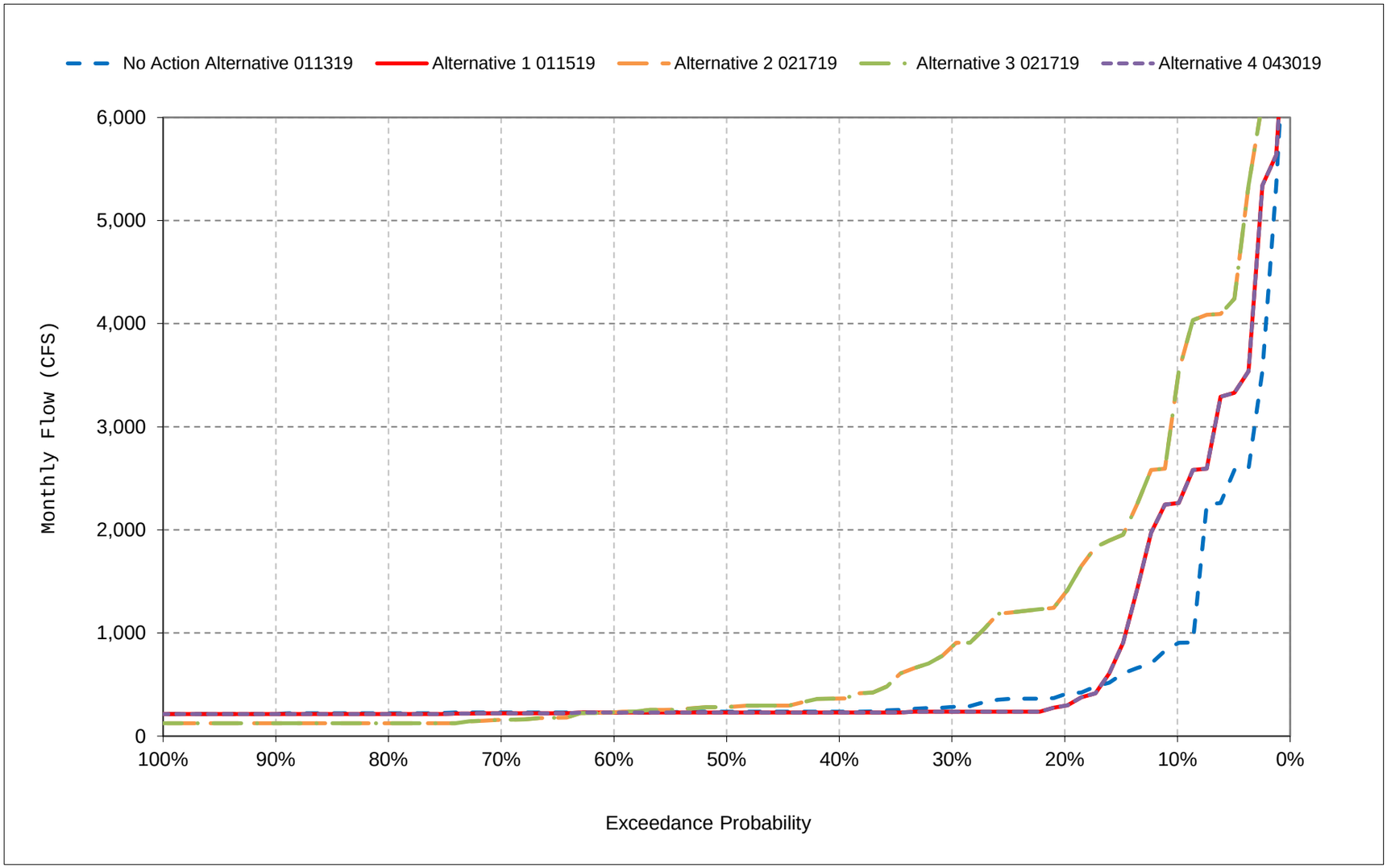
**Figure 37-10. Stanislaus River Flow below Goodwin, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

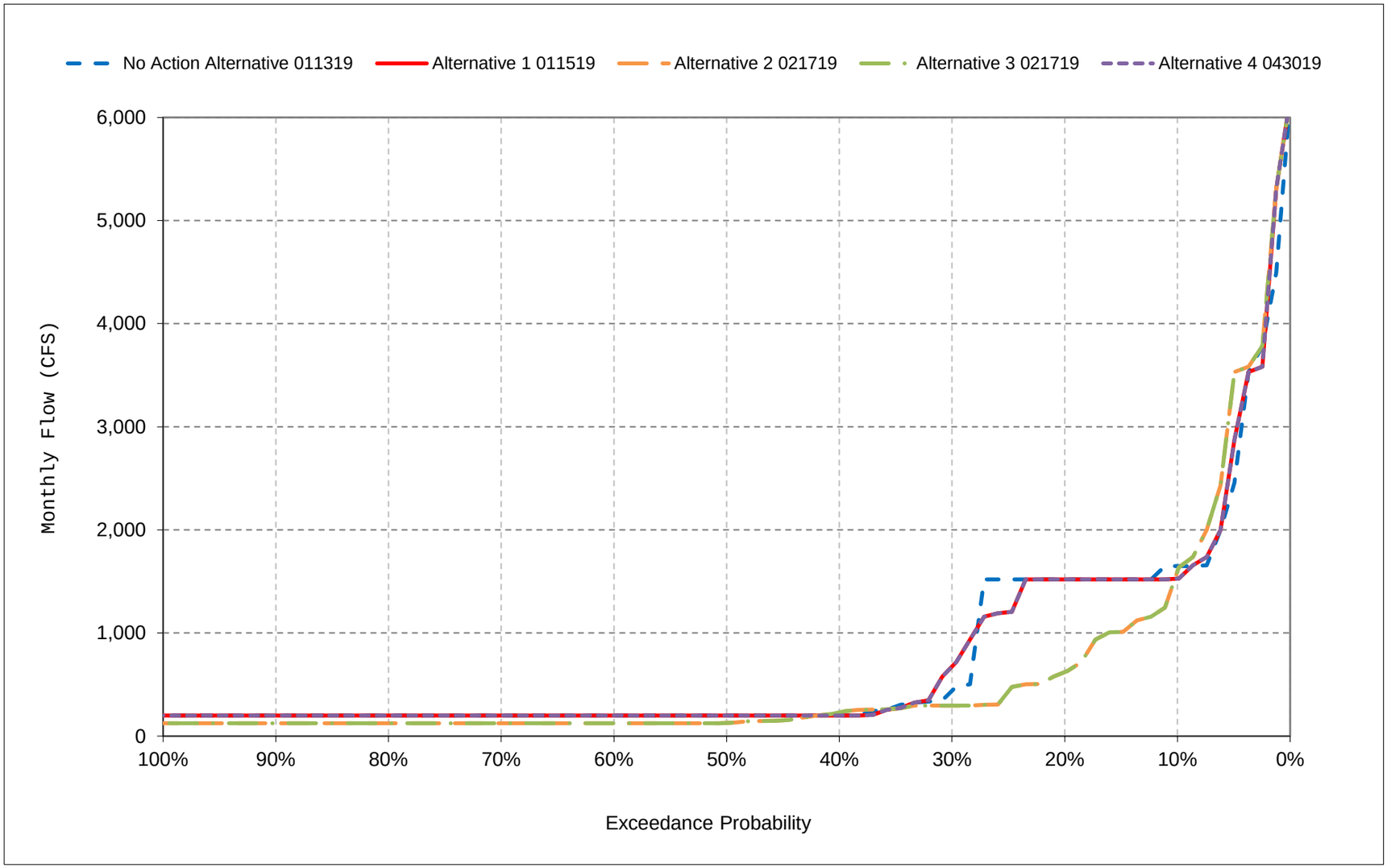
**Figure 37-11. Stanislaus River Flow below Goodwin, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

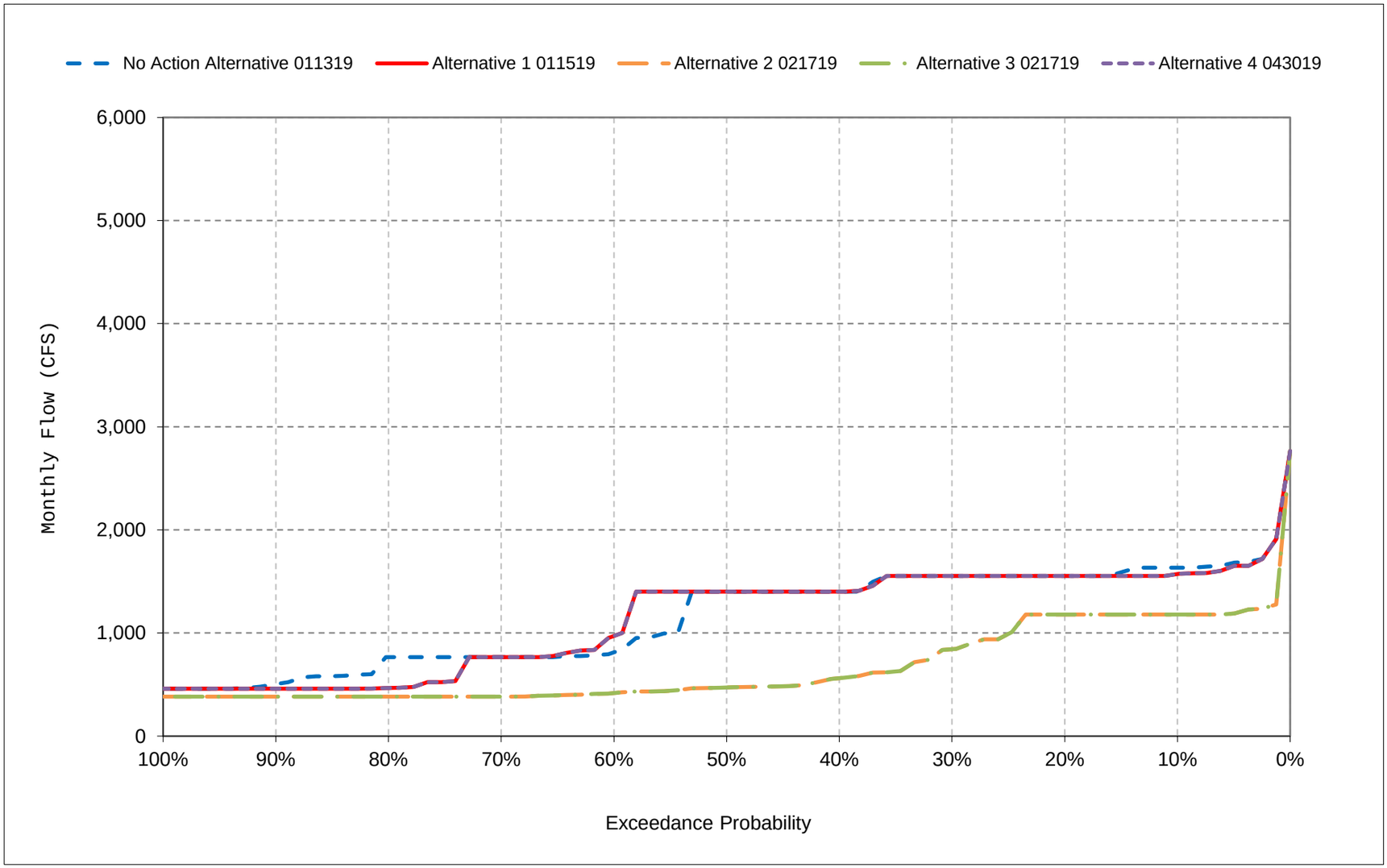
**Figure 37-12. Stanislaus River Flow below Goodwin, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

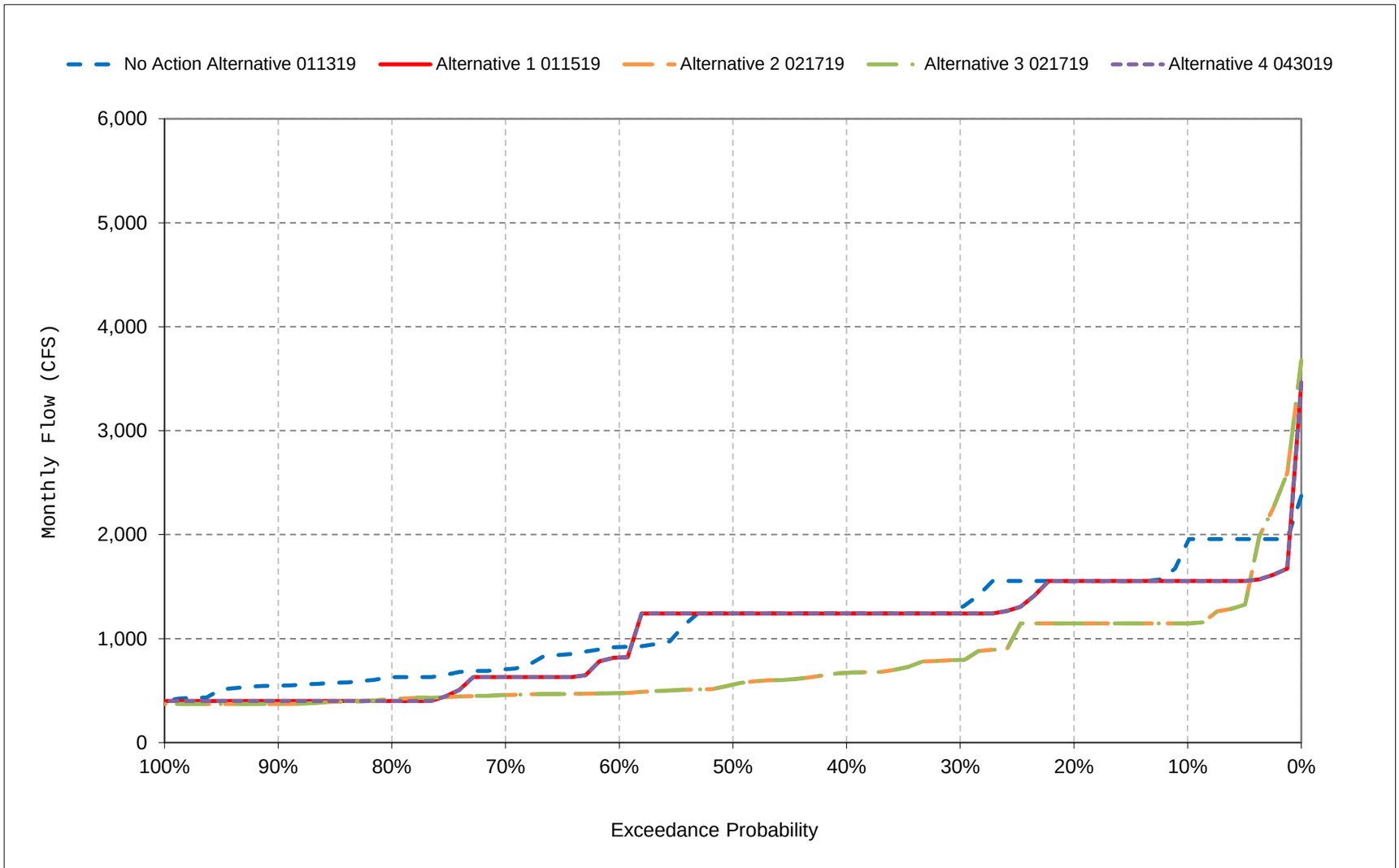
**Figure 37-13. Stanislaus River Flow below Goodwin, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

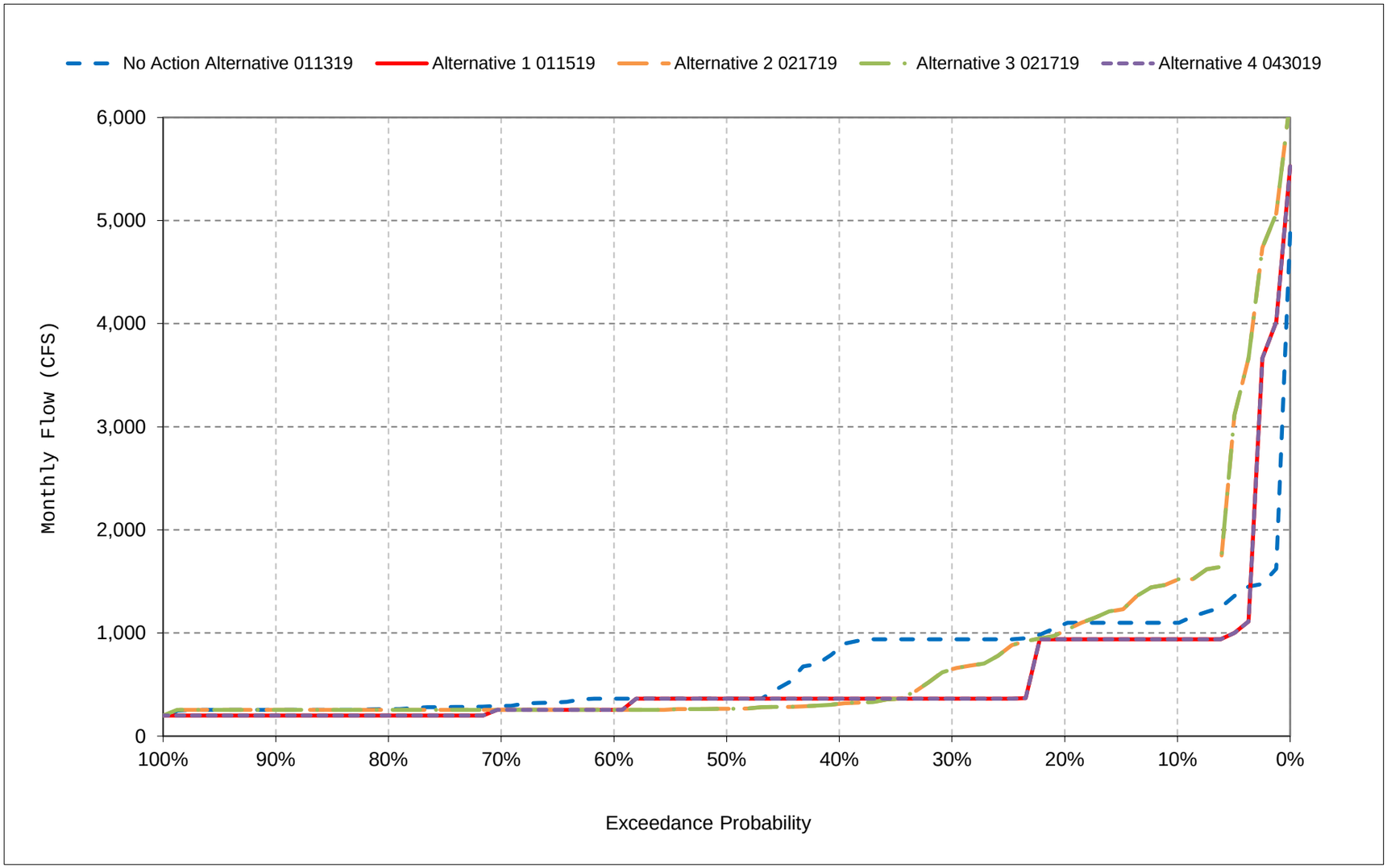
**Figure 37-14. Stanislaus River Flow below Goodwin, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

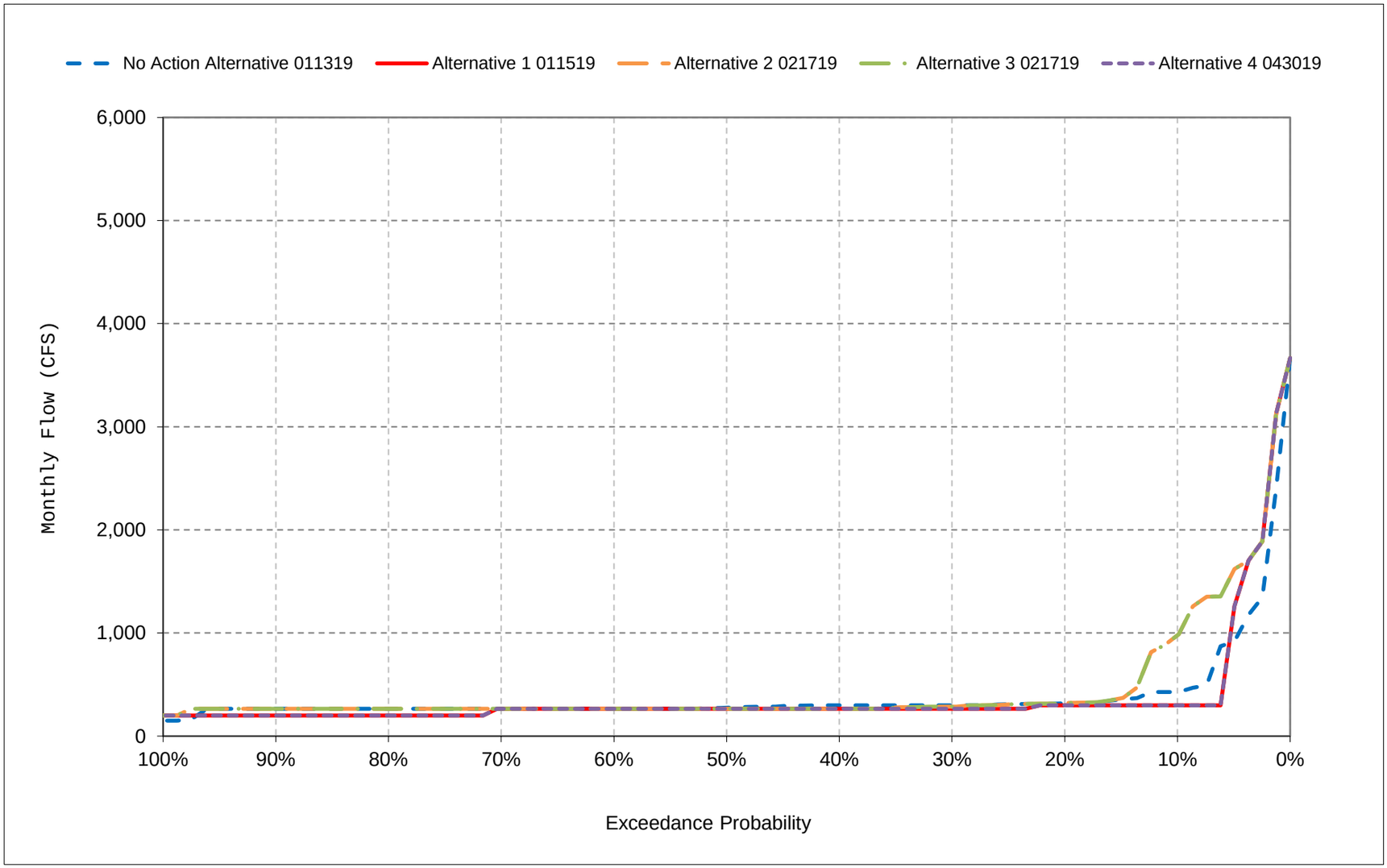
**Figure 37-15. Stanislaus River Flow below Goodwin, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

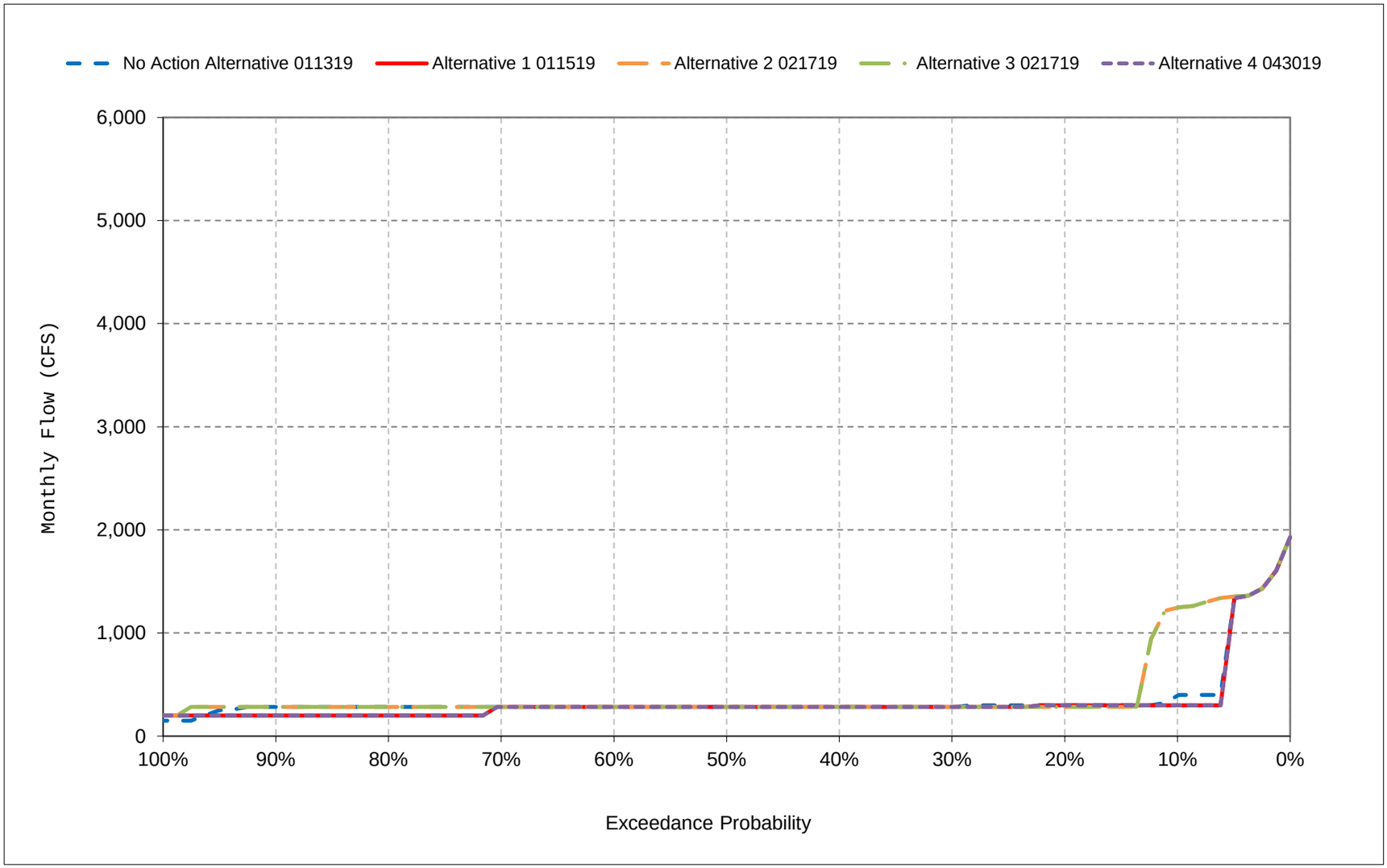
**Figure 37-16. Stanislaus River Flow below Goodwin, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

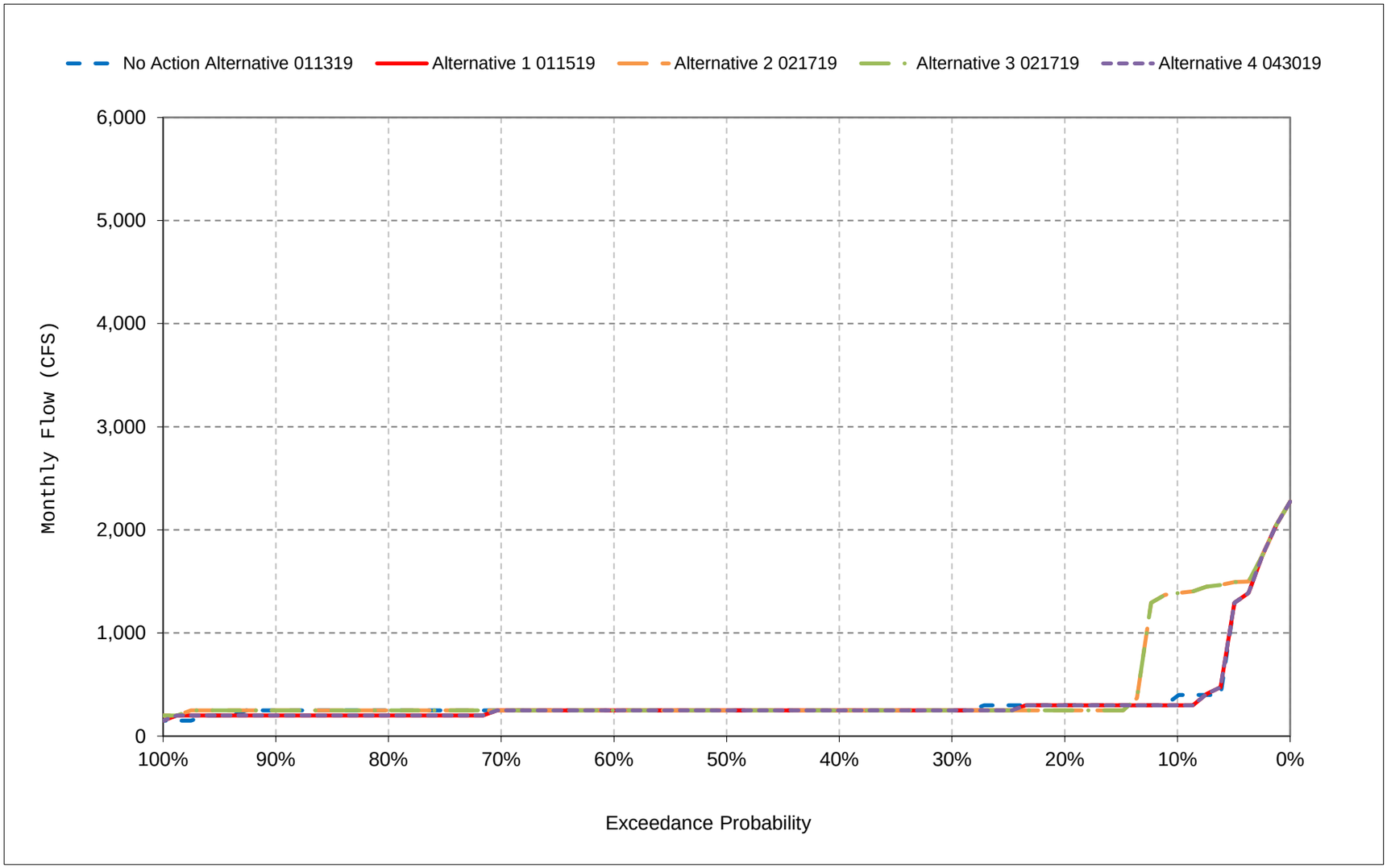
**Figure 37-17. Stanislaus River Flow below Goodwin, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 37-18. Stanislaus River Flow below Goodwin, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 38-1. Stanislaus River Flow at Mouth, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,122 | 463 | 442 | 576 | 1,083 | 1,969 | 1,886 | 1,989 | 1,535 | 752 | 587 | 646 |
| 20% | 1,029 | 384 | 368 | 427 | 643 | 1,708 | 1,769 | 1,647 | 1,330 | 606 | 488 | 507 |
| 30% | 982 | 348 | 319 | 368 | 469 | 521 | 1,696 | 1,536 | 1,221 | 502 | 462 | 473 |
| 40% | 958 | 337 | 304 | 347 | 399 | 433 | 1,610 | 1,362 | 1,053 | 443 | 445 | 443 |
| 50% | 879 | 319 | 290 | 337 | 368 | 367 | 1,485 | 1,289 | 634 | 415 | 445 | 439 |
| 60% | 826 | 292 | 281 | 326 | 331 | 336 | 936 | 869 | 510 | 384 | 416 | 428 |
| 70% | 772 | 267 | 262 | 312 | 279 | 314 | 806 | 755 | 406 | 374 | 395 | 389 |
| 80% | 755 | 260 | 241 | 295 | 253 | 241 | 693 | 647 | 361 | 343 | 371 | 360 |
| 90% | 676 | 248 | 224 | 273 | 230 | 207 | 579 | 577 | 317 | 311 | 331 | 318 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 903 | 398 | 449 | 630 | 717 | 902 | 1,279 | 1,207 | 883 | 547 | 505 | 533 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,120 | 701 | 994 | 1,115 | 1,404 | 2,256 | 1,779 | 1,828 | 1,456 | 977 | 831 | 946 |
| Above Normal (24%) | 918 | 316 | 288 | 777 | 786 | 801 | 1,410 | 1,244 | 1,254 | 534 | 467 | 480 |
| Below Normal (10%) | 950 | 315 | 291 | 430 | 517 | 539 | 1,556 | 1,378 | 668 | 449 | 440 | 429 |
| Dry (16%) | 832 | 309 | 311 | 349 | 405 | 345 | 1,064 | 1,002 | 531 | 377 | 397 | 399 |
| Critical (27%) | 722 | 294 | 266 | 317 | 319 | 286 | 755 | 696 | 336 | 323 | 347 | 342 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,094 | 401 | 403 | 765 | 2,628 | 1,947 | 1,886 | 1,726 | 1,352 | 633 | 569 | 673 |
| 20% | 1,036 | 376 | 338 | 425 | 541 | 1,638 | 1,817 | 1,610 | 1,061 | 536 | 482 | 493 |
| 30% | 975 | 347 | 314 | 364 | 449 | 1,054 | 1,705 | 1,443 | 800 | 479 | 458 | 462 |
| 40% | 966 | 335 | 304 | 350 | 388 | 415 | 1,553 | 1,335 | 615 | 427 | 445 | 441 |
| 50% | 901 | 318 | 288 | 336 | 340 | 362 | 1,525 | 1,294 | 531 | 398 | 435 | 437 |
| 60% | 821 | 292 | 280 | 325 | 293 | 334 | 976 | 841 | 408 | 376 | 402 | 400 |
| 70% | 766 | 267 | 262 | 308 | 257 | 312 | 767 | 631 | 341 | 309 | 360 | 382 |
| 80% | 751 | 260 | 239 | 294 | 237 | 241 | 545 | 459 | 287 | 282 | 318 | 337 |
| 90% | 659 | 248 | 223 | 273 | 227 | 207 | 460 | 419 | 243 | 231 | 274 | 282 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 898 | 392 | 424 | 661 | 846 | 911 | 1,268 | 1,120 | 769 | 530 | 482 | 520 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,115 | 677 | 866 | 1,120 | 1,961 | 2,431 | 1,718 | 1,802 | 1,816 | 1,095 | 817 | 945 |
| Above Normal (24%) | 964 | 313 | 299 | 808 | 806 | 733 | 1,758 | 1,353 | 658 | 446 | 457 | 471 |
| Below Normal (10%) | 972 | 315 | 291 | 694 | 700 | 421 | 1,712 | 1,419 | 557 | 445 | 438 | 423 |
| Dry (16%) | 780 | 309 | 320 | 339 | 320 | 345 | 859 | 727 | 412 | 355 | 391 | 395 |
| Critical (27%) | 686 | 294 | 266 | 310 | 286 | 271 | 514 | 441 | 254 | 252 | 284 | 309 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-29** | **-62** | **-40** | 188 | 1,545 | **-22** | 0 | **-264** | **-183** | **-119** | **-18** | 28 |
| 20% | 7 | **-8** | **-29** | **-2** | **-102** | **-70** | 48 | **-37** | **-269** | **-70** | **-7** | **-14** |
| 30% | **-7** | **-1** | **-4** | **-4** | **-20** | 532 | 8 | **-94** | **-421** | **-23** | **-4** | **-11** |
| 40% | 7 | **-2** | **-1** | 2 | **-11** | **-18** | **-56** | **-27** | **-438** | **-16** | 0 | **-3** |
| 50% | 23 | **-1** | **-1** | **-1** | **-28** | **-5** | 41 | 5 | **-103** | **-17** | **-10** | **-2** |
| 60% | **-5** | 0 | **0** | **0** | **-38** | **-2** | 40 | **-28** | **-103** | **-7** | **-14** | **-27** |
| 70% | **-6** | 0 | 0 | **-4** | **-22** | **-2** | **-39** | **-124** | **-66** | **-65** | **-34** | **-7** |
| 80% | **-4** | 0 | **-2** | **-1** | **-16** | 0 | **-149** | **-188** | **-73** | **-61** | **-52** | **-24** |
| 90% | **-17** | 0 | **-1** | **0** | **-2** | 0 | **-118** | **-158** | **-74** | **-80** | **-56** | **-36** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-4** | **-6** | **-26** | 31 | 129 | 8 | **-11** | **-87** | **-114** | **-17** | **-24** | **-13** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **-5** | **-24** | **-128** | 4 | 557 | 175 | **-61** | **-26** | 359 | 118 | **-14** | **-1** |
| Above Normal (24%) | 46 | **-3** | 11 | 31 | 20 | **-68** | 347 | 109 | **-596** | **-88** | **-9** | **-9** |
| Below Normal (10%) | 22 | 0 | 0 | 264 | 183 | **-118** | 156 | 41 | **-111** | **-4** | **-2** | **-6** |
| Dry (16%) | **-51** | 0 | 9 | **-10** | **-86** | 0 | **-205** | **-274** | **-119** | **-21** | **-6** | **-4** |
| Critical (27%) | **-36** | 0 | 0 | **-7** | **-33** | **-15** | **-241** | **-255** | **-82** | **-72** | **-64** | **-33** |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 38-2. Stanislaus River Flow at Mouth, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,122 | 463 | 442 | 576 | 1,083 | 1,969 | 1,886 | 1,989 | 1,535 | 752 | 587 | 646 |
| 20% | 1,029 | 384 | 368 | 427 | 643 | 1,708 | 1,769 | 1,647 | 1,330 | 606 | 488 | 507 |
| 30% | 982 | 348 | 319 | 368 | 469 | 521 | 1,696 | 1,536 | 1,221 | 502 | 462 | 473 |
| 40% | 958 | 337 | 304 | 347 | 399 | 433 | 1,610 | 1,362 | 1,053 | 443 | 445 | 443 |
| 50% | 879 | 319 | 290 | 337 | 368 | 367 | 1,485 | 1,289 | 634 | 415 | 445 | 439 |
| 60% | 826 | 292 | 281 | 326 | 331 | 336 | 936 | 869 | 510 | 384 | 416 | 428 |
| 70% | 772 | 267 | 262 | 312 | 279 | 314 | 806 | 755 | 406 | 374 | 395 | 389 |
| 80% | 755 | 260 | 241 | 295 | 253 | 241 | 693 | 647 | 361 | 343 | 371 | 360 |
| 90% | 676 | 248 | 224 | 273 | 230 | 207 | 579 | 577 | 317 | 311 | 331 | 318 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 903 | 398 | 449 | 630 | 717 | 902 | 1,279 | 1,207 | 883 | 547 | 505 | 533 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,120 | 701 | 994 | 1,115 | 1,404 | 2,256 | 1,779 | 1,828 | 1,456 | 977 | 831 | 946 |
| Above Normal (24%) | 918 | 316 | 288 | 777 | 786 | 801 | 1,410 | 1,244 | 1,254 | 534 | 467 | 480 |
| Below Normal (10%) | 950 | 315 | 291 | 430 | 517 | 539 | 1,556 | 1,378 | 668 | 449 | 440 | 429 |
| Dry (16%) | 832 | 309 | 311 | 349 | 405 | 345 | 1,064 | 1,002 | 531 | 377 | 397 | 399 |
| Critical (27%) | 722 | 294 | 266 | 317 | 319 | 286 | 755 | 696 | 336 | 323 | 347 | 342 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 645 | 505 | 721 | 1,305 | 3,507 | 1,749 | 1,494 | 1,335 | 1,729 | 1,293 | 1,489 | 1,620 |
| 20% | 513 | 432 | 400 | 636 | 1,453 | 977 | 1,229 | 1,243 | 1,227 | 555 | 487 | 505 |
| 30% | 367 | 379 | 348 | 421 | 1,006 | 476 | 907 | 984 | 946 | 479 | 457 | 451 |
| 40% | 319 | 348 | 321 | 355 | 479 | 395 | 675 | 781 | 677 | 433 | 445 | 439 |
| 50% | 299 | 333 | 304 | 271 | 364 | 300 | 555 | 573 | 523 | 406 | 440 | 435 |
| 60% | 290 | 303 | 288 | 252 | 314 | 265 | 521 | 542 | 408 | 380 | 416 | 431 |
| 70% | 261 | 283 | 268 | 226 | 270 | 240 | 498 | 514 | 374 | 371 | 396 | 395 |
| 80% | 222 | 264 | 248 | 209 | 205 | 174 | 448 | 479 | 343 | 347 | 374 | 360 |
| 90% | 190 | 248 | 225 | 182 | 147 | 145 | 383 | 447 | 302 | 311 | 347 | 320 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 381 | 424 | 520 | 683 | 1,157 | 757 | 799 | 844 | 954 | 619 | 570 | 610 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 699 | 782 | 1,249 | 1,226 | 2,960 | 1,902 | 1,411 | 1,508 | 1,951 | 1,327 | 1,101 | 1,283 |
| Above Normal (24%) | 356 | 343 | 334 | 910 | 984 | 735 | 871 | 851 | 1,170 | 495 | 457 | 461 |
| Below Normal (10%) | 313 | 318 | 294 | 553 | 760 | 362 | 579 | 635 | 524 | 445 | 438 | 422 |
| Dry (16%) | 265 | 309 | 311 | 354 | 533 | 270 | 462 | 586 | 500 | 377 | 404 | 402 |
| Critical (27%) | 218 | 294 | 262 | 249 | 270 | 219 | 483 | 494 | 321 | 328 | 359 | 355 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-478** | 42 | 279 | 729 | 2,423 | **-221** | **-392** | **-654** | 194 | 541 | 902 | 974 |
| 20% | **-516** | 48 | 33 | 210 | 810 | **-731** | **-540** | **-404** | **-103** | **-51** | **-1** | **-3** |
| 30% | **-615** | 31 | 29 | 53 | 537 | **-45** | **-789** | **-552** | **-275** | **-23** | **-5** | **-22** |
| 40% | **-640** | 11 | 17 | 7 | 80 | **-38** | **-935** | **-581** | **-376** | **-9** | 0 | **-4** |
| 50% | **-580** | 14 | 14 | **-66** | **-4** | **-66** | **-930** | **-716** | **-111** | **-10** | **-4** | **-4** |
| 60% | **-536** | 11 | 8 | **-74** | **-17** | **-70** | **-415** | **-327** | **-102** | **-3** | 0 | 3 |
| 70% | **-510** | 16 | 6 | **-86** | **-9** | **-73** | **-308** | **-241** | **-32** | **-3** | 2 | 6 |
| 80% | **-532** | 4 | 6 | **-86** | **-48** | **-68** | **-245** | **-168** | **-18** | 4 | 4 | **0** |
| 90% | **-486** | **0** | 1 | **-91** | **-82** | **-63** | **-196** | **-131** | **-15** | 1 | 16 | 2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-522** | 26 | 70 | 53 | 440 | **-145** | **-480** | **-363** | 71 | 72 | 64 | 77 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **-421** | 81 | 256 | 111 | 1,556 | **-355** | **-367** | **-321** | 495 | 350 | 270 | 337 |
| Above Normal (24%) | **-563** | 27 | 46 | 133 | 197 | **-66** | **-540** | **-393** | **-84** | **-40** | **-9** | **-18** |
| Below Normal (10%) | **-637** | 3 | 3 | 123 | 243 | **-177** | **-978** | **-743** | **-144** | **-4** | **-2** | **-7** |
| Dry (16%) | **-567** | **0** | **0** | 6 | 128 | **-75** | **-602** | **-416** | **-31** | 1 | 6 | 3 |
| Critical (27%) | **-504** | **0** | **-4** | **-68** | **-49** | **-67** | **-271** | **-202** | **-15** | 5 | 12 | 13 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 38-3. Stanislaus River Flow at Mouth, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,122 | 463 | 442 | 576 | 1,083 | 1,969 | 1,886 | 1,989 | 1,535 | 752 | 587 | 646 |
| 20% | 1,029 | 384 | 368 | 427 | 643 | 1,708 | 1,769 | 1,647 | 1,330 | 606 | 488 | 507 |
| 30% | 982 | 348 | 319 | 368 | 469 | 521 | 1,696 | 1,536 | 1,221 | 502 | 462 | 473 |
| 40% | 958 | 337 | 304 | 347 | 399 | 433 | 1,610 | 1,362 | 1,053 | 443 | 445 | 443 |
| 50% | 879 | 319 | 290 | 337 | 368 | 367 | 1,485 | 1,289 | 634 | 415 | 445 | 439 |
| 60% | 826 | 292 | 281 | 326 | 331 | 336 | 936 | 869 | 510 | 384 | 416 | 428 |
| 70% | 772 | 267 | 262 | 312 | 279 | 314 | 806 | 755 | 406 | 374 | 395 | 389 |
| 80% | 755 | 260 | 241 | 295 | 253 | 241 | 693 | 647 | 361 | 343 | 371 | 360 |
| 90% | 676 | 248 | 224 | 273 | 230 | 207 | 579 | 577 | 317 | 311 | 331 | 318 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 903 | 398 | 449 | 630 | 717 | 902 | 1,279 | 1,207 | 883 | 547 | 505 | 533 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,120 | 701 | 994 | 1,115 | 1,404 | 2,256 | 1,779 | 1,828 | 1,456 | 977 | 831 | 946 |
| Above Normal (24%) | 918 | 316 | 288 | 777 | 786 | 801 | 1,410 | 1,244 | 1,254 | 534 | 467 | 480 |
| Below Normal (10%) | 950 | 315 | 291 | 430 | 517 | 539 | 1,556 | 1,378 | 668 | 449 | 440 | 429 |
| Dry (16%) | 832 | 309 | 311 | 349 | 405 | 345 | 1,064 | 1,002 | 531 | 377 | 397 | 399 |
| Critical (27%) | 722 | 294 | 266 | 317 | 319 | 286 | 755 | 696 | 336 | 323 | 347 | 342 |

### Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 645 | 505 | 721 | 1,306 | 3,507 | 1,749 | 1,494 | 1,335 | 1,729 | 1,293 | 1,489 | 1,620 |
| 20% | 513 | 432 | 400 | 636 | 1,453 | 977 | 1,229 | 1,243 | 1,227 | 555 | 487 | 505 |
| 30% | 367 | 379 | 348 | 421 | 1,006 | 476 | 907 | 984 | 946 | 479 | 457 | 451 |
| 40% | 319 | 348 | 321 | 355 | 479 | 395 | 675 | 781 | 677 | 433 | 445 | 439 |
| 50% | 299 | 333 | 304 | 271 | 364 | 300 | 555 | 573 | 523 | 406 | 440 | 435 |
| 60% | 290 | 303 | 288 | 252 | 314 | 265 | 521 | 542 | 408 | 380 | 416 | 431 |
| 70% | 261 | 283 | 268 | 226 | 269 | 240 | 498 | 514 | 375 | 371 | 396 | 395 |
| 80% | 222 | 264 | 248 | 209 | 205 | 174 | 448 | 479 | 343 | 346 | 374 | 360 |
| 90% | 190 | 248 | 225 | 182 | 147 | 145 | 383 | 447 | 302 | 311 | 347 | 320 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 381 | 424 | 520 | 683 | 1,157 | 757 | 799 | 844 | 954 | 619 | 570 | 610 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 699 | 782 | 1,249 | 1,226 | 2,960 | 1,902 | 1,411 | 1,508 | 1,951 | 1,327 | 1,101 | 1,283 |
| Above Normal (24%) | 356 | 343 | 334 | 910 | 984 | 735 | 871 | 851 | 1,171 | 495 | 457 | 461 |
| Below Normal (10%) | 313 | 318 | 294 | 553 | 760 | 362 | 579 | 635 | 524 | 445 | 438 | 422 |
| Dry (16%) | 265 | 309 | 311 | 354 | 533 | 270 | 462 | 586 | 500 | 377 | 404 | 402 |
| Critical (27%) | 218 | 294 | 262 | 249 | 270 | 219 | 483 | 494 | 321 | 328 | 359 | 355 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-478** | 42 | 279 | 730 | 2,423 | **-221** | **-392** | **-654** | 194 | 541 | 902 | 974 |
| 20% | **-516** | 48 | 33 | 210 | 810 | **-731** | **-540** | **-404** | **-103** | **-51** | **-1** | **-3** |
| 30% | **-615** | 31 | 29 | 53 | 537 | **-45** | **-789** | **-552** | **-275** | **-23** | **-5** | **-22** |
| 40% | **-640** | 11 | 17 | 7 | 80 | **-38** | **-935** | **-581** | **-376** | **-9** | 0 | **-4** |
| 50% | **-580** | 14 | 14 | **-66** | **-4** | **-66** | **-930** | **-716** | **-111** | **-10** | **-4** | **-4** |
| 60% | **-536** | 11 | 8 | **-74** | **-17** | **-70** | **-415** | **-327** | **-102** | **-3** | 0 | 3 |
| 70% | **-510** | 16 | 6 | **-86** | **-10** | **-73** | **-308** | **-241** | **-32** | **-3** | 2 | 6 |
| 80% | **-532** | 4 | 6 | **-86** | **-48** | **-68** | **-245** | **-168** | **-18** | 3 | 4 | **0** |
| 90% | **-486** | **0** | 1 | **-91** | **-82** | **-63** | **-196** | **-131** | **-15** | 1 | 16 | 2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-522** | 26 | 70 | 53 | 440 | **-145** | **-480** | **-363** | 71 | 72 | 64 | 77 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **-421** | 81 | 256 | 111 | 1,556 | **-355** | **-367** | **-320** | 495 | 350 | 270 | 337 |
| Above Normal (24%) | **-563** | 27 | 46 | 133 | 197 | **-66** | **-540** | **-393** | **-84** | **-40** | **-9** | **-18** |
| Below Normal (10%) | **-637** | 3 | 3 | 123 | 243 | **-177** | **-978** | **-743** | **-144** | **-4** | **-2** | **-7** |
| Dry (16%) | **-567** | **0** | **0** | 6 | 128 | **-75** | **-602** | **-416** | **-31** | 0 | 6 | 3 |
| Critical (27%) | **-504** | **0** | **-4** | **-68** | **-49** | **-67** | **-271** | **-202** | **-14** | 5 | 12 | 13 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 38-4. Stanislaus River Flow at Mouth, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,122 | 463 | 442 | 576 | 1,083 | 1,969 | 1,886 | 1,989 | 1,535 | 752 | 587 | 646 |
| 20% | 1,029 | 384 | 368 | 427 | 643 | 1,708 | 1,769 | 1,647 | 1,330 | 606 | 488 | 507 |
| 30% | 982 | 348 | 319 | 368 | 469 | 521 | 1,696 | 1,536 | 1,221 | 502 | 462 | 473 |
| 40% | 958 | 337 | 304 | 347 | 399 | 433 | 1,610 | 1,362 | 1,053 | 443 | 445 | 443 |
| 50% | 879 | 319 | 290 | 337 | 368 | 367 | 1,485 | 1,289 | 634 | 415 | 445 | 439 |
| 60% | 826 | 292 | 281 | 326 | 331 | 336 | 936 | 869 | 510 | 384 | 416 | 428 |
| 70% | 772 | 267 | 262 | 312 | 279 | 314 | 806 | 755 | 406 | 374 | 395 | 389 |
| 80% | 755 | 260 | 241 | 295 | 253 | 241 | 693 | 647 | 361 | 343 | 371 | 360 |
| 90% | 676 | 248 | 224 | 273 | 230 | 207 | 579 | 577 | 317 | 311 | 331 | 318 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 903 | 398 | 449 | 630 | 717 | 902 | 1,279 | 1,207 | 883 | 547 | 505 | 533 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,120 | 701 | 994 | 1,115 | 1,404 | 2,256 | 1,779 | 1,828 | 1,456 | 977 | 831 | 946 |
| Above Normal (24%) | 918 | 316 | 288 | 777 | 786 | 801 | 1,410 | 1,244 | 1,254 | 534 | 467 | 480 |
| Below Normal (10%) | 950 | 315 | 291 | 430 | 517 | 539 | 1,556 | 1,378 | 668 | 449 | 440 | 429 |
| Dry (16%) | 832 | 309 | 311 | 349 | 405 | 345 | 1,064 | 1,002 | 531 | 377 | 397 | 399 |
| Critical (27%) | 722 | 294 | 266 | 317 | 319 | 286 | 755 | 696 | 336 | 323 | 347 | 342 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,094 | 401 | 403 | 765 | 2,628 | 1,947 | 1,886 | 1,726 | 1,352 | 633 | 569 | 673 |
| 20% | 1,036 | 376 | 338 | 425 | 541 | 1,638 | 1,817 | 1,610 | 1,061 | 536 | 482 | 493 |
| 30% | 975 | 347 | 314 | 364 | 449 | 1,054 | 1,705 | 1,443 | 800 | 479 | 458 | 462 |
| 40% | 966 | 335 | 304 | 350 | 388 | 415 | 1,553 | 1,335 | 615 | 427 | 445 | 441 |
| 50% | 901 | 318 | 288 | 336 | 340 | 362 | 1,525 | 1,294 | 531 | 398 | 435 | 437 |
| 60% | 821 | 292 | 280 | 325 | 293 | 334 | 976 | 841 | 408 | 376 | 402 | 400 |
| 70% | 766 | 267 | 262 | 308 | 257 | 312 | 767 | 631 | 341 | 309 | 360 | 382 |
| 80% | 751 | 260 | 239 | 294 | 237 | 241 | 545 | 459 | 287 | 282 | 318 | 337 |
| 90% | 659 | 248 | 223 | 273 | 227 | 207 | 460 | 419 | 243 | 231 | 274 | 282 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 898 | 392 | 424 | 661 | 846 | 911 | 1,268 | 1,120 | 769 | 530 | 482 | 520 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 1,115 | 677 | 866 | 1,120 | 1,961 | 2,431 | 1,718 | 1,802 | 1,816 | 1,095 | 817 | 945 |
| Above Normal (24%) | 964 | 313 | 299 | 808 | 806 | 733 | 1,758 | 1,353 | 658 | 446 | 457 | 471 |
| Below Normal (10%) | 972 | 315 | 291 | 694 | 700 | 421 | 1,712 | 1,419 | 557 | 445 | 438 | 423 |
| Dry (16%) | 780 | 309 | 320 | 339 | 320 | 345 | 859 | 727 | 412 | 355 | 391 | 395 |
| Critical (27%) | 686 | 294 | 266 | 310 | 286 | 271 | 514 | 441 | 254 | 252 | 284 | 309 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-29** | **-62** | **-40** | 188 | 1,545 | **-22** | 0 | **-264** | **-183** | **-119** | **-18** | 28 |
| 20% | 7 | **-8** | **-29** | **-2** | **-102** | **-70** | 48 | **-37** | **-269** | **-70** | **-7** | **-14** |
| 30% | **-7** | **-1** | **-4** | **-4** | **-20** | 532 | 8 | **-94** | **-421** | **-23** | **-4** | **-11** |
| 40% | 7 | **-2** | **-1** | 2 | **-11** | **-18** | **-56** | **-27** | **-438** | **-16** | 0 | **-3** |
| 50% | 23 | **-1** | **-1** | **-1** | **-28** | **-5** | 41 | 5 | **-103** | **-17** | **-10** | **-2** |
| 60% | **-5** | 0 | **0** | **0** | **-38** | **-2** | 40 | **-28** | **-103** | **-7** | **-14** | **-27** |
| 70% | **-6** | 0 | 0 | **-4** | **-22** | **-2** | **-39** | **-124** | **-66** | **-65** | **-34** | **-7** |
| 80% | **-4** | 0 | **-2** | **-1** | **-16** | 0 | **-149** | **-188** | **-73** | **-61** | **-52** | **-24** |
| 90% | **-17** | 0 | **-1** | **0** | **-2** | 0 | **-118** | **-158** | **-74** | **-80** | **-56** | **-36** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-4** | **-6** | **-26** | 31 | 129 | 8 | **-11** | **-87** | **-114** | **-17** | **-24** | **-13** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **-5** | **-24** | **-128** | 4 | 557 | 175 | **-61** | **-26** | 359 | 118 | **-14** | **-1** |
| Above Normal (24%) | 46 | **-3** | 11 | 31 | 20 | **-68** | 347 | 109 | **-596** | **-88** | **-9** | **-9** |
| Below Normal (10%) | 22 | 0 | 0 | 264 | 183 | **-118** | 156 | 41 | **-111** | **-4** | **-2** | **-6** |
| Dry (16%) | **-51** | 0 | 9 | **-10** | **-86** | 0 | **-205** | **-274** | **-119** | **-21** | **-6** | **-4** |
| Critical (27%) | **-36** | 0 | 0 | **-7** | **-33** | **-15** | **-241** | **-255** | **-82** | **-72** | **-64** | **-33** |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

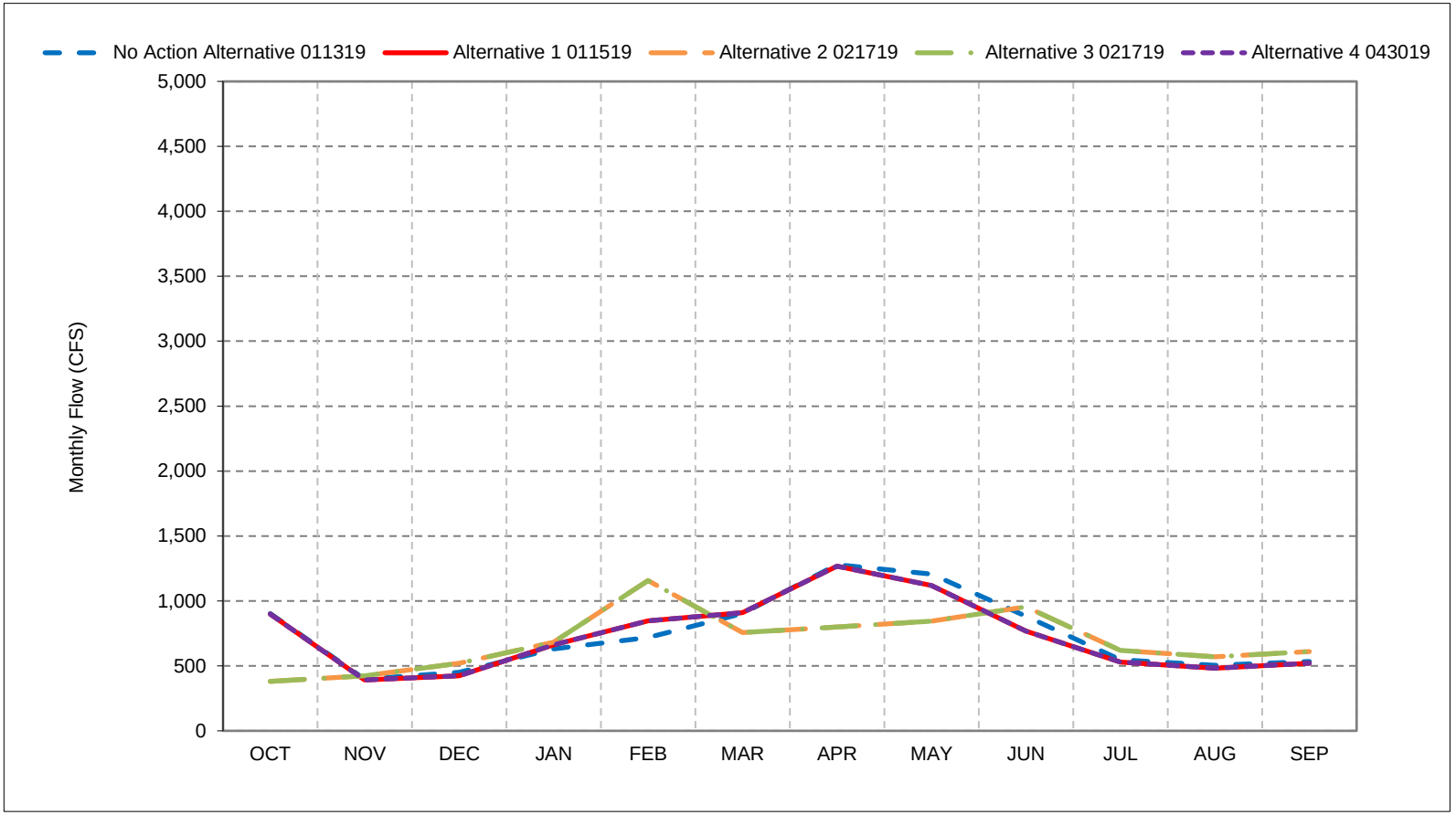
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

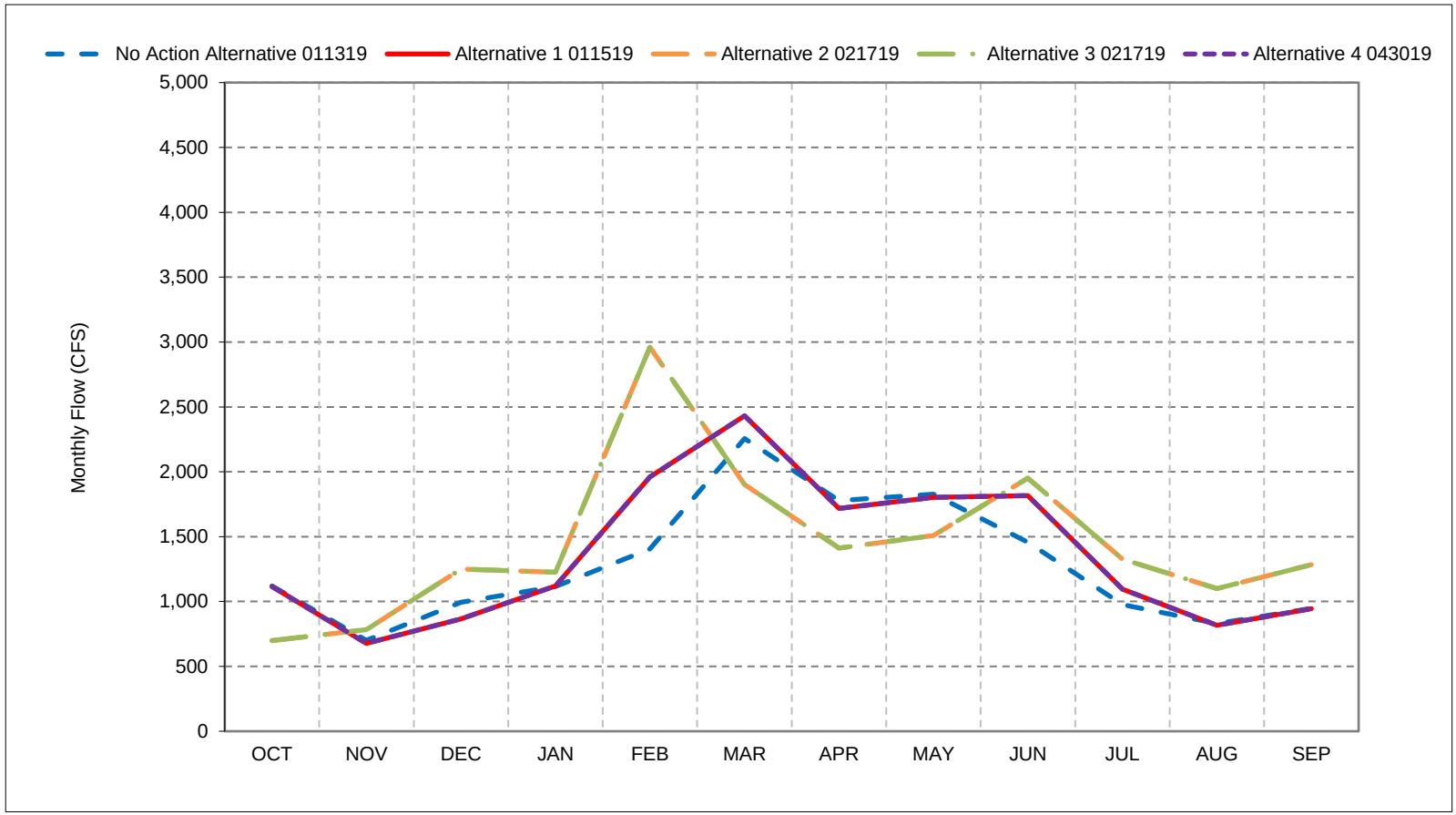
f New Melones forecasts are used as the basis of water operations.

## Figure 38-1. Stanislaus River Flow at Mouth, Long-Term Average Flow



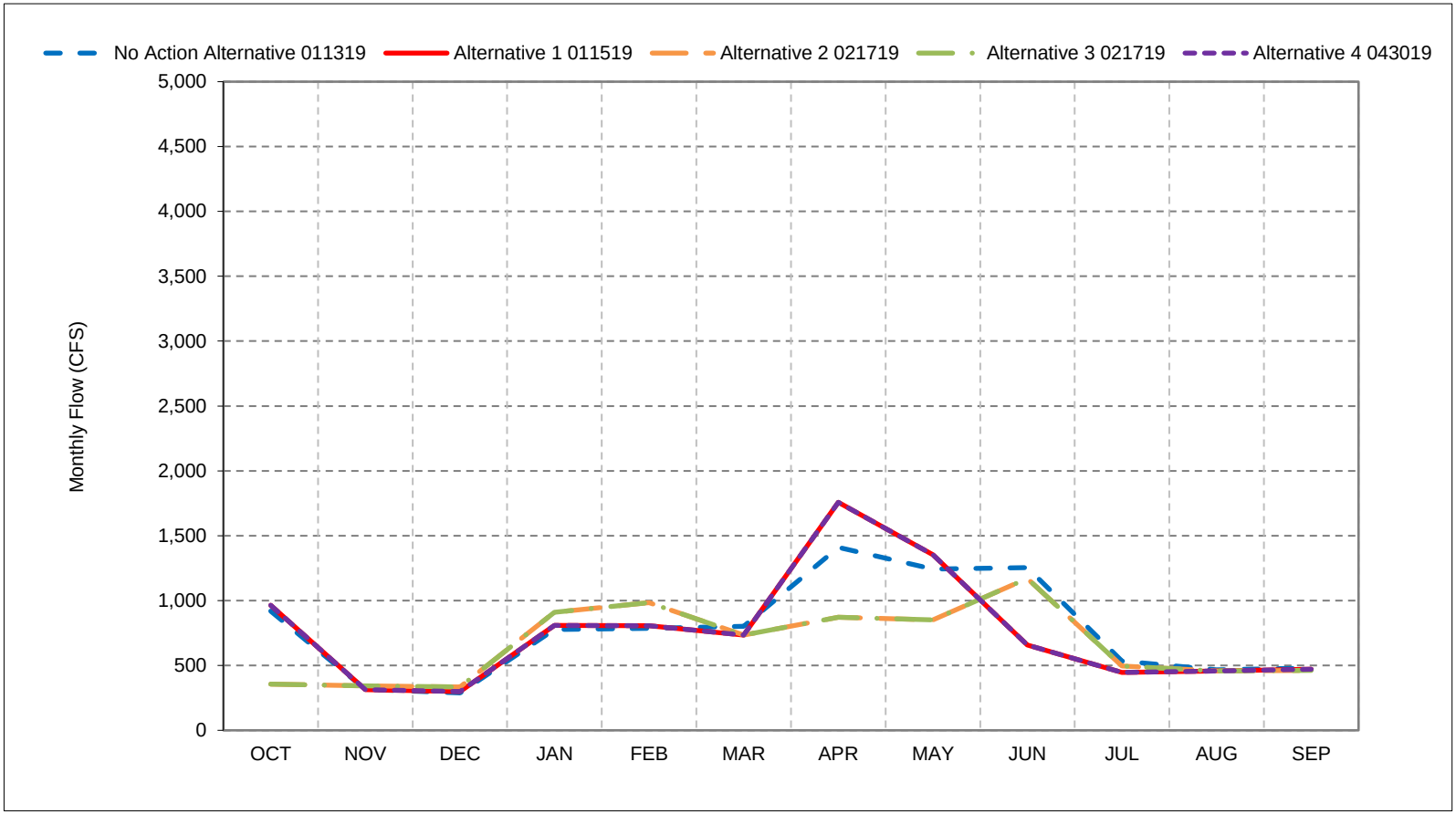

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 38-2. Stanislaus River Flow at Mouth, Wet Year Average Flow



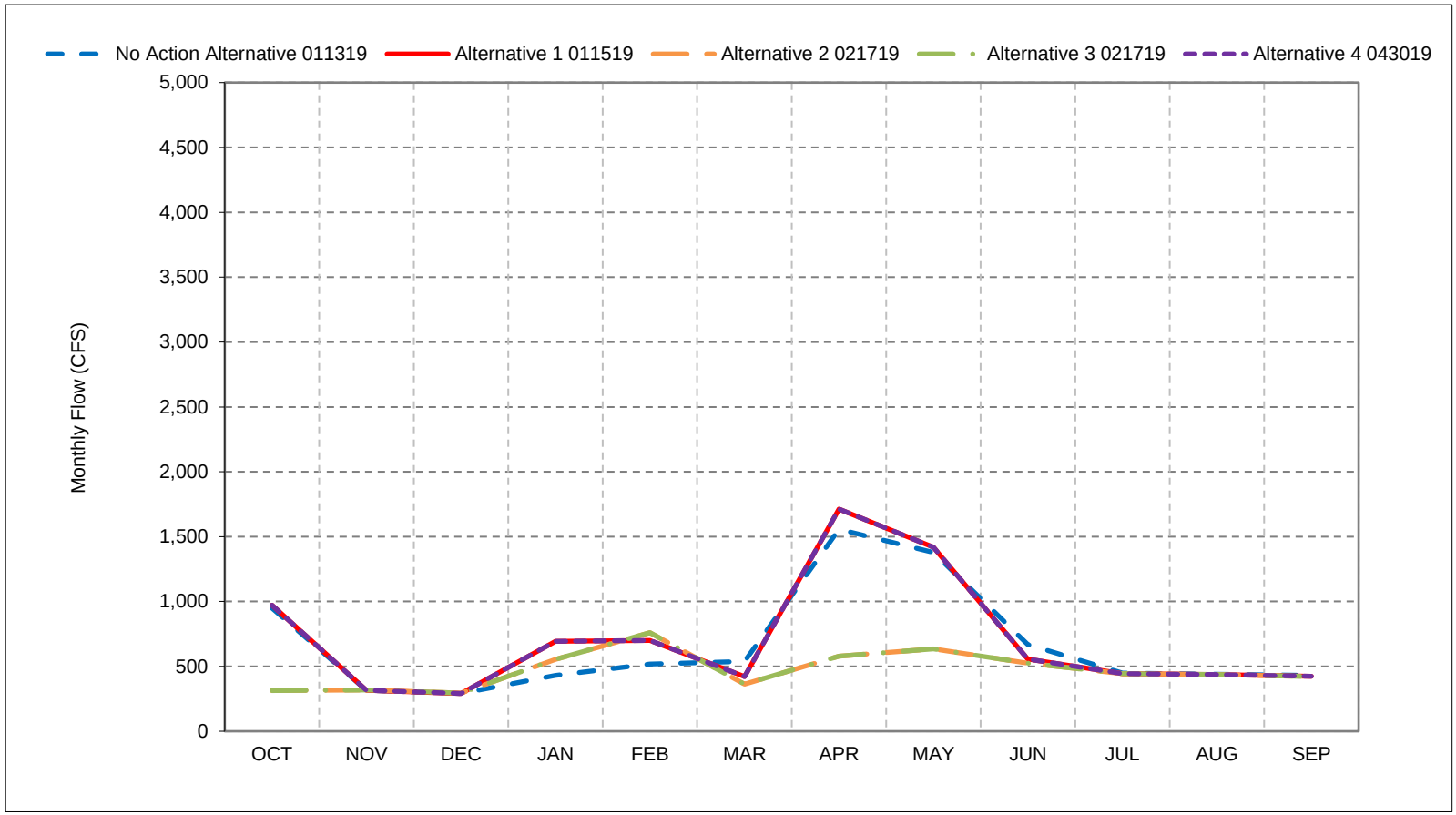

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 38-3. Stanislaus River Flow at Mouth, Above Normal Year Average Flow



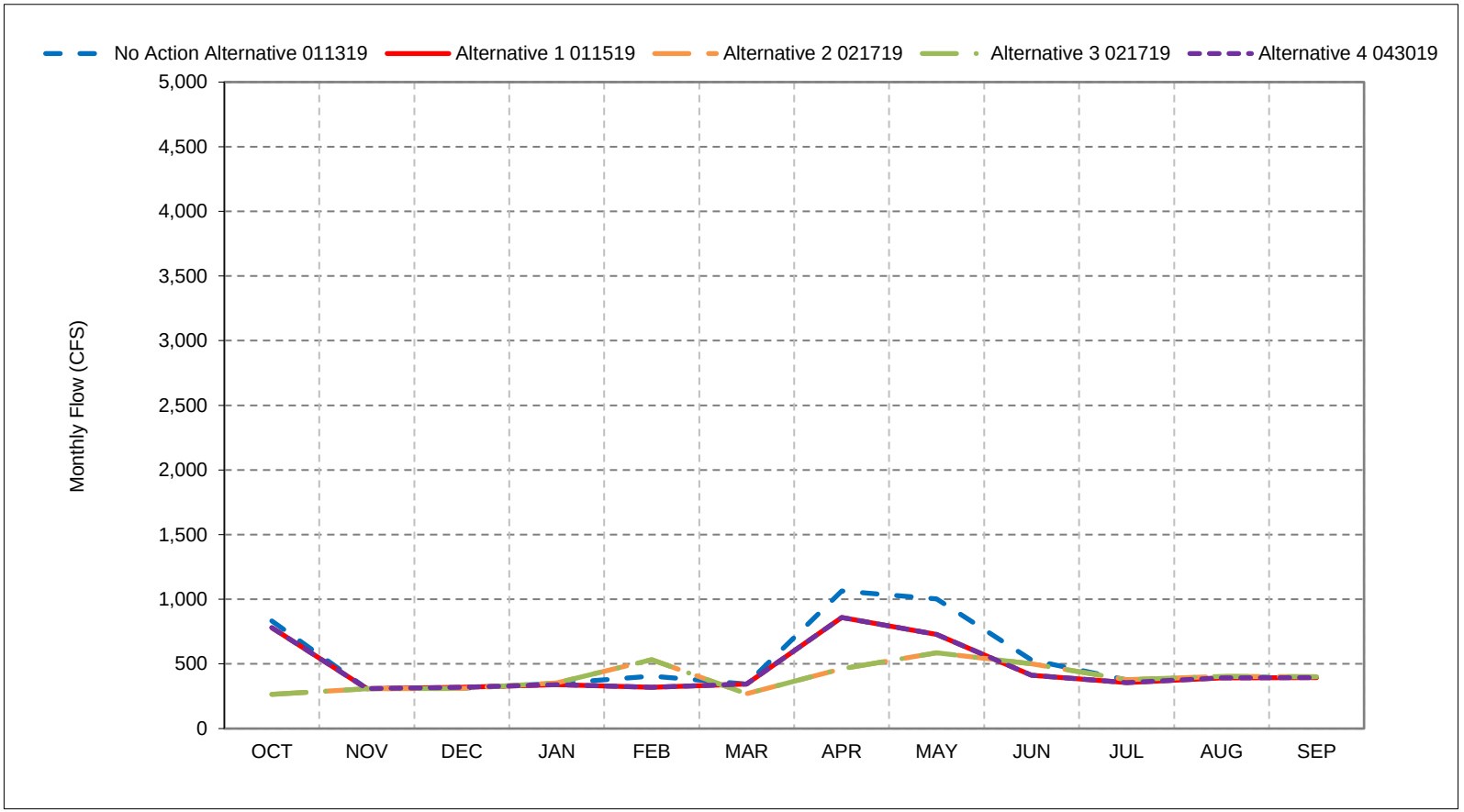

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 38-4. Stanislaus River Flow at Mouth, Below Normal Year Average Flow



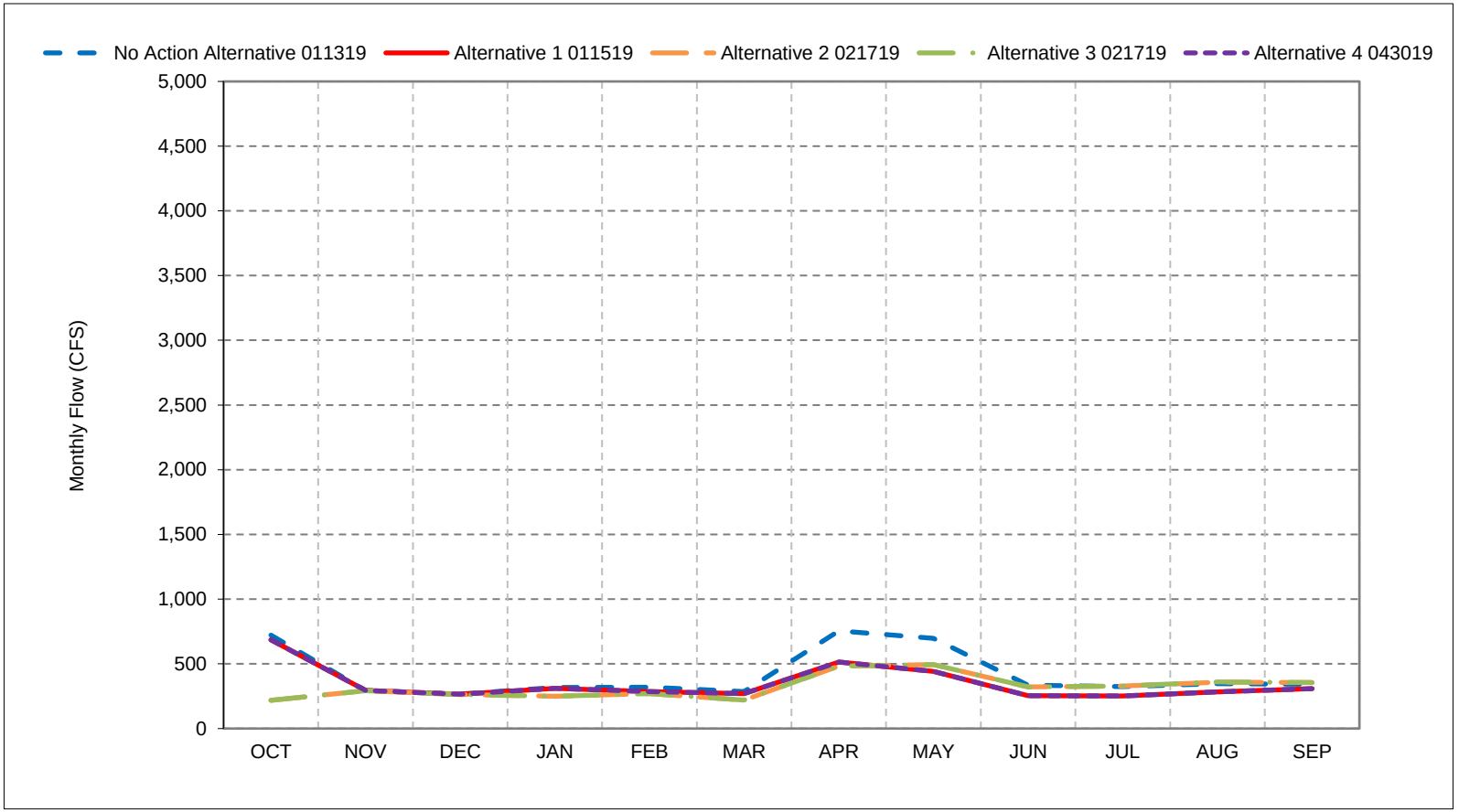

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 38-5. Stanislaus River Flow at Mouth, Dry Year Average Flow



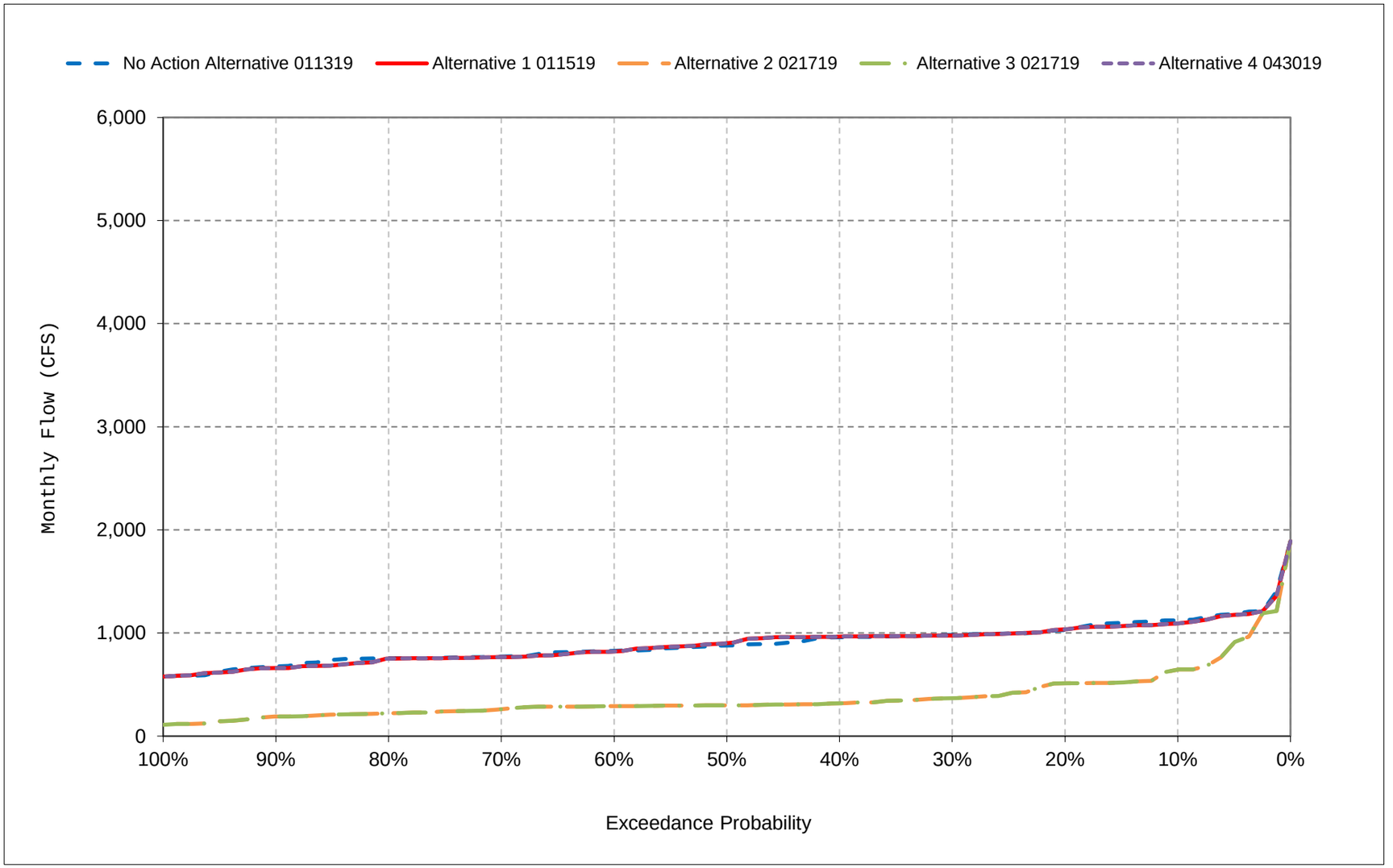

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 38-6. Stanislaus River Flow at Mouth, Critical Year Average Flow




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

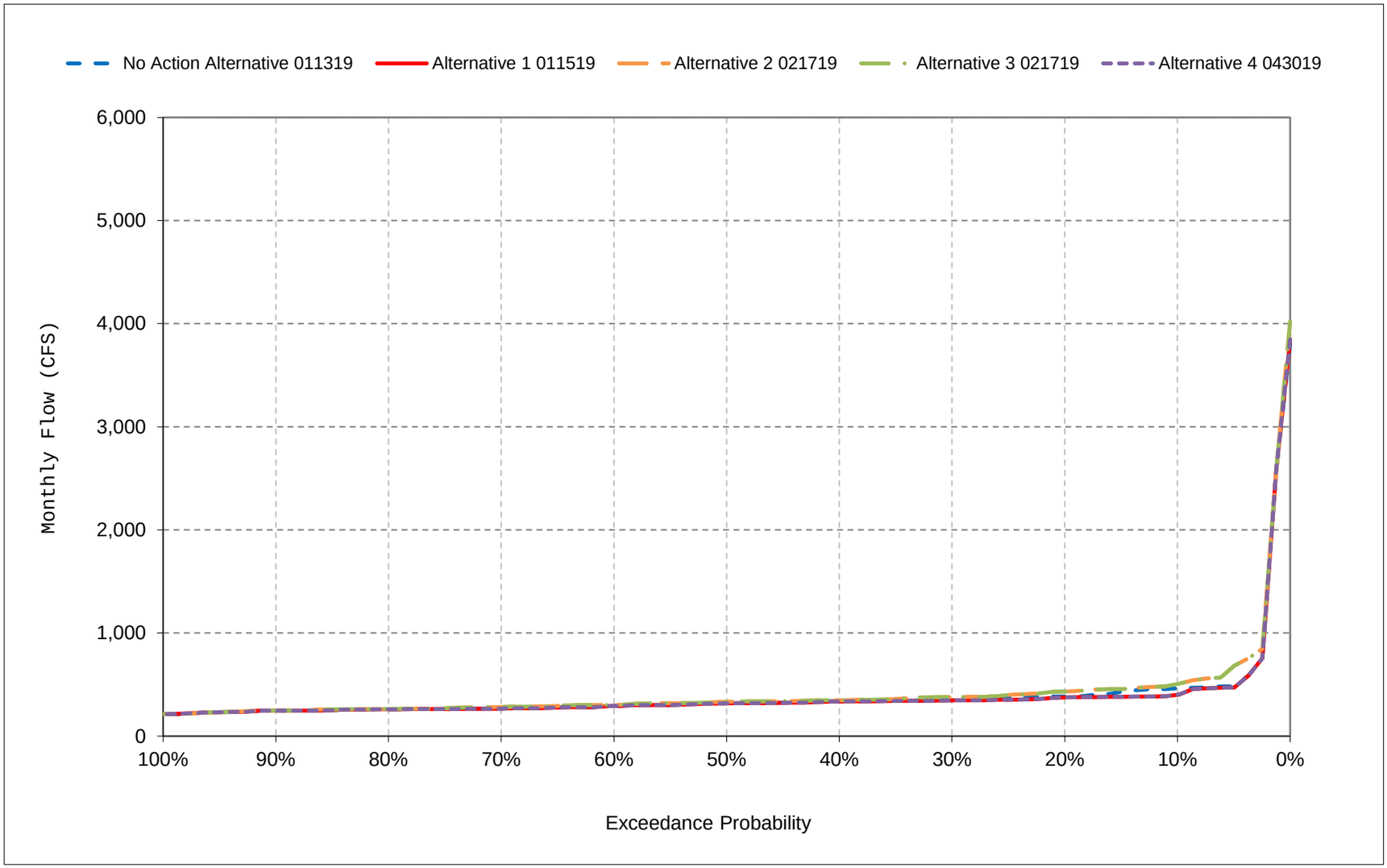
**Figure 38-7. Stanislaus River Flow at Mouth, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

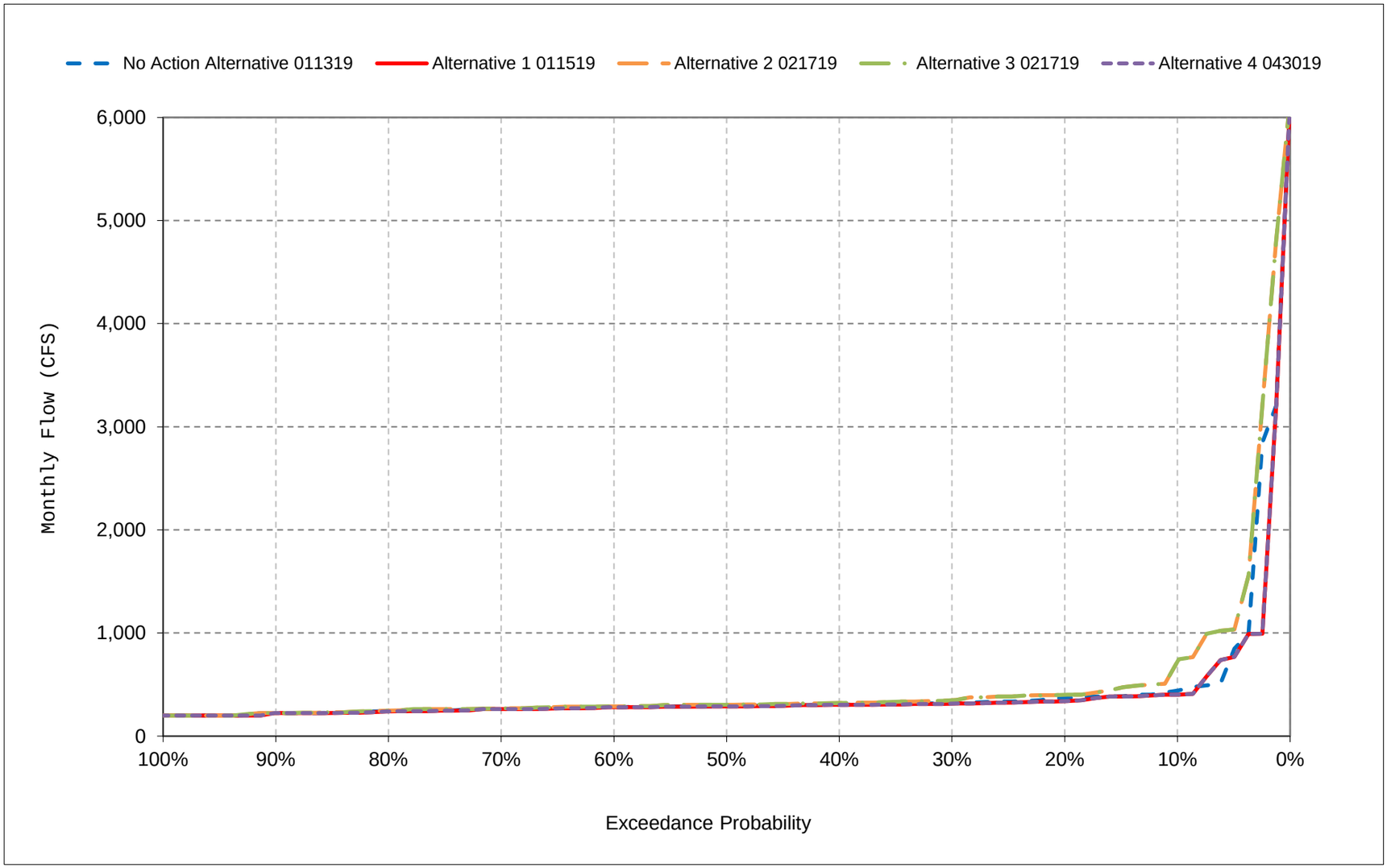
**Figure 38-8. Stanislaus River Flow at Mouth, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

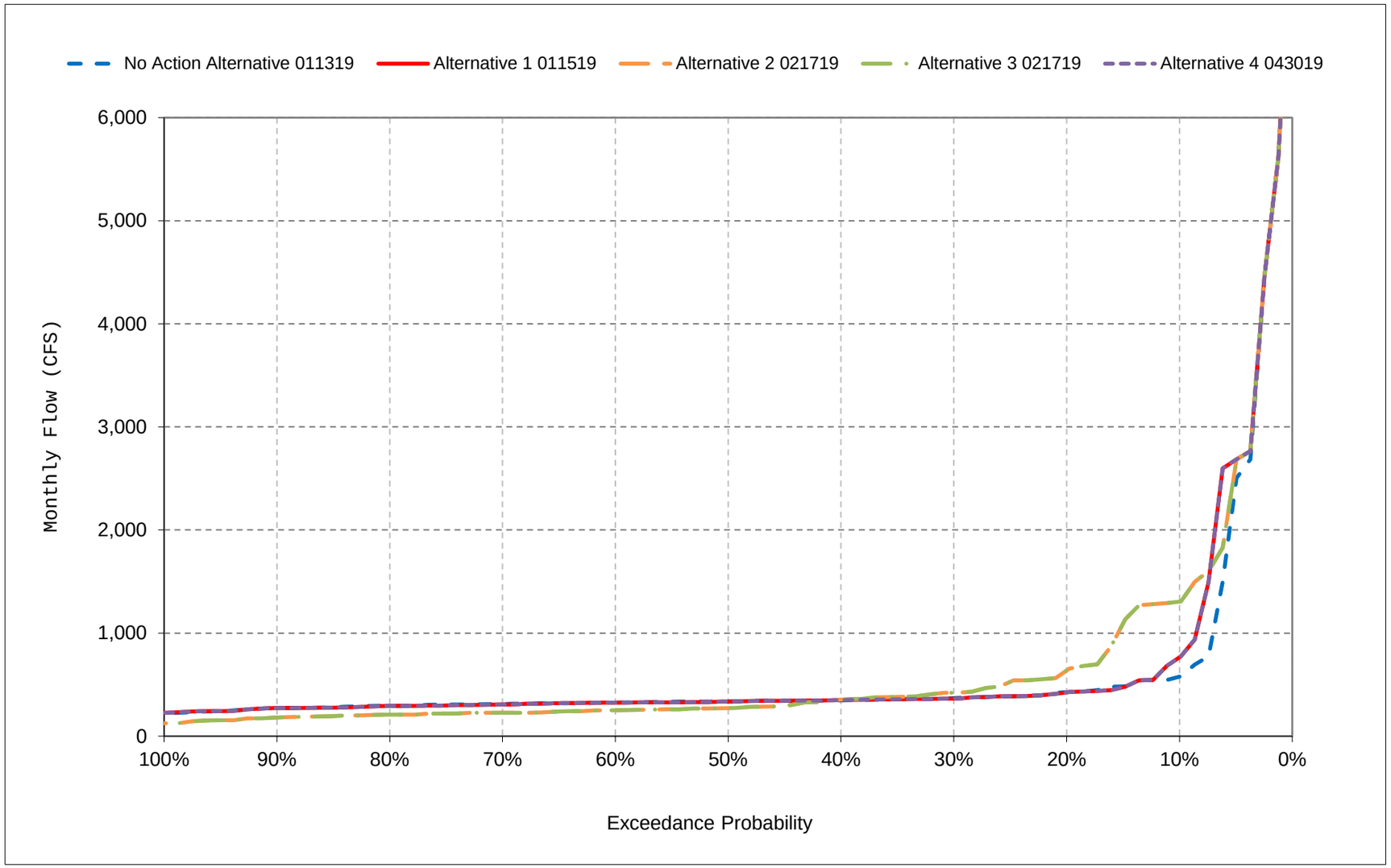
**Figure 38-9. Stanislaus River Flow at Mouth, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

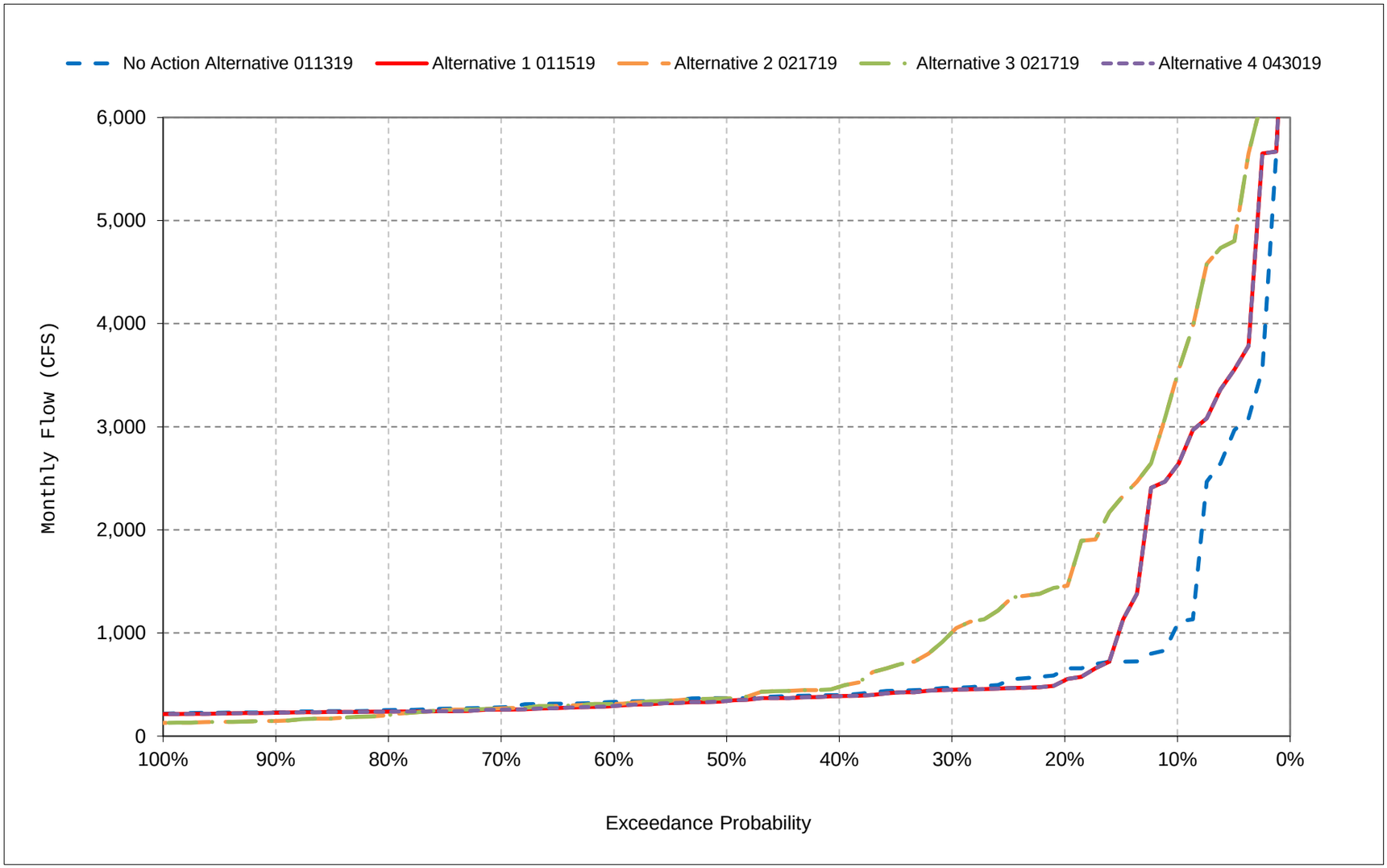
**Figure 38-10. Stanislaus River Flow at Mouth, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

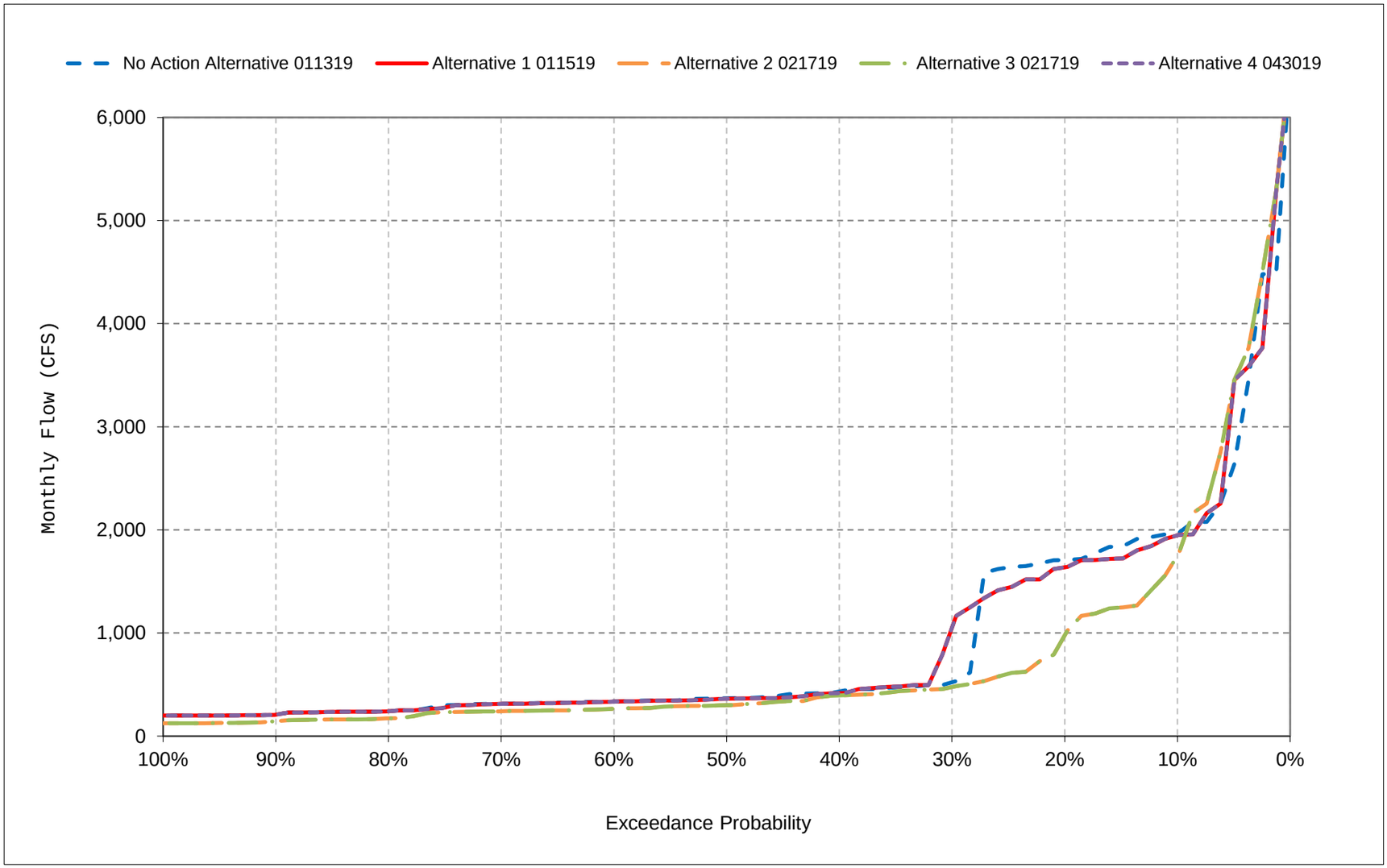
**Figure 38-11. Stanislaus River Flow at Mouth, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

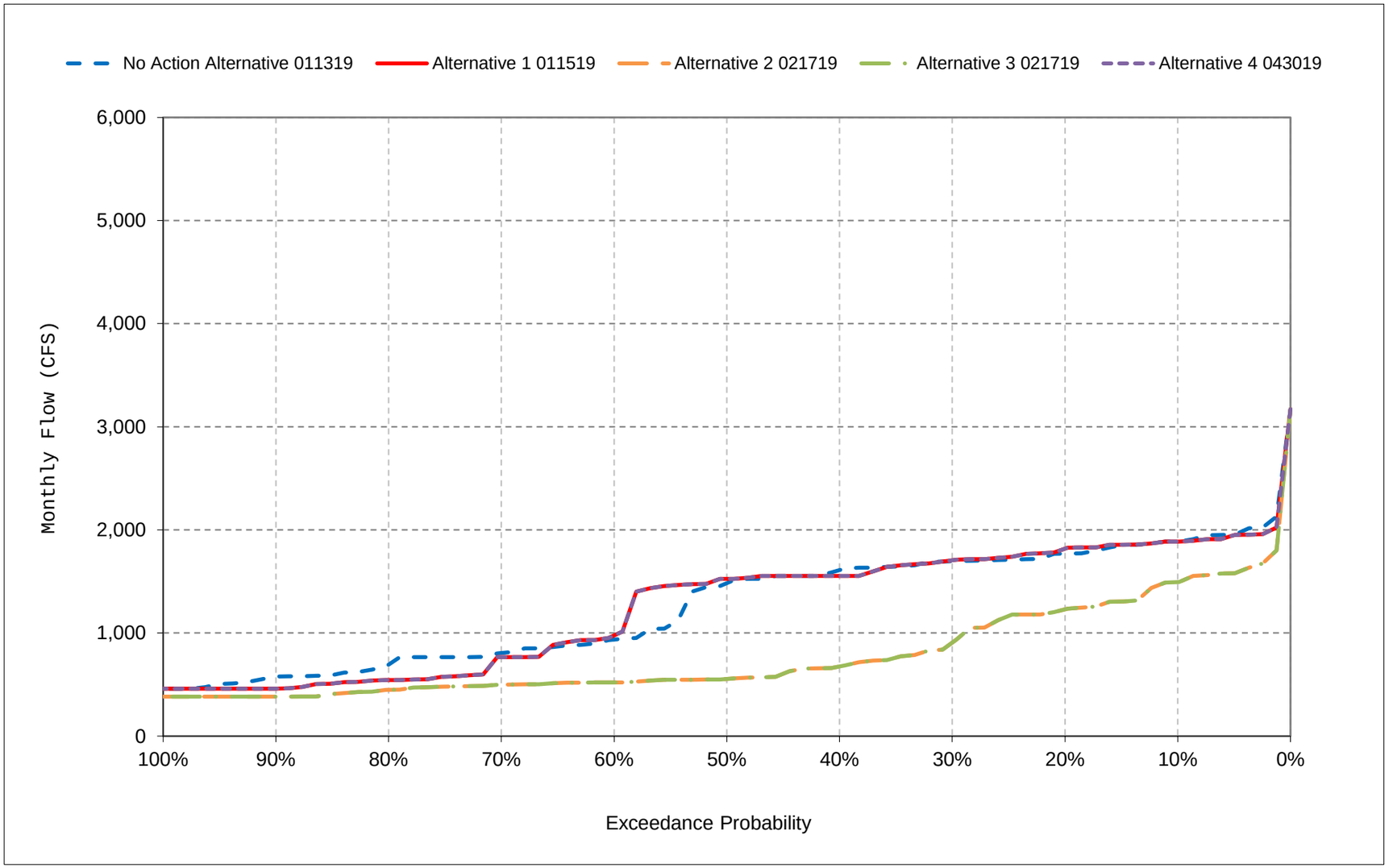
**Figure 38-12. Stanislaus River Flow at Mouth, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

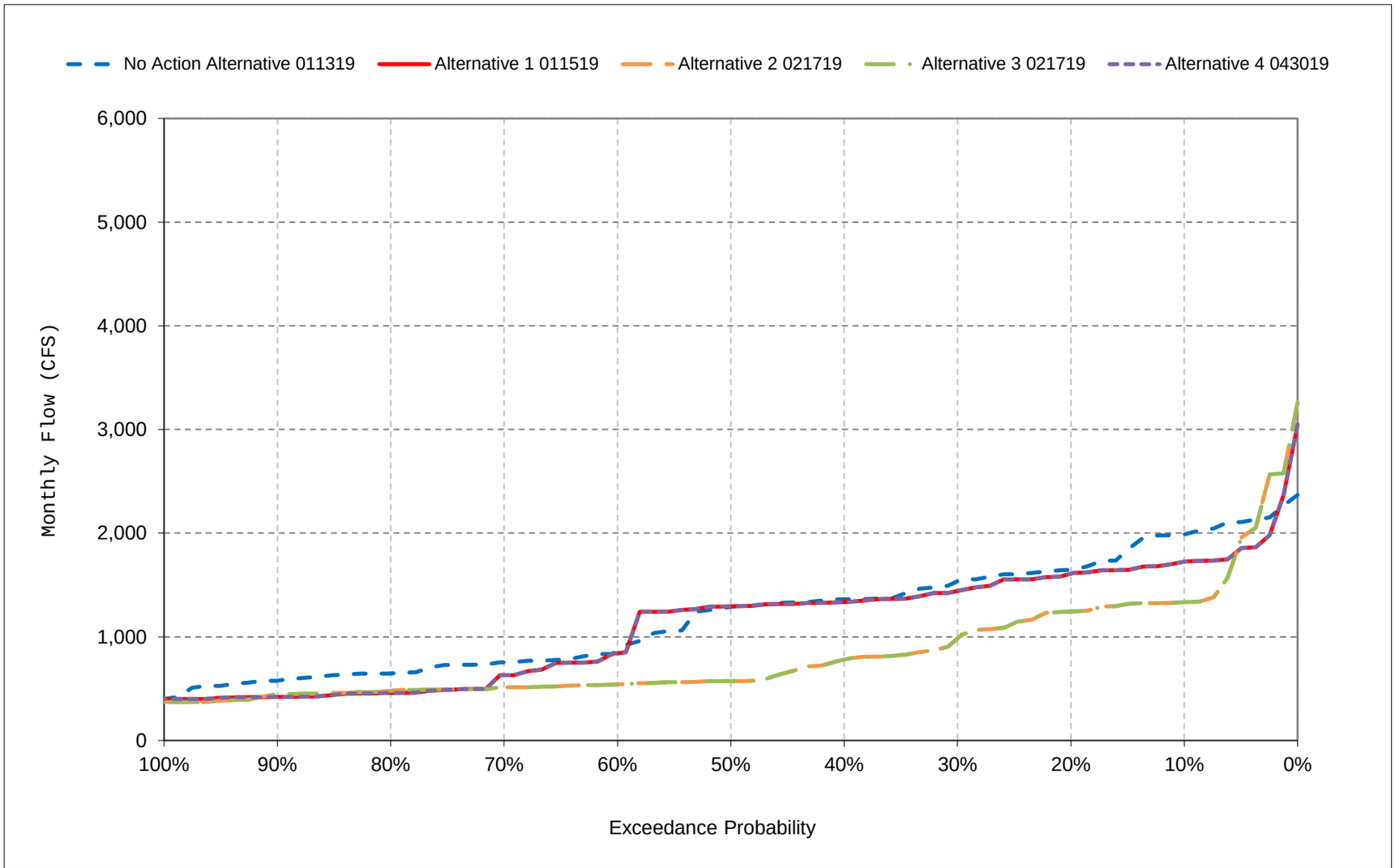
**Figure 38-13. Stanislaus River Flow at Mouth, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

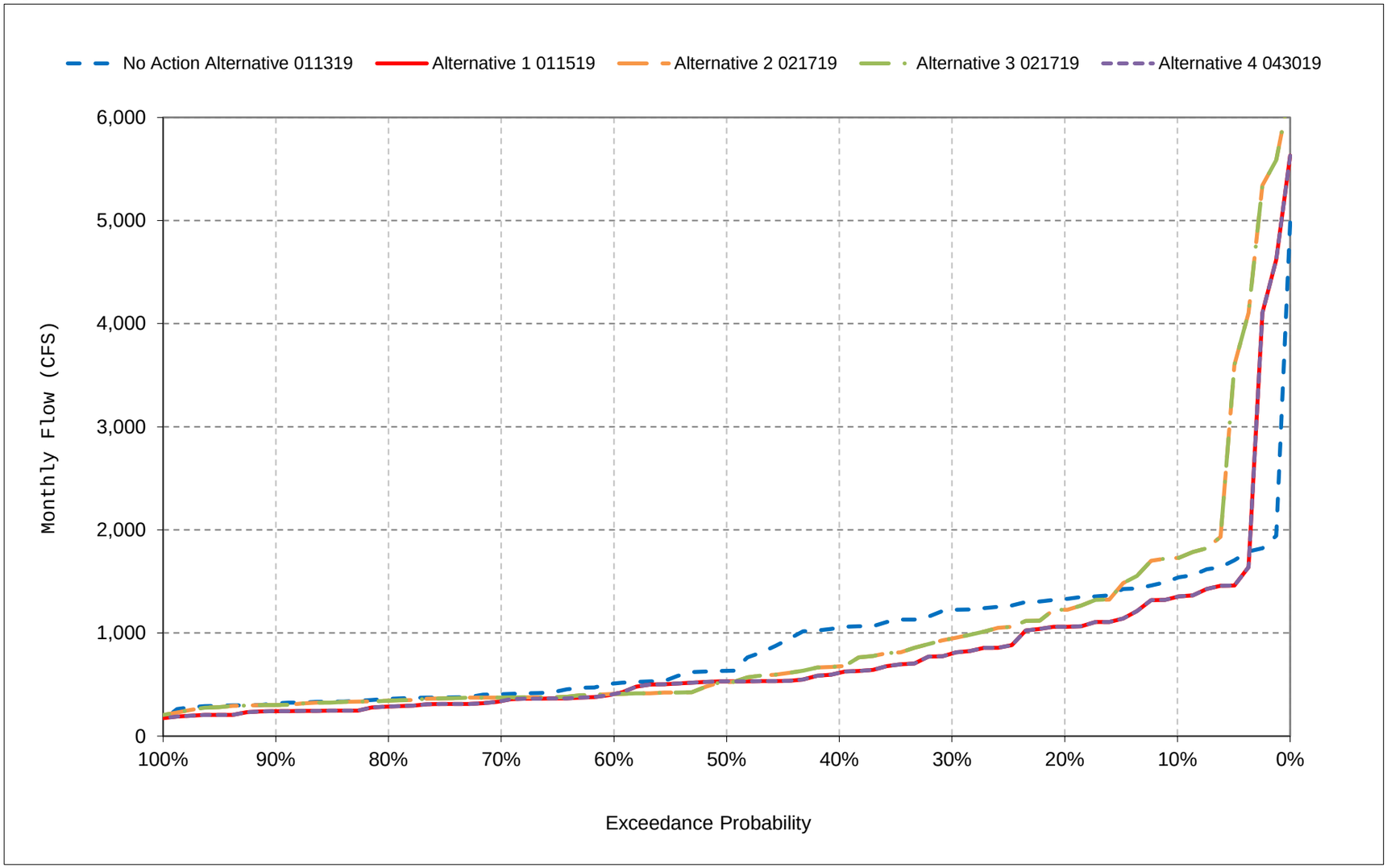
**Figure 38-14. Stanislaus River Flow at Mouth, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

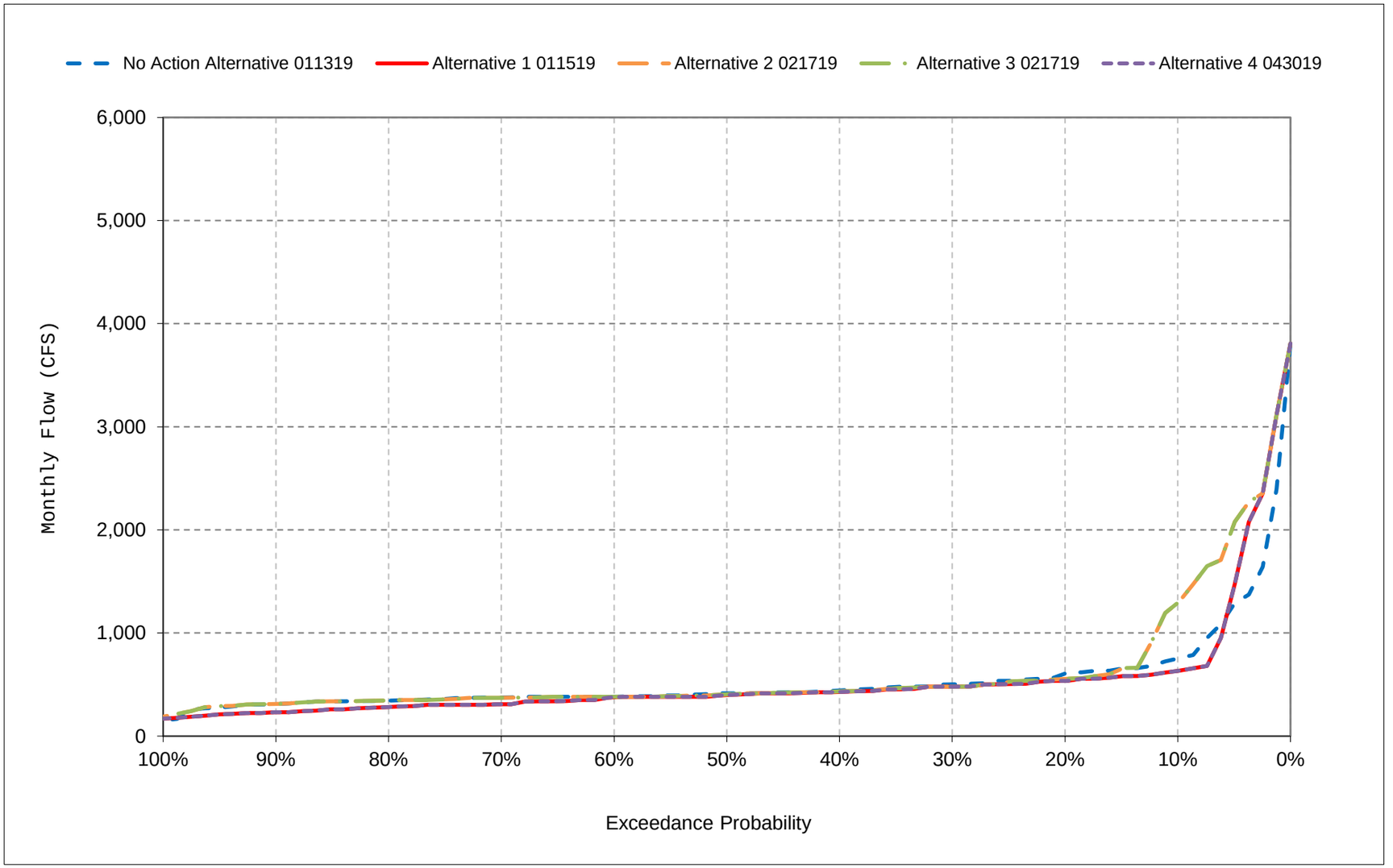
**Figure 38-15. Stanislaus River Flow at Mouth, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

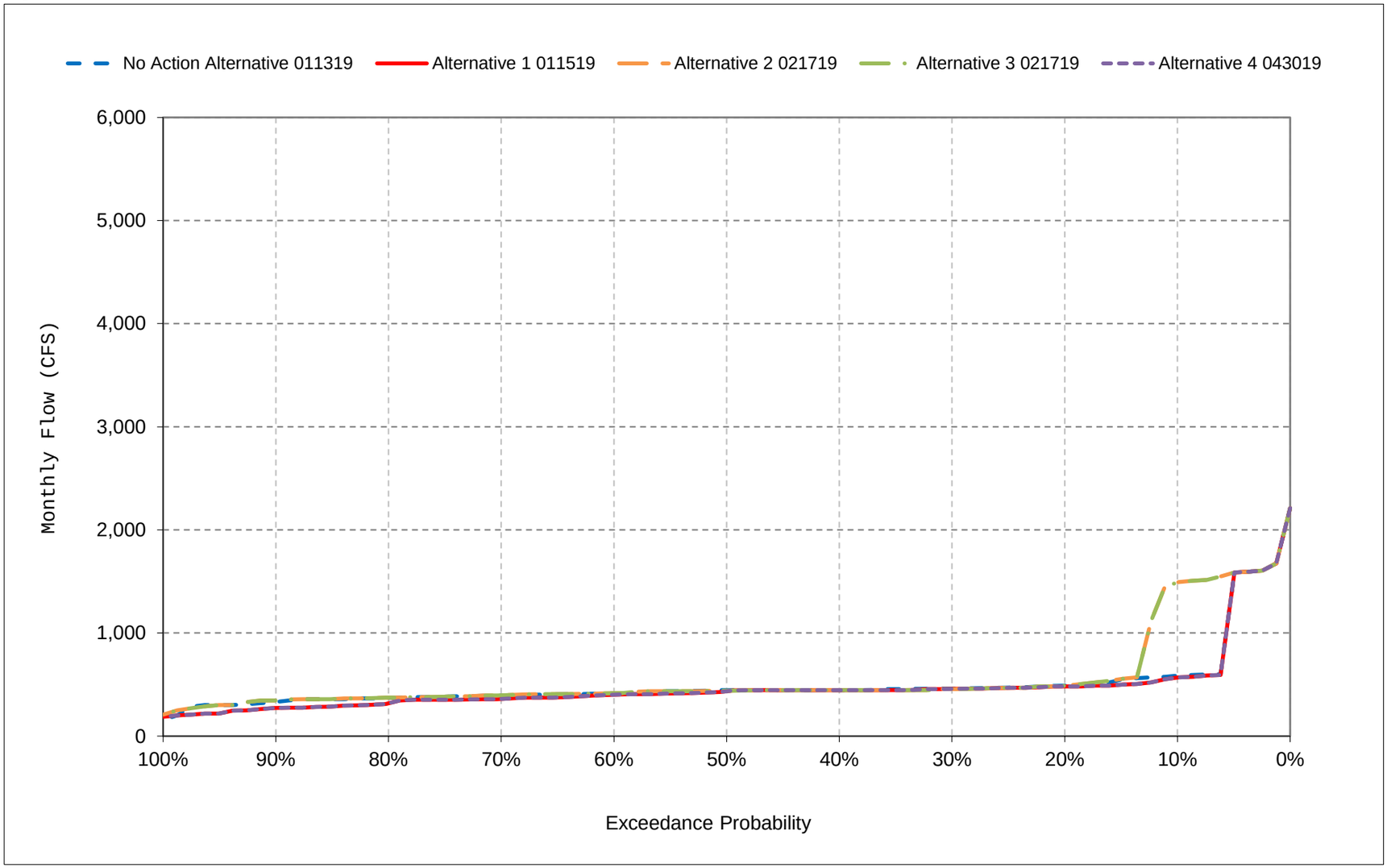
**Figure 38-16. Stanislaus River Flow at Mouth, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

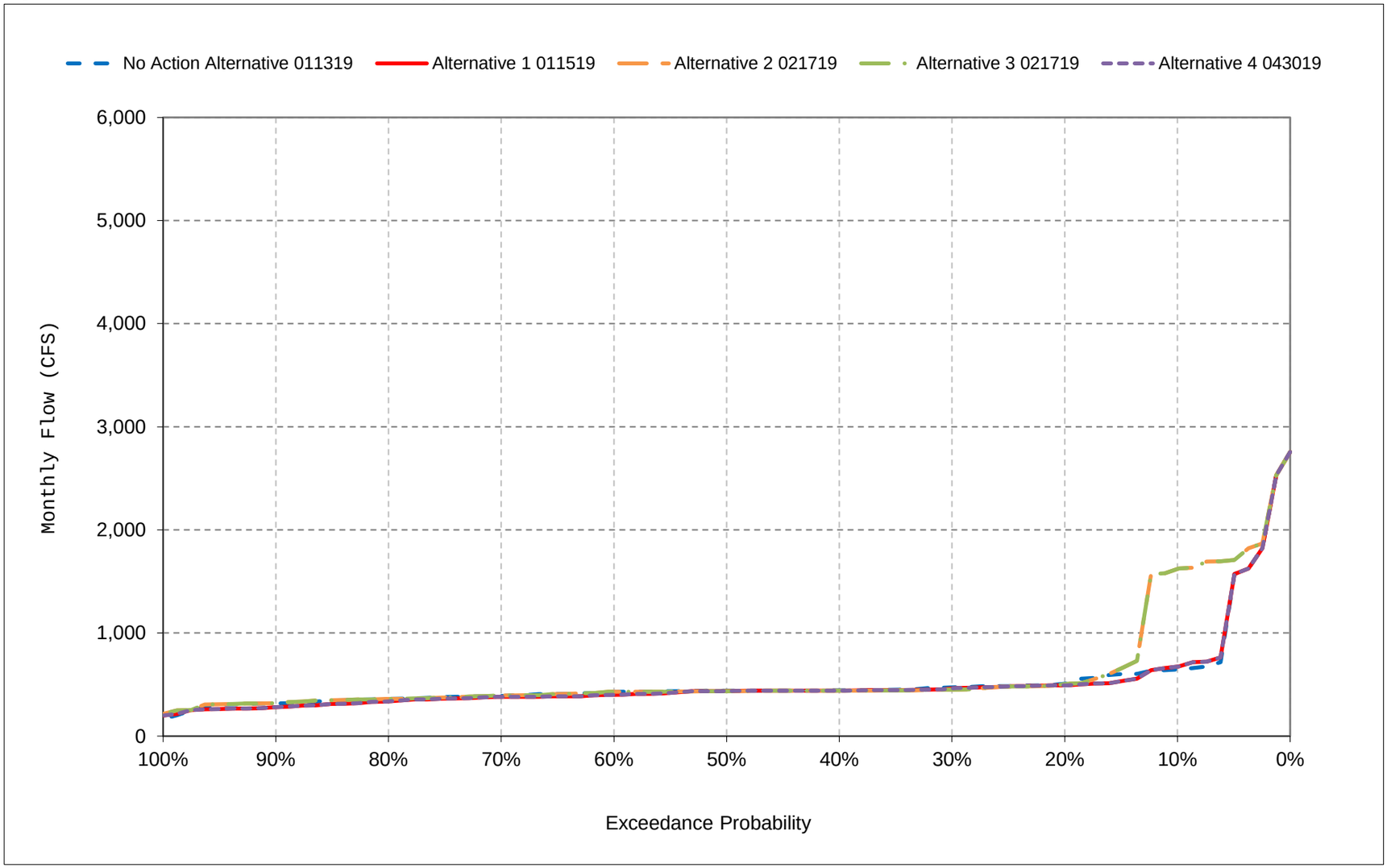
**Figure 38-17. Stanislaus River Flow at Mouth, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 38-18. Stanislaus River Flow at Mouth, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 39-1. San Joaquin River at Vernalis, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,499 | 2,953 | 4,804 | 11,236 | 14,693 | 15,582 | 14,771 | 14,178 | 9,432 | 5,890 | 2,796 | 3,060 |
| 20% | 3,162 | 2,777 | 2,857 | 4,812 | 10,133 | 10,196 | 10,640 | 8,319 | 4,695 | 2,634 | 2,595 | 2,655 |
| 30% | 2,980 | 2,527 | 2,401 | 3,611 | 6,119 | 8,499 | 8,616 | 5,538 | 3,364 | 1,990 | 1,909 | 2,491 |
| 40% | 2,796 | 2,395 | 2,216 | 2,629 | 4,232 | 5,570 | 7,564 | 4,615 | 2,947 | 1,741 | 1,672 | 2,125 |
| 50% | 2,602 | 2,219 | 2,101 | 2,402 | 3,420 | 3,847 | 6,019 | 3,929 | 2,244 | 1,493 | 1,492 | 1,932 |
| 60% | 2,401 | 2,169 | 2,046 | 2,293 | 2,684 | 3,459 | 4,835 | 3,064 | 1,864 | 1,370 | 1,408 | 1,837 |
| 70% | 2,247 | 2,059 | 1,979 | 2,114 | 2,305 | 2,906 | 3,778 | 2,705 | 1,449 | 1,163 | 1,310 | 1,741 |
| 80% | 1,995 | 1,951 | 1,829 | 1,883 | 2,151 | 2,371 | 2,792 | 2,167 | 1,298 | 1,099 | 1,207 | 1,613 |
| 90% | 1,849 | 1,763 | 1,669 | 1,699 | 1,947 | 2,205 | 1,888 | 1,680 | 1,091 | 891 | 1,068 | 1,477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,672 | 2,613 | 3,393 | 5,079 | 6,664 | 7,282 | 7,522 | 6,066 | 4,211 | 2,630 | 1,850 | 2,225 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,440 | 3,630 | 5,116 | 10,106 | 12,569 | 14,033 | 13,210 | 11,444 | 8,798 | 5,275 | 2,791 | 3,062 |
| Above Normal (16%) | 2,750 | 2,461 | 2,591 | 4,383 | 6,149 | 6,703 | 7,697 | 5,516 | 3,484 | 2,020 | 1,768 | 2,215 |
| Below Normal (13%) | 2,558 | 2,191 | 2,461 | 2,701 | 4,599 | 4,249 | 5,598 | 3,700 | 2,030 | 1,494 | 1,579 | 1,998 |
| Dry (24%) | 2,201 | 2,118 | 3,166 | 2,295 | 3,124 | 3,599 | 4,307 | 3,261 | 1,733 | 1,228 | 1,348 | 1,764 |
| Critical (15%) | 1,815 | 1,786 | 1,764 | 1,757 | 2,224 | 2,199 | 2,132 | 1,854 | 1,192 | 941 | 989 | 1,396 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,500 | 2,975 | 4,804 | 12,398 | 17,192 | 15,482 | 15,015 | 15,004 | 9,433 | 5,780 | 2,744 | 3,060 |
| 20% | 3,148 | 2,778 | 2,904 | 4,838 | 10,122 | 10,324 | 10,641 | 8,327 | 4,781 | 2,503 | 2,602 | 2,635 |
| 30% | 2,996 | 2,483 | 2,321 | 3,613 | 6,806 | 8,470 | 8,960 | 5,767 | 2,704 | 1,957 | 1,894 | 2,486 |
| 40% | 2,835 | 2,395 | 2,204 | 2,681 | 4,232 | 5,306 | 7,921 | 4,655 | 2,370 | 1,730 | 1,679 | 2,128 |
| 50% | 2,628 | 2,219 | 2,101 | 2,371 | 3,071 | 3,847 | 6,437 | 4,131 | 2,069 | 1,507 | 1,497 | 1,933 |
| 60% | 2,402 | 2,170 | 2,046 | 2,290 | 2,614 | 3,440 | 4,786 | 2,910 | 1,757 | 1,362 | 1,407 | 1,830 |
| 70% | 2,137 | 2,060 | 1,979 | 2,084 | 2,305 | 2,906 | 3,212 | 2,305 | 1,351 | 1,153 | 1,319 | 1,743 |
| 80% | 1,978 | 1,951 | 1,829 | 1,883 | 2,128 | 2,372 | 2,500 | 1,866 | 1,217 | 994 | 1,136 | 1,575 |
| 90% | 1,807 | 1,763 | 1,669 | 1,699 | 1,891 | 2,205 | 1,765 | 1,473 | 978 | 874 | 1,029 | 1,452 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,669 | 2,607 | 3,368 | 5,109 | 6,792 | 7,290 | 7,513 | 5,982 | 4,102 | 2,619 | 1,831 | 2,214 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,431 | 3,610 | 5,031 | 10,141 | 13,006 | 14,069 | 13,188 | 11,332 | 8,823 | 5,341 | 2,778 | 3,056 |
| Above Normal (16%) | 2,786 | 2,462 | 2,591 | 4,535 | 6,244 | 6,808 | 7,962 | 5,684 | 3,217 | 1,943 | 1,773 | 2,218 |
| Below Normal (13%) | 2,520 | 2,191 | 2,462 | 2,691 | 4,545 | 4,130 | 5,401 | 3,453 | 1,880 | 1,489 | 1,577 | 1,993 |
| Dry (24%) | 2,189 | 2,118 | 3,172 | 2,282 | 3,075 | 3,599 | 4,232 | 3,129 | 1,589 | 1,179 | 1,301 | 1,737 |
| Critical (15%) | 1,827 | 1,786 | 1,764 | 1,757 | 2,177 | 2,171 | 2,132 | 1,785 | 1,053 | 890 | 958 | 1,385 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1 | 22 | 0 | 1,162 | 2,499 | **-100** | 245 | 826 | 1 | **-111** | **-52** | 0 |
| 20% | **-14** | 0 | 47 | 26 | **-11** | 128 | 1 | 7 | 87 | **-131** | 7 | **-20** |
| 30% | 16 | **-45** | **-79** | 3 | 687 | **-29** | 344 | 229 | **-660** | **-33** | **-15** | **-5** |
| 40% | 39 | 0 | **-11** | 52 | 0 | **-264** | 357 | 39 | **-577** | **-11** | 7 | 3 |
| 50% | 26 | 0 | 0 | **-30** | **-349** | 0 | 419 | 202 | **-175** | 14 | 5 | 1 |
| 60% | 1 | 0 | 0 | **-3** | **-70** | **-19** | **-48** | **-154** | **-107** | **-9** | **-1** | **-8** |
| 70% | **-111** | 1 | 0 | **-30** | 0 | 0 | **-566** | **-400** | **-98** | **-10** | 9 | 2 |
| 80% | **-17** | 1 | 0 | **-1** | **-23** | 0 | **-292** | **-301** | **-81** | **-105** | **-71** | **-38** |
| 90% | **-42** | 0 | 0 | 0 | **-56** | **0** | **-123** | **-208** | **-113** | **-17** | **-39** | **-25** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-4** | **-6** | **-26** | 31 | 127 | 8 | **-10** | **-84** | **-110** | **-11** | **-20** | **-11** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-9** | **-20** | **-85** | 35 | 437 | 35 | **-23** | **-112** | 25 | 66 | **-13** | **-6** |
| Above Normal (16%) | 36 | 0 | 0 | 152 | 94 | 105 | 265 | 168 | **-267** | **-76** | 5 | 3 |
| Below Normal (13%) | **-38** | 0 | 0 | **-11** | **-53** | **-119** | **-197** | **-247** | **-150** | **-5** | **-1** | **-6** |
| Dry (24%) | **-13** | 0 | 5 | **-13** | **-49** | 0 | **-74** | **-132** | **-144** | **-49** | **-47** | **-28** |
| Critical (15%) | 12 | 0 | 0 | 0 | **-46** | **-28** | **0** | **-70** | **-139** | **-50** | **-32** | **-11** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 39-2. San Joaquin River at Vernalis, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,499 | 2,953 | 4,804 | 11,236 | 14,693 | 15,582 | 14,771 | 14,178 | 9,432 | 5,890 | 2,796 | 3,060 |
| 20% | 3,162 | 2,777 | 2,857 | 4,812 | 10,133 | 10,196 | 10,640 | 8,319 | 4,695 | 2,634 | 2,595 | 2,655 |
| 30% | 2,980 | 2,527 | 2,401 | 3,611 | 6,119 | 8,499 | 8,616 | 5,538 | 3,364 | 1,990 | 1,909 | 2,491 |
| 40% | 2,796 | 2,395 | 2,216 | 2,629 | 4,232 | 5,570 | 7,564 | 4,615 | 2,947 | 1,741 | 1,672 | 2,125 |
| 50% | 2,602 | 2,219 | 2,101 | 2,402 | 3,420 | 3,847 | 6,019 | 3,929 | 2,244 | 1,493 | 1,492 | 1,932 |
| 60% | 2,401 | 2,169 | 2,046 | 2,293 | 2,684 | 3,459 | 4,835 | 3,064 | 1,864 | 1,370 | 1,408 | 1,837 |
| 70% | 2,247 | 2,059 | 1,979 | 2,114 | 2,305 | 2,906 | 3,778 | 2,705 | 1,449 | 1,163 | 1,310 | 1,741 |
| 80% | 1,995 | 1,951 | 1,829 | 1,883 | 2,151 | 2,371 | 2,792 | 2,167 | 1,298 | 1,099 | 1,207 | 1,613 |
| 90% | 1,849 | 1,763 | 1,669 | 1,699 | 1,947 | 2,205 | 1,888 | 1,680 | 1,091 | 891 | 1,068 | 1,477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,672 | 2,613 | 3,393 | 5,079 | 6,664 | 7,282 | 7,522 | 6,066 | 4,211 | 2,630 | 1,850 | 2,225 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,440 | 3,630 | 5,116 | 10,106 | 12,569 | 14,033 | 13,210 | 11,444 | 8,798 | 5,275 | 2,791 | 3,062 |
| Above Normal (16%) | 2,750 | 2,461 | 2,591 | 4,383 | 6,149 | 6,703 | 7,697 | 5,516 | 3,484 | 2,020 | 1,768 | 2,215 |
| Below Normal (13%) | 2,558 | 2,191 | 2,461 | 2,701 | 4,599 | 4,249 | 5,598 | 3,700 | 2,030 | 1,494 | 1,579 | 1,998 |
| Dry (24%) | 2,201 | 2,118 | 3,166 | 2,295 | 3,124 | 3,599 | 4,307 | 3,261 | 1,733 | 1,228 | 1,348 | 1,764 |
| Critical (15%) | 1,815 | 1,786 | 1,764 | 1,757 | 2,224 | 2,199 | 2,132 | 1,854 | 1,192 | 941 | 989 | 1,396 |

## Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,995 | 3,035 | 5,167 | 11,871 | 18,275 | 15,573 | 14,007 | 14,108 | 11,204 | 6,506 | 3,628 | 3,832 |
| 20% | 2,574 | 2,785 | 2,905 | 5,157 | 10,195 | 9,815 | 9,895 | 7,826 | 4,651 | 2,649 | 2,604 | 2,665 |
| 30% | 2,404 | 2,566 | 2,400 | 3,841 | 6,878 | 7,989 | 8,132 | 5,189 | 3,321 | 1,984 | 1,896 | 2,466 |
| 40% | 2,202 | 2,412 | 2,223 | 2,730 | 4,465 | 5,231 | 6,973 | 4,097 | 2,925 | 1,734 | 1,677 | 2,129 |
| 50% | 1,997 | 2,270 | 2,162 | 2,420 | 3,420 | 3,773 | 5,461 | 3,526 | 2,205 | 1,512 | 1,505 | 1,937 |
| 60% | 1,815 | 2,176 | 2,063 | 2,212 | 2,741 | 3,429 | 4,089 | 2,737 | 1,804 | 1,386 | 1,421 | 1,840 |
| 70% | 1,652 | 2,064 | 1,979 | 2,069 | 2,325 | 2,831 | 2,933 | 2,172 | 1,420 | 1,179 | 1,329 | 1,746 |
| 80% | 1,510 | 1,952 | 1,838 | 1,792 | 2,065 | 2,297 | 2,424 | 1,977 | 1,274 | 1,082 | 1,218 | 1,614 |
| 90% | 1,339 | 1,763 | 1,669 | 1,615 | 1,928 | 2,131 | 1,774 | 1,563 | 1,045 | 946 | 1,111 | 1,512 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,152 | 2,639 | 3,464 | 5,131 | 7,102 | 7,136 | 7,046 | 5,709 | 4,289 | 2,712 | 1,922 | 2,305 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,964 | 3,698 | 5,320 | 10,273 | 13,642 | 13,776 | 12,742 | 11,066 | 9,128 | 5,527 | 2,987 | 3,296 |
| Above Normal (16%) | 2,182 | 2,485 | 2,614 | 4,468 | 6,662 | 6,617 | 7,058 | 5,064 | 3,418 | 1,995 | 1,777 | 2,221 |
| Below Normal (13%) | 1,965 | 2,200 | 2,484 | 2,765 | 4,816 | 4,076 | 4,849 | 3,155 | 1,935 | 1,510 | 1,591 | 2,000 |
| Dry (24%) | 1,663 | 2,118 | 3,162 | 2,252 | 3,102 | 3,524 | 3,854 | 2,941 | 1,721 | 1,234 | 1,352 | 1,766 |
| Critical (15%) | 1,344 | 1,786 | 1,764 | 1,676 | 2,171 | 2,139 | 2,022 | 1,754 | 1,188 | 955 | 1,023 | 1,427 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-504** | 83 | 364 | 635 | 3,582 | **-9** | **-764** | **-71** | 1,771 | 615 | 832 | 772 |
| 20% | **-589** | 7 | 47 | 346 | 62 | **-381** | **-745** | **-493** | **-44** | 14 | 9 | 9 |
| 30% | **-576** | 39 | **-1** | 231 | 759 | **-510** | **-484** | **-349** | **-43** | **-6** | **-13** | **-26** |
| 40% | **-594** | 17 | 7 | 102 | 233 | **-339** | **-591** | **-519** | **-22** | **-7** | 5 | 4 |
| 50% | **-605** | 51 | 61 | 19 | 0 | **-73** | **-557** | **-403** | **-39** | 18 | 13 | 6 |
| 60% | **-586** | 7 | 17 | **-81** | 57 | **-31** | **-745** | **-328** | **-60** | 15 | 12 | 3 |
| 70% | **-596** | 4 | 0 | **-45** | 21 | **-75** | **-845** | **-533** | **-29** | 16 | 19 | 4 |
| 80% | **-485** | 1 | 8 | **-91** | **-86** | **-74** | **-368** | **-189** | **-24** | **-17** | 11 | 1 |
| 90% | **-510** | **0** | 0 | **-84** | **-19** | **-74** | **-115** | **-118** | **-46** | 55 | 43 | 36 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-521** | 26 | 70 | 53 | 437 | **-146** | **-477** | **-357** | 78 | 82 | 71 | 80 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-476** | 68 | 204 | 166 | 1,073 | **-258** | **-468** | **-378** | 330 | 252 | 196 | 234 |
| Above Normal (16%) | **-568** | 23 | 23 | 85 | 512 | **-87** | **-639** | **-452** | **-65** | **-25** | 9 | 6 |
| Below Normal (13%) | **-593** | 9 | 23 | 64 | 218 | **-174** | **-750** | **-545** | **-95** | 15 | 12 | 1 |
| Dry (24%) | **-538** | 0 | **-4** | **-43** | **-23** | **-75** | **-453** | **-320** | **-12** | 6 | 4 | 2 |
| Critical (15%) | **-471** | 0 | **0** | **-81** | **-53** | **-60** | **-110** | **-100** | **-4** | 14 | 33 | 31 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 39-3. San Joaquin River at Vernalis, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,499 | 2,953 | 4,804 | 11,236 | 14,693 | 15,582 | 14,771 | 14,178 | 9,432 | 5,890 | 2,796 | 3,060 |
| 20% | 3,162 | 2,777 | 2,857 | 4,812 | 10,133 | 10,196 | 10,640 | 8,319 | 4,695 | 2,634 | 2,595 | 2,655 |
| 30% | 2,980 | 2,527 | 2,401 | 3,611 | 6,119 | 8,499 | 8,616 | 5,538 | 3,364 | 1,990 | 1,909 | 2,491 |
| 40% | 2,796 | 2,395 | 2,216 | 2,629 | 4,232 | 5,570 | 7,564 | 4,615 | 2,947 | 1,741 | 1,672 | 2,125 |
| 50% | 2,602 | 2,219 | 2,101 | 2,402 | 3,420 | 3,847 | 6,019 | 3,929 | 2,244 | 1,493 | 1,492 | 1,932 |
| 60% | 2,401 | 2,169 | 2,046 | 2,293 | 2,684 | 3,459 | 4,835 | 3,064 | 1,864 | 1,370 | 1,408 | 1,837 |
| 70% | 2,247 | 2,059 | 1,979 | 2,114 | 2,305 | 2,906 | 3,778 | 2,705 | 1,449 | 1,163 | 1,310 | 1,741 |
| 80% | 1,995 | 1,951 | 1,829 | 1,883 | 2,151 | 2,371 | 2,792 | 2,167 | 1,298 | 1,099 | 1,207 | 1,613 |
| 90% | 1,849 | 1,763 | 1,669 | 1,699 | 1,947 | 2,205 | 1,888 | 1,680 | 1,091 | 891 | 1,068 | 1,477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,672 | 2,613 | 3,393 | 5,079 | 6,664 | 7,282 | 7,522 | 6,066 | 4,211 | 2,630 | 1,850 | 2,225 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,440 | 3,630 | 5,116 | 10,106 | 12,569 | 14,033 | 13,210 | 11,444 | 8,798 | 5,275 | 2,791 | 3,062 |
| Above Normal (16%) | 2,750 | 2,461 | 2,591 | 4,383 | 6,149 | 6,703 | 7,697 | 5,516 | 3,484 | 2,020 | 1,768 | 2,215 |
| Below Normal (13%) | 2,558 | 2,191 | 2,461 | 2,701 | 4,599 | 4,249 | 5,598 | 3,700 | 2,030 | 1,494 | 1,579 | 1,998 |
| Dry (24%) | 2,201 | 2,118 | 3,166 | 2,295 | 3,124 | 3,599 | 4,307 | 3,261 | 1,733 | 1,228 | 1,348 | 1,764 |
| Critical (15%) | 1,815 | 1,786 | 1,764 | 1,757 | 2,224 | 2,199 | 2,132 | 1,854 | 1,192 | 941 | 989 | 1,396 |

## Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,995 | 3,035 | 5,167 | 11,871 | 18,273 | 15,574 | 14,007 | 14,108 | 11,204 | 6,506 | 3,628 | 3,832 |
| 20% | 2,574 | 2,785 | 2,905 | 5,157 | 10,196 | 9,815 | 9,895 | 7,826 | 4,651 | 2,649 | 2,604 | 2,664 |
| 30% | 2,404 | 2,566 | 2,400 | 3,842 | 6,878 | 7,989 | 8,132 | 5,189 | 3,321 | 1,982 | 1,896 | 2,466 |
| 40% | 2,202 | 2,412 | 2,223 | 2,730 | 4,465 | 5,231 | 6,972 | 4,097 | 2,925 | 1,734 | 1,676 | 2,129 |
| 50% | 1,997 | 2,270 | 2,162 | 2,420 | 3,420 | 3,773 | 5,461 | 3,526 | 2,206 | 1,512 | 1,505 | 1,937 |
| 60% | 1,815 | 2,176 | 2,063 | 2,211 | 2,741 | 3,428 | 4,089 | 2,737 | 1,805 | 1,386 | 1,421 | 1,840 |
| 70% | 1,652 | 2,064 | 1,979 | 2,069 | 2,325 | 2,831 | 2,931 | 2,173 | 1,420 | 1,179 | 1,329 | 1,746 |
| 80% | 1,510 | 1,952 | 1,838 | 1,792 | 2,065 | 2,297 | 2,424 | 1,978 | 1,274 | 1,082 | 1,218 | 1,615 |
| 90% | 1,339 | 1,763 | 1,669 | 1,615 | 1,928 | 2,130 | 1,773 | 1,563 | 1,045 | 946 | 1,111 | 1,512 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,152 | 2,639 | 3,464 | 5,131 | 7,102 | 7,136 | 7,045 | 5,709 | 4,289 | 2,712 | 1,921 | 2,305 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,964 | 3,698 | 5,320 | 10,273 | 13,642 | 13,776 | 12,742 | 11,066 | 9,128 | 5,526 | 2,987 | 3,296 |
| Above Normal (16%) | 2,182 | 2,485 | 2,614 | 4,468 | 6,662 | 6,616 | 7,058 | 5,064 | 3,418 | 1,995 | 1,777 | 2,221 |
| Below Normal (13%) | 1,965 | 2,200 | 2,484 | 2,765 | 4,816 | 4,076 | 4,848 | 3,154 | 1,935 | 1,510 | 1,590 | 1,999 |
| Dry (24%) | 1,663 | 2,118 | 3,162 | 2,252 | 3,102 | 3,524 | 3,854 | 2,940 | 1,720 | 1,234 | 1,352 | 1,766 |
| Critical (15%) | 1,344 | 1,786 | 1,764 | 1,676 | 2,170 | 2,138 | 2,022 | 1,754 | 1,188 | 955 | 1,022 | 1,427 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-504** | 83 | 364 | 635 | 3,580 | **-8** | **-763** | **-71** | 1,771 | 615 | 832 | 772 |
| 20% | **-589** | 7 | 47 | 346 | 62 | **-381** | **-745** | **-493** | **-44** | 14 | 8 | 9 |
| 30% | **-576** | 39 | **-1** | 231 | 759 | **-510** | **-484** | **-349** | **-43** | **-8** | **-12** | **-26** |
| 40% | **-594** | 17 | 7 | 102 | 233 | **-339** | **-592** | **-518** | **-22** | **-7** | 5 | 4 |
| 50% | **-605** | 50 | 61 | 19 | 0 | **-74** | **-557** | **-403** | **-38** | 18 | 13 | 6 |
| 60% | **-587** | 7 | 17 | **-82** | 57 | **-31** | **-746** | **-328** | **-59** | 16 | 12 | 2 |
| 70% | **-596** | 4 | 0 | **-45** | 21 | **-75** | **-846** | **-533** | **-29** | 16 | 19 | 4 |
| 80% | **-485** | 1 | 8 | **-91** | **-86** | **-74** | **-368** | **-189** | **-24** | **-18** | 10 | 1 |
| 90% | **-510** | **0** | 0 | **-84** | **-19** | **-74** | **-115** | **-118** | **-46** | 55 | 43 | 36 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-521** | 26 | 70 | 53 | 437 | **-146** | **-477** | **-357** | 78 | 81 | 71 | 80 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-476** | 68 | 204 | 166 | 1,073 | **-258** | **-468** | **-378** | 330 | 251 | 196 | 234 |
| Above Normal (16%) | **-568** | 23 | 23 | 85 | 512 | **-87** | **-639** | **-451** | **-65** | **-25** | 9 | 6 |
| Below Normal (13%) | **-593** | 9 | 23 | 64 | 218 | **-174** | **-750** | **-546** | **-95** | 15 | 12 | 1 |
| Dry (24%) | **-538** | 0 | **-4** | **-43** | **-23** | **-75** | **-453** | **-320** | **-13** | 6 | 4 | 2 |
| Critical (15%) | **-471** | 0 | **0** | **-81** | **-53** | **-60** | **-110** | **-101** | **-4** | 14 | 33 | 31 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 39-4. San Joaquin River at Vernalis, Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,499 | 2,953 | 4,804 | 11,236 | 14,693 | 15,582 | 14,771 | 14,178 | 9,432 | 5,890 | 2,796 | 3,060 |
| 20% | 3,162 | 2,777 | 2,857 | 4,812 | 10,133 | 10,196 | 10,640 | 8,319 | 4,695 | 2,634 | 2,595 | 2,655 |
| 30% | 2,980 | 2,527 | 2,401 | 3,611 | 6,119 | 8,499 | 8,616 | 5,538 | 3,364 | 1,990 | 1,909 | 2,491 |
| 40% | 2,796 | 2,395 | 2,216 | 2,629 | 4,232 | 5,570 | 7,564 | 4,615 | 2,947 | 1,741 | 1,672 | 2,125 |
| 50% | 2,602 | 2,219 | 2,101 | 2,402 | 3,420 | 3,847 | 6,019 | 3,929 | 2,244 | 1,493 | 1,492 | 1,932 |
| 60% | 2,401 | 2,169 | 2,046 | 2,293 | 2,684 | 3,459 | 4,835 | 3,064 | 1,864 | 1,370 | 1,408 | 1,837 |
| 70% | 2,247 | 2,059 | 1,979 | 2,114 | 2,305 | 2,906 | 3,778 | 2,705 | 1,449 | 1,163 | 1,310 | 1,741 |
| 80% | 1,995 | 1,951 | 1,829 | 1,883 | 2,151 | 2,371 | 2,792 | 2,167 | 1,298 | 1,099 | 1,207 | 1,613 |
| 90% | 1,849 | 1,763 | 1,669 | 1,699 | 1,947 | 2,205 | 1,888 | 1,680 | 1,091 | 891 | 1,068 | 1,477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,672 | 2,613 | 3,393 | 5,079 | 6,664 | 7,282 | 7,522 | 6,066 | 4,211 | 2,630 | 1,850 | 2,225 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,440 | 3,630 | 5,116 | 10,106 | 12,569 | 14,033 | 13,210 | 11,444 | 8,798 | 5,275 | 2,791 | 3,062 |
| Above Normal (16%) | 2,750 | 2,461 | 2,591 | 4,383 | 6,149 | 6,703 | 7,697 | 5,516 | 3,484 | 2,020 | 1,768 | 2,215 |
| Below Normal (13%) | 2,558 | 2,191 | 2,461 | 2,701 | 4,599 | 4,249 | 5,598 | 3,700 | 2,030 | 1,494 | 1,579 | 1,998 |
| Dry (24%) | 2,201 | 2,118 | 3,166 | 2,295 | 3,124 | 3,599 | 4,307 | 3,261 | 1,733 | 1,228 | 1,348 | 1,764 |
| Critical (15%) | 1,815 | 1,786 | 1,764 | 1,757 | 2,224 | 2,199 | 2,132 | 1,854 | 1,192 | 941 | 989 | 1,396 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,498 | 2,975 | 4,804 | 12,398 | 17,169 | 15,483 | 15,014 | 15,003 | 9,433 | 5,780 | 2,735 | 3,060 |
| 20% | 3,148 | 2,777 | 2,904 | 4,837 | 10,124 | 10,324 | 10,639 | 8,320 | 4,775 | 2,492 | 2,599 | 2,635 |
| 30% | 2,996 | 2,483 | 2,321 | 3,612 | 6,813 | 8,476 | 8,957 | 5,766 | 2,698 | 1,955 | 1,888 | 2,483 |
| 40% | 2,834 | 2,396 | 2,204 | 2,680 | 4,232 | 5,306 | 7,919 | 4,652 | 2,368 | 1,735 | 1,674 | 2,131 |
| 50% | 2,627 | 2,219 | 2,101 | 2,371 | 3,070 | 3,847 | 6,432 | 4,126 | 2,064 | 1,490 | 1,493 | 1,929 |
| 60% | 2,401 | 2,169 | 2,046 | 2,290 | 2,613 | 3,440 | 4,785 | 2,909 | 1,747 | 1,343 | 1,399 | 1,818 |
| 70% | 2,136 | 2,058 | 1,979 | 2,084 | 2,305 | 2,907 | 3,205 | 2,297 | 1,329 | 1,140 | 1,307 | 1,737 |
| 80% | 1,977 | 1,951 | 1,829 | 1,882 | 2,127 | 2,371 | 2,498 | 1,866 | 1,215 | 987 | 1,128 | 1,575 |
| 90% | 1,806 | 1,763 | 1,669 | 1,698 | 1,891 | 2,205 | 1,762 | 1,472 | 971 | 860 | 1,025 | 1,453 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,668 | 2,607 | 3,368 | 5,109 | 6,793 | 7,290 | 7,510 | 5,978 | 4,097 | 2,613 | 1,826 | 2,212 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,430 | 3,610 | 5,031 | 10,141 | 13,010 | 14,070 | 13,186 | 11,330 | 8,820 | 5,337 | 2,775 | 3,054 |
| Above Normal (16%) | 2,785 | 2,461 | 2,591 | 4,535 | 6,245 | 6,808 | 7,961 | 5,680 | 3,212 | 1,937 | 1,768 | 2,216 |
| Below Normal (13%) | 2,518 | 2,191 | 2,461 | 2,690 | 4,545 | 4,129 | 5,397 | 3,446 | 1,872 | 1,477 | 1,568 | 1,989 |
| Dry (24%) | 2,188 | 2,118 | 3,172 | 2,282 | 3,075 | 3,599 | 4,231 | 3,125 | 1,585 | 1,173 | 1,297 | 1,735 |
| Critical (15%) | 1,826 | 1,786 | 1,764 | 1,757 | 2,177 | 2,170 | 2,129 | 1,780 | 1,047 | 883 | 952 | 1,382 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-1** | 22 | 1 | 1,162 | 2,476 | **-99** | 244 | 825 | 1 | **-111** | **-61** | 0 |
| 20% | **-14** | **0** | 47 | 26 | **-10** | 127 | **0** | 1 | 80 | **-142** | 4 | **-21** |
| 30% | 16 | **-45** | **-80** | 2 | 694 | **-23** | 341 | 228 | **-666** | **-35** | **-21** | **-8** |
| 40% | 38 | 1 | **-12** | 51 | 0 | **-264** | 355 | 37 | **-579** | **-6** | 2 | 6 |
| 50% | 25 | **0** | **0** | **-30** | **-350** | **0** | 413 | 196 | **-180** | **-3** | 1 | **-2** |
| 60% | **0** | **0** | 0 | **-3** | **-70** | **-20** | **-50** | **-156** | **-117** | **-27** | **-9** | **-19** |
| 70% | **-111** | **-1** | **0** | **-31** | **0** | 0 | **-572** | **-408** | **-120** | **-23** | **-3** | **-4** |
| 80% | **-18** | **0** | **0** | **-1** | **-24** | 0 | **-294** | **-301** | **-84** | **-112** | **-80** | **-39** |
| 90% | **-43** | **0** | 0 | **-1** | **-57** | 0 | **-126** | **-208** | **-120** | **-31** | **-43** | **-24** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-5** | **-6** | **-26** | 31 | 129 | 8 | **-12** | **-88** | **-115** | **-18** | **-24** | **-13** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-9** | **-20** | **-85** | 35 | 441 | 37 | **-24** | **-114** | 22 | 62 | **-16** | **-8** |
| Above Normal (16%) | 35 | 0 | 0 | 152 | 96 | 105 | 264 | 164 | **-271** | **-83** | 0 | 1 |
| Below Normal (13%) | **-40** | **0** | **0** | **-11** | **-54** | **-120** | **-201** | **-254** | **-159** | **-17** | **-10** | **-10** |
| Dry (24%) | **-14** | **0** | 5 | **-13** | **-50** | 0 | **-76** | **-135** | **-148** | **-55** | **-51** | **-30** |
| Critical (15%) | 11 | **0** | **0** | **0** | **-47** | **-28** | **-4** | **-75** | **-145** | **-58** | **-37** | **-14** |

a Based on the 82-year simulation period.

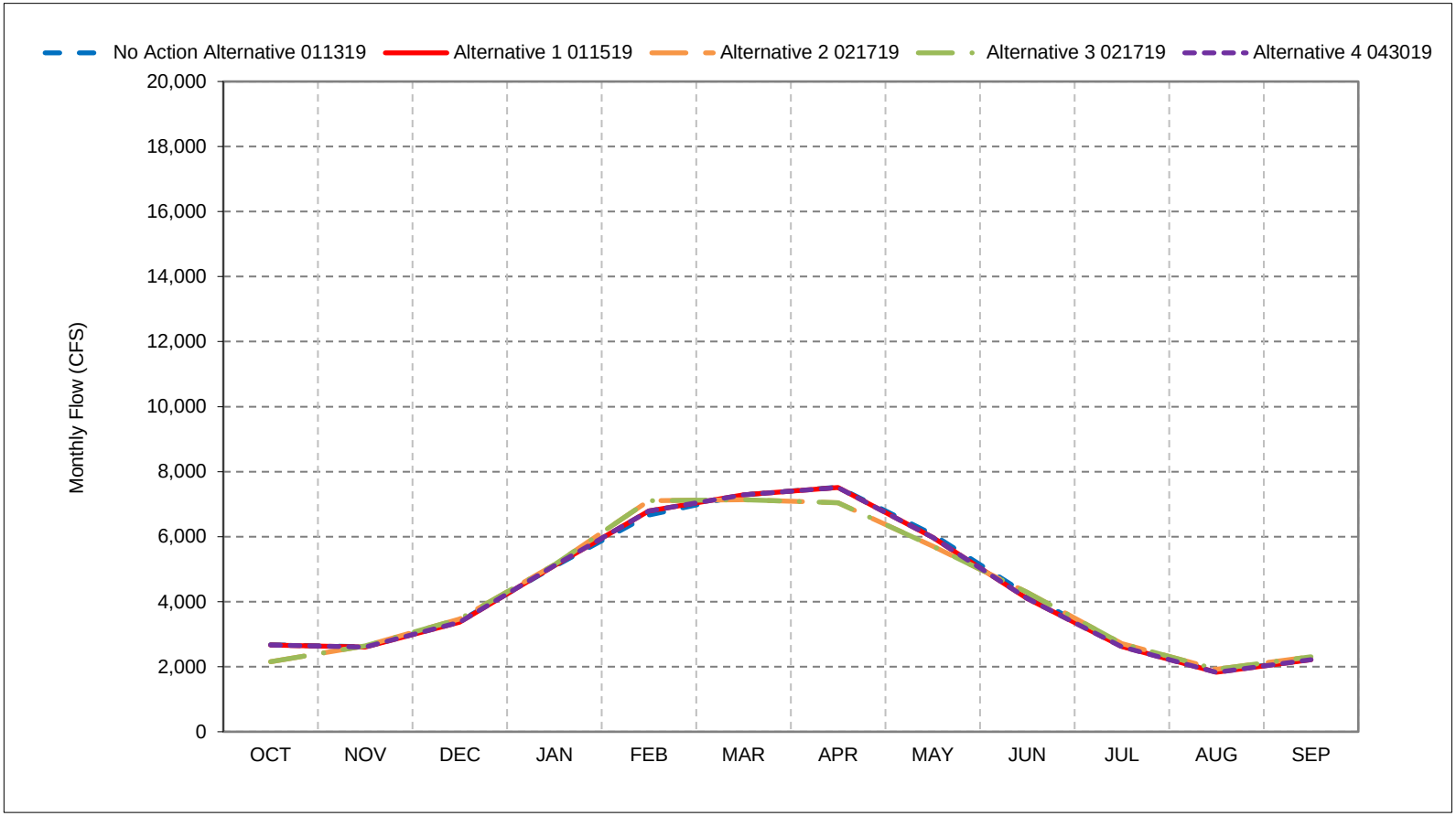
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

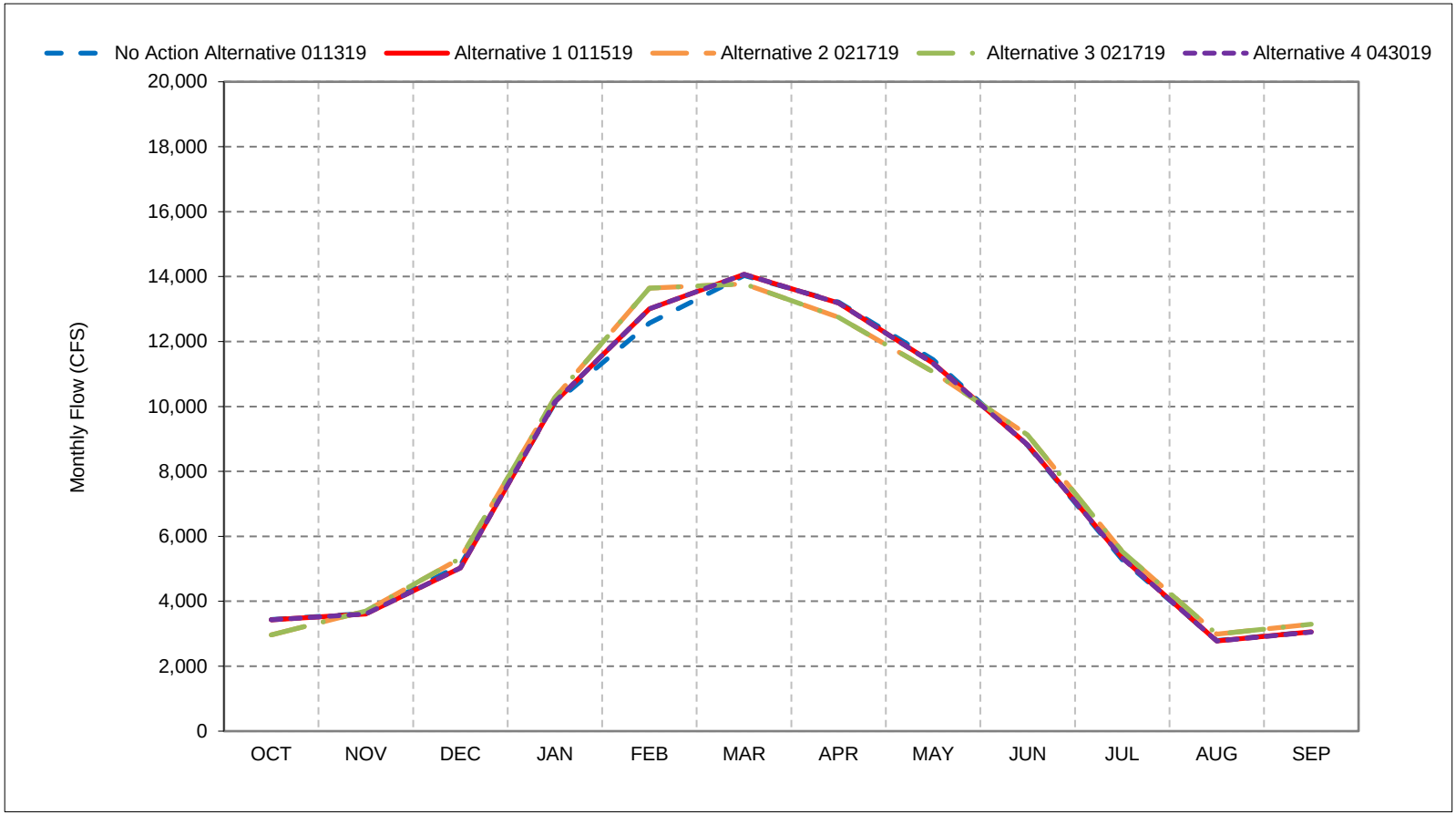
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 39-1. San Joaquin River at Vernalis, Long-Term Average Flow



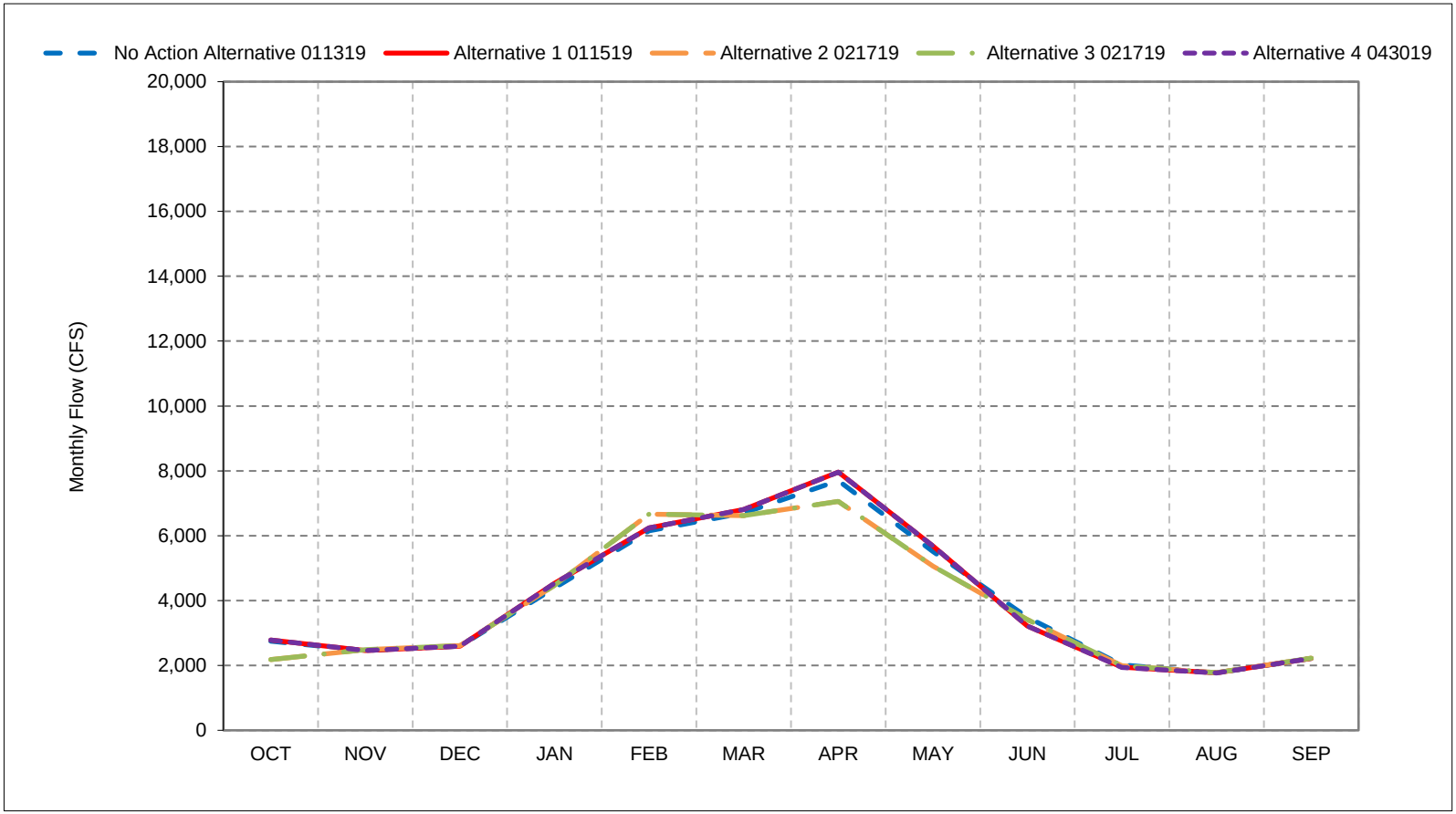

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 39-2. San Joaquin River at Vernalis, Wet Year Average Flow



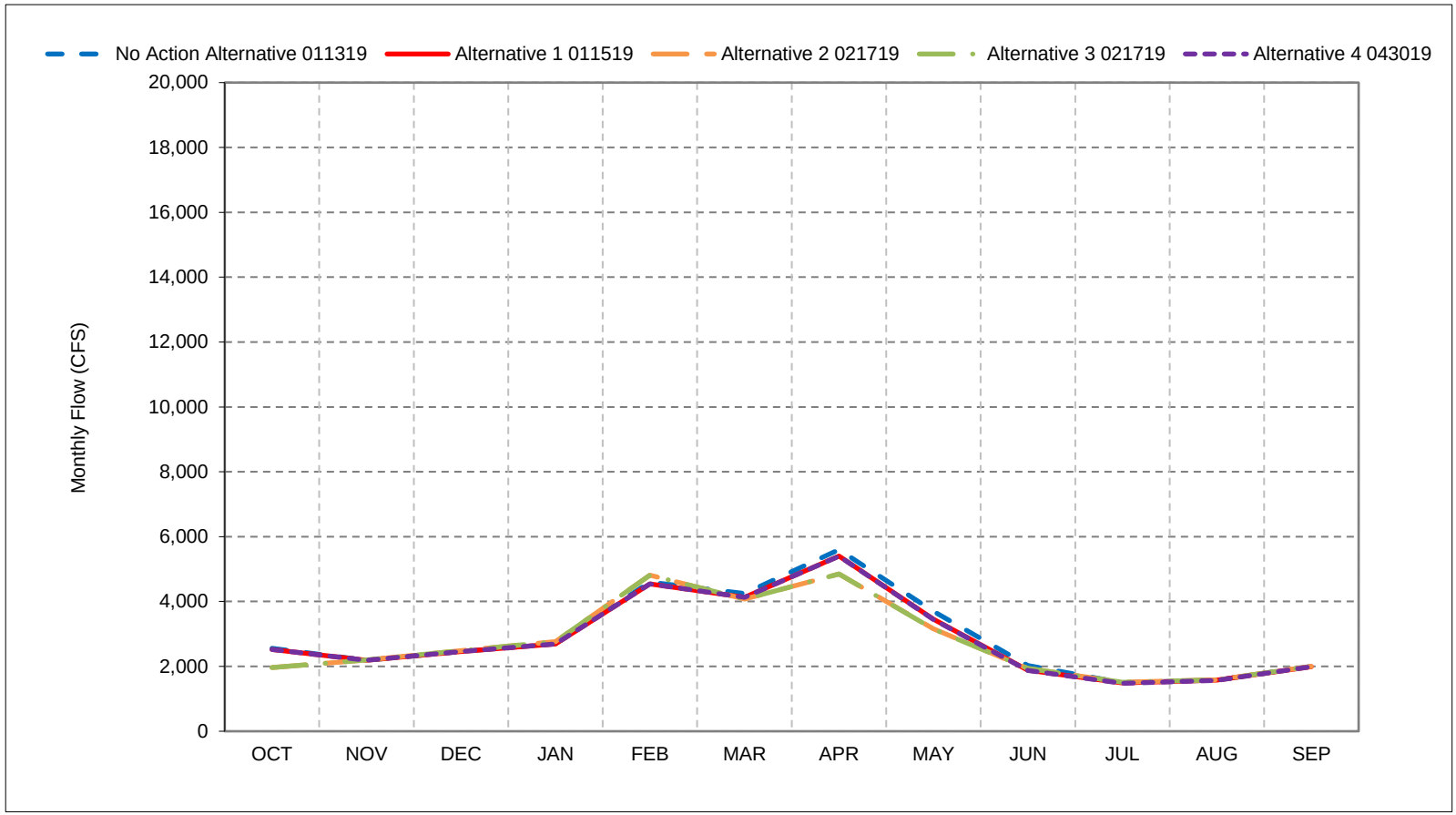

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 39-3. San Joaquin River at Vernalis, Above Normal Year Average Flow



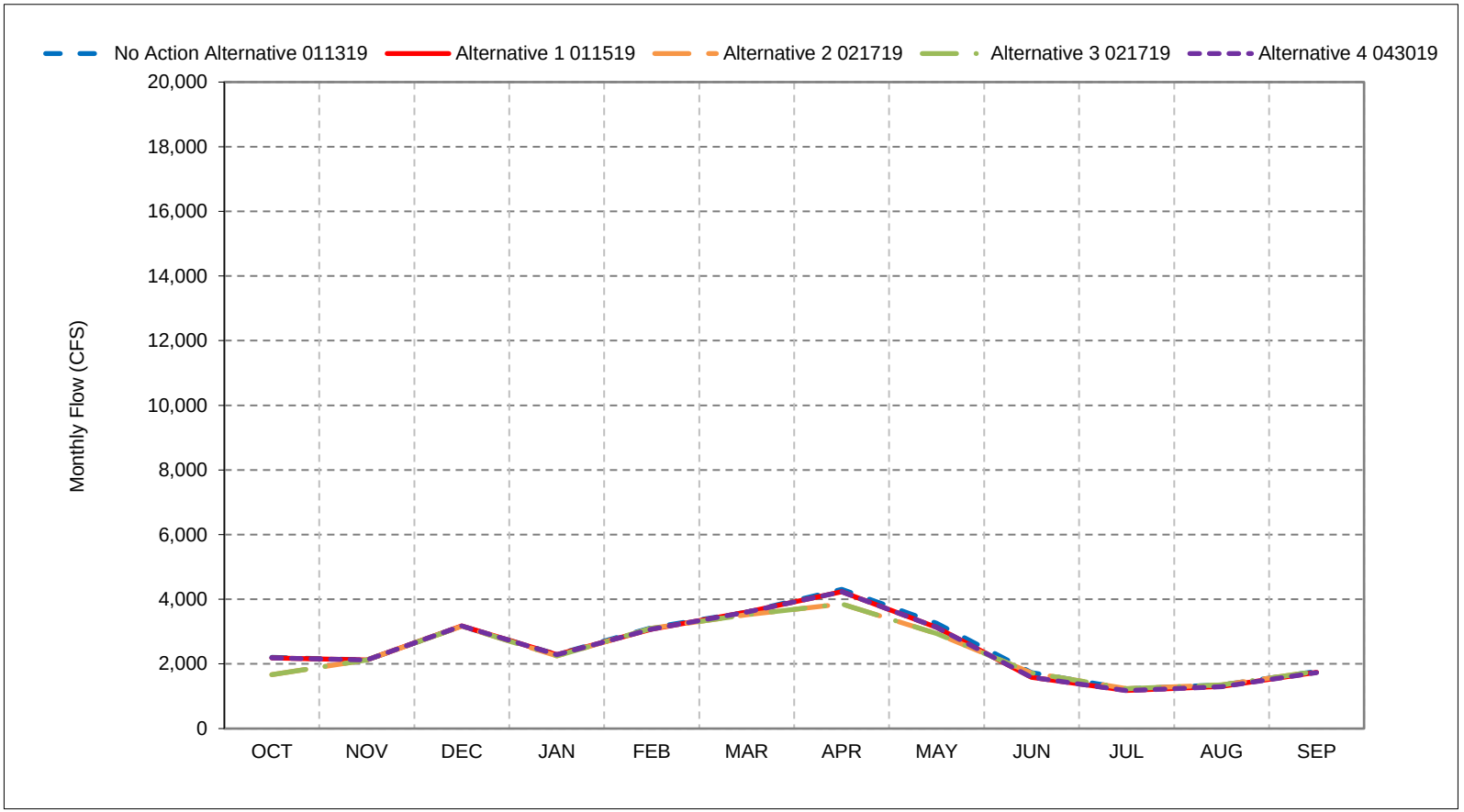

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 39-4. San Joaquin River at Vernalis, Below Normal Year Average Flow



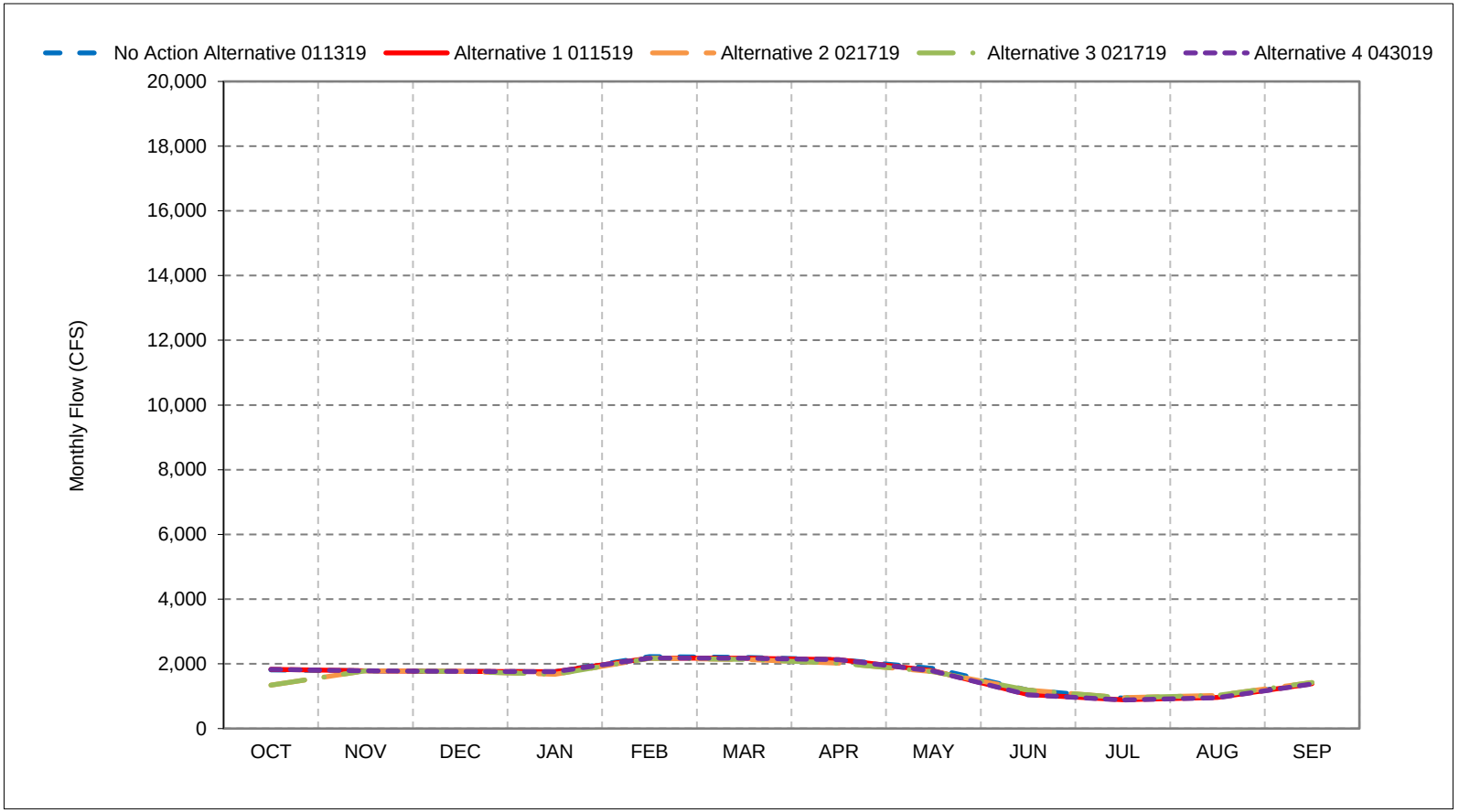

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 39-5. San Joaquin River at Vernalis, Dry Year Average Flow



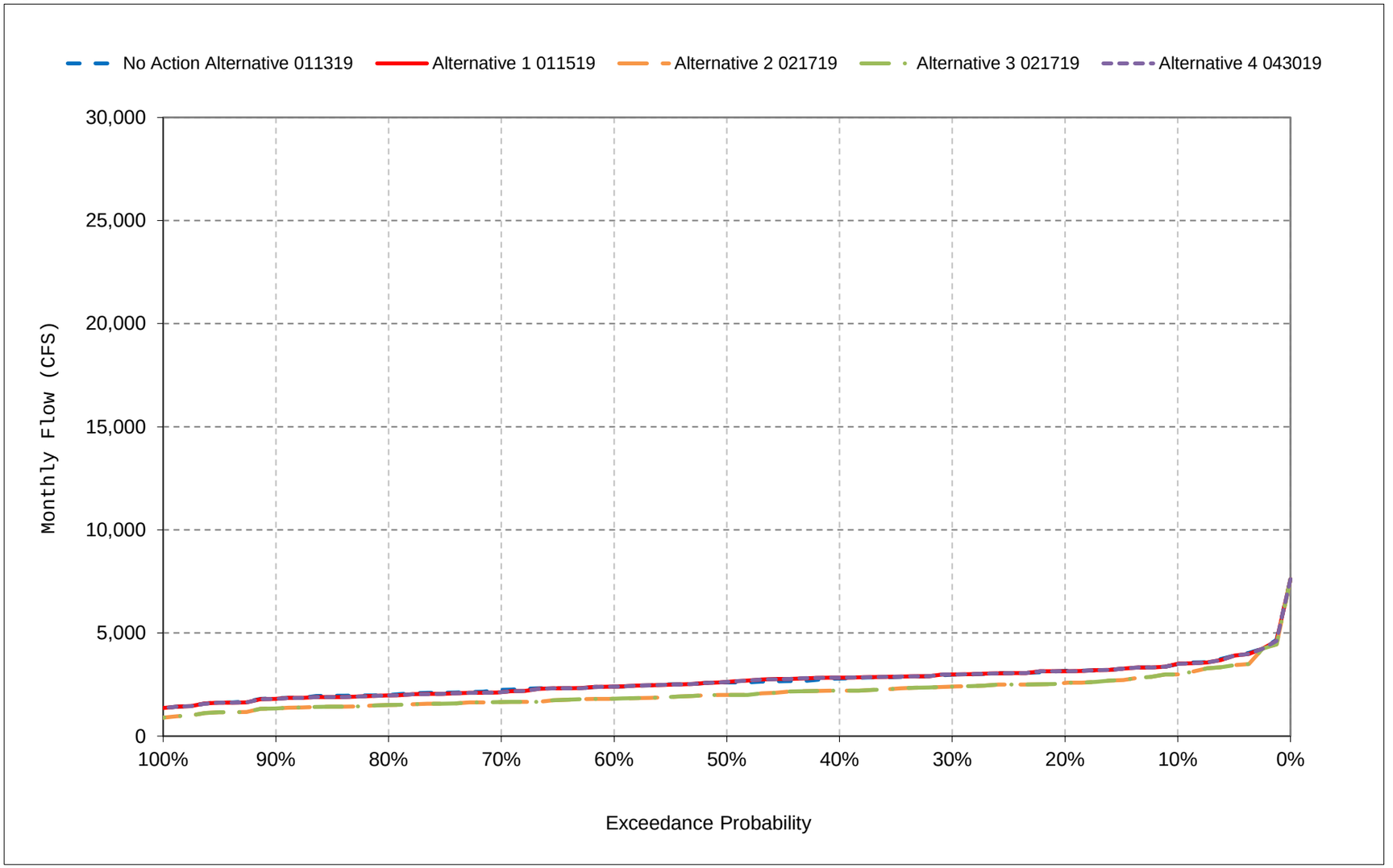

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 39-6. San Joaquin River at Vernalis, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

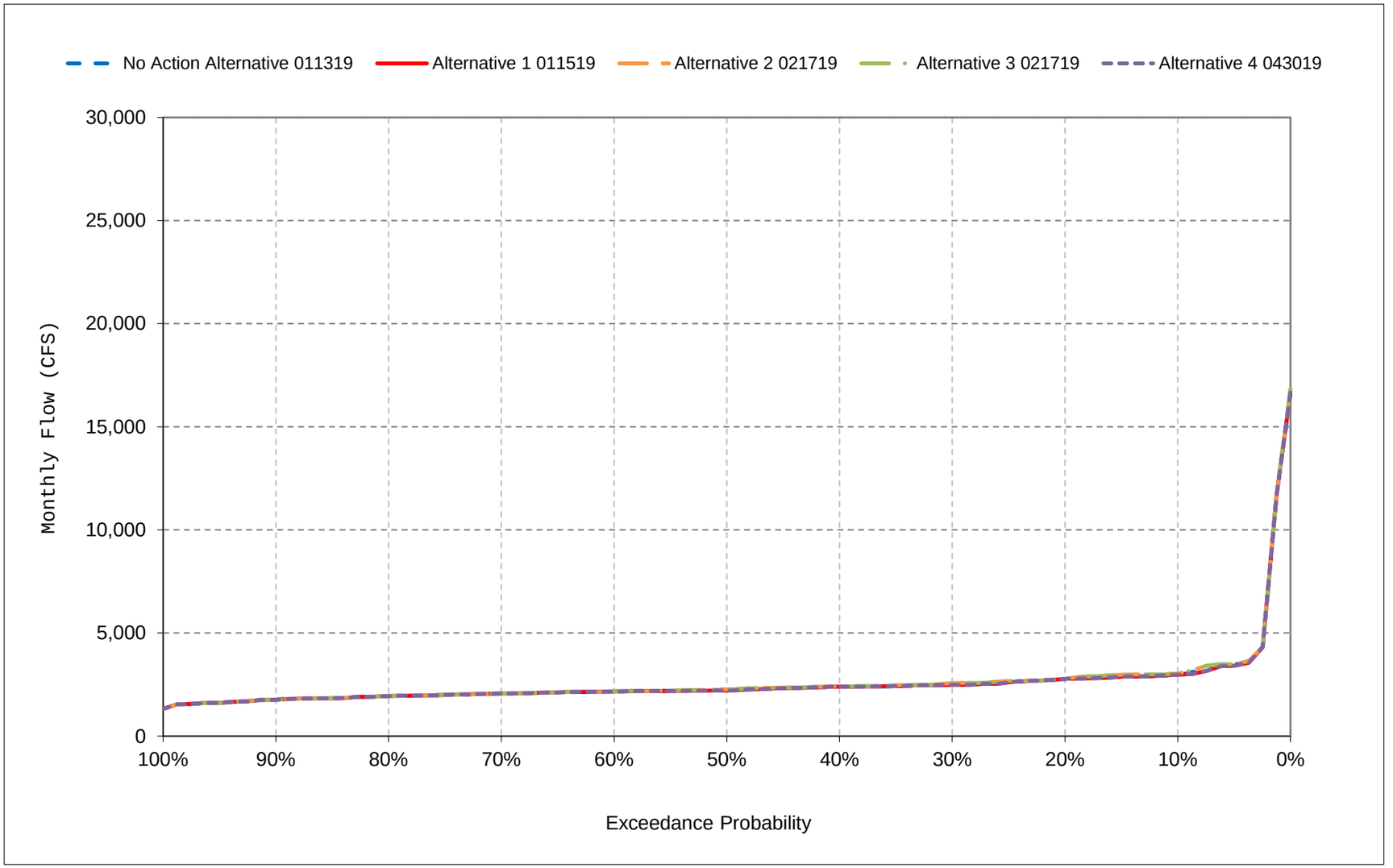
**Figure 39-7. San Joaquin River at Vernalis, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

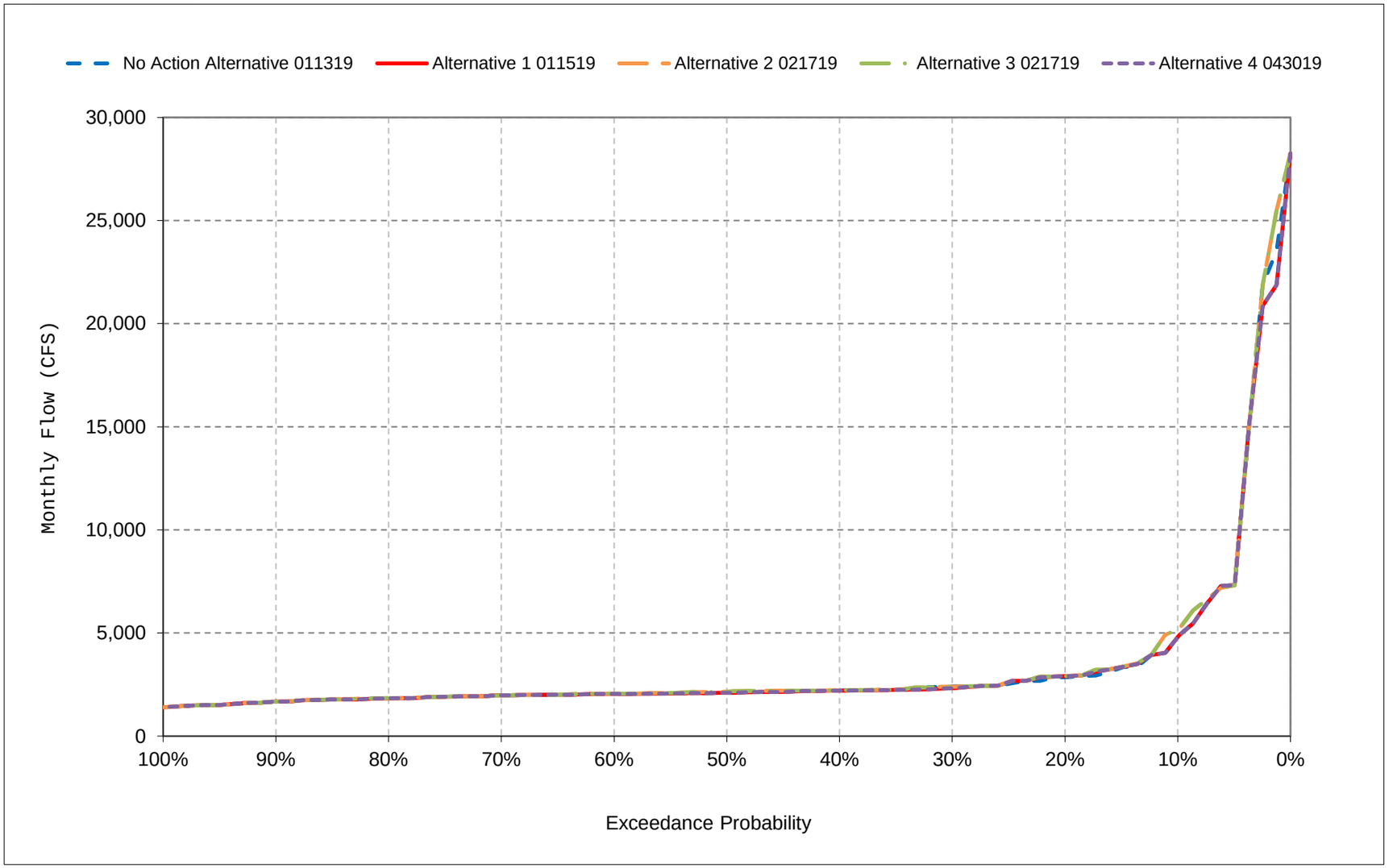
**Figure 39-8. San Joaquin River at Vernalis, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

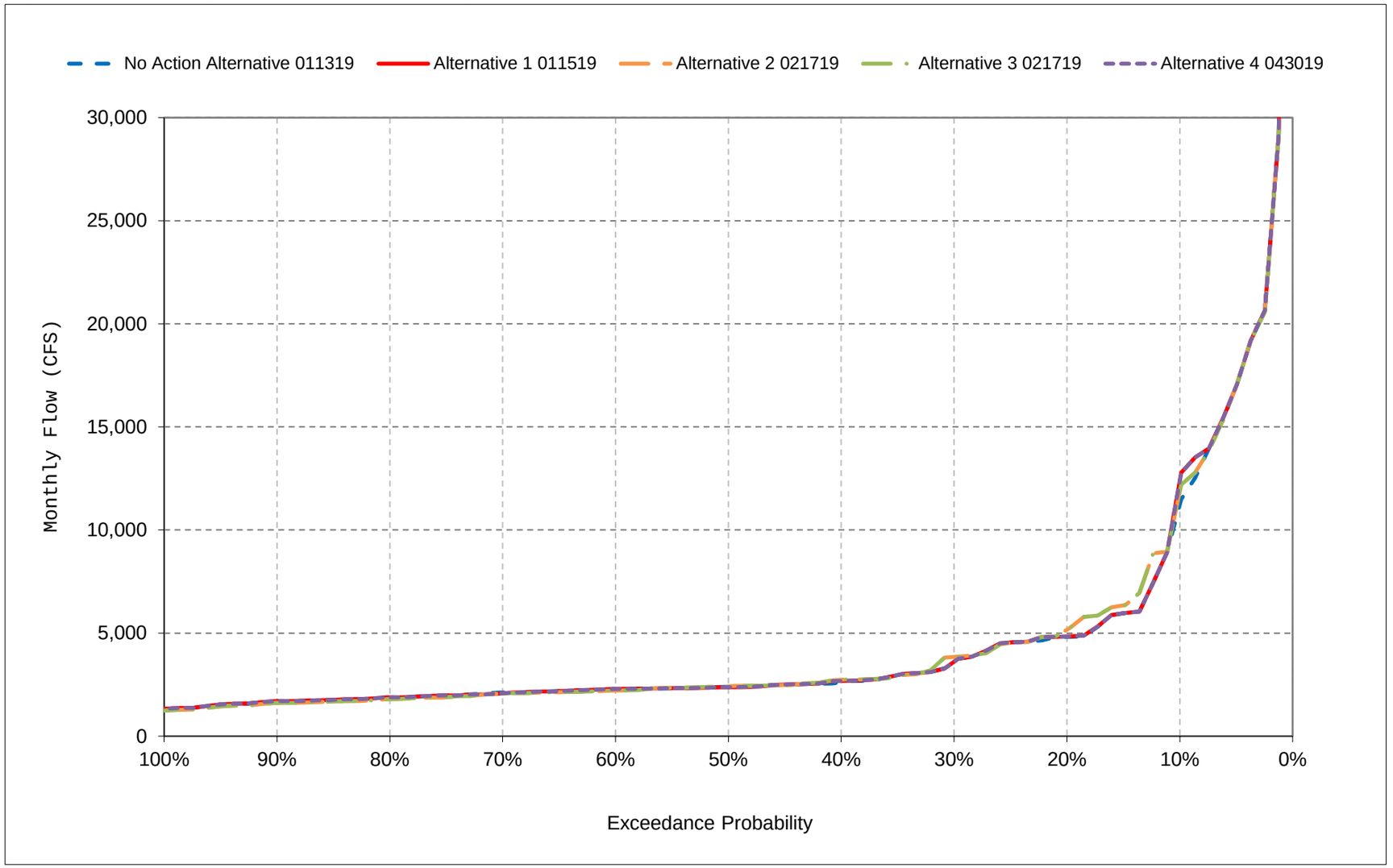
**Figure 39-9. San Joaquin River at Vernalis, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

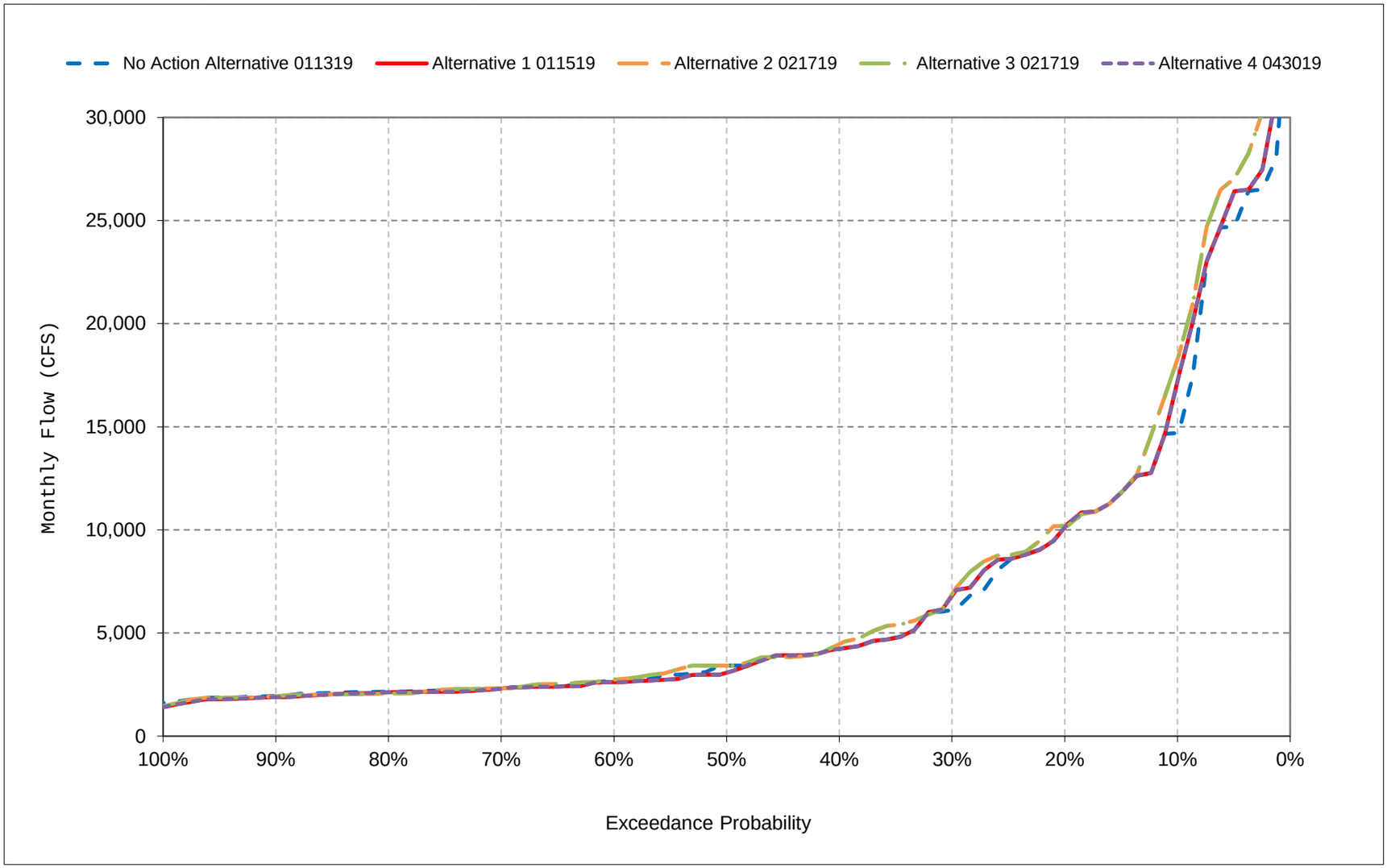
**Figure 39-10. San Joaquin River at Vernalis, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

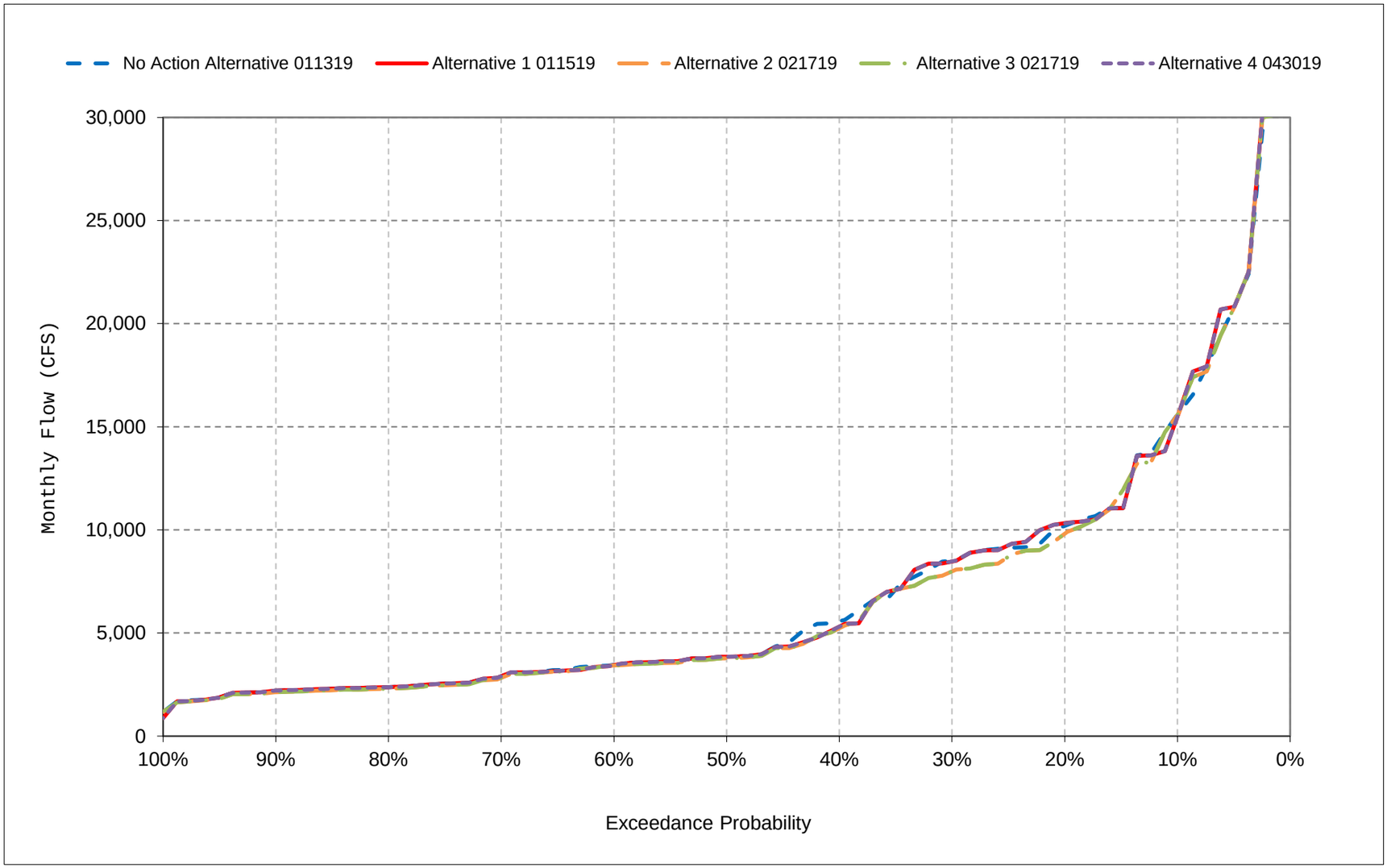
**Figure 39-11. San Joaquin River at Vernalis, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

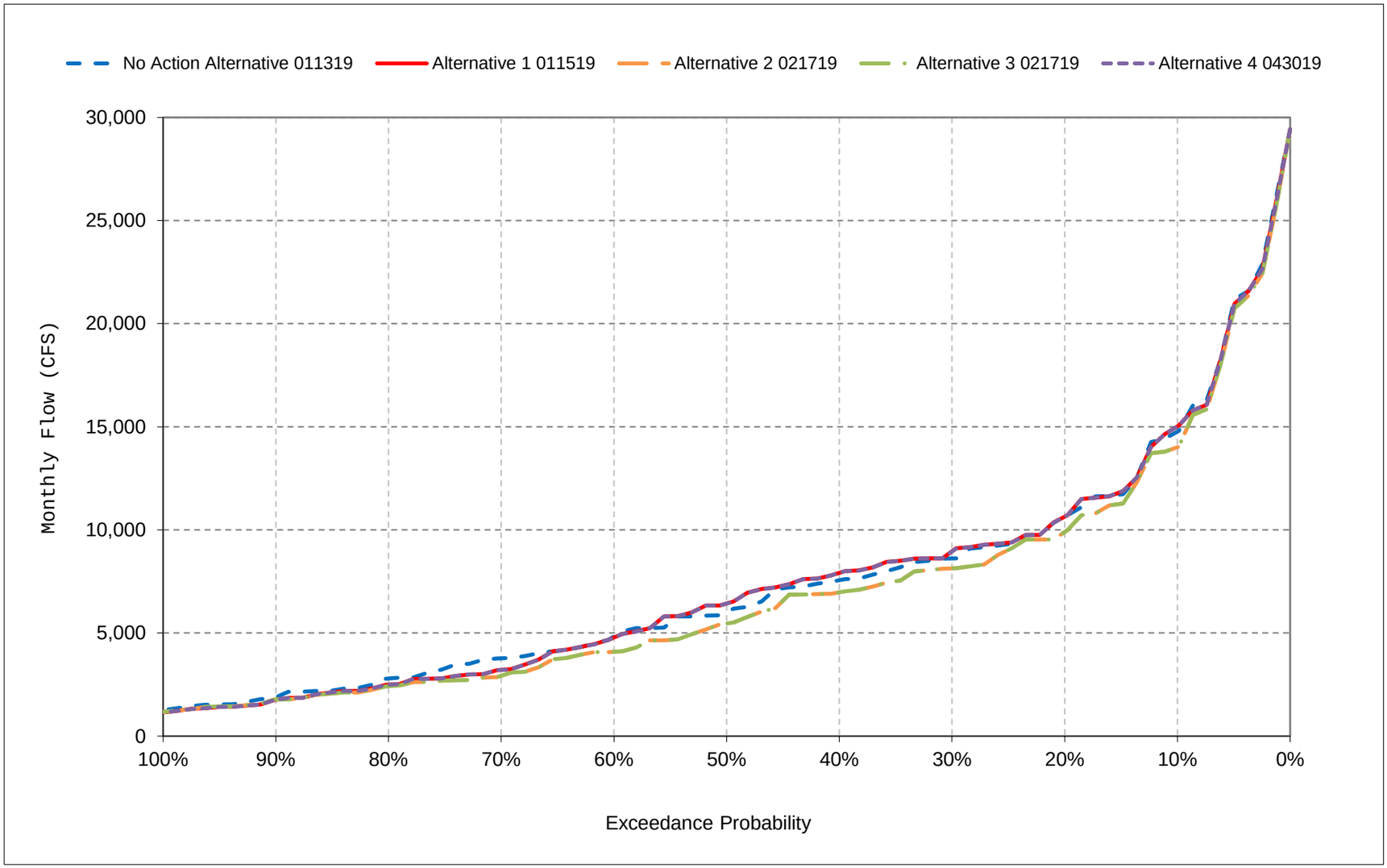
**Figure 39-12. San Joaquin River at Vernalis, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

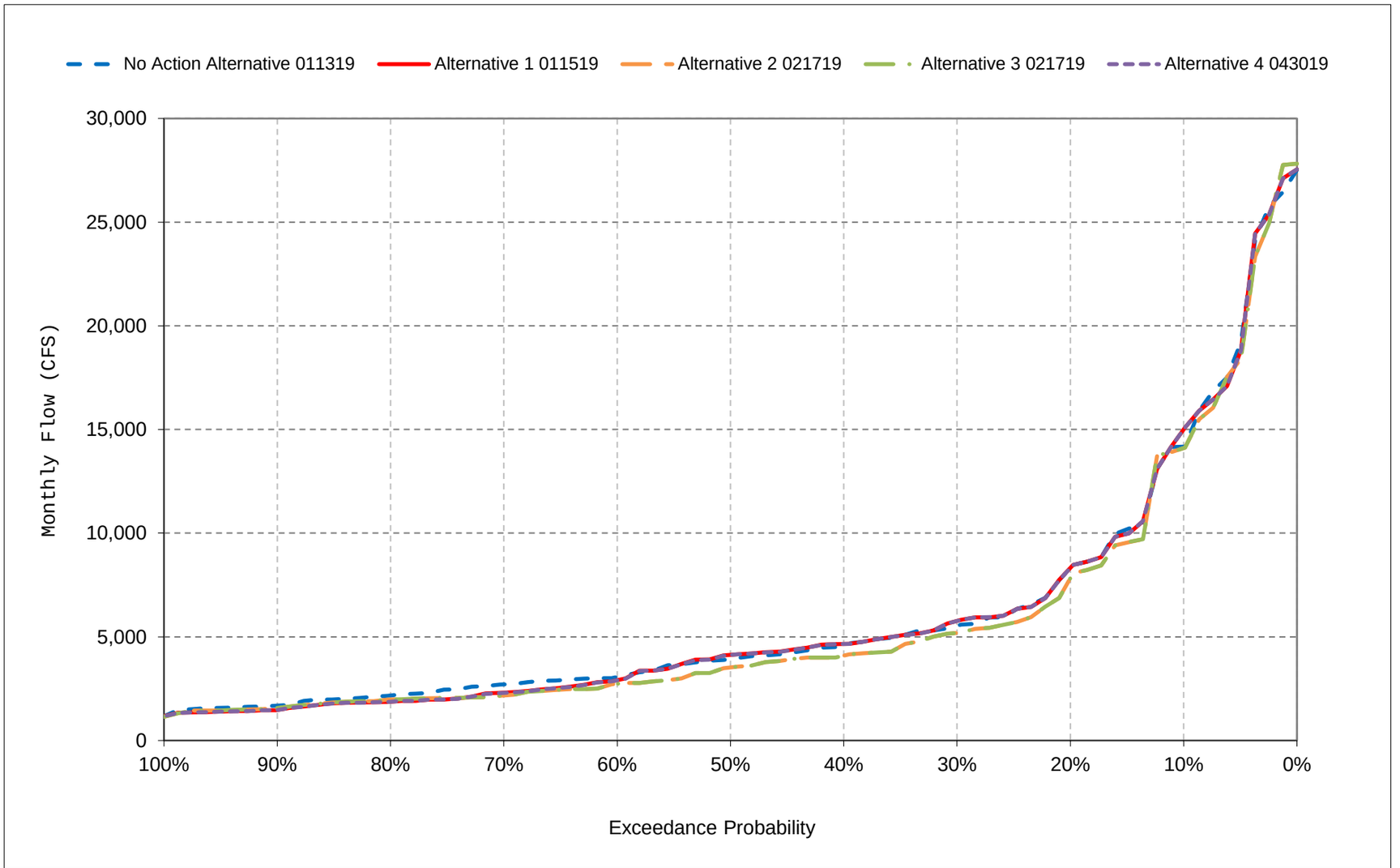
**Figure 39-13. San Joaquin River at Vernalis, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

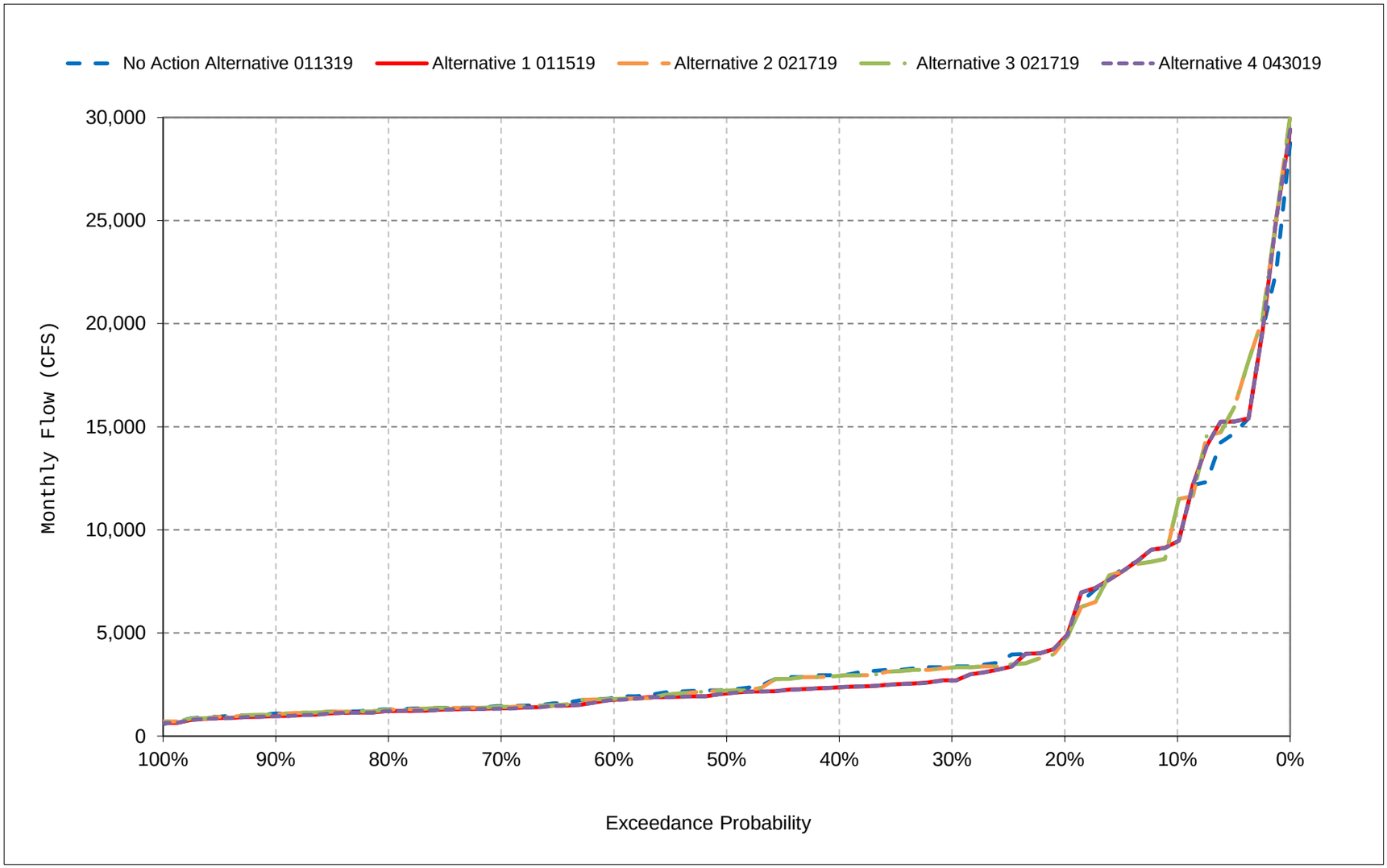
**Figure 39-14. San Joaquin River at Vernalis, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

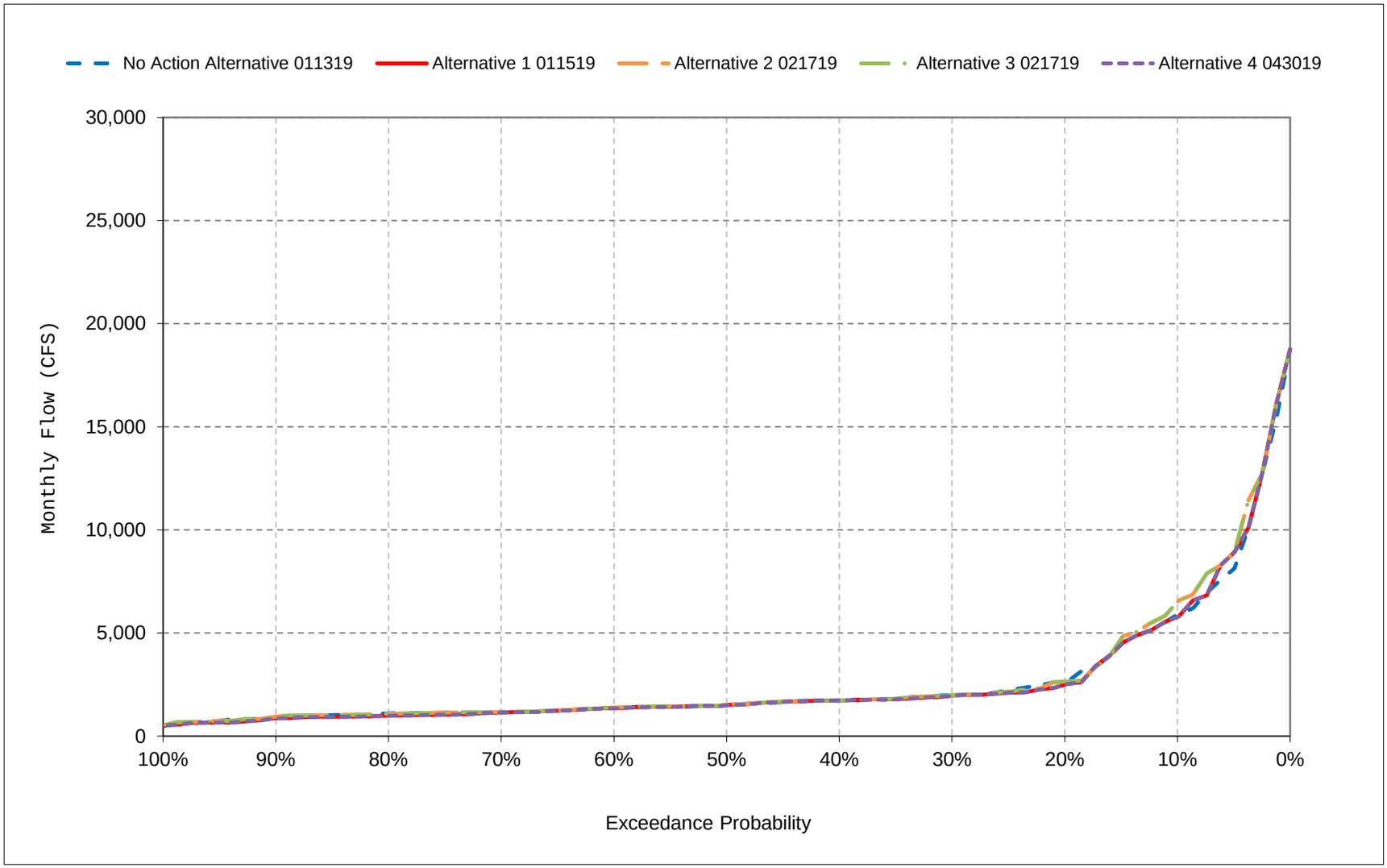
**Figure 39-15. San Joaquin River at Vernalis, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

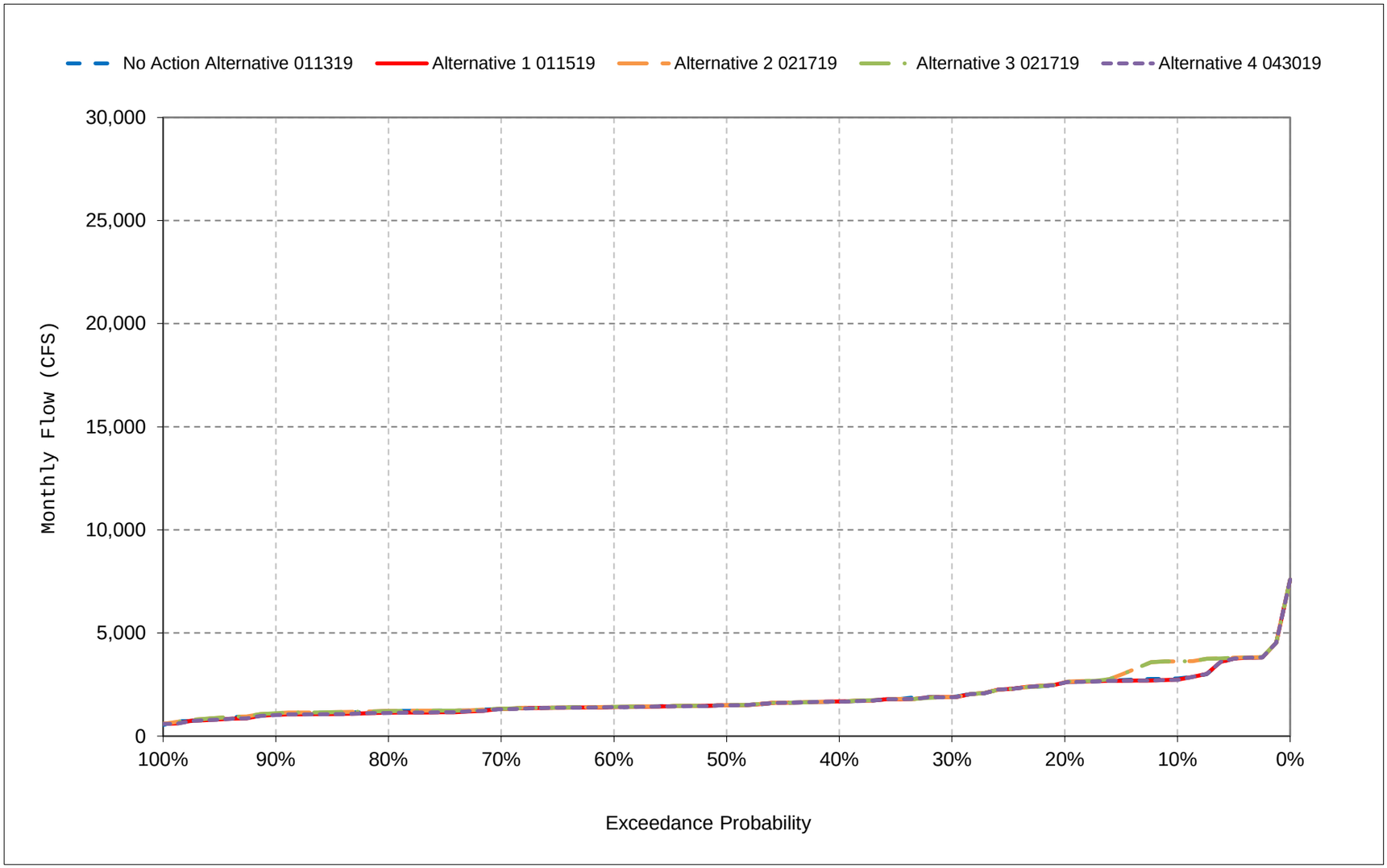
**Figure 39-16. San Joaquin River at Vernalis, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

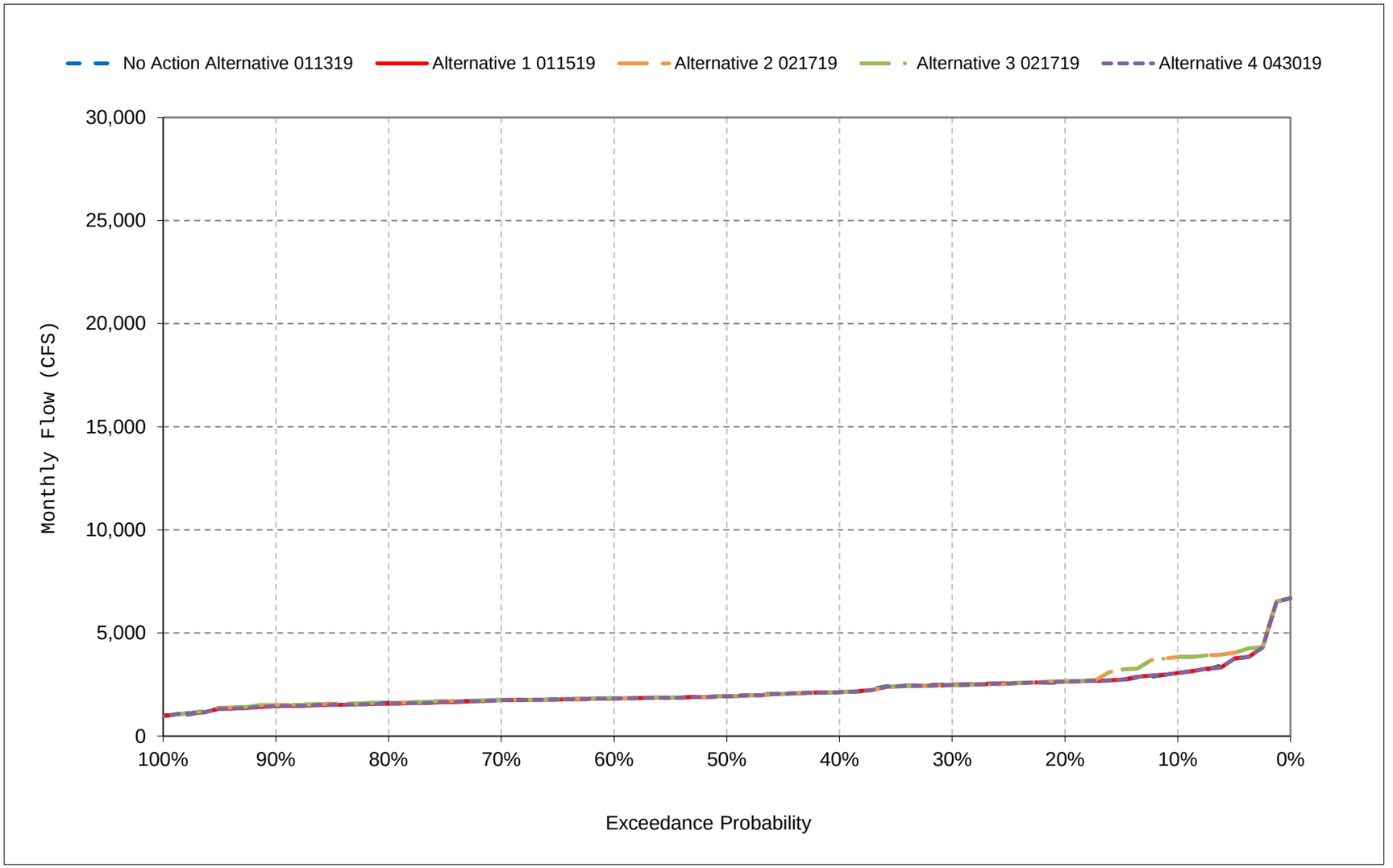
**Figure 39-17. San Joaquin River at Vernalis, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 39-18. San Joaquin River at Vernalis, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 39b-1. San Joaquin River at Vernalis (60-20-20), Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,499 | 2,953 | 4,804 | 11,236 | 14,693 | 15,582 | 14,771 | 14,178 | 9,432 | 5,890 | 2,796 | 3,060 |
| 20% | 3,162 | 2,777 | 2,857 | 4,812 | 10,133 | 10,196 | 10,640 | 8,319 | 4,695 | 2,634 | 2,595 | 2,655 |
| 30% | 2,980 | 2,527 | 2,401 | 3,611 | 6,119 | 8,499 | 8,616 | 5,538 | 3,364 | 1,990 | 1,909 | 2,491 |
| 40% | 2,796 | 2,395 | 2,216 | 2,629 | 4,232 | 5,570 | 7,564 | 4,615 | 2,947 | 1,741 | 1,672 | 2,125 |
| 50% | 2,602 | 2,219 | 2,101 | 2,402 | 3,420 | 3,847 | 6,019 | 3,929 | 2,244 | 1,493 | 1,492 | 1,932 |
| 60% | 2,401 | 2,169 | 2,046 | 2,293 | 2,684 | 3,459 | 4,835 | 3,064 | 1,864 | 1,370 | 1,408 | 1,837 |
| 70% | 2,247 | 2,059 | 1,979 | 2,114 | 2,305 | 2,906 | 3,778 | 2,705 | 1,449 | 1,163 | 1,310 | 1,741 |
| 80% | 1,995 | 1,951 | 1,829 | 1,883 | 2,151 | 2,371 | 2,792 | 2,167 | 1,298 | 1,099 | 1,207 | 1,613 |
| 90% | 1,849 | 1,763 | 1,669 | 1,699 | 1,947 | 2,205 | 1,888 | 1,680 | 1,091 | 891 | 1,068 | 1,477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,672 | 2,613 | 3,393 | 5,079 | 6,664 | 7,282 | 7,522 | 6,066 | 4,211 | 2,630 | 1,850 | 2,225 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 3,611 | 4,025 | 6,134 | 11,463 | 15,794 | 16,880 | 15,399 | 14,703 | 11,398 | 6,693 | 3,136 | 3,417 |
| Above Normal (24%) | 2,947 | 2,582 | 2,953 | 4,898 | 6,903 | 7,536 | 8,537 | 5,295 | 3,282 | 1,996 | 1,979 | 2,347 |
| Below Normal (10%) | 2,518 | 2,133 | 2,067 | 3,520 | 3,651 | 4,149 | 6,338 | 4,142 | 2,077 | 1,466 | 1,448 | 1,838 |
| Dry (16%) | 2,289 | 2,153 | 3,123 | 2,402 | 2,549 | 3,241 | 3,998 | 2,808 | 1,685 | 1,260 | 1,351 | 1,778 |
| Critical (27%) | 1,864 | 1,849 | 2,077 | 1,878 | 2,091 | 2,288 | 2,310 | 1,932 | 1,119 | 932 | 1,064 | 1,489 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,500 | 2,975 | 4,804 | 12,398 | 17,192 | 15,482 | 15,015 | 15,004 | 9,433 | 5,780 | 2,744 | 3,060 |
| 20% | 3,148 | 2,778 | 2,904 | 4,838 | 10,122 | 10,324 | 10,641 | 8,327 | 4,781 | 2,503 | 2,602 | 2,635 |
| 30% | 2,996 | 2,483 | 2,321 | 3,613 | 6,806 | 8,470 | 8,960 | 5,767 | 2,704 | 1,957 | 1,894 | 2,486 |
| 40% | 2,835 | 2,395 | 2,204 | 2,681 | 4,232 | 5,306 | 7,921 | 4,655 | 2,370 | 1,730 | 1,679 | 2,128 |
| 50% | 2,628 | 2,219 | 2,101 | 2,371 | 3,071 | 3,847 | 6,437 | 4,131 | 2,069 | 1,507 | 1,497 | 1,933 |
| 60% | 2,402 | 2,170 | 2,046 | 2,290 | 2,614 | 3,440 | 4,786 | 2,910 | 1,757 | 1,362 | 1,407 | 1,830 |
| 70% | 2,137 | 2,060 | 1,979 | 2,084 | 2,305 | 2,906 | 3,212 | 2,305 | 1,351 | 1,153 | 1,319 | 1,743 |
| 80% | 1,978 | 1,951 | 1,829 | 1,883 | 2,128 | 2,372 | 2,500 | 1,866 | 1,217 | 994 | 1,136 | 1,575 |
| 90% | 1,807 | 1,763 | 1,669 | 1,699 | 1,891 | 2,205 | 1,765 | 1,473 | 978 | 874 | 1,029 | 1,452 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,669 | 2,607 | 3,368 | 5,109 | 6,792 | 7,290 | 7,513 | 5,982 | 4,102 | 2,619 | 1,831 | 2,214 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 3,607 | 4,001 | 6,006 | 11,466 | 16,343 | 17,052 | 15,339 | 14,678 | 11,759 | 6,815 | 3,125 | 3,417 |
| Above Normal (24%) | 2,994 | 2,579 | 2,964 | 4,928 | 6,922 | 7,468 | 8,887 | 5,409 | 2,691 | 1,915 | 1,976 | 2,340 |
| Below Normal (10%) | 2,542 | 2,133 | 2,067 | 3,784 | 3,834 | 4,032 | 6,497 | 4,189 | 1,974 | 1,473 | 1,454 | 1,836 |
| Dry (16%) | 2,239 | 2,153 | 3,132 | 2,393 | 2,464 | 3,241 | 3,795 | 2,537 | 1,570 | 1,245 | 1,349 | 1,776 |
| Critical (27%) | 1,829 | 1,849 | 2,077 | 1,871 | 2,058 | 2,274 | 2,071 | 1,680 | 1,040 | 864 | 1,003 | 1,457 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1 | 22 | 0 | 1,162 | 2,499 | **-100** | 245 | 826 | 1 | **-111** | **-52** | 0 |
| 20% | **-14** | 0 | 47 | 26 | **-11** | 128 | 1 | 7 | 87 | **-131** | 7 | **-20** |
| 30% | 16 | **-45** | **-79** | 3 | 687 | **-29** | 344 | 229 | **-660** | **-33** | **-15** | **-5** |
| 40% | 39 | 0 | **-11** | 52 | 0 | **-264** | 357 | 39 | **-577** | **-11** | 7 | 3 |
| 50% | 26 | 0 | 0 | **-30** | **-349** | 0 | 419 | 202 | **-175** | 14 | 5 | 1 |
| 60% | 1 | 0 | 0 | **-3** | **-70** | **-19** | **-48** | **-154** | **-107** | **-9** | **-1** | **-8** |
| 70% | **-111** | 1 | 0 | **-30** | 0 | 0 | **-566** | **-400** | **-98** | **-10** | 9 | 2 |
| 80% | **-17** | 1 | 0 | **-1** | **-23** | 0 | **-292** | **-301** | **-81** | **-105** | **-71** | **-38** |
| 90% | **-42** | 0 | 0 | 0 | **-56** | **0** | **-123** | **-208** | **-113** | **-17** | **-39** | **-25** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-4** | **-6** | **-26** | 31 | 127 | 8 | **-10** | **-84** | **-110** | **-11** | **-20** | **-11** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **-4** | **-24** | **-128** | 3 | 550 | 171 | **-61** | **-25** | 362 | 122 | **-11** | 0 |
| Above Normal (24%) | 47 | **-3** | 11 | 31 | 19 | **-68** | 349 | 114 | **-591** | **-80** | **-4** | **-6** |
| Below Normal (10%) | 23 | 0 | 0 | 264 | 183 | **-117** | 159 | 47 | **-103** | 7 | 6 | **-2** |
| Dry (16%) | **-50** | 0 | 9 | **-9** | **-85** | 1 | **-203** | **-271** | **-114** | **-15** | **-1** | **-2** |
| Critical (27%) | **-36** | 0 | 0 | **-7** | **-33** | **-15** | **-239** | **-253** | **-80** | **-68** | **-61** | **-32** |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 39b-2. San Joaquin River at Vernalis (60-20-20), Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,499 | 2,953 | 4,804 | 11,236 | 14,693 | 15,582 | 14,771 | 14,178 | 9,432 | 5,890 | 2,796 | 3,060 |
| 20% | 3,162 | 2,777 | 2,857 | 4,812 | 10,133 | 10,196 | 10,640 | 8,319 | 4,695 | 2,634 | 2,595 | 2,655 |
| 30% | 2,980 | 2,527 | 2,401 | 3,611 | 6,119 | 8,499 | 8,616 | 5,538 | 3,364 | 1,990 | 1,909 | 2,491 |
| 40% | 2,796 | 2,395 | 2,216 | 2,629 | 4,232 | 5,570 | 7,564 | 4,615 | 2,947 | 1,741 | 1,672 | 2,125 |
| 50% | 2,602 | 2,219 | 2,101 | 2,402 | 3,420 | 3,847 | 6,019 | 3,929 | 2,244 | 1,493 | 1,492 | 1,932 |
| 60% | 2,401 | 2,169 | 2,046 | 2,293 | 2,684 | 3,459 | 4,835 | 3,064 | 1,864 | 1,370 | 1,408 | 1,837 |
| 70% | 2,247 | 2,059 | 1,979 | 2,114 | 2,305 | 2,906 | 3,778 | 2,705 | 1,449 | 1,163 | 1,310 | 1,741 |
| 80% | 1,995 | 1,951 | 1,829 | 1,883 | 2,151 | 2,371 | 2,792 | 2,167 | 1,298 | 1,099 | 1,207 | 1,613 |
| 90% | 1,849 | 1,763 | 1,669 | 1,699 | 1,947 | 2,205 | 1,888 | 1,680 | 1,091 | 891 | 1,068 | 1,477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,672 | 2,613 | 3,393 | 5,079 | 6,664 | 7,282 | 7,522 | 6,066 | 4,211 | 2,630 | 1,850 | 2,225 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 3,611 | 4,025 | 6,134 | 11,463 | 15,794 | 16,880 | 15,399 | 14,703 | 11,398 | 6,693 | 3,136 | 3,417 |
| Above Normal (24%) | 2,947 | 2,582 | 2,953 | 4,898 | 6,903 | 7,536 | 8,537 | 5,295 | 3,282 | 1,996 | 1,979 | 2,347 |
| Below Normal (10%) | 2,518 | 2,133 | 2,067 | 3,520 | 3,651 | 4,149 | 6,338 | 4,142 | 2,077 | 1,466 | 1,448 | 1,838 |
| Dry (16%) | 2,289 | 2,153 | 3,123 | 2,402 | 2,549 | 3,241 | 3,998 | 2,808 | 1,685 | 1,260 | 1,351 | 1,778 |
| Critical (27%) | 1,864 | 1,849 | 2,077 | 1,878 | 2,091 | 2,288 | 2,310 | 1,932 | 1,119 | 932 | 1,064 | 1,489 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,995 | 3,035 | 5,167 | 11,871 | 18,275 | 15,573 | 14,007 | 14,108 | 11,204 | 6,506 | 3,628 | 3,832 |
| 20% | 2,574 | 2,785 | 2,905 | 5,157 | 10,195 | 9,815 | 9,895 | 7,826 | 4,651 | 2,649 | 2,604 | 2,665 |
| 30% | 2,404 | 2,566 | 2,400 | 3,841 | 6,878 | 7,989 | 8,132 | 5,189 | 3,321 | 1,984 | 1,896 | 2,466 |
| 40% | 2,202 | 2,412 | 2,223 | 2,730 | 4,465 | 5,231 | 6,973 | 4,097 | 2,925 | 1,734 | 1,677 | 2,129 |
| 50% | 1,997 | 2,270 | 2,162 | 2,420 | 3,420 | 3,773 | 5,461 | 3,526 | 2,205 | 1,512 | 1,505 | 1,937 |
| 60% | 1,815 | 2,176 | 2,063 | 2,212 | 2,741 | 3,429 | 4,089 | 2,737 | 1,804 | 1,386 | 1,421 | 1,840 |
| 70% | 1,652 | 2,064 | 1,979 | 2,069 | 2,325 | 2,831 | 2,933 | 2,172 | 1,420 | 1,179 | 1,329 | 1,746 |
| 80% | 1,510 | 1,952 | 1,838 | 1,792 | 2,065 | 2,297 | 2,424 | 1,977 | 1,274 | 1,082 | 1,218 | 1,614 |
| 90% | 1,339 | 1,763 | 1,669 | 1,615 | 1,928 | 2,131 | 1,774 | 1,563 | 1,045 | 946 | 1,111 | 1,512 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,152 | 2,639 | 3,464 | 5,131 | 7,102 | 7,136 | 7,046 | 5,709 | 4,289 | 2,712 | 1,922 | 2,305 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 3,190 | 4,106 | 6,390 | 11,573 | 17,339 | 16,521 | 15,032 | 14,382 | 11,895 | 7,047 | 3,409 | 3,755 |
| Above Normal (24%) | 2,386 | 2,610 | 2,999 | 5,031 | 7,100 | 7,471 | 8,003 | 4,909 | 3,205 | 1,967 | 1,978 | 2,332 |
| Below Normal (10%) | 1,885 | 2,137 | 2,071 | 3,643 | 3,895 | 3,974 | 5,368 | 3,412 | 1,948 | 1,482 | 1,461 | 1,838 |
| Dry (16%) | 1,724 | 2,153 | 3,123 | 2,408 | 2,677 | 3,167 | 3,401 | 2,402 | 1,664 | 1,275 | 1,368 | 1,786 |
| Critical (27%) | 1,362 | 1,849 | 2,073 | 1,810 | 2,043 | 2,222 | 2,041 | 1,734 | 1,109 | 943 | 1,080 | 1,504 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-504** | 83 | 364 | 635 | 3,582 | **-9** | **-764** | **-71** | 1,771 | 615 | 832 | 772 |
| 20% | **-589** | 7 | 47 | 346 | 62 | **-381** | **-745** | **-493** | **-44** | 14 | 9 | 9 |
| 30% | **-576** | 39 | **-1** | 231 | 759 | **-510** | **-484** | **-349** | **-43** | **-6** | **-13** | **-26** |
| 40% | **-594** | 17 | 7 | 102 | 233 | **-339** | **-591** | **-519** | **-22** | **-7** | 5 | 4 |
| 50% | **-605** | 51 | 61 | 19 | 0 | **-73** | **-557** | **-403** | **-39** | 18 | 13 | 6 |
| 60% | **-586** | 7 | 17 | **-81** | 57 | **-31** | **-745** | **-328** | **-60** | 15 | 12 | 3 |
| 70% | **-596** | 4 | 0 | **-45** | 21 | **-75** | **-845** | **-533** | **-29** | 16 | 19 | 4 |
| 80% | **-485** | 1 | 8 | **-91** | **-86** | **-74** | **-368** | **-189** | **-24** | **-17** | 11 | 1 |
| 90% | **-510** | **0** | 0 | **-84** | **-19** | **-74** | **-115** | **-118** | **-46** | 55 | 43 | 36 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-521** | 26 | 70 | 53 | 437 | **-146** | **-477** | **-357** | 78 | 82 | 71 | 80 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **-420** | 81 | 256 | 109 | 1,545 | **-359** | **-368** | **-321** | 497 | 354 | 273 | 338 |
| Above Normal (24%) | **-561** | 28 | 46 | 133 | 197 | **-65** | **-535** | **-387** | **-76** | **-29** | **-1** | **-15** |
| Below Normal (10%) | **-634** | 4 | 4 | 123 | 244 | **-175** | **-970** | **-730** | **-130** | 16 | 13 | **0** |
| Dry (16%) | **-565** | 0 | 0 | 6 | 128 | **-74** | **-596** | **-406** | **-21** | 15 | 17 | 8 |
| Critical (27%) | **-503** | 0 | **-4** | **-68** | **-48** | **-67** | **-268** | **-198** | **-10** | 10 | 16 | 16 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 39b-3. San Joaquin River at Vernalis (60-20-20), Monthly Flow

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,499 | 2,953 | 4,804 | 11,236 | 14,693 | 15,582 | 14,771 | 14,178 | 9,432 | 5,890 | 2,796 | 3,060 |
| 20% | 3,162 | 2,777 | 2,857 | 4,812 | 10,133 | 10,196 | 10,640 | 8,319 | 4,695 | 2,634 | 2,595 | 2,655 |
| 30% | 2,980 | 2,527 | 2,401 | 3,611 | 6,119 | 8,499 | 8,616 | 5,538 | 3,364 | 1,990 | 1,909 | 2,491 |
| 40% | 2,796 | 2,395 | 2,216 | 2,629 | 4,232 | 5,570 | 7,564 | 4,615 | 2,947 | 1,741 | 1,672 | 2,125 |
| 50% | 2,602 | 2,219 | 2,101 | 2,402 | 3,420 | 3,847 | 6,019 | 3,929 | 2,244 | 1,493 | 1,492 | 1,932 |
| 60% | 2,401 | 2,169 | 2,046 | 2,293 | 2,684 | 3,459 | 4,835 | 3,064 | 1,864 | 1,370 | 1,408 | 1,837 |
| 70% | 2,247 | 2,059 | 1,979 | 2,114 | 2,305 | 2,906 | 3,778 | 2,705 | 1,449 | 1,163 | 1,310 | 1,741 |
| 80% | 1,995 | 1,951 | 1,829 | 1,883 | 2,151 | 2,371 | 2,792 | 2,167 | 1,298 | 1,099 | 1,207 | 1,613 |
| 90% | 1,849 | 1,763 | 1,669 | 1,699 | 1,947 | 2,205 | 1,888 | 1,680 | 1,091 | 891 | 1,068 | 1,477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,672 | 2,613 | 3,393 | 5,079 | 6,664 | 7,282 | 7,522 | 6,066 | 4,211 | 2,630 | 1,850 | 2,225 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 3,611 | 4,025 | 6,134 | 11,463 | 15,794 | 16,880 | 15,399 | 14,703 | 11,398 | 6,693 | 3,136 | 3,417 |
| Above Normal (24%) | 2,947 | 2,582 | 2,953 | 4,898 | 6,903 | 7,536 | 8,537 | 5,295 | 3,282 | 1,996 | 1,979 | 2,347 |
| Below Normal (10%) | 2,518 | 2,133 | 2,067 | 3,520 | 3,651 | 4,149 | 6,338 | 4,142 | 2,077 | 1,466 | 1,448 | 1,838 |
| Dry (16%) | 2,289 | 2,153 | 3,123 | 2,402 | 2,549 | 3,241 | 3,998 | 2,808 | 1,685 | 1,260 | 1,351 | 1,778 |
| Critical (27%) | 1,864 | 1,849 | 2,077 | 1,878 | 2,091 | 2,288 | 2,310 | 1,932 | 1,119 | 932 | 1,064 | 1,489 |

### Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,995 | 3,035 | 5,167 | 11,871 | 18,273 | 15,574 | 14,007 | 14,108 | 11,204 | 6,506 | 3,628 | 3,832 |
| 20% | 2,574 | 2,785 | 2,905 | 5,157 | 10,196 | 9,815 | 9,895 | 7,826 | 4,651 | 2,649 | 2,604 | 2,664 |
| 30% | 2,404 | 2,566 | 2,400 | 3,842 | 6,878 | 7,989 | 8,132 | 5,189 | 3,321 | 1,982 | 1,896 | 2,466 |
| 40% | 2,202 | 2,412 | 2,223 | 2,730 | 4,465 | 5,231 | 6,972 | 4,097 | 2,925 | 1,734 | 1,676 | 2,129 |
| 50% | 1,997 | 2,270 | 2,162 | 2,420 | 3,420 | 3,773 | 5,461 | 3,526 | 2,206 | 1,512 | 1,505 | 1,937 |
| 60% | 1,815 | 2,176 | 2,063 | 2,211 | 2,741 | 3,428 | 4,089 | 2,737 | 1,805 | 1,386 | 1,421 | 1,840 |
| 70% | 1,652 | 2,064 | 1,979 | 2,069 | 2,325 | 2,831 | 2,931 | 2,173 | 1,420 | 1,179 | 1,329 | 1,746 |
| 80% | 1,510 | 1,952 | 1,838 | 1,792 | 2,065 | 2,297 | 2,424 | 1,978 | 1,274 | 1,082 | 1,218 | 1,615 |
| 90% | 1,339 | 1,763 | 1,669 | 1,615 | 1,928 | 2,130 | 1,773 | 1,563 | 1,045 | 946 | 1,111 | 1,512 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,152 | 2,639 | 3,464 | 5,131 | 7,102 | 7,136 | 7,045 | 5,709 | 4,289 | 2,712 | 1,921 | 2,305 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 3,190 | 4,106 | 6,390 | 11,573 | 17,340 | 16,521 | 15,032 | 14,383 | 11,895 | 7,046 | 3,408 | 3,755 |
| Above Normal (24%) | 2,386 | 2,610 | 2,999 | 5,031 | 7,100 | 7,470 | 8,002 | 4,909 | 3,205 | 1,966 | 1,978 | 2,332 |
| Below Normal (10%) | 1,885 | 2,137 | 2,071 | 3,643 | 3,895 | 3,974 | 5,368 | 3,411 | 1,947 | 1,481 | 1,461 | 1,838 |
| Dry (16%) | 1,724 | 2,153 | 3,123 | 2,408 | 2,677 | 3,167 | 3,401 | 2,402 | 1,664 | 1,275 | 1,367 | 1,786 |
| Critical (27%) | 1,362 | 1,849 | 2,073 | 1,810 | 2,043 | 2,222 | 2,041 | 1,734 | 1,109 | 942 | 1,080 | 1,504 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-504** | 83 | 364 | 635 | 3,580 | **-8** | **-763** | **-71** | 1,771 | 615 | 832 | 772 |
| 20% | **-589** | 7 | 47 | 346 | 62 | **-381** | **-745** | **-493** | **-44** | 14 | 8 | 9 |
| 30% | **-576** | 39 | **-1** | 231 | 759 | **-510** | **-484** | **-349** | **-43** | **-8** | **-12** | **-26** |
| 40% | **-594** | 17 | 7 | 102 | 233 | **-339** | **-592** | **-518** | **-22** | **-7** | 5 | 4 |
| 50% | **-605** | 50 | 61 | 19 | 0 | **-74** | **-557** | **-403** | **-38** | 18 | 13 | 6 |
| 60% | **-587** | 7 | 17 | **-82** | 57 | **-31** | **-746** | **-328** | **-59** | 16 | 12 | 2 |
| 70% | **-596** | 4 | 0 | **-45** | 21 | **-75** | **-846** | **-533** | **-29** | 16 | 19 | 4 |
| 80% | **-485** | 1 | 8 | **-91** | **-86** | **-74** | **-368** | **-189** | **-24** | **-18** | 10 | 1 |
| 90% | **-510** | **0** | 0 | **-84** | **-19** | **-74** | **-115** | **-118** | **-46** | 55 | 43 | 36 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-521** | 26 | 70 | 53 | 437 | **-146** | **-477** | **-357** | 78 | 81 | 71 | 80 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **-421** | 81 | 256 | 110 | 1,546 | **-359** | **-368** | **-320** | 497 | 353 | 273 | 338 |
| Above Normal (24%) | **-561** | 28 | 46 | 133 | 197 | **-66** | **-535** | **-387** | **-76** | **-29** | **-2** | **-15** |
| Below Normal (10%) | **-634** | 4 | 4 | 123 | 244 | **-175** | **-970** | **-731** | **-130** | 15 | 12 | **-1** |
| Dry (16%) | **-565** | 0 | 0 | 6 | 128 | **-74** | **-596** | **-406** | **-21** | 15 | 17 | 8 |
| Critical (27%) | **-503** | 0 | **-4** | **-68** | **-48** | **-67** | **-269** | **-199** | **-10** | 10 | 16 | 15 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 39b-4. San Joaquin River at Vernalis (60-20-20), Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,499 | 2,953 | 4,804 | 11,236 | 14,693 | 15,582 | 14,771 | 14,178 | 9,432 | 5,890 | 2,796 | 3,060 |
| 20% | 3,162 | 2,777 | 2,857 | 4,812 | 10,133 | 10,196 | 10,640 | 8,319 | 4,695 | 2,634 | 2,595 | 2,655 |
| 30% | 2,980 | 2,527 | 2,401 | 3,611 | 6,119 | 8,499 | 8,616 | 5,538 | 3,364 | 1,990 | 1,909 | 2,491 |
| 40% | 2,796 | 2,395 | 2,216 | 2,629 | 4,232 | 5,570 | 7,564 | 4,615 | 2,947 | 1,741 | 1,672 | 2,125 |
| 50% | 2,602 | 2,219 | 2,101 | 2,402 | 3,420 | 3,847 | 6,019 | 3,929 | 2,244 | 1,493 | 1,492 | 1,932 |
| 60% | 2,401 | 2,169 | 2,046 | 2,293 | 2,684 | 3,459 | 4,835 | 3,064 | 1,864 | 1,370 | 1,408 | 1,837 |
| 70% | 2,247 | 2,059 | 1,979 | 2,114 | 2,305 | 2,906 | 3,778 | 2,705 | 1,449 | 1,163 | 1,310 | 1,741 |
| 80% | 1,995 | 1,951 | 1,829 | 1,883 | 2,151 | 2,371 | 2,792 | 2,167 | 1,298 | 1,099 | 1,207 | 1,613 |
| 90% | 1,849 | 1,763 | 1,669 | 1,699 | 1,947 | 2,205 | 1,888 | 1,680 | 1,091 | 891 | 1,068 | 1,477 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,672 | 2,613 | 3,393 | 5,079 | 6,664 | 7,282 | 7,522 | 6,066 | 4,211 | 2,630 | 1,850 | 2,225 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 3,611 | 4,025 | 6,134 | 11,463 | 15,794 | 16,880 | 15,399 | 14,703 | 11,398 | 6,693 | 3,136 | 3,417 |
| Above Normal (24%) | 2,947 | 2,582 | 2,953 | 4,898 | 6,903 | 7,536 | 8,537 | 5,295 | 3,282 | 1,996 | 1,979 | 2,347 |
| Below Normal (10%) | 2,518 | 2,133 | 2,067 | 3,520 | 3,651 | 4,149 | 6,338 | 4,142 | 2,077 | 1,466 | 1,448 | 1,838 |
| Dry (16%) | 2,289 | 2,153 | 3,123 | 2,402 | 2,549 | 3,241 | 3,998 | 2,808 | 1,685 | 1,260 | 1,351 | 1,778 |
| Critical (27%) | 1,864 | 1,849 | 2,077 | 1,878 | 2,091 | 2,288 | 2,310 | 1,932 | 1,119 | 932 | 1,064 | 1,489 |

## Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,498 | 2,975 | 4,804 | 12,398 | 17,169 | 15,483 | 15,014 | 15,003 | 9,433 | 5,780 | 2,735 | 3,060 |
| 20% | 3,148 | 2,777 | 2,904 | 4,837 | 10,124 | 10,324 | 10,639 | 8,320 | 4,775 | 2,492 | 2,599 | 2,635 |
| 30% | 2,996 | 2,483 | 2,321 | 3,612 | 6,813 | 8,476 | 8,957 | 5,766 | 2,698 | 1,955 | 1,888 | 2,483 |
| 40% | 2,834 | 2,396 | 2,204 | 2,680 | 4,232 | 5,306 | 7,919 | 4,652 | 2,368 | 1,735 | 1,674 | 2,131 |
| 50% | 2,627 | 2,219 | 2,101 | 2,371 | 3,070 | 3,847 | 6,432 | 4,126 | 2,064 | 1,490 | 1,493 | 1,929 |
| 60% | 2,401 | 2,169 | 2,046 | 2,290 | 2,613 | 3,440 | 4,785 | 2,909 | 1,747 | 1,343 | 1,399 | 1,818 |
| 70% | 2,136 | 2,058 | 1,979 | 2,084 | 2,305 | 2,907 | 3,205 | 2,297 | 1,329 | 1,140 | 1,307 | 1,737 |
| 80% | 1,977 | 1,951 | 1,829 | 1,882 | 2,127 | 2,371 | 2,498 | 1,866 | 1,215 | 987 | 1,128 | 1,575 |
| 90% | 1,806 | 1,763 | 1,669 | 1,698 | 1,891 | 2,205 | 1,762 | 1,472 | 971 | 860 | 1,025 | 1,453 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,668 | 2,607 | 3,368 | 5,109 | 6,793 | 7,290 | 7,510 | 5,978 | 4,097 | 2,613 | 1,826 | 2,212 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 3,607 | 4,001 | 6,006 | 11,466 | 16,350 | 17,053 | 15,338 | 14,677 | 11,758 | 6,814 | 3,124 | 3,416 |
| Above Normal (24%) | 2,993 | 2,579 | 2,964 | 4,928 | 6,922 | 7,468 | 8,885 | 5,406 | 2,687 | 1,909 | 1,971 | 2,338 |
| Below Normal (10%) | 2,540 | 2,133 | 2,067 | 3,783 | 3,834 | 4,032 | 6,494 | 4,183 | 1,966 | 1,463 | 1,447 | 1,832 |
| Dry (16%) | 2,237 | 2,153 | 3,131 | 2,392 | 2,464 | 3,241 | 3,791 | 2,529 | 1,560 | 1,232 | 1,339 | 1,771 |
| Critical (27%) | 1,828 | 1,849 | 2,077 | 1,871 | 2,057 | 2,273 | 2,068 | 1,676 | 1,035 | 859 | 999 | 1,455 |

## Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-1** | 22 | 1 | 1,162 | 2,476 | **-99** | 244 | 825 | 1 | **-111** | **-61** | 0 |
| 20% | **-14** | **0** | 47 | 26 | **-10** | 127 | **0** | 1 | 80 | **-142** | 4 | **-21** |
| 30% | 16 | **-45** | **-80** | 2 | 694 | **-23** | 341 | 228 | **-666** | **-35** | **-21** | **-8** |
| 40% | 38 | 1 | **-12** | 51 | 0 | **-264** | 355 | 37 | **-579** | **-6** | 2 | 6 |
| 50% | 25 | **0** | **0** | **-30** | **-350** | **0** | 413 | 196 | **-180** | **-3** | 1 | **-2** |
| 60% | **0** | **0** | 0 | **-3** | **-70** | **-20** | **-50** | **-156** | **-117** | **-27** | **-9** | **-19** |
| 70% | **-111** | **-1** | **0** | **-31** | **0** | 0 | **-572** | **-408** | **-120** | **-23** | **-3** | **-4** |
| 80% | **-18** | **0** | **0** | **-1** | **-24** | 0 | **-294** | **-301** | **-84** | **-112** | **-80** | **-39** |
| 90% | **-43** | **0** | 0 | **-1** | **-57** | 0 | **-126** | **-208** | **-120** | **-31** | **-43** | **-24** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-5** | **-6** | **-26** | 31 | 129 | 8 | **-12** | **-88** | **-115** | **-18** | **-24** | **-13** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **-4** | **-24** | **-128** | 3 | 556 | 173 | **-62** | **-26** | 360 | 121 | **-12** | **0** |
| Above Normal (24%) | 46 | **-3** | 11 | 31 | 19 | **-68** | 348 | 110 | **-595** | **-86** | **-8** | **-9** |
| Below Normal (10%) | 22 | 0 | 0 | 264 | 183 | **-118** | 156 | 41 | **-111** | **-3** | **-1** | **-6** |
| Dry (16%) | **-52** | **0** | 9 | **-10** | **-86** | **0** | **-207** | **-279** | **-124** | **-28** | **-12** | **-7** |
| Critical (27%) | **-37** | **0** | 0 | **-7** | **-34** | **-15** | **-242** | **-256** | **-84** | **-74** | **-66** | **-34** |

a Based on the 82-year simulation period.

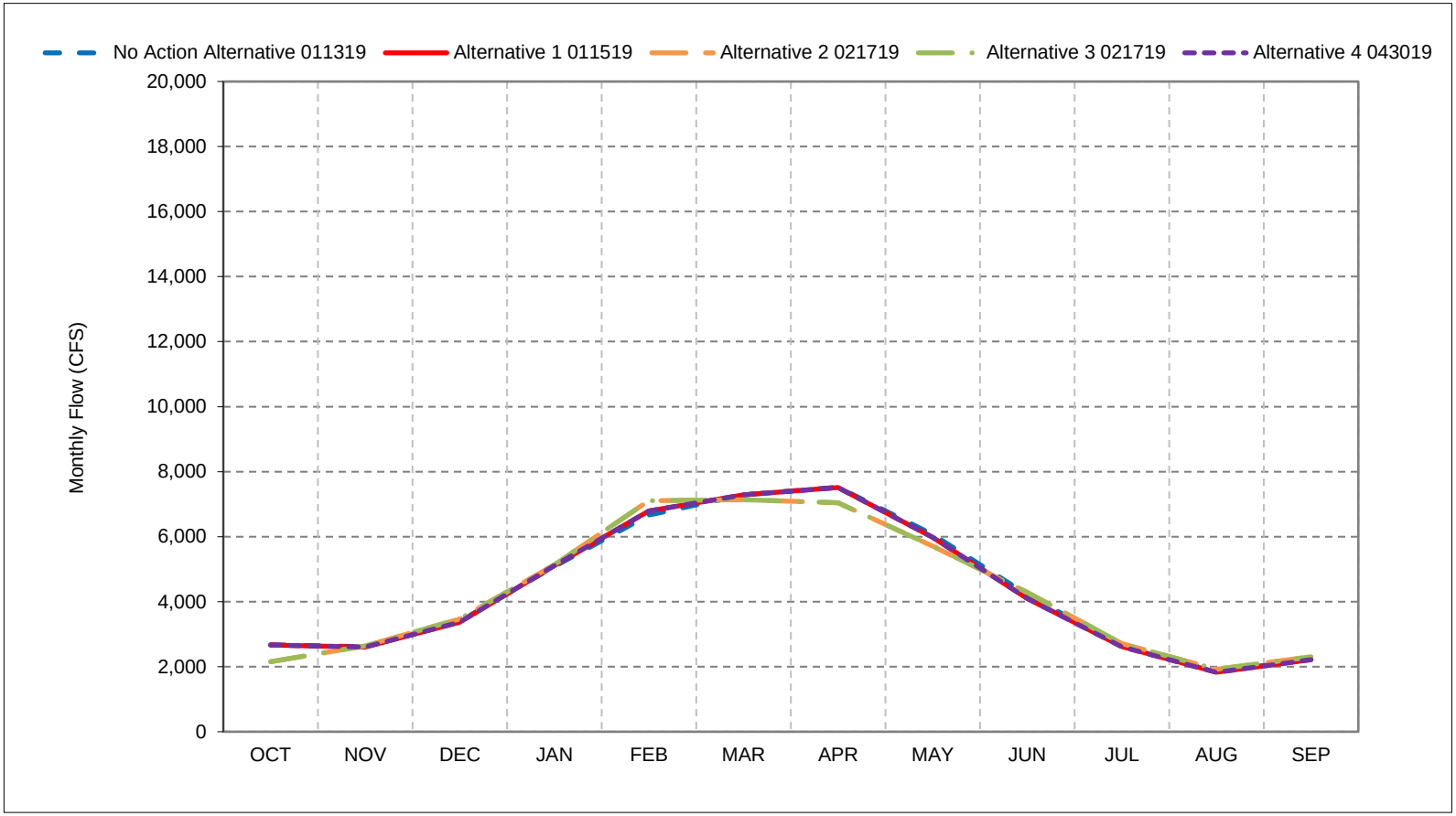
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

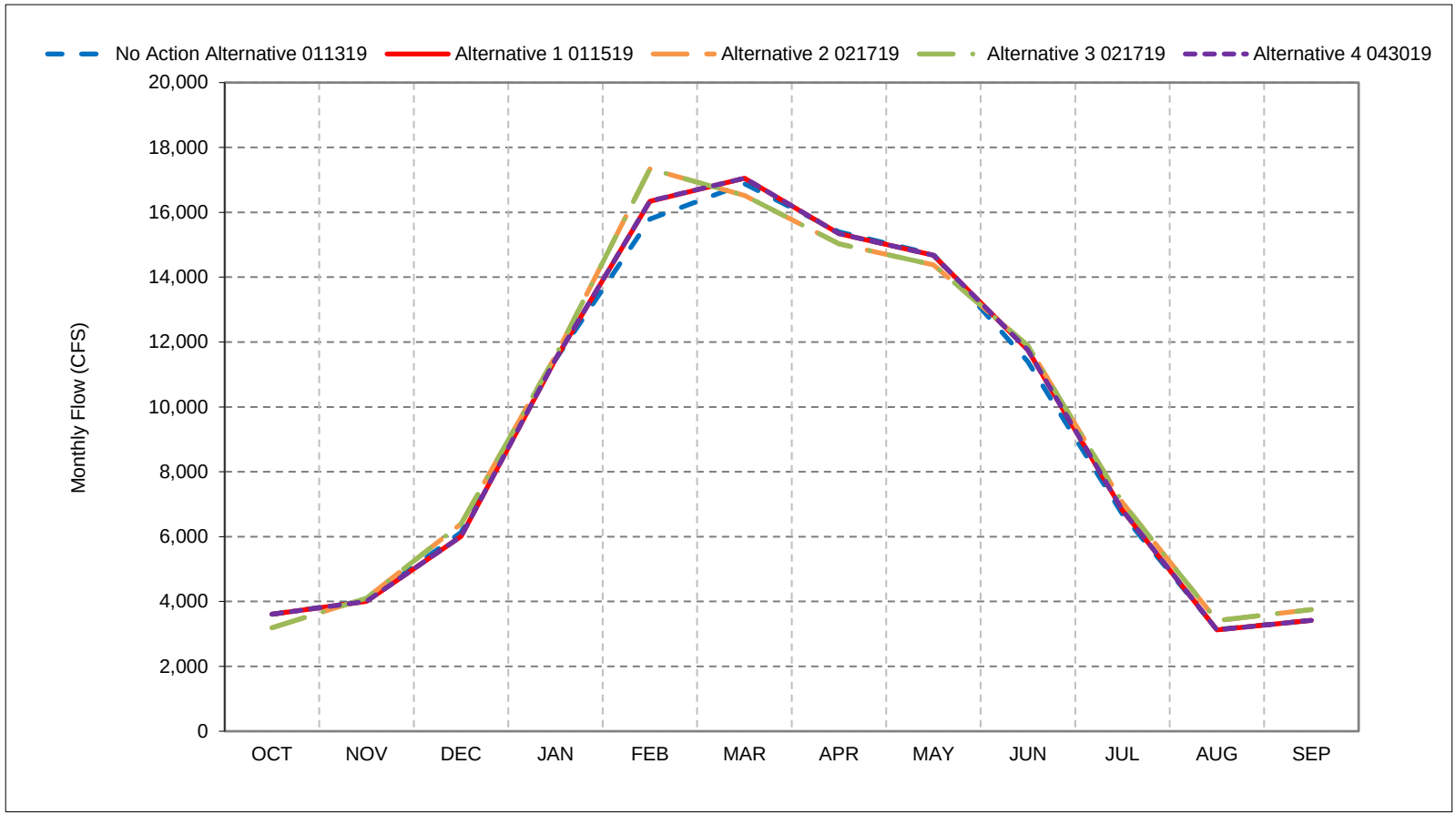
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 39b-1. San Joaquin River at Vernalis (60-20-20), Long-Term Average Flow



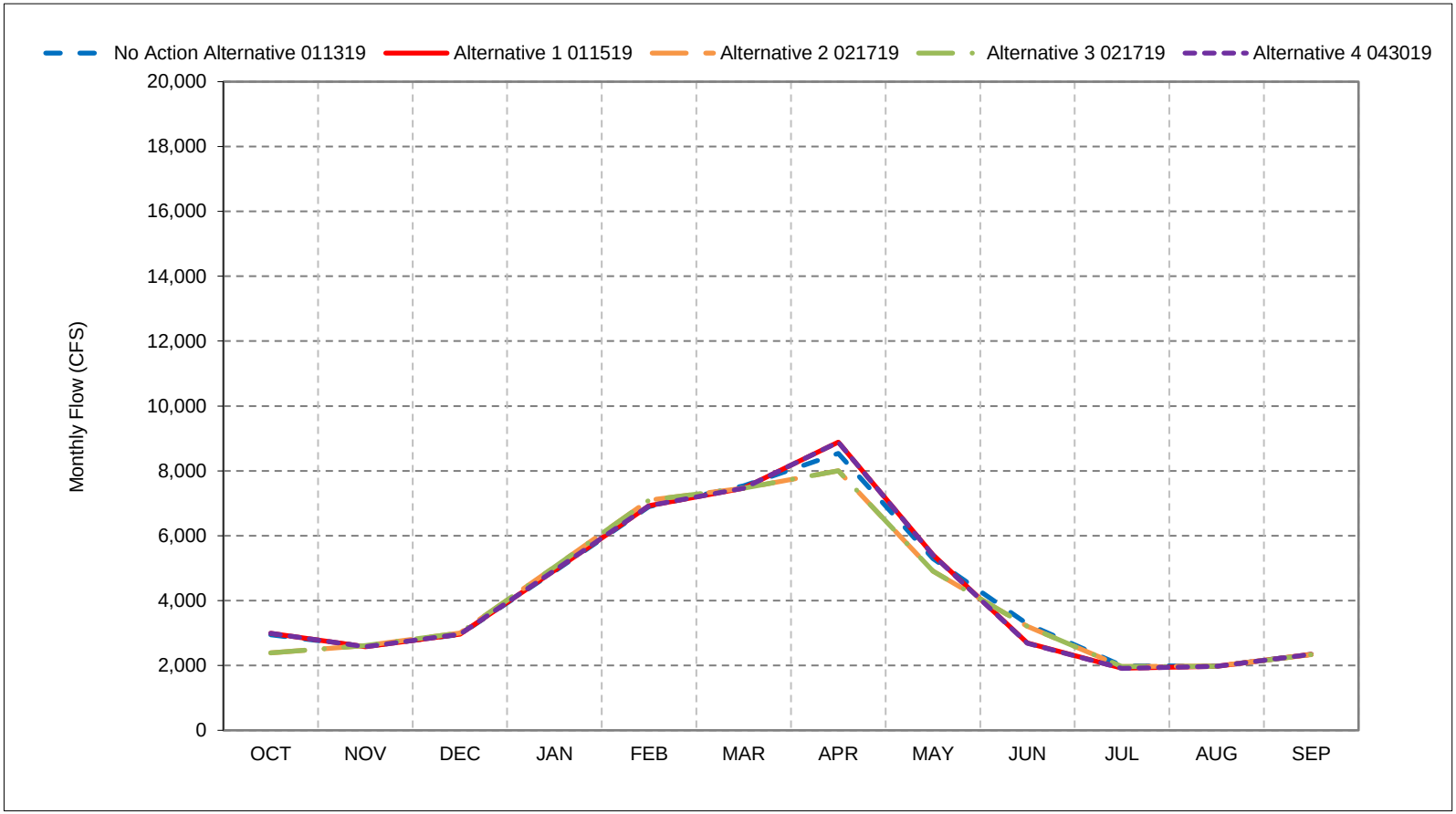

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 39b-2. San Joaquin River at Vernalis (60-20-20), Wet Year Average Flow



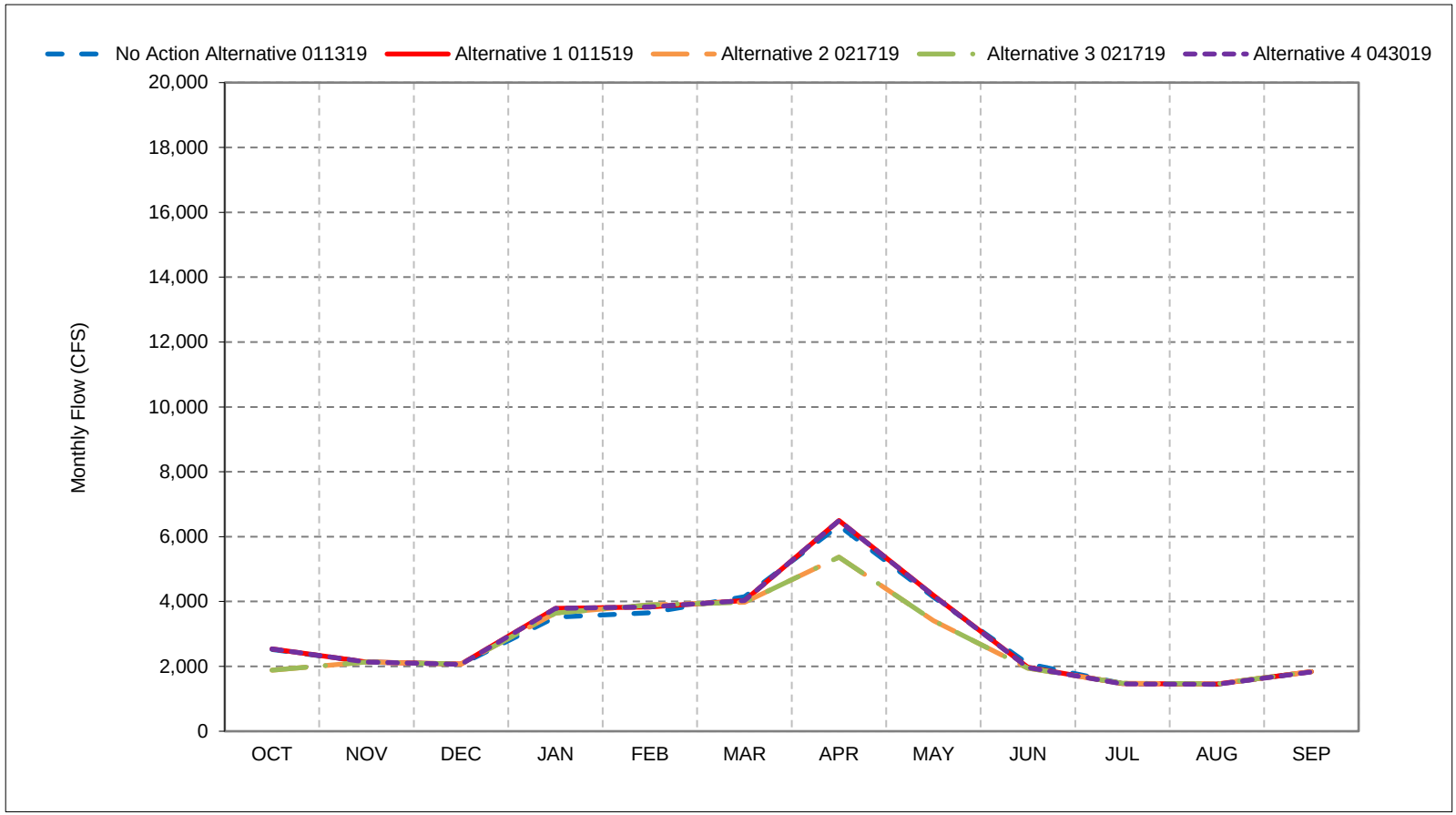

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 39b-3. San Joaquin River at Vernalis (60-20-20), Above Normal Year Average Flow



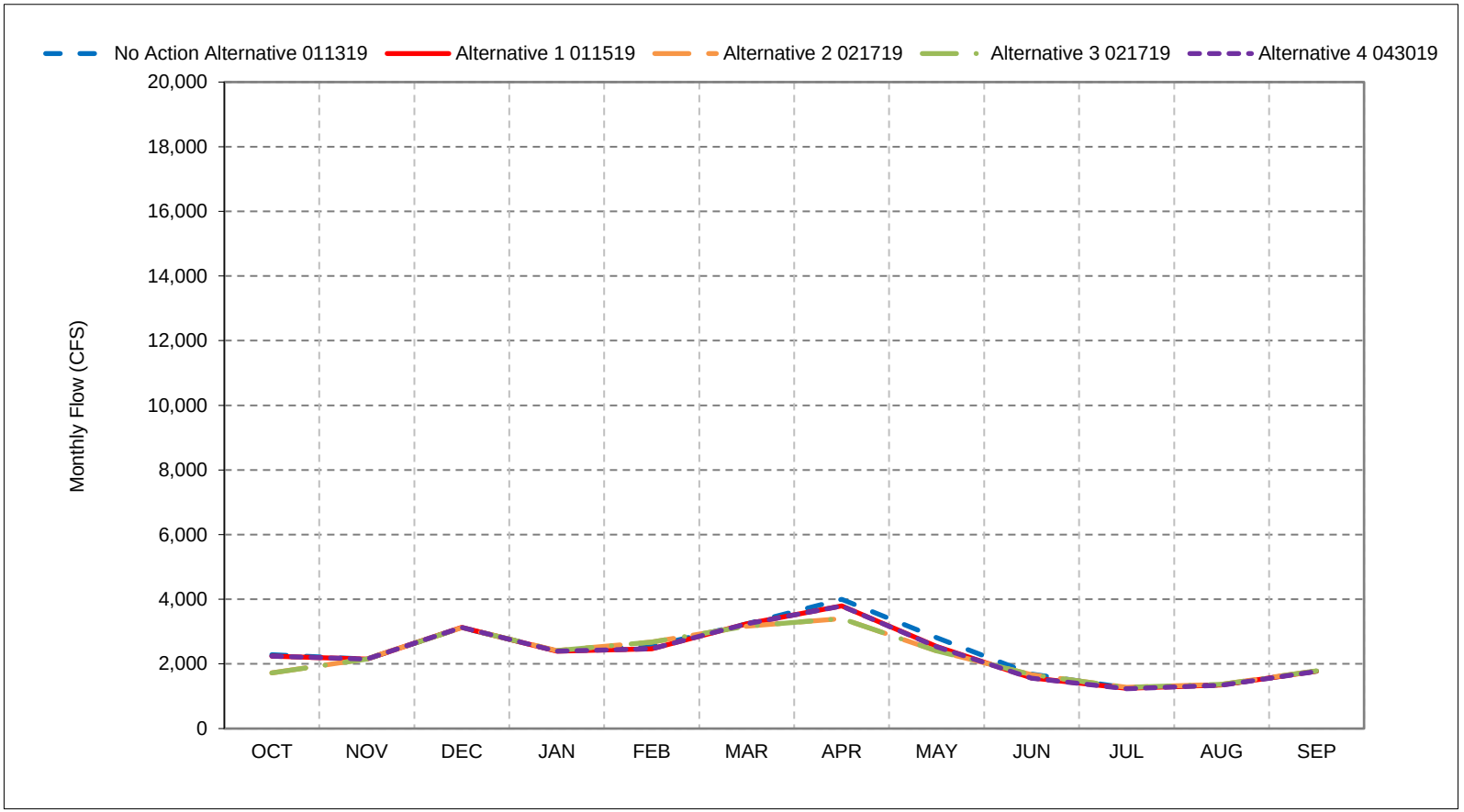

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 39b-4. San Joaquin River at Vernalis (60-20-20), Below Normal Year Average Flow



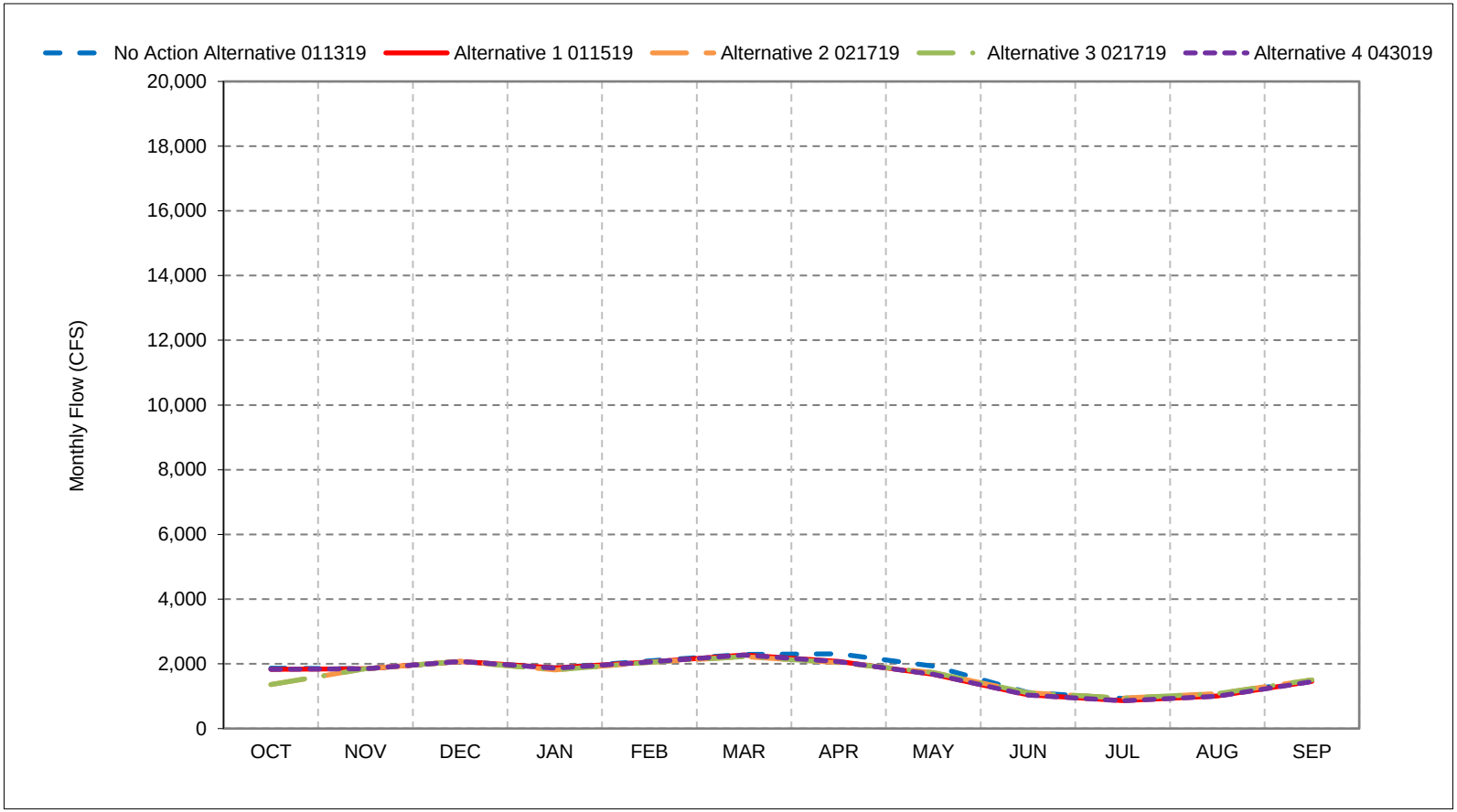

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 39b-5. San Joaquin River at Vernalis (60-20-20), Dry Year Average Flow




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 39b-6. San Joaquin River at Vernalis (60-20-20), Critical Year Average Flow




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

# Table 40-1. Old and Middle River Flow, Monthly Flow (combined flows)

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -3,899 | -4,158 | -3,846 | -2,823 | -1,197 | -1,150 | 3,171 | 2,828 | -1,150 | -3,145 | -2,644 | -4,097 |
| 20% | -4,145 | -4,633 | -4,581 | -2,823 | -1,905 | -1,582 | 2,206 | 1,315 | -1,882 | -6,033 | -3,489 | -5,563 |
| 30% | -4,567 | -5,444 | -5,379 | -3,355 | -2,768 | -3,140 | 1,603 | 614 | -3,500 | -6,887 | -4,143 | -6,221 |
| 40% | -4,884 | -5,890 | -5,871 | -4,348 | -3,500 | -3,500 | 1,268 | 242 | -3,500 | -7,781 | -7,881 | -7,025 |
| 50% | -5,162 | -6,288 | -5,871 | -4,710 | -4,145 | -4,017 | 612 | -34 | -3,500 | -8,770 | -9,726 | -8,539 |
| 60% | -5,506 | -6,592 | -5,871 | -4,993 | -5,000 | -4,885 | -223 | -490 | -4,317 | -9,176 | -10,281 | -9,573 |
| 70% | -5,969 | -7,139 | -7,069 | -5,000 | -5,000 | -5,000 | -599 | -766 | -5,000 | -9,674 | -10,684 | -9,932 |
| 80% | -6,627 | -8,064 | -9,343 | -5,000 | -5,000 | -5,000 | -1,024 | -1,055 | -5,000 | -10,180 | -10,772 | -10,027 |
| 90% | -7,018 | -9,851 | -9,681 | -5,000 | -5,000 | -5,000 | -1,389 | -1,422 | -5,000 | -11,025 | -10,967 | -10,211 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -5,404 | -6,485 | -6,168 | -3,632 | -3,102 | -2,938 | 910 | 309 | -3,542 | -7,887 | -7,667 | -7,776 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -5,759 | -6,524 | -6,777 | -2,059 | -2,135 | -1,800 | 3,139 | 2,058 | -4,304 | -8,723 | -10,544 | -9,575 |
| Above Normal (16%) | -5,990 | -7,820 | -7,734 | -3,716 | -3,859 | -4,141 | 1,193 | 434 | -4,479 | -8,805 | -10,805 | -10,094 |
| Below Normal (13%) | -6,354 | -6,704 | -6,038 | -4,380 | -3,662 | -4,055 | 181 | -305 | -3,407 | -10,088 | -8,919 | -7,920 |
| Dry (24%) | -4,923 | -6,843 | -5,283 | -4,640 | -3,644 | -3,640 | -744 | -936 | -3,260 | -7,836 | -4,189 | -6,133 |
| Critical (15%) | -3,933 | -4,157 | -4,748 | -4,579 | -2,962 | -1,903 | -802 | -980 | -1,472 | -3,145 | -2,680 | -3,975 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -3,176 | -3,431 | -3,956 | -2,948 | -2,524 | -982 | -772 | -1,369 | -2,397 | -2,974 | -2,553 | -3,856 |
| 20% | -3,662 | -3,954 | -4,508 | -4,516 | -4,302 | -3,396 | -1,358 | -1,686 | -3,919 | -4,570 | -3,637 | -5,098 |
| 30% | -4,003 | -4,629 | -5,135 | -4,516 | -4,464 | -4,069 | -1,736 | -2,314 | -4,500 | -6,173 | -4,625 | -5,950 |
| 40% | -4,364 | -5,367 | -5,290 | -4,516 | -4,464 | -4,516 | -2,056 | -2,821 | -4,500 | -7,730 | -7,998 | -7,192 |
| 50% | -5,360 | -6,363 | -5,290 | -4,516 | -4,464 | -4,516 | -2,196 | -2,978 | -4,500 | -8,533 | -9,939 | -8,985 |
| 60% | -6,762 | -7,112 | -5,290 | -5,000 | -4,483 | -4,516 | -2,459 | -3,211 | -4,500 | -9,114 | -10,362 | -9,393 |
| 70% | -7,981 | -8,121 | -6,412 | -5,226 | -4,892 | -4,924 | -2,830 | -3,258 | -5,000 | -9,685 | -10,660 | -9,537 |
| 80% | -8,694 | -8,875 | -6,827 | -5,226 | -5,193 | -5,000 | -3,134 | -3,619 | -5,000 | -10,362 | -10,737 | -9,645 |
| 90% | -9,108 | -9,271 | -9,744 | -5,226 | -5,250 | -5,000 | -3,490 | -4,026 | -5,000 | -10,957 | -11,081 | -9,750 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -5,831 | -6,293 | -5,701 | -3,980 | -3,700 | -3,296 | -1,797 | -2,458 | -4,201 | -7,654 | -7,816 | -7,561 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -7,235 | -7,620 | -6,463 | -2,354 | -1,838 | -1,308 | -915 | -1,849 | -4,079 | -8,689 | -10,466 | -9,337 |
| Above Normal (16%) | -7,485 | -7,177 | -6,284 | -4,445 | -3,955 | -3,885 | -2,671 | -3,116 | -4,451 | -9,267 | -10,749 | -9,707 |
| Below Normal (13%) | -5,598 | -5,968 | -5,472 | -5,032 | -4,663 | -4,610 | -2,422 | -3,107 | -5,000 | -10,315 | -9,935 | -7,991 |
| Dry (24%) | -4,585 | -5,809 | -5,128 | -4,780 | -4,914 | -4,764 | -2,227 | -2,899 | -4,747 | -6,769 | -4,459 | -5,889 |
| Critical (15%) | -3,291 | -3,564 | -4,581 | -4,699 | -4,548 | -3,315 | -1,470 | -1,735 | -2,551 | -2,703 | -2,551 | -3,781 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 723 | 727 | **-110** | **-125** | **-1,327** | 168 | **-3,943** | **-4,197** | **-1,246** | 171 | 91 | 241 |
| 20% | 483 | 678 | 72 | **-1,694** | **-2,397** | **-1,813** | **-3,565** | **-3,001** | **-2,036** | 1,463 | **-148** | 466 |
| 30% | 564 | 815 | 244 | **-1,161** | **-1,696** | **-929** | **-3,338** | **-2,928** | **-1,000** | 713 | **-483** | 271 |
| 40% | 521 | 522 | 581 | **-168** | **-964** | **-1,016** | **-3,325** | **-3,063** | **-1,000** | 50 | **-117** | **-166** |
| 50% | **-198** | **-75** | 581 | 194 | **-319** | **-499** | **-2,808** | **-2,944** | **-1,000** | 236 | **-213** | **-445** |
| 60% | **-1,257** | **-520** | 581 | **-7** | 517 | 369 | **-2,236** | **-2,721** | **-183** | 62 | **-81** | 180 |
| 70% | **-2,012** | **-982** | 657 | **-226** | 108 | 76 | **-2,230** | **-2,492** | 0 | **-12** | 24 | 394 |
| 80% | **-2,067** | **-811** | 2,516 | **-226** | **-193** | 0 | **-2,110** | **-2,564** | 0 | **-182** | 35 | 383 |
| 90% | **-2,090** | 580 | **-63** | **-226** | **-250** | 0 | **-2,102** | **-2,605** | 0 | 68 | **-114** | 461 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-427** | 192 | 468 | **-348** | **-598** | **-359** | **-2,706** | **-2,767** | **-658** | 232 | **-150** | 215 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-1,476** | **-1,096** | 314 | **-295** | 297 | 493 | **-4,053** | **-3,907** | 225 | 34 | 78 | 238 |
| Above Normal (16%) | **-1,495** | 643 | 1,450 | **-729** | **-96** | 256 | **-3,865** | **-3,550** | 28 | **-463** | 56 | 387 |
| Below Normal (13%) | 756 | 736 | 566 | **-652** | **-1,001** | **-555** | **-2,603** | **-2,802** | **-1,593** | **-226** | **-1,016** | **-71** |
| Dry (24%) | 338 | 1,034 | 155 | **-139** | **-1,271** | **-1,124** | **-1,482** | **-1,963** | **-1,487** | 1,067 | **-270** | 244 |
| Critical (15%) | 641 | 593 | 167 | **-120** | **-1,587** | **-1,412** | **-668** | **-755** | **-1,079** | 443 | 129 | 195 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 40-2. Old and Middle River Flow, Monthly Flow (combined flows)

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -3,899 | -4,158 | -3,846 | -2,823 | -1,197 | -1,150 | 3,171 | 2,828 | -1,150 | -3,145 | -2,644 | -4,097 |
| 20% | -4,145 | -4,633 | -4,581 | -2,823 | -1,905 | -1,582 | 2,206 | 1,315 | -1,882 | -6,033 | -3,489 | -5,563 |
| 30% | -4,567 | -5,444 | -5,379 | -3,355 | -2,768 | -3,140 | 1,603 | 614 | -3,500 | -6,887 | -4,143 | -6,221 |
| 40% | -4,884 | -5,890 | -5,871 | -4,348 | -3,500 | -3,500 | 1,268 | 242 | -3,500 | -7,781 | -7,881 | -7,025 |
| 50% | -5,162 | -6,288 | -5,871 | -4,710 | -4,145 | -4,017 | 612 | -34 | -3,500 | -8,770 | -9,726 | -8,539 |
| 60% | -5,506 | -6,592 | -5,871 | -4,993 | -5,000 | -4,885 | -223 | -490 | -4,317 | -9,176 | -10,281 | -9,573 |
| 70% | -5,969 | -7,139 | -7,069 | -5,000 | -5,000 | -5,000 | -599 | -766 | -5,000 | -9,674 | -10,684 | -9,932 |
| 80% | -6,627 | -8,064 | -9,343 | -5,000 | -5,000 | -5,000 | -1,024 | -1,055 | -5,000 | -10,180 | -10,772 | -10,027 |
| 90% | -7,018 | -9,851 | -9,681 | -5,000 | -5,000 | -5,000 | -1,389 | -1,422 | -5,000 | -11,025 | -10,967 | -10,211 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -5,404 | -6,485 | -6,168 | -3,632 | -3,102 | -2,938 | 910 | 309 | -3,542 | -7,887 | -7,667 | -7,776 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -5,759 | -6,524 | -6,777 | -2,059 | -2,135 | -1,800 | 3,139 | 2,058 | -4,304 | -8,723 | -10,544 | -9,575 |
| Above Normal (16%) | -5,990 | -7,820 | -7,734 | -3,716 | -3,859 | -4,141 | 1,193 | 434 | -4,479 | -8,805 | -10,805 | -10,094 |
| Below Normal (13%) | -6,354 | -6,704 | -6,038 | -4,380 | -3,662 | -4,055 | 181 | -305 | -3,407 | -10,088 | -8,919 | -7,920 |
| Dry (24%) | -4,923 | -6,843 | -5,283 | -4,640 | -3,644 | -3,640 | -744 | -936 | -3,260 | -7,836 | -4,189 | -6,133 |
| Critical (15%) | -3,933 | -4,157 | -4,748 | -4,579 | -2,962 | -1,903 | -802 | -980 | -1,472 | -3,145 | -2,680 | -3,975 |

### Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -3,474 | -4,199 | -4,092 | -2,706 | -808 | -580 | -3,177 | -3,272 | -2,393 | -3,394 | -2,557 | -4,786 |
| 20% | -3,721 | -5,049 | -6,211 | -5,088 | -3,118 | -1,937 | -3,646 | -3,791 | -3,341 | -4,894 | -3,292 | -5,775 |
| 30% | -4,412 | -6,527 | -7,256 | -6,109 | -4,170 | -3,590 | -4,031 | -4,378 | -4,697 | -6,155 | -4,971 | -6,553 |
| 40% | -5,359 | -6,904 | -7,761 | -7,251 | -5,735 | -4,418 | -5,124 | -4,893 | -5,797 | -7,219 | -6,335 | -7,884 |
| 50% | -6,630 | -7,853 | -8,349 | -8,204 | -6,683 | -5,085 | -5,973 | -5,954 | -6,436 | -8,699 | -8,498 | -8,969 |
| 60% | -8,436 | -9,237 | -8,854 | -8,797 | -8,202 | -5,671 | -6,490 | -6,419 | -6,745 | -9,528 | -10,010 | -9,579 |
| 70% | -9,070 | -9,791 | -9,343 | -9,118 | -8,855 | -6,413 | -7,182 | -7,080 | -7,179 | -10,062 | -10,350 | -9,828 |
| 80% | -10,042 | -9,996 | -9,539 | -9,639 | -9,106 | -7,510 | -7,647 | -7,421 | -7,509 | -10,571 | -10,722 | -10,117 |
| 90% | -10,271 | -10,150 | -9,720 | -9,793 | -9,656 | -8,930 | -7,963 | -8,143 | -8,166 | -10,970 | -10,986 | -10,212 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -6,818 | -7,631 | -7,470 | -6,593 | -5,415 | -4,193 | -5,584 | -5,703 | -5,674 | -7,782 | -7,404 | -8,014 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -9,356 | -9,140 | -7,343 | -4,899 | -2,754 | -1,592 | -6,867 | -7,428 | -5,632 | -8,609 | -10,145 | -9,585 |
| Above Normal (16%) | -8,987 | -7,882 | -8,527 | -8,519 | -6,705 | -5,926 | -7,048 | -6,629 | -7,201 | -10,147 | -10,485 | -10,081 |
| Below Normal (13%) | -6,423 | -7,549 | -7,542 | -8,043 | -6,045 | -5,635 | -5,497 | -5,396 | -7,640 | -10,360 | -8,272 | -8,437 |
| Dry (24%) | -4,372 | -7,501 | -7,368 | -7,030 | -7,444 | -6,044 | -4,638 | -4,677 | -5,494 | -6,284 | -4,109 | -6,603 |
| Critical (15%) | -3,409 | -4,379 | -6,700 | -6,118 | -5,824 | -3,542 | -2,871 | -2,953 | -2,611 | -3,557 | -2,823 | -4,336 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 425 | **-41** | **-246** | 116 | 389 | 571 | **-6,349** | **-6,101** | **-1,242** | **-249** | 88 | **-689** |
| 20% | 424 | **-416** | **-1,630** | **-2,265** | **-1,213** | **-354** | **-5,852** | **-5,106** | **-1,458** | 1,139 | 197 | **-212** |
| 30% | 155 | **-1,083** | **-1,877** | **-2,754** | **-1,402** | **-450** | **-5,634** | **-4,992** | **-1,197** | 731 | **-829** | **-332** |
| 40% | **-475** | **-1,014** | **-1,890** | **-2,903** | **-2,235** | **-918** | **-6,393** | **-5,135** | **-2,297** | 562 | 1,545 | **-858** |
| 50% | **-1,468** | **-1,565** | **-2,478** | **-3,495** | **-2,538** | **-1,069** | **-6,585** | **-5,919** | **-2,936** | 70 | 1,228 | **-430** |
| 60% | **-2,930** | **-2,645** | **-2,983** | **-3,803** | **-3,202** | **-786** | **-6,267** | **-5,928** | **-2,428** | **-351** | 271 | **-6** |
| 70% | **-3,101** | **-2,652** | **-2,274** | **-4,118** | **-3,855** | **-1,413** | **-6,583** | **-6,315** | **-2,179** | **-388** | 334 | 104 |
| 80% | **-3,415** | **-1,932** | **-196** | **-4,639** | **-4,106** | **-2,510** | **-6,623** | **-6,366** | **-2,509** | **-391** | 50 | **-90** |
| 90% | **-3,254** | **-299** | **-39** | **-4,793** | **-4,656** | **-3,930** | **-6,574** | **-6,721** | **-3,166** | 56 | **-19** | **-1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-1,414** | **-1,146** | **-1,301** | **-2,961** | **-2,313** | **-1,255** | **-6,493** | **-6,011** | **-2,132** | 105 | 263 | **-238** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-3,597** | **-2,616** | **-566** | **-2,839** | **-619** | 208 | **-10,006** | **-9,486** | **-1,329** | 114 | 400 | **-9** |
| Above Normal (16%) | **-2,997** | **-62** | **-793** | **-4,803** | **-2,847** | **-1,784** | **-8,242** | **-7,063** | **-2,723** | **-1,343** | 320 | 13 |
| Below Normal (13%) | **-69** | **-845** | **-1,504** | **-3,664** | **-2,384** | **-1,579** | **-5,678** | **-5,091** | **-4,233** | **-272** | 647 | **-517** |
| Dry (24%) | 550 | **-658** | **-2,085** | **-2,389** | **-3,800** | **-2,404** | **-3,893** | **-3,741** | **-2,234** | 1,552 | 80 | **-470** |
| Critical (15%) | 524 | **-222** | **-1,952** | **-1,540** | **-2,862** | **-1,638** | **-2,069** | **-1,972** | **-1,138** | **-412** | **-143** | **-361** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 40-3. Old and Middle River Flow, Monthly Flow (combined flows)

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -3,899 | -4,158 | -3,846 | -2,823 | -1,197 | -1,150 | 3,171 | 2,828 | -1,150 | -3,145 | -2,644 | -4,097 |
| 20% | -4,145 | -4,633 | -4,581 | -2,823 | -1,905 | -1,582 | 2,206 | 1,315 | -1,882 | -6,033 | -3,489 | -5,563 |
| 30% | -4,567 | -5,444 | -5,379 | -3,355 | -2,768 | -3,140 | 1,603 | 614 | -3,500 | -6,887 | -4,143 | -6,221 |
| 40% | -4,884 | -5,890 | -5,871 | -4,348 | -3,500 | -3,500 | 1,268 | 242 | -3,500 | -7,781 | -7,881 | -7,025 |
| 50% | -5,162 | -6,288 | -5,871 | -4,710 | -4,145 | -4,017 | 612 | -34 | -3,500 | -8,770 | -9,726 | -8,539 |
| 60% | -5,506 | -6,592 | -5,871 | -4,993 | -5,000 | -4,885 | -223 | -490 | -4,317 | -9,176 | -10,281 | -9,573 |
| 70% | -5,969 | -7,139 | -7,069 | -5,000 | -5,000 | -5,000 | -599 | -766 | -5,000 | -9,674 | -10,684 | -9,932 |
| 80% | -6,627 | -8,064 | -9,343 | -5,000 | -5,000 | -5,000 | -1,024 | -1,055 | -5,000 | -10,180 | -10,772 | -10,027 |
| 90% | -7,018 | -9,851 | -9,681 | -5,000 | -5,000 | -5,000 | -1,389 | -1,422 | -5,000 | -11,025 | -10,967 | -10,211 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -5,404 | -6,485 | -6,168 | -3,632 | -3,102 | -2,938 | 910 | 309 | -3,542 | -7,887 | -7,667 | -7,776 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -5,759 | -6,524 | -6,777 | -2,059 | -2,135 | -1,800 | 3,139 | 2,058 | -4,304 | -8,723 | -10,544 | -9,575 |
| Above Normal (16%) | -5,990 | -7,820 | -7,734 | -3,716 | -3,859 | -4,141 | 1,193 | 434 | -4,479 | -8,805 | -10,805 | -10,094 |
| Below Normal (13%) | -6,354 | -6,704 | -6,038 | -4,380 | -3,662 | -4,055 | 181 | -305 | -3,407 | -10,088 | -8,919 | -7,920 |
| Dry (24%) | -4,923 | -6,843 | -5,283 | -4,640 | -3,644 | -3,640 | -744 | -936 | -3,260 | -7,836 | -4,189 | -6,133 |
| Critical (15%) | -3,933 | -4,157 | -4,748 | -4,579 | -2,962 | -1,903 | -802 | -980 | -1,472 | -3,145 | -2,680 | -3,975 |

### Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -3,289 | -3,960 | -4,080 | -3,903 | 68 | -164 | -3,039 | -3,277 | -2,277 | -3,271 | -2,388 | -4,812 |
| 20% | -3,709 | -5,218 | -5,740 | -4,826 | -3,126 | -3,029 | -3,716 | -4,214 | -3,591 | -4,514 | -3,291 | -5,740 |
| 30% | -4,316 | -6,487 | -7,404 | -5,934 | -4,273 | -3,495 | -4,078 | -4,471 | -4,900 | -5,657 | -4,492 | -6,546 |
| 40% | -5,034 | -7,326 | -8,373 | -7,281 | -5,638 | -4,308 | -4,881 | -5,024 | -5,740 | -7,434 | -6,120 | -7,887 |
| 50% | -6,720 | -7,916 | -8,767 | -8,401 | -6,553 | -5,039 | -5,726 | -5,934 | -6,179 | -8,251 | -8,438 | -8,461 |
| 60% | -8,183 | -9,022 | -9,339 | -8,962 | -7,884 | -5,556 | -6,292 | -6,414 | -6,579 | -9,440 | -9,587 | -9,490 |
| 70% | -9,295 | -9,975 | -9,492 | -9,288 | -8,825 | -6,315 | -7,001 | -6,990 | -6,919 | -10,031 | -10,308 | -9,684 |
| 80% | -9,957 | -10,110 | -9,629 | -9,696 | -9,030 | -7,351 | -7,533 | -7,421 | -7,419 | -10,558 | -10,703 | -10,070 |
| 90% | -10,306 | -10,209 | -9,749 | -9,848 | -9,606 | -8,653 | -7,909 | -8,126 | -7,834 | -11,079 | -10,995 | -10,166 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -6,720 | -7,663 | -7,665 | -6,543 | -5,412 | -4,126 | -5,481 | -5,724 | -5,583 | -7,679 | -7,269 | -7,944 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -9,456 | -9,272 | -7,648 | -4,539 | -2,935 | -1,613 | -6,492 | -7,374 | -5,639 | -8,822 | -9,747 | -9,455 |
| Above Normal (16%) | -8,874 | -8,265 | -8,665 | -8,772 | -6,706 | -5,680 | -7,043 | -6,654 | -6,892 | -9,767 | -10,590 | -9,903 |
| Below Normal (13%) | -6,409 | -7,486 | -7,662 | -8,172 | -5,563 | -5,670 | -5,547 | -5,471 | -7,454 | -10,269 | -8,243 | -8,338 |
| Dry (24%) | -4,113 | -7,419 | -7,486 | -7,120 | -7,413 | -5,869 | -4,662 | -4,782 | -5,522 | -6,057 | -4,083 | -6,639 |
| Critical (15%) | -3,092 | -4,095 | -6,922 | -6,016 | -5,903 | -3,565 | -2,904 | -2,946 | -2,432 | -3,269 | -2,723 | -4,363 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 610 | 198 | **-234** | **-1,081** | 1,265 | 987 | **-6,210** | **-6,106** | **-1,126** | **-125** | 256 | **-715** |
| 20% | 437 | **-585** | **-1,159** | **-2,003** | **-1,222** | **-1,447** | **-5,922** | **-5,529** | **-1,709** | 1,519 | 198 | **-177** |
| 30% | 251 | **-1,043** | **-2,025** | **-2,579** | **-1,505** | **-355** | **-5,681** | **-5,085** | **-1,400** | 1,229 | **-349** | **-324** |
| 40% | **-150** | **-1,436** | **-2,502** | **-2,933** | **-2,138** | **-808** | **-6,149** | **-5,266** | **-2,240** | 347 | 1,761 | **-861** |
| 50% | **-1,558** | **-1,628** | **-2,896** | **-3,691** | **-2,407** | **-1,022** | **-6,338** | **-5,900** | **-2,679** | 519 | 1,288 | 79 |
| 60% | **-2,677** | **-2,430** | **-3,468** | **-3,968** | **-2,884** | **-670** | **-6,069** | **-5,923** | **-2,262** | **-264** | 695 | 82 |
| 70% | **-3,326** | **-2,836** | **-2,423** | **-4,288** | **-3,825** | **-1,315** | **-6,402** | **-6,224** | **-1,919** | **-357** | 376 | 248 |
| 80% | **-3,330** | **-2,046** | **-286** | **-4,696** | **-4,030** | **-2,351** | **-6,509** | **-6,366** | **-2,419** | **-378** | 69 | **-42** |
| 90% | **-3,288** | **-358** | **-68** | **-4,848** | **-4,606** | **-3,653** | **-6,520** | **-6,705** | **-2,834** | **-53** | **-28** | 45 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-1,316** | **-1,179** | **-1,497** | **-2,911** | **-2,310** | **-1,188** | **-6,391** | **-6,033** | **-2,041** | 207 | 397 | **-168** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-3,697** | **-2,748** | **-871** | **-2,479** | **-800** | 188 | **-9,630** | **-9,432** | **-1,335** | **-99** | 798 | 121 |
| Above Normal (16%) | **-2,884** | **-446** | **-931** | **-5,056** | **-2,847** | **-1,539** | **-8,236** | **-7,088** | **-2,413** | **-963** | 215 | 190 |
| Below Normal (13%) | **-55** | **-783** | **-1,624** | **-3,792** | **-1,902** | **-1,614** | **-5,728** | **-5,166** | **-4,047** | **-181** | 676 | **-418** |
| Dry (24%) | 810 | **-576** | **-2,203** | **-2,479** | **-3,769** | **-2,229** | **-3,918** | **-3,846** | **-2,261** | 1,779 | 105 | **-506** |
| Critical (15%) | 841 | 62 | **-2,173** | **-1,437** | **-2,941** | **-1,661** | **-2,102** | **-1,965** | **-959** | **-124** | **-43** | **-387** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 40-4. Old and Middle River Flow, Monthly Flow (combined flows)

### No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -3,899 | -4,158 | -3,846 | -2,823 | -1,197 | -1,150 | 3,171 | 2,828 | -1,150 | -3,145 | -2,644 | -4,097 |
| 20% | -4,145 | -4,633 | -4,581 | -2,823 | -1,905 | -1,582 | 2,206 | 1,315 | -1,882 | -6,033 | -3,489 | -5,563 |
| 30% | -4,567 | -5,444 | -5,379 | -3,355 | -2,768 | -3,140 | 1,603 | 614 | -3,500 | -6,887 | -4,143 | -6,221 |
| 40% | -4,884 | -5,890 | -5,871 | -4,348 | -3,500 | -3,500 | 1,268 | 242 | -3,500 | -7,781 | -7,881 | -7,025 |
| 50% | -5,162 | -6,288 | -5,871 | -4,710 | -4,145 | -4,017 | 612 | -34 | -3,500 | -8,770 | -9,726 | -8,539 |
| 60% | -5,506 | -6,592 | -5,871 | -4,993 | -5,000 | -4,885 | -223 | -490 | -4,317 | -9,176 | -10,281 | -9,573 |
| 70% | -5,969 | -7,139 | -7,069 | -5,000 | -5,000 | -5,000 | -599 | -766 | -5,000 | -9,674 | -10,684 | -9,932 |
| 80% | -6,627 | -8,064 | -9,343 | -5,000 | -5,000 | -5,000 | -1,024 | -1,055 | -5,000 | -10,180 | -10,772 | -10,027 |
| 90% | -7,018 | -9,851 | -9,681 | -5,000 | -5,000 | -5,000 | -1,389 | -1,422 | -5,000 | -11,025 | -10,967 | -10,211 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -5,404 | -6,485 | -6,168 | -3,632 | -3,102 | -2,938 | 910 | 309 | -3,542 | -7,887 | -7,667 | -7,776 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -5,759 | -6,524 | -6,777 | -2,059 | -2,135 | -1,800 | 3,139 | 2,058 | -4,304 | -8,723 | -10,544 | -9,575 |
| Above Normal (16%) | -5,990 | -7,820 | -7,734 | -3,716 | -3,859 | -4,141 | 1,193 | 434 | -4,479 | -8,805 | -10,805 | -10,094 |
| Below Normal (13%) | -6,354 | -6,704 | -6,038 | -4,380 | -3,662 | -4,055 | 181 | -305 | -3,407 | -10,088 | -8,919 | -7,920 |
| Dry (24%) | -4,923 | -6,843 | -5,283 | -4,640 | -3,644 | -3,640 | -744 | -936 | -3,260 | -7,836 | -4,189 | -6,133 |
| Critical (15%) | -3,933 | -4,157 | -4,748 | -4,579 | -2,962 | -1,903 | -802 | -980 | -1,472 | -3,145 | -2,680 | -3,975 |

### Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -3,171 | -3,477 | -3,888 | -3,473 | -2,461 | 0 | 727 | 132 | -1,946 | -2,192 | -2,329 | -3,540 |
| 20% | -3,780 | -3,917 | -4,450 | -4,516 | -4,464 | 0 | 0 | 0 | -3,813 | -4,322 | -2,989 | -5,040 |
| 30% | -4,053 | -4,571 | -5,074 | -4,516 | -4,464 | 0 | 0 | 0 | -4,474 | -5,712 | -3,563 | -5,560 |
| 40% | -4,441 | -5,091 | -5,290 | -4,516 | -4,464 | 0 | 0 | 0 | -4,500 | -6,988 | -4,563 | -6,162 |
| 50% | -5,394 | -5,914 | -5,290 | -4,516 | -4,464 | 0 | 0 | 0 | -4,500 | -7,942 | -7,658 | -7,097 |
| 60% | -6,510 | -6,553 | -5,316 | -5,000 | -4,483 | 0 | 0 | -122 | -4,500 | -8,424 | -9,620 | -9,021 |
| 70% | -7,743 | -7,534 | -5,977 | -5,226 | -5,000 | -161 | -153 | -595 | -4,544 | -8,976 | -10,101 | -9,419 |
| 80% | -8,383 | -8,074 | -6,698 | -5,226 | -5,044 | -339 | -532 | -791 | -5,000 | -9,330 | -10,368 | -9,601 |
| 90% | -9,036 | -9,149 | -9,498 | -5,226 | -5,250 | -582 | -809 | -1,010 | -5,000 | -10,294 | -10,685 | -9,704 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -5,806 | -6,027 | -5,570 | -4,013 | -3,590 | 539 | 315 | 10 | -4,100 | -6,998 | -6,812 | -7,117 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -7,456 | -7,160 | -5,930 | -2,373 | -1,738 | 2,041 | 1,557 | 1,012 | -4,018 | -8,283 | -9,958 | -9,183 |
| Above Normal (16%) | -7,345 | -6,958 | -6,211 | -4,511 | -3,487 | 274 | 55 | -8 | -4,429 | -8,267 | -10,153 | -9,491 |
| Below Normal (13%) | -5,242 | -5,468 | -5,868 | -5,032 | -4,636 | -94 | -107 | -358 | -4,960 | -9,104 | -5,930 | -6,327 |
| Dry (24%) | -4,479 | -5,763 | -5,144 | -4,815 | -4,936 | -237 | -258 | -569 | -4,537 | -6,280 | -3,783 | -5,461 |
| Critical (15%) | -3,289 | -3,515 | -4,533 | -4,758 | -4,513 | -552 | -751 | -843 | -2,403 | -2,105 | -2,234 | -3,551 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 728 | 681 | **-42** | **-651** | **-1,264** | 1,150 | **-2,444** | **-2,697** | **-796** | 953 | 316 | 556 |
| 20% | 365 | 716 | 131 | **-1,694** | **-2,560** | 1,582 | **-2,206** | **-1,315** | **-1,930** | 1,710 | 500 | 524 |
| 30% | 515 | 873 | 305 | **-1,161** | **-1,696** | 3,140 | **-1,603** | **-614** | **-974** | 1,175 | 580 | 661 |
| 40% | 443 | 798 | 581 | **-168** | **-964** | 3,500 | **-1,268** | **-242** | **-1,000** | 793 | 3,318 | 863 |
| 50% | **-232** | 374 | 581 | 194 | **-319** | 4,017 | **-612** | 34 | **-1,000** | 828 | 2,068 | 1,442 |
| 60% | **-1,004** | 38 | 555 | **-7** | 517 | 4,885 | 223 | 368 | **-183** | 752 | 661 | 552 |
| 70% | **-1,774** | **-395** | 1,092 | **-226** | 0 | 4,839 | 447 | 171 | 456 | 698 | 584 | 513 |
| 80% | **-1,755** | **-10** | 2,645 | **-226** | **-44** | 4,661 | 491 | 264 | 0 | 850 | 404 | 426 |
| 90% | **-2,018** | 702 | 183 | **-226** | **-250** | 4,418 | 579 | 412 | 0 | 732 | 282 | 507 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-402** | 458 | 598 | **-382** | **-488** | 3,477 | **-594** | **-299** | **-557** | 889 | 854 | 660 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-1,698** | **-636** | 847 | **-313** | 397 | 3,841 | **-1,581** | **-1,046** | 286 | 440 | 586 | 392 |
| Above Normal (16%) | **-1,355** | 861 | 1,523 | **-795** | 372 | 4,415 | **-1,138** | **-442** | 50 | 538 | 652 | 602 |
| Below Normal (13%) | 1,112 | 1,236 | 170 | **-652** | **-975** | 3,962 | **-288** | **-53** | **-1,553** | 985 | 2,989 | 1,593 |
| Dry (24%) | 444 | 1,080 | 140 | **-174** | **-1,292** | 3,403 | 486 | 367 | **-1,277** | 1,556 | 405 | 672 |
| Critical (15%) | 643 | 641 | 215 | **-179** | **-1,551** | 1,352 | 51 | 137 | **-931** | 1,041 | 446 | 425 |

a Based on the 82-year simulation period.

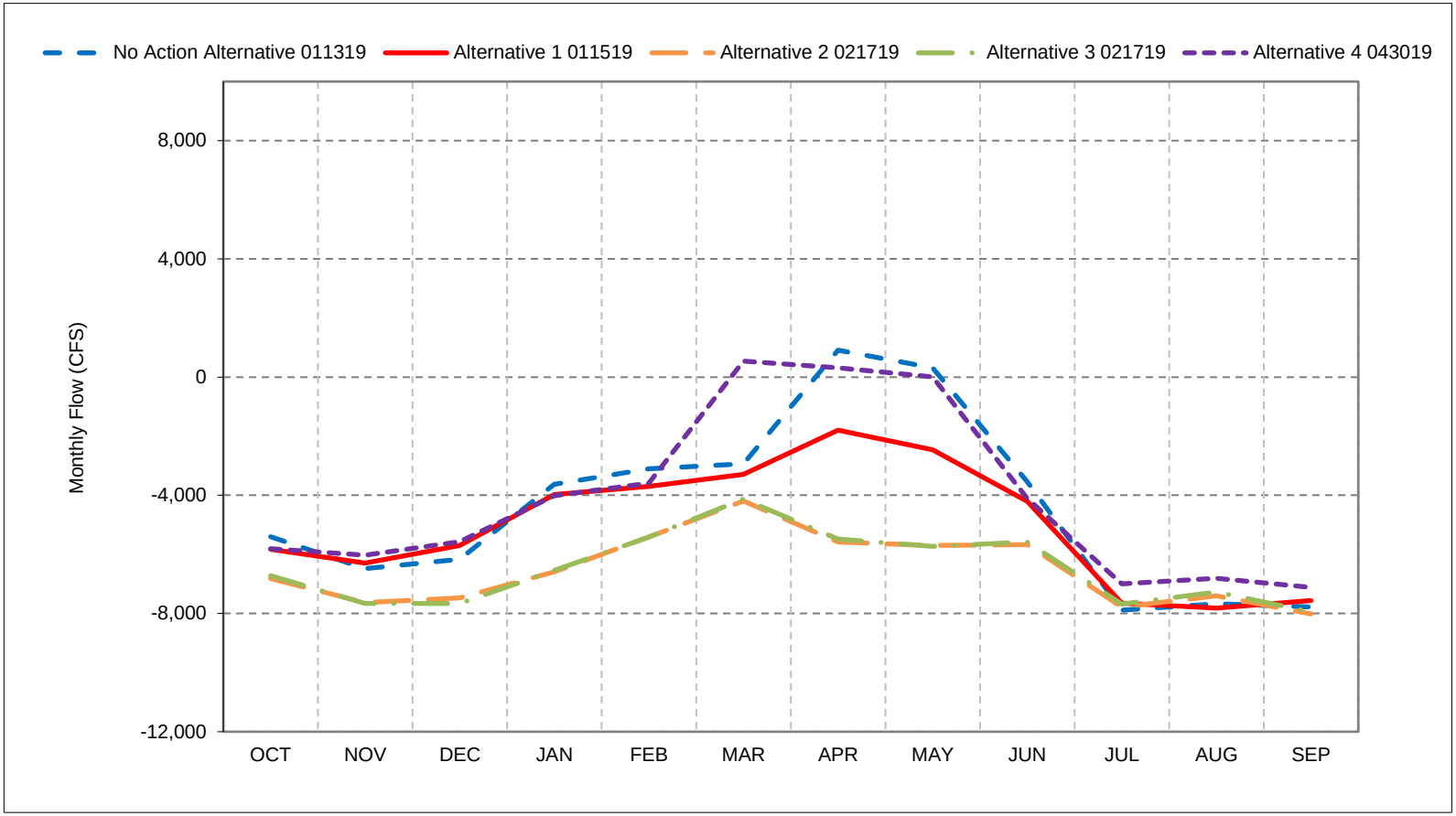
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

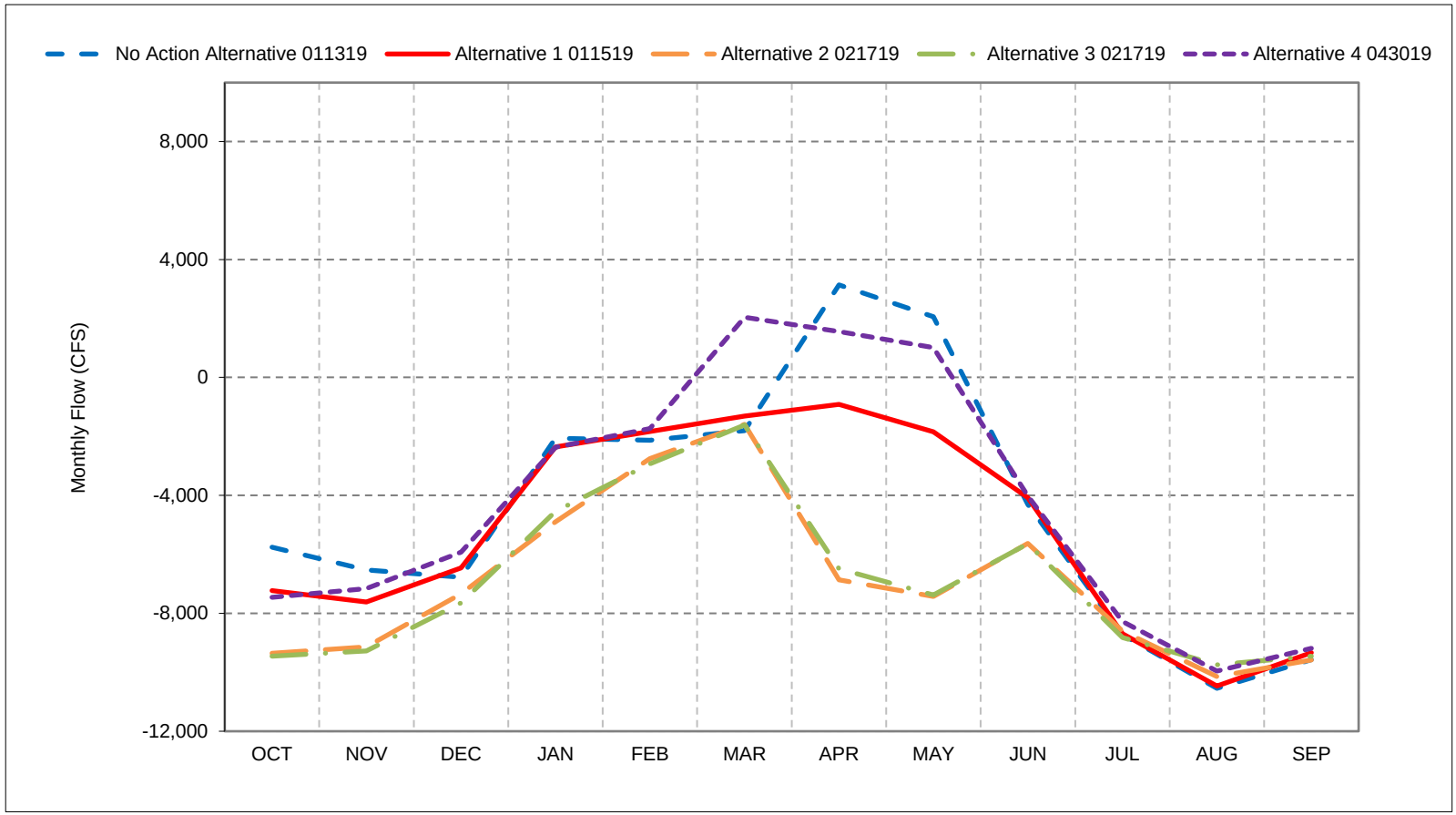
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 40-1. Old and Middle River Flow, Long-Term Average Flow



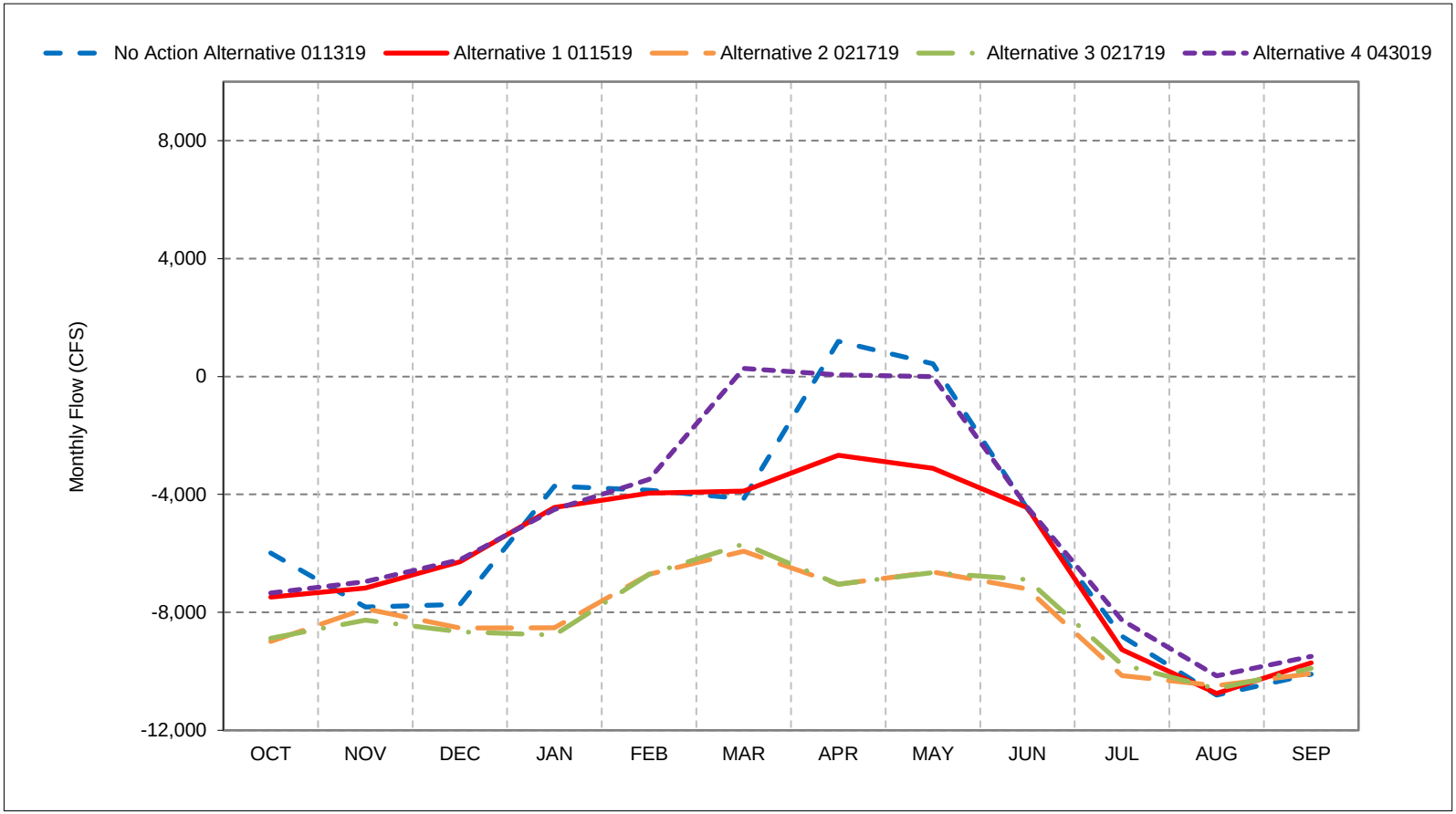

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 40-2. Old and Middle River Flow, Wet Year Average Flow



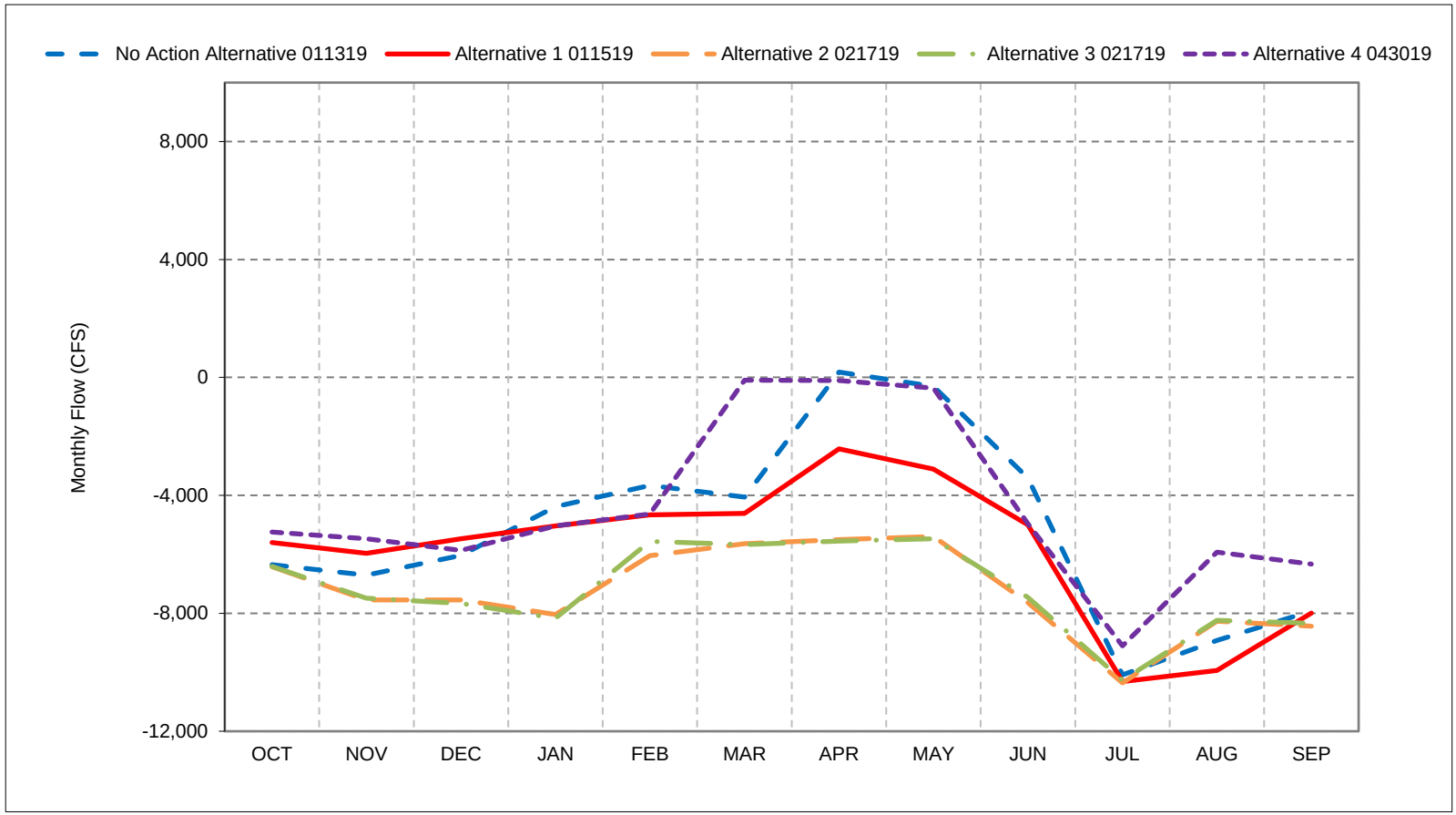

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 40-3. Old and Middle River Flow, Above Normal Year Average Flow



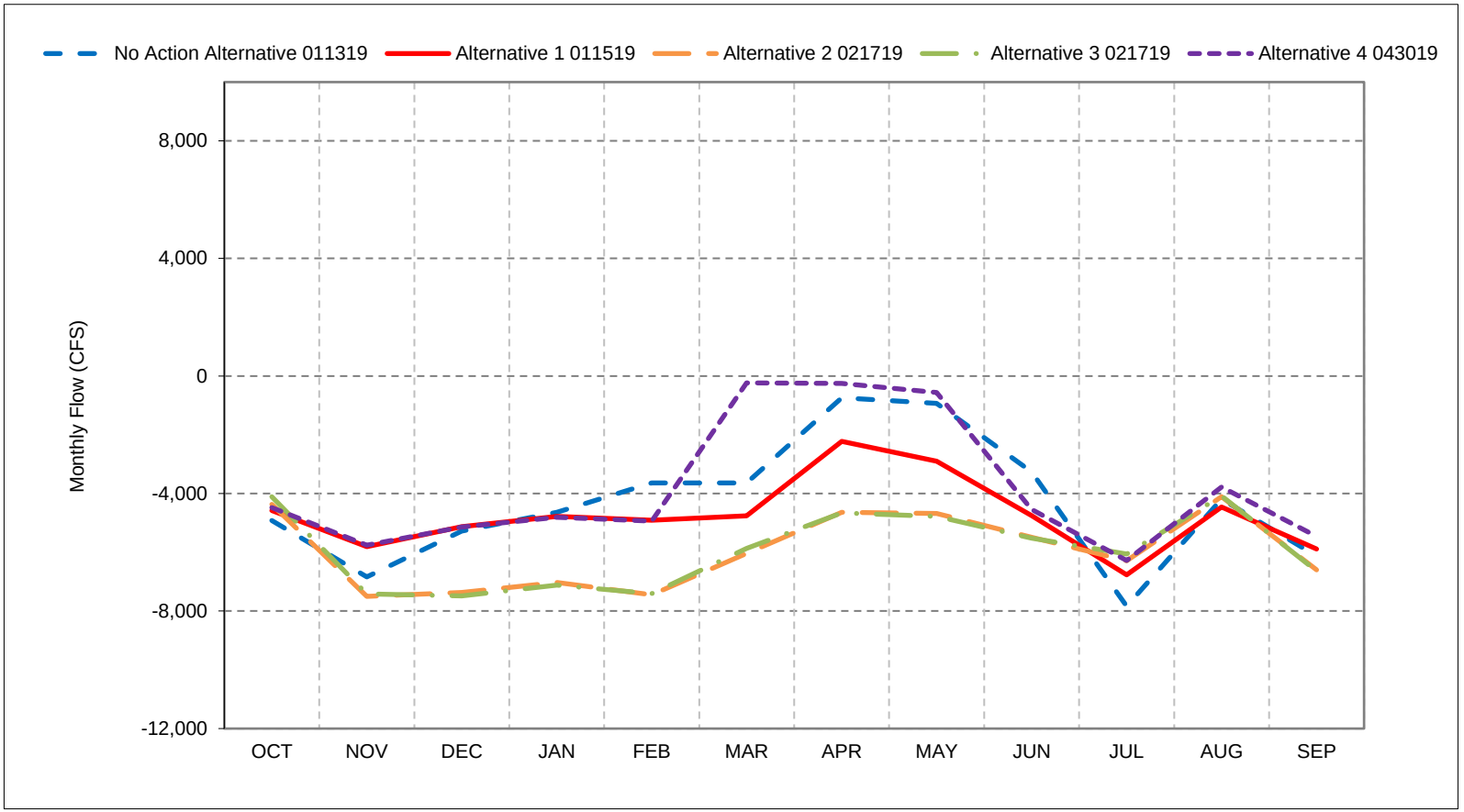

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 40-4. Old and Middle River Flow, Below Normal Year Average Flow



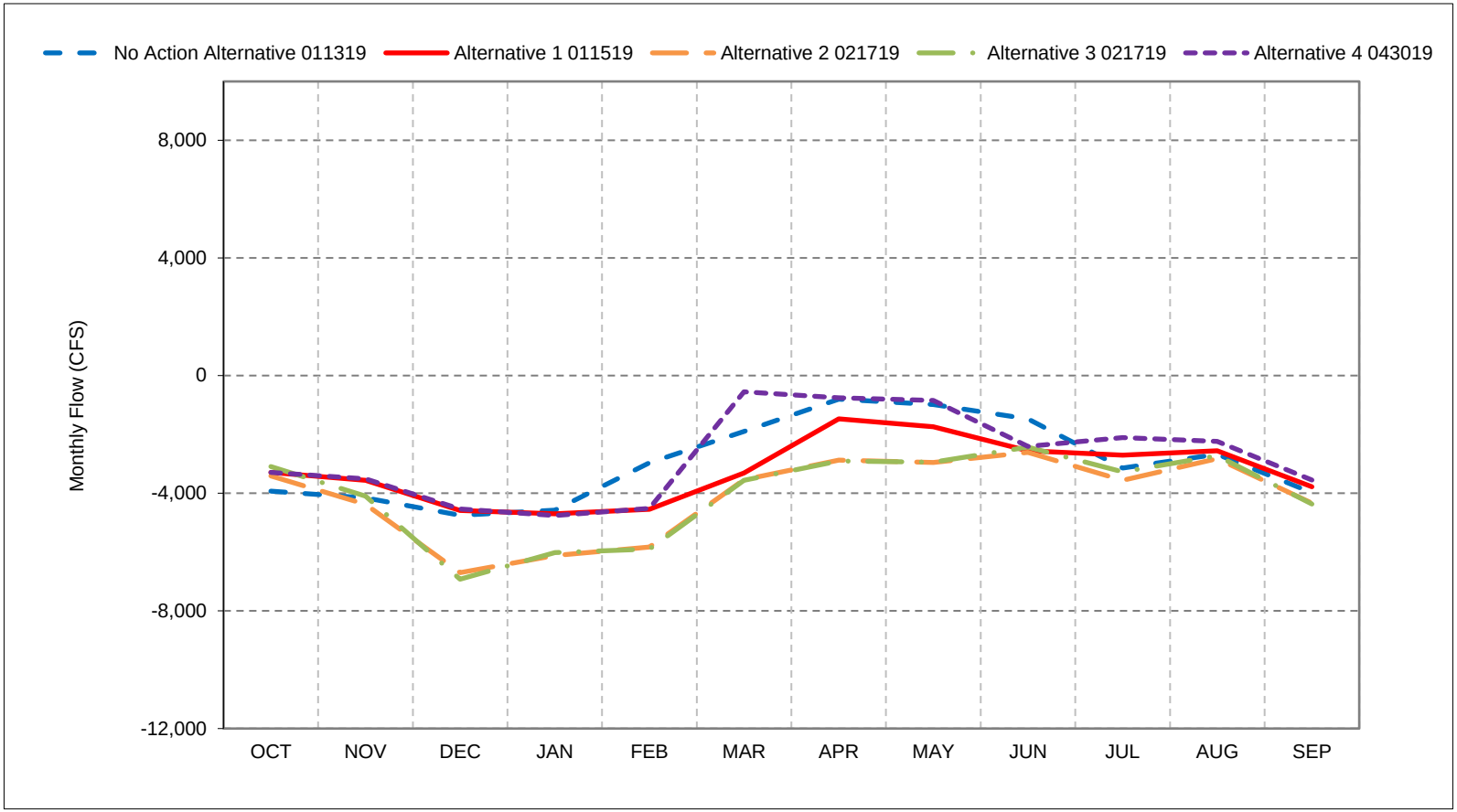

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 40-5. Old and Middle River Flow, Dry Year Average Flow



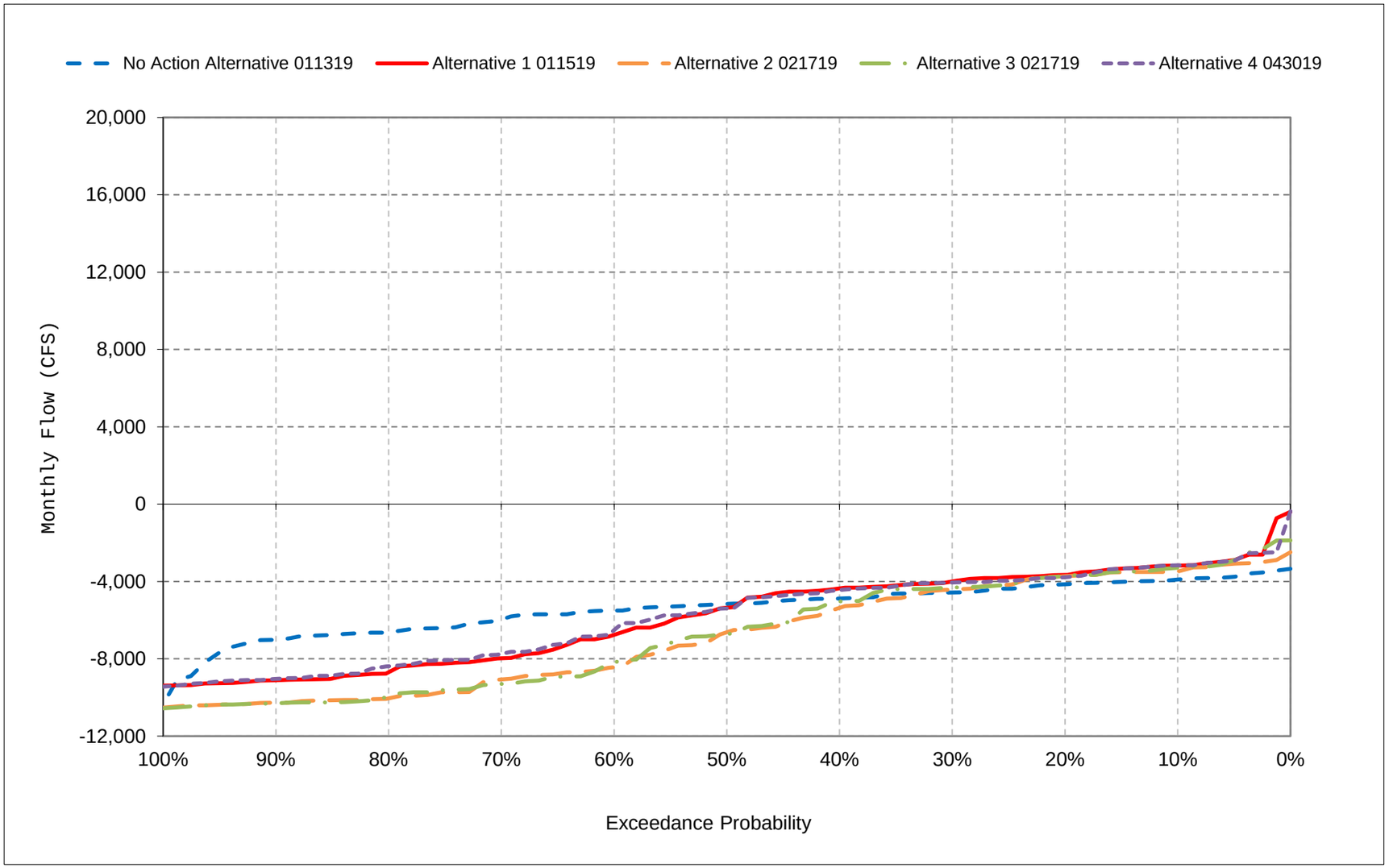

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 40-6. Old and Middle River Flow, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

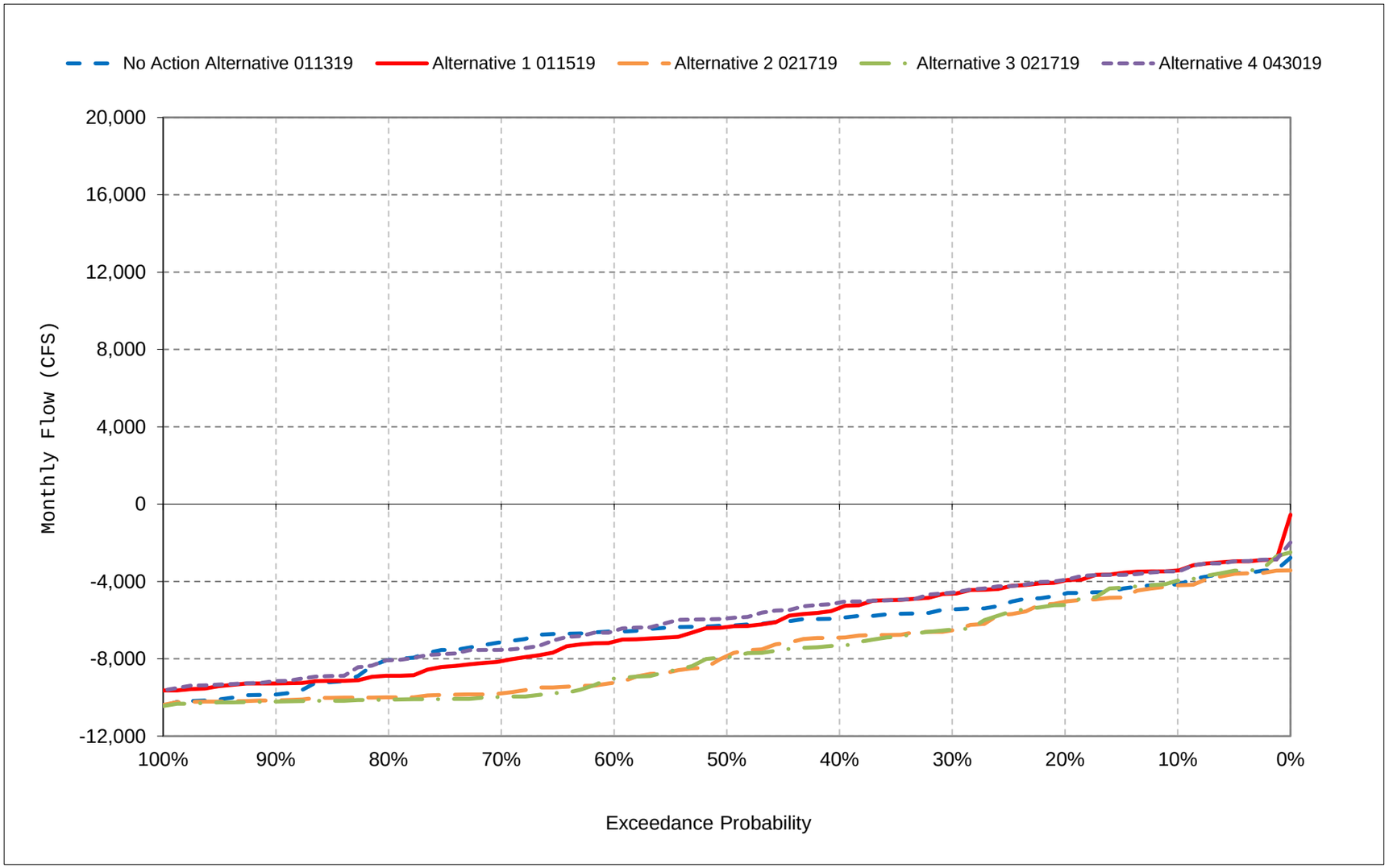
**Figure 40-7. Old and Middle River Flow, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

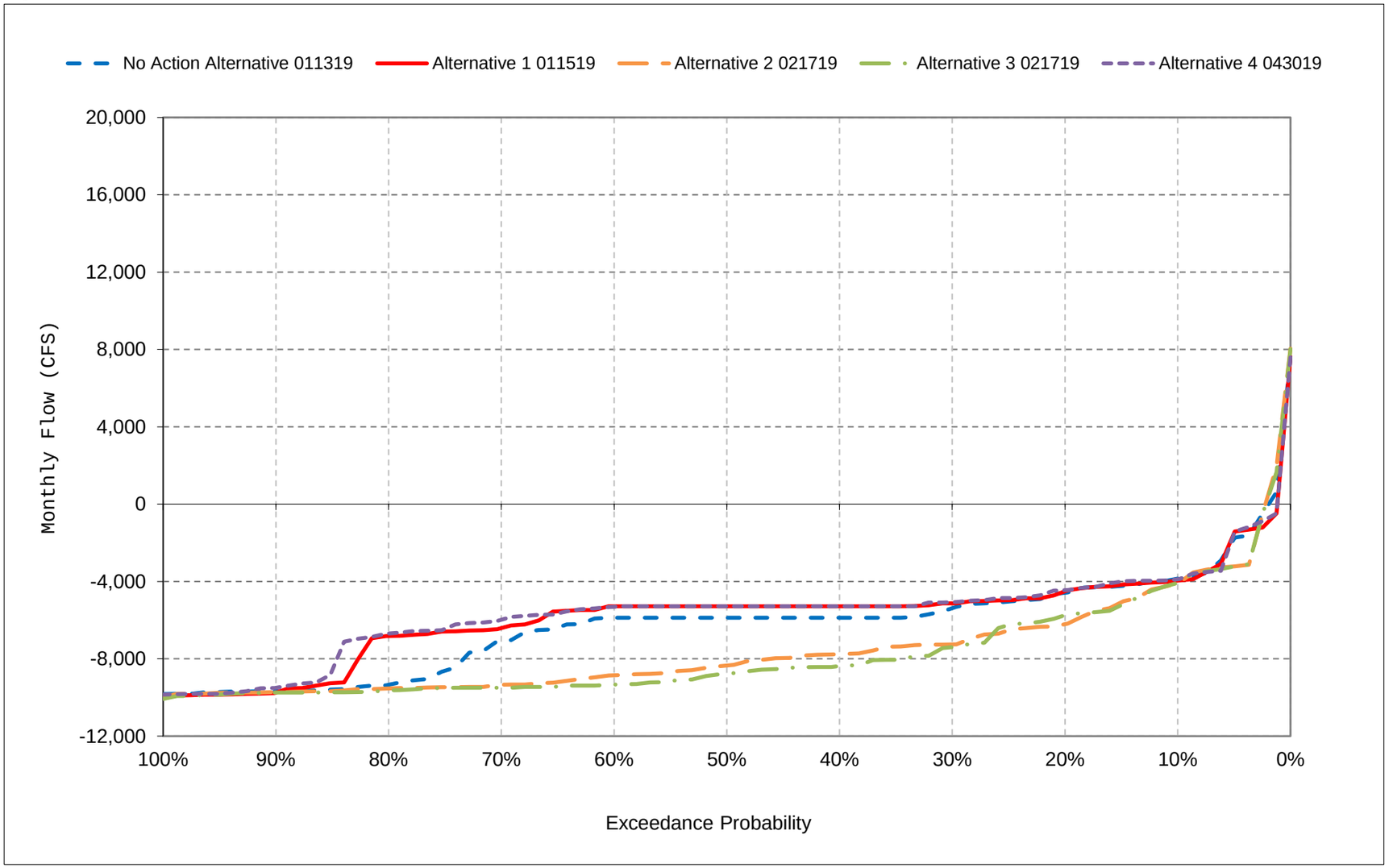
**Figure 40-8. Old and Middle River Flow, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

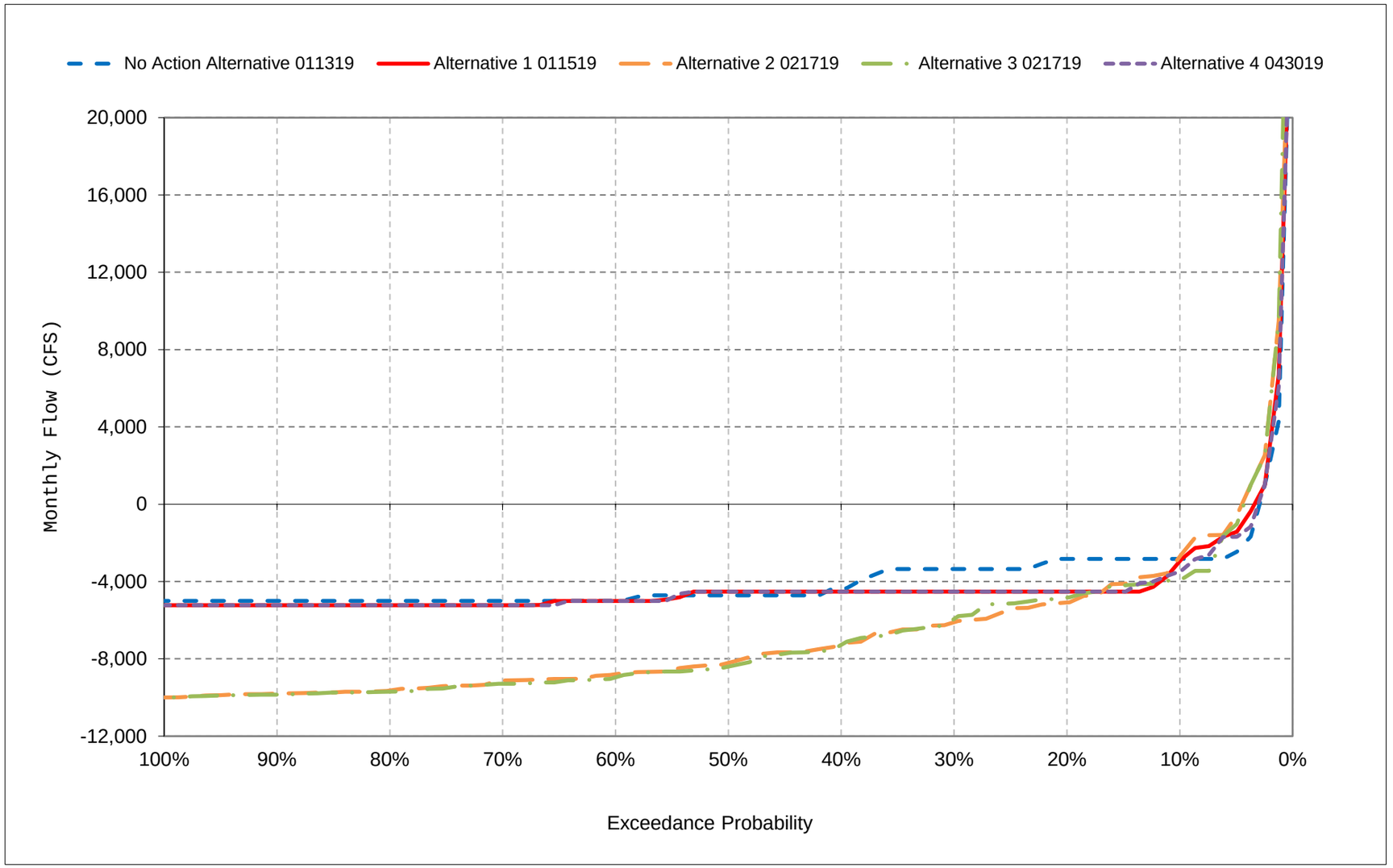
**Figure 40-9. Old and Middle River Flow, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

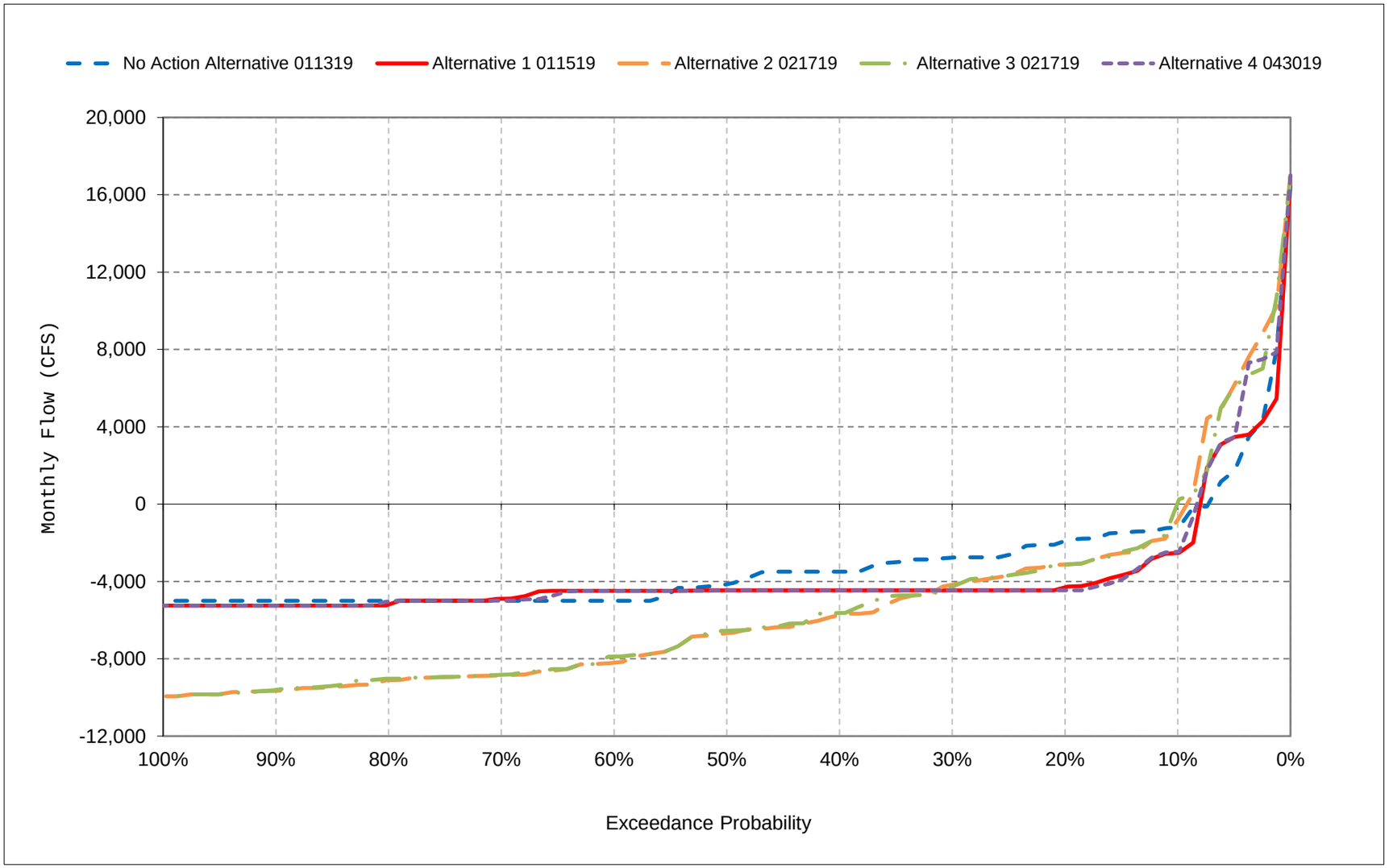
**Figure 40-10. Old and Middle River Flow, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

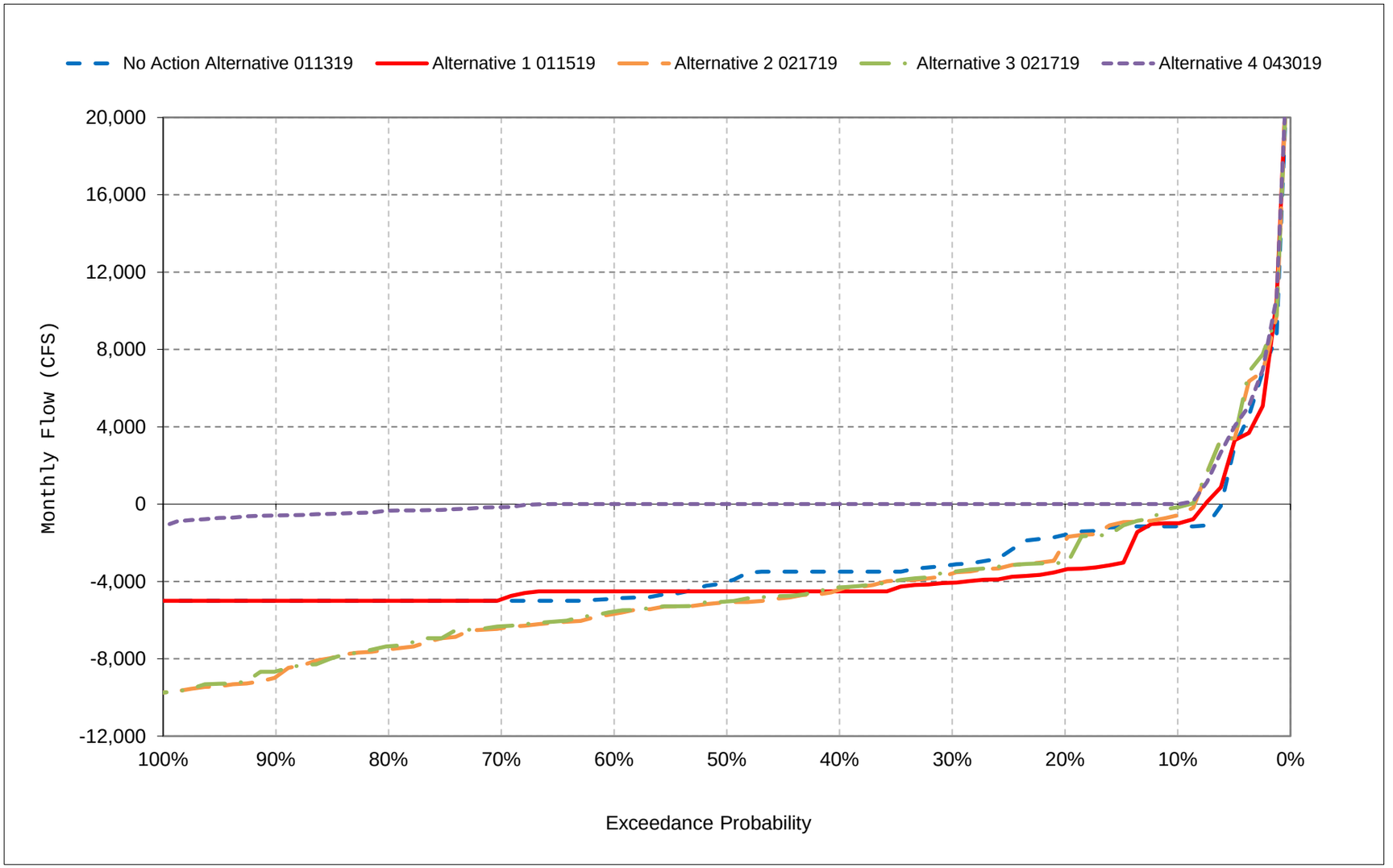
**Figure 40-11. Old and Middle River Flow, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

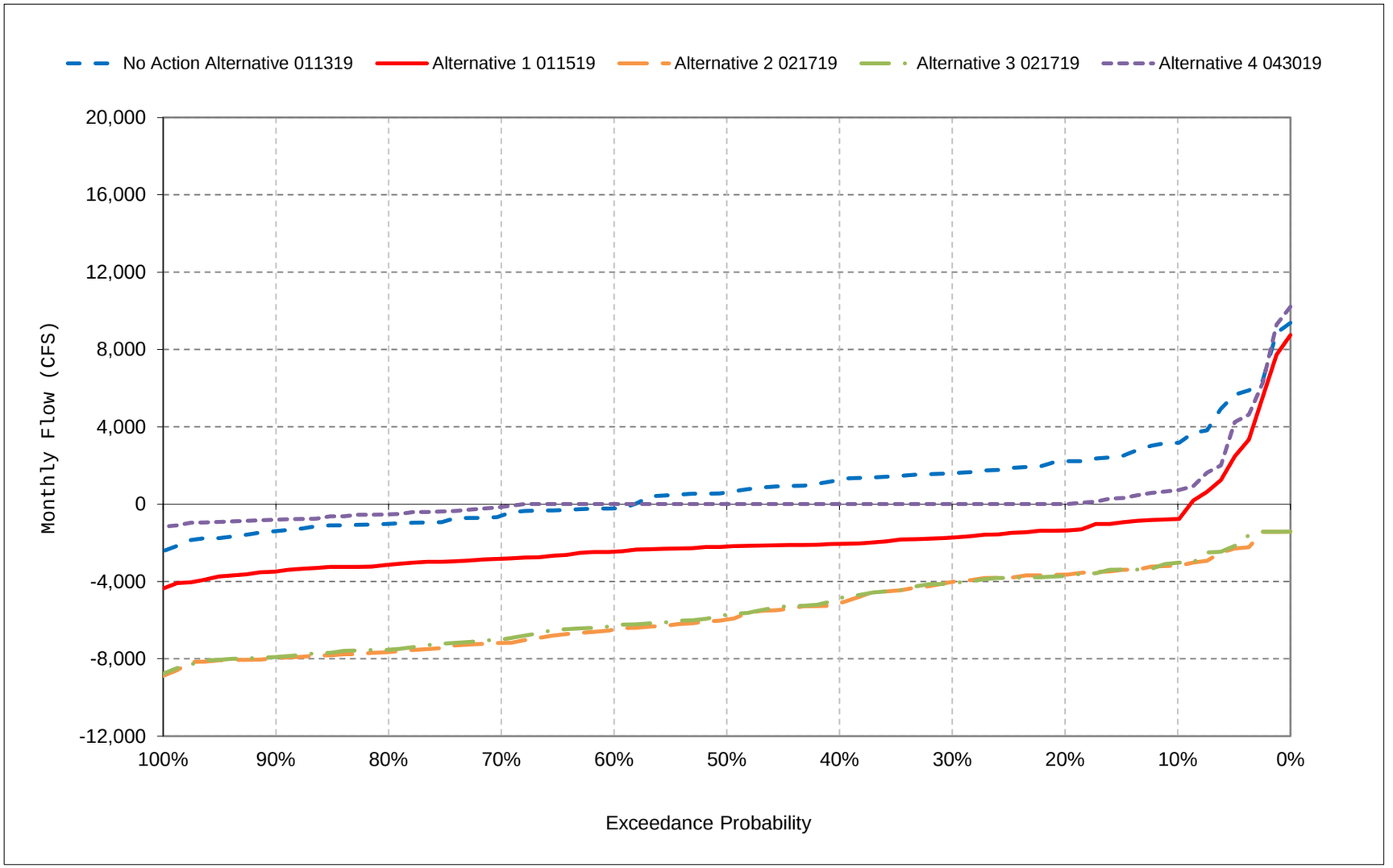
**Figure 40-12. Old and Middle River Flow, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

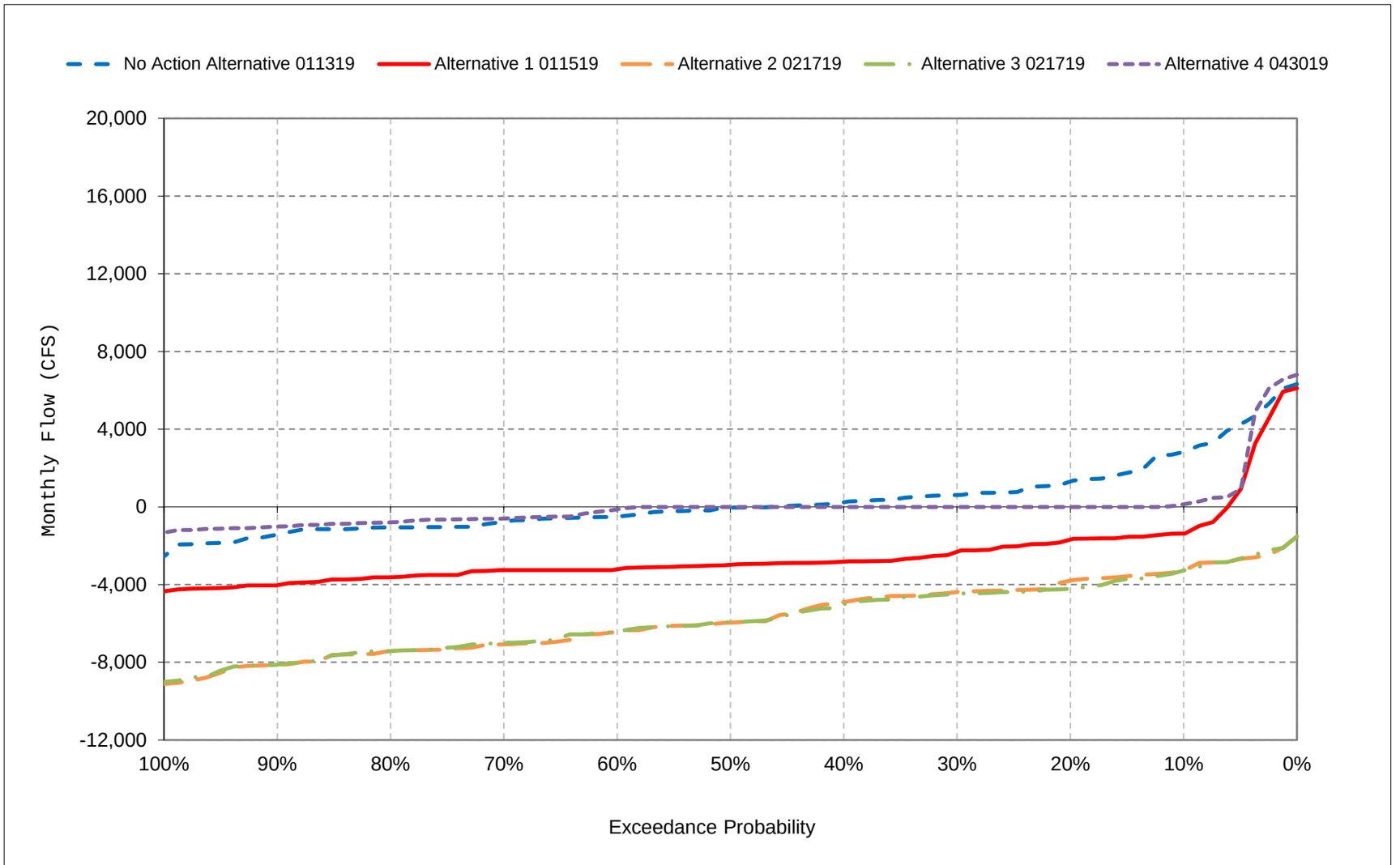
**Figure 40-13. Old and Middle River Flow, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

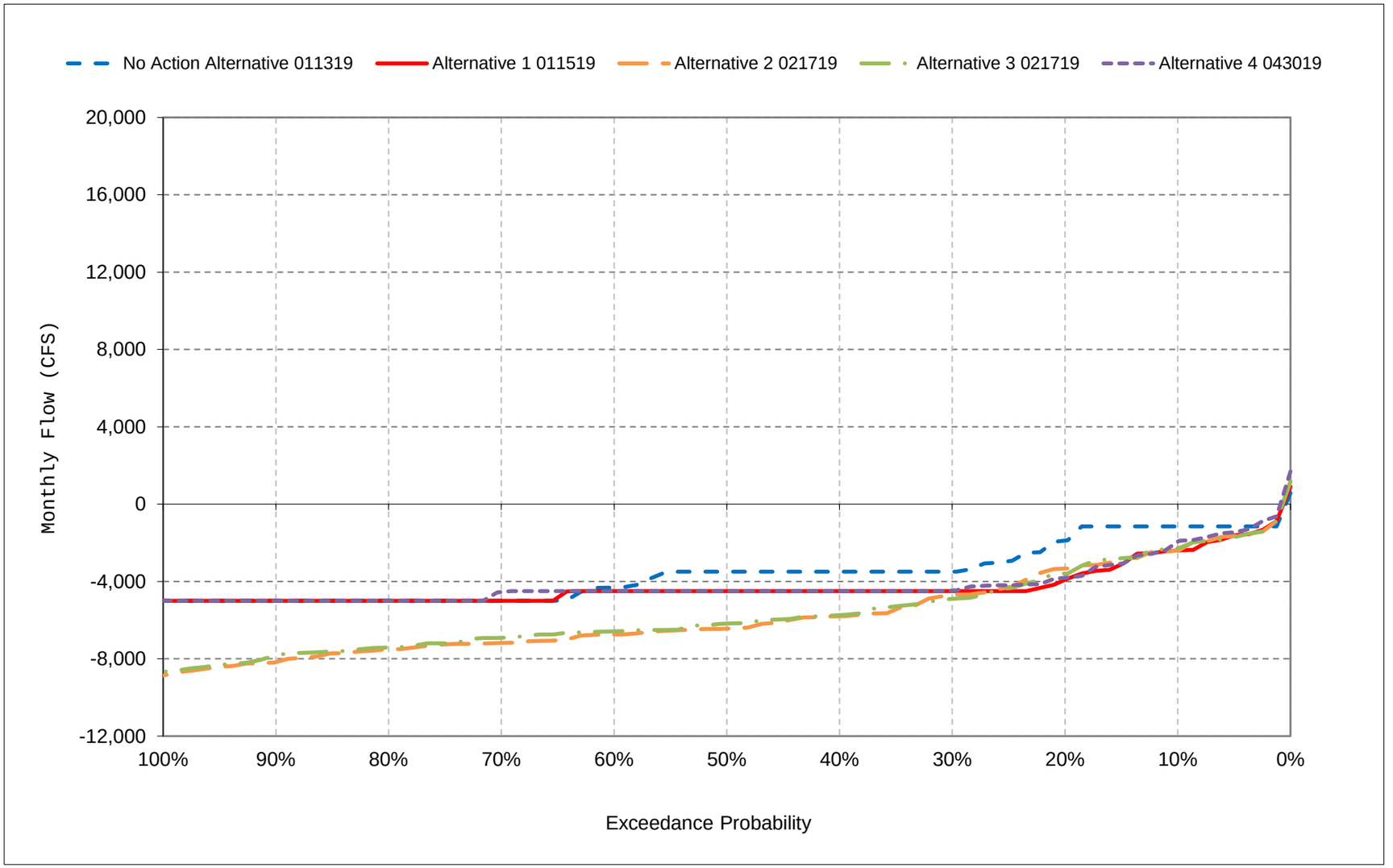
**Figure 40-14. Old and Middle River Flow, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

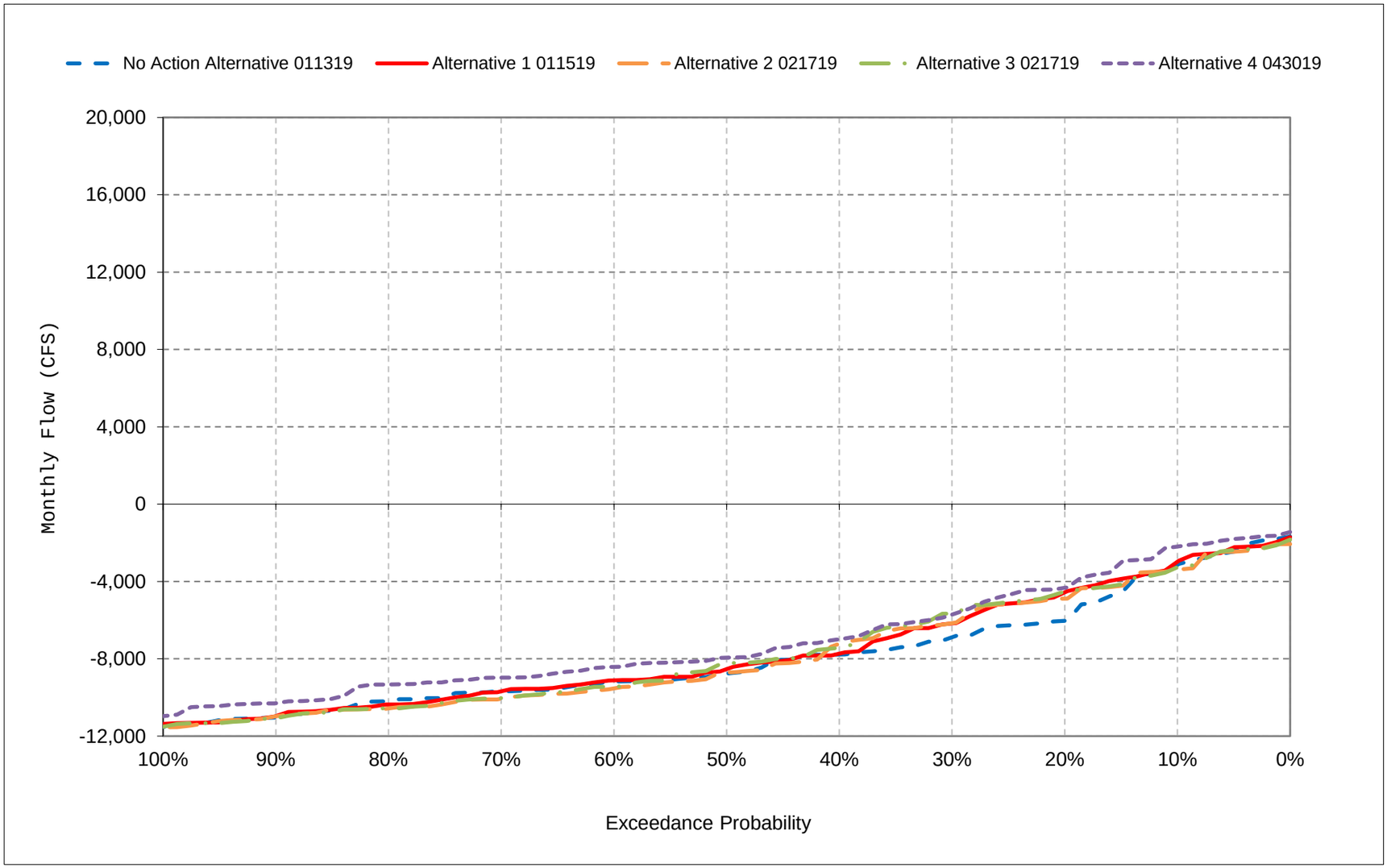
**Figure 40-15. Old and Middle River Flow, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

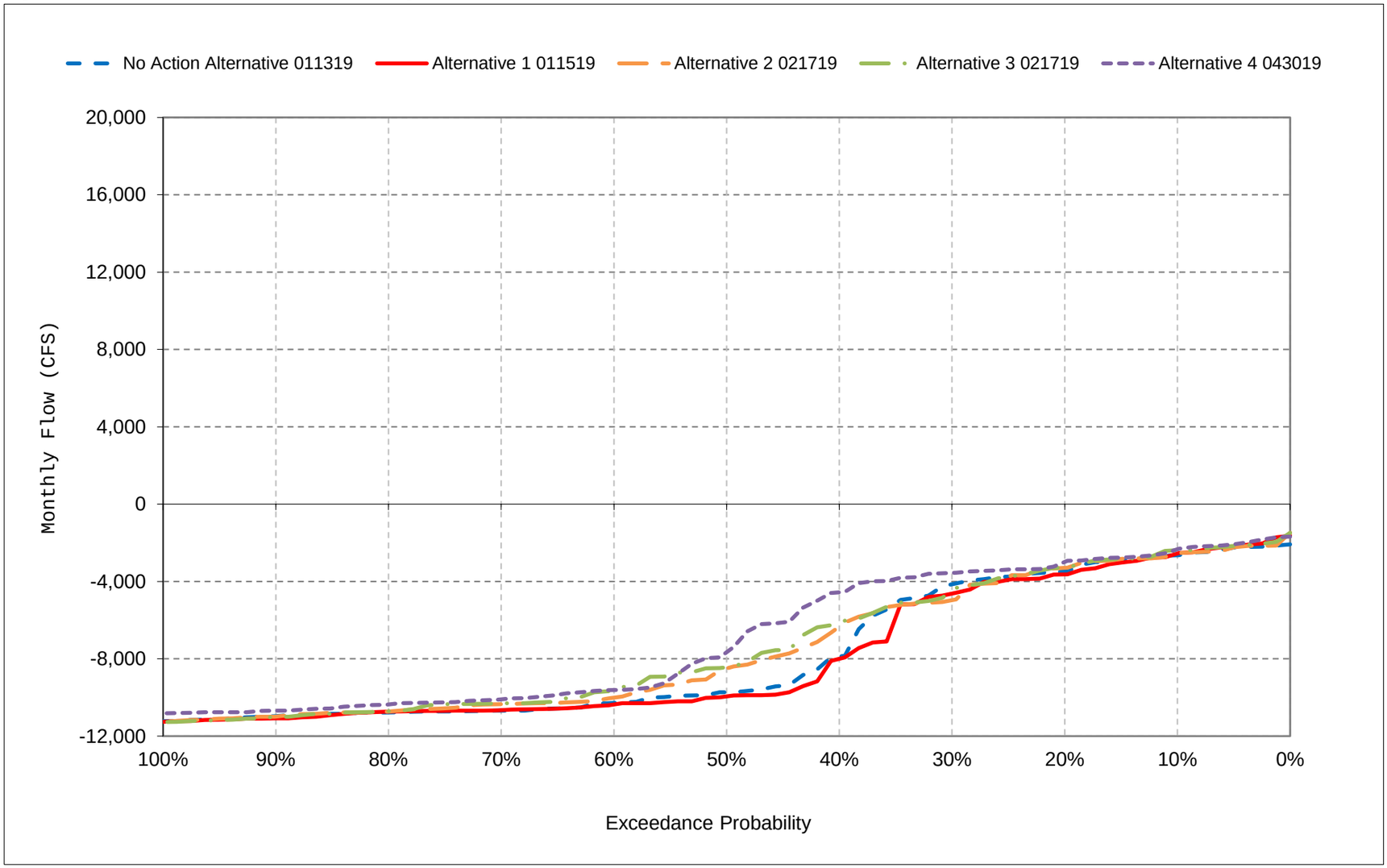
**Figure 40-16. Old and Middle River Flow, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

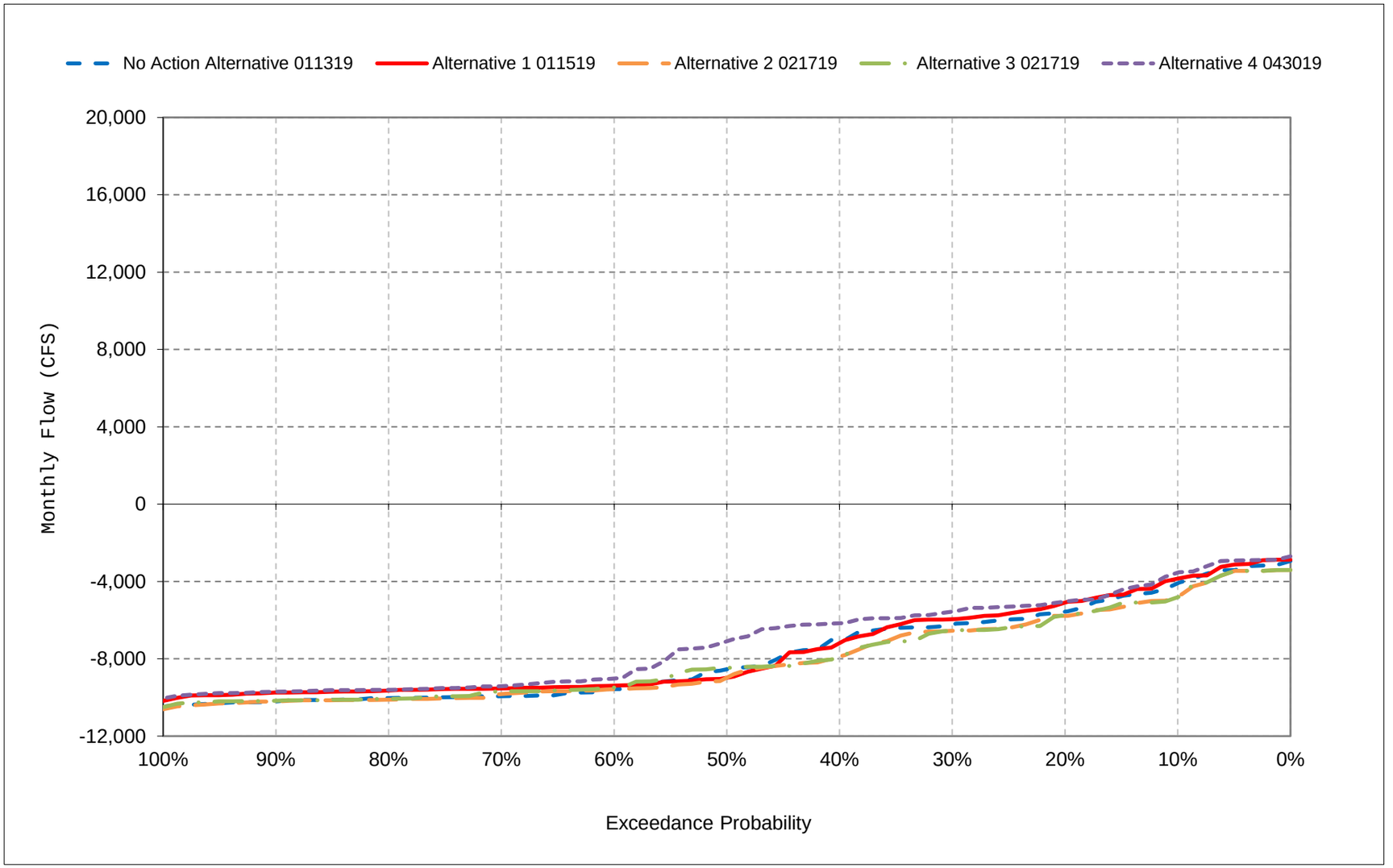
**Figure 40-17. Old and Middle River Flow, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 40-18. Old and Middle River Flow, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 41-1. Delta Outflow, Monthly Outflow

## No Action Alternative 011319

| | Monthly Outflow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,145 | 15,772 | 68,184 | 104,336 | 138,819 | 88,087 | 72,968 | 46,571 | 21,259 | 12,473 | 4,225 | 19,516 |
| 20% | 9,688 | 14,688 | 34,582 | 70,505 | 88,193 | 67,845 | 51,982 | 30,398 | 10,131 | 11,453 | 4,012 | 19,313 |
| 30% | 9,375 | 13,956 | 16,201 | 51,309 | 68,795 | 47,758 | 32,889 | 19,349 | 8,976 | 9,370 | 4,000 | 15,362 |
| 40% | 6,969 | 12,159 | 12,260 | 29,208 | 51,379 | 35,067 | 26,974 | 16,153 | 7,676 | 8,000 | 4,000 | 10,938 |
| 50% | 5,374 | 9,844 | 10,005 | 20,041 | 36,843 | 26,853 | 22,260 | 13,850 | 7,243 | 8,000 | 4,000 | 3,712 |
| 60% | 4,000 | 6,311 | 5,880 | 16,488 | 25,051 | 19,793 | 16,421 | 11,720 | 7,100 | 6,500 | 4,000 | 3,000 |
| 70% | 4,000 | 4,500 | 4,950 | 12,714 | 18,539 | 16,589 | 13,863 | 9,663 | 6,937 | 5,000 | 3,961 | 3,000 |
| 80% | 4,000 | 4,500 | 4,511 | 9,226 | 15,146 | 12,431 | 11,165 | 8,183 | 6,044 | 5,000 | 3,726 | 3,000 |
| 90% | 3,000 | 3,500 | 4,500 | 7,964 | 11,043 | 10,764 | 9,540 | 7,038 | 5,391 | 4,000 | 3,500 | 3,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,653 | 11,625 | 23,116 | 44,275 | 56,959 | 43,806 | 32,053 | 20,967 | 10,940 | 8,052 | 4,054 | 9,423 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 9,943 | 17,965 | 27,333 | 90,345 | 102,661 | 81,638 | 57,700 | 39,294 | 19,071 | 10,682 | 4,469 | 19,040 |
| Above Normal (16%) | 7,332 | 12,903 | 17,298 | 49,558 | 67,693 | 52,646 | 34,414 | 19,816 | 7,961 | 11,126 | 4,035 | 11,118 |
| Below Normal (13%) | 6,260 | 6,705 | 19,835 | 17,008 | 37,036 | 17,592 | 18,032 | 13,213 | 7,486 | 8,099 | 4,082 | 3,307 |
| Dry (24%) | 4,343 | 9,898 | 31,709 | 15,608 | 26,159 | 22,368 | 18,215 | 10,819 | 7,276 | 5,038 | 3,832 | 3,037 |
| Critical (15%) | 3,000 | 3,894 | 8,967 | 11,509 | 15,905 | 12,017 | 9,843 | 6,527 | 5,825 | 4,000 | 3,517 | 3,000 |

## Alternative 1 011519

| | Monthly Outflow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 7,824 | 17,900 | 71,116 | 106,223 | 140,258 | 92,678 | 67,790 | 41,291 | 21,795 | 11,775 | 4,316 | 5,458 |
| 20% | 4,692 | 8,678 | 37,251 | 73,144 | 89,151 | 68,282 | 47,454 | 27,083 | 10,857 | 10,922 | 4,000 | 4,164 |
| 30% | 4,152 | 6,120 | 20,706 | 51,064 | 68,288 | 46,609 | 29,065 | 15,948 | 9,617 | 9,435 | 4,000 | 4,075 |
| 40% | 4,000 | 4,892 | 13,246 | 29,261 | 55,133 | 33,861 | 22,998 | 12,150 | 8,417 | 8,000 | 4,000 | 3,996 |
| 50% | 4,000 | 4,644 | 10,760 | 21,453 | 37,061 | 26,295 | 17,899 | 11,152 | 7,760 | 8,000 | 4,000 | 3,855 |
| 60% | 4,000 | 4,500 | 6,976 | 16,196 | 24,552 | 20,895 | 13,567 | 10,233 | 7,338 | 6,500 | 4,000 | 3,000 |
| 70% | 4,000 | 4,500 | 5,509 | 12,915 | 17,723 | 15,688 | 11,381 | 8,944 | 7,100 | 5,000 | 3,789 | 3,000 |
| 80% | 4,000 | 4,500 | 4,918 | 9,107 | 13,995 | 12,199 | 9,673 | 7,921 | 7,100 | 5,000 | 3,514 | 3,000 |
| 90% | 3,000 | 3,500 | 4,500 | 7,818 | 10,541 | 9,271 | 8,953 | 6,804 | 5,717 | 4,000 | 3,500 | 3,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 5,079 | 9,103 | 25,249 | 44,985 | 57,425 | 44,256 | 29,104 | 18,600 | 11,420 | 7,904 | 4,010 | 4,123 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 6,358 | 12,022 | 31,810 | 92,116 | 103,918 | 82,647 | 53,254 | 35,255 | 19,822 | 10,416 | 4,471 | 5,743 |
| Above Normal (16%) | 5,350 | 9,275 | 20,373 | 50,231 | 69,739 | 54,821 | 30,246 | 16,659 | 8,801 | 10,620 | 4,025 | 4,049 |
| Below Normal (13%) | 5,949 | 6,237 | 20,351 | 17,747 | 39,393 | 18,100 | 15,435 | 11,403 | 7,829 | 8,125 | 4,137 | 3,474 |
| Dry (24%) | 4,007 | 9,928 | 32,352 | 15,515 | 24,766 | 21,687 | 16,439 | 9,699 | 7,540 | 5,094 | 3,651 | 3,094 |
| Critical (15%) | 3,000 | 3,845 | 8,967 | 11,268 | 14,309 | 11,218 | 9,181 | 6,051 | 5,809 | 4,000 | 3,477 | 3,000 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Outflow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-2,320** | 2,128 | 2,932 | 1,887 | 1,439 | 4,592 | **-5,178** | **-5,280** | 536 | **-698** | 91 | **-14,058** |
| 20% | **-4,996** | **-6,009** | 2,669 | 2,638 | 957 | 437 | **-4,528** | **-3,315** | 727 | **-532** | **-12** | **-15,148** |
| 30% | **-5,223** | **-7,836** | 4,505 | **-245** | **-506** | **-1,149** | **-3,824** | **-3,400** | 641 | 66 | 0 | **-11,288** |
| 40% | **-2,969** | **-7,267** | 986 | 53 | 3,753 | **-1,206** | **-3,976** | **-4,003** | 741 | 0 | 0 | **-6,941** |
| 50% | **-1,374** | **-5,199** | 755 | 1,412 | 217 | **-558** | **-4,361** | **-2,698** | 516 | 0 | 0 | 142 |
| 60% | 0 | **-1,811** | 1,097 | **-293** | **-499** | 1,102 | **-2,854** | **-1,487** | 238 | 0 | 0 | 0 |
| 70% | 0 | 0 | 560 | 201 | **-815** | **-902** | **-2,482** | **-719** | 163 | 0 | **-173** | 0 |
| 80% | 0 | 0 | 406 | **-119** | **-1,150** | **-232** | **-1,492** | **-263** | 1,056 | 0 | **-211** | 0 |
| 90% | 0 | 0 | 0 | **-146** | **-502** | **-1,493** | **-587** | **-234** | 326 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-1,574** | **-2,522** | 2,133 | 709 | 466 | 450 | **-2,949** | **-2,367** | 479 | **-147** | **-44** | **-5,300** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-3,584** | **-5,943** | 4,477 | 1,771 | 1,256 | 1,009 | **-4,446** | **-4,039** | 751 | **-266** | 1 | **-13,297** |
| Above Normal (16%) | **-1,982** | **-3,628** | 3,075 | 673 | 2,046 | 2,175 | **-4,167** | **-3,157** | 840 | **-506** | **-10** | **-7,069** |
| Below Normal (13%) | **-312** | **-467** | 516 | 739 | 2,357 | 508 | **-2,597** | **-1,810** | 343 | 26 | 55 | 167 |
| Dry (24%) | **-335** | 30 | 644 | **-93** | **-1,392** | **-680** | **-1,777** | **-1,120** | 264 | 56 | **-181** | 57 |
| Critical (15%) | 0 | **-48** | 0 | **-241** | **-1,596** | **-799** | **-663** | **-476** | **-16** | 0 | **-40** | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 41-2. Delta Outflow, Monthly Outflow

### No Action Alternative 011319

| | Monthly Outflow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,145 | 15,772 | 68,184 | 104,336 | 138,819 | 88,087 | 72,968 | 46,571 | 21,259 | 12,473 | 4,225 | 19,516 |
| 20% | 9,688 | 14,688 | 34,582 | 70,505 | 88,193 | 67,845 | 51,982 | 30,398 | 10,131 | 11,453 | 4,012 | 19,313 |
| 30% | 9,375 | 13,956 | 16,201 | 51,309 | 68,795 | 47,758 | 32,889 | 19,349 | 8,976 | 9,370 | 4,000 | 15,362 |
| 40% | 6,969 | 12,159 | 12,260 | 29,208 | 51,379 | 35,067 | 26,974 | 16,153 | 7,676 | 8,000 | 4,000 | 10,938 |
| 50% | 5,374 | 9,844 | 10,005 | 20,041 | 36,843 | 26,853 | 22,260 | 13,850 | 7,243 | 8,000 | 4,000 | 3,712 |
| 60% | 4,000 | 6,311 | 5,880 | 16,488 | 25,051 | 19,793 | 16,421 | 11,720 | 7,100 | 6,500 | 4,000 | 3,000 |
| 70% | 4,000 | 4,500 | 4,950 | 12,714 | 18,539 | 16,589 | 13,863 | 9,663 | 6,937 | 5,000 | 3,961 | 3,000 |
| 80% | 4,000 | 4,500 | 4,511 | 9,226 | 15,146 | 12,431 | 11,165 | 8,183 | 6,044 | 5,000 | 3,726 | 3,000 |
| 90% | 3,000 | 3,500 | 4,500 | 7,964 | 11,043 | 10,764 | 9,540 | 7,038 | 5,391 | 4,000 | 3,500 | 3,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,653 | 11,625 | 23,116 | 44,275 | 56,959 | 43,806 | 32,053 | 20,967 | 10,940 | 8,052 | 4,054 | 9,423 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 9,943 | 17,965 | 27,333 | 90,345 | 102,661 | 81,638 | 57,700 | 39,294 | 19,071 | 10,682 | 4,469 | 19,040 |
| Above Normal (16%) | 7,332 | 12,903 | 17,298 | 49,558 | 67,693 | 52,646 | 34,414 | 19,816 | 7,961 | 11,126 | 4,035 | 11,118 |
| Below Normal (13%) | 6,260 | 6,705 | 19,835 | 17,008 | 37,036 | 17,592 | 18,032 | 13,213 | 7,486 | 8,099 | 4,082 | 3,307 |
| Dry (24%) | 4,343 | 9,898 | 31,709 | 15,608 | 26,159 | 22,368 | 18,215 | 10,819 | 7,276 | 5,038 | 3,832 | 3,037 |
| Critical (15%) | 3,000 | 3,894 | 8,967 | 11,509 | 15,905 | 12,017 | 9,843 | 6,527 | 5,825 | 4,000 | 3,517 | 3,000 |

### Alternative 2 021719

| | Monthly Outflow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 5,774 | 14,244 | 65,583 | 103,374 | 143,563 | 92,939 | 67,318 | 41,409 | 20,608 | 10,654 | 4,221 | 5,069 |
| 20% | 4,643 | 6,640 | 33,943 | 72,872 | 85,297 | 70,033 | 46,045 | 23,968 | 11,602 | 9,726 | 4,000 | 4,079 |
| 30% | 4,480 | 5,070 | 14,607 | 46,556 | 63,089 | 40,472 | 26,524 | 14,858 | 10,835 | 8,433 | 4,000 | 3,982 |
| 40% | 4,262 | 4,691 | 10,022 | 24,538 | 50,278 | 32,272 | 21,372 | 12,321 | 10,395 | 8,000 | 4,000 | 3,865 |
| 50% | 4,000 | 4,500 | 7,470 | 16,526 | 32,253 | 23,833 | 16,001 | 10,994 | 9,650 | 6,520 | 4,000 | 3,703 |
| 60% | 4,000 | 4,500 | 6,086 | 11,759 | 20,569 | 18,121 | 12,282 | 9,973 | 8,525 | 6,500 | 4,000 | 3,000 |
| 70% | 4,000 | 4,500 | 5,054 | 10,274 | 15,655 | 14,200 | 10,674 | 9,465 | 7,849 | 5,000 | 3,940 | 3,000 |
| 80% | 4,000 | 4,500 | 4,500 | 7,916 | 12,866 | 11,970 | 9,679 | 8,591 | 7,107 | 5,000 | 3,677 | 3,000 |
| 90% | 3,400 | 3,500 | 4,500 | 6,360 | 11,046 | 9,678 | 9,028 | 7,107 | 7,100 | 4,000 | 3,500 | 3,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 4,664 | 8,545 | 22,652 | 41,743 | 55,307 | 42,820 | 28,264 | 18,336 | 12,149 | 7,402 | 4,057 | 4,067 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 4,995 | 11,433 | 30,420 | 88,580 | 103,090 | 82,012 | 52,764 | 34,761 | 19,785 | 10,070 | 4,446 | 5,657 |
| Above Normal (16%) | 4,139 | 8,535 | 16,484 | 45,267 | 66,839 | 52,089 | 28,369 | 15,459 | 10,622 | 9,654 | 4,015 | 3,850 |
| Below Normal (13%) | 5,611 | 5,463 | 17,232 | 14,417 | 36,455 | 16,718 | 14,252 | 11,496 | 10,307 | 6,514 | 4,306 | 3,510 |
| Dry (24%) | 4,778 | 9,430 | 29,045 | 12,921 | 21,626 | 19,410 | 15,649 | 9,998 | 7,825 | 5,000 | 3,739 | 3,086 |
| Critical (15%) | 3,459 | 3,653 | 6,813 | 9,531 | 12,699 | 10,806 | 8,934 | 6,035 | 6,156 | 4,000 | 3,563 | 3,000 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Outflow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-4,370** | **-1,528** | **-2,600** | **-962** | 4,744 | 4,853 | **-5,650** | **-5,163** | **-651** | **-1,819** | **-4** | **-14,447** |
| 20% | **-5,045** | **-8,048** | **-639** | 2,367 | **-2,897** | 2,188 | **-5,937** | **-6,429** | 1,472 | **-1,728** | **-12** | **-15,234** |
| 30% | **-4,895** | **-8,886** | **-1,594** | **-4,753** | **-5,705** | **-7,286** | **-6,366** | **-4,491** | 1,859 | **-937** | 0 | **-11,380** |
| 40% | **-2,707** | **-7,468** | **-2,238** | **-4,670** | **-1,102** | **-2,795** | **-5,603** | **-3,831** | 2,719 | 0 | 0 | **-7,072** |
| 50% | **-1,374** | **-5,344** | **-2,535** | **-3,515** | **-4,590** | **-3,020** | **-6,259** | **-2,856** | 2,407 | **-1,480** | 0 | **-9** |
| 60% | 0 | **-1,811** | 206 | **-4,729** | **-4,482** | **-1,672** | **-4,139** | **-1,747** | 1,425 | 0 | 0 | 0 |
| 70% | 0 | 0 | 104 | **-2,440** | **-2,883** | **-2,390** | **-3,190** | **-197** | 913 | 0 | **-21** | 0 |
| 80% | 0 | 0 | **-11** | **-1,310** | **-2,279** | **-461** | **-1,486** | 408 | 1,063 | 0 | **-49** | 0 |
| 90% | 400 | 0 | 0 | **-1,604** | 3 | **-1,086** | **-512** | 69 | 1,709 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-1,988** | **-3,080** | **-464** | **-2,532** | **-1,652** | **-986** | **-3,789** | **-2,631** | 1,209 | **-649** | 3 | **-5,356** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-4,947** | **-6,533** | 3,087 | **-1,765** | 429 | 374 | **-4,936** | **-4,533** | 713 | **-612** | **-24** | **-13,383** |
| Above Normal (16%) | **-3,192** | **-4,368** | **-814** | **-4,290** | **-854** | **-557** | **-6,044** | **-4,357** | 2,661 | **-1,472** | **-20** | **-7,268** |
| Below Normal (13%) | **-649** | **-1,242** | **-2,603** | **-2,591** | **-581** | **-874** | **-3,780** | **-1,717** | 2,821 | **-1,585** | 224 | 203 |
| Dry (24%) | 435 | **-468** | **-2,664** | **-2,687** | **-4,533** | **-2,958** | **-2,566** | **-821** | 550 | **-38** | **-93** | 50 |
| Critical (15%) | 459 | **-240** | **-2,153** | **-1,979** | **-3,206** | **-1,211** | **-909** | **-493** | 331 | 0 | 45 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 41-3. Delta Outflow, Monthly Outflow

### No Action Alternative 011319

| | Monthly Outflow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,145 | 15,772 | 68,184 | 104,336 | 138,819 | 88,087 | 72,968 | 46,571 | 21,259 | 12,473 | 4,225 | 19,516 |
| 20% | 9,688 | 14,688 | 34,582 | 70,505 | 88,193 | 67,845 | 51,982 | 30,398 | 10,131 | 11,453 | 4,012 | 19,313 |
| 30% | 9,375 | 13,956 | 16,201 | 51,309 | 68,795 | 47,758 | 32,889 | 19,349 | 8,976 | 9,370 | 4,000 | 15,362 |
| 40% | 6,969 | 12,159 | 12,260 | 29,208 | 51,379 | 35,067 | 26,974 | 16,153 | 7,676 | 8,000 | 4,000 | 10,938 |
| 50% | 5,374 | 9,844 | 10,005 | 20,041 | 36,843 | 26,853 | 22,260 | 13,850 | 7,243 | 8,000 | 4,000 | 3,712 |
| 60% | 4,000 | 6,311 | 5,880 | 16,488 | 25,051 | 19,793 | 16,421 | 11,720 | 7,100 | 6,500 | 4,000 | 3,000 |
| 70% | 4,000 | 4,500 | 4,950 | 12,714 | 18,539 | 16,589 | 13,863 | 9,663 | 6,937 | 5,000 | 3,961 | 3,000 |
| 80% | 4,000 | 4,500 | 4,511 | 9,226 | 15,146 | 12,431 | 11,165 | 8,183 | 6,044 | 5,000 | 3,726 | 3,000 |
| 90% | 3,000 | 3,500 | 4,500 | 7,964 | 11,043 | 10,764 | 9,540 | 7,038 | 5,391 | 4,000 | 3,500 | 3,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,653 | 11,625 | 23,116 | 44,275 | 56,959 | 43,806 | 32,053 | 20,967 | 10,940 | 8,052 | 4,054 | 9,423 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 9,943 | 17,965 | 27,333 | 90,345 | 102,661 | 81,638 | 57,700 | 39,294 | 19,071 | 10,682 | 4,469 | 19,040 |
| Above Normal (16%) | 7,332 | 12,903 | 17,298 | 49,558 | 67,693 | 52,646 | 34,414 | 19,816 | 7,961 | 11,126 | 4,035 | 11,118 |
| Below Normal (13%) | 6,260 | 6,705 | 19,835 | 17,008 | 37,036 | 17,592 | 18,032 | 13,213 | 7,486 | 8,099 | 4,082 | 3,307 |
| Dry (24%) | 4,343 | 9,898 | 31,709 | 15,608 | 26,159 | 22,368 | 18,215 | 10,819 | 7,276 | 5,038 | 3,832 | 3,037 |
| Critical (15%) | 3,000 | 3,894 | 8,967 | 11,509 | 15,905 | 12,017 | 9,843 | 6,527 | 5,825 | 4,000 | 3,517 | 3,000 |

### Alternative 3 021719

| | Monthly Outflow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 7,318 | 14,716 | 65,549 | 103,203 | 143,525 | 93,479 | 67,308 | 41,224 | 20,609 | 11,039 | 4,354 | 5,940 |
| 20% | 5,762 | 6,052 | 34,313 | 72,230 | 85,577 | 70,604 | 45,994 | 23,855 | 11,362 | 9,939 | 4,000 | 4,224 |
| 30% | 5,087 | 5,382 | 15,018 | 46,614 | 61,966 | 41,003 | 26,575 | 14,564 | 10,614 | 8,569 | 4,000 | 4,084 |
| 40% | 4,737 | 4,966 | 9,761 | 24,667 | 50,764 | 32,300 | 21,341 | 12,112 | 10,019 | 8,000 | 4,000 | 3,953 |
| 50% | 4,533 | 4,653 | 7,318 | 16,592 | 32,200 | 23,134 | 16,501 | 10,923 | 9,317 | 7,213 | 4,000 | 3,383 |
| 60% | 4,357 | 4,500 | 5,961 | 12,200 | 20,609 | 18,175 | 12,156 | 9,912 | 8,539 | 6,500 | 4,000 | 3,000 |
| 70% | 4,142 | 4,500 | 5,125 | 9,903 | 16,803 | 14,325 | 11,134 | 9,098 | 7,711 | 5,000 | 4,000 | 3,000 |
| 80% | 4,000 | 4,500 | 4,500 | 7,836 | 13,030 | 11,672 | 9,698 | 8,329 | 7,100 | 5,000 | 3,746 | 3,000 |
| 90% | 4,000 | 4,500 | 4,500 | 6,486 | 10,194 | 9,672 | 8,621 | 7,114 | 6,966 | 4,000 | 3,500 | 3,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 5,223 | 8,601 | 22,672 | 41,861 | 55,234 | 42,900 | 28,375 | 18,166 | 11,969 | 7,503 | 4,069 | 4,170 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 5,354 | 11,501 | 30,591 | 89,072 | 102,813 | 82,105 | 53,168 | 34,248 | 19,798 | 10,036 | 4,452 | 5,752 |
| Above Normal (16%) | 4,422 | 8,683 | 16,863 | 44,890 | 66,770 | 52,360 | 28,315 | 15,379 | 10,000 | 10,129 | 4,000 | 4,351 |
| Below Normal (13%) | 6,229 | 5,630 | 17,209 | 14,237 | 37,039 | 16,687 | 14,287 | 11,409 | 9,934 | 6,769 | 4,192 | 3,482 |
| Dry (24%) | 5,754 | 9,207 | 28,834 | 12,835 | 21,646 | 19,471 | 15,644 | 10,072 | 7,832 | 5,010 | 3,789 | 3,076 |
| Critical (15%) | 4,000 | 3,943 | 6,546 | 9,989 | 12,304 | 10,787 | 8,857 | 6,025 | 5,902 | 4,000 | 3,671 | 3,000 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Outflow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-2,826** | **-1,056** | **-2,635** | **-1,133** | 4,706 | 5,392 | **-5,660** | **-5,347** | **-650** | **-1,434** | 129 | **-13,576** |
| 20% | **-3,926** | **-8,635** | **-269** | 1,725 | **-2,617** | 2,759 | **-5,988** | **-6,543** | 1,232 | **-1,514** | **-12** | **-15,089** |
| 30% | **-4,288** | **-8,574** | **-1,183** | **-4,695** | **-6,829** | **-6,755** | **-6,314** | **-4,785** | 1,637 | **-800** | 0 | **-11,278** |
| 40% | **-2,232** | **-7,193** | **-2,499** | **-4,541** | **-615** | **-2,767** | **-5,633** | **-4,040** | 2,343 | 0 | 0 | **-6,985** |
| 50% | **-841** | **-5,191** | **-2,688** | **-3,449** | **-4,643** | **-3,719** | **-5,759** | **-2,928** | 2,074 | **-787** | 0 | **-329** |
| 60% | 357 | **-1,811** | 82 | **-4,288** | **-4,443** | **-1,618** | **-4,265** | **-1,808** | 1,439 | 0 | 0 | 0 |
| 70% | 142 | 0 | 175 | **-2,811** | **-1,735** | **-2,264** | **-2,730** | **-565** | 774 | 0 | 39 | 0 |
| 80% | 0 | 0 | **-11** | **-1,390** | **-2,116** | **-759** | **-1,467** | 146 | 1,056 | 0 | 21 | 0 |
| 90% | 1,000 | 1,000 | 0 | **-1,478** | **-849** | **-1,092** | **-919** | 76 | 1,575 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-1,430** | **-3,024** | **-444** | **-2,414** | **-1,725** | **-905** | **-3,678** | **-2,801** | 1,029 | **-548** | 16 | **-5,253** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-4,589** | **-6,464** | 3,258 | **-1,273** | 152 | 466 | **-4,532** | **-5,046** | 726 | **-647** | **-17** | **-13,288** |
| Above Normal (16%) | **-2,910** | **-4,220** | **-436** | **-4,667** | **-923** | **-286** | **-6,099** | **-4,437** | 2,039 | **-997** | **-35** | **-6,767** |
| Below Normal (13%) | **-31** | **-1,074** | **-2,626** | **-2,772** | 3 | **-905** | **-3,745** | **-1,804** | 2,448 | **-1,330** | 110 | 175 |
| Dry (24%) | 1,411 | **-691** | **-2,875** | **-2,773** | **-4,513** | **-2,896** | **-2,571** | **-747** | 556 | **-28** | **-43** | 40 |
| Critical (15%) | 1,000 | 49 | **-2,421** | **-1,520** | **-3,600** | **-1,230** | **-987** | **-502** | 77 | 0 | 154 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 41-4. Delta Outflow, Monthly Outflow

## No Action Alternative 011319

| | Monthly Outflow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,145 | 15,772 | 68,184 | 104,336 | 138,819 | 88,087 | 72,968 | 46,571 | 21,259 | 12,473 | 4,225 | 19,516 |
| 20% | 9,688 | 14,688 | 34,582 | 70,505 | 88,193 | 67,845 | 51,982 | 30,398 | 10,131 | 11,453 | 4,012 | 19,313 |
| 30% | 9,375 | 13,956 | 16,201 | 51,309 | 68,795 | 47,758 | 32,889 | 19,349 | 8,976 | 9,370 | 4,000 | 15,362 |
| 40% | 6,969 | 12,159 | 12,260 | 29,208 | 51,379 | 35,067 | 26,974 | 16,153 | 7,676 | 8,000 | 4,000 | 10,938 |
| 50% | 5,374 | 9,844 | 10,005 | 20,041 | 36,843 | 26,853 | 22,260 | 13,850 | 7,243 | 8,000 | 4,000 | 3,712 |
| 60% | 4,000 | 6,311 | 5,880 | 16,488 | 25,051 | 19,793 | 16,421 | 11,720 | 7,100 | 6,500 | 4,000 | 3,000 |
| 70% | 4,000 | 4,500 | 4,950 | 12,714 | 18,539 | 16,589 | 13,863 | 9,663 | 6,937 | 5,000 | 3,961 | 3,000 |
| 80% | 4,000 | 4,500 | 4,511 | 9,226 | 15,146 | 12,431 | 11,165 | 8,183 | 6,044 | 5,000 | 3,726 | 3,000 |
| 90% | 3,000 | 3,500 | 4,500 | 7,964 | 11,043 | 10,764 | 9,540 | 7,038 | 5,391 | 4,000 | 3,500 | 3,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,653 | 11,625 | 23,116 | 44,275 | 56,959 | 43,806 | 32,053 | 20,967 | 10,940 | 8,052 | 4,054 | 9,423 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 9,943 | 17,965 | 27,333 | 90,345 | 102,661 | 81,638 | 57,700 | 39,294 | 19,071 | 10,682 | 4,469 | 19,040 |
| Above Normal (16%) | 7,332 | 12,903 | 17,298 | 49,558 | 67,693 | 52,646 | 34,414 | 19,816 | 7,961 | 11,126 | 4,035 | 11,118 |
| Below Normal (13%) | 6,260 | 6,705 | 19,835 | 17,008 | 37,036 | 17,592 | 18,032 | 13,213 | 7,486 | 8,099 | 4,082 | 3,307 |
| Dry (24%) | 4,343 | 9,898 | 31,709 | 15,608 | 26,159 | 22,368 | 18,215 | 10,819 | 7,276 | 5,038 | 3,832 | 3,037 |
| Critical (15%) | 3,000 | 3,894 | 8,967 | 11,509 | 15,905 | 12,017 | 9,843 | 6,527 | 5,825 | 4,000 | 3,517 | 3,000 |

## Alternative 4 043019

| | Monthly Outflow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,799 | 16,936 | 67,326 | 106,681 | 139,235 | 94,980 | 72,240 | 45,239 | 20,874 | 12,145 | 4,000 | 4,312 |
| 20% | 4,392 | 9,677 | 38,920 | 72,812 | 89,217 | 73,490 | 50,182 | 33,422 | 10,941 | 10,574 | 4,000 | 4,045 |
| 30% | 4,130 | 6,194 | 22,156 | 51,731 | 64,053 | 51,969 | 37,260 | 22,275 | 8,801 | 8,740 | 4,000 | 3,924 |
| 40% | 4,000 | 4,991 | 13,956 | 30,080 | 54,730 | 39,682 | 32,935 | 18,473 | 7,598 | 8,000 | 4,000 | 3,785 |
| 50% | 4,000 | 4,579 | 10,749 | 22,403 | 39,391 | 33,865 | 25,498 | 15,815 | 7,100 | 8,000 | 4,000 | 3,000 |
| 60% | 4,000 | 4,500 | 7,167 | 17,023 | 26,966 | 27,358 | 18,658 | 11,992 | 7,100 | 6,500 | 4,000 | 3,000 |
| 70% | 4,000 | 4,500 | 5,667 | 13,223 | 18,885 | 22,188 | 13,874 | 9,550 | 6,610 | 5,000 | 3,694 | 3,000 |
| 80% | 4,000 | 4,500 | 4,676 | 9,151 | 15,059 | 17,281 | 11,484 | 8,264 | 6,082 | 5,000 | 3,504 | 3,000 |
| 90% | 3,000 | 3,500 | 4,500 | 8,082 | 10,763 | 12,087 | 9,528 | 6,922 | 5,452 | 4,000 | 3,500 | 3,000 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 4,942 | 9,191 | 25,467 | 45,421 | 58,064 | 49,180 | 33,649 | 21,408 | 10,848 | 7,897 | 3,954 | 3,909 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 5,901 | 11,949 | 32,168 | 92,535 | 104,041 | 86,674 | 58,708 | 38,858 | 19,143 | 10,420 | 4,391 | 5,367 |
| Above Normal (16%) | 4,558 | 9,213 | 20,263 | 50,209 | 70,662 | 60,133 | 37,319 | 21,173 | 7,735 | 10,861 | 4,025 | 3,903 |
| Below Normal (13%) | 6,863 | 6,997 | 20,618 | 19,170 | 39,483 | 25,466 | 21,383 | 13,914 | 7,406 | 7,819 | 4,000 | 3,116 |
| Dry (24%) | 4,052 | 10,017 | 32,622 | 15,822 | 26,216 | 27,422 | 19,626 | 11,750 | 7,008 | 5,071 | 3,599 | 3,000 |
| Critical (15%) | 3,000 | 3,826 | 9,105 | 11,551 | 14,910 | 14,081 | 9,994 | 6,818 | 5,801 | 4,000 | 3,477 | 3,000 |

## Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Outflow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-5,345** | 1,164 | **-857** | 2,345 | 416 | 6,893 | **-729** | **-1,333** | **-385** | **-328** | **-225** | **-15,204** |
| 20% | **-5,295** | **-5,011** | 4,338 | 2,307 | 1,024 | 5,645 | **-1,800** | 3,024 | 811 | **-879** | **-12** | **-15,268** |
| 30% | **-5,245** | **-7,762** | 5,955 | 422 | **-4,742** | 4,211 | 4,371 | 2,926 | **-175** | **-630** | 0 | **-11,438** |
| 40% | **-2,969** | **-7,168** | 1,696 | 872 | 3,350 | 4,615 | 5,961 | 2,320 | **-78** | 0 | 0 | **-7,152** |
| 50% | **-1,374** | **-5,264** | 743 | 2,362 | 2,547 | 7,013 | 3,238 | 1,965 | **-143** | 0 | 0 | **-712** |
| 60% | 0 | **-1,811** | 1,287 | 535 | 1,915 | 7,565 | 2,237 | 273 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 718 | 509 | 347 | 5,599 | 10 | **-113** | **-327** | 0 | **-267** | 0 |
| 80% | 0 | 0 | 164 | **-74** | **-86** | 4,850 | 319 | 81 | 37 | 0 | **-221** | 0 |
| 90% | 0 | 0 | 0 | 118 | **-280** | 1,323 | **-12** | **-116** | 61 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-1,711** | **-2,434** | 2,351 | 1,146 | 1,105 | 5,375 | 1,596 | 441 | **-93** | **-155** | **-100** | **-5,513** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-4,042** | **-6,016** | 4,835 | 2,189 | 1,380 | 5,036 | 1,008 | **-436** | 72 | **-262** | **-78** | **-13,672** |
| Above Normal (16%) | **-2,773** | **-3,689** | 2,965 | 651 | 2,969 | 7,487 | 2,905 | 1,358 | **-225** | **-265** | **-11** | **-7,215** |
| Below Normal (13%) | 603 | 292 | 783 | 2,161 | 2,448 | 7,874 | 3,351 | 701 | **-80** | **-280** | **-82** | **-190** |
| Dry (24%) | **-291** | 120 | 913 | 214 | 57 | 5,054 | 1,411 | 931 | **-268** | 33 | **-233** | **-37** |
| Critical (15%) | 0 | **-68** | 138 | 42 | **-994** | 2,064 | 151 | 290 | **-24** | 0 | **-41** | 0 |

a Based on the 82-year simulation period.

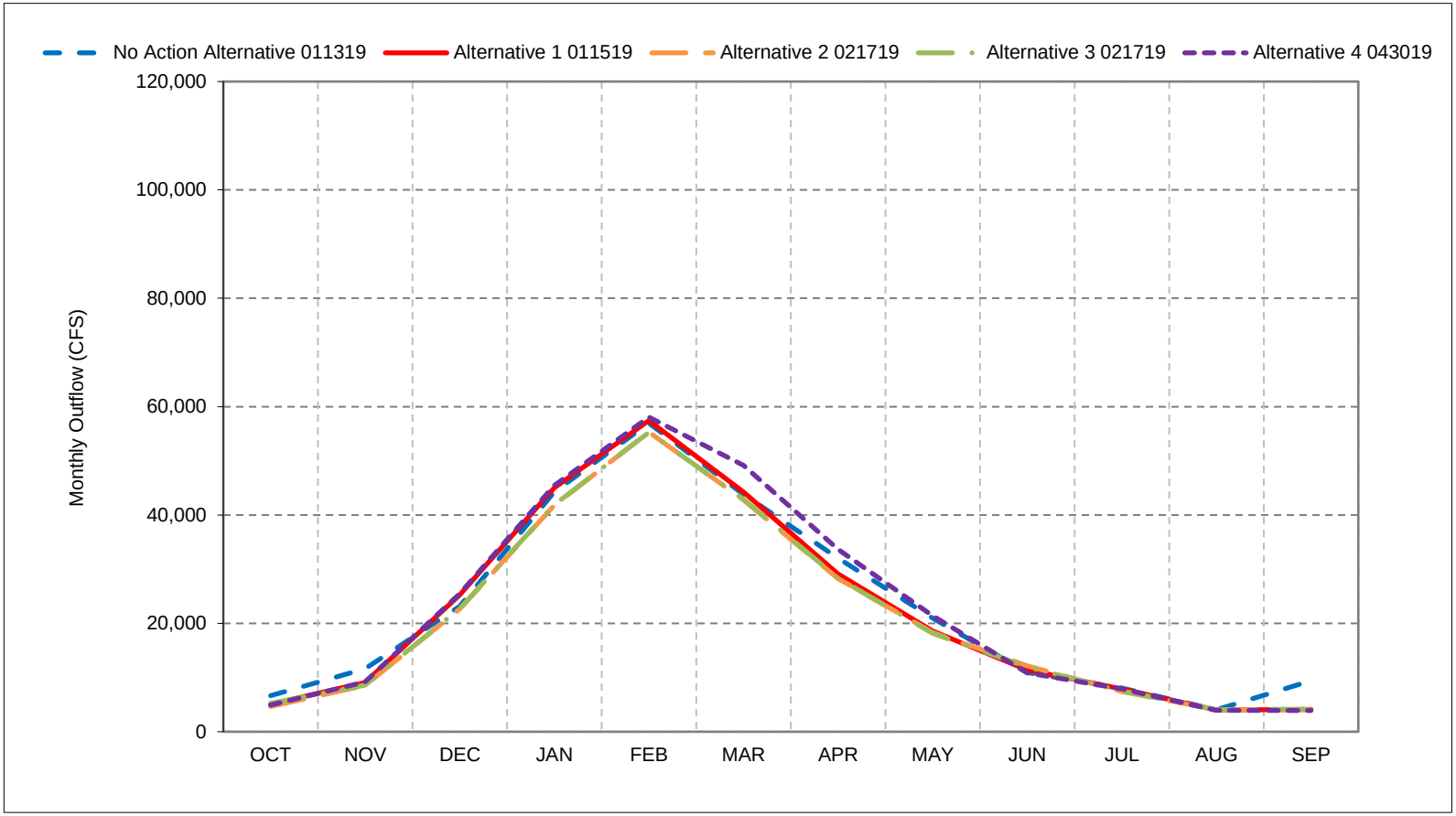
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

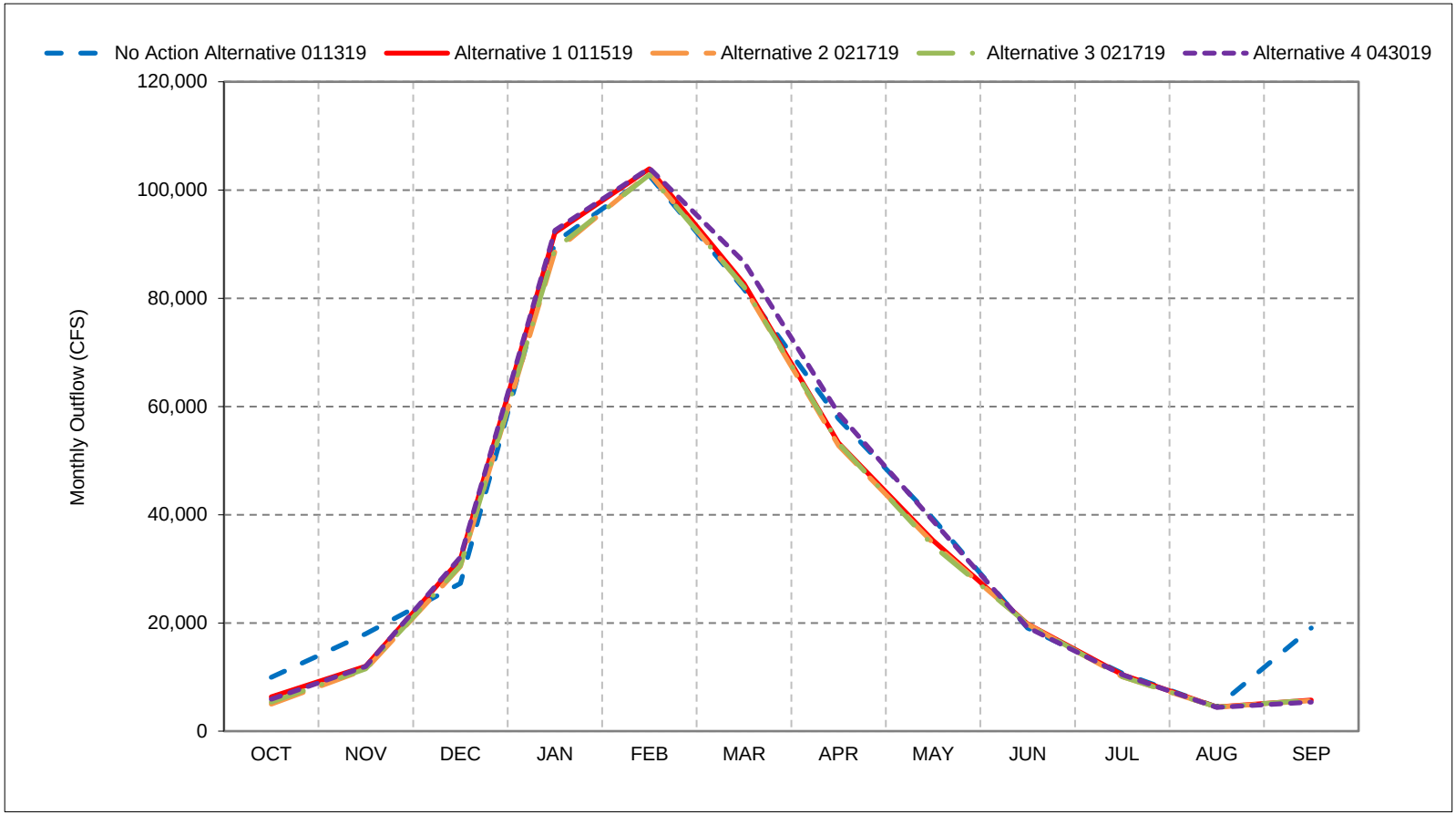
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 41-1. Delta Outflow, Long-Term Average Outflow



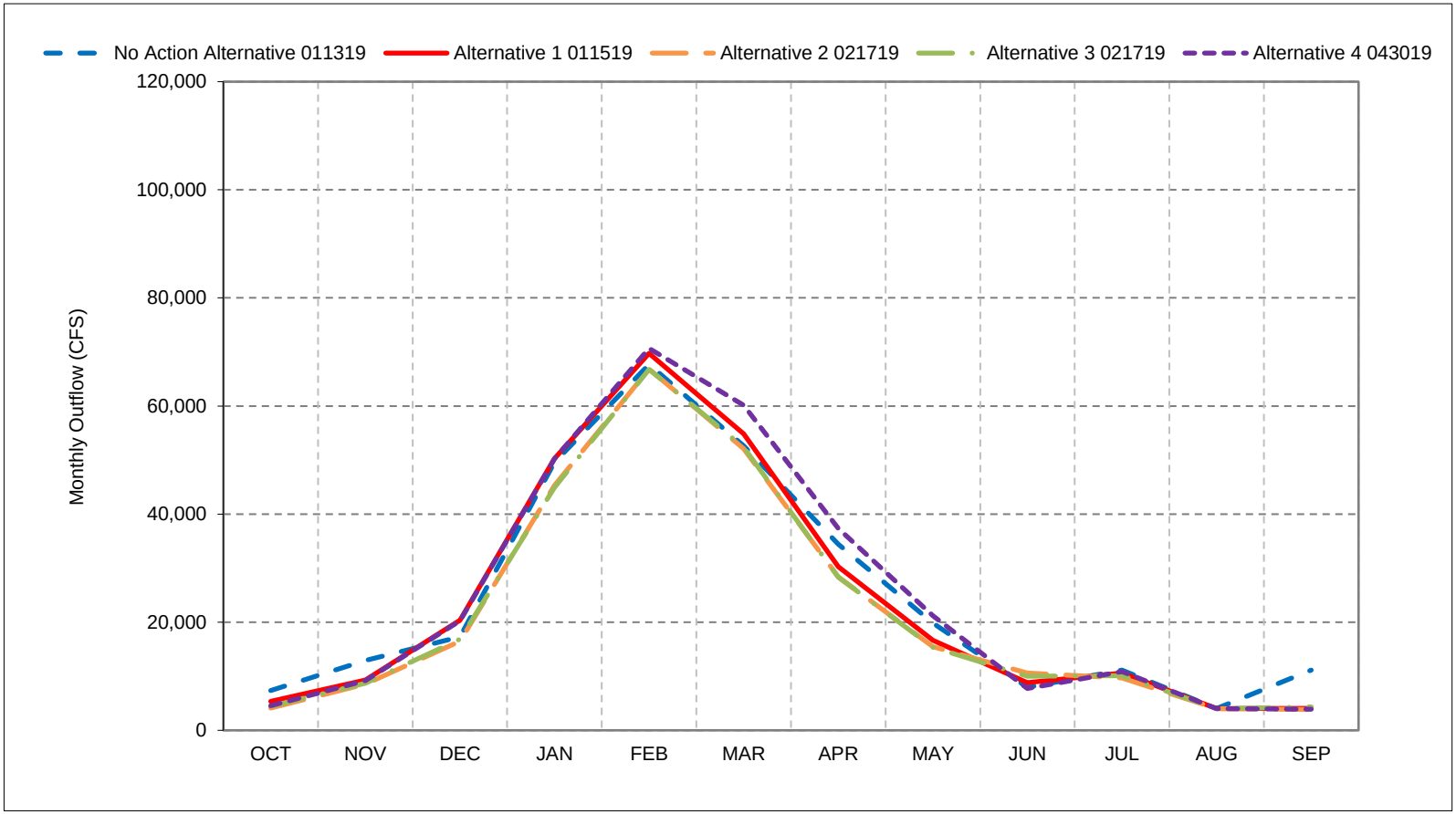

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 41-2. Delta Outflow, Wet Year Average Outflow



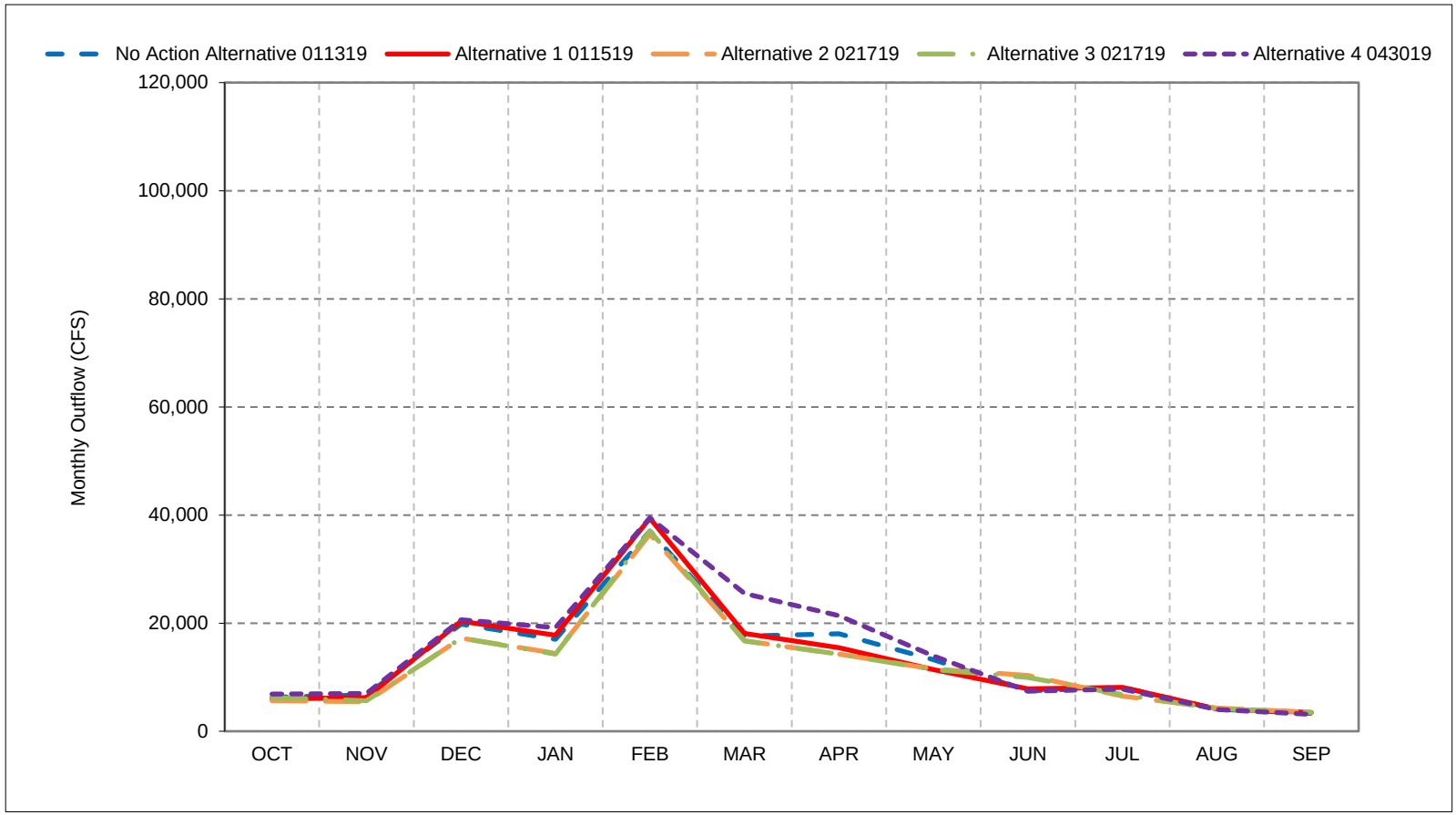

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 41-3. Delta Outflow, Above Normal Year Average Outflow



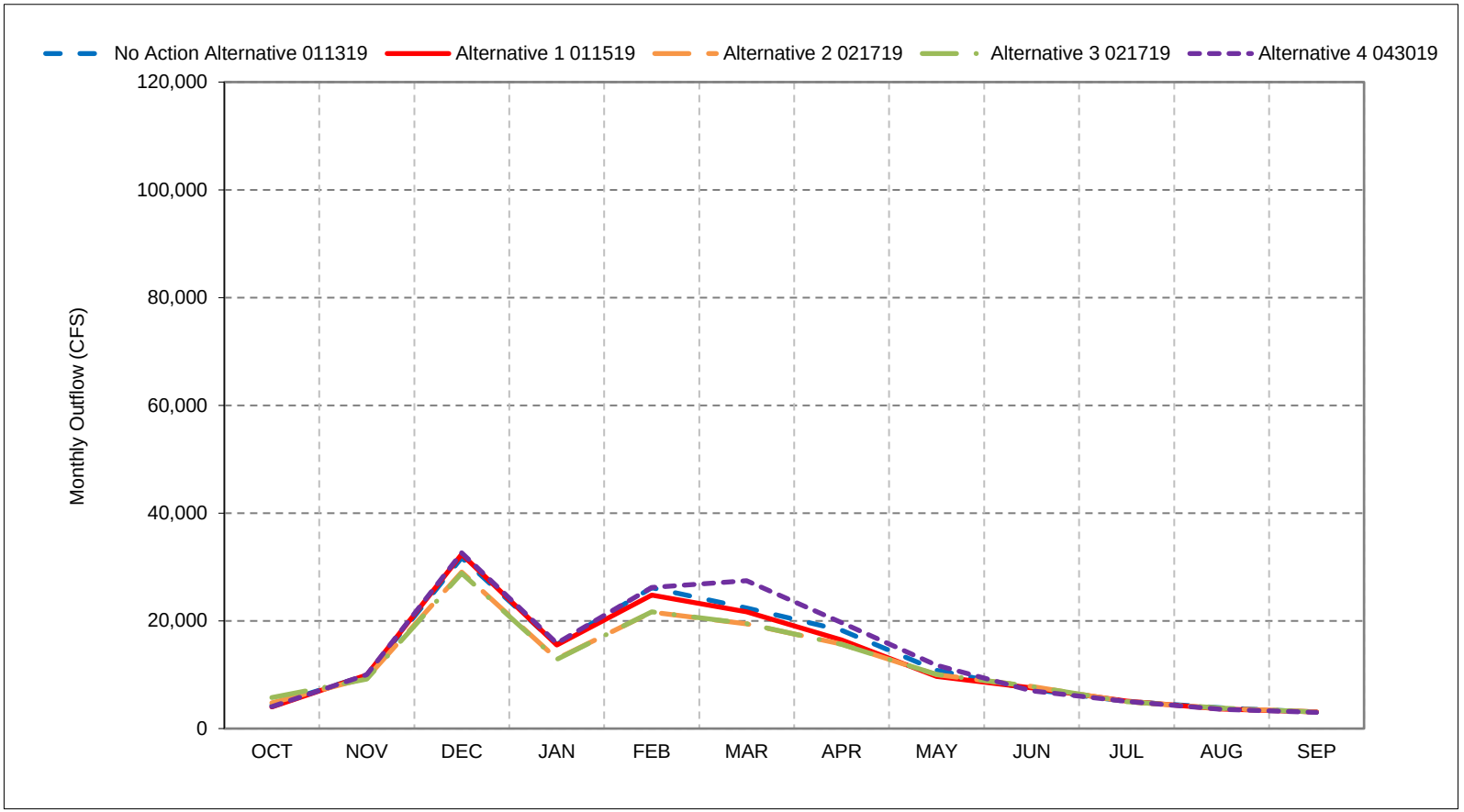

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 41-4. Delta Outflow, Below Normal Year Average Outflow



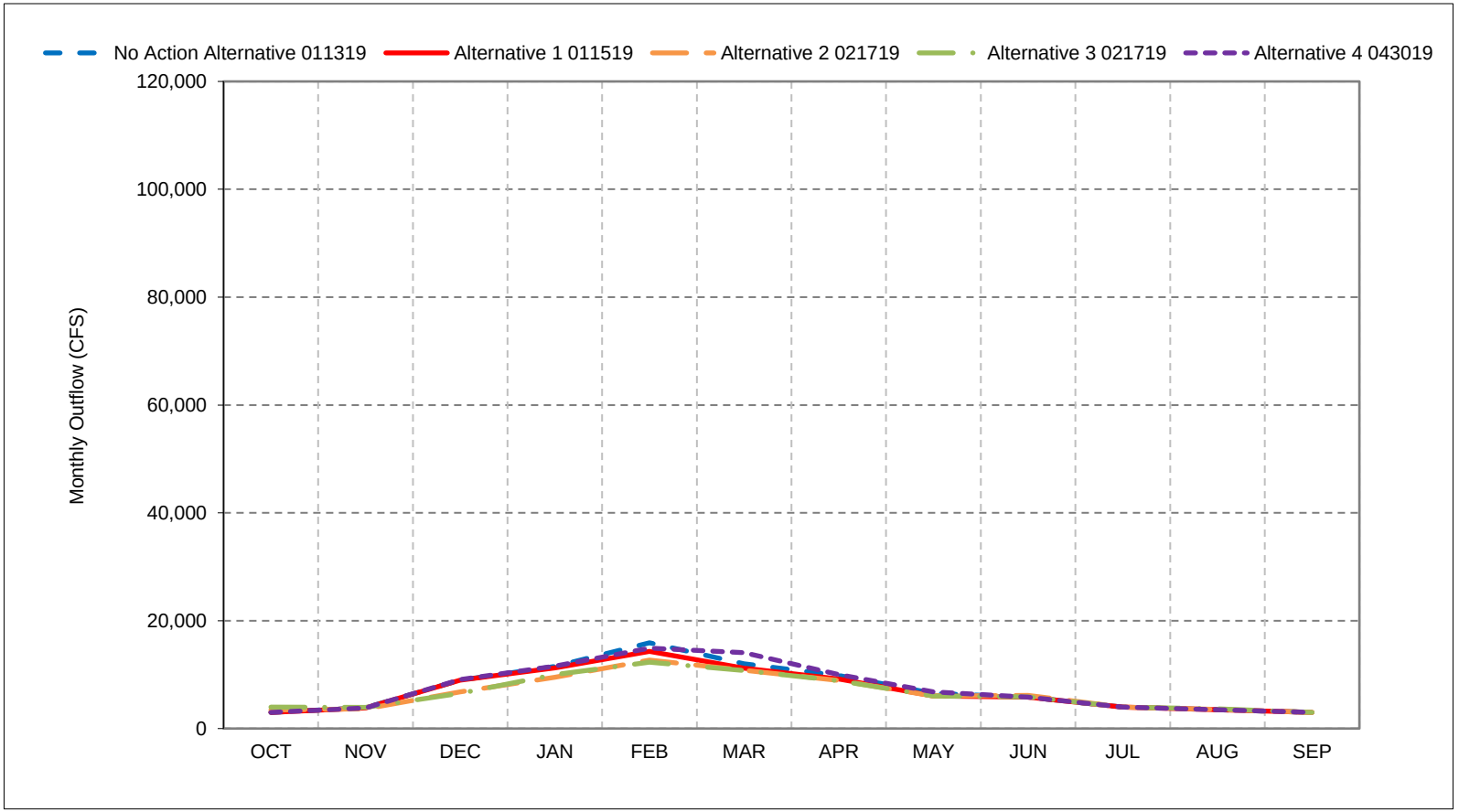

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 41-5. Delta Outflow, Dry Year Average Outflow



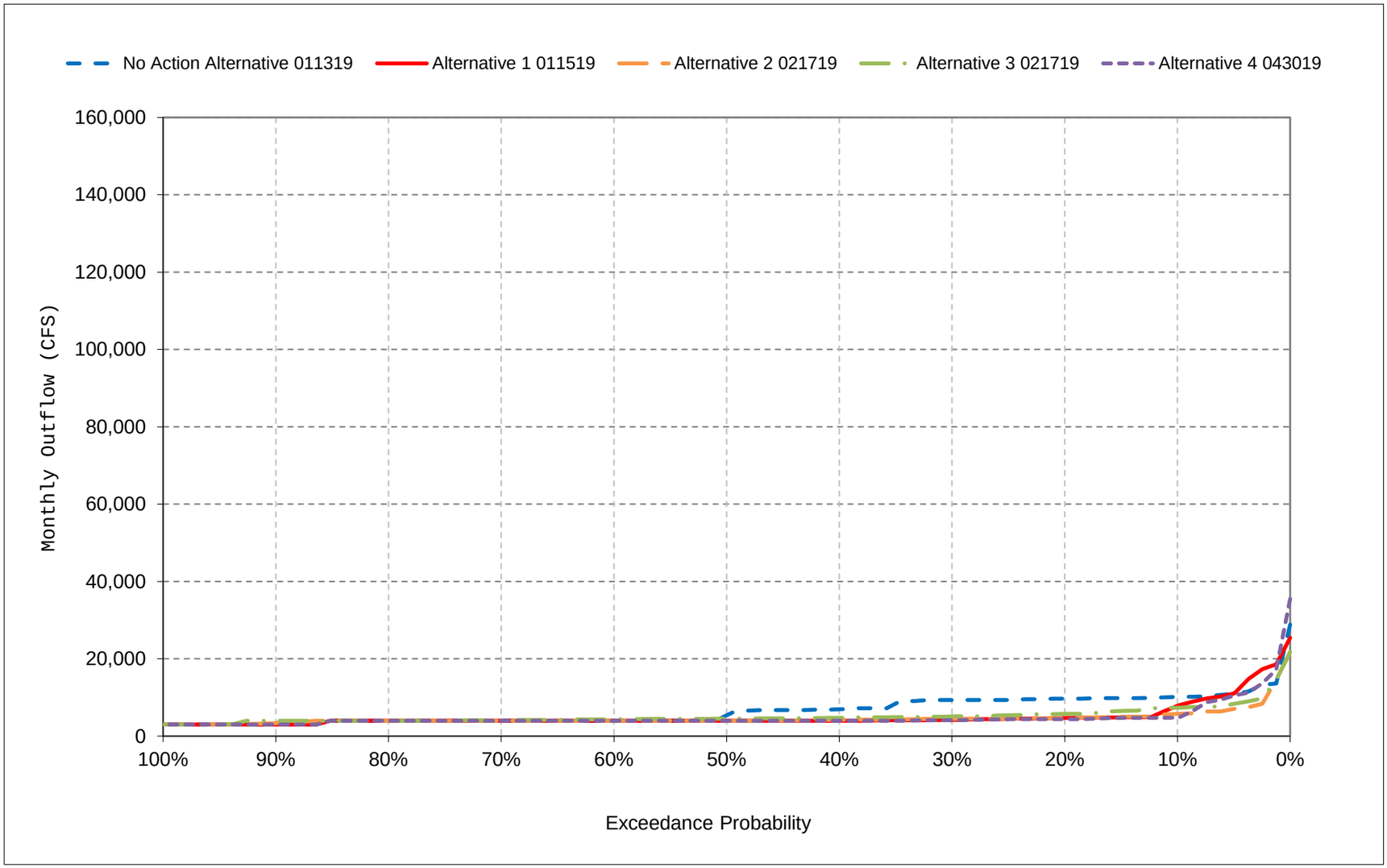

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 41-6. Delta Outflow, Critical Year Average Outflow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

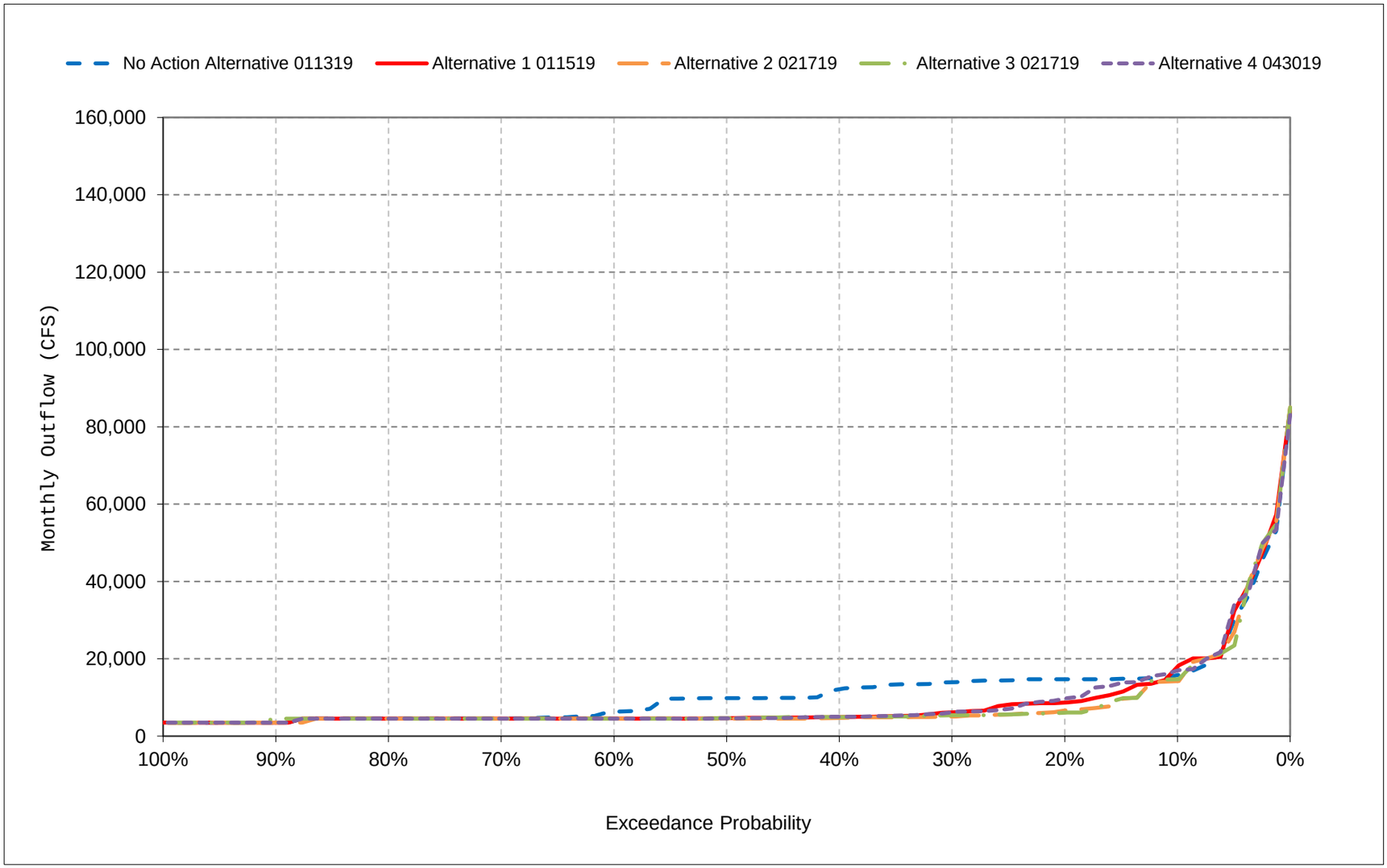
**Figure 41-7. Delta Outflow, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

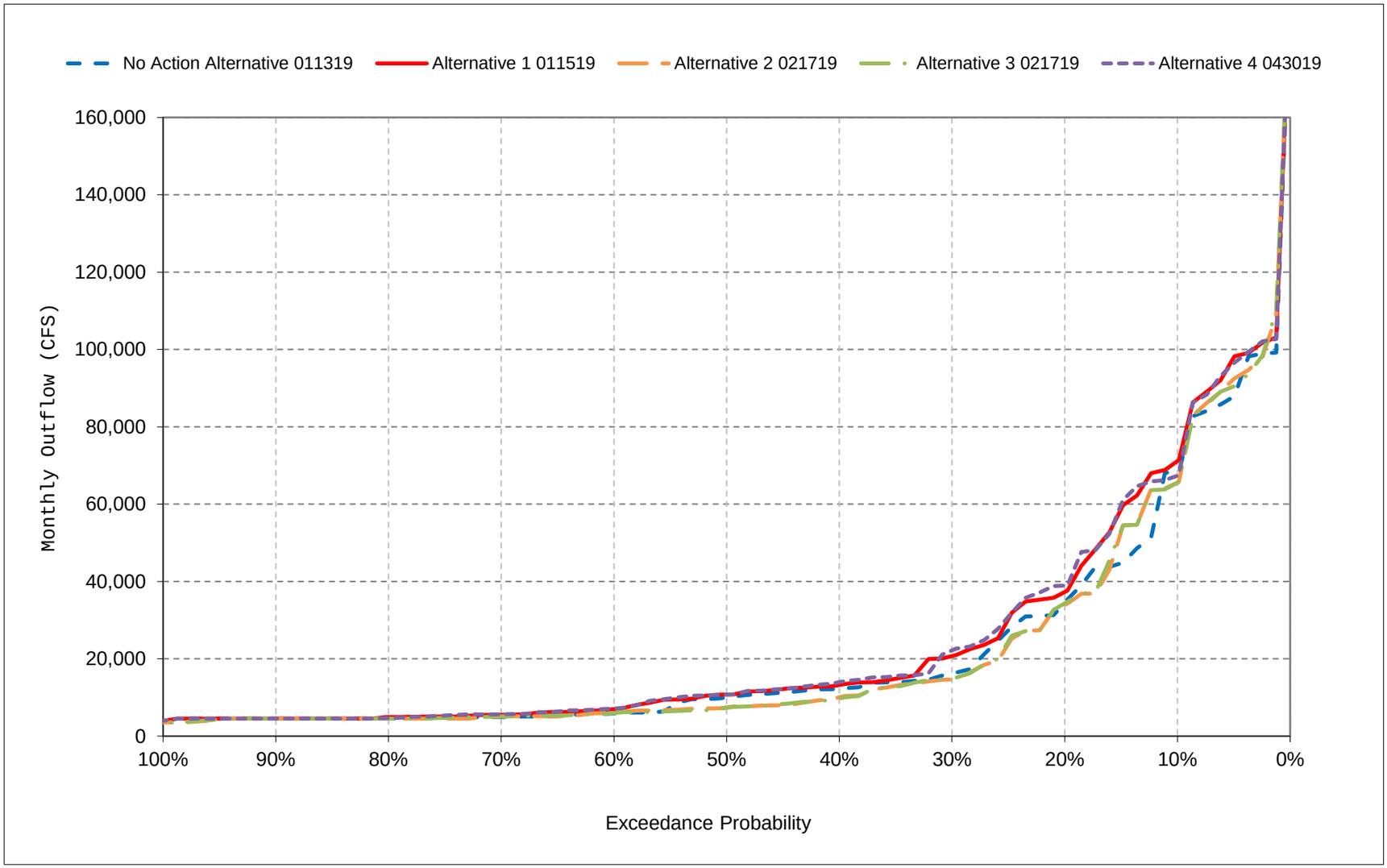
**Figure 41-8. Delta Outflow, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

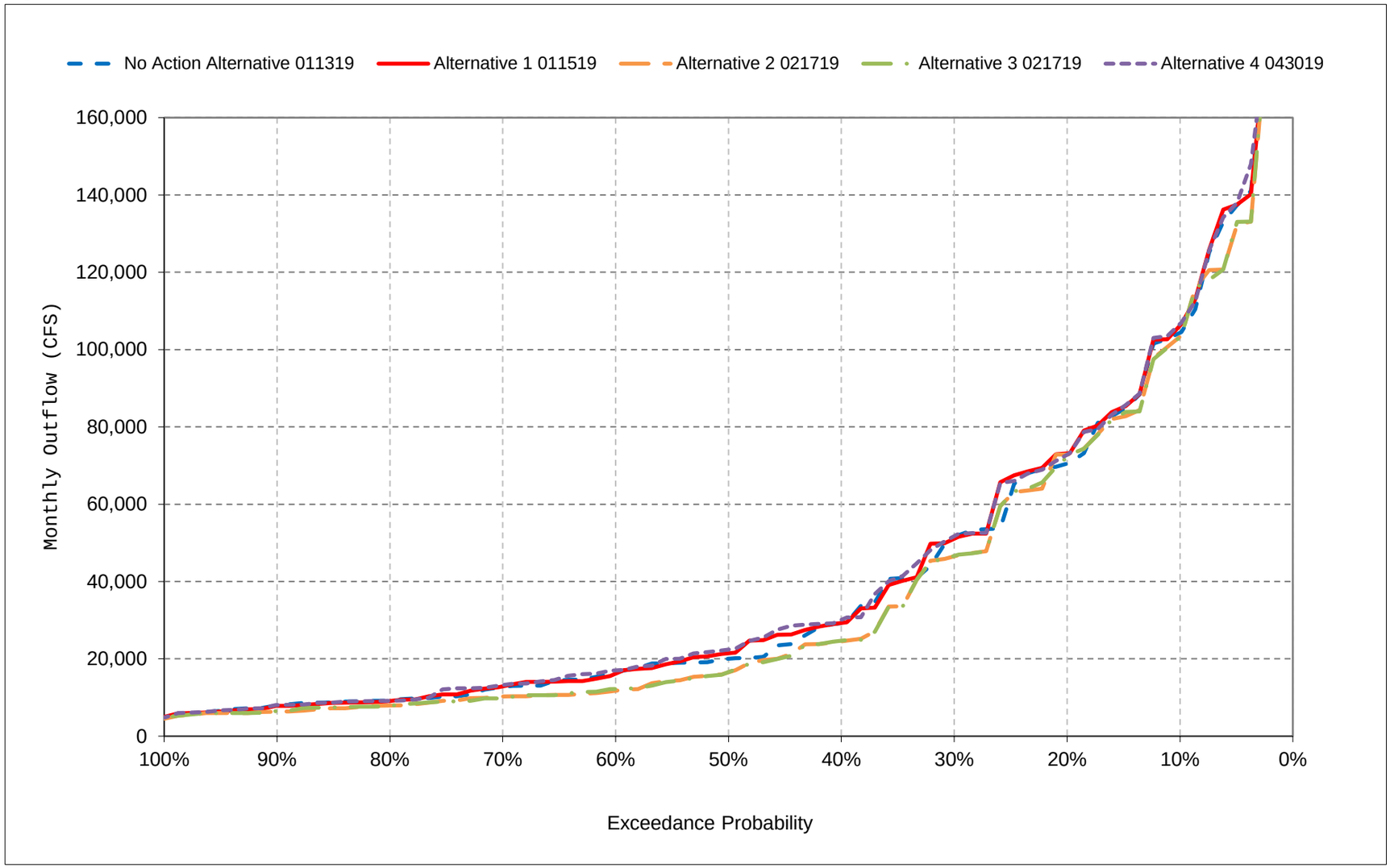
**Figure 41-9. Delta Outflow, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

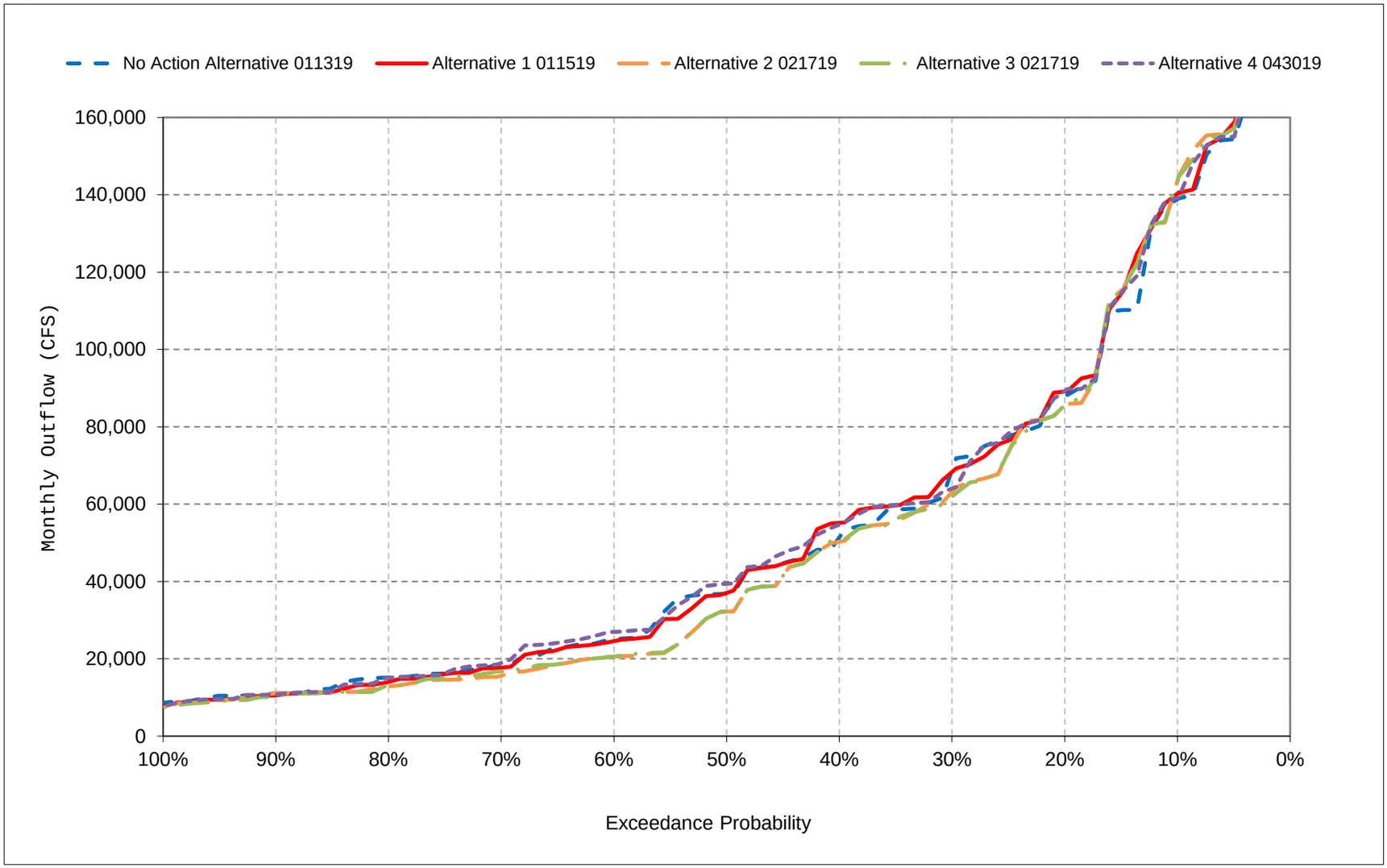
**Figure 41-10. Delta Outflow, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

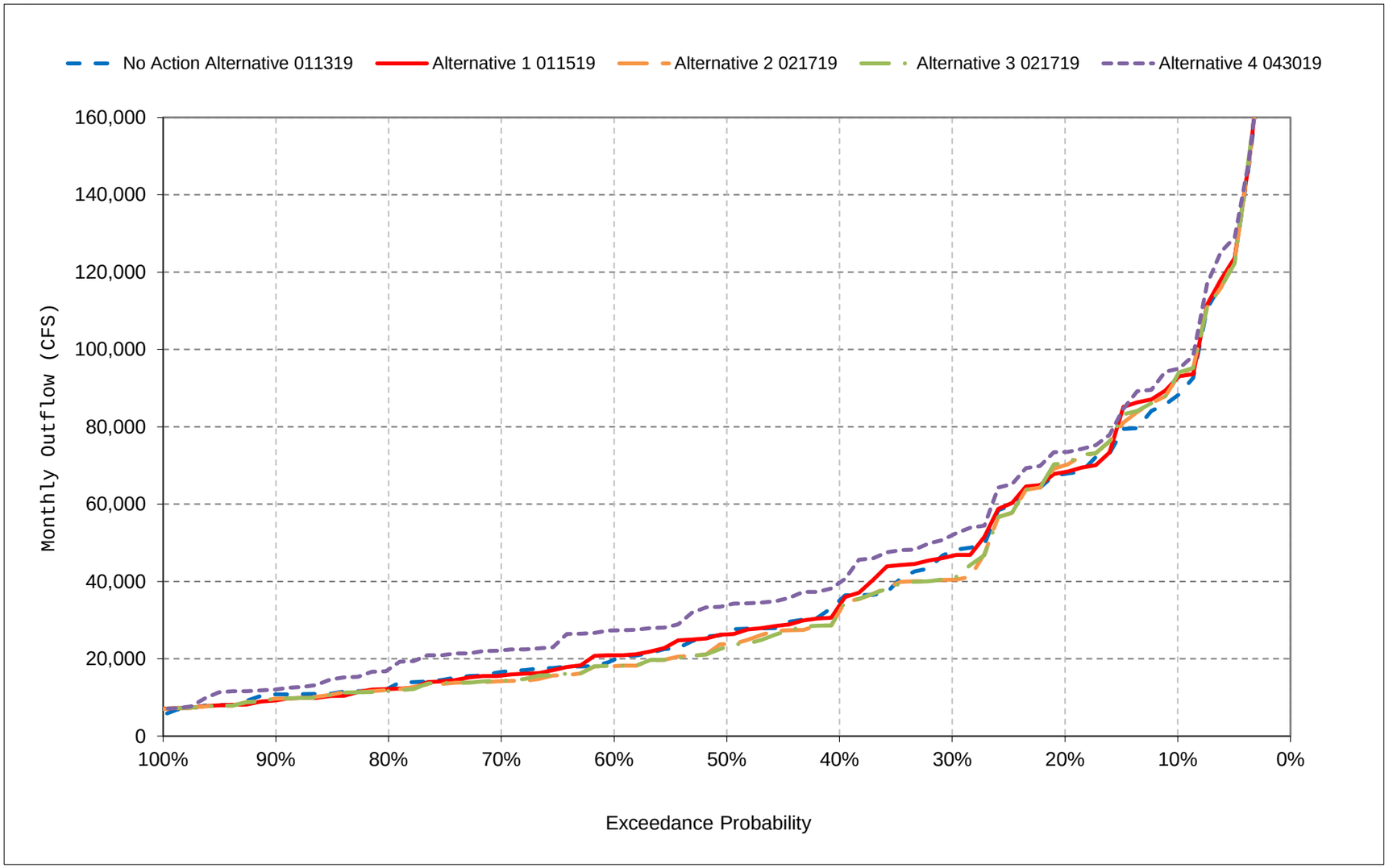
**Figure 41-11. Delta Outflow, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

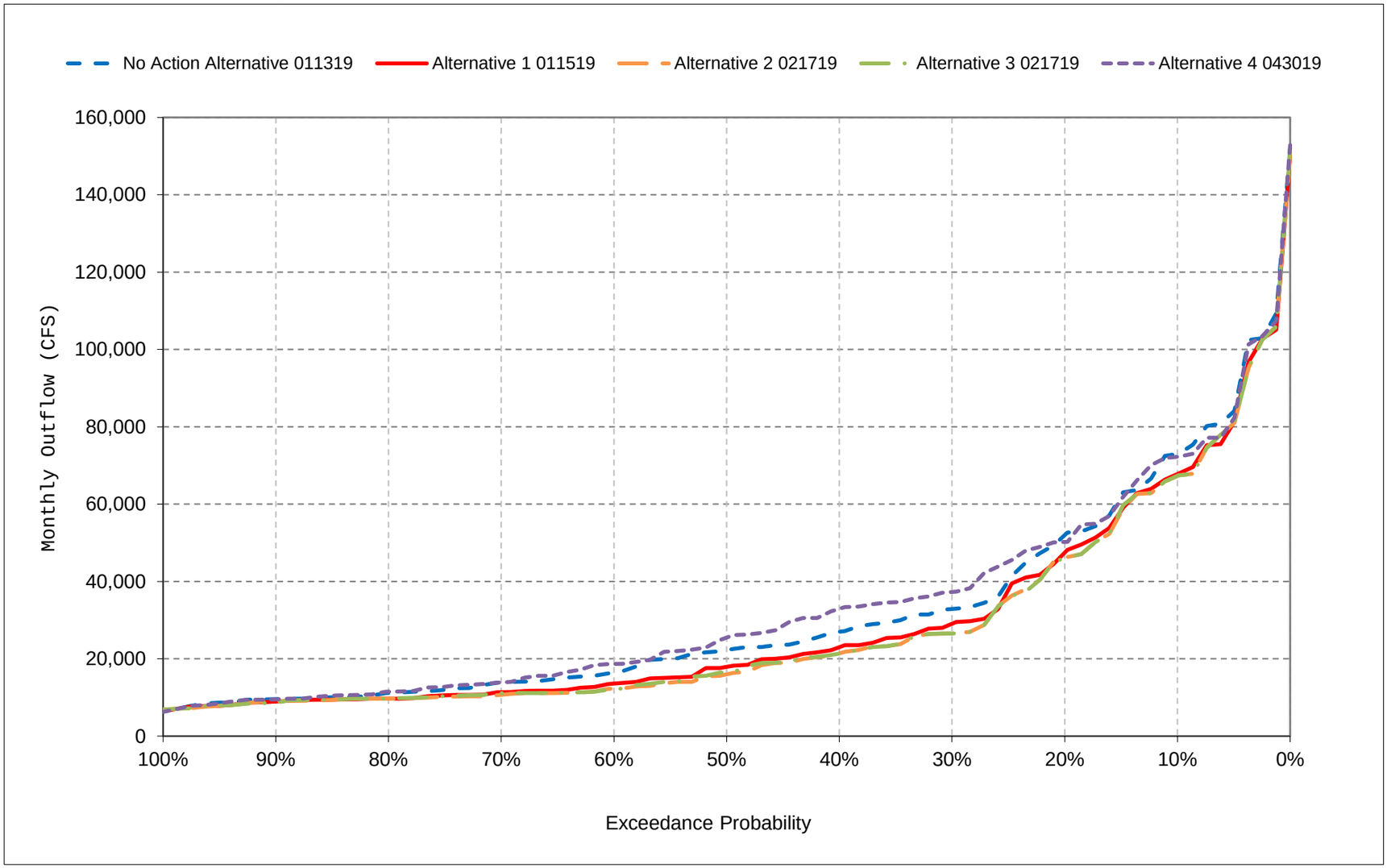
**Figure 41-12. Delta Outflow, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

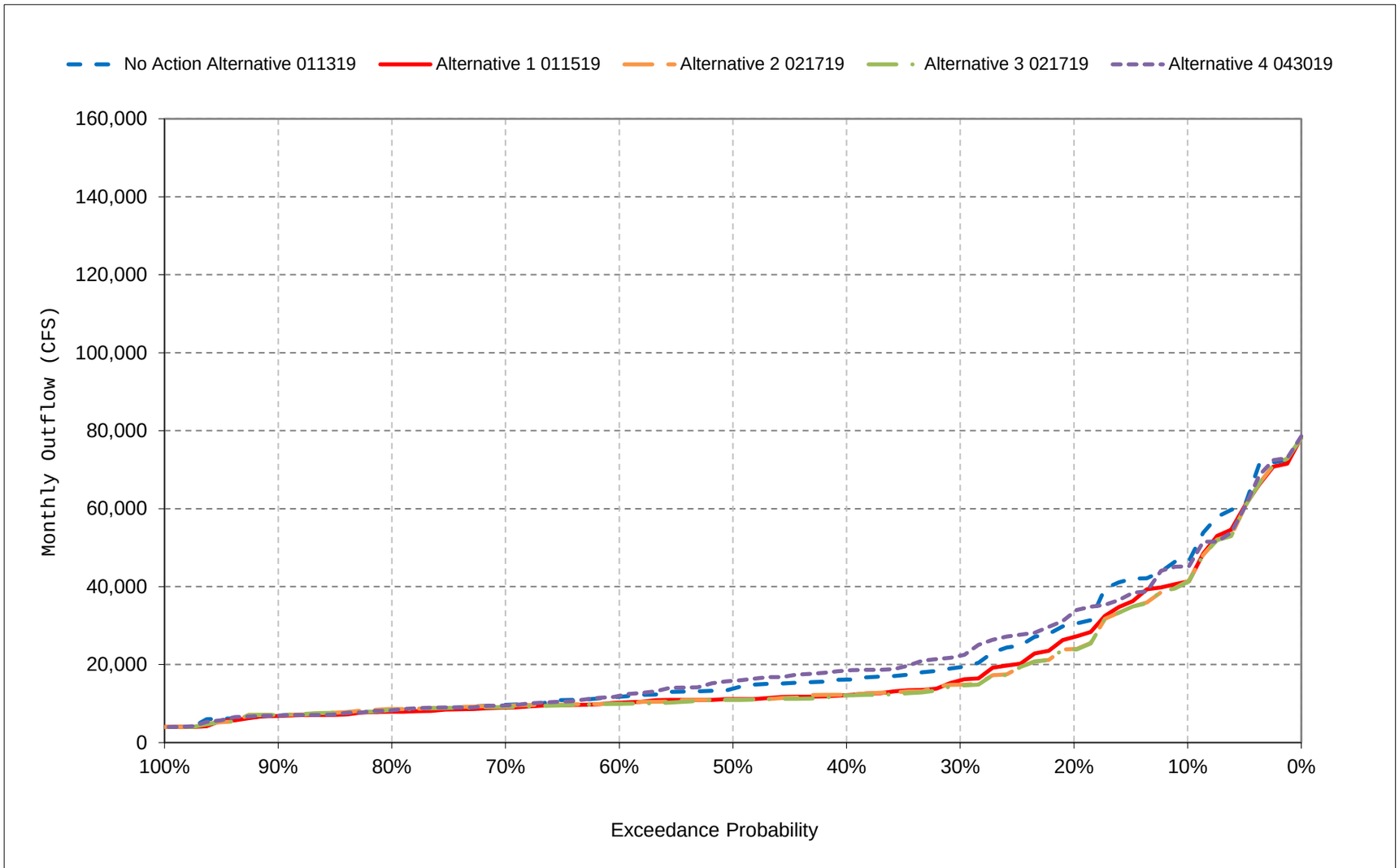
**Figure 41-13. Delta Outflow, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

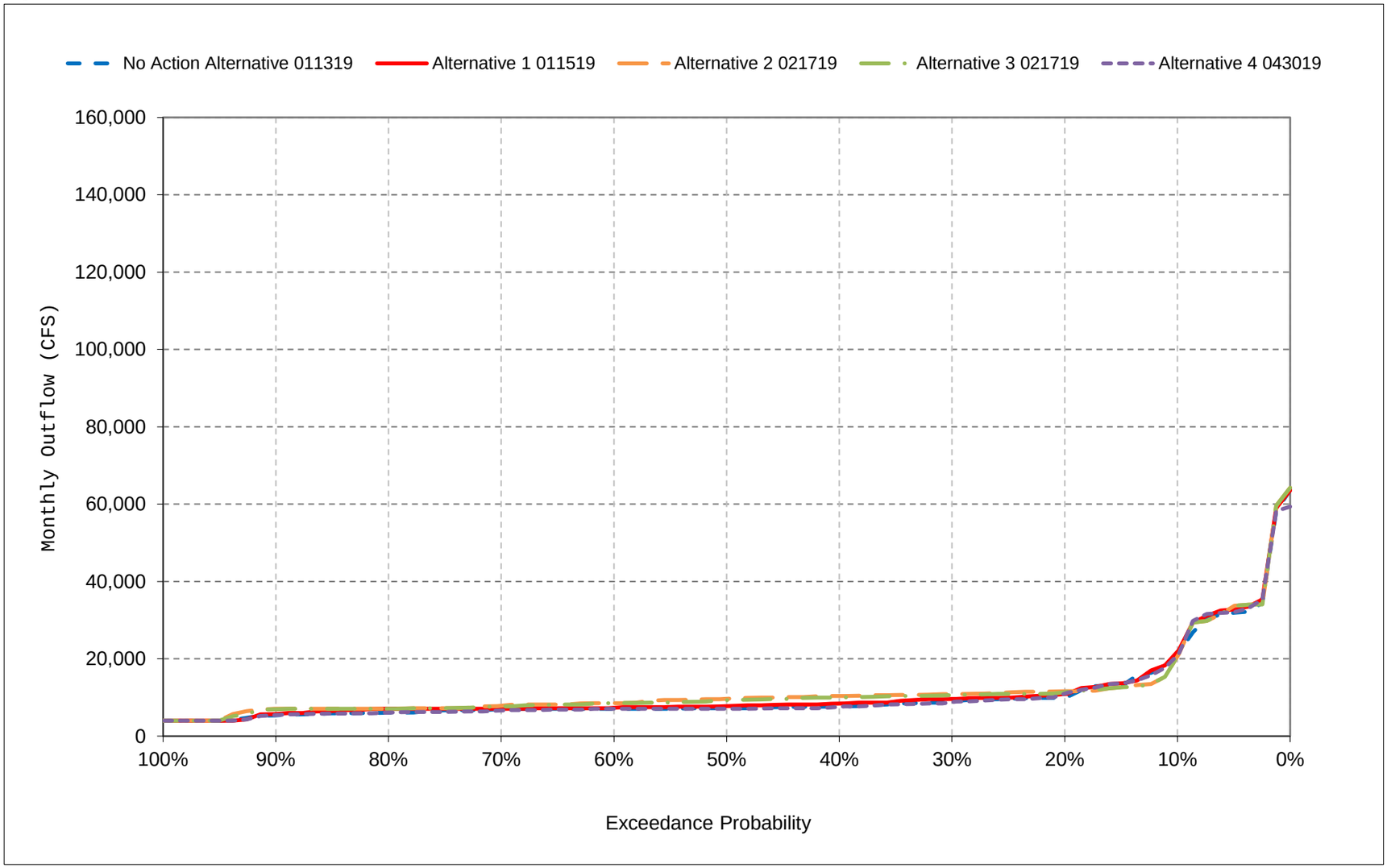
**Figure 41-14. Delta Outflow, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

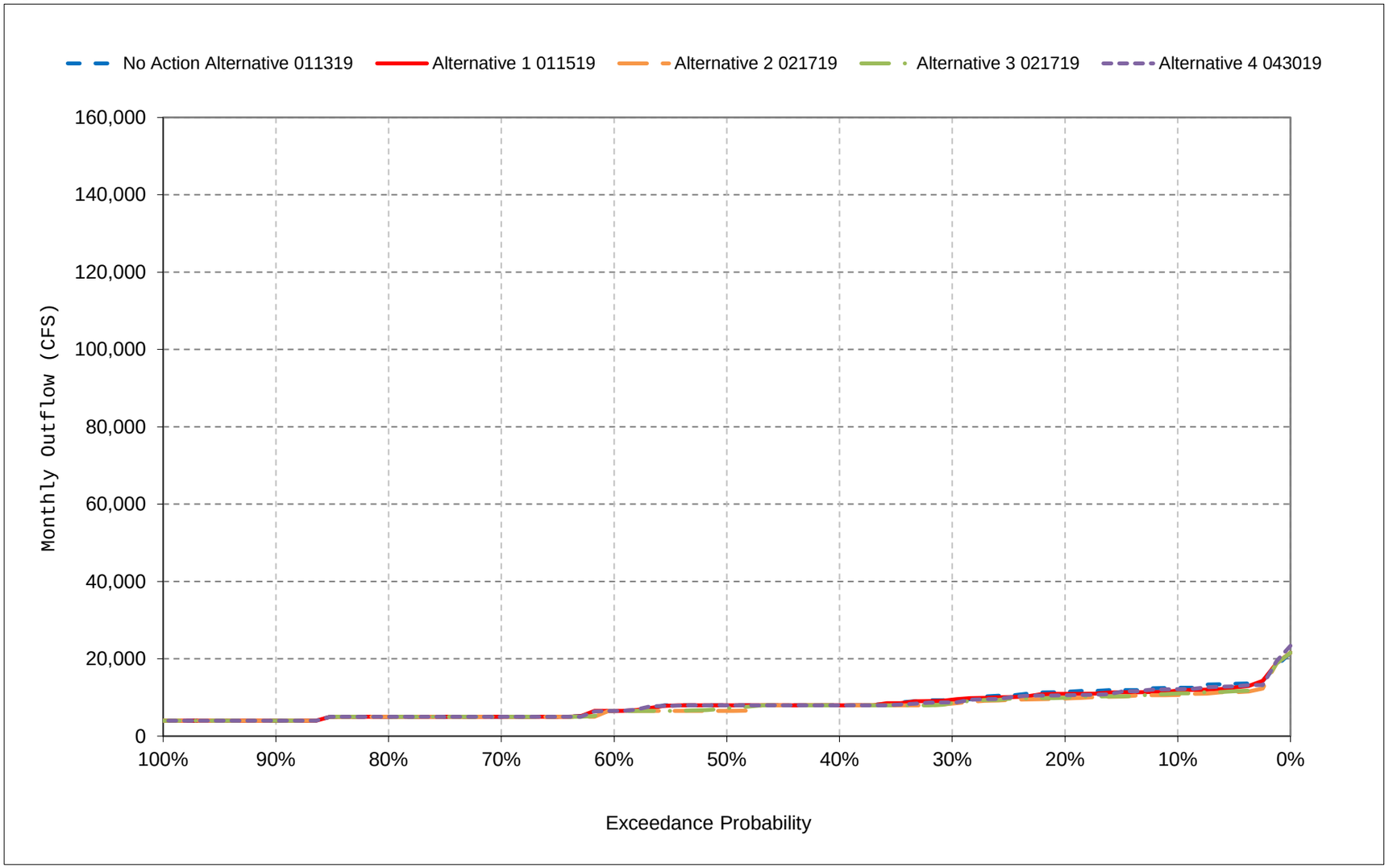
**Figure 41-15. Delta Outflow, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

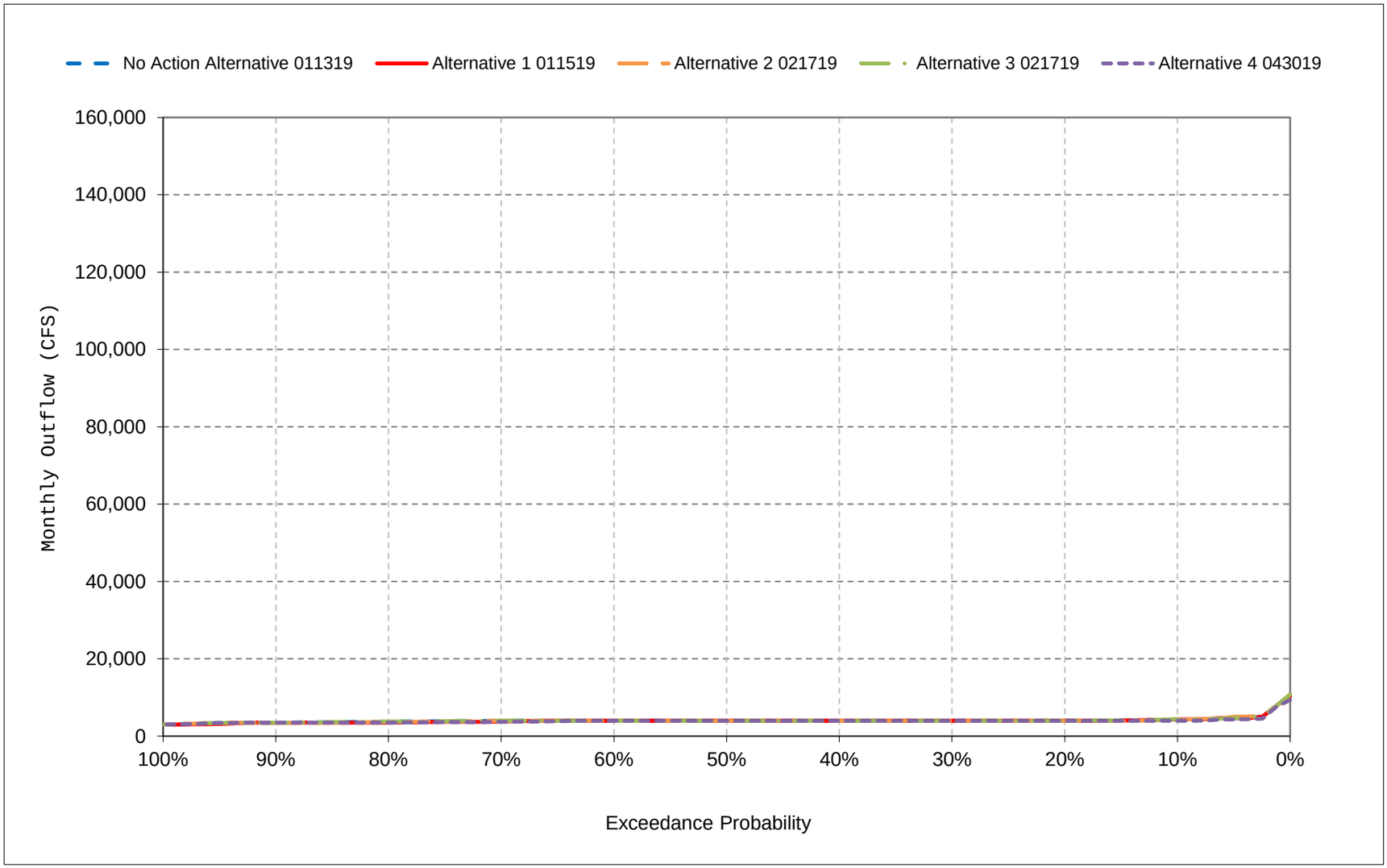
**Figure 41-16. Delta Outflow, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

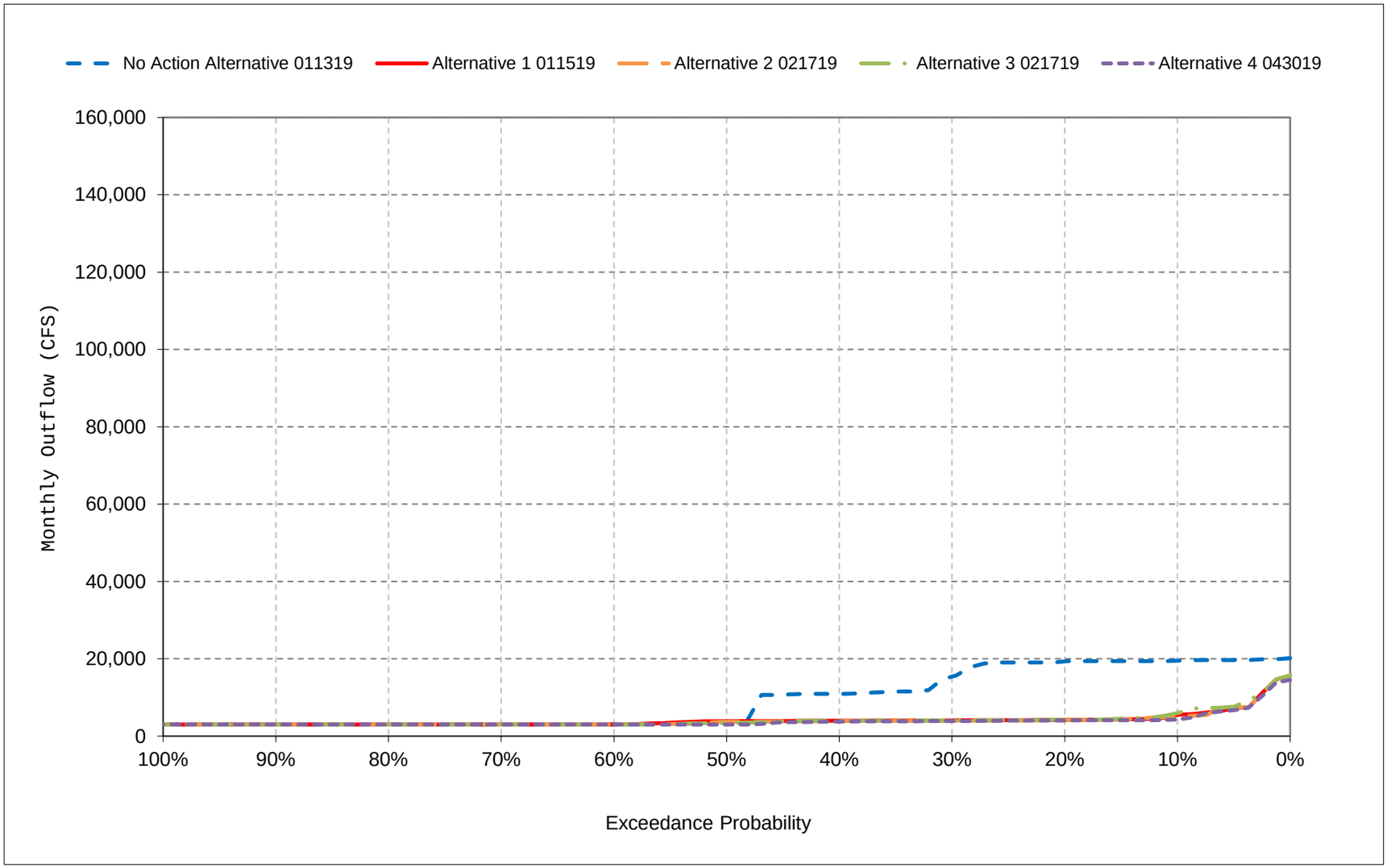
**Figure 41-17. Delta Outflow, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 41-18. Delta Outflow, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Attachment 3-3 – Diversion Results (CalSim II)

The following results of the CalSim II model are included for diversions at key project locations for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Trinity Import – Clear Creek Tunnel | D100 | 46-1 to 46-4 | 46-1 to 46-18 |
| Red Bluff Diversion – Tehama Colusa Canal | D112 | 47-1 to 47-4 | 47-1 to 47-18 |
| Hamilton City Diversion – Glenn Colusa Canal | D114 | 48-1 to 48-4 | 48-1 to 48-18 |
| Folsom South Canal Diversion | D9 | 49-1 to 49-4 | 49-1 to 49-18 |
| Friant-Kern Canal Diversion | D18A | 50-1 to 50-4 | 50-1 to 50-18 |
| Madera Canal Diversion | D18B | 51-1 to 51-4 | 51-1 to 51-18 |
| DCC Flow (Alternative 3 revised DXC equation)[1] | C401B_DXC | 52-1 to 52-4 | 52-1 to 52-18 |
| Total Delta Exports | TOTAL_EXP | 53-1 to 53-4 | 53-1 to 53-18 |
| Jones PP Exports | D418 | 54-1 to 54-4 | 54-1 to 54-18 |
| CVP Banks PP Exports | D419_CVP | 55-1 to 55-4 | 55-1 to 55-18 |
| SWP Banks PP Exports | D419_SWP | 56-1 to 56-4 | 56-1 to 56-18 |
| DMC - CA Intertie Flow | C700A | 57-1 to 57-4 | 57-1 to 57-18 |

[1] Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## 1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

# Appendix F – Modeling

## Attachment 3-3 – Diversion Results (CalSim II)

The following results of the CalSim II model are included for diversions at key project locations for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Trinity Import - Clear Creek Tunnel | D100 | 46-1 to 46-4 | 46-1 to 46-18 |
| Red Bluff Diversion - Tehama Colusa Canal | D112 | 47-1 to 47-4 | 47-1 to 47-18 |
| Hamilton City Diversion - Glenn Colusa Canal | D114 | 48-1 to 48-4 | 48-1 to 48-18 |
| Folsom South Canal Diversion | D9 | 49-1 to 49-4 | 49-1 to 49-18 |
| Friant-Kern Canal Diversion | D18A | 50-1 to 50-4 | 50-1 to 50-18 |
| Madera Canal Diversion | D18B | 51-1 to 51-4 | 51-1 to 51-18 |
| DCC Flow (Alternative 3 revised DXC equation)[1] | C401B_DXC | 52-1 to 52-4 | 52-1 to 52-18 |
| Total Delta Exports | TOTAL_EXP | 53-1 to 53-4 | 53-1 to 53-18 |
| Jones PP Exports | D418 | 54-1 to 54-4 | 54-1 to 54-18 |
| CVP Banks PP Exports | D419_CVP | 55-1 to 55-4 | 55-1 to 55-18 |
| SWP Banks PP Exports | D419_SWP | 56-1 to 56-4 | 56-1 to 56-18 |
| DMC - CA Intertie Flow | C700A | 57-1 to 57-4 | 57-1 to 57-18 |

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Notes

[1] Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

# Table 46-1. Trinity Import - Clear Creek Tunnel, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,785 | 1,339 | 375 | 1,673 | 200 | 659 | 503 | 250 | 1,250 | 2,988 | 2,434 | 2,724 |
| 20% | 1,372 | 500 | 250 | 639 | 100 | 242 | 401 | 197 | 766 | 2,000 | 2,000 | 2,336 |
| 30% | 1,250 | 468 | 200 | 200 | 100 | 194 | 323 | 93 | 625 | 1,714 | 2,000 | 2,000 |
| 40% | 750 | 450 | 141 | 116 | 50 | 107 | 251 | 0 | 262 | 1,500 | 1,773 | 1,798 |
| 50% | 700 | 209 | 75 | 100 | 19 | 100 | 200 | 0 | 200 | 1,500 | 1,500 | 1,375 |
| 60% | 625 | 75 | 50 | 50 | 0 | 54 | 160 | 0 | 156 | 1,352 | 1,500 | 1,300 |
| 70% | 307 | 50 | 0 | 0 | 0 | 0 | 100 | 0 | 40 | 1,125 | 1,500 | 1,250 |
| 80% | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 775 | 1,125 | 750 |
| 90% | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 950 | 550 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 858 | 478 | 229 | 417 | 88 | 238 | 305 | 161 | 493 | 1,447 | 1,649 | 1,553 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,361 | 866 | 497 | 516 | 118 | 354 | 369 | 205 | 284 | 1,252 | 1,583 | 2,190 |
| Above Normal (16%) | 1,177 | 764 | 291 | 136 | 48 | 331 | 358 | 0 | 206 | 1,266 | 1,955 | 1,876 |
| Below Normal (13%) | 594 | 223 | 66 | 348 | 46 | 239 | 219 | 256 | 816 | 1,734 | 2,010 | 1,611 |
| Dry (24%) | 360 | 146 | 40 | 481 | 106 | 95 | 194 | 182 | 842 | 1,891 | 1,552 | 1,002 |
| Critical (15%) | 491 | 113 | 46 | 465 | 76 | 120 | 374 | 119 | 379 | 1,062 | 1,292 | 693 |

## Alternative 1 011519

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,838 | 532 | 424 | 2,109 | 130 | 874 | 456 | 250 | 1,374 | 3,300 | 2,500 | 2,202 |
| 20% | 1,412 | 450 | 224 | 578 | 100 | 446 | 406 | 200 | 750 | 2,443 | 2,000 | 2,000 |
| 30% | 823 | 450 | 161 | 118 | 100 | 200 | 355 | 99 | 700 | 2,000 | 2,000 | 1,827 |
| 40% | 700 | 352 | 102 | 100 | 65 | 119 | 282 | 0 | 378 | 1,500 | 1,980 | 1,457 |
| 50% | 700 | 91 | 75 | 100 | 0 | 100 | 208 | 0 | 250 | 1,500 | 1,720 | 1,300 |
| 60% | 407 | 75 | 50 | 50 | 0 | 75 | 149 | 0 | 182 | 1,475 | 1,500 | 1,250 |
| 70% | 200 | 0 | 0 | 0 | 0 | 0 | 91 | 0 | 40 | 1,125 | 1,500 | 1,200 |
| 80% | 151 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,086 | 1,151 | 750 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 950 | 550 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 778 | 298 | 201 | 437 | 89 | 299 | 283 | 170 | 513 | 1,609 | 1,727 | 1,386 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,352 | 370 | 396 | 522 | 99 | 381 | 292 | 213 | 312 | 1,315 | 1,642 | 1,715 |
| Above Normal (16%) | 790 | 308 | 258 | 280 | 74 | 459 | 355 | 0 | 346 | 1,415 | 1,968 | 1,765 |
| Below Normal (13%) | 721 | 332 | 105 | 443 | 57 | 489 | 251 | 288 | 1,016 | 1,778 | 2,167 | 1,398 |
| Dry (24%) | 374 | 256 | 54 | 390 | 120 | 71 | 207 | 196 | 625 | 2,028 | 1,648 | 1,048 |
| Critical (15%) | 244 | 171 | 52 | 497 | 58 | 150 | 341 | 107 | 485 | 1,602 | 1,381 | 819 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 53 | **-807** | 50 | 436 | **-70** | 216 | **-47** | 0 | 124 | 312 | 66 | **-522** |
| 20% | 41 | **-50** | **-26** | **-61** | 0 | 204 | 5 | 3 | **-16** | 443 | 0 | **-336** |
| 30% | **-427** | **-17** | **-39** | **-82** | 0 | 6 | 32 | 5 | 75 | 286 | 0 | **-173** |
| 40% | **-50** | **-98** | **-39** | **-16** | 15 | 12 | 30 | 0 | 116 | 0 | 207 | **-341** |
| 50% | 0 | **-118** | 0 | 0 | **-19** | 0 | 8 | 0 | 50 | 0 | 220 | **-75** |
| 60% | **-218** | 0 | 0 | 0 | 0 | 21 | **-11** | 0 | 26 | 123 | 0 | **-50** |
| 70% | **-107** | **-50** | 0 | 0 | 0 | 0 | **-9** | 0 | 0 | 0 | 0 | **-50** |
| 80% | **-49** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 311 | 26 | 0 |
| 90% | **-12** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-80** | **-180** | **-28** | 20 | 1 | 61 | **-23** | 9 | 20 | 162 | 78 | **-167** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-9** | **-497** | **-102** | 5 | **-19** | 27 | **-78** | 9 | 28 | 63 | 59 | **-475** |
| Above Normal (16%) | **-387** | **-456** | **-33** | 144 | 26 | 128 | **-3** | 0 | 140 | 149 | 14 | **-111** |
| Below Normal (13%) | 126 | 110 | 39 | 95 | 10 | 251 | 32 | 32 | 200 | 44 | 157 | **-213** |
| Dry (24%) | 14 | 109 | 14 | **-91** | 15 | **-24** | 13 | 14 | **-217** | 136 | 95 | 46 |
| Critical (15%) | **-247** | 58 | 6 | 32 | **-18** | 30 | **-34** | **-11** | 106 | 540 | 88 | 125 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 46-2. Trinity Import - Clear Creek Tunnel, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,785 | 1,339 | 375 | 1,673 | 200 | 659 | 503 | 250 | 1,250 | 2,988 | 2,434 | 2,724 |
| 20% | 1,372 | 500 | 250 | 639 | 100 | 242 | 401 | 197 | 766 | 2,000 | 2,000 | 2,336 |
| 30% | 1,250 | 468 | 200 | 200 | 100 | 194 | 323 | 93 | 625 | 1,714 | 2,000 | 2,000 |
| 40% | 750 | 450 | 141 | 116 | 50 | 107 | 251 | 0 | 262 | 1,500 | 1,773 | 1,798 |
| 50% | 700 | 209 | 75 | 100 | 19 | 100 | 200 | 0 | 200 | 1,500 | 1,500 | 1,375 |
| 60% | 625 | 75 | 50 | 50 | 0 | 54 | 160 | 0 | 156 | 1,352 | 1,500 | 1,300 |
| 70% | 307 | 50 | 0 | 0 | 0 | 0 | 100 | 0 | 40 | 1,125 | 1,500 | 1,250 |
| 80% | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 775 | 1,125 | 750 |
| 90% | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 950 | 550 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 858 | 478 | 229 | 417 | 88 | 238 | 305 | 161 | 493 | 1,447 | 1,649 | 1,553 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,361 | 866 | 497 | 516 | 118 | 354 | 369 | 205 | 284 | 1,252 | 1,583 | 2,190 |
| Above Normal (16%) | 1,177 | 764 | 291 | 136 | 48 | 331 | 358 | 0 | 206 | 1,266 | 1,955 | 1,876 |
| Below Normal (13%) | 594 | 223 | 66 | 348 | 46 | 239 | 219 | 256 | 816 | 1,734 | 2,010 | 1,611 |
| Dry (24%) | 360 | 146 | 40 | 481 | 106 | 95 | 194 | 182 | 842 | 1,891 | 1,552 | 1,002 |
| Critical (15%) | 491 | 113 | 46 | 465 | 76 | 120 | 374 | 119 | 379 | 1,062 | 1,292 | 693 |

## Alternative 2 021719

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,869 | 500 | 385 | 2,027 | 100 | 753 | 408 | 248 | 1,374 | 3,300 | 2,929 | 2,540 |
| 20% | 1,683 | 470 | 200 | 527 | 100 | 191 | 337 | 119 | 750 | 2,647 | 2,410 | 2,001 |
| 30% | 1,105 | 347 | 100 | 170 | 75 | 116 | 265 | 75 | 700 | 2,000 | 2,000 | 2,000 |
| 40% | 750 | 98 | 75 | 100 | 50 | 100 | 203 | 0 | 478 | 2,000 | 1,950 | 1,589 |
| 50% | 700 | 75 | 50 | 75 | 0 | 98 | 129 | 0 | 200 | 1,500 | 1,764 | 1,300 |
| 60% | 625 | 50 | 7 | 45 | 0 | 0 | 100 | 0 | 37 | 1,500 | 1,500 | 1,250 |
| 70% | 200 | 0 | 0 | 0 | 0 | 0 | 51 | 0 | 0 | 1,204 | 1,500 | 816 |
| 80% | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,086 | 1,500 | 750 |
| 90% | 129 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 1,125 | 282 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 858 | 249 | 150 | 428 | 59 | 262 | 268 | 152 | 507 | 1,670 | 1,817 | 1,446 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,365 | 349 | 306 | 491 | 53 | 375 | 347 | 189 | 267 | 1,329 | 1,684 | 1,744 |
| Above Normal (16%) | 1,051 | 300 | 173 | 233 | 82 | 339 | 329 | 0 | 313 | 1,587 | 2,243 | 1,735 |
| Below Normal (13%) | 1,072 | 326 | 61 | 441 | 43 | 466 | 155 | 260 | 882 | 2,054 | 2,176 | 1,918 |
| Dry (24%) | 329 | 145 | 34 | 387 | 69 | 51 | 135 | 184 | 775 | 2,068 | 1,617 | 1,067 |
| Critical (15%) | 236 | 85 | 64 | 563 | 44 | 95 | 356 | 87 | 448 | 1,484 | 1,651 | 685 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 84 | **-839** | 10 | 354 | **-100** | 94 | **-95** | **-2** | 124 | 312 | 496 | **-184** |
| 20% | 311 | **-30** | **-50** | **-112** | 0 | **-51** | **-64** | **-78** | **-16** | 647 | 410 | **-335** |
| 30% | **-145** | **-120** | **-100** | **-30** | **-25** | **-78** | **-58** | **-18** | 75 | 286 | 0 | 0 |
| 40% | 0 | **-352** | **-66** | **-16** | 0 | **-7** | **-49** | 0 | 216 | 500 | 177 | **-210** |
| 50% | 0 | **-134** | **-25** | **-25** | **-19** | **-2** | **-71** | 0 | 0 | 0 | 264 | **-75** |
| 60% | 0 | **-25** | **-43** | **-5** | 0 | **-54** | **-60** | 0 | **-120** | 148 | 0 | **-50** |
| 70% | **-107** | **-50** | 0 | 0 | 0 | 0 | **-49** | 0 | **-40** | 79 | 0 | **-434** |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 311 | 375 | 0 |
| 90% | 117 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **-28** | 175 | **-268** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | **-228** | **-79** | 11 | **-29** | 24 | **-37** | **-9** | 14 | 223 | 168 | **-108** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 4 | **-518** | **-191** | **-26** | **-64** | 21 | **-22** | **-16** | **-18** | 78 | 101 | **-445** |
| Above Normal (16%) | **-126** | **-464** | **-118** | 97 | 34 | 8 | **-29** | 0 | 108 | 321 | 289 | **-141** |
| Below Normal (13%) | 477 | 103 | **-4** | 93 | **-3** | 227 | **-64** | 4 | 66 | 321 | 166 | 307 |
| Dry (24%) | **-32** | **-2** | **-6** | **-95** | **-37** | **-44** | **-59** | 2 | **-67** | 177 | 64 | 65 |
| Critical (15%) | **-254** | **-28** | 17 | 98 | **-32** | **-25** | **-18** | **-31** | 69 | 422 | 359 | **-8** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 46-3. Trinity Import - Clear Creek Tunnel, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,785 | 1,339 | 375 | 1,673 | 200 | 659 | 503 | 250 | 1,250 | 2,988 | 2,434 | 2,724 |
| 20% | 1,372 | 500 | 250 | 639 | 100 | 242 | 401 | 197 | 766 | 2,000 | 2,000 | 2,336 |
| 30% | 1,250 | 468 | 200 | 200 | 100 | 194 | 323 | 93 | 625 | 1,714 | 2,000 | 2,000 |
| 40% | 750 | 450 | 141 | 116 | 50 | 107 | 251 | 0 | 262 | 1,500 | 1,773 | 1,798 |
| 50% | 700 | 209 | 75 | 100 | 19 | 100 | 200 | 0 | 200 | 1,500 | 1,500 | 1,375 |
| 60% | 625 | 75 | 50 | 50 | 0 | 54 | 160 | 0 | 156 | 1,352 | 1,500 | 1,300 |
| 70% | 307 | 50 | 0 | 0 | 0 | 0 | 100 | 0 | 40 | 1,125 | 1,500 | 1,250 |
| 80% | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 775 | 1,125 | 750 |
| 90% | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 950 | 550 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 858 | 478 | 229 | 417 | 88 | 238 | 305 | 161 | 493 | 1,447 | 1,649 | 1,553 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,361 | 866 | 497 | 516 | 118 | 354 | 369 | 205 | 284 | 1,252 | 1,583 | 2,190 |
| Above Normal (16%) | 1,177 | 764 | 291 | 136 | 48 | 331 | 358 | 0 | 206 | 1,266 | 1,955 | 1,876 |
| Below Normal (13%) | 594 | 223 | 66 | 348 | 46 | 239 | 219 | 256 | 816 | 1,734 | 2,010 | 1,611 |
| Dry (24%) | 360 | 146 | 40 | 481 | 106 | 95 | 194 | 182 | 842 | 1,891 | 1,552 | 1,002 |
| Critical (15%) | 491 | 113 | 46 | 465 | 76 | 120 | 374 | 119 | 379 | 1,062 | 1,292 | 693 |

## Alternative 3 021719

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,873 | 502 | 416 | 2,045 | 100 | 701 | 408 | 250 | 1,362 | 3,299 | 3,030 | 2,572 |
| 20% | 1,740 | 475 | 220 | 524 | 100 | 218 | 313 | 119 | 787 | 2,750 | 2,410 | 2,112 |
| 30% | 1,250 | 450 | 176 | 200 | 75 | 138 | 255 | 75 | 732 | 2,000 | 2,000 | 2,000 |
| 40% | 750 | 97 | 75 | 100 | 50 | 100 | 169 | 0 | 460 | 1,978 | 1,950 | 1,544 |
| 50% | 700 | 75 | 63 | 75 | 3 | 95 | 108 | 0 | 200 | 1,500 | 1,728 | 1,300 |
| 60% | 684 | 75 | 1 | 45 | 0 | 5 | 100 | 0 | 24 | 1,500 | 1,500 | 1,250 |
| 70% | 200 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 1,204 | 1,500 | 970 |
| 80% | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 975 | 1,462 | 750 |
| 90% | 125 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 1,125 | 410 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 912 | 258 | 183 | 427 | 61 | 259 | 251 | 159 | 502 | 1,652 | 1,795 | 1,431 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,386 | 368 | 346 | 492 | 53 | 358 | 276 | 189 | 244 | 1,298 | 1,690 | 1,703 |
| Above Normal (16%) | 964 | 327 | 277 | 221 | 74 | 355 | 328 | 0 | 358 | 1,551 | 2,171 | 1,668 |
| Below Normal (13%) | 1,332 | 303 | 95 | 444 | 43 | 466 | 182 | 278 | 864 | 2,053 | 2,184 | 1,892 |
| Dry (24%) | 403 | 153 | 34 | 359 | 80 | 59 | 120 | 186 | 775 | 2,082 | 1,573 | 1,099 |
| Critical (15%) | 292 | 82 | 57 | 604 | 45 | 86 | 394 | 110 | 431 | 1,443 | 1,630 | 712 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 88 | **-837** | 42 | 372 | **-100** | 43 | **-95** | 0 | 112 | 311 | 597 | **-153** |
| 20% | 369 | **-25** | **-30** | **-115** | 0 | **-24** | **-88** | **-78** | 20 | 750 | 410 | **-224** |
| 30% | 0 | **-17** | **-24** | 0 | **-25** | **-56** | **-68** | **-18** | 107 | 286 | 0 | 0 |
| 40% | 0 | **-353** | **-66** | **-16** | 0 | **-7** | **-83** | 0 | 198 | 478 | 177 | **-254** |
| 50% | 0 | **-134** | **-12** | **-25** | **-16** | **-5** | **-92** | 0 | 0 | 0 | 228 | **-75** |
| 60% | 59 | 0 | **-49** | **-5** | 0 | **-49** | **-60** | 0 | **-132** | 148 | 0 | **-50** |
| 70% | **-107** | **-50** | 0 | 0 | 0 | 0 | **-71** | 0 | **-40** | 79 | 0 | **-280** |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 201 | 337 | 0 |
| 90% | 113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **-29** | 175 | **-140** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55 | **-219** | **-46** | 9 | **-28** | 22 | **-54** | **-2** | 9 | 205 | 146 | **-123** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 25 | **-499** | **-152** | **-24** | **-64** | 4 | **-93** | **-16** | **-41** | 46 | 107 | **-487** |
| Above Normal (16%) | **-213** | **-437** | **-14** | 85 | 26 | 24 | **-31** | 0 | 152 | 285 | 217 | **-208** |
| Below Normal (13%) | 738 | 80 | 29 | 96 | **-3** | 227 | **-37** | 22 | 48 | 320 | 174 | 281 |
| Dry (24%) | 43 | 7 | **-6** | **-123** | **-26** | **-37** | **-74** | 4 | **-67** | 191 | 20 | 97 |
| Critical (15%) | **-199** | **-31** | 11 | 139 | **-31** | **-34** | 20 | **-9** | 53 | 381 | 338 | 19 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 46-4. Trinity Import - Clear Creek Tunnel, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,785 | 1,339 | 375 | 1,673 | 200 | 659 | 503 | 250 | 1,250 | 2,988 | 2,434 | 2,724 |
| 20% | 1,372 | 500 | 250 | 639 | 100 | 242 | 401 | 197 | 766 | 2,000 | 2,000 | 2,336 |
| 30% | 1,250 | 468 | 200 | 200 | 100 | 194 | 323 | 93 | 625 | 1,714 | 2,000 | 2,000 |
| 40% | 750 | 450 | 141 | 116 | 50 | 107 | 251 | 0 | 262 | 1,500 | 1,773 | 1,798 |
| 50% | 700 | 209 | 75 | 100 | 19 | 100 | 200 | 0 | 200 | 1,500 | 1,500 | 1,375 |
| 60% | 625 | 75 | 50 | 50 | 0 | 54 | 160 | 0 | 156 | 1,352 | 1,500 | 1,300 |
| 70% | 307 | 50 | 0 | 0 | 0 | 0 | 100 | 0 | 40 | 1,125 | 1,500 | 1,250 |
| 80% | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 775 | 1,125 | 750 |
| 90% | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 950 | 550 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 858 | 478 | 229 | 417 | 88 | 238 | 305 | 161 | 493 | 1,447 | 1,649 | 1,553 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,361 | 866 | 497 | 516 | 118 | 354 | 369 | 205 | 284 | 1,252 | 1,583 | 2,190 |
| Above Normal (16%) | 1,177 | 764 | 291 | 136 | 48 | 331 | 358 | 0 | 206 | 1,266 | 1,955 | 1,876 |
| Below Normal (13%) | 594 | 223 | 66 | 348 | 46 | 239 | 219 | 256 | 816 | 1,734 | 2,010 | 1,611 |
| Dry (24%) | 360 | 146 | 40 | 481 | 106 | 95 | 194 | 182 | 842 | 1,891 | 1,552 | 1,002 |
| Critical (15%) | 491 | 113 | 46 | 465 | 76 | 120 | 374 | 119 | 379 | 1,062 | 1,292 | 693 |

## Alternative 4 043019

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,838 | 500 | 424 | 1,624 | 157 | 1,017 | 839 | 250 | 1,321 | 2,795 | 2,500 | 2,502 |
| 20% | 1,642 | 450 | 220 | 245 | 100 | 518 | 492 | 198 | 750 | 2,000 | 2,045 | 2,000 |
| 30% | 750 | 450 | 186 | 200 | 100 | 214 | 404 | 100 | 700 | 1,950 | 2,000 | 2,000 |
| 40% | 700 | 332 | 102 | 100 | 87 | 167 | 351 | 0 | 313 | 1,500 | 1,974 | 1,300 |
| 50% | 700 | 77 | 75 | 100 | 50 | 100 | 240 | 0 | 200 | 1,500 | 1,681 | 1,275 |
| 60% | 625 | 50 | 50 | 50 | 0 | 100 | 208 | 0 | 173 | 1,500 | 1,500 | 1,250 |
| 70% | 200 | 0 | 0 | 0 | 0 | 5 | 181 | 0 | 49 | 1,248 | 1,500 | 750 |
| 80% | 200 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 1,125 | 1,150 | 750 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 581 | 950 | 250 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 789 | 279 | 187 | 383 | 79 | 323 | 395 | 145 | 439 | 1,584 | 1,712 | 1,371 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,240 | 372 | 335 | 491 | 75 | 423 | 440 | 216 | 329 | 1,364 | 1,654 | 1,730 |
| Above Normal (16%) | 944 | 381 | 258 | 181 | 78 | 486 | 672 | 0 | 288 | 1,457 | 2,023 | 1,842 |
| Below Normal (13%) | 475 | 258 | 77 | 438 | 66 | 503 | 247 | 176 | 677 | 2,024 | 1,942 | 1,381 |
| Dry (24%) | 452 | 244 | 71 | 252 | 103 | 81 | 226 | 147 | 558 | 1,844 | 1,673 | 1,093 |
| Critical (15%) | 491 | 44 | 85 | 540 | 61 | 169 | 417 | 118 | 423 | 1,361 | 1,356 | 537 |

## Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 53 | **-839** | 50 | **-49** | **-43** | 359 | 336 | 0 | 71 | **-194** | 66 | **-223** |
| 20% | 270 | **-50** | **-30** | **-394** | 0 | 277 | 91 | 1 | **-16** | 0 | 45 | **-336** |
| 30% | **-500** | **-17** | **-14** | 0 | 0 | 20 | 81 | 7 | 75 | 236 | 0 | 0 |
| 40% | **-50** | **-118** | **-39** | **-16** | 37 | 60 | 99 | 0 | 51 | 0 | 202 | **-498** |
| 50% | 0 | **-132** | 0 | 0 | 31 | 0 | 40 | 0 | 0 | 0 | 181 | **-100** |
| 60% | 0 | **-25** | **0** | 0 | 0 | 46 | 48 | 0 | 17 | 148 | 0 | **-50** |
| 70% | **-107** | **-50** | 0 | 0 | 0 | 5 | 81 | 0 | 9 | 123 | 0 | **-500** |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 350 | 25 | 0 |
| 90% | **-12** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 508 | 0 | **-300** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-69** | **-199** | **-42** | **-34** | **-9** | 86 | 90 | **-16** | **-54** | 137 | 63 | **-183** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-121** | **-494** | **-162** | **-26** | **-43** | 69 | 70 | 12 | 44 | 112 | 71 | **-460** |
| Above Normal (16%) | **-233** | **-383** | **-33** | 45 | 30 | 155 | 314 | 0 | 82 | 191 | 69 | **-34** |
| Below Normal (13%) | **-119** | 36 | 12 | 90 | 19 | 264 | 28 | **-80** | **-139** | 290 | **-68** | **-230** |
| Dry (24%) | 92 | 98 | 31 | **-230** | **-2** | **-15** | 32 | **-35** | **-284** | **-47** | 121 | 91 |
| Critical (15%) | 1 | **-69** | 39 | 76 | **-15** | 50 | 43 | **-1** | 44 | 299 | 64 | **-156** |

a Based on the 82-year simulation period.

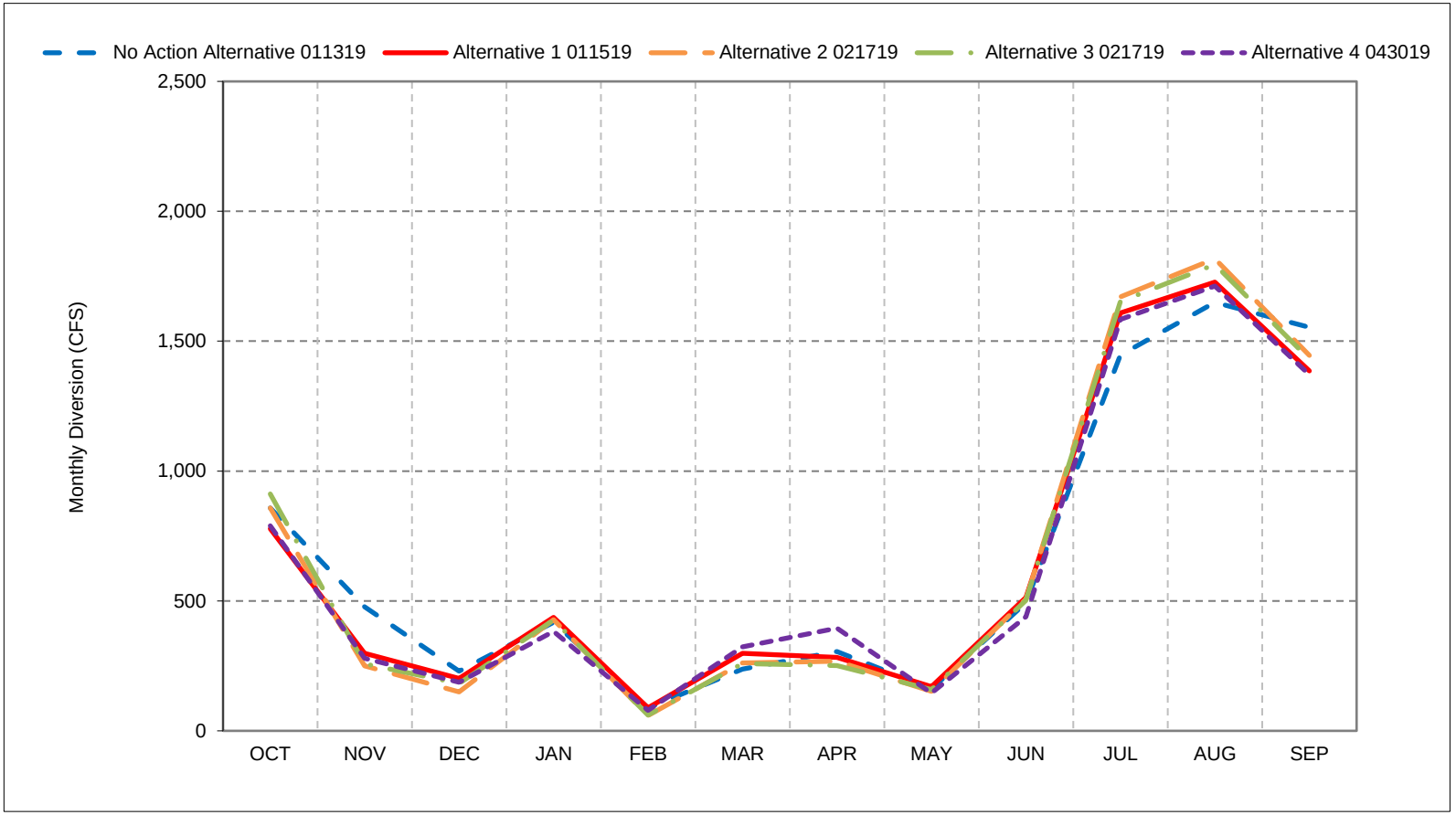
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

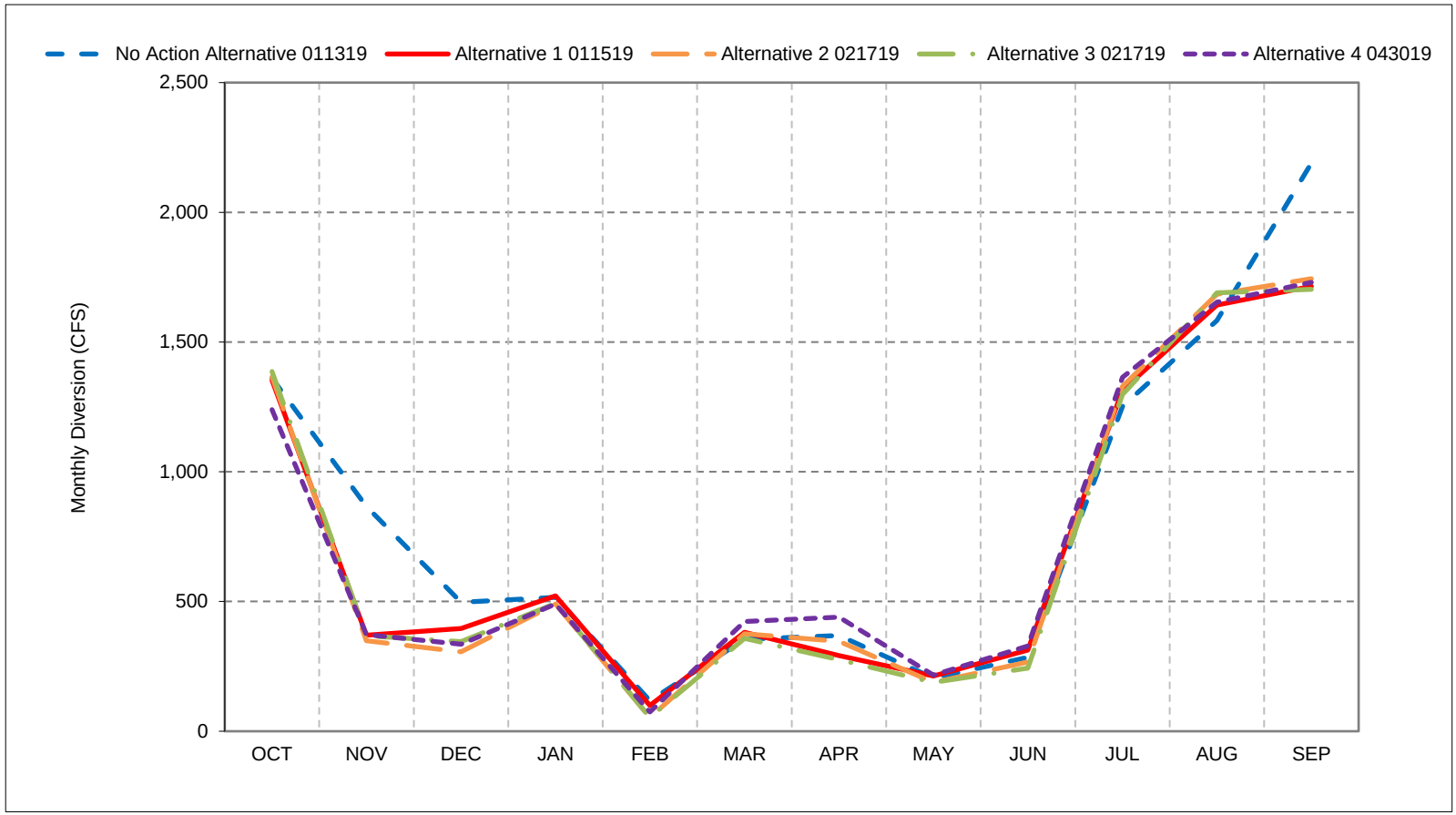
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 46-1. Trinity Import - Clear Creek Tunnel, Long-Term Average Diversion



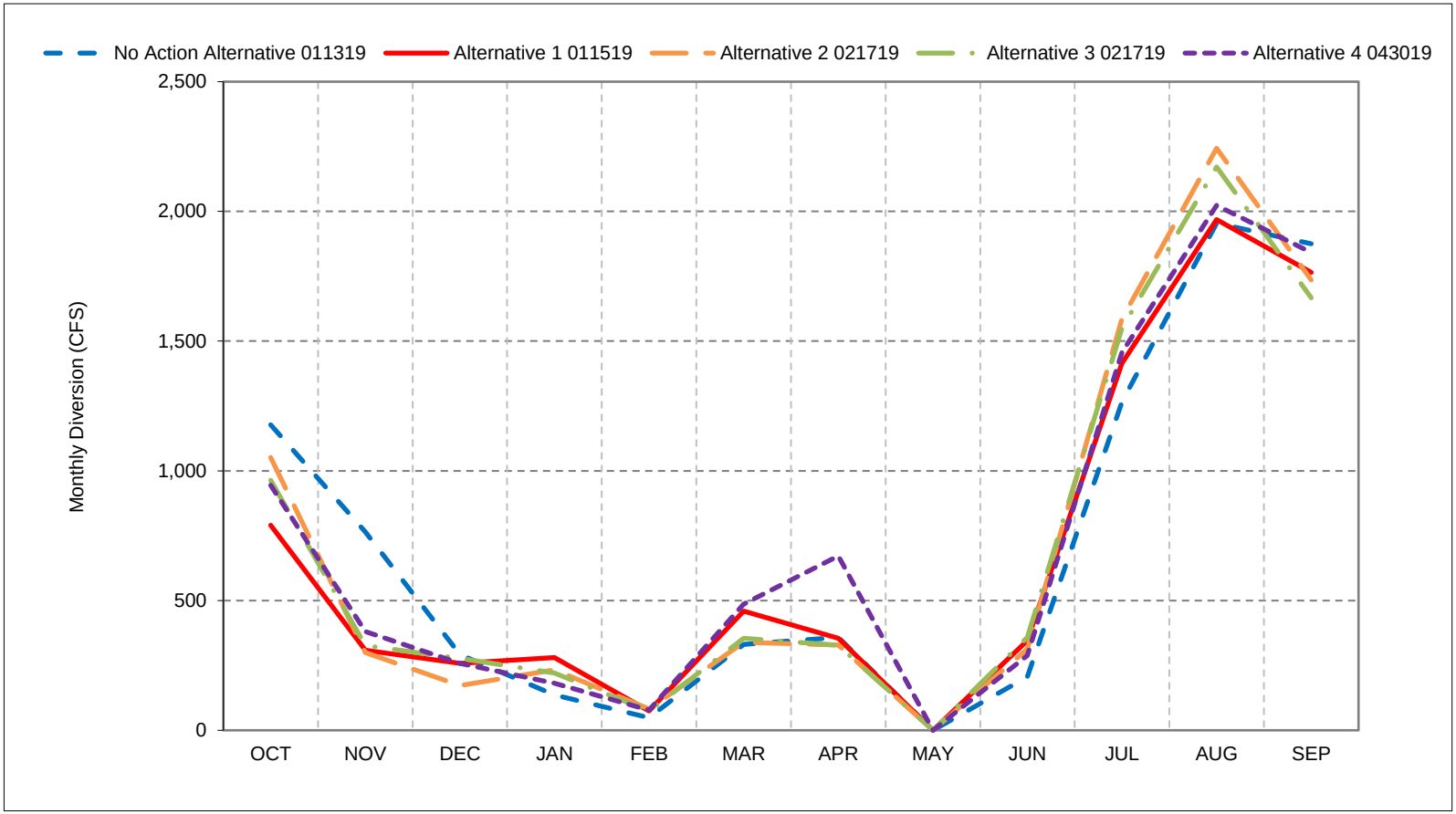

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 46-2. Trinity Import - Clear Creek Tunnel, Wet Year Average Diversion



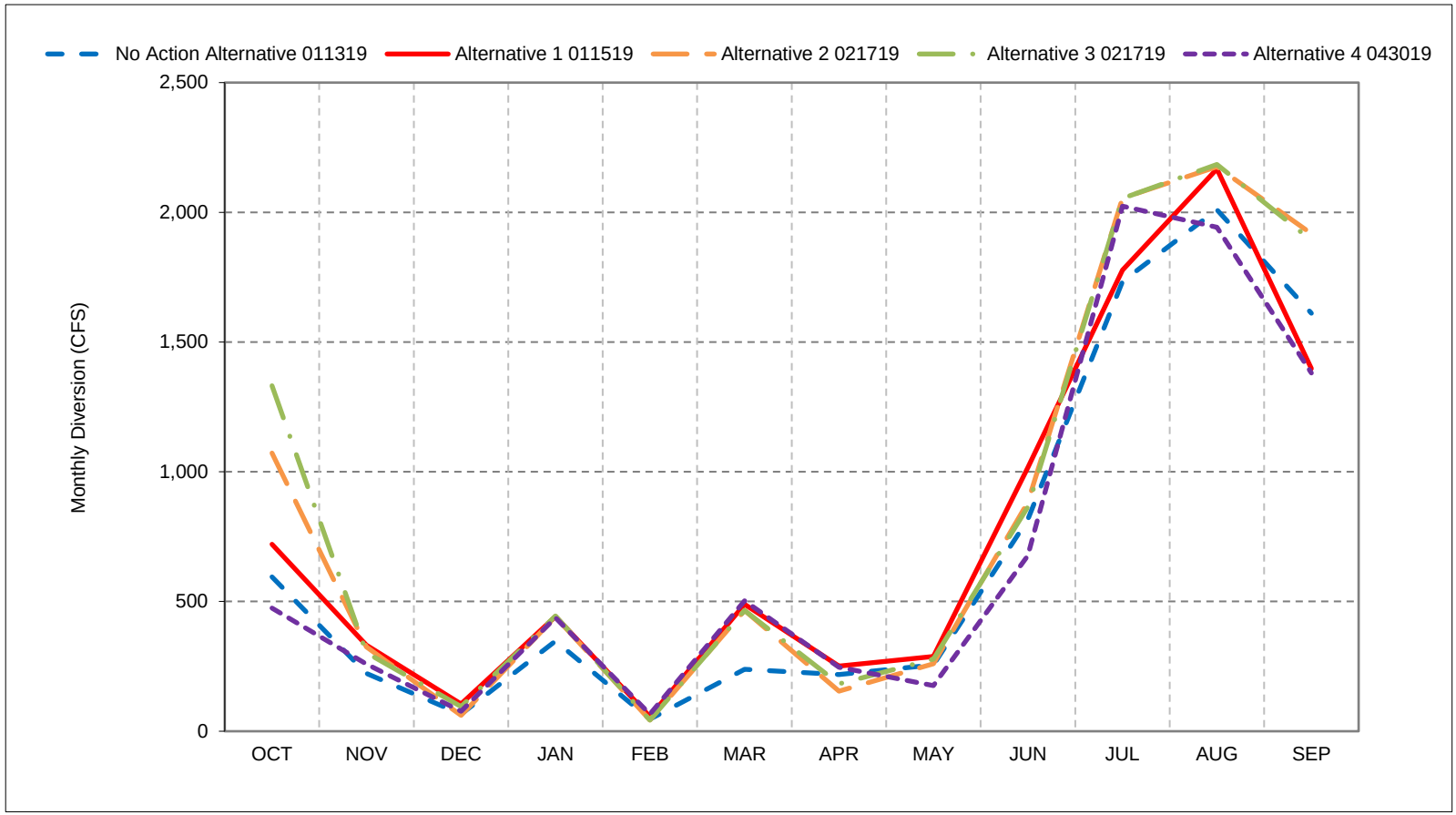

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 46-3. Trinity Import - Clear Creek Tunnel, Above Normal Year Average Diversion



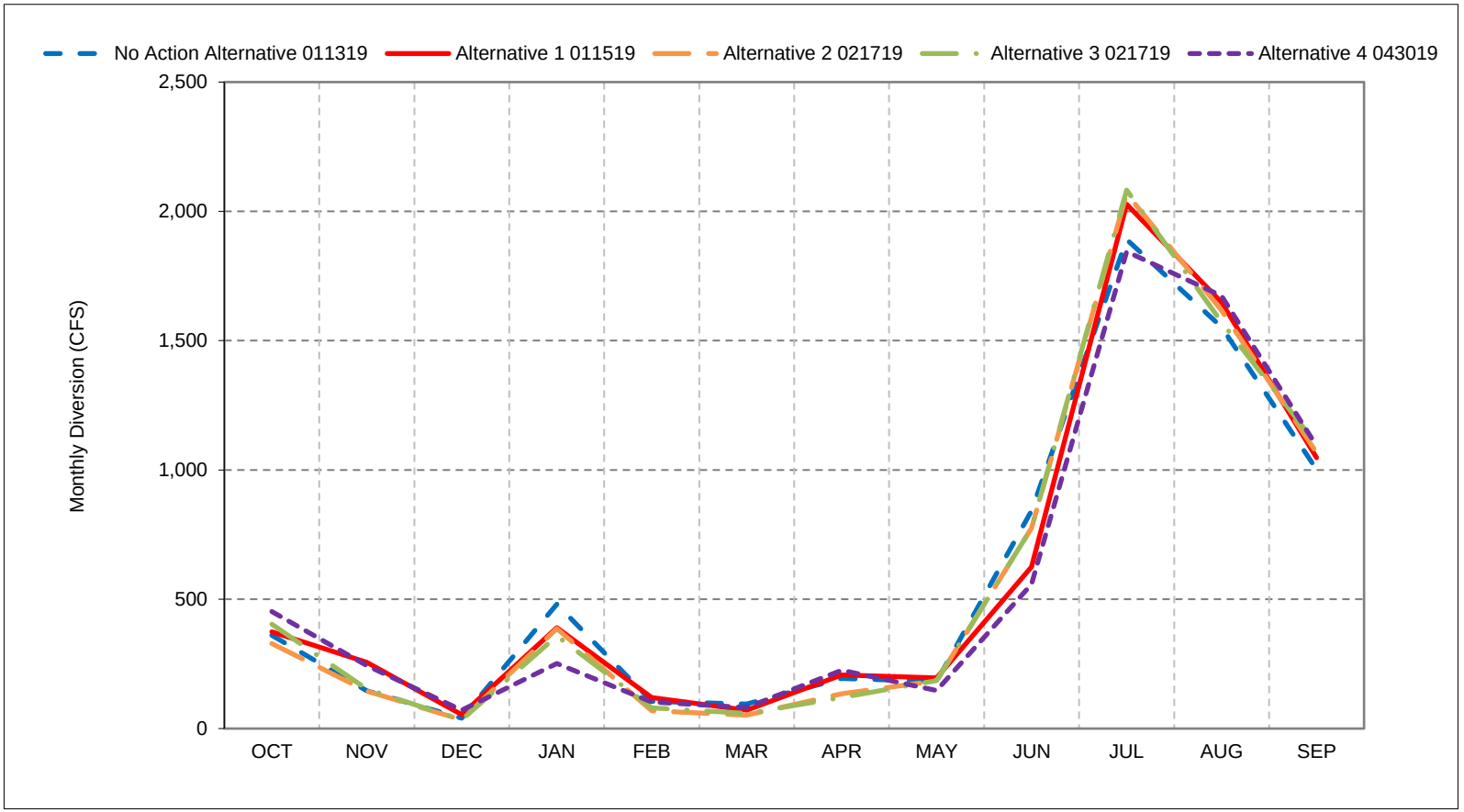

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 46-4. Trinity Import - Clear Creek Tunnel, Below Normal Year Average Diversion



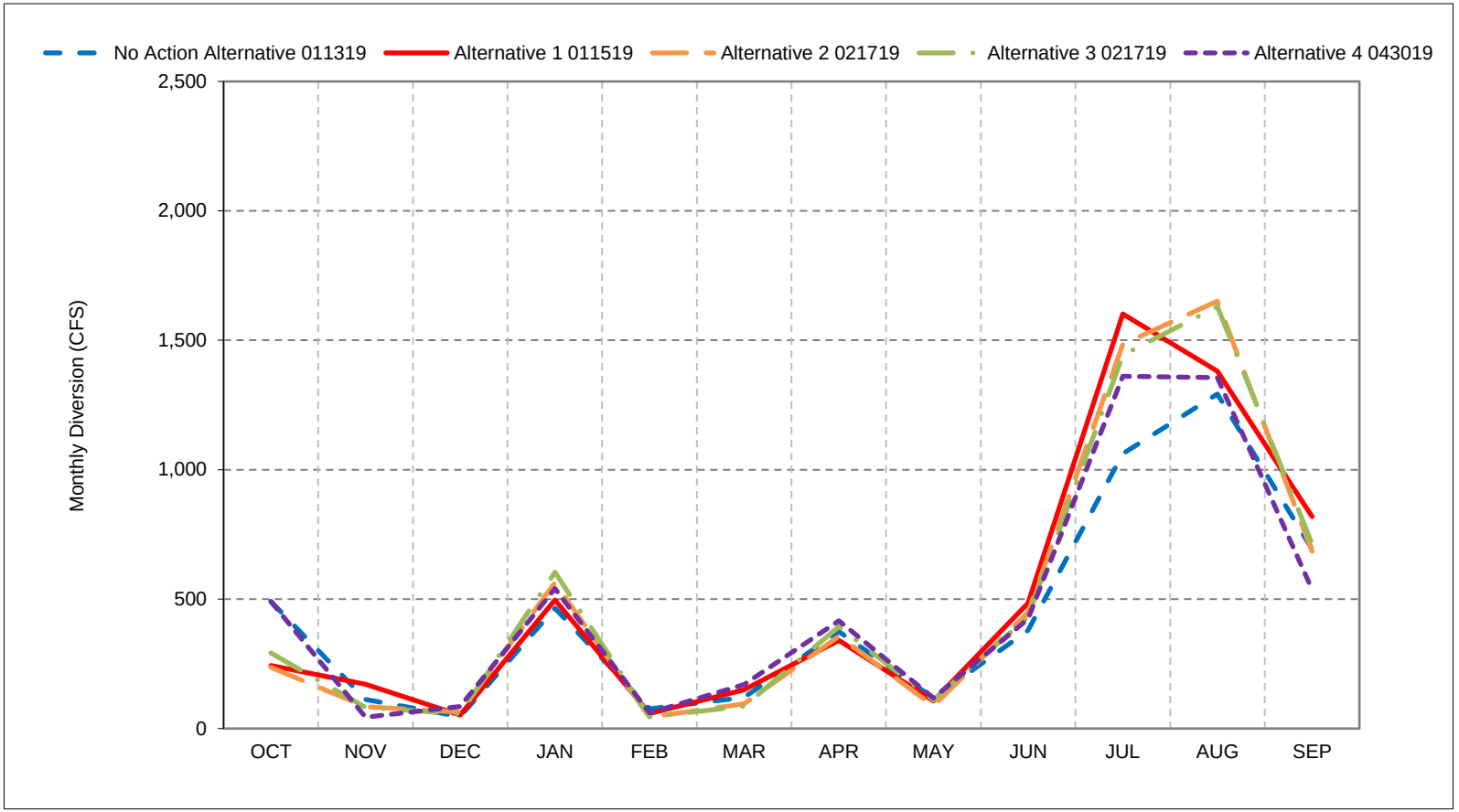

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 46-5. Trinity Import - Clear Creek Tunnel, Dry Year Average Diversion



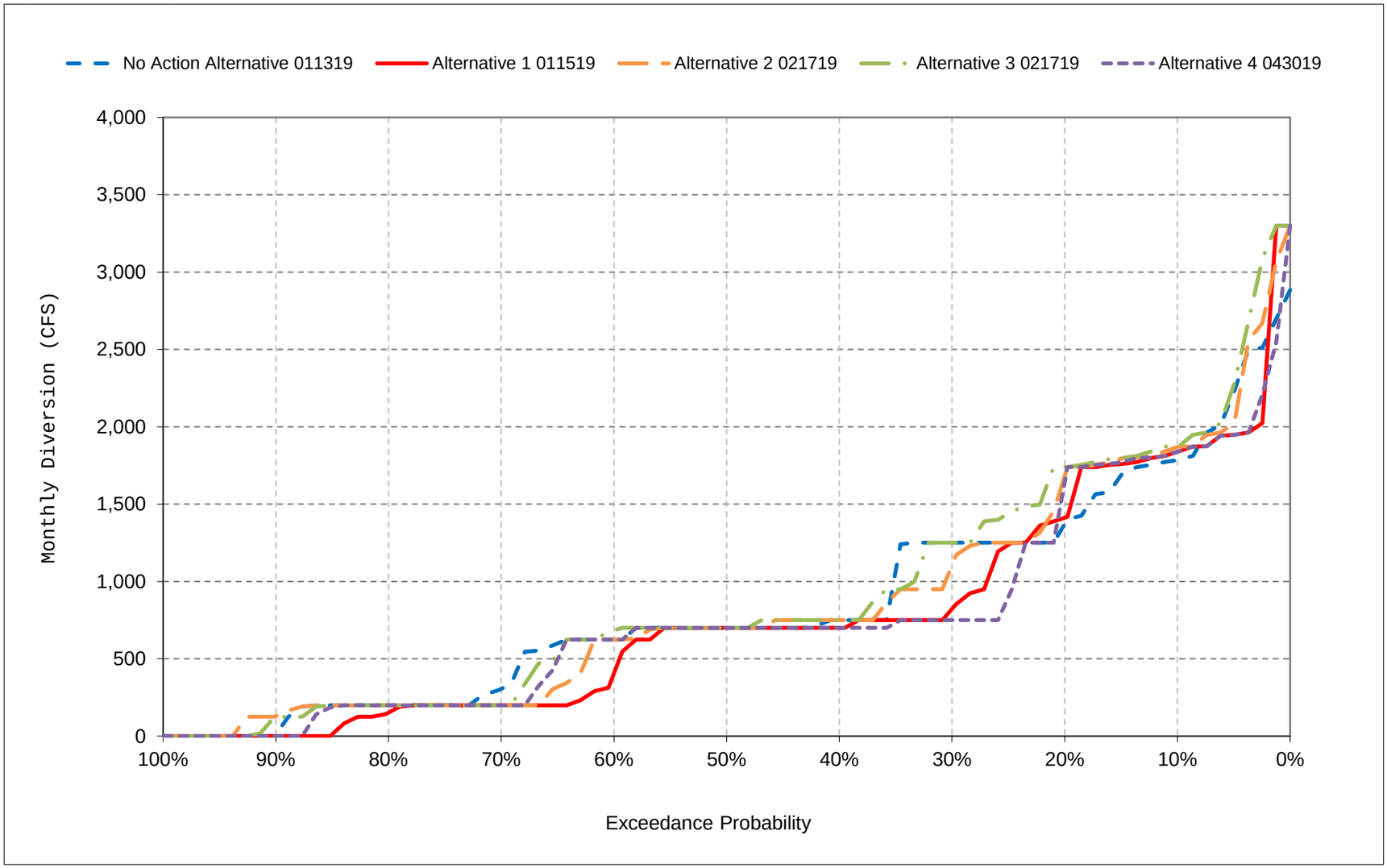

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 46-6. Trinity Import - Clear Creek Tunnel, Critical Year Average Diversion




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

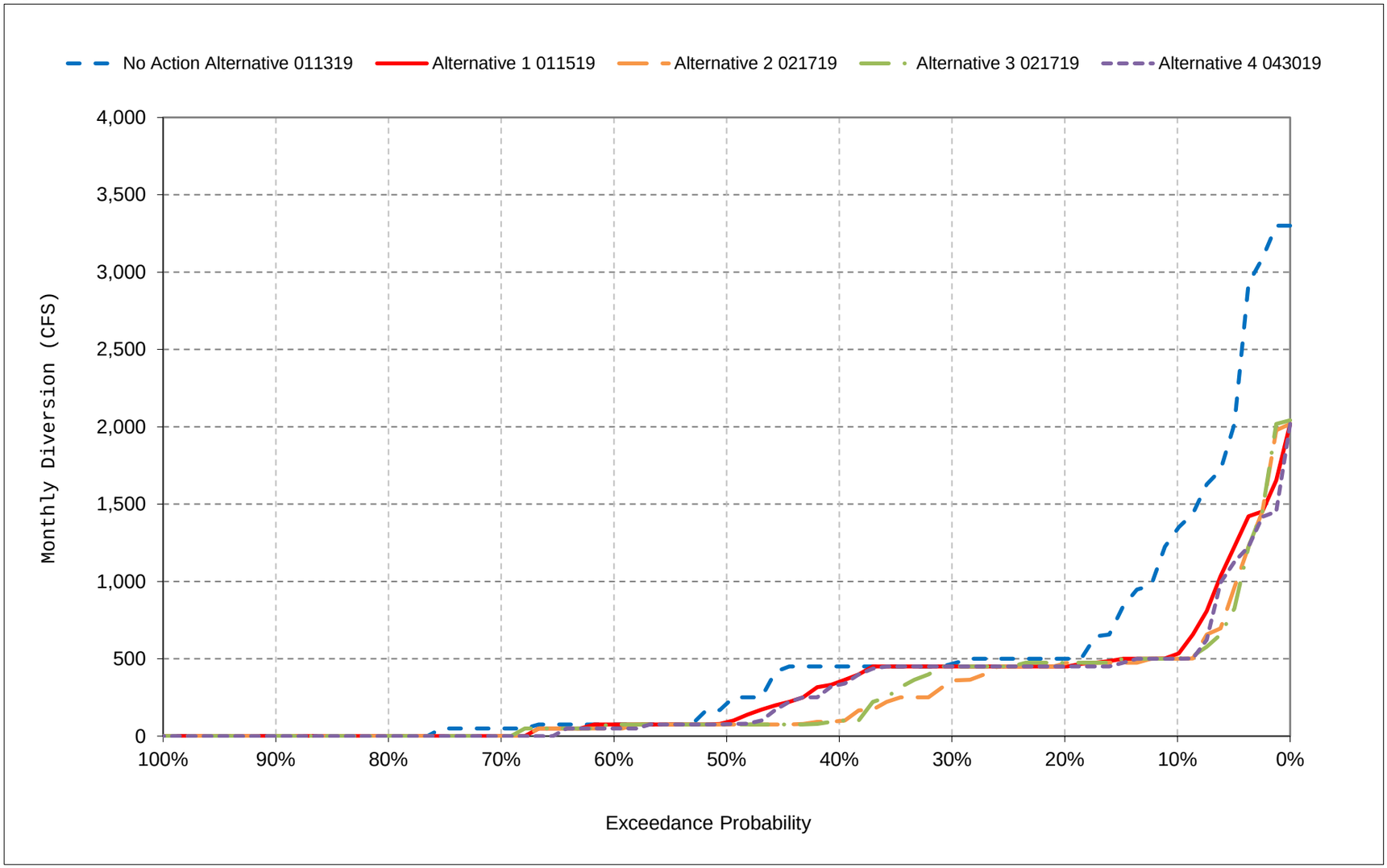
**Figure 46-7. Trinity Import - Clear Creek Tunnel, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

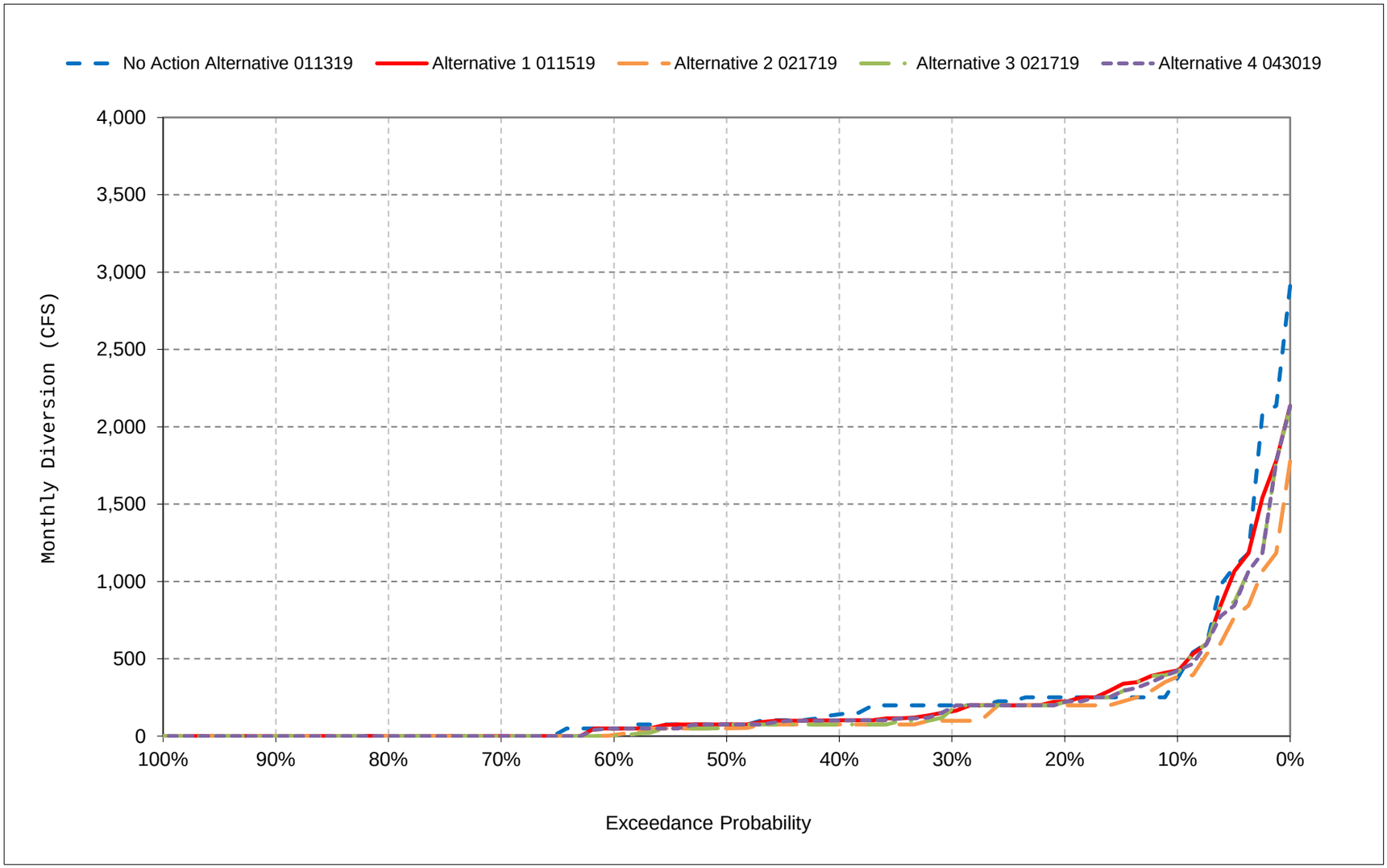
**Figure 46-8. Trinity Import - Clear Creek Tunnel, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

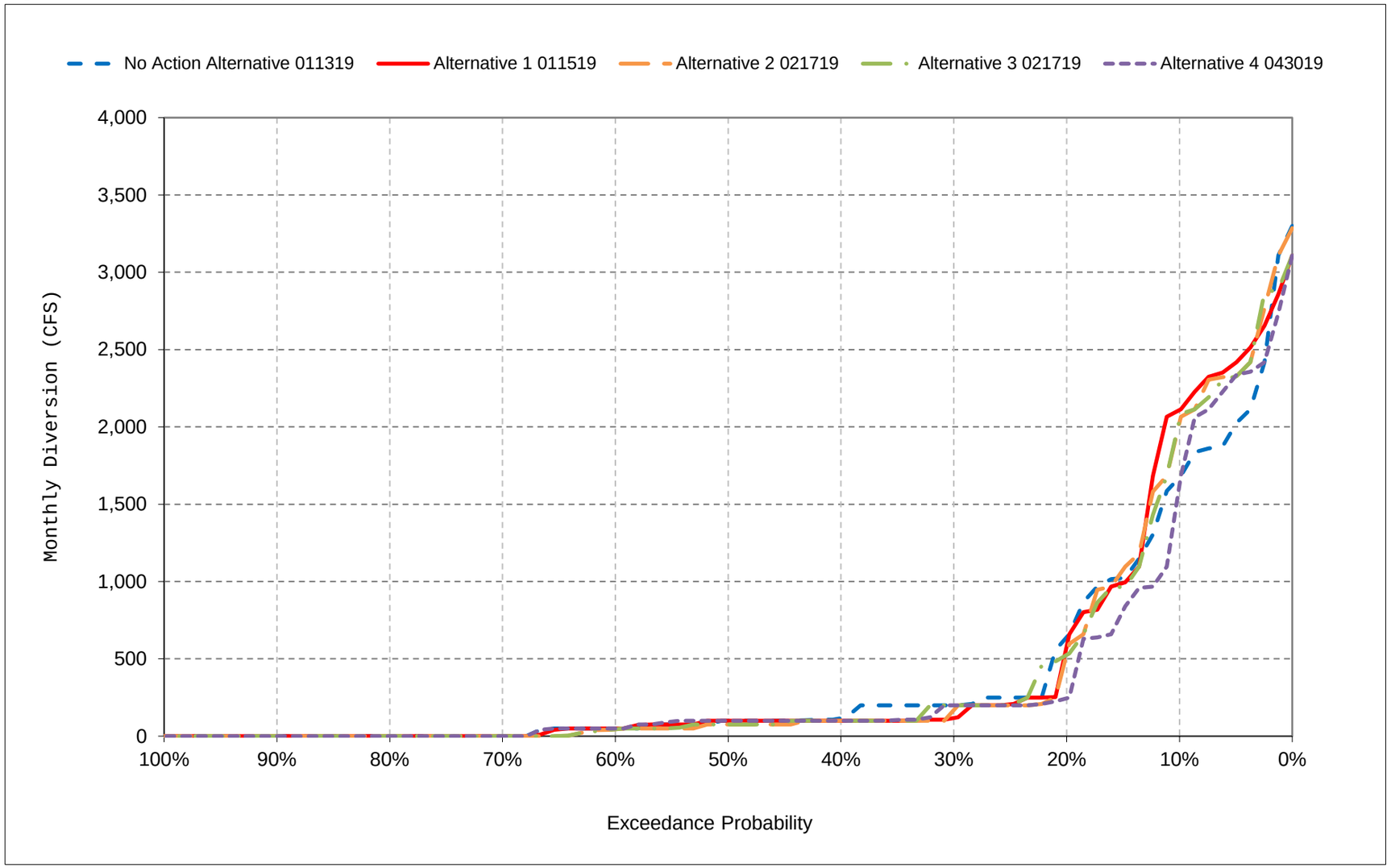
**Figure 46-9. Trinity Import - Clear Creek Tunnel, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

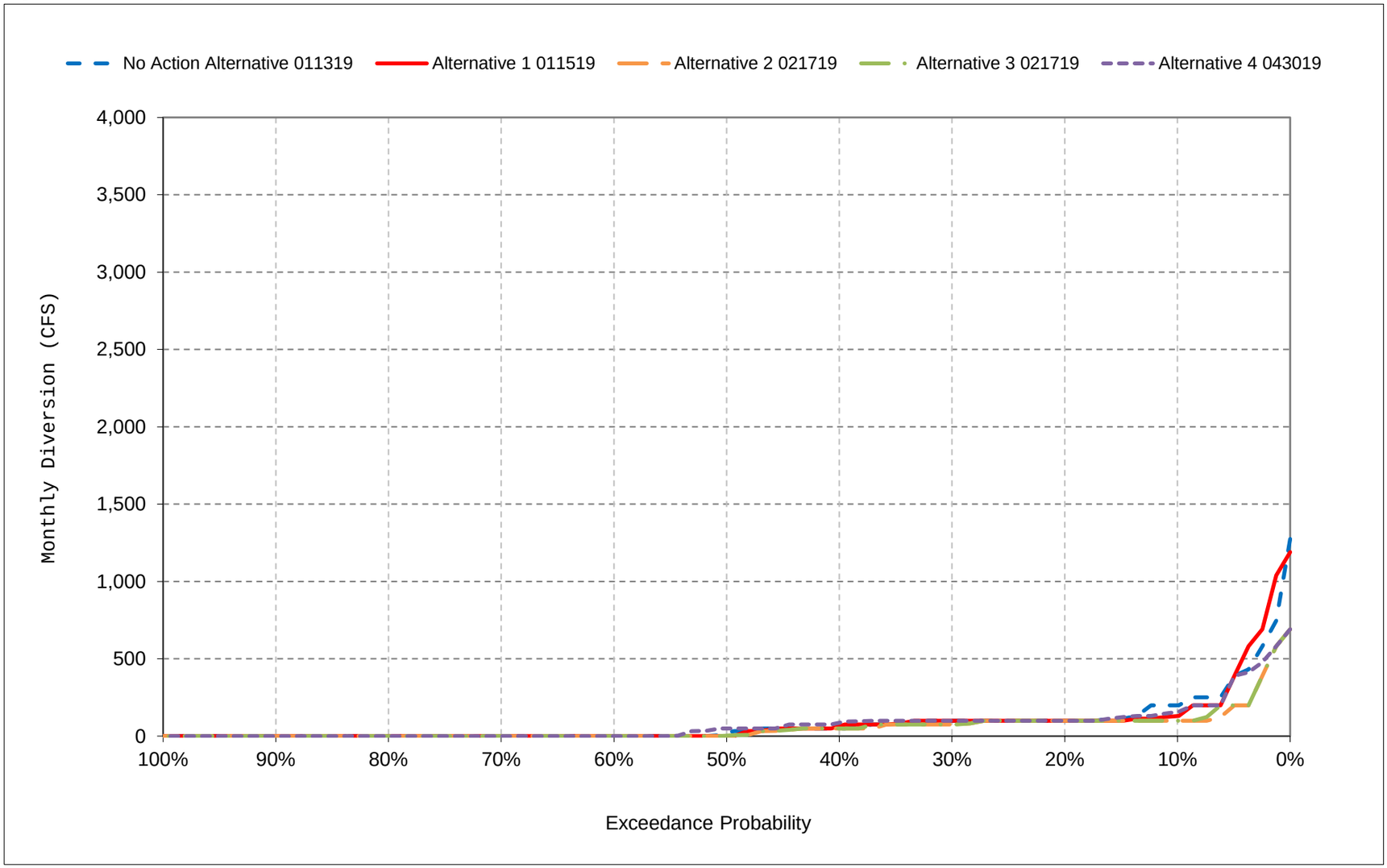
**Figure 46-10. Trinity Import - Clear Creek Tunnel, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

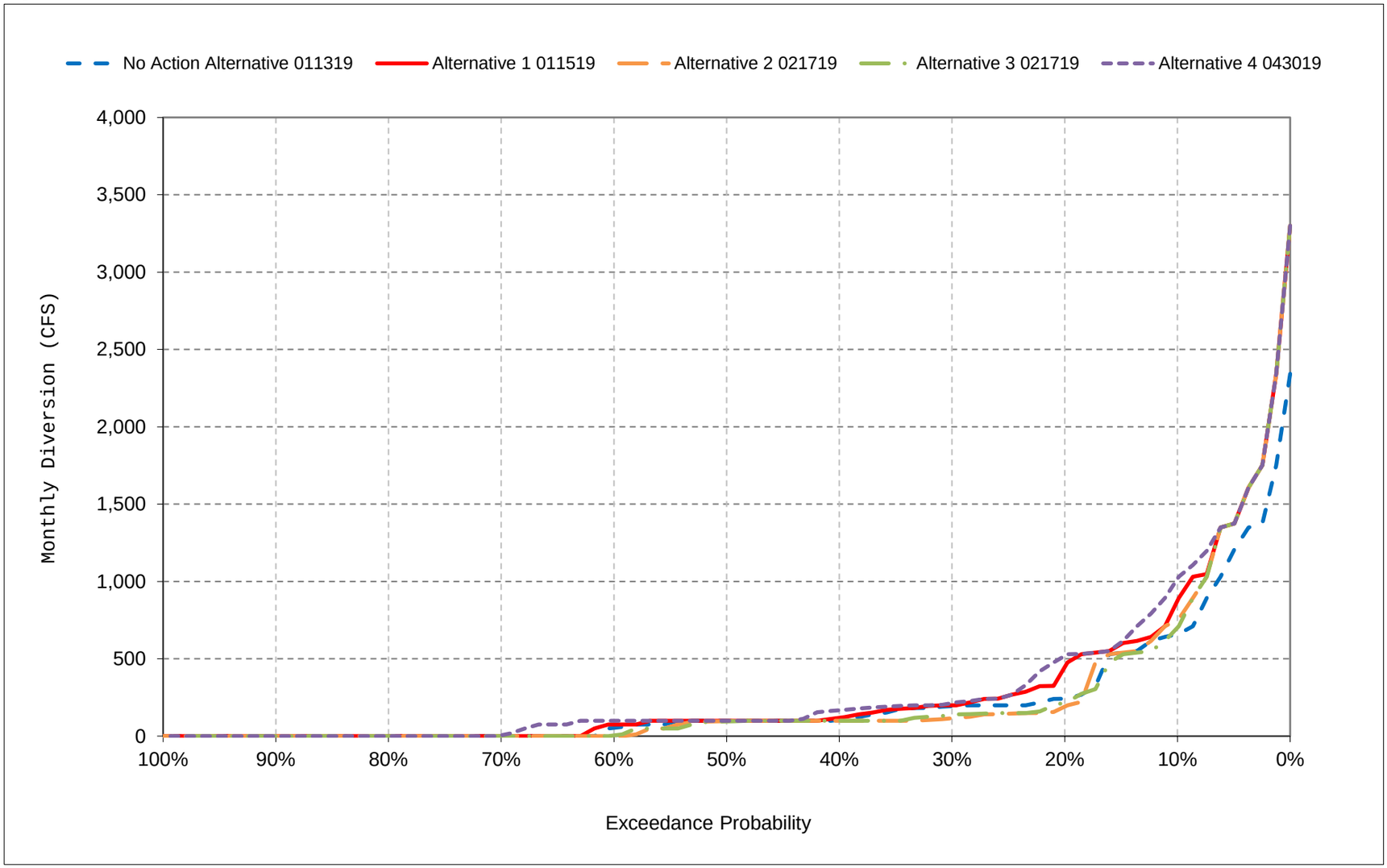
**Figure 46-11. Trinity Import - Clear Creek Tunnel, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

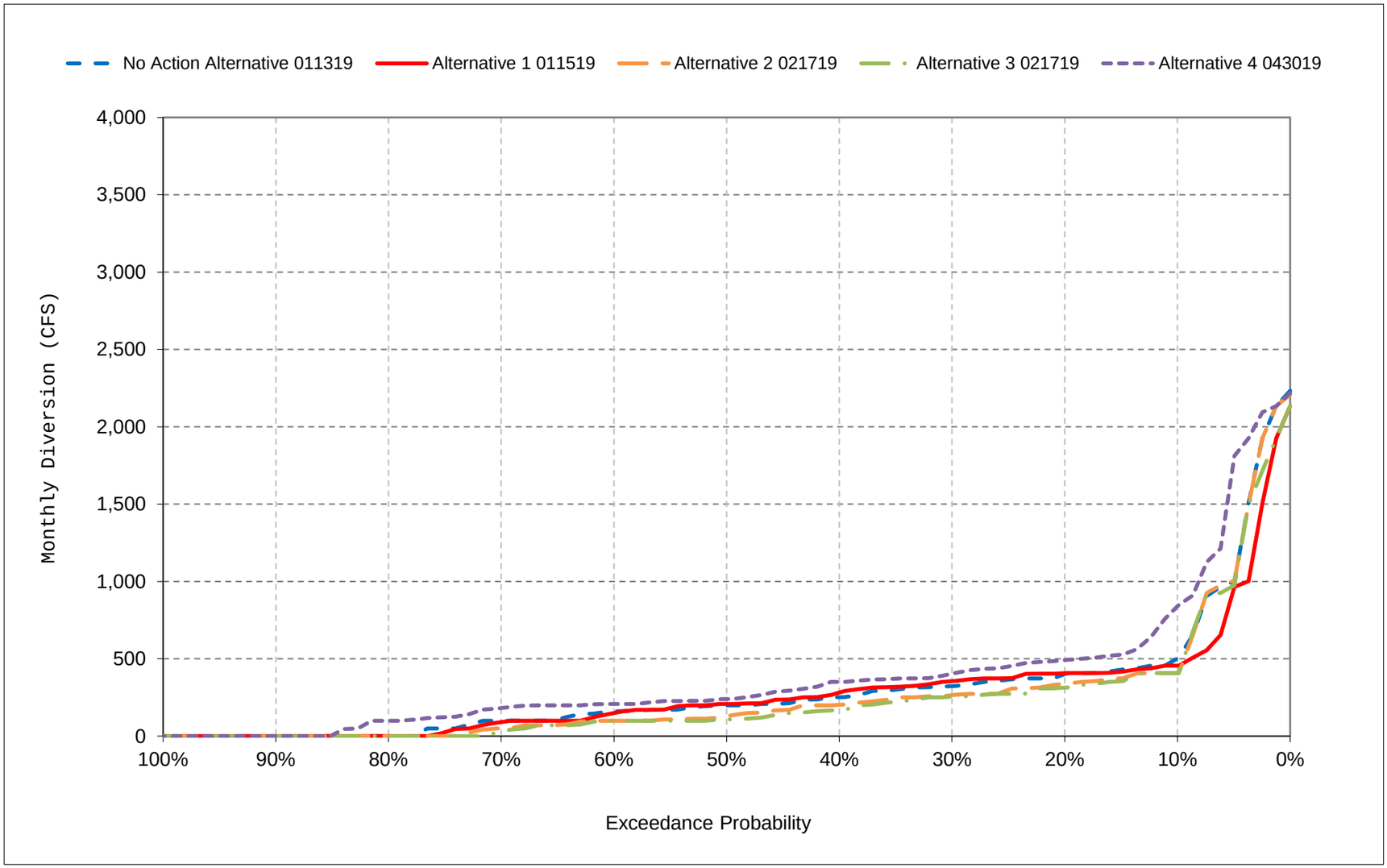
**Figure 46-12. Trinity Import - Clear Creek Tunnel, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

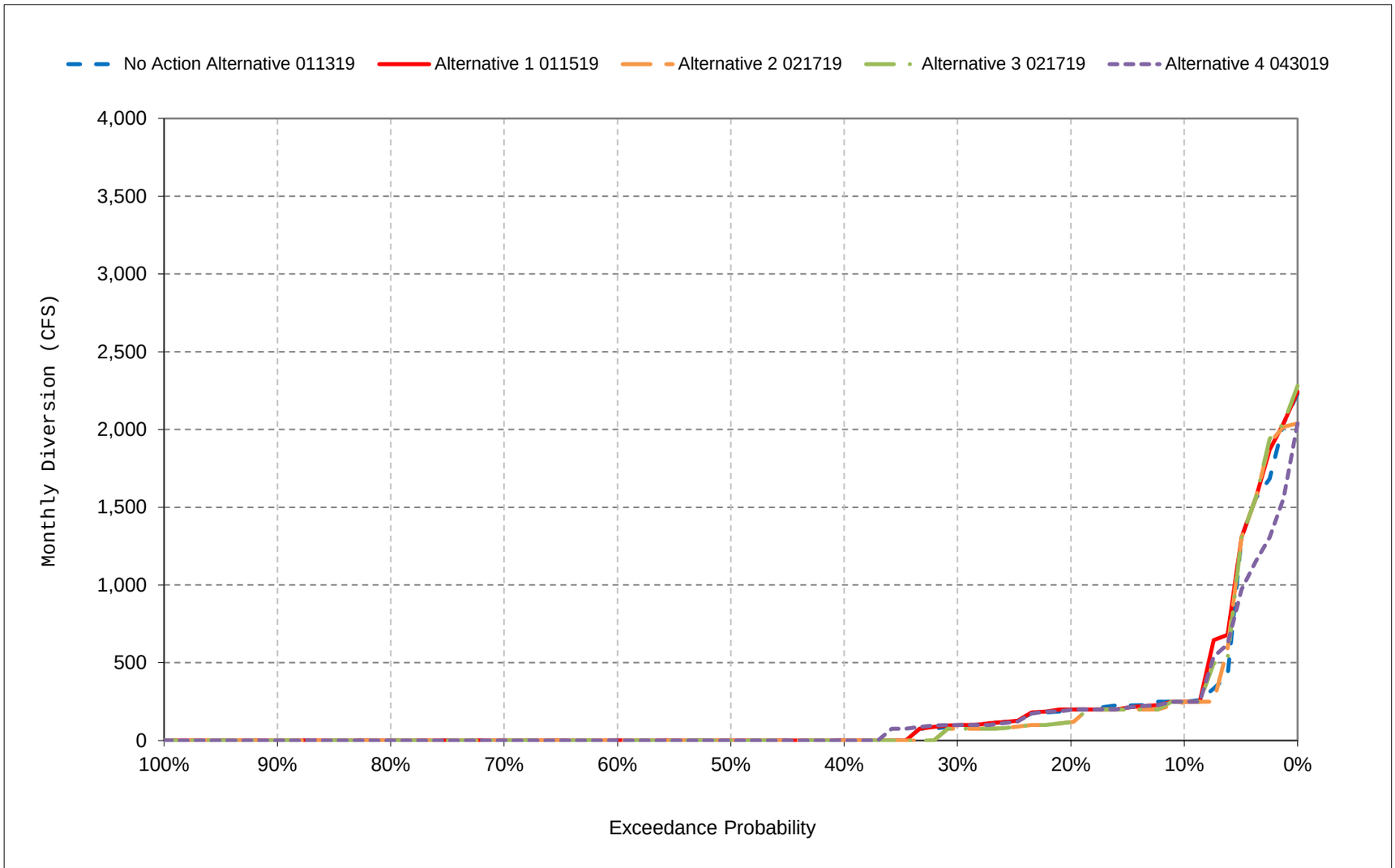
**Figure 46-13. Trinity Import - Clear Creek Tunnel, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

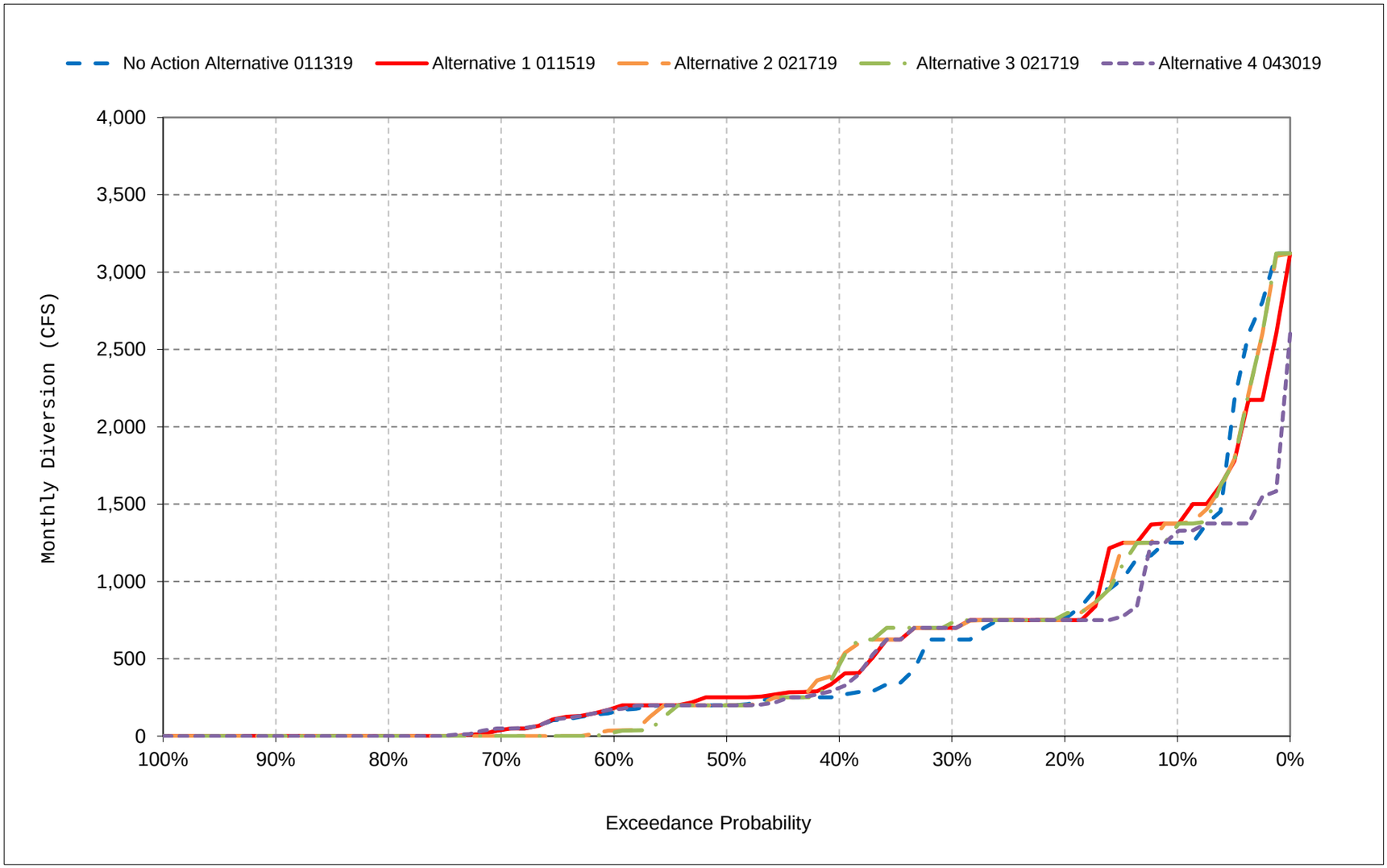
**Figure 46-14. Trinity Import - Clear Creek Tunnel, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

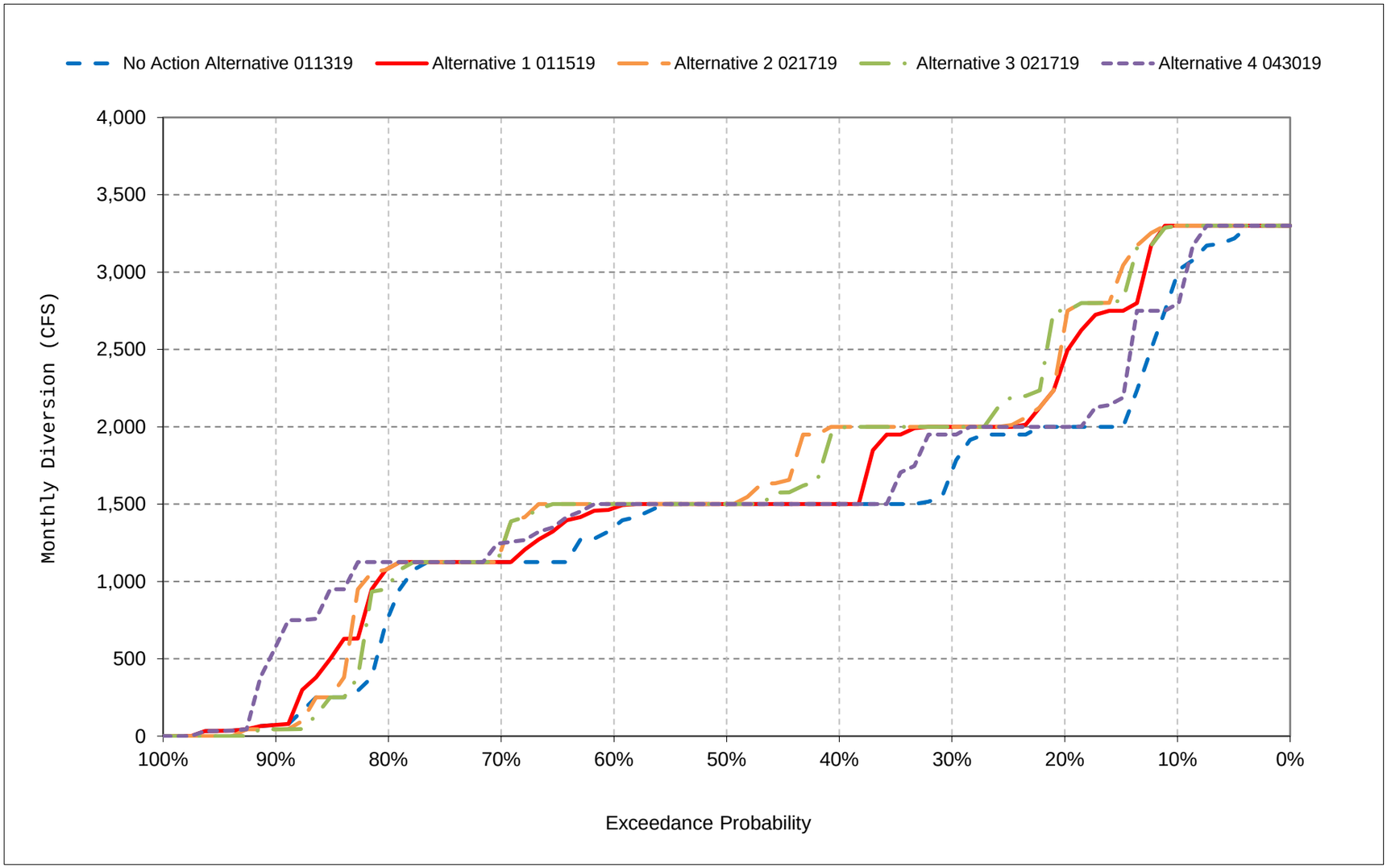
**Figure 46-15. Trinity Import - Clear Creek Tunnel, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

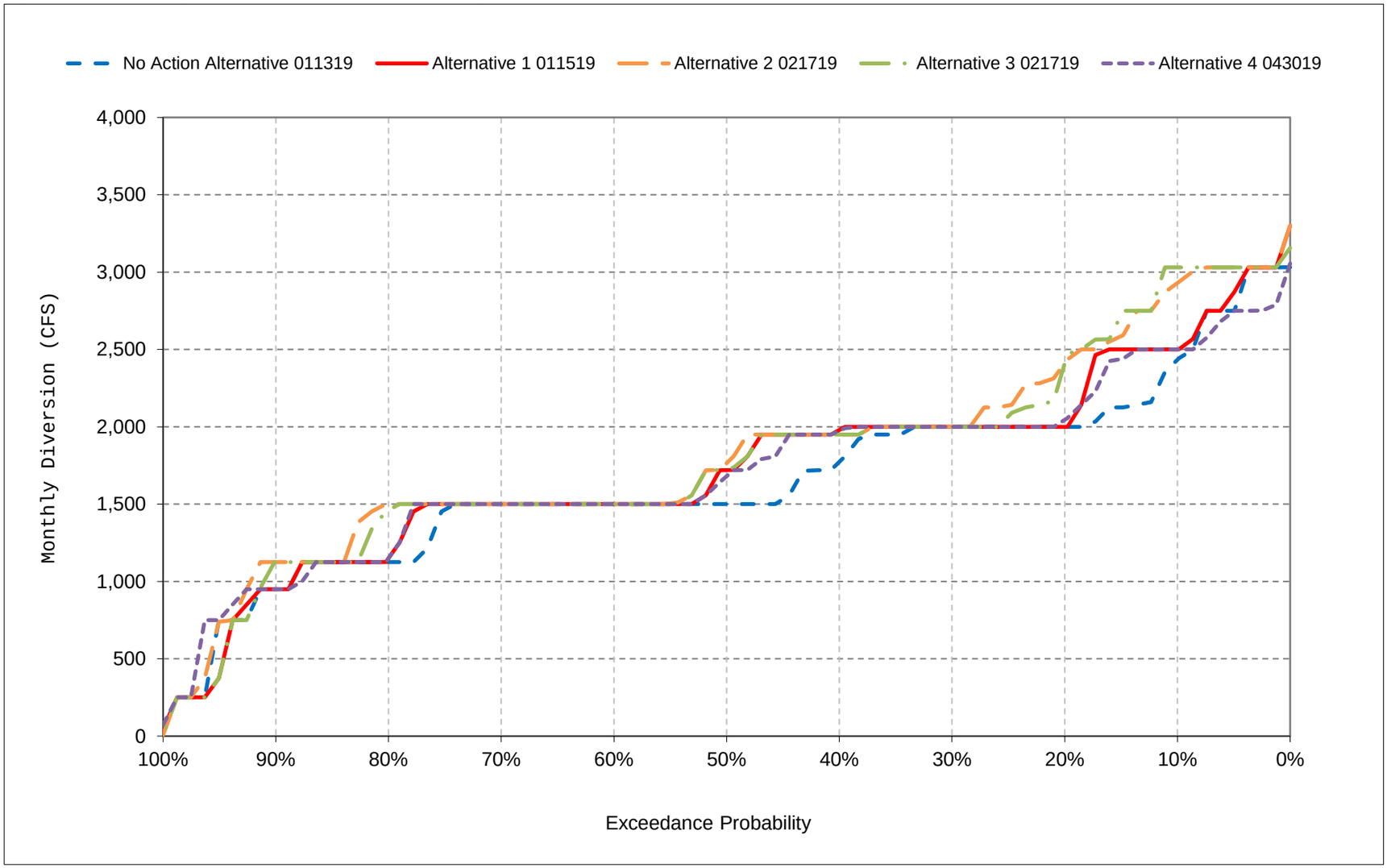
**Figure 46-16. Trinity Import - Clear Creek Tunnel, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

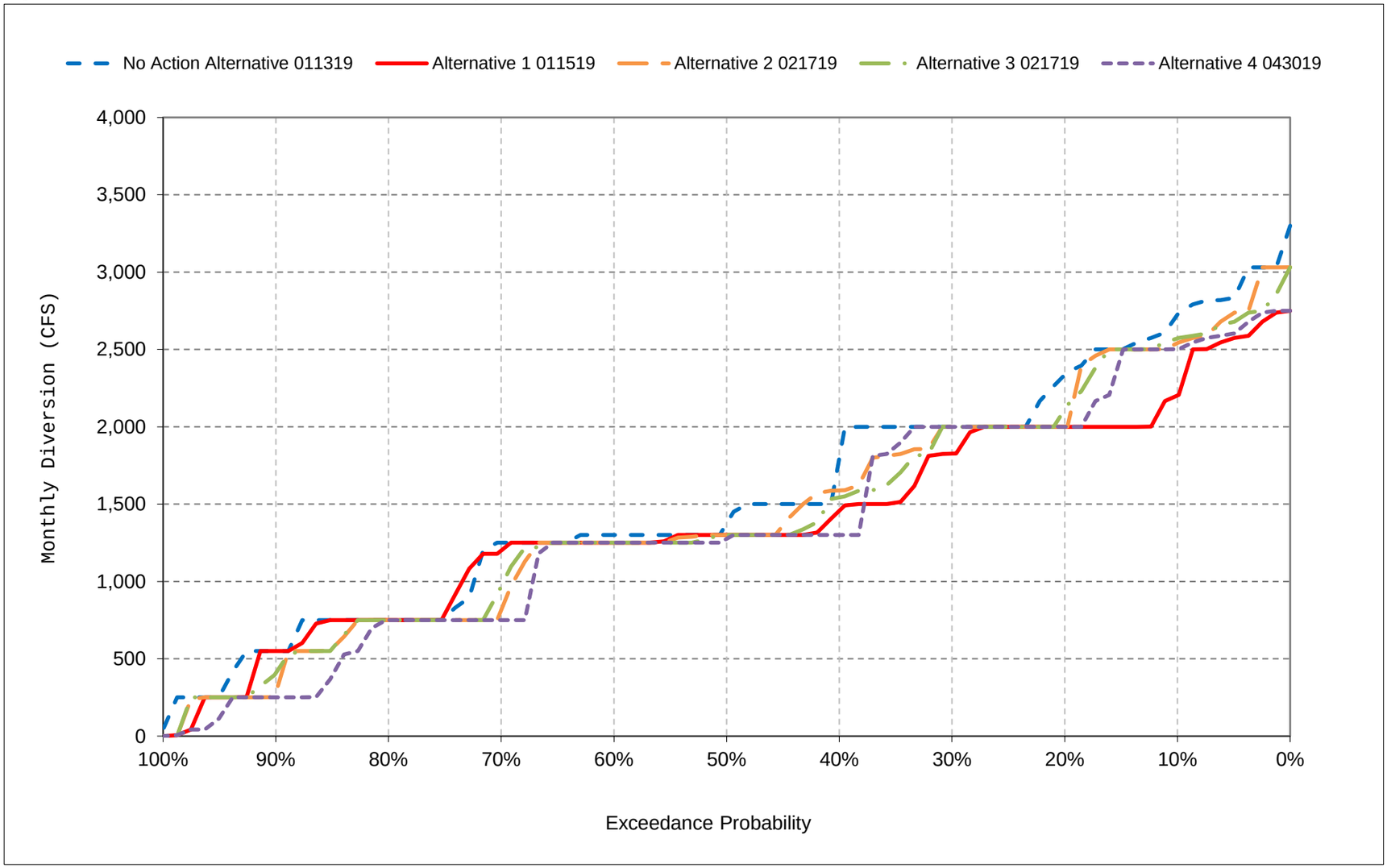
**Figure 46-17. Trinity Import - Clear Creek Tunnel, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 46-18. Trinity Import - Clear Creek Tunnel, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 47-1. Red Bluff Diversion - Tehama Colusa Canal, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 186 | 19 | 0 | 0 | 0 | 46 | 454 | 778 | 1,189 | 1,375 | 1,092 | 299 |
| 20% | 169 | 17 | 0 | 0 | 0 | 30 | 342 | 722 | 1,096 | 1,282 | 1,024 | 272 |
| 30% | 141 | 15 | 0 | 0 | 0 | 17 | 277 | 639 | 1,004 | 1,155 | 900 | 212 |
| 40% | 117 | 3 | 0 | 0 | 0 | 3 | 224 | 532 | 861 | 958 | 756 | 164 |
| 50% | 105 | 0 | 0 | 0 | 0 | 0 | 202 | 476 | 768 | 879 | 663 | 141 |
| 60% | 83 | 0 | 0 | 0 | 0 | 0 | 163 | 370 | 656 | 725 | 579 | 114 |
| 70% | 76 | 0 | 0 | 0 | 0 | 0 | 95 | 302 | 518 | 605 | 478 | 94 |
| 80% | 66 | 0 | 0 | 0 | 0 | 0 | 41 | 221 | 356 | 423 | 334 | 73 |
| 90% | 56 | 0 | 0 | 0 | 0 | 0 | 22 | 129 | 222 | 245 | 195 | 24 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 115 | 7 | 0 | 0 | 2 | 18 | 215 | 463 | 729 | 839 | 663 | 157 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 146 | 7 | 0 | 0 | 0 | 10 | 179 | 631 | 1,042 | 1,202 | 953 | 225 |
| Above Normal (16%) | 121 | 4 | 0 | 0 | 0 | 8 | 284 | 664 | 996 | 1,140 | 893 | 213 |
| Below Normal (13%) | 114 | 8 | 0 | 0 | 8 | 50 | 321 | 468 | 658 | 778 | 611 | 134 |
| Dry (24%) | 93 | 4 | 0 | 0 | 4 | 13 | 185 | 276 | 467 | 529 | 420 | 73 |
| Critical (15%) | 76 | 14 | 0 | 0 | 1 | 22 | 171 | 185 | 259 | 299 | 238 | 113 |

## Alternative 1 011519

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 153 | 23 | 0 | 0 | 0 | 55 | 470 | 831 | 1,189 | 1,377 | 1,094 | 299 |
| 20% | 132 | 19 | 0 | 0 | 0 | 35 | 412 | 764 | 1,106 | 1,283 | 1,027 | 272 |
| 30% | 103 | 17 | 0 | 0 | 0 | 21 | 345 | 725 | 1,059 | 1,252 | 991 | 247 |
| 40% | 86 | 17 | 0 | 0 | 0 | 3 | 286 | 643 | 1,012 | 1,138 | 891 | 214 |
| 50% | 66 | 17 | 0 | 0 | 0 | 1 | 204 | 529 | 929 | 1,065 | 825 | 197 |
| 60% | 49 | 17 | 0 | 0 | 0 | 0 | 182 | 456 | 832 | 911 | 717 | 165 |
| 70% | 35 | 17 | 0 | 0 | 0 | 0 | 105 | 330 | 545 | 645 | 526 | 108 |
| 80% | 22 | 17 | 0 | 0 | 0 | 0 | 45 | 248 | 426 | 500 | 419 | 65 |
| 90% | 5 | 17 | 0 | 0 | 0 | 0 | 24 | 133 | 302 | 343 | 278 | 19 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 75 | 17 | 0 | 0 | 2 | 21 | 247 | 512 | 804 | 926 | 736 | 175 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 97 | 17 | 0 | 0 | 0 | 12 | 196 | 649 | 1,075 | 1,238 | 980 | 237 |
| Above Normal (16%) | 78 | 17 | 0 | 0 | 0 | 9 | 310 | 680 | 1,061 | 1,213 | 951 | 236 |
| Below Normal (13%) | 85 | 21 | 0 | 0 | 9 | 65 | 385 | 641 | 839 | 992 | 778 | 166 |
| Dry (24%) | 48 | 16 | 0 | 0 | 4 | 15 | 228 | 333 | 573 | 648 | 514 | 96 |
| Critical (15%) | 59 | 18 | 0 | 0 | 1 | 25 | 195 | 214 | 295 | 343 | 302 | 114 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-34** | 4 | 0 | 0 | 0 | 9 | 16 | 53 | 0 | 2 | 3 | 0 |
| 20% | **-37** | 2 | 0 | 0 | 0 | 5 | 70 | 43 | 10 | 1 | 4 | 0 |
| 30% | **-38** | 2 | 0 | 0 | 0 | 4 | 68 | 86 | 55 | 97 | 91 | 35 |
| 40% | **-30** | 14 | 0 | 0 | 0 | 0 | 62 | 112 | 151 | 181 | 135 | 51 |
| 50% | **-38** | 17 | 0 | 0 | 0 | 0 | 2 | 53 | 161 | 186 | 163 | 55 |
| 60% | **-33** | 17 | 0 | 0 | 0 | 0 | 19 | 86 | 176 | 186 | 138 | 51 |
| 70% | **-41** | 17 | 0 | 0 | 0 | 0 | 10 | 28 | 27 | 40 | 49 | 14 |
| 80% | **-44** | 17 | 0 | 0 | 0 | 0 | 4 | 27 | 70 | 77 | 85 | **-7** |
| 90% | **-51** | 17 | 0 | 0 | 0 | 0 | 2 | 3 | 80 | 98 | 83 | **-4** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-40** | 10 | 0 | 0 | 0 | 4 | 32 | 50 | 76 | 87 | 73 | 18 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-48** | 10 | 0 | 0 | 0 | 1 | 17 | 18 | 32 | 36 | 27 | 13 |
| Above Normal (16%) | **-43** | 14 | 0 | 0 | 0 | 1 | 26 | 17 | 66 | 73 | 58 | 22 |
| Below Normal (13%) | **-28** | 13 | 0 | 0 | 0 | 16 | 64 | 172 | 180 | 214 | 168 | 32 |
| Dry (24%) | **-46** | 11 | 0 | 0 | 0 | 2 | 43 | 57 | 105 | 119 | 95 | 23 |
| Critical (15%) | **-17** | 4 | 0 | 0 | 0 | 3 | 24 | 29 | 36 | 44 | 64 | 1 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 47-2. Red Bluff Diversion - Tehama Colusa Canal, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 186 | 19 | 0 | 0 | 0 | 46 | 454 | 778 | 1,189 | 1,375 | 1,092 | 299 |
| 20% | 169 | 17 | 0 | 0 | 0 | 30 | 342 | 722 | 1,096 | 1,282 | 1,024 | 272 |
| 30% | 141 | 15 | 0 | 0 | 0 | 17 | 277 | 639 | 1,004 | 1,155 | 900 | 212 |
| 40% | 117 | 3 | 0 | 0 | 0 | 3 | 224 | 532 | 861 | 958 | 756 | 164 |
| 50% | 105 | 0 | 0 | 0 | 0 | 0 | 202 | 476 | 768 | 879 | 663 | 141 |
| 60% | 83 | 0 | 0 | 0 | 0 | 0 | 163 | 370 | 656 | 725 | 579 | 114 |
| 70% | 76 | 0 | 0 | 0 | 0 | 0 | 95 | 302 | 518 | 605 | 478 | 94 |
| 80% | 66 | 0 | 0 | 0 | 0 | 0 | 41 | 221 | 356 | 423 | 334 | 73 |
| 90% | 56 | 0 | 0 | 0 | 0 | 0 | 22 | 129 | 222 | 245 | 195 | 24 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 115 | 7 | 0 | 0 | 2 | 18 | 215 | 463 | 729 | 839 | 663 | 157 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 146 | 7 | 0 | 0 | 0 | 10 | 179 | 631 | 1,042 | 1,202 | 953 | 225 |
| Above Normal (16%) | 121 | 4 | 0 | 0 | 0 | 8 | 284 | 664 | 996 | 1,140 | 893 | 213 |
| Below Normal (13%) | 114 | 8 | 0 | 0 | 8 | 50 | 321 | 468 | 658 | 778 | 611 | 134 |
| Dry (24%) | 93 | 4 | 0 | 0 | 4 | 13 | 185 | 276 | 467 | 529 | 420 | 73 |
| Critical (15%) | 76 | 14 | 0 | 0 | 1 | 22 | 171 | 185 | 259 | 299 | 238 | 113 |

## Alternative 2 021719

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 208 | 19 | 0 | 0 | 0 | 54 | 506 | 801 | 1,191 | 1,375 | 1,092 | 299 |
| 20% | 186 | 17 | 0 | 0 | 0 | 33 | 398 | 756 | 1,104 | 1,315 | 1,027 | 273 |
| 30% | 156 | 15 | 0 | 0 | 0 | 19 | 326 | 720 | 1,068 | 1,247 | 963 | 242 |
| 40% | 129 | 4 | 0 | 0 | 0 | 3 | 269 | 629 | 1,025 | 1,157 | 926 | 214 |
| 50% | 103 | 0 | 0 | 0 | 0 | 1 | 200 | 526 | 928 | 1,078 | 843 | 198 |
| 60% | 89 | 0 | 0 | 0 | 0 | 0 | 172 | 465 | 824 | 906 | 718 | 159 |
| 70% | 77 | 0 | 0 | 0 | 0 | 0 | 101 | 379 | 528 | 623 | 529 | 111 |
| 80% | 68 | 0 | 0 | 0 | 0 | 0 | 41 | 244 | 375 | 447 | 390 | 69 |
| 90% | 56 | 0 | 0 | 0 | 0 | 0 | 24 | 131 | 306 | 337 | 269 | 21 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 121 | 7 | 0 | 0 | 2 | 22 | 243 | 510 | 801 | 921 | 732 | 176 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 150 | 7 | 0 | 0 | 0 | 12 | 198 | 646 | 1,081 | 1,245 | 986 | 238 |
| Above Normal (16%) | 128 | 4 | 0 | 0 | 0 | 10 | 320 | 681 | 1,079 | 1,232 | 966 | 240 |
| Below Normal (13%) | 131 | 8 | 0 | 0 | 9 | 69 | 376 | 669 | 861 | 1,016 | 798 | 169 |
| Dry (24%) | 98 | 4 | 0 | 0 | 4 | 14 | 214 | 314 | 535 | 606 | 481 | 100 |
| Critical (15%) | 79 | 14 | 0 | 0 | 1 | 24 | 184 | 210 | 278 | 322 | 286 | 107 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 22 | 0 | 0 | 0 | 0 | 8 | 52 | 23 | 2 | 0 | 0 | 0 |
| 20% | 17 | 0 | 0 | 0 | 0 | 2 | 56 | 35 | 8 | 33 | 4 | 1 |
| 30% | 15 | 0 | 0 | 0 | 0 | 2 | 49 | 81 | 64 | 92 | 63 | 30 |
| 40% | 12 | 1 | 0 | 0 | 0 | 0 | 45 | 97 | 164 | 199 | 170 | 50 |
| 50% | **-1** | 0 | 0 | 0 | 0 | 0 | **-1** | 50 | 160 | 199 | 180 | 56 |
| 60% | 6 | 0 | 0 | 0 | 0 | 0 | 9 | 94 | 168 | 180 | 140 | 45 |
| 70% | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 77 | 10 | 17 | 51 | 16 |
| 80% | 2 | 0 | 0 | 0 | 0 | 0 | **-1** | 23 | 19 | 24 | 56 | **-3** |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 84 | 92 | 74 | **-2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6 | 0 | 0 | 0 | 0 | 4 | 28 | 47 | 72 | 82 | 69 | 19 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 5 | 0 | 0 | 0 | 0 | 2 | 19 | 15 | 39 | 43 | 33 | 14 |
| Above Normal (16%) | 7 | 0 | 0 | 0 | 0 | 2 | 36 | 17 | 83 | 92 | 73 | 27 |
| Below Normal (13%) | 18 | 1 | 0 | 0 | 0 | 19 | 55 | 201 | 203 | 238 | 187 | 35 |
| Dry (24%) | 4 | 0 | 0 | 0 | 0 | 2 | 29 | 38 | 68 | 77 | 61 | 28 |
| Critical (15%) | 3 | 0 | 0 | 0 | 0 | 2 | 13 | 25 | 19 | 24 | 48 | **-7** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 47-3. Red Bluff Diversion - Tehama Colusa Canal, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 186 | 19 | 0 | 0 | 0 | 46 | 454 | 778 | 1,189 | 1,375 | 1,092 | 299 |
| 20% | 169 | 17 | 0 | 0 | 0 | 30 | 342 | 722 | 1,096 | 1,282 | 1,024 | 272 |
| 30% | 141 | 15 | 0 | 0 | 0 | 17 | 277 | 639 | 1,004 | 1,155 | 900 | 212 |
| 40% | 117 | 3 | 0 | 0 | 0 | 3 | 224 | 532 | 861 | 958 | 756 | 164 |
| 50% | 105 | 0 | 0 | 0 | 0 | 0 | 202 | 476 | 768 | 879 | 663 | 141 |
| 60% | 83 | 0 | 0 | 0 | 0 | 0 | 163 | 370 | 656 | 725 | 579 | 114 |
| 70% | 76 | 0 | 0 | 0 | 0 | 0 | 95 | 302 | 518 | 605 | 478 | 94 |
| 80% | 66 | 0 | 0 | 0 | 0 | 0 | 41 | 221 | 356 | 423 | 334 | 73 |
| 90% | 56 | 0 | 0 | 0 | 0 | 0 | 22 | 129 | 222 | 245 | 195 | 24 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 115 | 7 | 0 | 0 | 2 | 18 | 215 | 463 | 729 | 839 | 663 | 157 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 146 | 7 | 0 | 0 | 0 | 10 | 179 | 631 | 1,042 | 1,202 | 953 | 225 |
| Above Normal (16%) | 121 | 4 | 0 | 0 | 0 | 8 | 284 | 664 | 996 | 1,140 | 893 | 213 |
| Below Normal (13%) | 114 | 8 | 0 | 0 | 8 | 50 | 321 | 468 | 658 | 778 | 611 | 134 |
| Dry (24%) | 93 | 4 | 0 | 0 | 4 | 13 | 185 | 276 | 467 | 529 | 420 | 73 |
| Critical (15%) | 76 | 14 | 0 | 0 | 1 | 22 | 171 | 185 | 259 | 299 | 238 | 113 |

## Alternative 3 021719

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 208 | 19 | 0 | 0 | 0 | 54 | 471 | 788 | 1,191 | 1,377 | 1,094 | 299 |
| 20% | 186 | 17 | 0 | 0 | 0 | 33 | 401 | 754 | 1,107 | 1,320 | 1,027 | 273 |
| 30% | 153 | 17 | 0 | 0 | 0 | 18 | 299 | 710 | 1,070 | 1,252 | 968 | 248 |
| 40% | 129 | 4 | 0 | 0 | 0 | 3 | 265 | 620 | 1,031 | 1,156 | 918 | 214 |
| 50% | 104 | 1 | 0 | 0 | 0 | 1 | 196 | 529 | 922 | 1,077 | 810 | 198 |
| 60% | 88 | 0 | 0 | 0 | 0 | 0 | 170 | 437 | 777 | 880 | 700 | 145 |
| 70% | 77 | 0 | 0 | 0 | 0 | 0 | 90 | 349 | 536 | 631 | 497 | 100 |
| 80% | 69 | 0 | 0 | 0 | 0 | 0 | 40 | 245 | 375 | 439 | 350 | 59 |
| 90% | 56 | 0 | 0 | 0 | 0 | 0 | 24 | 134 | 285 | 311 | 247 | 19 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 120 | 7 | 0 | 0 | 2 | 21 | 233 | 502 | 795 | 915 | 723 | 172 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 149 | 7 | 0 | 0 | 0 | 12 | 193 | 631 | 1,074 | 1,237 | 980 | 236 |
| Above Normal (16%) | 128 | 5 | 0 | 0 | 0 | 10 | 297 | 686 | 1,079 | 1,233 | 966 | 241 |
| Below Normal (13%) | 132 | 8 | 0 | 0 | 9 | 66 | 346 | 655 | 863 | 1,019 | 800 | 172 |
| Dry (24%) | 96 | 4 | 0 | 0 | 4 | 15 | 212 | 309 | 525 | 594 | 471 | 86 |
| Critical (15%) | 78 | 14 | 0 | 0 | 1 | 24 | 180 | 205 | 271 | 314 | 251 | 103 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 21 | **0** | 0 | 0 | 0 | 8 | 17 | 11 | 2 | 2 | 3 | 0 |
| 20% | 16 | 0 | 0 | 0 | 0 | 3 | 59 | 32 | 11 | 39 | 4 | 1 |
| 30% | 13 | 2 | 0 | 0 | 0 | 1 | 22 | 71 | 67 | 97 | 68 | 35 |
| 40% | 12 | 1 | 0 | 0 | 0 | 0 | 41 | 88 | 170 | 199 | 162 | 51 |
| 50% | **-1** | 1 | 0 | 0 | 0 | 0 | **-6** | 53 | 154 | 197 | 148 | 57 |
| 60% | 6 | 0 | 0 | 0 | 0 | 0 | 6 | 67 | 121 | 155 | 121 | 31 |
| 70% | 1 | 0 | 0 | 0 | 0 | 0 | **-5** | 47 | 18 | 26 | 20 | 6 |
| 80% | 3 | 0 | 0 | 0 | 0 | 0 | **-1** | 24 | 19 | 16 | 16 | **-14** |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 63 | 66 | 52 | **-5** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6 | 0 | 0 | 0 | 0 | 4 | 18 | 40 | 66 | 76 | 60 | 15 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 4 | 0 | 0 | 0 | 0 | 1 | 14 | 0 | 31 | 35 | 27 | 11 |
| Above Normal (16%) | 7 | 1 | 0 | 0 | 0 | 2 | 13 | 22 | 84 | 93 | 73 | 27 |
| Below Normal (13%) | 18 | 1 | 0 | 0 | 0 | 16 | 25 | 187 | 205 | 241 | 189 | 38 |
| Dry (24%) | 3 | 0 | 0 | 0 | 0 | 2 | 27 | 33 | 58 | 65 | 52 | 13 |
| Critical (15%) | 2 | 0 | 0 | 0 | 0 | 2 | 9 | 20 | 12 | 16 | 13 | **-11** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 47-4. Red Bluff Diversion - Tehama Colusa Canal, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 186 | 19 | 0 | 0 | 0 | 46 | 454 | 778 | 1,189 | 1,375 | 1,092 | 299 |
| 20% | 169 | 17 | 0 | 0 | 0 | 30 | 342 | 722 | 1,096 | 1,282 | 1,024 | 272 |
| 30% | 141 | 15 | 0 | 0 | 0 | 17 | 277 | 639 | 1,004 | 1,155 | 900 | 212 |
| 40% | 117 | 3 | 0 | 0 | 0 | 3 | 224 | 532 | 861 | 958 | 756 | 164 |
| 50% | 105 | 0 | 0 | 0 | 0 | 0 | 202 | 476 | 768 | 879 | 663 | 141 |
| 60% | 83 | 0 | 0 | 0 | 0 | 0 | 163 | 370 | 656 | 725 | 579 | 114 |
| 70% | 76 | 0 | 0 | 0 | 0 | 0 | 95 | 302 | 518 | 605 | 478 | 94 |
| 80% | 66 | 0 | 0 | 0 | 0 | 0 | 41 | 221 | 356 | 423 | 334 | 73 |
| 90% | 56 | 0 | 0 | 0 | 0 | 0 | 22 | 129 | 222 | 245 | 195 | 24 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 115 | 7 | 0 | 0 | 2 | 18 | 215 | 463 | 729 | 839 | 663 | 157 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 146 | 7 | 0 | 0 | 0 | 10 | 179 | 631 | 1,042 | 1,202 | 953 | 225 |
| Above Normal (16%) | 121 | 4 | 0 | 0 | 0 | 8 | 284 | 664 | 996 | 1,140 | 893 | 213 |
| Below Normal (13%) | 114 | 8 | 0 | 0 | 8 | 50 | 321 | 468 | 658 | 778 | 611 | 134 |
| Dry (24%) | 93 | 4 | 0 | 0 | 4 | 13 | 185 | 276 | 467 | 529 | 420 | 73 |
| Critical (15%) | 76 | 14 | 0 | 0 | 1 | 22 | 171 | 185 | 259 | 299 | 238 | 113 |

## Alternative 4 043019

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 144 | 19 | 0 | 0 | 0 | 46 | 373 | 763 | 1,200 | 1,375 | 1,092 | 298 |
| 20% | 117 | 17 | 0 | 0 | 0 | 26 | 324 | 722 | 1,100 | 1,283 | 1,027 | 272 |
| 30% | 87 | 17 | 0 | 0 | 0 | 4 | 243 | 635 | 1,054 | 1,184 | 944 | 216 |
| 40% | 65 | 17 | 0 | 0 | 0 | 1 | 190 | 549 | 932 | 1,020 | 808 | 176 |
| 50% | 54 | 17 | 0 | 0 | 0 | 0 | 154 | 475 | 770 | 911 | 695 | 150 |
| 60% | 47 | 17 | 0 | 0 | 0 | 0 | 75 | 393 | 667 | 737 | 588 | 110 |
| 70% | 34 | 17 | 0 | 0 | 0 | 0 | 40 | 265 | 460 | 544 | 432 | 57 |
| 80% | 20 | 17 | 0 | 0 | 0 | 0 | 24 | 158 | 371 | 404 | 319 | 19 |
| 90% | 6 | 13 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 4 | 3 | 1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 68 | 17 | 0 | 0 | 2 | 14 | 170 | 444 | 719 | 828 | 653 | 146 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 95 | 16 | 0 | 0 | 0 | 11 | 150 | 618 | 1,054 | 1,215 | 962 | 228 |
| Above Normal (16%) | 74 | 18 | 0 | 0 | 0 | 9 | 250 | 625 | 1,028 | 1,176 | 922 | 238 |
| Below Normal (13%) | 71 | 18 | 0 | 0 | 9 | 38 | 215 | 533 | 685 | 809 | 634 | 107 |
| Dry (24%) | 42 | 16 | 0 | 0 | 4 | 15 | 202 | 295 | 502 | 570 | 452 | 76 |
| Critical (15%) | 39 | 17 | 0 | 0 | 1 | 4 | 31 | 34 | 50 | 59 | 46 | 21 |

## Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-43** | 0 | 0 | 0 | 0 | **0** | **-81** | **-14** | 11 | 0 | 0 | **-1** |
| 20% | **-52** | 0 | 0 | 0 | 0 | **-4** | **-18** | 0 | 3 | 1 | 4 | 0 |
| 30% | **-54** | 2 | 0 | 0 | 0 | **-13** | **-34** | **-4** | 51 | 29 | 44 | 4 |
| 40% | **-52** | 14 | 0 | 0 | 0 | **-2** | **-34** | 17 | 71 | 62 | 52 | 12 |
| 50% | **-50** | 17 | 0 | 0 | 0 | **0** | **-48** | **-1** | 2 | 32 | 33 | 9 |
| 60% | **-36** | 17 | 0 | 0 | 0 | 0 | **-88** | 23 | 11 | 12 | 10 | **-5** |
| 70% | **-42** | 17 | 0 | 0 | 0 | 0 | **-55** | **-38** | **-58** | **-61** | **-45** | **-38** |
| 80% | **-46** | 17 | 0 | 0 | 0 | 0 | **-17** | **-63** | 14 | **-19** | **-15** | **-54** |
| 90% | **-50** | 13 | 0 | 0 | 0 | 0 | **-22** | **-127** | **-218** | **-241** | **-192** | **-22** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-47** | 10 | 0 | 0 | 0 | **-3** | **-45** | **-19** | **-10** | **-11** | **-10** | **-11** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-51** | 9 | 0 | 0 | 0 | 1 | **-29** | **-13** | 12 | 13 | 9 | 4 |
| Above Normal (16%) | **-47** | 14 | 0 | 0 | 0 | 1 | **-34** | **-39** | 32 | 36 | 29 | 25 |
| Below Normal (13%) | **-42** | 10 | 0 | 0 | 0 | **-11** | **-106** | 65 | 26 | 31 | 24 | **-27** |
| Dry (24%) | **-51** | 11 | 0 | 0 | 0 | 2 | 17 | 19 | 35 | 40 | 32 | 4 |
| Critical (15%) | **-37** | 4 | 0 | 0 | 0 | **-18** | **-140** | **-151** | **-209** | **-240** | **-192** | **-92** |

a Based on the 82-year simulation period.

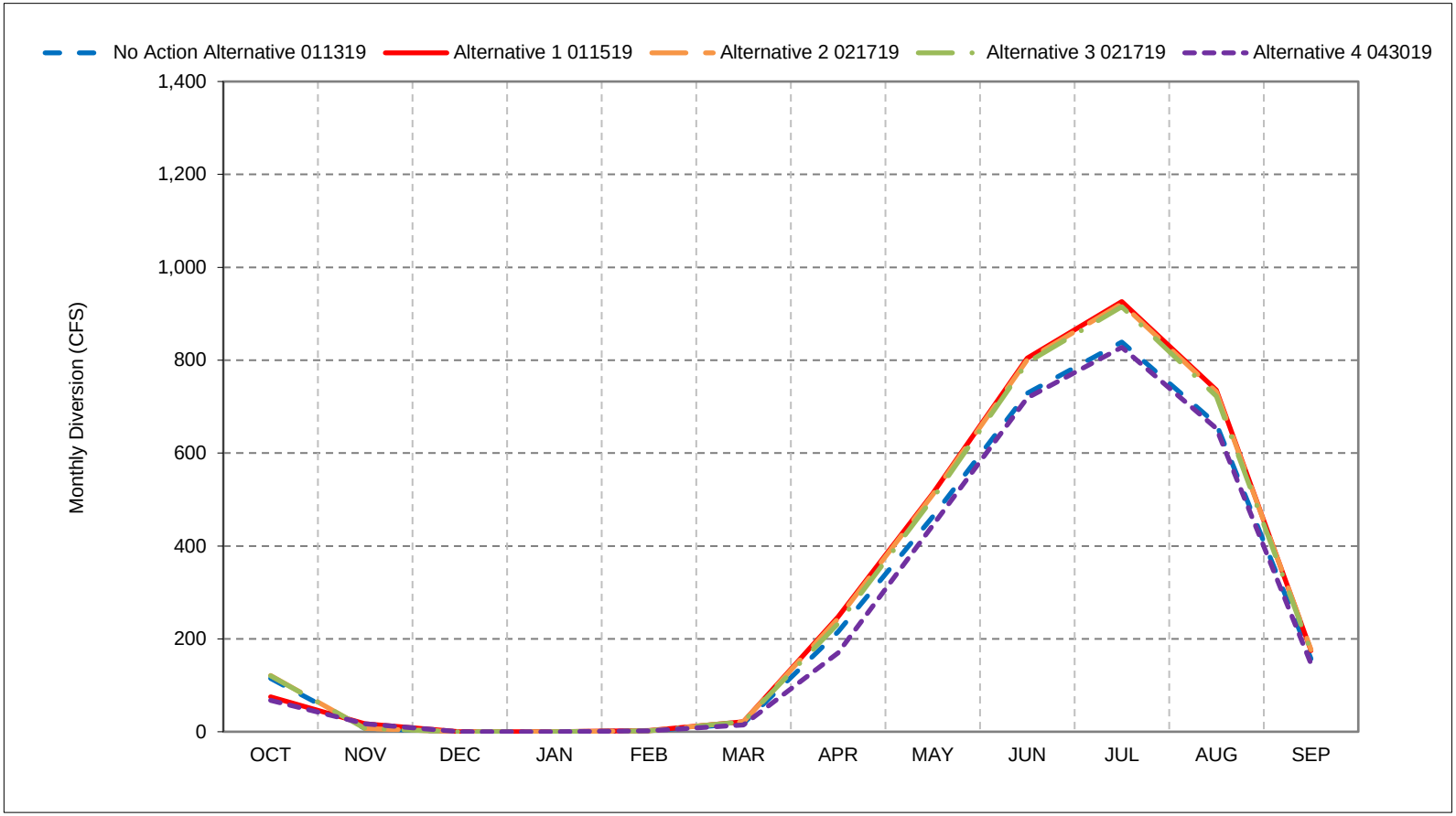
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

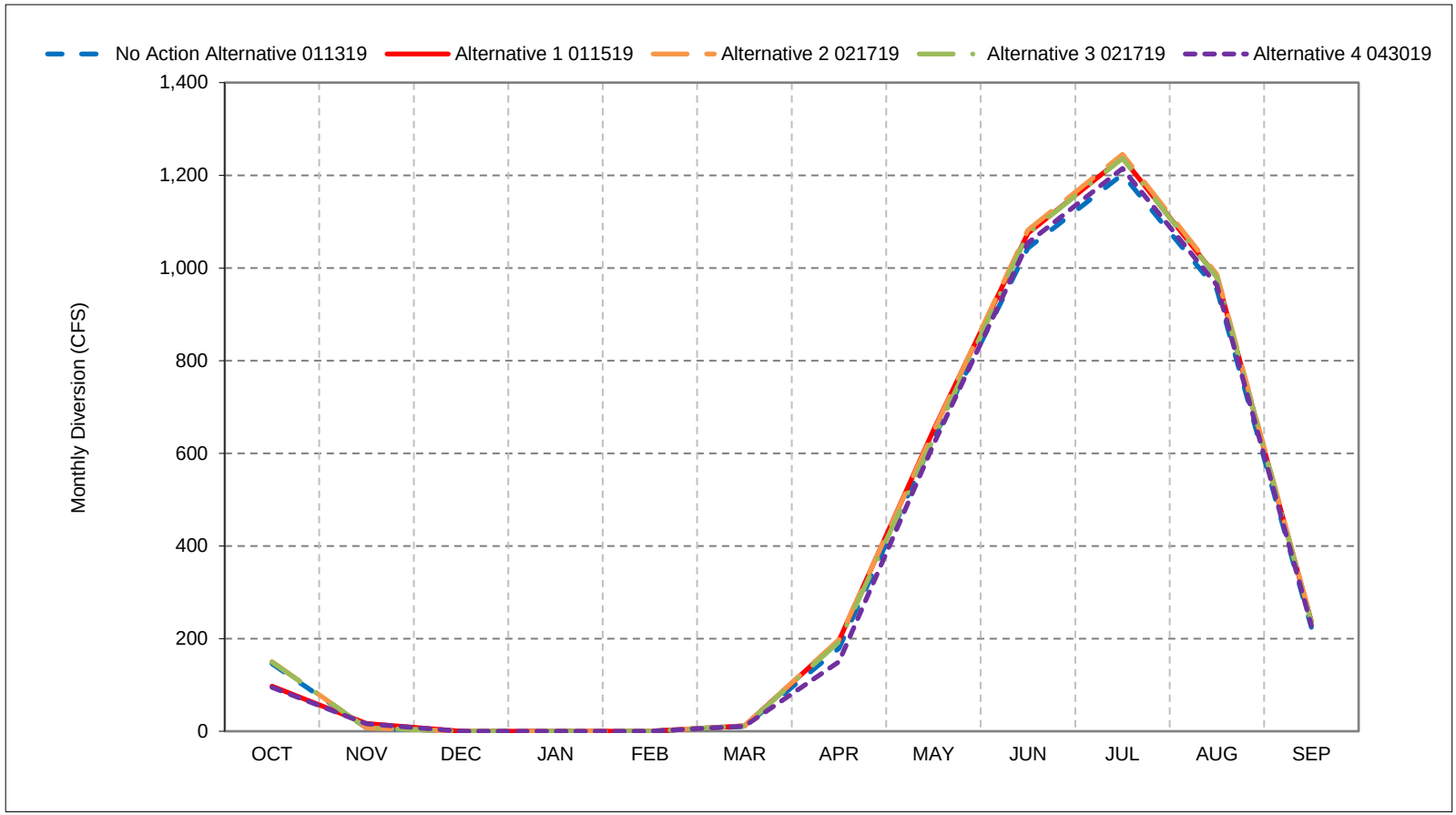
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 47-1. Red Bluff Diversion - Tehama Colusa Canal, Long-Term Average Diversion



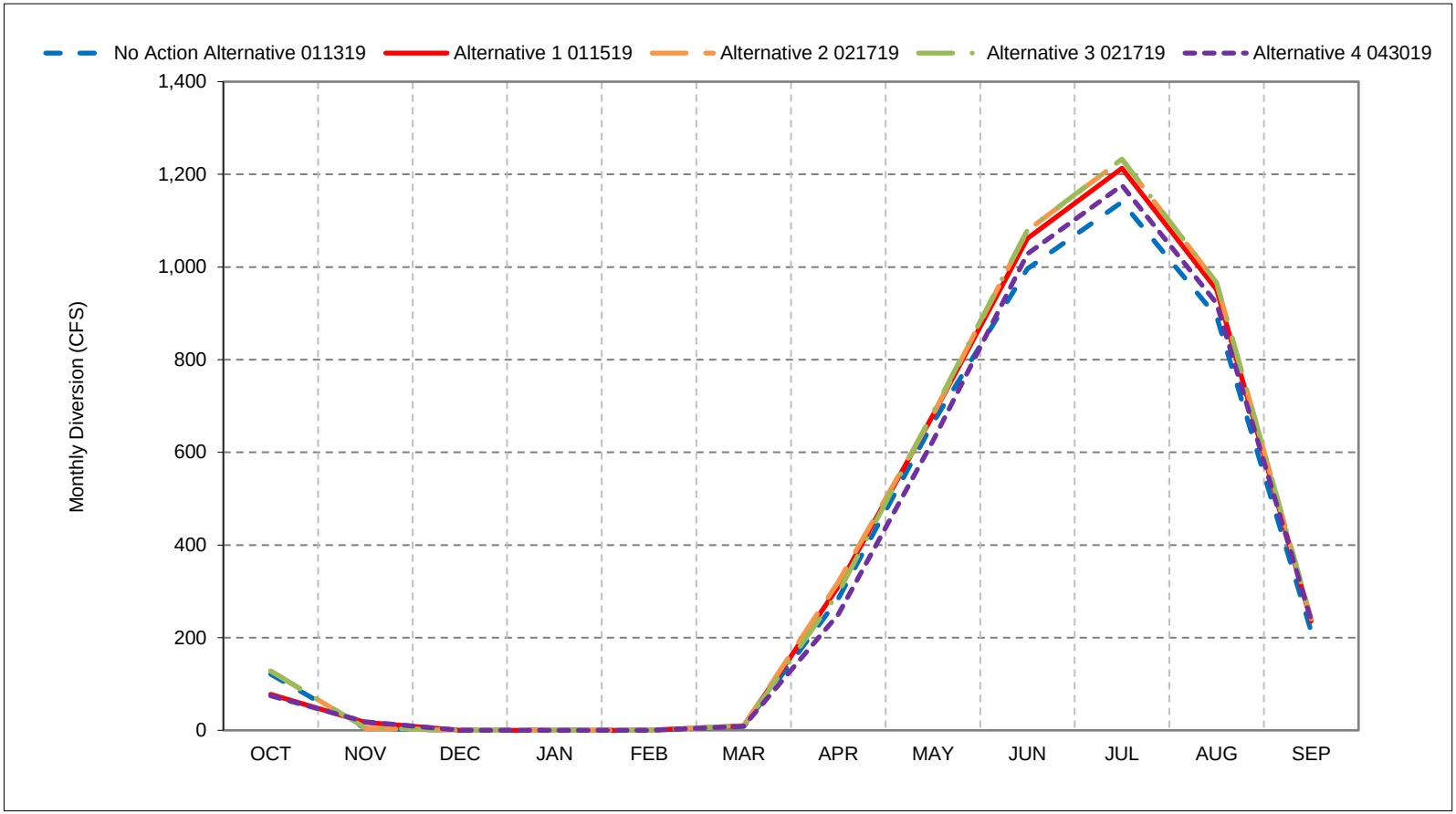

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 47-2. Red Bluff Diversion - Tehama Colusa Canal, Wet Year Average Diversion



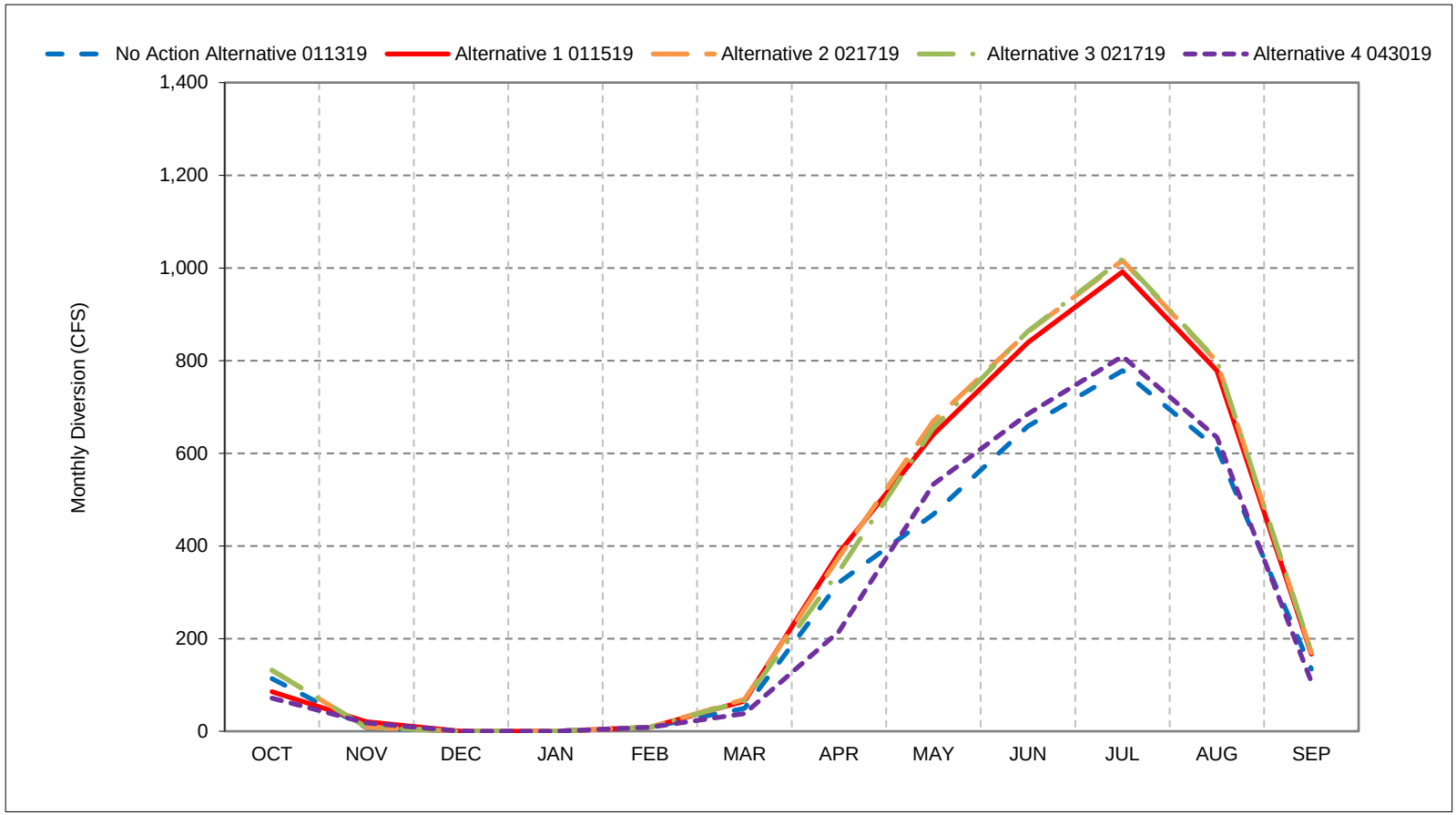

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 47-3. Red Bluff Diversion - Tehama Colusa Canal, Above Normal Year Average Diversion



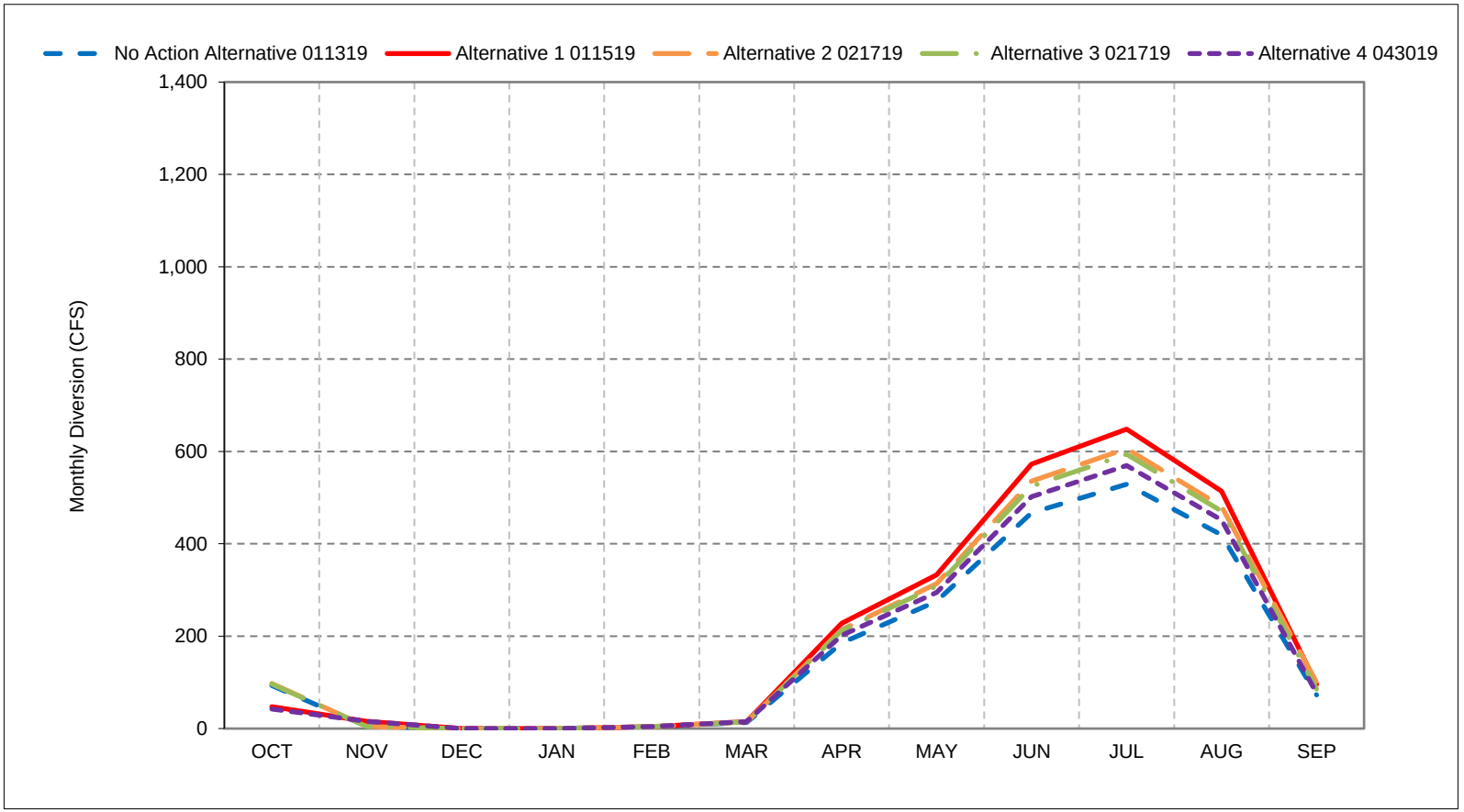

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 47-4. Red Bluff Diversion - Tehama Colusa Canal, Below Normal Year Average Diversion



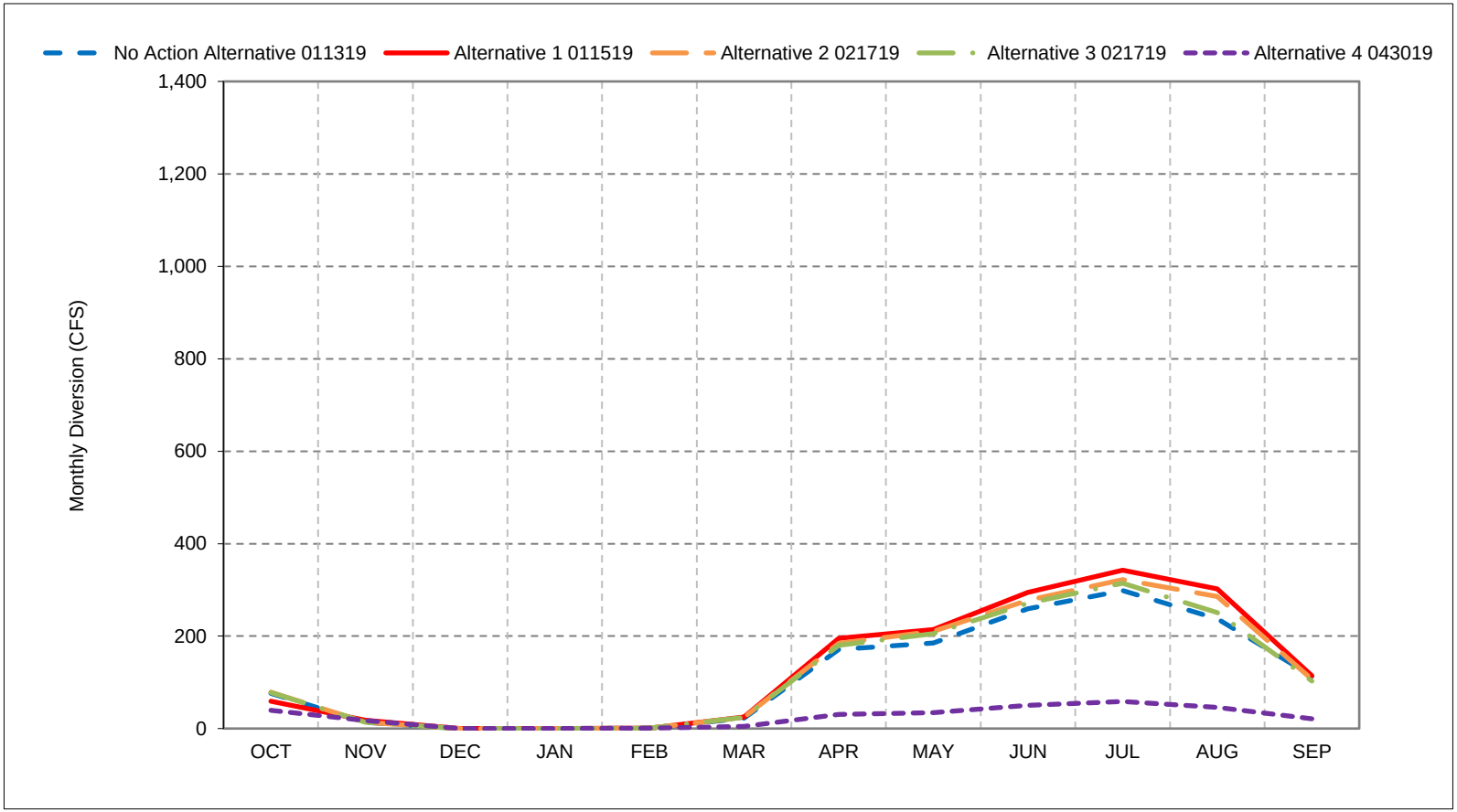

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 47-5. Red Bluff Diversion - Tehama Colusa Canal, Dry Year Average Diversion



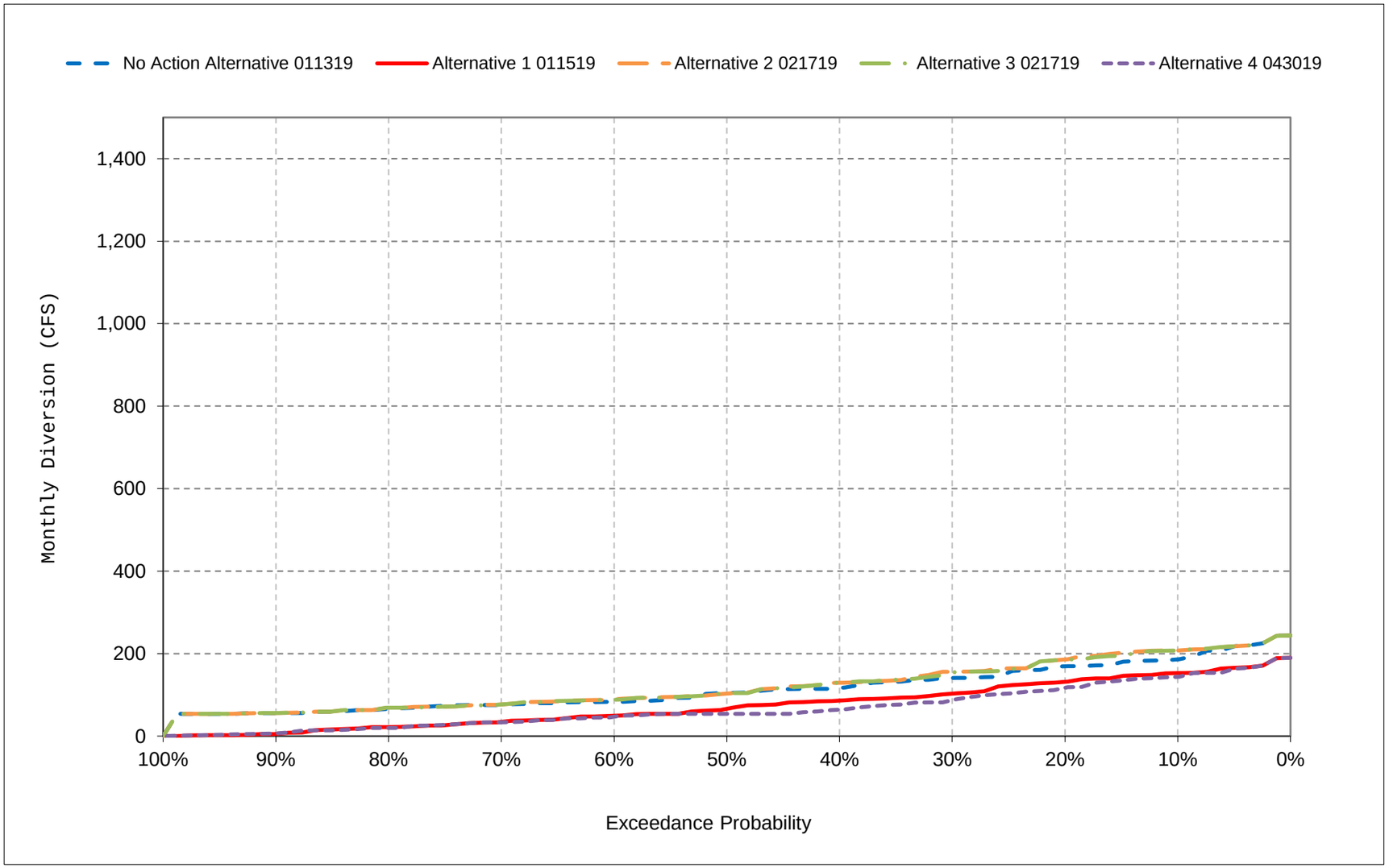

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 47-6. Red Bluff Diversion - Tehama Colusa Canal, Critical Year Average Diversion




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

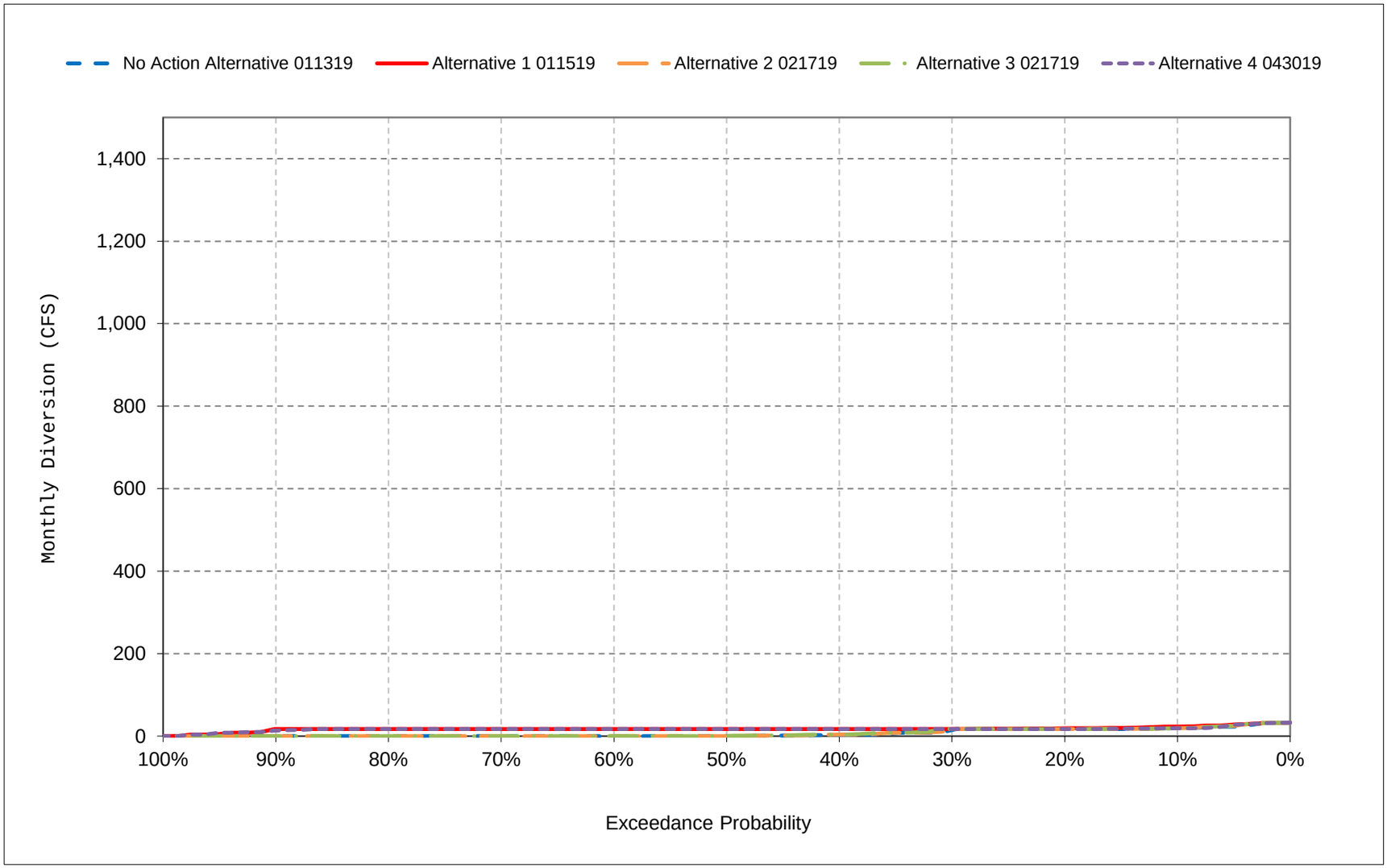
**Figure 47-7. Red Bluff Diversion - Tehama Colusa Canal, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

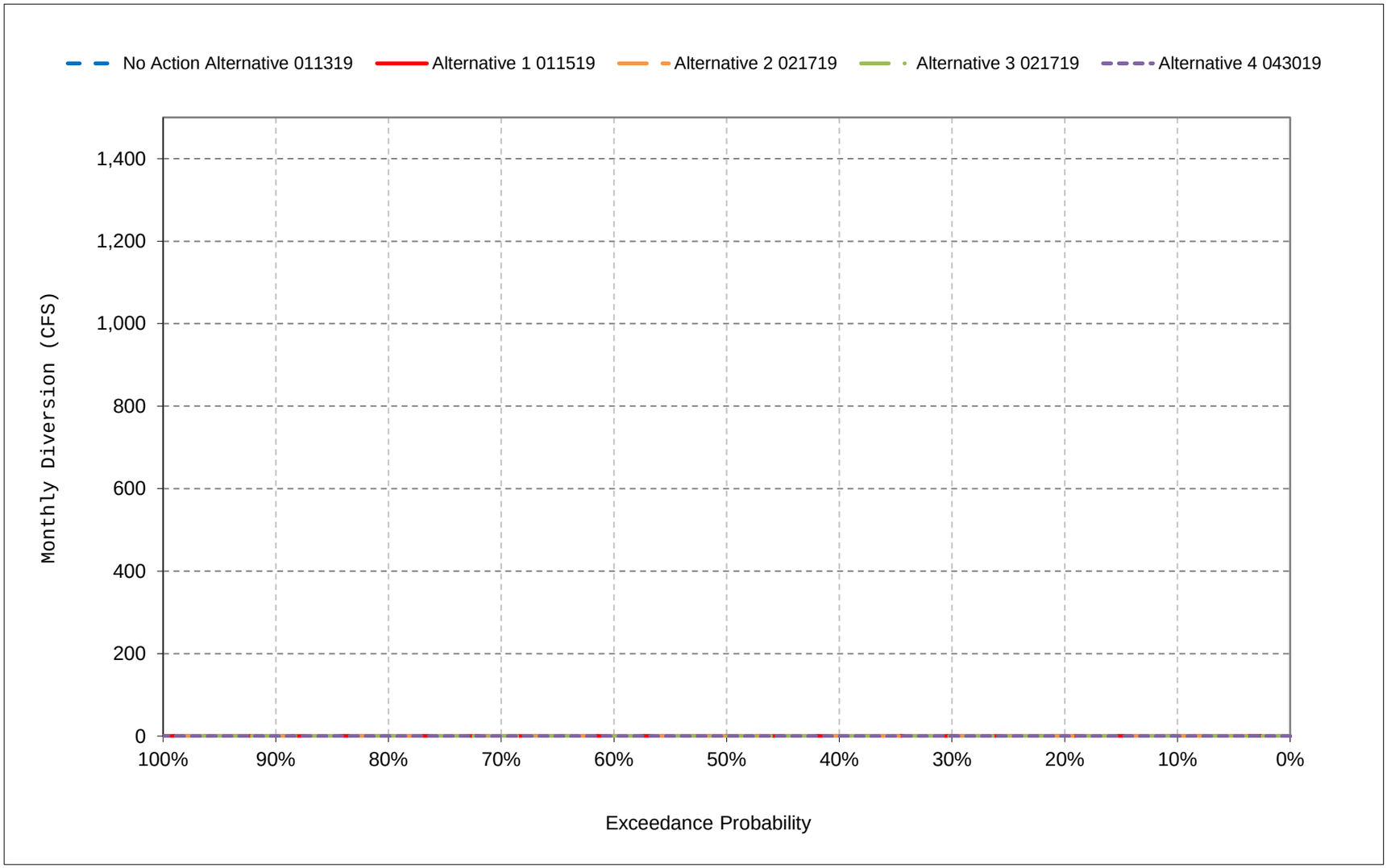
**Figure 47-8. Red Bluff Diversion - Tehama Colusa Canal, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

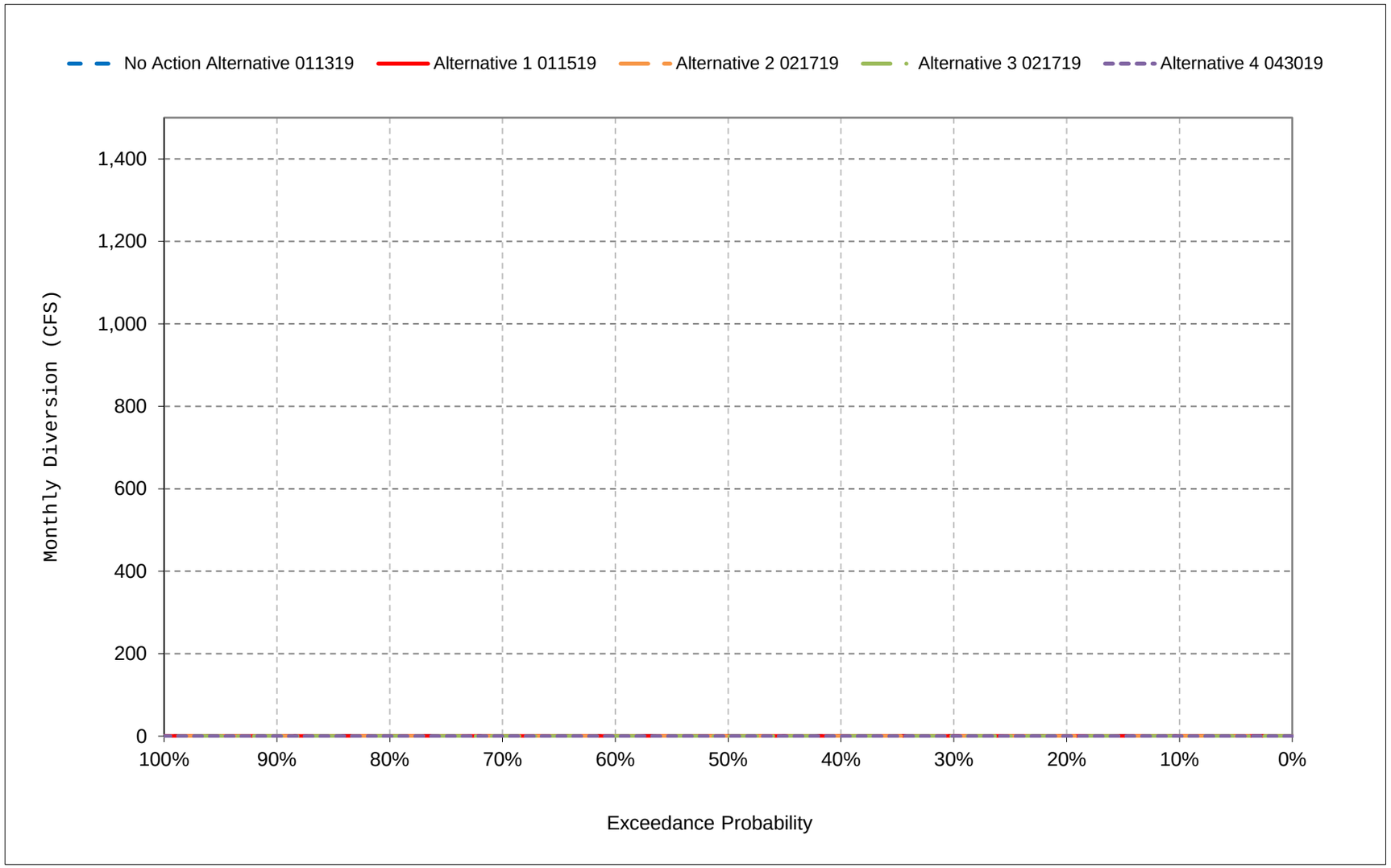
**Figure 47-9. Red Bluff Diversion - Tehama Colusa Canal, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

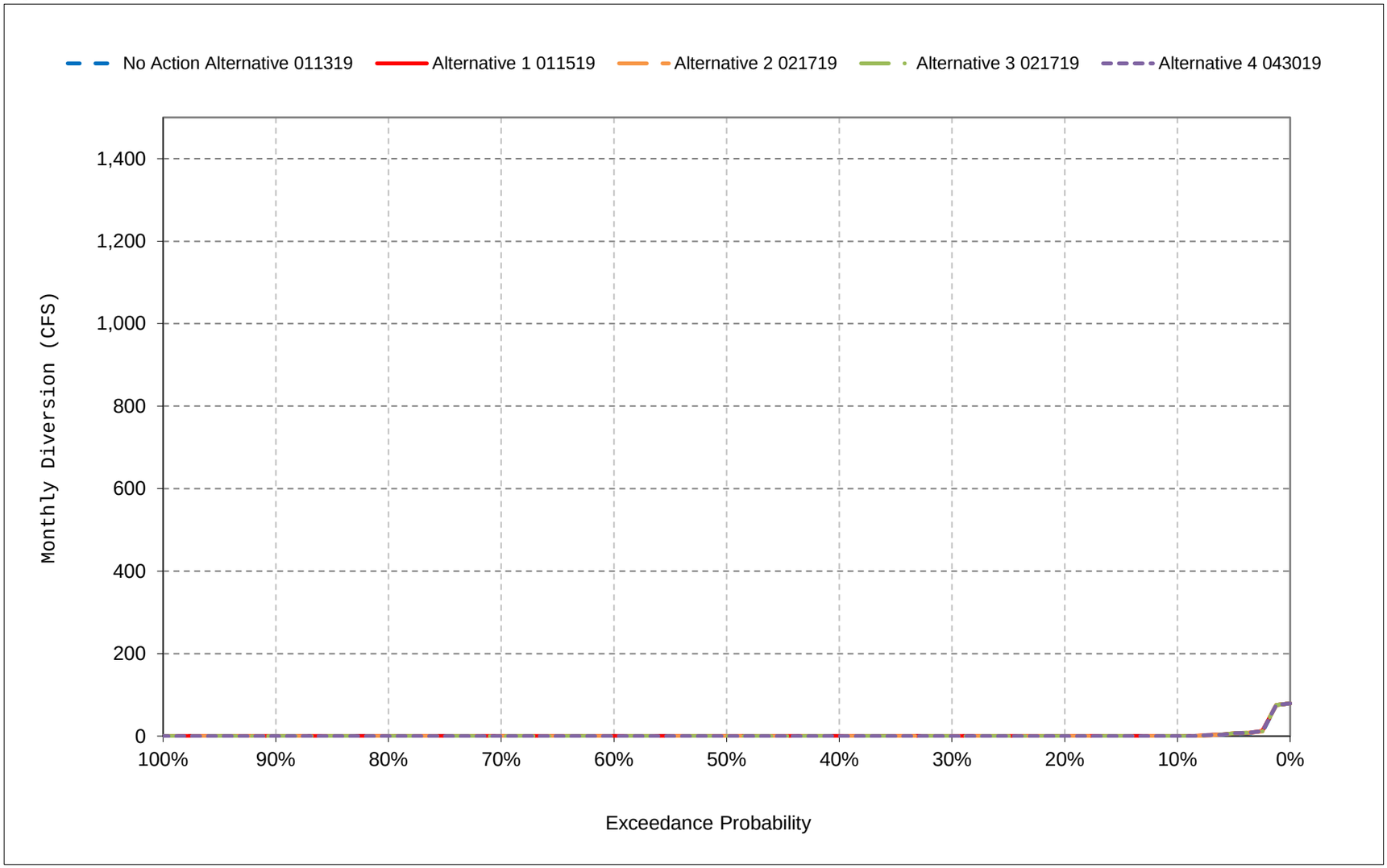
**Figure 47-10. Red Bluff Diversion - Tehama Colusa Canal, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

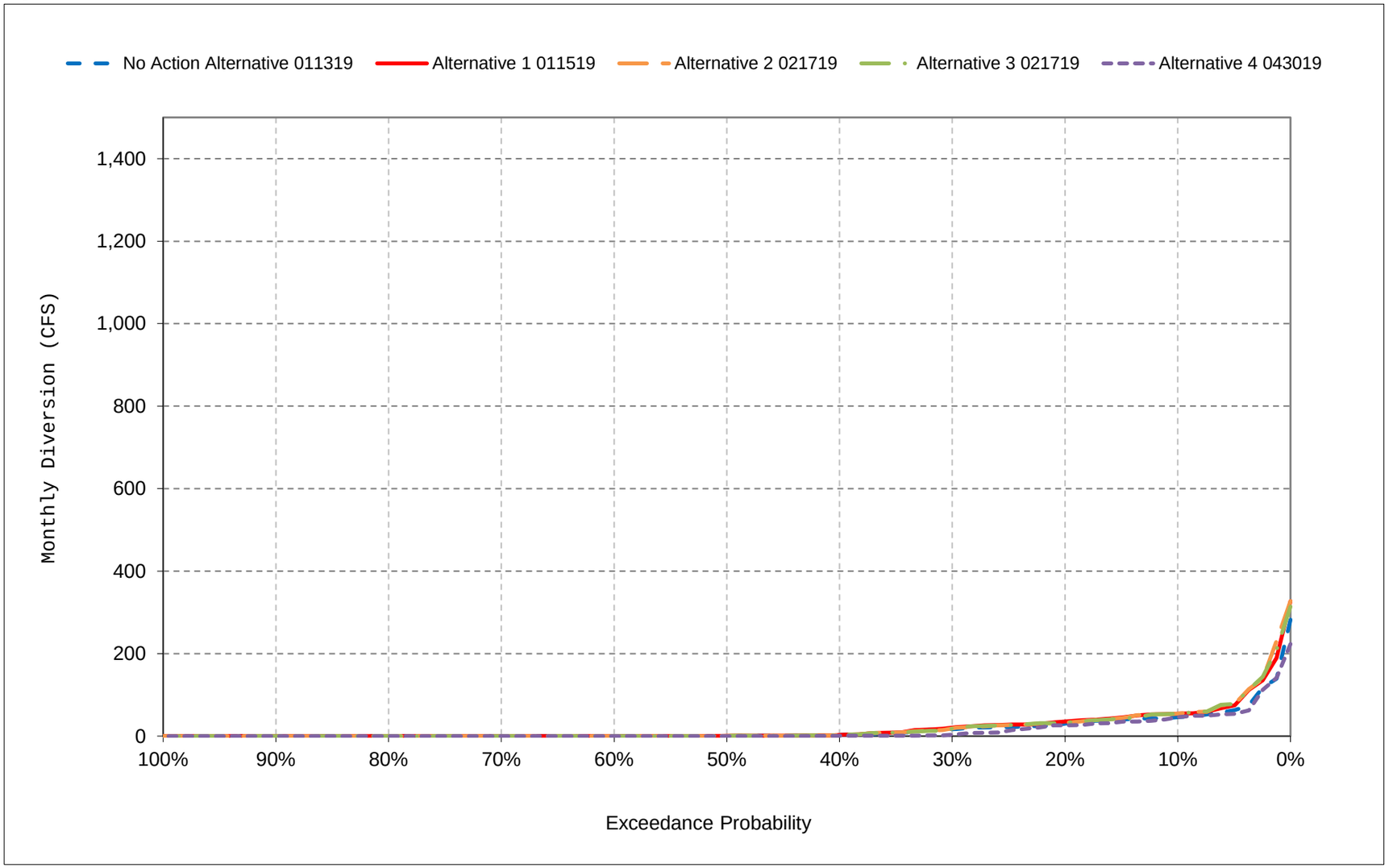
**Figure 47-11. Red Bluff Diversion - Tehama Colusa Canal, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

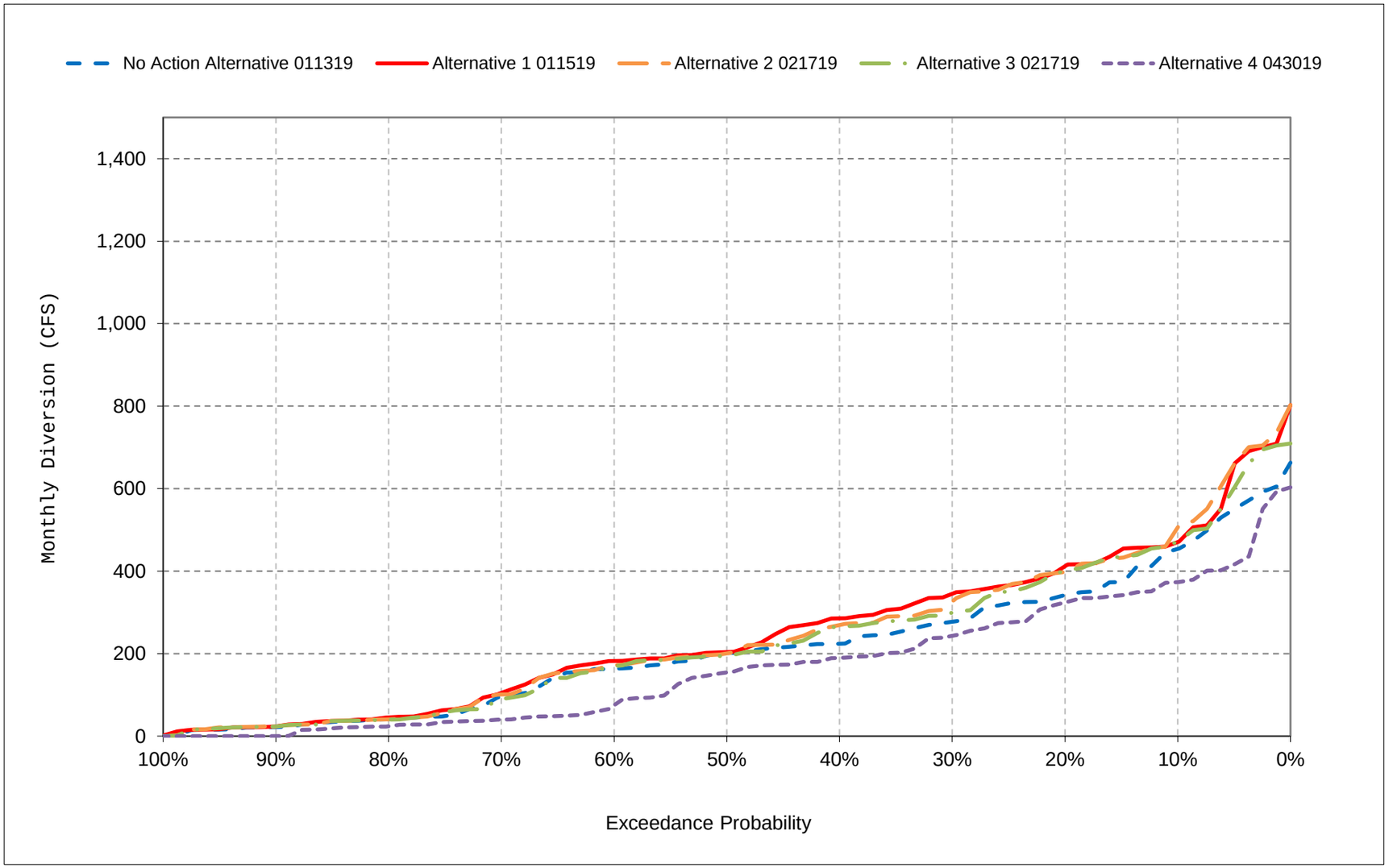
**Figure 47-12. Red Bluff Diversion - Tehama Colusa Canal, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

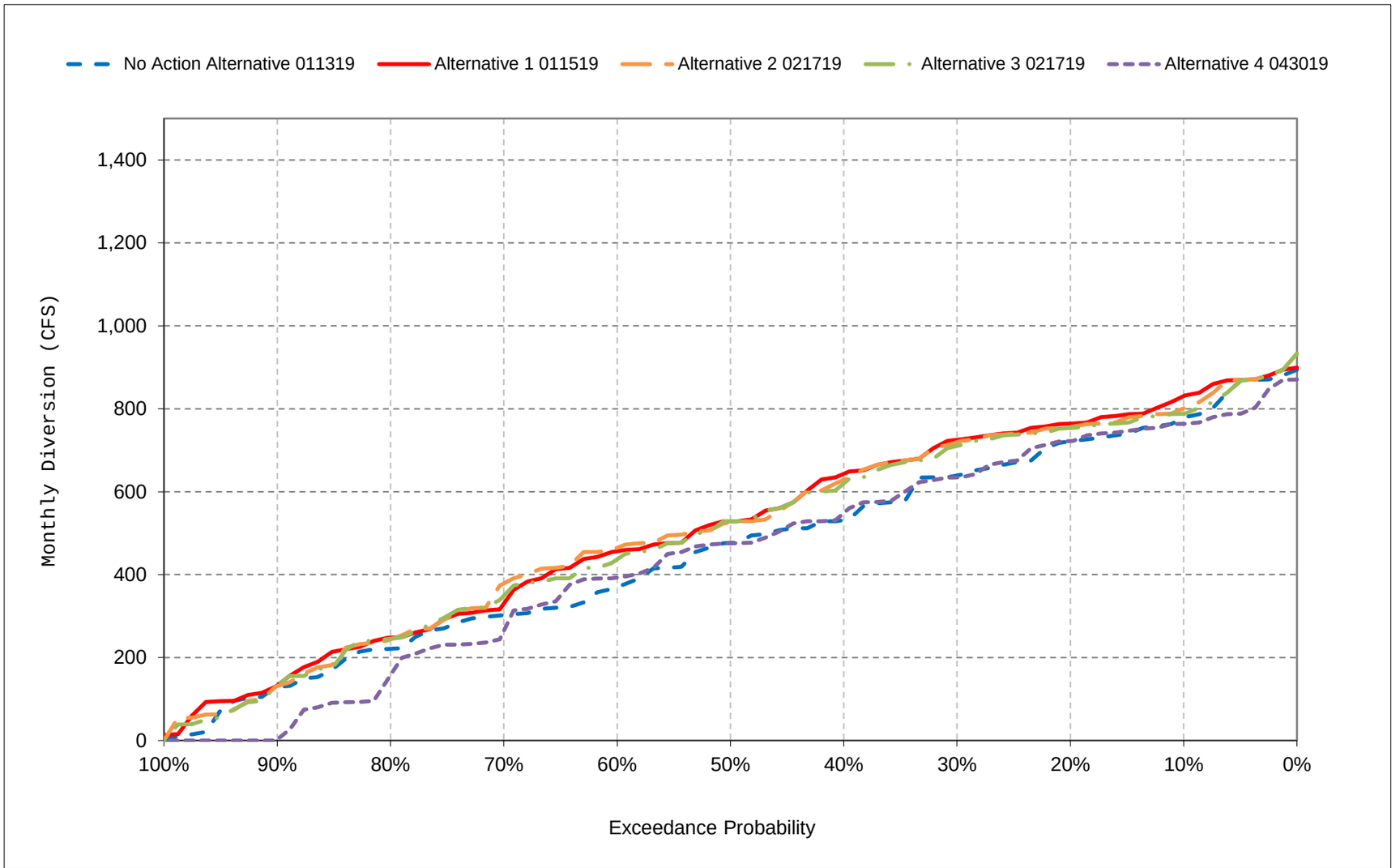
**Figure 47-13. Red Bluff Diversion - Tehama Colusa Canal, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

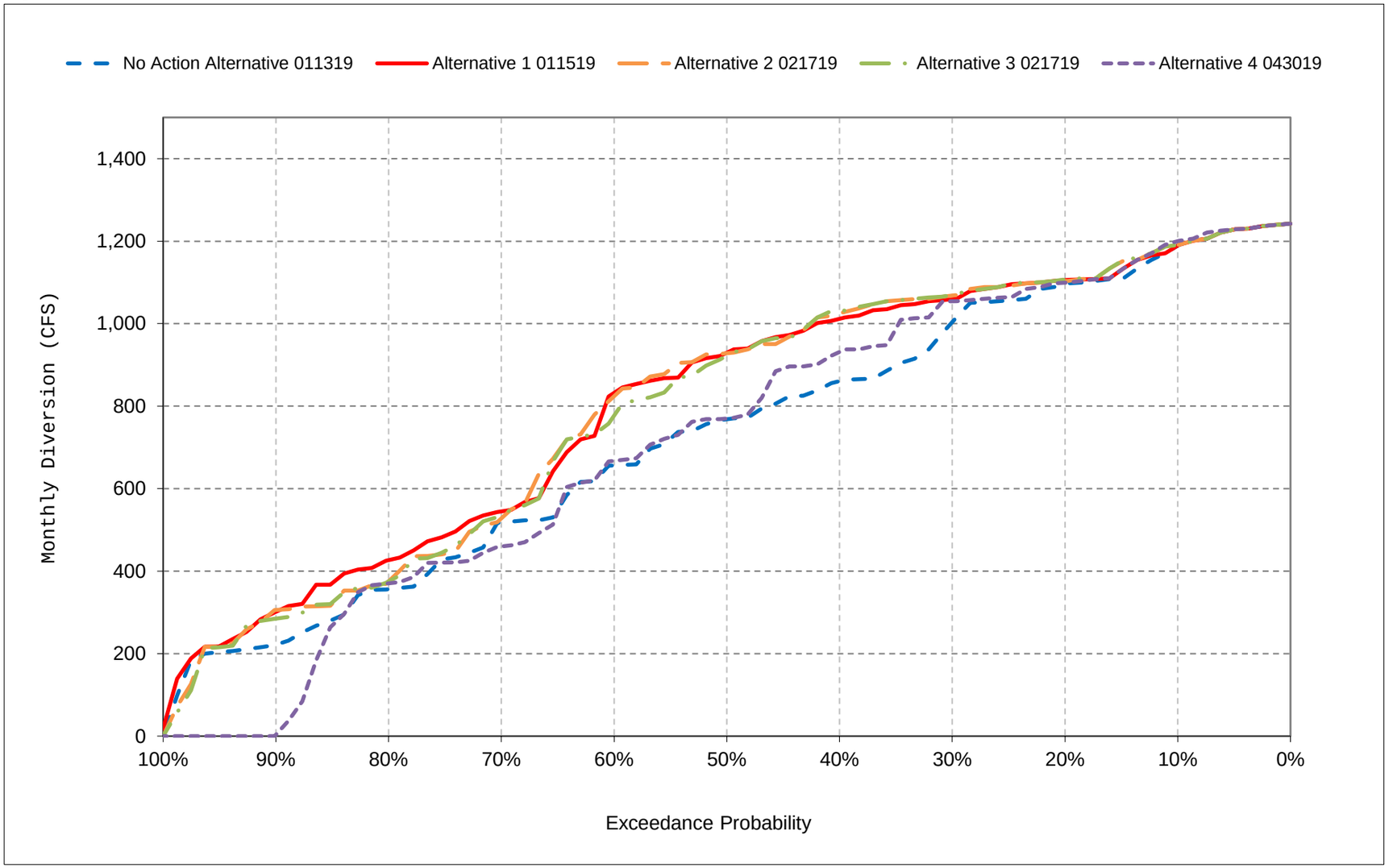
**Figure 47-14. Red Bluff Diversion - Tehama Colusa Canal, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

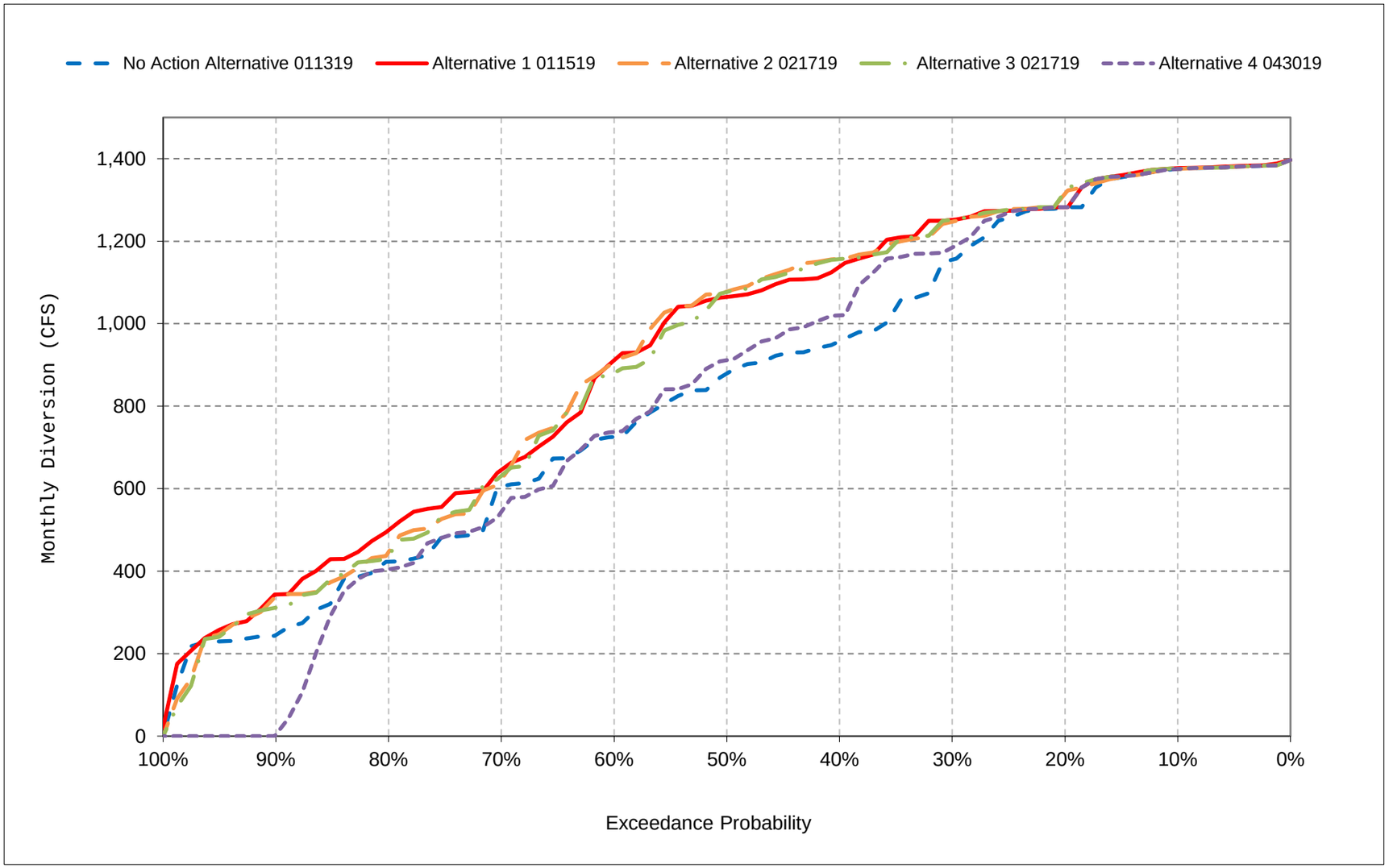
**Figure 47-15. Red Bluff Diversion - Tehama Colusa Canal, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

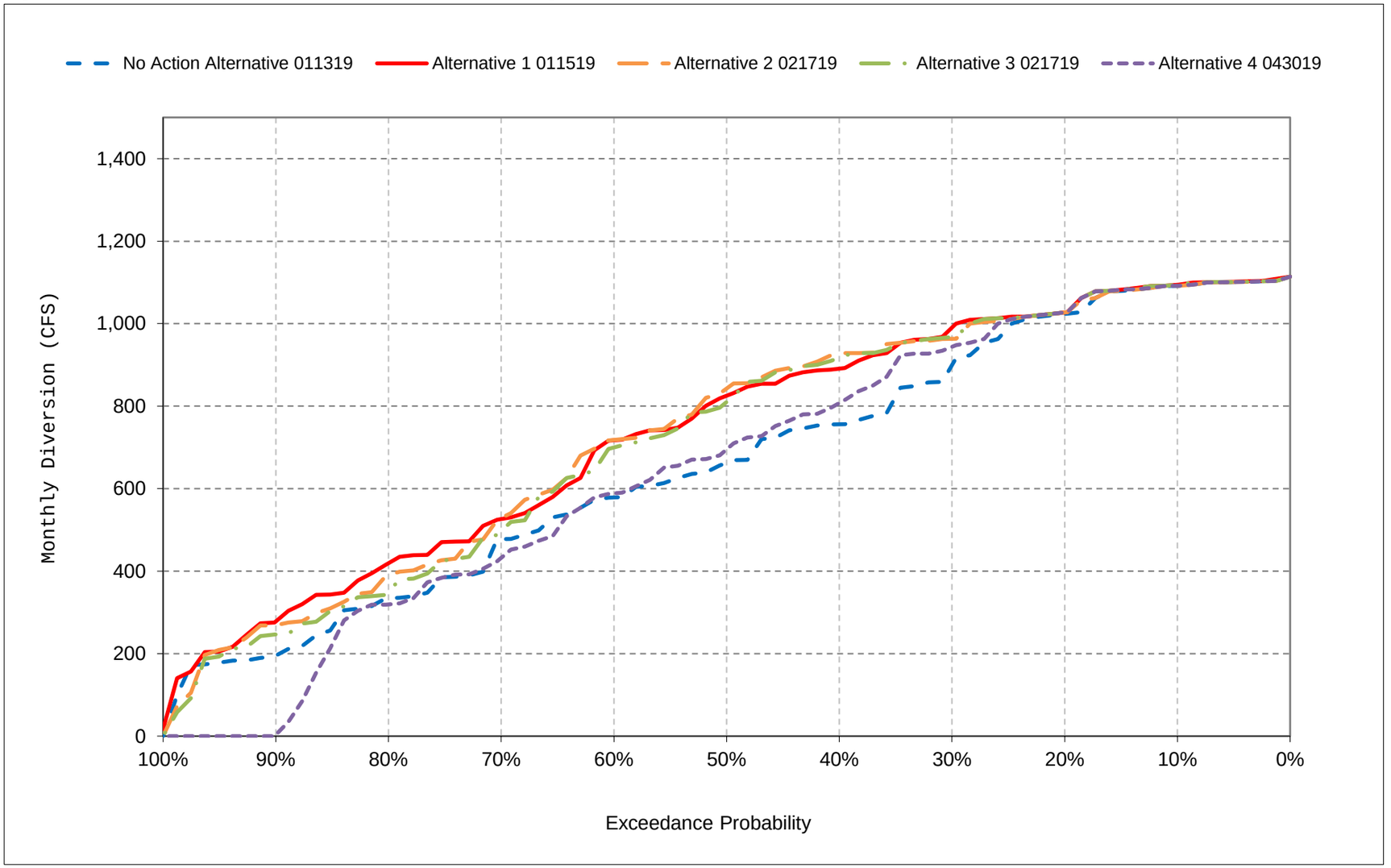
**Figure 47-16. Red Bluff Diversion - Tehama Colusa Canal, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

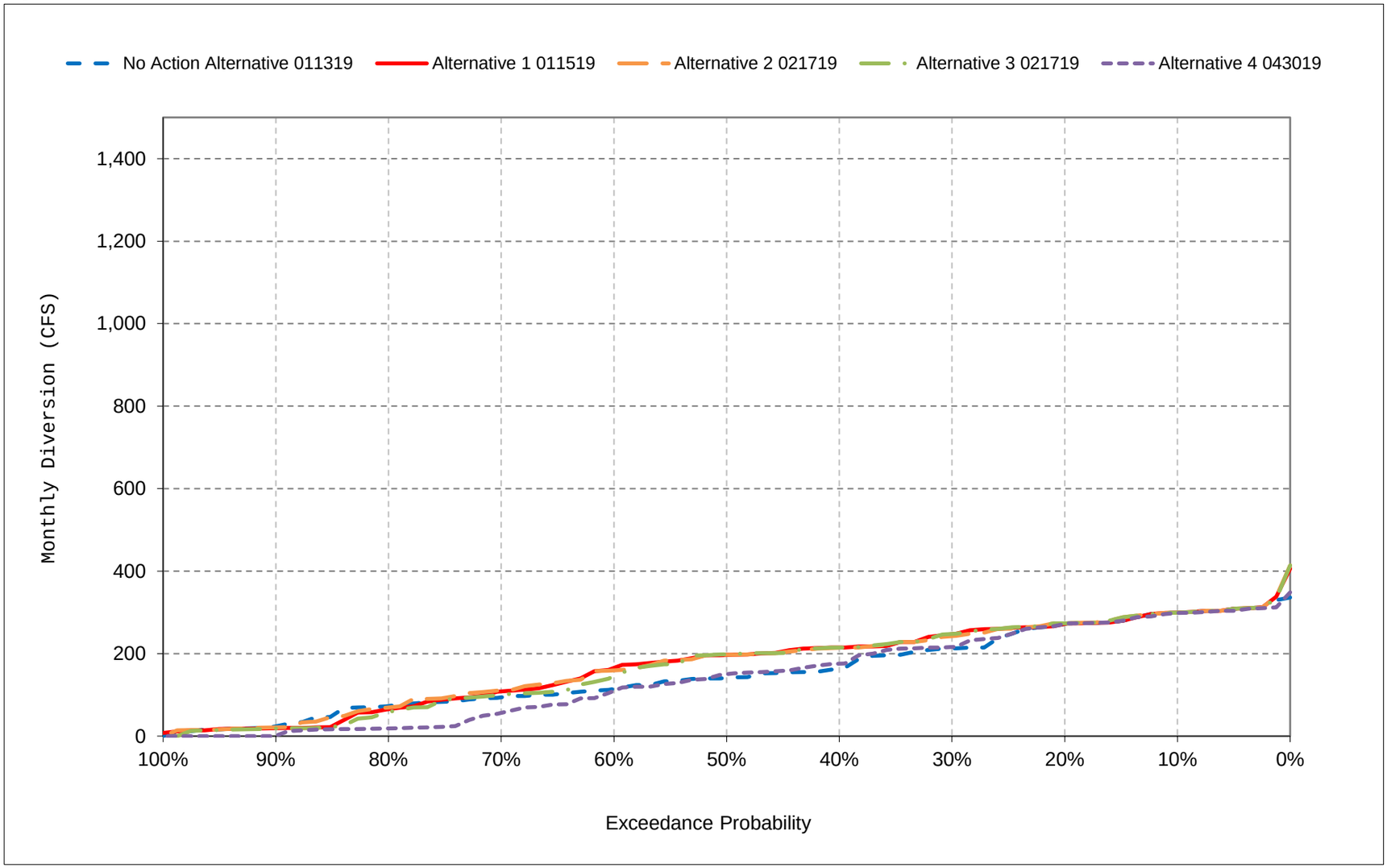
**Figure 47-17. Red Bluff Diversion - Tehama Colusa Canal, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 47-18. Red Bluff Diversion - Tehama Colusa Canal, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 48-1. Hamilton City Diversion - Glenn Colusa Canal, Monthly Diversion

## No Action Alternative 011319

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 851 | 564 | 292 | 127 | 68 | 84 | 552 | 2,331 | 2,705 | 2,617 | 2,241 | 633 |
| 20% | 845 | 546 | 270 | 86 | 68 | 65 | 527 | 2,297 | 2,621 | 2,611 | 2,130 | 633 |
| 30% | 837 | 515 | 240 | 75 | 68 | 50 | 493 | 2,260 | 2,556 | 2,563 | 2,090 | 633 |
| 40% | 823 | 478 | 224 | 75 | 68 | 35 | 467 | 2,245 | 2,483 | 2,538 | 2,040 | 630 |
| 50% | 808 | 441 | 202 | 75 | 68 | 21 | 451 | 2,212 | 2,416 | 2,538 | 1,981 | 628 |
| 60% | 790 | 420 | 181 | 75 | 68 | 20 | 427 | 2,153 | 2,339 | 2,537 | 1,928 | 612 |
| 70% | 771 | 391 | 161 | 75 | 67 | 20 | 411 | 2,079 | 2,325 | 2,521 | 1,917 | 602 |
| 80% | 745 | 354 | 158 | 75 | 66 | 20 | 391 | 2,007 | 2,271 | 2,446 | 1,862 | 569 |
| 90% | 636 | 330 | 158 | 75 | 53 | 20 | 306 | 1,842 | 2,226 | 2,285 | 1,795 | 504 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 777 | 448 | 211 | 84 | 67 | 43 | 443 | 2,137 | 2,433 | 2,512 | 1,996 | 596 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 811 | 460 | 227 | 81 | 67 | 32 | 402 | 2,119 | 2,261 | 2,565 | 2,141 | 614 |
| Above Normal (16%) | 796 | 461 | 207 | 76 | 65 | 28 | 432 | 2,098 | 2,359 | 2,537 | 2,023 | 616 |
| Below Normal (13%) | 781 | 466 | 212 | 98 | 73 | 63 | 472 | 2,170 | 2,561 | 2,534 | 1,994 | 583 |
| Dry (24%) | 807 | 435 | 218 | 85 | 66 | 43 | 447 | 2,200 | 2,645 | 2,532 | 1,910 | 605 |
| Critical (15%) | 630 | 415 | 166 | 84 | 66 | 65 | 512 | 2,086 | 2,413 | 2,313 | 1,799 | 530 |

## Alternative 1 011519

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 866 | 556 | 284 | 127 | 68 | 84 | 552 | 2,340 | 2,705 | 2,617 | 2,241 | 633 |
| 20% | 846 | 535 | 268 | 86 | 68 | 65 | 527 | 2,305 | 2,621 | 2,607 | 2,131 | 633 |
| 30% | 828 | 509 | 239 | 75 | 68 | 50 | 493 | 2,277 | 2,571 | 2,563 | 2,090 | 633 |
| 40% | 810 | 470 | 224 | 75 | 68 | 35 | 467 | 2,250 | 2,483 | 2,538 | 2,040 | 630 |
| 50% | 783 | 437 | 202 | 75 | 68 | 21 | 451 | 2,225 | 2,416 | 2,538 | 1,981 | 628 |
| 60% | 763 | 417 | 181 | 75 | 68 | 20 | 427 | 2,173 | 2,347 | 2,525 | 1,928 | 613 |
| 70% | 735 | 380 | 161 | 75 | 67 | 20 | 411 | 2,086 | 2,328 | 2,521 | 1,917 | 603 |
| 80% | 709 | 338 | 158 | 75 | 66 | 20 | 391 | 2,013 | 2,277 | 2,468 | 1,862 | 585 |
| 90% | 649 | 314 | 158 | 75 | 53 | 20 | 306 | 1,853 | 2,226 | 2,318 | 1,795 | 504 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 764 | 438 | 210 | 84 | 67 | 43 | 443 | 2,146 | 2,437 | 2,512 | 1,993 | 592 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 797 | 450 | 227 | 81 | 67 | 32 | 402 | 2,123 | 2,267 | 2,558 | 2,143 | 617 |
| Above Normal (16%) | 783 | 448 | 202 | 76 | 65 | 28 | 432 | 2,101 | 2,365 | 2,528 | 2,023 | 616 |
| Below Normal (13%) | 772 | 454 | 212 | 98 | 73 | 63 | 472 | 2,184 | 2,568 | 2,569 | 1,995 | 583 |
| Dry (24%) | 785 | 424 | 218 | 85 | 66 | 43 | 447 | 2,215 | 2,644 | 2,532 | 1,910 | 605 |
| Critical (15%) | 630 | 411 | 166 | 84 | 66 | 65 | 510 | 2,095 | 2,418 | 2,313 | 1,772 | 501 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15 | -8 | -7 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| 20% | 2 | -11 | -1 | 0 | 0 | 0 | 0 | 8 | 0 | -4 | 1 | 0 |
| 30% | -10 | -6 | -2 | 0 | 0 | 0 | 0 | 17 | 15 | 0 | 0 | 0 |
| 40% | -13 | -7 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 |
| 50% | -24 | -4 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 |
| 60% | -27 | -3 | 0 | 0 | 0 | 0 | 0 | 21 | 7 | -12 | 0 | 1 |
| 70% | -35 | -11 | 0 | 0 | 0 | 0 | 0 | 7 | 3 | 0 | 0 | 1 |
| 80% | -36 | -15 | 0 | 0 | 0 | 0 | 0 | 6 | 7 | 21 | 0 | 15 |
| 90% | 14 | -15 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 33 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -13 | -10 | -1 | 0 | 0 | 0 | 0 | 9 | 4 | 1 | -3 | -3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -15 | -10 | 0 | 0 | 0 | 0 | 0 | 5 | 6 | -8 | 2 | 3 |
| Above Normal (16%) | -13 | -13 | -5 | 0 | 0 | 0 | 0 | 3 | 6 | -9 | 0 | 0 |
| Below Normal (13%) | -9 | -12 | 0 | 0 | 0 | 0 | 0 | 15 | 7 | 35 | 1 | 0 |
| Dry (24%) | -22 | -11 | 0 | 0 | 0 | 0 | 0 | 14 | -1 | 0 | 0 | 0 |
| Critical (15%) | 0 | -4 | 0 | 0 | 0 | 0 | -1 | 10 | 5 | 0 | -26 | -29 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 48-2. Hamilton City Diversion - Glenn Colusa Canal, Monthly Diversion

## No Action Alternative 011319

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 851 | 564 | 292 | 127 | 68 | 84 | 552 | 2,331 | 2,705 | 2,617 | 2,241 | 633 |
| 20% | 845 | 546 | 270 | 86 | 68 | 65 | 527 | 2,297 | 2,621 | 2,611 | 2,130 | 633 |
| 30% | 837 | 515 | 240 | 75 | 68 | 50 | 493 | 2,260 | 2,556 | 2,563 | 2,090 | 633 |
| 40% | 823 | 478 | 224 | 75 | 68 | 35 | 467 | 2,245 | 2,483 | 2,538 | 2,040 | 630 |
| 50% | 808 | 441 | 202 | 75 | 68 | 21 | 451 | 2,212 | 2,416 | 2,538 | 1,981 | 628 |
| 60% | 790 | 420 | 181 | 75 | 68 | 20 | 427 | 2,153 | 2,339 | 2,537 | 1,928 | 612 |
| 70% | 771 | 391 | 161 | 75 | 67 | 20 | 411 | 2,079 | 2,325 | 2,521 | 1,917 | 602 |
| 80% | 745 | 354 | 158 | 75 | 66 | 20 | 391 | 2,007 | 2,271 | 2,446 | 1,862 | 569 |
| 90% | 636 | 330 | 158 | 75 | 53 | 20 | 306 | 1,842 | 2,226 | 2,285 | 1,795 | 504 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 777 | 448 | 211 | 84 | 67 | 43 | 443 | 2,137 | 2,433 | 2,512 | 1,996 | 596 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 811 | 460 | 227 | 81 | 67 | 32 | 402 | 2,119 | 2,261 | 2,565 | 2,141 | 614 |
| Above Normal (16%) | 796 | 461 | 207 | 76 | 65 | 28 | 432 | 2,098 | 2,359 | 2,537 | 2,023 | 616 |
| Below Normal (13%) | 781 | 466 | 212 | 98 | 73 | 63 | 472 | 2,170 | 2,561 | 2,534 | 1,994 | 583 |
| Dry (24%) | 807 | 435 | 218 | 85 | 66 | 43 | 447 | 2,200 | 2,645 | 2,532 | 1,910 | 605 |
| Critical (15%) | 630 | 415 | 166 | 84 | 66 | 65 | 512 | 2,086 | 2,413 | 2,313 | 1,799 | 530 |

## Alternative 2 021719

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 851 | 564 | 284 | 127 | 68 | 84 | 552 | 2,346 | 2,705 | 2,631 | 2,240 | 633 |
| 20% | 845 | 545 | 263 | 86 | 68 | 65 | 527 | 2,305 | 2,621 | 2,615 | 2,131 | 633 |
| 30% | 837 | 511 | 239 | 75 | 68 | 50 | 493 | 2,277 | 2,571 | 2,548 | 2,067 | 633 |
| 40% | 823 | 475 | 224 | 75 | 68 | 35 | 467 | 2,250 | 2,483 | 2,538 | 2,032 | 630 |
| 50% | 808 | 438 | 202 | 75 | 68 | 21 | 451 | 2,225 | 2,416 | 2,538 | 1,981 | 628 |
| 60% | 790 | 420 | 181 | 75 | 68 | 20 | 427 | 2,173 | 2,352 | 2,521 | 1,928 | 610 |
| 70% | 771 | 391 | 161 | 75 | 67 | 20 | 411 | 2,086 | 2,329 | 2,521 | 1,917 | 599 |
| 80% | 745 | 354 | 158 | 75 | 66 | 20 | 391 | 2,026 | 2,277 | 2,468 | 1,862 | 552 |
| 90% | 636 | 330 | 158 | 75 | 53 | 20 | 306 | 1,853 | 2,226 | 2,285 | 1,795 | 504 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 776 | 447 | 210 | 84 | 67 | 43 | 443 | 2,148 | 2,440 | 2,511 | 1,991 | 590 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 811 | 460 | 227 | 81 | 67 | 32 | 402 | 2,125 | 2,267 | 2,547 | 2,146 | 611 |
| Above Normal (16%) | 796 | 457 | 202 | 76 | 65 | 28 | 432 | 2,101 | 2,382 | 2,510 | 2,023 | 616 |
| Below Normal (13%) | 781 | 463 | 212 | 98 | 73 | 63 | 472 | 2,184 | 2,574 | 2,597 | 1,975 | 580 |
| Dry (24%) | 807 | 434 | 218 | 85 | 66 | 43 | 447 | 2,217 | 2,643 | 2,536 | 1,910 | 602 |
| Critical (15%) | 624 | 415 | 166 | 84 | 66 | 65 | 512 | 2,100 | 2,418 | 2,313 | 1,767 | 503 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | -7 | 0 | 0 | 0 | 0 | 15 | 0 | 14 | -1 | 0 |
| 20% | 0 | -1 | -6 | 0 | 0 | 0 | 0 | 8 | 0 | 3 | 1 | 0 |
| 30% | 0 | -4 | -2 | 0 | 0 | 0 | 0 | 17 | 15 | -14 | -22 | 0 |
| 40% | 0 | -3 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | -8 | 0 |
| 50% | 0 | -3 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 13 | -16 | 0 | -3 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 3 | 0 | 0 | -3 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 7 | 21 | 0 | -17 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -1 | -1 | -1 | 0 | 0 | 0 | 0 | 11 | 8 | 0 | -5 | -6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 6 | -18 | 6 | -3 |
| Above Normal (16%) | 0 | -4 | -5 | 0 | 0 | 0 | 0 | 3 | 23 | -26 | 0 | 0 |
| Below Normal (13%) | 0 | -3 | 0 | 0 | 0 | 0 | 0 | 15 | 14 | 63 | -19 | -2 |
| Dry (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | -1 | 5 | 0 | -3 |
| Critical (15%) | -6 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 5 | 0 | -31 | -26 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 48-3. Hamilton City Diversion - Glenn Colusa Canal, Monthly Diversion

## No Action Alternative 011319

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 851 | 564 | 292 | 127 | 68 | 84 | 552 | 2,331 | 2,705 | 2,617 | 2,241 | 633 |
| 20% | 845 | 546 | 270 | 86 | 68 | 65 | 527 | 2,297 | 2,621 | 2,611 | 2,130 | 633 |
| 30% | 837 | 515 | 240 | 75 | 68 | 50 | 493 | 2,260 | 2,556 | 2,563 | 2,090 | 633 |
| 40% | 823 | 478 | 224 | 75 | 68 | 35 | 467 | 2,245 | 2,483 | 2,538 | 2,040 | 630 |
| 50% | 808 | 441 | 202 | 75 | 68 | 21 | 451 | 2,212 | 2,416 | 2,538 | 1,981 | 628 |
| 60% | 790 | 420 | 181 | 75 | 68 | 20 | 427 | 2,153 | 2,339 | 2,537 | 1,928 | 612 |
| 70% | 771 | 391 | 161 | 75 | 67 | 20 | 411 | 2,079 | 2,325 | 2,521 | 1,917 | 602 |
| 80% | 745 | 354 | 158 | 75 | 66 | 20 | 391 | 2,007 | 2,271 | 2,446 | 1,862 | 569 |
| 90% | 636 | 330 | 158 | 75 | 53 | 20 | 306 | 1,842 | 2,226 | 2,285 | 1,795 | 504 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 777 | 448 | 211 | 84 | 67 | 43 | 443 | 2,137 | 2,433 | 2,512 | 1,996 | 596 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 811 | 460 | 227 | 81 | 67 | 32 | 402 | 2,119 | 2,261 | 2,565 | 2,141 | 614 |
| Above Normal (16%) | 796 | 461 | 207 | 76 | 65 | 28 | 432 | 2,098 | 2,359 | 2,537 | 2,023 | 616 |
| Below Normal (13%) | 781 | 466 | 212 | 98 | 73 | 63 | 472 | 2,170 | 2,561 | 2,534 | 1,994 | 583 |
| Dry (24%) | 807 | 435 | 218 | 85 | 66 | 43 | 447 | 2,200 | 2,645 | 2,532 | 1,910 | 605 |
| Critical (15%) | 630 | 415 | 166 | 84 | 66 | 65 | 512 | 2,086 | 2,413 | 2,313 | 1,799 | 530 |

## Alternative 3 021719

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 851 | 564 | 284 | 127 | 68 | 84 | 552 | 2,340 | 2,705 | 2,617 | 2,240 | 633 |
| 20% | 845 | 546 | 265 | 86 | 68 | 65 | 527 | 2,305 | 2,621 | 2,616 | 2,131 | 633 |
| 30% | 837 | 515 | 240 | 75 | 68 | 50 | 493 | 2,277 | 2,571 | 2,561 | 2,068 | 633 |
| 40% | 823 | 475 | 224 | 75 | 68 | 35 | 467 | 2,249 | 2,483 | 2,538 | 2,059 | 630 |
| 50% | 808 | 438 | 202 | 75 | 68 | 21 | 451 | 2,220 | 2,416 | 2,538 | 1,982 | 628 |
| 60% | 790 | 420 | 181 | 75 | 68 | 20 | 427 | 2,170 | 2,348 | 2,535 | 1,928 | 608 |
| 70% | 771 | 391 | 161 | 75 | 67 | 20 | 411 | 2,086 | 2,328 | 2,518 | 1,912 | 595 |
| 80% | 745 | 354 | 158 | 75 | 66 | 20 | 391 | 2,013 | 2,277 | 2,468 | 1,857 | 565 |
| 90% | 636 | 330 | 158 | 75 | 53 | 20 | 306 | 1,853 | 2,226 | 2,285 | 1,795 | 504 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 777 | 447 | 210 | 84 | 67 | 43 | 443 | 2,146 | 2,437 | 2,513 | 1,996 | 590 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 811 | 460 | 227 | 81 | 67 | 32 | 402 | 2,120 | 2,264 | 2,554 | 2,146 | 614 |
| Above Normal (16%) | 796 | 455 | 204 | 76 | 65 | 28 | 432 | 2,101 | 2,376 | 2,530 | 2,037 | 616 |
| Below Normal (13%) | 781 | 466 | 212 | 98 | 73 | 63 | 472 | 2,184 | 2,568 | 2,571 | 1,975 | 579 |
| Dry (24%) | 807 | 435 | 218 | 85 | 66 | 43 | 447 | 2,218 | 2,643 | 2,535 | 1,903 | 601 |
| Critical (15%) | 629 | 415 | 166 | 84 | 66 | 65 | 512 | 2,098 | 2,418 | 2,313 | 1,799 | 500 |

## Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | -7 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | -1 | 0 |
| 20% | 0 | 0 | -4 | 0 | 0 | 0 | 0 | 8 | 0 | 5 | 1 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 15 | -2 | -22 | 0 |
| 40% | 0 | -3 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 19 | 0 |
| 50% | 0 | -3 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 1 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 9 | -2 | 0 | -5 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 3 | -3 | -6 | -7 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 7 | 21 | -5 | -4 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | -1 | -1 | 0 | 0 | 0 | 0 | 9 | 5 | 1 | 0 | -6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 2 | 3 | -11 | 6 | -1 |
| Above Normal (16%) | 0 | -6 | -3 | 0 | 0 | 0 | 0 | 3 | 17 | -7 | 14 | 0 |
| Below Normal (13%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 7 | 37 | -19 | -4 |
| Dry (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | -1 | 3 | -7 | -4 |
| Critical (15%) | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 5 | 0 | 0 | -30 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 48-4. Hamilton City Diversion - Glenn Colusa Canal, Monthly Diversion

## No Action Alternative 011319

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 851 | 564 | 292 | 127 | 68 | 84 | 552 | 2,331 | 2,705 | 2,617 | 2,241 | 633 |
| 20% | 845 | 546 | 270 | 86 | 68 | 65 | 527 | 2,297 | 2,621 | 2,611 | 2,130 | 633 |
| 30% | 837 | 515 | 240 | 75 | 68 | 50 | 493 | 2,260 | 2,556 | 2,563 | 2,090 | 633 |
| 40% | 823 | 478 | 224 | 75 | 68 | 35 | 467 | 2,245 | 2,483 | 2,538 | 2,040 | 630 |
| 50% | 808 | 441 | 202 | 75 | 68 | 21 | 451 | 2,212 | 2,416 | 2,538 | 1,981 | 628 |
| 60% | 790 | 420 | 181 | 75 | 68 | 20 | 427 | 2,153 | 2,339 | 2,537 | 1,928 | 612 |
| 70% | 771 | 391 | 161 | 75 | 67 | 20 | 411 | 2,079 | 2,325 | 2,521 | 1,917 | 602 |
| 80% | 745 | 354 | 158 | 75 | 66 | 20 | 391 | 2,007 | 2,271 | 2,446 | 1,862 | 569 |
| 90% | 636 | 330 | 158 | 75 | 53 | 20 | 306 | 1,842 | 2,226 | 2,285 | 1,795 | 504 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 777 | 448 | 211 | 84 | 67 | 43 | 443 | 2,137 | 2,433 | 2,512 | 1,996 | 596 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 811 | 460 | 227 | 81 | 67 | 32 | 402 | 2,119 | 2,261 | 2,565 | 2,141 | 614 |
| Above Normal (16%) | 796 | 461 | 207 | 76 | 65 | 28 | 432 | 2,098 | 2,359 | 2,537 | 2,023 | 616 |
| Below Normal (13%) | 781 | 466 | 212 | 98 | 73 | 63 | 472 | 2,170 | 2,561 | 2,534 | 1,994 | 583 |
| Dry (24%) | 807 | 435 | 218 | 85 | 66 | 43 | 447 | 2,200 | 2,645 | 2,532 | 1,910 | 605 |
| Critical (15%) | 630 | 415 | 166 | 84 | 66 | 65 | 512 | 2,086 | 2,413 | 2,313 | 1,799 | 530 |

## Alternative 4 043019

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 866 | 556 | 284 | 127 | 68 | 84 | 551 | 2,340 | 2,705 | 2,631 | 2,241 | 633 |
| 20% | 846 | 535 | 270 | 86 | 68 | 65 | 527 | 2,313 | 2,647 | 2,617 | 2,131 | 633 |
| 30% | 828 | 509 | 240 | 75 | 68 | 50 | 493 | 2,288 | 2,556 | 2,610 | 2,093 | 633 |
| 40% | 810 | 463 | 224 | 75 | 68 | 35 | 467 | 2,249 | 2,483 | 2,563 | 2,065 | 630 |
| 50% | 783 | 437 | 202 | 75 | 68 | 21 | 451 | 2,212 | 2,416 | 2,545 | 1,994 | 626 |
| 60% | 763 | 417 | 181 | 75 | 68 | 20 | 427 | 2,183 | 2,350 | 2,538 | 1,928 | 610 |
| 70% | 735 | 380 | 161 | 75 | 67 | 20 | 411 | 2,081 | 2,327 | 2,537 | 1,919 | 597 |
| 80% | 709 | 338 | 158 | 75 | 66 | 20 | 391 | 2,013 | 2,275 | 2,517 | 1,874 | 554 |
| 90% | 649 | 314 | 158 | 75 | 53 | 20 | 306 | 1,853 | 2,226 | 2,285 | 1,795 | 504 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 773 | 438 | 211 | 84 | 67 | 43 | 443 | 2,148 | 2,439 | 2,528 | 2,009 | 596 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 797 | 451 | 227 | 81 | 67 | 32 | 402 | 2,128 | 2,269 | 2,580 | 2,149 | 612 |
| Above Normal (16%) | 783 | 447 | 205 | 76 | 65 | 28 | 432 | 2,104 | 2,365 | 2,568 | 2,037 | 616 |
| Below Normal (13%) | 772 | 456 | 212 | 98 | 73 | 63 | 472 | 2,173 | 2,568 | 2,570 | 2,034 | 583 |
| Dry (24%) | 785 | 424 | 218 | 85 | 66 | 43 | 446 | 2,217 | 2,651 | 2,541 | 1,916 | 601 |
| Critical (15%) | 690 | 411 | 166 | 84 | 66 | 65 | 512 | 2,100 | 2,418 | 2,313 | 1,806 | 542 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15 | -8 | -7 | 0 | 0 | 0 | -1 | 10 | 0 | 14 | 0 | 0 |
| 20% | 2 | -11 | 0 | 0 | 0 | 0 | 0 | 16 | 26 | 6 | 1 | 0 |
| 30% | -10 | -6 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 47 | 3 | 0 |
| 40% | -13 | -14 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 25 | 25 | 0 |
| 50% | -24 | -4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 13 | -1 |
| 60% | -27 | -3 | 0 | 0 | 0 | 0 | 0 | 30 | 11 | 1 | 0 | -3 |
| 70% | -35 | -11 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 16 | 1 | -5 |
| 80% | -36 | -15 | 0 | 0 | 0 | 0 | 0 | 6 | 4 | 70 | 12 | -16 |
| 90% | 14 | -15 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -5 | -10 | 0 | 0 | 0 | 0 | 0 | 11 | 7 | 17 | 12 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -15 | -9 | 0 | 0 | 0 | 0 | 0 | 9 | 8 | 14 | 8 | -2 |
| Above Normal (16%) | -13 | -14 | -2 | 0 | 0 | 0 | 0 | 6 | 6 | 31 | 14 | 0 |
| Below Normal (13%) | -9 | -11 | 0 | 0 | 0 | 0 | 0 | 4 | 7 | 36 | 40 | 0 |
| Dry (24%) | -22 | -11 | 0 | 0 | 0 | 0 | -1 | 16 | 6 | 9 | 6 | -4 |
| Critical (15%) | 60 | -4 | 0 | 0 | 0 | 0 | 0 | 14 | 5 | 0 | 7 | 12 |

a Based on the 82-year simulation period.

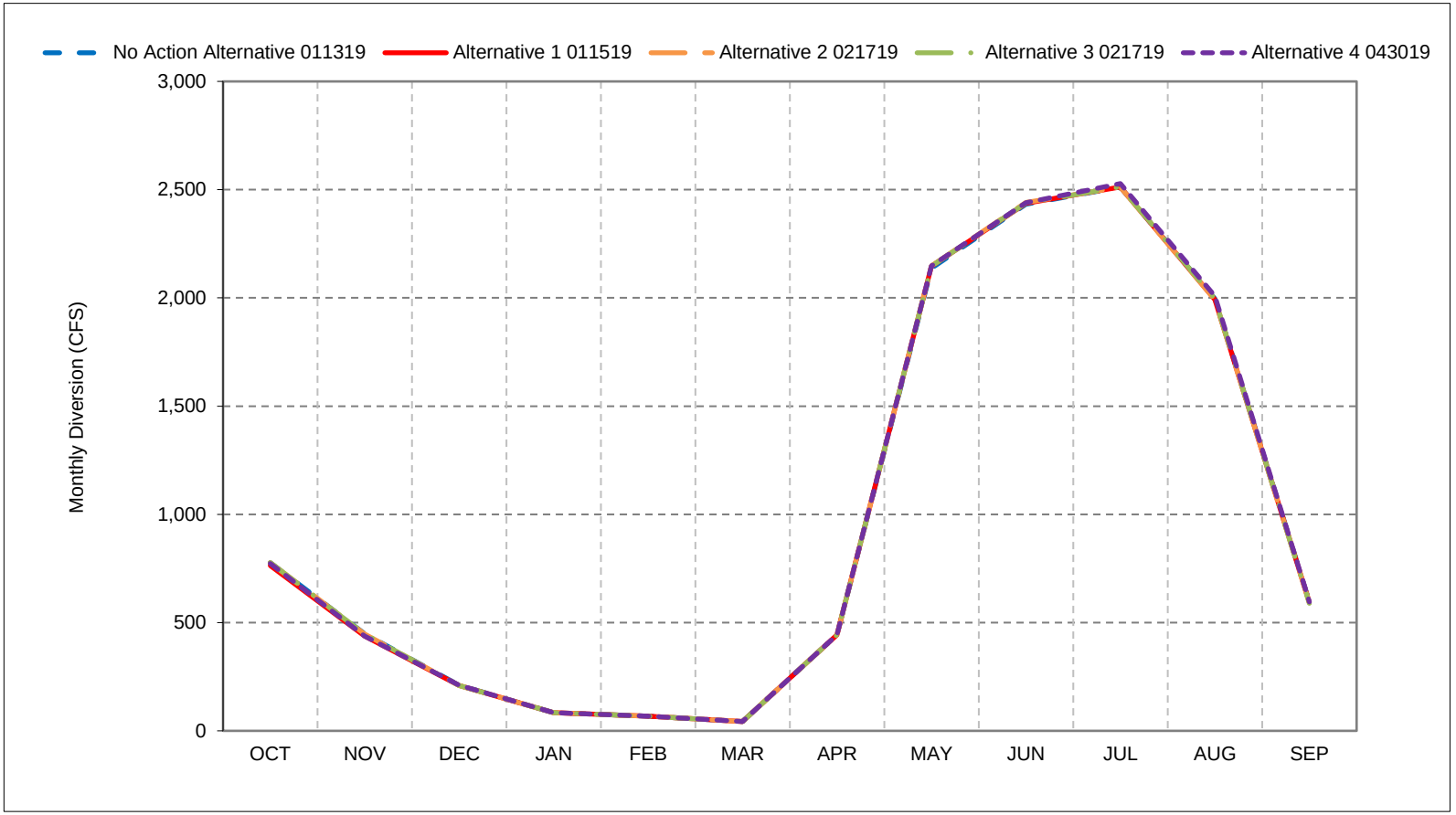
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

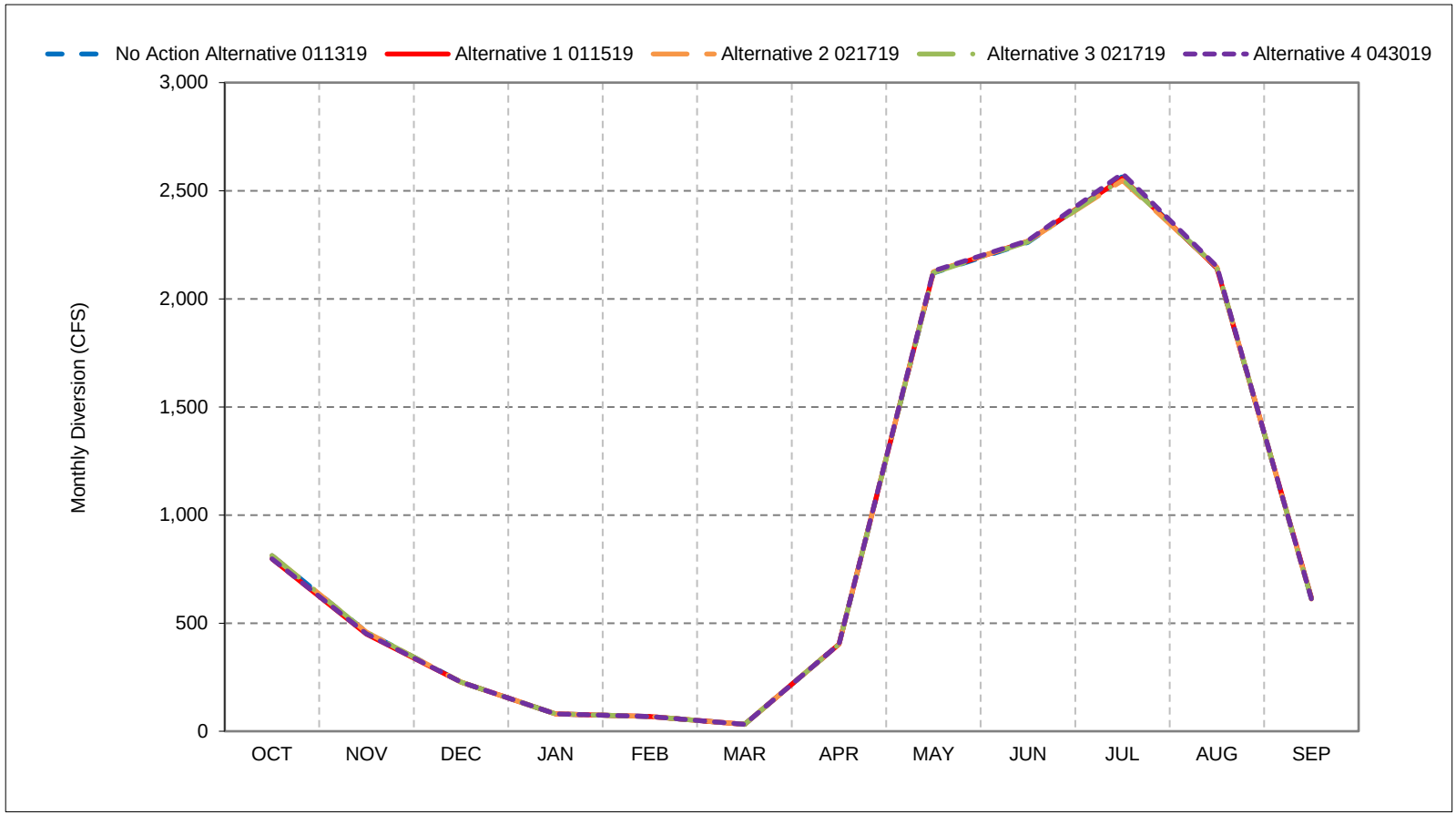
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 48-1. Hamilton City Diversion - Glenn Colusa Canal, Long-Term Average Diversion



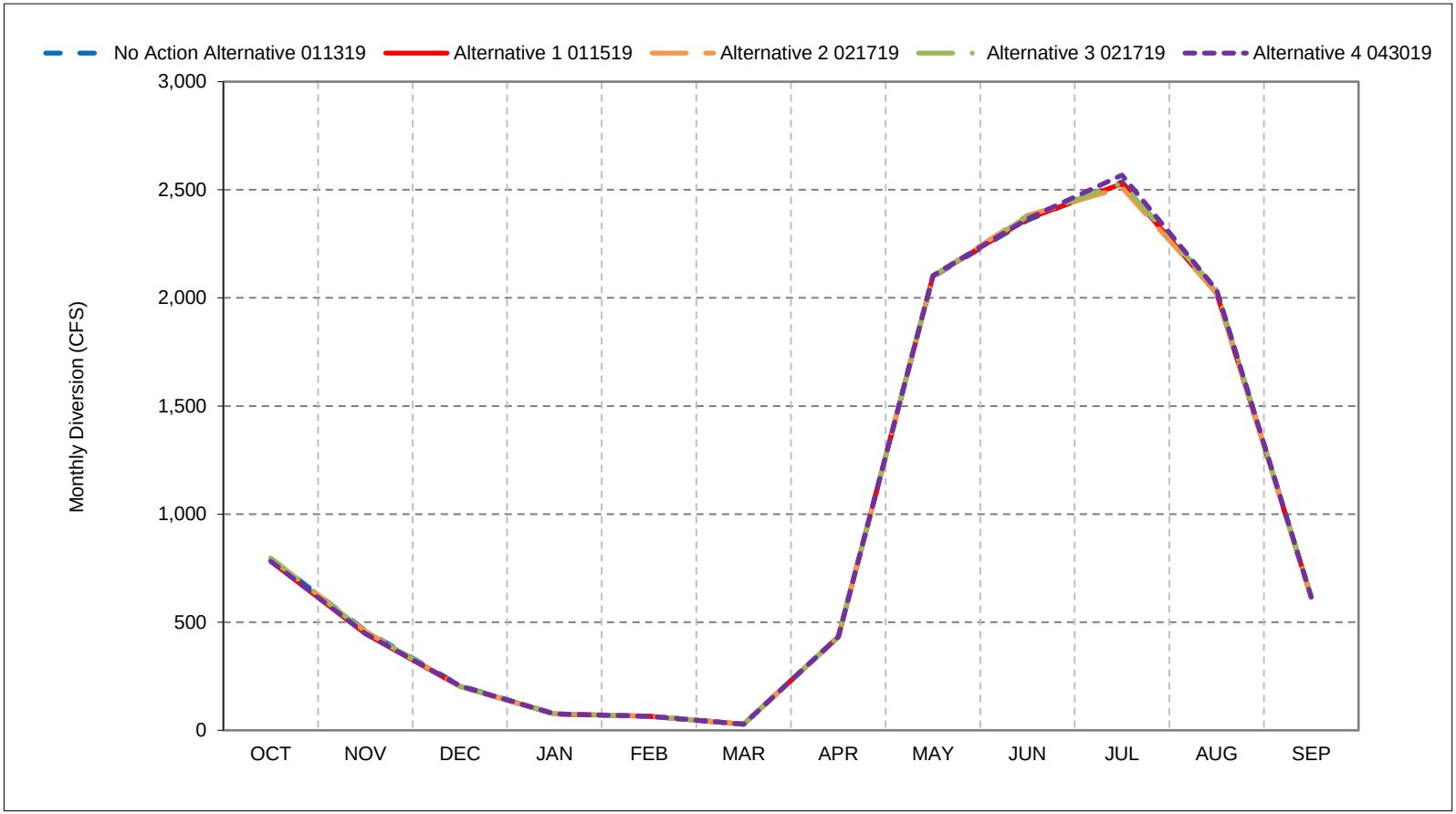

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 48-2. Hamilton City Diversion - Glenn Colusa Canal, Wet Year Average Diversion



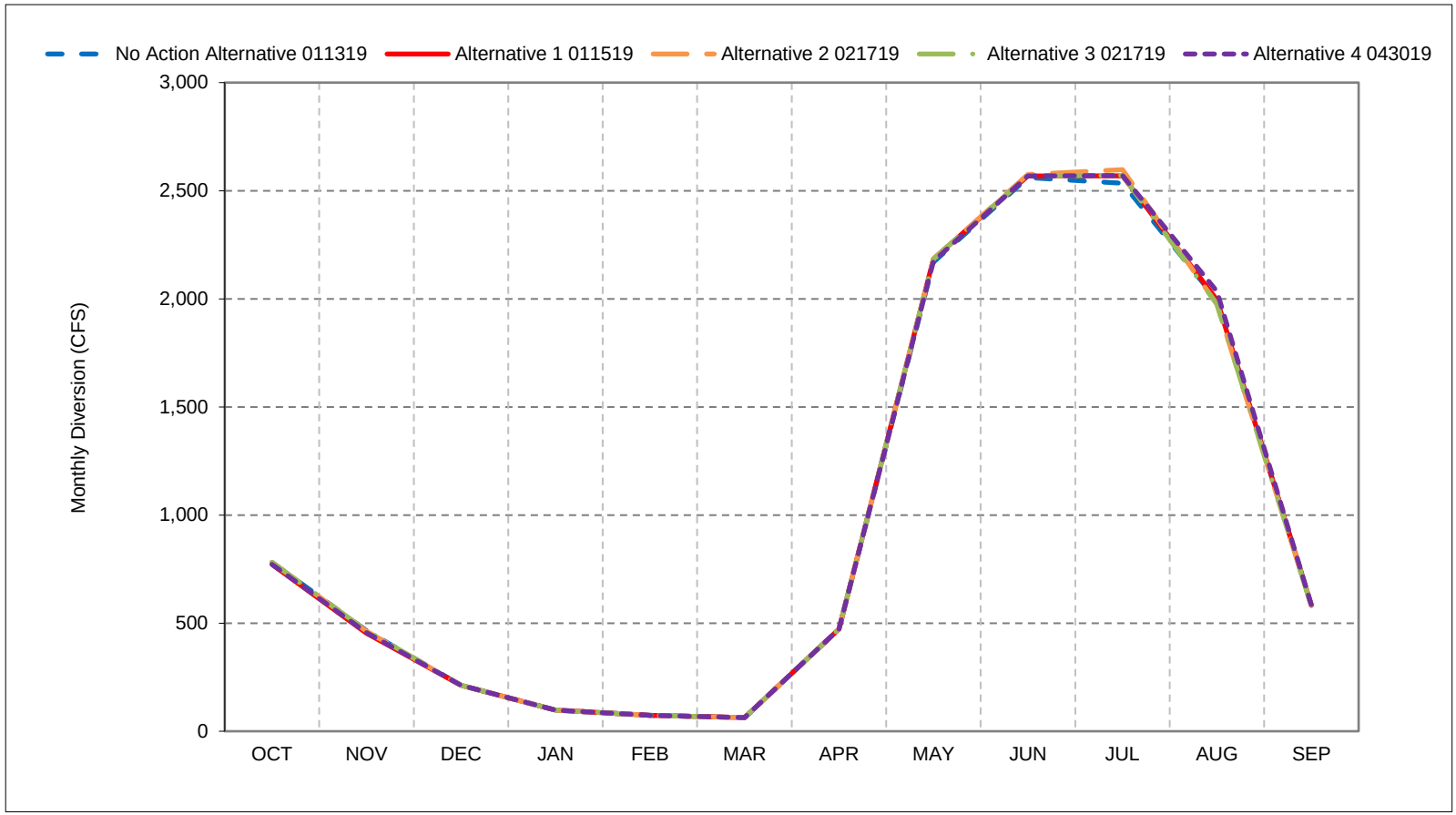

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 48-3. Hamilton City Diversion - Glenn Colusa Canal, Above Normal Year Average Diversion



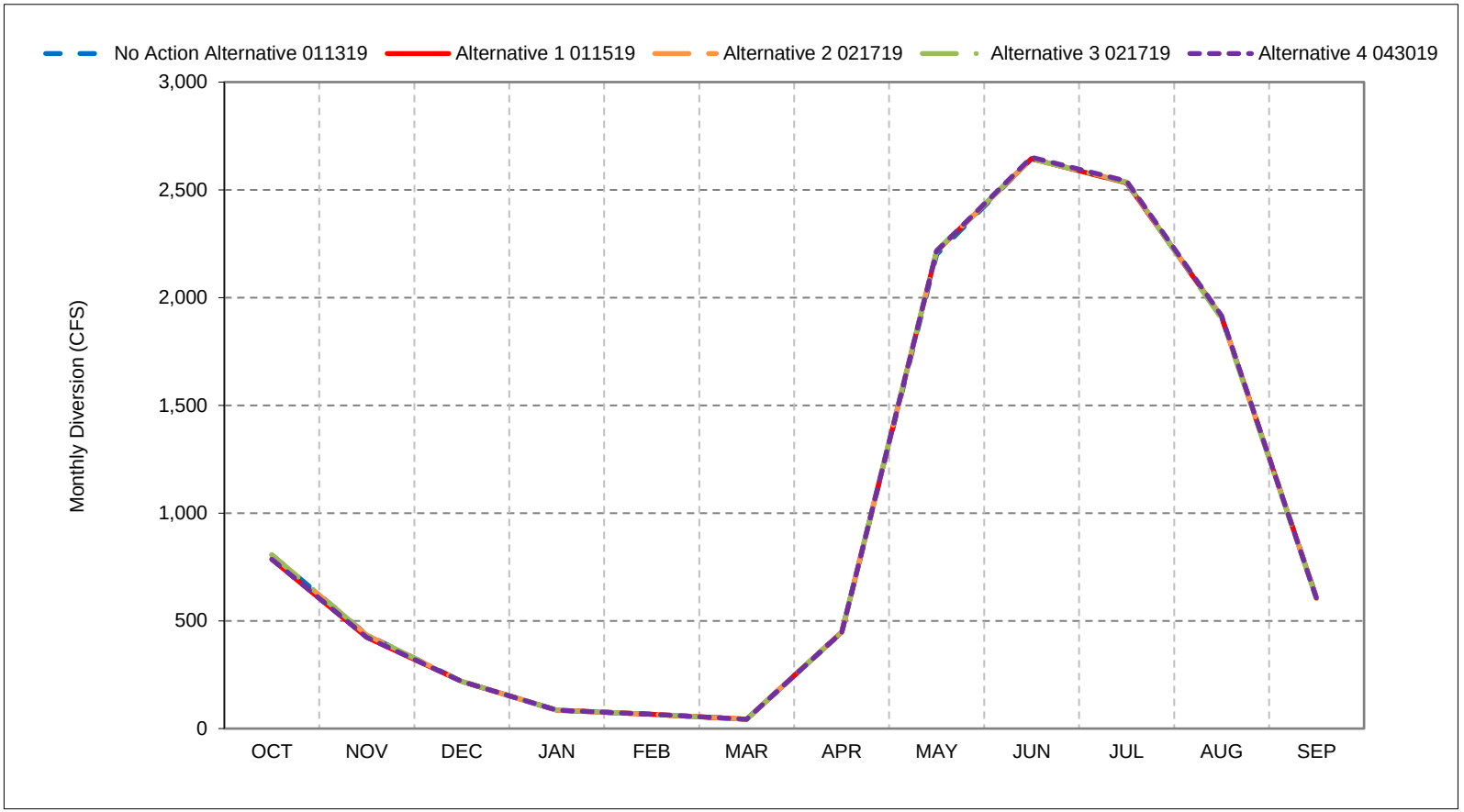

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 48-4. Hamilton City Diversion - Glenn Colusa Canal, Below Normal Year Average Diversion



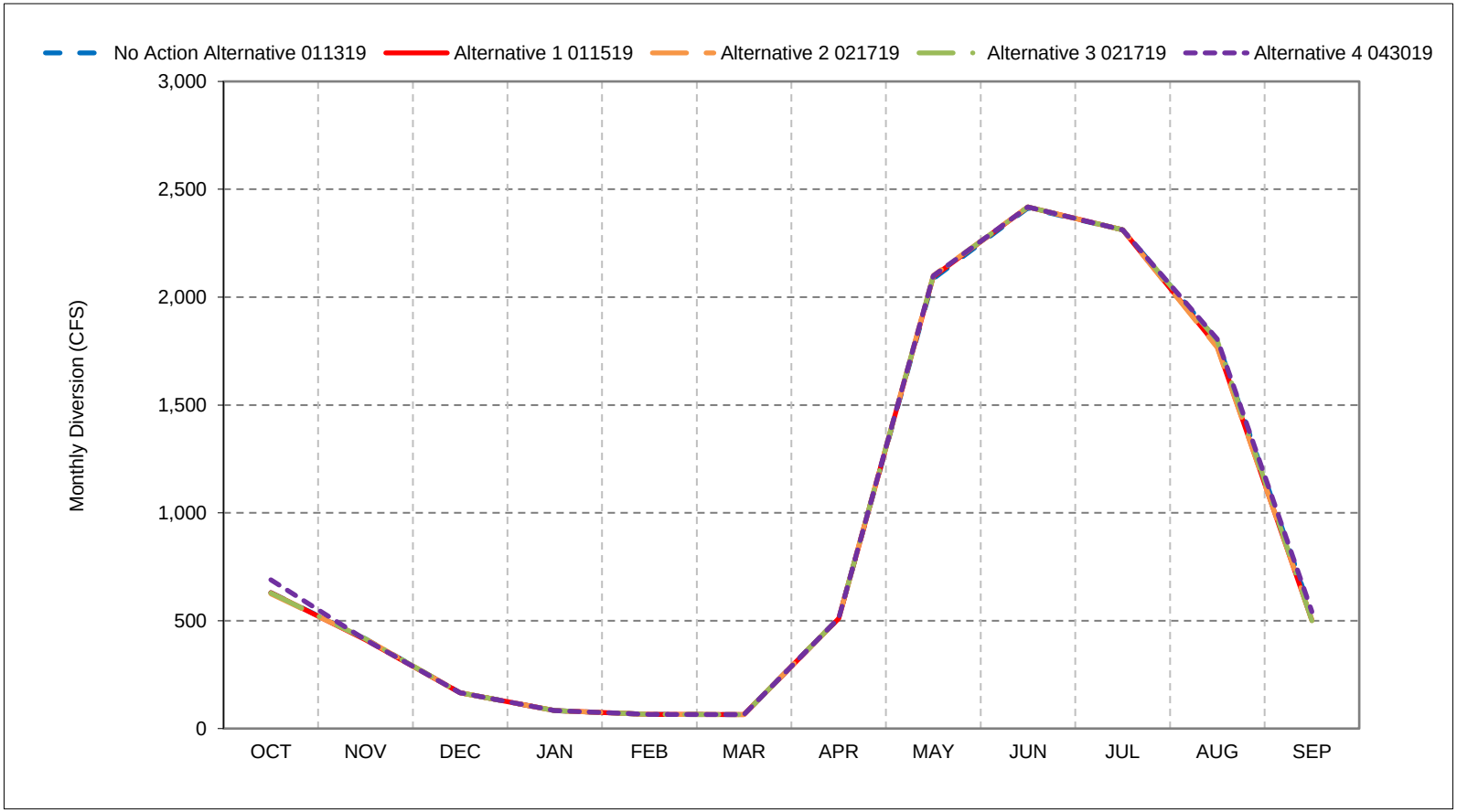

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 48-5. Hamilton City Diversion - Glenn Colusa Canal, Dry Year Average Diversion



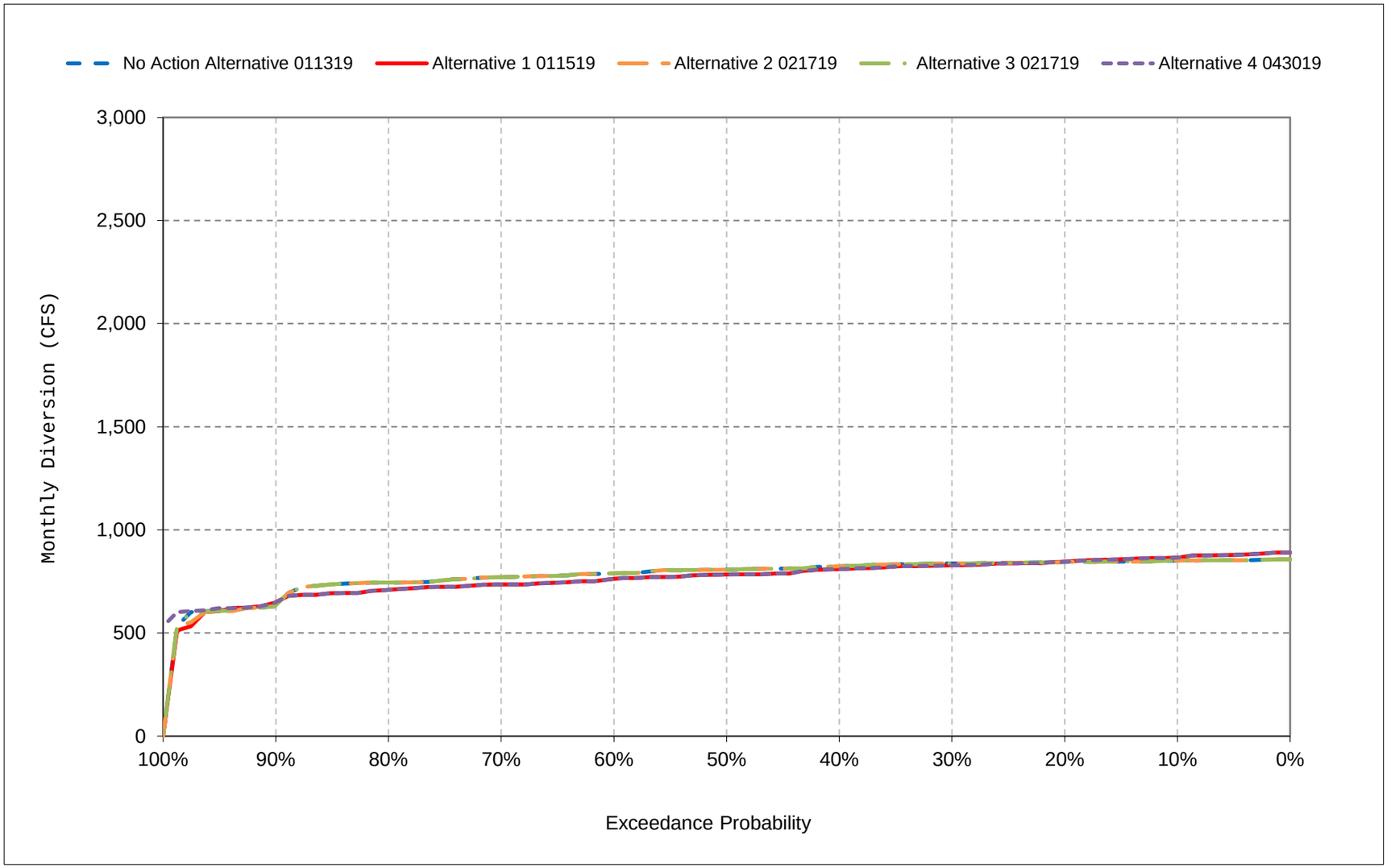

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 48-6. Hamilton City Diversion - Glenn Colusa Canal, Critical Year Average Diversion




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

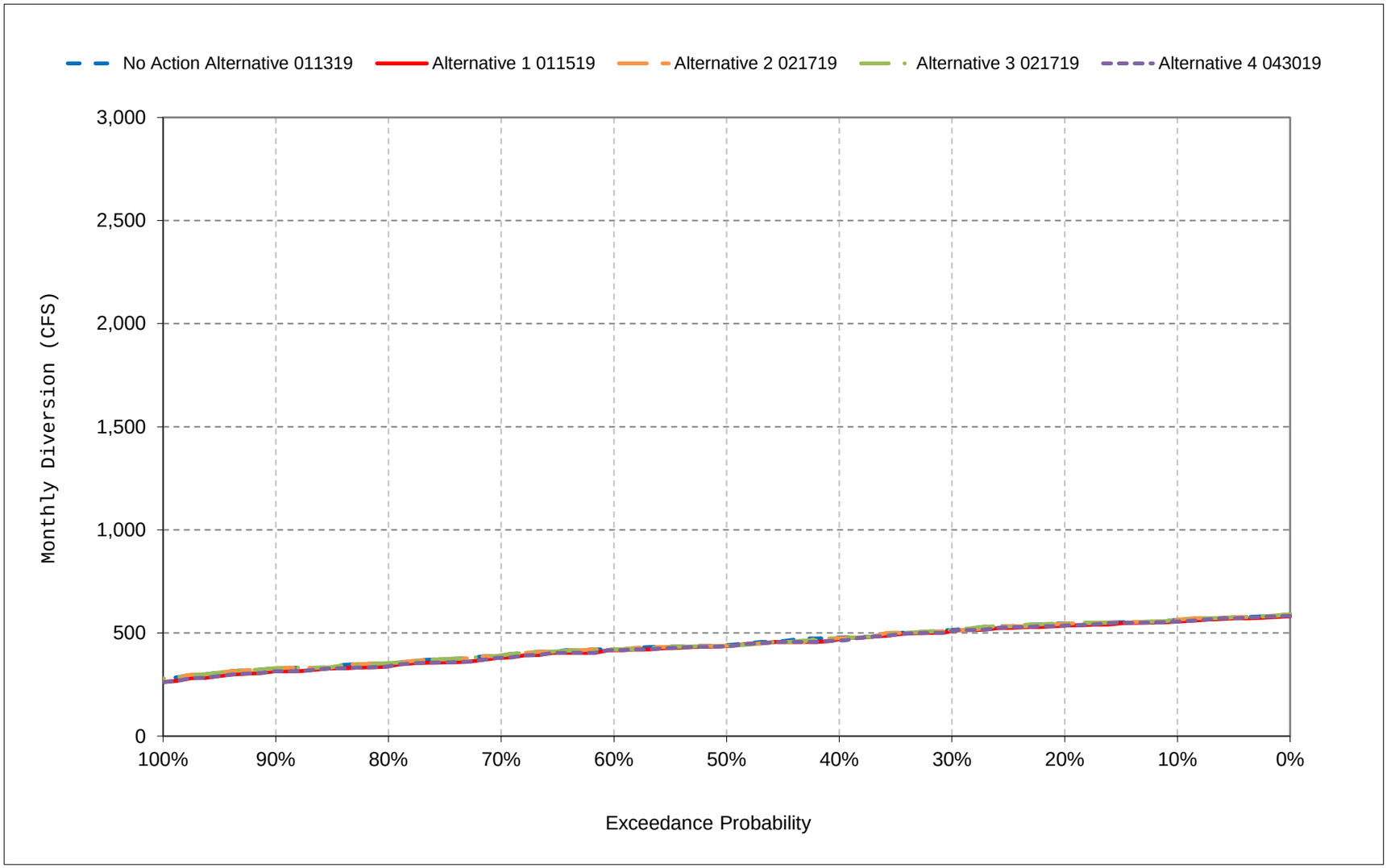
**Figure 48-7. Hamilton City Diversion - Glenn Colusa Canal, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

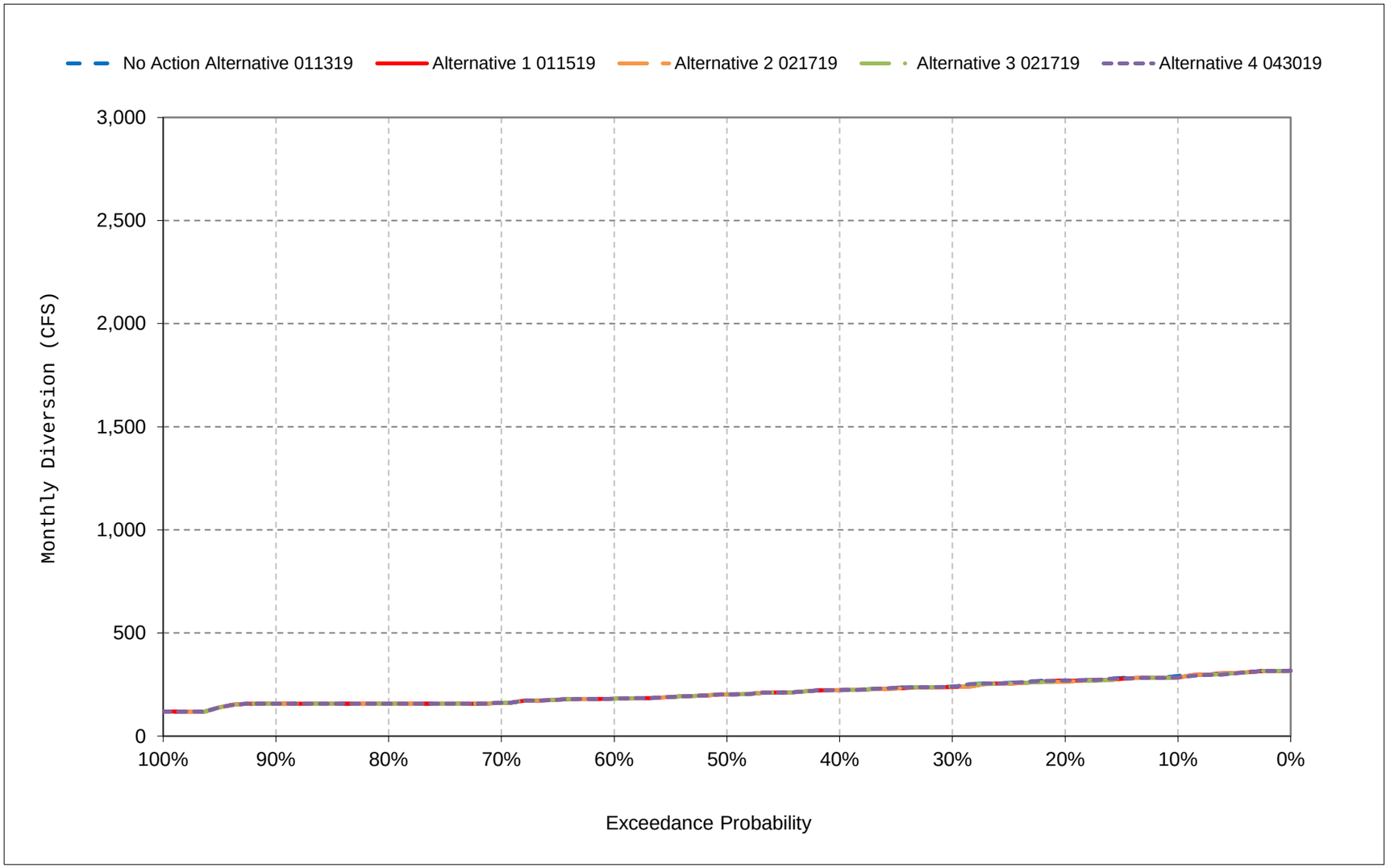
**Figure 48-8. Hamilton City Diversion - Glenn Colusa Canal, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

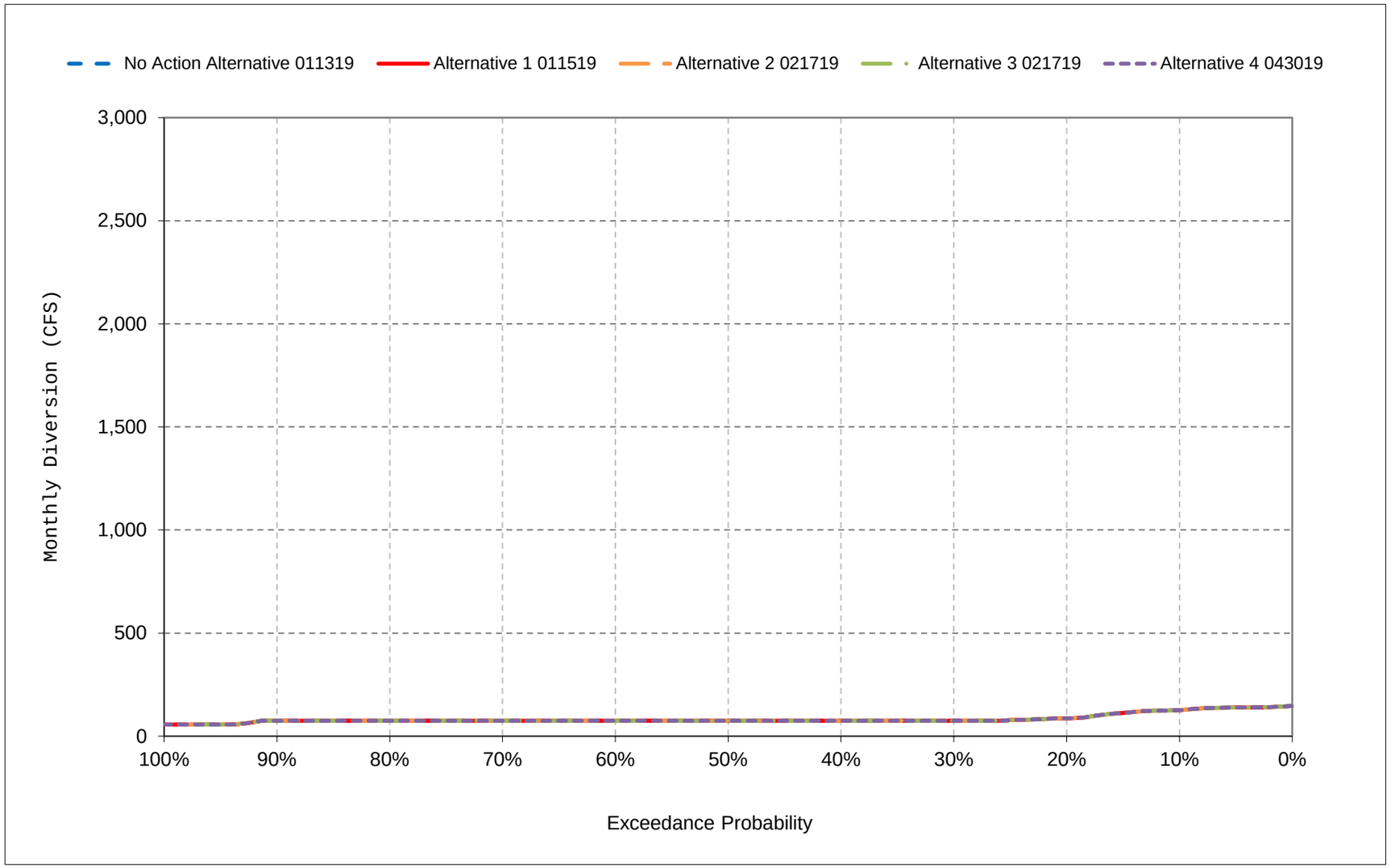
**Figure 48-9. Hamilton City Diversion - Glenn Colusa Canal, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

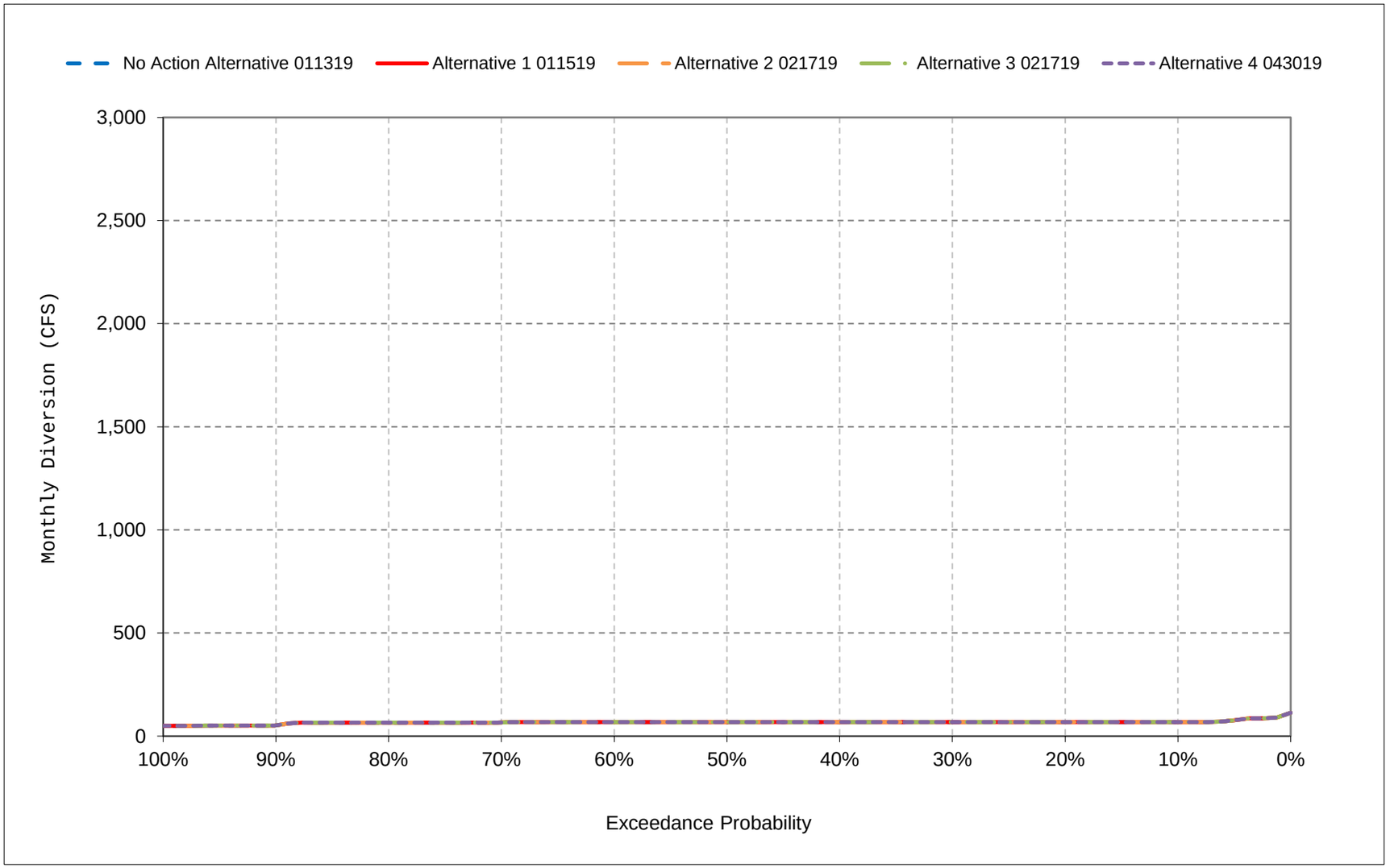
**Figure 48-10. Hamilton City Diversion - Glenn Colusa Canal, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

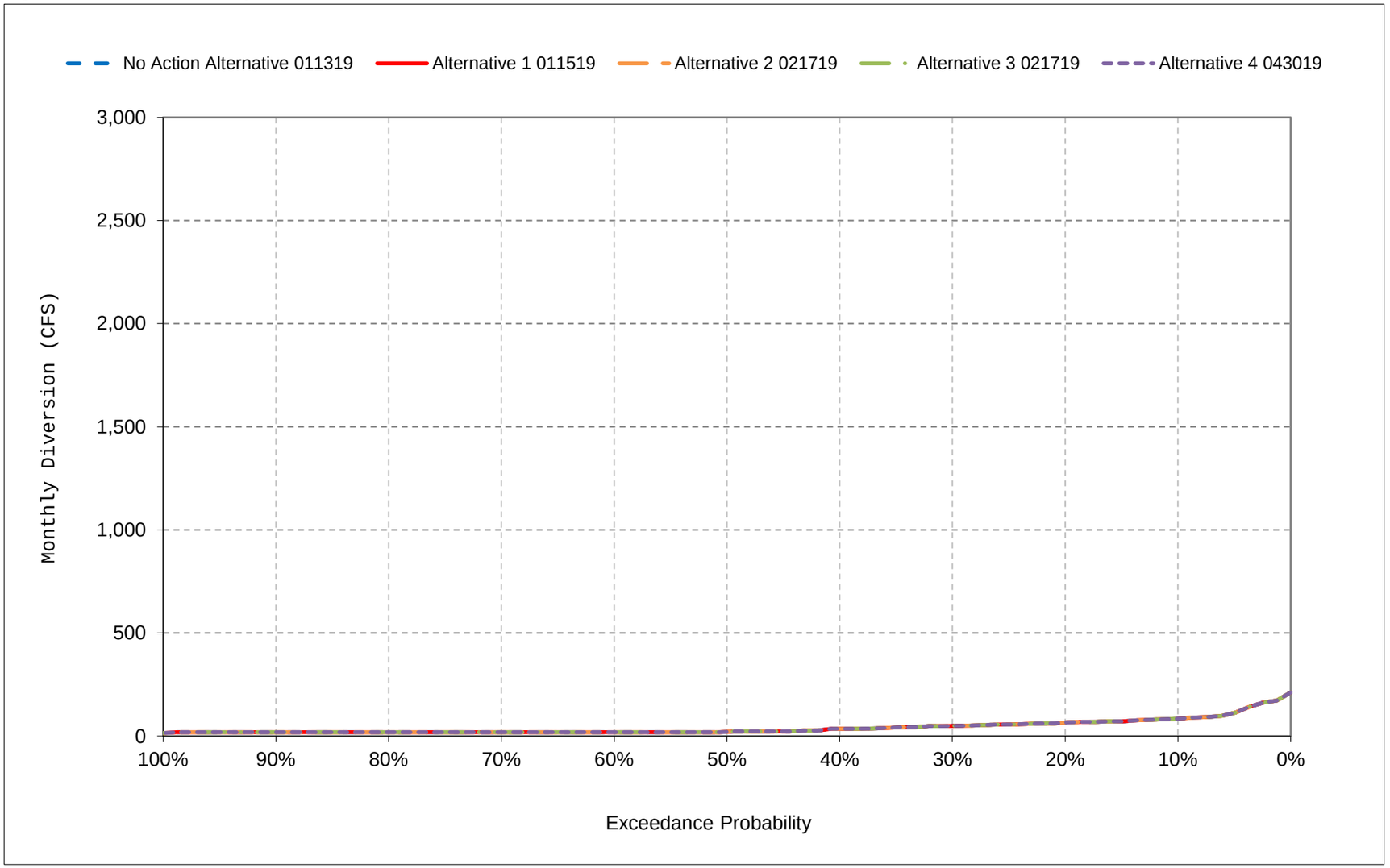
**Figure 48-11. Hamilton City Diversion - Glenn Colusa Canal, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

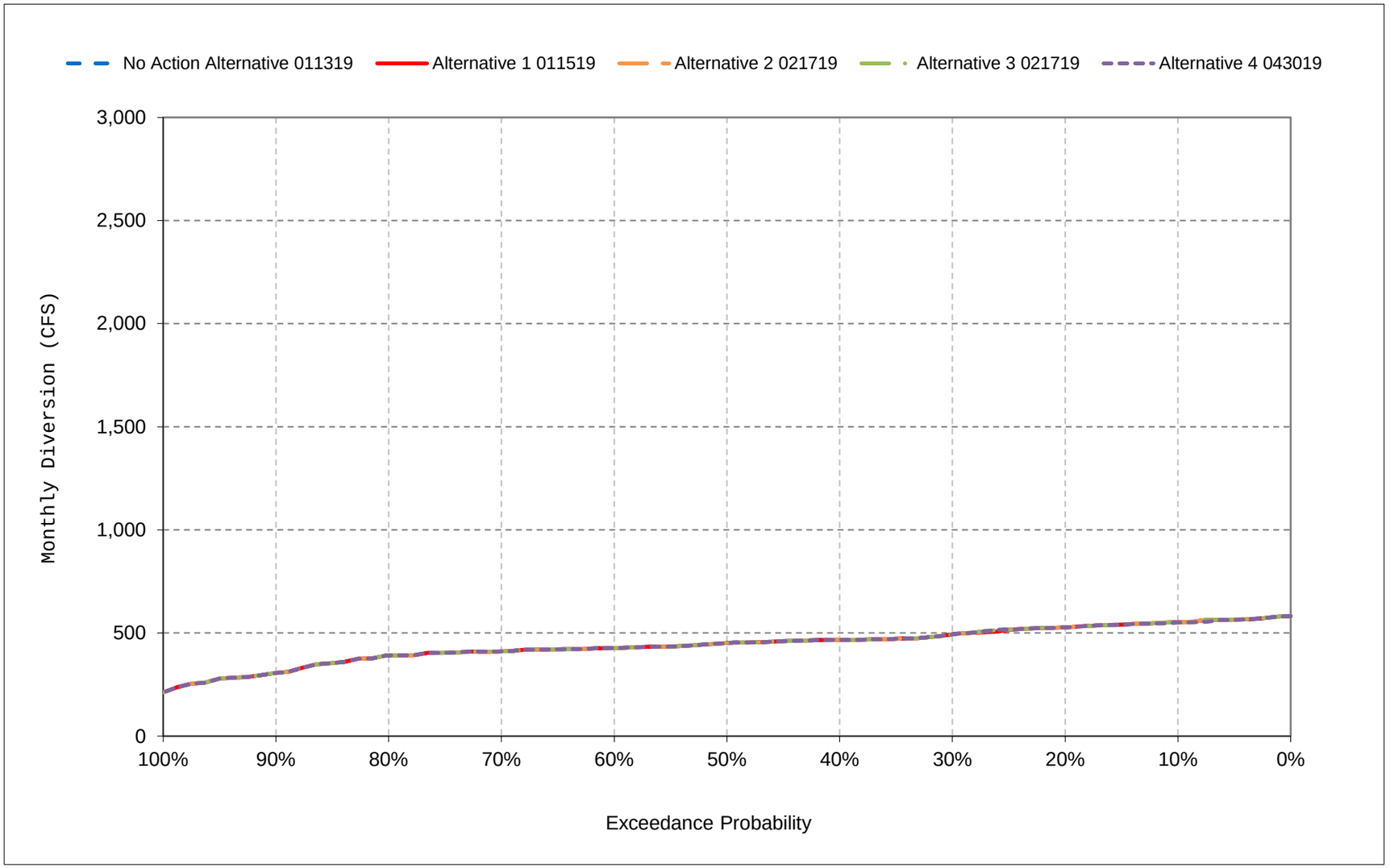
**Figure 48-12. Hamilton City Diversion - Glenn Colusa Canal, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

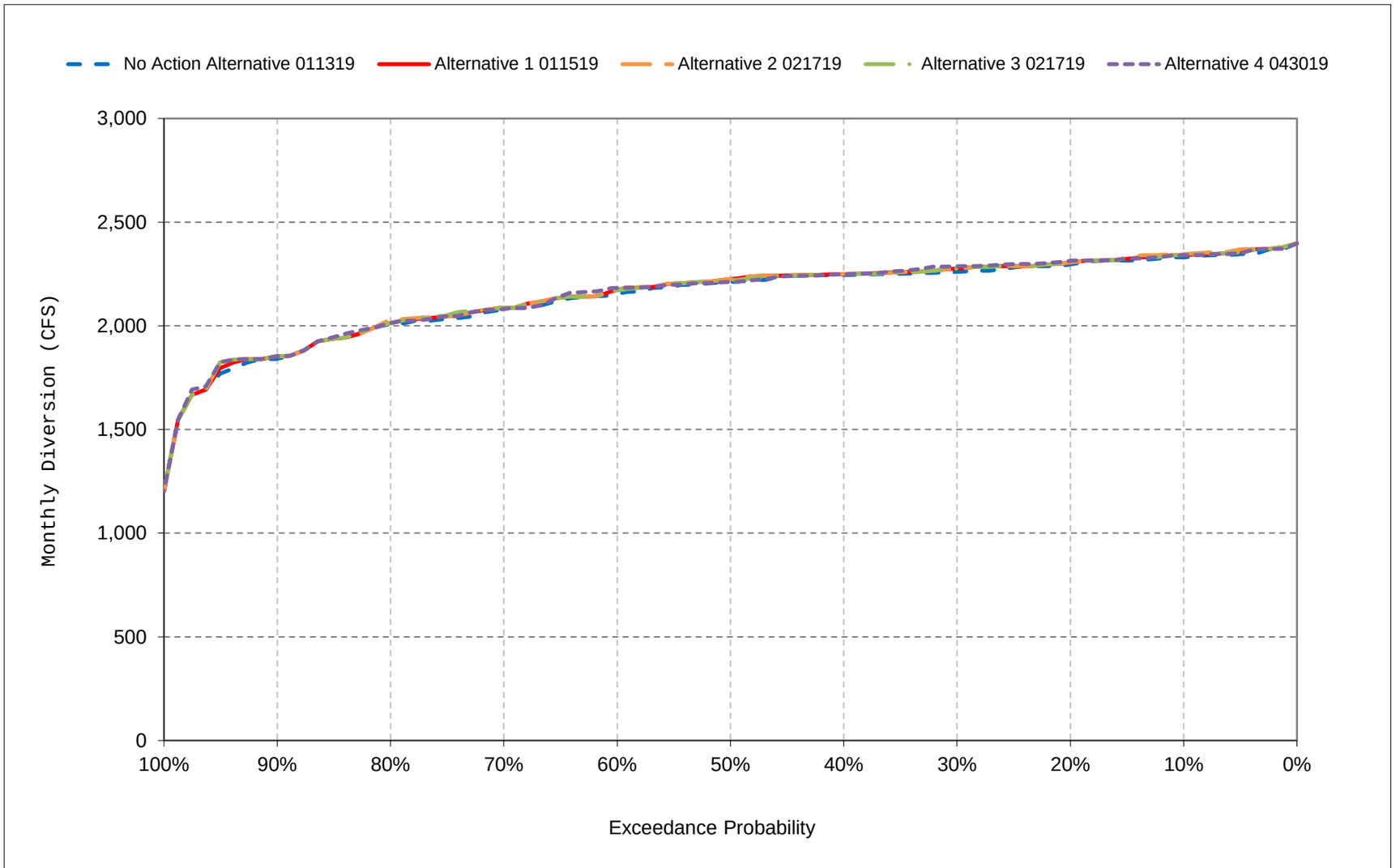
**Figure 48-13. Hamilton City Diversion - Glenn Colusa Canal, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

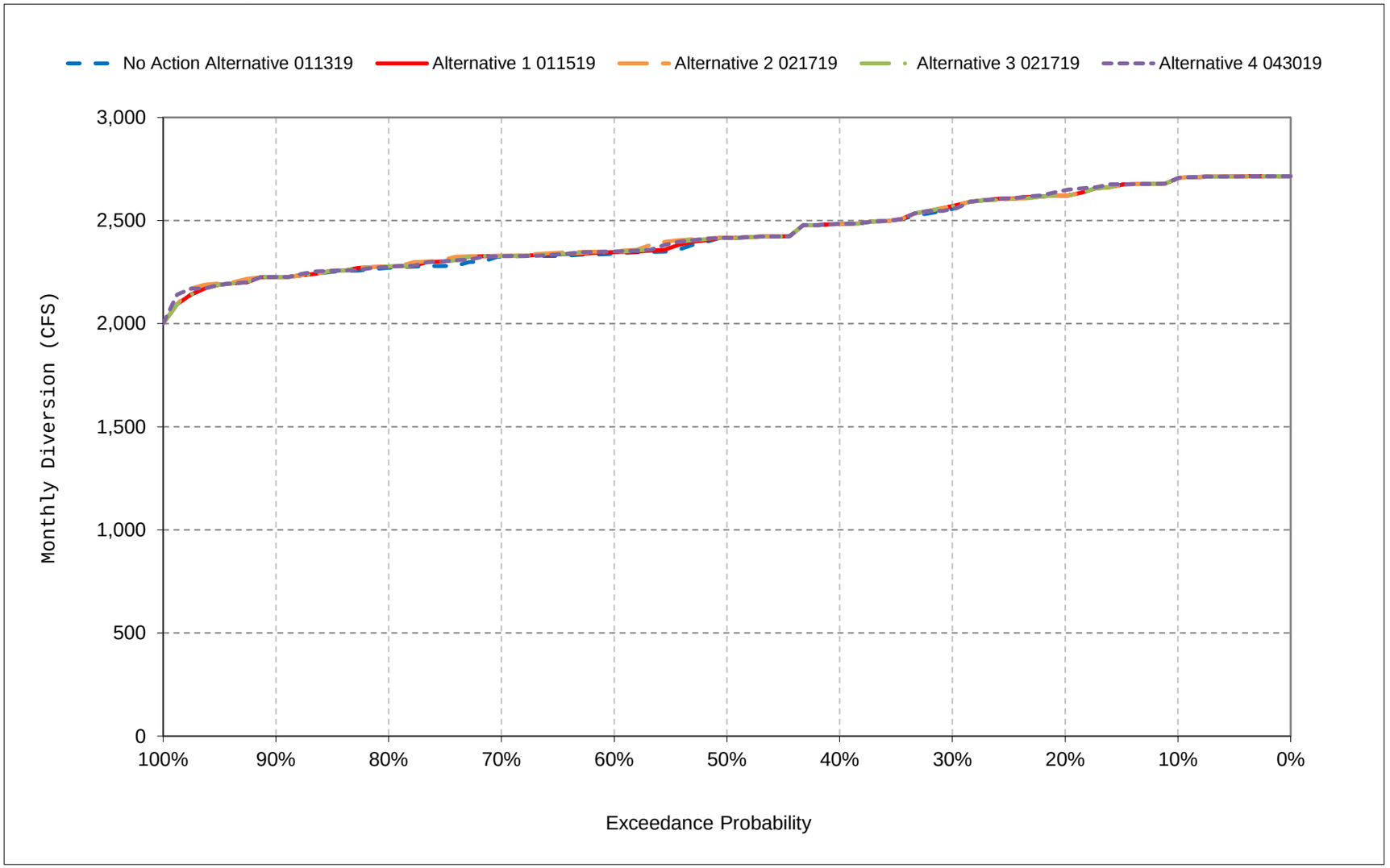
**Figure 48-14. Hamilton City Diversion - Glenn Colusa Canal, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

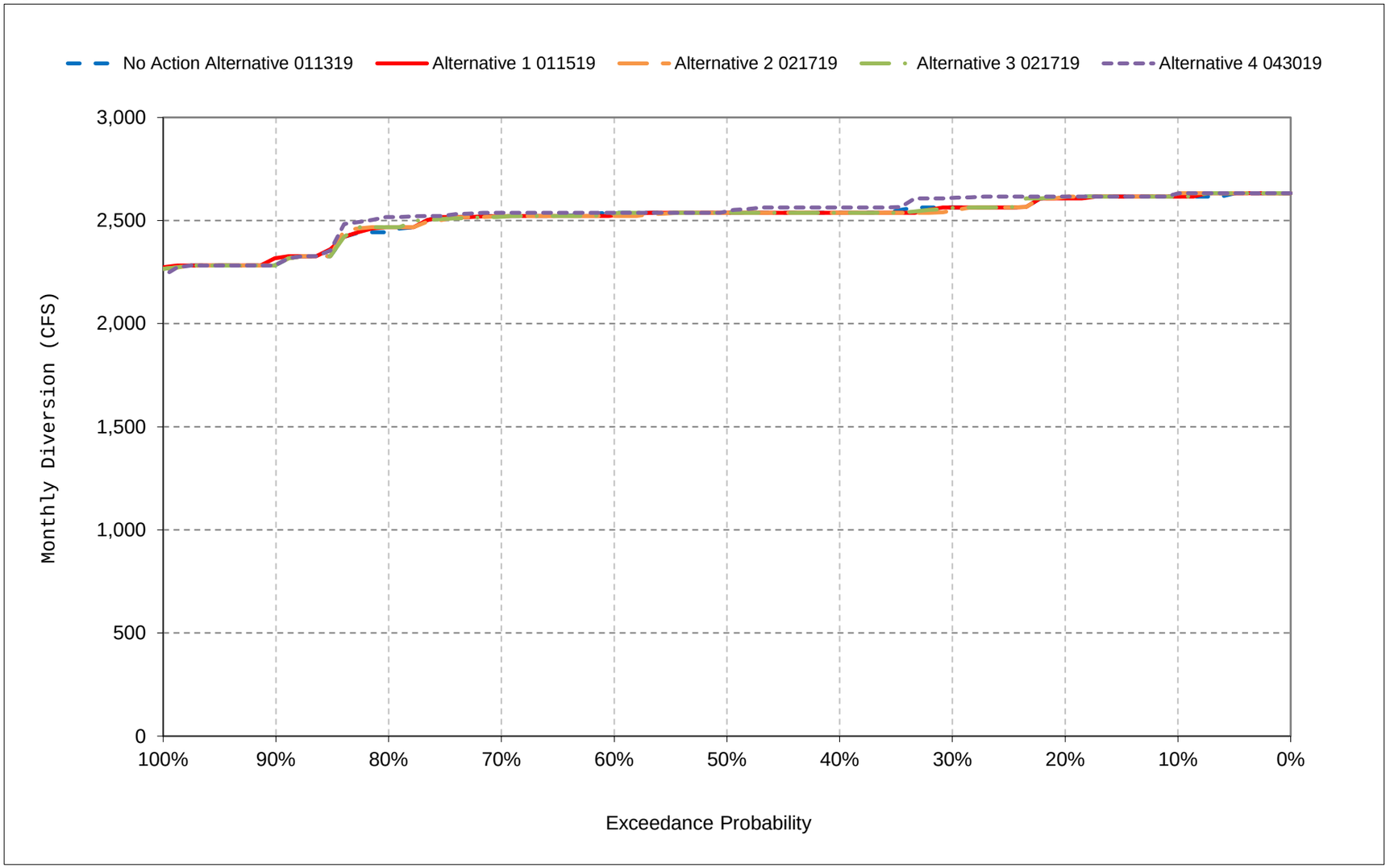
**Figure 48-15. Hamilton City Diversion - Glenn Colusa Canal, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

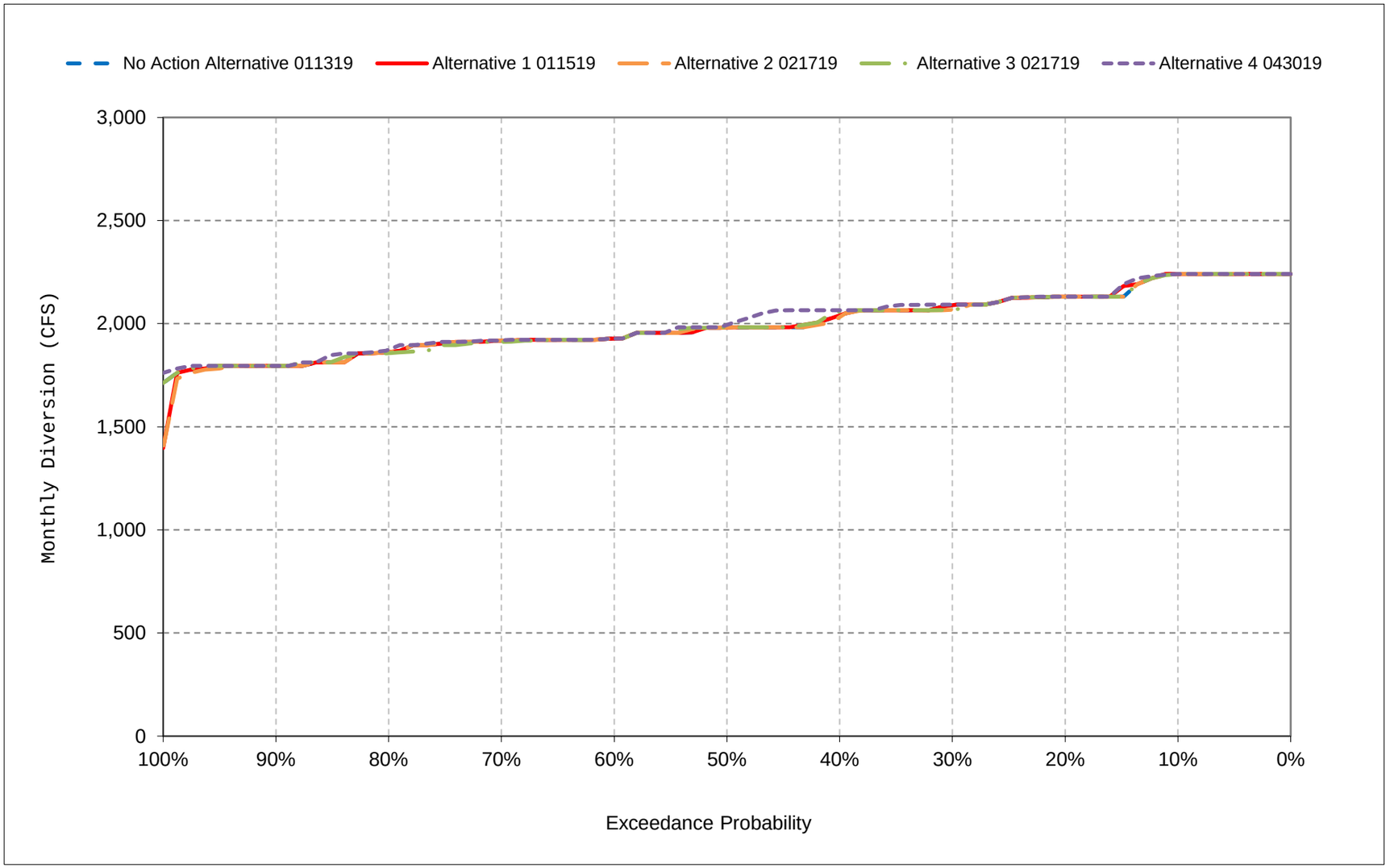
**Figure 48-16. Hamilton City Diversion - Glenn Colusa Canal, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

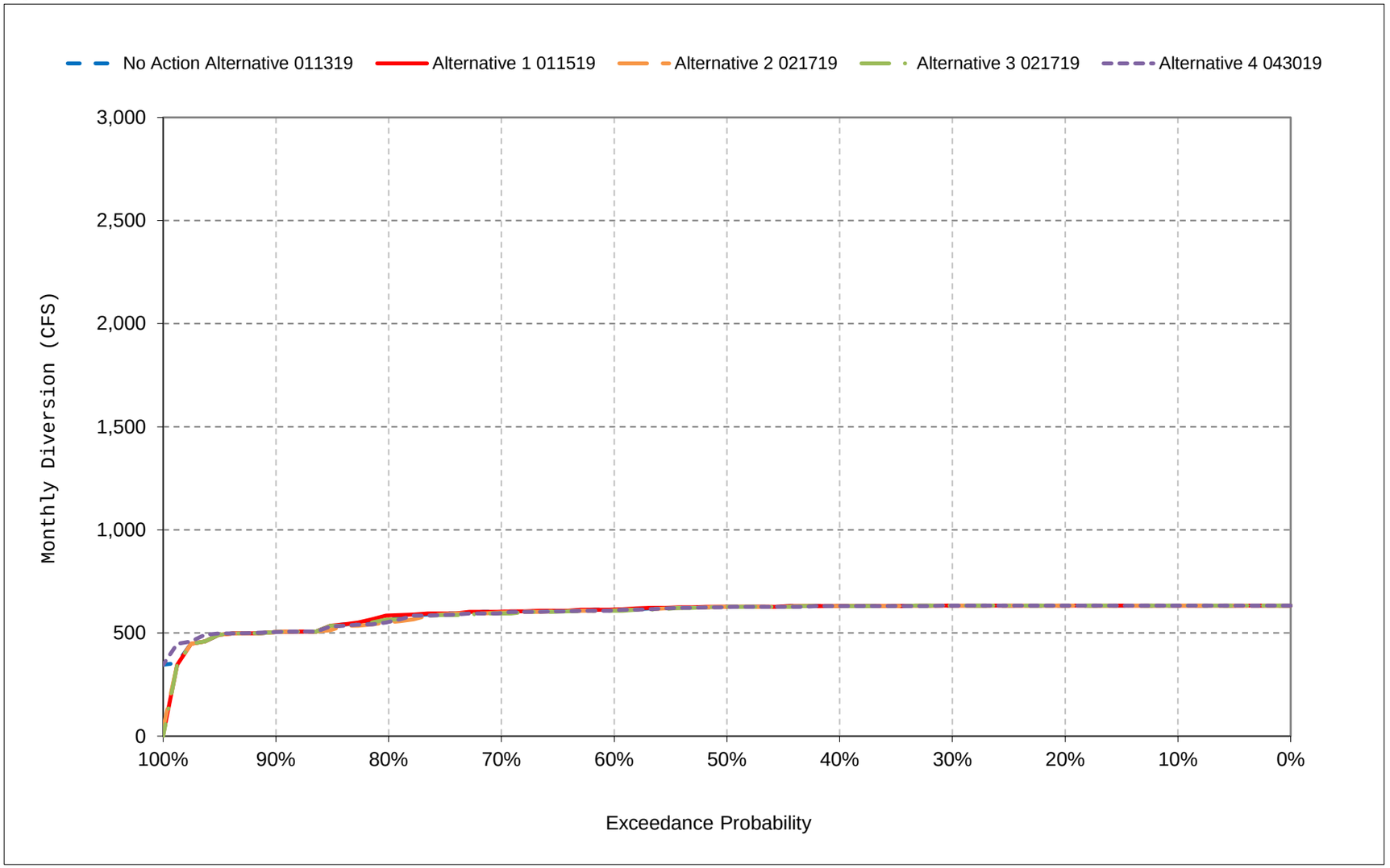
**Figure 48-17. Hamilton City Diversion - Glenn Colusa Canal, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 48-18. Hamilton City Diversion - Glenn Colusa Canal, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 49-1. Folsom South Canal Diversion, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67 | 64 | 51 | 51 | 56 | 62 | 79 | 85 | 101 | 113 | 106 | 97 |
| 20% | 67 | 64 | 51 | 51 | 56 | 61 | 77 | 85 | 100 | 113 | 105 | 97 |
| 30% | 66 | 64 | 51 | 51 | 56 | 61 | 77 | 85 | 100 | 112 | 105 | 97 |
| 40% | 65 | 63 | 51 | 51 | 55 | 58 | 75 | 84 | 99 | 111 | 104 | 96 |
| 50% | 64 | 62 | 49 | 49 | 54 | 55 | 73 | 83 | 97 | 109 | 102 | 93 |
| 60% | 60 | 57 | 46 | 46 | 51 | 53 | 68 | 77 | 89 | 100 | 94 | 86 |
| 70% | 56 | 54 | 43 | 43 | 48 | 52 | 67 | 72 | 85 | 95 | 89 | 82 |
| 80% | 55 | 54 | 43 | 43 | 47 | 52 | 66 | 72 | 84 | 95 | 88 | 81 |
| 90% | 54 | 53 | 42 | 42 | 46 | 50 | 64 | 69 | 82 | 92 | 86 | 79 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 61 | 59 | 47 | 47 | 52 | 56 | 71 | 79 | 93 | 103 | 97 | 89 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 66 | 63 | 51 | 49 | 55 | 61 | 75 | 84 | 100 | 112 | 104 | 96 |
| Above Normal (16%) | 66 | 63 | 50 | 46 | 51 | 59 | 77 | 84 | 99 | 111 | 104 | 96 |
| Below Normal (13%) | 61 | 59 | 47 | 48 | 52 | 54 | 71 | 79 | 92 | 104 | 97 | 89 |
| Dry (24%) | 57 | 55 | 44 | 47 | 52 | 51 | 66 | 74 | 86 | 97 | 91 | 83 |
| Critical (15%) | 55 | 52 | 42 | 43 | 47 | 51 | 65 | 69 | 82 | 88 | 86 | 79 |

## Alternative 1 011519

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67 | 64 | 51 | 51 | 56 | 62 | 79 | 85 | 101 | 114 | 106 | 97 |
| 20% | 67 | 64 | 51 | 51 | 56 | 61 | 79 | 85 | 100 | 113 | 105 | 97 |
| 30% | 67 | 64 | 51 | 51 | 56 | 61 | 78 | 85 | 100 | 113 | 105 | 97 |
| 40% | 66 | 64 | 51 | 51 | 56 | 61 | 77 | 84 | 100 | 112 | 105 | 97 |
| 50% | 65 | 64 | 51 | 51 | 55 | 58 | 74 | 84 | 100 | 112 | 105 | 96 |
| 60% | 64 | 63 | 50 | 50 | 55 | 54 | 71 | 83 | 99 | 111 | 104 | 95 |
| 70% | 57 | 54 | 43 | 43 | 48 | 53 | 67 | 73 | 86 | 96 | 90 | 82 |
| 80% | 56 | 54 | 43 | 43 | 48 | 52 | 66 | 72 | 85 | 95 | 89 | 81 |
| 90% | 55 | 54 | 43 | 43 | 46 | 51 | 65 | 71 | 83 | 94 | 88 | 81 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62 | 60 | 48 | 48 | 53 | 57 | 72 | 80 | 94 | 105 | 99 | 91 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 66 | 63 | 51 | 50 | 55 | 61 | 76 | 84 | 100 | 112 | 105 | 96 |
| Above Normal (16%) | 66 | 63 | 51 | 48 | 52 | 60 | 77 | 84 | 100 | 112 | 104 | 96 |
| Below Normal (13%) | 65 | 62 | 50 | 48 | 53 | 58 | 75 | 83 | 98 | 110 | 103 | 94 |
| Dry (24%) | 58 | 56 | 45 | 48 | 53 | 52 | 68 | 75 | 88 | 99 | 93 | 85 |
| Critical (15%) | 55 | 53 | 42 | 44 | 48 | 51 | 66 | 70 | 83 | 91 | 87 | 80 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 30% | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 40% | 1 | 0 | 0 | 0 | 2 | 3 | 2 | 0 | 1 | 1 | 1 | 1 |
| 50% | 1 | 1 | 2 | 2 | 1 | 3 | 1 | 0 | 3 | 3 | 3 | 3 |
| 60% | 4 | 6 | 5 | 5 | 4 | 1 | 3 | 5 | 9 | 10 | 10 | 8 |
| 70% | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 80% | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 90% | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 2 | 1 | 2 | 2 | 2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 4 | 3 | 3 | 0 | 0 | 3 | 4 | 3 | 5 | 6 | 6 | 5 |
| Dry (24%) | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 2 |
| Critical (15%) | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 1 | 1 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 49-2. Folsom South Canal Diversion, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67 | 64 | 51 | 51 | 56 | 62 | 79 | 85 | 101 | 113 | 106 | 97 |
| 20% | 67 | 64 | 51 | 51 | 56 | 61 | 77 | 85 | 100 | 113 | 105 | 97 |
| 30% | 66 | 64 | 51 | 51 | 56 | 61 | 77 | 85 | 100 | 112 | 105 | 97 |
| 40% | 65 | 63 | 51 | 51 | 55 | 58 | 75 | 84 | 99 | 111 | 104 | 96 |
| 50% | 64 | 62 | 49 | 49 | 54 | 55 | 73 | 83 | 97 | 109 | 102 | 93 |
| 60% | 60 | 57 | 46 | 46 | 51 | 53 | 68 | 77 | 89 | 100 | 94 | 86 |
| 70% | 56 | 54 | 43 | 43 | 48 | 52 | 67 | 72 | 85 | 95 | 89 | 82 |
| 80% | 55 | 54 | 43 | 43 | 47 | 52 | 66 | 72 | 84 | 95 | 88 | 81 |
| 90% | 54 | 53 | 42 | 42 | 46 | 50 | 64 | 69 | 82 | 92 | 86 | 79 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 61 | 59 | 47 | 47 | 52 | 56 | 71 | 79 | 93 | 103 | 97 | 89 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 66 | 63 | 51 | 49 | 55 | 61 | 75 | 84 | 100 | 112 | 104 | 96 |
| Above Normal (16%) | 66 | 63 | 50 | 46 | 51 | 59 | 77 | 84 | 99 | 111 | 104 | 96 |
| Below Normal (13%) | 61 | 59 | 47 | 48 | 52 | 54 | 71 | 79 | 92 | 104 | 97 | 89 |
| Dry (24%) | 57 | 55 | 44 | 47 | 52 | 51 | 66 | 74 | 86 | 97 | 91 | 83 |
| Critical (15%) | 55 | 52 | 42 | 43 | 47 | 51 | 65 | 69 | 82 | 88 | 86 | 79 |

## Alternative 2 021719

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67 | 64 | 51 | 51 | 56 | 62 | 79 | 85 | 101 | 114 | 106 | 97 |
| 20% | 67 | 64 | 51 | 51 | 56 | 61 | 79 | 85 | 100 | 113 | 105 | 97 |
| 30% | 67 | 64 | 51 | 51 | 56 | 61 | 78 | 85 | 100 | 113 | 105 | 97 |
| 40% | 66 | 64 | 51 | 51 | 56 | 61 | 76 | 85 | 100 | 112 | 105 | 97 |
| 50% | 65 | 64 | 51 | 51 | 55 | 60 | 74 | 84 | 100 | 112 | 105 | 96 |
| 60% | 64 | 63 | 50 | 50 | 55 | 54 | 73 | 83 | 98 | 110 | 103 | 94 |
| 70% | 57 | 54 | 43 | 43 | 48 | 53 | 68 | 73 | 86 | 96 | 89 | 82 |
| 80% | 56 | 54 | 43 | 43 | 48 | 52 | 66 | 72 | 84 | 95 | 89 | 81 |
| 90% | 55 | 54 | 43 | 43 | 46 | 50 | 65 | 71 | 83 | 94 | 88 | 81 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62 | 60 | 48 | 48 | 53 | 57 | 72 | 80 | 94 | 105 | 99 | 91 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 66 | 63 | 51 | 50 | 55 | 61 | 76 | 85 | 100 | 112 | 105 | 96 |
| Above Normal (16%) | 66 | 64 | 51 | 48 | 52 | 61 | 77 | 85 | 100 | 112 | 105 | 97 |
| Below Normal (13%) | 65 | 63 | 50 | 48 | 53 | 58 | 76 | 84 | 98 | 111 | 103 | 95 |
| Dry (24%) | 58 | 56 | 45 | 48 | 53 | 52 | 67 | 75 | 88 | 99 | 92 | 85 |
| Critical (15%) | 55 | 53 | 42 | 44 | 48 | 51 | 65 | 69 | 82 | 88 | 86 | 79 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 30% | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 40% | 1 | 0 | 0 | 0 | 2 | 3 | 2 | 1 | 1 | 1 | 1 | 1 |
| 50% | 1 | 1 | 2 | 2 | 1 | 5 | 1 | 1 | 3 | 3 | 3 | 3 |
| 60% | 4 | 6 | 5 | 5 | 4 | 1 | 5 | 6 | 9 | 10 | 9 | 8 |
| 70% | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| 80% | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 1 | 1 | 1 | 1 | 0 | **0** | 1 | 2 | 1 | 2 | 2 | 2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| Above Normal (16%) | 1 | 1 | 0 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| Below Normal (13%) | 4 | 4 | 3 | 0 | 0 | 4 | 4 | 4 | 6 | 7 | 6 | 6 |
| Dry (24%) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 1 |
| Critical (15%) | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 49-3. Folsom South Canal Diversion, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67 | 64 | 51 | 51 | 56 | 62 | 79 | 85 | 101 | 113 | 106 | 97 |
| 20% | 67 | 64 | 51 | 51 | 56 | 61 | 77 | 85 | 100 | 113 | 105 | 97 |
| 30% | 66 | 64 | 51 | 51 | 56 | 61 | 77 | 85 | 100 | 112 | 105 | 97 |
| 40% | 65 | 63 | 51 | 51 | 55 | 58 | 75 | 84 | 99 | 111 | 104 | 96 |
| 50% | 64 | 62 | 49 | 49 | 54 | 55 | 73 | 83 | 97 | 109 | 102 | 93 |
| 60% | 60 | 57 | 46 | 46 | 51 | 53 | 68 | 77 | 89 | 100 | 94 | 86 |
| 70% | 56 | 54 | 43 | 43 | 48 | 52 | 67 | 72 | 85 | 95 | 89 | 82 |
| 80% | 55 | 54 | 43 | 43 | 47 | 52 | 66 | 72 | 84 | 95 | 88 | 81 |
| 90% | 54 | 53 | 42 | 42 | 46 | 50 | 64 | 69 | 82 | 92 | 86 | 79 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 61 | 59 | 47 | 47 | 52 | 56 | 71 | 79 | 93 | 103 | 97 | 89 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 66 | 63 | 51 | 49 | 55 | 61 | 75 | 84 | 100 | 112 | 104 | 96 |
| Above Normal (16%) | 66 | 63 | 50 | 46 | 51 | 59 | 77 | 84 | 99 | 111 | 104 | 96 |
| Below Normal (13%) | 61 | 59 | 47 | 48 | 52 | 54 | 71 | 79 | 92 | 104 | 97 | 89 |
| Dry (24%) | 57 | 55 | 44 | 47 | 52 | 51 | 66 | 74 | 86 | 97 | 91 | 83 |
| Critical (15%) | 55 | 52 | 42 | 43 | 47 | 51 | 65 | 69 | 82 | 88 | 86 | 79 |

## Alternative 3 021719

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67 | 64 | 51 | 51 | 56 | 62 | 79 | 85 | 101 | 114 | 106 | 97 |
| 20% | 67 | 64 | 51 | 51 | 56 | 61 | 79 | 85 | 100 | 113 | 105 | 97 |
| 30% | 66 | 64 | 51 | 51 | 56 | 61 | 78 | 85 | 100 | 113 | 105 | 97 |
| 40% | 66 | 64 | 51 | 51 | 56 | 61 | 76 | 84 | 100 | 112 | 105 | 97 |
| 50% | 65 | 64 | 51 | 51 | 55 | 59 | 74 | 84 | 100 | 112 | 105 | 96 |
| 60% | 64 | 62 | 50 | 50 | 55 | 55 | 72 | 83 | 97 | 109 | 102 | 94 |
| 70% | 57 | 54 | 43 | 43 | 48 | 53 | 67 | 73 | 85 | 96 | 89 | 82 |
| 80% | 56 | 54 | 43 | 43 | 48 | 52 | 66 | 72 | 84 | 95 | 88 | 81 |
| 90% | 55 | 54 | 43 | 43 | 46 | 51 | 65 | 71 | 83 | 94 | 88 | 81 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62 | 60 | 48 | 48 | 53 | 57 | 72 | 80 | 94 | 105 | 99 | 91 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 66 | 63 | 51 | 50 | 55 | 61 | 76 | 84 | 100 | 112 | 105 | 96 |
| Above Normal (16%) | 66 | 64 | 51 | 47 | 52 | 61 | 77 | 85 | 100 | 112 | 105 | 96 |
| Below Normal (13%) | 65 | 63 | 50 | 48 | 53 | 58 | 75 | 83 | 98 | 110 | 103 | 94 |
| Dry (24%) | 58 | 55 | 45 | 48 | 52 | 52 | 67 | 75 | 88 | 98 | 92 | 84 |
| Critical (15%) | 54 | 52 | 42 | 44 | 48 | 51 | 65 | 69 | 82 | 88 | 86 | 79 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 40% | 1 | 0 | 0 | 0 | 2 | 3 | 2 | 0 | 1 | 1 | 1 | 1 |
| 50% | 1 | 1 | 2 | 2 | 1 | 4 | 1 | 0 | 3 | 3 | 3 | 3 |
| 60% | 4 | 5 | 4 | 4 | 4 | 2 | 4 | 5 | 7 | 9 | 8 | 8 |
| 70% | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 80% | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 2 | 1 | 2 | 2 | 2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| Above Normal (16%) | 1 | 1 | 0 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| Below Normal (13%) | 4 | 4 | 3 | 0 | 0 | 4 | 4 | 4 | 6 | 6 | 6 | 5 |
| Dry (24%) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| Critical (15%) | **0** | **0** | **0** | 1 | 1 | 0 | **0** | **0** | **0** | **0** | **0** | **0** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 49-4. Folsom South Canal Diversion, Monthly Diversion

## No Action Alternative 011319

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67 | 64 | 51 | 51 | 56 | 62 | 79 | 85 | 101 | 113 | 106 | 97 |
| 20% | 67 | 64 | 51 | 51 | 56 | 61 | 77 | 85 | 100 | 113 | 105 | 97 |
| 30% | 66 | 64 | 51 | 51 | 56 | 61 | 77 | 85 | 100 | 112 | 105 | 97 |
| 40% | 65 | 63 | 51 | 51 | 55 | 58 | 75 | 84 | 99 | 111 | 104 | 96 |
| 50% | 64 | 62 | 49 | 49 | 54 | 55 | 73 | 83 | 97 | 109 | 102 | 93 |
| 60% | 60 | 57 | 46 | 46 | 51 | 53 | 68 | 77 | 89 | 100 | 94 | 86 |
| 70% | 56 | 54 | 43 | 43 | 48 | 52 | 67 | 72 | 85 | 95 | 89 | 82 |
| 80% | 55 | 54 | 43 | 43 | 47 | 52 | 66 | 72 | 84 | 95 | 88 | 81 |
| 90% | 54 | 53 | 42 | 42 | 46 | 50 | 64 | 69 | 82 | 92 | 86 | 79 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 61 | 59 | 47 | 47 | 52 | 56 | 71 | 79 | 93 | 103 | 97 | 89 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 66 | 63 | 51 | 49 | 55 | 61 | 75 | 84 | 100 | 112 | 104 | 96 |
| Above Normal (16%) | 66 | 63 | 50 | 46 | 51 | 59 | 77 | 84 | 99 | 111 | 104 | 96 |
| Below Normal (13%) | 61 | 59 | 47 | 48 | 52 | 54 | 71 | 79 | 92 | 104 | 97 | 89 |
| Dry (24%) | 57 | 55 | 44 | 47 | 52 | 51 | 66 | 74 | 86 | 97 | 91 | 83 |
| Critical (15%) | 55 | 52 | 42 | 43 | 47 | 51 | 65 | 69 | 82 | 88 | 86 | 79 |

## Alternative 4 043019

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67 | 64 | 51 | 51 | 56 | 62 | 79 | 85 | 101 | 113 | 106 | 97 |
| 20% | 67 | 64 | 51 | 51 | 56 | 61 | 77 | 85 | 100 | 113 | 105 | 97 |
| 30% | 66 | 64 | 51 | 51 | 56 | 61 | 77 | 85 | 100 | 112 | 105 | 97 |
| 40% | 66 | 64 | 51 | 51 | 55 | 61 | 74 | 84 | 100 | 112 | 105 | 96 |
| 50% | 64 | 62 | 50 | 50 | 55 | 56 | 73 | 84 | 98 | 110 | 102 | 94 |
| 60% | 60 | 57 | 46 | 46 | 51 | 53 | 69 | 78 | 90 | 102 | 95 | 88 |
| 70% | 56 | 54 | 43 | 43 | 48 | 52 | 66 | 72 | 85 | 95 | 89 | 82 |
| 80% | 55 | 54 | 43 | 43 | 48 | 51 | 65 | 71 | 84 | 95 | 88 | 81 |
| 90% | 46 | 44 | 35 | 35 | 39 | 43 | 56 | 59 | 69 | 77 | 72 | 67 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 60 | 58 | 46 | 46 | 51 | 55 | 70 | 78 | 91 | 103 | 96 | 88 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 66 | 63 | 51 | 49 | 54 | 61 | 75 | 84 | 100 | 112 | 105 | 96 |
| Above Normal (16%) | 65 | 63 | 50 | 45 | 50 | 60 | 76 | 84 | 99 | 111 | 104 | 95 |
| Below Normal (13%) | 61 | 59 | 47 | 48 | 53 | 55 | 72 | 81 | 93 | 104 | 97 | 89 |
| Dry (24%) | 57 | 55 | 44 | 46 | 51 | 52 | 67 | 74 | 87 | 98 | 91 | 84 |
| Critical (15%) | 47 | 46 | 36 | 42 | 46 | 44 | 57 | 60 | 71 | 80 | 75 | 69 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 3 | **0** | 0 | 1 | 0 | 0 | 1 |
| 50% | **-1** | **0** | 1 | 1 | 1 | 2 | **0** | 0 | 1 | 1 | 1 | 1 |
| 60% | **-1** | 1 | 0 | 0 | 0 | **0** | 1 | 1 | 1 | 1 | 1 | 1 |
| 70% | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | **0** | **0** | **0** | 0 |
| 80% | **0** | 0 | 0 | 0 | 0 | **0** | **-1** | **0** | **0** | **0** | **0** | 0 |
| 90% | **-8** | **-8** | **-7** | **-7** | **-7** | **-7** | **-8** | **-10** | **-13** | **-15** | **-14** | **-12** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-1** | **-1** | **-1** | **-1** | **-1** | **0** | **-1** | **-1** | **-1** | **-1** | **-1** | **-1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 0 | **-1** | **-1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | **0** | **0** | **0** | **-1** | **-1** | 1 | **0** | **0** | **0** | **-1** | **0** | **0** |
| Below Normal (13%) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 0 | 0 | **-1** | **-1** | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| Critical (15%) | **-7** | **-7** | **-5** | **-1** | **-1** | **-6** | **-8** | **-9** | **-11** | **-8** | **-11** | **-10** |

a Based on the 82-year simulation period.

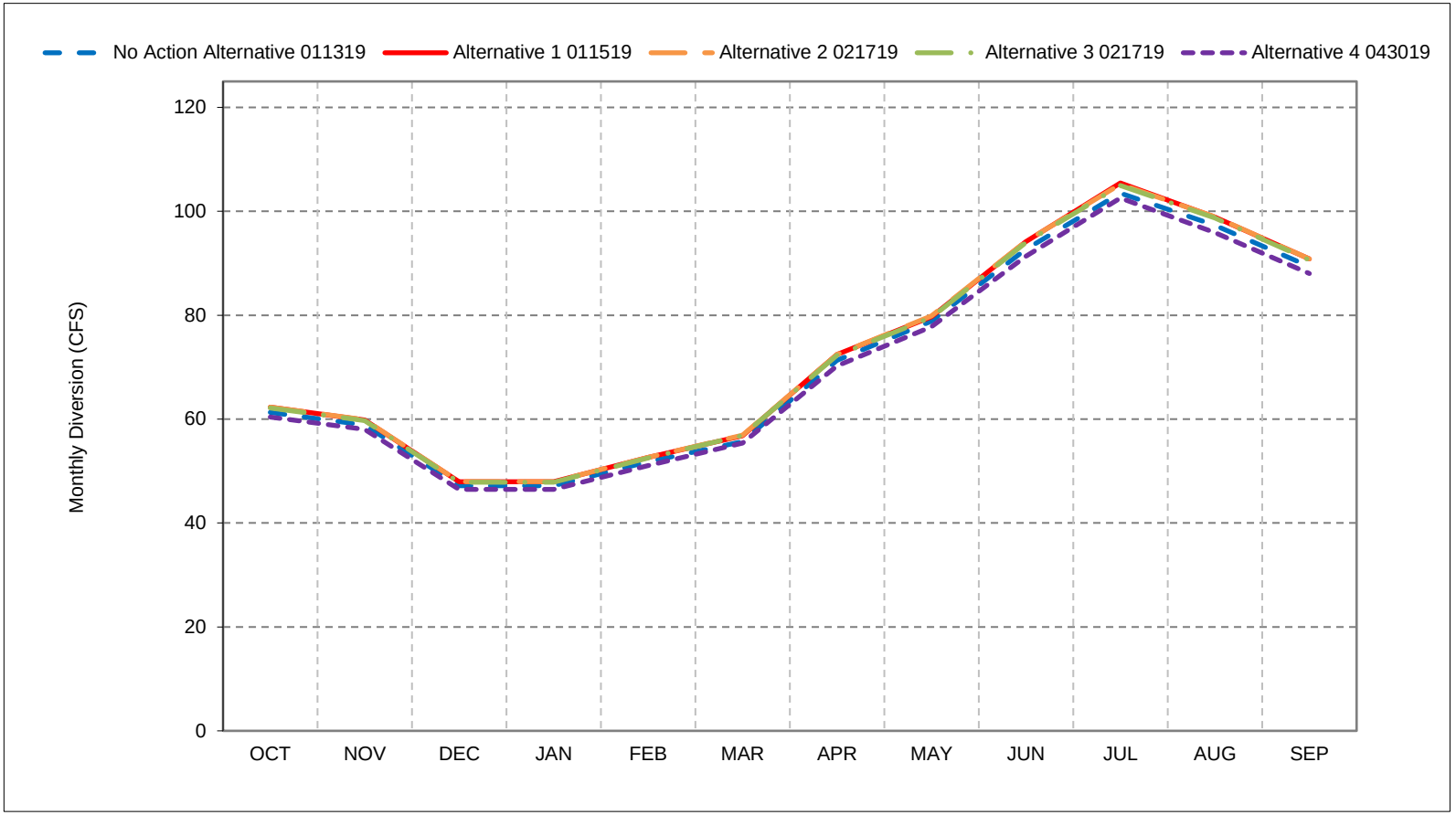
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

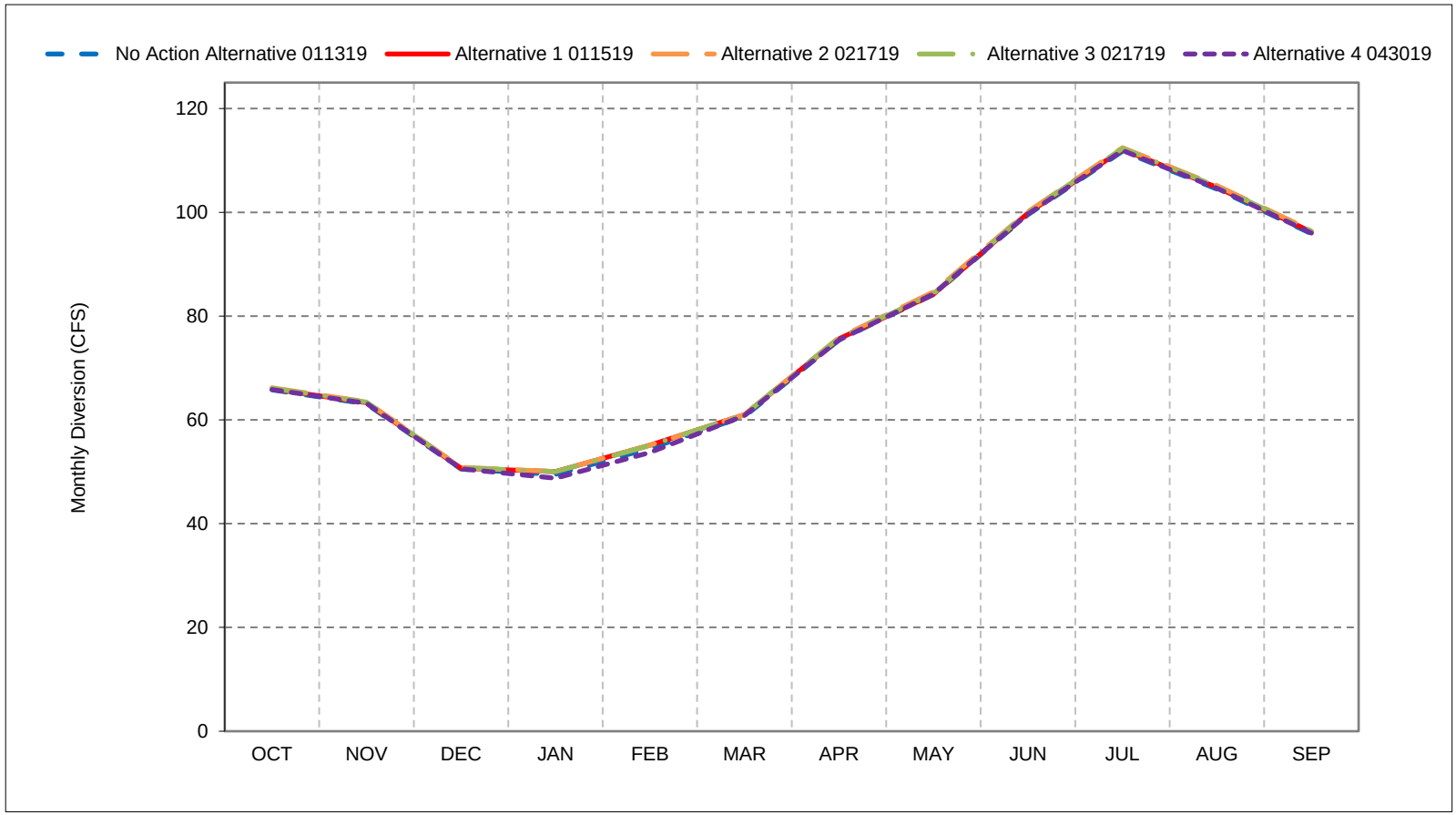
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 49-1. Folsom South Canal Diversion, Long-Term Average Diversion



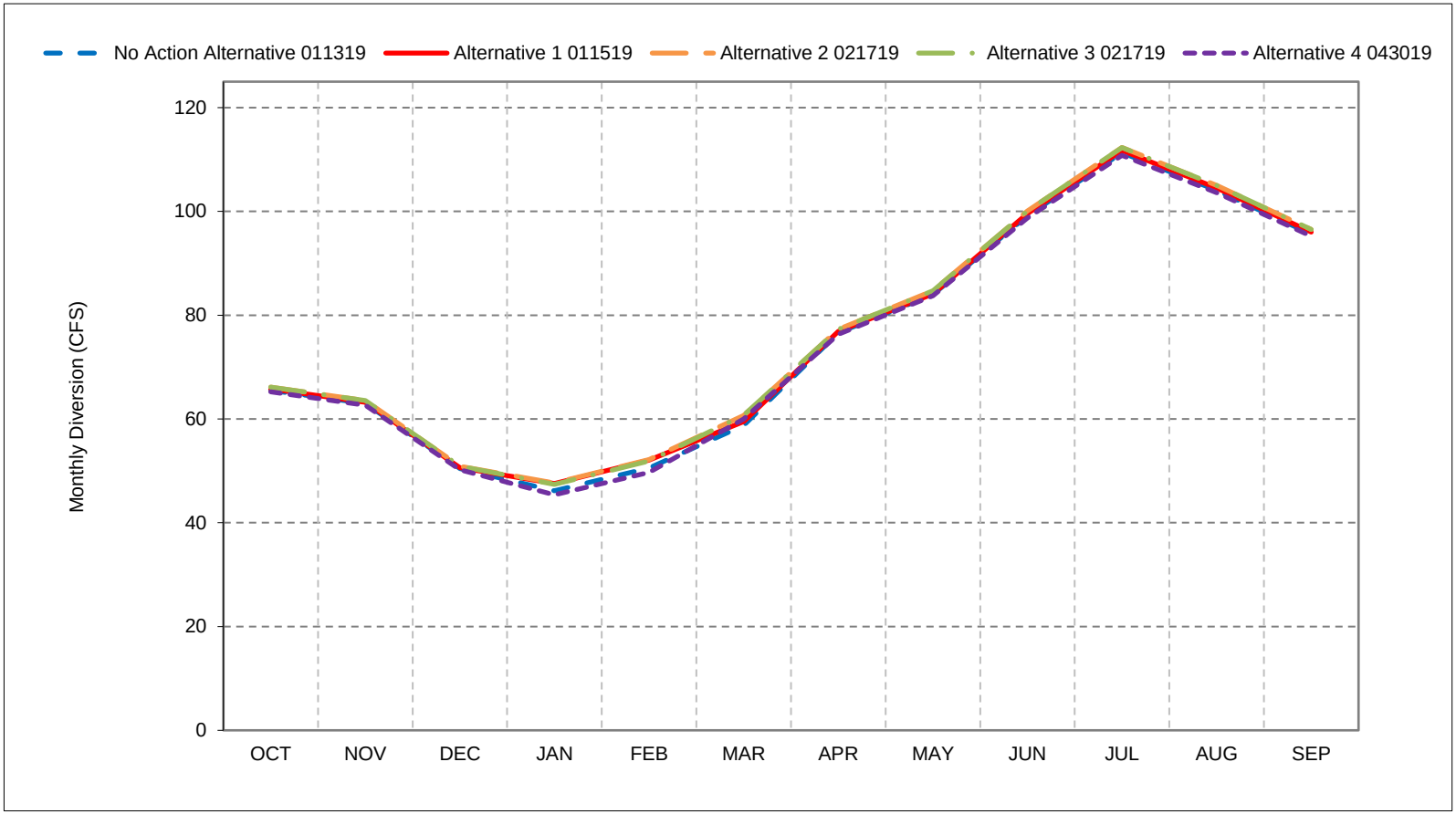

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 49-2. Folsom South Canal Diversion, Wet Year Average Diversion



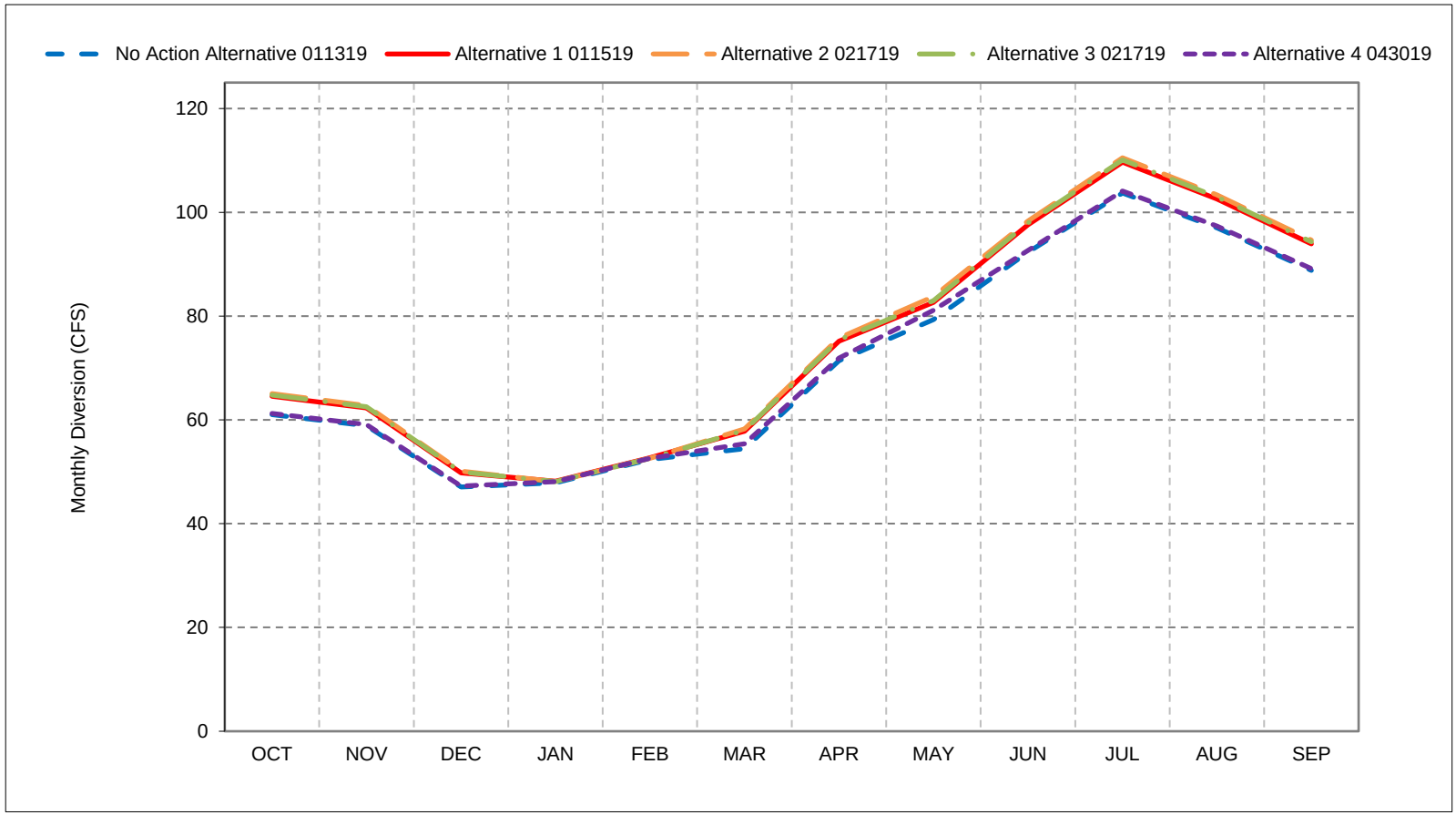

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 49-3. Folsom South Canal Diversion, Above Normal Year Average Diversion



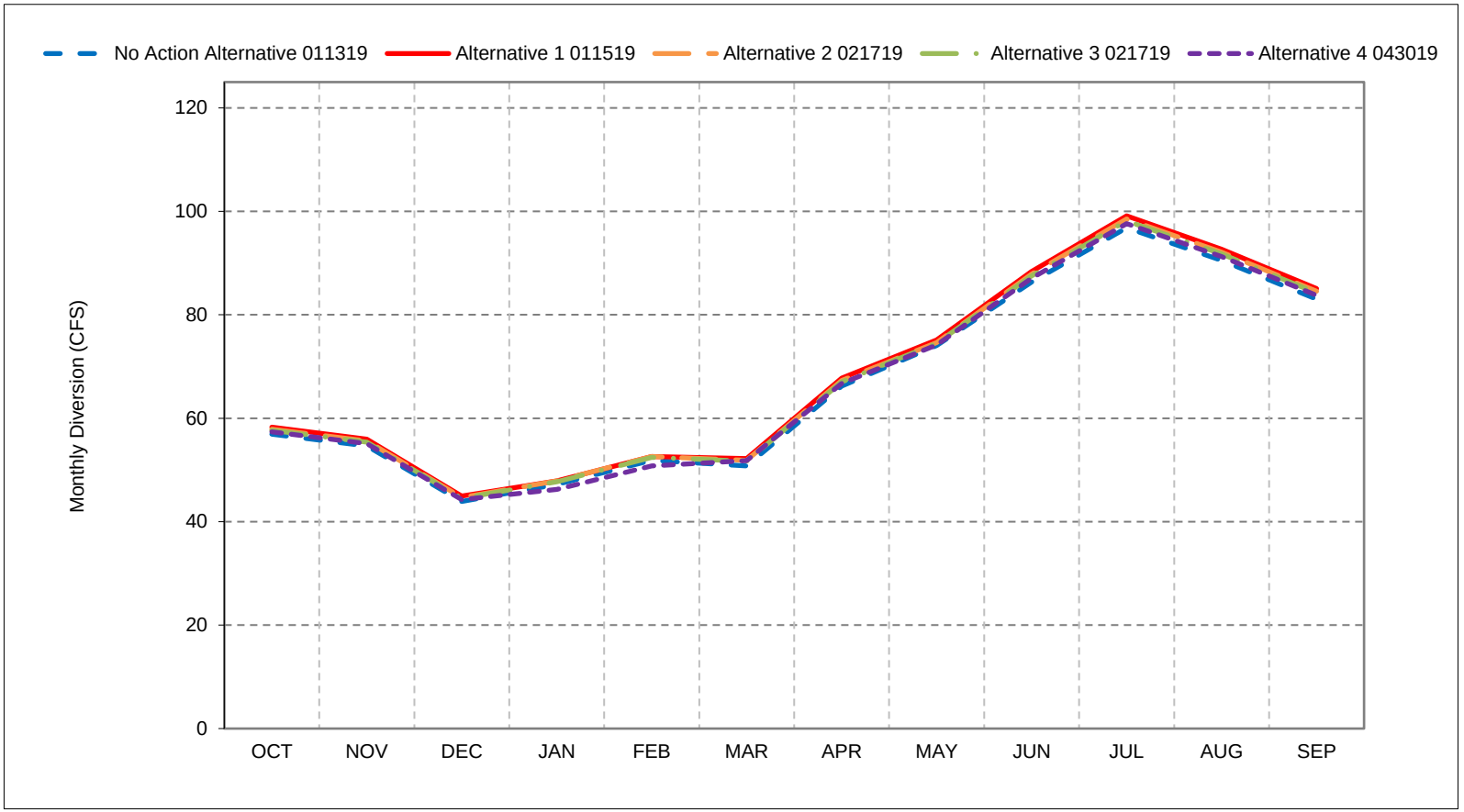

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 49-4. Folsom South Canal Diversion, Below Normal Year Average Diversion



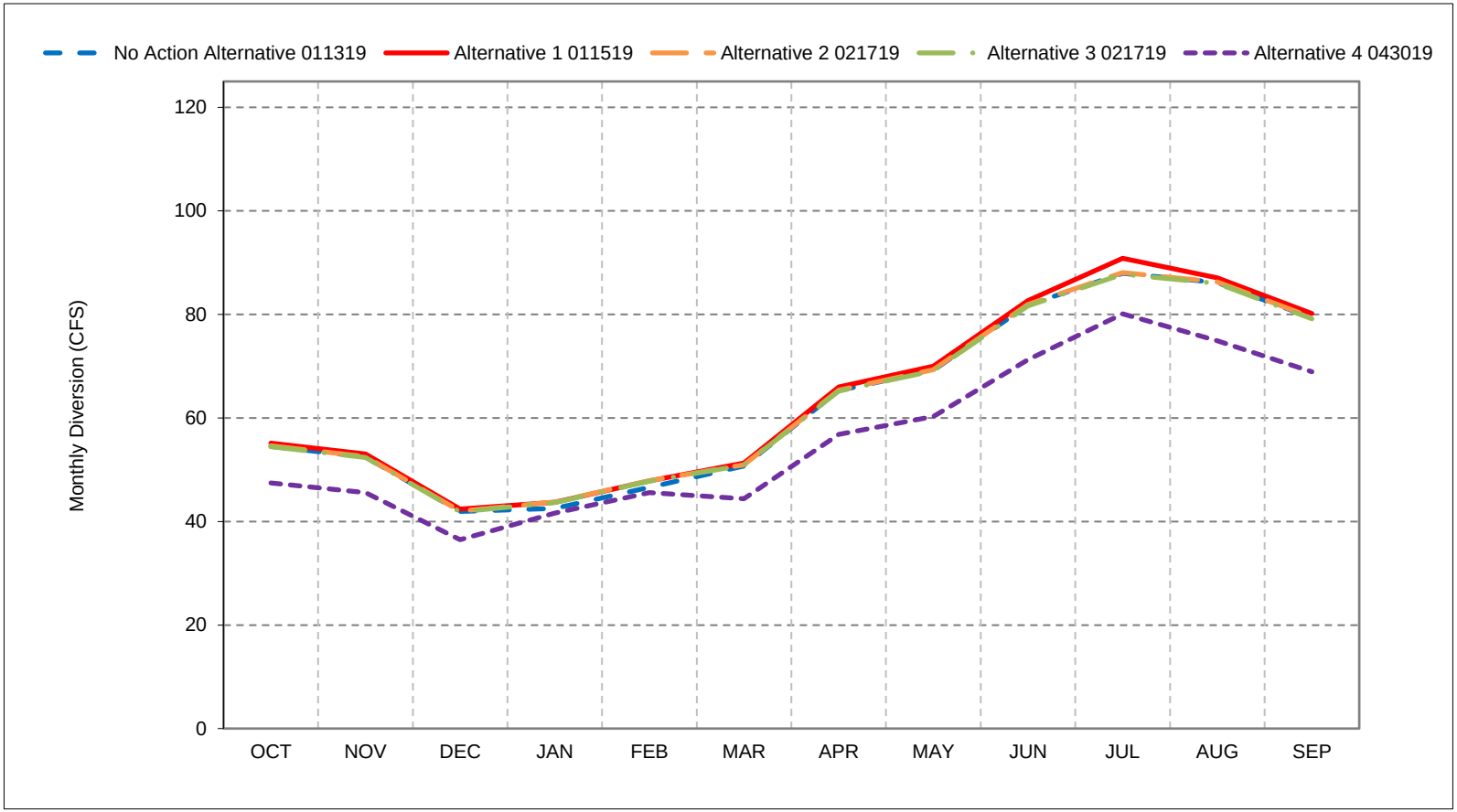

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 49-5. Folsom South Canal Diversion, Dry Year Average Diversion



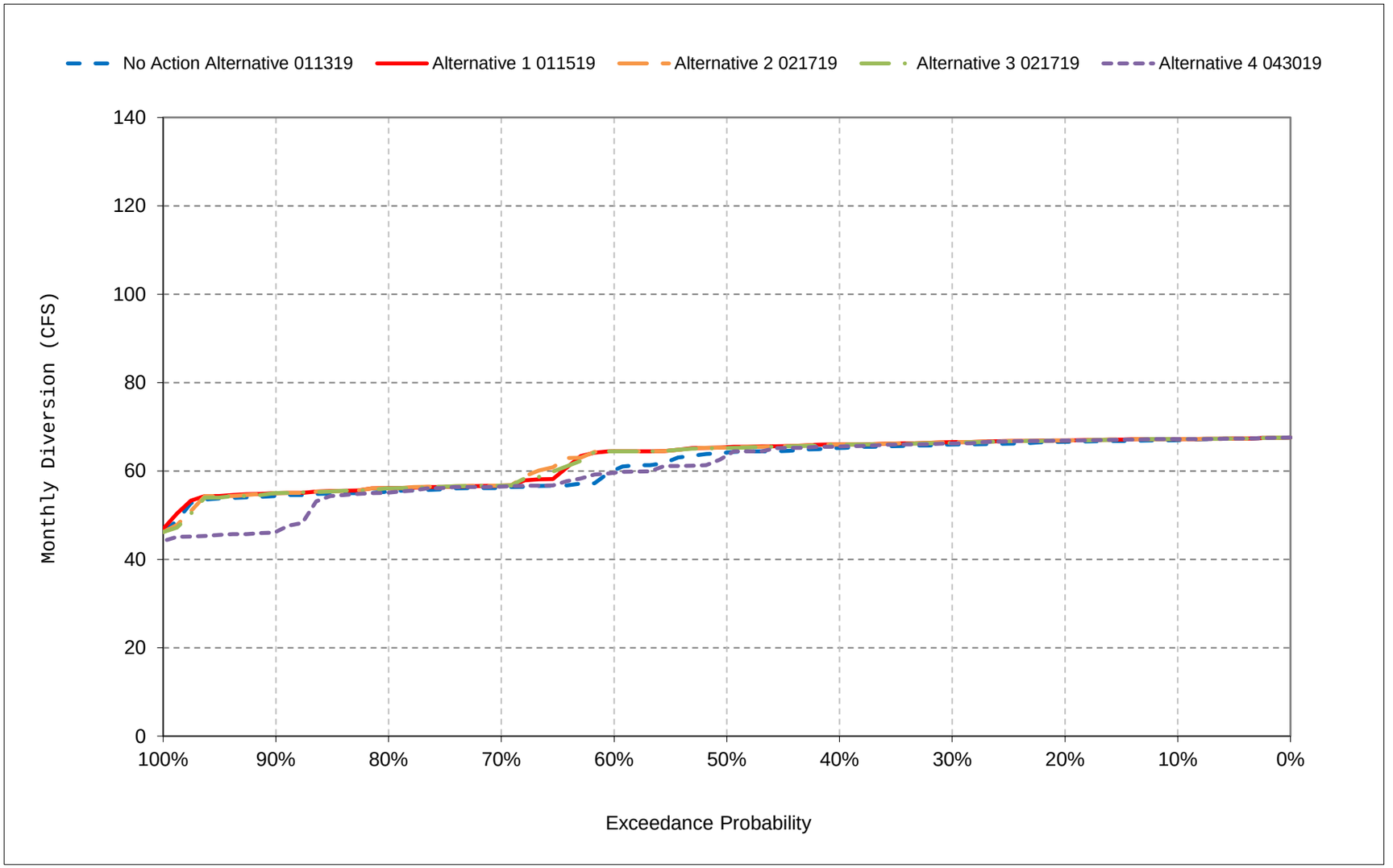

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 49-6. Folsom South Canal Diversion, Critical Year Average Diversion




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

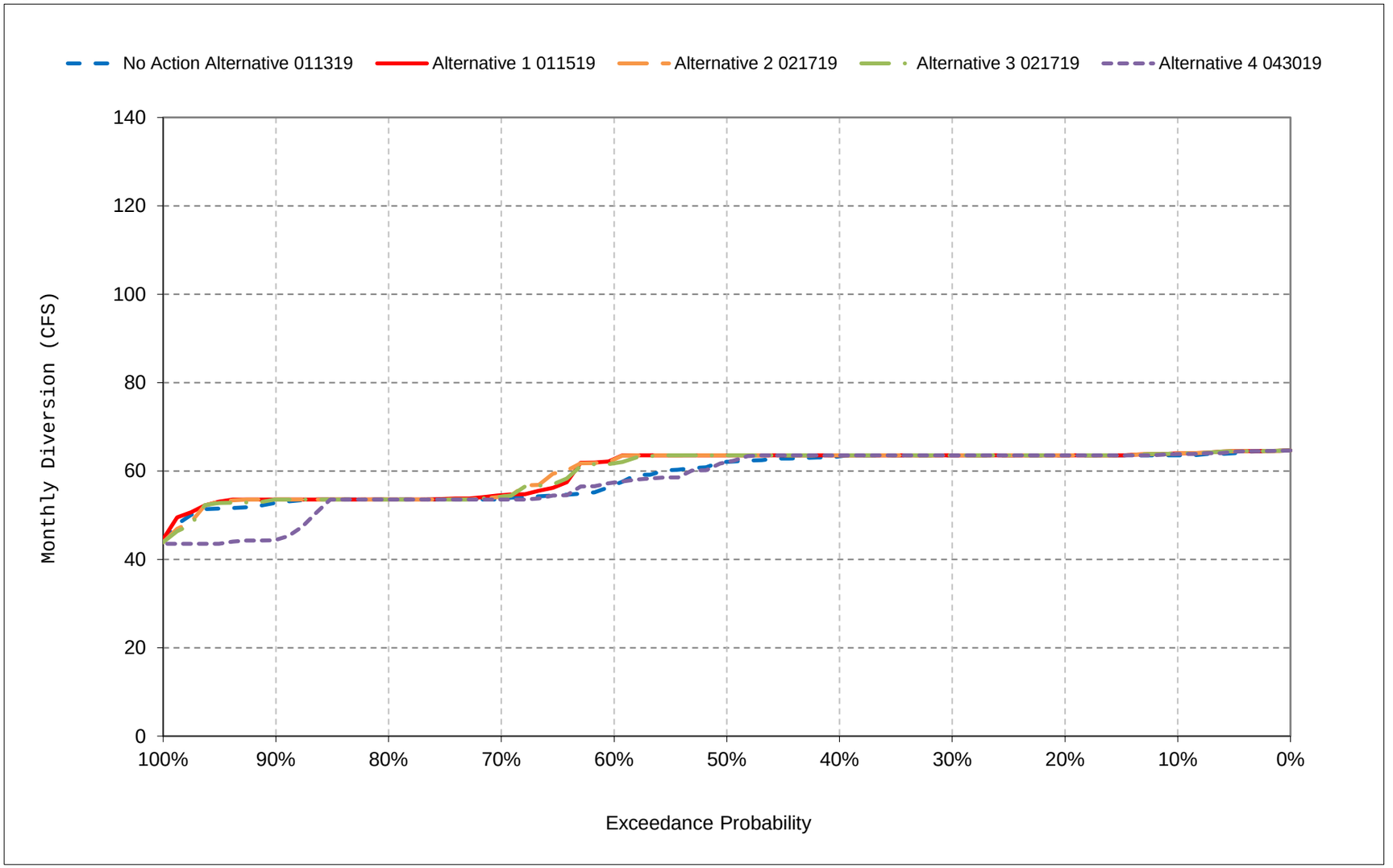
**Figure 49-7. Folsom South Canal Diversion, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

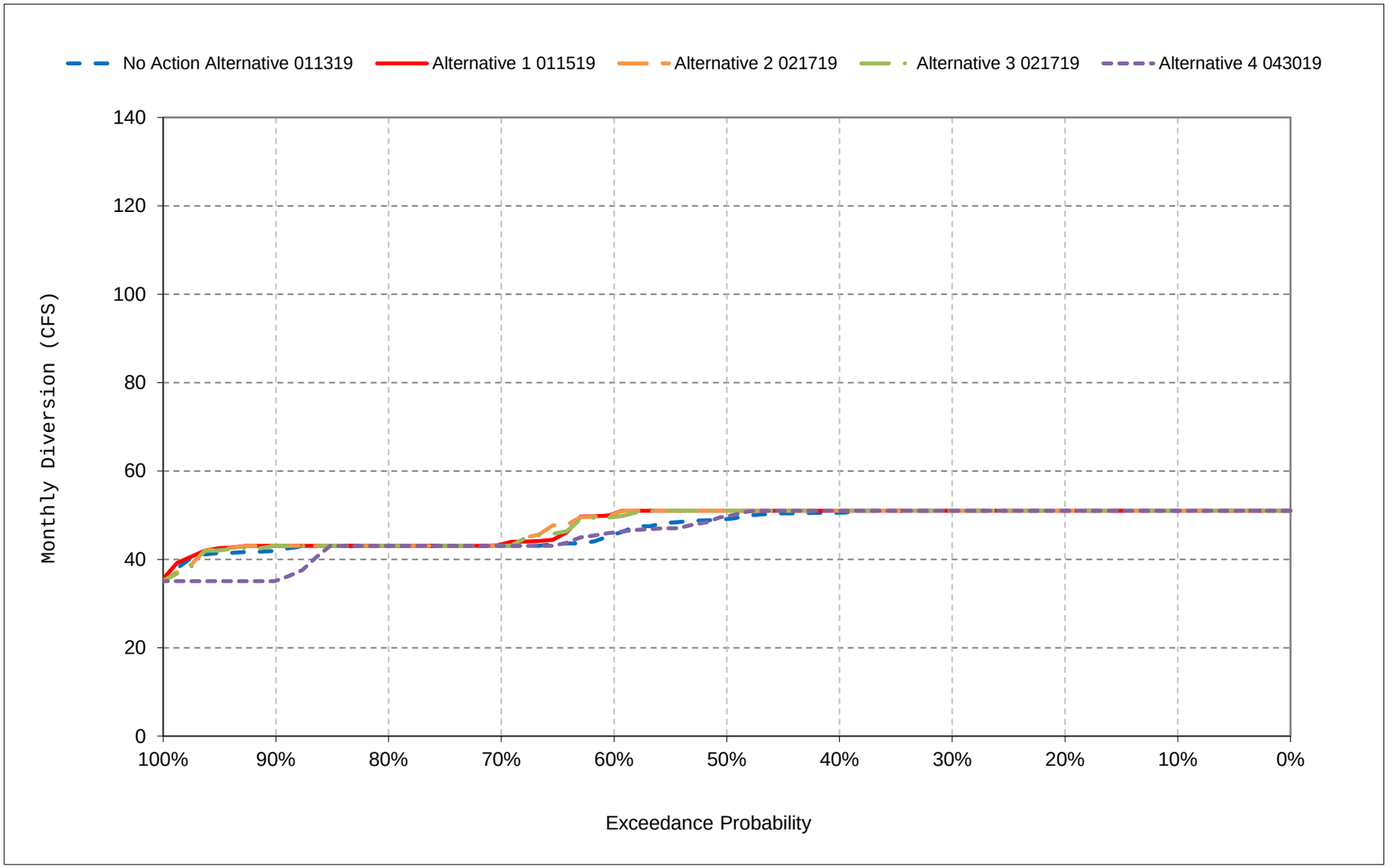
**Figure 49-8. Folsom South Canal Diversion, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

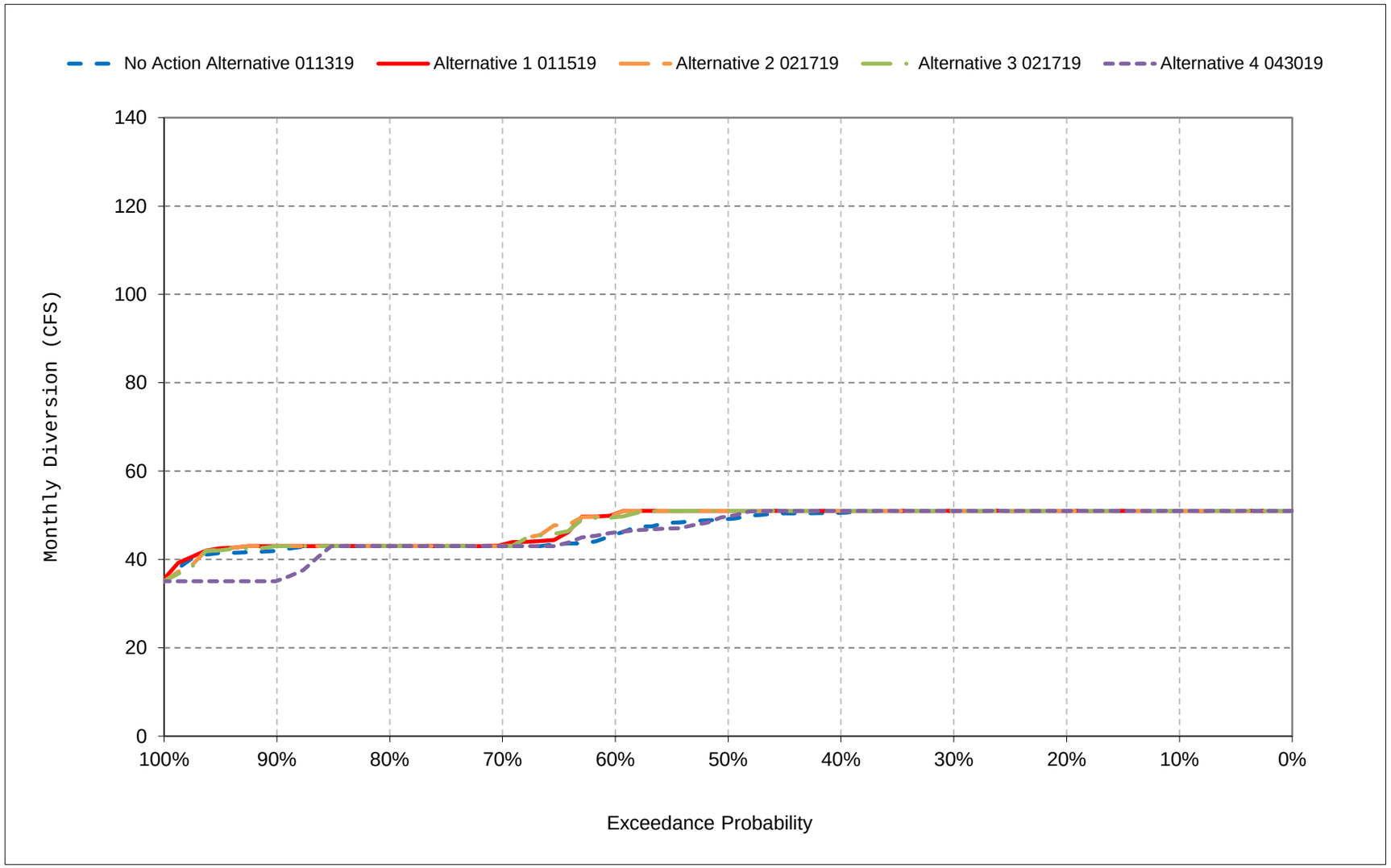
**Figure 49-9. Folsom South Canal Diversion, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

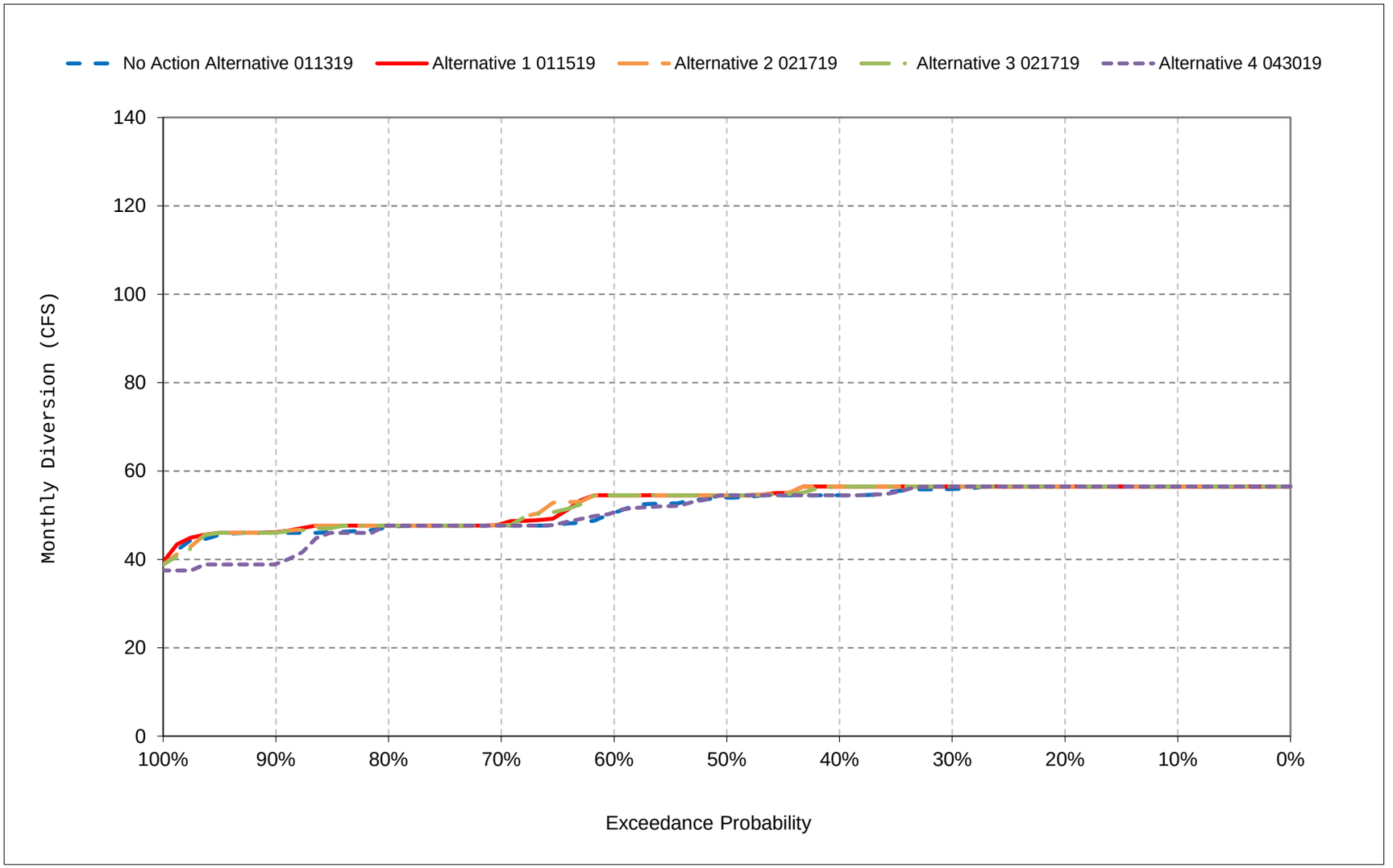
**Figure 49-10. Folsom South Canal Diversion, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

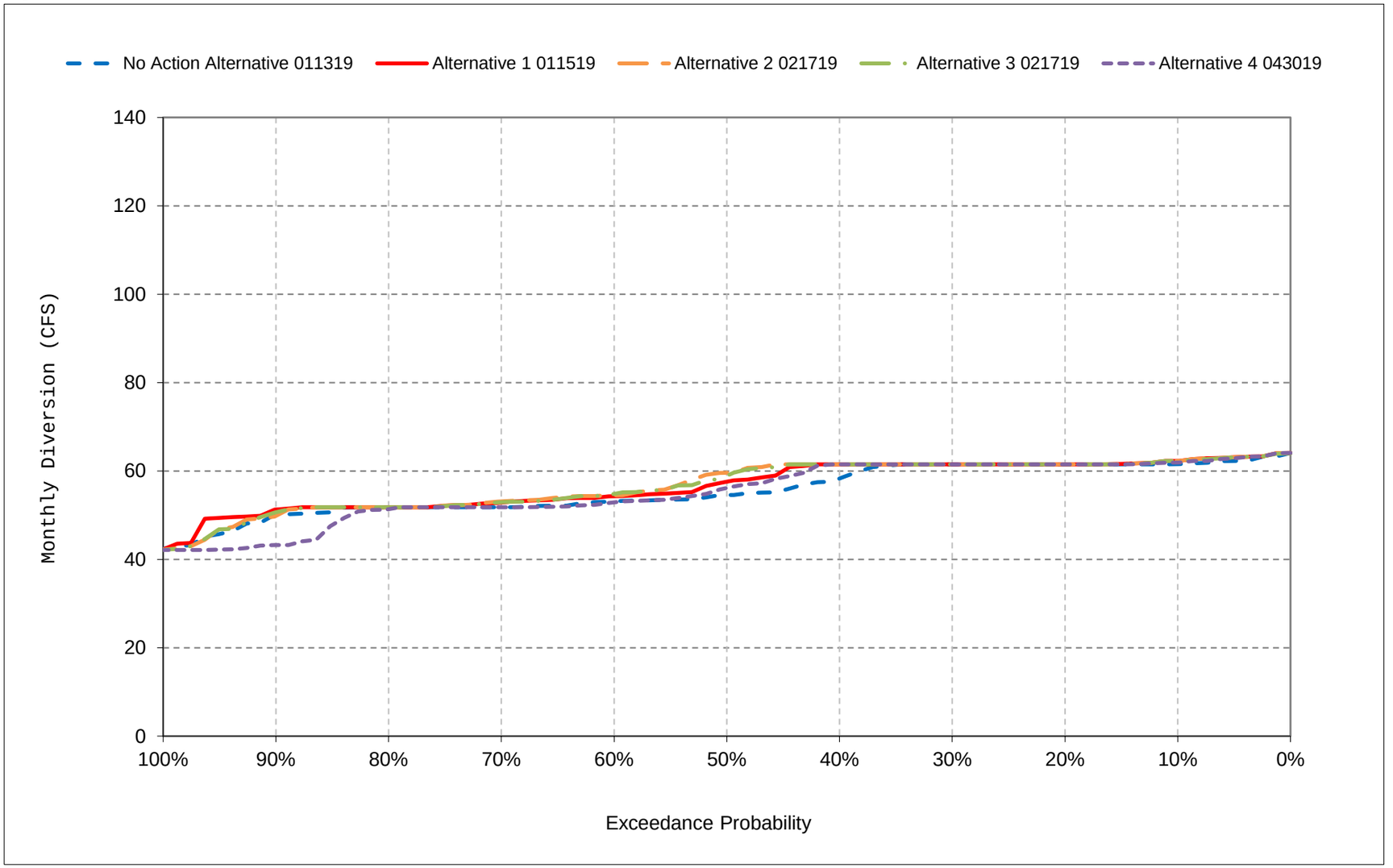
**Figure 49-11. Folsom South Canal Diversion, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

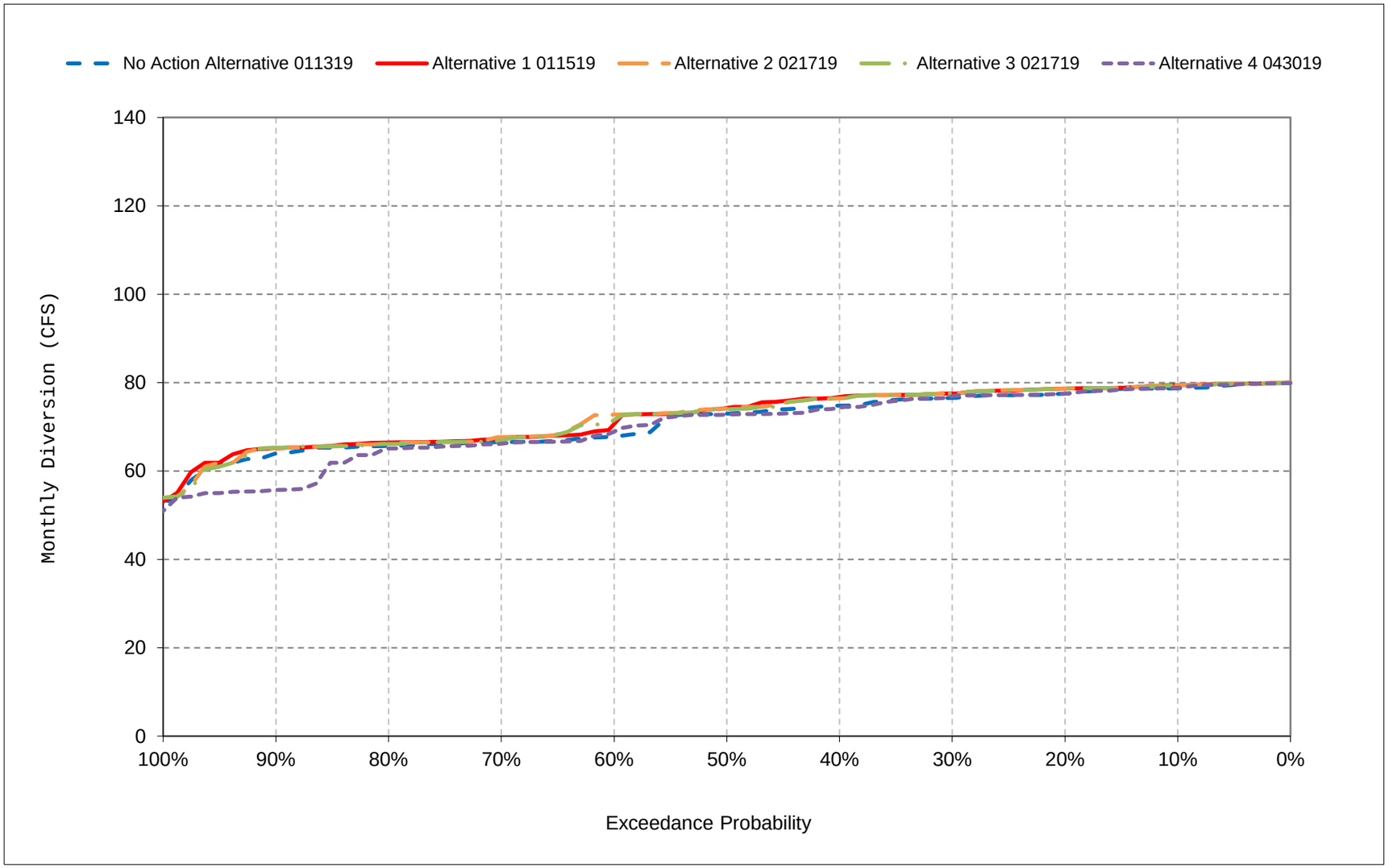
**Figure 49-12. Folsom South Canal Diversion, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

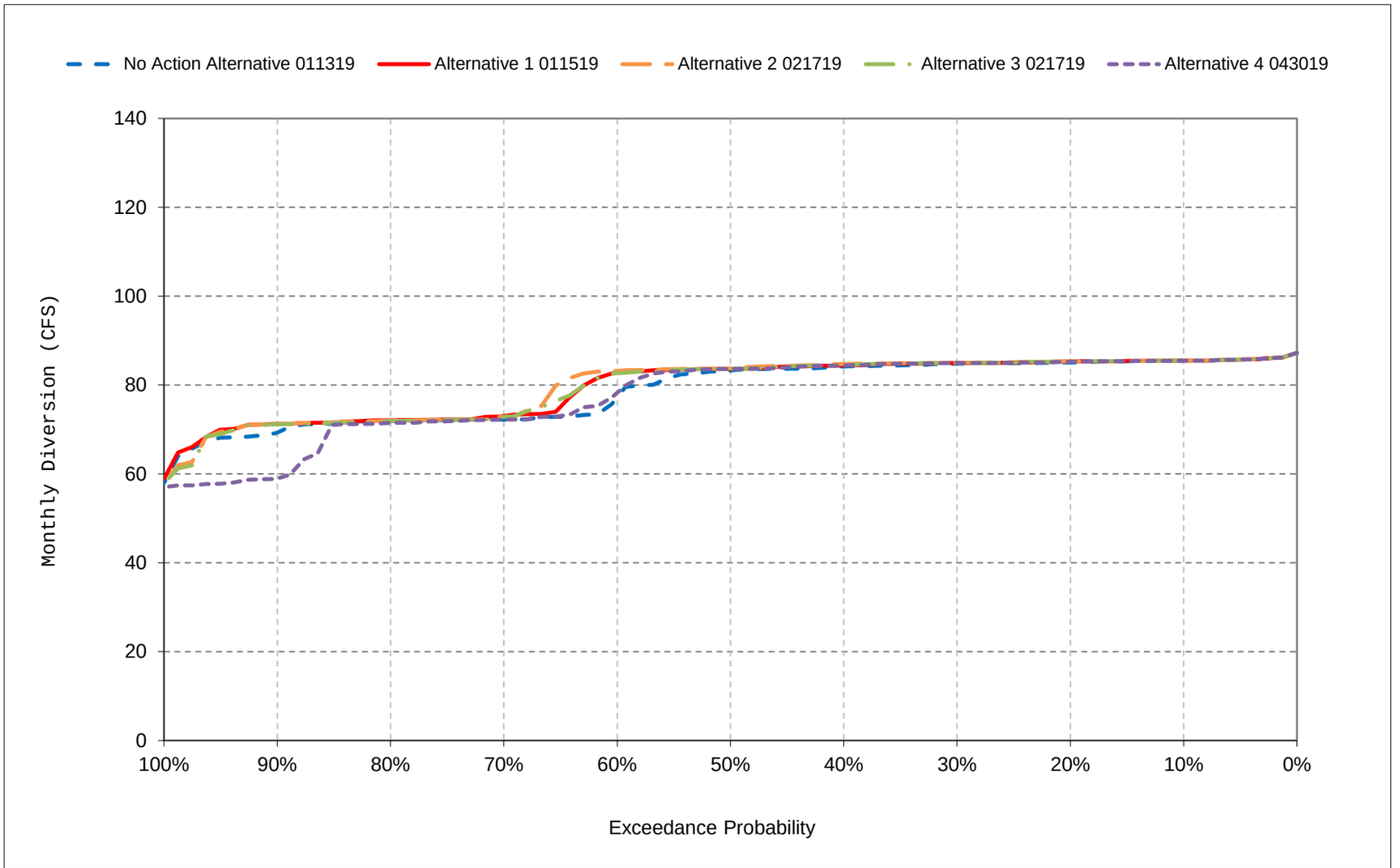
**Figure 49-13. Folsom South Canal Diversion, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

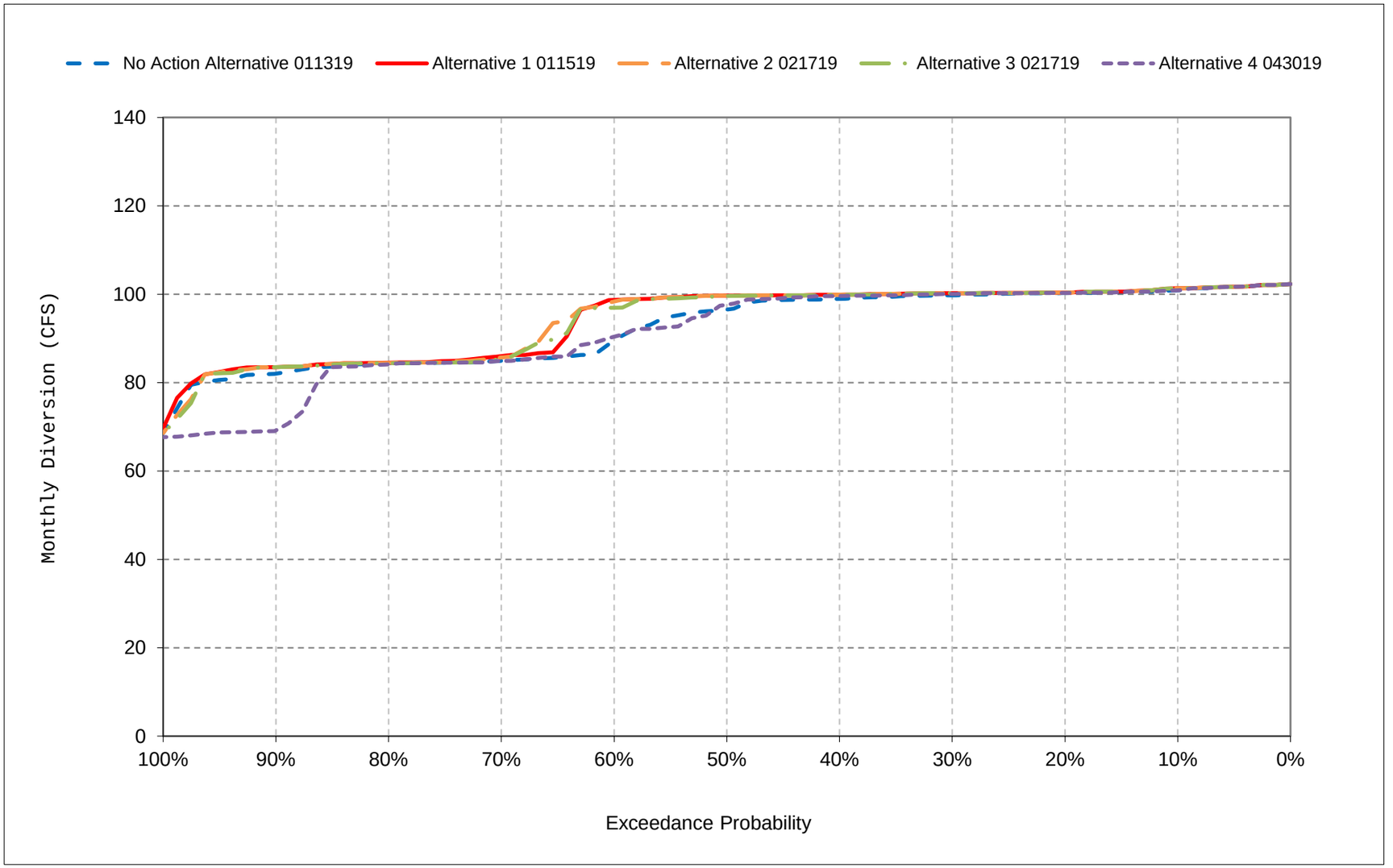
**Figure 49-14. Folsom South Canal Diversion, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

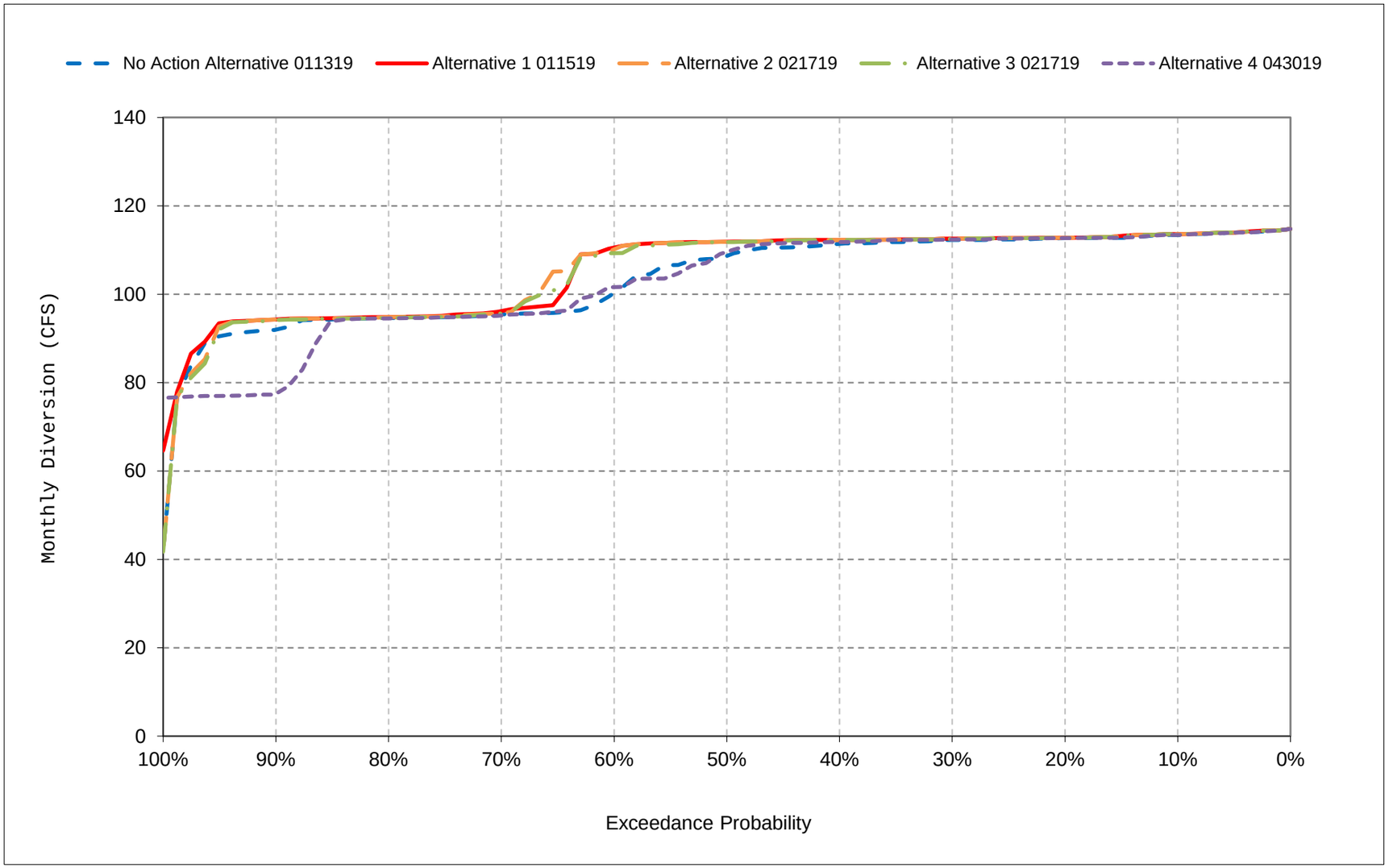
**Figure 49-15. Folsom South Canal Diversion, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

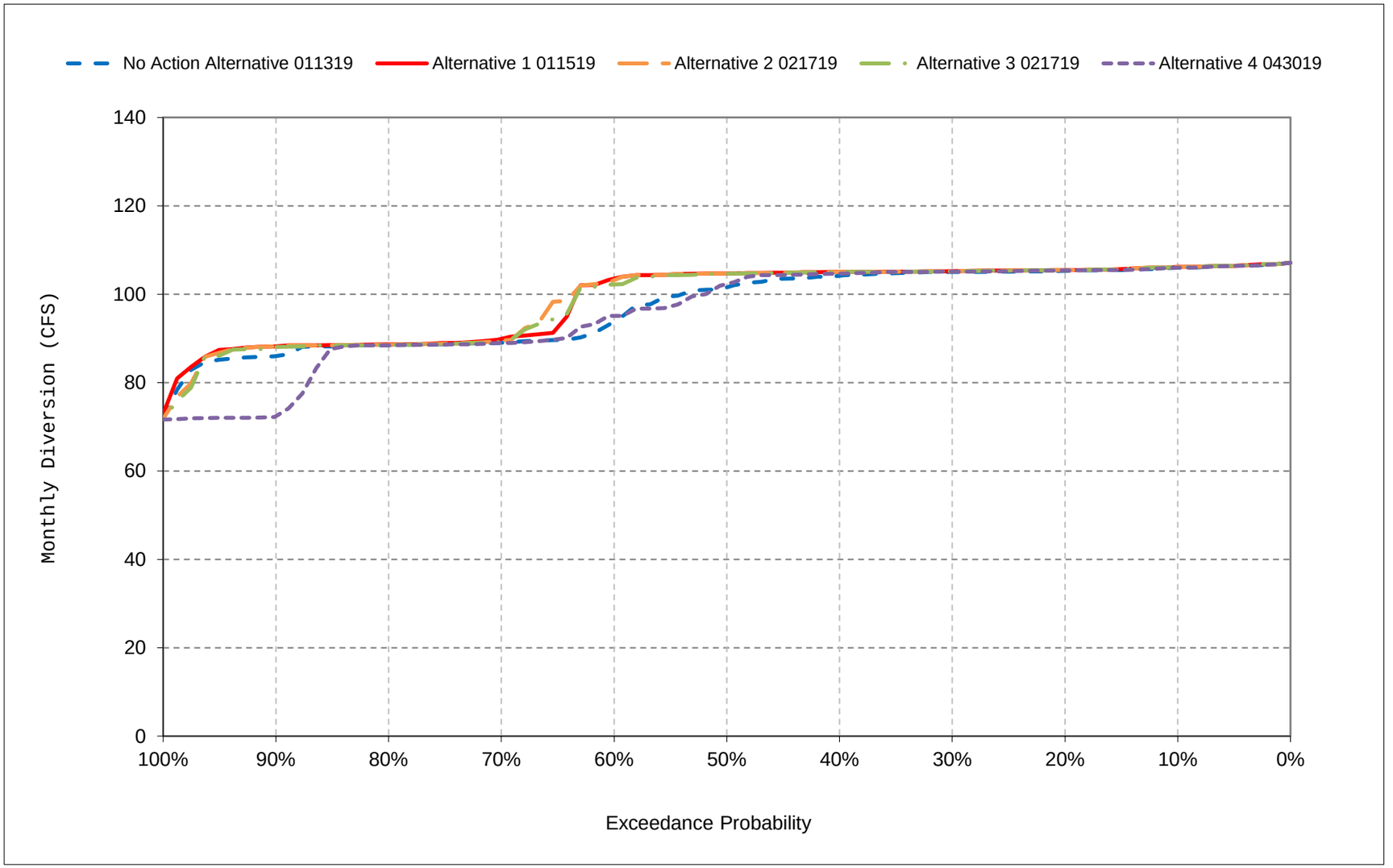
**Figure 49-16. Folsom South Canal Diversion, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

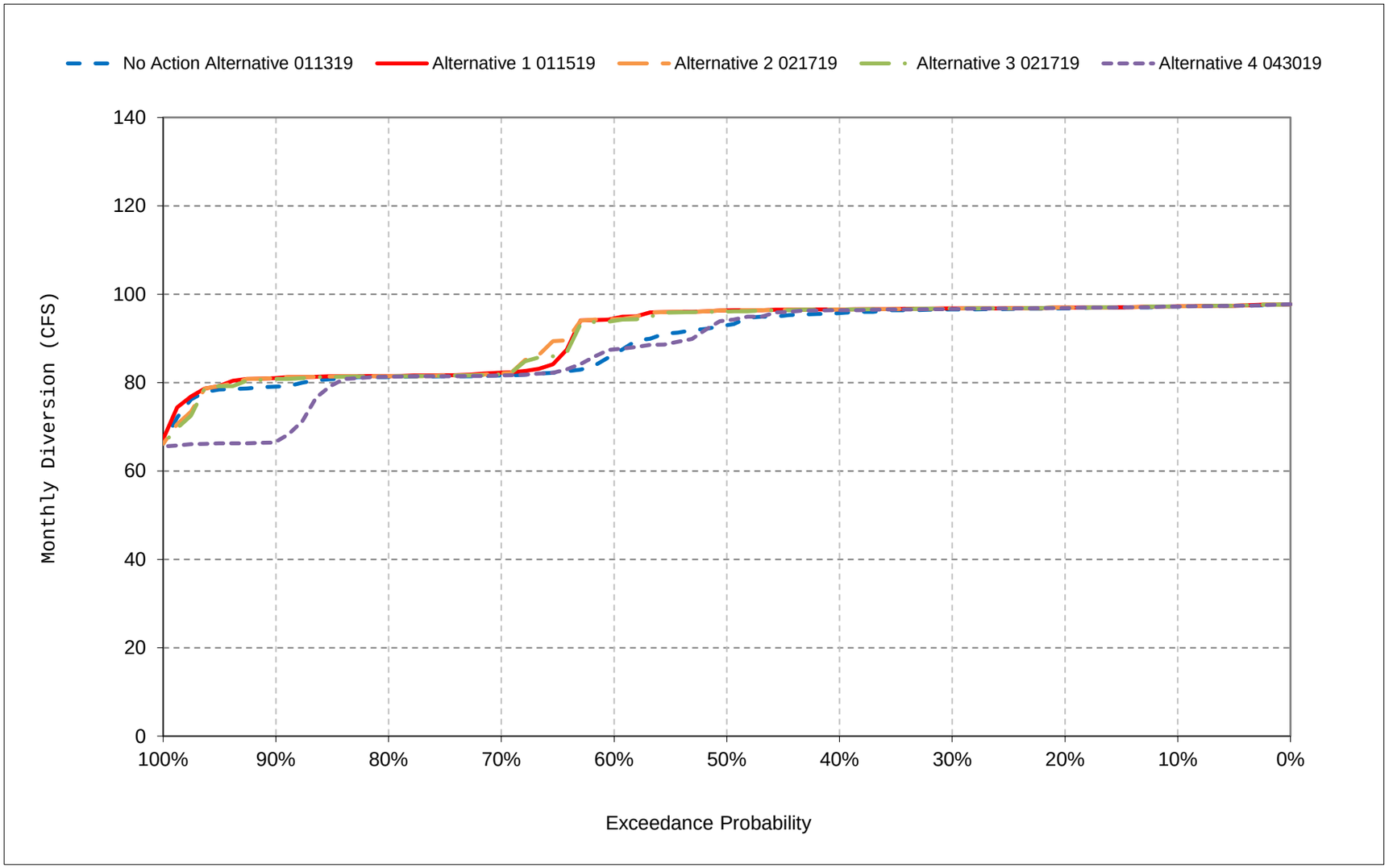
**Figure 49-17. Folsom South Canal Diversion, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 49-18. Folsom South Canal Diversion, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 50-1. Friant-Kern Canal Diversion, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 635 | 240 | 204 | 675 | 1,675 | 1,576 | 1,693 | 3,143 | 4,362 | 3,742 | 3,254 | 1,819 |
| 20% | 575 | 203 | 98 | 108 | 1,199 | 865 | 1,593 | 2,278 | 3,958 | 3,162 | 2,772 | 1,555 |
| 30% | 540 | 166 | 88 | 92 | 777 | 777 | 1,518 | 2,047 | 3,021 | 2,878 | 2,523 | 1,419 |
| 40% | 506 | 150 | 82 | 86 | 654 | 634 | 1,363 | 1,748 | 2,590 | 2,705 | 2,373 | 1,329 |
| 50% | 482 | 143 | 72 | 77 | 499 | 553 | 1,048 | 1,452 | 2,164 | 2,300 | 2,056 | 1,104 |
| 60% | 436 | 137 | 65 | 66 | 389 | 532 | 966 | 1,346 | 1,986 | 2,204 | 1,878 | 1,018 |
| 70% | 395 | 132 | 29 | 61 | 355 | 472 | 788 | 1,215 | 1,836 | 2,056 | 1,499 | 911 |
| 80% | 377 | 119 | 16 | 16 | 301 | 392 | 493 | 731 | 1,593 | 1,873 | 1,197 | 698 |
| 90% | 353 | 117 | 16 | 16 | 209 | 291 | 389 | 548 | 1,170 | 1,460 | 890 | 529 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 526 | 184 | 104 | 199 | 718 | 738 | 1,171 | 1,645 | 2,527 | 2,517 | 2,055 | 1,180 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 719 | 250 | 144 | 400 | 1,168 | 1,080 | 1,630 | 2,236 | 3,427 | 3,332 | 2,839 | 1,658 |
| Above Normal (16%) | 471 | 140 | 86 | 235 | 586 | 859 | 1,567 | 2,200 | 2,991 | 2,766 | 2,422 | 1,353 |
| Below Normal (13%) | 489 | 166 | 88 | 91 | 597 | 666 | 1,075 | 1,600 | 2,339 | 2,418 | 1,873 | 1,075 |
| Dry (24%) | 421 | 154 | 120 | 71 | 497 | 507 | 794 | 1,144 | 1,881 | 1,979 | 1,549 | 867 |
| Critical (15%) | 376 | 158 | 23 | 39 | 362 | 320 | 466 | 635 | 1,322 | 1,467 | 967 | 574 |

## Alternative 1 011519

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 635 | 240 | 204 | 675 | 1,675 | 1,576 | 1,693 | 3,143 | 4,362 | 3,742 | 3,254 | 1,819 |
| 20% | 575 | 203 | 98 | 108 | 1,199 | 865 | 1,593 | 2,278 | 3,958 | 3,162 | 2,772 | 1,555 |
| 30% | 540 | 166 | 88 | 92 | 777 | 777 | 1,518 | 2,047 | 3,021 | 2,878 | 2,523 | 1,419 |
| 40% | 506 | 150 | 82 | 86 | 654 | 634 | 1,363 | 1,748 | 2,590 | 2,705 | 2,373 | 1,329 |
| 50% | 482 | 143 | 72 | 77 | 499 | 553 | 1,048 | 1,452 | 2,164 | 2,300 | 2,056 | 1,104 |
| 60% | 436 | 137 | 65 | 66 | 389 | 532 | 966 | 1,346 | 1,986 | 2,204 | 1,878 | 1,018 |
| 70% | 395 | 132 | 29 | 61 | 355 | 472 | 788 | 1,215 | 1,836 | 2,056 | 1,499 | 911 |
| 80% | 377 | 119 | 16 | 16 | 301 | 392 | 493 | 731 | 1,593 | 1,873 | 1,197 | 698 |
| 90% | 353 | 117 | 16 | 16 | 209 | 291 | 389 | 548 | 1,170 | 1,460 | 890 | 529 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 526 | 184 | 104 | 199 | 718 | 738 | 1,171 | 1,645 | 2,527 | 2,517 | 2,055 | 1,180 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 719 | 250 | 144 | 400 | 1,168 | 1,080 | 1,630 | 2,236 | 3,427 | 3,332 | 2,839 | 1,658 |
| Above Normal (16%) | 471 | 140 | 86 | 235 | 586 | 859 | 1,567 | 2,200 | 2,991 | 2,766 | 2,422 | 1,353 |
| Below Normal (13%) | 489 | 166 | 88 | 91 | 597 | 666 | 1,075 | 1,600 | 2,339 | 2,418 | 1,873 | 1,075 |
| Dry (24%) | 421 | 154 | 120 | 71 | 497 | 507 | 794 | 1,144 | 1,881 | 1,979 | 1,549 | 867 |
| Critical (15%) | 376 | 158 | 23 | 39 | 362 | 320 | 466 | 635 | 1,322 | 1,467 | 967 | 574 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | 0 | 0 | 0 | **0** | **0** | **0** | **0** | 0 | 0 | **0** | **0** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | **0** | 0 |
| Below Normal (13%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** | 0 | **0** | **0** | 0 |
| Critical (15%) | **0** | 0 | 0 | 0 | **0** | 0 | 0 | **0** | **0** | 0 | 0 | **0** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 50-2. Friant-Kern Canal Diversion, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 635 | 240 | 204 | 675 | 1,675 | 1,576 | 1,693 | 3,143 | 4,362 | 3,742 | 3,254 | 1,819 |
| 20% | 575 | 203 | 98 | 108 | 1,199 | 865 | 1,593 | 2,278 | 3,958 | 3,162 | 2,772 | 1,555 |
| 30% | 540 | 166 | 88 | 92 | 777 | 777 | 1,518 | 2,047 | 3,021 | 2,878 | 2,523 | 1,419 |
| 40% | 506 | 150 | 82 | 86 | 654 | 634 | 1,363 | 1,748 | 2,590 | 2,705 | 2,373 | 1,329 |
| 50% | 482 | 143 | 72 | 77 | 499 | 553 | 1,048 | 1,452 | 2,164 | 2,300 | 2,056 | 1,104 |
| 60% | 436 | 137 | 65 | 66 | 389 | 532 | 966 | 1,346 | 1,986 | 2,204 | 1,878 | 1,018 |
| 70% | 395 | 132 | 29 | 61 | 355 | 472 | 788 | 1,215 | 1,836 | 2,056 | 1,499 | 911 |
| 80% | 377 | 119 | 16 | 16 | 301 | 392 | 493 | 731 | 1,593 | 1,873 | 1,197 | 698 |
| 90% | 353 | 117 | 16 | 16 | 209 | 291 | 389 | 548 | 1,170 | 1,460 | 890 | 529 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 526 | 184 | 104 | 199 | 718 | 738 | 1,171 | 1,645 | 2,527 | 2,517 | 2,055 | 1,180 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 719 | 250 | 144 | 400 | 1,168 | 1,080 | 1,630 | 2,236 | 3,427 | 3,332 | 2,839 | 1,658 |
| Above Normal (16%) | 471 | 140 | 86 | 235 | 586 | 859 | 1,567 | 2,200 | 2,991 | 2,766 | 2,422 | 1,353 |
| Below Normal (13%) | 489 | 166 | 88 | 91 | 597 | 666 | 1,075 | 1,600 | 2,339 | 2,418 | 1,873 | 1,075 |
| Dry (24%) | 421 | 154 | 120 | 71 | 497 | 507 | 794 | 1,144 | 1,881 | 1,979 | 1,549 | 867 |
| Critical (15%) | 376 | 158 | 23 | 39 | 362 | 320 | 466 | 635 | 1,322 | 1,467 | 967 | 574 |

## Alternative 2 021719

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 635 | 240 | 204 | 675 | 1,675 | 1,576 | 1,691 | 3,143 | 4,362 | 3,742 | 3,254 | 1,819 |
| 20% | 575 | 203 | 98 | 108 | 1,199 | 863 | 1,593 | 2,278 | 3,958 | 3,151 | 2,762 | 1,549 |
| 30% | 540 | 166 | 88 | 92 | 777 | 777 | 1,518 | 2,047 | 3,021 | 2,878 | 2,523 | 1,419 |
| 40% | 506 | 150 | 82 | 86 | 654 | 634 | 1,363 | 1,748 | 2,590 | 2,705 | 2,373 | 1,329 |
| 50% | 482 | 143 | 72 | 77 | 499 | 553 | 1,048 | 1,452 | 2,164 | 2,300 | 2,056 | 1,104 |
| 60% | 436 | 137 | 65 | 66 | 389 | 532 | 966 | 1,346 | 1,986 | 2,204 | 1,878 | 1,018 |
| 70% | 395 | 132 | 29 | 61 | 355 | 472 | 788 | 1,215 | 1,836 | 2,056 | 1,499 | 911 |
| 80% | 377 | 119 | 16 | 16 | 301 | 392 | 493 | 731 | 1,593 | 1,873 | 1,197 | 698 |
| 90% | 353 | 117 | 16 | 16 | 209 | 291 | 389 | 548 | 1,170 | 1,460 | 890 | 529 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 526 | 184 | 104 | 199 | 717 | 738 | 1,171 | 1,644 | 2,526 | 2,516 | 2,054 | 1,180 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 719 | 250 | 144 | 400 | 1,168 | 1,080 | 1,630 | 2,236 | 3,427 | 3,332 | 2,839 | 1,658 |
| Above Normal (16%) | 471 | 140 | 86 | 235 | 586 | 859 | 1,567 | 2,200 | 2,991 | 2,766 | 2,422 | 1,353 |
| Below Normal (13%) | 489 | 166 | 88 | 91 | 597 | 666 | 1,075 | 1,600 | 2,339 | 2,418 | 1,873 | 1,075 |
| Dry (24%) | 421 | 154 | 120 | 71 | 497 | 507 | 794 | 1,144 | 1,881 | 1,979 | 1,549 | 867 |
| Critical (15%) | 375 | 158 | 23 | 39 | 362 | 320 | 465 | 634 | 1,319 | 1,464 | 964 | 573 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | **0** | 0 | 0 | 0 | 0 | **-2** | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | **-2** | 0 | 0 | 0 | **-11** | **-10** | **-5** |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | **0** | **0** | **0** | **0** | **-1** | **-1** | **-1** | **-2** | **-2** | **-3** | **-2** | **-1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 50-3. Friant-Kern Canal Diversion, Monthly Diversion

### No Action Alternative 011319

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 635 | 240 | 204 | 675 | 1,675 | 1,576 | 1,693 | 3,143 | 4,362 | 3,742 | 3,254 | 1,819 |
| 20% | 575 | 203 | 98 | 108 | 1,199 | 865 | 1,593 | 2,278 | 3,958 | 3,162 | 2,772 | 1,555 |
| 30% | 540 | 166 | 88 | 92 | 777 | 777 | 1,518 | 2,047 | 3,021 | 2,878 | 2,523 | 1,419 |
| 40% | 506 | 150 | 82 | 86 | 654 | 634 | 1,363 | 1,748 | 2,590 | 2,705 | 2,373 | 1,329 |
| 50% | 482 | 143 | 72 | 77 | 499 | 553 | 1,048 | 1,452 | 2,164 | 2,300 | 2,056 | 1,104 |
| 60% | 436 | 137 | 65 | 66 | 389 | 532 | 966 | 1,346 | 1,986 | 2,204 | 1,878 | 1,018 |
| 70% | 395 | 132 | 29 | 61 | 355 | 472 | 788 | 1,215 | 1,836 | 2,056 | 1,499 | 911 |
| 80% | 377 | 119 | 16 | 16 | 301 | 392 | 493 | 731 | 1,593 | 1,873 | 1,197 | 698 |
| 90% | 353 | 117 | 16 | 16 | 209 | 291 | 389 | 548 | 1,170 | 1,460 | 890 | 529 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 526 | 184 | 104 | 199 | 718 | 738 | 1,171 | 1,645 | 2,527 | 2,517 | 2,055 | 1,180 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 719 | 250 | 144 | 400 | 1,168 | 1,080 | 1,630 | 2,236 | 3,427 | 3,332 | 2,839 | 1,658 |
| Above Normal (16%) | 471 | 140 | 86 | 235 | 586 | 859 | 1,567 | 2,200 | 2,991 | 2,766 | 2,422 | 1,353 |
| Below Normal (13%) | 489 | 166 | 88 | 91 | 597 | 666 | 1,075 | 1,600 | 2,339 | 2,418 | 1,873 | 1,075 |
| Dry (24%) | 421 | 154 | 120 | 71 | 497 | 507 | 794 | 1,144 | 1,881 | 1,979 | 1,549 | 867 |
| Critical (15%) | 376 | 158 | 23 | 39 | 362 | 320 | 466 | 635 | 1,322 | 1,467 | 967 | 574 |

### Alternative 3 021719

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 635 | 240 | 204 | 675 | 1,675 | 1,576 | 1,689 | 3,143 | 4,362 | 3,742 | 3,254 | 1,819 |
| 20% | 575 | 203 | 98 | 108 | 1,199 | 861 | 1,593 | 2,278 | 3,958 | 3,146 | 2,757 | 1,547 |
| 30% | 539 | 166 | 88 | 92 | 777 | 777 | 1,518 | 2,047 | 3,021 | 2,878 | 2,523 | 1,419 |
| 40% | 506 | 150 | 82 | 86 | 654 | 634 | 1,363 | 1,748 | 2,590 | 2,705 | 2,373 | 1,329 |
| 50% | 482 | 143 | 72 | 77 | 499 | 553 | 1,048 | 1,452 | 2,164 | 2,300 | 2,056 | 1,104 |
| 60% | 436 | 137 | 65 | 66 | 389 | 532 | 966 | 1,346 | 1,986 | 2,204 | 1,878 | 1,018 |
| 70% | 395 | 132 | 29 | 61 | 355 | 472 | 788 | 1,215 | 1,836 | 2,056 | 1,499 | 911 |
| 80% | 377 | 119 | 16 | 16 | 301 | 392 | 493 | 731 | 1,593 | 1,873 | 1,197 | 698 |
| 90% | 353 | 117 | 16 | 16 | 209 | 291 | 389 | 548 | 1,170 | 1,460 | 890 | 529 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 526 | 184 | 104 | 199 | 717 | 738 | 1,171 | 1,644 | 2,526 | 2,516 | 2,054 | 1,179 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 719 | 250 | 144 | 400 | 1,168 | 1,080 | 1,630 | 2,236 | 3,427 | 3,332 | 2,839 | 1,658 |
| Above Normal (16%) | 471 | 140 | 86 | 235 | 585 | 859 | 1,567 | 2,200 | 2,991 | 2,766 | 2,422 | 1,353 |
| Below Normal (13%) | 489 | 166 | 88 | 91 | 597 | 666 | 1,075 | 1,600 | 2,339 | 2,418 | 1,873 | 1,075 |
| Dry (24%) | 421 | 154 | 120 | 71 | 497 | 507 | 794 | 1,144 | 1,881 | 1,979 | 1,549 | 867 |
| Critical (15%) | 375 | 158 | 23 | 39 | 361 | 318 | 463 | 632 | 1,316 | 1,461 | 962 | 571 |

### Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | -3 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | -4 | 0 | 0 | 0 | -17 | -15 | -8 |
| 30% | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | -1 | -1 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | -1 | 0 | 0 | 0 | -1 | -2 | -3 | -4 | -5 | -6 | -5 | -3 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 50-4. Friant-Kern Canal Diversion, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 635 | 240 | 204 | 675 | 1,675 | 1,576 | 1,693 | 3,143 | 4,362 | 3,742 | 3,254 | 1,819 |
| 20% | 575 | 203 | 98 | 108 | 1,199 | 865 | 1,593 | 2,278 | 3,958 | 3,162 | 2,772 | 1,555 |
| 30% | 540 | 166 | 88 | 92 | 777 | 777 | 1,518 | 2,047 | 3,021 | 2,878 | 2,523 | 1,419 |
| 40% | 506 | 150 | 82 | 86 | 654 | 634 | 1,363 | 1,748 | 2,590 | 2,705 | 2,373 | 1,329 |
| 50% | 482 | 143 | 72 | 77 | 499 | 553 | 1,048 | 1,452 | 2,164 | 2,300 | 2,056 | 1,104 |
| 60% | 436 | 137 | 65 | 66 | 389 | 532 | 966 | 1,346 | 1,986 | 2,204 | 1,878 | 1,018 |
| 70% | 395 | 132 | 29 | 61 | 355 | 472 | 788 | 1,215 | 1,836 | 2,056 | 1,499 | 911 |
| 80% | 377 | 119 | 16 | 16 | 301 | 392 | 493 | 731 | 1,593 | 1,873 | 1,197 | 698 |
| 90% | 353 | 117 | 16 | 16 | 209 | 291 | 389 | 548 | 1,170 | 1,460 | 890 | 529 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 526 | 184 | 104 | 199 | 718 | 738 | 1,171 | 1,645 | 2,527 | 2,517 | 2,055 | 1,180 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 719 | 250 | 144 | 400 | 1,168 | 1,080 | 1,630 | 2,236 | 3,427 | 3,332 | 2,839 | 1,658 |
| Above Normal (16%) | 471 | 140 | 86 | 235 | 586 | 859 | 1,567 | 2,200 | 2,991 | 2,766 | 2,422 | 1,353 |
| Below Normal (13%) | 489 | 166 | 88 | 91 | 597 | 666 | 1,075 | 1,600 | 2,339 | 2,418 | 1,873 | 1,075 |
| Dry (24%) | 421 | 154 | 120 | 71 | 497 | 507 | 794 | 1,144 | 1,881 | 1,979 | 1,549 | 867 |
| Critical (15%) | 376 | 158 | 23 | 39 | 362 | 320 | 466 | 635 | 1,322 | 1,467 | 967 | 574 |

## Alternative 4 043019

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 635 | 240 | 204 | 675 | 1,675 | 1,576 | 1,693 | 3,143 | 4,362 | 3,742 | 3,254 | 1,819 |
| 20% | 575 | 203 | 98 | 108 | 1,199 | 865 | 1,593 | 2,278 | 3,958 | 3,162 | 2,772 | 1,555 |
| 30% | 540 | 166 | 88 | 92 | 777 | 777 | 1,518 | 2,047 | 3,021 | 2,878 | 2,523 | 1,419 |
| 40% | 506 | 150 | 82 | 86 | 654 | 634 | 1,363 | 1,748 | 2,590 | 2,705 | 2,373 | 1,329 |
| 50% | 482 | 143 | 72 | 77 | 499 | 553 | 1,048 | 1,452 | 2,164 | 2,300 | 2,056 | 1,104 |
| 60% | 436 | 137 | 65 | 66 | 389 | 532 | 966 | 1,346 | 1,986 | 2,204 | 1,878 | 1,018 |
| 70% | 395 | 132 | 29 | 61 | 355 | 472 | 788 | 1,215 | 1,836 | 2,056 | 1,499 | 911 |
| 80% | 377 | 119 | 16 | 16 | 301 | 392 | 493 | 731 | 1,593 | 1,873 | 1,197 | 698 |
| 90% | 353 | 117 | 16 | 16 | 209 | 291 | 389 | 548 | 1,170 | 1,460 | 890 | 529 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 526 | 184 | 104 | 199 | 718 | 738 | 1,171 | 1,645 | 2,527 | 2,517 | 2,055 | 1,180 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 719 | 250 | 144 | 400 | 1,168 | 1,080 | 1,630 | 2,236 | 3,427 | 3,332 | 2,839 | 1,658 |
| Above Normal (16%) | 471 | 140 | 86 | 235 | 586 | 859 | 1,567 | 2,200 | 2,991 | 2,766 | 2,422 | 1,353 |
| Below Normal (13%) | 489 | 166 | 88 | 91 | 597 | 666 | 1,075 | 1,600 | 2,339 | 2,418 | 1,873 | 1,075 |
| Dry (24%) | 421 | 154 | 120 | 71 | 497 | 507 | 794 | 1,144 | 1,881 | 1,979 | 1,549 | 867 |
| Critical (15%) | 376 | 158 | 23 | 39 | 362 | 320 | 466 | 635 | 1,322 | 1,467 | 967 | 574 |

## Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | 0 | **0** | 0 | **0** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** |

a Based on the 82-year simulation period.

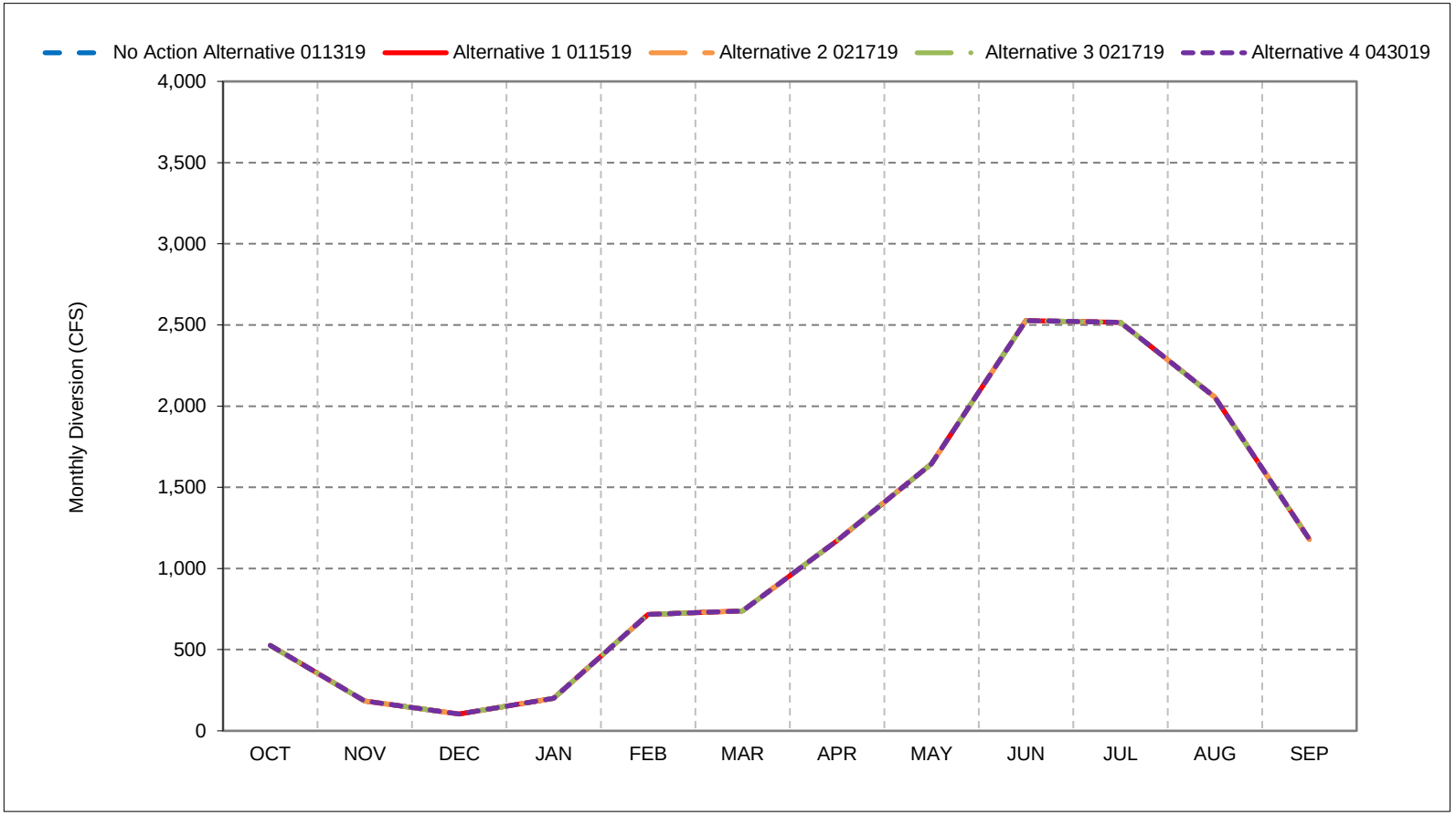
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

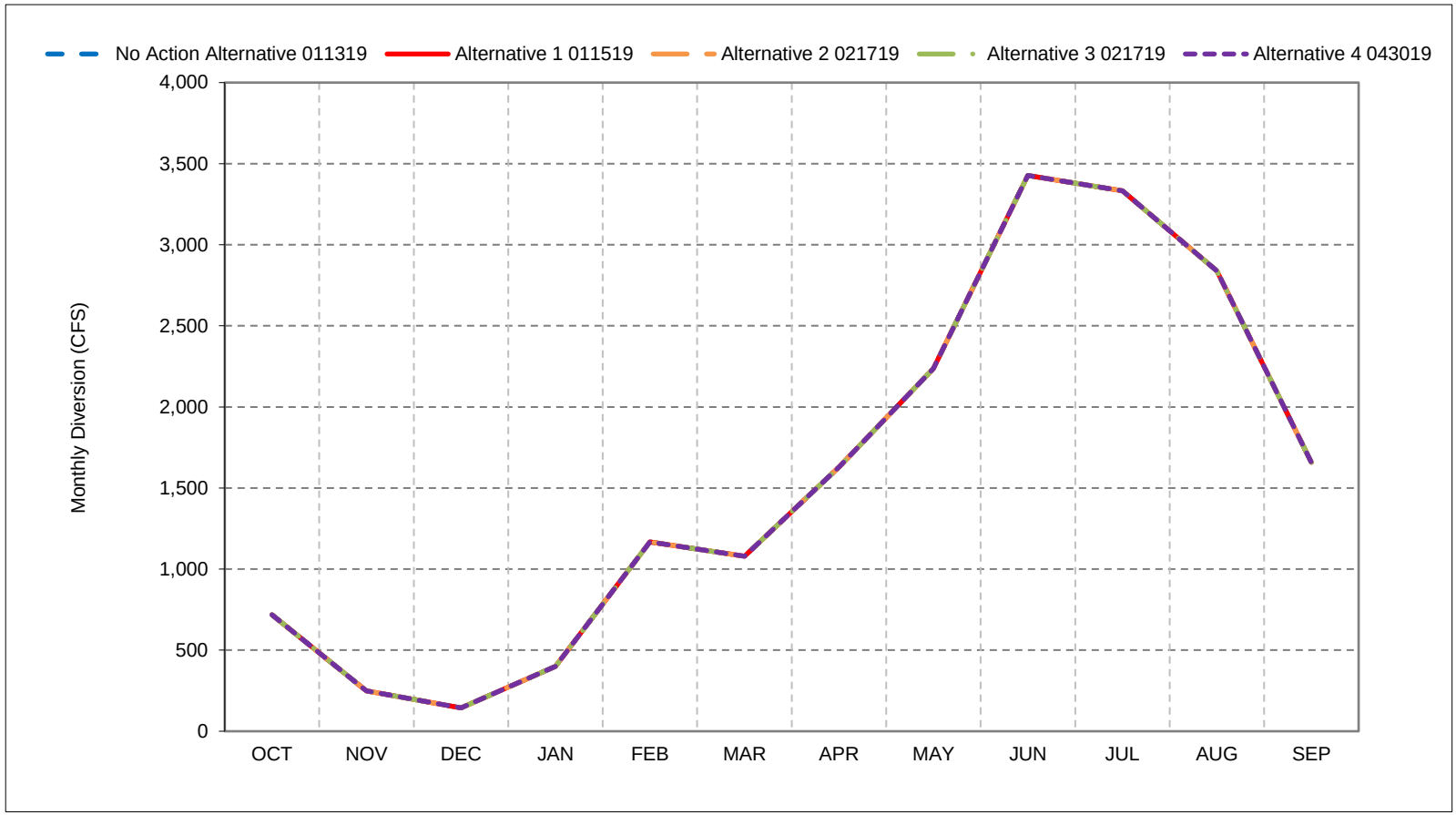
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 50-1. Friant-Kern Canal Diversion, Long-Term Average Diversion



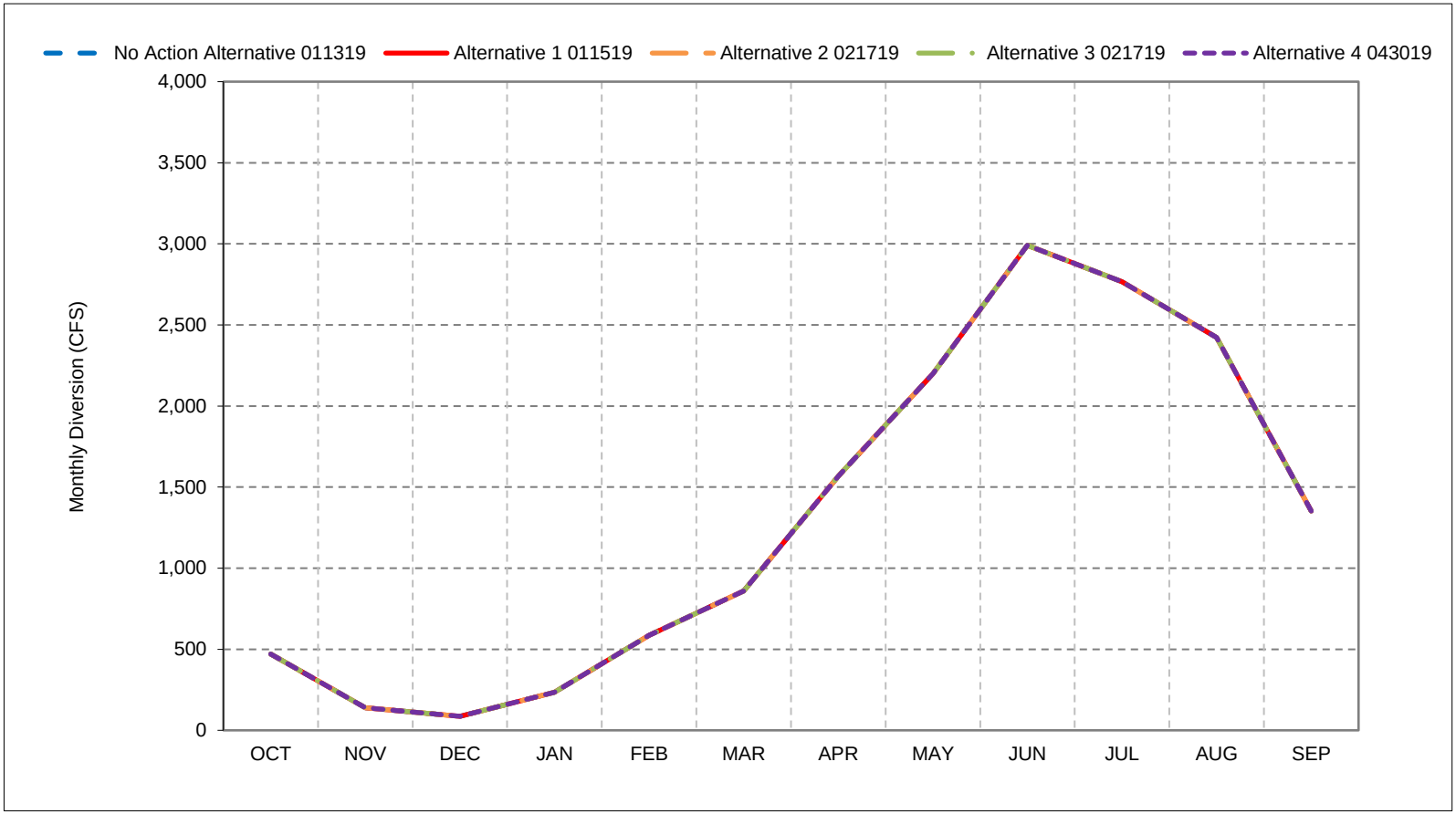

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 50-2. Friant-Kern Canal Diversion, Wet Year Average Diversion



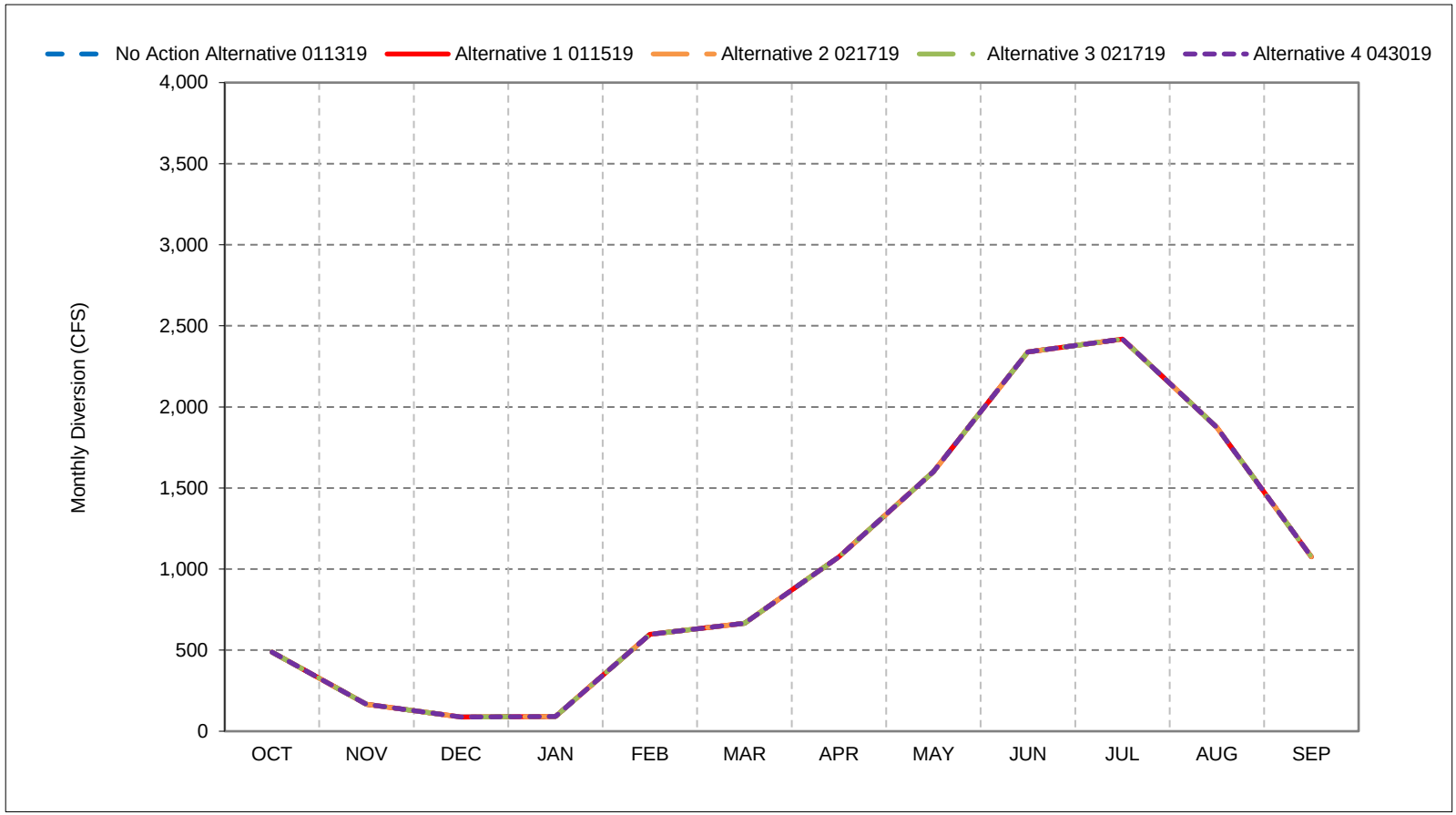

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 50-3. Friant-Kern Canal Diversion, Above Normal Year Average Diversion



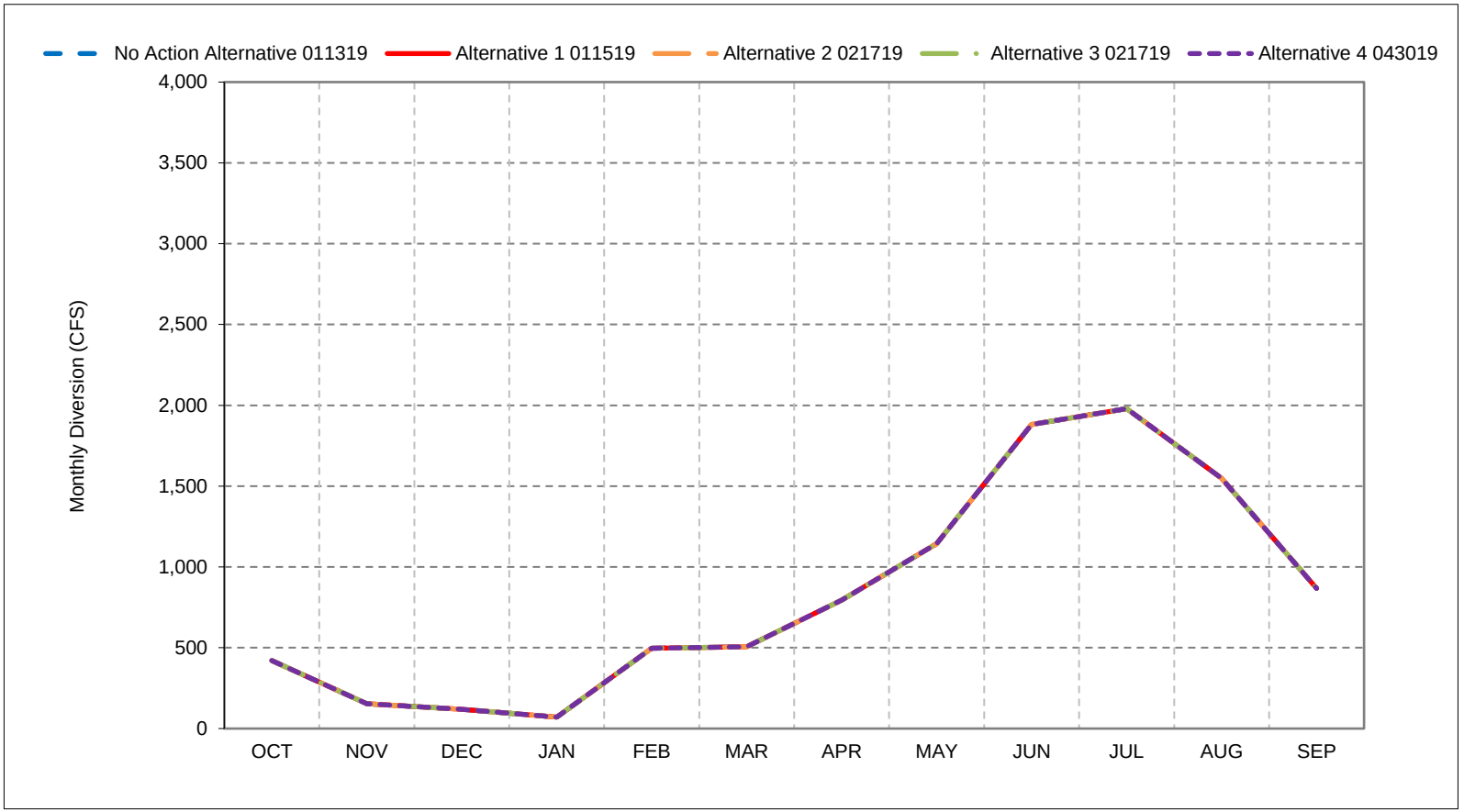

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 50-4. Friant-Kern Canal Diversion, Below Normal Year Average Diversion



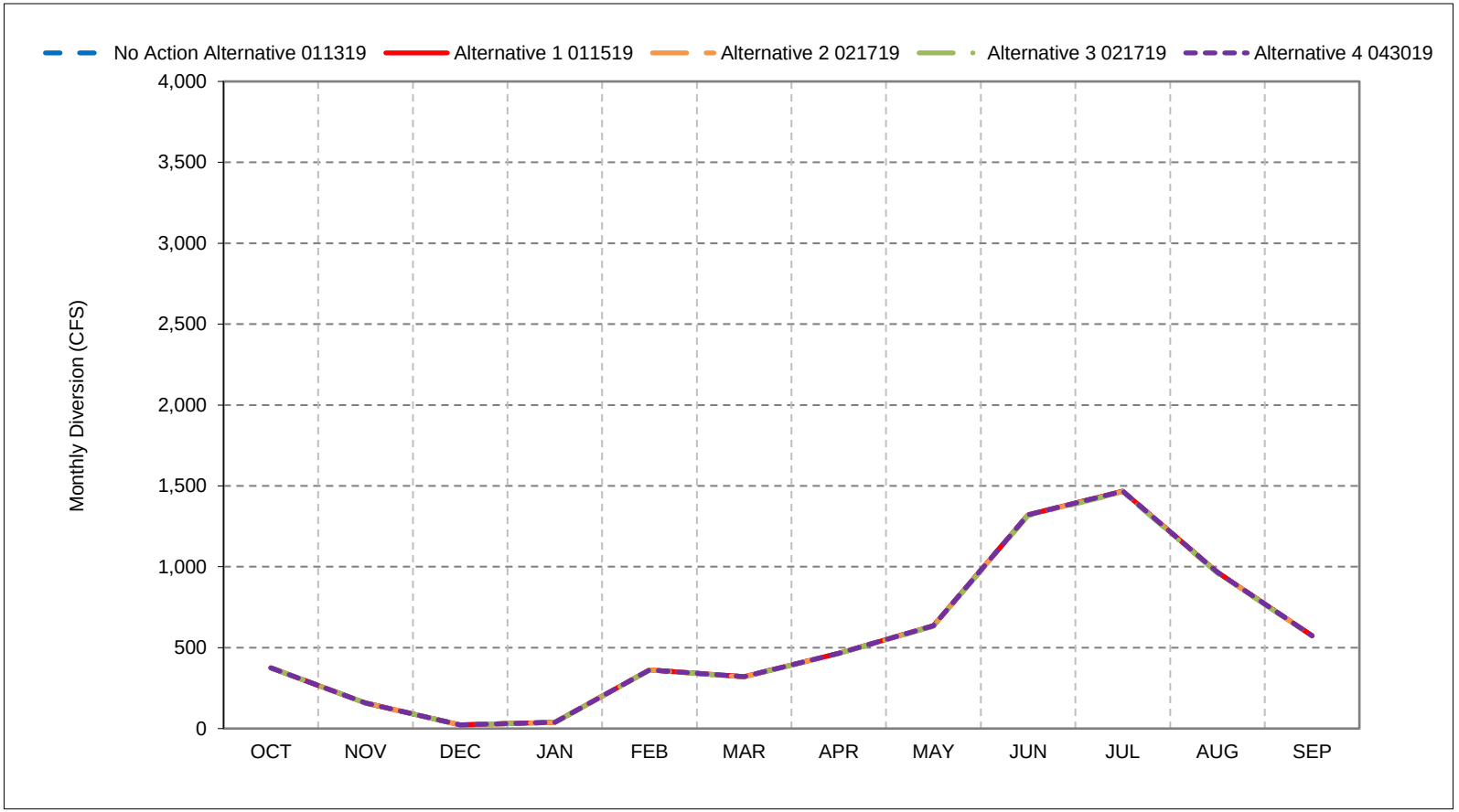

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 50-5. Friant-Kern Canal Diversion, Dry Year Average Diversion



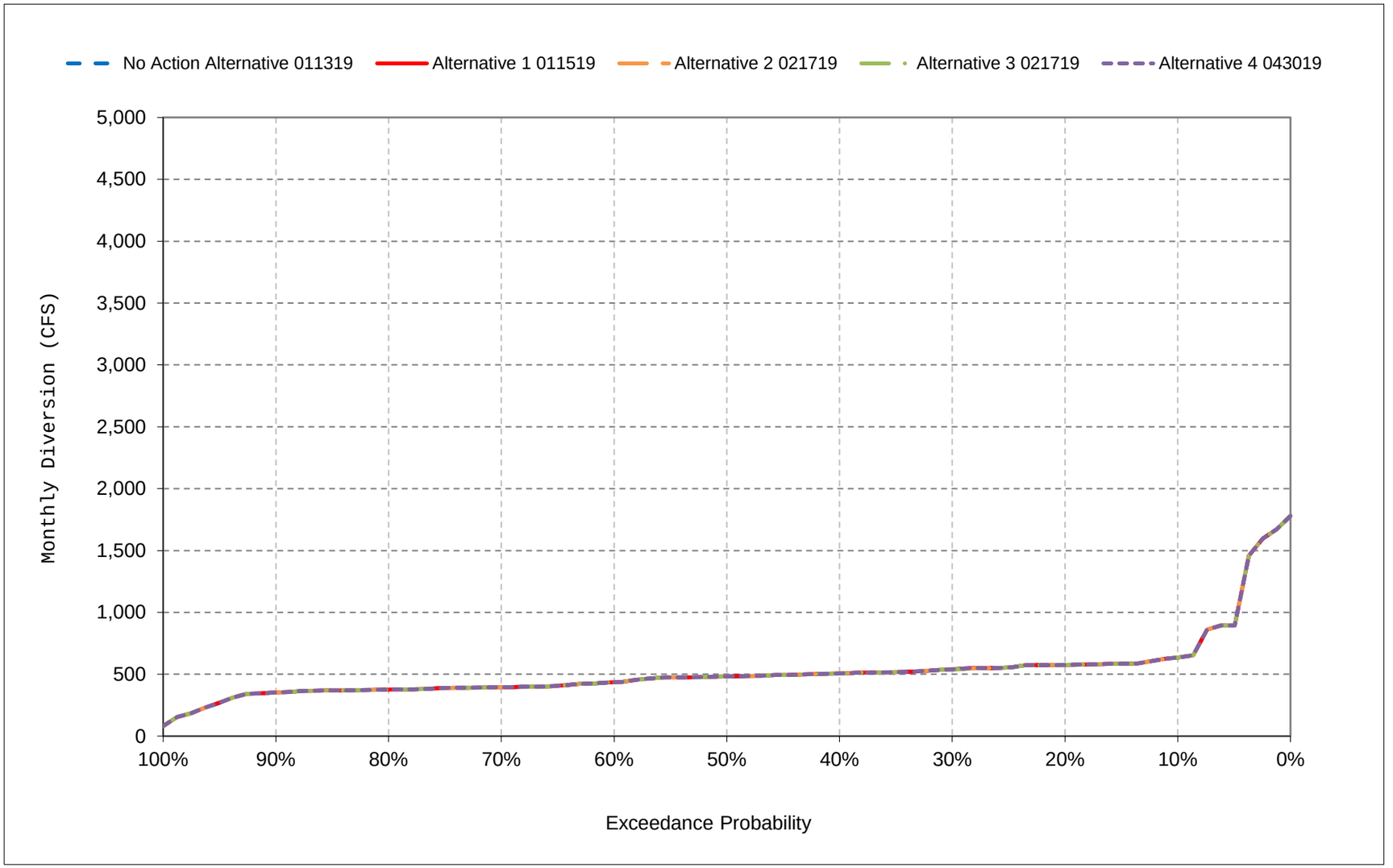

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 50-6. Friant-Kern Canal Diversion, Critical Year Average Diversion




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

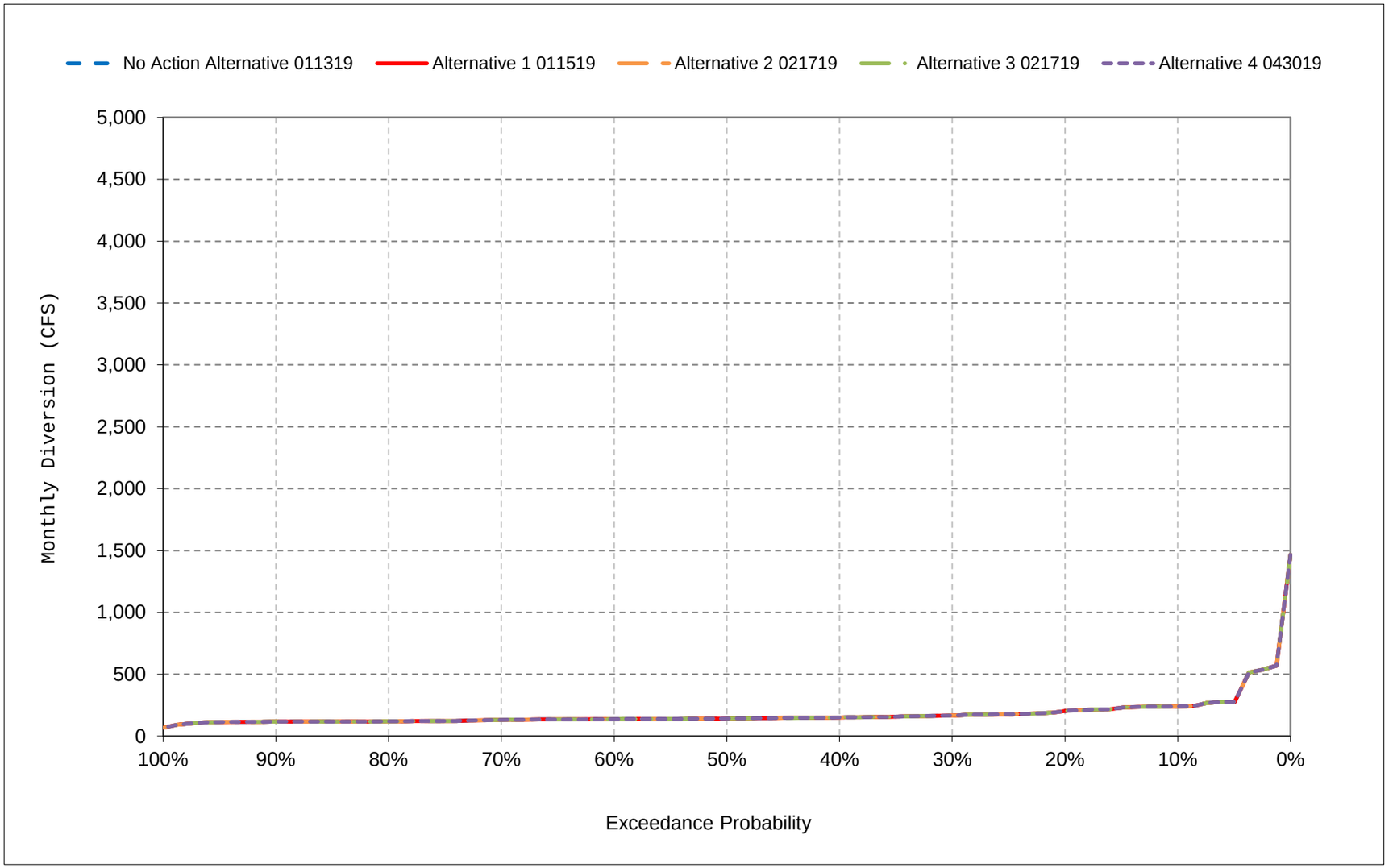
**Figure 50-7. Friant-Kern Canal Diversion, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

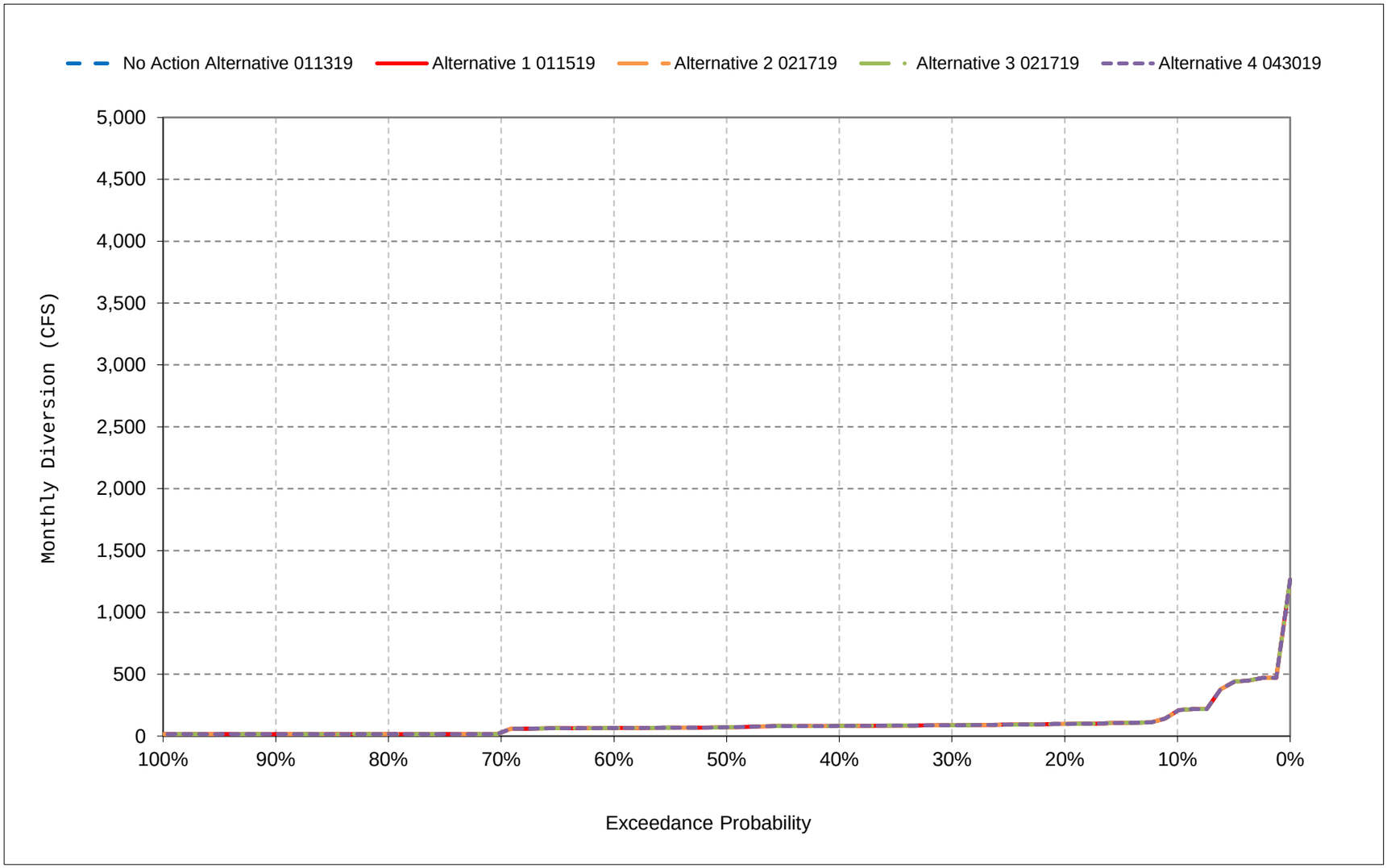
**Figure 50-8. Friant-Kern Canal Diversion, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

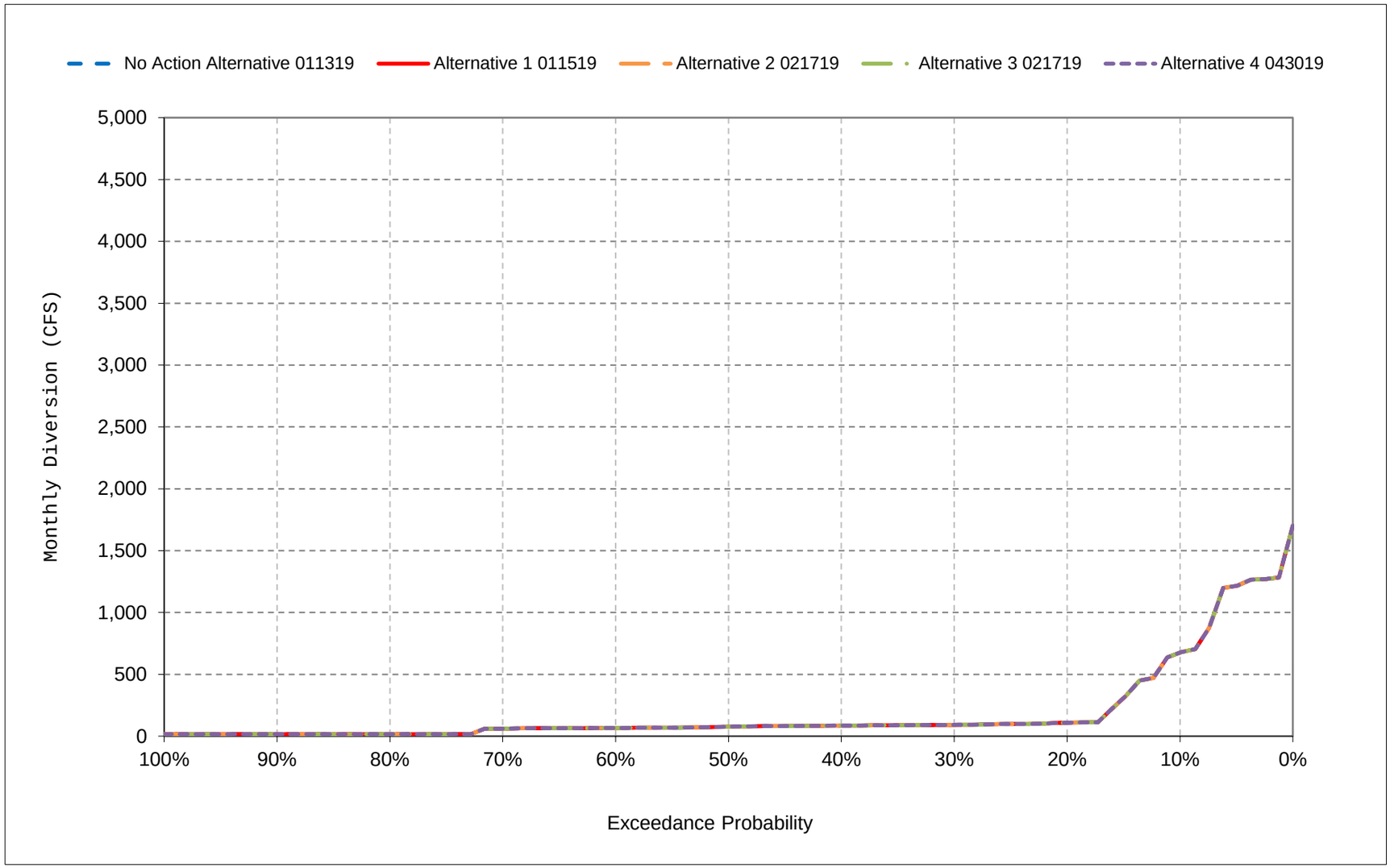
**Figure 50-9. Friant-Kern Canal Diversion, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

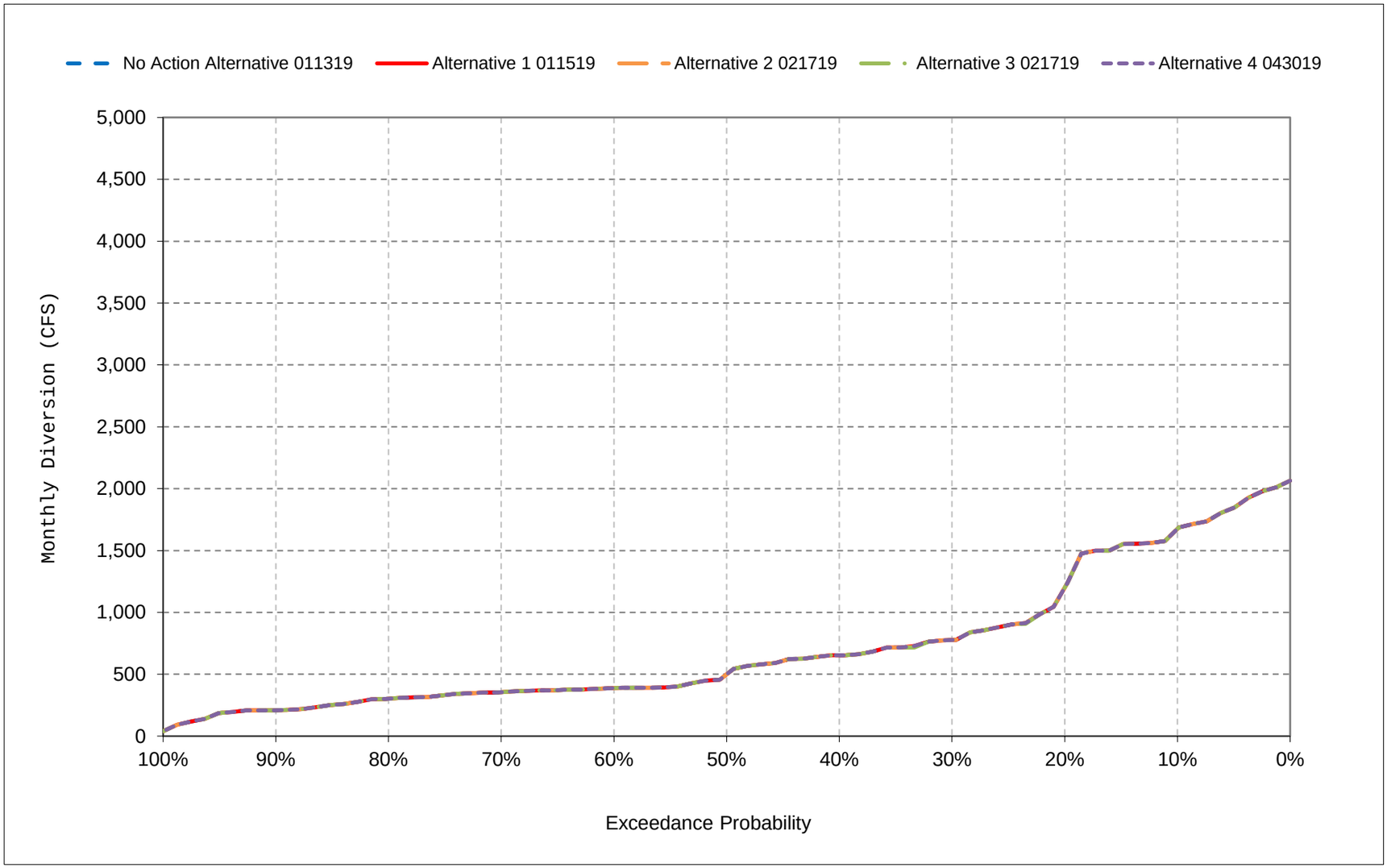
**Figure 50-10. Friant-Kern Canal Diversion, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

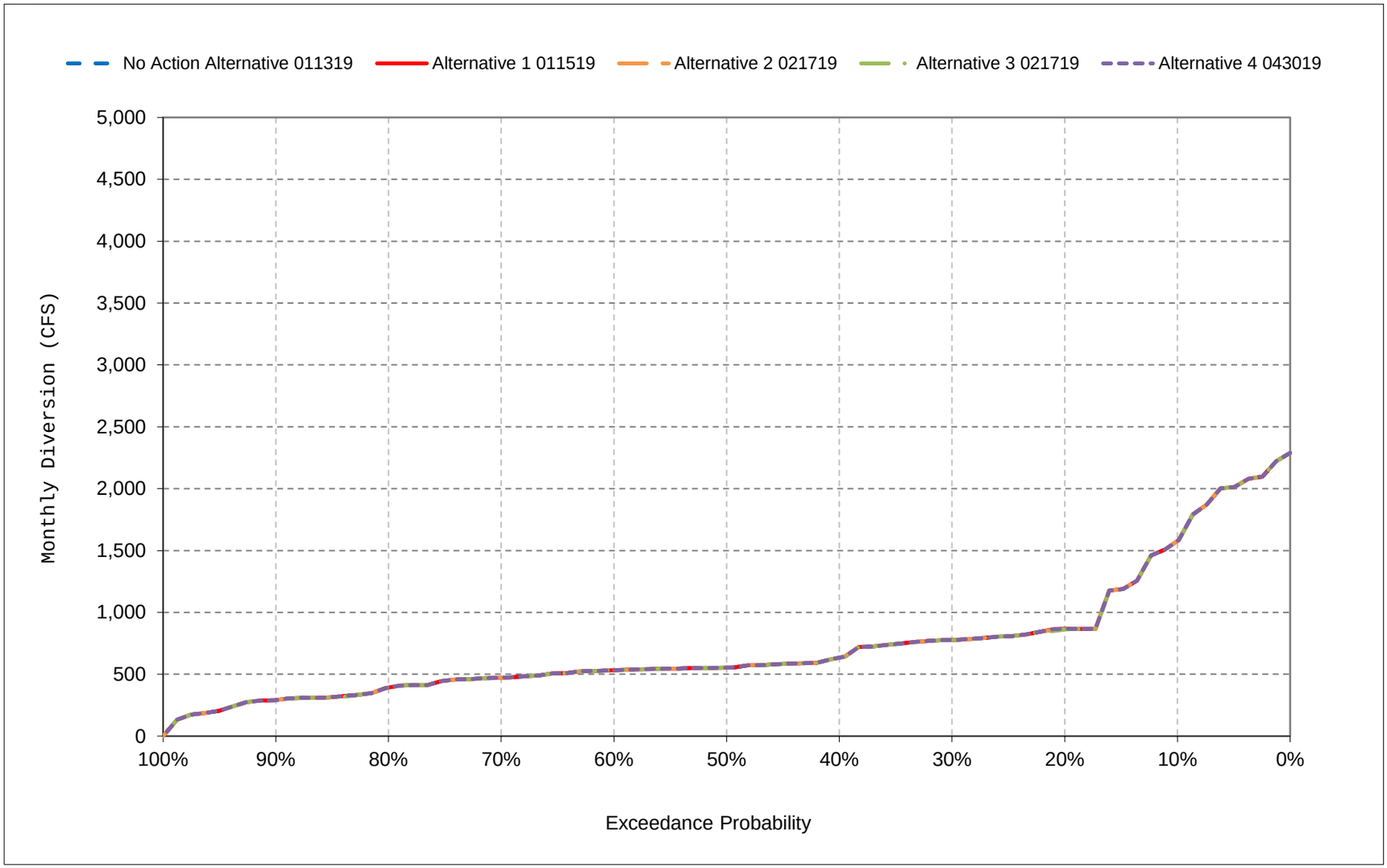
**Figure 50-11. Friant-Kern Canal Diversion, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

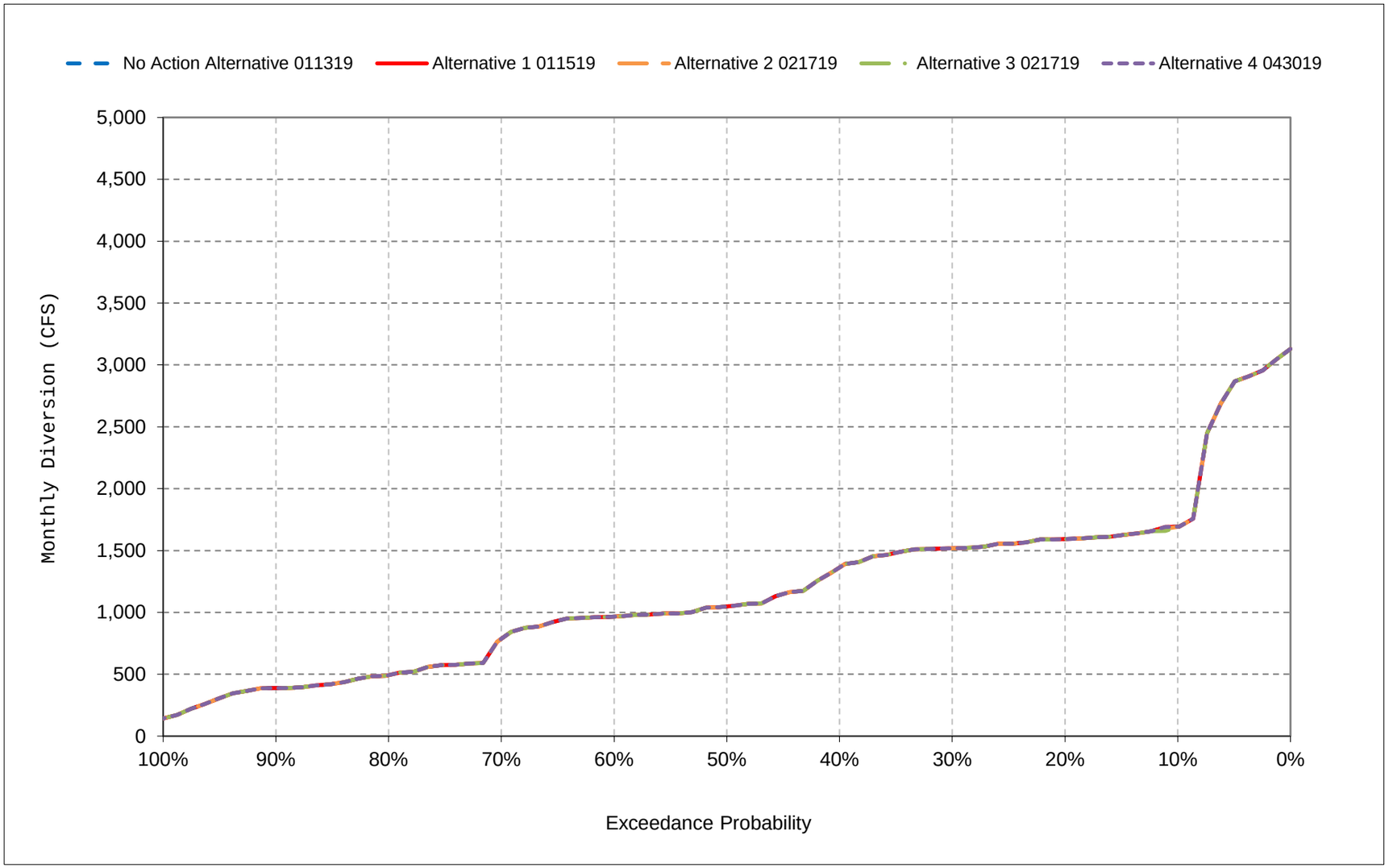
**Figure 50-12. Friant-Kern Canal Diversion, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

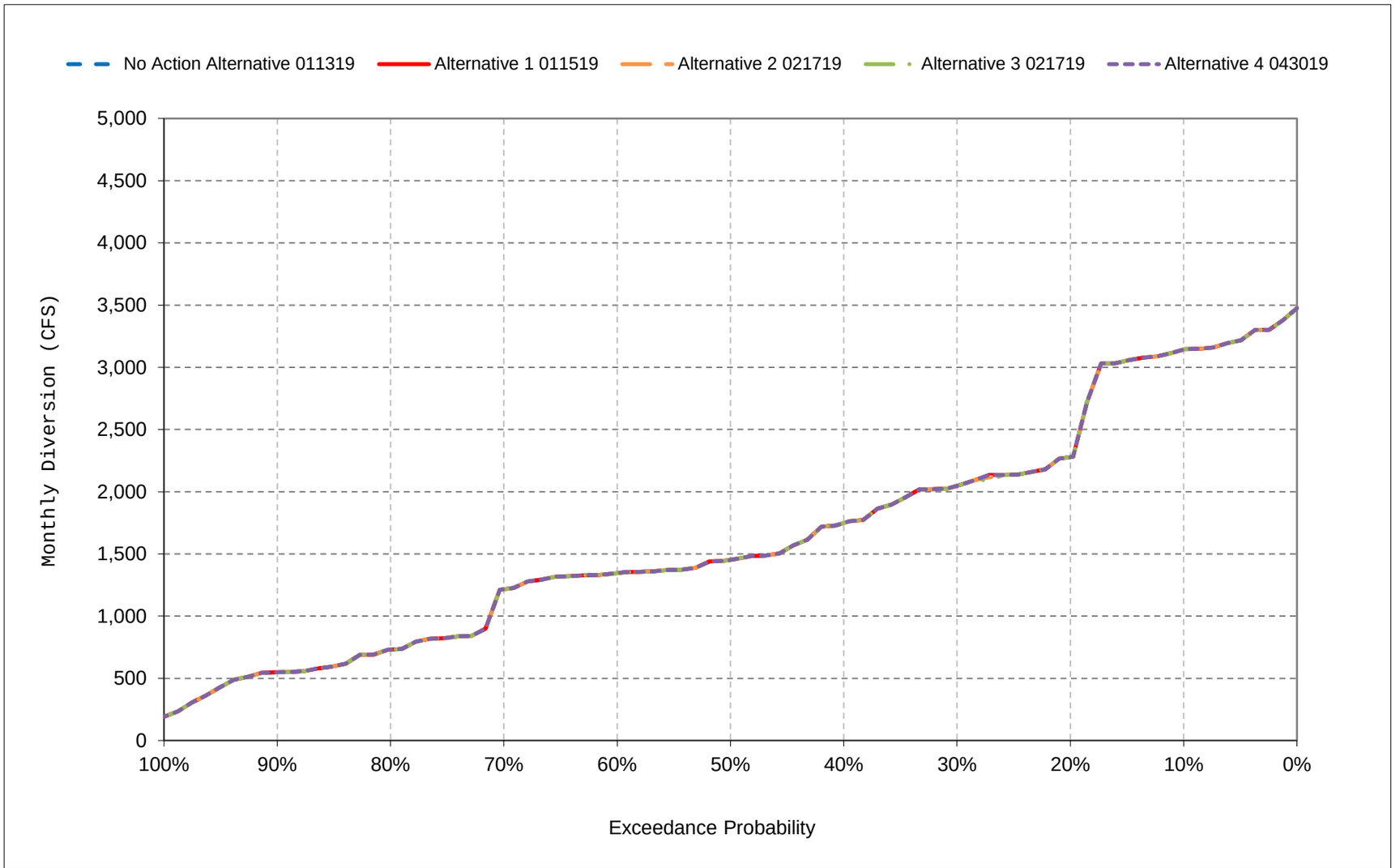
**Figure 50-13. Friant-Kern Canal Diversion, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

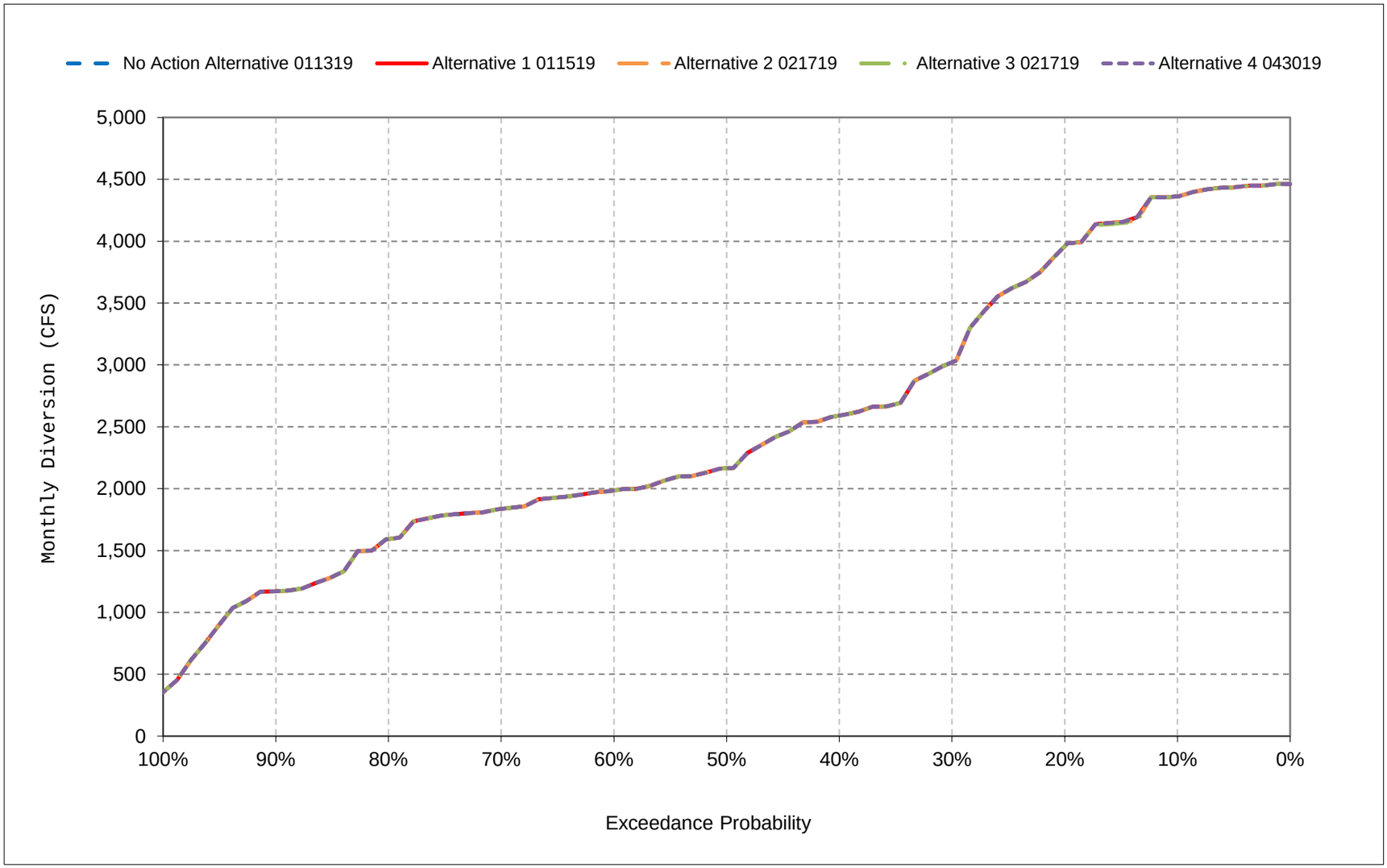
**Figure 50-14. Friant-Kern Canal Diversion, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

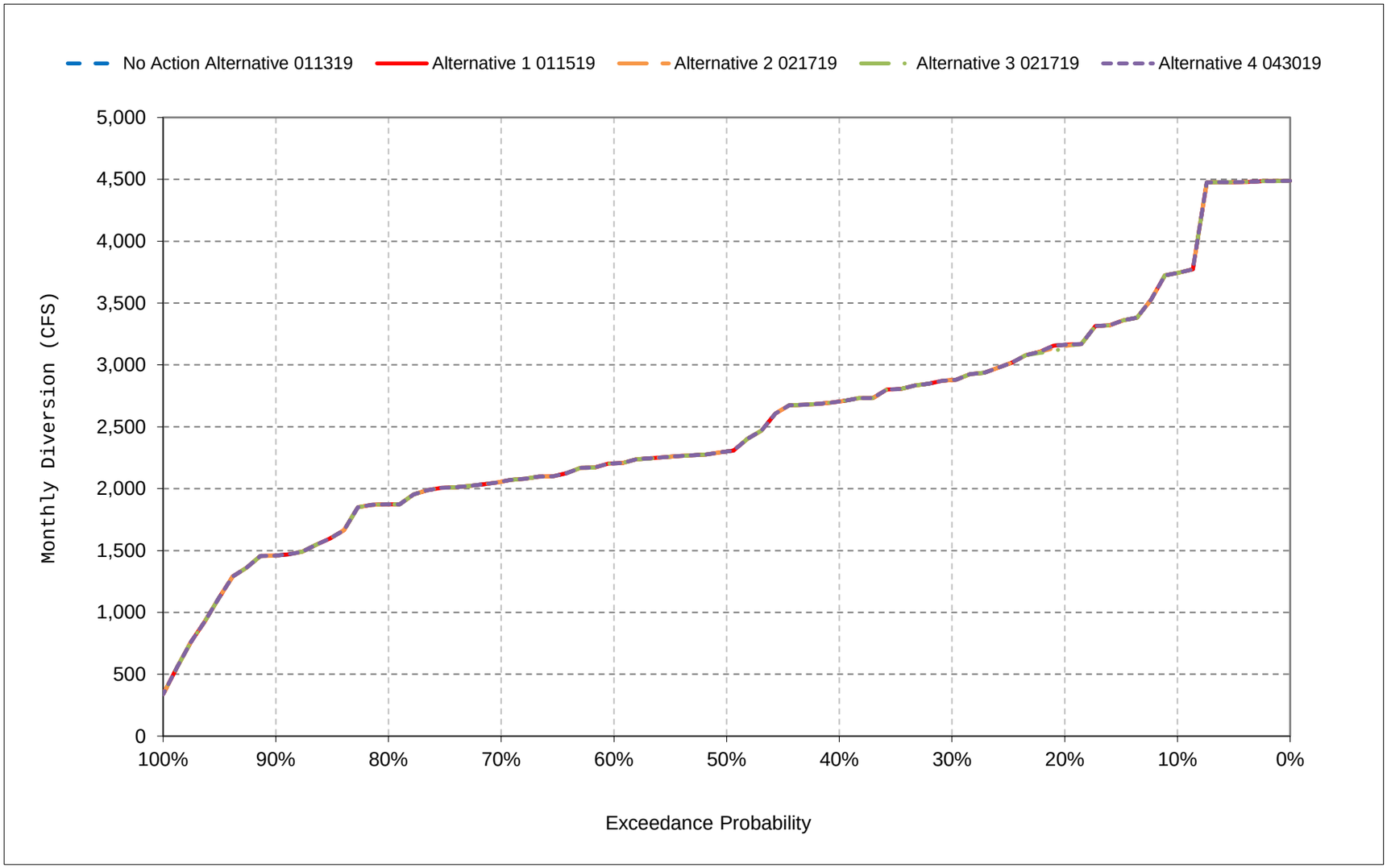
**Figure 50-15. Friant-Kern Canal Diversion, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

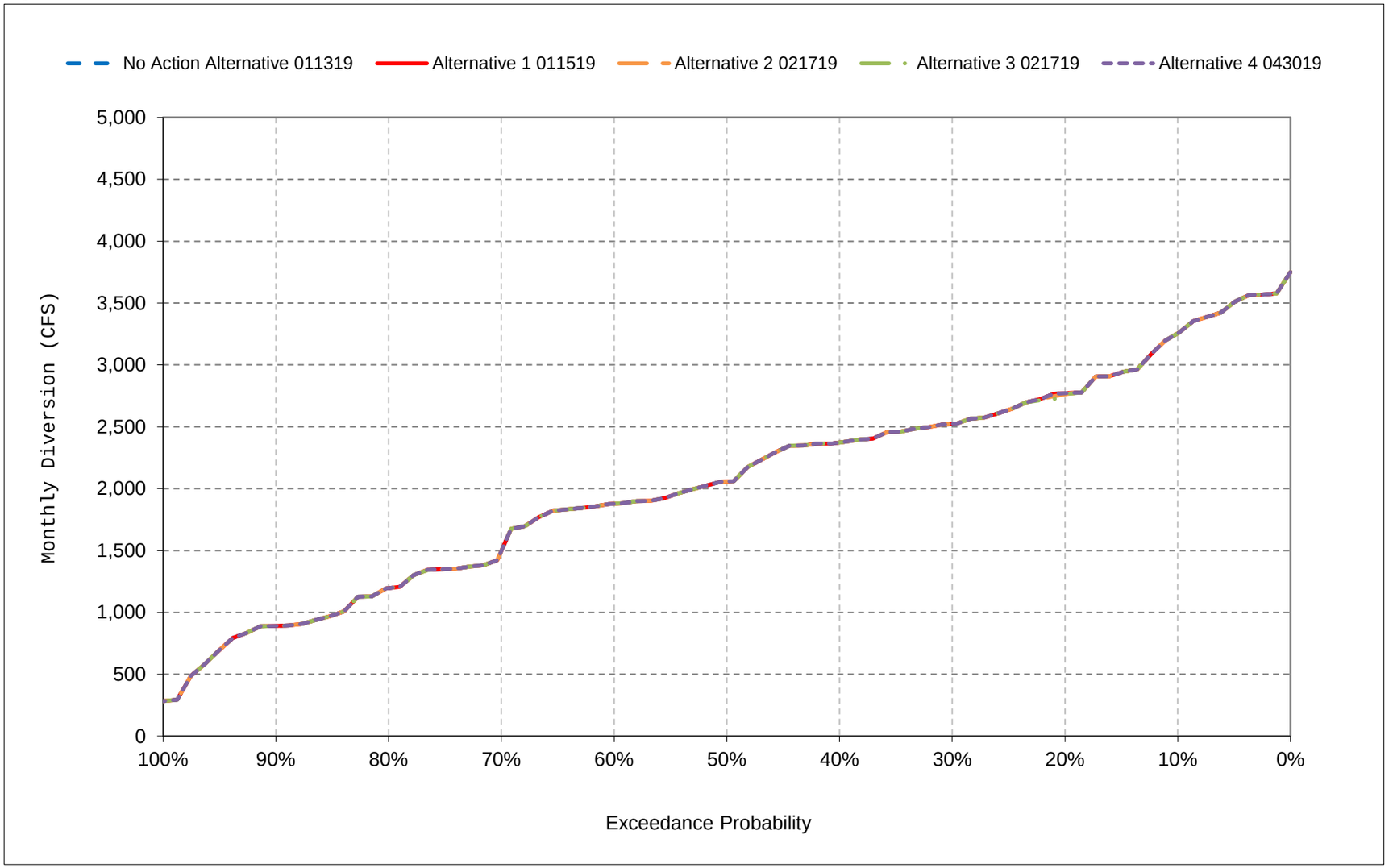
**Figure 50-16. Friant-Kern Canal Diversion, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

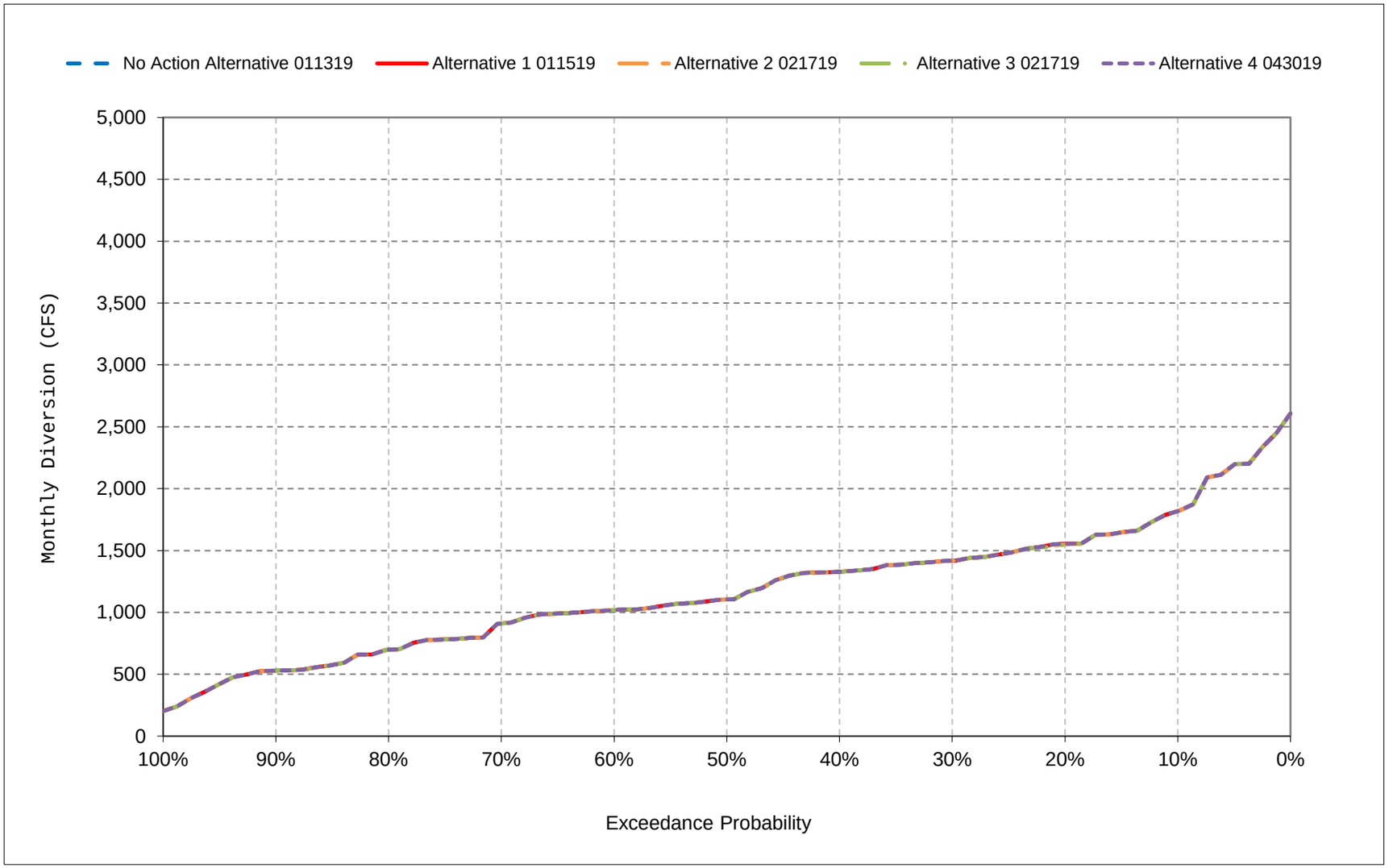
**Figure 50-17. Friant-Kern Canal Diversion, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 50-18. Friant-Kern Canal Diversion, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 51-1. Madera Canal Diversion, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 44 | 9 | 1 | 33 | 100 | 121 | 333 | 996 | 1,250 | 1,250 | 1,106 | 424 |
| 20% | 38 | 1 | 0 | 1 | 48 | 89 | 299 | 823 | 1,161 | 1,233 | 924 | 332 |
| 30% | 0 | 0 | 0 | 0 | 20 | 31 | 46 | 618 | 1,042 | 1,112 | 859 | 260 |
| 40% | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 558 | 953 | 1,009 | 807 | 134 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 257 | 740 | 899 | 621 | 110 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 227 | 677 | 823 | 565 | 91 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 207 | 604 | 735 | 497 | 86 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 175 | 509 | 620 | 410 | 74 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 379 | 463 | 321 | 50 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 18 | 3 | 11 | 25 | 32 | 40 | 103 | 469 | 803 | 886 | 676 | 193 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 46 | 9 | 21 | 68 | 63 | 89 | 202 | 800 | 1,077 | 1,130 | 950 | 333 |
| Above Normal (16%) | 14 | 1 | 0 | 19 | 47 | 38 | 108 | 535 | 937 | 1,030 | 784 | 193 |
| Below Normal (13%) | 7 | 0 | 0 | 0 | 26 | 25 | 90 | 366 | 749 | 869 | 586 | 178 |
| Dry (24%) | 0 | 0 | 19 | 0 | 4 | 4 | 25 | 234 | 627 | 738 | 510 | 79 |
| Critical (15%) | 3 | 0 | 0 | 0 | 2 | 9 | 28 | 167 | 406 | 465 | 325 | 94 |

## Alternative 1 011519

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 44 | 9 | 1 | 33 | 100 | 121 | 333 | 996 | 1,250 | 1,250 | 1,106 | 424 |
| 20% | 38 | 1 | 0 | 1 | 48 | 89 | 299 | 823 | 1,161 | 1,233 | 924 | 332 |
| 30% | 0 | 0 | 0 | 0 | 20 | 31 | 46 | 618 | 1,042 | 1,112 | 859 | 260 |
| 40% | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 558 | 953 | 1,009 | 807 | 134 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 257 | 740 | 899 | 621 | 110 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 227 | 677 | 823 | 565 | 91 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 207 | 604 | 735 | 497 | 86 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 175 | 509 | 620 | 410 | 74 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 379 | 463 | 321 | 50 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 18 | 3 | 11 | 25 | 32 | 40 | 103 | 469 | 803 | 886 | 676 | 193 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 46 | 9 | 21 | 68 | 63 | 89 | 202 | 800 | 1,077 | 1,130 | 950 | 333 |
| Above Normal (16%) | 14 | 1 | 0 | 19 | 47 | 38 | 108 | 535 | 937 | 1,030 | 784 | 193 |
| Below Normal (13%) | 7 | 0 | 0 | 0 | 26 | 25 | 90 | 366 | 749 | 869 | 586 | 178 |
| Dry (24%) | 0 | 0 | 19 | 0 | 4 | 4 | 25 | 234 | 627 | 738 | 510 | 79 |
| Critical (15%) | 3 | 0 | 0 | 0 | 2 | 9 | 28 | 167 | 406 | 465 | 325 | 94 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 51-2. Madera Canal Diversion, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 44 | 9 | 1 | 33 | 100 | 121 | 333 | 996 | 1,250 | 1,250 | 1,106 | 424 |
| 20% | 38 | 1 | 0 | 1 | 48 | 89 | 299 | 823 | 1,161 | 1,233 | 924 | 332 |
| 30% | 0 | 0 | 0 | 0 | 20 | 31 | 46 | 618 | 1,042 | 1,112 | 859 | 260 |
| 40% | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 558 | 953 | 1,009 | 807 | 134 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 257 | 740 | 899 | 621 | 110 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 227 | 677 | 823 | 565 | 91 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 207 | 604 | 735 | 497 | 86 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 175 | 509 | 620 | 410 | 74 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 379 | 463 | 321 | 50 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 18 | 3 | 11 | 25 | 32 | 40 | 103 | 469 | 803 | 886 | 676 | 193 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 46 | 9 | 21 | 68 | 63 | 89 | 202 | 800 | 1,077 | 1,130 | 950 | 333 |
| Above Normal (16%) | 14 | 1 | 0 | 19 | 47 | 38 | 108 | 535 | 937 | 1,030 | 784 | 193 |
| Below Normal (13%) | 7 | 0 | 0 | 0 | 26 | 25 | 90 | 366 | 749 | 869 | 586 | 178 |
| Dry (24%) | 0 | 0 | 19 | 0 | 4 | 4 | 25 | 234 | 627 | 738 | 510 | 79 |
| Critical (15%) | 3 | 0 | 0 | 0 | 2 | 9 | 28 | 167 | 406 | 465 | 325 | 94 |

## Alternative 2 021719

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 44 | 9 | 1 | 33 | 100 | 121 | 329 | 996 | 1,250 | 1,250 | 1,106 | 424 |
| 20% | 38 | 1 | 0 | 1 | 48 | 89 | 299 | 823 | 1,161 | 1,233 | 924 | 332 |
| 30% | 0 | 0 | 0 | 0 | 20 | 31 | 46 | 618 | 1,042 | 1,112 | 859 | 260 |
| 40% | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 558 | 953 | 1,009 | 807 | 134 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 257 | 740 | 899 | 621 | 110 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 227 | 677 | 823 | 565 | 91 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 207 | 604 | 735 | 497 | 86 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 175 | 509 | 620 | 410 | 74 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 379 | 463 | 321 | 50 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 18 | 3 | 11 | 25 | 32 | 40 | 103 | 469 | 803 | 886 | 676 | 193 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 46 | 9 | 21 | 68 | 63 | 89 | 202 | 800 | 1,077 | 1,130 | 950 | 333 |
| Above Normal (16%) | 14 | 1 | 0 | 19 | 47 | 38 | 108 | 535 | 937 | 1,030 | 784 | 193 |
| Below Normal (13%) | 7 | 0 | 0 | 0 | 26 | 25 | 90 | 366 | 749 | 869 | 586 | 178 |
| Dry (24%) | 0 | 0 | 19 | 0 | 4 | 4 | 25 | 234 | 627 | 738 | 510 | 79 |
| Critical (15%) | 3 | 0 | 0 | 0 | 2 | 9 | 27 | 167 | 405 | 464 | 324 | 93 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | **-4** | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | **0** | 0 | 0 | 0 | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | **0** | **0** | 0 | 0 | 0 | **0** | **0** | **-1** | **-1** | **-1** | **-1** | **0** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 51-3. Madera Canal Diversion, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 44 | 9 | 1 | 33 | 100 | 121 | 333 | 996 | 1,250 | 1,250 | 1,106 | 424 |
| 20% | 38 | 1 | 0 | 1 | 48 | 89 | 299 | 823 | 1,161 | 1,233 | 924 | 332 |
| 30% | 0 | 0 | 0 | 0 | 20 | 31 | 46 | 618 | 1,042 | 1,112 | 859 | 260 |
| 40% | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 558 | 953 | 1,009 | 807 | 134 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 257 | 740 | 899 | 621 | 110 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 227 | 677 | 823 | 565 | 91 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 207 | 604 | 735 | 497 | 86 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 175 | 509 | 620 | 410 | 74 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 379 | 463 | 321 | 50 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 18 | 3 | 11 | 25 | 32 | 40 | 103 | 469 | 803 | 886 | 676 | 193 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 46 | 9 | 21 | 68 | 63 | 89 | 202 | 800 | 1,077 | 1,130 | 950 | 333 |
| Above Normal (16%) | 14 | 1 | 0 | 19 | 47 | 38 | 108 | 535 | 937 | 1,030 | 784 | 193 |
| Below Normal (13%) | 7 | 0 | 0 | 0 | 26 | 25 | 90 | 366 | 749 | 869 | 586 | 178 |
| Dry (24%) | 0 | 0 | 19 | 0 | 4 | 4 | 25 | 234 | 627 | 738 | 510 | 79 |
| Critical (15%) | 3 | 0 | 0 | 0 | 2 | 9 | 28 | 167 | 406 | 465 | 325 | 94 |

## Alternative 3 021719

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 44 | 9 | 1 | 33 | 100 | 121 | 326 | 996 | 1,250 | 1,250 | 1,106 | 424 |
| 20% | 38 | 1 | 0 | 1 | 48 | 89 | 299 | 823 | 1,161 | 1,233 | 924 | 332 |
| 30% | 0 | 0 | 0 | 0 | 20 | 31 | 46 | 618 | 1,042 | 1,112 | 859 | 260 |
| 40% | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 558 | 953 | 1,001 | 807 | 134 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 257 | 740 | 899 | 621 | 110 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 227 | 677 | 823 | 565 | 91 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 207 | 604 | 735 | 497 | 86 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 175 | 509 | 620 | 410 | 74 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 379 | 463 | 321 | 50 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 18 | 3 | 11 | 25 | 32 | 40 | 103 | 469 | 803 | 886 | 676 | 193 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 46 | 9 | 21 | 68 | 63 | 89 | 202 | 800 | 1,077 | 1,130 | 950 | 333 |
| Above Normal (16%) | 14 | 1 | 0 | 19 | 47 | 38 | 108 | 535 | 937 | 1,030 | 784 | 193 |
| Below Normal (13%) | 7 | 0 | 0 | 0 | 26 | 25 | 90 | 366 | 749 | 869 | 586 | 178 |
| Dry (24%) | 0 | 0 | 19 | 0 | 4 | 4 | 25 | 234 | 627 | 738 | 510 | 79 |
| Critical (15%) | 3 | 0 | 0 | 0 | 2 | 9 | 27 | 166 | 404 | 462 | 323 | 93 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | **-7** | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **-8** | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | **0** | **0** | 0 | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 |
| Below Normal (13%) | 0 | 0 | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Critical (15%) | **0** | **0** | 0 | 0 | 0 | **0** | **-1** | **-1** | **-2** | **-2** | **-2** | **-1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 51-4. Madera Canal Diversion, Monthly Diversion

## No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 44 | 9 | 1 | 33 | 100 | 121 | 333 | 996 | 1,250 | 1,250 | 1,106 | 424 |
| 20% | 38 | 1 | 0 | 1 | 48 | 89 | 299 | 823 | 1,161 | 1,233 | 924 | 332 |
| 30% | 0 | 0 | 0 | 0 | 20 | 31 | 46 | 618 | 1,042 | 1,112 | 859 | 260 |
| 40% | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 558 | 953 | 1,009 | 807 | 134 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 257 | 740 | 899 | 621 | 110 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 227 | 677 | 823 | 565 | 91 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 207 | 604 | 735 | 497 | 86 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 175 | 509 | 620 | 410 | 74 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 379 | 463 | 321 | 50 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 18 | 3 | 11 | 25 | 32 | 40 | 103 | 469 | 803 | 886 | 676 | 193 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 46 | 9 | 21 | 68 | 63 | 89 | 202 | 800 | 1,077 | 1,130 | 950 | 333 |
| Above Normal (16%) | 14 | 1 | 0 | 19 | 47 | 38 | 108 | 535 | 937 | 1,030 | 784 | 193 |
| Below Normal (13%) | 7 | 0 | 0 | 0 | 26 | 25 | 90 | 366 | 749 | 869 | 586 | 178 |
| Dry (24%) | 0 | 0 | 19 | 0 | 4 | 4 | 25 | 234 | 627 | 738 | 510 | 79 |
| Critical (15%) | 3 | 0 | 0 | 0 | 2 | 9 | 28 | 167 | 406 | 465 | 325 | 94 |

## Alternative 4 043019

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 44 | 9 | 1 | 33 | 100 | 121 | 333 | 996 | 1,250 | 1,250 | 1,106 | 424 |
| 20% | 38 | 1 | 0 | 1 | 48 | 89 | 299 | 823 | 1,161 | 1,233 | 924 | 332 |
| 30% | 0 | 0 | 0 | 0 | 20 | 31 | 46 | 618 | 1,042 | 1,112 | 859 | 260 |
| 40% | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 558 | 953 | 1,009 | 807 | 134 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 257 | 740 | 899 | 621 | 110 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 227 | 677 | 823 | 565 | 91 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 207 | 604 | 735 | 497 | 86 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 175 | 509 | 620 | 410 | 74 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 379 | 463 | 321 | 50 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 18 | 3 | 11 | 25 | 32 | 40 | 103 | 469 | 803 | 886 | 676 | 193 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 46 | 9 | 21 | 68 | 63 | 89 | 202 | 800 | 1,077 | 1,130 | 950 | 333 |
| Above Normal (16%) | 14 | 1 | 0 | 19 | 47 | 38 | 108 | 535 | 937 | 1,030 | 784 | 193 |
| Below Normal (13%) | 7 | 0 | 0 | 0 | 26 | 25 | 90 | 366 | 749 | 869 | 586 | 178 |
| Dry (24%) | 0 | 0 | 19 | 0 | 4 | 4 | 25 | 234 | 627 | 738 | 510 | 79 |
| Critical (15%) | 3 | 0 | 0 | 0 | 2 | 9 | 28 | 167 | 406 | 465 | 325 | 94 |

## Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Diversion (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | 0 | 0 | 0 | **0** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Above Normal (16%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 | 0 | **0** |

a Based on the 82-year simulation period.

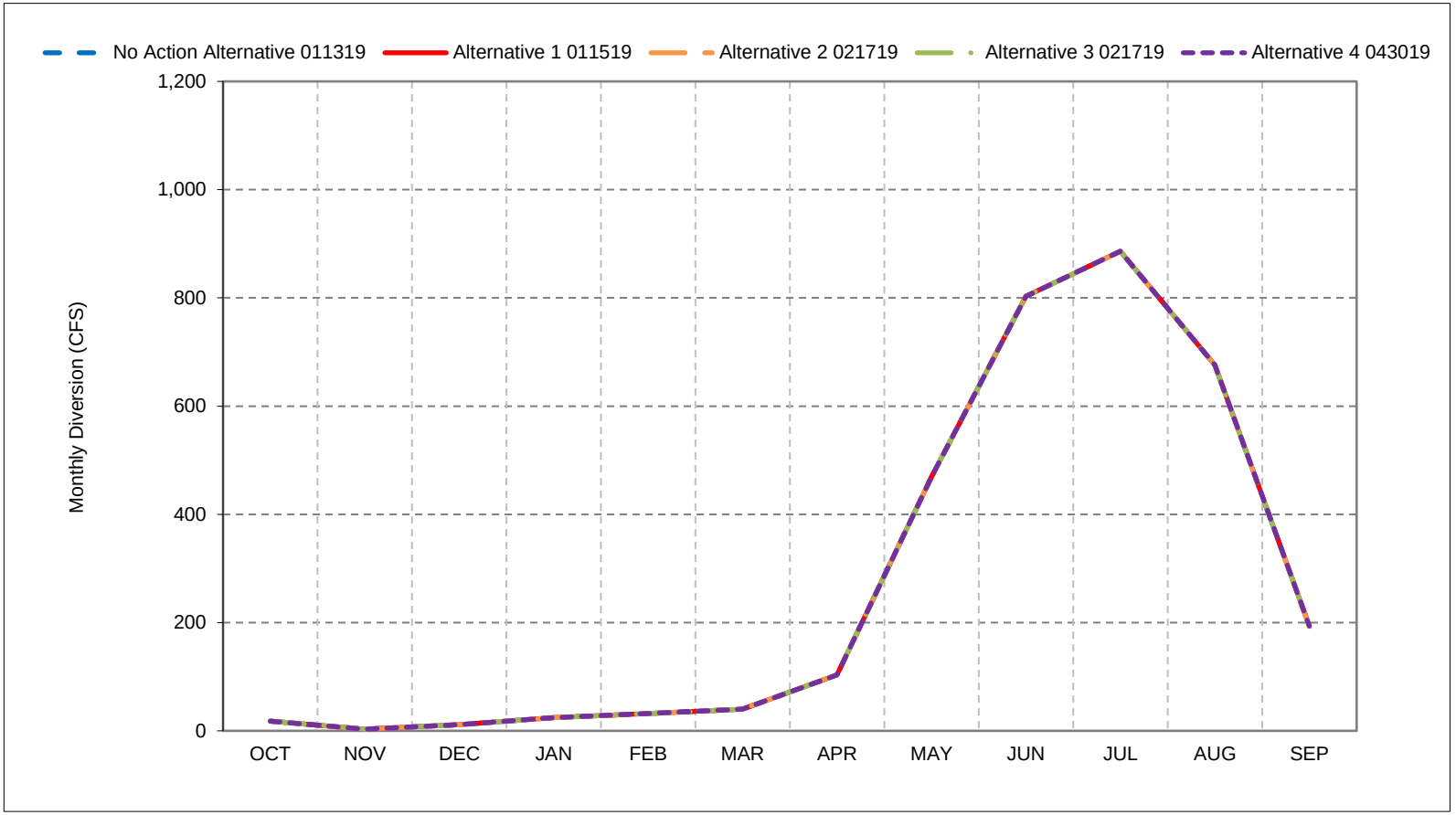
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

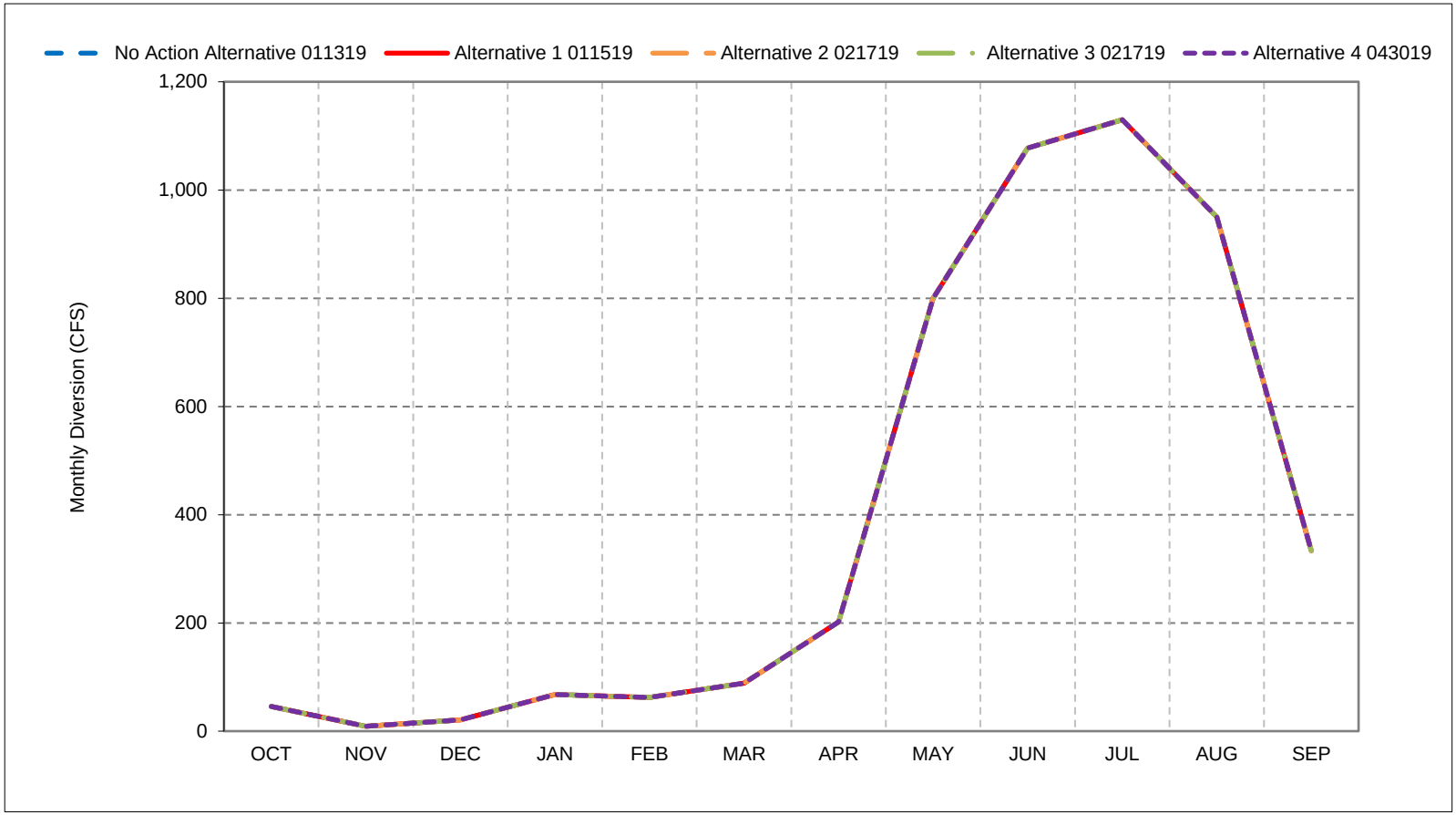
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 51-1. Madera Canal Diversion, Long-Term Average Diversion



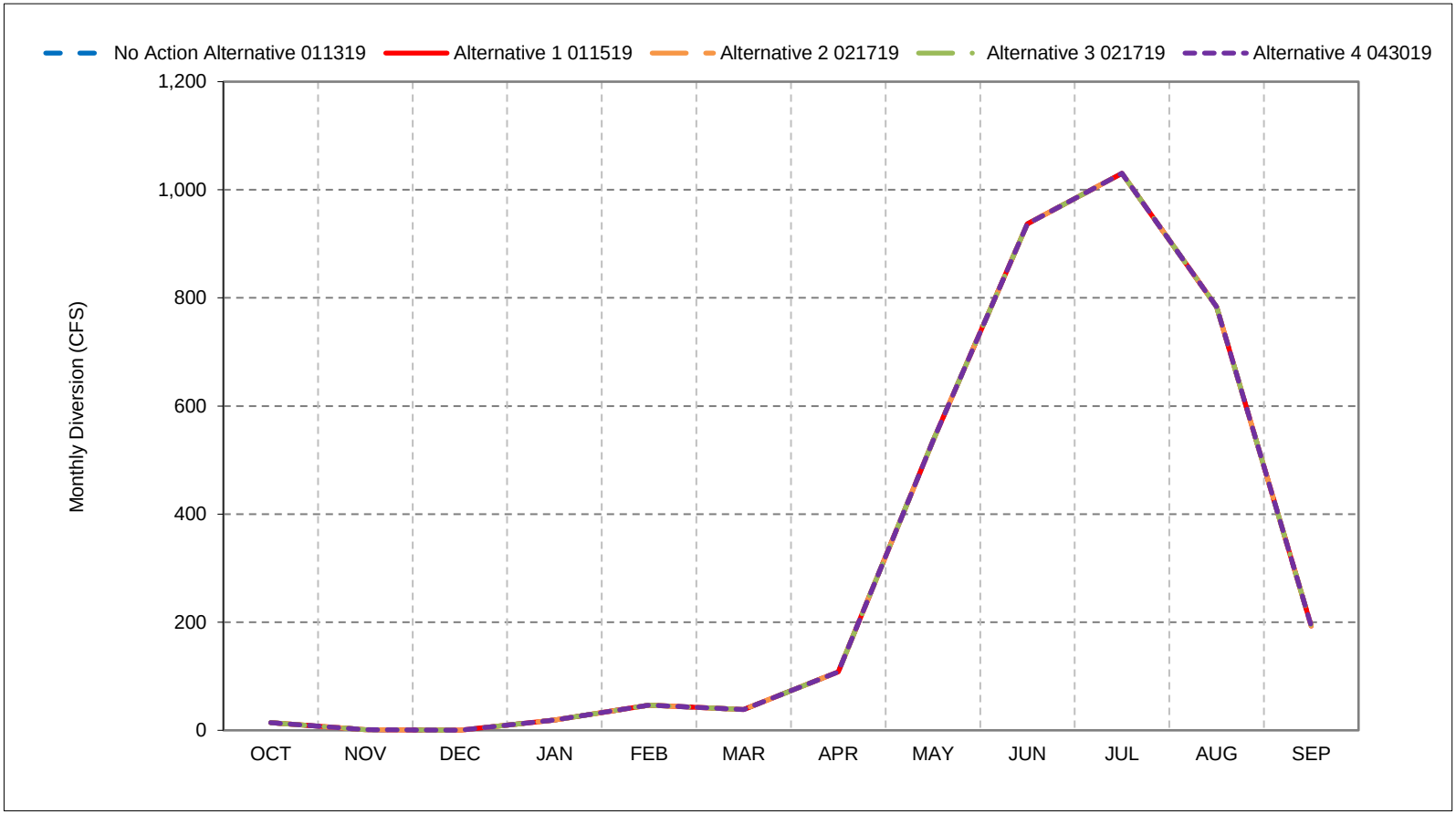

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 51-2. Madera Canal Diversion, Wet Year Average Diversion



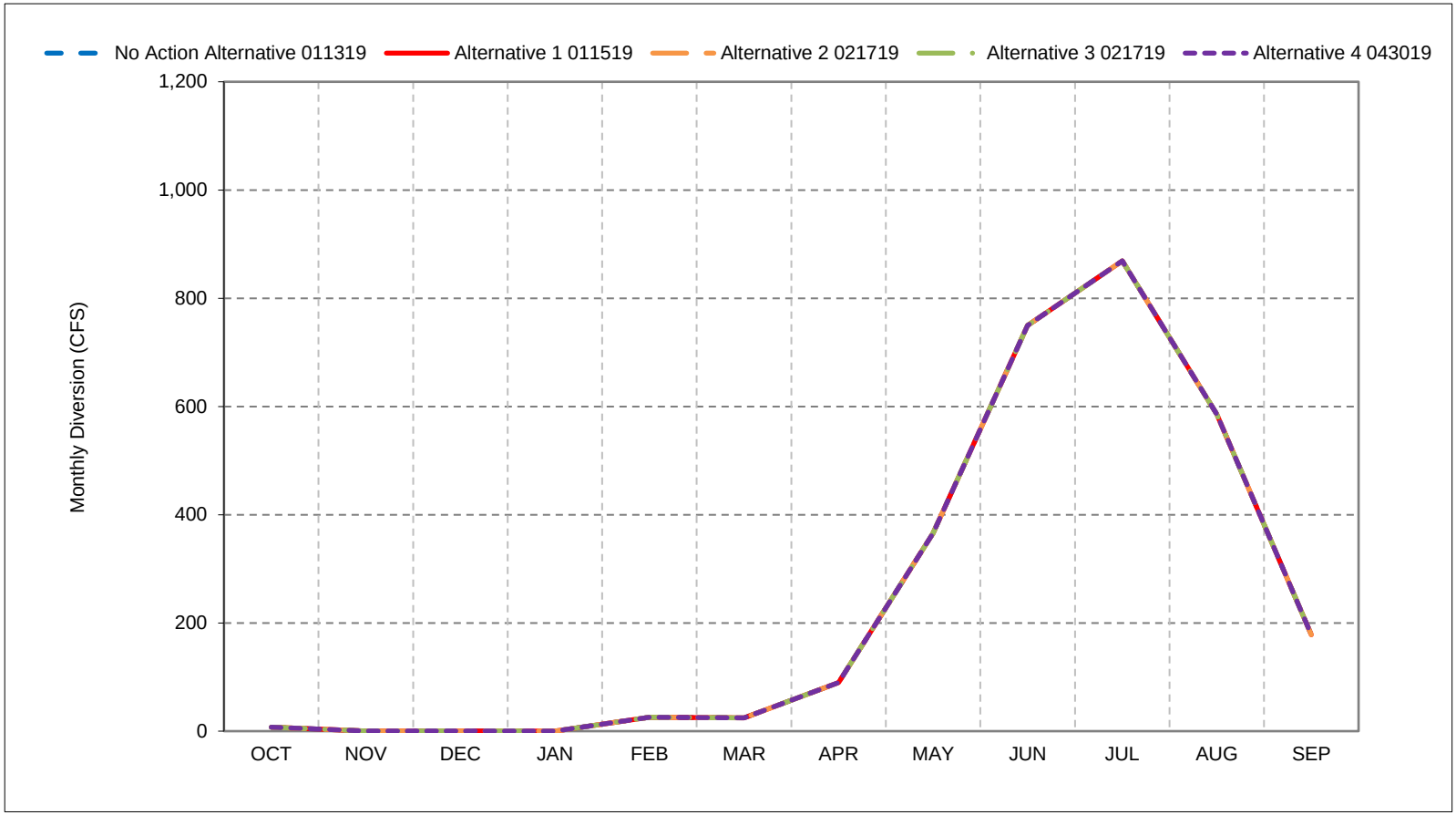

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 51-3. Madera Canal Diversion, Above Normal Year Average Diversion



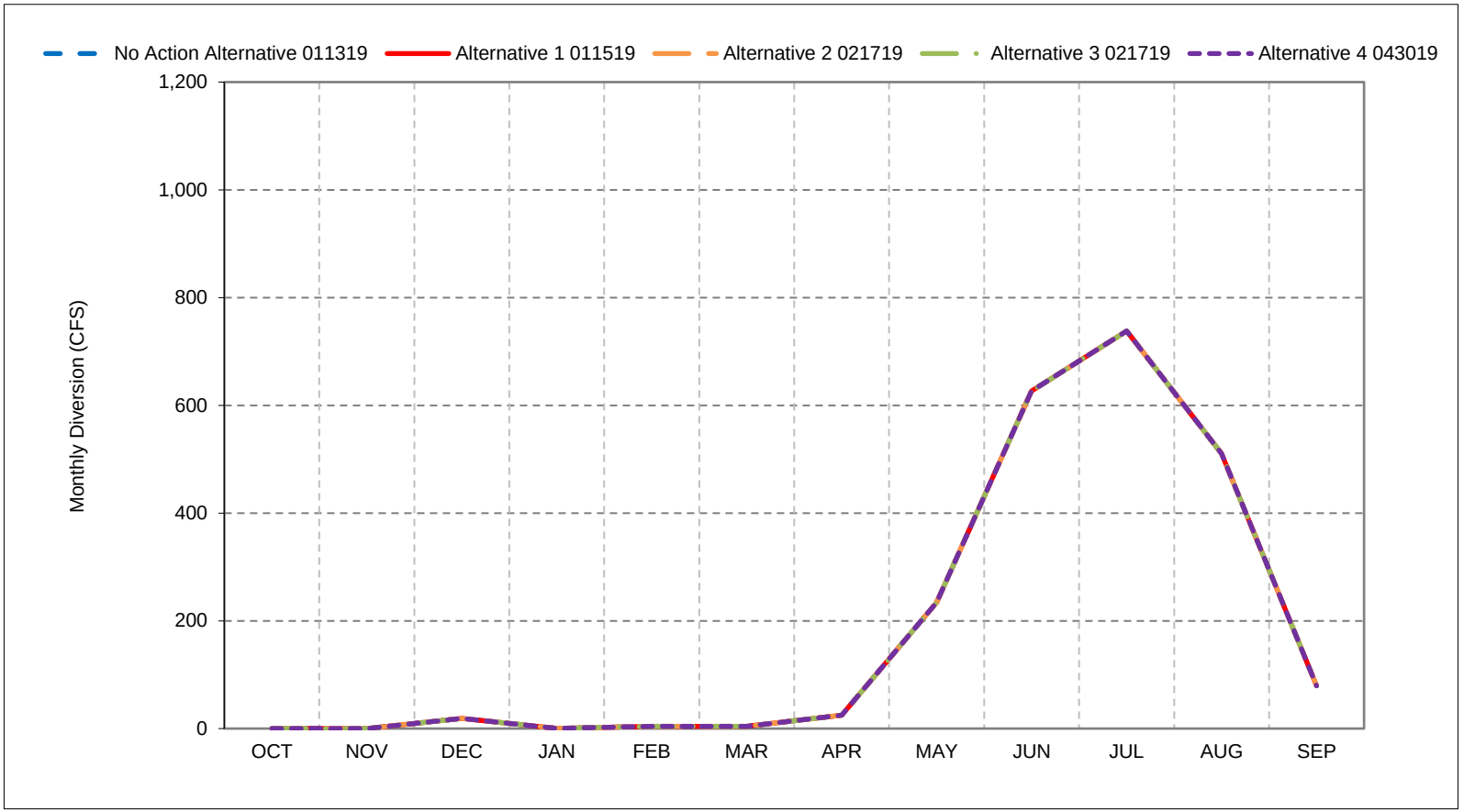

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 51-4. Madera Canal Diversion, Below Normal Year Average Diversion



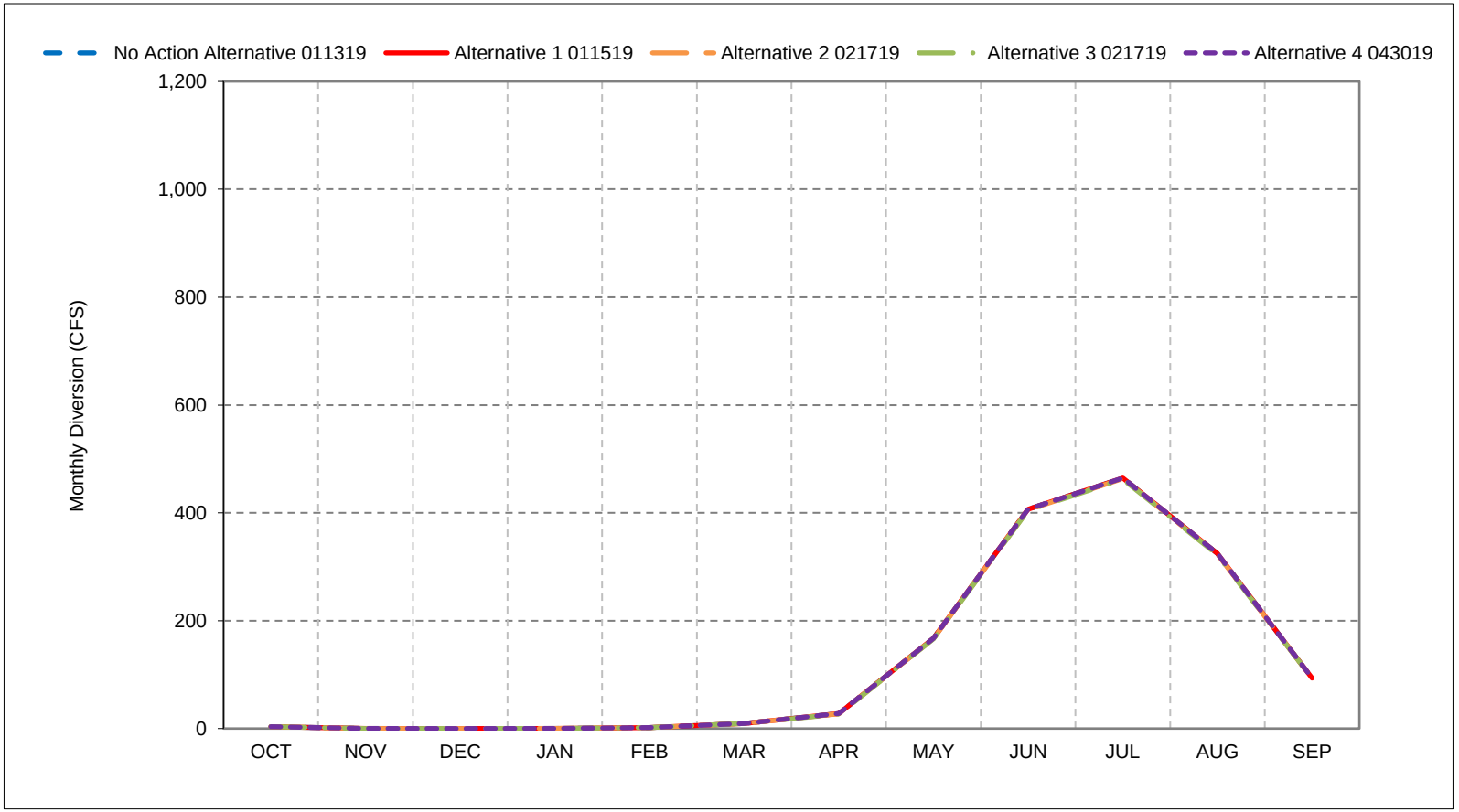

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 51-5. Madera Canal Diversion, Dry Year Average Diversion



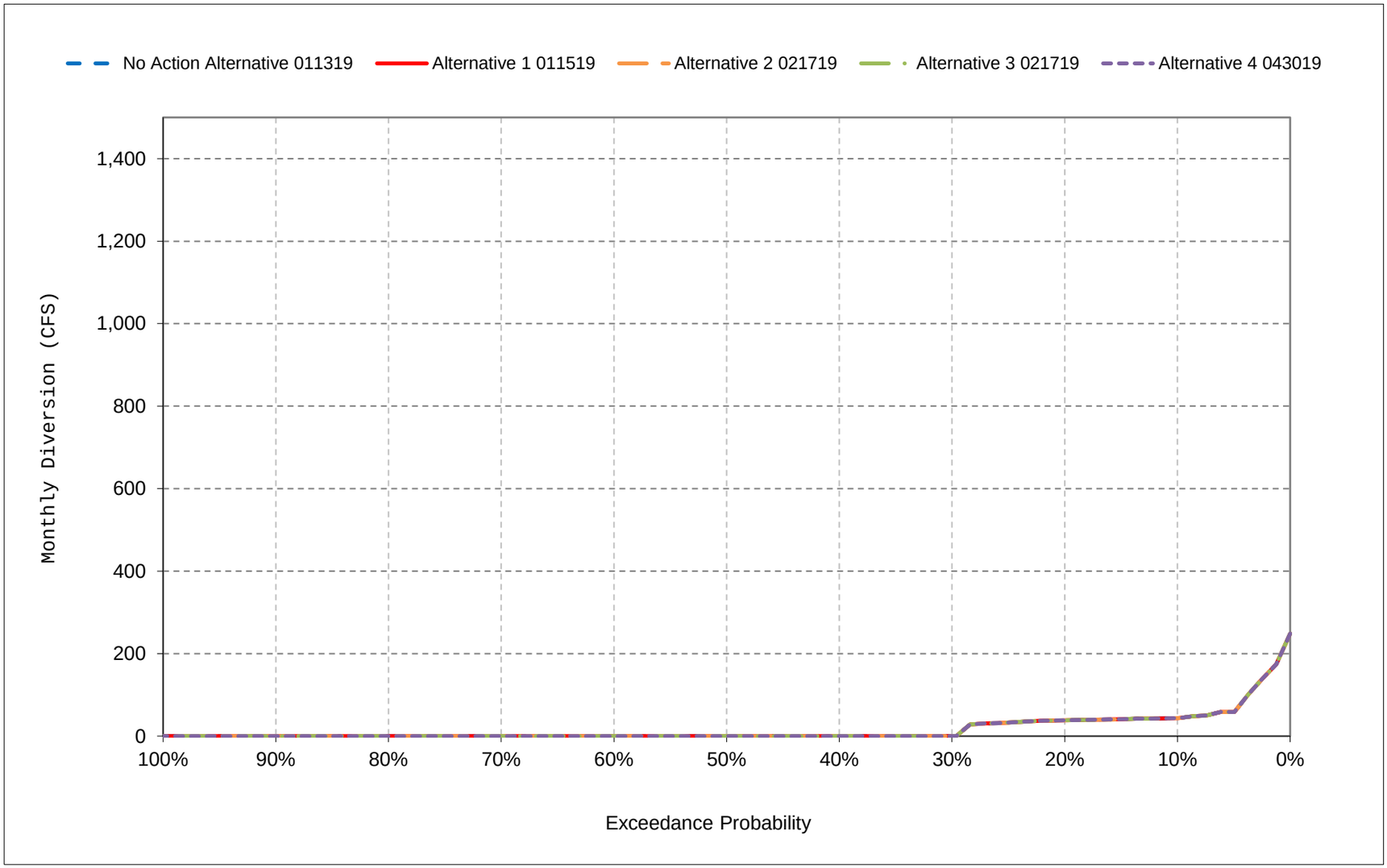

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 51-6. Madera Canal Diversion, Critical Year Average Diversion




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

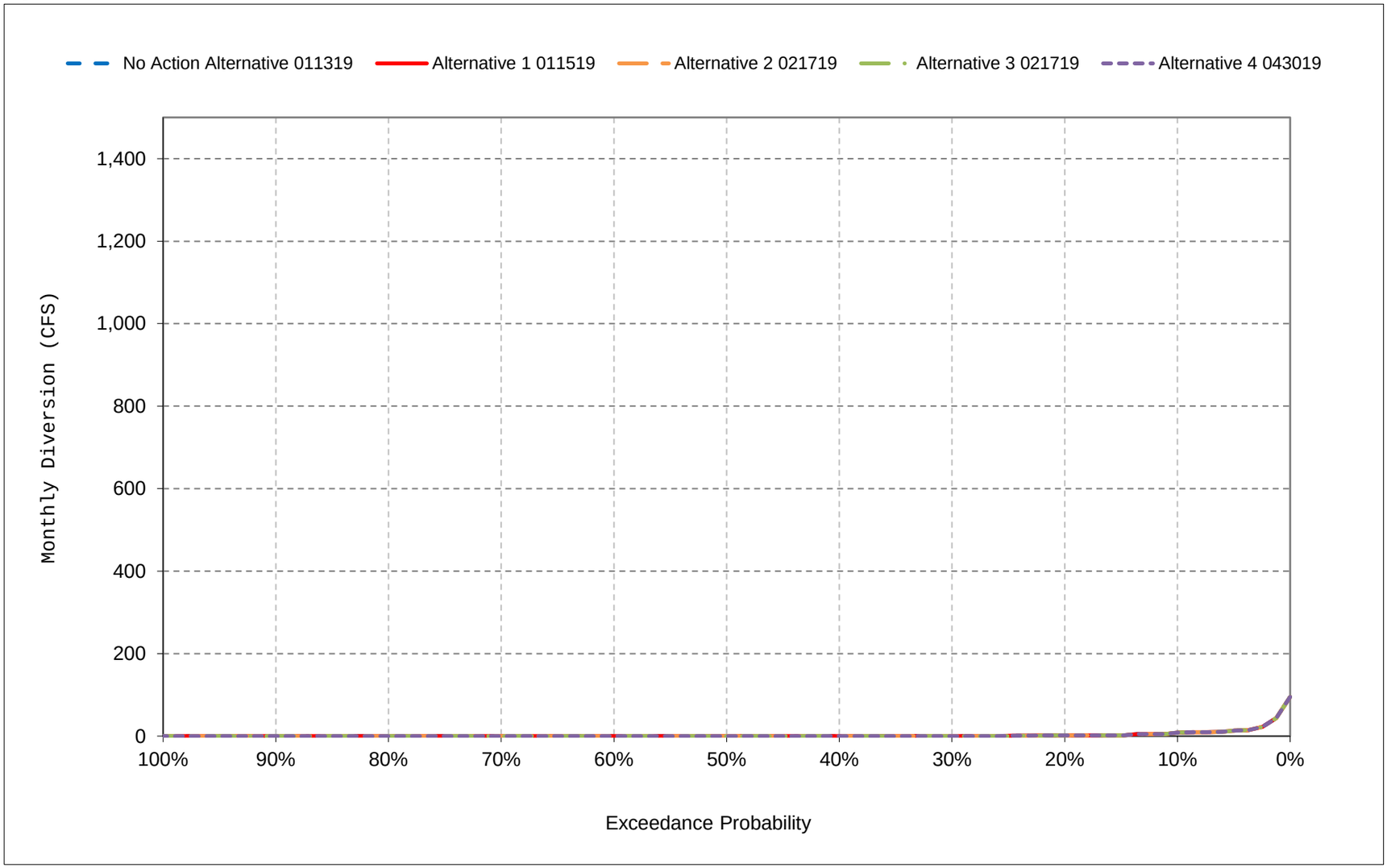
**Figure 51-7. Madera Canal Diversion, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

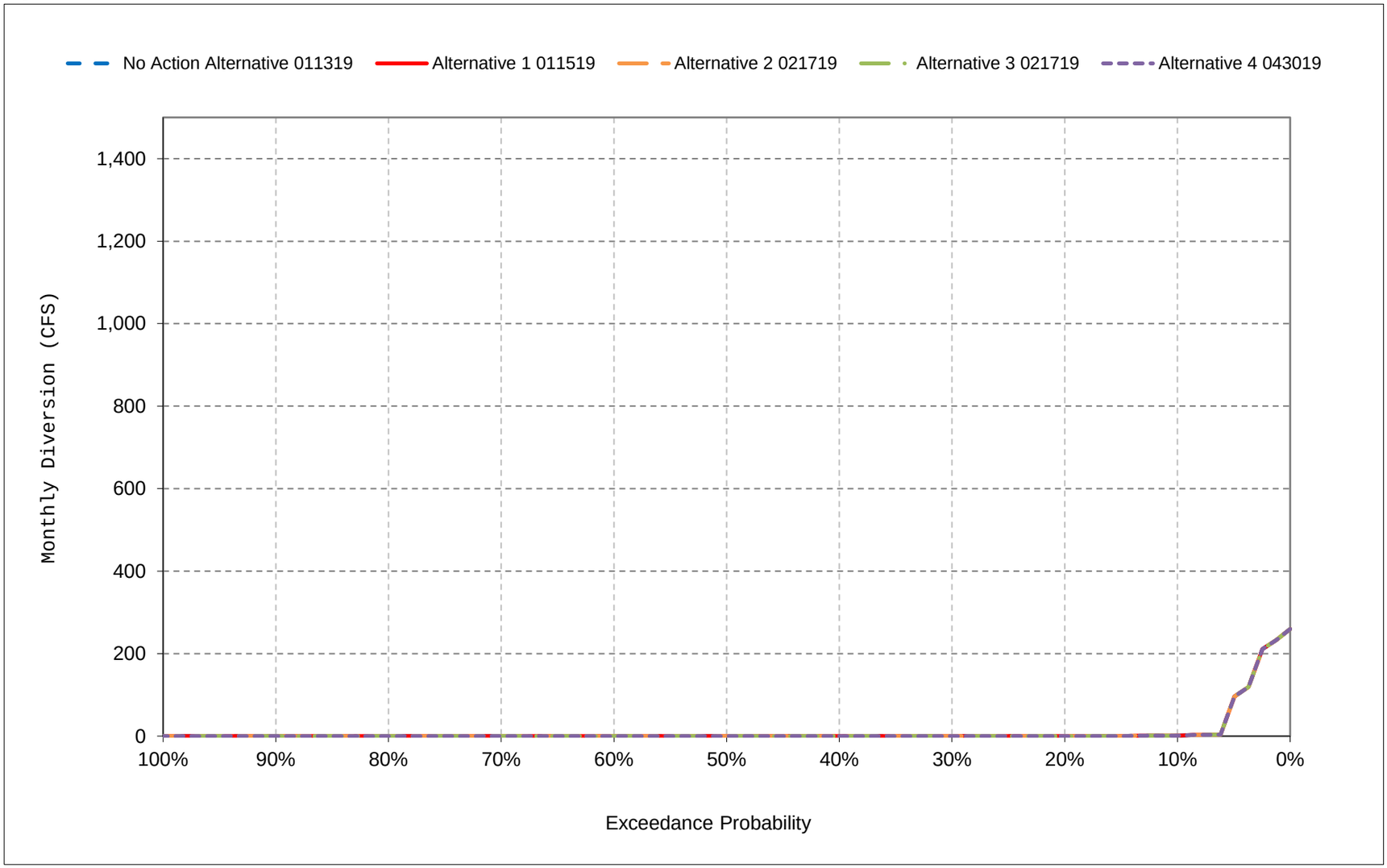
**Figure 51-8. Madera Canal Diversion, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

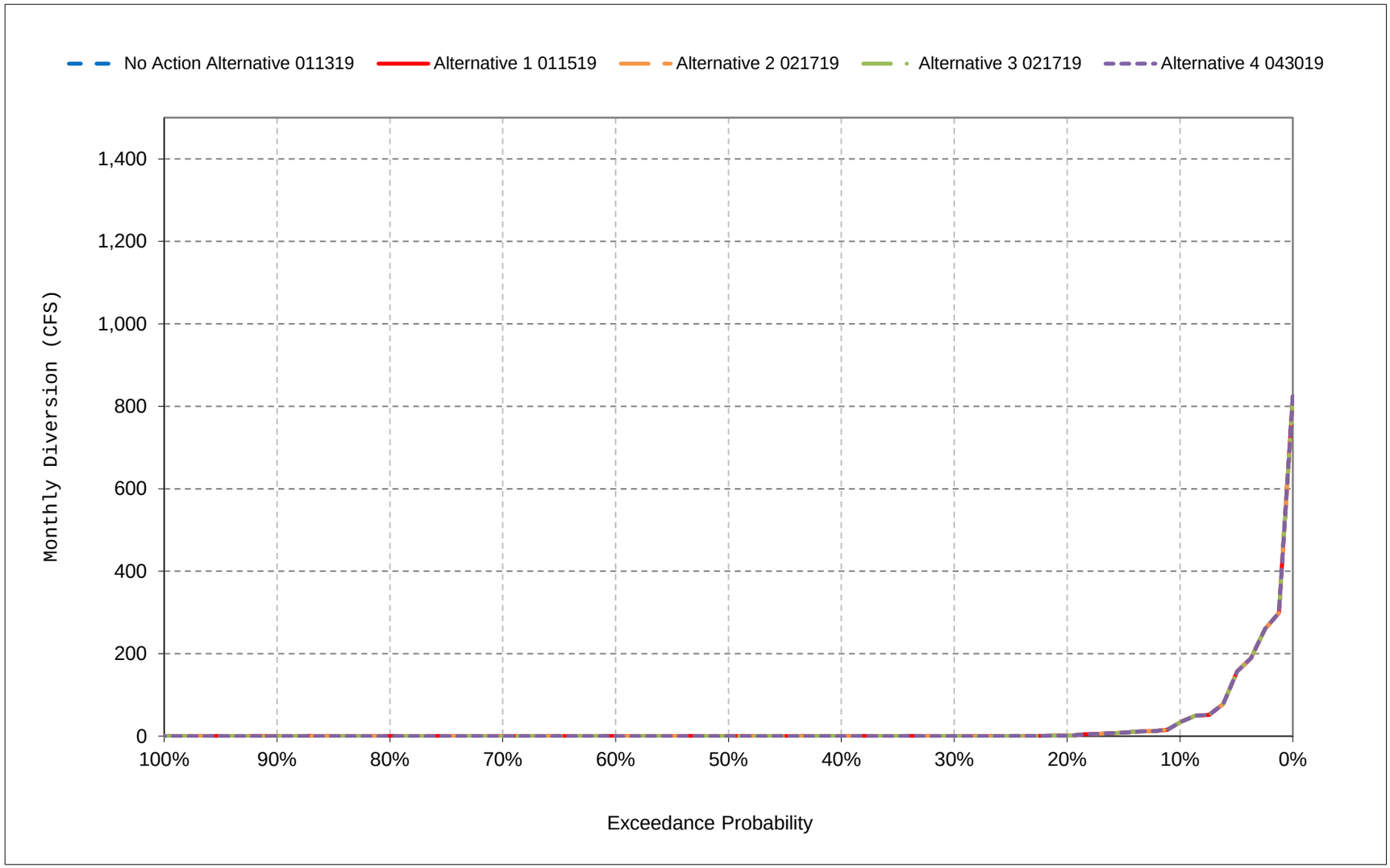
**Figure 51-9. Madera Canal Diversion, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

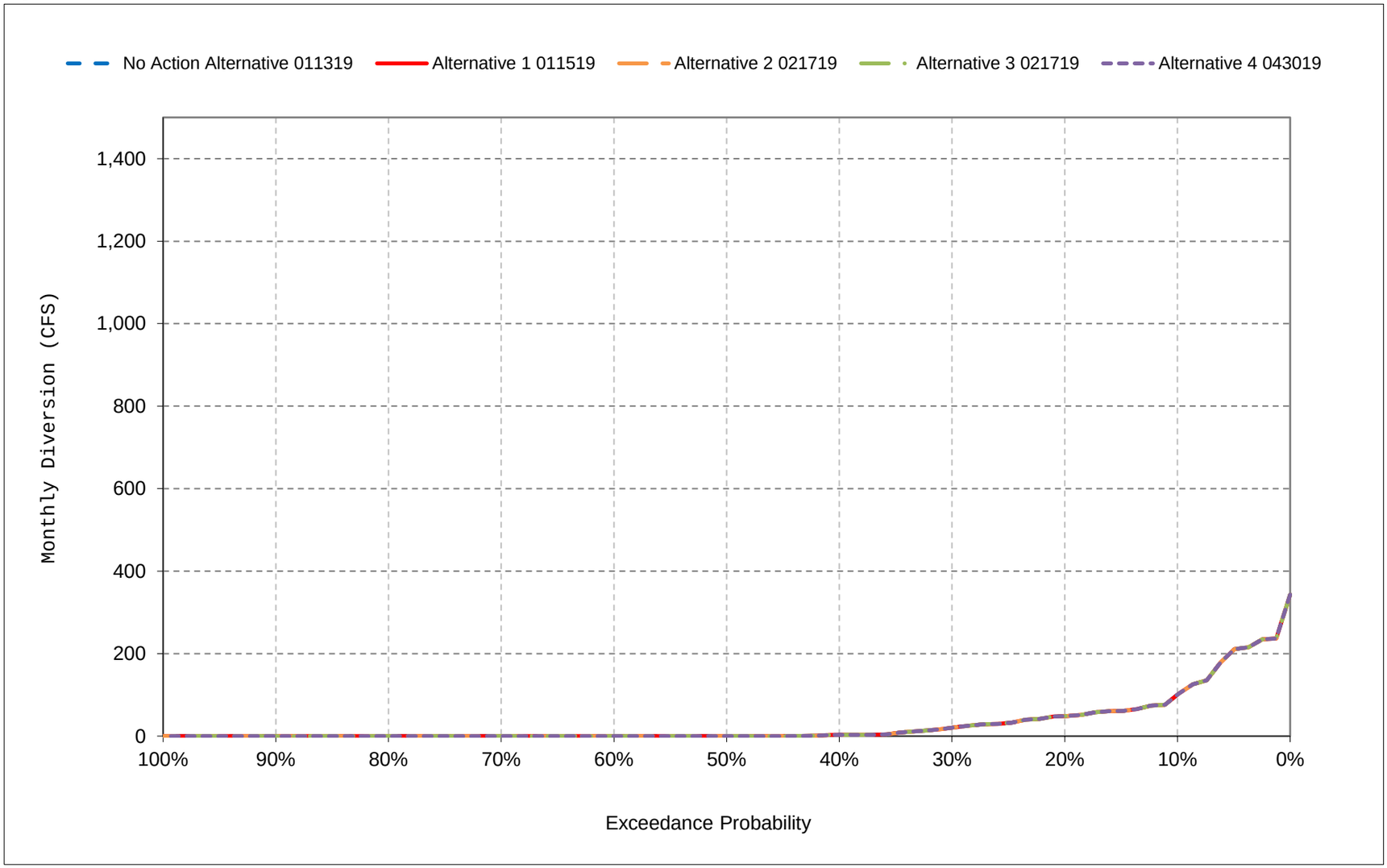
**Figure 51-10. Madera Canal Diversion, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

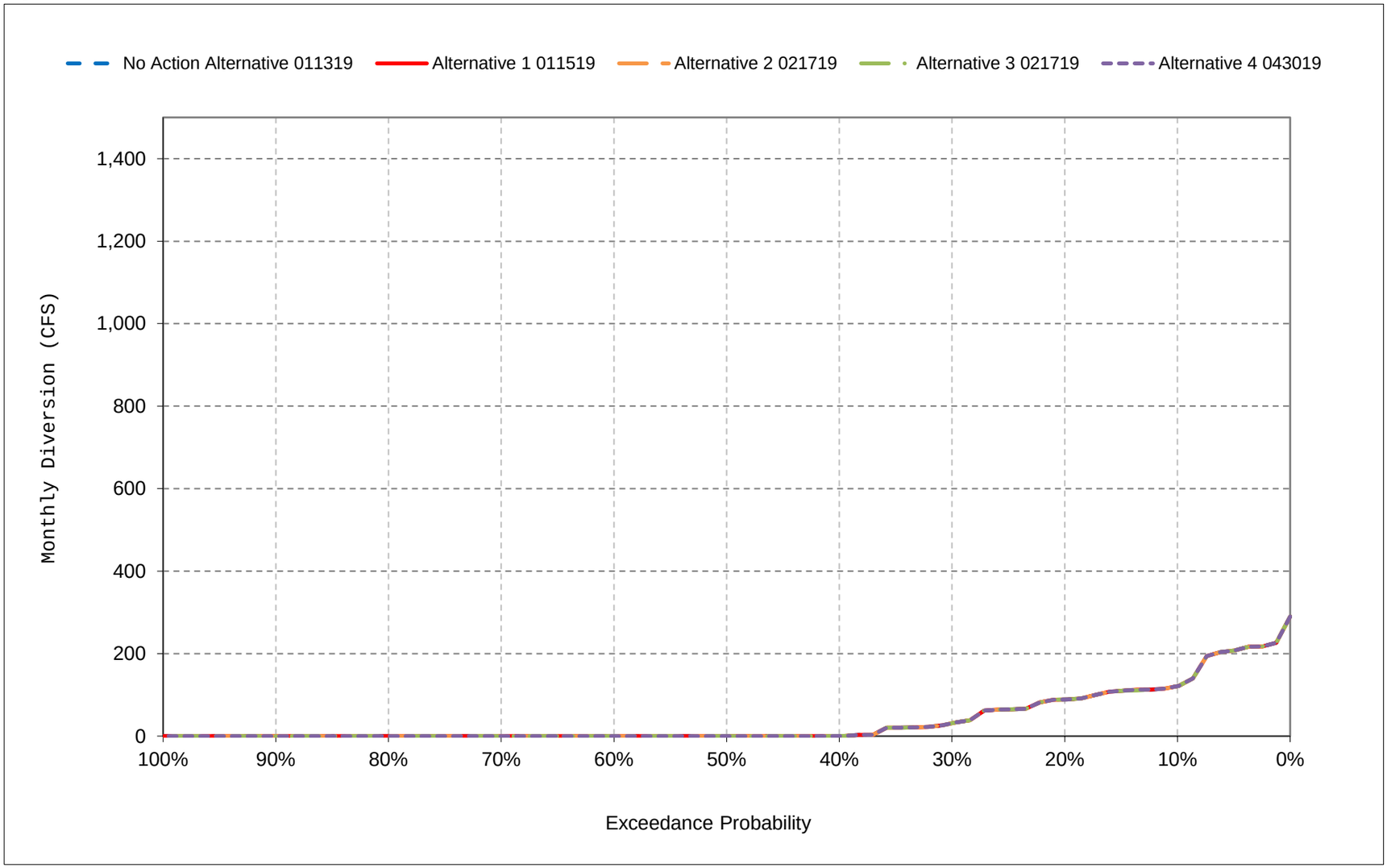
**Figure 51-11. Madera Canal Diversion, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

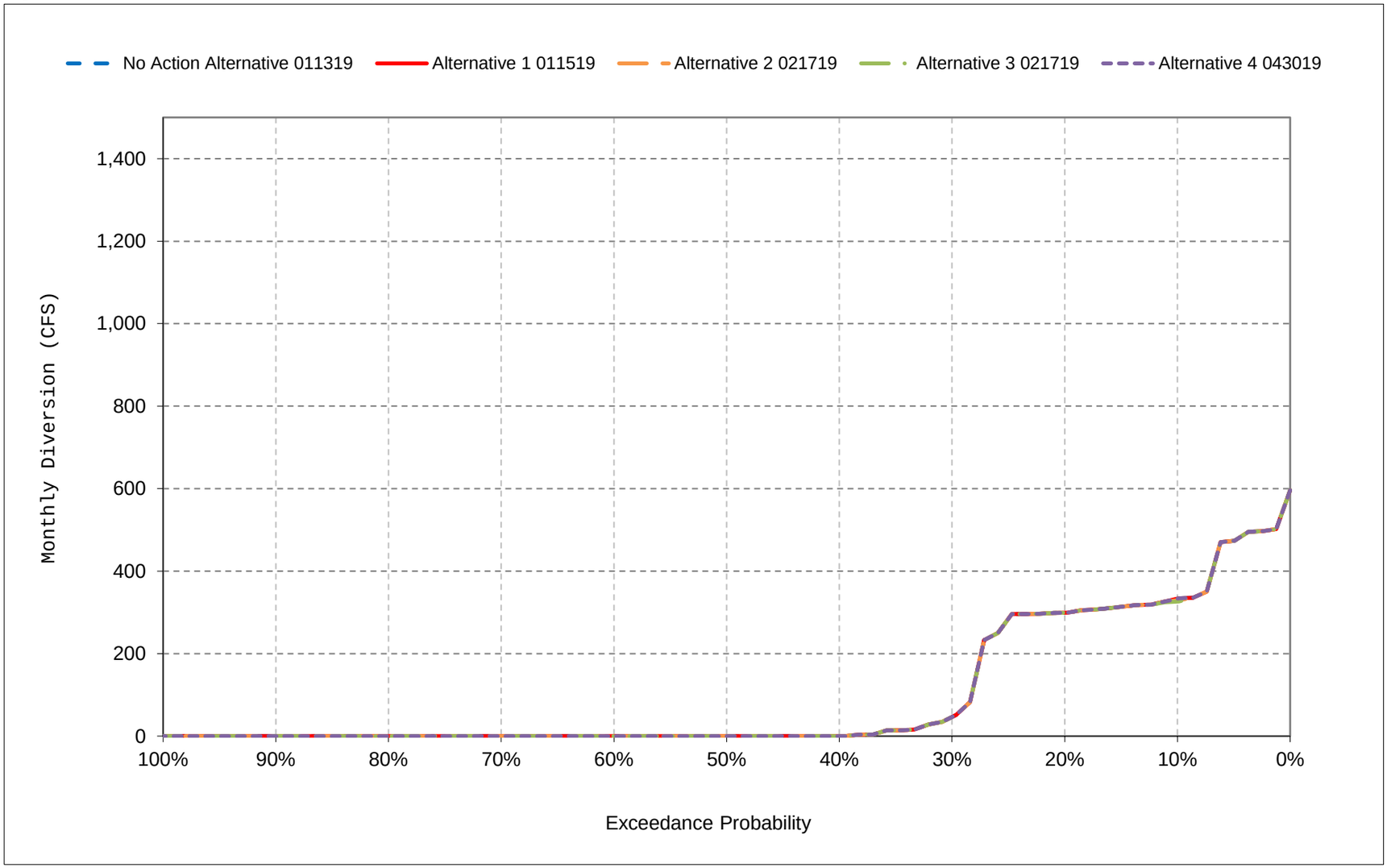
**Figure 51-12. Madera Canal Diversion, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

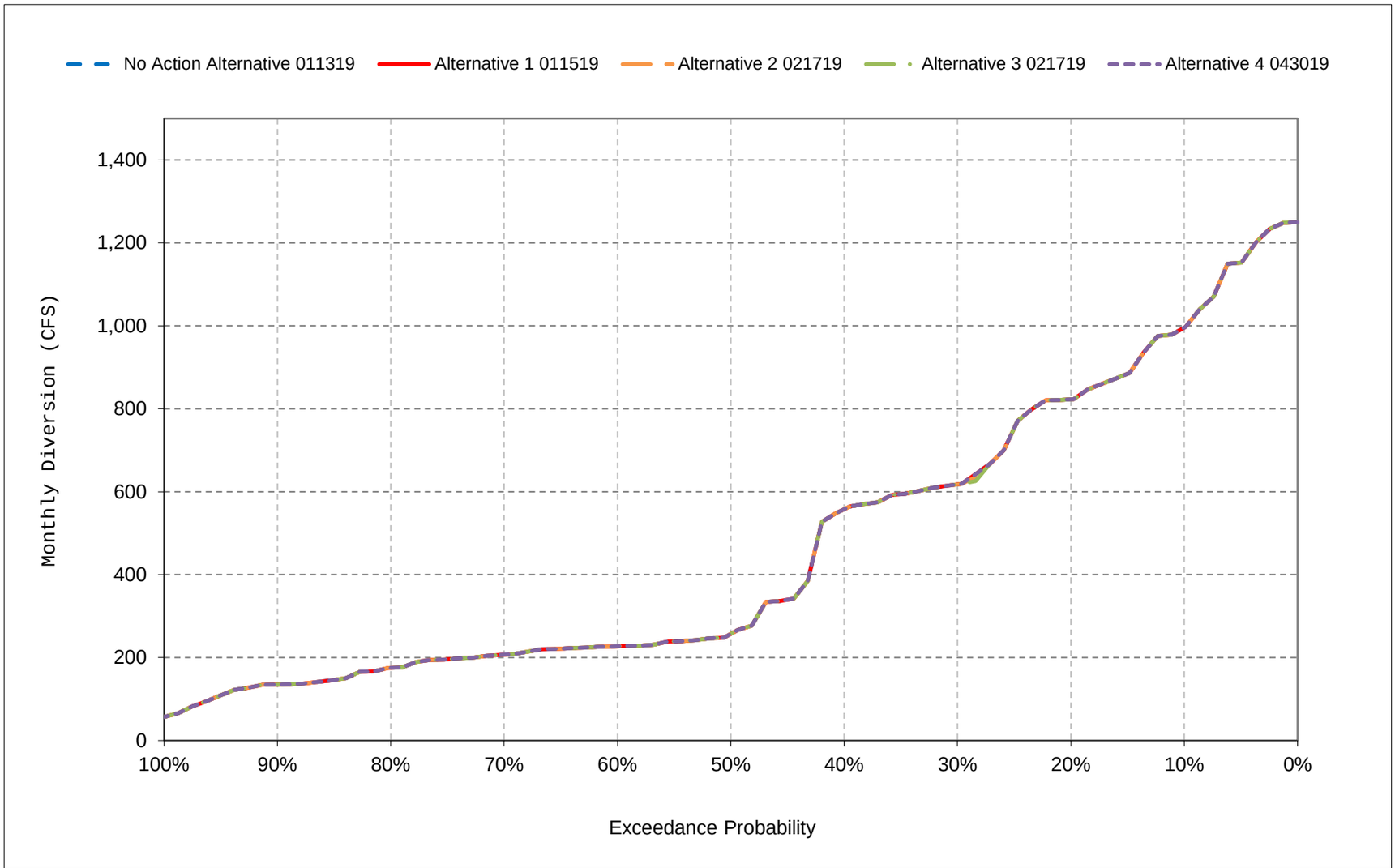
**Figure 51-13. Madera Canal Diversion, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

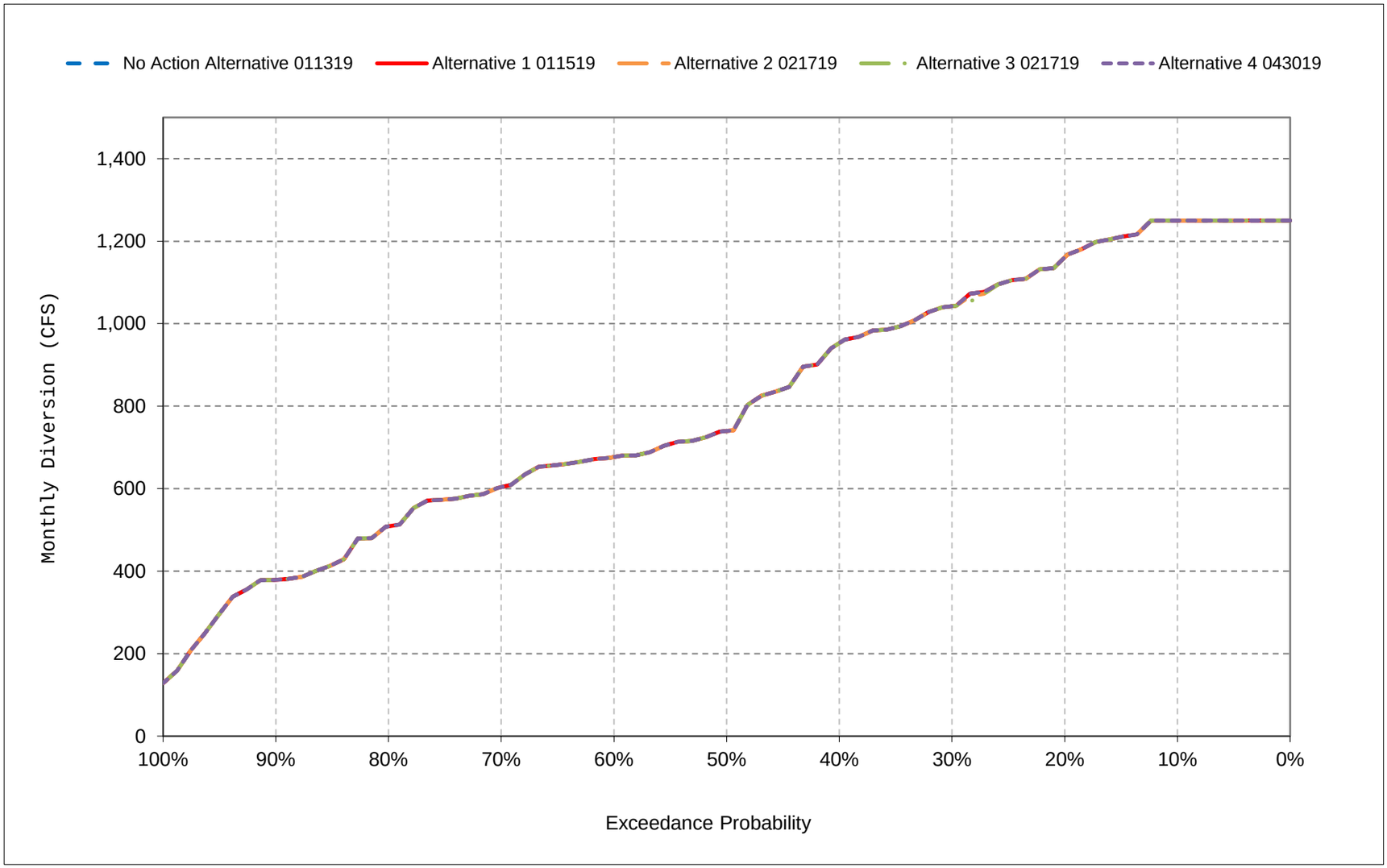
**Figure 51-14. Madera Canal Diversion, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

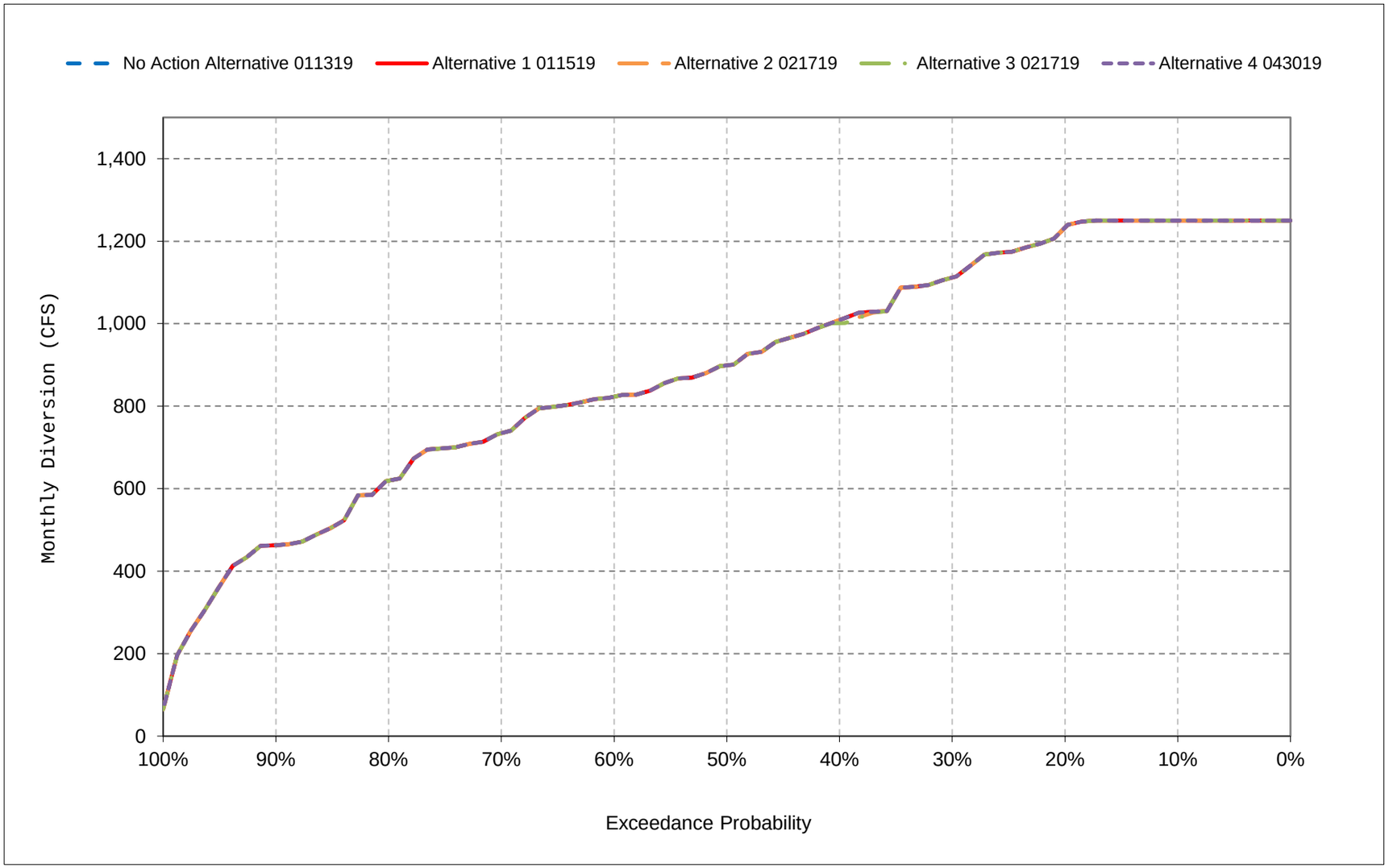
**Figure 51-15. Madera Canal Diversion, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

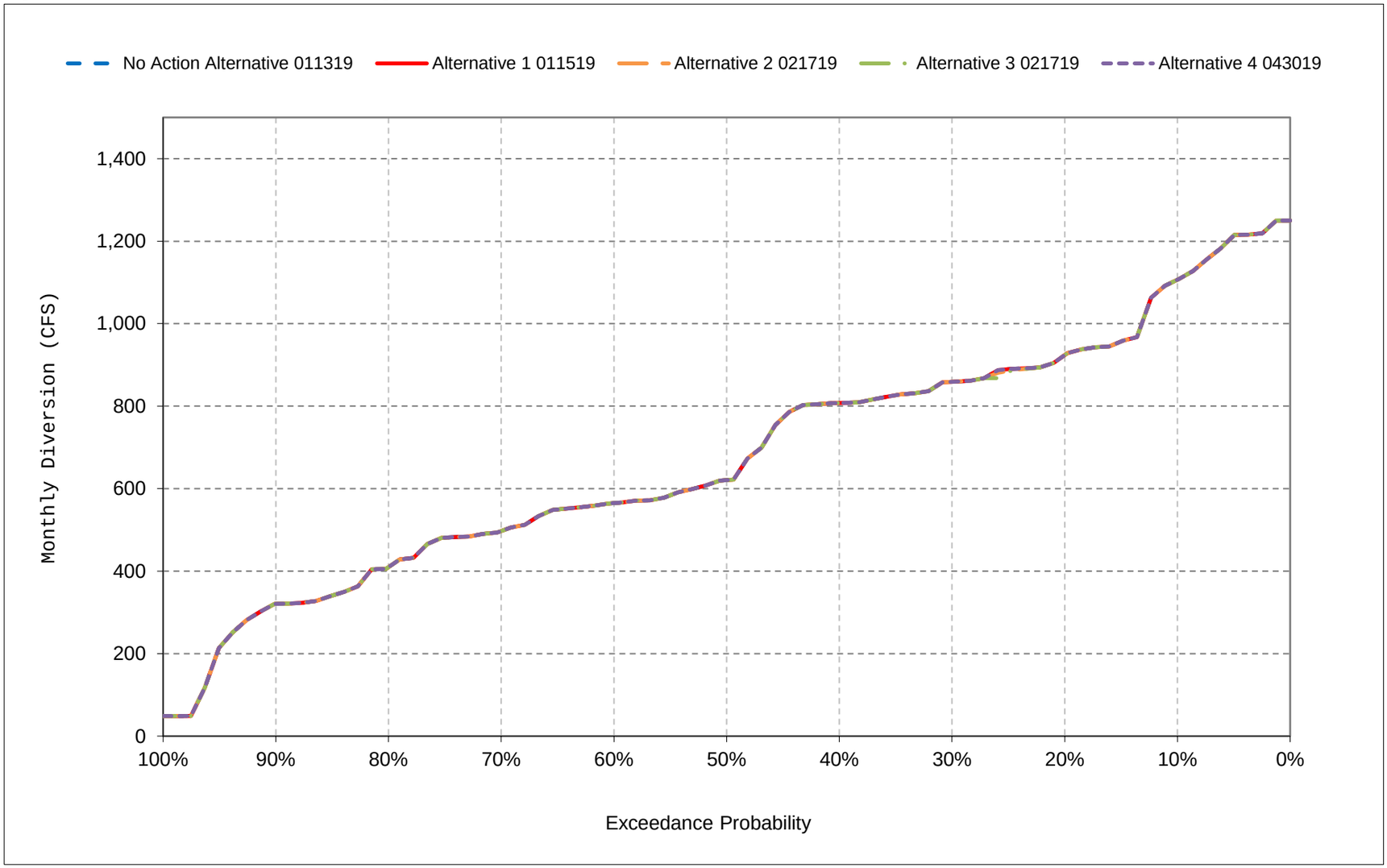
**Figure 51-16. Madera Canal Diversion, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

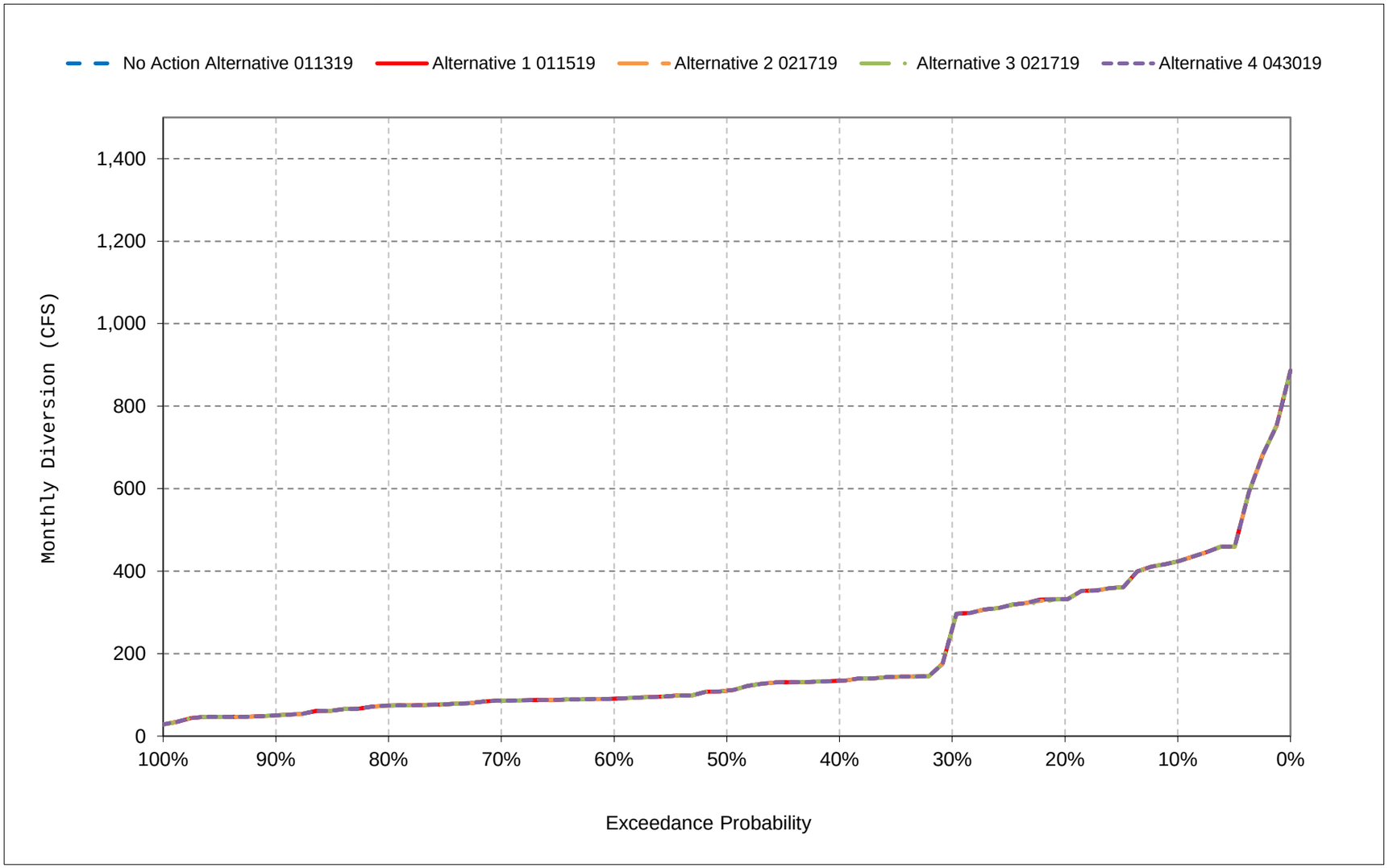
**Figure 51-17. Madera Canal Diversion, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 51-18. Madera Canal Diversion, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 52-1. DCC Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,182 | 1,272 | 914 | 0 | 0 | 0 | 0 | 0 | 2,626 | 4,540 | 3,137 | 4,085 |
| 20% | 1,841 | 1,084 | 829 | 0 | 0 | 0 | 0 | 0 | 2,264 | 4,485 | 3,064 | 3,687 |
| 30% | 1,721 | 949 | 778 | 0 | 0 | 0 | 0 | 0 | 2,141 | 4,221 | 2,971 | 2,065 |
| 40% | 1,596 | 813 | 689 | 0 | 0 | 0 | 0 | 0 | 2,085 | 3,646 | 2,917 | 1,864 |
| 50% | 1,492 | 693 | 497 | 0 | 0 | 0 | 0 | 0 | 2,009 | 3,470 | 2,802 | 1,741 |
| 60% | 1,466 | 411 | 0 | 0 | 0 | 0 | 0 | 0 | 1,893 | 3,162 | 2,533 | 1,523 |
| 70% | 1,206 | 198 | 0 | 0 | 0 | 0 | 0 | 0 | 1,757 | 2,940 | 1,739 | 1,235 |
| 80% | 1,196 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,630 | 2,604 | 1,588 | 0 |
| 90% | 801 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,221 | 2,032 | 1,467 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,474 | 613 | 433 | 0 | 0 | 0 | 0 | 0 | 1,889 | 3,399 | 2,448 | 1,795 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,483 | 265 | 506 | 0 | 0 | 0 | 0 | 0 | 1,725 | 3,737 | 2,963 | 669 |
| Above Normal (16%) | 1,713 | 577 | 464 | 0 | 0 | 0 | 0 | 0 | 2,147 | 4,245 | 3,104 | 4,063 |
| Below Normal (13%) | 1,504 | 1,012 | 450 | 0 | 0 | 0 | 0 | 0 | 2,061 | 4,002 | 2,752 | 2,173 |
| Dry (24%) | 1,448 | 733 | 282 | 0 | 0 | 0 | 0 | 0 | 2,057 | 2,992 | 1,780 | 1,803 |
| Critical (15%) | 1,211 | 840 | 475 | 0 | 0 | 0 | 0 | 0 | 1,529 | 1,872 | 1,459 | 1,416 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,248 | 1,454 | 947 | 0 | 0 | 0 | 0 | 0 | 2,765 | 4,525 | 3,145 | 2,875 |
| 20% | 1,973 | 1,347 | 821 | 0 | 0 | 0 | 0 | 0 | 2,476 | 4,367 | 3,110 | 2,758 |
| 30% | 1,746 | 1,278 | 732 | 0 | 0 | 0 | 0 | 0 | 2,416 | 4,141 | 2,994 | 2,681 |
| 40% | 1,666 | 1,128 | 644 | 0 | 0 | 0 | 0 | 0 | 2,365 | 3,635 | 2,933 | 2,642 |
| 50% | 1,531 | 965 | 458 | 0 | 0 | 0 | 0 | 0 | 2,268 | 3,346 | 2,842 | 2,557 |
| 60% | 1,448 | 831 | 0 | 0 | 0 | 0 | 0 | 0 | 2,192 | 3,196 | 2,591 | 2,081 |
| 70% | 1,216 | 773 | 0 | 0 | 0 | 0 | 0 | 0 | 2,004 | 2,683 | 1,811 | 1,826 |
| 80% | 1,199 | 304 | 0 | 0 | 0 | 0 | 0 | 0 | 1,887 | 2,286 | 1,645 | 1,684 |
| 90% | 610 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,341 | 1,910 | 1,422 | 1,444 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,494 | 888 | 418 | 0 | 0 | 0 | 0 | 0 | 2,092 | 3,324 | 2,478 | 2,305 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,346 | 977 | 479 | 0 | 0 | 0 | 0 | 0 | 1,805 | 3,672 | 2,954 | 2,853 |
| Above Normal (16%) | 2,071 | 980 | 437 | 0 | 0 | 0 | 0 | 0 | 2,303 | 4,245 | 3,094 | 2,739 |
| Below Normal (13%) | 1,499 | 983 | 447 | 0 | 0 | 0 | 0 | 0 | 2,411 | 4,046 | 2,964 | 2,300 |
| Dry (24%) | 1,478 | 689 | 283 | 0 | 0 | 0 | 0 | 0 | 2,374 | 2,799 | 1,820 | 1,837 |
| Critical (15%) | 1,213 | 841 | 466 | 0 | 0 | 0 | 0 | 0 | 1,725 | 1,786 | 1,433 | 1,435 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 66 | 182 | 33 | 0 | 0 | 0 | 0 | 0 | 139 | **-15** | 8 | **-1,210** |
| 20% | 132 | 263 | **-7** | 0 | 0 | 0 | 0 | 0 | 212 | **-118** | 46 | **-929** |
| 30% | 25 | 329 | **-46** | 0 | 0 | 0 | 0 | 0 | 275 | **-80** | 24 | 616 |
| 40% | 70 | 314 | **-45** | 0 | 0 | 0 | 0 | 0 | 280 | **-12** | 16 | 777 |
| 50% | 39 | 272 | **-39** | 0 | 0 | 0 | 0 | 0 | 259 | **-124** | 40 | 816 |
| 60% | **-18** | 420 | 0 | 0 | 0 | 0 | 0 | 0 | 299 | 35 | 58 | 558 |
| 70% | 10 | 575 | 0 | 0 | 0 | 0 | 0 | 0 | 247 | **-257** | 72 | 591 |
| 80% | 2 | 304 | 0 | 0 | 0 | 0 | 0 | 0 | 256 | **-318** | 57 | 1,684 |
| 90% | **-190** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 120 | **-122** | **-45** | 1,444 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 20 | 275 | **-14** | 0 | 0 | 0 | 0 | 0 | 203 | **-74** | 30 | 511 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-137** | 711 | **-27** | 0 | 0 | 0 | 0 | 0 | 80 | **-65** | **-8** | 2,184 |
| Above Normal (16%) | 357 | 403 | **-27** | 0 | 0 | 0 | 0 | 0 | 156 | 0 | **-10** | **-1,324** |
| Below Normal (13%) | **-4** | **-29** | **-3** | 0 | 0 | 0 | 0 | 0 | 350 | 43 | 212 | 127 |
| Dry (24%) | 29 | **-44** | 0 | 0 | 0 | 0 | 0 | 0 | 317 | **-193** | 39 | 34 |
| Critical (15%) | 2 | 1 | **-9** | 0 | 0 | 0 | 0 | 0 | 196 | **-86** | **-26** | 19 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

# Table 52-2. DCC Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,182 | 1,272 | 914 | 0 | 0 | 0 | 0 | 0 | 2,626 | 4,540 | 3,137 | 4,085 |
| 20% | 1,841 | 1,084 | 829 | 0 | 0 | 0 | 0 | 0 | 2,264 | 4,485 | 3,064 | 3,687 |
| 30% | 1,721 | 949 | 778 | 0 | 0 | 0 | 0 | 0 | 2,141 | 4,221 | 2,971 | 2,065 |
| 40% | 1,596 | 813 | 689 | 0 | 0 | 0 | 0 | 0 | 2,085 | 3,646 | 2,917 | 1,864 |
| 50% | 1,492 | 693 | 497 | 0 | 0 | 0 | 0 | 0 | 2,009 | 3,470 | 2,802 | 1,741 |
| 60% | 1,466 | 411 | 0 | 0 | 0 | 0 | 0 | 0 | 1,893 | 3,162 | 2,533 | 1,523 |
| 70% | 1,206 | 198 | 0 | 0 | 0 | 0 | 0 | 0 | 1,757 | 2,940 | 1,739 | 1,235 |
| 80% | 1,196 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,630 | 2,604 | 1,588 | 0 |
| 90% | 801 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,221 | 2,032 | 1,467 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,474 | 613 | 433 | 0 | 0 | 0 | 0 | 0 | 1,889 | 3,399 | 2,448 | 1,795 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,483 | 265 | 506 | 0 | 0 | 0 | 0 | 0 | 1,725 | 3,737 | 2,963 | 669 |
| Above Normal (16%) | 1,713 | 577 | 464 | 0 | 0 | 0 | 0 | 0 | 2,147 | 4,245 | 3,104 | 4,063 |
| Below Normal (13%) | 1,504 | 1,012 | 450 | 0 | 0 | 0 | 0 | 0 | 2,061 | 4,002 | 2,752 | 2,173 |
| Dry (24%) | 1,448 | 733 | 282 | 0 | 0 | 0 | 0 | 0 | 2,057 | 2,992 | 1,780 | 1,803 |
| Critical (15%) | 1,211 | 840 | 475 | 0 | 0 | 0 | 0 | 0 | 1,529 | 1,872 | 1,459 | 1,416 |

## Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,725 | 1,861 | 1,857 | 1,320 | 0 | 0 | 0 | 0 | 3,512 | 4,519 | 3,160 | 2,908 |
| 20% | 2,638 | 1,699 | 1,520 | 1,037 | 0 | 0 | 0 | 0 | 3,246 | 4,134 | 3,065 | 2,758 |
| 30% | 2,435 | 1,662 | 1,392 | 906 | 0 | 0 | 0 | 0 | 3,028 | 3,906 | 2,883 | 2,639 |
| 40% | 2,163 | 1,442 | 1,232 | 820 | 0 | 0 | 0 | 0 | 2,817 | 3,490 | 2,787 | 2,568 |
| 50% | 1,893 | 1,322 | 1,097 | 692 | 0 | 0 | 0 | 0 | 2,659 | 3,290 | 2,637 | 2,403 |
| 60% | 1,723 | 1,237 | 946 | 0 | 0 | 0 | 0 | 0 | 2,453 | 3,014 | 2,213 | 2,102 |
| 70% | 1,620 | 1,085 | 701 | 0 | 0 | 0 | 0 | 0 | 2,105 | 2,678 | 1,830 | 1,899 |
| 80% | 1,490 | 939 | 0 | 0 | 0 | 0 | 0 | 0 | 1,832 | 2,321 | 1,582 | 1,738 |
| 90% | 1,211 | 810 | 0 | 0 | 0 | 0 | 0 | 0 | 1,374 | 2,053 | 1,485 | 1,492 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,998 | 1,321 | 969 | 542 | 0 | 0 | 0 | 0 | 2,453 | 3,247 | 2,389 | 2,294 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,552 | 1,562 | 900 | 170 | 0 | 0 | 0 | 0 | 2,045 | 3,574 | 2,857 | 2,752 |
| Above Normal (16%) | 2,427 | 1,276 | 1,106 | 293 | 0 | 0 | 0 | 0 | 3,063 | 4,244 | 3,033 | 2,699 |
| Below Normal (13%) | 1,624 | 1,477 | 957 | 603 | 0 | 0 | 0 | 0 | 3,271 | 3,755 | 2,662 | 2,315 |
| Dry (24%) | 1,647 | 1,198 | 822 | 912 | 0 | 0 | 0 | 0 | 2,539 | 2,671 | 1,748 | 1,908 |
| Critical (15%) | 1,263 | 911 | 1,226 | 949 | 0 | 0 | 0 | 0 | 1,781 | 1,954 | 1,494 | 1,486 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 543 | 589 | 942 | 1,320 | 0 | 0 | 0 | 0 | 886 | **-21** | 23 | **-1,177** |
| 20% | 798 | 615 | 691 | 1,037 | 0 | 0 | 0 | 0 | 982 | **-351** | 1 | **-929** |
| 30% | 714 | 713 | 614 | 906 | 0 | 0 | 0 | 0 | 886 | **-316** | **-88** | 574 |
| 40% | 566 | 629 | 543 | 820 | 0 | 0 | 0 | 0 | 733 | **-157** | **-131** | 704 |
| 50% | 401 | 630 | 600 | 692 | 0 | 0 | 0 | 0 | 650 | **-180** | **-164** | 662 |
| 60% | 257 | 826 | 946 | 0 | 0 | 0 | 0 | 0 | 560 | **-148** | **-320** | 578 |
| 70% | 414 | 887 | 701 | 0 | 0 | 0 | 0 | 0 | 348 | **-262** | 91 | 664 |
| 80% | 294 | 939 | 0 | 0 | 0 | 0 | 0 | 0 | 202 | **-284** | **-6** | 1,738 |
| 90% | 410 | 810 | 0 | 0 | 0 | 0 | 0 | 0 | 153 | 21 | 18 | 1,492 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 524 | 708 | 536 | 542 | 0 | 0 | 0 | 0 | 563 | **-151** | **-60** | 500 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,069 | 1,296 | 394 | 170 | 0 | 0 | 0 | 0 | 319 | **-163** | **-106** | 2,084 |
| Above Normal (16%) | 714 | 699 | 642 | 293 | 0 | 0 | 0 | 0 | 916 | **-1** | **-71** | **-1,364** |
| Below Normal (13%) | 120 | 465 | 507 | 603 | 0 | 0 | 0 | 0 | 1,210 | **-247** | **-90** | 143 |
| Dry (24%) | 199 | 465 | 539 | 912 | 0 | 0 | 0 | 0 | 483 | **-321** | **-33** | 105 |
| Critical (15%) | 53 | 71 | 752 | 949 | 0 | 0 | 0 | 0 | 252 | 82 | 35 | 70 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

# Table 52-3. DCC Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,182 | 1,272 | 914 | 0 | 0 | 0 | 0 | 0 | 2,626 | 4,540 | 3,137 | 4,085 |
| 20% | 1,841 | 1,084 | 829 | 0 | 0 | 0 | 0 | 0 | 2,264 | 4,485 | 3,064 | 3,687 |
| 30% | 1,721 | 949 | 778 | 0 | 0 | 0 | 0 | 0 | 2,141 | 4,221 | 2,971 | 2,065 |
| 40% | 1,596 | 813 | 689 | 0 | 0 | 0 | 0 | 0 | 2,085 | 3,646 | 2,917 | 1,864 |
| 50% | 1,492 | 693 | 497 | 0 | 0 | 0 | 0 | 0 | 2,009 | 3,470 | 2,802 | 1,741 |
| 60% | 1,466 | 411 | 0 | 0 | 0 | 0 | 0 | 0 | 1,893 | 3,162 | 2,533 | 1,523 |
| 70% | 1,206 | 198 | 0 | 0 | 0 | 0 | 0 | 0 | 1,757 | 2,940 | 1,739 | 1,235 |
| 80% | 1,196 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,630 | 2,604 | 1,588 | 0 |
| 90% | 801 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,221 | 2,032 | 1,467 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,474 | 613 | 433 | 0 | 0 | 0 | 0 | 0 | 1,889 | 3,399 | 2,448 | 1,795 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,483 | 265 | 506 | 0 | 0 | 0 | 0 | 0 | 1,725 | 3,737 | 2,963 | 669 |
| Above Normal (16%) | 1,713 | 577 | 464 | 0 | 0 | 0 | 0 | 0 | 2,147 | 4,245 | 3,104 | 4,063 |
| Below Normal (13%) | 1,504 | 1,012 | 450 | 0 | 0 | 0 | 0 | 0 | 2,061 | 4,002 | 2,752 | 2,173 |
| Dry (24%) | 1,448 | 733 | 282 | 0 | 0 | 0 | 0 | 0 | 2,057 | 2,992 | 1,780 | 1,803 |
| Critical (15%) | 1,211 | 840 | 475 | 0 | 0 | 0 | 0 | 0 | 1,529 | 1,872 | 1,459 | 1,416 |

## Alternative 3 030519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,033 | 1,401 | 1,449 | 1,019 | 0 | 0 | 0 | 0 | 2,704 | 3,565 | 2,395 | 2,189 |
| 20% | 1,958 | 1,256 | 1,161 | 779 | 0 | 0 | 0 | 0 | 2,449 | 3,309 | 2,315 | 2,084 |
| 30% | 1,827 | 1,230 | 1,088 | 672 | 0 | 0 | 0 | 0 | 2,246 | 3,029 | 2,096 | 1,981 |
| 40% | 1,692 | 1,042 | 989 | 596 | 0 | 0 | 0 | 0 | 2,057 | 2,778 | 2,051 | 1,847 |
| 50% | 1,455 | 942 | 843 | 486 | 0 | 0 | 0 | 0 | 1,942 | 2,553 | 1,911 | 1,678 |
| 60% | 1,299 | 886 | 662 | 0 | 0 | 0 | 0 | 0 | 1,786 | 2,208 | 1,552 | 1,486 |
| 70% | 1,161 | 734 | 460 | 0 | 0 | 0 | 0 | 0 | 1,547 | 1,847 | 1,289 | 1,333 |
| 80% | 987 | 580 | 0 | 0 | 0 | 0 | 0 | 0 | 1,329 | 1,677 | 1,091 | 1,189 |
| 90% | 787 | 425 | 0 | 0 | 0 | 0 | 0 | 0 | 922 | 1,446 | 975 | 1,019 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,454 | 950 | 753 | 407 | 0 | 0 | 0 | 0 | 1,819 | 2,475 | 1,734 | 1,661 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,918 | 1,163 | 774 | 130 | 0 | 0 | 0 | 0 | 1,558 | 2,778 | 2,080 | 2,044 |
| Above Normal (16%) | 1,772 | 959 | 844 | 221 | 0 | 0 | 0 | 0 | 2,221 | 3,327 | 2,313 | 2,047 |
| Below Normal (13%) | 1,210 | 1,069 | 713 | 447 | 0 | 0 | 0 | 0 | 2,451 | 2,919 | 1,944 | 1,666 |
| Dry (24%) | 1,183 | 836 | 603 | 681 | 0 | 0 | 0 | 0 | 1,913 | 1,964 | 1,222 | 1,339 |
| Critical (15%) | 780 | 561 | 895 | 719 | 0 | 0 | 0 | 0 | 1,211 | 1,339 | 1,016 | 946 |

## Alternative 3 030519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-149** | 129 | 535 | 1,019 | 0 | 0 | 0 | 0 | 78 | **-975** | **-742** | **-1,896** |
| 20% | 117 | 172 | 332 | 779 | 0 | 0 | 0 | 0 | 186 | **-1,176** | **-749** | **-1,603** |
| 30% | 106 | 281 | 310 | 672 | 0 | 0 | 0 | 0 | 104 | **-1,192** | **-875** | **-83** |
| 40% | 96 | 229 | 300 | 596 | 0 | 0 | 0 | 0 | **-27** | **-869** | **-866** | **-18** |
| 50% | **-37** | 249 | 346 | 486 | 0 | 0 | 0 | 0 | **-67** | **-917** | **-890** | **-63** |
| 60% | **-167** | 475 | 662 | 0 | 0 | 0 | 0 | 0 | **-107** | **-954** | **-981** | **-37** |
| 70% | **-45** | 536 | 460 | 0 | 0 | 0 | 0 | 0 | **-209** | **-1,093** | **-450** | 97 |
| 80% | **-209** | 580 | 0 | 0 | 0 | 0 | 0 | 0 | **-301** | **-927** | **-497** | 1,189 |
| 90% | **-14** | 425 | 0 | 0 | 0 | 0 | 0 | 0 | **-299** | **-586** | **-492** | 1,019 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **-20** | 337 | 320 | 407 | 0 | 0 | 0 | 0 | **-71** | **-924** | **-715** | **-133** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 435 | 898 | 269 | 130 | 0 | 0 | 0 | 0 | **-167** | **-959** | **-882** | 1,375 |
| Above Normal (16%) | 59 | 381 | 380 | 221 | 0 | 0 | 0 | 0 | 74 | **-918** | **-791** | **-2,016** |
| Below Normal (13%) | **-294** | 57 | 263 | 447 | 0 | 0 | 0 | 0 | 390 | **-1,083** | **-808** | **-506** |
| Dry (24%) | **-266** | 103 | 320 | 681 | 0 | 0 | 0 | 0 | **-143** | **-1,028** | **-558** | **-464** |
| Critical (15%) | **-430** | **-279** | 421 | 719 | 0 | 0 | 0 | 0 | **-318** | **-533** | **-443** | **-470** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

# Table 52-4. DCC Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,182 | 1,272 | 914 | 0 | 0 | 0 | 0 | 0 | 2,626 | 4,540 | 3,137 | 4,085 |
| 20% | 1,841 | 1,084 | 829 | 0 | 0 | 0 | 0 | 0 | 2,264 | 4,485 | 3,064 | 3,687 |
| 30% | 1,721 | 949 | 778 | 0 | 0 | 0 | 0 | 0 | 2,141 | 4,221 | 2,971 | 2,065 |
| 40% | 1,596 | 813 | 689 | 0 | 0 | 0 | 0 | 0 | 2,085 | 3,646 | 2,917 | 1,864 |
| 50% | 1,492 | 693 | 497 | 0 | 0 | 0 | 0 | 0 | 2,009 | 3,470 | 2,802 | 1,741 |
| 60% | 1,466 | 411 | 0 | 0 | 0 | 0 | 0 | 0 | 1,893 | 3,162 | 2,533 | 1,523 |
| 70% | 1,206 | 198 | 0 | 0 | 0 | 0 | 0 | 0 | 1,757 | 2,940 | 1,739 | 1,235 |
| 80% | 1,196 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,630 | 2,604 | 1,588 | 0 |
| 90% | 801 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,221 | 2,032 | 1,467 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,474 | 613 | 433 | 0 | 0 | 0 | 0 | 0 | 1,889 | 3,399 | 2,448 | 1,795 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,483 | 265 | 506 | 0 | 0 | 0 | 0 | 0 | 1,725 | 3,737 | 2,963 | 669 |
| Above Normal (16%) | 1,713 | 577 | 464 | 0 | 0 | 0 | 0 | 0 | 2,147 | 4,245 | 3,104 | 4,063 |
| Below Normal (13%) | 1,504 | 1,012 | 450 | 0 | 0 | 0 | 0 | 0 | 2,061 | 4,002 | 2,752 | 2,173 |
| Dry (24%) | 1,448 | 733 | 282 | 0 | 0 | 0 | 0 | 0 | 2,057 | 2,992 | 1,780 | 1,803 |
| Critical (15%) | 1,211 | 840 | 475 | 0 | 0 | 0 | 0 | 0 | 1,529 | 1,872 | 1,459 | 1,416 |

## Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,164 | 1,435 | 902 | 0 | 0 | 0 | 0 | 0 | 2,593 | 4,224 | 3,051 | 2,847 |
| 20% | 1,868 | 1,314 | 810 | 0 | 0 | 0 | 0 | 0 | 2,384 | 4,224 | 2,954 | 2,706 |
| 30% | 1,709 | 1,258 | 733 | 0 | 0 | 0 | 0 | 0 | 2,328 | 3,999 | 2,895 | 2,613 |
| 40% | 1,605 | 1,155 | 673 | 0 | 0 | 0 | 0 | 0 | 2,228 | 3,510 | 2,749 | 2,544 |
| 50% | 1,512 | 969 | 418 | 0 | 0 | 0 | 0 | 0 | 2,149 | 3,296 | 2,368 | 2,071 |
| 60% | 1,472 | 829 | 0 | 0 | 0 | 0 | 0 | 0 | 2,010 | 3,085 | 1,879 | 1,843 |
| 70% | 1,321 | 703 | 0 | 0 | 0 | 0 | 0 | 0 | 1,918 | 2,681 | 1,654 | 1,765 |
| 80% | 1,203 | 330 | 0 | 0 | 0 | 0 | 0 | 0 | 1,774 | 2,310 | 1,586 | 1,644 |
| 90% | 754 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,275 | 1,732 | 1,416 | 1,409 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,487 | 877 | 409 | 0 | 0 | 0 | 0 | 0 | 1,996 | 3,192 | 2,270 | 2,175 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,435 | 980 | 458 | 0 | 0 | 0 | 0 | 0 | 1,728 | 3,592 | 2,849 | 2,755 |
| Above Normal (16%) | 1,904 | 980 | 420 | 0 | 0 | 0 | 0 | 0 | 2,126 | 4,096 | 2,984 | 2,669 |
| Below Normal (13%) | 1,436 | 920 | 452 | 0 | 0 | 0 | 0 | 0 | 2,335 | 3,753 | 2,145 | 1,892 |
| Dry (24%) | 1,477 | 677 | 284 | 0 | 0 | 0 | 0 | 0 | 2,250 | 2,690 | 1,667 | 1,730 |
| Critical (15%) | 1,210 | 838 | 459 | 0 | 0 | 0 | 0 | 0 | 1,699 | 1,667 | 1,363 | 1,387 |

## Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **-18** | 163 | **-13** | 0 | 0 | 0 | 0 | 0 | **-34** | **-317** | **-86** | **-1,239** |
| 20% | 27 | 230 | **-19** | 0 | 0 | 0 | 0 | 0 | 121 | **-261** | **-110** | **-981** |
| 30% | **-12** | 310 | **-45** | 0 | 0 | 0 | 0 | 0 | 187 | **-223** | **-76** | 549 |
| 40% | 9 | 342 | **-16** | 0 | 0 | 0 | 0 | 0 | 144 | **-136** | **-168** | 679 |
| 50% | 20 | 276 | **-79** | 0 | 0 | 0 | 0 | 0 | 139 | **-174** | **-434** | 330 |
| 60% | 6 | 418 | 0 | 0 | 0 | 0 | 0 | 0 | 117 | **-76** | **-654** | 320 |
| 70% | 114 | 505 | 0 | 0 | 0 | 0 | 0 | 0 | 161 | **-259** | **-85** | 529 |
| 80% | 7 | 330 | 0 | 0 | 0 | 0 | 0 | 0 | 144 | **-295** | **-2** | 1,644 |
| 90% | **-46** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 | **-300** | **-51** | 1,409 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 13 | 264 | **-24** | 0 | 0 | 0 | 0 | 0 | 106 | **-207** | **-178** | 381 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **-48** | 714 | **-48** | 0 | 0 | 0 | 0 | 0 | 3 | **-144** | **-113** | 2,086 |
| Above Normal (16%) | 190 | 402 | **-43** | 0 | 0 | 0 | 0 | 0 | **-21** | **-149** | **-120** | **-1,394** |
| Below Normal (13%) | **-67** | **-92** | 2 | 0 | 0 | 0 | 0 | 0 | 274 | **-249** | **-607** | **-280** |
| Dry (24%) | 29 | **-57** | 1 | 0 | 0 | 0 | 0 | 0 | 194 | **-302** | **-113** | **-73** |
| Critical (15%) | **0** | **-2** | **-15** | 0 | 0 | 0 | 0 | 0 | 171 | **-205** | **-96** | **-29** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

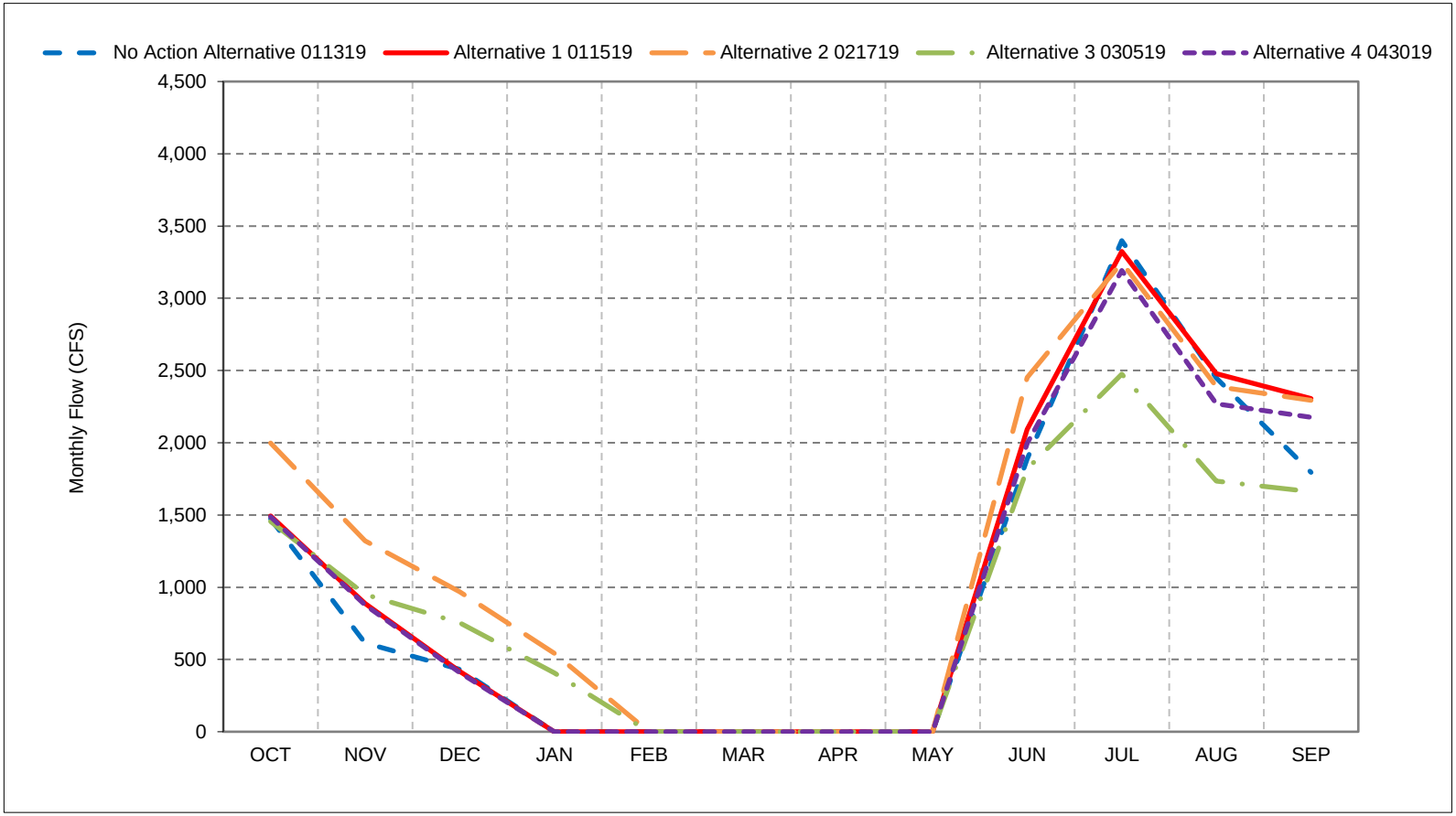
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

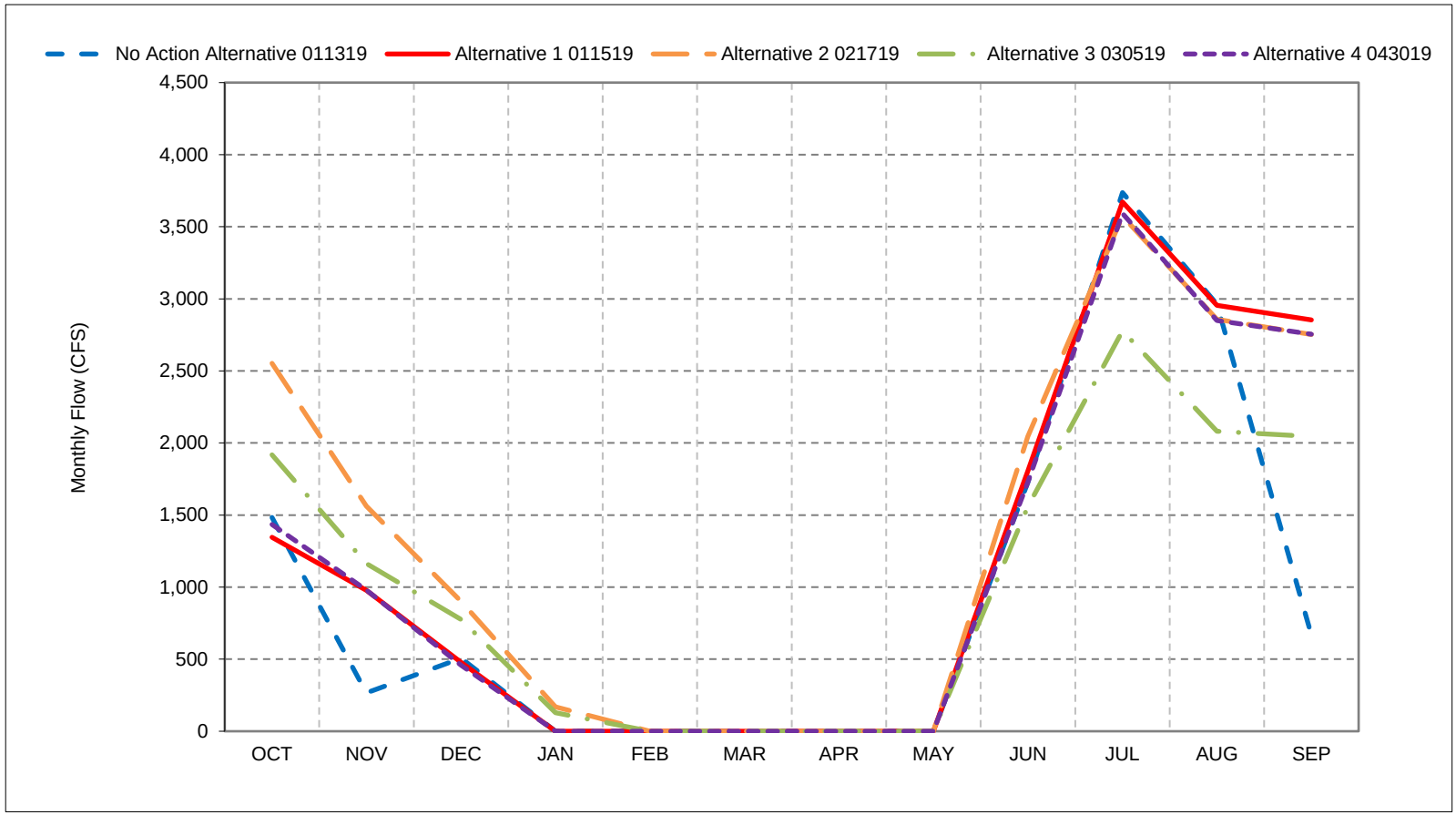
f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Figure 52-1. DCC Flow, Long-Term Average Flow



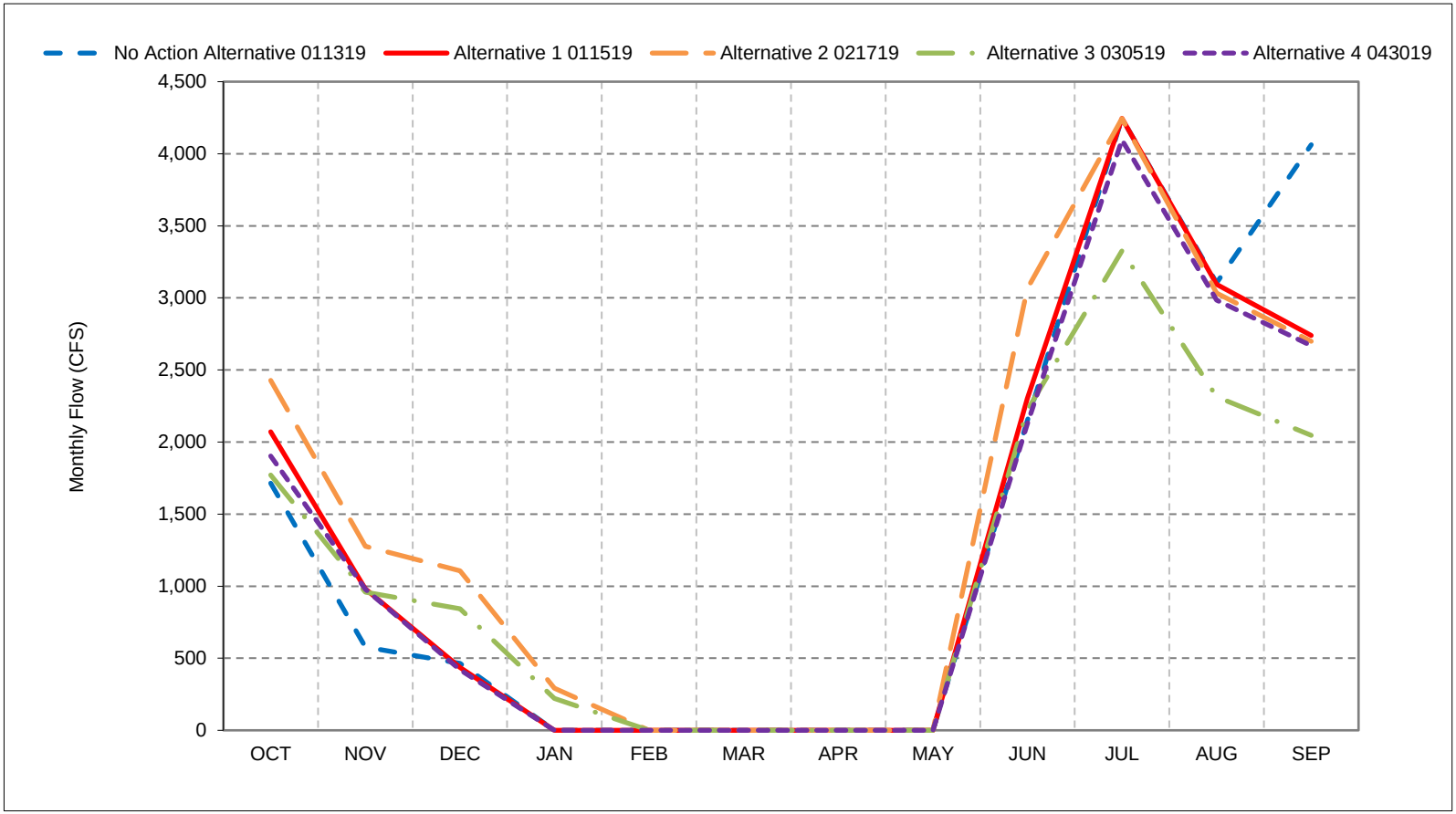

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Figure 52-2. DCC Flow, Wet Year Average Flow



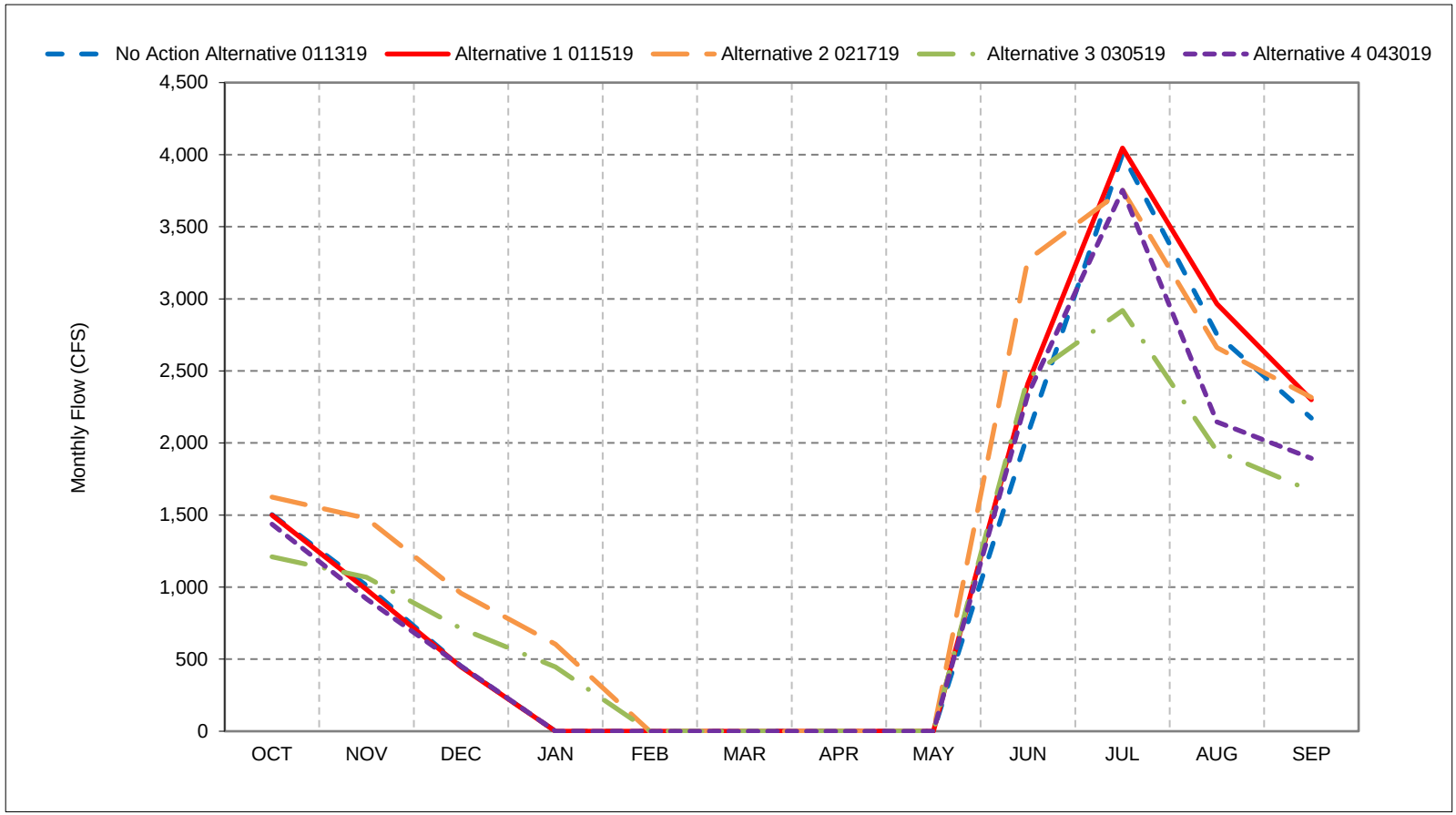

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Figure 52-3. DCC Flow, Above Normal Year Average Flow



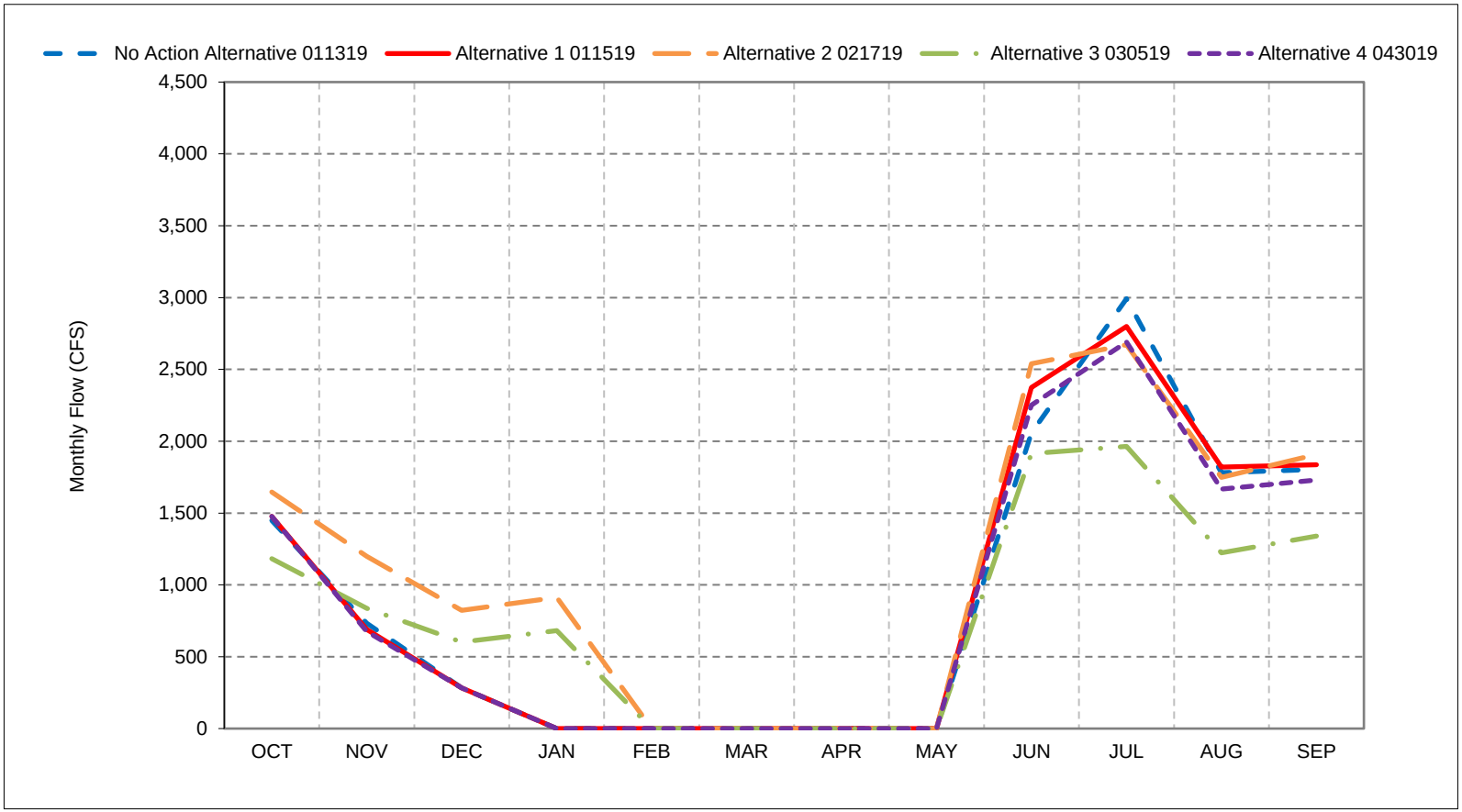

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Figure 52-4. DCC Flow, Below Normal Year Average Flow



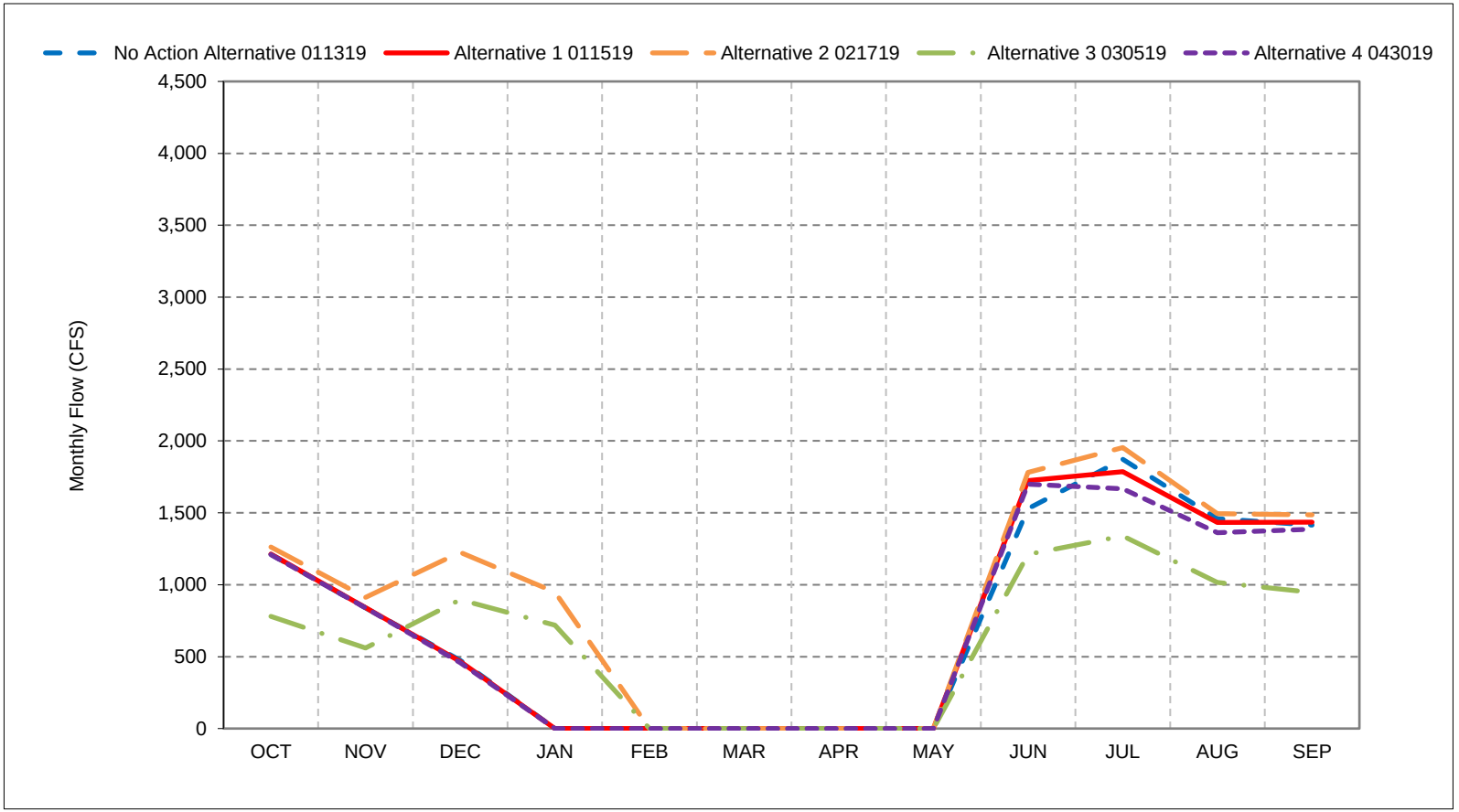

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Figure 52-5. DCC Flow, Dry Year Average Flow



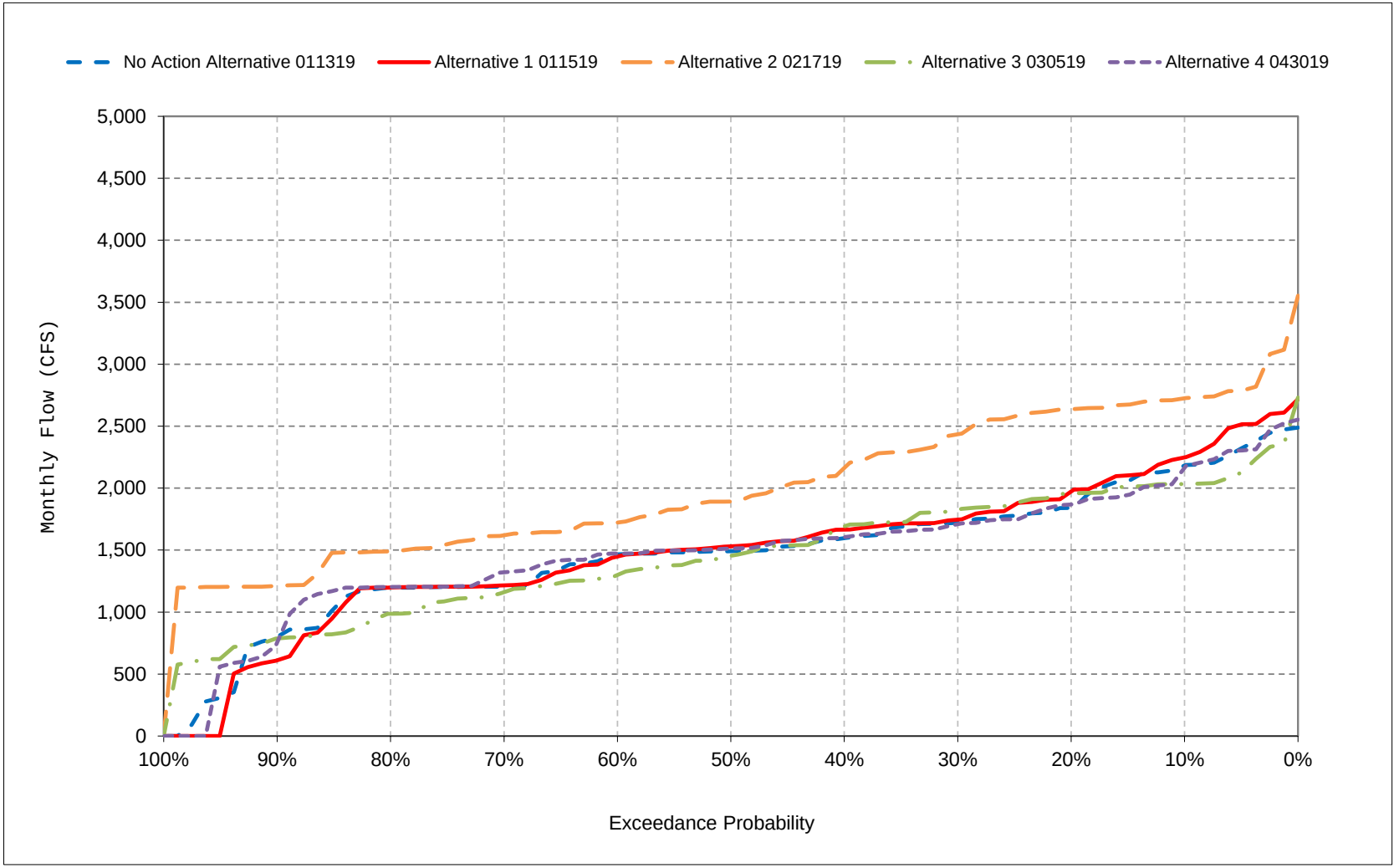

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

## Figure 52-6. DCC Flow, Critical Year Average Flow




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 52-7. DCC Flow, October**

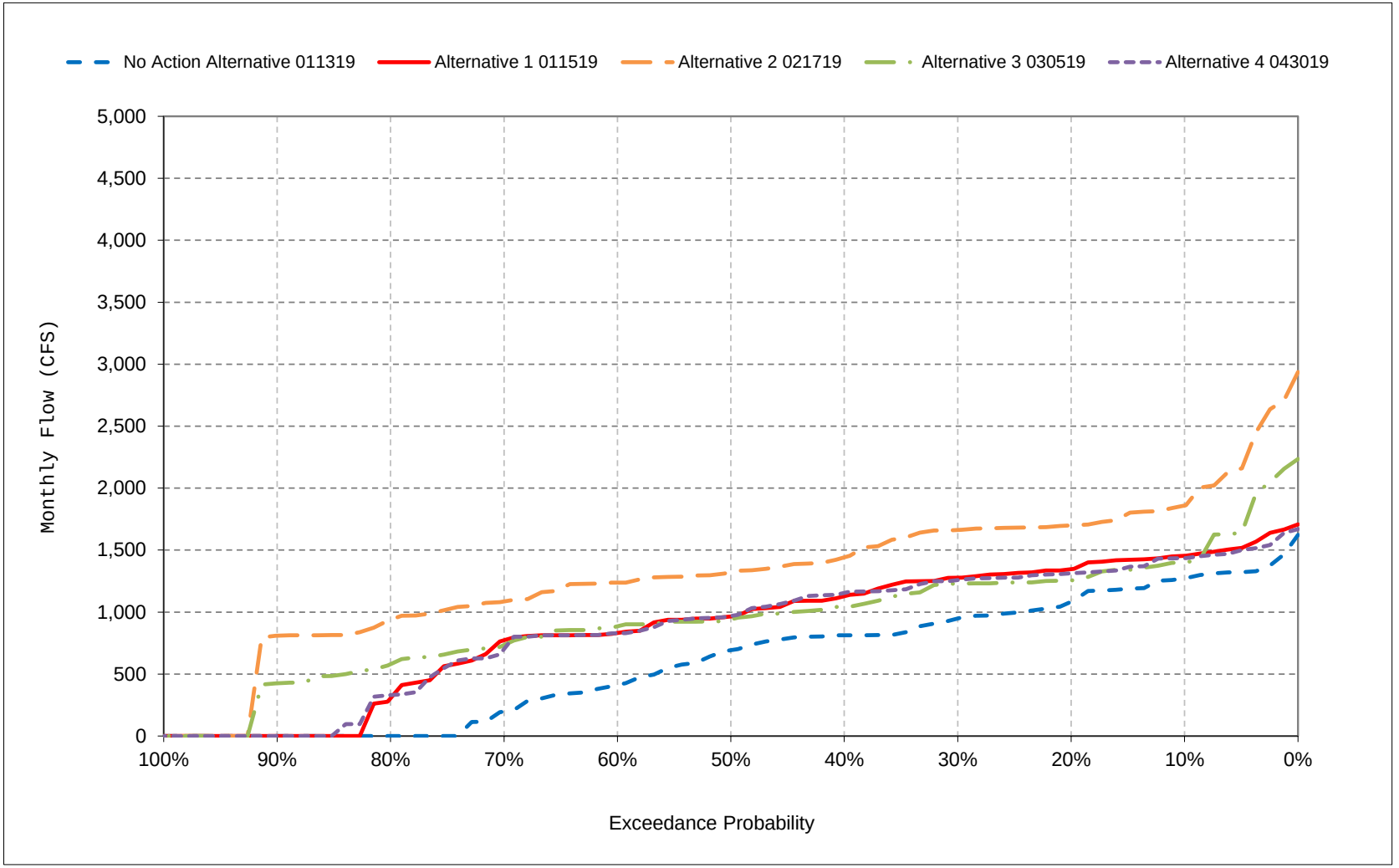



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 52-8. DCC Flow, November**

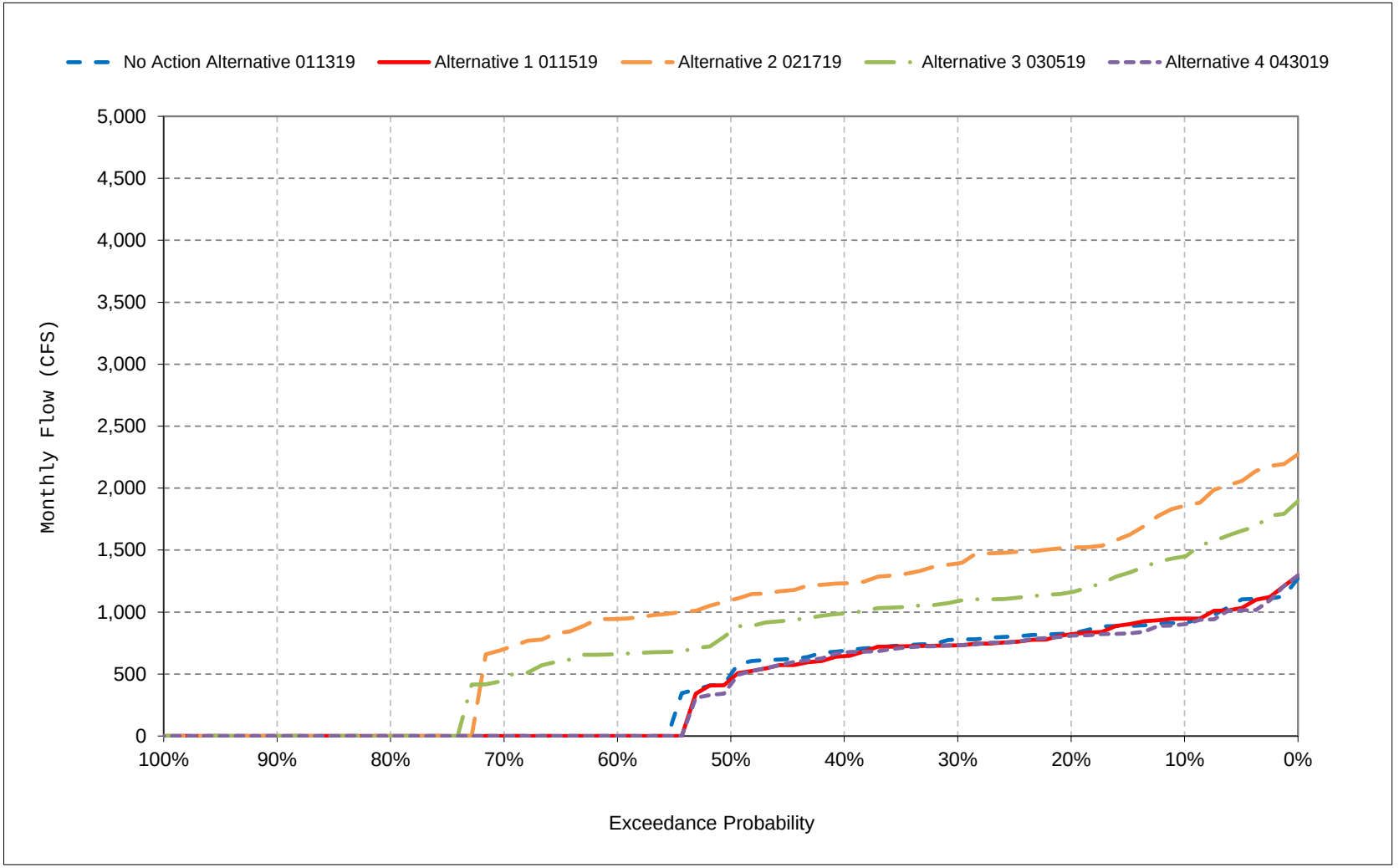



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 52-9. DCC Flow, December**

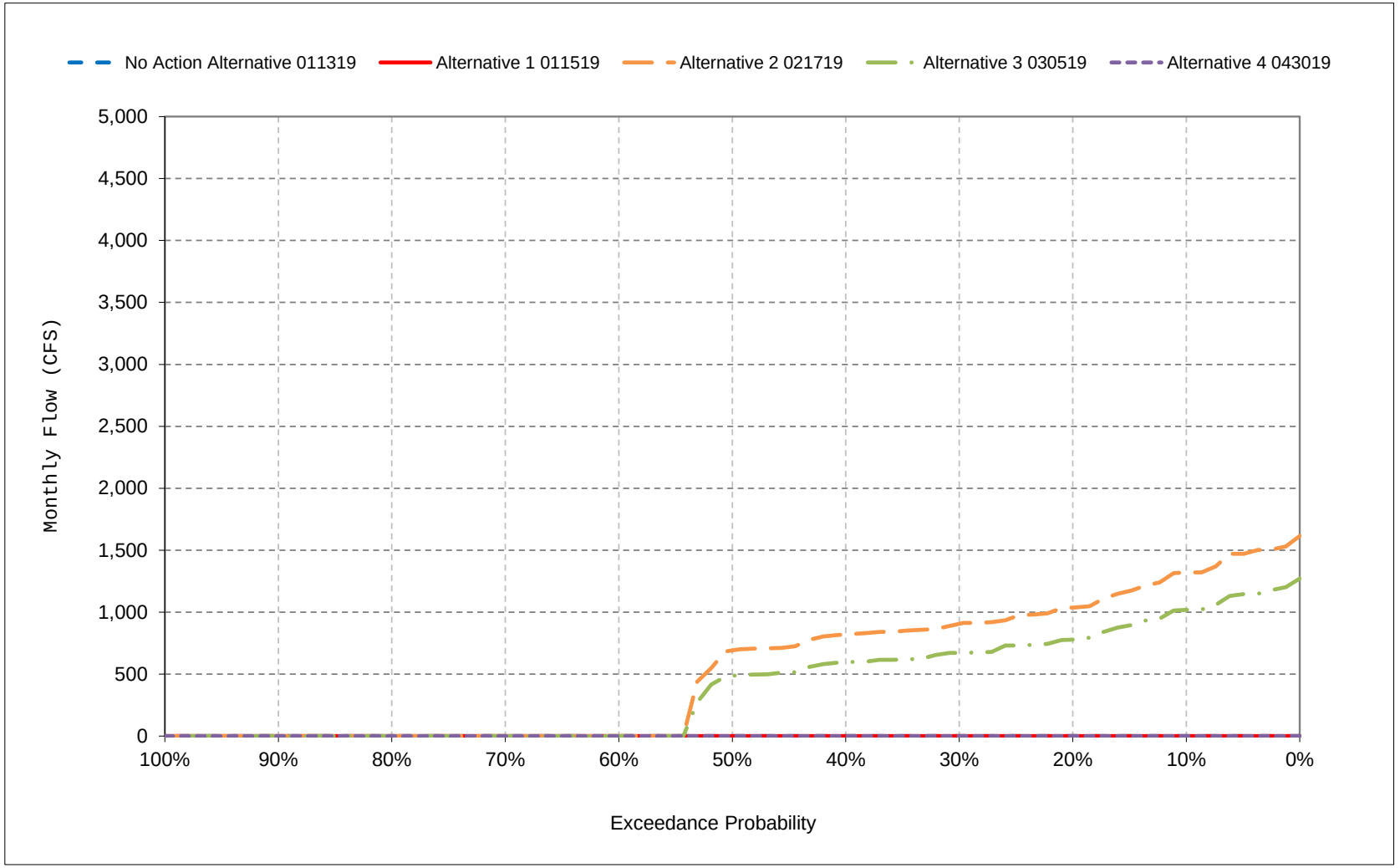



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 52-10. DCC Flow, January**

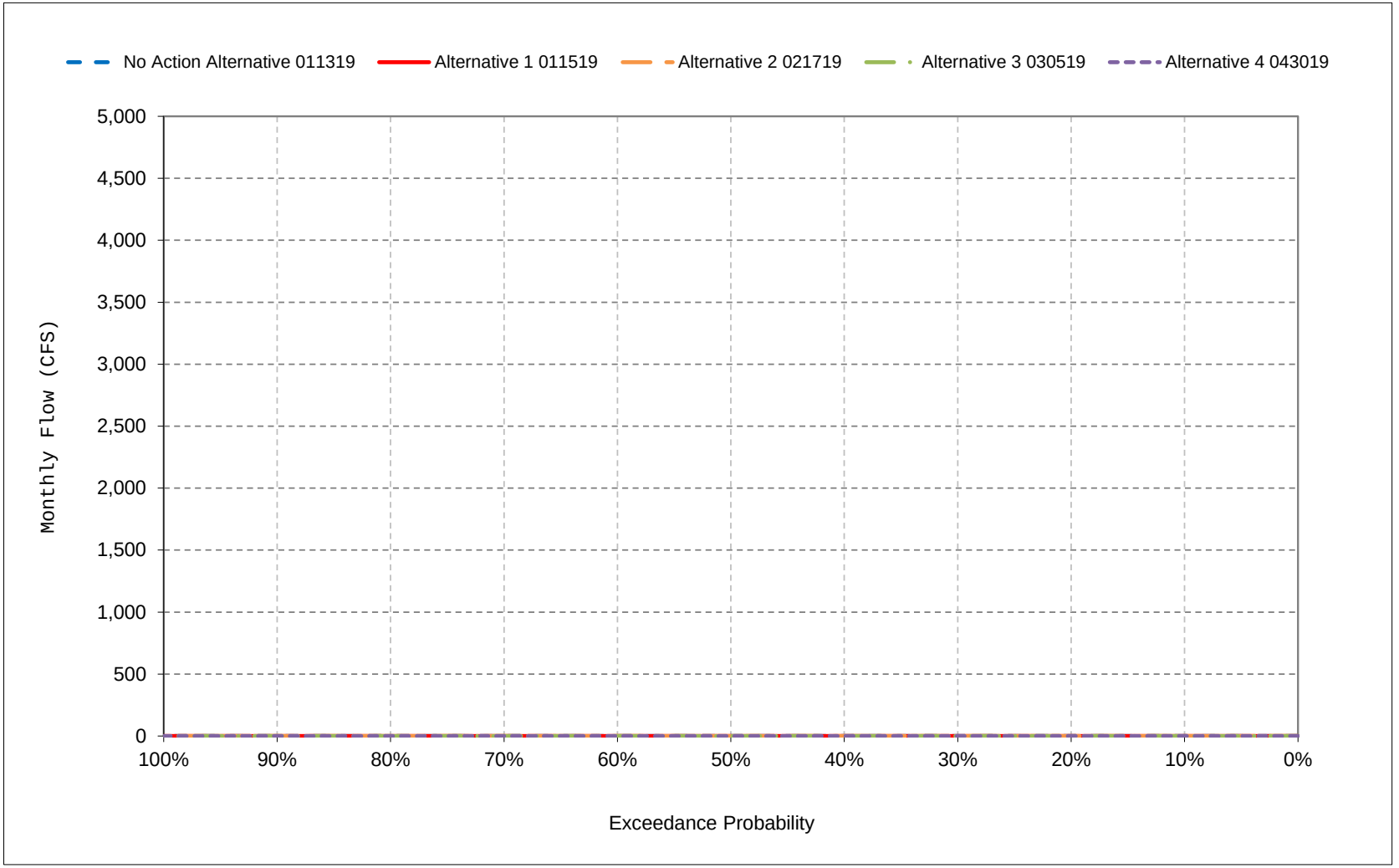



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 52-11. DCC Flow, February**

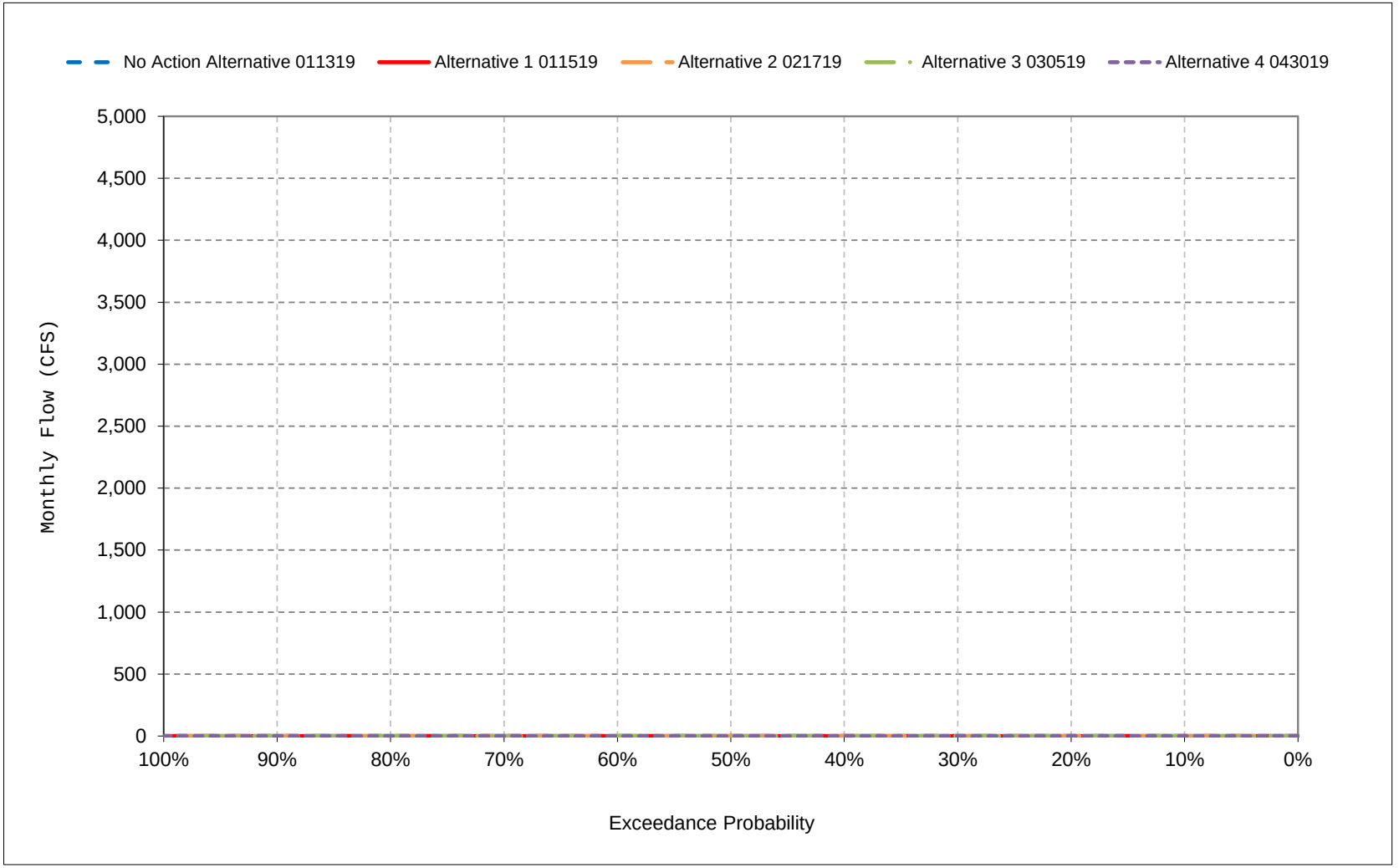



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 52-12. DCC Flow, March**

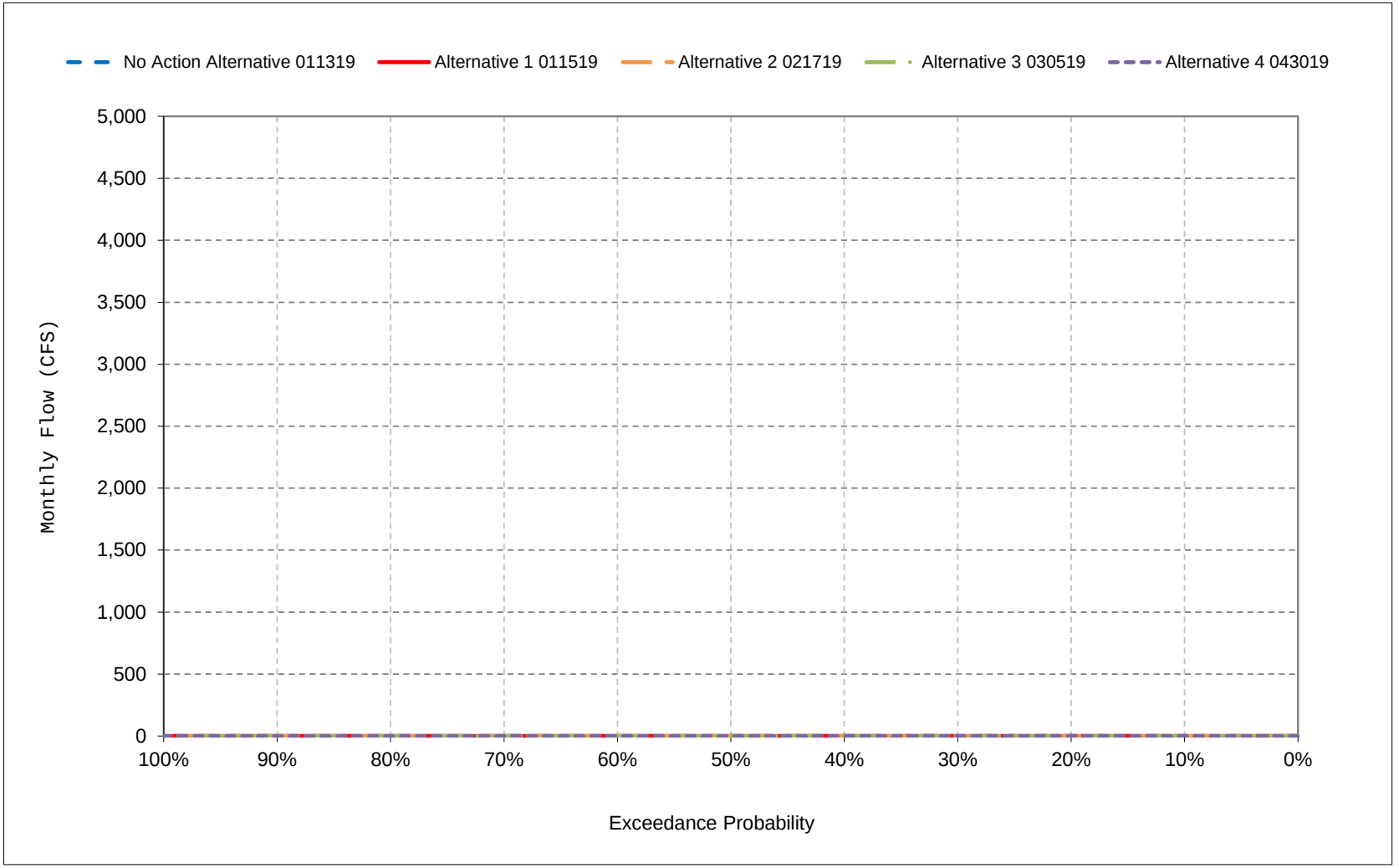



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 52-13. DCC Flow, April**

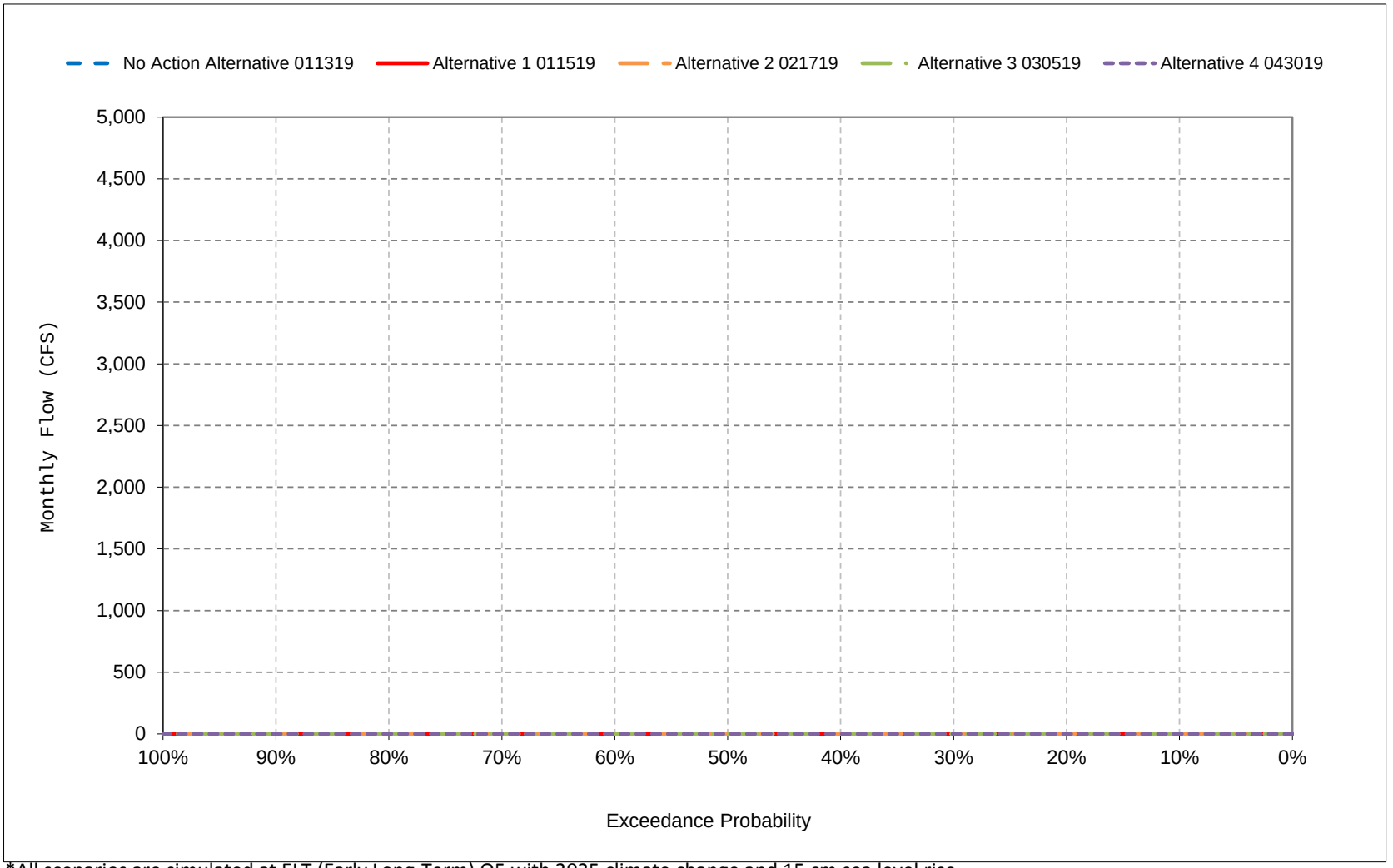



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 52-14. DCC Flow, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 52-15. DCC Flow, June**

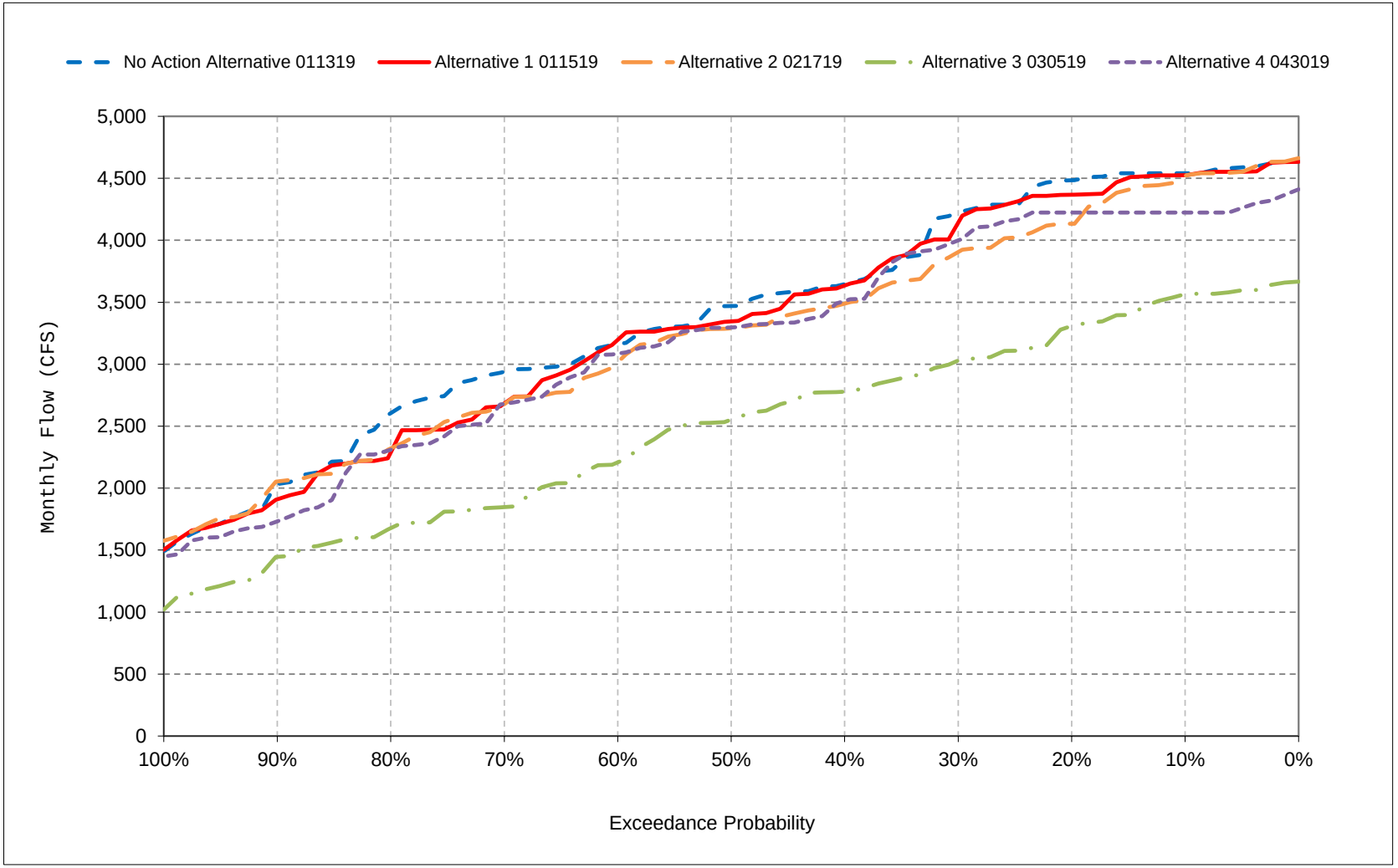



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 52-16. DCC Flow, July**

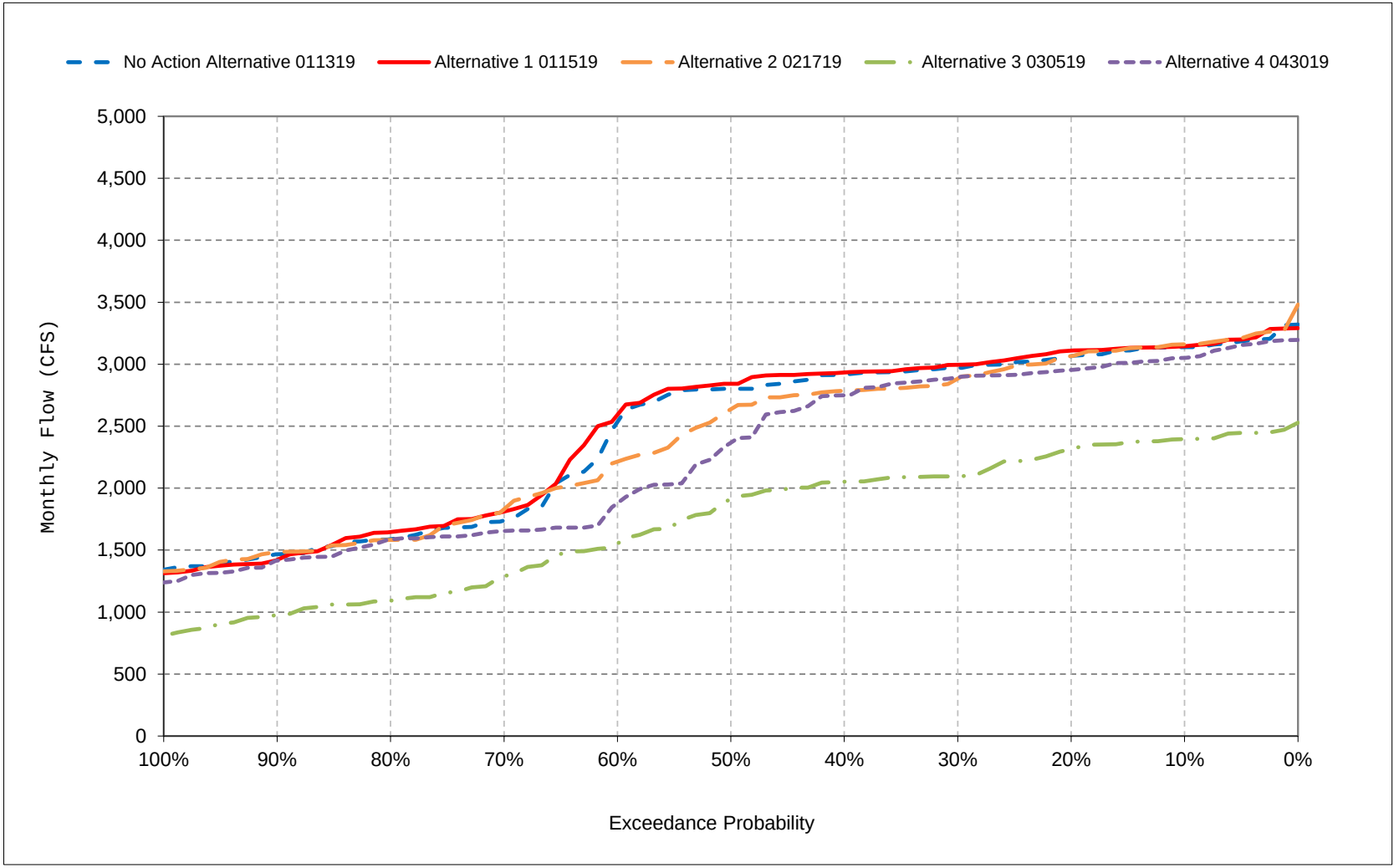



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 52-17. DCC Flow, August**

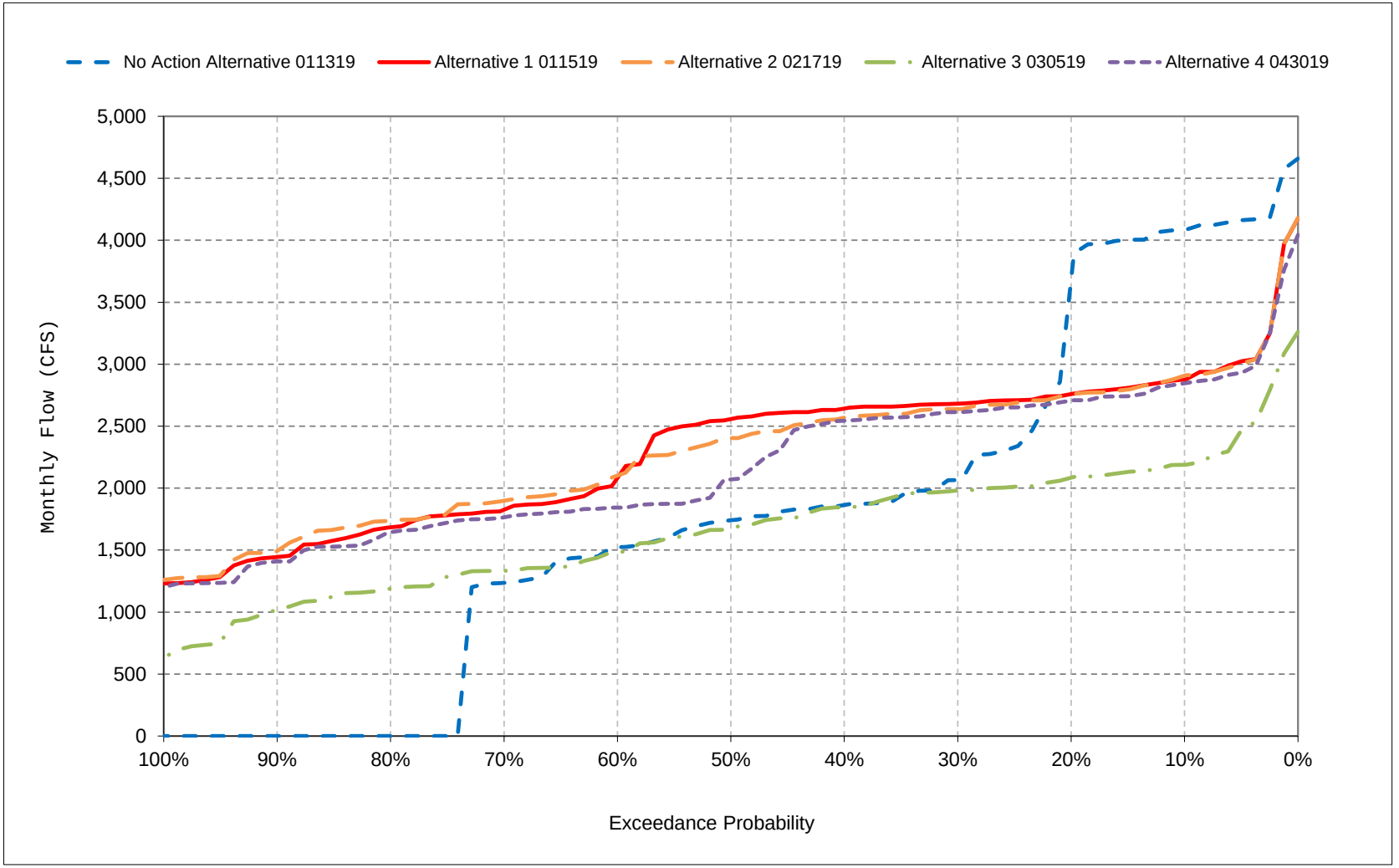



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

**Figure 52-18. DCC Flow, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

# Table 53-1. Total Delta Exports, Monthly Delivery

## No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 7,819 | 11,248 | 11,719 | 9,868 | 12,025 | 10,933 | 4,070 | 3,934 | 8,587 | 11,511 | 11,780 | 11,280 |
| 20% | 7,553 | 9,335 | 11,653 | 7,982 | 9,886 | 10,082 | 3,046 | 2,488 | 6,033 | 11,280 | 11,780 | 11,280 |
| 30% | 6,693 | 8,207 | 10,209 | 6,932 | 8,445 | 8,885 | 2,653 | 2,116 | 5,707 | 10,886 | 11,630 | 11,280 |
| 40% | 6,237 | 7,573 | 8,872 | 6,792 | 7,458 | 7,598 | 2,336 | 1,720 | 5,344 | 10,413 | 11,280 | 11,150 |
| 50% | 5,757 | 7,125 | 8,023 | 6,615 | 6,717 | 6,893 | 2,168 | 1,567 | 4,141 | 9,927 | 10,345 | 10,004 |
| 60% | 5,415 | 6,669 | 7,733 | 6,513 | 6,386 | 6,479 | 2,069 | 1,500 | 3,485 | 8,524 | 8,485 | 7,744 |
| 70% | 5,105 | 6,257 | 7,384 | 6,198 | 5,818 | 5,341 | 1,899 | 1,500 | 3,233 | 7,375 | 4,339 | 6,929 |
| 80% | 4,708 | 5,370 | 6,346 | 5,659 | 4,561 | 4,813 | 1,813 | 1,500 | 2,191 | 5,931 | 3,232 | 6,075 |
| 90% | 4,264 | 4,649 | 5,344 | 4,747 | 3,037 | 2,800 | 1,532 | 1,500 | 713 | 2,661 | 2,247 | 4,439 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,090 | 7,359 | 8,523 | 7,058 | 7,273 | 7,160 | 2,593 | 2,307 | 4,606 | 8,437 | 8,117 | 8,714 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 6,698 | 7,714 | 10,288 | 8,533 | 9,784 | 9,931 | 3,377 | 3,410 | 7,533 | 10,642 | 11,658 | 10,986 |
| Above Normal (16%) | 6,731 | 8,709 | 9,689 | 6,637 | 7,894 | 8,032 | 2,193 | 1,712 | 5,248 | 9,215 | 11,451 | 11,135 |
| Below Normal (13%) | 7,078 | 7,458 | 7,770 | 6,309 | 6,523 | 6,552 | 2,248 | 1,633 | 3,468 | 10,232 | 9,338 | 8,807 |
| Dry (24%) | 5,458 | 7,609 | 7,380 | 6,431 | 5,712 | 5,790 | 2,633 | 2,068 | 3,170 | 7,661 | 4,131 | 6,779 |
| Critical (15%) | 4,228 | 4,622 | 6,035 | 6,050 | 4,450 | 3,051 | 1,576 | 1,575 | 1,004 | 2,467 | 2,357 | 4,309 |

## Alternative 1 011519

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 11,280 | 11,280 | 11,684 | 9,742 | 11,885 | 10,485 | 8,598 | 8,505 | 8,066 | 11,522 | 11,780 | 11,280 |
| 20% | 11,191 | 11,280 | 10,895 | 8,028 | 9,808 | 9,518 | 7,861 | 7,462 | 5,943 | 11,280 | 11,780 | 11,280 |
| 30% | 9,908 | 10,288 | 8,539 | 7,465 | 8,460 | 8,526 | 7,150 | 6,351 | 5,343 | 11,029 | 11,610 | 11,280 |
| 40% | 8,567 | 9,148 | 8,099 | 7,104 | 7,671 | 7,650 | 6,773 | 5,806 | 5,020 | 10,320 | 11,280 | 11,280 |
| 50% | 7,056 | 8,297 | 7,323 | 7,013 | 7,120 | 7,104 | 6,006 | 5,260 | 4,889 | 9,421 | 10,888 | 11,023 |
| 60% | 5,777 | 7,160 | 7,037 | 6,821 | 6,759 | 6,797 | 5,131 | 4,336 | 4,781 | 8,110 | 9,411 | 8,492 |
| 70% | 5,287 | 6,087 | 6,684 | 6,578 | 6,547 | 6,486 | 3,606 | 3,711 | 4,634 | 6,592 | 4,459 | 6,793 |
| 80% | 4,735 | 5,139 | 6,299 | 6,339 | 6,264 | 6,038 | 3,118 | 3,234 | 4,494 | 4,469 | 3,383 | 5,901 |
| 90% | 4,091 | 4,627 | 5,225 | 6,128 | 5,988 | 4,997 | 2,486 | 2,377 | 2,154 | 1,996 | 2,279 | 4,334 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,487 | 8,086 | 7,975 | 7,451 | 8,015 | 7,564 | 5,564 | 5,284 | 5,266 | 8,165 | 8,265 | 8,929 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 9,386 | 10,055 | 9,813 | 8,846 | 9,753 | 9,429 | 7,853 | 7,654 | 7,301 | 10,618 | 11,579 | 11,290 |
| Above Normal (16%) | 9,376 | 8,967 | 8,110 | 7,536 | 8,043 | 7,807 | 6,627 | 5,678 | 5,096 | 9,615 | 11,393 | 11,279 |
| Below Normal (13%) | 7,177 | 7,510 | 7,155 | 7,046 | 7,594 | 7,099 | 4,985 | 4,498 | 5,124 | 10,458 | 10,437 | 9,326 |
| Dry (24%) | 5,903 | 7,327 | 7,223 | 6,579 | 7,082 | 7,024 | 4,182 | 4,136 | 4,714 | 6,500 | 4,382 | 6,847 |
| Critical (15%) | 4,251 | 4,655 | 5,852 | 6,160 | 6,159 | 4,587 | 2,289 | 2,356 | 2,093 | 1,955 | 2,179 | 4,373 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,461 | 32 | **-35** | **-126** | **-140** | **-449** | 4,529 | 4,571 | **-521** | 11 | 0 | 0 |
| 20% | 3,638 | 1,945 | **-758** | 46 | **-78** | **-565** | 4,815 | 4,974 | **-90** | 0 | 0 | 0 |
| 30% | 3,215 | 2,081 | **-1,670** | 533 | 15 | **-359** | 4,497 | 4,235 | **-364** | 144 | **-20** | 0 |
| 40% | 2,330 | 1,575 | **-773** | 312 | 213 | 53 | 4,438 | 4,086 | **-324** | **-93** | 0 | 130 |
| 50% | 1,299 | 1,172 | **-700** | 398 | 402 | 211 | 3,838 | 3,693 | 747 | **-506** | 543 | 1,019 |
| 60% | 361 | 491 | **-696** | 308 | 373 | 318 | 3,062 | 2,836 | 1,296 | **-415** | 926 | 747 |
| 70% | 182 | **-170** | **-700** | 380 | 729 | 1,145 | 1,707 | 2,211 | 1,401 | **-783** | 120 | **-136** |
| 80% | 27 | **-231** | **-47** | 680 | 1,703 | 1,225 | 1,304 | 1,734 | 2,304 | **-1,462** | 151 | **-173** |
| 90% | **-174** | **-21** | **-118** | 1,381 | 2,951 | 2,198 | 954 | 877 | 1,441 | **-665** | 32 | **-105** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,397 | 726 | **-548** | 393 | 742 | 404 | 2,971 | 2,977 | 660 | **-272** | 149 | 215 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,688 | 2,341 | **-474** | 312 | **-31** | **-502** | 4,476 | 4,244 | **-232** | **-24** | **-79** | 304 |
| Above Normal (16%) | 2,645 | 258 | **-1,579** | 899 | 149 | **-225** | 4,433 | 3,966 | **-152** | 400 | **-58** | 144 |
| Below Normal (13%) | 99 | 52 | **-615** | 737 | 1,071 | 548 | 2,737 | 2,865 | 1,656 | 226 | 1,099 | 518 |
| Dry (24%) | 445 | **-281** | **-157** | 148 | 1,371 | 1,234 | 1,549 | 2,069 | 1,544 | **-1,161** | 252 | 69 |
| Critical (15%) | 24 | 34 | **-183** | 110 | 1,709 | 1,535 | 713 | 781 | 1,089 | **-512** | **-178** | 64 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 53-2. Total Delta Exports, Monthly Delivery

## No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 7,819 | 11,248 | 11,719 | 9,868 | 12,025 | 10,933 | 4,070 | 3,934 | 8,587 | 11,511 | 11,780 | 11,280 |
| 20% | 7,553 | 9,335 | 11,653 | 7,982 | 9,886 | 10,082 | 3,046 | 2,488 | 6,033 | 11,280 | 11,780 | 11,280 |
| 30% | 6,693 | 8,207 | 10,209 | 6,932 | 8,445 | 8,885 | 2,653 | 2,116 | 5,707 | 10,886 | 11,630 | 11,280 |
| 40% | 6,237 | 7,573 | 8,872 | 6,792 | 7,458 | 7,598 | 2,336 | 1,720 | 5,344 | 10,413 | 11,280 | 11,150 |
| 50% | 5,757 | 7,125 | 8,023 | 6,615 | 6,717 | 6,893 | 2,168 | 1,567 | 4,141 | 9,927 | 10,345 | 10,004 |
| 60% | 5,415 | 6,669 | 7,733 | 6,513 | 6,386 | 6,479 | 2,069 | 1,500 | 3,485 | 8,524 | 8,485 | 7,744 |
| 70% | 5,105 | 6,257 | 7,384 | 6,198 | 5,818 | 5,341 | 1,899 | 1,500 | 3,233 | 7,375 | 4,339 | 6,929 |
| 80% | 4,708 | 5,370 | 6,346 | 5,659 | 4,561 | 4,813 | 1,813 | 1,500 | 2,191 | 5,931 | 3,232 | 6,075 |
| 90% | 4,264 | 4,649 | 5,344 | 4,747 | 3,037 | 2,800 | 1,532 | 1,500 | 713 | 2,661 | 2,247 | 4,439 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,090 | 7,359 | 8,523 | 7,058 | 7,273 | 7,160 | 2,593 | 2,307 | 4,606 | 8,437 | 8,117 | 8,714 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 6,698 | 7,714 | 10,288 | 8,533 | 9,784 | 9,931 | 3,377 | 3,410 | 7,533 | 10,642 | 11,658 | 10,986 |
| Above Normal (16%) | 6,731 | 8,709 | 9,689 | 6,637 | 7,894 | 8,032 | 2,193 | 1,712 | 5,248 | 9,215 | 11,451 | 11,135 |
| Below Normal (13%) | 7,078 | 7,458 | 7,770 | 6,309 | 6,523 | 6,552 | 2,248 | 1,633 | 3,468 | 10,232 | 9,338 | 8,807 |
| Dry (24%) | 5,458 | 7,609 | 7,380 | 6,431 | 5,712 | 5,790 | 2,633 | 2,068 | 3,170 | 7,661 | 4,131 | 6,779 |
| Critical (15%) | 4,228 | 4,622 | 6,035 | 6,050 | 4,450 | 3,051 | 1,576 | 1,575 | 1,004 | 2,467 | 2,357 | 4,309 |

## Alternative 2 021719

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 11,280 | 11,280 | 12,161 | 13,348 | 13,908 | 11,762 | 8,673 | 9,292 | 11,152 | 11,588 | 11,780 | 11,280 |
| 20% | 11,280 | 11,280 | 11,770 | 12,520 | 12,557 | 11,219 | 8,360 | 7,963 | 8,823 | 11,434 | 11,780 | 11,280 |
| 30% | 10,007 | 11,049 | 11,679 | 12,077 | 12,189 | 10,095 | 8,024 | 7,365 | 8,306 | 11,261 | 11,527 | 11,280 |
| 40% | 9,303 | 10,202 | 11,639 | 11,972 | 11,962 | 9,460 | 7,207 | 6,609 | 7,947 | 10,823 | 10,892 | 11,264 |
| 50% | 7,272 | 9,356 | 11,151 | 11,809 | 10,857 | 8,923 | 6,642 | 6,060 | 7,413 | 10,105 | 9,229 | 10,503 |
| 60% | 5,836 | 7,709 | 9,599 | 10,093 | 9,161 | 8,070 | 5,678 | 4,737 | 6,959 | 8,707 | 6,394 | 8,922 |
| 70% | 4,774 | 7,375 | 8,982 | 8,781 | 8,490 | 7,096 | 4,160 | 4,217 | 6,339 | 6,238 | 5,013 | 7,223 |
| 80% | 3,974 | 5,818 | 8,117 | 8,132 | 7,423 | 6,023 | 3,715 | 3,761 | 5,101 | 4,564 | 3,009 | 6,398 |
| 90% | 3,550 | 4,688 | 6,345 | 5,982 | 6,106 | 4,866 | 3,108 | 3,073 | 2,342 | 2,901 | 2,255 | 5,404 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,477 | 8,593 | 9,990 | 10,341 | 10,099 | 8,465 | 6,084 | 5,918 | 6,951 | 8,361 | 7,863 | 9,004 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 10,444 | 10,544 | 11,032 | 11,749 | 11,170 | 9,584 | 7,932 | 8,152 | 9,121 | 10,633 | 11,314 | 11,086 |
| Above Normal (16%) | 9,800 | 8,771 | 10,557 | 11,956 | 11,361 | 9,938 | 7,599 | 6,800 | 8,165 | 10,657 | 11,109 | 11,124 |
| Below Normal (13%) | 6,993 | 8,368 | 9,441 | 10,378 | 9,252 | 8,195 | 5,790 | 5,373 | 8,006 | 10,533 | 8,643 | 9,367 |
| Dry (24%) | 4,726 | 8,315 | 9,665 | 9,031 | 9,872 | 8,391 | 4,830 | 4,595 | 5,581 | 5,982 | 4,046 | 7,295 |
| Critical (15%) | 3,560 | 4,843 | 8,161 | 7,693 | 7,565 | 4,818 | 2,799 | 2,826 | 2,250 | 2,925 | 2,517 | 4,713 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,461 | 32 | 442 | 3,480 | 1,883 | 829 | 4,603 | 5,358 | 2,565 | 77 | 0 | 0 |
| 20% | 3,727 | 1,945 | 117 | 4,538 | 2,671 | 1,137 | 5,314 | 5,475 | 2,790 | 154 | 0 | 0 |
| 30% | 3,314 | 2,842 | 1,470 | 5,145 | 3,744 | 1,210 | 5,371 | 5,249 | 2,600 | 376 | **-103** | 0 |
| 40% | 3,066 | 2,629 | 2,767 | 5,180 | 4,504 | 1,862 | 4,871 | 4,890 | 2,603 | 411 | **-388** | 114 |
| 50% | 1,516 | 2,231 | 3,128 | 5,194 | 4,140 | 2,029 | 4,475 | 4,493 | 3,271 | 178 | **-1,116** | 499 |
| 60% | 421 | 1,039 | 1,867 | 3,581 | 2,776 | 1,591 | 3,610 | 3,237 | 3,474 | 182 | **-2,091** | 1,177 |
| 70% | **-331** | 1,118 | 1,598 | 2,584 | 2,672 | 1,755 | 2,261 | 2,717 | 3,106 | **-1,137** | 675 | 293 |
| 80% | **-735** | 448 | 1,771 | 2,473 | 2,863 | 1,209 | 1,902 | 2,261 | 2,910 | **-1,367** | **-223** | 324 |
| 90% | **-715** | 40 | 1,001 | 1,236 | 3,069 | 2,066 | 1,576 | 1,573 | 1,629 | 240 | 8 | 965 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,387 | 1,234 | 1,467 | 3,283 | 2,826 | 1,305 | 3,491 | 3,611 | 2,345 | **-76** | **-254** | 290 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,746 | 2,830 | 745 | 3,216 | 1,386 | **-347** | 4,555 | 4,742 | 1,588 | **-9** | **-344** | 100 |
| Above Normal (16%) | 3,069 | 62 | 868 | 5,318 | 3,466 | 1,906 | 5,405 | 5,087 | 2,917 | 1,442 | **-342** | **-11** |
| Below Normal (13%) | **-85** | 910 | 1,672 | 4,069 | 2,729 | 1,644 | 3,542 | 3,740 | 4,538 | 301 | **-695** | 559 |
| Dry (24%) | **-732** | 706 | 2,285 | 2,600 | 4,160 | 2,600 | 2,196 | 2,527 | 2,412 | **-1,679** | **-85** | 516 |
| Critical (15%) | **-668** | 221 | 2,126 | 1,643 | 3,115 | 1,767 | 1,223 | 1,251 | 1,247 | 458 | 160 | 404 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 53-3. Total Delta Exports, Monthly Delivery

### No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 7,819 | 11,248 | 11,719 | 9,868 | 12,025 | 10,933 | 4,070 | 3,934 | 8,587 | 11,511 | 11,780 | 11,280 |
| 20% | 7,553 | 9,335 | 11,653 | 7,982 | 9,886 | 10,082 | 3,046 | 2,488 | 6,033 | 11,280 | 11,780 | 11,280 |
| 30% | 6,693 | 8,207 | 10,209 | 6,932 | 8,445 | 8,885 | 2,653 | 2,116 | 5,707 | 10,886 | 11,630 | 11,280 |
| 40% | 6,237 | 7,573 | 8,872 | 6,792 | 7,458 | 7,598 | 2,336 | 1,720 | 5,344 | 10,413 | 11,280 | 11,150 |
| 50% | 5,757 | 7,125 | 8,023 | 6,615 | 6,717 | 6,893 | 2,168 | 1,567 | 4,141 | 9,927 | 10,345 | 10,004 |
| 60% | 5,415 | 6,669 | 7,733 | 6,513 | 6,386 | 6,479 | 2,069 | 1,500 | 3,485 | 8,524 | 8,485 | 7,744 |
| 70% | 5,105 | 6,257 | 7,384 | 6,198 | 5,818 | 5,341 | 1,899 | 1,500 | 3,233 | 7,375 | 4,339 | 6,929 |
| 80% | 4,708 | 5,370 | 6,346 | 5,659 | 4,561 | 4,813 | 1,813 | 1,500 | 2,191 | 5,931 | 3,232 | 6,075 |
| 90% | 4,264 | 4,649 | 5,344 | 4,747 | 3,037 | 2,800 | 1,532 | 1,500 | 713 | 2,661 | 2,247 | 4,439 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,090 | 7,359 | 8,523 | 7,058 | 7,273 | 7,160 | 2,593 | 2,307 | 4,606 | 8,437 | 8,117 | 8,714 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 6,698 | 7,714 | 10,288 | 8,533 | 9,784 | 9,931 | 3,377 | 3,410 | 7,533 | 10,642 | 11,658 | 10,986 |
| Above Normal (16%) | 6,731 | 8,709 | 9,689 | 6,637 | 7,894 | 8,032 | 2,193 | 1,712 | 5,248 | 9,215 | 11,451 | 11,135 |
| Below Normal (13%) | 7,078 | 7,458 | 7,770 | 6,309 | 6,523 | 6,552 | 2,248 | 1,633 | 3,468 | 10,232 | 9,338 | 8,807 |
| Dry (24%) | 5,458 | 7,609 | 7,380 | 6,431 | 5,712 | 5,790 | 2,633 | 2,068 | 3,170 | 7,661 | 4,131 | 6,779 |
| Critical (15%) | 4,228 | 4,622 | 6,035 | 6,050 | 4,450 | 3,051 | 1,576 | 1,575 | 1,004 | 2,467 | 2,357 | 4,309 |

### Alternative 3 021719

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 11,280 | 11,280 | 12,161 | 13,348 | 13,918 | 11,774 | 8,668 | 9,292 | 11,153 | 11,605 | 11,780 | 11,280 |
| 20% | 11,280 | 11,280 | 11,800 | 12,335 | 12,906 | 10,934 | 8,297 | 7,963 | 8,672 | 11,423 | 11,780 | 11,280 |
| 30% | 10,235 | 11,280 | 11,684 | 12,098 | 12,191 | 10,198 | 7,979 | 7,360 | 8,081 | 11,120 | 11,568 | 11,280 |
| 40% | 9,084 | 10,186 | 11,658 | 11,981 | 11,962 | 9,468 | 7,138 | 6,592 | 7,823 | 10,833 | 10,603 | 10,991 |
| 50% | 7,405 | 9,144 | 11,496 | 11,828 | 10,611 | 8,980 | 6,572 | 6,023 | 7,312 | 10,075 | 8,736 | 9,800 |
| 60% | 5,491 | 8,267 | 10,676 | 10,353 | 9,577 | 8,095 | 5,600 | 4,800 | 6,874 | 8,004 | 6,227 | 8,769 |
| 70% | 4,660 | 7,298 | 9,579 | 8,712 | 8,603 | 6,815 | 4,053 | 4,263 | 6,310 | 5,996 | 4,678 | 7,300 |
| 80% | 4,047 | 5,951 | 7,850 | 7,861 | 7,414 | 5,942 | 3,719 | 3,964 | 5,021 | 4,224 | 2,969 | 6,426 |
| 90% | 3,490 | 4,483 | 6,721 | 5,758 | 5,565 | 4,904 | 2,930 | 3,070 | 2,279 | 2,884 | 2,128 | 5,474 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,349 | 8,609 | 10,181 | 10,262 | 10,087 | 8,393 | 5,981 | 5,923 | 6,848 | 8,230 | 7,723 | 8,948 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 10,457 | 10,615 | 11,287 | 11,318 | 11,364 | 9,610 | 7,594 | 8,127 | 9,128 | 10,836 | 10,893 | 10,930 |
| Above Normal (16%) | 9,691 | 9,228 | 10,757 | 12,200 | 11,348 | 9,669 | 7,636 | 6,801 | 7,829 | 10,197 | 11,222 | 11,032 |
| Below Normal (13%) | 6,998 | 8,294 | 9,549 | 10,506 | 8,719 | 8,234 | 5,810 | 5,373 | 7,805 | 10,386 | 8,612 | 9,313 |
| Dry (24%) | 4,466 | 8,218 | 9,787 | 9,104 | 9,825 | 8,198 | 4,819 | 4,670 | 5,612 | 5,754 | 4,015 | 7,351 |
| Critical (15%) | 3,204 | 4,531 | 8,398 | 7,580 | 7,647 | 4,843 | 2,789 | 2,792 | 2,028 | 2,603 | 2,430 | 4,722 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,461 | 32 | 442 | 3,480 | 1,893 | 840 | 4,598 | 5,358 | 2,566 | 94 | 0 | 0 |
| 20% | 3,727 | 1,945 | 146 | 4,353 | 3,020 | 852 | 5,251 | 5,476 | 2,639 | 143 | 0 | 0 |
| 30% | 3,542 | 3,073 | 1,475 | 5,166 | 3,746 | 1,313 | 5,325 | 5,244 | 2,375 | 234 | **-62** | 0 |
| 40% | 2,847 | 2,614 | 2,786 | 5,189 | 4,504 | 1,870 | 4,803 | 4,872 | 2,479 | 420 | **-677** | **-159** |
| 50% | 1,648 | 2,019 | 3,473 | 5,213 | 3,894 | 2,087 | 4,404 | 4,456 | 3,170 | 148 | **-1,609** | **-204** |
| 60% | 75 | 1,597 | 2,943 | 3,840 | 3,191 | 1,616 | 3,531 | 3,300 | 3,389 | **-520** | **-2,258** | 1,025 |
| 70% | **-445** | 1,040 | 2,195 | 2,514 | 2,785 | 1,474 | 2,154 | 2,763 | 3,077 | **-1,379** | 339 | 370 |
| 80% | **-662** | 580 | 1,504 | 2,202 | 2,854 | 1,128 | 1,905 | 2,464 | 2,830 | **-1,707** | **-263** | 352 |
| 90% | **-774** | **-165** | 1,377 | 1,011 | 2,527 | 2,105 | 1,398 | 1,570 | 1,566 | 223 | **-119** | 1,035 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,259 | 1,249 | 1,658 | 3,204 | 2,814 | 1,233 | 3,388 | 3,617 | 2,242 | **-207** | **-394** | 234 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,759 | 2,901 | 999 | 2,785 | 1,580 | **-321** | 4,217 | 4,717 | 1,595 | 194 | **-765** | **-56** |
| Above Normal (16%) | 2,960 | 519 | 1,068 | 5,562 | 3,454 | 1,637 | 5,442 | 5,089 | 2,582 | 982 | **-229** | **-103** |
| Below Normal (13%) | **-79** | 836 | 1,779 | 4,197 | 2,196 | 1,682 | 3,563 | 3,740 | 4,336 | 154 | **-726** | 506 |
| Dry (24%) | **-993** | 609 | 2,407 | 2,673 | 4,113 | 2,408 | 2,185 | 2,602 | 2,442 | **-1,907** | **-115** | 573 |
| Critical (15%) | **-1,024** | **-91** | 2,363 | 1,529 | 3,196 | 1,792 | 1,213 | 1,217 | 1,024 | 136 | 74 | 413 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 53-4. Total Delta Exports, Monthly Delivery

## No Action Alternative 011319

| Statistic | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 7,819 | 11,248 | 11,719 | 9,868 | 12,025 | 10,933 | 4,070 | 3,934 | 8,587 | 11,511 | 11,780 | 11,280 |
| 20% | 7,553 | 9,335 | 11,653 | 7,982 | 9,886 | 10,082 | 3,046 | 2,488 | 6,033 | 11,280 | 11,780 | 11,280 |
| 30% | 6,693 | 8,207 | 10,209 | 6,932 | 8,445 | 8,885 | 2,653 | 2,116 | 5,707 | 10,886 | 11,630 | 11,280 |
| 40% | 6,237 | 7,573 | 8,872 | 6,792 | 7,458 | 7,598 | 2,336 | 1,720 | 5,344 | 10,413 | 11,280 | 11,150 |
| 50% | 5,757 | 7,125 | 8,023 | 6,615 | 6,717 | 6,893 | 2,168 | 1,567 | 4,141 | 9,927 | 10,345 | 10,004 |
| 60% | 5,415 | 6,669 | 7,733 | 6,513 | 6,386 | 6,479 | 2,069 | 1,500 | 3,485 | 8,524 | 8,485 | 7,744 |
| 70% | 5,105 | 6,257 | 7,384 | 6,198 | 5,818 | 5,341 | 1,899 | 1,500 | 3,233 | 7,375 | 4,339 | 6,929 |
| 80% | 4,708 | 5,370 | 6,346 | 5,659 | 4,561 | 4,813 | 1,813 | 1,500 | 2,191 | 5,931 | 3,232 | 6,075 |
| 90% | 4,264 | 4,649 | 5,344 | 4,747 | 3,037 | 2,800 | 1,532 | 1,500 | 713 | 2,661 | 2,247 | 4,439 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,090 | 7,359 | 8,523 | 7,058 | 7,273 | 7,160 | 2,593 | 2,307 | 4,606 | 8,437 | 8,117 | 8,714 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 6,698 | 7,714 | 10,288 | 8,533 | 9,784 | 9,931 | 3,377 | 3,410 | 7,533 | 10,642 | 11,658 | 10,986 |
| Above Normal (16%) | 6,731 | 8,709 | 9,689 | 6,637 | 7,894 | 8,032 | 2,193 | 1,712 | 5,248 | 9,215 | 11,451 | 11,135 |
| Below Normal (13%) | 7,078 | 7,458 | 7,770 | 6,309 | 6,523 | 6,552 | 2,248 | 1,633 | 3,468 | 10,232 | 9,338 | 8,807 |
| Dry (24%) | 5,458 | 7,609 | 7,380 | 6,431 | 5,712 | 5,790 | 2,633 | 2,068 | 3,170 | 7,661 | 4,131 | 6,779 |
| Critical (15%) | 4,228 | 4,622 | 6,035 | 6,050 | 4,450 | 3,051 | 1,576 | 1,575 | 1,004 | 2,467 | 2,357 | 4,309 |

## Alternative 4 043019

| Statistic | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 11,280 | 11,280 | 11,684 | 9,655 | 11,554 | 6,793 | 6,005 | 6,776 | 8,079 | 11,280 | 11,280 | 11,280 |
| 20% | 10,770 | 10,678 | 9,795 | 8,055 | 9,293 | 5,215 | 4,627 | 3,632 | 5,678 | 10,751 | 11,280 | 11,280 |
| 30% | 9,824 | 9,545 | 8,323 | 7,465 | 8,139 | 4,274 | 4,095 | 2,347 | 5,339 | 10,231 | 11,280 | 11,280 |
| 40% | 8,449 | 8,491 | 7,710 | 7,096 | 7,554 | 2,616 | 3,701 | 1,869 | 4,945 | 9,427 | 10,753 | 10,996 |
| 50% | 6,827 | 7,687 | 7,332 | 7,028 | 7,082 | 1,941 | 2,991 | 1,600 | 4,870 | 8,154 | 8,553 | 8,291 |
| 60% | 5,897 | 6,723 | 7,025 | 6,820 | 6,720 | 1,662 | 2,165 | 1,391 | 4,731 | 7,277 | 4,464 | 7,220 |
| 70% | 5,384 | 6,188 | 6,664 | 6,557 | 6,544 | 1,602 | 1,500 | 1,355 | 4,590 | 5,743 | 3,342 | 6,523 |
| 80% | 4,892 | 5,219 | 6,137 | 6,317 | 6,250 | 1,586 | 1,500 | 1,308 | 4,192 | 3,885 | 2,975 | 5,989 |
| 90% | 4,219 | 4,695 | 5,205 | 6,027 | 6,005 | 1,575 | 1,432 | 1,260 | 2,147 | 1,371 | 2,102 | 4,140 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 7,467 | 7,806 | 7,837 | 7,472 | 7,897 | 3,358 | 3,295 | 2,630 | 5,157 | 7,436 | 7,192 | 8,448 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 9,635 | 9,561 | 9,224 | 8,862 | 9,654 | 5,770 | 5,136 | 4,510 | 7,234 | 10,152 | 11,053 | 11,104 |
| Above Normal (16%) | 9,209 | 8,726 | 8,031 | 7,565 | 7,533 | 3,234 | 3,696 | 2,380 | 5,071 | 8,539 | 10,746 | 11,015 |
| Below Normal (13%) | 6,793 | 6,991 | 7,620 | 7,024 | 7,565 | 2,141 | 2,496 | 1,561 | 5,077 | 9,133 | 6,098 | 7,477 |
| Dry (24%) | 5,771 | 7,253 | 7,230 | 6,601 | 7,100 | 2,055 | 2,137 | 1,673 | 4,485 | 5,934 | 3,650 | 6,400 |
| Critical (15%) | 4,329 | 4,674 | 5,834 | 6,226 | 6,120 | 1,553 | 1,537 | 1,402 | 1,945 | 1,304 | 1,882 | 4,214 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,461 | 32 | **-35** | **-213** | **-471** | **-4,141** | 1,935 | 2,842 | **-508** | **-231** | **-500** | 0 |
| 20% | 3,218 | 1,343 | **-1,859** | 73 | **-593** | **-4,867** | 1,582 | 1,145 | **-354** | **-529** | **-500** | 0 |
| 30% | 3,130 | 1,338 | **-1,886** | 533 | **-306** | **-4,612** | 1,442 | 231 | **-367** | **-655** | **-350** | 0 |
| 40% | 2,212 | 918 | **-1,162** | 303 | 96 | **-4,982** | 1,366 | 149 | **-399** | **-986** | **-527** | **-154** |
| 50% | 1,070 | 562 | **-691** | 413 | 365 | **-4,952** | 823 | 33 | 729 | **-1,773** | **-1,792** | **-1,713** |
| 60% | 482 | 53 | **-708** | 308 | 334 | **-4,817** | 96 | **-109** | 1,247 | **-1,248** | **-4,021** | **-524** |
| 70% | 280 | **-69** | **-721** | 359 | 726 | **-3,738** | **-399** | **-145** | 1,356 | **-1,632** | **-997** | **-406** |
| 80% | 183 | **-151** | **-209** | 658 | 1,690 | **-3,227** | **-313** | **-192** | 2,001 | **-2,046** | **-257** | **-86** |
| 90% | **-45** | 47 | **-139** | 1,280 | 2,967 | **-1,225** | **-100** | **-240** | 1,434 | **-1,290** | **-145** | **-299** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,377 | 447 | **-686** | 414 | 624 | **-3,802** | 703 | 324 | 551 | **-1,001** | **-925** | **-266** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,937 | 1,848 | **-1,063** | 329 | **-130** | **-4,161** | 1,759 | 1,100 | **-299** | **-490** | **-605** | 118 |
| Above Normal (16%) | 2,478 | 17 | **-1,658** | 927 | **-361** | **-4,798** | 1,503 | 668 | **-177** | **-675** | **-706** | **-119** |
| Below Normal (13%) | **-285** | **-467** | **-150** | 715 | 1,042 | **-4,411** | 249 | **-72** | 1,609 | **-1,099** | **-3,240** | **-1,331** |
| Dry (24%) | 313 | **-355** | **-150** | 170 | 1,388 | **-3,735** | **-496** | **-394** | 1,315 | **-1,727** | **-480** | **-379** |
| Critical (15%) | 101 | 53 | **-201** | 175 | 1,670 | **-1,498** | **-39** | **-173** | 941 | **-1,163** | **-475** | **-95** |

a Based on the 82-year simulation period.

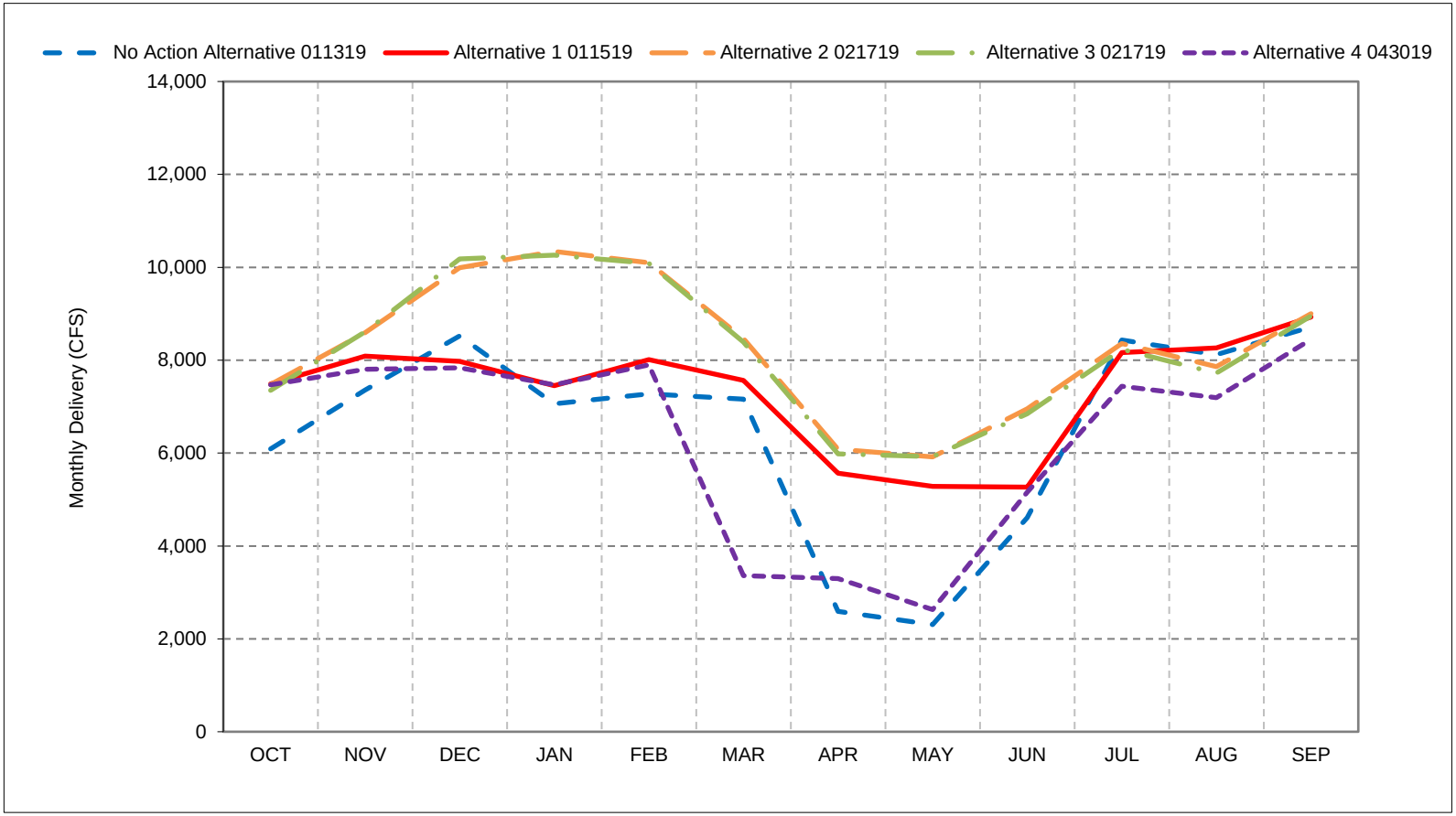
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

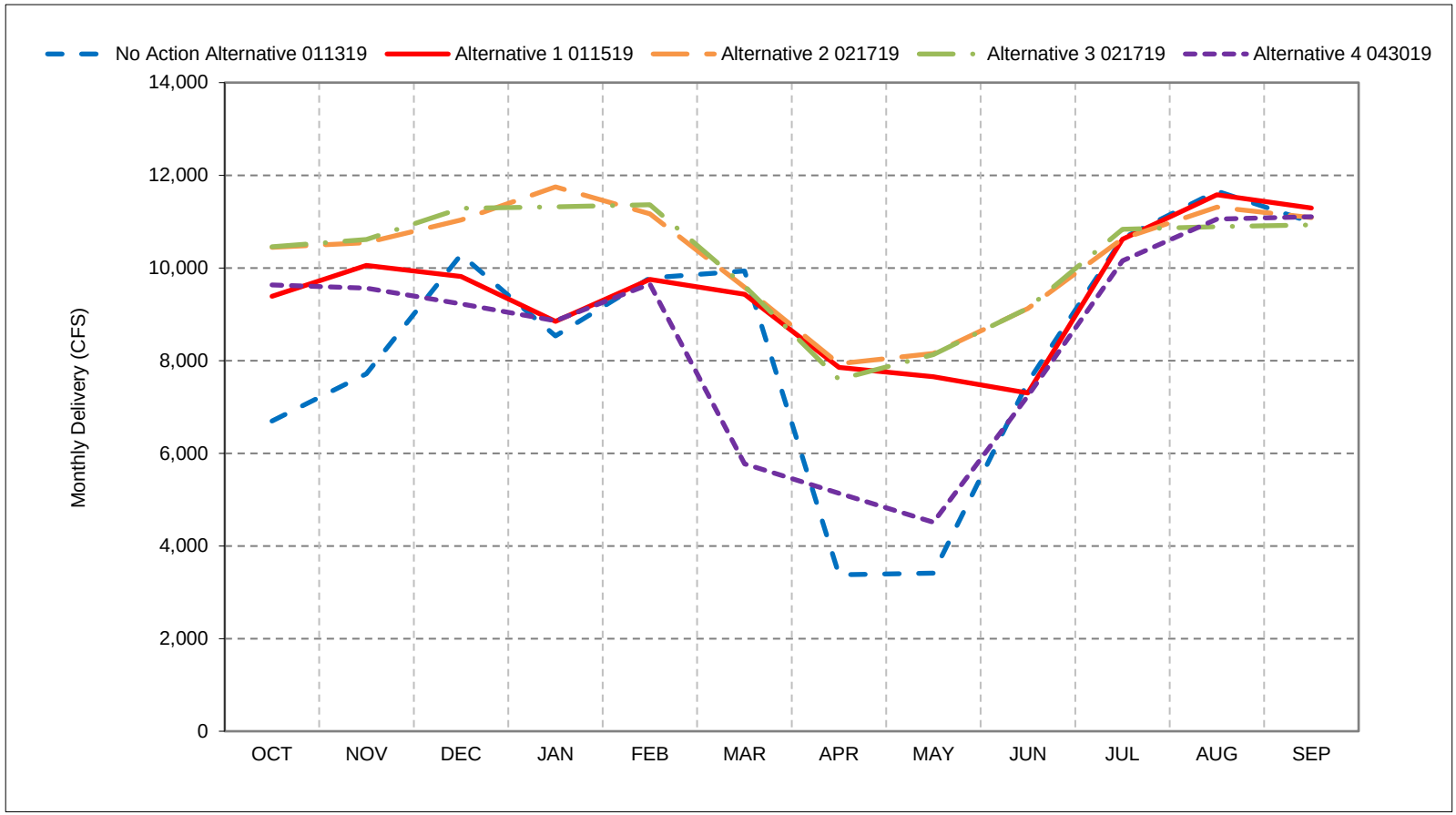
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 53-1. Total Delta Exports, Long-Term Average Delivery



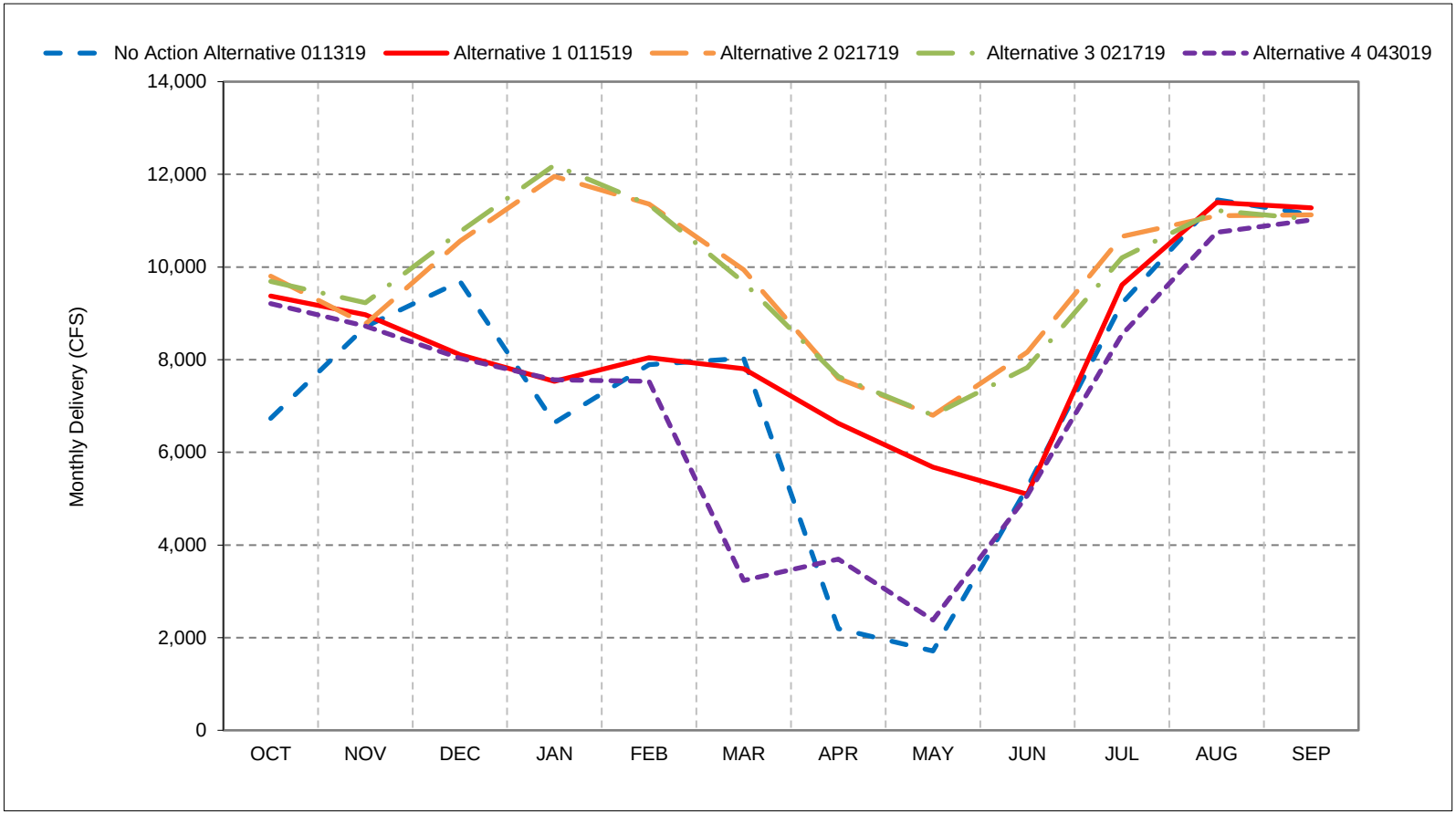

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 53-2. Total Delta Exports, Wet Year Average Delivery



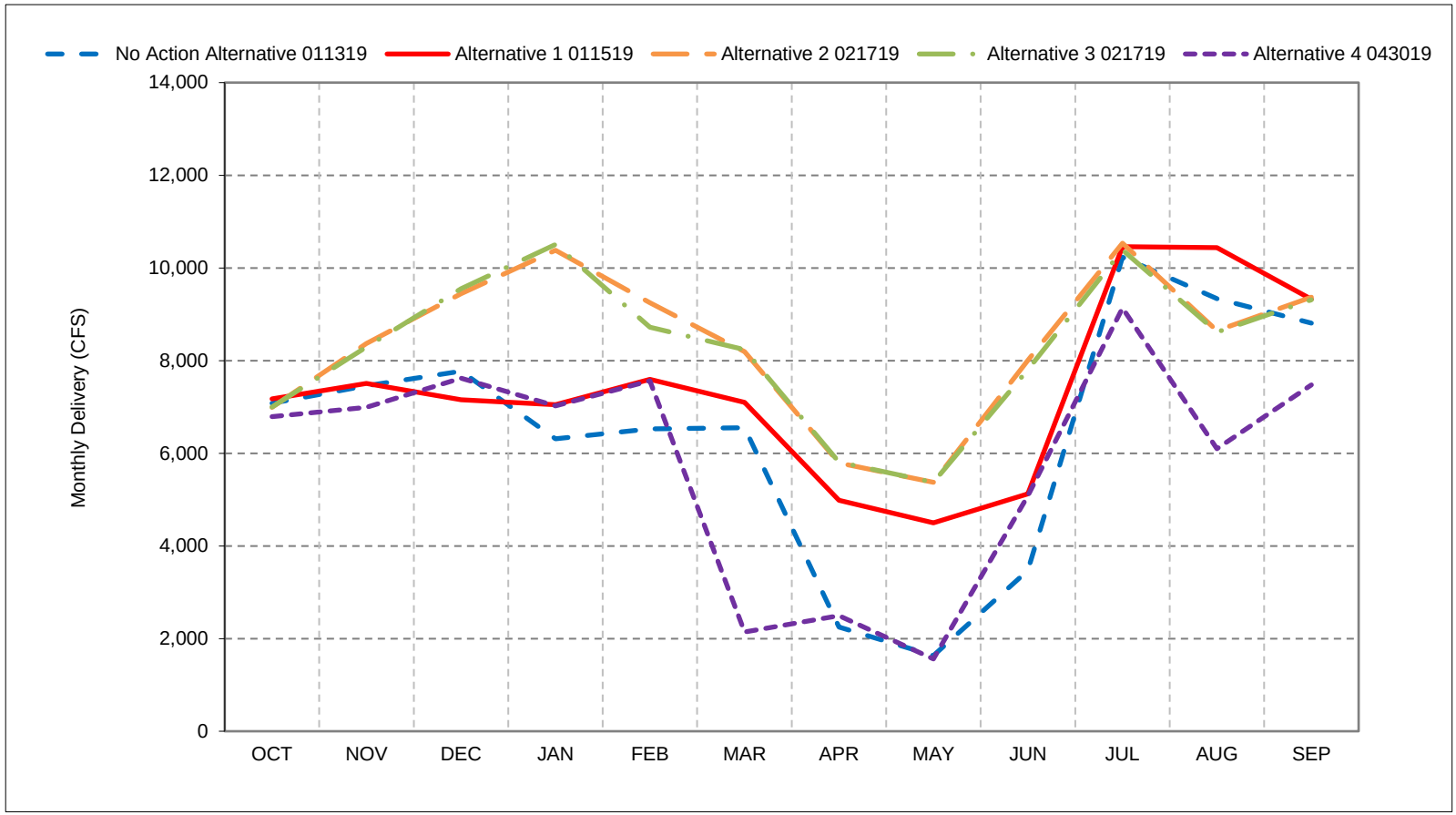

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 53-3. Total Delta Exports, Above Normal Year Average Delivery



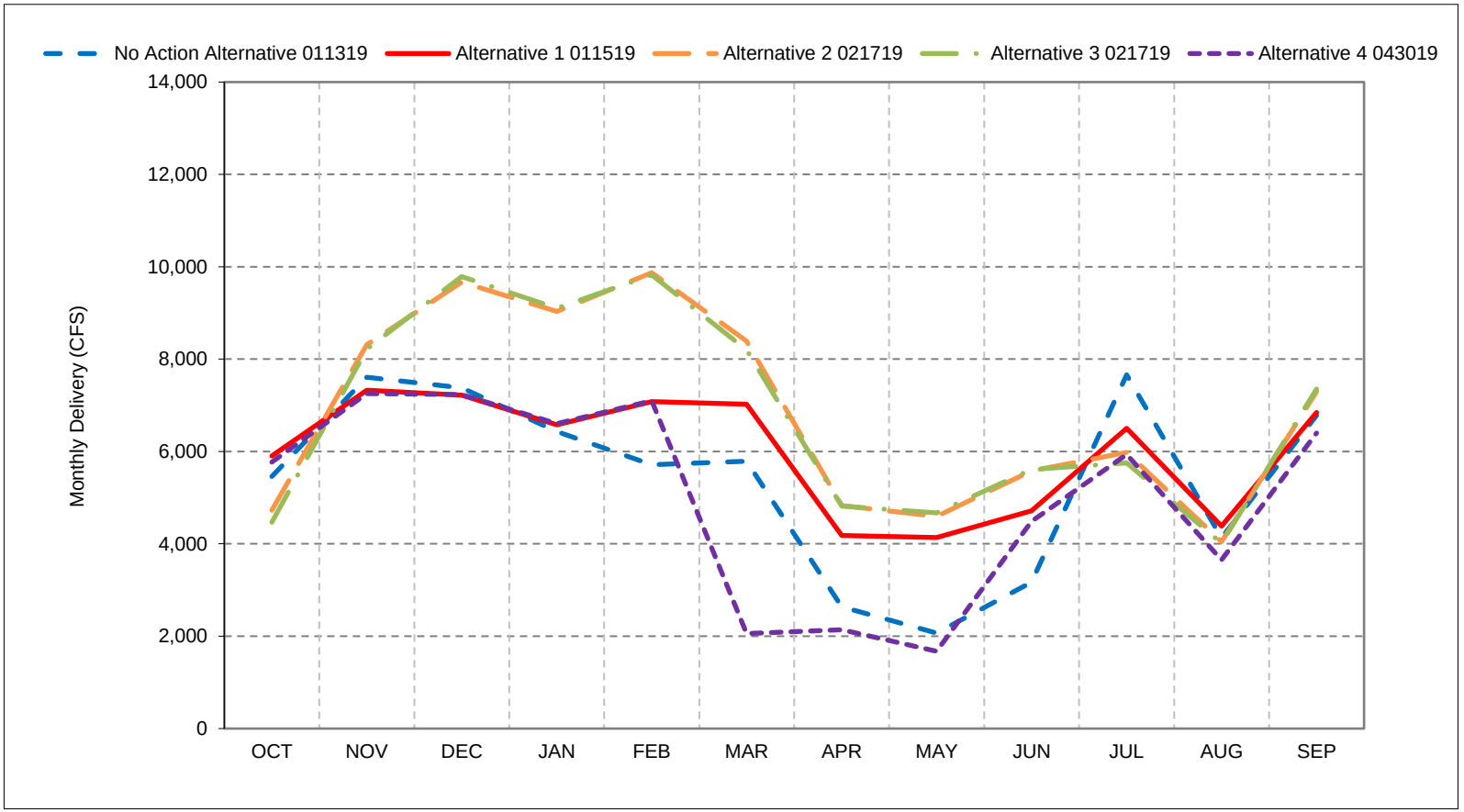

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 53-4. Total Delta Exports, Below Normal Year Average Delivery



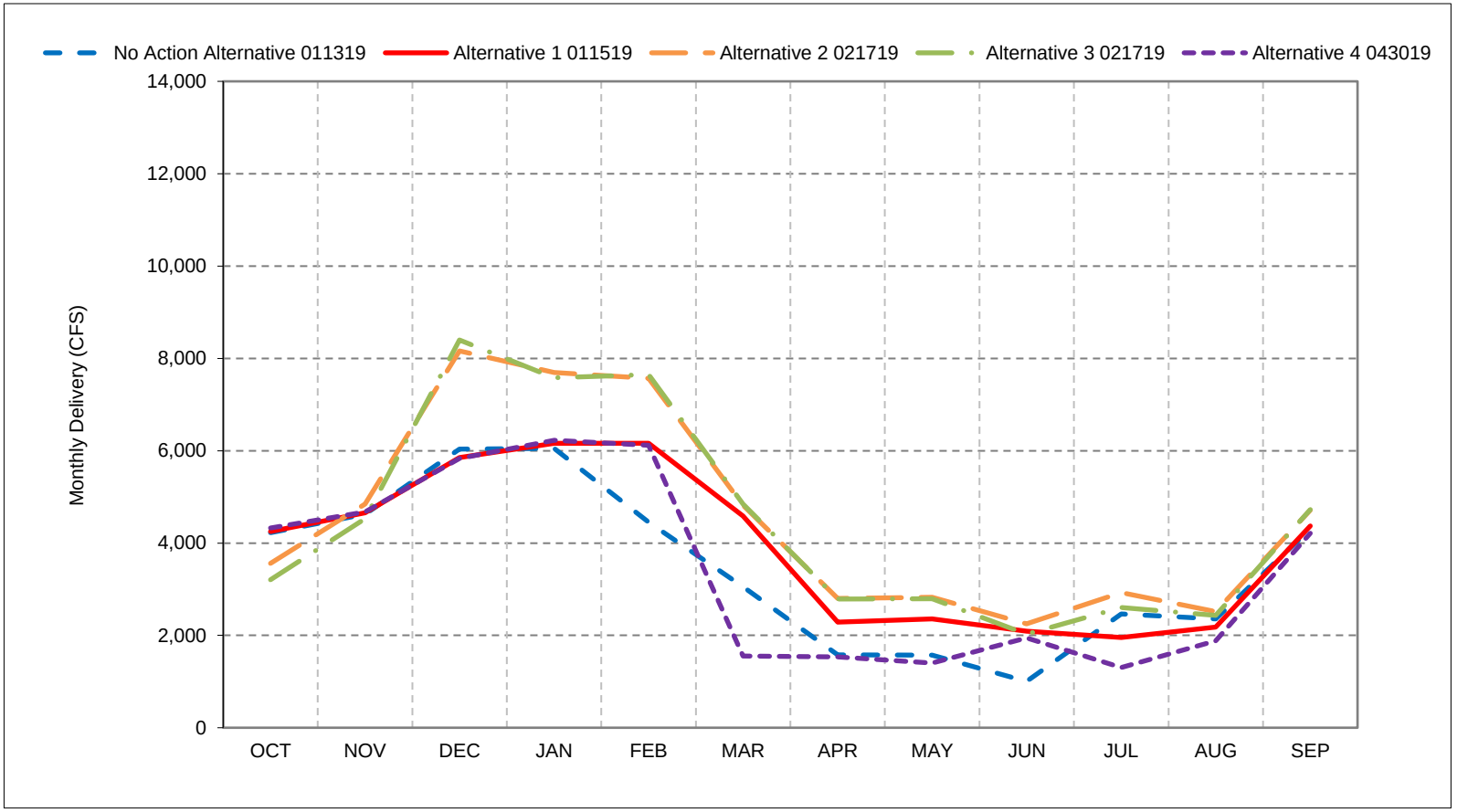

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 53-5. Total Delta Exports, Dry Year Average Delivery



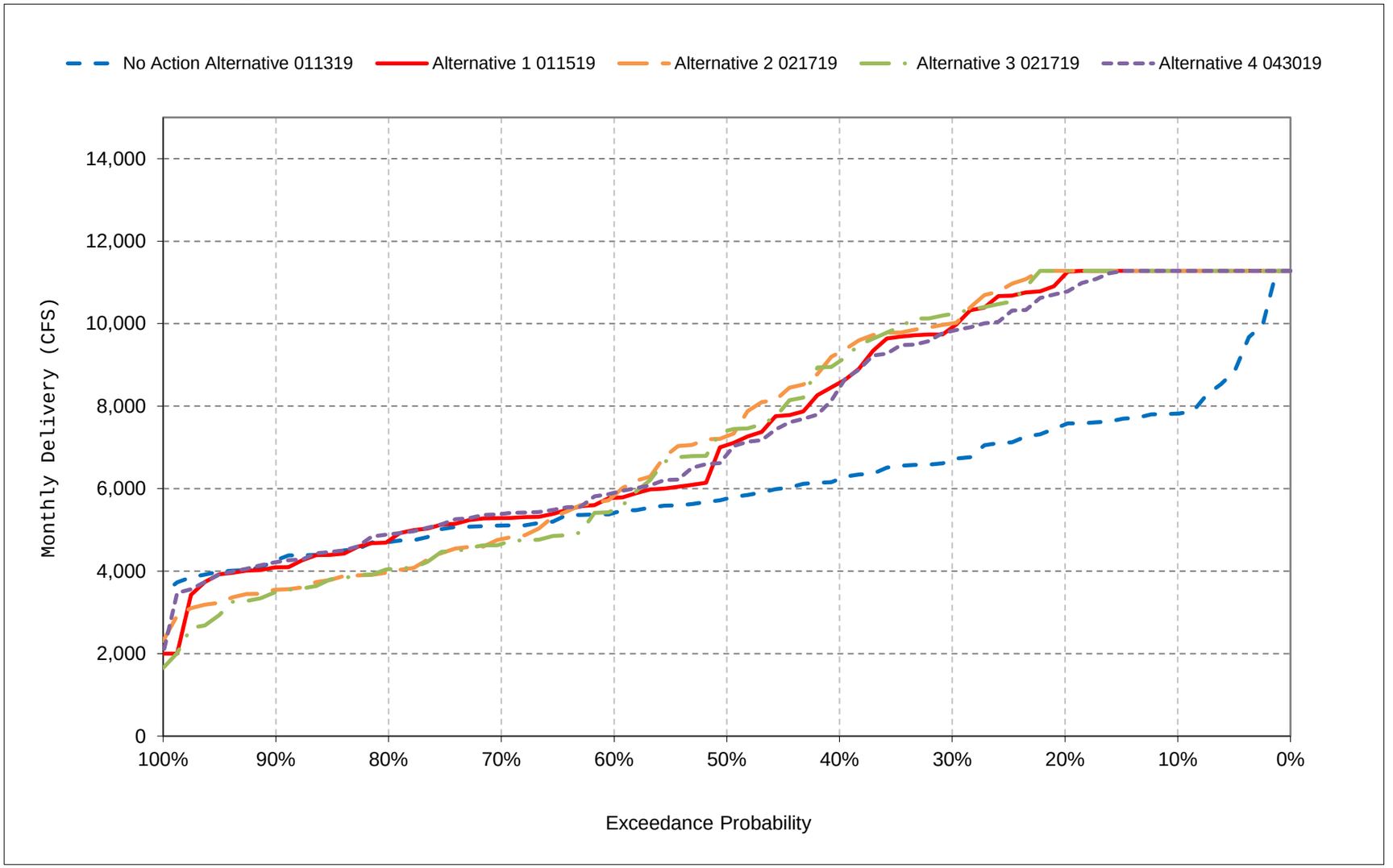

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 53-6. Total Delta Exports, Critical Year Average Delivery




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

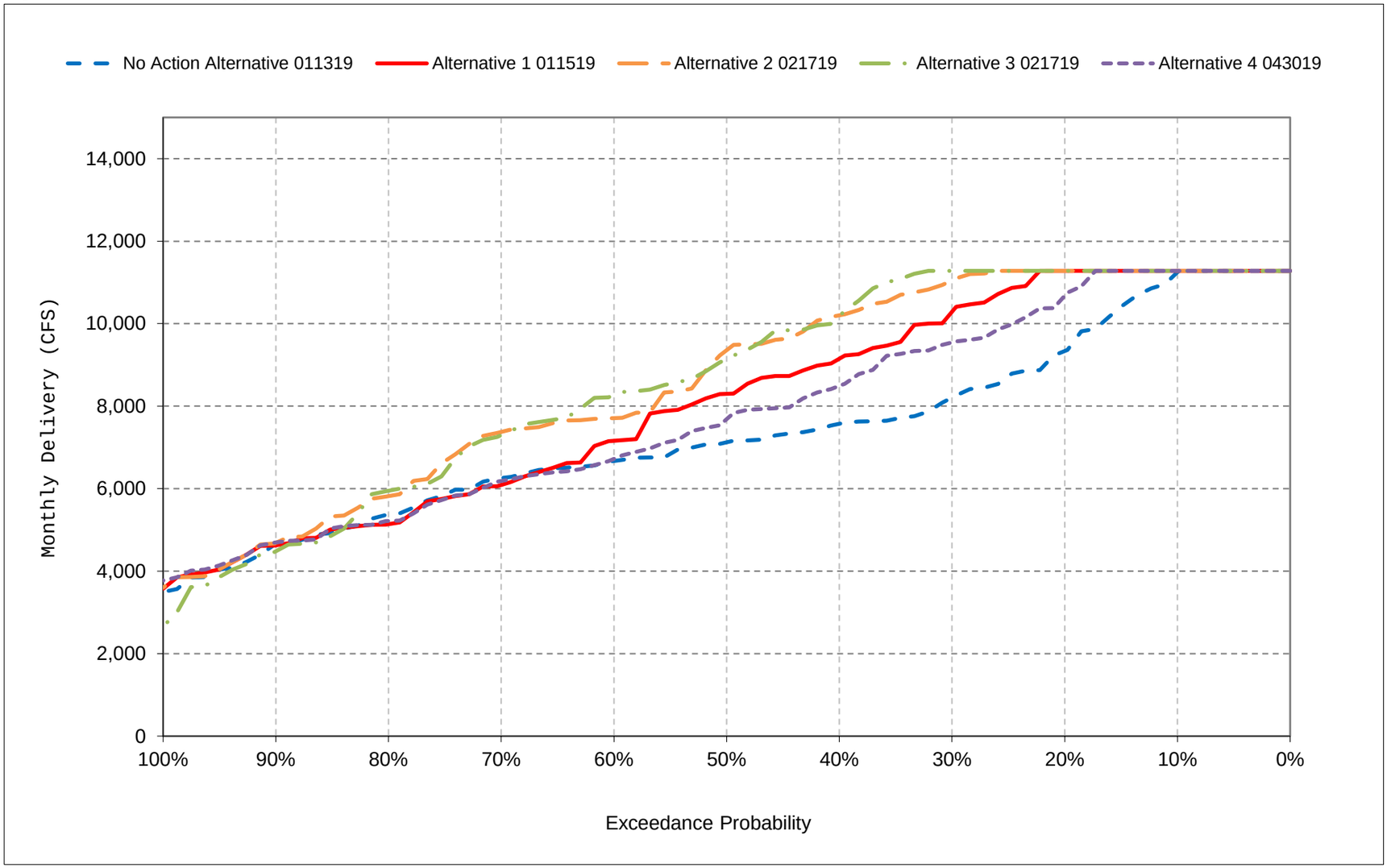
**Figure 53-7. Total Delta Exports, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

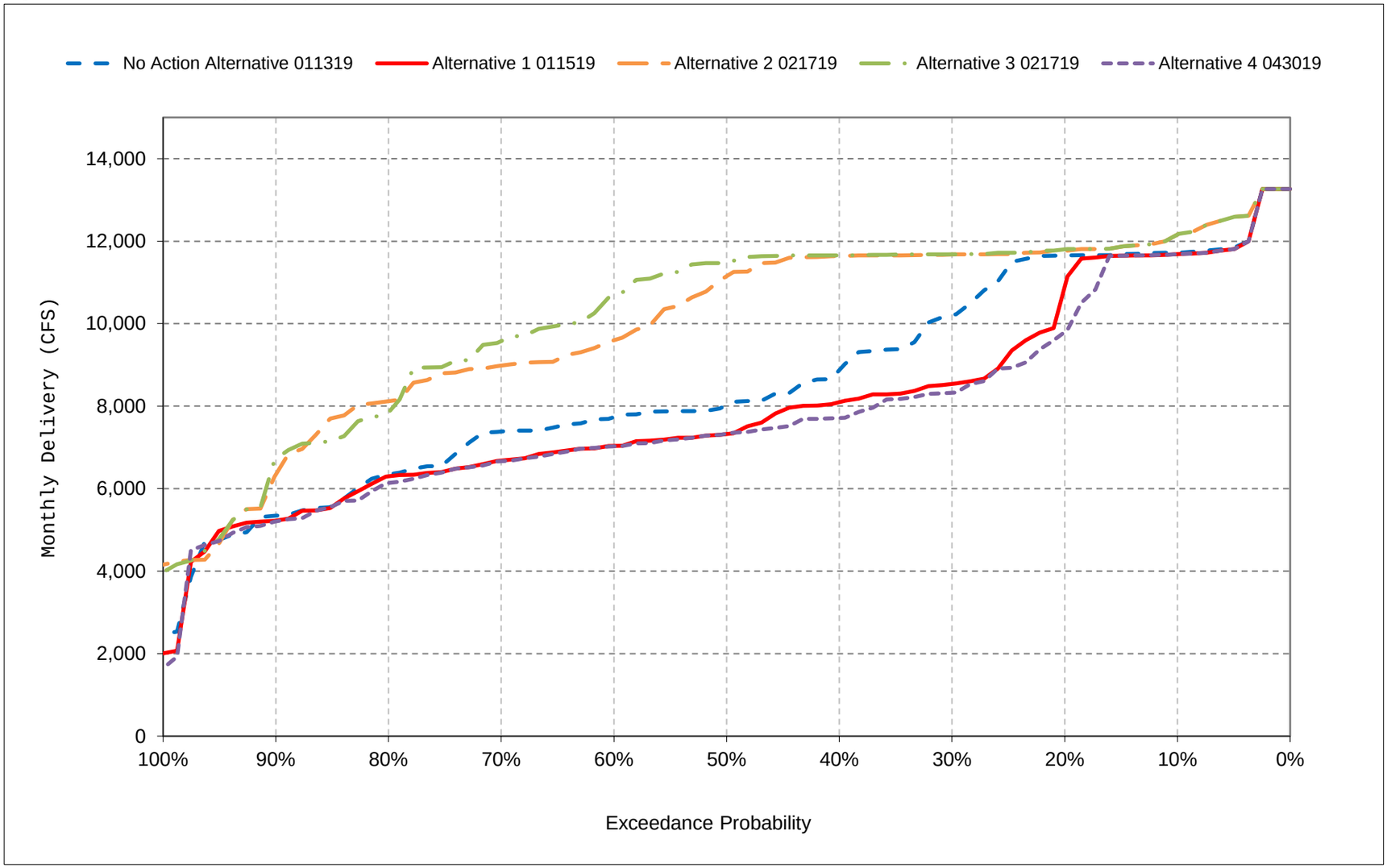
**Figure 53-8. Total Delta Exports, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

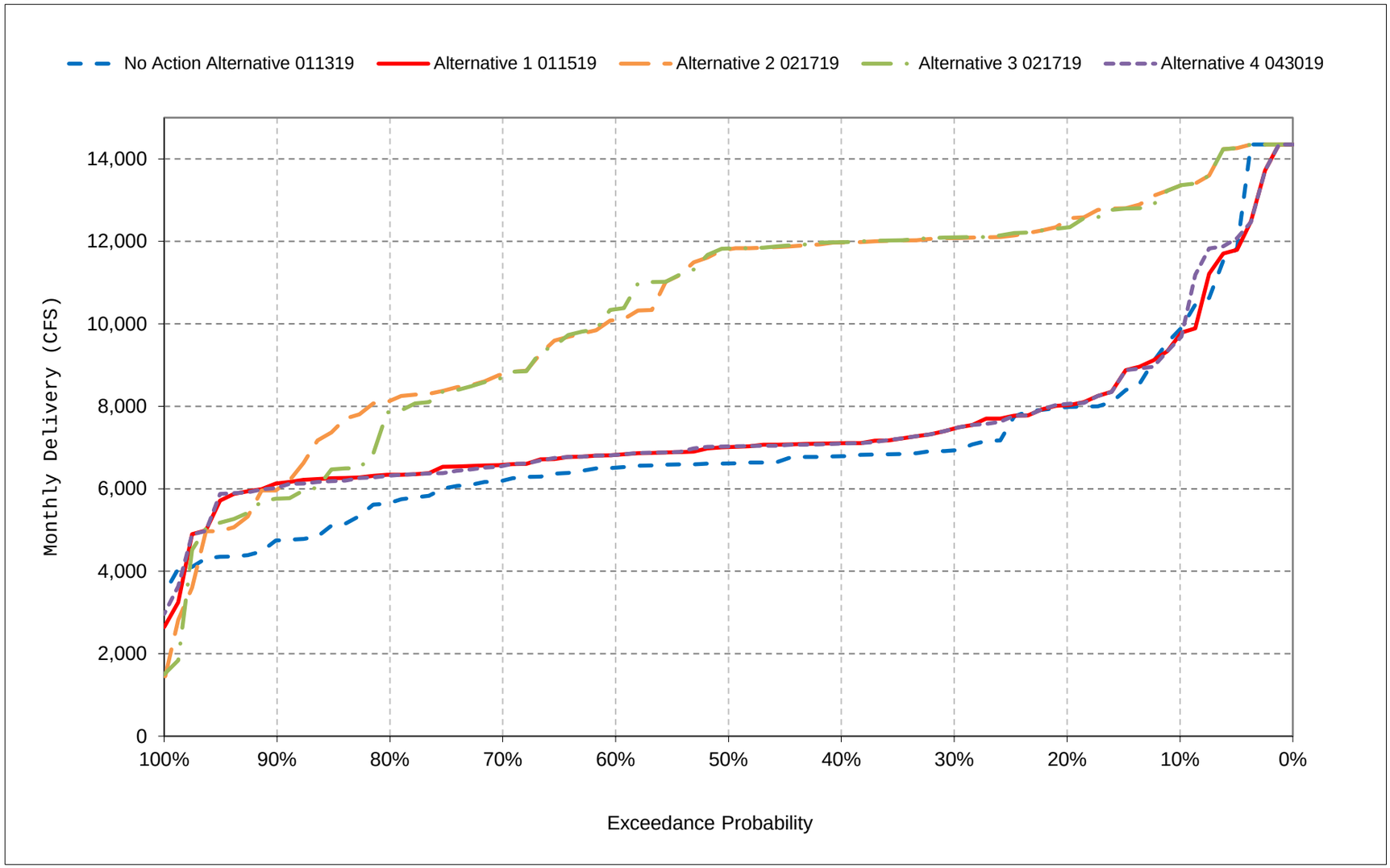
**Figure 53-9. Total Delta Exports, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

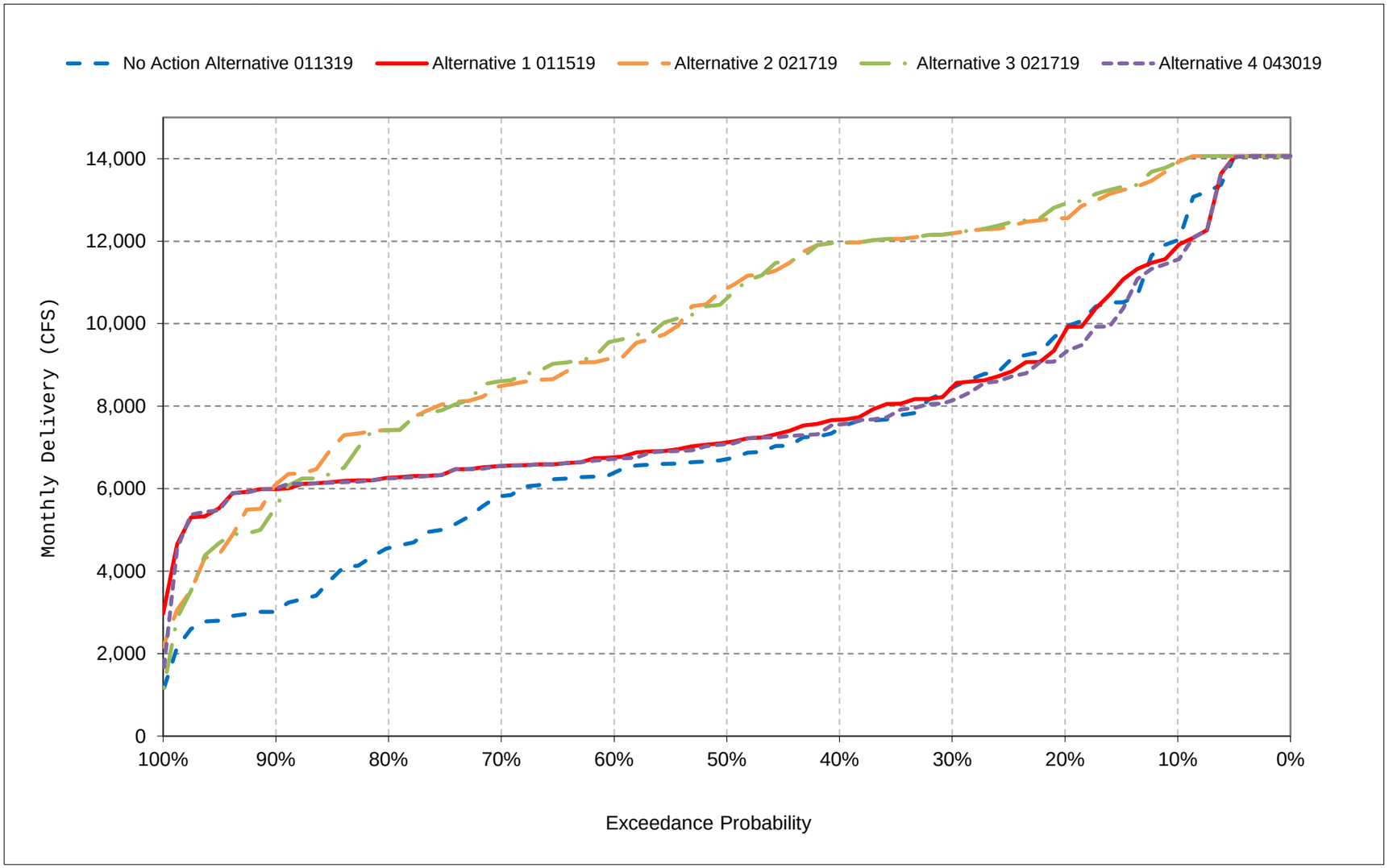
**Figure 53-10. Total Delta Exports, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

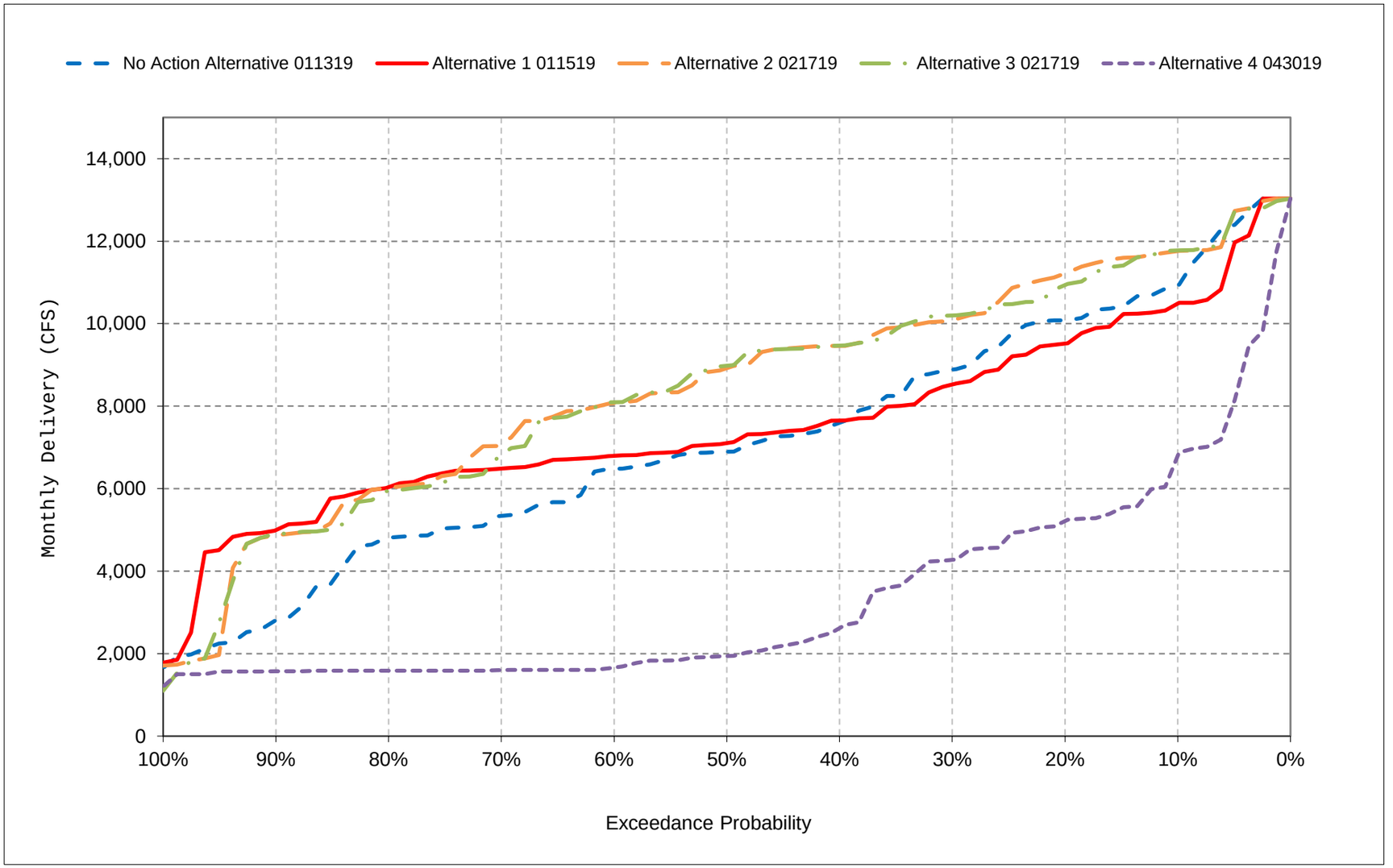
**Figure 53-11. Total Delta Exports, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

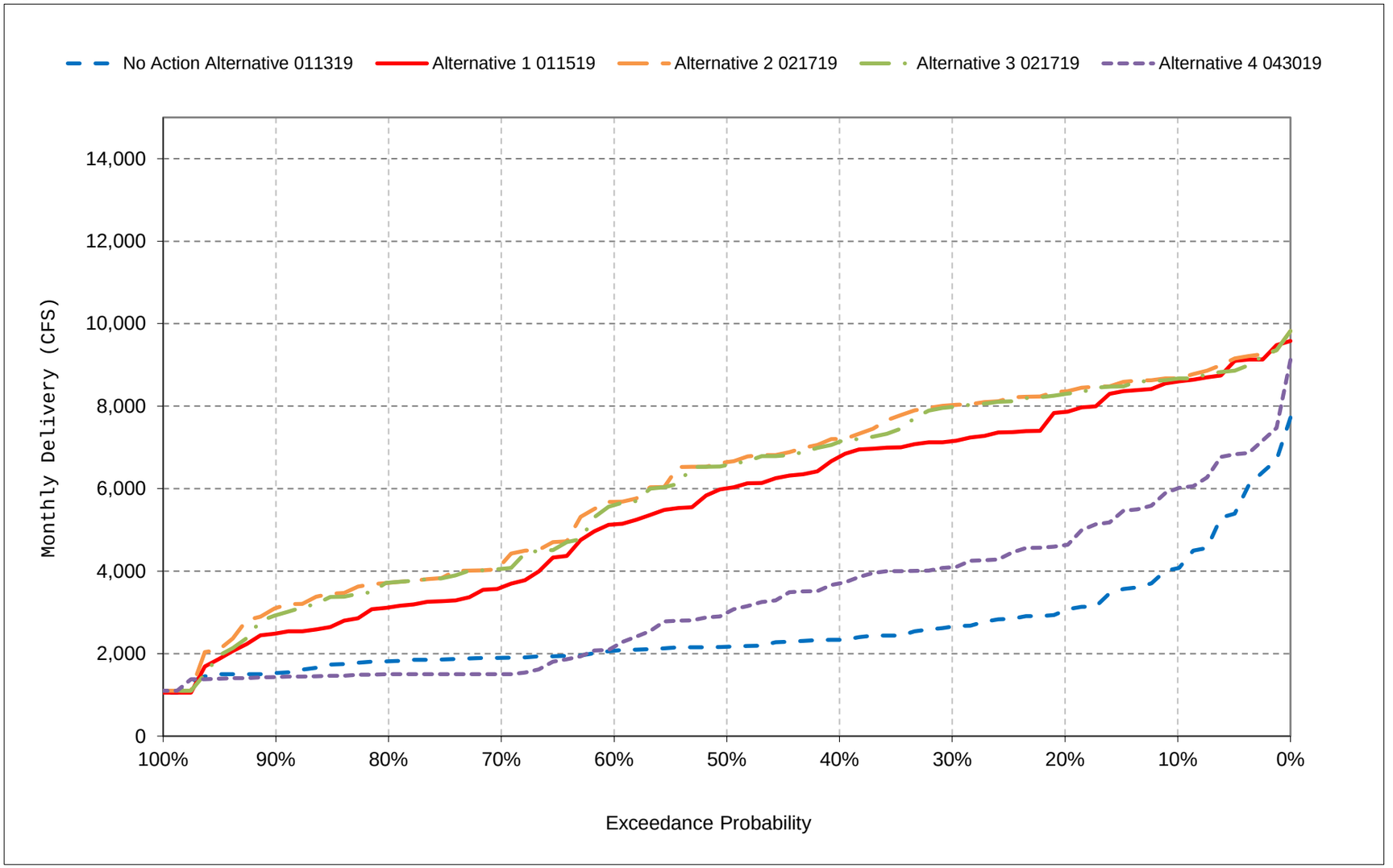
**Figure 53-12. Total Delta Exports, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

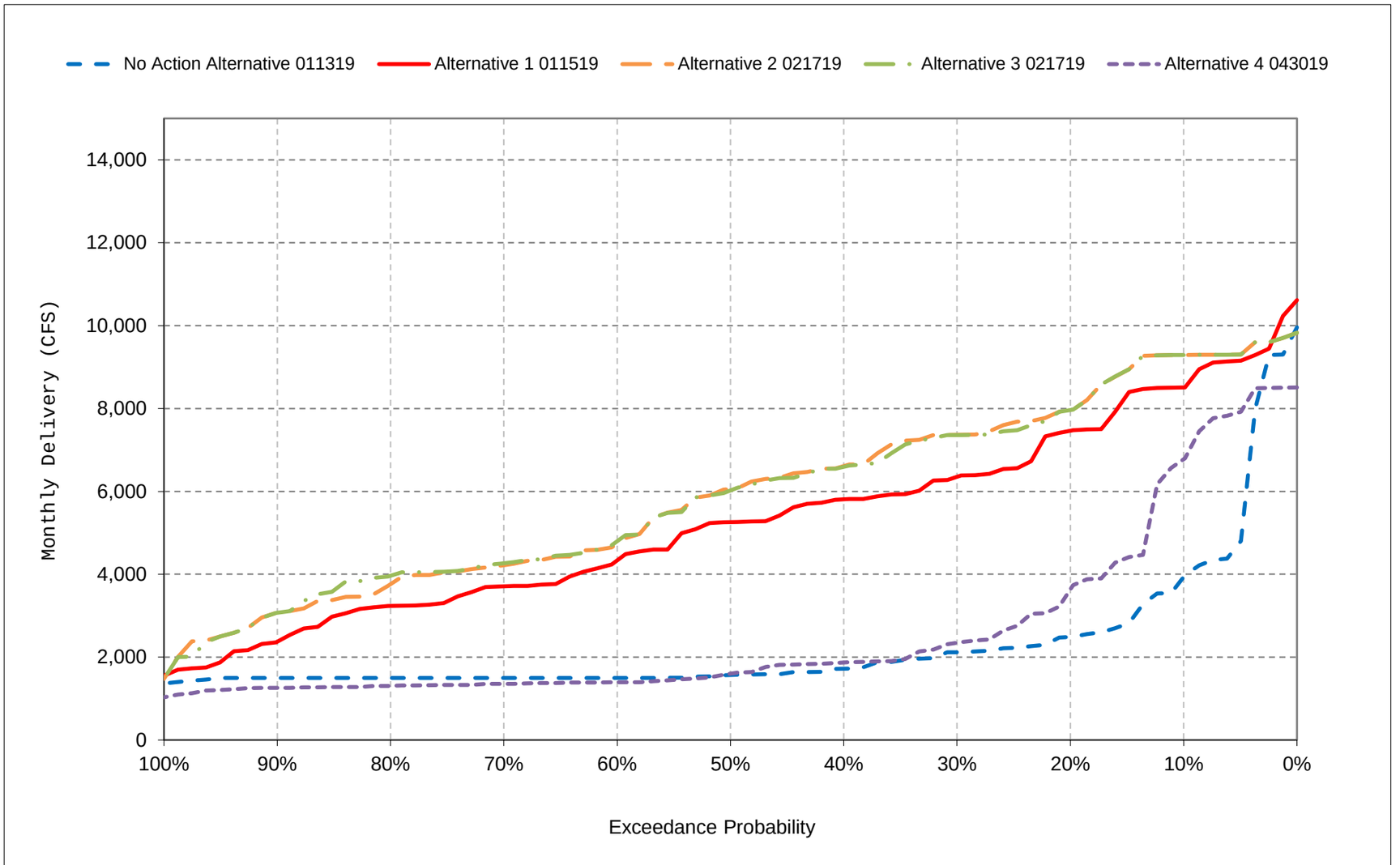
**Figure 53-13. Total Delta Exports, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

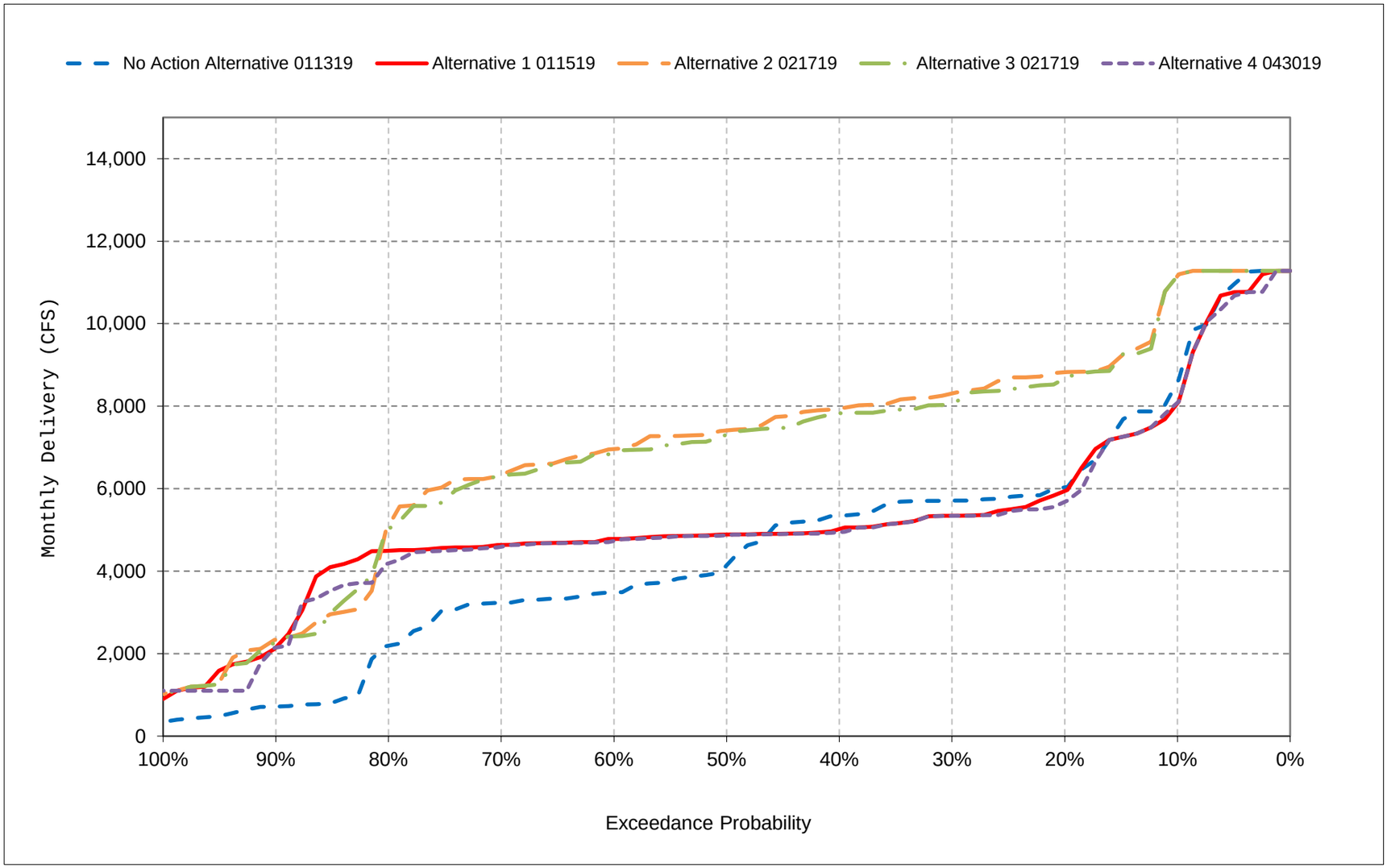
**Figure 53-14. Total Delta Exports, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

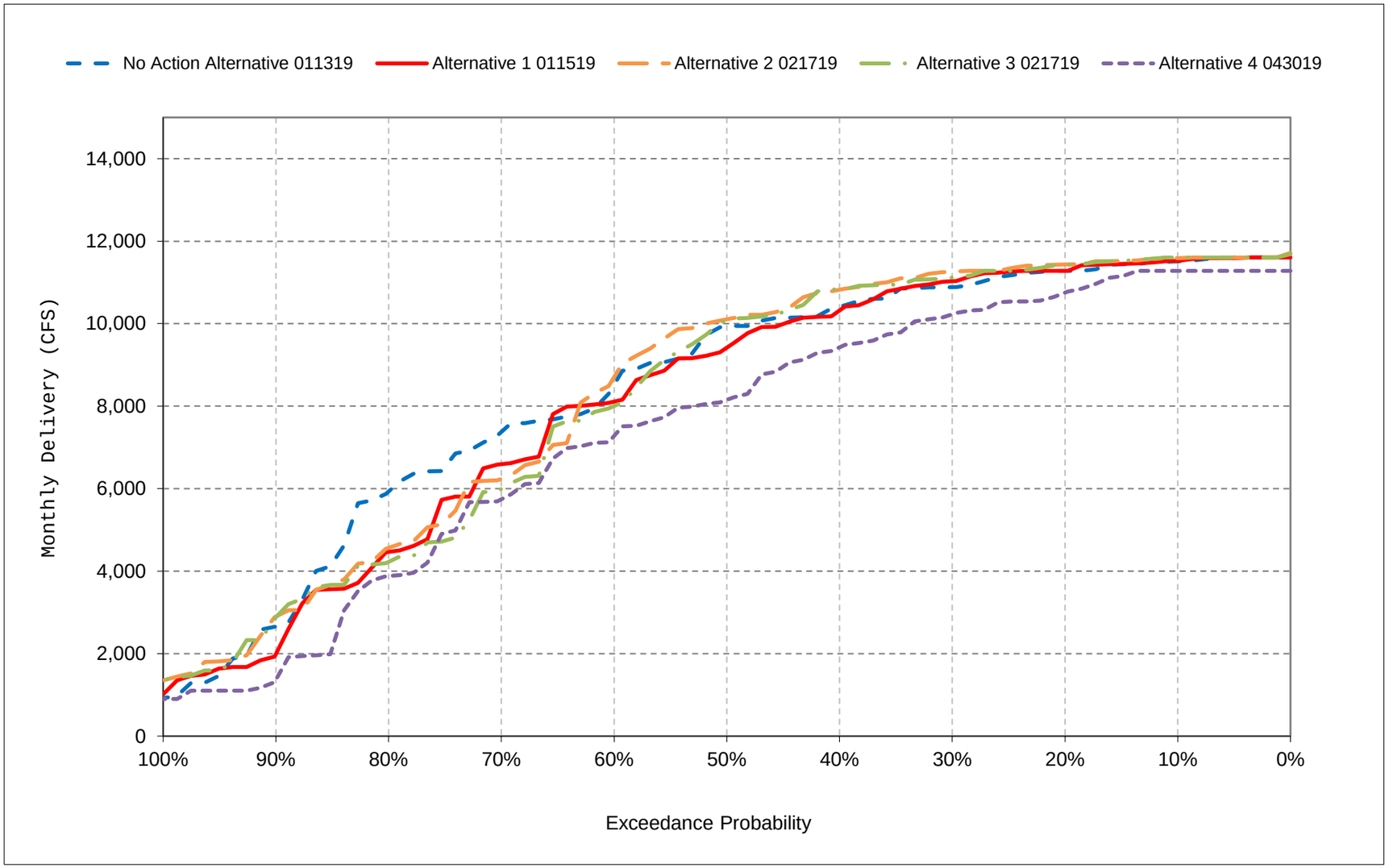
**Figure 53-15. Total Delta Exports, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

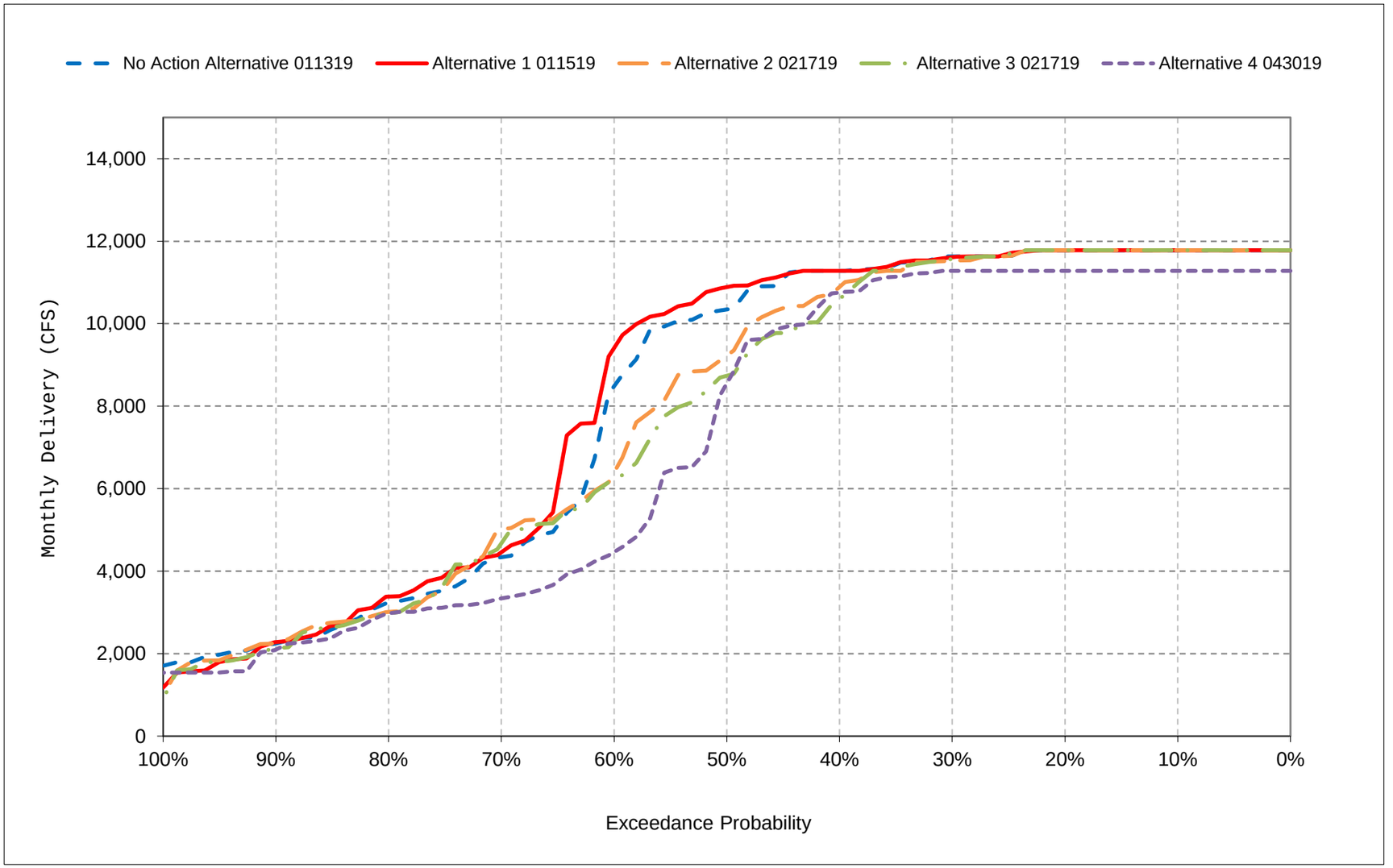
**Figure 53-16. Total Delta Exports, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

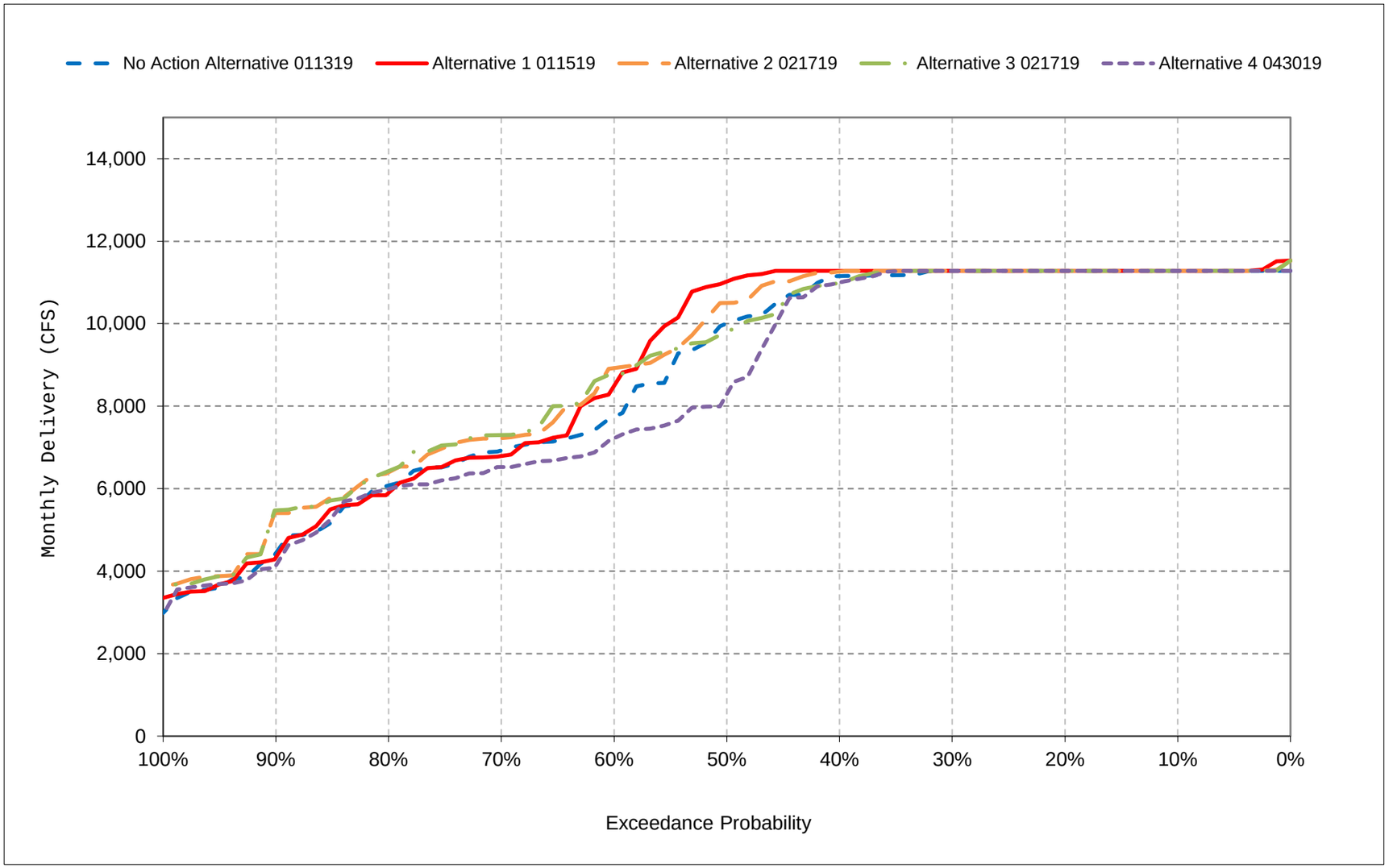
**Figure 53-17. Total Delta Exports, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 53-18. Total Delta Exports, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 54-1. Jones PP Exports, Monthly Delivery

## No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 2,442 | 2,360 | 4,600 | 4,600 | 4,600 | 4,600 |
| 20% | 4,084 | 4,600 | 4,600 | 4,600 | 4,600 | 4,426 | 1,831 | 1,493 | 3,977 | 4,600 | 4,600 | 4,600 |
| 30% | 3,597 | 4,427 | 4,600 | 4,139 | 4,600 | 4,179 | 1,566 | 1,283 | 3,704 | 4,534 | 4,600 | 4,600 |
| 40% | 3,433 | 4,105 | 4,600 | 4,070 | 4,353 | 3,962 | 1,394 | 1,149 | 3,318 | 4,152 | 4,496 | 4,600 |
| 50% | 3,342 | 3,510 | 4,445 | 3,961 | 3,981 | 3,420 | 1,307 | 1,048 | 2,557 | 3,776 | 4,139 | 4,483 |
| 60% | 3,177 | 3,156 | 4,189 | 3,875 | 3,742 | 3,085 | 1,241 | 975 | 2,217 | 3,183 | 3,553 | 4,153 |
| 70% | 2,898 | 2,692 | 3,689 | 3,614 | 3,024 | 2,641 | 1,129 | 900 | 2,086 | 2,690 | 2,977 | 3,724 |
| 80% | 2,730 | 2,184 | 2,882 | 3,107 | 2,519 | 2,262 | 1,023 | 900 | 1,371 | 1,729 | 2,427 | 3,311 |
| 90% | 2,145 | 1,675 | 2,064 | 2,618 | 1,807 | 1,574 | 900 | 900 | 572 | 903 | 1,760 | 2,974 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 3,289 | 3,369 | 3,818 | 3,763 | 3,596 | 3,316 | 1,451 | 1,353 | 2,675 | 3,278 | 3,606 | 3,997 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,609 | 3,732 | 4,331 | 4,027 | 4,190 | 3,696 | 1,822 | 1,834 | 4,028 | 4,162 | 4,556 | 4,434 |
| Above Normal (16%) | 3,283 | 3,772 | 4,490 | 3,654 | 4,018 | 3,927 | 1,316 | 1,039 | 3,460 | 2,940 | 4,448 | 4,482 |
| Below Normal (13%) | 3,458 | 3,320 | 3,500 | 3,748 | 3,611 | 3,618 | 1,246 | 1,001 | 2,209 | 3,799 | 3,551 | 4,071 |
| Dry (24%) | 3,077 | 3,249 | 3,571 | 3,779 | 3,211 | 3,250 | 1,479 | 1,263 | 1,770 | 3,017 | 2,865 | 3,780 |
| Critical (15%) | 2,799 | 2,393 | 2,678 | 3,299 | 2,482 | 1,663 | 935 | 1,124 | 830 | 1,685 | 1,922 | 2,822 |

## Alternative 1 011519

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,433 | 4,455 | 4,600 | 4,600 | 4,600 | 4,600 |
| 20% | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,499 | 3,991 | 3,932 | 3,686 | 4,554 | 4,600 | 4,600 |
| 30% | 4,594 | 4,600 | 4,477 | 4,325 | 4,599 | 4,147 | 3,498 | 3,665 | 3,272 | 4,232 | 4,600 | 4,600 |
| 40% | 3,819 | 4,359 | 4,268 | 4,245 | 4,313 | 4,064 | 3,215 | 3,435 | 3,140 | 3,744 | 4,600 | 4,600 |
| 50% | 3,392 | 3,839 | 4,033 | 4,118 | 4,160 | 3,915 | 2,813 | 3,084 | 3,027 | 3,176 | 4,169 | 4,600 |
| 60% | 3,228 | 3,187 | 3,515 | 3,956 | 3,960 | 3,793 | 2,526 | 2,586 | 2,912 | 2,721 | 3,782 | 4,504 |
| 70% | 3,101 | 2,664 | 3,081 | 3,792 | 3,792 | 3,217 | 1,956 | 2,325 | 2,634 | 1,952 | 3,149 | 4,125 |
| 80% | 2,832 | 2,257 | 2,568 | 3,539 | 3,619 | 2,610 | 1,425 | 1,962 | 2,004 | 1,131 | 2,431 | 3,405 |
| 90% | 2,234 | 1,611 | 1,806 | 2,811 | 2,815 | 1,978 | 1,001 | 1,613 | 1,322 | 807 | 1,778 | 2,961 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 3,526 | 3,435 | 3,550 | 3,876 | 3,938 | 3,555 | 2,738 | 2,981 | 2,916 | 2,948 | 3,648 | 4,139 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,909 | 4,335 | 4,106 | 4,033 | 3,893 | 3,607 | 3,686 | 3,950 | 3,759 | 3,952 | 4,572 | 4,600 |
| Above Normal (16%) | 3,909 | 3,642 | 3,596 | 3,966 | 4,051 | 3,894 | 3,660 | 3,416 | 3,087 | 2,841 | 4,390 | 4,579 |
| Below Normal (13%) | 3,440 | 2,963 | 3,321 | 4,058 | 4,094 | 3,706 | 2,422 | 2,673 | 3,183 | 3,617 | 3,806 | 4,328 |
| Dry (24%) | 3,301 | 3,016 | 3,555 | 3,818 | 4,094 | 3,757 | 2,067 | 2,457 | 2,475 | 2,445 | 3,005 | 3,876 |
| Critical (15%) | 2,734 | 2,389 | 2,498 | 3,364 | 3,512 | 2,596 | 1,096 | 1,569 | 1,393 | 1,112 | 1,769 | 2,927 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 1,991 | 2,094 | 0 | 0 | 0 | 0 |
| 20% | 516 | 0 | 0 | 0 | 0 | 72 | 2,160 | 2,439 | **-291** | **-46** | 0 | 0 |
| 30% | 998 | 173 | **-123** | 186 | **-1** | **-32** | 1,932 | 2,382 | **-432** | **-301** | 0 | 0 |
| 40% | 386 | 254 | **-332** | 176 | **-40** | 102 | 1,820 | 2,286 | **-178** | **-408** | 104 | 0 |
| 50% | 50 | 329 | **-412** | 157 | 179 | 495 | 1,506 | 2,035 | 470 | **-600** | 30 | 117 |
| 60% | 51 | 30 | **-674** | 81 | 218 | 708 | 1,285 | 1,611 | 695 | **-462** | 229 | 351 |
| 70% | 203 | **-28** | **-607** | 178 | 767 | 576 | 827 | 1,425 | 548 | **-738** | 172 | 401 |
| 80% | 102 | 74 | **-314** | 432 | 1,099 | 347 | 402 | 1,062 | 633 | **-597** | 4 | 94 |
| 90% | 89 | **-64** | **-258** | 193 | 1,008 | 405 | 101 | 713 | 750 | **-96** | 18 | **-14** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 237 | 66 | **-267** | 112 | 342 | 239 | 1,287 | 1,628 | 241 | **-330** | 42 | 141 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 300 | 603 | **-225** | 6 | **-297** | **-88** | 1,864 | 2,116 | **-269** | **-210** | 16 | 166 |
| Above Normal (16%) | 626 | **-129** | **-894** | 312 | 33 | **-33** | 2,343 | 2,377 | **-373** | **-99** | **-58** | 97 |
| Below Normal (13%) | **-19** | **-357** | **-180** | 310 | 483 | 88 | 1,176 | 1,672 | 974 | **-182** | 255 | 257 |
| Dry (24%) | 224 | **-233** | **-16** | 39 | 883 | 508 | 588 | 1,194 | 705 | **-571** | 141 | 96 |
| Critical (15%) | **-65** | **-3** | **-179** | 65 | 1,029 | 933 | 161 | 445 | 563 | **-573** | **-153** | 105 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 54-2. Jones PP Exports, Monthly Delivery

## No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 2,442 | 2,360 | 4,600 | 4,600 | 4,600 | 4,600 |
| 20% | 4,084 | 4,600 | 4,600 | 4,600 | 4,600 | 4,426 | 1,831 | 1,493 | 3,977 | 4,600 | 4,600 | 4,600 |
| 30% | 3,597 | 4,427 | 4,600 | 4,139 | 4,600 | 4,179 | 1,566 | 1,283 | 3,704 | 4,534 | 4,600 | 4,600 |
| 40% | 3,433 | 4,105 | 4,600 | 4,070 | 4,353 | 3,962 | 1,394 | 1,149 | 3,318 | 4,152 | 4,496 | 4,600 |
| 50% | 3,342 | 3,510 | 4,445 | 3,961 | 3,981 | 3,420 | 1,307 | 1,048 | 2,557 | 3,776 | 4,139 | 4,483 |
| 60% | 3,177 | 3,156 | 4,189 | 3,875 | 3,742 | 3,085 | 1,241 | 975 | 2,217 | 3,183 | 3,553 | 4,153 |
| 70% | 2,898 | 2,692 | 3,689 | 3,614 | 3,024 | 2,641 | 1,129 | 900 | 2,086 | 2,690 | 2,977 | 3,724 |
| 80% | 2,730 | 2,184 | 2,882 | 3,107 | 2,519 | 2,262 | 1,023 | 900 | 1,371 | 1,729 | 2,427 | 3,311 |
| 90% | 2,145 | 1,675 | 2,064 | 2,618 | 1,807 | 1,574 | 900 | 900 | 572 | 903 | 1,760 | 2,974 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 3,289 | 3,369 | 3,818 | 3,763 | 3,596 | 3,316 | 1,451 | 1,353 | 2,675 | 3,278 | 3,606 | 3,997 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,609 | 3,732 | 4,331 | 4,027 | 4,190 | 3,696 | 1,822 | 1,834 | 4,028 | 4,162 | 4,556 | 4,434 |
| Above Normal (16%) | 3,283 | 3,772 | 4,490 | 3,654 | 4,018 | 3,927 | 1,316 | 1,039 | 3,460 | 2,940 | 4,448 | 4,482 |
| Below Normal (13%) | 3,458 | 3,320 | 3,500 | 3,748 | 3,611 | 3,618 | 1,246 | 1,001 | 2,209 | 3,799 | 3,551 | 4,071 |
| Dry (24%) | 3,077 | 3,249 | 3,571 | 3,779 | 3,211 | 3,250 | 1,479 | 1,263 | 1,770 | 3,017 | 2,865 | 3,780 |
| Critical (15%) | 2,799 | 2,393 | 2,678 | 3,299 | 2,482 | 1,663 | 935 | 1,124 | 830 | 1,685 | 1,922 | 2,822 |

## Alternative 2 021719

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 3,989 | 4,266 | 4,600 | 4,600 | 4,600 | 4,600 |
| 20% | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 3,687 | 3,936 | 4,600 | 4,600 | 4,600 | 4,600 |
| 30% | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 3,548 | 3,920 | 4,600 | 4,600 | 4,600 | 4,600 |
| 40% | 3,933 | 4,502 | 4,600 | 4,600 | 4,600 | 4,321 | 3,231 | 3,467 | 4,600 | 4,506 | 4,600 | 4,600 |
| 50% | 3,516 | 3,997 | 4,600 | 4,600 | 4,600 | 3,836 | 2,756 | 3,264 | 4,088 | 3,847 | 4,544 | 4,600 |
| 60% | 3,155 | 3,534 | 4,285 | 4,600 | 4,600 | 3,208 | 2,627 | 3,092 | 3,114 | 3,278 | 4,074 | 4,577 |
| 70% | 2,984 | 2,927 | 3,751 | 4,191 | 4,011 | 3,035 | 1,992 | 2,889 | 2,666 | 2,757 | 3,143 | 4,234 |
| 80% | 2,627 | 2,617 | 3,460 | 3,274 | 2,956 | 2,000 | 955 | 2,407 | 1,872 | 1,669 | 2,294 | 3,737 |
| 90% | 2,286 | 2,278 | 2,552 | 2,242 | 2,379 | 1,826 | 800 | 1,934 | 1,436 | 1,039 | 1,686 | 3,187 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 3,510 | 3,673 | 3,998 | 3,995 | 3,983 | 3,474 | 2,629 | 3,177 | 3,408 | 3,333 | 3,680 | 4,226 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 4,363 | 4,424 | 4,278 | 4,110 | 3,875 | 3,286 | 3,349 | 3,882 | 4,449 | 4,200 | 4,555 | 4,598 |
| Above Normal (16%) | 4,214 | 3,497 | 4,336 | 4,335 | 4,224 | 3,845 | 3,429 | 3,643 | 4,474 | 3,908 | 4,465 | 4,576 |
| Below Normal (13%) | 3,458 | 3,587 | 3,704 | 4,104 | 3,722 | 3,719 | 2,558 | 3,085 | 3,532 | 4,059 | 4,210 | 4,455 |
| Dry (24%) | 2,686 | 3,639 | 3,915 | 4,025 | 4,317 | 3,929 | 2,041 | 2,680 | 2,419 | 2,464 | 2,751 | 4,047 |
| Critical (15%) | 2,318 | 2,375 | 3,435 | 3,229 | 3,637 | 2,492 | 1,248 | 2,056 | 1,531 | 1,618 | 1,996 | 3,125 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 1,547 | 1,905 | 0 | 0 | 0 | 0 |
| 20% | 516 | 0 | 0 | 0 | 0 | 174 | 1,856 | 2,444 | 623 | 0 | 0 | 0 |
| 30% | 1,003 | 173 | 0 | 461 | 0 | 421 | 1,982 | 2,636 | 896 | 66 | 0 | 0 |
| 40% | 500 | 398 | 0 | 530 | 247 | 359 | 1,836 | 2,318 | 1,282 | 354 | 104 | 0 |
| 50% | 174 | 487 | 155 | 639 | 619 | 417 | 1,448 | 2,216 | 1,531 | 71 | 405 | 117 |
| 60% | **-22** | 378 | 95 | 725 | 858 | 122 | 1,386 | 2,117 | 897 | 95 | 521 | 424 |
| 70% | 85 | 236 | 62 | 577 | 986 | 394 | 864 | 1,989 | 580 | 67 | 166 | 510 |
| 80% | **-102** | 433 | 578 | 166 | 436 | **-263** | **-68** | 1,507 | 502 | **-59** | **-133** | 426 |
| 90% | 141 | 603 | 488 | **-376** | 572 | 252 | **-100** | 1,034 | 864 | 136 | **-74** | 213 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 221 | 304 | 181 | 232 | 387 | 158 | 1,178 | 1,824 | 732 | 56 | 74 | 228 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 754 | 692 | **-53** | 83 | **-315** | **-409** | 1,527 | 2,048 | 421 | 38 | **-1** | 165 |
| Above Normal (16%) | 930 | **-274** | **-154** | 681 | 206 | **-82** | 2,112 | 2,604 | 1,013 | 968 | 18 | 94 |
| Below Normal (13%) | **0** | 267 | 204 | 356 | 111 | 100 | 1,312 | 2,084 | 1,323 | 260 | 660 | 383 |
| Dry (24%) | **-391** | 389 | 344 | 246 | 1,106 | 680 | 563 | 1,416 | 649 | **-553** | **-114** | 267 |
| Critical (15%) | **-481** | **-17** | 757 | **-70** | 1,155 | 829 | 313 | 932 | 700 | **-67** | 75 | 303 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 54-3. Jones PP Exports, Monthly Delivery

## No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 2,442 | 2,360 | 4,600 | 4,600 | 4,600 | 4,600 |
| 20% | 4,084 | 4,600 | 4,600 | 4,600 | 4,600 | 4,426 | 1,831 | 1,493 | 3,977 | 4,600 | 4,600 | 4,600 |
| 30% | 3,597 | 4,427 | 4,600 | 4,139 | 4,600 | 4,179 | 1,566 | 1,283 | 3,704 | 4,534 | 4,600 | 4,600 |
| 40% | 3,433 | 4,105 | 4,600 | 4,070 | 4,353 | 3,962 | 1,394 | 1,149 | 3,318 | 4,152 | 4,496 | 4,600 |
| 50% | 3,342 | 3,510 | 4,445 | 3,961 | 3,981 | 3,420 | 1,307 | 1,048 | 2,557 | 3,776 | 4,139 | 4,483 |
| 60% | 3,177 | 3,156 | 4,189 | 3,875 | 3,742 | 3,085 | 1,241 | 975 | 2,217 | 3,183 | 3,553 | 4,153 |
| 70% | 2,898 | 2,692 | 3,689 | 3,614 | 3,024 | 2,641 | 1,129 | 900 | 2,086 | 2,690 | 2,977 | 3,724 |
| 80% | 2,730 | 2,184 | 2,882 | 3,107 | 2,519 | 2,262 | 1,023 | 900 | 1,371 | 1,729 | 2,427 | 3,311 |
| 90% | 2,145 | 1,675 | 2,064 | 2,618 | 1,807 | 1,574 | 900 | 900 | 572 | 903 | 1,760 | 2,974 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 3,289 | 3,369 | 3,818 | 3,763 | 3,596 | 3,316 | 1,451 | 1,353 | 2,675 | 3,278 | 3,606 | 3,997 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,609 | 3,732 | 4,331 | 4,027 | 4,190 | 3,696 | 1,822 | 1,834 | 4,028 | 4,162 | 4,556 | 4,434 |
| Above Normal (16%) | 3,283 | 3,772 | 4,490 | 3,654 | 4,018 | 3,927 | 1,316 | 1,039 | 3,460 | 2,940 | 4,448 | 4,482 |
| Below Normal (13%) | 3,458 | 3,320 | 3,500 | 3,748 | 3,611 | 3,618 | 1,246 | 1,001 | 2,209 | 3,799 | 3,551 | 4,071 |
| Dry (24%) | 3,077 | 3,249 | 3,571 | 3,779 | 3,211 | 3,250 | 1,479 | 1,263 | 1,770 | 3,017 | 2,865 | 3,780 |
| Critical (15%) | 2,799 | 2,393 | 2,678 | 3,299 | 2,482 | 1,663 | 935 | 1,124 | 830 | 1,685 | 1,922 | 2,822 |

## Alternative 3 021719

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 3,974 | 4,232 | 4,600 | 4,600 | 4,600 | 4,600 |
| 20% | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 3,679 | 3,936 | 4,600 | 4,600 | 4,600 | 4,600 |
| 30% | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 3,364 | 3,920 | 4,600 | 4,582 | 4,600 | 4,600 |
| 40% | 4,303 | 4,600 | 4,600 | 4,600 | 4,600 | 4,220 | 2,997 | 3,424 | 4,563 | 4,381 | 4,600 | 4,600 |
| 50% | 3,757 | 4,203 | 4,600 | 4,600 | 4,600 | 3,796 | 2,732 | 3,183 | 3,912 | 3,962 | 4,531 | 4,600 |
| 60% | 3,158 | 3,455 | 4,402 | 4,600 | 4,600 | 3,115 | 2,489 | 3,059 | 3,087 | 3,128 | 3,940 | 4,600 |
| 70% | 2,886 | 2,877 | 3,977 | 4,107 | 3,960 | 2,865 | 1,921 | 2,777 | 2,552 | 2,648 | 3,075 | 4,359 |
| 80% | 2,582 | 2,608 | 3,557 | 3,392 | 2,991 | 2,086 | 855 | 2,383 | 1,948 | 1,670 | 2,258 | 3,761 |
| 90% | 2,131 | 2,165 | 2,737 | 2,260 | 2,309 | 1,891 | 800 | 1,714 | 1,372 | 1,018 | 1,456 | 3,103 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 3,550 | 3,664 | 4,040 | 4,006 | 3,966 | 3,418 | 2,563 | 3,116 | 3,374 | 3,312 | 3,648 | 4,228 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 4,402 | 4,392 | 4,253 | 3,974 | 3,940 | 3,355 | 3,190 | 3,754 | 4,352 | 4,273 | 4,528 | 4,598 |
| Above Normal (16%) | 4,208 | 3,834 | 4,349 | 4,475 | 4,333 | 3,679 | 3,477 | 3,612 | 4,471 | 3,681 | 4,520 | 4,599 |
| Below Normal (13%) | 3,593 | 3,571 | 3,810 | 4,205 | 3,403 | 3,753 | 2,574 | 3,060 | 3,461 | 4,013 | 4,092 | 4,459 |
| Dry (24%) | 2,799 | 3,532 | 4,047 | 4,062 | 4,277 | 3,679 | 1,964 | 2,666 | 2,478 | 2,456 | 2,749 | 4,086 |
| Critical (15%) | 2,200 | 2,206 | 3,444 | 3,291 | 3,622 | 2,528 | 1,201 | 1,998 | 1,483 | 1,617 | 1,890 | 3,052 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | 0 | 1,532 | 1,871 | 0 | 0 | 0 | 0 |
| 20% | 516 | 0 | 0 | 0 | 0 | 174 | 1,849 | 2,444 | 623 | 0 | 0 | 0 |
| 30% | 1,003 | 173 | 0 | 461 | 0 | 421 | 1,798 | 2,636 | 896 | 48 | 0 | 0 |
| 40% | 870 | 495 | 0 | 530 | 247 | 258 | 1,603 | 2,275 | 1,246 | 229 | 104 | 0 |
| 50% | 415 | 694 | 155 | 639 | 619 | 376 | 1,425 | 2,134 | 1,355 | 186 | 393 | 117 |
| 60% | **-19** | 299 | 213 | 725 | 858 | 29 | 1,247 | 2,084 | 870 | **-55** | 387 | 447 |
| 70% | **-12** | 186 | 288 | 493 | 936 | 224 | 792 | 1,877 | 466 | **-43** | 99 | 635 |
| 80% | **-148** | 424 | 675 | 285 | 472 | **-176** | **-168** | 1,483 | 577 | **-58** | **-169** | 450 |
| 90% | **-14** | 490 | 673 | **-358** | 501 | 318 | **-100** | 814 | 801 | 114 | **-304** | 129 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 261 | 294 | 222 | 243 | 370 | 102 | 1,112 | 1,763 | 699 | 35 | 43 | 231 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 793 | 660 | **-79** | **-53** | **-250** | **-341** | 1,368 | 1,920 | 323 | 111 | **-28** | 164 |
| Above Normal (16%) | 925 | 62 | **-141** | 821 | 315 | **-248** | 2,161 | 2,573 | 1,011 | 742 | 72 | 117 |
| Below Normal (13%) | 135 | 251 | 309 | 458 | **-208** | 134 | 1,328 | 2,059 | 1,253 | 214 | 541 | 388 |
| Dry (24%) | **-278** | 283 | 476 | 283 | 1,066 | 430 | 486 | 1,402 | 708 | **-561** | **-115** | 306 |
| Critical (15%) | **-599** | **-186** | 766 | **-8** | 1,140 | 864 | 266 | 874 | 652 | **-68** | **-32** | 230 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 54-4. Jones PP Exports, Monthly Delivery

## No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 2,442 | 2,360 | 4,600 | 4,600 | 4,600 | 4,600 |
| 20% | 4,084 | 4,600 | 4,600 | 4,600 | 4,600 | 4,426 | 1,831 | 1,493 | 3,977 | 4,600 | 4,600 | 4,600 |
| 30% | 3,597 | 4,427 | 4,600 | 4,139 | 4,600 | 4,179 | 1,566 | 1,283 | 3,704 | 4,534 | 4,600 | 4,600 |
| 40% | 3,433 | 4,105 | 4,600 | 4,070 | 4,353 | 3,962 | 1,394 | 1,149 | 3,318 | 4,152 | 4,496 | 4,600 |
| 50% | 3,342 | 3,510 | 4,445 | 3,961 | 3,981 | 3,420 | 1,307 | 1,048 | 2,557 | 3,776 | 4,139 | 4,483 |
| 60% | 3,177 | 3,156 | 4,189 | 3,875 | 3,742 | 3,085 | 1,241 | 975 | 2,217 | 3,183 | 3,553 | 4,153 |
| 70% | 2,898 | 2,692 | 3,689 | 3,614 | 3,024 | 2,641 | 1,129 | 900 | 2,086 | 2,690 | 2,977 | 3,724 |
| 80% | 2,730 | 2,184 | 2,882 | 3,107 | 2,519 | 2,262 | 1,023 | 900 | 1,371 | 1,729 | 2,427 | 3,311 |
| 90% | 2,145 | 1,675 | 2,064 | 2,618 | 1,807 | 1,574 | 900 | 900 | 572 | 903 | 1,760 | 2,974 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 3,289 | 3,369 | 3,818 | 3,763 | 3,596 | 3,316 | 1,451 | 1,353 | 2,675 | 3,278 | 3,606 | 3,997 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,609 | 3,732 | 4,331 | 4,027 | 4,190 | 3,696 | 1,822 | 1,834 | 4,028 | 4,162 | 4,556 | 4,434 |
| Above Normal (16%) | 3,283 | 3,772 | 4,490 | 3,654 | 4,018 | 3,927 | 1,316 | 1,039 | 3,460 | 2,940 | 4,448 | 4,482 |
| Below Normal (13%) | 3,458 | 3,320 | 3,500 | 3,748 | 3,611 | 3,618 | 1,246 | 1,001 | 2,209 | 3,799 | 3,551 | 4,071 |
| Dry (24%) | 3,077 | 3,249 | 3,571 | 3,779 | 3,211 | 3,250 | 1,479 | 1,263 | 1,770 | 3,017 | 2,865 | 3,780 |
| Critical (15%) | 2,799 | 2,393 | 2,678 | 3,299 | 2,482 | 1,663 | 935 | 1,124 | 830 | 1,685 | 1,922 | 2,822 |

## Alternative 4 043019

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 2,944 | 2,961 | 3,907 | 4,596 | 4,600 | 4,600 | 4,600 |
| 20% | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 2,525 | 2,697 | 2,081 | 3,761 | 4,415 | 4,600 | 4,600 |
| 30% | 4,491 | 4,600 | 4,475 | 4,327 | 4,509 | 1,962 | 2,401 | 1,408 | 3,340 | 3,873 | 4,600 | 4,600 |
| 40% | 3,933 | 4,236 | 4,222 | 4,241 | 4,231 | 1,499 | 2,156 | 1,121 | 3,188 | 3,524 | 4,458 | 4,600 |
| 50% | 3,578 | 3,897 | 4,084 | 4,161 | 4,045 | 1,233 | 1,734 | 1,087 | 3,051 | 3,195 | 3,802 | 4,526 |
| 60% | 3,307 | 3,286 | 3,672 | 3,986 | 3,883 | 1,098 | 1,299 | 975 | 2,966 | 2,987 | 3,244 | 4,249 |
| 70% | 3,217 | 2,741 | 3,225 | 3,792 | 3,672 | 1,006 | 937 | 900 | 2,903 | 2,030 | 2,879 | 3,712 |
| 80% | 2,989 | 2,500 | 2,642 | 3,594 | 2,907 | 986 | 900 | 900 | 2,363 | 1,308 | 2,464 | 3,492 |
| 90% | 2,626 | 1,842 | 1,756 | 2,846 | 1,205 | 968 | 869 | 800 | 803 | 800 | 1,734 | 3,057 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 3,662 | 3,509 | 3,606 | 3,908 | 3,643 | 1,674 | 1,835 | 1,540 | 2,997 | 2,917 | 3,497 | 4,089 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 4,232 | 4,219 | 4,049 | 4,093 | 3,743 | 2,433 | 2,709 | 2,446 | 3,901 | 3,951 | 4,553 | 4,595 |
| Above Normal (16%) | 4,061 | 3,707 | 3,728 | 4,152 | 3,529 | 1,766 | 2,140 | 1,429 | 3,217 | 2,858 | 4,253 | 4,518 |
| Below Normal (13%) | 3,326 | 3,254 | 3,680 | 4,139 | 4,083 | 1,290 | 1,494 | 1,017 | 2,987 | 3,154 | 3,158 | 4,076 |
| Dry (24%) | 3,218 | 3,196 | 3,621 | 3,639 | 3,736 | 1,228 | 1,202 | 1,050 | 2,807 | 2,651 | 2,971 | 3,858 |
| Critical (15%) | 3,047 | 2,512 | 2,419 | 3,479 | 2,988 | 1,022 | 974 | 992 | 1,125 | 966 | 1,582 | 2,926 |

## Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | 0 | 0 | **-1,656** | 519 | 1,546 | **-4** | 0 | 0 | 0 |
| 20% | 516 | 0 | 0 | 0 | 0 | **-1,901** | 866 | 588 | **-216** | **-185** | 0 | 0 |
| 30% | 894 | 173 | **-125** | 188 | **-91** | **-2,216** | 835 | 125 | **-364** | **-661** | 0 | 0 |
| 40% | 500 | 131 | **-378** | 171 | **-122** | **-2,463** | 762 | **-27** | **-129** | **-628** | **-38** | 0 |
| 50% | 236 | 387 | **-361** | 200 | 64 | **-2,186** | 426 | 38 | 494 | **-581** | **-337** | 43 |
| 60% | 130 | 130 | **-517** | 111 | 141 | **-1,987** | 57 | 0 | 749 | **-195** | **-309** | 96 |
| 70% | 319 | 49 | **-464** | 178 | 648 | **-1,635** | **-191** | 0 | 817 | **-660** | **-98** | **-12** |
| 80% | 259 | 316 | **-240** | 486 | 387 | **-1,276** | **-123** | 0 | 992 | **-421** | 37 | 181 |
| 90% | 482 | 167 | **-308** | 228 | **-602** | **-606** | **-31** | **-100** | 231 | **-103** | **-26** | 83 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 374 | 140 | **-212** | 145 | 46 | **-1,642** | 384 | 186 | 321 | **-361** | **-108** | 92 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 622 | 487 | **-282** | 66 | **-447** | **-1,262** | 887 | 612 | **-128** | **-211** | **-3** | 161 |
| Above Normal (16%) | 778 | **-64** | **-763** | 498 | **-489** | **-2,161** | 824 | 390 | **-243** | **-82** | **-195** | 35 |
| Below Normal (13%) | **-133** | **-66** | 179 | 392 | 472 | **-2,328** | 248 | 16 | 779 | **-645** | **-393** | 4 |
| Dry (24%) | 141 | **-54** | 50 | **-140** | 525 | **-2,022** | **-277** | **-214** | 1,037 | **-365** | 106 | 78 |
| Critical (15%) | 248 | 119 | **-259** | 180 | 506 | **-641** | 39 | **-132** | 295 | **-719** | **-340** | 104 |

a Based on the 82-year simulation period.

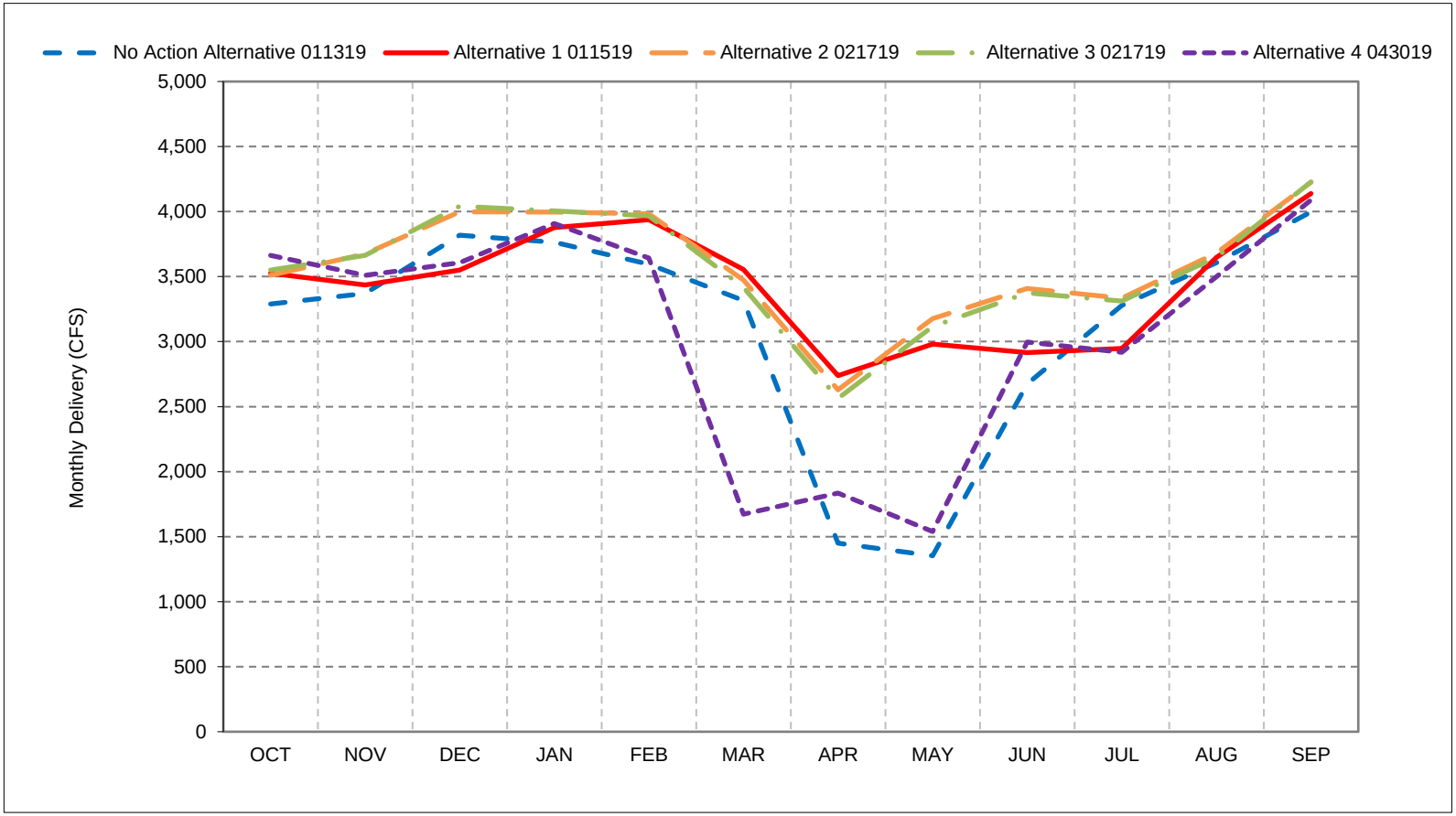
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

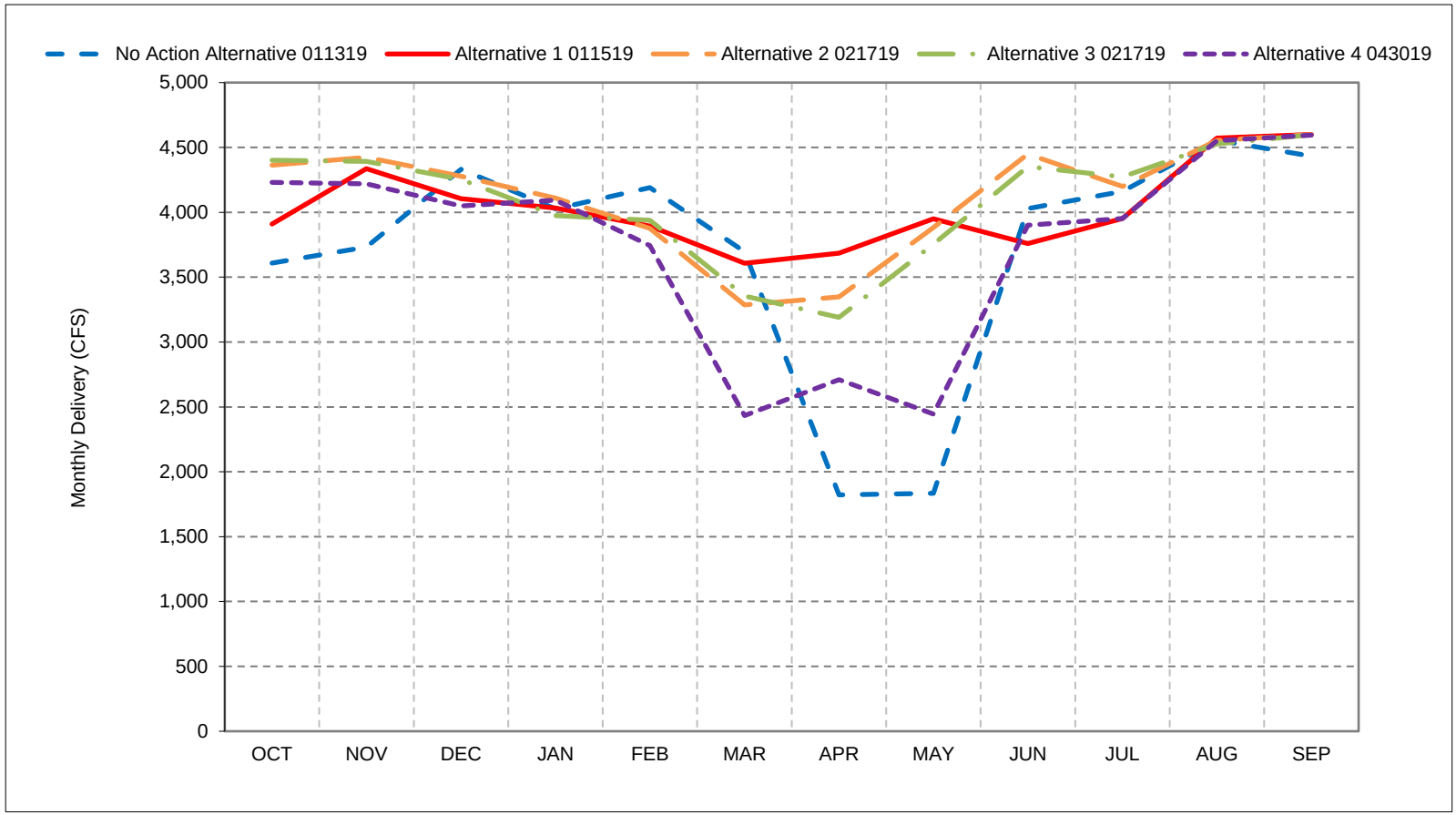
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 54-1. Jones PP Exports, Long-Term Average Delivery



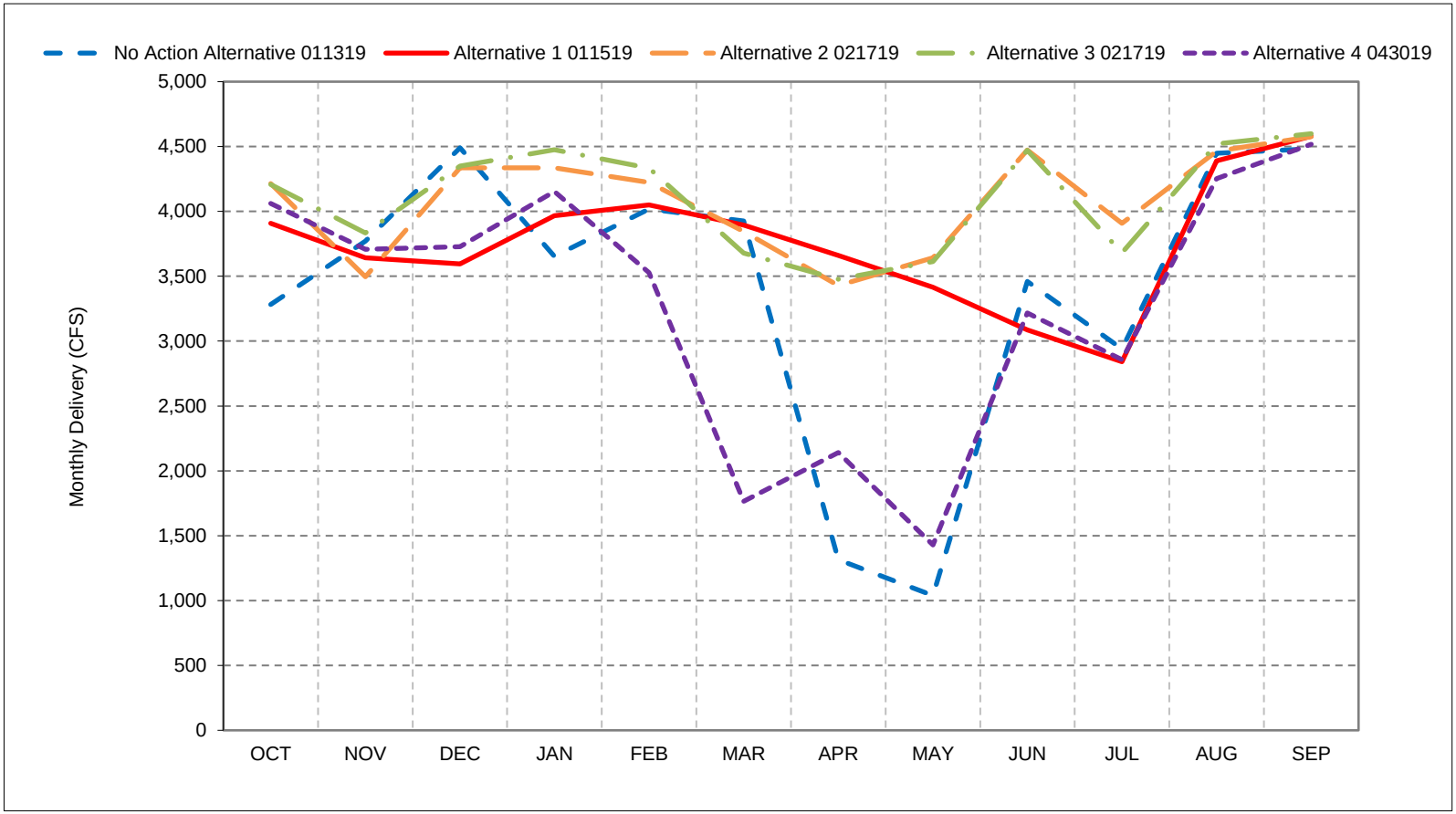

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 54-2. Jones PP Exports, Wet Year Average Delivery



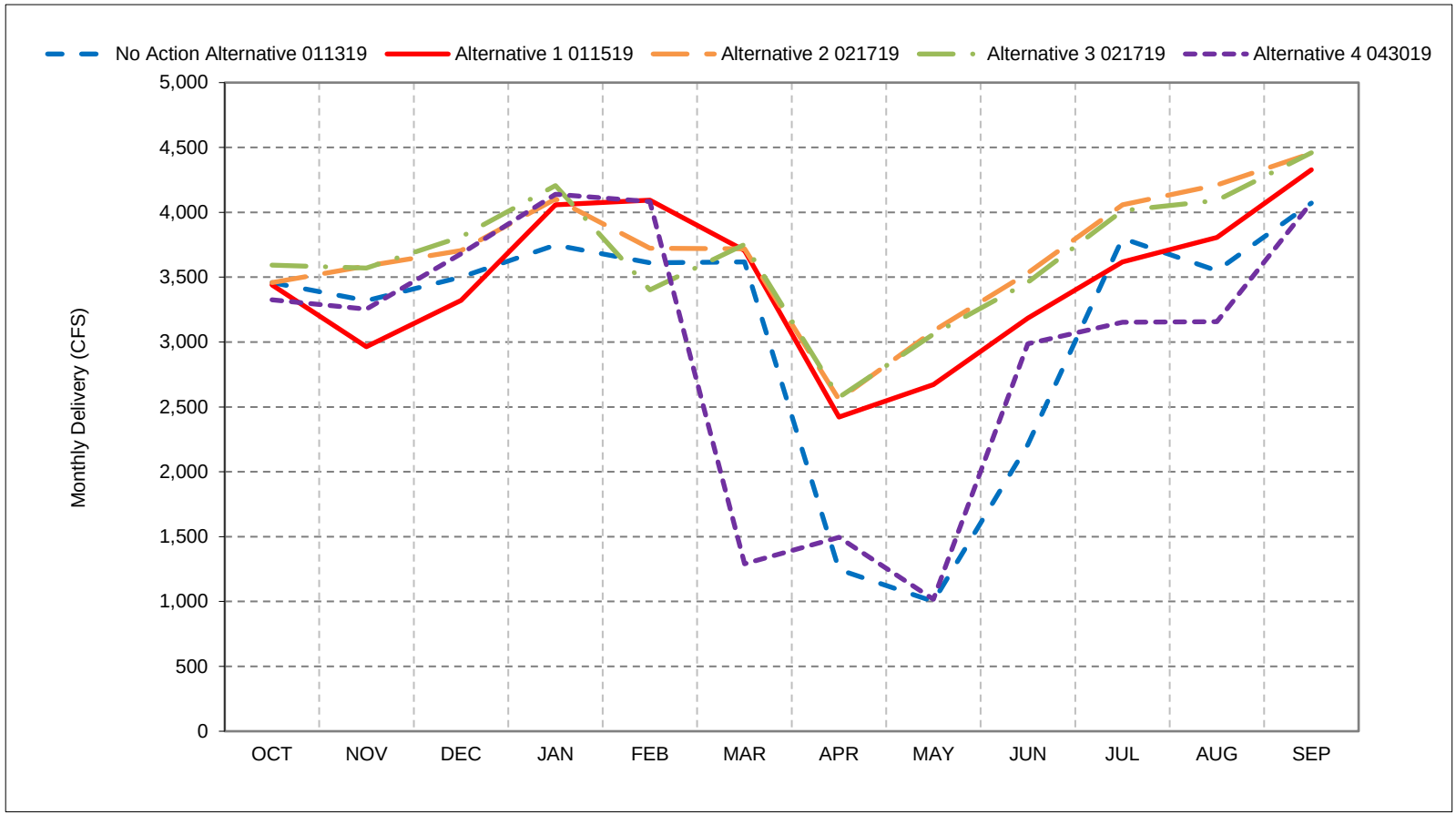

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 54-3. Jones PP Exports, Above Normal Year Average Delivery



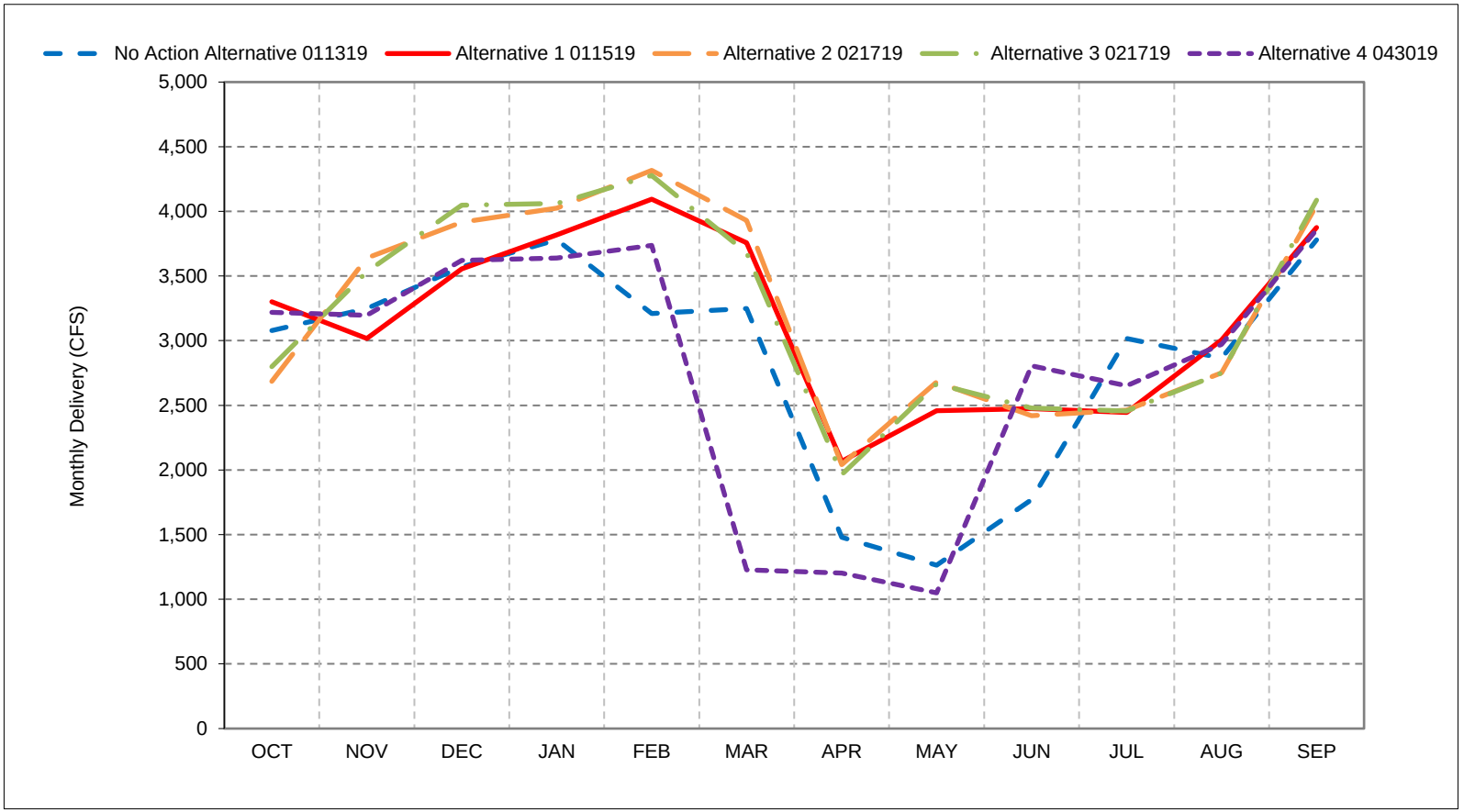

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 54-4. Jones PP Exports, Below Normal Year Average Delivery



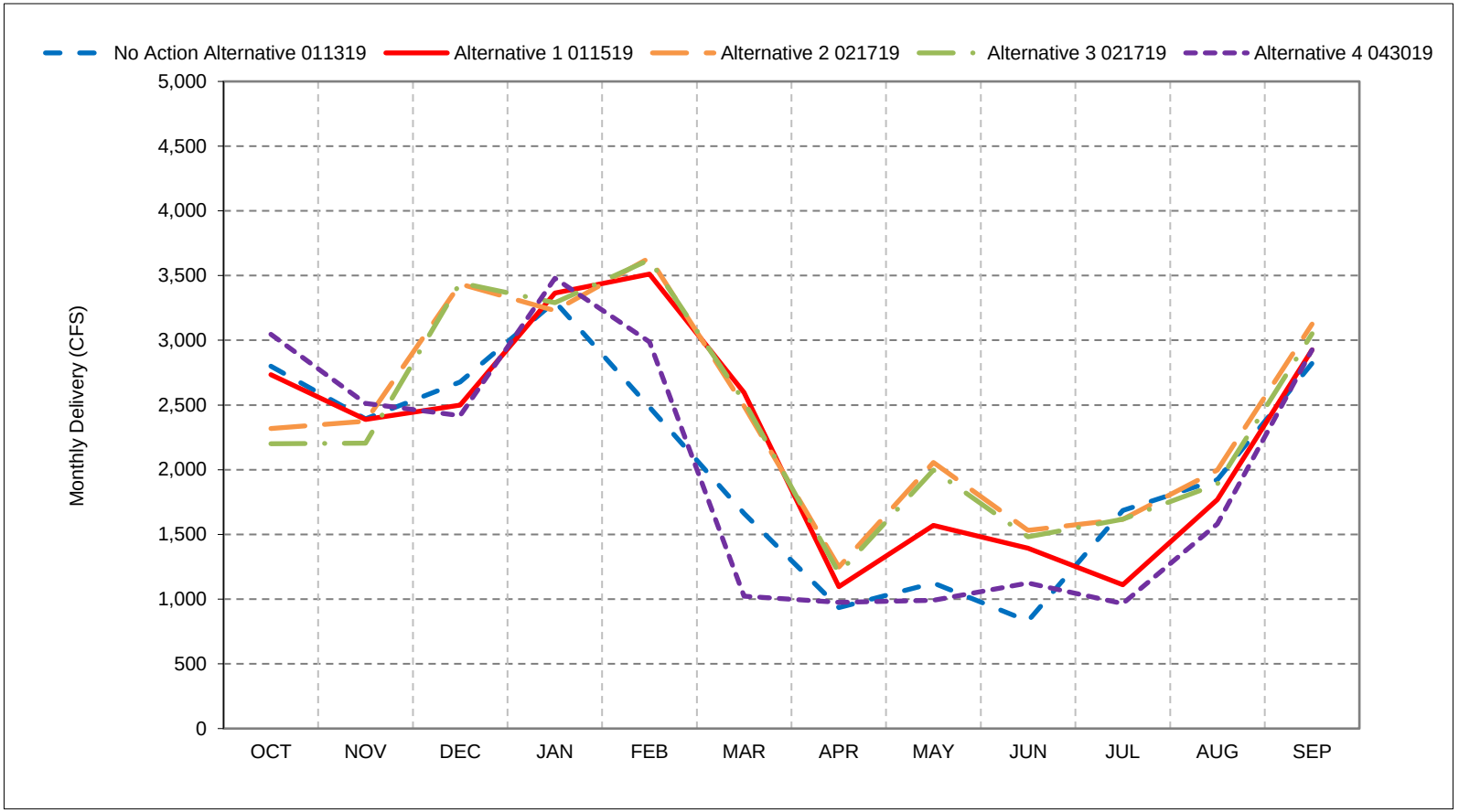

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 54-5. Jones PP Exports, Dry Year Average Delivery



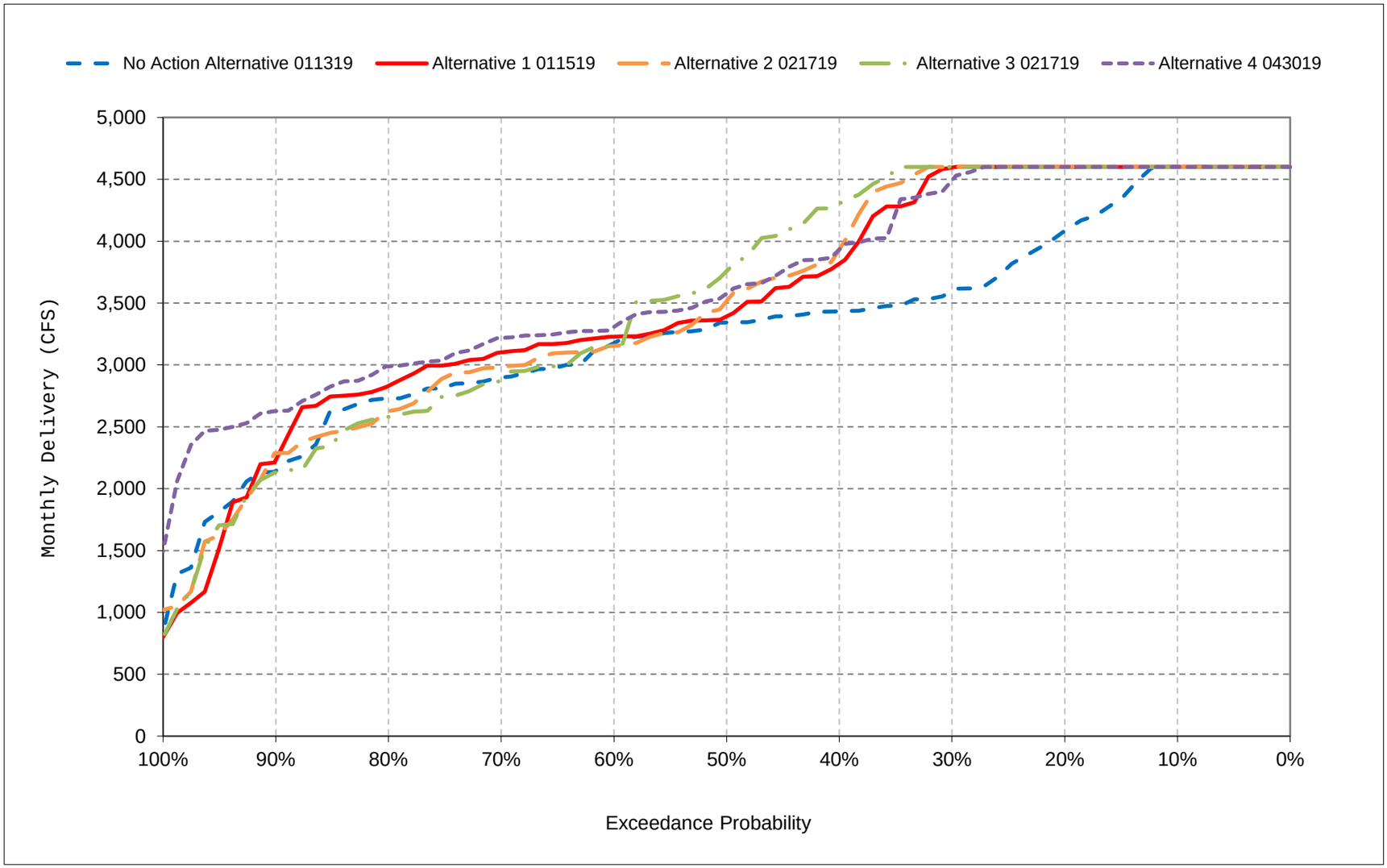

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 54-6. Jones PP Exports, Critical Year Average Delivery




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

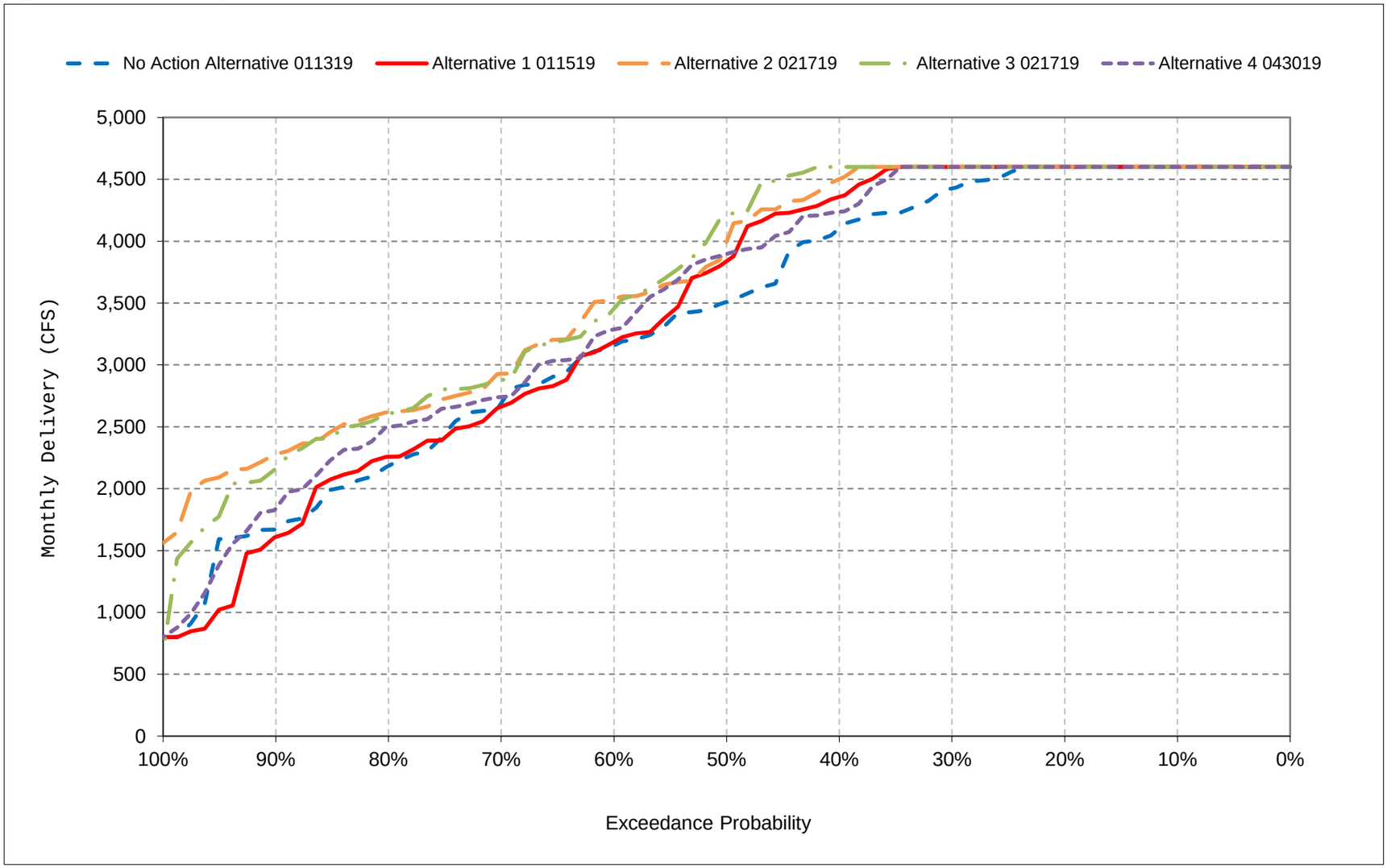
**Figure 54-7. Jones PP Exports, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

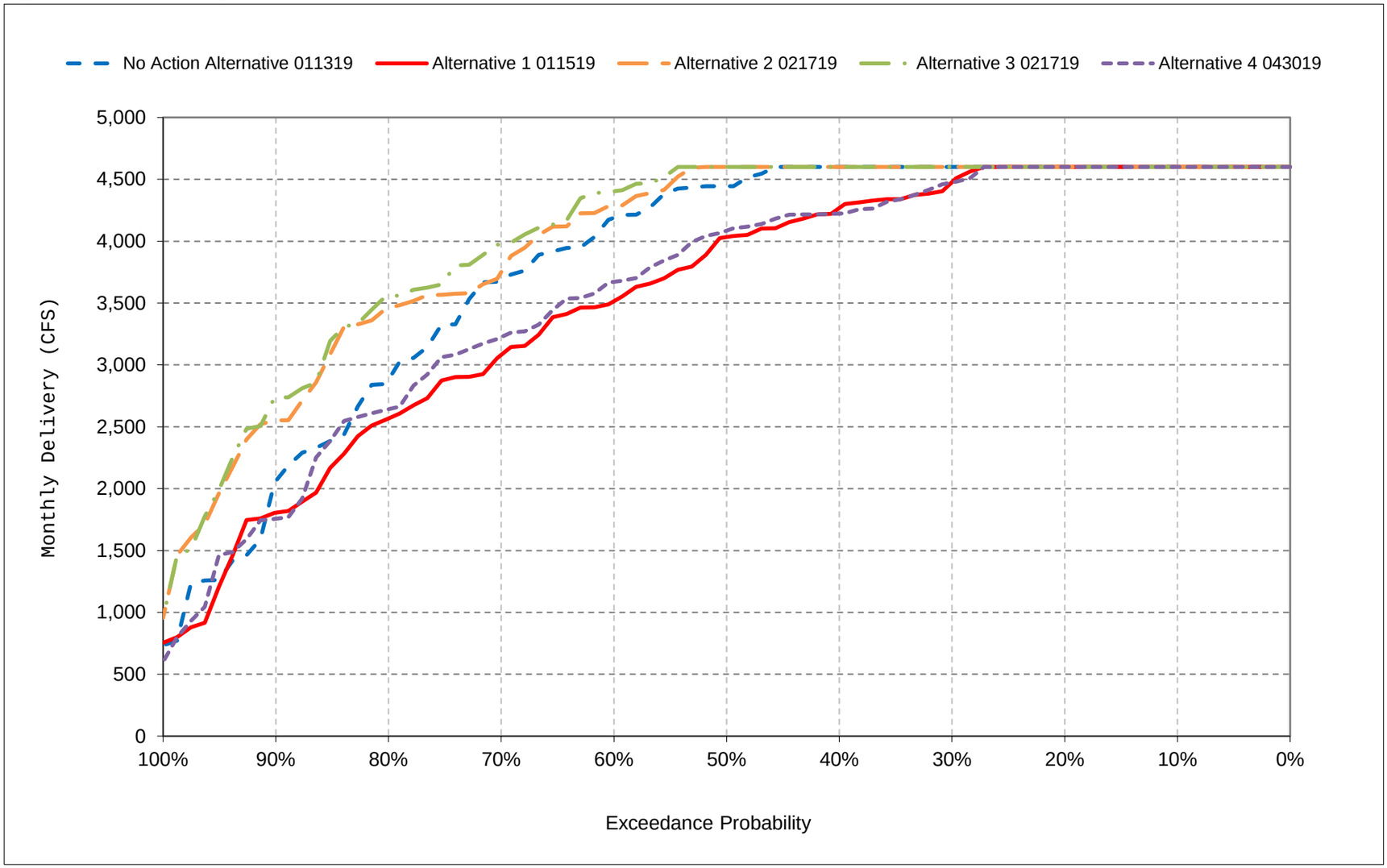
**Figure 54-8. Jones PP Exports, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

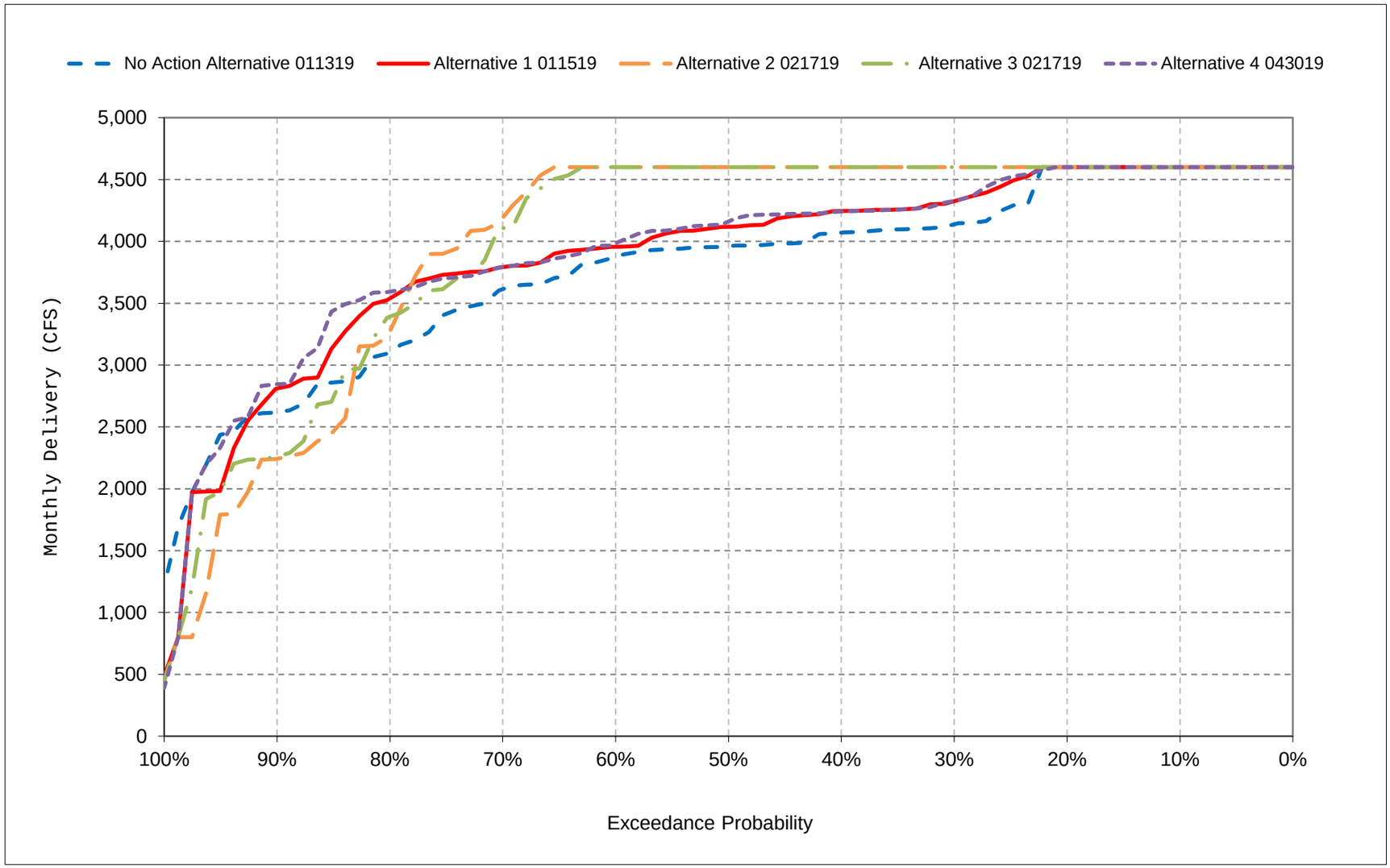
**Figure 54-9. Jones PP Exports, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

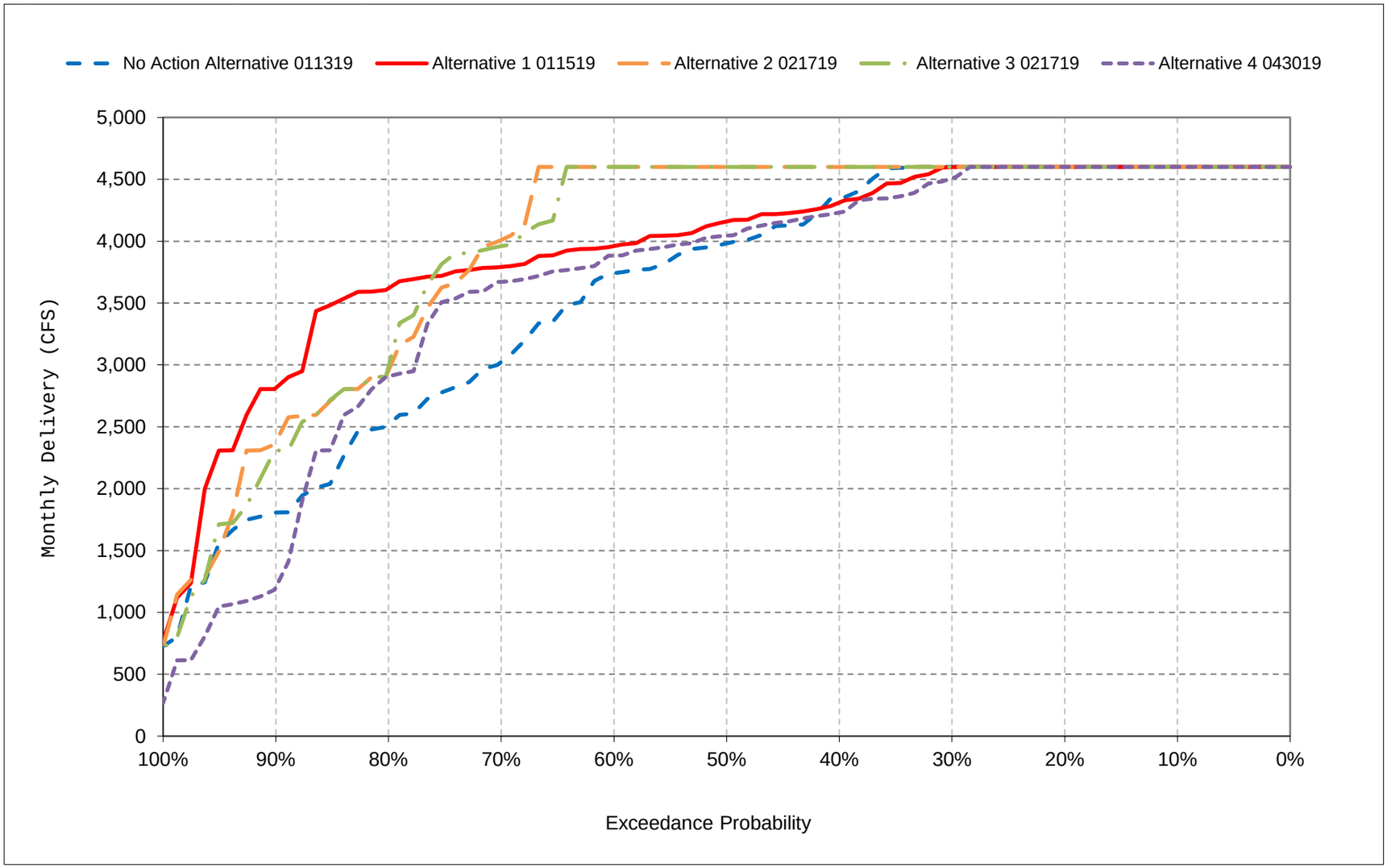
**Figure 54-10. Jones PP Exports, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

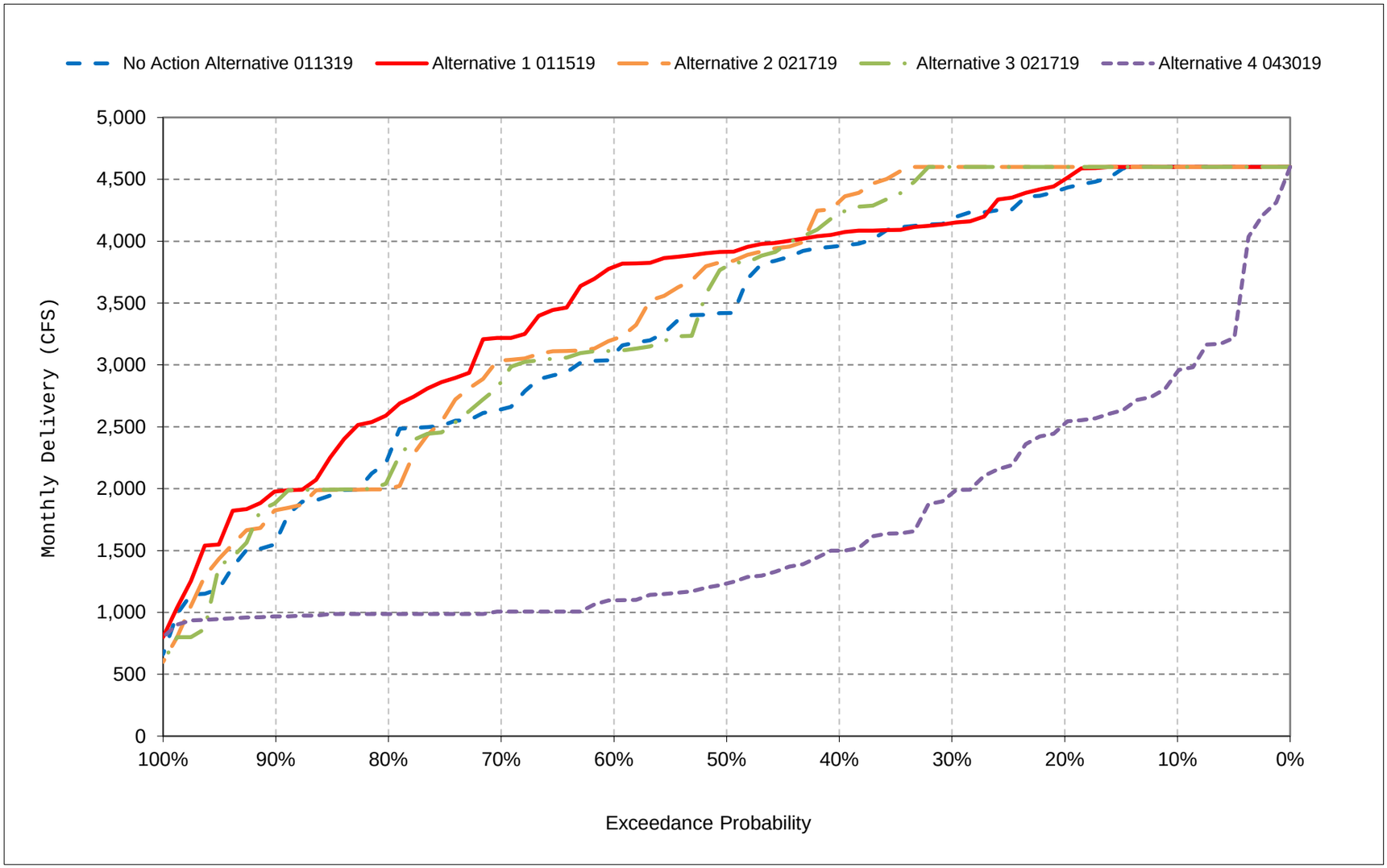
**Figure 54-11. Jones PP Exports, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

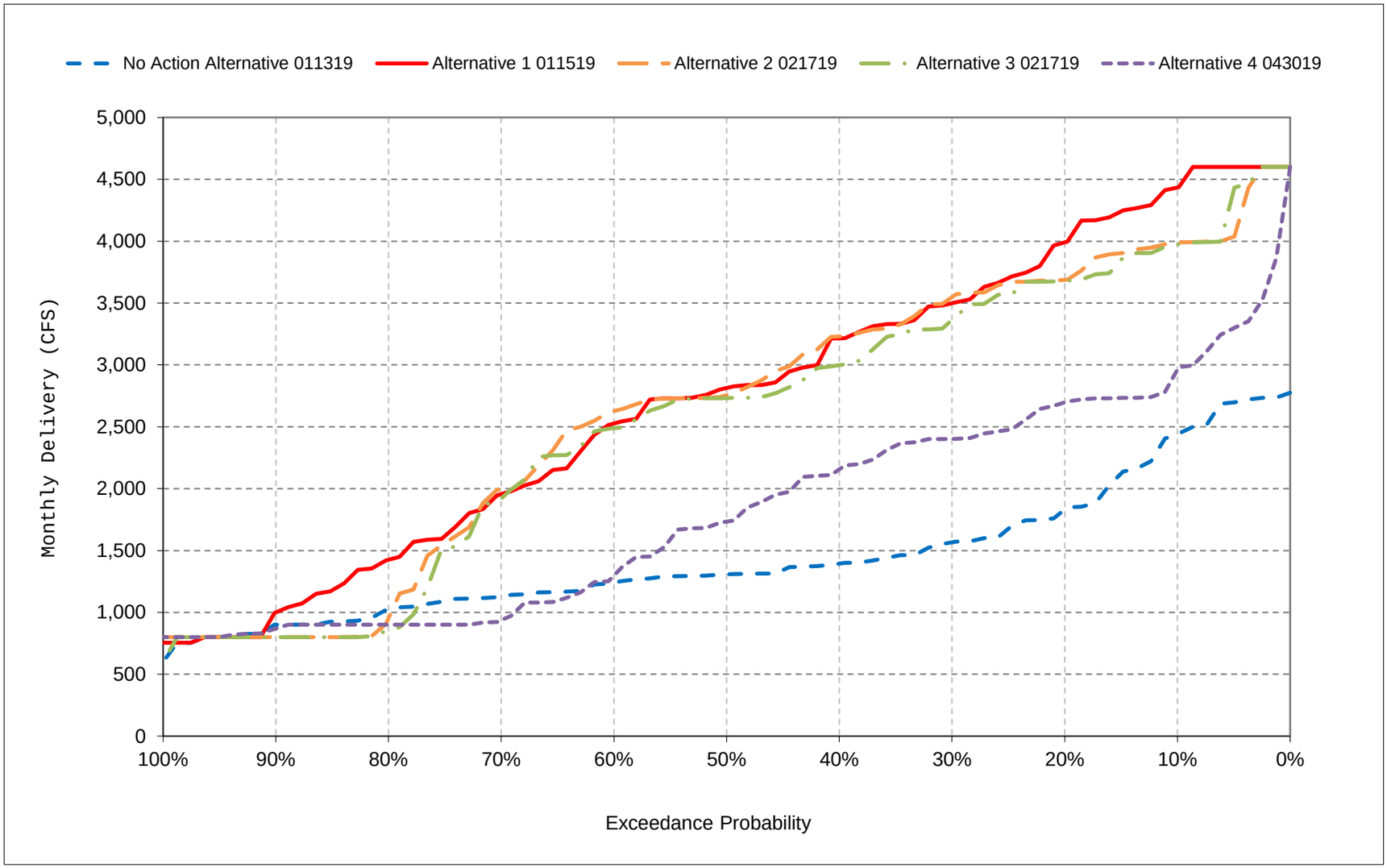
**Figure 54-12. Jones PP Exports, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

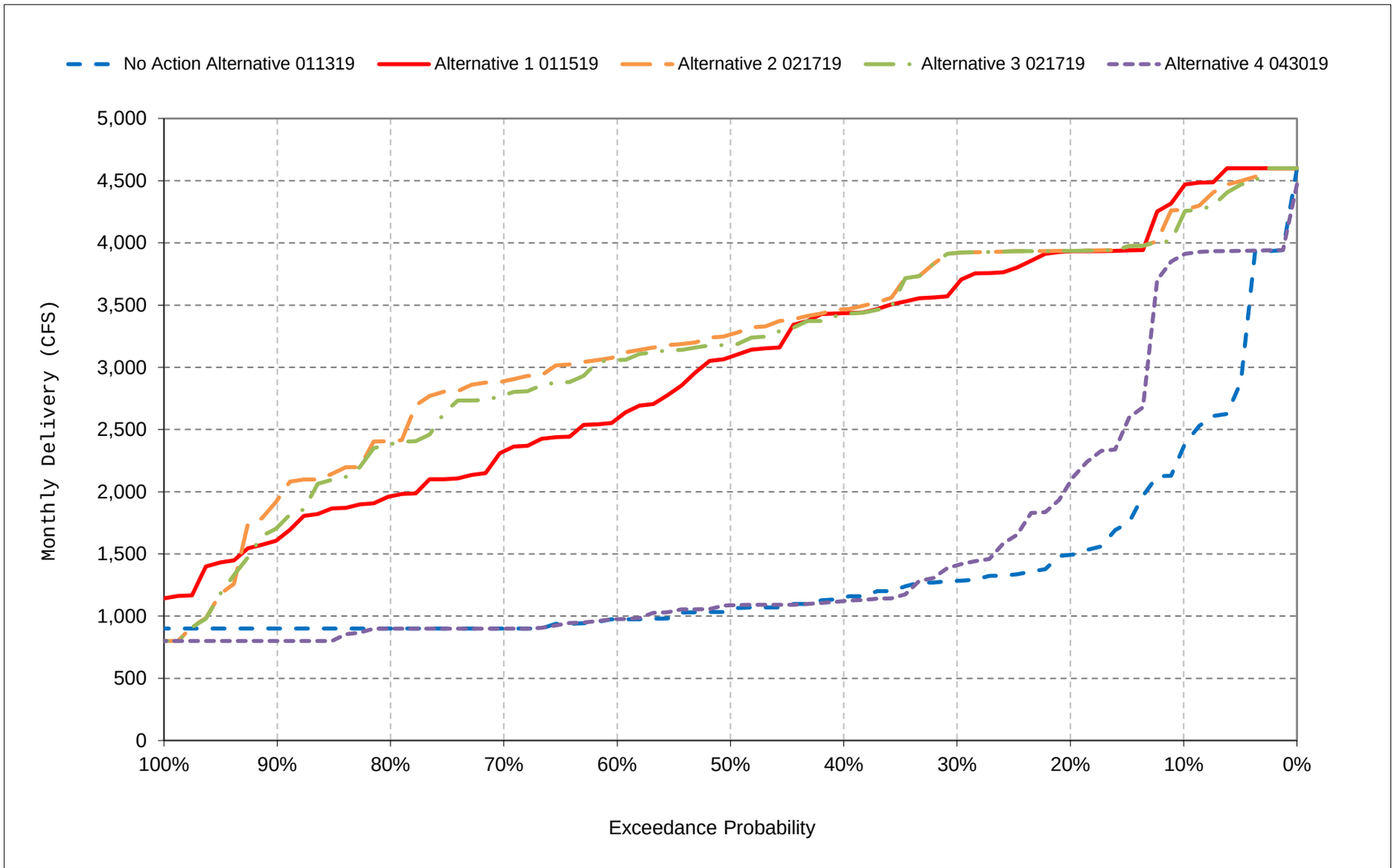
**Figure 54-13. Jones PP Exports, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

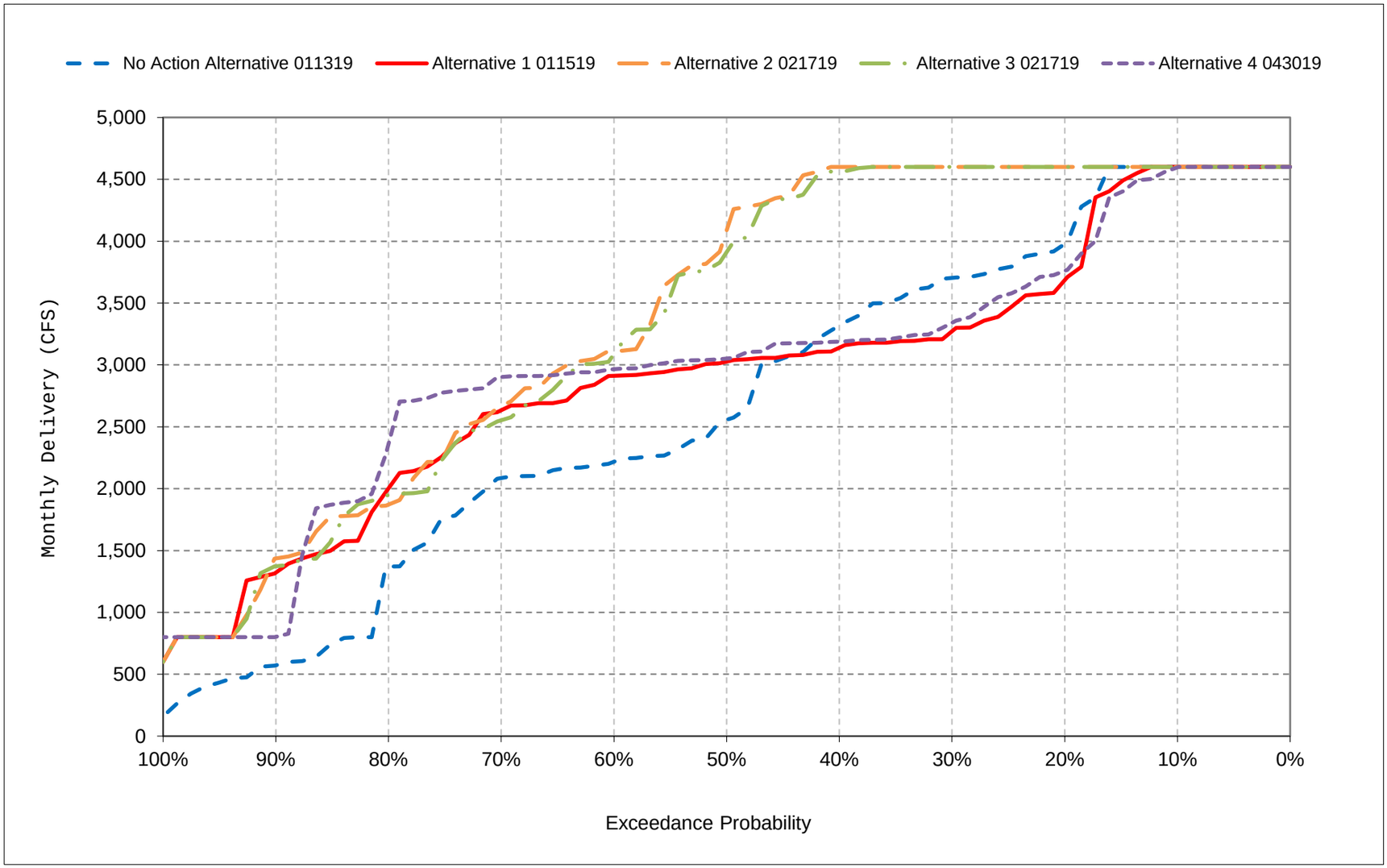
**Figure 54-14. Jones PP Exports, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

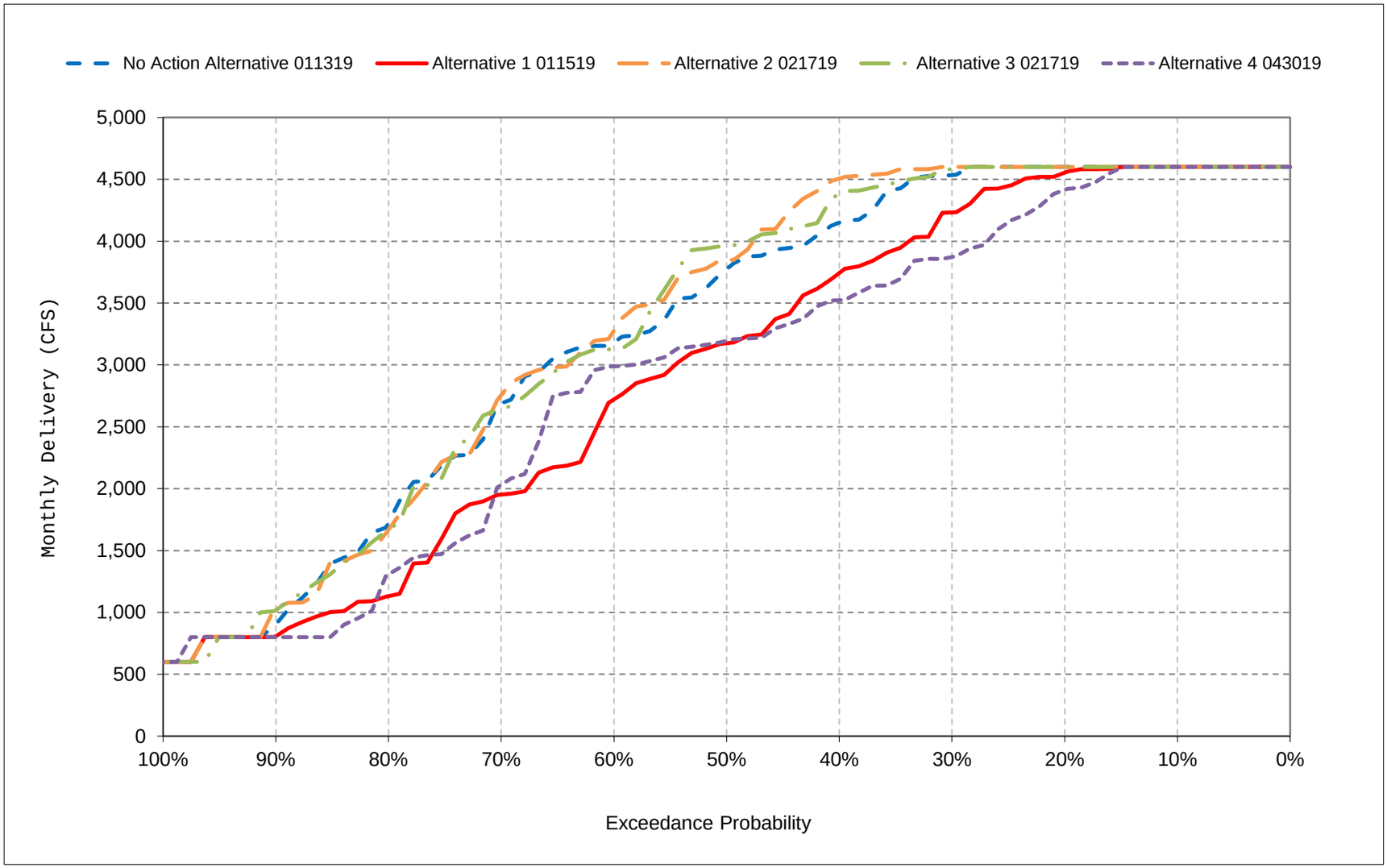
**Figure 54-15. Jones PP Exports, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

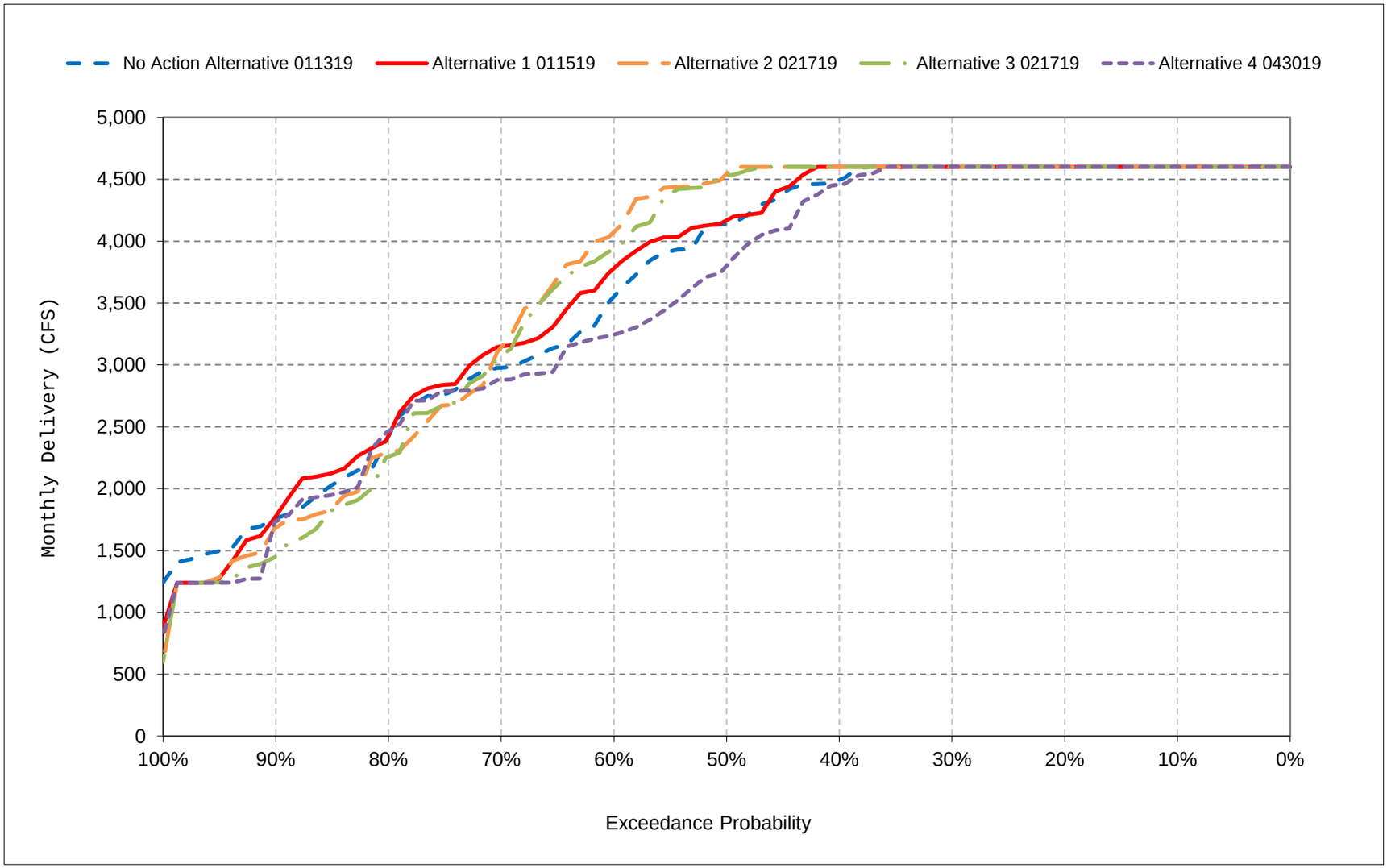
**Figure 54-16. Jones PP Exports, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

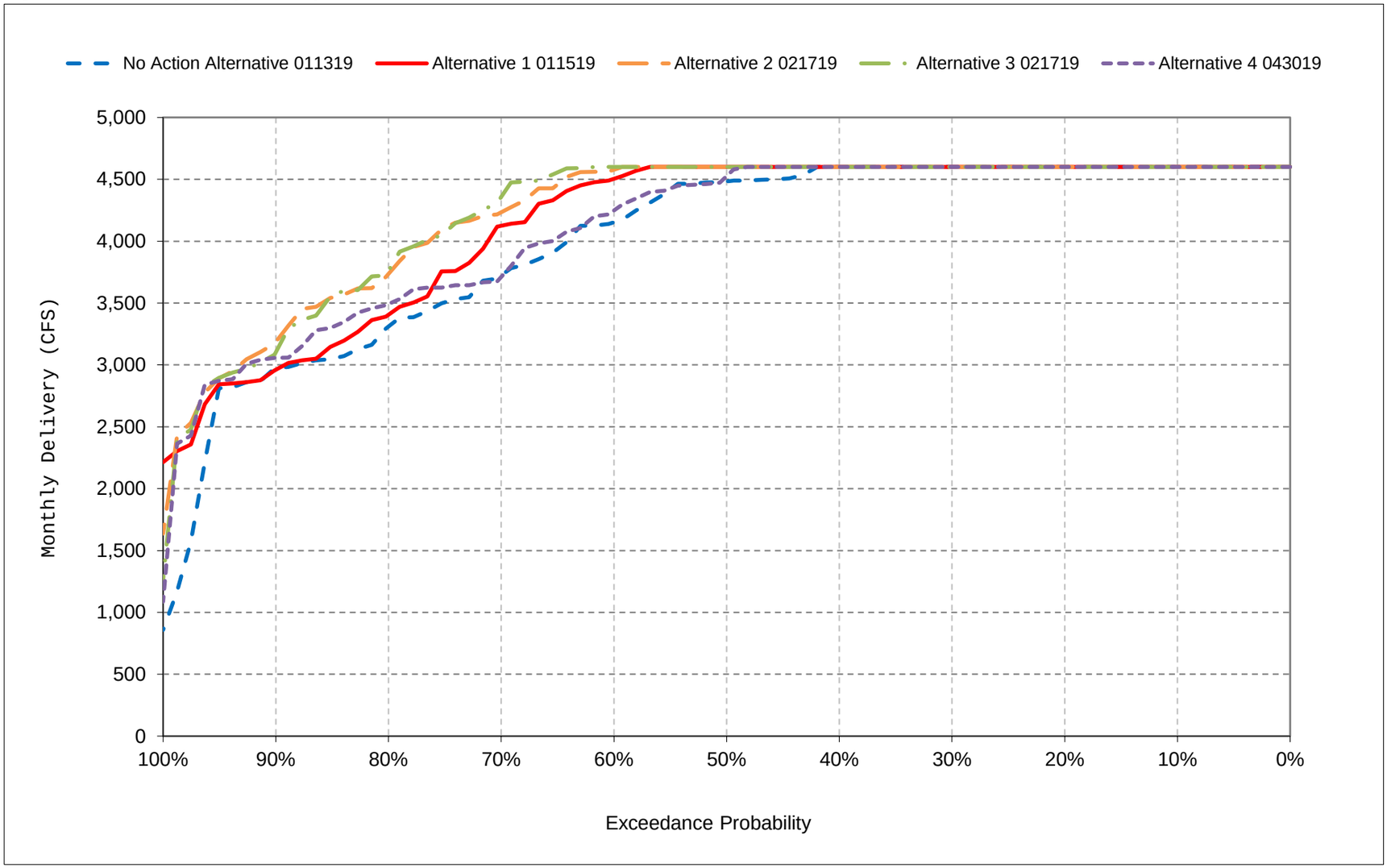
**Figure 54-17. Jones PP Exports, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 54-18. Jones PP Exports, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 55-1. CVP Banks PP Exports, Monthly Delivery

## No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 1,867 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 861 | 339 | 0 |
| 20% | 0 | 1,678 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 495 | 0 | 0 |
| 30% | 0 | 1,235 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 | 0 | 0 |
| 40% | 0 | 512 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 23 | 652 | 16 | 12 | 31 | 19 | 0 | 0 | 19 | 249 | 104 | 42 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 0 | 1,421 | 40 | 38 | 96 | 2 | 0 | 0 | 60 | 50 | 0 | 0 |
| Above Normal (16%) | 0 | 1,255 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 173 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 92 | 449 | 317 |
| Dry (24%) | 0 | 10 | 0 | 0 | 0 | 76 | 0 | 0 | 0 | 757 | 178 | 0 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 246 | 0 | 0 |

## Alternative 1 011519

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,415 | 404 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 903 | 633 | 548 |
| 20% | 368 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 590 | 0 | 0 |
| 30% | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 193 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 296 | 128 | 28 | 15 | 65 | 28 | 0 | 0 | 19 | 250 | 179 | 204 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 316 | 300 | 88 | 49 | 168 | 45 | 0 | 0 | 60 | 53 | 144 | 340 |
| Above Normal (16%) | 1,020 | 207 | 0 | 0 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| Below Normal (13%) | 256 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 578 | 682 |
| Dry (24%) | 0 | 0 | 0 | 0 | 0 | 56 | 0 | 0 | 0 | 713 | 229 | 0 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 405 | 0 | 0 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,415 | **-1,463** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 294 | 548 |
| 20% | 368 | **-1,678** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 95 | 0 | 0 |
| 30% | 29 | **-1,235** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 115 | 0 | 0 |
| 40% | 0 | **-512** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 273 | **-524** | 12 | 3 | 35 | 9 | 0 | 0 | 0 | 1 | 75 | 161 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 316 | **-1,121** | 48 | 11 | 72 | 43 | 0 | 0 | 0 | 3 | 144 | 340 |
| Above Normal (16%) | 1,020 | **-1,048** | **-22** | 0 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| Below Normal (13%) | 83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **-92** | 128 | 366 |
| Dry (24%) | 0 | **-10** | 0 | 0 | 0 | **-20** | 0 | 0 | 0 | **-45** | 51 | 0 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 159 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 55-2. CVP Banks PP Exports, Monthly Delivery

## No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 1,867 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 861 | 339 | 0 |
| 20% | 0 | 1,678 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 495 | 0 | 0 |
| 30% | 0 | 1,235 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 | 0 | 0 |
| 40% | 0 | 512 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 23 | 652 | 16 | 12 | 31 | 19 | 0 | 0 | 19 | 249 | 104 | 42 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0 | 1,421 | 40 | 38 | 96 | 2 | 0 | 0 | 60 | 50 | 0 | 0 |
| Above Normal (16%) | 0 | 1,255 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 173 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 92 | 449 | 317 |
| Dry (24%) | 0 | 10 | 0 | 0 | 0 | 76 | 0 | 0 | 0 | 757 | 178 | 0 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 246 | 0 | 0 |

## Alternative 2 021719

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,409 | 288 | 0 | 0 | 586 | 198 | 0 | 0 | 0 | 1,679 | 1,760 | 1,181 |
| 20% | 591 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 949 | 897 | 233 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 671 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 511 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 297 | 110 | 13 | 105 | 279 | 138 | 1 | 0 | 20 | 572 | 399 | 252 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 274 | 323 | 42 | 258 | 468 | 297 | 0 | 0 | 60 | 84 | 591 | 188 |
| Above Normal (16%) | 1,303 | 37 | 0 | 62 | 741 | 217 | 0 | 0 | 0 | 143 | 402 | 222 |
| Below Normal (13%) | 25 | 2 | 0 | 97 | 97 | 0 | 10 | 0 | 0 | 1,064 | 1,015 | 887 |
| Dry (24%) | 0 | 5 | 0 | 0 | 0 | 11 | 0 | 0 | 4 | 1,097 | 47 | 158 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 48 | 0 | 0 | 0 | 770 | 0 | 0 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,409 | **-1,578** | 0 | 0 | 586 | 198 | 0 | 0 | 0 | 818 | 1,421 | 1,181 |
| 20% | 591 | **-1,678** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 454 | 897 | 233 |
| 30% | 0 | **-1,235** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 593 | 0 | 0 |
| 40% | 0 | **-512** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 511 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 274 | **-542** | **-3** | 93 | 248 | 119 | 1 | 0 | 1 | 324 | 295 | 210 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 274 | **-1,098** | 2 | 220 | 372 | 295 | 0 | 0 | 0 | 33 | 591 | 188 |
| Above Normal (16%) | 1,303 | **-1,218** | **-22** | 62 | 741 | 217 | 0 | 0 | 0 | 143 | 402 | 222 |
| Below Normal (13%) | **-148** | 2 | 0 | 97 | 97 | 0 | 10 | 0 | 0 | 973 | 566 | 570 |
| Dry (24%) | 0 | **-4** | 0 | 0 | 0 | **-65** | 0 | 0 | 4 | 340 | **-131** | 158 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 48 | 0 | 0 | 0 | 524 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 55-3. CVP Banks PP Exports, Monthly Delivery

## No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 1,867 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 861 | 339 | 0 |
| 20% | 0 | 1,678 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 495 | 0 | 0 |
| 30% | 0 | 1,235 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 | 0 | 0 |
| 40% | 0 | 512 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 23 | 652 | 16 | 12 | 31 | 19 | 0 | 0 | 19 | 249 | 104 | 42 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 0 | 1,421 | 40 | 38 | 96 | 2 | 0 | 0 | 60 | 50 | 0 | 0 |
| Above Normal (16%) | 0 | 1,255 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 173 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 92 | 449 | 317 |
| Dry (24%) | 0 | 10 | 0 | 0 | 0 | 76 | 0 | 0 | 0 | 757 | 178 | 0 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 246 | 0 | 0 |

## Alternative 3 021719

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 904 | 546 | 0 | 0 | 991 | 292 | 0 | 0 | 0 | 1,350 | 1,833 | 1,343 |
| 20% | 85 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 941 | 1,279 | 244 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 696 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 486 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 232 | 148 | 50 | 84 | 326 | 126 | 1 | 0 | 23 | 506 | 453 | 266 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 242 | 325 | 159 | 210 | 446 | 325 | 0 | 0 | 60 | 182 | 745 | 83 |
| Above Normal (16%) | 971 | 225 | 0 | 0 | 1,054 | 83 | 0 | 0 | 0 | 0 | 426 | 338 |
| Below Normal (13%) | 8 | 0 | 0 | 130 | 129 | 0 | 10 | 0 | 0 | 747 | 1,004 | 1,032 |
| Dry (24%) | 0 | 36 | 0 | 0 | 0 | 25 | 0 | 0 | 16 | 1,129 | 29 | 194 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 495 | 51 | 0 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 904 | **-1,321** | 0 | 0 | 991 | 292 | 0 | 0 | 0 | 490 | 1,495 | 1,343 |
| 20% | 85 | **-1,678** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 446 | 1,279 | 244 |
| 30% | 0 | **-1,235** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 618 | 0 | 0 |
| 40% | 0 | **-512** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 486 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 208 | **-504** | 34 | 72 | 295 | 107 | 1 | 0 | 4 | 257 | 349 | 223 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 242 | **-1,096** | 119 | 172 | 350 | 323 | 0 | 0 | 0 | 132 | 745 | 83 |
| Above Normal (16%) | 971 | **-1,029** | **-22** | 0 | 1,054 | 83 | 0 | 0 | 0 | 0 | 426 | 338 |
| Below Normal (13%) | **-165** | 0 | 0 | 130 | 129 | 0 | 10 | 0 | 0 | 655 | 555 | 716 |
| Dry (24%) | 0 | 27 | 0 | 0 | 0 | **-51** | 0 | 0 | 16 | 372 | **-149** | 194 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 250 | 51 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 55-4. CVP Banks PP Exports, Monthly Delivery

## No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 1,867 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 861 | 339 | 0 |
| 20% | 0 | 1,678 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 495 | 0 | 0 |
| 30% | 0 | 1,235 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 | 0 | 0 |
| 40% | 0 | 512 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 23 | 652 | 16 | 12 | 31 | 19 | 0 | 0 | 19 | 249 | 104 | 42 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 0 | 1,421 | 40 | 38 | 96 | 2 | 0 | 0 | 60 | 50 | 0 | 0 |
| Above Normal (16%) | 0 | 1,255 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Below Normal (13%) | 173 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 92 | 449 | 317 |
| Dry (24%) | 0 | 10 | 0 | 0 | 0 | 76 | 0 | 0 | 0 | 757 | 178 | 0 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 246 | 0 | 0 |

## Alternative 4 043019

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,429 | 96 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 749 | 612 | 332 |
| 20% | 688 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 510 | 19 | 0 |
| 30% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 311 | 0 | 0 |
| 40% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 326 | 70 | 56 | 23 | 119 | 2 | 0 | 0 | 0 | 233 | 156 | 176 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 489 | 174 | 130 | 35 | 375 | 6 | 0 | 0 | 0 | 64 | 240 | 379 |
| Above Normal (16%) | 1,076 | 92 | 8 | 74 | 0 | 0 | 0 | 0 | 0 | 134 | 14 | 133 |
| Below Normal (13%) | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 220 | 465 | 256 |
| Dry (24%) | 0 | 2 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 642 | 60 | 0 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 0 |

## Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,429 | **-1,771** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **-111** | 274 | 332 |
| 20% | 688 | **-1,678** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 19 | 0 |
| 30% | 0 | **-1,235** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 233 | 0 | 0 |
| 40% | 0 | **-512** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 0 | 0 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 302 | **-582** | 40 | 11 | 88 | **-17** | 0 | 0 | **-19** | **-16** | 52 | 133 |
| **Water Year Types**[b,c] | | | | | | | | | | | | |
| Wet (32%) | 489 | **-1,247** | 90 | **-3** | 279 | 4 | 0 | 0 | **-60** | 13 | 240 | 379 |
| Above Normal (16%) | 1,076 | **-1,162** | **-14** | 74 | 0 | 0 | 0 | 0 | 0 | 134 | 14 | 133 |
| Below Normal (13%) | **-173** | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 129 | 16 | **-61** |
| Dry (24%) | 0 | **-7** | 50 | 0 | 0 | **-76** | 0 | 0 | 0 | **-116** | **-118** | 0 |
| Critical (15%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **-207** | 0 | 0 |

a Based on the 82-year simulation period.

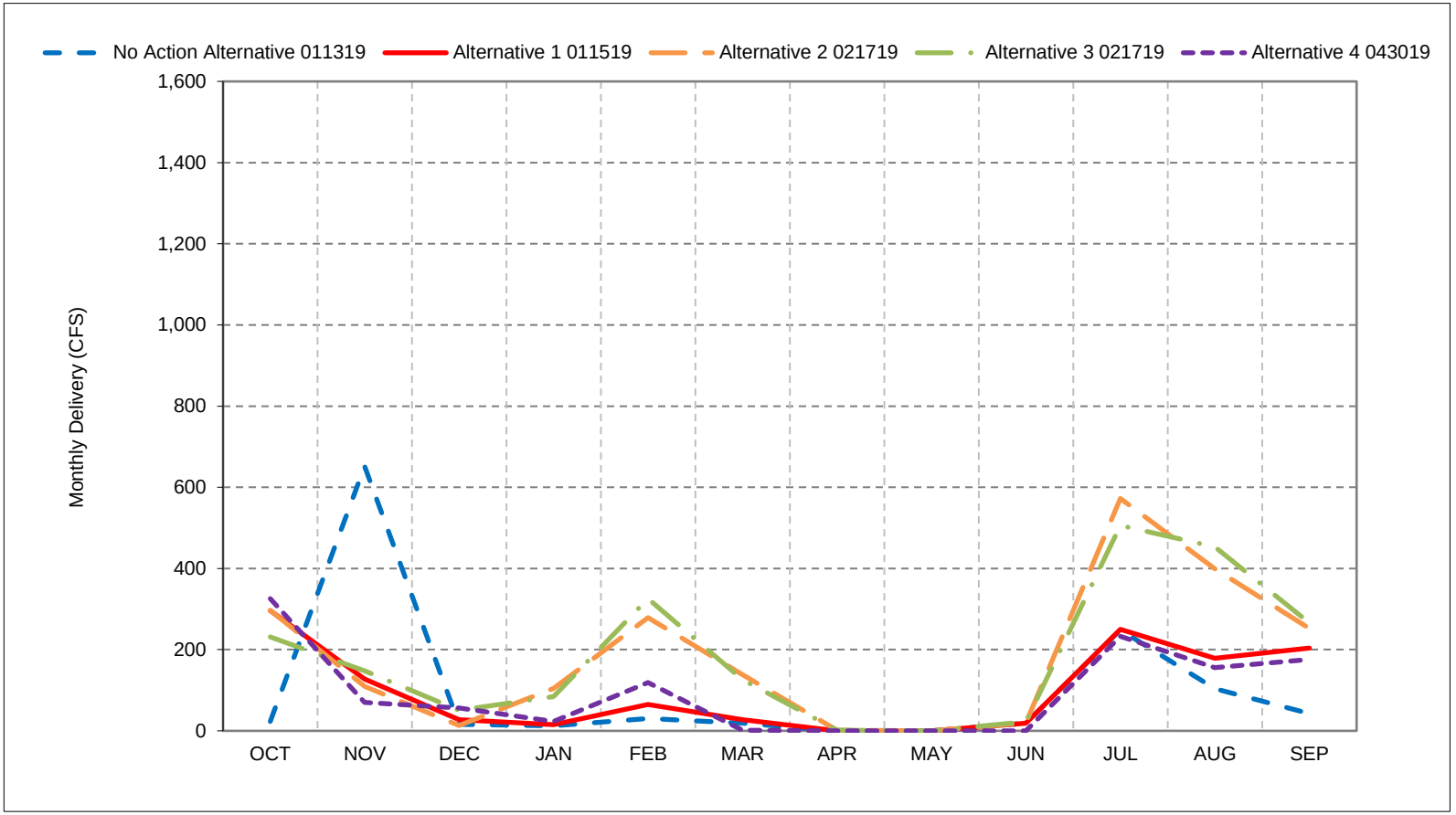
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

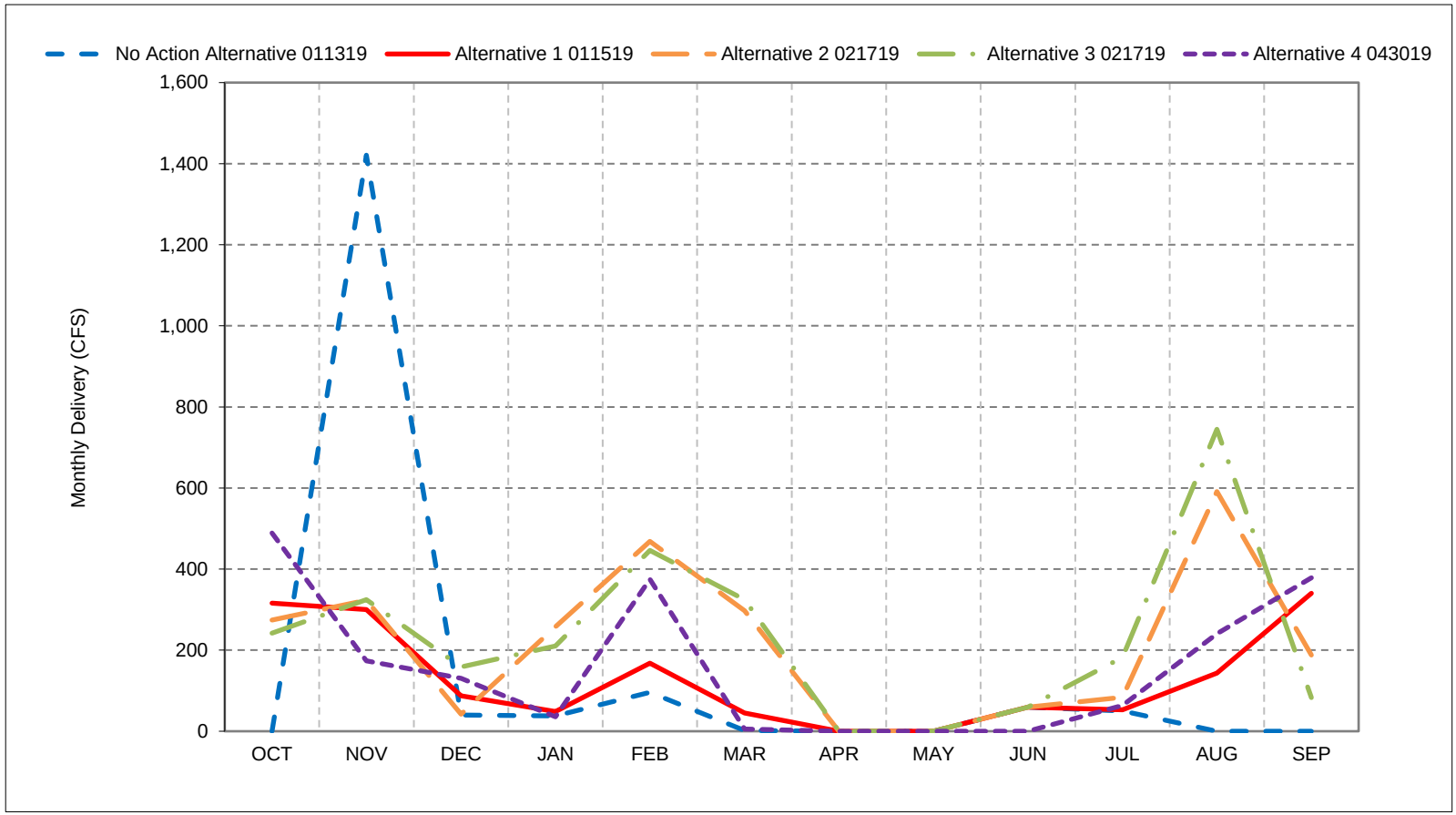
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 55-1. CVP Banks PP Exports, Long-Term Average Delivery



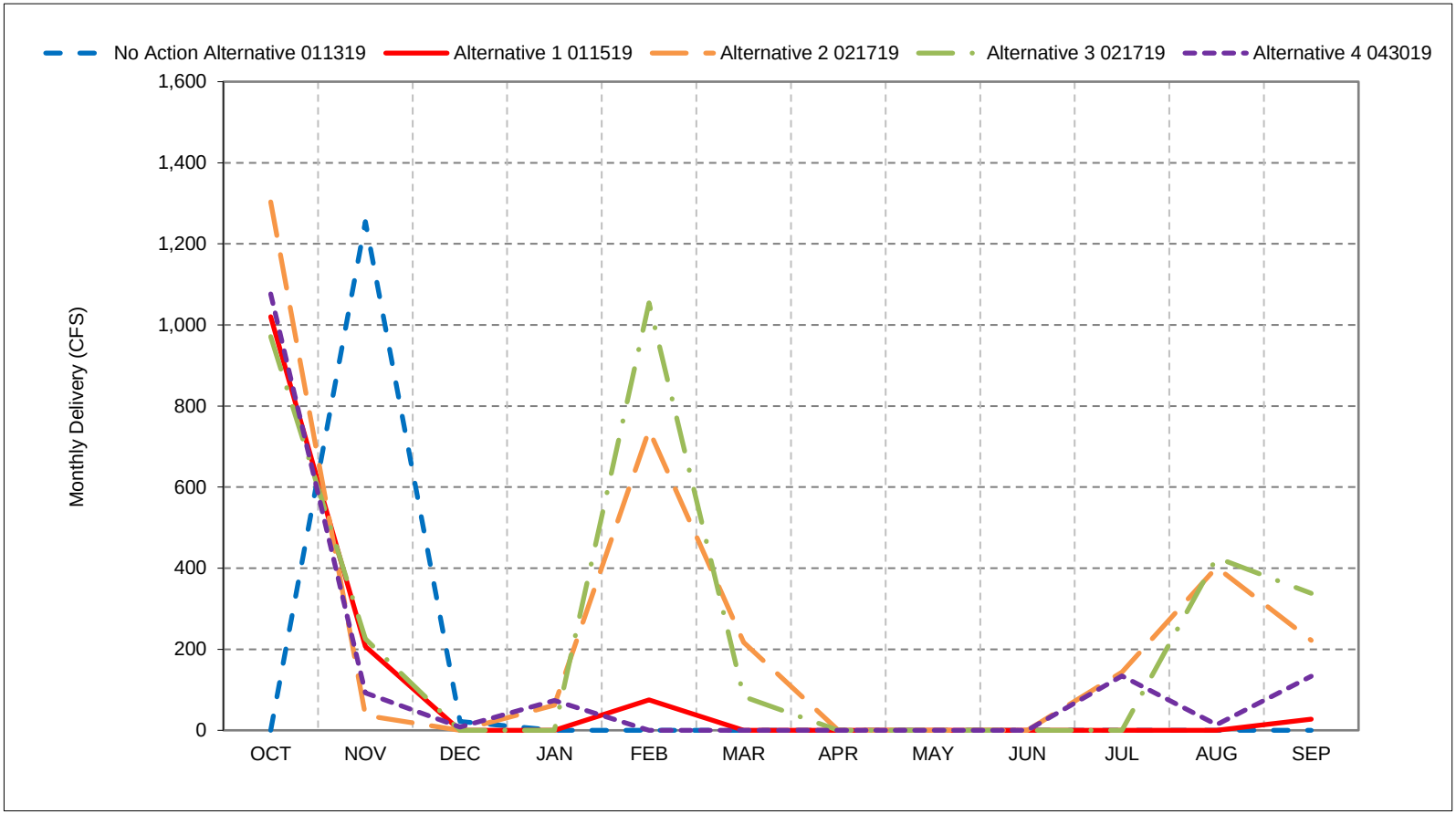

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 55-2. CVP Banks PP Exports, Wet Year Average Delivery



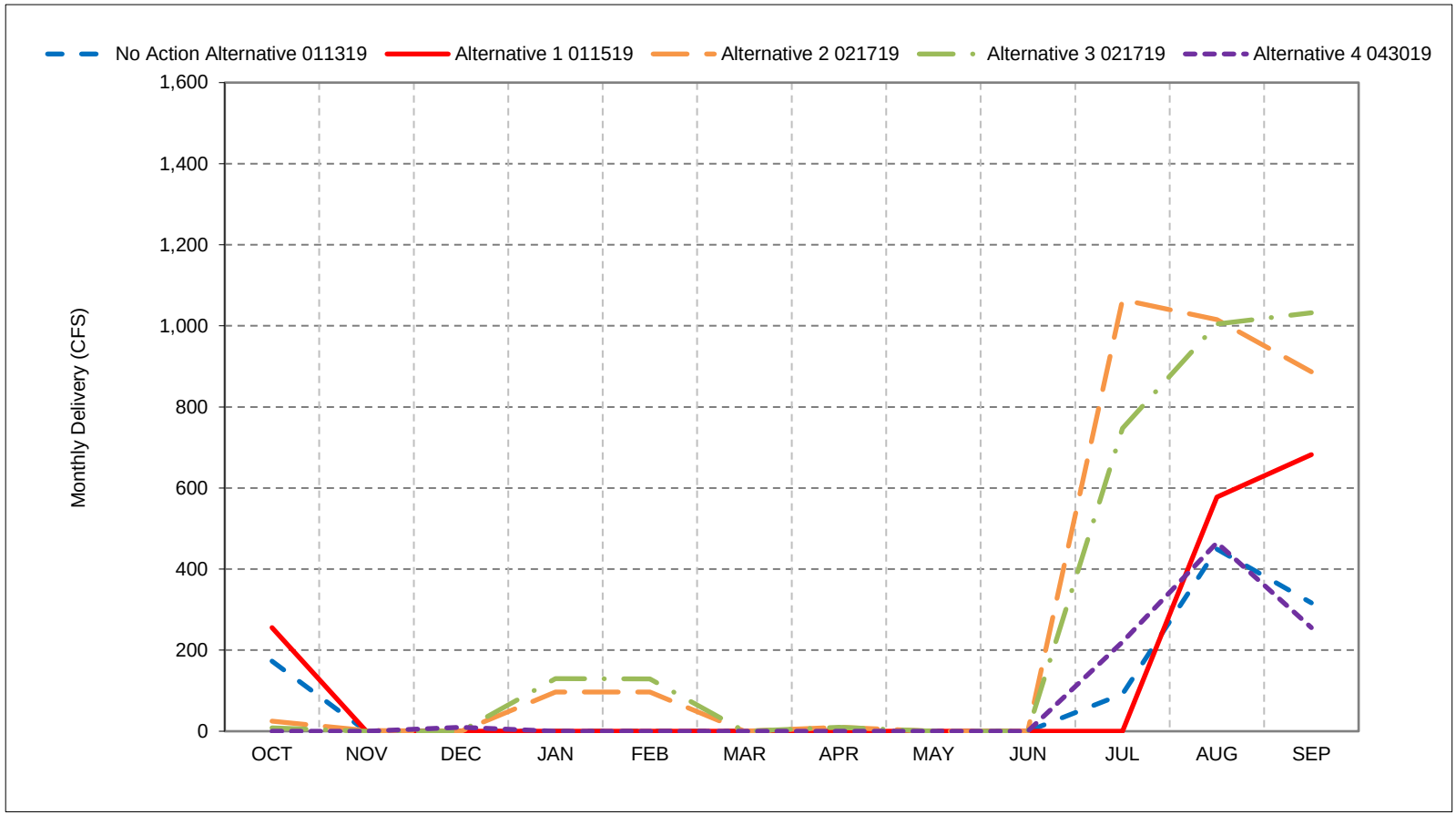

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 55-3. CVP Banks PP Exports, Above Normal Year Average Delivery



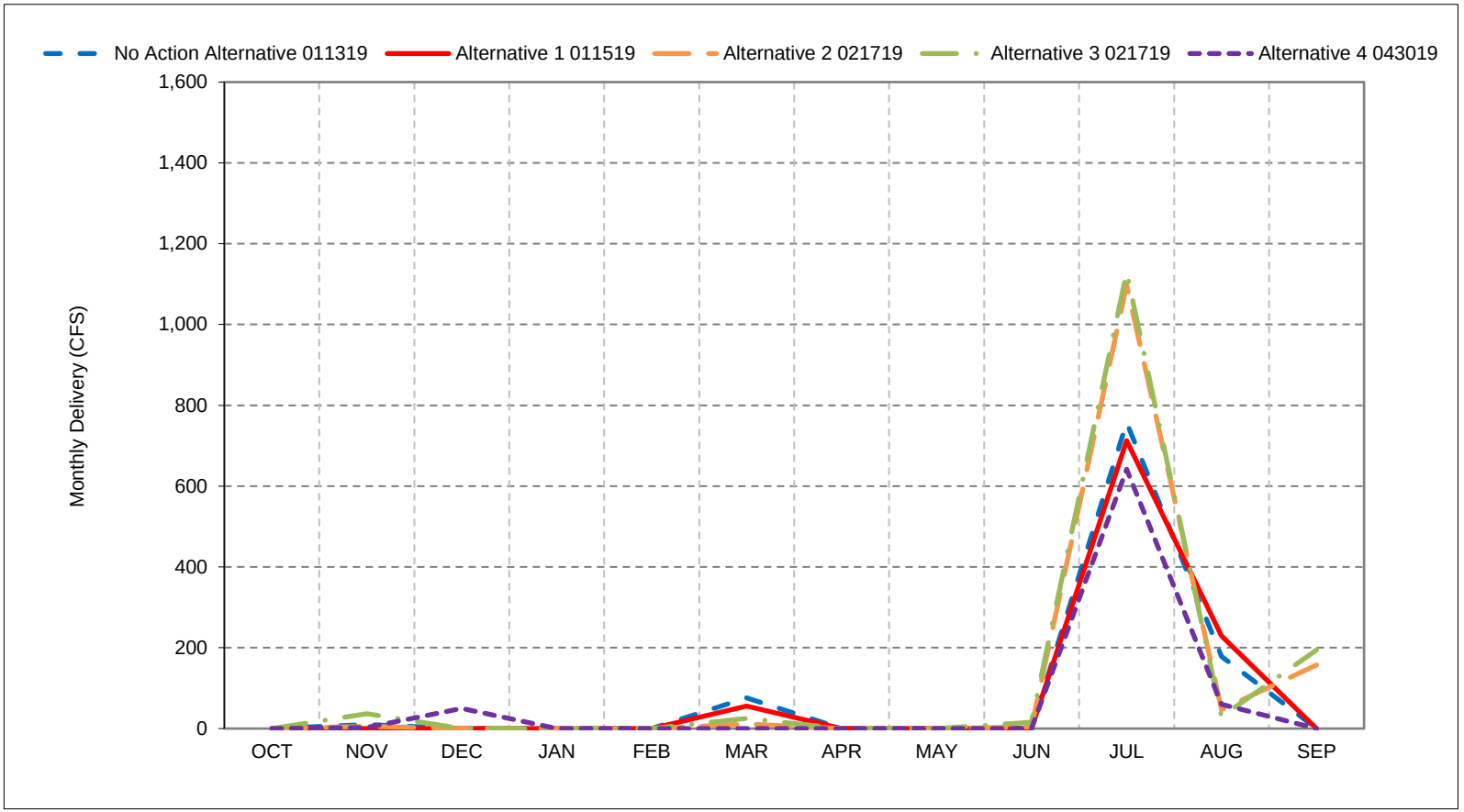

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 55-4. CVP Banks PP Exports, Below Normal Year Average Delivery



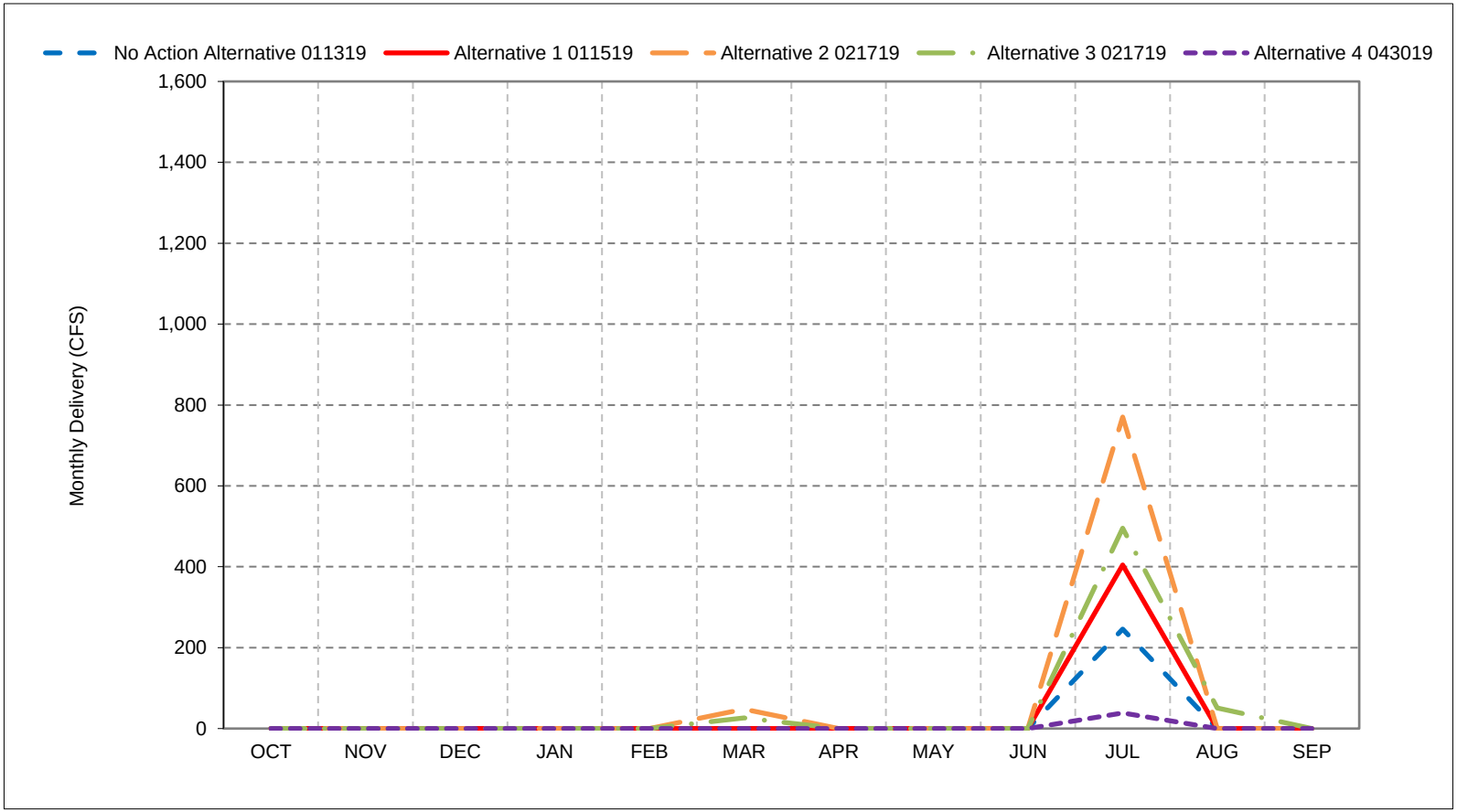

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 55-5. CVP Banks PP Exports, Dry Year Average Delivery



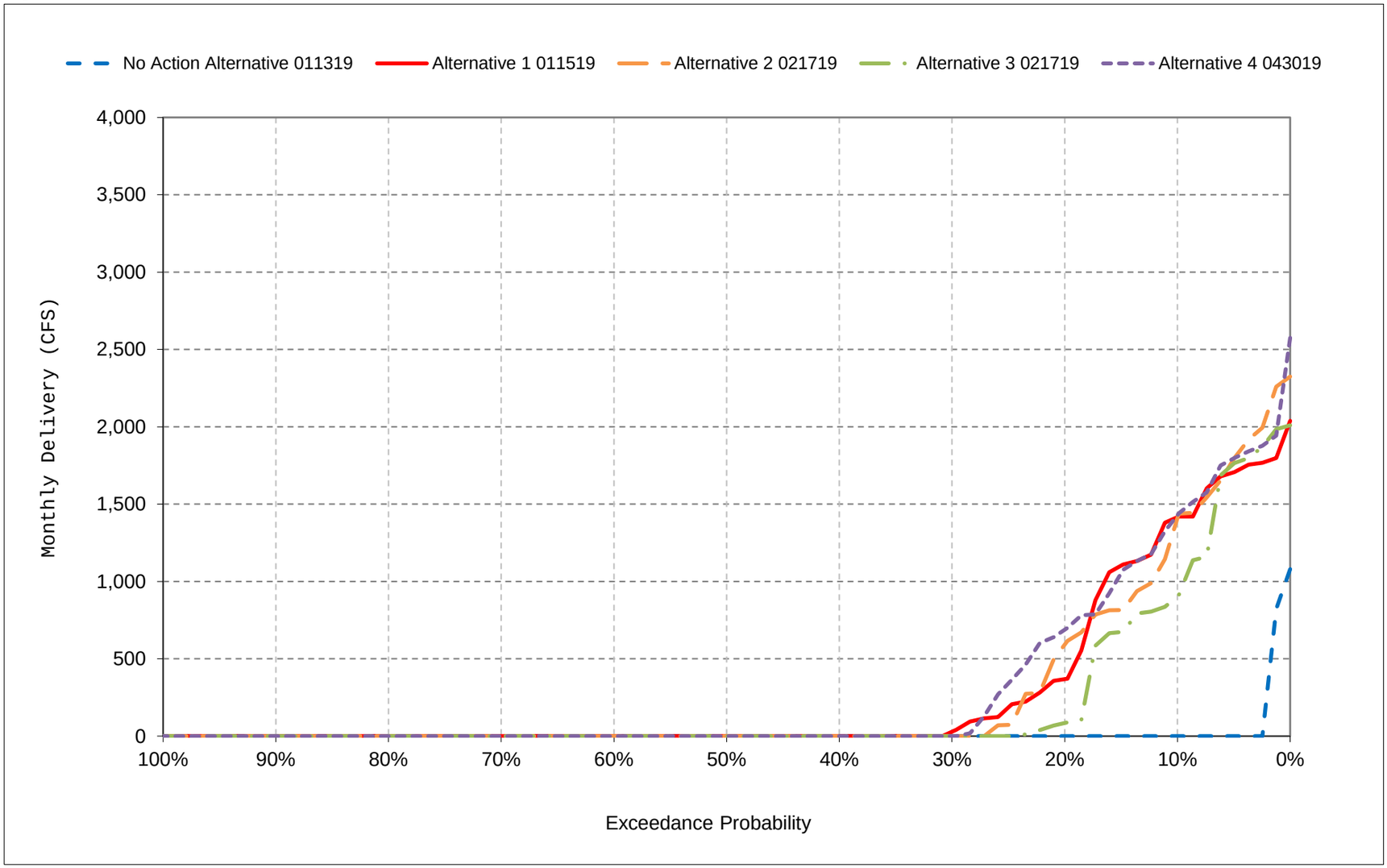

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 55-6. CVP Banks PP Exports, Critical Year Average Delivery




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

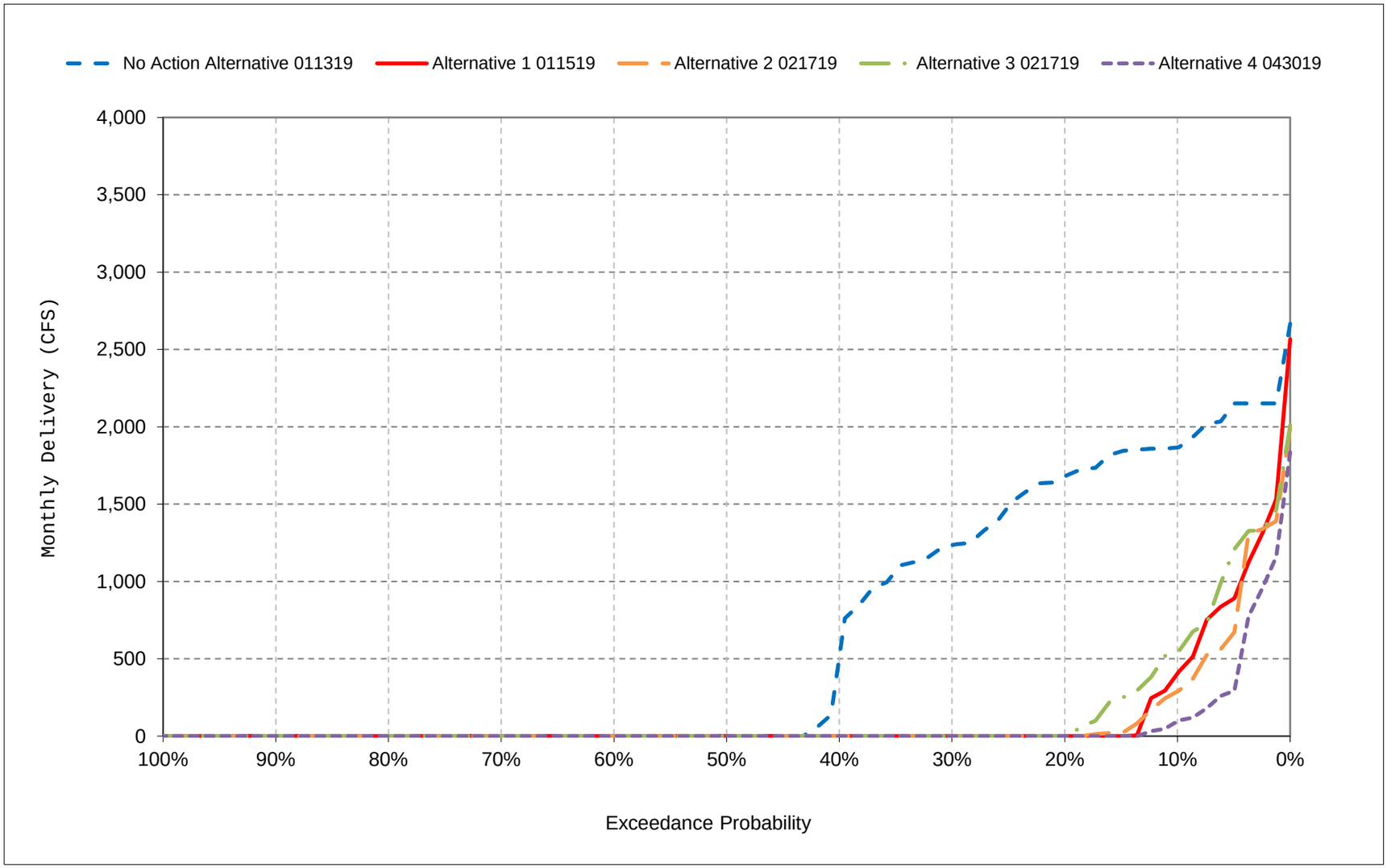
**Figure 55-7. CVP Banks PP Exports, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

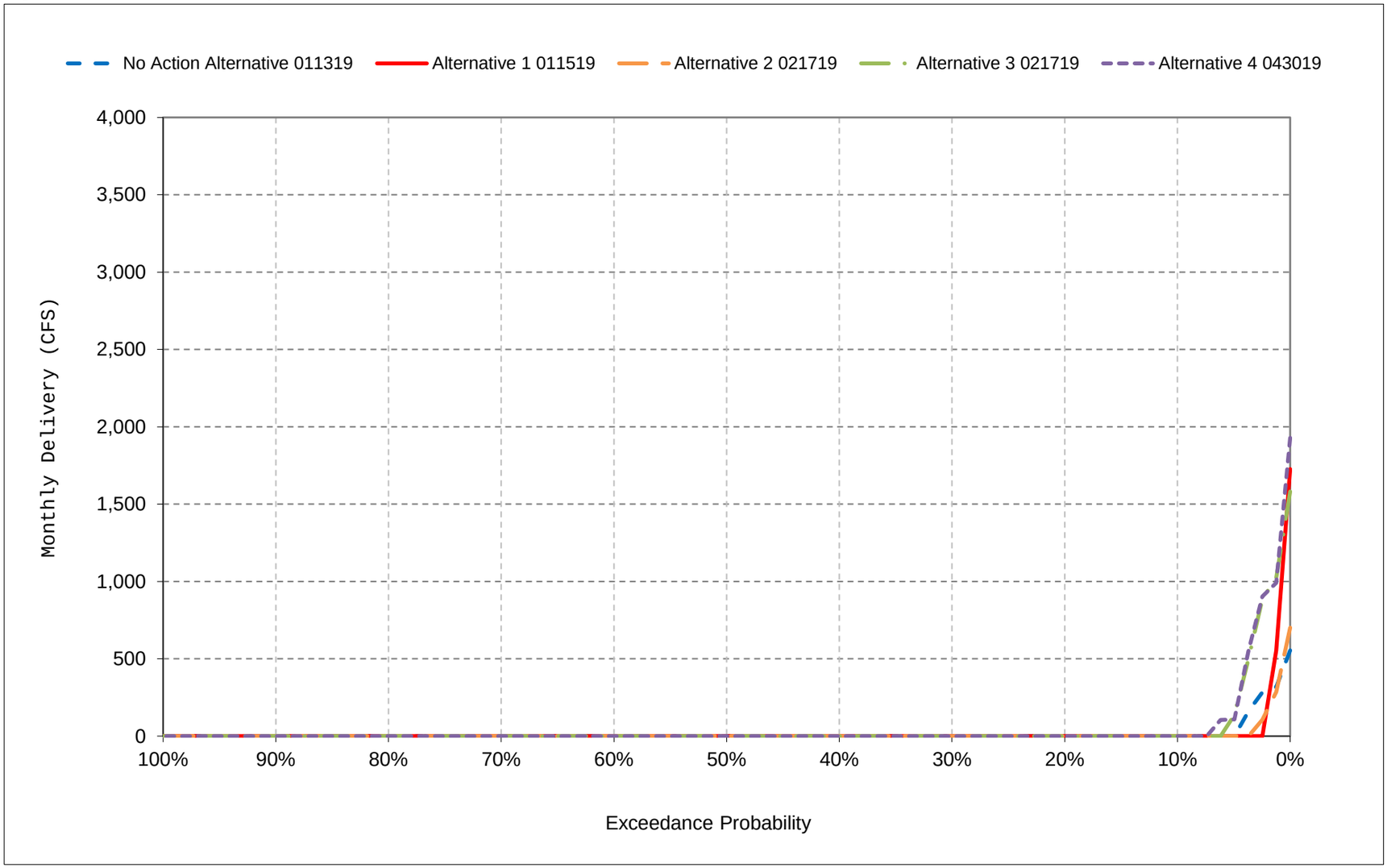
**Figure 55-8. CVP Banks PP Exports, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

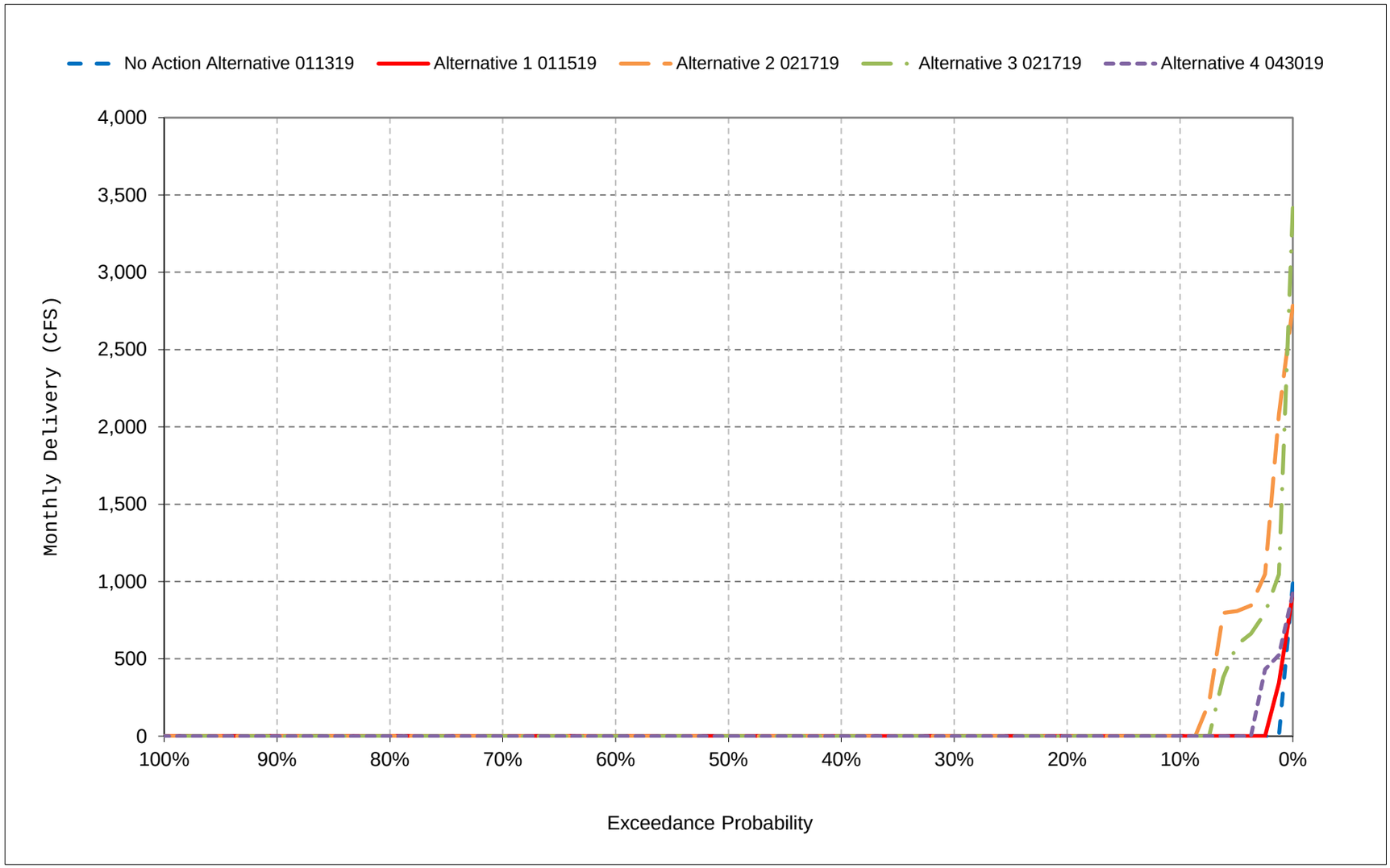
**Figure 55-9. CVP Banks PP Exports, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

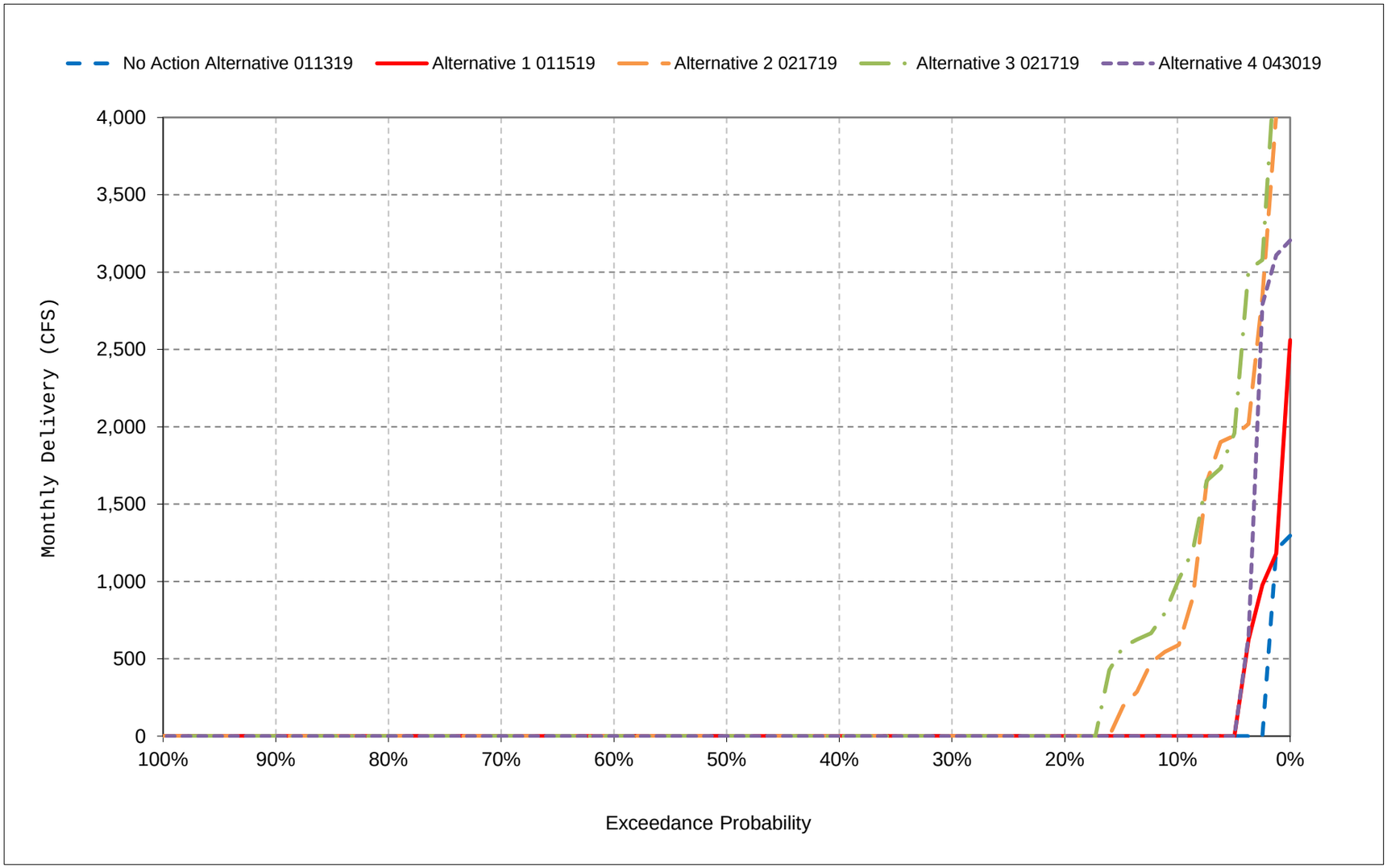
**Figure 55-10. CVP Banks PP Exports, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

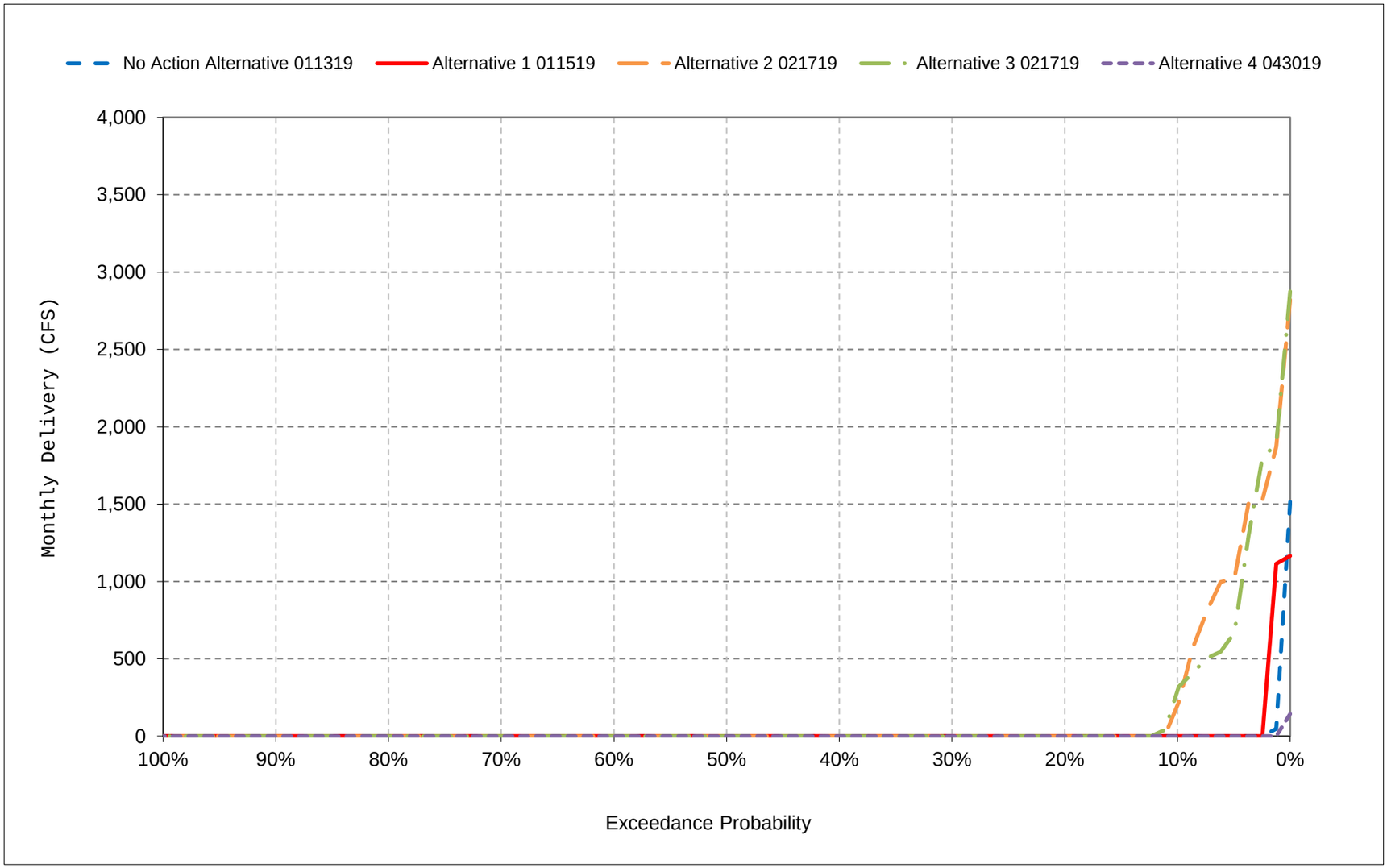
**Figure 55-11. CVP Banks PP Exports, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

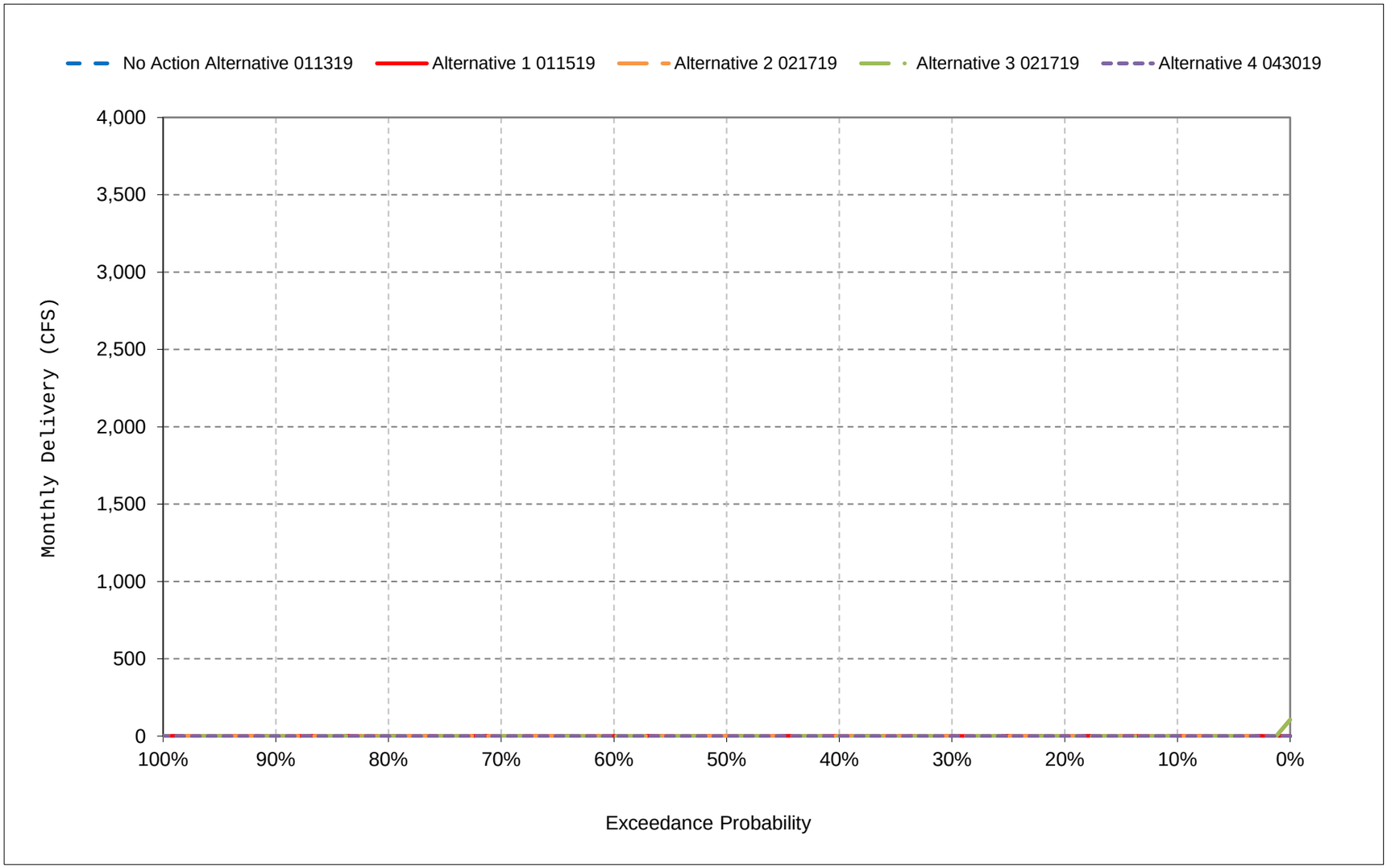
**Figure 55-12. CVP Banks PP Exports, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

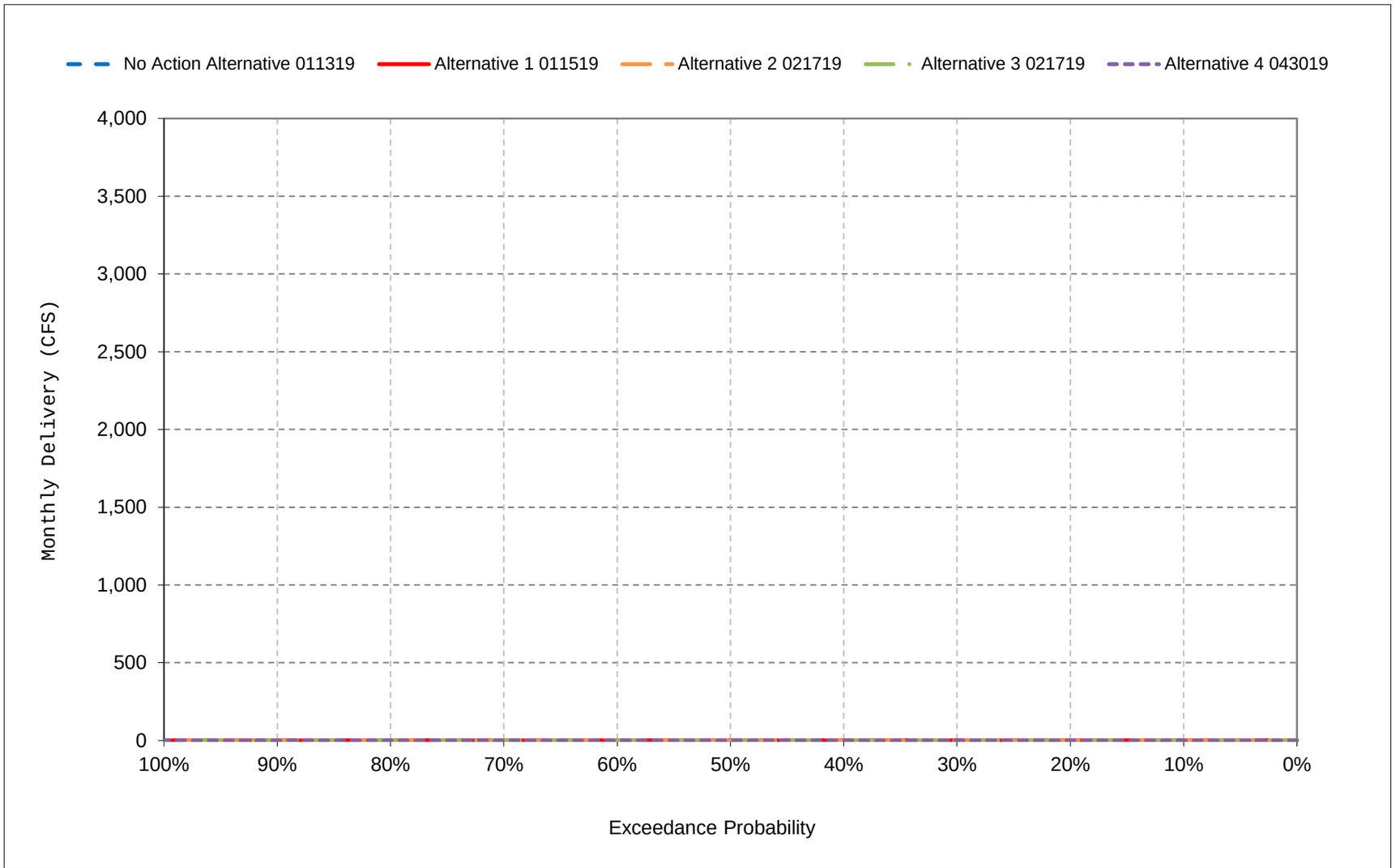
**Figure 55-13. CVP Banks PP Exports, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

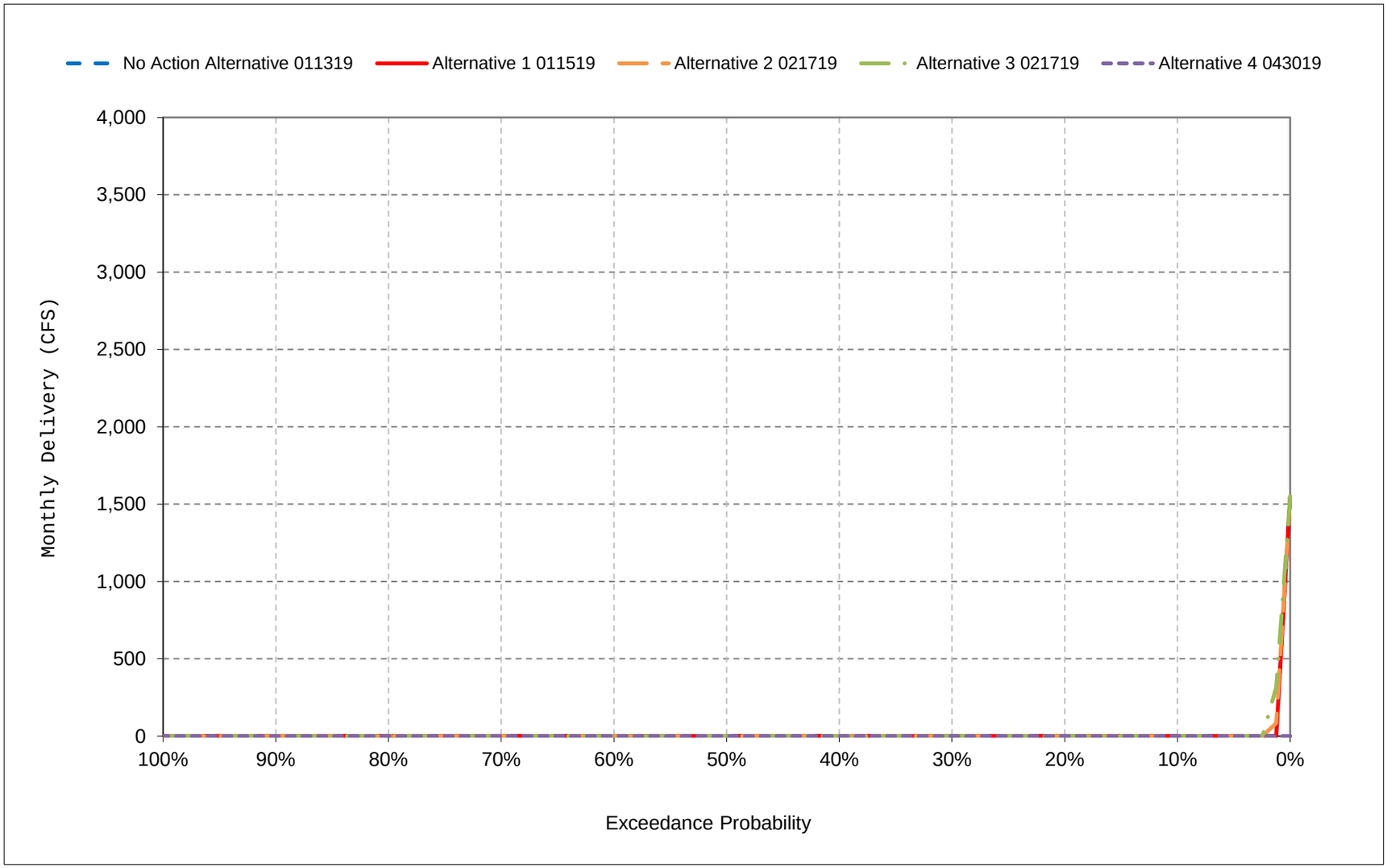
**Figure 55-14. CVP Banks PP Exports, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

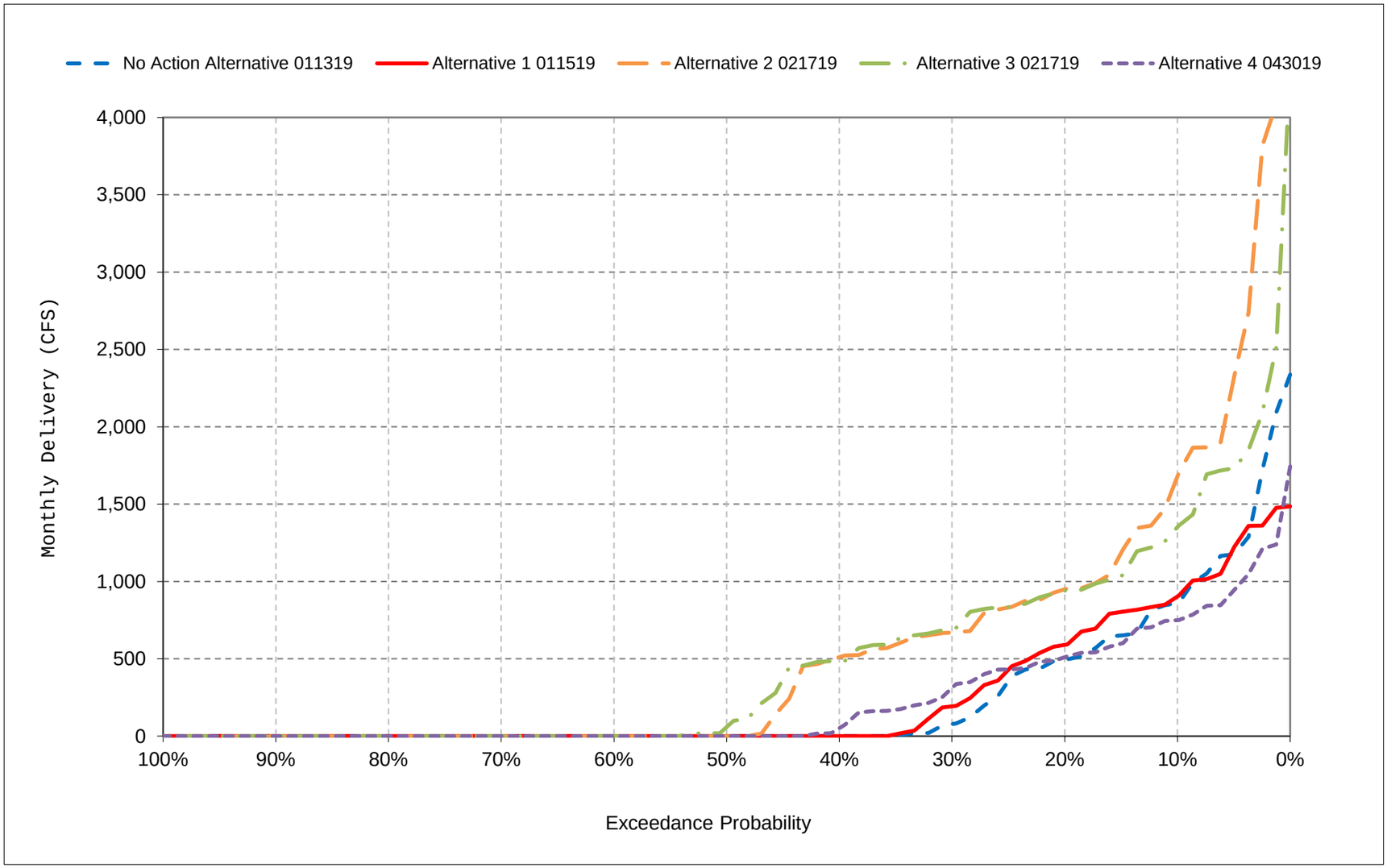
**Figure 55-15. CVP Banks PP Exports, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

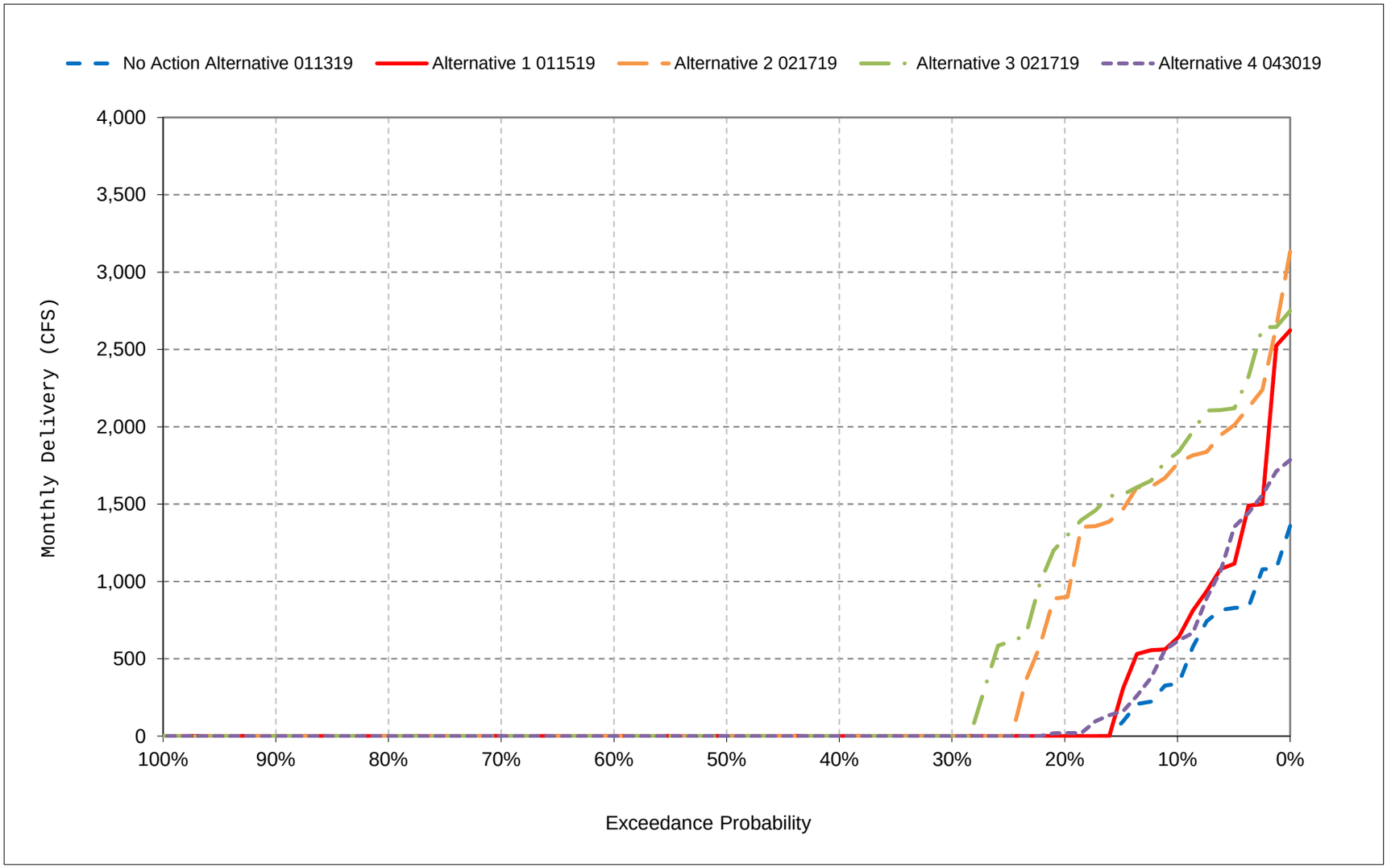
**Figure 55-16. CVP Banks PP Exports, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

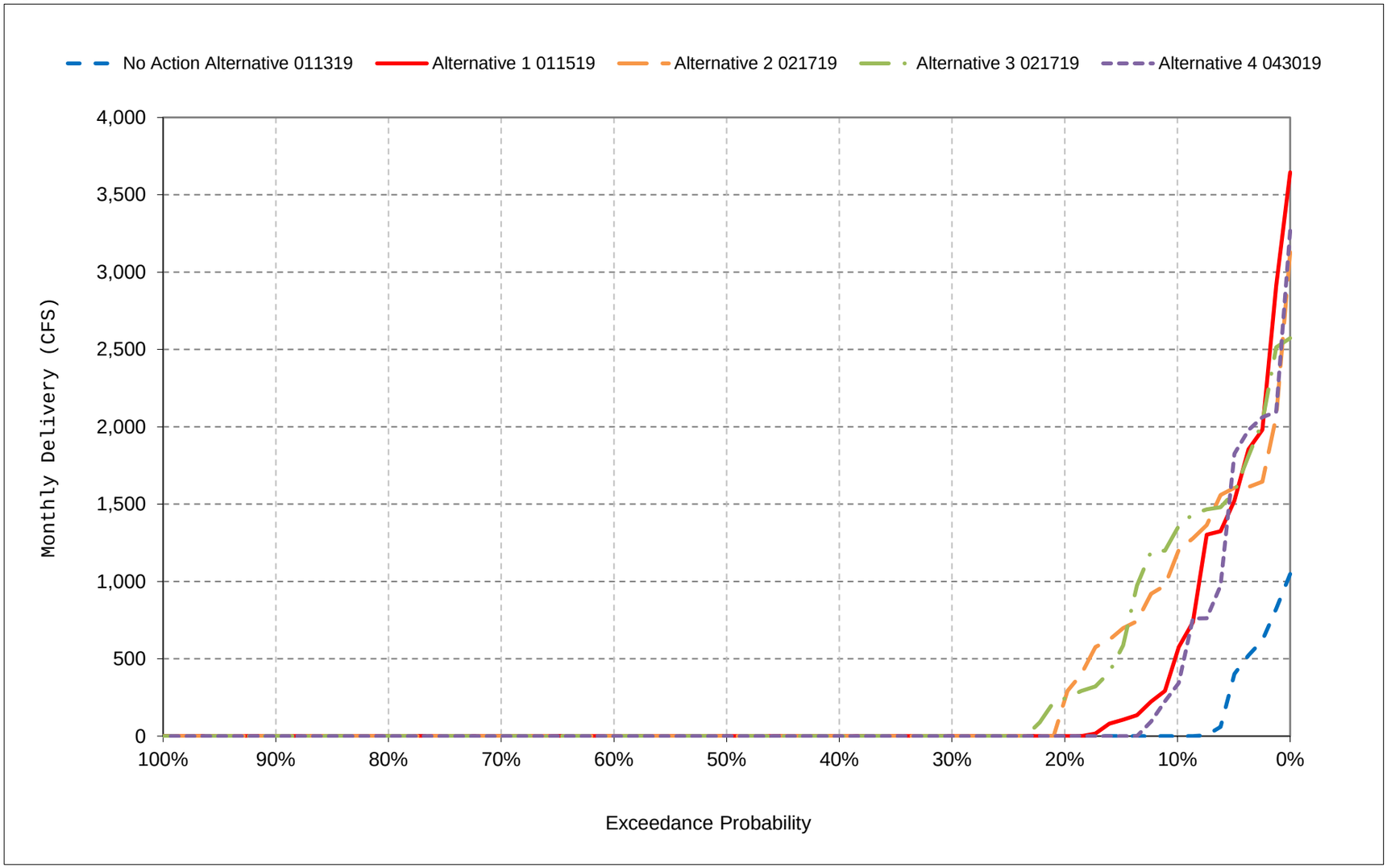
**Figure 55-17. CVP Banks PP Exports, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 55-18. CVP Banks PP Exports, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 56-1. SWP Banks PP Exports, Monthly Delivery

## No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,251 | 6,680 | 7,119 | 5,838 | 8,359 | 7,950 | 1,788 | 1,574 | 4,948 | 6,680 | 6,680 | 6,680 |
| 20% | 3,339 | 5,505 | 7,058 | 3,400 | 5,746 | 6,286 | 1,282 | 979 | 2,584 | 6,680 | 6,680 | 6,680 |
| 30% | 3,094 | 4,470 | 6,264 | 2,952 | 3,845 | 5,473 | 1,070 | 846 | 2,040 | 6,680 | 6,680 | 6,680 |
| 40% | 2,981 | 3,491 | 4,875 | 2,736 | 3,116 | 3,638 | 975 | 658 | 1,867 | 6,663 | 6,680 | 6,680 |
| 50% | 2,692 | 2,809 | 4,108 | 2,658 | 2,858 | 2,921 | 893 | 600 | 1,540 | 6,230 | 6,649 | 5,542 |
| 60% | 2,568 | 2,220 | 3,622 | 2,630 | 2,605 | 2,652 | 853 | 600 | 1,212 | 5,426 | 2,650 | 3,251 |
| 70% | 2,262 | 1,808 | 3,279 | 2,492 | 2,206 | 2,137 | 767 | 600 | 1,132 | 4,218 | 324 | 2,639 |
| 80% | 1,916 | 1,247 | 3,029 | 2,251 | 1,824 | 1,709 | 715 | 600 | 300 | 1,114 | 300 | 2,415 |
| 90% | 1,166 | 741 | 2,572 | 1,899 | 1,214 | 1,273 | 600 | 525 | 164 | 300 | 300 | 1,743 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,777 | 3,265 | 4,687 | 3,283 | 3,645 | 3,825 | 1,142 | 953 | 1,902 | 4,693 | 4,041 | 4,596 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,089 | 2,484 | 5,912 | 4,468 | 5,498 | 6,234 | 1,555 | 1,576 | 3,437 | 6,243 | 6,678 | 6,552 |
| Above Normal (16%) | 3,448 | 3,376 | 5,166 | 2,983 | 3,876 | 4,105 | 877 | 673 | 1,777 | 6,142 | 6,679 | 6,652 |
| Below Normal (13%) | 3,440 | 4,138 | 4,269 | 2,561 | 2,905 | 2,933 | 1,002 | 632 | 1,259 | 6,064 | 4,840 | 4,329 |
| Dry (24%) | 2,381 | 4,350 | 3,809 | 2,652 | 2,501 | 2,465 | 1,155 | 804 | 1,388 | 3,561 | 703 | 2,798 |
| Critical (15%) | 1,429 | 2,229 | 3,357 | 2,751 | 1,968 | 1,388 | 641 | 451 | 159 | 396 | 300 | 1,373 |

## Alternative 1 011519

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 6,584 | 6,680 | 7,100 | 6,278 | 6,961 | 7,421 | 4,391 | 4,555 | 4,483 | 6,680 | 6,680 | 6,680 |
| 20% | 5,423 | 6,680 | 7,047 | 4,158 | 6,164 | 5,777 | 4,030 | 3,475 | 3,147 | 6,680 | 6,680 | 6,680 |
| 30% | 4,757 | 5,784 | 5,191 | 3,138 | 4,364 | 5,232 | 3,884 | 2,739 | 2,587 | 6,680 | 6,680 | 6,680 |
| 40% | 4,266 | 5,336 | 4,278 | 2,922 | 3,402 | 4,259 | 3,392 | 2,291 | 2,176 | 6,680 | 6,680 | 6,680 |
| 50% | 3,128 | 4,740 | 3,663 | 2,834 | 2,970 | 3,113 | 2,916 | 2,099 | 1,885 | 6,668 | 6,660 | 4,984 |
| 60% | 2,788 | 4,122 | 3,348 | 2,754 | 2,772 | 2,746 | 2,249 | 1,665 | 1,730 | 6,053 | 3,359 | 3,212 |
| 70% | 2,387 | 3,551 | 2,979 | 2,673 | 2,625 | 2,650 | 1,931 | 1,354 | 1,673 | 3,934 | 381 | 2,613 |
| 80% | 2,043 | 2,794 | 2,824 | 2,536 | 2,484 | 2,523 | 1,503 | 1,166 | 1,587 | 307 | 300 | 2,446 |
| 90% | 1,198 | 1,927 | 2,684 | 2,401 | 2,361 | 1,738 | 993 | 923 | 300 | 300 | 300 | 1,627 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 3,633 | 4,518 | 4,396 | 3,560 | 4,012 | 3,982 | 2,826 | 2,303 | 2,318 | 4,724 | 4,107 | 4,506 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 5,146 | 5,404 | 5,618 | 4,764 | 5,693 | 5,777 | 4,167 | 3,704 | 3,472 | 6,383 | 6,443 | 6,323 |
| Above Normal (16%) | 4,283 | 5,118 | 4,513 | 3,570 | 3,917 | 3,913 | 2,967 | 2,263 | 2,009 | 6,514 | 6,679 | 6,652 |
| Below Normal (13%) | 3,471 | 4,546 | 3,834 | 2,988 | 3,499 | 3,393 | 2,563 | 1,825 | 1,941 | 6,570 | 5,657 | 4,107 |
| Dry (24%) | 2,602 | 4,311 | 3,668 | 2,760 | 2,988 | 3,212 | 2,115 | 1,679 | 2,218 | 3,041 | 828 | 2,882 |
| Critical (15%) | 1,518 | 2,266 | 3,353 | 2,796 | 2,647 | 1,991 | 1,192 | 786 | 665 | 300 | 300 | 1,314 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,333 | 0 | **-18** | 440 | **-1,398** | **-529** | 2,603 | 2,981 | **-465** | 0 | 0 | 0 |
| 20% | 2,085 | 1,175 | **-11** | 758 | 418 | **-509** | 2,749 | 2,496 | 563 | 0 | 0 | 0 |
| 30% | 1,662 | 1,314 | **-1,073** | 186 | 519 | **-241** | 2,815 | 1,893 | 547 | 0 | 0 | 0 |
| 40% | 1,285 | 1,845 | **-597** | 186 | 285 | 621 | 2,417 | 1,633 | 309 | 17 | 0 | 0 |
| 50% | 436 | 1,931 | **-446** | 176 | 112 | 193 | 2,023 | 1,499 | 345 | 437 | 11 | **-558** |
| 60% | 220 | 1,902 | **-274** | 125 | 167 | 94 | 1,396 | 1,065 | 518 | 627 | 709 | **-39** |
| 70% | 126 | 1,743 | **-300** | 181 | 419 | 512 | 1,164 | 754 | 541 | **-285** | 57 | **-25** |
| 80% | 127 | 1,547 | **-204** | 285 | 660 | 814 | 788 | 566 | 1,287 | **-807** | 0 | 31 |
| 90% | 32 | 1,186 | 112 | 502 | 1,147 | 465 | 393 | 398 | 136 | 0 | 0 | **-116** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 856 | 1,253 | **-290** | 277 | 366 | 157 | 1,684 | 1,349 | 416 | 30 | 66 | **-91** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,057 | 2,919 | **-294** | 296 | 195 | **-457** | 2,612 | 2,128 | 35 | 140 | **-234** | **-229** |
| Above Normal (16%) | 836 | 1,742 | **-653** | 586 | 41 | **-192** | 2,090 | 1,589 | 232 | 372 | **0** | **0** |
| Below Normal (13%) | 31 | 408 | **-435** | 427 | 594 | 460 | 1,561 | 1,193 | 681 | 505 | 818 | **-221** |
| Dry (24%) | 221 | **-38** | **-141** | 109 | 487 | 747 | 960 | 875 | 830 | **-520** | 125 | 83 |
| Critical (15%) | 89 | 37 | **-4** | 44 | 679 | 603 | 552 | 336 | 507 | **-96** | 0 | **-59** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 56-2. SWP Banks PP Exports, Monthly Delivery

## No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,251 | 6,680 | 7,119 | 5,838 | 8,359 | 7,950 | 1,788 | 1,574 | 4,948 | 6,680 | 6,680 | 6,680 |
| 20% | 3,339 | 5,505 | 7,058 | 3,400 | 5,746 | 6,286 | 1,282 | 979 | 2,584 | 6,680 | 6,680 | 6,680 |
| 30% | 3,094 | 4,470 | 6,264 | 2,952 | 3,845 | 5,473 | 1,070 | 846 | 2,040 | 6,680 | 6,680 | 6,680 |
| 40% | 2,981 | 3,491 | 4,875 | 2,736 | 3,116 | 3,638 | 975 | 658 | 1,867 | 6,663 | 6,680 | 6,680 |
| 50% | 2,692 | 2,809 | 4,108 | 2,658 | 2,858 | 2,921 | 893 | 600 | 1,540 | 6,230 | 6,649 | 5,542 |
| 60% | 2,568 | 2,220 | 3,622 | 2,630 | 2,605 | 2,652 | 853 | 600 | 1,212 | 5,426 | 2,650 | 3,251 |
| 70% | 2,262 | 1,808 | 3,279 | 2,492 | 2,206 | 2,137 | 767 | 600 | 1,132 | 4,218 | 324 | 2,639 |
| 80% | 1,916 | 1,247 | 3,029 | 2,251 | 1,824 | 1,709 | 715 | 600 | 300 | 1,114 | 300 | 2,415 |
| 90% | 1,166 | 741 | 2,572 | 1,899 | 1,214 | 1,273 | 600 | 525 | 164 | 300 | 300 | 1,743 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,777 | 3,265 | 4,687 | 3,283 | 3,645 | 3,825 | 1,142 | 953 | 1,902 | 4,693 | 4,041 | 4,596 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,089 | 2,484 | 5,912 | 4,468 | 5,498 | 6,234 | 1,555 | 1,576 | 3,437 | 6,243 | 6,678 | 6,552 |
| Above Normal (16%) | 3,448 | 3,376 | 5,166 | 2,983 | 3,876 | 4,105 | 877 | 673 | 1,777 | 6,142 | 6,679 | 6,652 |
| Below Normal (13%) | 3,440 | 4,138 | 4,269 | 2,561 | 2,905 | 2,933 | 1,002 | 632 | 1,259 | 6,064 | 4,840 | 4,329 |
| Dry (24%) | 2,381 | 4,350 | 3,809 | 2,652 | 2,501 | 2,465 | 1,155 | 804 | 1,388 | 3,561 | 703 | 2,798 |
| Critical (15%) | 1,429 | 2,229 | 3,357 | 2,751 | 1,968 | 1,388 | 641 | 451 | 159 | 396 | 300 | 1,373 |

## Alternative 2 021719

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 6,680 | 6,680 | 7,561 | 8,614 | 8,635 | 7,159 | 5,166 | 5,332 | 6,664 | 6,680 | 6,680 | 6,680 |
| 20% | 5,866 | 6,680 | 7,200 | 7,908 | 7,648 | 6,351 | 4,732 | 4,460 | 5,029 | 6,680 | 6,680 | 6,680 |
| 30% | 5,144 | 6,657 | 7,084 | 7,473 | 7,413 | 6,337 | 4,567 | 3,978 | 4,455 | 6,680 | 6,680 | 6,680 |
| 40% | 4,262 | 5,862 | 7,058 | 7,363 | 6,587 | 6,223 | 4,104 | 3,440 | 3,973 | 6,674 | 4,292 | 6,315 |
| 50% | 3,613 | 5,212 | 6,997 | 7,235 | 6,282 | 5,609 | 3,779 | 2,388 | 3,639 | 5,339 | 3,139 | 4,844 |
| 60% | 2,639 | 4,203 | 6,238 | 6,391 | 6,217 | 4,418 | 3,206 | 2,101 | 3,434 | 3,740 | 1,350 | 2,987 |
| 70% | 2,285 | 3,713 | 4,743 | 5,190 | 4,149 | 3,604 | 2,825 | 1,571 | 2,833 | 1,767 | 479 | 2,631 |
| 80% | 1,587 | 3,029 | 4,385 | 3,932 | 3,248 | 2,615 | 2,157 | 1,085 | 1,336 | 390 | 300 | 2,407 |
| 90% | 909 | 2,082 | 3,476 | 2,880 | 2,751 | 1,680 | 1,310 | 300 | 300 | 300 | 300 | 1,776 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 3,640 | 4,810 | 5,978 | 6,239 | 5,836 | 4,853 | 3,454 | 2,741 | 3,510 | 4,181 | 3,381 | 4,425 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 5,807 | 5,797 | 6,711 | 7,381 | 6,827 | 6,000 | 4,583 | 4,270 | 4,612 | 6,089 | 5,659 | 6,280 |
| Above Normal (16%) | 4,113 | 5,237 | 6,221 | 7,559 | 6,396 | 5,876 | 4,170 | 3,157 | 3,691 | 6,326 | 5,867 | 6,292 |
| Below Normal (13%) | 3,481 | 4,779 | 5,737 | 6,160 | 5,426 | 4,477 | 3,222 | 2,288 | 4,474 | 5,139 | 2,956 | 3,917 |
| Dry (24%) | 2,040 | 4,671 | 5,750 | 5,005 | 5,555 | 4,450 | 2,788 | 1,915 | 3,142 | 2,089 | 883 | 2,889 |
| Critical (15%) | 1,241 | 2,467 | 4,727 | 4,464 | 3,927 | 2,273 | 1,551 | 770 | 656 | 335 | 307 | 1,410 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,429 | 0 | 443 | 2,776 | 275 | **-791** | 3,377 | 3,759 | 1,716 | 0 | 0 | 0 |
| 20% | 2,527 | 1,175 | 143 | 4,508 | 1,902 | 65 | 3,450 | 3,481 | 2,446 | 0 | 0 | 0 |
| 30% | 2,049 | 2,187 | 820 | 4,521 | 3,568 | 863 | 3,497 | 3,132 | 2,415 | 0 | 0 | 0 |
| 40% | 1,281 | 2,371 | 2,182 | 4,627 | 3,471 | 2,585 | 3,129 | 2,782 | 2,106 | 10 | **-2,388** | **-365** |
| 50% | 921 | 2,403 | 2,889 | 4,577 | 3,424 | 2,688 | 2,886 | 1,788 | 2,099 | **-891** | **-3,511** | **-698** |
| 60% | 71 | 1,983 | 2,615 | 3,761 | 3,612 | 1,765 | 2,353 | 1,501 | 2,222 | **-1,686** | **-1,301** | **-264** |
| 70% | 23 | 1,904 | 1,464 | 2,698 | 1,944 | 1,466 | 2,058 | 971 | 1,702 | **-2,451** | 154 | **-8** |
| 80% | **-329** | 1,782 | 1,356 | 1,681 | 1,424 | 906 | 1,443 | 485 | 1,036 | **-724** | 0 | **-8** |
| 90% | **-257** | 1,340 | 903 | 981 | 1,537 | 407 | 710 | **-225** | 136 | 0 | 0 | 33 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 862 | 1,545 | 1,291 | 2,956 | 2,191 | 1,028 | 2,312 | 1,788 | 1,608 | **-512** | **-659** | **-171** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,718 | 3,312 | 800 | 2,913 | 1,329 | **-233** | 3,028 | 2,694 | 1,175 | **-155** | **-1,019** | **-272** |
| Above Normal (16%) | 665 | 1,861 | 1,055 | 4,575 | 2,520 | 1,771 | 3,293 | 2,483 | 1,914 | 184 | **-811** | **-360** |
| Below Normal (13%) | 42 | 641 | 1,468 | 3,599 | 2,521 | 1,543 | 2,220 | 1,656 | 3,215 | **-925** | **-1,884** | **-412** |
| Dry (24%) | **-341** | 321 | 1,941 | 2,354 | 3,054 | 1,985 | 1,634 | 1,111 | 1,754 | **-1,472** | 180 | 91 |
| Critical (15%) | **-187** | 238 | 1,369 | 1,713 | 1,960 | 885 | 911 | 319 | 498 | **-61** | 7 | 37 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 56-3. SWP Banks PP Exports, Monthly Delivery

## No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,251 | 6,680 | 7,119 | 5,838 | 8,359 | 7,950 | 1,788 | 1,574 | 4,948 | 6,680 | 6,680 | 6,680 |
| 20% | 3,339 | 5,505 | 7,058 | 3,400 | 5,746 | 6,286 | 1,282 | 979 | 2,584 | 6,680 | 6,680 | 6,680 |
| 30% | 3,094 | 4,470 | 6,264 | 2,952 | 3,845 | 5,473 | 1,070 | 846 | 2,040 | 6,680 | 6,680 | 6,680 |
| 40% | 2,981 | 3,491 | 4,875 | 2,736 | 3,116 | 3,638 | 975 | 658 | 1,867 | 6,663 | 6,680 | 6,680 |
| 50% | 2,692 | 2,809 | 4,108 | 2,658 | 2,858 | 2,921 | 893 | 600 | 1,540 | 6,230 | 6,649 | 5,542 |
| 60% | 2,568 | 2,220 | 3,622 | 2,630 | 2,605 | 2,652 | 853 | 600 | 1,212 | 5,426 | 2,650 | 3,251 |
| 70% | 2,262 | 1,808 | 3,279 | 2,492 | 2,206 | 2,137 | 767 | 600 | 1,132 | 4,218 | 324 | 2,639 |
| 80% | 1,916 | 1,247 | 3,029 | 2,251 | 1,824 | 1,709 | 715 | 600 | 300 | 1,114 | 300 | 2,415 |
| 90% | 1,166 | 741 | 2,572 | 1,899 | 1,214 | 1,273 | 600 | 525 | 164 | 300 | 300 | 1,743 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,777 | 3,265 | 4,687 | 3,283 | 3,645 | 3,825 | 1,142 | 953 | 1,902 | 4,693 | 4,041 | 4,596 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,089 | 2,484 | 5,912 | 4,468 | 5,498 | 6,234 | 1,555 | 1,576 | 3,437 | 6,243 | 6,678 | 6,552 |
| Above Normal (16%) | 3,448 | 3,376 | 5,166 | 2,983 | 3,876 | 4,105 | 877 | 673 | 1,777 | 6,142 | 6,679 | 6,652 |
| Below Normal (13%) | 3,440 | 4,138 | 4,269 | 2,561 | 2,905 | 2,933 | 1,002 | 632 | 1,259 | 6,064 | 4,840 | 4,329 |
| Dry (24%) | 2,381 | 4,350 | 3,809 | 2,652 | 2,501 | 2,465 | 1,155 | 804 | 1,388 | 3,561 | 703 | 2,798 |
| Critical (15%) | 1,429 | 2,229 | 3,357 | 2,751 | 1,968 | 1,388 | 641 | 451 | 159 | 396 | 300 | 1,373 |

## Alternative 3 021719

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 6,680 | 6,680 | 7,561 | 8,693 | 9,043 | 7,174 | 5,166 | 5,332 | 6,615 | 6,680 | 6,680 | 6,680 |
| 20% | 5,836 | 6,680 | 7,208 | 7,950 | 7,640 | 6,364 | 4,740 | 4,506 | 5,249 | 6,680 | 6,680 | 6,680 |
| 30% | 5,124 | 6,662 | 7,109 | 7,503 | 7,367 | 6,341 | 4,511 | 3,977 | 4,249 | 6,680 | 6,680 | 6,680 |
| 40% | 4,320 | 5,984 | 7,077 | 7,394 | 6,345 | 6,253 | 4,023 | 3,440 | 3,814 | 6,662 | 4,218 | 5,619 |
| 50% | 3,597 | 5,180 | 7,055 | 7,235 | 6,249 | 5,658 | 3,770 | 2,443 | 3,376 | 5,454 | 2,635 | 4,574 |
| 60% | 2,636 | 4,295 | 6,749 | 6,173 | 6,164 | 4,358 | 3,161 | 2,191 | 3,196 | 3,734 | 1,067 | 3,038 |
| 70% | 2,053 | 3,690 | 5,428 | 4,938 | 4,201 | 3,649 | 2,857 | 1,638 | 2,550 | 1,821 | 449 | 2,638 |
| 80% | 1,082 | 2,970 | 4,441 | 3,589 | 3,179 | 2,629 | 2,253 | 1,203 | 1,823 | 340 | 300 | 2,440 |
| 90% | 720 | 2,059 | 3,503 | 2,746 | 2,252 | 1,680 | 1,174 | 653 | 300 | 300 | 300 | 1,786 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 3,542 | 4,790 | 6,088 | 6,166 | 5,794 | 4,849 | 3,417 | 2,807 | 3,435 | 4,162 | 3,213 | 4,342 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 5,813 | 5,898 | 6,872 | 7,134 | 6,978 | 5,931 | 4,403 | 4,373 | 4,716 | 6,153 | 5,074 | 6,230 |
| Above Normal (16%) | 4,368 | 5,122 | 6,395 | 7,725 | 5,961 | 5,907 | 4,158 | 3,189 | 3,358 | 6,259 | 5,906 | 6,076 |
| Below Normal (13%) | 3,375 | 4,723 | 5,739 | 6,133 | 5,180 | 4,481 | 3,227 | 2,312 | 4,343 | 5,361 | 3,076 | 3,679 |
| Dry (24%) | 1,667 | 4,649 | 5,740 | 5,038 | 5,548 | 4,494 | 2,854 | 2,004 | 3,091 | 1,858 | 867 | 2,865 |
| Critical (15%) | 1,004 | 2,324 | 4,955 | 4,289 | 4,024 | 2,289 | 1,587 | 794 | 482 | 314 | 300 | 1,441 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,429 | 0 | 442 | 2,855 | 684 | **-777** | 3,377 | 3,759 | 1,666 | 0 | 0 | 0 |
| 20% | 2,497 | 1,175 | 150 | 4,550 | 1,894 | 78 | 3,458 | 3,527 | 2,665 | 0 | 0 | 0 |
| 30% | 2,030 | 2,191 | 845 | 4,551 | 3,522 | 868 | 3,441 | 3,131 | 2,209 | 0 | 0 | 0 |
| 40% | 1,339 | 2,493 | 2,201 | 4,658 | 3,229 | 2,615 | 3,048 | 2,783 | 1,947 | **-2** | **-2,462** | **-1,061** |
| 50% | 905 | 2,371 | 2,946 | 4,577 | 3,391 | 2,737 | 2,877 | 1,843 | 1,836 | **-776** | **-4,014** | **-968** |
| 60% | 68 | 2,076 | 3,127 | 3,544 | 3,559 | 1,705 | 2,308 | 1,591 | 1,984 | **-1,691** | **-1,583** | **-213** |
| 70% | **-208** | 1,882 | 2,149 | 2,445 | 1,995 | 1,512 | 2,091 | 1,038 | 1,418 | **-2,397** | 125 | **-1** |
| 80% | **-834** | 1,722 | 1,412 | 1,338 | 1,354 | 920 | 1,538 | 603 | 1,523 | **-775** | 0 | 25 |
| 90% | **-446** | 1,318 | 931 | 848 | 1,038 | 407 | 574 | 128 | 136 | 0 | 0 | 43 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 765 | 1,525 | 1,401 | 2,883 | 2,149 | 1,024 | 2,275 | 1,854 | 1,533 | **-532** | **-827** | **-255** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 2,724 | 3,413 | 960 | 2,666 | 1,480 | **-303** | 2,848 | 2,797 | 1,279 | **-90** | **-1,604** | **-322** |
| Above Normal (16%) | 920 | 1,746 | 1,229 | 4,742 | 2,085 | 1,802 | 3,281 | 2,515 | 1,581 | 117 | **-772** | **-576** |
| Below Normal (13%) | **-65** | 585 | 1,470 | 3,572 | 2,275 | 1,548 | 2,225 | 1,680 | 3,084 | **-703** | **-1,764** | **-650** |
| Dry (24%) | **-714** | 300 | 1,931 | 2,386 | 3,047 | 2,029 | 1,700 | 1,200 | 1,703 | **-1,703** | 164 | 66 |
| Critical (15%) | **-424** | 95 | 1,597 | 1,537 | 2,057 | 901 | 947 | 343 | 323 | **-82** | 0 | 68 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 56-4. SWP Banks PP Exports, Monthly Delivery

### No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,251 | 6,680 | 7,119 | 5,838 | 8,359 | 7,950 | 1,788 | 1,574 | 4,948 | 6,680 | 6,680 | 6,680 |
| 20% | 3,339 | 5,505 | 7,058 | 3,400 | 5,746 | 6,286 | 1,282 | 979 | 2,584 | 6,680 | 6,680 | 6,680 |
| 30% | 3,094 | 4,470 | 6,264 | 2,952 | 3,845 | 5,473 | 1,070 | 846 | 2,040 | 6,680 | 6,680 | 6,680 |
| 40% | 2,981 | 3,491 | 4,875 | 2,736 | 3,116 | 3,638 | 975 | 658 | 1,867 | 6,663 | 6,680 | 6,680 |
| 50% | 2,692 | 2,809 | 4,108 | 2,658 | 2,858 | 2,921 | 893 | 600 | 1,540 | 6,230 | 6,649 | 5,542 |
| 60% | 2,568 | 2,220 | 3,622 | 2,630 | 2,605 | 2,652 | 853 | 600 | 1,212 | 5,426 | 2,650 | 3,251 |
| 70% | 2,262 | 1,808 | 3,279 | 2,492 | 2,206 | 2,137 | 767 | 600 | 1,132 | 4,218 | 324 | 2,639 |
| 80% | 1,916 | 1,247 | 3,029 | 2,251 | 1,824 | 1,709 | 715 | 600 | 300 | 1,114 | 300 | 2,415 |
| 90% | 1,166 | 741 | 2,572 | 1,899 | 1,214 | 1,273 | 600 | 525 | 164 | 300 | 300 | 1,743 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,777 | 3,265 | 4,687 | 3,283 | 3,645 | 3,825 | 1,142 | 953 | 1,902 | 4,693 | 4,041 | 4,596 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 3,089 | 2,484 | 5,912 | 4,468 | 5,498 | 6,234 | 1,555 | 1,576 | 3,437 | 6,243 | 6,678 | 6,552 |
| Above Normal (16%) | 3,448 | 3,376 | 5,166 | 2,983 | 3,876 | 4,105 | 877 | 673 | 1,777 | 6,142 | 6,679 | 6,652 |
| Below Normal (13%) | 3,440 | 4,138 | 4,269 | 2,561 | 2,905 | 2,933 | 1,002 | 632 | 1,259 | 6,064 | 4,840 | 4,329 |
| Dry (24%) | 2,381 | 4,350 | 3,809 | 2,652 | 2,501 | 2,465 | 1,155 | 804 | 1,388 | 3,561 | 703 | 2,798 |
| Critical (15%) | 1,429 | 2,229 | 3,357 | 2,751 | 1,968 | 1,388 | 641 | 451 | 159 | 396 | 300 | 1,373 |

### Alternative 4 043019

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 6,400 | 6,680 | 7,084 | 6,107 | 6,596 | 3,895 | 3,157 | 2,917 | 3,963 | 6,680 | 6,680 | 6,680 |
| 20% | 5,191 | 5,883 | 6,028 | 4,222 | 6,196 | 2,384 | 2,080 | 1,453 | 2,887 | 6,680 | 6,680 | 6,680 |
| 30% | 4,441 | 5,278 | 4,721 | 3,280 | 4,768 | 1,765 | 1,638 | 939 | 2,142 | 6,490 | 6,680 | 6,680 |
| 40% | 3,964 | 4,773 | 4,032 | 2,902 | 4,018 | 1,046 | 1,480 | 747 | 1,926 | 5,912 | 6,660 | 5,678 |
| 50% | 3,209 | 4,233 | 3,641 | 2,823 | 3,175 | 776 | 1,196 | 640 | 1,812 | 5,325 | 3,685 | 3,380 |
| 60% | 2,780 | 3,760 | 3,145 | 2,755 | 2,890 | 675 | 866 | 518 | 1,713 | 4,710 | 1,089 | 2,934 |
| 70% | 2,374 | 3,246 | 2,923 | 2,654 | 2,687 | 600 | 638 | 463 | 1,636 | 3,225 | 300 | 2,640 |
| 80% | 1,822 | 2,528 | 2,760 | 2,527 | 2,544 | 600 | 600 | 375 | 1,568 | 300 | 300 | 2,375 |
| 90% | 1,072 | 1,915 | 2,454 | 2,408 | 2,402 | 600 | 587 | 300 | 300 | 300 | 300 | 1,642 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 3,479 | 4,227 | 4,176 | 3,542 | 4,136 | 1,683 | 1,461 | 1,091 | 2,160 | 4,286 | 3,539 | 4,183 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 4,915 | 5,169 | 5,045 | 4,734 | 5,536 | 3,332 | 2,426 | 2,065 | 3,333 | 6,137 | 6,260 | 6,130 |
| Above Normal (16%) | 4,072 | 4,926 | 4,295 | 3,339 | 4,004 | 1,468 | 1,556 | 951 | 1,854 | 5,548 | 6,479 | 6,364 |
| Below Normal (13%) | 3,467 | 3,737 | 3,931 | 2,884 | 3,482 | 851 | 1,002 | 543 | 2,090 | 5,759 | 2,475 | 3,145 |
| Dry (24%) | 2,553 | 4,055 | 3,560 | 2,962 | 3,364 | 828 | 935 | 624 | 1,678 | 2,641 | 619 | 2,542 |
| Critical (15%) | 1,282 | 2,163 | 3,415 | 2,746 | 3,132 | 530 | 563 | 410 | 820 | 300 | 300 | 1,289 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Delivery (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,149 | 0 | **-35** | 269 | **-1,763** | **-4,055** | 1,368 | 1,343 | **-985** | 0 | 0 | 0 |
| 20% | 1,852 | 378 | **-1,030** | 822 | 450 | **-3,902** | 798 | 474 | 303 | 0 | 0 | 0 |
| 30% | 1,346 | 808 | **-1,543** | 328 | 923 | **-3,708** | 568 | 92 | 102 | **-190** | 0 | 0 |
| 40% | 983 | 1,282 | **-843** | 166 | 902 | **-2,592** | 505 | 90 | 59 | **-752** | **-20** | **-1,002** |
| 50% | 517 | 1,423 | **-468** | 165 | 317 | **-2,144** | 303 | 40 | 272 | **-905** | **-2,964** | **-2,162** |
| 60% | 212 | 1,541 | **-477** | 125 | 285 | **-1,978** | 13 | **-82** | 501 | **-716** | **-1,561** | **-316** |
| 70% | 113 | 1,438 | **-356** | 162 | 481 | **-1,537** | **-129** | **-137** | 504 | **-993** | **-24** | 1 |
| 80% | **-94** | 1,280 | **-268** | 276 | 720 | **-1,109** | **-115** | **-225** | 1,268 | **-814** | 0 | **-40** |
| 90% | **-94** | 1,174 | **-118** | 509 | 1,188 | **-673** | **-13** | **-225** | 136 | 0 | 0 | **-101** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 702 | 962 | **-511** | 259 | 491 | **-2,142** | 319 | 137 | 258 | **-407** | **-502** | **-413** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 1,826 | 2,684 | **-867** | 266 | 38 | **-2,902** | 872 | 489 | **-104** | **-107** | **-418** | **-422** |
| Above Normal (16%) | 624 | 1,550 | **-871** | 355 | 128 | **-2,637** | 678 | 278 | 77 | **-594** | **-200** | **-288** |
| Below Normal (13%) | 27 | **-401** | **-338** | 323 | 577 | **-2,083** | 0 | **-89** | 830 | **-305** | **-2,365** | **-1,184** |
| Dry (24%) | 172 | **-294** | **-249** | 311 | 863 | **-1,637** | **-219** | **-180** | 290 | **-920** | **-84** | **-256** |
| Critical (15%) | **-147** | **-66** | 57 | **-5** | 1,164 | **-858** | **-78** | **-41** | 661 | **-96** | 0 | **-85** |

a Based on the 82-year simulation period.

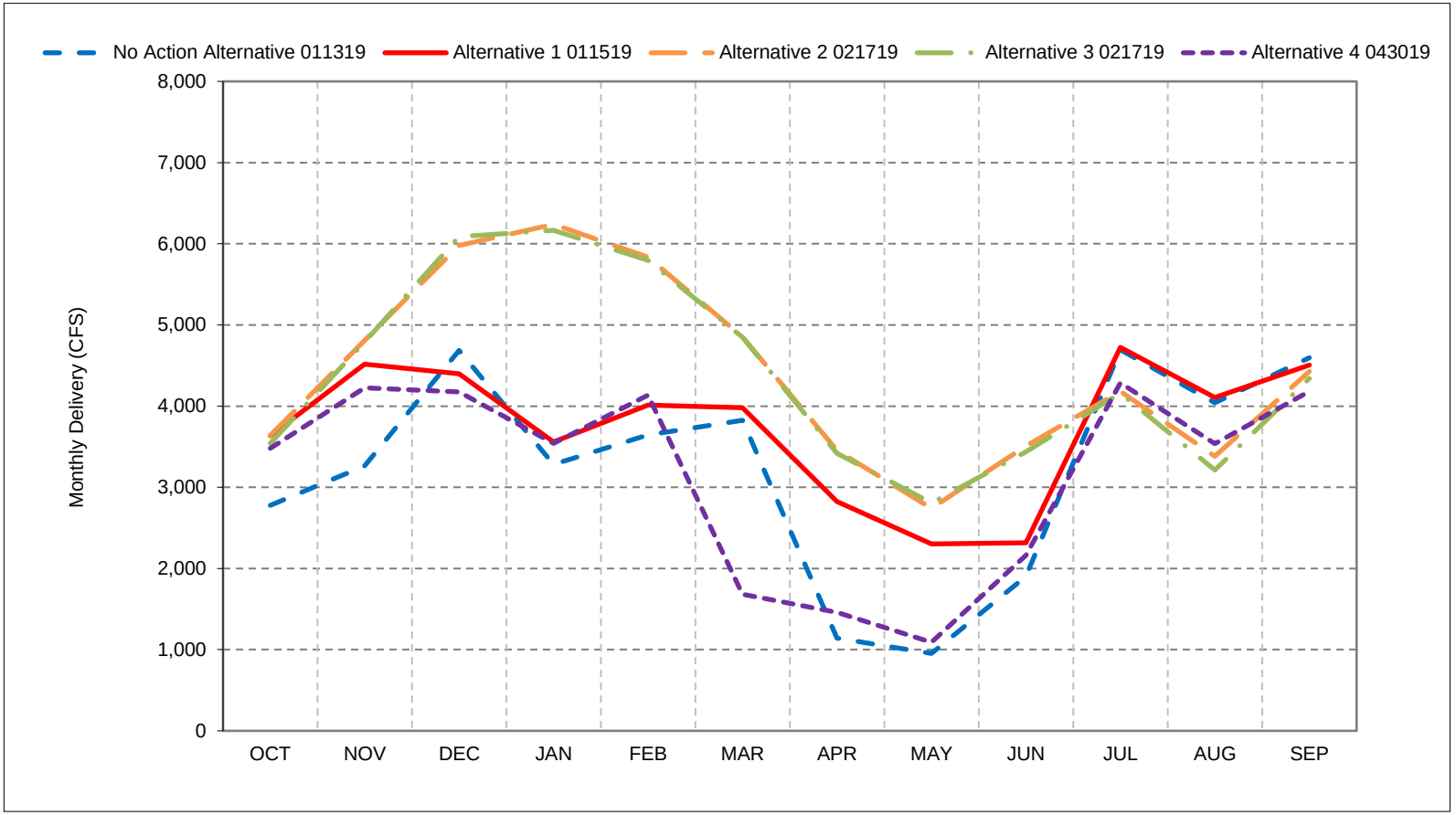
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

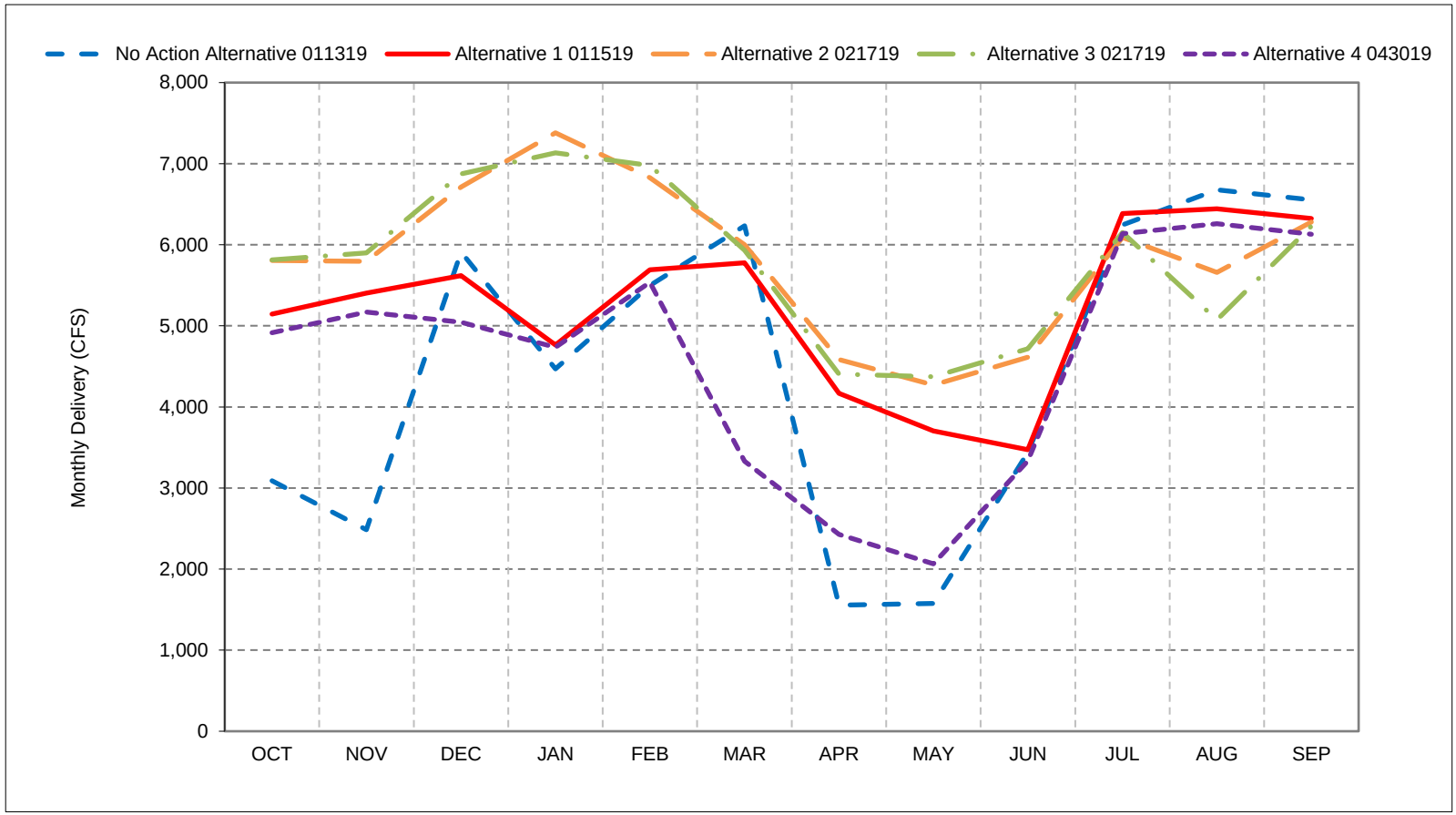
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 56-1. SWP Banks PP Exports, Long-Term Average Delivery



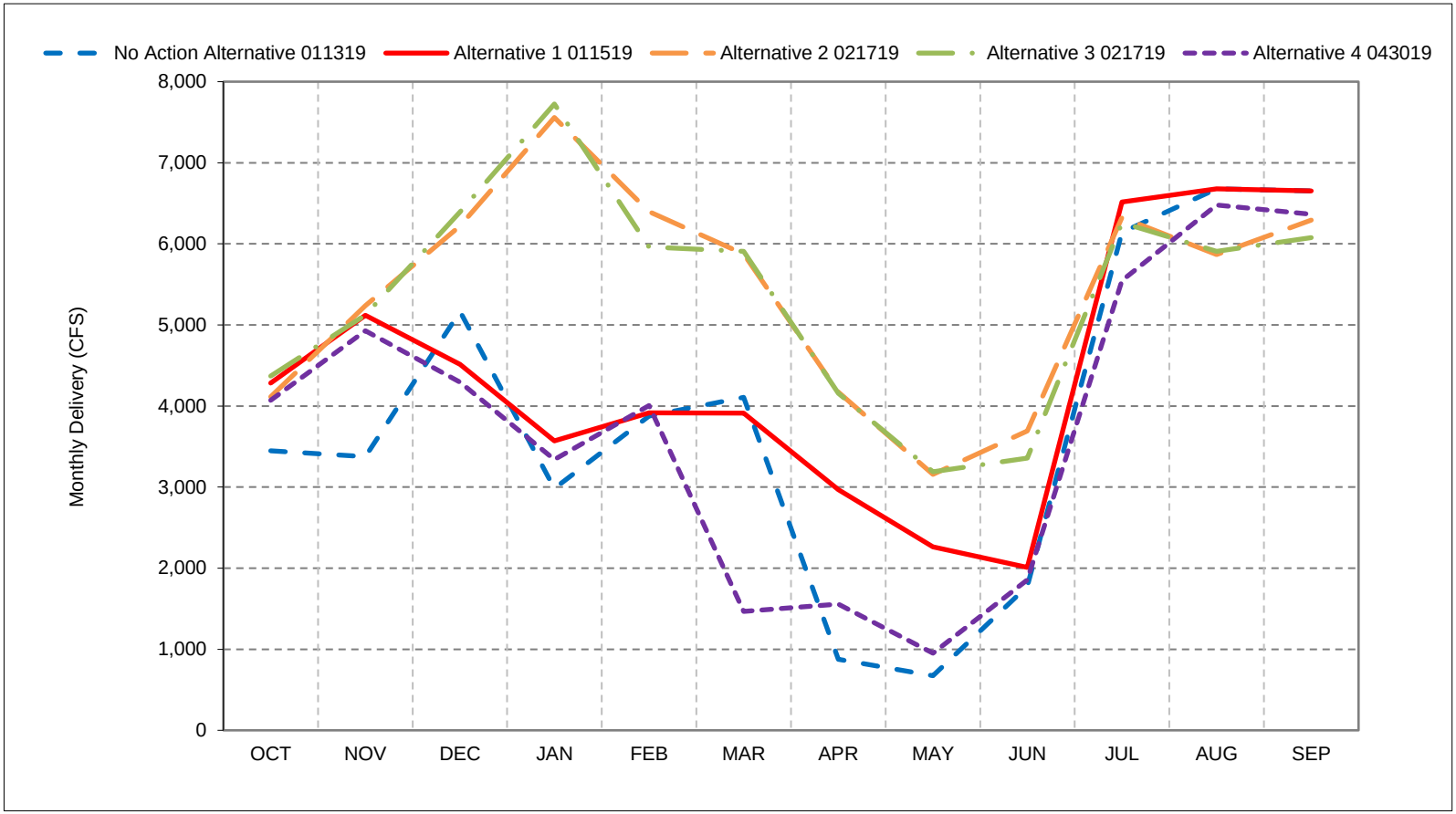

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 56-2. SWP Banks PP Exports, Wet Year Average Delivery



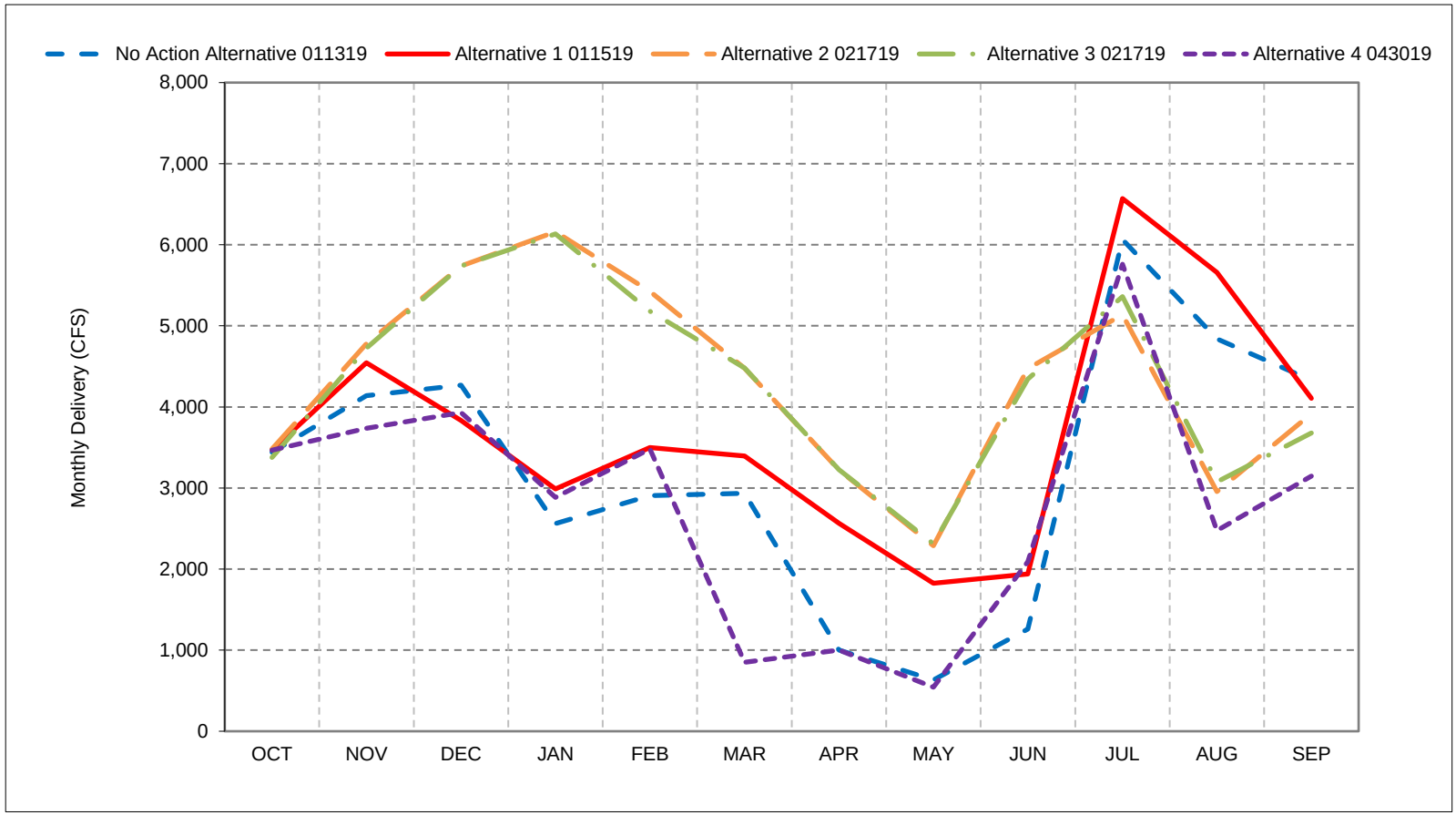

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 56-3. SWP Banks PP Exports, Above Normal Year Average Delivery



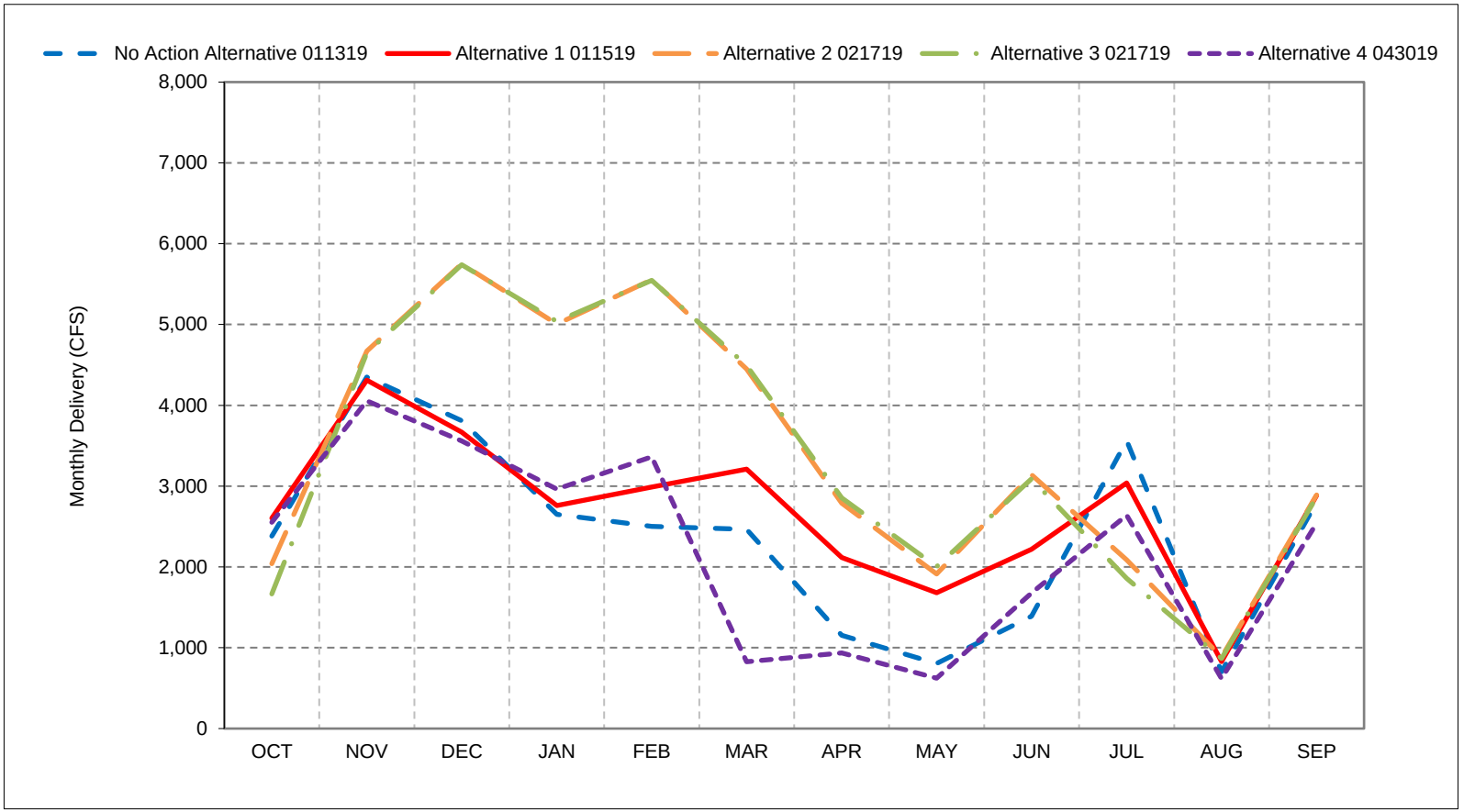

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 56-4. SWP Banks PP Exports, Below Normal Year Average Delivery



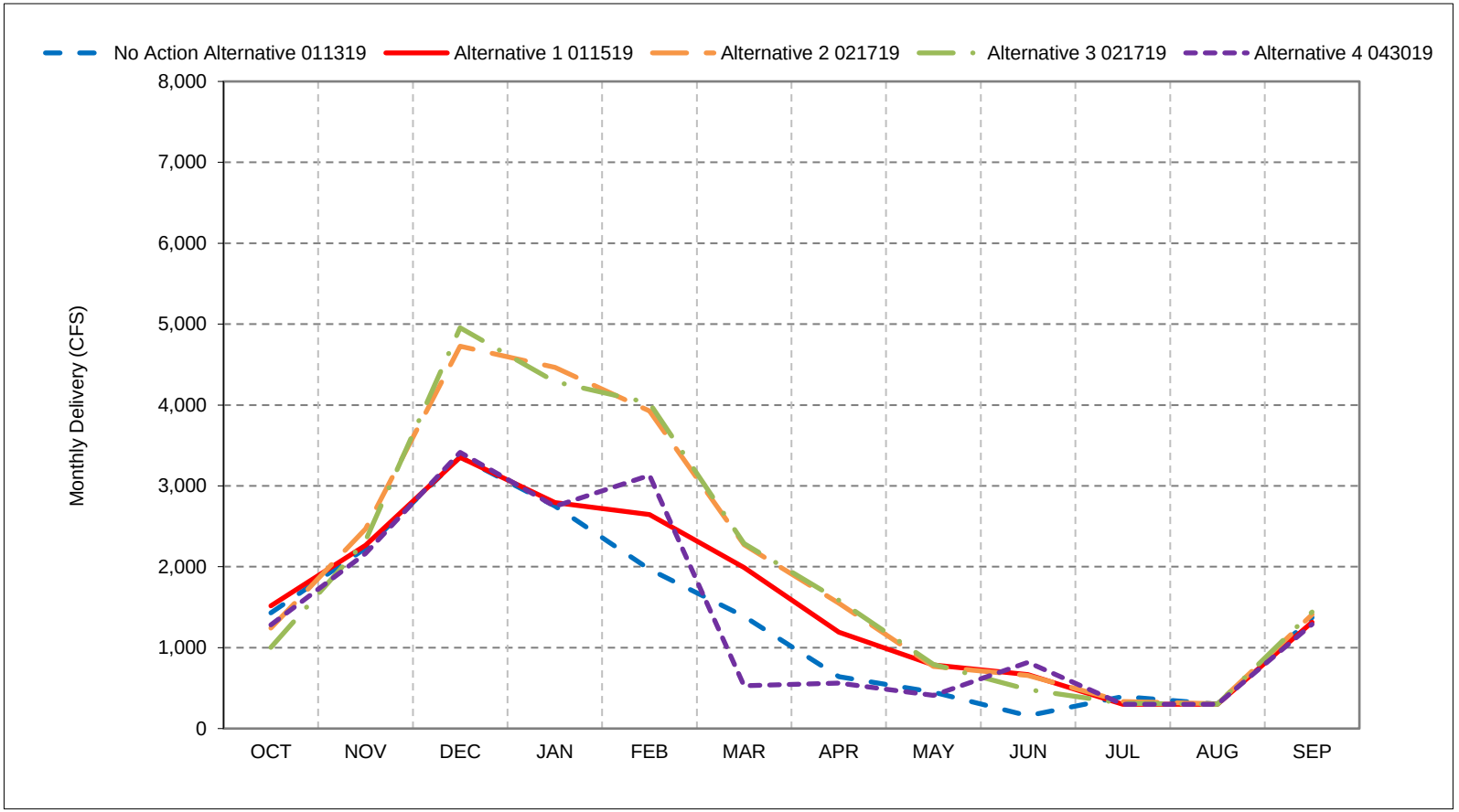

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 56-5. SWP Banks PP Exports, Dry Year Average Delivery



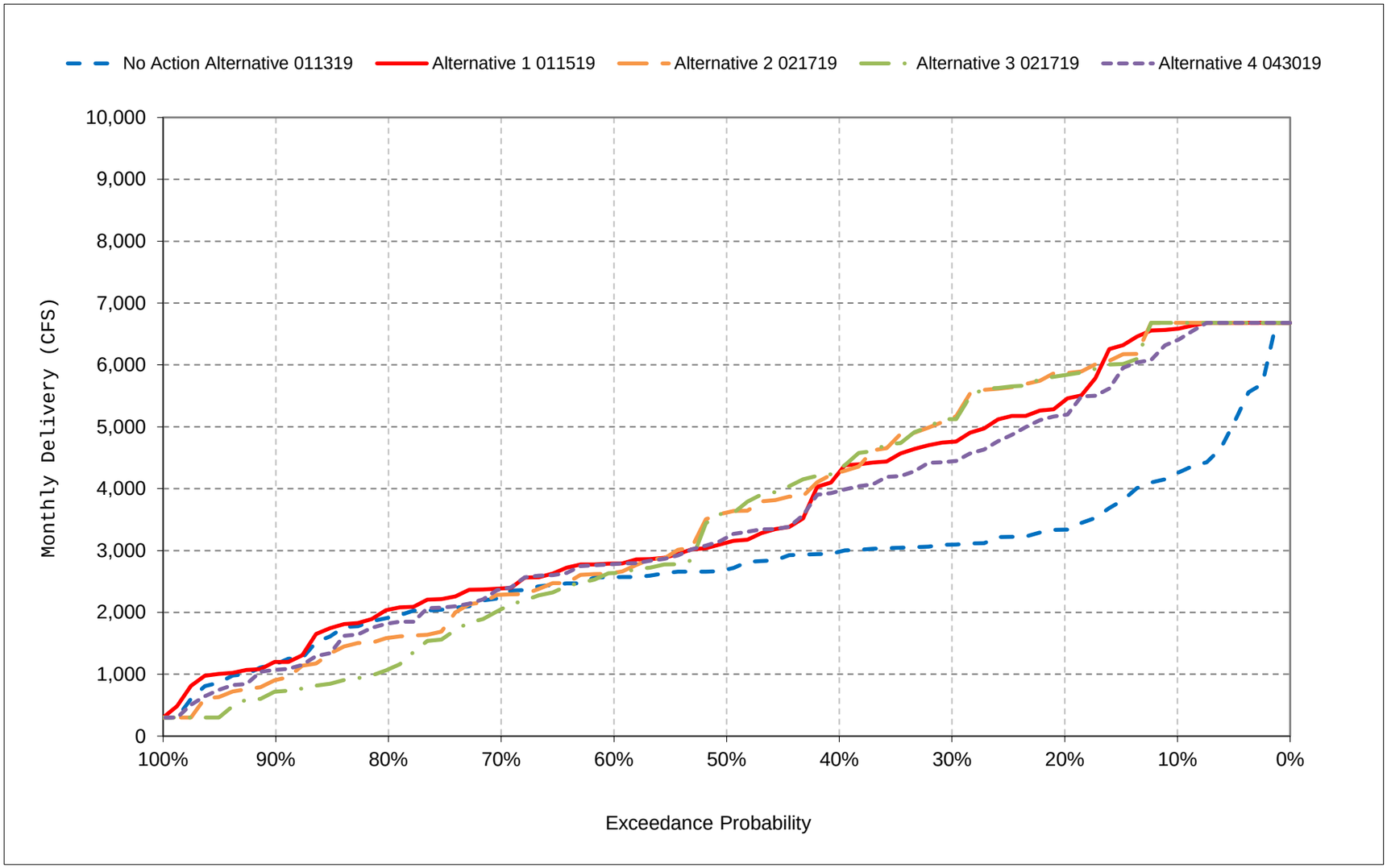

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 56-6. SWP Banks PP Exports, Critical Year Average Delivery




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

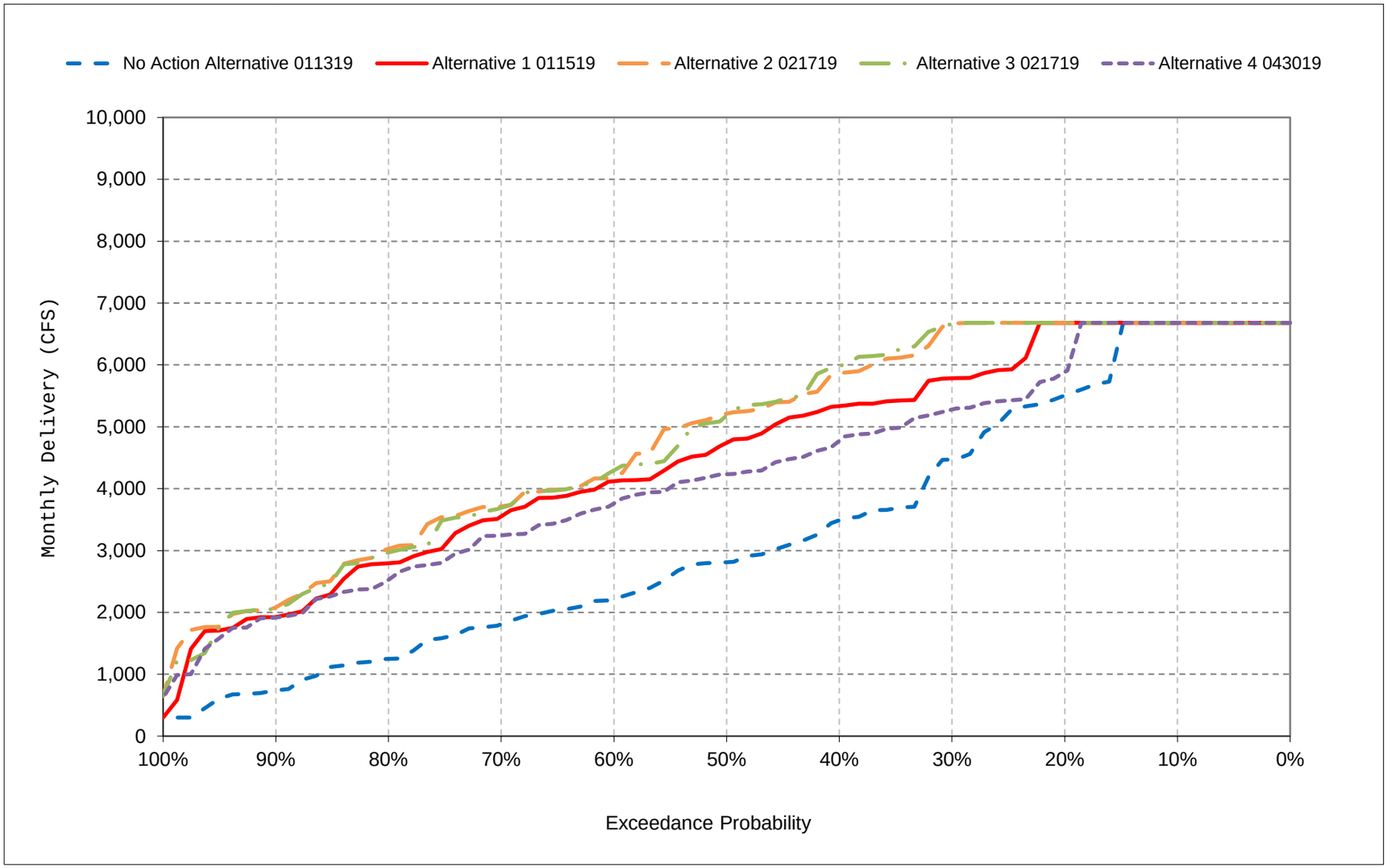
**Figure 56-7. SWP Banks PP Exports, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

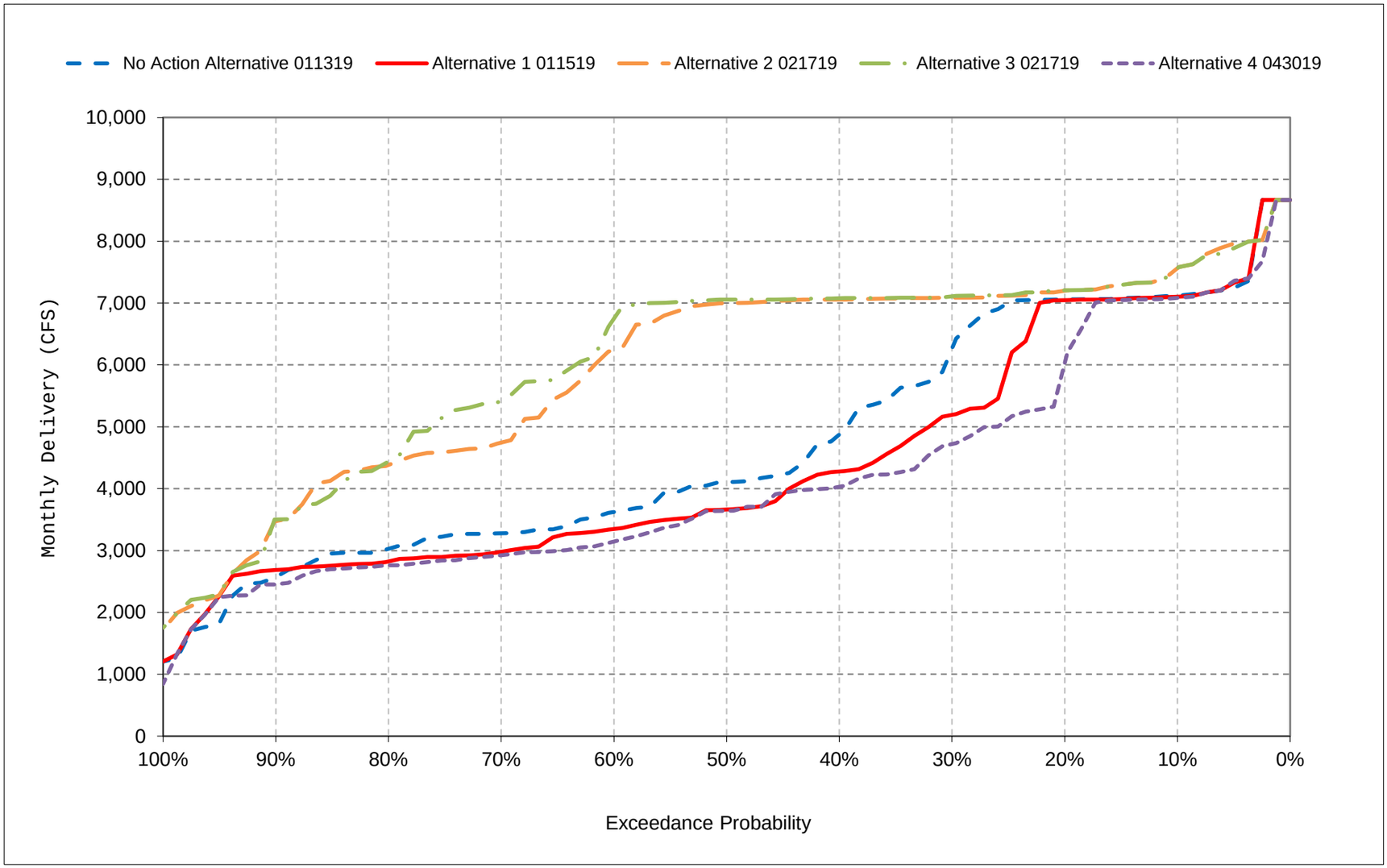
**Figure 56-8. SWP Banks PP Exports, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

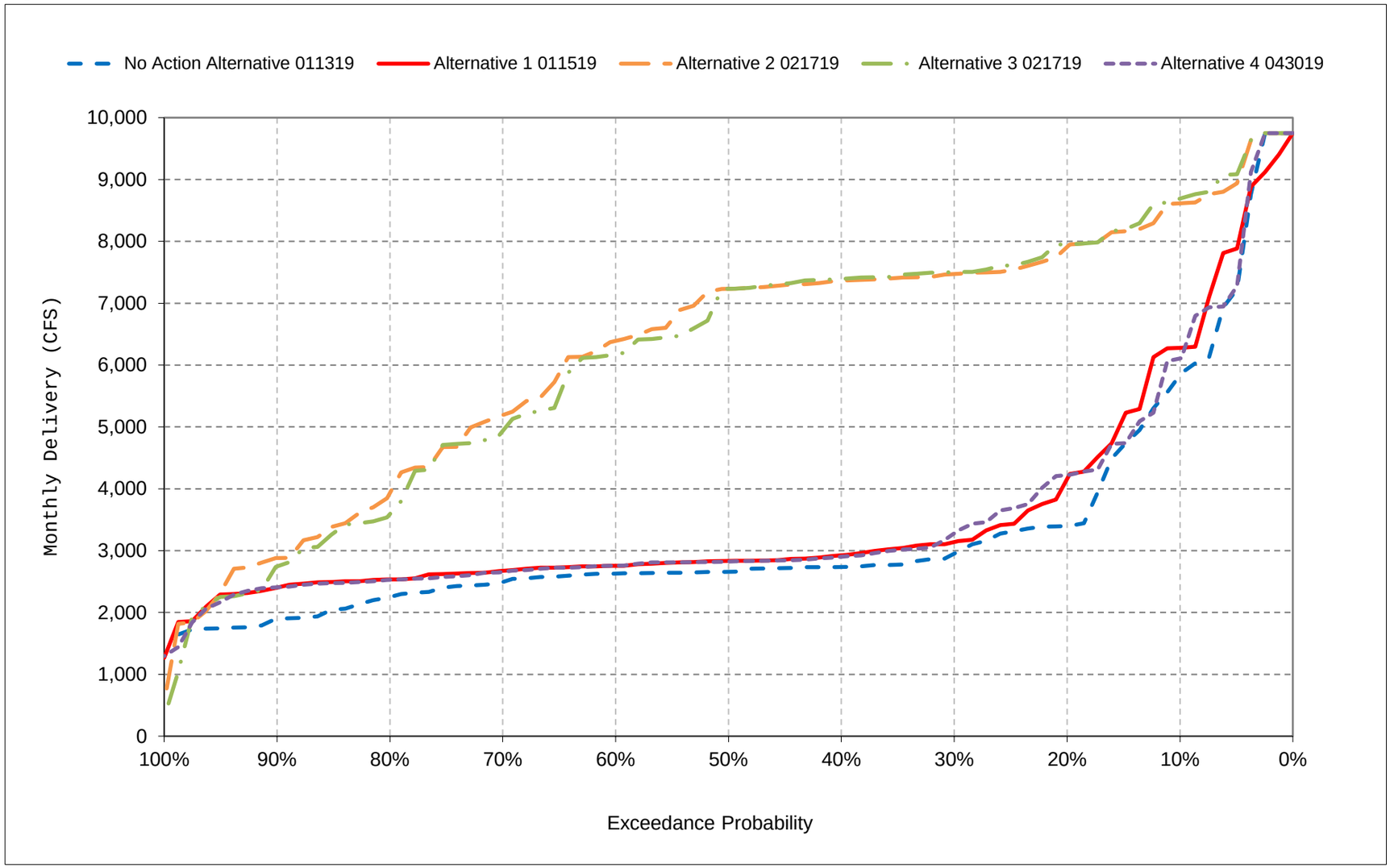
**Figure 56-9. SWP Banks PP Exports, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

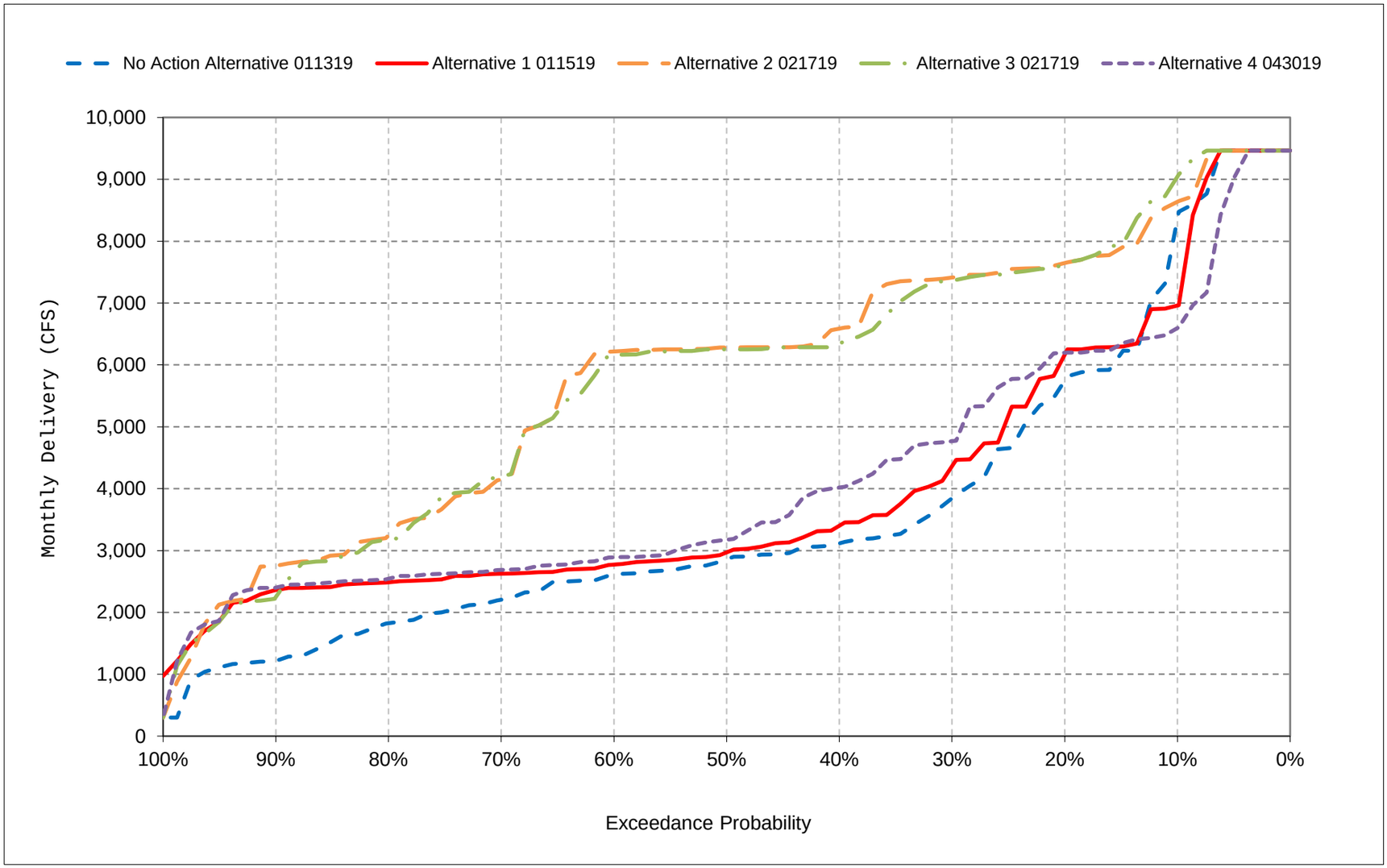
**Figure 56-10. SWP Banks PP Exports, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

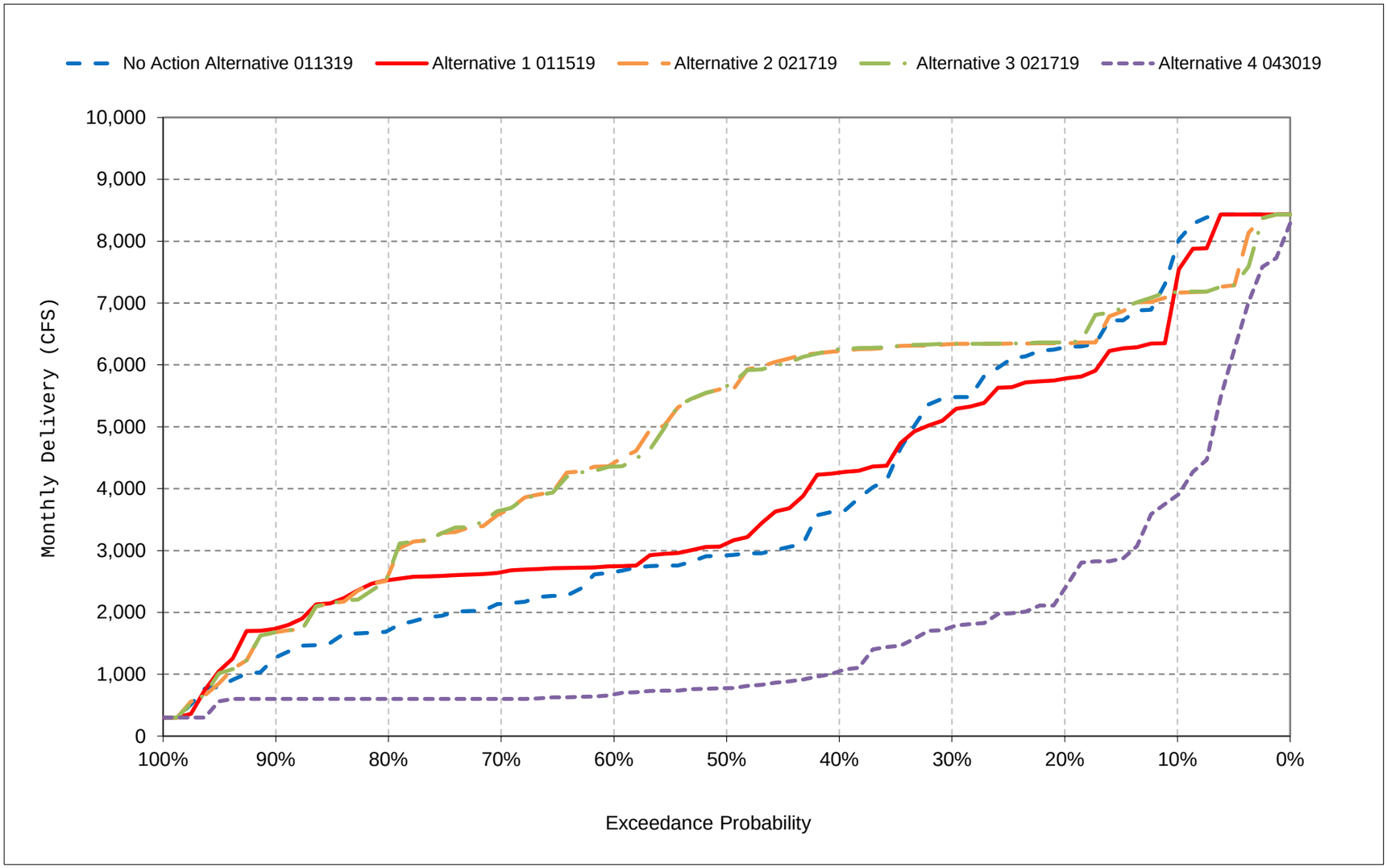
**Figure 56-11. SWP Banks PP Exports, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

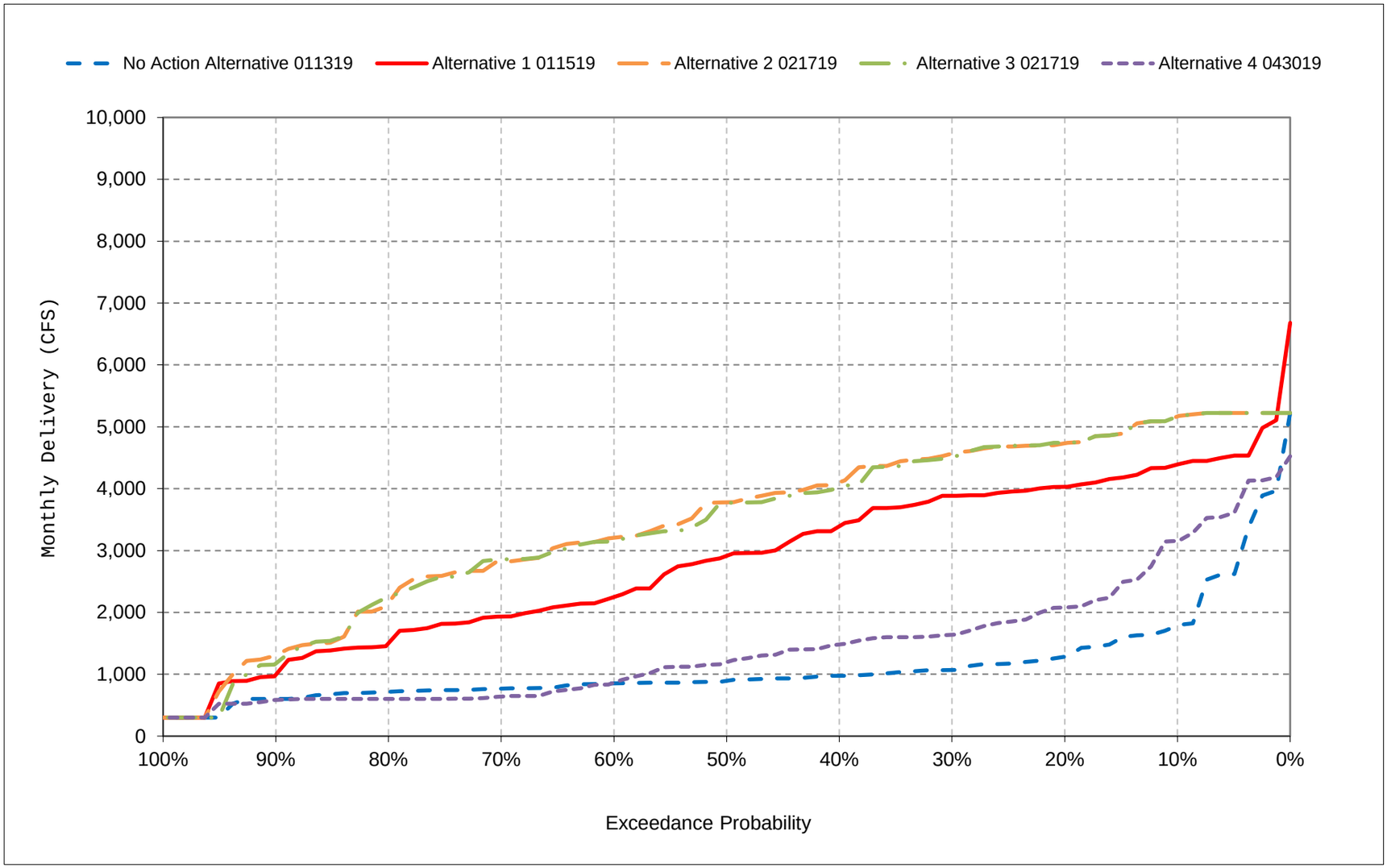
**Figure 56-12. SWP Banks PP Exports, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

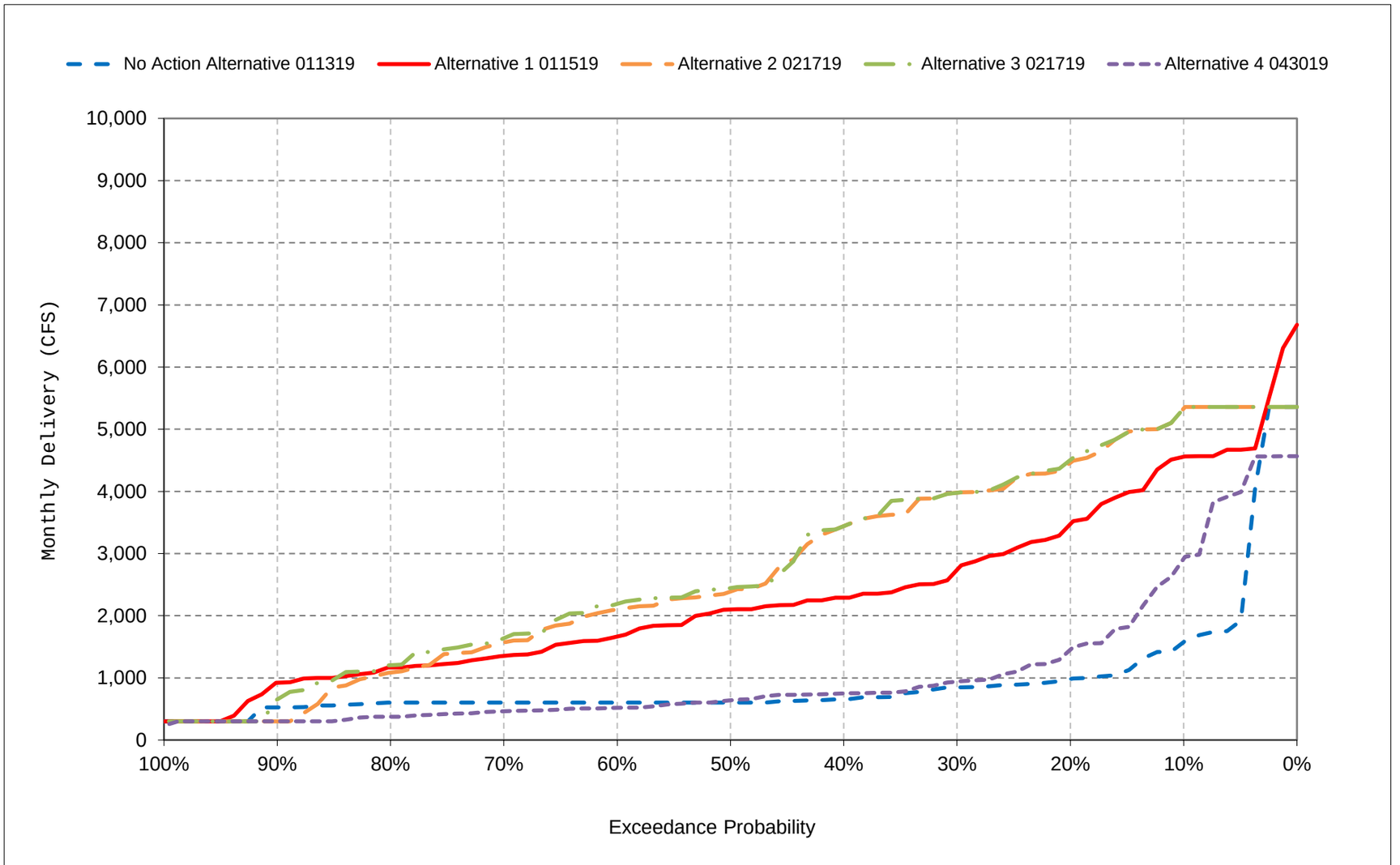
**Figure 56-13. SWP Banks PP Exports, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

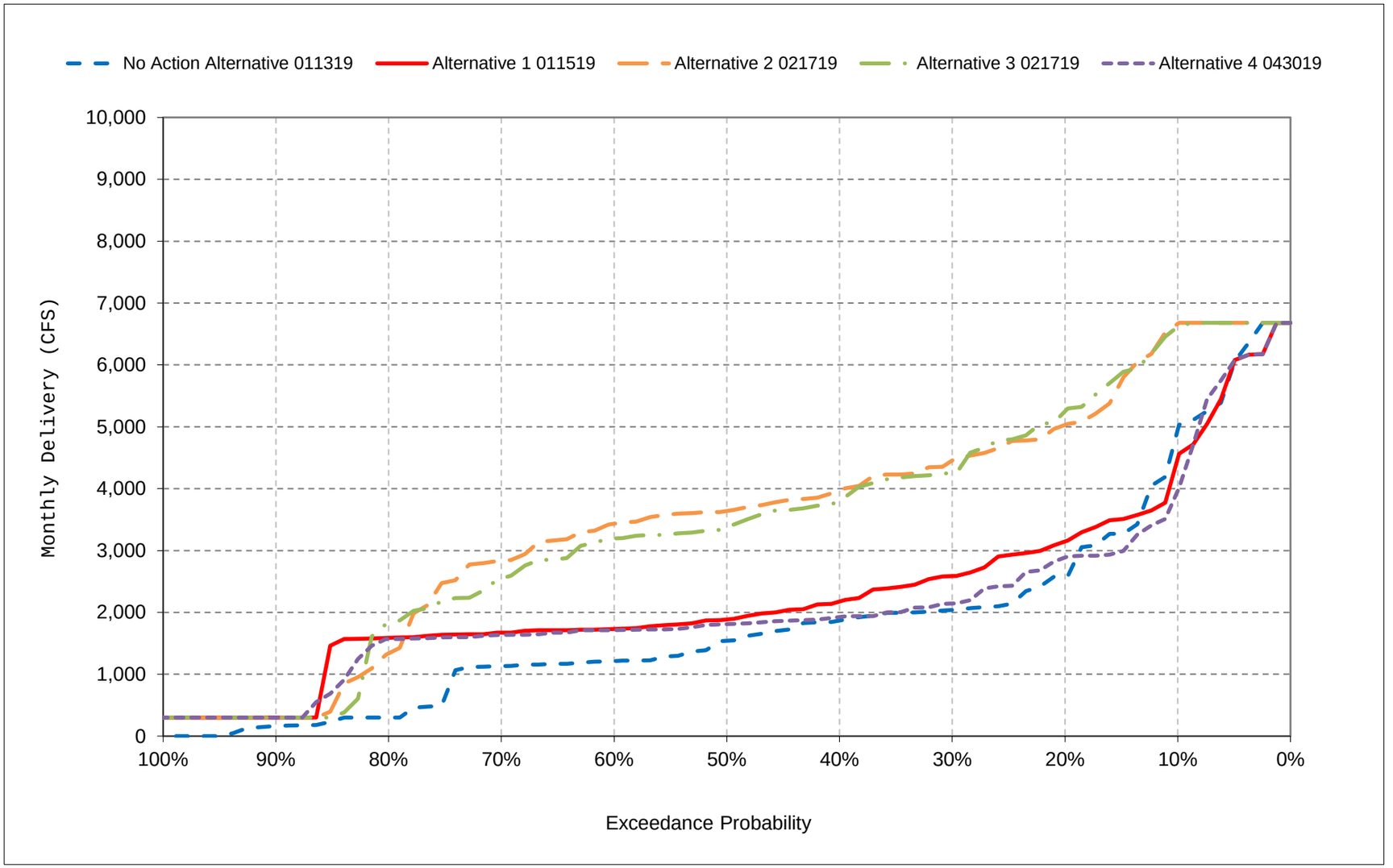
**Figure 56-14. SWP Banks PP Exports, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

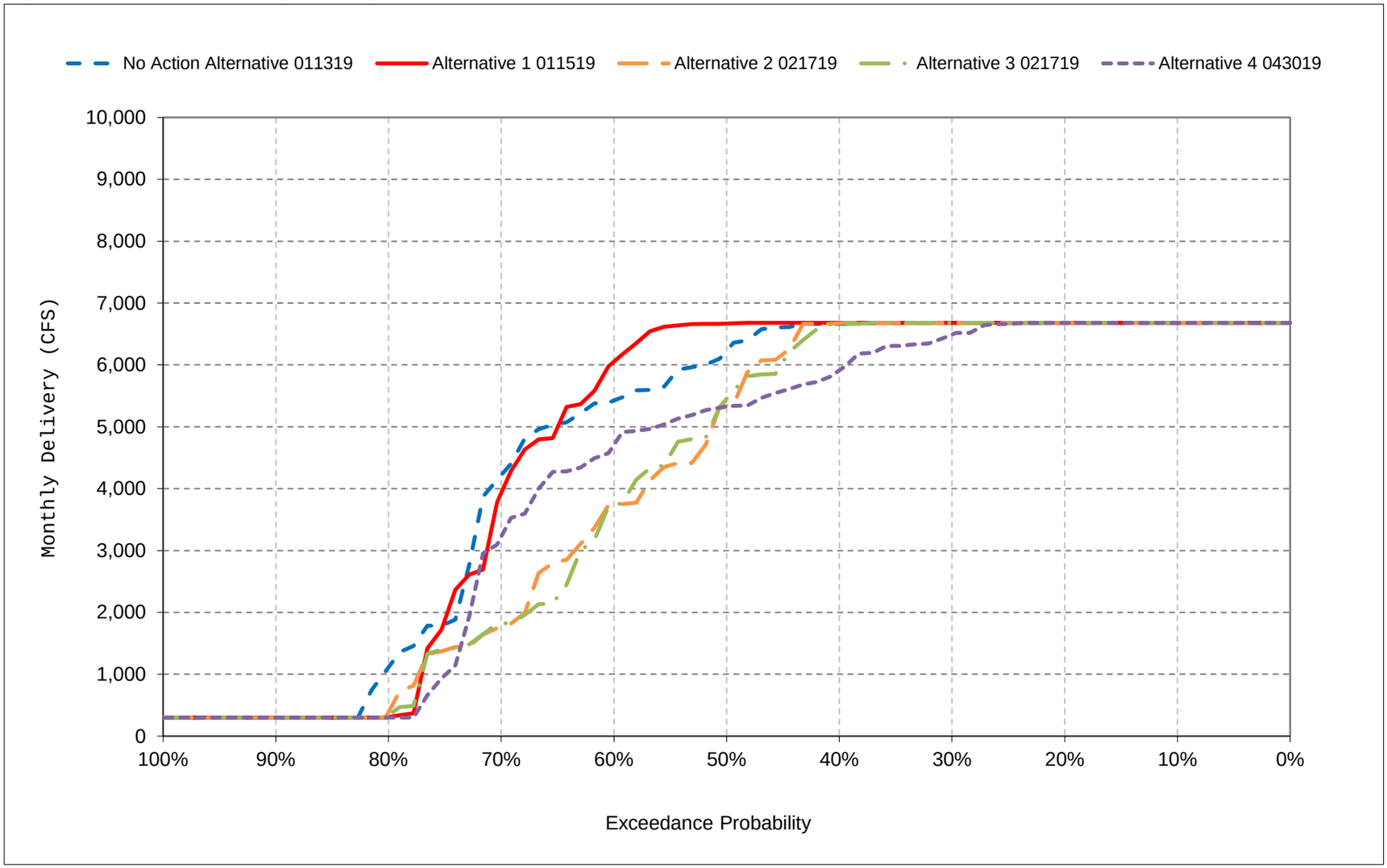
**Figure 56-15. SWP Banks PP Exports, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

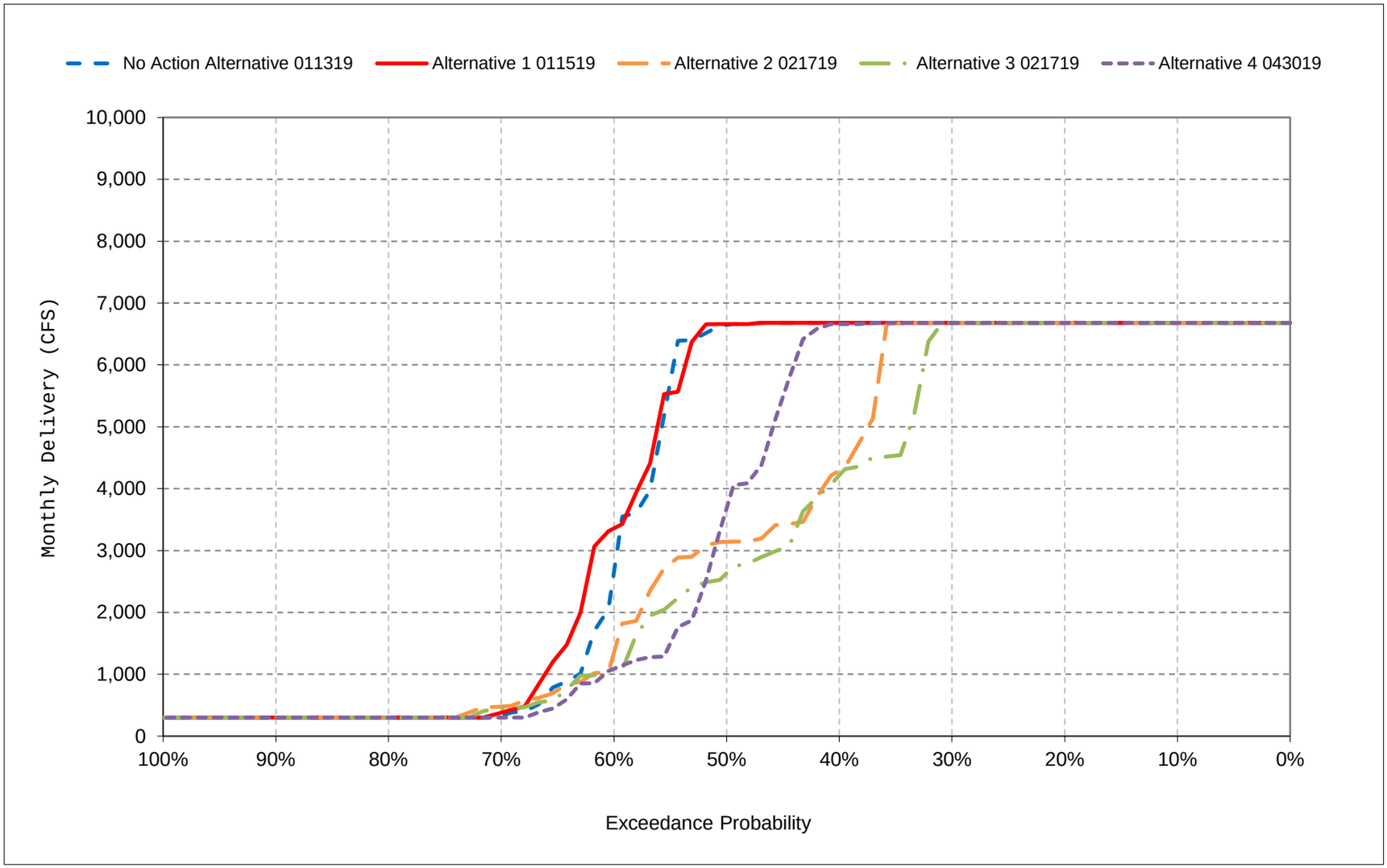
**Figure 56-16. SWP Banks PP Exports, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

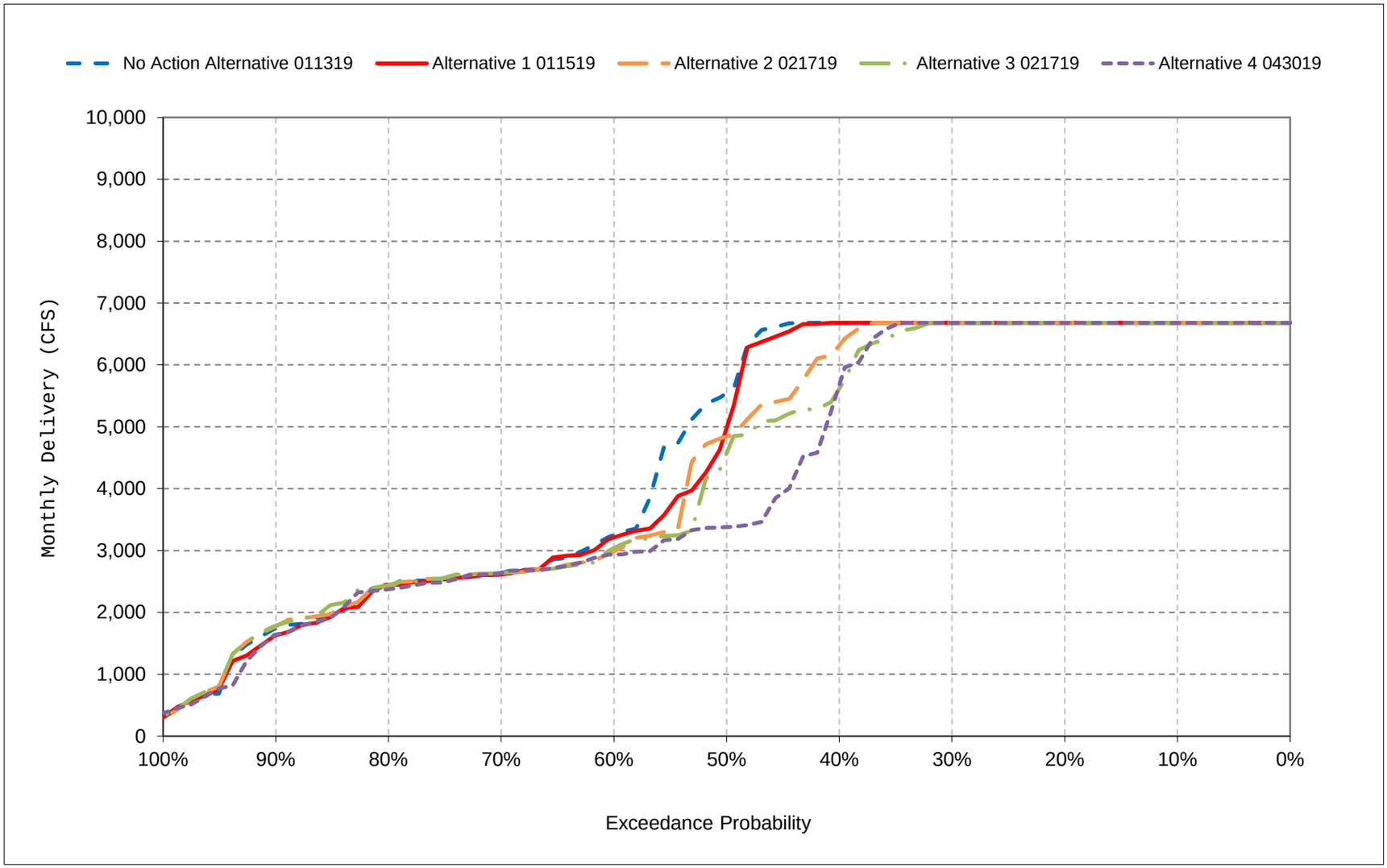
**Figure 56-17. SWP Banks PP Exports, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 56-18. SWP Banks PP Exports, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 57-1. DMC - CA Intertie Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 213 | 354 | 383 | 375 | 369 | 328 | 0 | 0 | 36 | 63 | 83 | 160 |
| 20% | 0 | 345 | 380 | 369 | 361 | 161 | 0 | 0 | 0 | 20 | 64 | 138 |
| 30% | 0 | 182 | 377 | 0 | 350 | 0 | 0 | 0 | 0 | 0 | 29 | 130 |
| 40% | 0 | 0 | 374 | 0 | 115 | 0 | 0 | 0 | 0 | 0 | 9 | 110 |
| 50% | 0 | 0 | 229 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 36 | 105 | 199 | 89 | 140 | 67 | 0 | 1 | 8 | 14 | 26 | 71 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 78 | 157 | 280 | 190 | 242 | 106 | 0 | 3 | 23 | 11 | 48 | 98 |
| Above Normal (16%) | 19 | 129 | 305 | 87 | 220 | 100 | 0 | 0 | 5 | 3 | 60 | 97 |
| Below Normal (13%) | 64 | 58 | 130 | 68 | 99 | 76 | 0 | 0 | 0 | 24 | 1 | 75 |
| Dry (24%) | 0 | 112 | 145 | 24 | 44 | 31 | 0 | 0 | 0 | 25 | 6 | 41 |
| Critical (15%) | 0 | 0 | 65 | 0 | 32 | 0 | 0 | 0 | 0 | 7 | 0 | 32 |

## Alternative 1 011519

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 228 | 349 | 377 | 372 | 362 | 314 | 0 | 0 | 36 | 0 | 68 | 174 |
| 20% | 213 | 336 | 374 | 369 | 350 | 243 | 0 | 0 | 0 | 0 | 40 | 131 |
| 30% | 213 | 336 | 251 | 102 | 347 | 0 | 0 | 0 | 0 | 0 | 29 | 117 |
| 40% | 0 | 111 | 47 | 19 | 74 | 0 | 0 | 0 | 0 | 0 | 29 | 110 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 75 | 135 | 126 | 106 | 131 | 72 | 13 | 5 | 5 | 1 | 21 | 82 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 141 | 278 | 219 | 222 | 189 | 116 | 24 | 13 | 14 | 1 | 32 | 116 |
| Above Normal (16%) | 126 | 118 | 120 | 96 | 199 | 113 | 25 | 6 | 3 | 0 | 42 | 121 |
| Below Normal (13%) | 54 | 66 | 41 | 77 | 144 | 46 | 0 | 0 | 0 | 4 | 12 | 83 |
| Dry (24%) | 13 | 80 | 90 | 39 | 70 | 47 | 8 | 0 | 0 | 2 | 11 | 45 |
| Critical (15%) | 0 | 0 | 65 | 3 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 31 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15 | **-5** | **-6** | **-3** | **-6** | **-14** | 0 | 0 | 0 | **-63** | **-15** | 14 |
| 20% | 213 | **-9** | **-6** | 0 | **-11** | 82 | 0 | 0 | 0 | **-20** | **-23** | **-8** |
| 30% | 213 | 155 | **-126** | 102 | **-4** | 0 | 0 | 0 | 0 | 0 | 0 | **-13** |
| 40% | 0 | 111 | **-327** | 19 | **-41** | 0 | 0 | 0 | 0 | 0 | 20 | 0 |
| 50% | 0 | 0 | **-229** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 106 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 39 | 30 | **-74** | 17 | **-10** | 5 | 13 | 4 | **-3** | **-13** | **-5** | 11 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 64 | 120 | **-61** | 32 | **-54** | 10 | 24 | 10 | **-9** | **-10** | **-15** | 18 |
| Above Normal (16%) | 107 | **-12** | **-185** | 8 | **-21** | 13 | 25 | 6 | **-2** | **-3** | **-18** | 24 |
| Below Normal (13%) | **-10** | 8 | **-89** | 8 | 45 | **-30** | 0 | 0 | 0 | **-20** | 10 | 7 |
| Dry (24%) | 13 | **-32** | **-54** | 14 | 26 | 15 | 8 | 0 | 0 | **-23** | 5 | 3 |
| Critical (15%) | 0 | 0 | **0** | 3 | **-11** | 0 | 0 | 0 | 0 | **-7** | 0 | **-1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 57-2. DMC - CA Intertie Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 213 | 354 | 383 | 375 | 369 | 328 | 0 | 0 | 36 | 63 | 83 | 160 |
| 20% | 0 | 345 | 380 | 369 | 361 | 161 | 0 | 0 | 0 | 20 | 64 | 138 |
| 30% | 0 | 182 | 377 | 0 | 350 | 0 | 0 | 0 | 0 | 0 | 29 | 130 |
| 40% | 0 | 0 | 374 | 0 | 115 | 0 | 0 | 0 | 0 | 0 | 9 | 110 |
| 50% | 0 | 0 | 229 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 36 | 105 | 199 | 89 | 140 | 67 | 0 | 1 | 8 | 14 | 26 | 71 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 78 | 157 | 280 | 190 | 242 | 106 | 0 | 3 | 23 | 11 | 48 | 98 |
| Above Normal (16%) | 19 | 129 | 305 | 87 | 220 | 100 | 0 | 0 | 5 | 3 | 60 | 97 |
| Below Normal (13%) | 64 | 58 | 130 | 68 | 99 | 76 | 0 | 0 | 0 | 24 | 1 | 75 |
| Dry (24%) | 0 | 112 | 145 | 24 | 44 | 31 | 0 | 0 | 0 | 25 | 6 | 41 |
| Critical (15%) | 0 | 0 | 65 | 0 | 32 | 0 | 0 | 0 | 0 | 7 | 0 | 32 |

## Alternative 2 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 213 | 345 | 382 | 383 | 371 | 334 | 0 | 0 | 36 | 0 | 42 | 129 |
| 20% | 213 | 336 | 376 | 378 | 359 | 310 | 0 | 0 | 36 | 0 | 29 | 117 |
| 30% | 213 | 336 | 374 | 373 | 353 | 282 | 0 | 0 | 36 | 0 | 29 | 110 |
| 40% | 0 | 256 | 374 | 370 | 350 | 28 | 0 | 0 | 36 | 0 | 29 | 110 |
| 50% | 0 | 0 | 374 | 369 | 349 | 0 | 0 | 0 | 0 | 0 | 14 | 110 |
| 60% | 0 | 0 | 61 | 369 | 347 | 0 | 0 | 0 | 0 | 0 | 0 | 98 |
| 70% | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 75 | 144 | 214 | 253 | 239 | 121 | 4 | 2 | 17 | 1 | 18 | 81 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 158 | 278 | 265 | 283 | 217 | 89 | 4 | 8 | 28 | 0 | 31 | 112 |
| Above Normal (16%) | 132 | 41 | 256 | 346 | 302 | 157 | 10 | 0 | 32 | 0 | 27 | 101 |
| Below Normal (13%) | 32 | 133 | 177 | 253 | 193 | 77 | 11 | 0 | 11 | 4 | 20 | 84 |
| Dry (24%) | 0 | 127 | 187 | 210 | 285 | 184 | 0 | 0 | 6 | 0 | 6 | 54 |
| Critical (15%) | 0 | 0 | 134 | 159 | 181 | 87 | 0 | 0 | 0 | 2 | 0 | 32 |

## Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | -9 | -1 | 8 | 3 | 6 | 0 | 0 | 0 | -63 | -41 | -31 |
| 20% | 213 | -9 | -3 | 9 | -2 | 149 | 0 | 0 | 36 | -20 | -35 | -22 |
| 30% | 213 | 155 | -3 | 373 | 3 | 282 | 0 | 0 | 36 | 0 | 0 | -21 |
| 40% | 0 | 256 | 0 | 370 | 235 | 28 | 0 | 0 | 36 | 0 | 20 | 0 |
| 50% | 0 | 0 | 144 | 369 | 349 | 0 | 0 | 0 | 0 | 0 | 14 | 106 |
| 60% | 0 | 0 | 61 | 369 | 347 | 0 | 0 | 0 | 0 | 0 | 0 | 98 |
| 70% | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 39 | 38 | 14 | 164 | 99 | 54 | 4 | 2 | 9 | -13 | -8 | 9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 80 | 121 | -15 | 94 | -25 | -17 | 4 | 5 | 5 | -11 | -17 | 13 |
| Above Normal (16%) | 113 | -88 | -49 | 258 | 82 | 57 | 10 | 0 | 28 | -3 | -33 | 5 |
| Below Normal (13%) | -32 | 75 | 46 | 184 | 94 | 1 | 11 | 0 | 11 | -20 | 19 | 9 |
| Dry (24%) | 0 | 15 | 43 | 185 | 242 | 153 | 0 | 0 | 6 | -25 | 0 | 12 |
| Critical (15%) | 0 | 0 | 69 | 159 | 149 | 87 | 0 | 0 | 0 | -5 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 57-3. DMC - CA Intertie Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 213 | 354 | 383 | 375 | 369 | 328 | 0 | 0 | 36 | 63 | 83 | 160 |
| 20% | 0 | 345 | 380 | 369 | 361 | 161 | 0 | 0 | 0 | 20 | 64 | 138 |
| 30% | 0 | 182 | 377 | 0 | 350 | 0 | 0 | 0 | 0 | 0 | 29 | 130 |
| 40% | 0 | 0 | 374 | 0 | 115 | 0 | 0 | 0 | 0 | 0 | 9 | 110 |
| 50% | 0 | 0 | 229 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 36 | 105 | 199 | 89 | 140 | 67 | 0 | 1 | 8 | 14 | 26 | 71 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 78 | 157 | 280 | 190 | 242 | 106 | 0 | 3 | 23 | 11 | 48 | 98 |
| Above Normal (16%) | 19 | 129 | 305 | 87 | 220 | 100 | 0 | 0 | 5 | 3 | 60 | 97 |
| Below Normal (13%) | 64 | 58 | 130 | 68 | 99 | 76 | 0 | 0 | 0 | 24 | 1 | 75 |
| Dry (24%) | 0 | 112 | 145 | 24 | 44 | 31 | 0 | 0 | 0 | 25 | 6 | 41 |
| Critical (15%) | 0 | 0 | 65 | 0 | 32 | 0 | 0 | 0 | 0 | 7 | 0 | 32 |

## Alternative 3 021719

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 213 | 347 | 382 | 382 | 368 | 331 | 0 | 0 | 36 | 0 | 44 | 137 |
| 20% | 213 | 336 | 377 | 377 | 359 | 306 | 0 | 0 | 36 | 0 | 29 | 120 |
| 30% | 213 | 336 | 374 | 373 | 354 | 281 | 0 | 0 | 36 | 0 | 29 | 111 |
| 40% | 19 | 336 | 374 | 370 | 350 | 0 | 0 | 0 | 0 | 0 | 29 | 110 |
| 50% | 0 | 0 | 374 | 369 | 347 | 0 | 0 | 0 | 0 | 0 | 0 | 110 |
| 60% | 0 | 0 | 176 | 369 | 347 | 0 | 0 | 0 | 0 | 0 | 0 | 110 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 80 | 160 | 224 | 249 | 230 | 111 | 4 | 2 | 16 | 1 | 18 | 85 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 173 | 285 | 269 | 269 | 217 | 96 | 4 | 8 | 26 | 0 | 27 | 112 |
| Above Normal (16%) | 108 | 104 | 272 | 346 | 331 | 142 | 10 | 0 | 30 | 0 | 27 | 114 |
| Below Normal (13%) | 57 | 140 | 217 | 263 | 162 | 75 | 11 | 0 | 10 | 3 | 24 | 95 |
| Dry (24%) | 3 | 141 | 197 | 204 | 267 | 143 | 0 | 0 | 7 | 2 | 4 | 57 |
| Critical (15%) | 0 | 0 | 128 | 159 | 150 | 87 | 0 | 0 | 0 | 3 | 6 | 32 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | -6 | -1 | 7 | 0 | 2 | 0 | 0 | 0 | -63 | -40 | -23 |
| 20% | 213 | -9 | -3 | 9 | -2 | 145 | 0 | 0 | 36 | -20 | -35 | -18 |
| 30% | 213 | 155 | -3 | 373 | 3 | 281 | 0 | 0 | 36 | 0 | 0 | -19 |
| 40% | 19 | 336 | 0 | 370 | 235 | 0 | 0 | 0 | 0 | 0 | 20 | 0 |
| 50% | 0 | 0 | 144 | 369 | 347 | 0 | 0 | 0 | 0 | 0 | 0 | 106 |
| 60% | 0 | 0 | 176 | 369 | 347 | 0 | 0 | 0 | 0 | 0 | 0 | 110 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 44 | 54 | 25 | 160 | 90 | 43 | 4 | 2 | 8 | -13 | -8 | 13 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 95 | 127 | -11 | 79 | -25 | -10 | 4 | 5 | 3 | -11 | -20 | 13 |
| Above Normal (16%) | 89 | -25 | -33 | 259 | 111 | 42 | 10 | 0 | 25 | -3 | -33 | 17 |
| Below Normal (13%) | -7 | 82 | 87 | 195 | 62 | -1 | 11 | 0 | 10 | -21 | 23 | 19 |
| Dry (24%) | 3 | 28 | 52 | 180 | 223 | 112 | 0 | 0 | 7 | -22 | -1 | 16 |
| Critical (15%) | 0 | 0 | 63 | 159 | 118 | 87 | 0 | 0 | 0 | -5 | 6 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 57-4. DMC - CA Intertie Flow, Monthly Flow

## No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 213 | 354 | 383 | 375 | 369 | 328 | 0 | 0 | 36 | 63 | 83 | 160 |
| 20% | 0 | 345 | 380 | 369 | 361 | 161 | 0 | 0 | 0 | 20 | 64 | 138 |
| 30% | 0 | 182 | 377 | 0 | 350 | 0 | 0 | 0 | 0 | 0 | 29 | 130 |
| 40% | 0 | 0 | 374 | 0 | 115 | 0 | 0 | 0 | 0 | 0 | 9 | 110 |
| 50% | 0 | 0 | 229 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 36 | 105 | 199 | 89 | 140 | 67 | 0 | 1 | 8 | 14 | 26 | 71 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 78 | 157 | 280 | 190 | 242 | 106 | 0 | 3 | 23 | 11 | 48 | 98 |
| Above Normal (16%) | 19 | 129 | 305 | 87 | 220 | 100 | 0 | 0 | 5 | 3 | 60 | 97 |
| Below Normal (13%) | 64 | 58 | 130 | 68 | 99 | 76 | 0 | 0 | 0 | 24 | 1 | 75 |
| Dry (24%) | 0 | 112 | 145 | 24 | 44 | 31 | 0 | 0 | 0 | 25 | 6 | 41 |
| Critical (15%) | 0 | 0 | 65 | 0 | 32 | 0 | 0 | 0 | 0 | 7 | 0 | 32 |

## Alternative 4 043019

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 238 | 360 | 381 | 373 | 367 | 0 | 0 | 0 | 33 | 0 | 75 | 161 |
| 20% | 213 | 339 | 375 | 369 | 351 | 0 | 0 | 0 | 0 | 0 | 43 | 135 |
| 30% | 171 | 336 | 255 | 107 | 270 | 0 | 0 | 0 | 0 | 0 | 29 | 121 |
| 40% | 0 | 0 | 4 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 111 |
| 50% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 75 | 130 | 124 | 108 | 122 | 4 | 1 | 0 | 5 | 1 | 22 | 77 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 176 | 259 | 198 | 222 | 188 | 14 | 5 | 0 | 14 | 4 | 42 | 121 |
| Above Normal (16%) | 92 | 116 | 110 | 119 | 151 | 0 | 0 | 0 | 0 | 0 | 46 | 118 |
| Below Normal (13%) | 31 | 53 | 113 | 82 | 146 | 0 | 0 | 0 | 0 | 0 | 4 | 67 |
| Dry (24%) | 0 | 93 | 97 | 29 | 67 | 0 | 0 | 0 | 0 | 0 | 5 | 35 |
| Critical (15%) | 0 | 0 | 33 | 3 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |

## Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Flow (CFS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 25 | 6 | -3 | -2 | -1 | -328 | 0 | 0 | -4 | -63 | -8 | 2 |
| 20% | 213 | -6 | -5 | 0 | -9 | -161 | 0 | 0 | 0 | -20 | -20 | -4 |
| 30% | 171 | 155 | -122 | 107 | -80 | 0 | 0 | 0 | 0 | 0 | 0 | -9 |
| 40% | 0 | 0 | -369 | 17 | -115 | 0 | 0 | 0 | 0 | 0 | -9 | 1 |
| 50% | 0 | 0 | -229 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 106 |
| 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 38 | 25 | -76 | 19 | -18 | -63 | 1 | -1 | -4 | -13 | -4 | 6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 98 | 102 | -82 | 32 | -54 | -93 | 5 | -3 | -9 | -7 | -5 | 23 |
| Above Normal (16%) | 73 | -14 | -195 | 32 | -69 | -100 | 0 | 0 | -5 | -3 | -15 | 21 |
| Below Normal (13%) | -33 | -5 | -17 | 14 | 47 | -76 | 0 | 0 | 0 | -24 | 3 | -9 |
| Dry (24%) | 0 | -19 | -47 | 5 | 23 | -31 | 0 | 0 | 0 | -25 | -1 | -7 |
| Critical (15%) | 0 | 0 | -32 | 3 | -12 | 0 | 0 | 0 | 0 | -7 | 0 | -13 |

a Based on the 82-year simulation period.

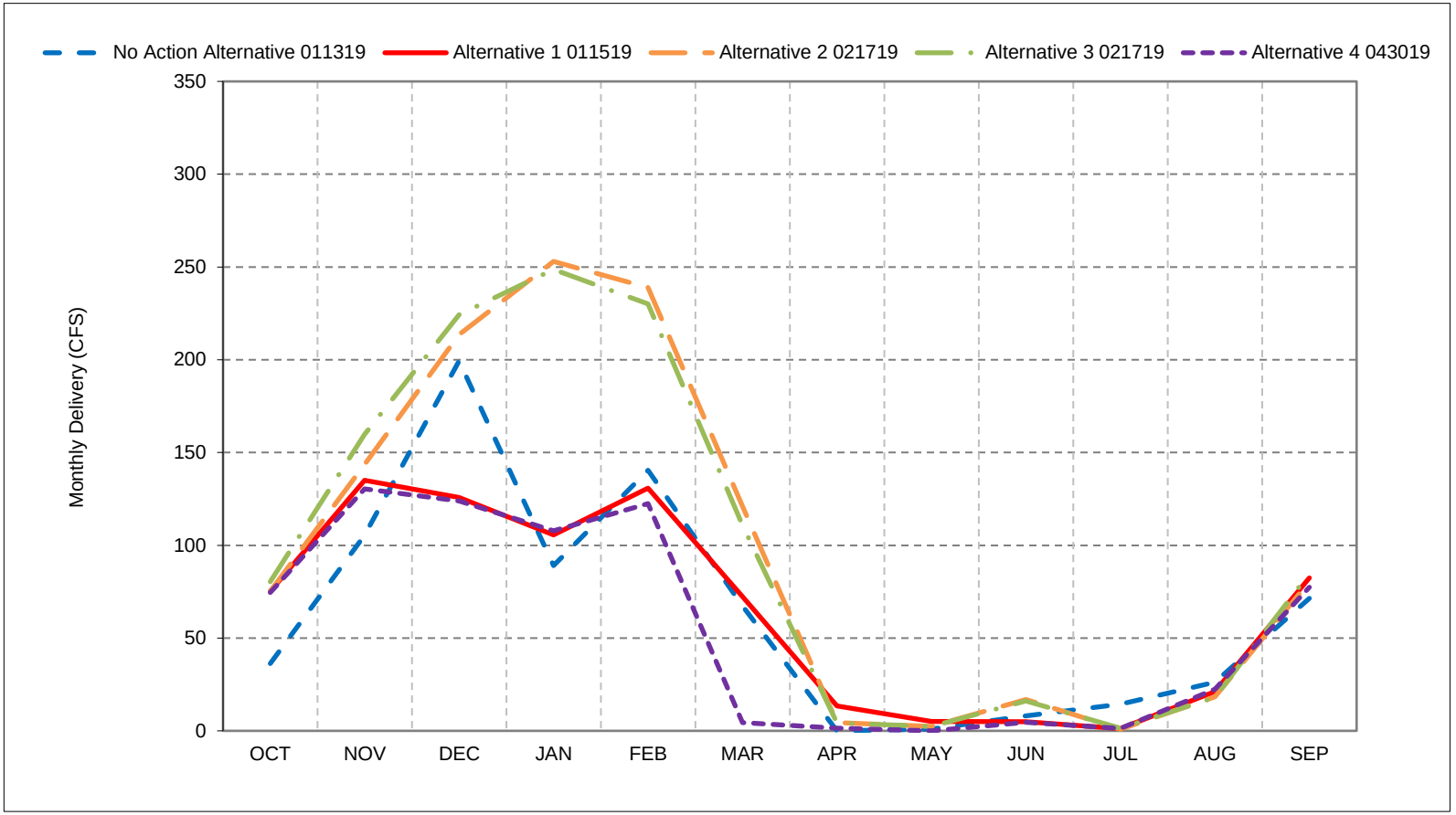
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

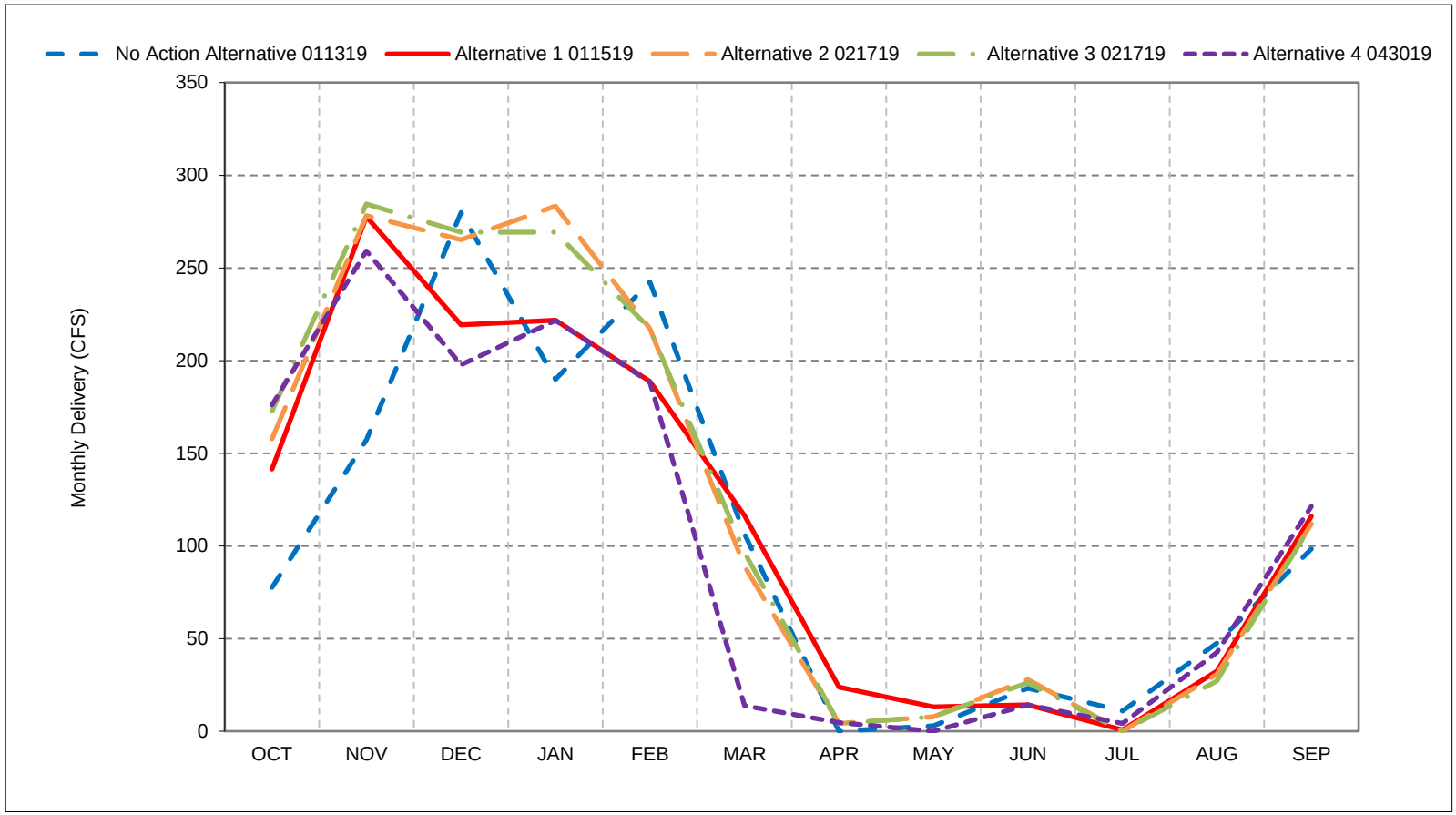
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 57-1. DMC - CA Intertie Flow, Long-Term Average Delivery



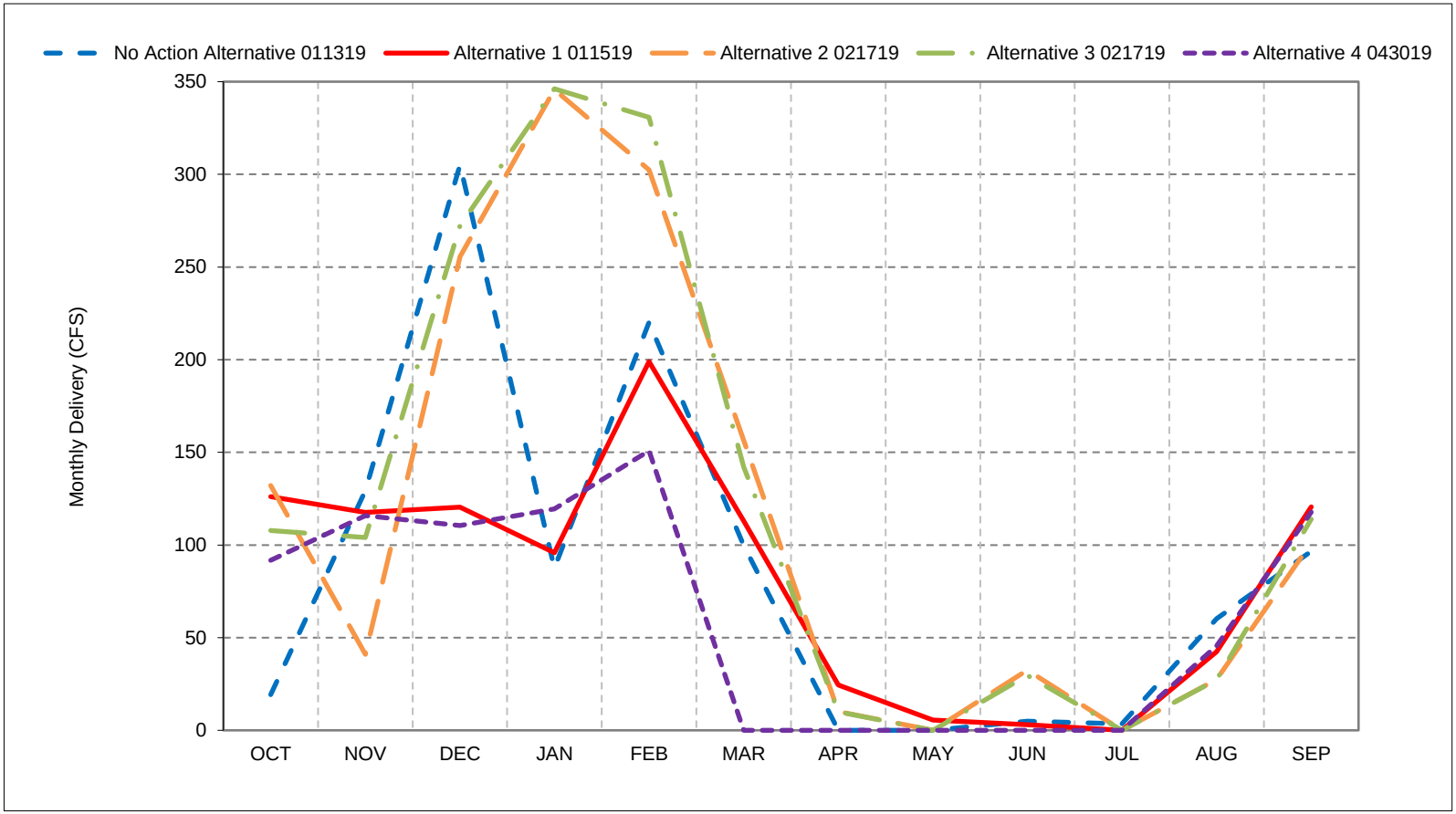

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 57-2. DMC - CA Intertie Flow, Wet Year Average Delivery



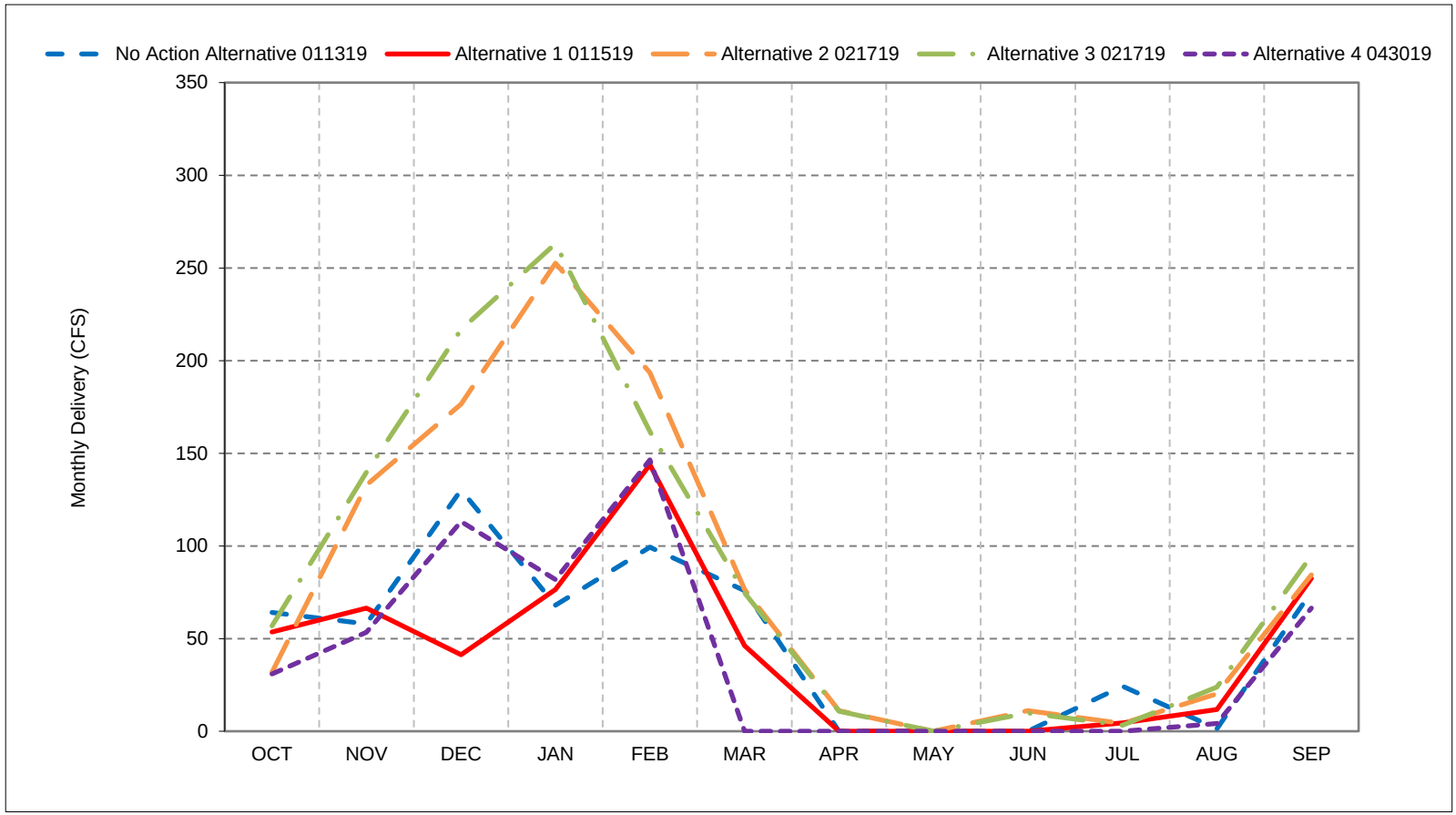

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 57-3. DMC - CA Intertie Flow, Above Normal Year Average Delivery



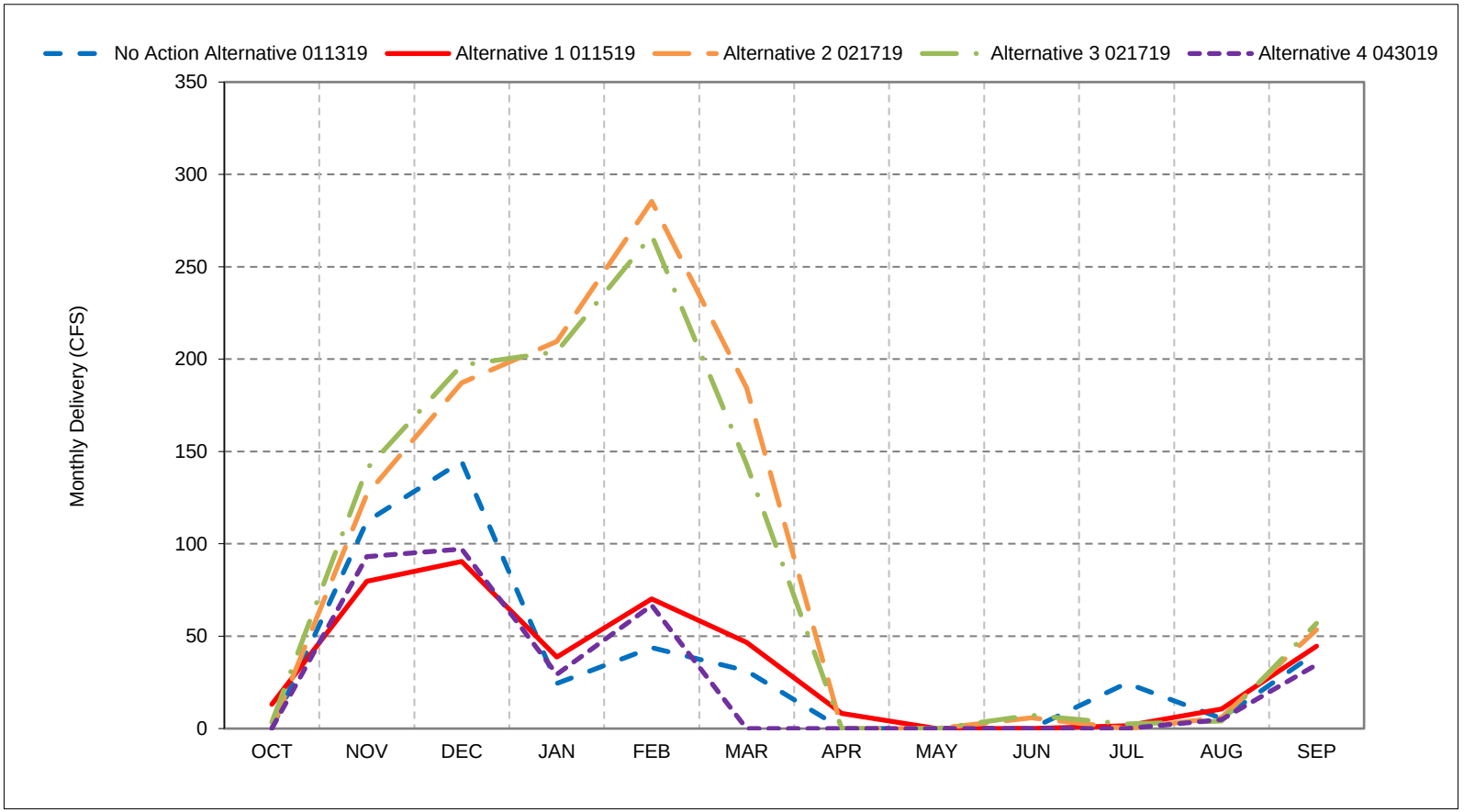

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 57-4. DMC - CA Intertie Flow, Below Normal Year Average Delivery



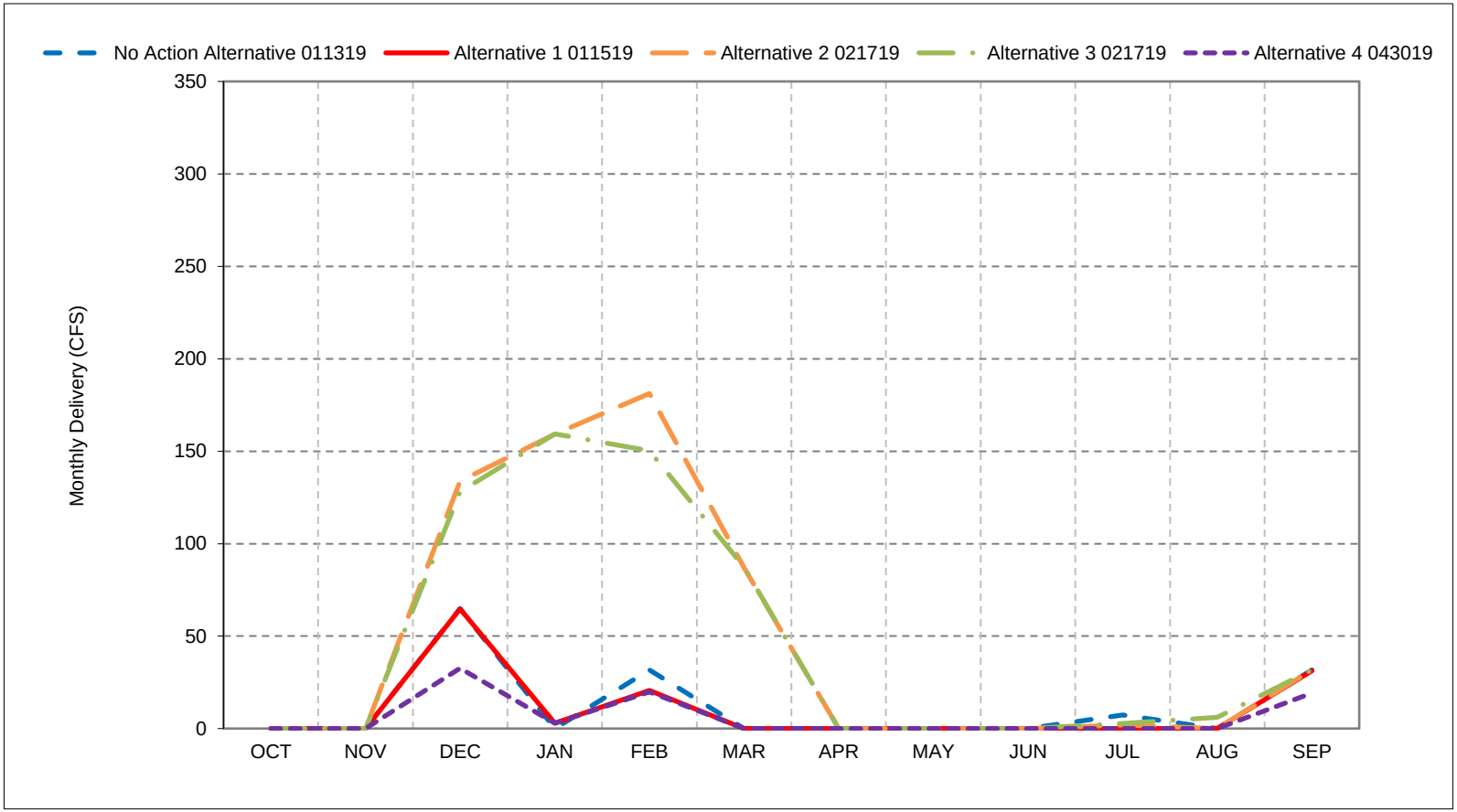

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 57-5. DMC - CA Intertie Flow, Dry Year Average Delivery



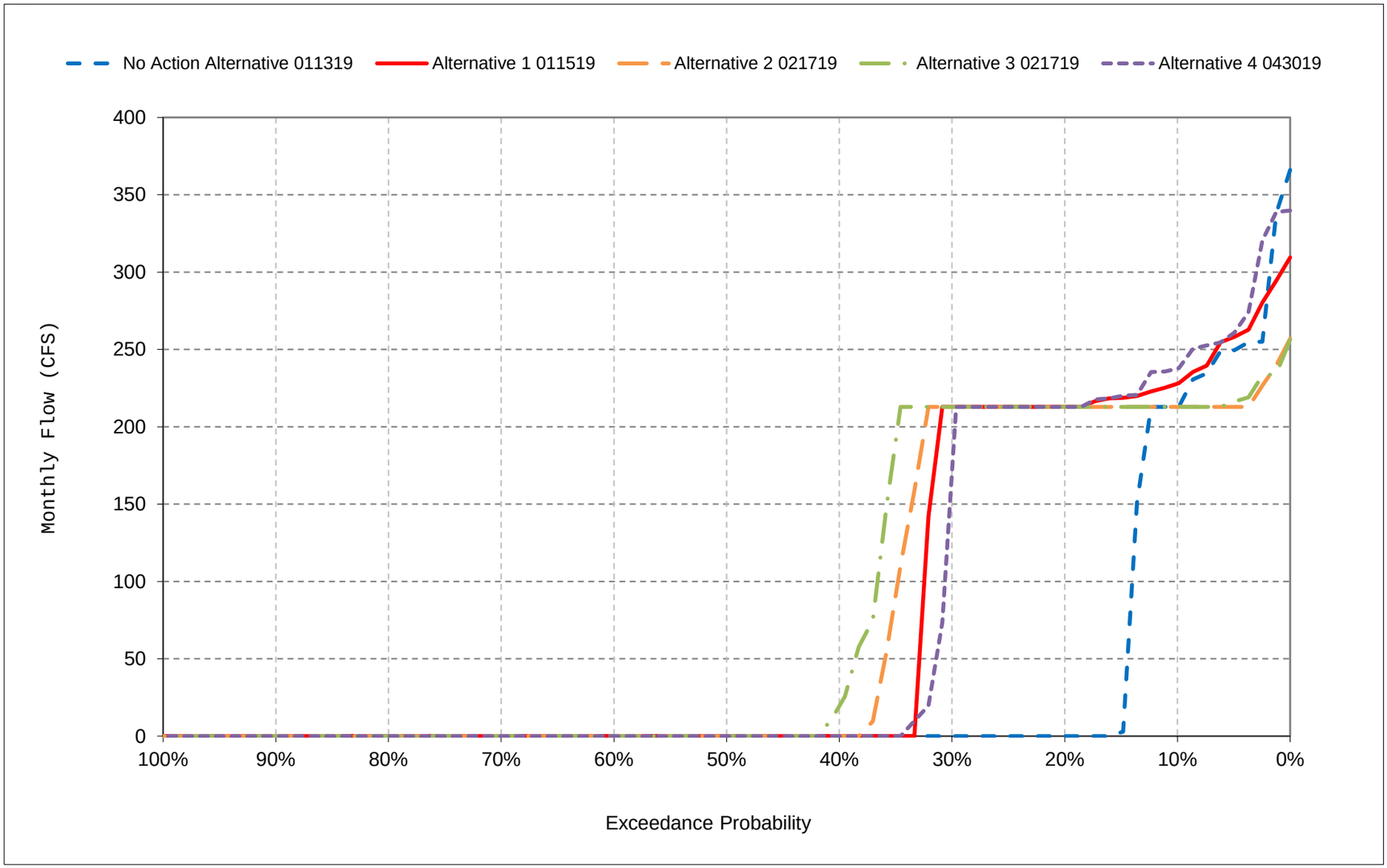

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 57-6. DMC - CA Intertie Flow, Critical Year Average Delivery




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

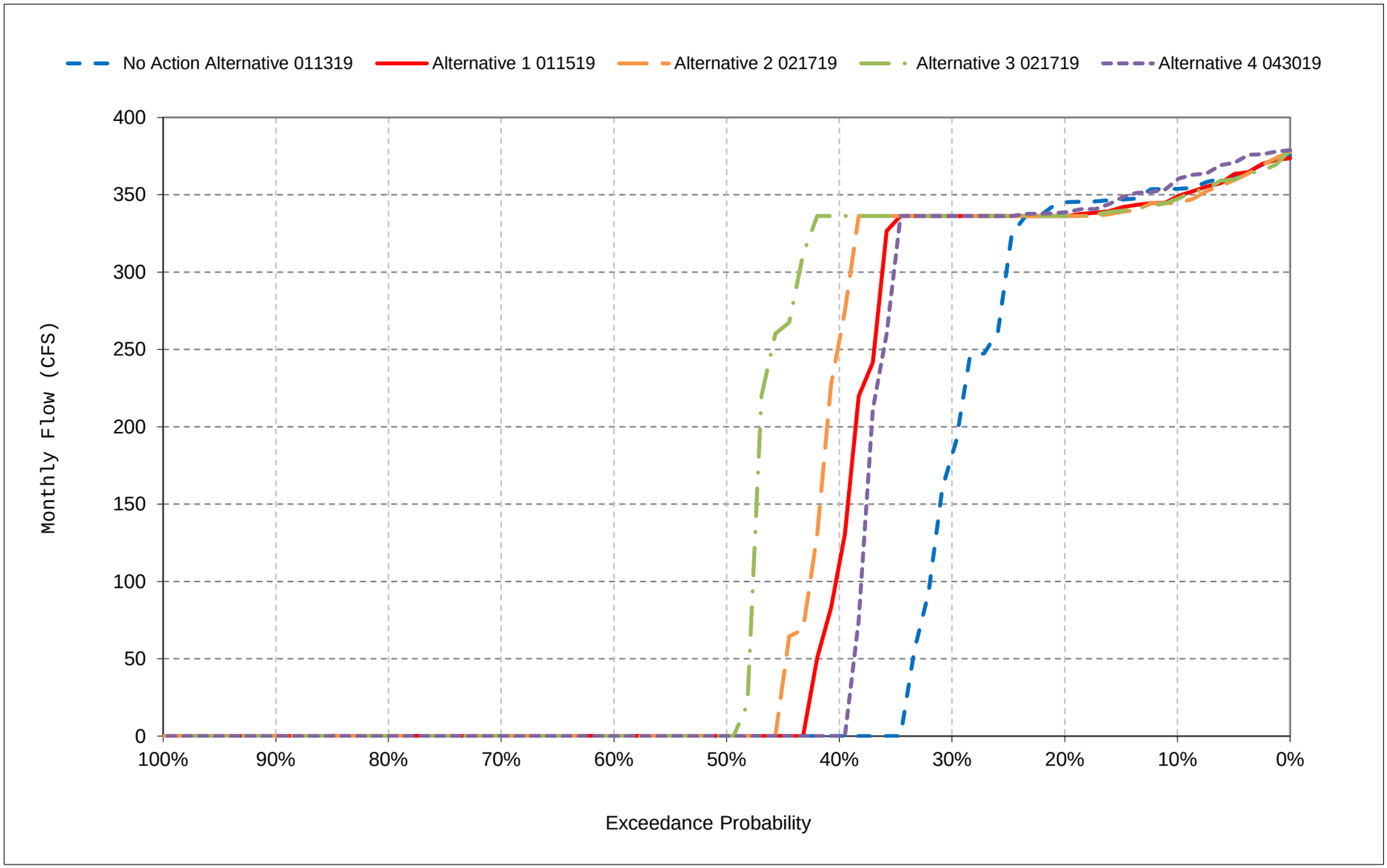
**Figure 57-7. DMC - CA Intertie Flow, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

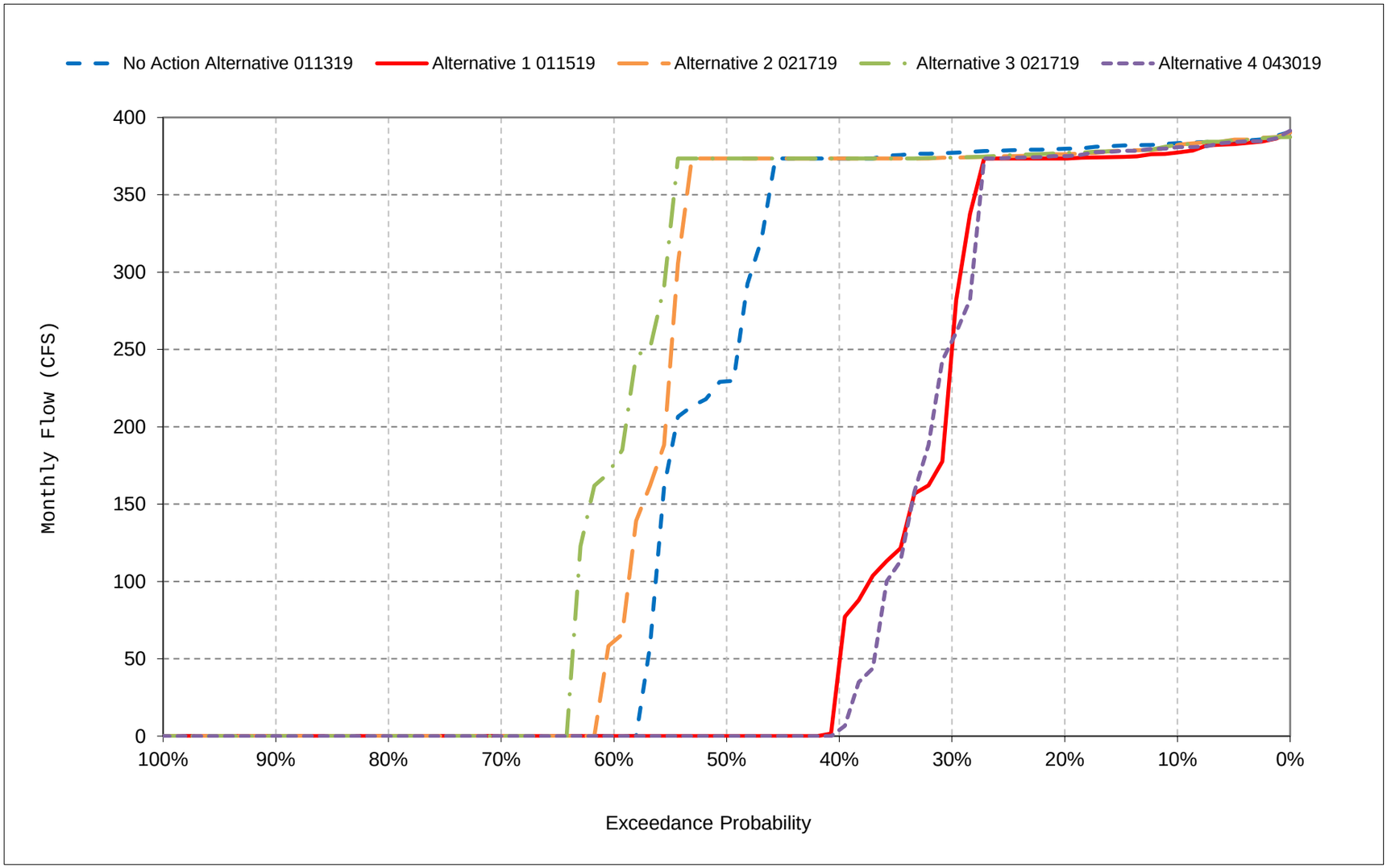
**Figure 57-8. DMC - CA Intertie Flow, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

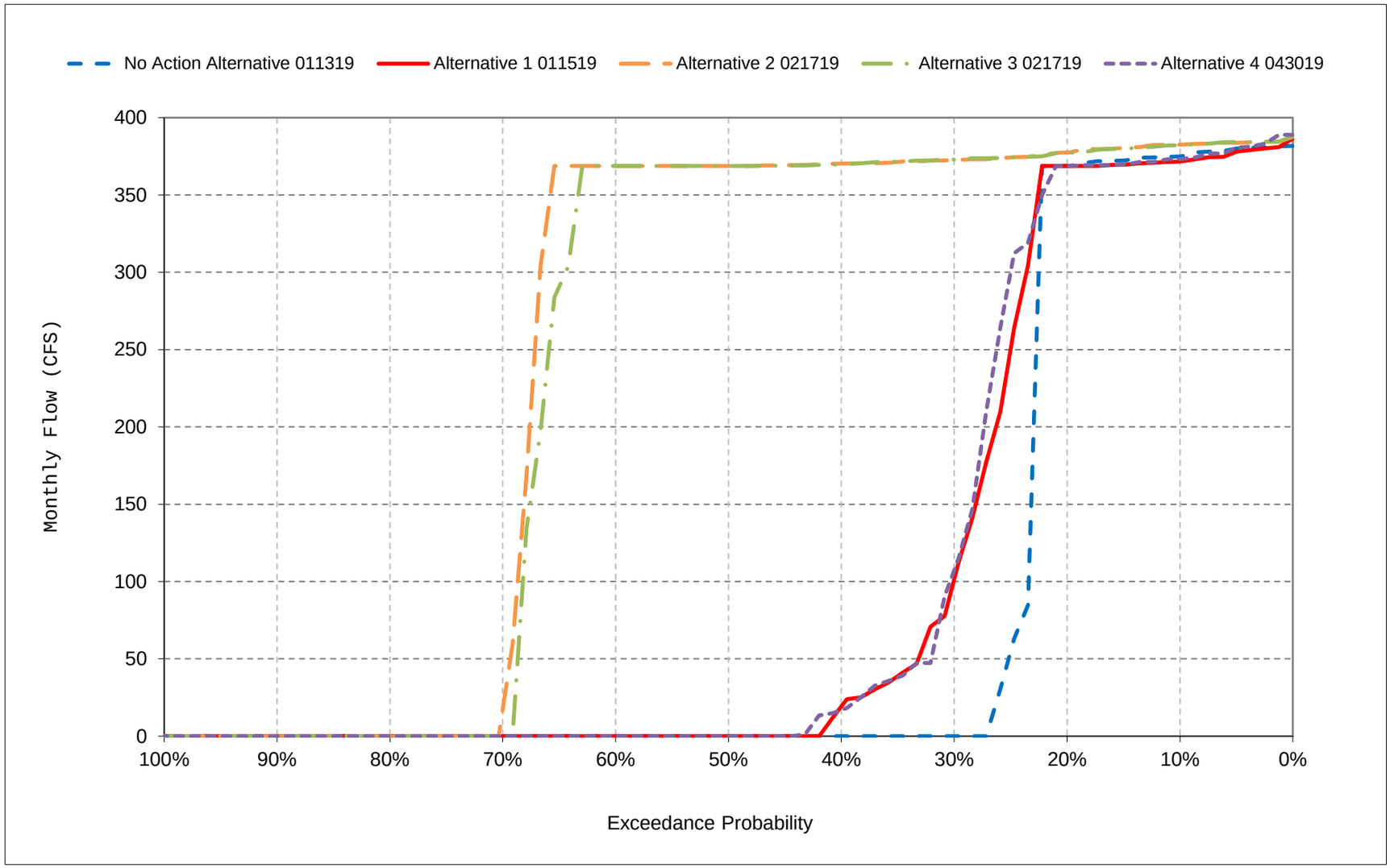
**Figure 57-9. DMC - CA Intertie Flow, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

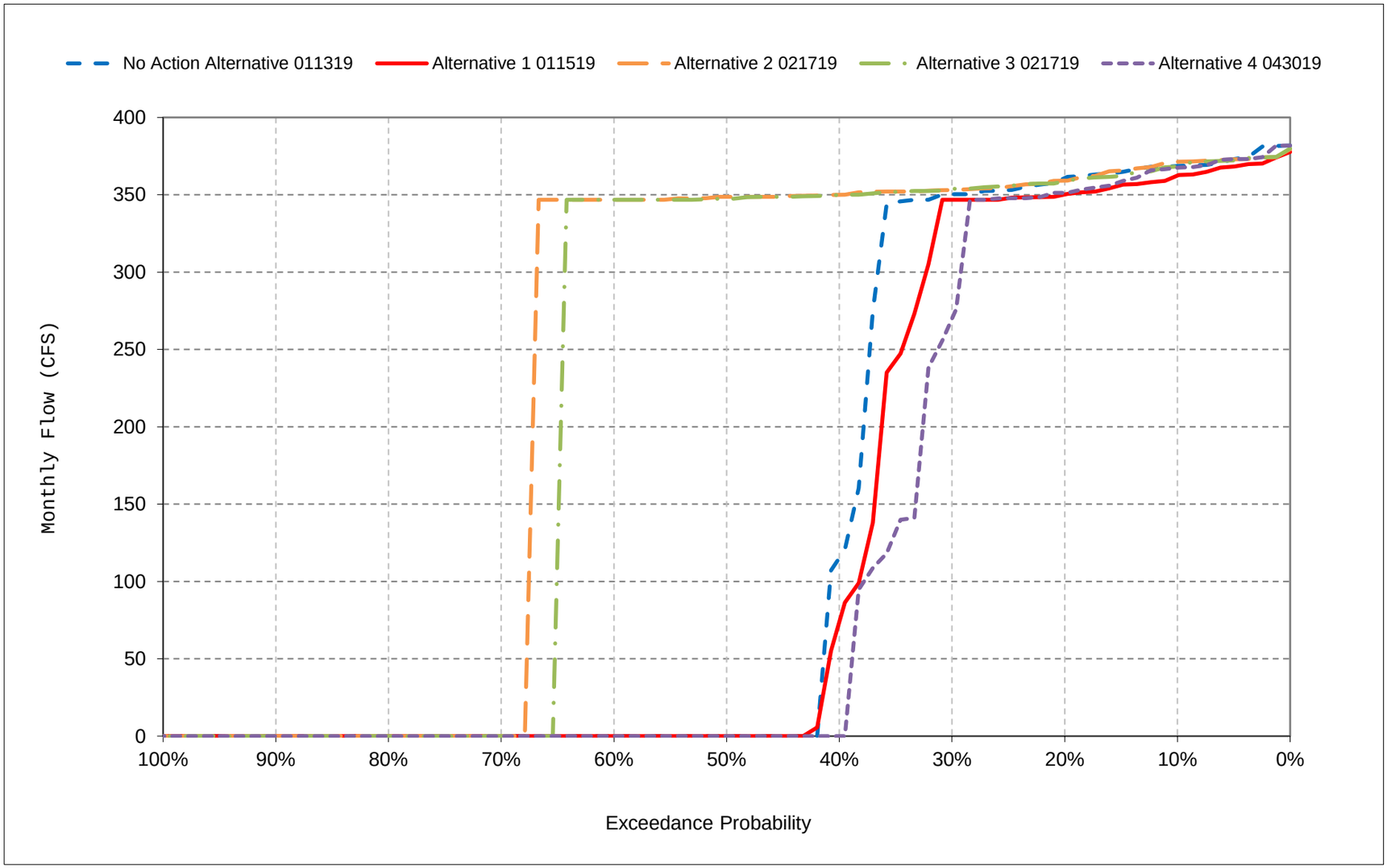
**Figure 57-10. DMC - CA Intertie Flow, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

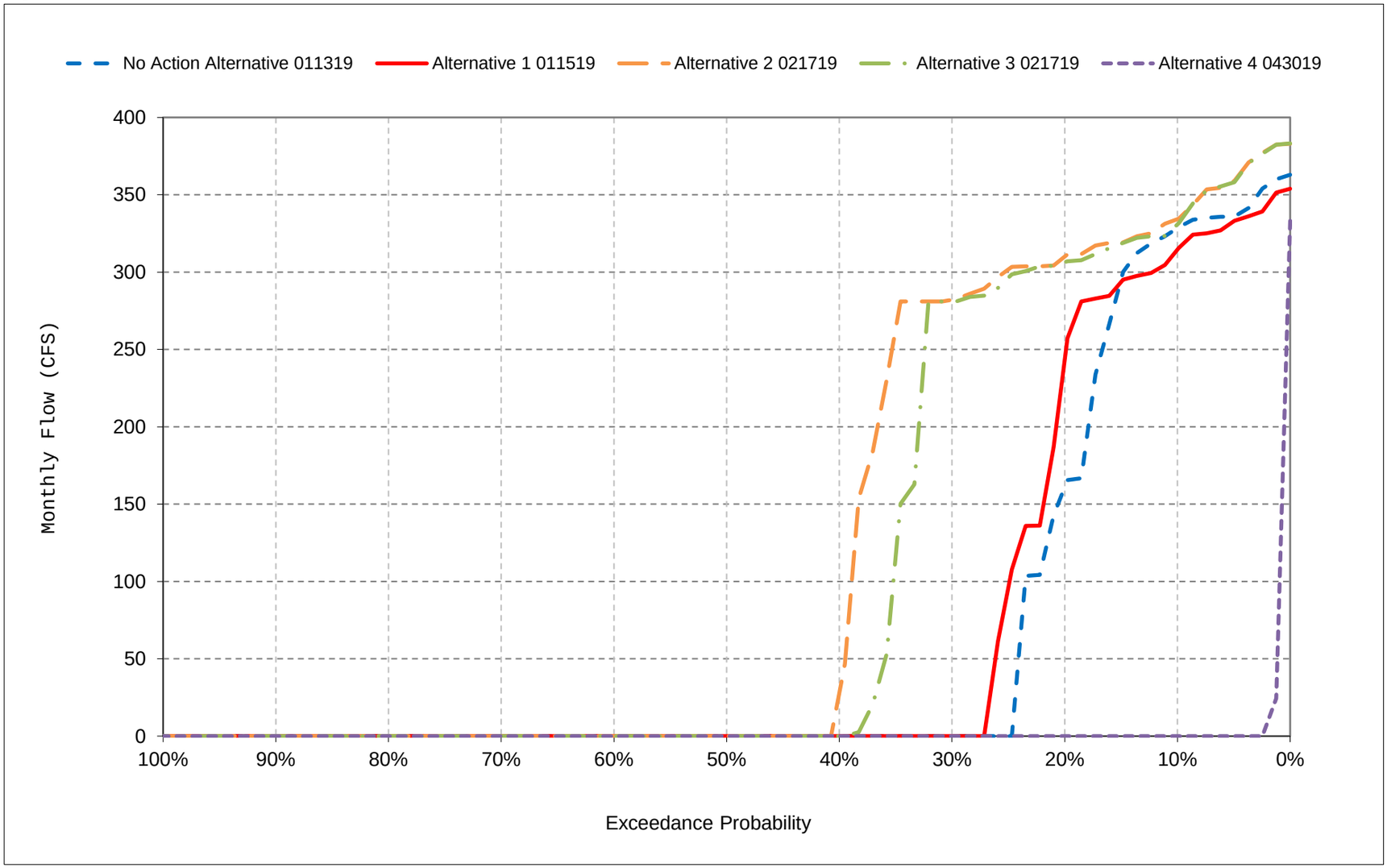
**Figure 57-11. DMC - CA Intertie Flow, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

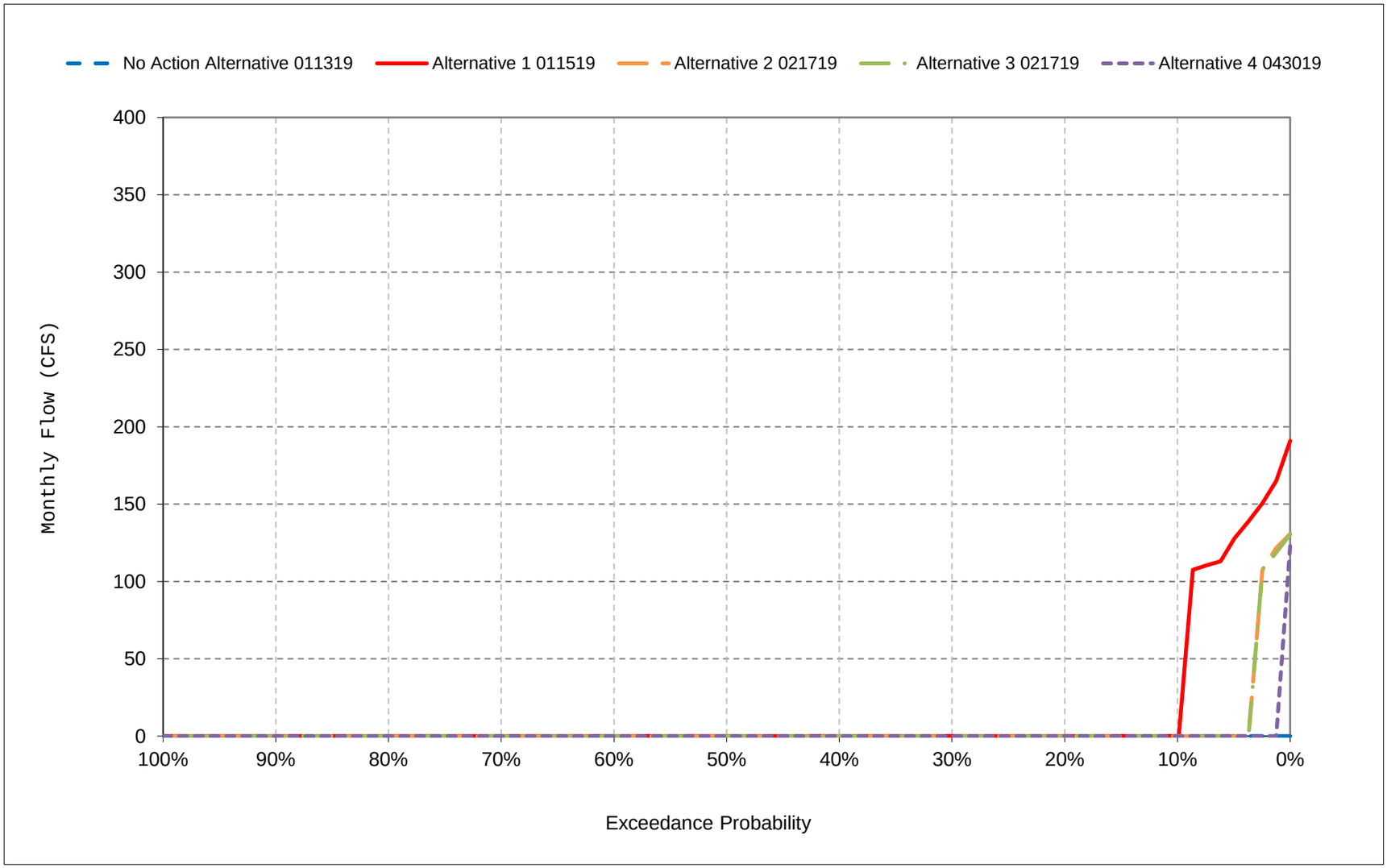
**Figure 57-12. DMC - CA Intertie Flow, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

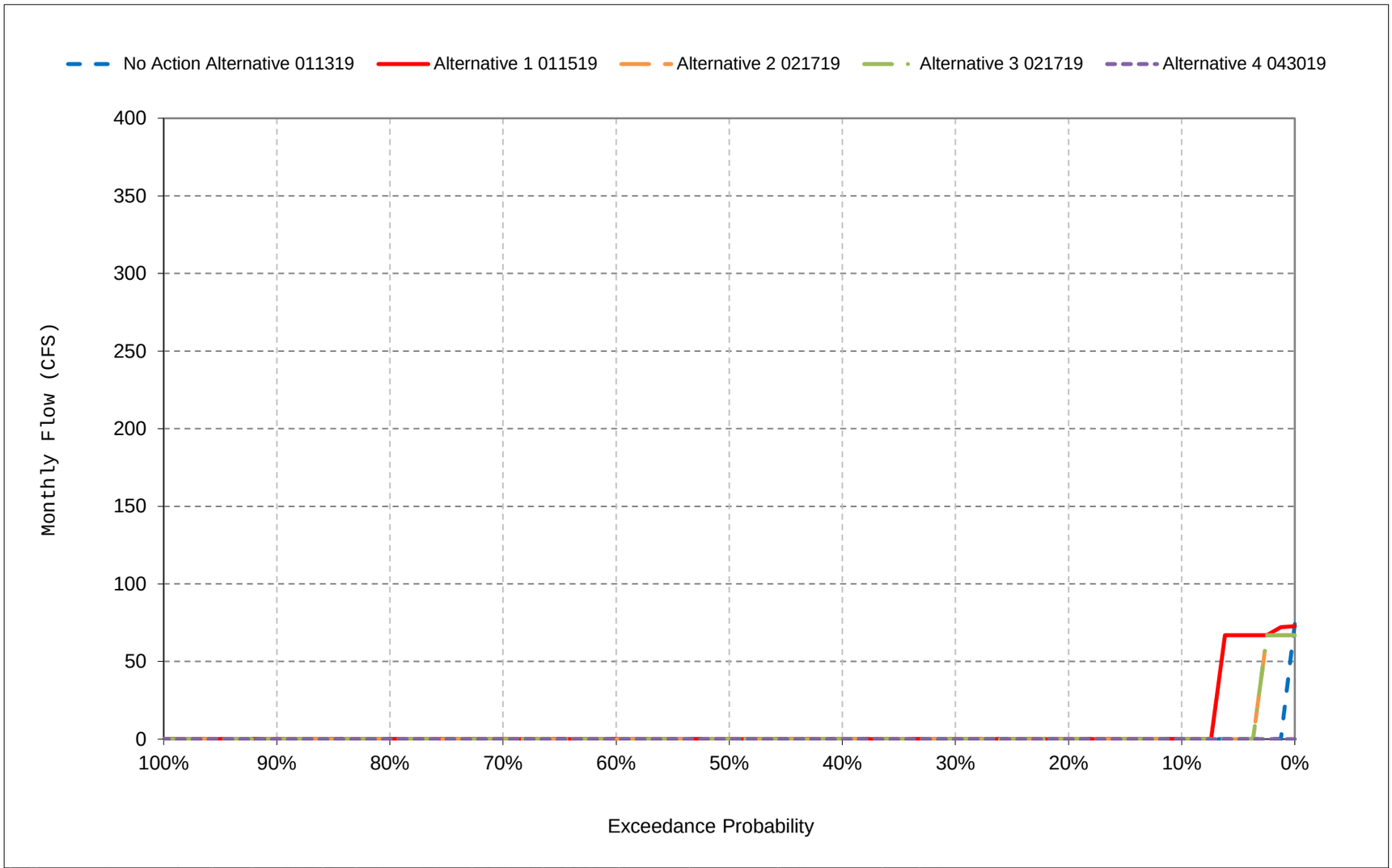
**Figure 57-13. DMC - CA Intertie Flow, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

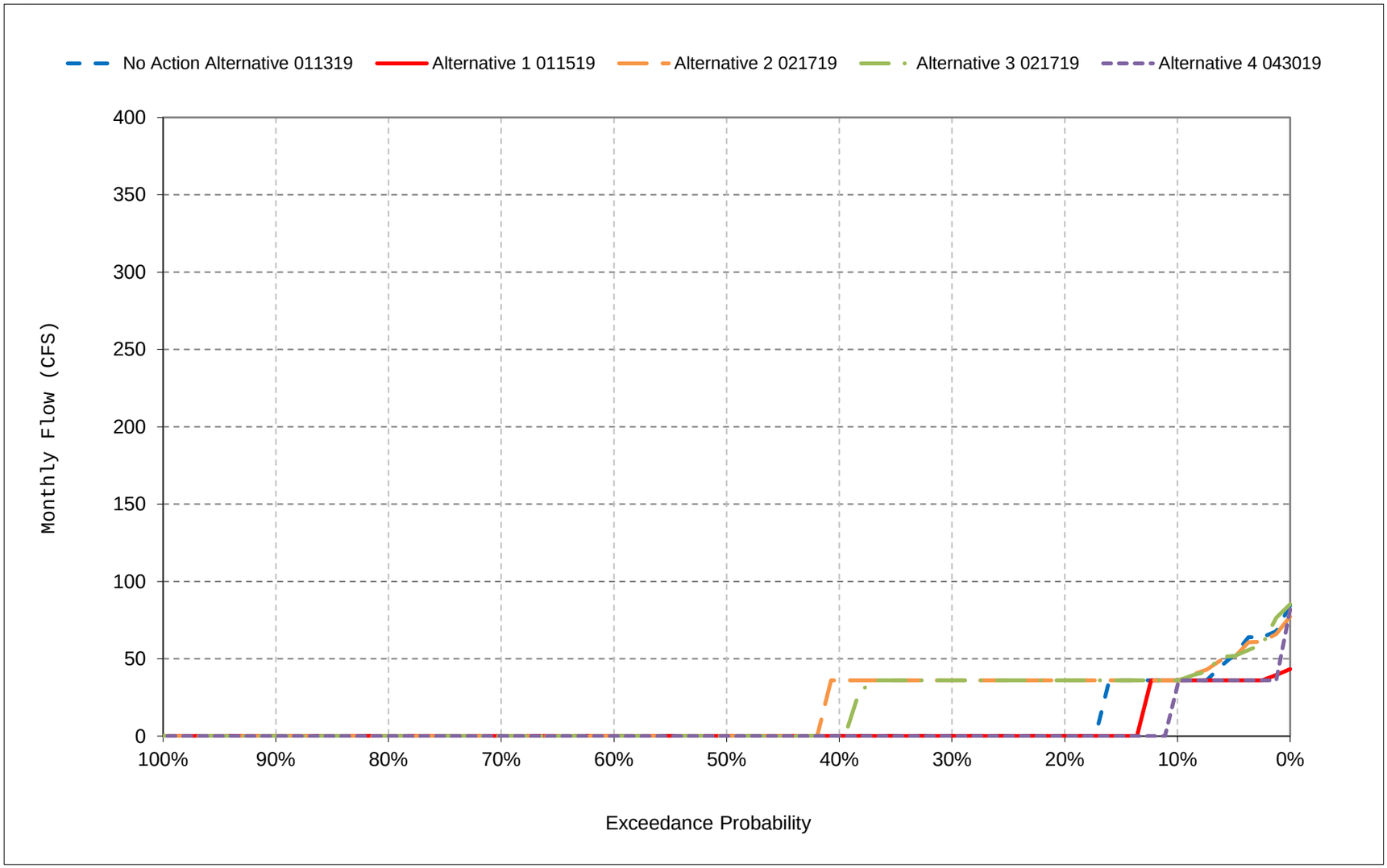
**Figure 57-14. DMC - CA Intertie Flow, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

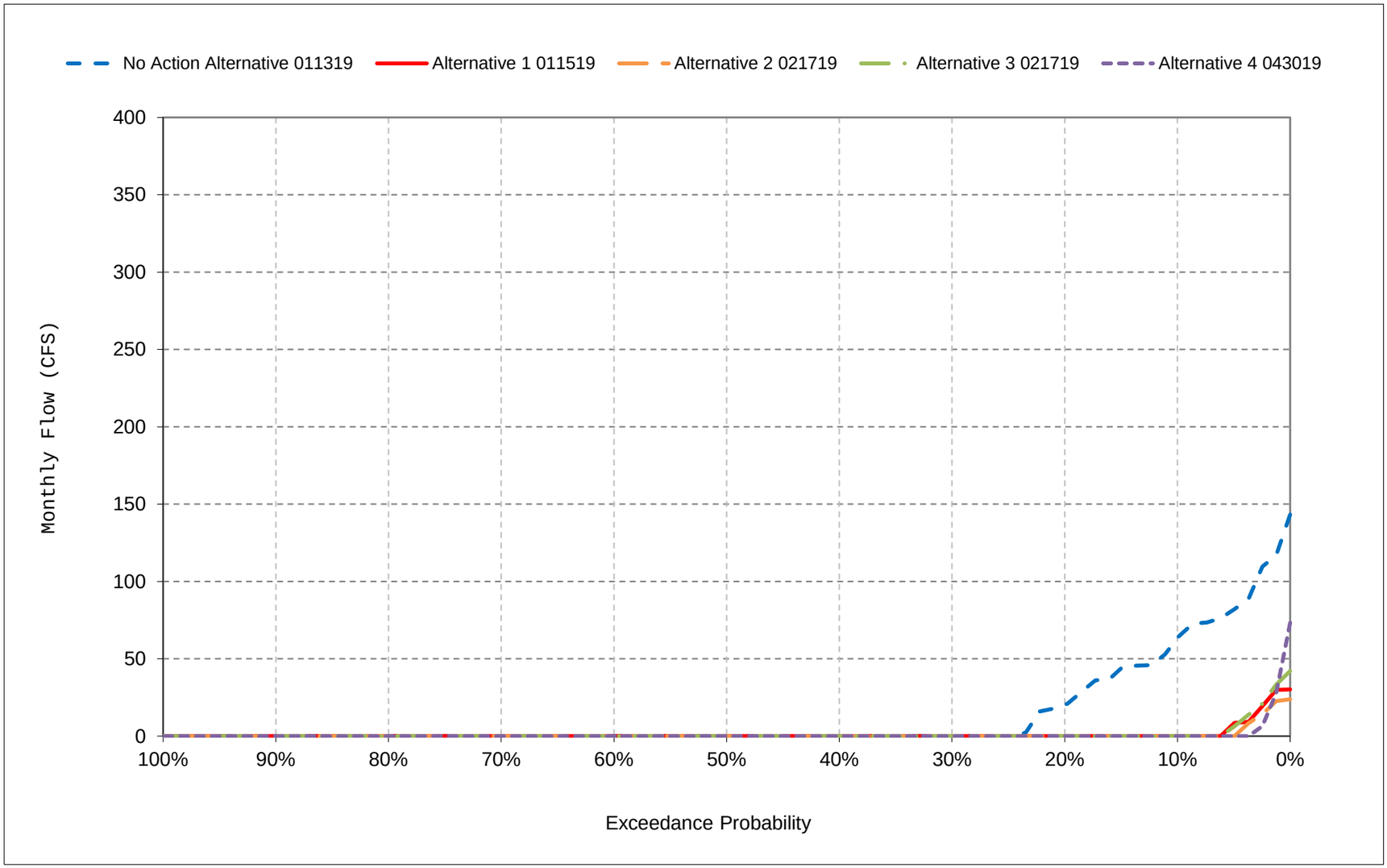
**Figure 57-15. DMC - CA Intertie Flow, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

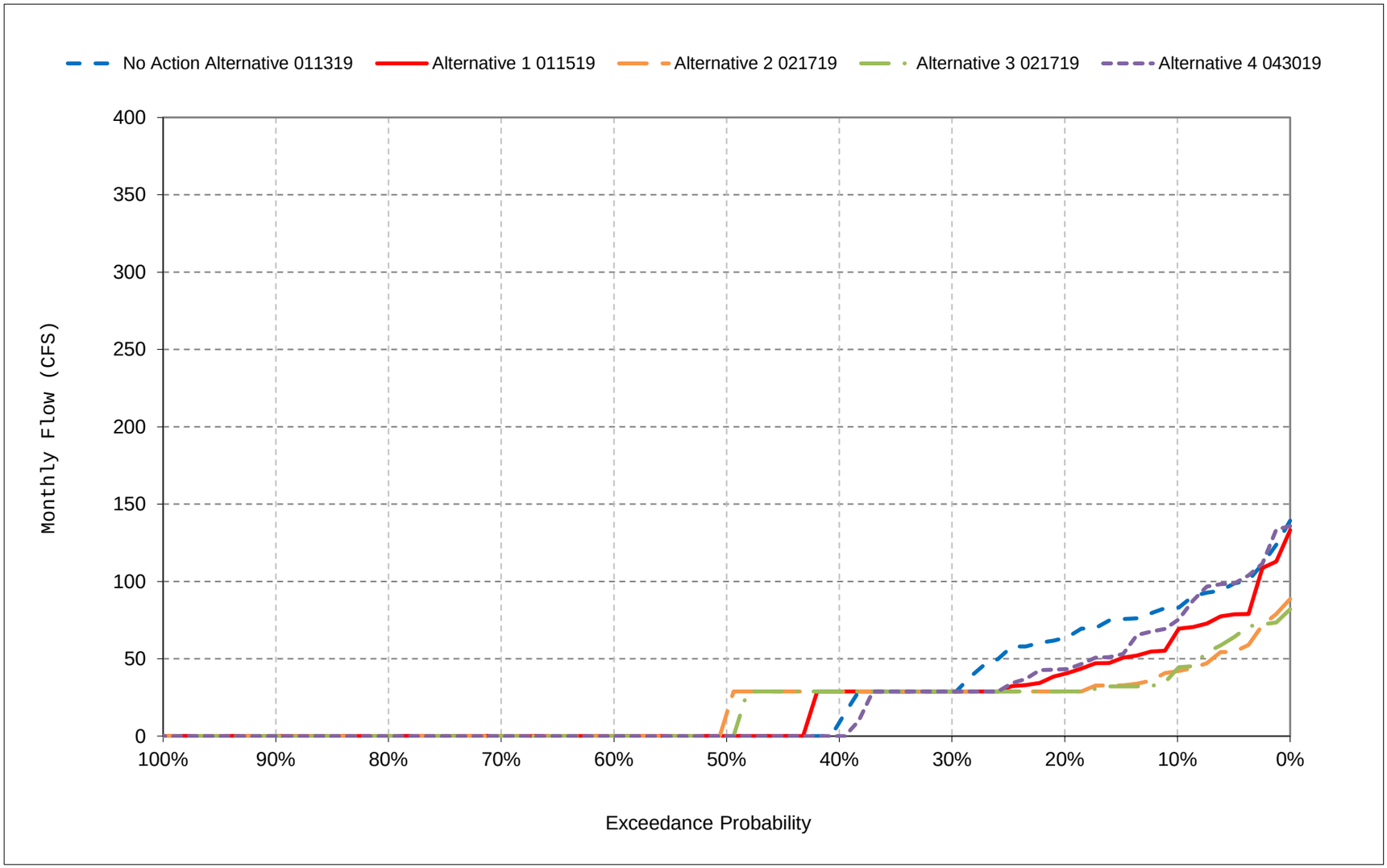
**Figure 57-16. DMC - CA Intertie Flow, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

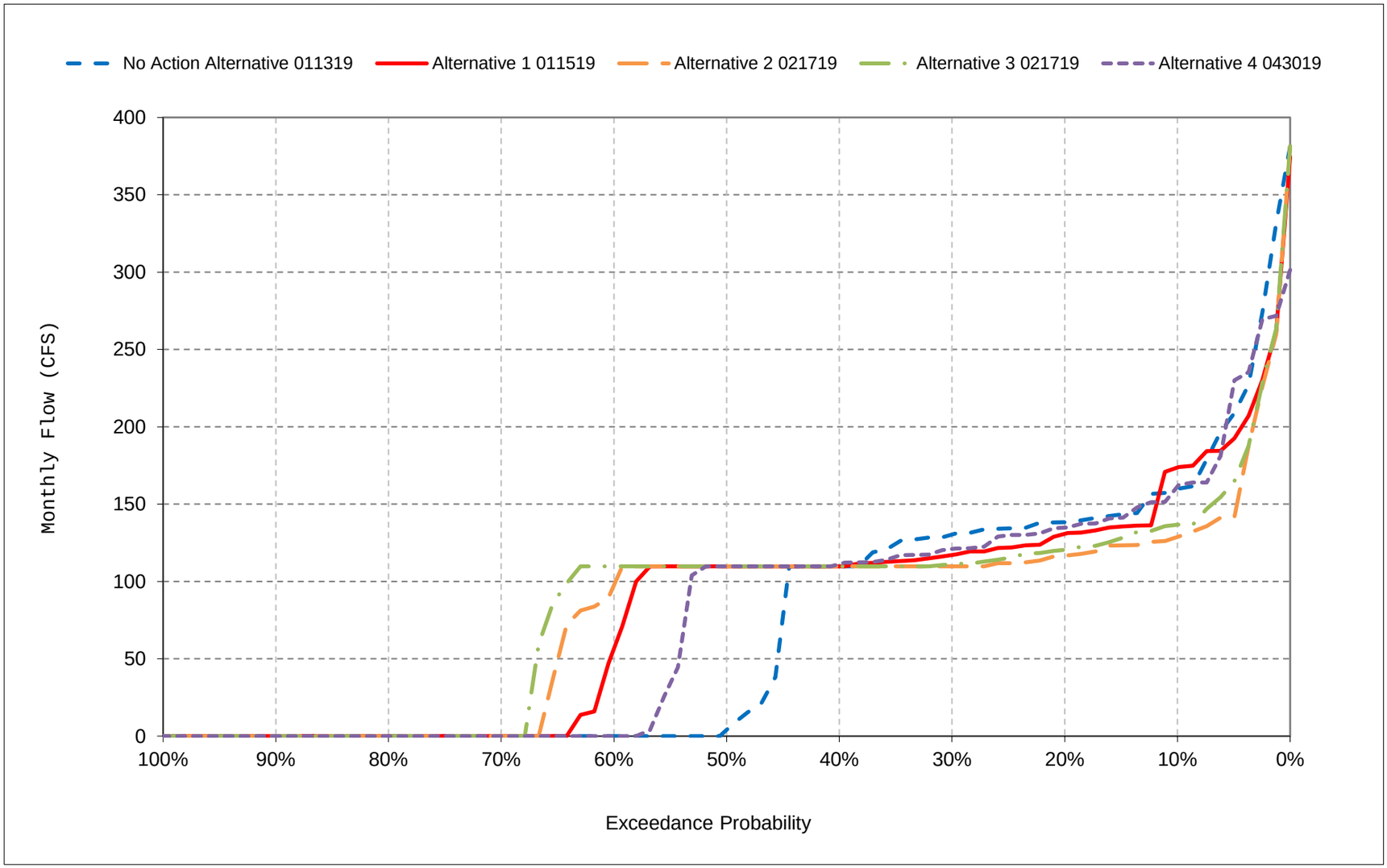
**Figure 57-17. DMC - CA Intertie Flow, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 57-18. DMC - CA Intertie Flow, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Attachment 3-4 Temperature Results (HEC-5Q)

The following results of the HEC-5Q model are included for river temperature conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Trinity River below Lewiston Dam | BLW Lewiston | to 1-4 | 1-1 to 1-18 |
| Clear Creek below Whiskeytown | Whiskeytown | to 2-4 | 2-1 to 2-18 |
| Clear Creek at Igo | IGO | 3-1 to 3-4 | 3-1 to 3-18 |
| Clear Creek at Mouth | ABV Sacramento | 4-1 to 4-4 | 4-1 to 4-18 |
| Sacramento River below Keswick | BLW Keswick | 5-1 to 5-4 | 5-1 to 5-18 |
| Sacramento River at Clear Creek | BLW Clear Creek | 6-1 to 6-4 | 6-1 to 6-18 |
| Sacramento River at Balls Ferry | Balls Ferry | 7-1 to 7-4 | 7-1 to 7-18 |
| Sacramento River at Jellys Ferry | Jellys Ferry | 8-1 to 8-4 | 8-1 to 8-18 |
| Sacramento River at Bend Bridge | Bend Bridge | 9-1 to 9-4 | 9-1 to 9-18 |
| Sacramento River at Red Bluff | Red Bluff Dam | 10-1 to 10-4 | 10-1 to 10-18 |
| Sacramento River below Red Bluff | Below_RBDD_Tehama | 11-1 to 11-4 | 11-1 to 11-18 |
| Sacramento River below Hamilton City | Hamilton City | 12-1 to 12-4 | 12-1 to 12-18 |
| Sacramento River at Delevan | Moultin Weir | 13-1 to 13-4 | 13-1 to 13-18 |
| Sacramento River at Knights Landing | Knights LDG | 14-1 to 14-4 | 14-1 to 14-18 |
| American River below Nimbus Dam | BLW Nimbus(Hazel Ave) | 15-1 to 15-4 | 15-1 to 15-18 |
| American River at Watt Avenue | Watt Ave | 16-1 to 16-4 | 16-1 to 16-18 |
| American River at the Mouth | ABV Confluence | 17-1 to 17-4 | 17-1 to 17-18 |
| Trinity River at Douglas City | Douglas_City | 18-1 to 18-4 | 18-1 to 18-18 |

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Trinity River at North Fork | At_N_Fork | 19-1 to 19-4 | 19-1 to 19-18 |
| Stanislaus River below New Melones Reservoir | BLW New Melones | 20-1 to 10-4 | 20-1 to 20-18 |
| Stanislaus River below Tulloch Reservoir | BLW Tulloch | 21-1 to 21-4 | 21-1 to 21-18 |
| Stanislaus River below Goodwin Dam | BLW Goodwin | 22-1 to 22-4 | 22-1 to 22-18 |
| Stanislaus River at Orange Blossom Bridge | BLW Orbl Br | 23-1 to 23-4 | 23-1 to 23-18 |
| Stanislaus River at Mouth | ABV Confluence | 24-1 to 24-4 | 24-1 to 24-18 |

# 1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

# Appendix F – Modeling

## Attachment 3-4 – Temperature Results (HEC5Q)

The following results of the HEC5Q model are included for river temperature conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Trinity River below Lewiston Dam | BLW LEWISTON | 1-1 to 1-4 | 1-1 to 1-18 |
| Clear Creek below Whiskeytown | WHISKEYTOWN | 2-1 to 2-4 | 2-1 to 2-18 |
| Clear Creek at Igo | IGO | 3-1 to 3-4 | 3-1 to 3-18 |
| Clear Creek at Mouth | ABV SACRAMENTO | 4-1 to 4-4 | 4-1 to 4-18 |
| Sacramento River below Keswick | BLW KESWICK | 5-1 to 5-4 | 5-1 to 5-18 |
| Sacramento River at Clear Creek | BLW CLEAR CREEK | 6-1 to 6-4 | 6-1 to 6-18 |
| Sacramento River at Balls Ferry | BALLS FERRY | 7-1 to 7-4 | 7-1 to 7-18 |
| Sacramento River at Jellys Ferry | JELLYS FERRY | 8-1 to 8-4 | 8-1 to 8-18 |
| Sacramento River at Bend Bridge | BEND BRIDGE | 9-1 to 9-4 | 9-1 to 9-18 |
| Sacramento River at Red Bluff | RED BLUFF DAM | 10-1 to 10-4 | 10-1 to 10-18 |
| Sacramento River below Red Bluff | BELOW_RBDD_TEHAMA | 11-1 to 11-4 | 11-1 to 11-18 |
| Sacramento River below Hamilton City | HAMILTON CITY | 12-1 to 12-4 | 12-1 to 12-18 |
| Sacramento River at Delevan | MOULTIN WEIR | 13-1 to 13-4 | 13-1 to 13-18 |
| Sacramento River at Knights Landing | KNIGHTS LDG | 14-1 to 14-4 | 14-1 to 14-18 |
| American River below Nimbus Dam | BLW NIMBUS(HAZEL AVE) | 15-1 to 15-4 | 15-1 to 15-18 |
| American River at Watt Avenue | WATT AVE | 16-1 to 16-4 | 16-1 to 16-18 |
| American River at the Mouth | ABV CONFLUENCE | 17-1 to 17-4 | 17-1 to 17-18 |
| Trinity River at Douglas City | DOUGLAS_CITY | 18-1 to 18-4 | 18-1 to 18-18 |
| Trinity River at North Fork | AT_N_FORK | 19-1 to 19-4 | 19-1 to 19-18 |
| Stanislaus River below New Melones Reservoir | BLW NEW MELONES | 20-1 to 10-4 | 20-1 to 20-18 |
| Stanislaus River below Tulloch Reservoir | BLW TULLOCH | 21-1 to 21-4 | 21-1 to 21-18 |
| Stanislaus River below | BLW GOODWIN | 22-1 to 22-4 | 22-1 to 22-18 |

| | | | |
|---|---|---|---|
| Goodwin Dam | | | |
| Stanislaus River at Orange Blossom Bridge | BLW ORBL BR | 23-1 to 23-4 | 23-1 to 23-18 |
| Stanislaus River at Mouth | ABV CONFLUENCE | 24-1 to 24-4 | 24-1 to 24-18 |

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

# Table 1-1. Trinity River below Lewiston Dam, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.9 | 52.9 | 51.5 | 49.7 | 50.4 | 52.4 | 52.7 | 51.0 | 55.5 | 54.5 | 54.6 | 54.6 |
| 20% | 54.4 | 51.9 | 50.5 | 49.2 | 49.6 | 51.9 | 52.2 | 49.4 | 52.3 | 53.1 | 53.2 | 53.8 |
| 30% | 53.2 | 51.4 | 50.0 | 48.4 | 48.5 | 50.9 | 52.0 | 47.8 | 51.6 | 52.1 | 52.4 | 52.6 |
| 40% | 52.5 | 50.9 | 49.5 | 47.9 | 47.8 | 49.9 | 51.5 | 47.0 | 50.9 | 51.7 | 51.9 | 51.9 |
| 50% | 51.8 | 50.6 | 49.0 | 47.6 | 47.3 | 49.5 | 51.3 | 46.2 | 50.0 | 51.5 | 51.3 | 51.3 |
| 60% | 51.0 | 50.4 | 48.3 | 47.1 | 46.7 | 48.9 | 50.8 | 45.8 | 49.1 | 51.1 | 51.0 | 50.5 |
| 70% | 50.4 | 49.5 | 47.7 | 46.3 | 46.3 | 48.3 | 50.0 | 45.3 | 48.5 | 50.9 | 50.6 | 50.1 |
| 80% | 49.8 | 49.2 | 46.4 | 45.1 | 45.3 | 47.6 | 48.8 | 45.0 | 47.1 | 50.3 | 50.3 | 49.6 |
| 90% | 49.2 | 48.7 | 45.6 | 44.0 | 44.6 | 46.3 | 47.8 | 44.5 | 45.6 | 49.7 | 49.6 | 49.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.0 | 50.5 | 48.7 | 47.3 | 47.4 | 49.4 | 50.7 | 47.0 | 50.1 | 51.9 | 51.8 | 51.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 50.0 | 49.8 | 49.0 | 46.0 | 46.1 | 47.5 | 49.1 | 45.8 | 47.7 | 50.9 | 50.8 | 49.8 |
| Above Normal (16%) | 50.5 | 50.1 | 49.0 | 46.6 | 46.7 | 49.0 | 50.3 | 45.2 | 47.7 | 50.6 | 50.2 | 50.0 |
| Below Normal (13%) | 52.7 | 50.6 | 48.3 | 48.1 | 47.3 | 49.7 | 51.6 | 47.0 | 50.5 | 51.6 | 51.6 | 51.9 |
| Dry (24%) | 53.6 | 51.1 | 47.9 | 48.1 | 48.6 | 50.8 | 51.7 | 47.9 | 51.6 | 51.9 | 52.4 | 52.8 |
| Critical (15%) | 54.5 | 51.4 | 49.9 | 49.0 | 49.3 | 51.5 | 51.8 | 50.4 | 55.4 | 55.5 | 54.8 | 55.7 |

## Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.1 | 52.8 | 51.0 | 49.6 | 50.4 | 52.3 | 52.4 | 50.8 | 55.3 | 53.9 | 54.7 | 54.7 |
| 20% | 54.4 | 52.0 | 50.4 | 48.8 | 49.3 | 51.8 | 52.2 | 49.3 | 52.8 | 52.7 | 52.7 | 53.2 |
| 30% | 53.4 | 51.4 | 49.7 | 48.1 | 48.5 | 51.0 | 51.9 | 47.8 | 51.6 | 52.0 | 52.0 | 52.4 |
| 40% | 52.2 | 50.9 | 49.0 | 47.7 | 48.0 | 49.9 | 51.5 | 47.1 | 50.7 | 51.7 | 51.5 | 52.1 |
| 50% | 51.7 | 50.7 | 48.4 | 47.4 | 47.2 | 49.4 | 51.2 | 46.2 | 50.1 | 51.4 | 51.2 | 51.4 |
| 60% | 51.1 | 50.4 | 47.9 | 47.0 | 46.7 | 48.8 | 50.8 | 45.9 | 49.1 | 51.1 | 51.0 | 51.0 |
| 70% | 50.4 | 49.4 | 47.2 | 46.3 | 46.1 | 48.3 | 50.2 | 45.4 | 48.7 | 50.6 | 50.7 | 50.4 |
| 80% | 49.6 | 49.1 | 46.3 | 45.0 | 45.3 | 47.6 | 48.9 | 45.0 | 47.1 | 50.2 | 50.2 | 49.8 |
| 90% | 49.0 | 48.0 | 45.5 | 44.1 | 44.5 | 46.3 | 47.8 | 44.6 | 45.6 | 49.6 | 49.6 | 49.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 51.6 | 50.5 | 48.5 | 47.2 | 47.3 | 49.4 | 50.6 | 47.1 | 50.2 | 51.6 | 51.8 | 51.8 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 49.9 | 49.6 | 48.0 | 46.0 | 45.9 | 47.7 | 49.3 | 45.9 | 47.7 | 50.9 | 50.8 | 50.3 |
| Above Normal (16%) | 50.8 | 49.3 | 47.9 | 46.2 | 46.3 | 48.4 | 50.3 | 45.2 | 47.9 | 50.5 | 50.2 | 50.2 |
| Below Normal (13%) | 52.4 | 50.4 | 48.7 | 47.2 | 47.3 | 49.7 | 51.7 | 47.0 | 50.3 | 51.6 | 51.5 | 51.9 |
| Dry (24%) | 53.5 | 51.1 | 48.3 | 48.0 | 48.6 | 50.6 | 51.4 | 47.9 | 51.9 | 51.7 | 52.2 | 52.5 |
| Critical (15%) | 52.1 | 52.8 | 50.1 | 49.3 | 49.6 | 51.8 | 51.6 | 50.2 | 55.0 | 54.1 | 55.3 | 55.7 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.8 | -0.1 | -0.5 | -0.2 | **0.0** | -0.1 | -0.3 | -0.2 | -0.2 | -0.6 | **0.1** | **0.1** |
| 20% | **0.0** | **0.0** | -0.1 | -0.4 | -0.3 | -0.1 | 0.0 | -0.1 | **0.4** | -0.4 | -0.5 | -0.6 |
| 30% | **0.2** | **0.0** | -0.3 | -0.3 | 0.0 | **0.1** | -0.1 | -0.1 | 0.0 | -0.1 | -0.4 | -0.2 |
| 40% | -0.3 | 0.0 | -0.5 | -0.2 | **0.1** | **0.0** | 0.0 | **0.0** | -0.2 | 0.0 | -0.4 | **0.2** |
| 50% | 0.0 | **0.0** | -0.6 | -0.1 | -0.1 | -0.1 | -0.1 | **0.0** | **0.1** | 0.0 | -0.1 | **0.2** |
| 60% | **0.1** | **0.1** | -0.4 | -0.1 | 0.0 | -0.1 | 0.0 | **0.1** | **0.1** | 0.0 | 0.0 | **0.4** |
| 70% | **0.0** | -0.1 | -0.5 | **0.0** | -0.1 | **0.0** | **0.2** | **0.0** | **0.2** | -0.3 | **0.0** | **0.3** |
| 80% | -0.3 | -0.1 | 0.0 | -0.1 | 0.0 | 0.0 | **0.1** | **0.0** | **0.0** | -0.1 | -0.1 | **0.3** |
| 90% | -0.2 | -0.7 | -0.2 | **0.1** | -0.1 | 0.0 | **0.1** | **0.0** | **0.0** | -0.1 | -0.1 | **0.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.4 | **0.0** | -0.3 | -0.2 | -0.1 | 0.0 | 0.0 | **0.0** | **0.0** | -0.3 | 0.0 | **0.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0.0 | -0.2 | -1.0 | 0.0 | -0.2 | **0.2** | **0.2** | **0.0** | **0.0** | -0.1 | 0.0 | **0.4** |
| Above Normal (16%) | **0.3** | -0.7 | -1.1 | -0.5 | -0.5 | -0.6 | 0.0 | **0.0** | **0.2** | -0.1 | **0.1** | **0.2** |
| Below Normal (13%) | -0.3 | -0.2 | **0.4** | -0.9 | 0.0 | 0.0 | **0.1** | 0.0 | -0.1 | **0.0** | -0.2 | **0.0** |
| Dry (24%) | -0.1 | **0.0** | **0.4** | -0.1 | **0.0** | -0.2 | -0.3 | **0.0** | **0.3** | -0.2 | -0.2 | -0.3 |
| Critical (15%) | -2.4 | **1.4** | **0.3** | **0.3** | **0.3** | **0.3** | -0.2 | -0.1 | -0.3 | -1.3 | **0.4** | **0.0** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 1-2. Trinity River below Lewiston Dam, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.9 | 52.9 | 51.5 | 49.7 | 50.4 | 52.4 | 52.7 | 51.0 | 55.5 | 54.5 | 54.6 | 54.6 |
| 20% | 54.4 | 51.9 | 50.5 | 49.2 | 49.6 | 51.9 | 52.2 | 49.4 | 52.3 | 53.1 | 53.2 | 53.8 |
| 30% | 53.2 | 51.4 | 50.0 | 48.4 | 48.5 | 50.9 | 52.0 | 47.8 | 51.6 | 52.1 | 52.4 | 52.6 |
| 40% | 52.5 | 50.9 | 49.5 | 47.9 | 47.8 | 49.9 | 51.5 | 47.0 | 50.9 | 51.7 | 51.9 | 51.9 |
| 50% | 51.8 | 50.6 | 49.0 | 47.6 | 47.3 | 49.5 | 51.3 | 46.2 | 50.0 | 51.5 | 51.3 | 51.3 |
| 60% | 51.0 | 50.4 | 48.3 | 47.1 | 46.7 | 48.9 | 50.8 | 45.8 | 49.1 | 51.1 | 51.0 | 50.5 |
| 70% | 50.4 | 49.5 | 47.7 | 46.3 | 46.3 | 48.3 | 50.0 | 45.3 | 48.5 | 50.9 | 50.6 | 50.1 |
| 80% | 49.8 | 49.2 | 46.4 | 45.1 | 45.3 | 47.6 | 48.8 | 45.0 | 47.1 | 50.3 | 50.3 | 49.6 |
| 90% | 49.2 | 48.7 | 45.6 | 44.0 | 44.6 | 46.3 | 47.8 | 44.5 | 45.6 | 49.7 | 49.6 | 49.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.0 | 50.5 | 48.7 | 47.3 | 47.4 | 49.4 | 50.7 | 47.0 | 50.1 | 51.9 | 51.8 | 51.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 50.0 | 49.8 | 49.0 | 46.0 | 46.1 | 47.5 | 49.1 | 45.8 | 47.7 | 50.9 | 50.8 | 49.8 |
| Above Normal (16%) | 50.5 | 50.1 | 49.0 | 46.6 | 46.7 | 49.0 | 50.3 | 45.2 | 47.7 | 50.6 | 50.2 | 50.0 |
| Below Normal (13%) | 52.7 | 50.6 | 48.3 | 48.1 | 47.3 | 49.7 | 51.6 | 47.0 | 50.5 | 51.6 | 51.6 | 51.9 |
| Dry (24%) | 53.6 | 51.1 | 47.9 | 48.1 | 48.6 | 50.8 | 51.7 | 47.9 | 51.6 | 51.9 | 52.4 | 52.8 |
| Critical (15%) | 54.5 | 51.4 | 49.9 | 49.0 | 49.3 | 51.5 | 51.8 | 50.4 | 55.4 | 55.5 | 54.8 | 55.7 |

## Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.3 | 53.6 | 51.0 | 49.6 | 50.4 | 52.2 | 52.7 | 50.7 | 55.3 | 53.8 | 54.9 | 54.8 |
| 20% | 54.7 | 52.2 | 50.6 | 48.8 | 49.4 | 51.7 | 52.2 | 49.1 | 52.3 | 52.5 | 52.8 | 53.7 |
| 30% | 53.9 | 51.8 | 49.6 | 48.2 | 48.4 | 50.8 | 51.8 | 47.7 | 51.9 | 52.0 | 52.1 | 52.6 |
| 40% | 52.8 | 51.1 | 48.6 | 47.7 | 47.9 | 49.7 | 51.4 | 47.0 | 50.6 | 51.6 | 51.7 | 52.0 |
| 50% | 52.0 | 50.8 | 47.9 | 47.3 | 47.1 | 49.3 | 51.0 | 46.2 | 49.6 | 51.3 | 51.4 | 51.5 |
| 60% | 51.0 | 50.5 | 47.6 | 46.6 | 46.5 | 48.8 | 50.7 | 45.7 | 48.9 | 50.9 | 51.0 | 50.9 |
| 70% | 50.5 | 49.7 | 46.8 | 45.9 | 46.1 | 48.2 | 50.0 | 45.3 | 48.1 | 50.3 | 50.6 | 50.4 |
| 80% | 49.7 | 49.1 | 46.0 | 44.6 | 45.4 | 47.6 | 48.8 | 45.0 | 47.0 | 50.0 | 50.0 | 50.0 |
| 90% | 49.2 | 48.4 | 45.4 | 44.1 | 44.5 | 46.3 | 47.9 | 44.6 | 45.6 | 49.6 | 49.7 | 49.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 51.8 | 50.8 | 48.2 | 47.0 | 47.3 | 49.3 | 50.6 | 47.0 | 50.0 | 51.5 | 51.7 | 52.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 49.9 | 49.6 | 47.5 | 45.9 | 45.9 | 47.7 | 49.3 | 45.8 | 47.3 | 50.7 | 50.7 | 50.3 |
| Above Normal (16%) | 50.8 | 49.9 | 48.7 | 46.3 | 46.6 | 48.8 | 50.2 | 45.2 | 47.7 | 50.3 | 50.1 | 50.3 |
| Below Normal (13%) | 52.8 | 51.1 | 48.6 | 47.0 | 47.0 | 49.4 | 51.3 | 47.0 | 50.2 | 51.2 | 51.5 | 51.7 |
| Dry (24%) | 54.1 | 51.4 | 47.7 | 47.8 | 48.6 | 50.2 | 51.4 | 47.8 | 51.6 | 51.7 | 52.3 | 52.7 |
| Critical (15%) | 52.2 | 52.9 | 49.7 | 48.9 | 49.3 | 51.8 | 51.8 | 50.0 | 55.2 | 54.7 | 55.0 | 56.2 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.6 | **0.6** | -0.5 | -0.1 | 0.0 | -0.1 | -0.1 | -0.3 | -0.2 | -0.7 | **0.3** | **0.1** |
| 20% | **0.3** | **0.3** | **0.1** | -0.5 | -0.2 | -0.2 | **0.0** | -0.3 | **0.0** | -0.6 | -0.4 | -0.1 |
| 30% | **0.7** | **0.4** | -0.3 | -0.2 | -0.1 | -0.1 | -0.2 | -0.2 | **0.2** | -0.2 | -0.3 | **0.0** |
| 40% | **0.3** | **0.1** | -0.8 | -0.2 | **0.1** | -0.1 | -0.1 | **0.0** | -0.3 | -0.1 | -0.2 | **0.1** |
| 50% | **0.2** | **0.1** | -1.1 | -0.3 | -0.1 | -0.2 | -0.3 | -0.1 | -0.4 | -0.2 | **0.0** | **0.3** |
| 60% | **0.0** | **0.1** | -0.7 | -0.5 | -0.2 | -0.1 | -0.1 | -0.1 | -0.2 | -0.3 | 0.0 | **0.4** |
| 70% | **0.2** | **0.2** | -0.9 | -0.4 | -0.2 | -0.1 | 0.0 | 0.0 | -0.5 | -0.5 | -0.1 | **0.3** |
| 80% | -0.2 | -0.1 | -0.4 | -0.5 | **0.1** | 0.0 | 0.0 | **0.0** | 0.0 | -0.3 | -0.3 | **0.4** |
| 90% | 0.0 | -0.3 | -0.2 | **0.1** | 0.0 | **0.0** | **0.2** | **0.0** | 0.0 | -0.1 | **0.0** | **0.2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.2 | **0.3** | -0.5 | -0.3 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.3 | -0.1 | **0.2** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0.0 | -0.2 | -1.5 | -0.2 | -0.2 | **0.2** | **0.2** | 0.0 | -0.3 | -0.2 | -0.1 | **0.5** |
| Above Normal (16%) | **0.3** | -0.1 | -0.3 | -0.4 | -0.2 | -0.2 | -0.1 | **0.0** | 0.0 | -0.3 | -0.1 | **0.3** |
| Below Normal (13%) | **0.1** | **0.5** | **0.3** | -1.1 | -0.3 | -0.3 | -0.3 | 0.0 | -0.3 | -0.4 | -0.1 | -0.2 |
| Dry (24%) | **0.5** | **0.3** | -0.2 | -0.3 | 0.0 | -0.6 | -0.3 | -0.1 | **0.0** | -0.3 | -0.1 | -0.1 |
| Critical (15%) | -2.3 | **1.4** | -0.1 | -0.1 | 0.0 | **0.3** | **0.1** | -0.4 | -0.2 | -0.7 | **0.2** | **0.5** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 1-3. Trinity River below Lewiston Dam, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.9 | 52.9 | 51.5 | 49.7 | 50.4 | 52.4 | 52.7 | 51.0 | 55.5 | 54.5 | 54.6 | 54.6 |
| 20% | 54.4 | 51.9 | 50.5 | 49.2 | 49.6 | 51.9 | 52.2 | 49.4 | 52.3 | 53.1 | 53.2 | 53.8 |
| 30% | 53.2 | 51.4 | 50.0 | 48.4 | 48.5 | 50.9 | 52.0 | 47.8 | 51.6 | 52.1 | 52.4 | 52.6 |
| 40% | 52.5 | 50.9 | 49.5 | 47.9 | 47.8 | 49.9 | 51.5 | 47.0 | 50.9 | 51.7 | 51.9 | 51.9 |
| 50% | 51.8 | 50.6 | 49.0 | 47.6 | 47.3 | 49.5 | 51.3 | 46.2 | 50.0 | 51.5 | 51.3 | 51.3 |
| 60% | 51.0 | 50.4 | 48.3 | 47.1 | 46.7 | 48.9 | 50.8 | 45.8 | 49.1 | 51.1 | 51.0 | 50.5 |
| 70% | 50.4 | 49.5 | 47.7 | 46.3 | 46.3 | 48.3 | 50.0 | 45.3 | 48.5 | 50.9 | 50.6 | 50.1 |
| 80% | 49.8 | 49.2 | 46.4 | 45.1 | 45.3 | 47.6 | 48.8 | 45.0 | 47.1 | 50.3 | 50.3 | 49.6 |
| 90% | 49.2 | 48.7 | 45.6 | 44.0 | 44.6 | 46.3 | 47.8 | 44.5 | 45.6 | 49.7 | 49.6 | 49.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.0 | 50.5 | 48.7 | 47.3 | 47.4 | 49.4 | 50.7 | 47.0 | 50.1 | 51.9 | 51.8 | 51.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 50.0 | 49.8 | 49.0 | 46.0 | 46.1 | 47.5 | 49.1 | 45.8 | 47.7 | 50.9 | 50.8 | 49.8 |
| Above Normal (16%) | 50.5 | 50.1 | 49.0 | 46.6 | 46.7 | 49.0 | 50.3 | 45.2 | 47.7 | 50.6 | 50.2 | 50.0 |
| Below Normal (13%) | 52.7 | 50.6 | 48.3 | 48.1 | 47.3 | 49.7 | 51.6 | 47.0 | 50.5 | 51.6 | 51.6 | 51.9 |
| Dry (24%) | 53.6 | 51.1 | 47.9 | 48.1 | 48.6 | 50.8 | 51.7 | 47.9 | 51.6 | 51.9 | 52.4 | 52.8 |
| Critical (15%) | 54.5 | 51.4 | 49.9 | 49.0 | 49.3 | 51.5 | 51.8 | 50.4 | 55.4 | 55.5 | 54.8 | 55.7 |

## Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.5 | 53.0 | 51.2 | 49.6 | 50.4 | 52.3 | 52.6 | 50.7 | 55.3 | 54.1 | 54.9 | 54.5 |
| 20% | 54.6 | 52.2 | 50.4 | 48.9 | 49.3 | 51.7 | 52.1 | 49.2 | 52.4 | 52.8 | 52.9 | 53.3 |
| 30% | 53.6 | 51.7 | 49.5 | 48.2 | 48.6 | 50.5 | 51.8 | 47.9 | 51.8 | 52.0 | 52.1 | 52.5 |
| 40% | 52.6 | 51.2 | 48.6 | 47.7 | 47.9 | 49.9 | 51.4 | 47.0 | 50.6 | 51.6 | 51.7 | 52.0 |
| 50% | 51.8 | 50.9 | 48.0 | 47.5 | 47.1 | 49.4 | 50.9 | 46.2 | 49.5 | 51.2 | 51.4 | 51.4 |
| 60% | 51.1 | 50.6 | 47.6 | 46.5 | 46.5 | 49.0 | 50.8 | 45.7 | 48.9 | 50.9 | 51.0 | 50.9 |
| 70% | 50.5 | 49.6 | 46.6 | 45.9 | 46.1 | 48.3 | 49.9 | 45.2 | 48.0 | 50.4 | 50.6 | 50.4 |
| 80% | 49.7 | 49.1 | 45.9 | 44.7 | 45.3 | 47.6 | 48.8 | 45.0 | 47.0 | 50.0 | 50.0 | 50.0 |
| 90% | 49.2 | 47.9 | 45.4 | 44.1 | 44.5 | 46.3 | 47.9 | 44.5 | 45.6 | 49.6 | 49.7 | 49.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.0 | 50.8 | 48.2 | 47.0 | 47.3 | 49.4 | 50.6 | 46.9 | 50.0 | 51.6 | 51.8 | 51.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 49.9 | 49.6 | 47.7 | 45.9 | 45.9 | 47.8 | 49.4 | 45.8 | 47.2 | 50.7 | 50.7 | 50.3 |
| Above Normal (16%) | 50.8 | 49.5 | 48.6 | 46.3 | 46.4 | 48.8 | 50.2 | 45.2 | 47.7 | 50.4 | 50.1 | 50.3 |
| Below Normal (13%) | 52.5 | 51.2 | 48.8 | 47.0 | 47.0 | 49.4 | 51.2 | 47.0 | 50.2 | 51.3 | 51.5 | 51.7 |
| Dry (24%) | 53.8 | 51.5 | 47.7 | 47.8 | 48.7 | 50.4 | 51.3 | 47.7 | 51.6 | 51.6 | 52.4 | 52.7 |
| Critical (15%) | 54.5 | 52.9 | 49.5 | 48.9 | 49.3 | 51.7 | 51.8 | 50.0 | 55.3 | 54.9 | 55.3 | 54.3 |

## Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.3 | **0.1** | -0.3 | -0.1 | 0.0 | -0.1 | -0.1 | -0.3 | -0.2 | -0.4 | **0.3** | -0.1 |
| 20% | **0.2** | **0.3** | -0.1 | -0.3 | -0.3 | -0.2 | -0.2 | -0.3 | **0.1** | -0.3 | -0.3 | -0.5 |
| 30% | **0.4** | **0.3** | -0.5 | -0.2 | **0.0** | -0.4 | -0.2 | **0.1** | **0.2** | -0.1 | -0.3 | 0.0 |
| 40% | **0.1** | **0.2** | -0.8 | -0.2 | **0.0** | 0.0 | -0.2 | **0.0** | -0.4 | -0.2 | -0.2 | **0.1** |
| 50% | **0.1** | **0.2** | -1.0 | -0.1 | -0.2 | -0.2 | -0.4 | -0.1 | -0.5 | -0.3 | **0.1** | **0.1** |
| 60% | **0.0** | **0.2** | -0.7 | -0.6 | -0.2 | **0.0** | 0.0 | -0.1 | -0.2 | -0.3 | 0.0 | **0.3** |
| 70% | **0.1** | **0.1** | -1.1 | -0.4 | -0.2 | 0.0 | -0.1 | -0.1 | -0.5 | -0.5 | -0.1 | **0.3** |
| 80% | -0.1 | -0.1 | -0.5 | -0.5 | **0.0** | 0.0 | **0.1** | **0.0** | 0.0 | -0.3 | -0.3 | **0.4** |
| 90% | 0.0 | -0.8 | -0.2 | **0.1** | -0.1 | 0.0 | **0.2** | 0.0 | 0.0 | -0.1 | **0.0** | **0.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.0** | **0.2** | -0.5 | -0.3 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.3 | 0.0 | 0.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.1 | -0.2 | -1.3 | -0.1 | -0.2 | **0.3** | **0.3** | -0.1 | -0.4 | -0.2 | -0.1 | **0.5** |
| Above Normal (16%) | **0.3** | -0.6 | -0.4 | -0.3 | -0.3 | -0.2 | -0.1 | **0.0** | 0.0 | -0.2 | -0.1 | **0.3** |
| Below Normal (13%) | -0.2 | **0.6** | **0.5** | -1.1 | -0.3 | -0.3 | -0.4 | 0.0 | -0.2 | -0.3 | -0.1 | -0.2 |
| Dry (24%) | **0.2** | **0.4** | -0.2 | -0.3 | **0.1** | -0.4 | -0.5 | -0.1 | **0.0** | -0.3 | 0.0 | -0.1 |
| Critical (15%) | -0.1 | **1.5** | -0.4 | -0.1 | **0.0** | **0.2** | **0.0** | -0.4 | -0.1 | -0.6 | **0.4** | -1.4 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 1-4. Trinity River below Lewiston Dam, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.9 | 52.9 | 51.5 | 49.7 | 50.4 | 52.4 | 52.7 | 51.0 | 55.5 | 54.5 | 54.6 | 54.6 |
| 20% | 54.4 | 51.9 | 50.5 | 49.2 | 49.6 | 51.9 | 52.2 | 49.4 | 52.3 | 53.1 | 53.2 | 53.8 |
| 30% | 53.2 | 51.4 | 50.0 | 48.4 | 48.5 | 50.9 | 52.0 | 47.8 | 51.6 | 52.1 | 52.4 | 52.6 |
| 40% | 52.5 | 50.9 | 49.5 | 47.9 | 47.8 | 49.9 | 51.5 | 47.0 | 50.9 | 51.7 | 51.9 | 51.9 |
| 50% | 51.8 | 50.6 | 49.0 | 47.6 | 47.3 | 49.5 | 51.3 | 46.2 | 50.0 | 51.5 | 51.3 | 51.3 |
| 60% | 51.0 | 50.4 | 48.3 | 47.1 | 46.7 | 48.9 | 50.8 | 45.8 | 49.1 | 51.1 | 51.0 | 50.5 |
| 70% | 50.4 | 49.5 | 47.7 | 46.3 | 46.3 | 48.3 | 50.0 | 45.3 | 48.5 | 50.9 | 50.6 | 50.1 |
| 80% | 49.8 | 49.2 | 46.4 | 45.1 | 45.3 | 47.6 | 48.8 | 45.0 | 47.1 | 50.3 | 50.3 | 49.6 |
| 90% | 49.2 | 48.7 | 45.6 | 44.0 | 44.6 | 46.3 | 47.8 | 44.5 | 45.6 | 49.7 | 49.6 | 49.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.0 | 50.5 | 48.7 | 47.3 | 47.4 | 49.4 | 50.7 | 47.0 | 50.1 | 51.9 | 51.8 | 51.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 50.0 | 49.8 | 49.0 | 46.0 | 46.1 | 47.5 | 49.1 | 45.8 | 47.7 | 50.9 | 50.8 | 49.8 |
| Above Normal (16%) | 50.5 | 50.1 | 49.0 | 46.6 | 46.7 | 49.0 | 50.3 | 45.2 | 47.7 | 50.6 | 50.2 | 50.0 |
| Below Normal (13%) | 52.7 | 50.6 | 48.3 | 48.1 | 47.3 | 49.7 | 51.6 | 47.0 | 50.5 | 51.6 | 51.6 | 51.9 |
| Dry (24%) | 53.6 | 51.1 | 47.9 | 48.1 | 48.6 | 50.8 | 51.7 | 47.9 | 51.6 | 51.9 | 52.4 | 52.8 |
| Critical (15%) | 54.5 | 51.4 | 49.9 | 49.0 | 49.3 | 51.5 | 51.8 | 50.4 | 55.4 | 55.5 | 54.8 | 55.7 |

## Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.6 | 52.6 | 51.1 | 49.8 | 50.4 | 52.3 | 52.6 | 50.8 | 55.3 | 53.8 | 54.3 | 55.2 |
| 20% | 54.5 | 51.8 | 50.3 | 49.1 | 49.4 | 51.7 | 52.1 | 49.5 | 53.1 | 52.5 | 52.7 | 53.3 |
| 30% | 53.5 | 51.2 | 49.7 | 48.4 | 48.9 | 51.1 | 52.0 | 48.1 | 51.9 | 52.0 | 52.1 | 52.5 |
| 40% | 52.4 | 51.0 | 48.9 | 47.9 | 48.4 | 50.3 | 51.7 | 47.1 | 50.8 | 51.8 | 51.6 | 52.2 |
| 50% | 51.9 | 50.6 | 48.2 | 47.4 | 48.0 | 49.4 | 51.4 | 46.3 | 50.1 | 51.5 | 51.2 | 51.4 |
| 60% | 51.0 | 49.9 | 47.8 | 46.9 | 46.8 | 48.9 | 50.8 | 45.9 | 49.3 | 51.1 | 50.9 | 51.0 |
| 70% | 50.8 | 49.4 | 46.9 | 46.2 | 46.0 | 48.2 | 49.9 | 45.4 | 48.6 | 50.6 | 50.6 | 50.5 |
| 80% | 49.8 | 49.1 | 46.0 | 45.2 | 45.3 | 47.2 | 48.8 | 45.1 | 47.1 | 50.1 | 50.2 | 49.9 |
| 90% | 49.3 | 48.0 | 45.2 | 44.1 | 44.5 | 45.6 | 47.9 | 44.6 | 45.7 | 49.6 | 49.7 | 49.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.2 | 50.4 | 48.3 | 47.2 | 47.5 | 49.4 | 50.7 | 47.1 | 50.3 | 51.5 | 51.6 | 51.8 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 50.2 | 49.5 | 47.7 | 45.8 | 45.9 | 47.5 | 49.1 | 45.9 | 47.8 | 50.8 | 50.7 | 50.6 |
| Above Normal (16%) | 50.7 | 49.7 | 48.0 | 46.3 | 46.3 | 48.2 | 49.9 | 45.3 | 47.7 | 50.5 | 50.2 | 50.2 |
| Below Normal (13%) | 52.5 | 50.3 | 48.3 | 47.3 | 47.5 | 49.9 | 51.8 | 47.0 | 50.7 | 51.2 | 51.7 | 51.9 |
| Dry (24%) | 53.3 | 51.1 | 48.2 | 48.3 | 49.0 | 50.7 | 51.8 | 47.9 | 52.0 | 51.8 | 52.1 | 52.4 |
| Critical (15%) | 56.0 | 52.3 | 50.2 | 49.5 | 49.7 | 51.8 | 51.9 | 50.3 | 55.0 | 54.1 | 54.3 | 55.2 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.3 | -0.4 | -0.4 | **0.1** | 0.0 | -0.1 | -0.1 | -0.2 | -0.3 | -0.7 | -0.4 | **0.6** |
| 20% | **0.1** | -0.2 | -0.2 | -0.1 | -0.2 | -0.2 | -0.1 | **0.1** | **0.8** | -0.5 | -0.5 | -0.4 |
| 30% | **0.3** | -0.2 | -0.3 | -0.1 | **0.4** | **0.2** | 0.0 | **0.3** | **0.2** | -0.1 | -0.3 | 0.0 |
| 40% | -0.1 | **0.0** | -0.5 | -0.1 | **0.5** | **0.4** | **0.1** | **0.1** | -0.1 | **0.0** | -0.3 | **0.3** |
| 50% | **0.1** | 0.0 | -0.8 | -0.1 | **0.7** | -0.1 | **0.1** | **0.0** | **0.1** | **0.0** | -0.2 | **0.1** |
| 60% | **0.0** | -0.5 | -0.5 | -0.2 | **0.1** | 0.0 | **0.1** | **0.1** | **0.3** | 0.0 | -0.1 | **0.5** |
| 70% | **0.5** | -0.1 | -0.8 | -0.1 | -0.3 | -0.1 | -0.1 | **0.1** | **0.1** | -0.3 | 0.0 | **0.4** |
| 80% | **0.0** | -0.1 | -0.4 | **0.1** | 0.0 | -0.4 | **0.0** | **0.1** | **0.1** | -0.2 | -0.1 | **0.3** |
| 90% | **0.1** | -0.7 | -0.4 | **0.0** | -0.1 | -0.7 | **0.2** | **0.1** | **0.1** | -0.1 | **0.1** | **0.2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.2** | -0.1 | -0.4 | -0.1 | **0.1** | -0.1 | **0.0** | **0.1** | **0.1** | -0.3 | -0.2 | **0.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.2** | -0.3 | -1.3 | -0.2 | -0.1 | 0.0 | 0.0 | **0.1** | **0.1** | -0.1 | -0.2 | **0.8** |
| Above Normal (16%) | **0.2** | -0.4 | -0.9 | -0.3 | -0.4 | -0.8 | -0.4 | **0.1** | **0.0** | -0.1 | **0.1** | **0.2** |
| Below Normal (13%) | -0.2 | -0.3 | 0.0 | -0.8 | **0.2** | **0.1** | **0.2** | **0.1** | **0.2** | -0.4 | **0.1** | 0.0 |
| Dry (24%) | -0.4 | -0.1 | **0.3** | **0.2** | **0.4** | 0.0 | **0.1** | **0.1** | **0.5** | -0.1 | -0.3 | -0.4 |
| Critical (15%) | **1.5** | **0.8** | **0.3** | **0.5** | **0.4** | **0.3** | **0.1** | 0.0 | -0.3 | -1.4 | -0.5 | -0.5 |

a Based on the 82-year simulation period.

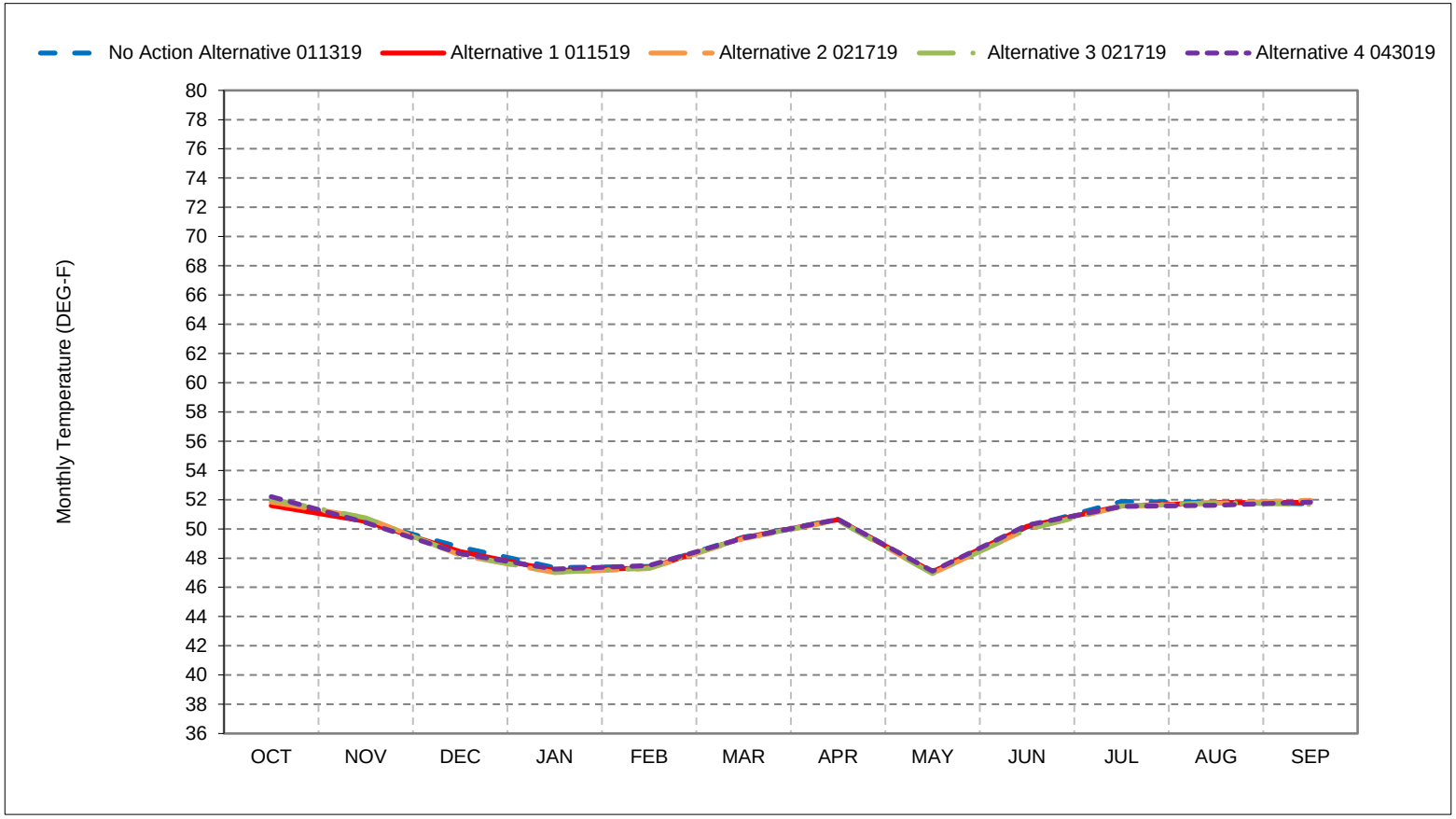
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

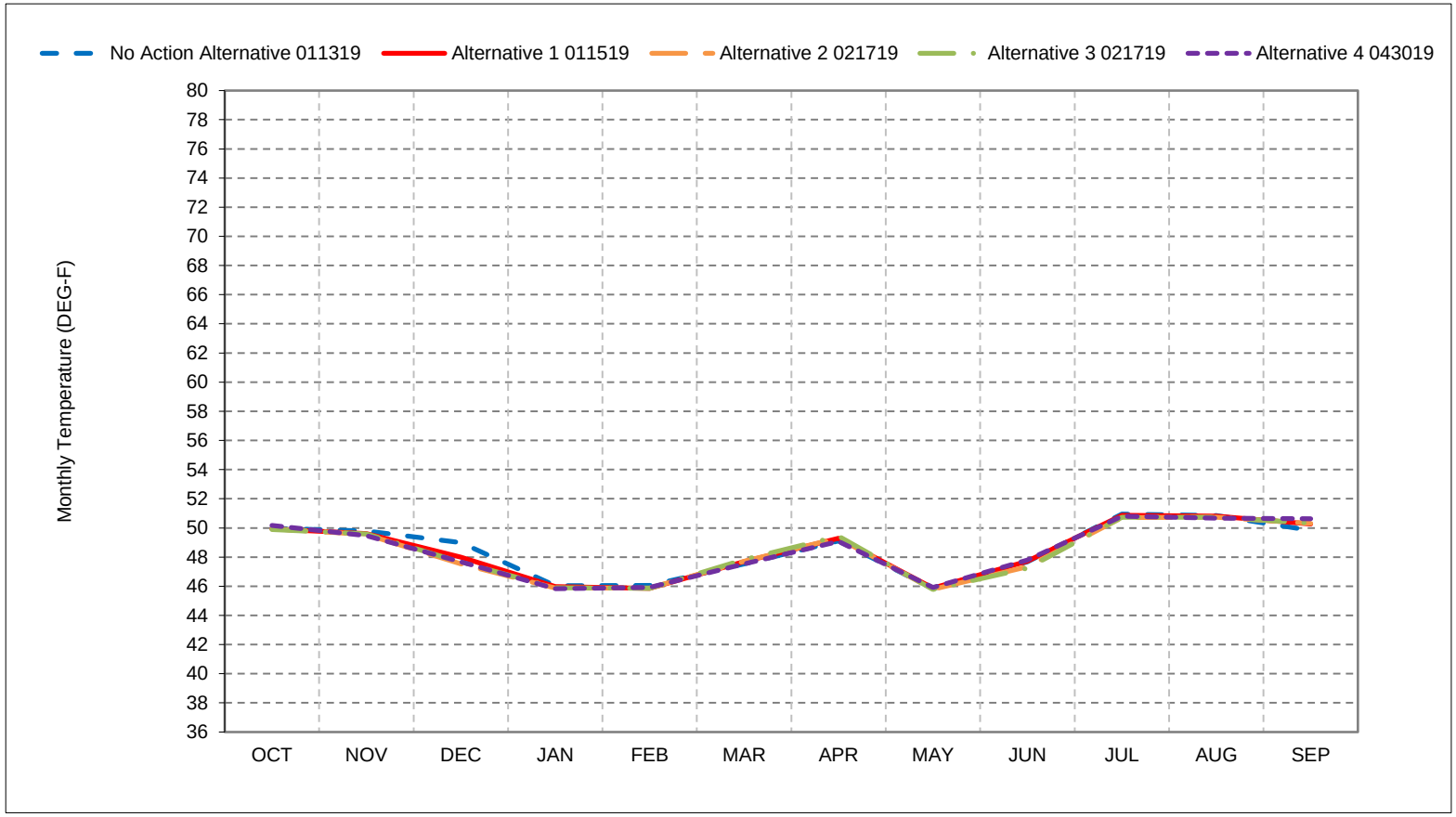
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-1. Trinity River below Lewiston Dam, Long-Term Average Temperature



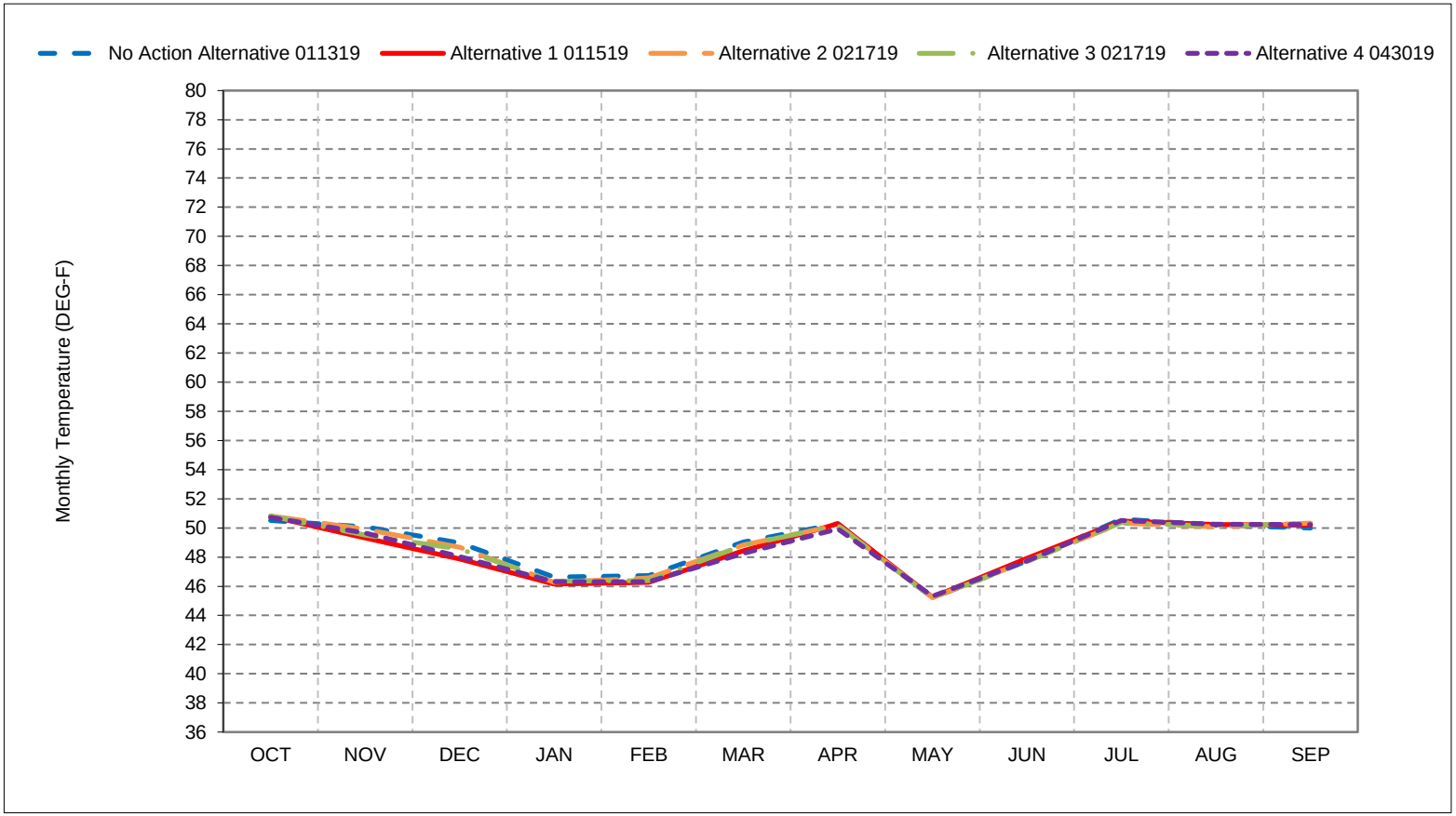

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-2. Trinity River below Lewiston Dam, Wet Year Average Temperature



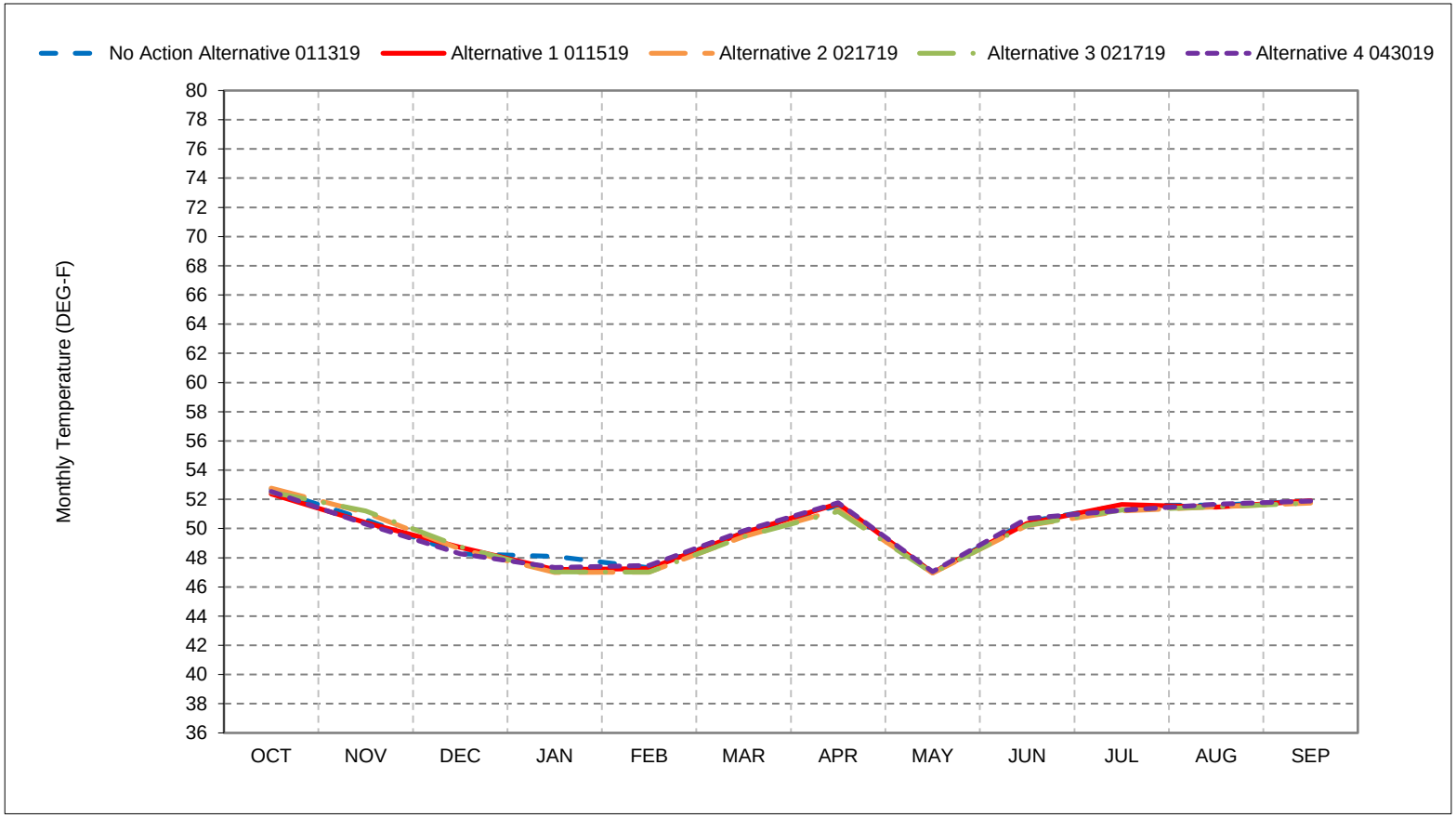

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-3. Trinity River below Lewiston Dam, Above Normal Year Average Temperature



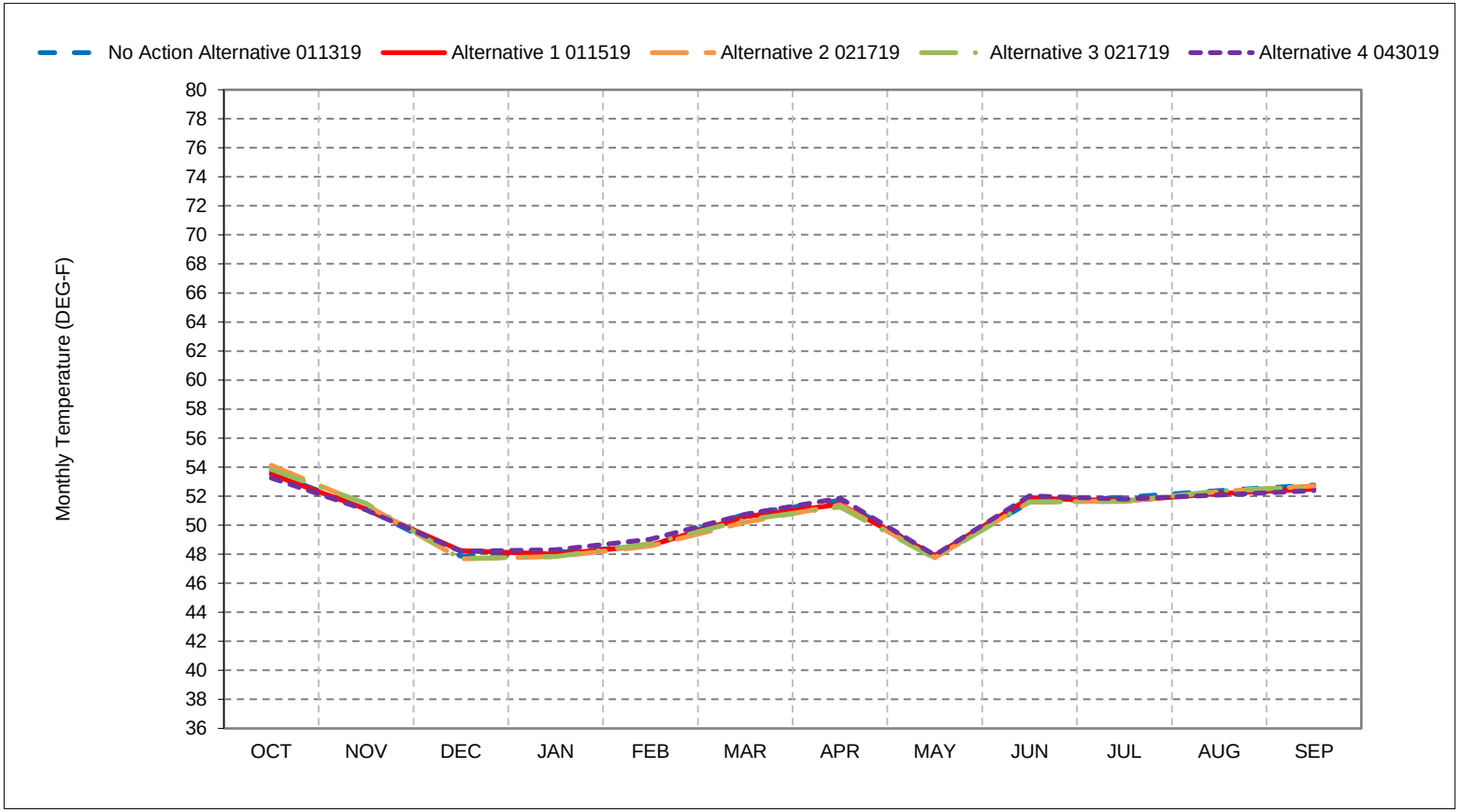

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-4. Trinity River below Lewiston Dam, Below Normal Year Average Temperature



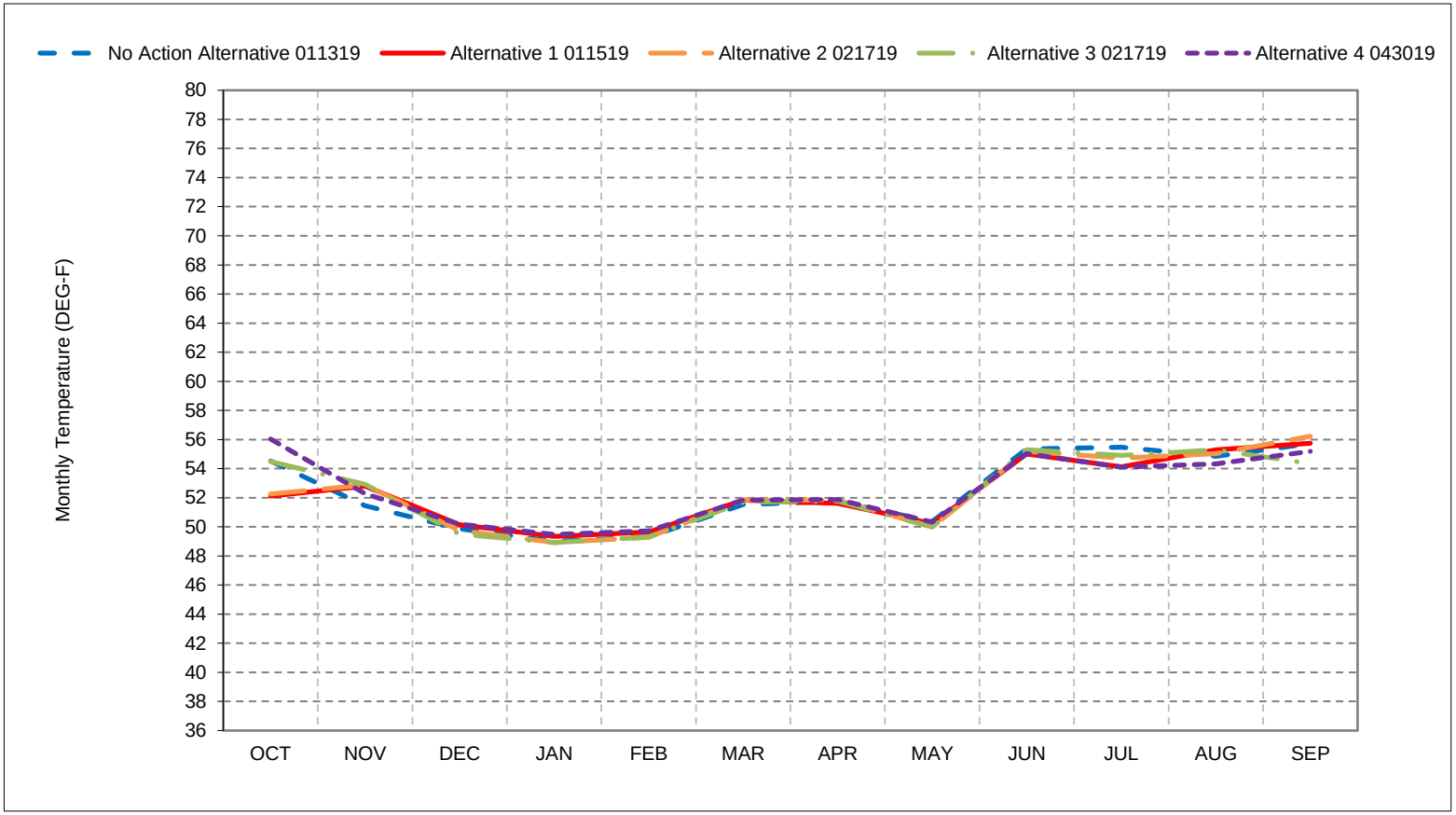

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-5. Trinity River below Lewiston Dam, Dry Year Average Temperature



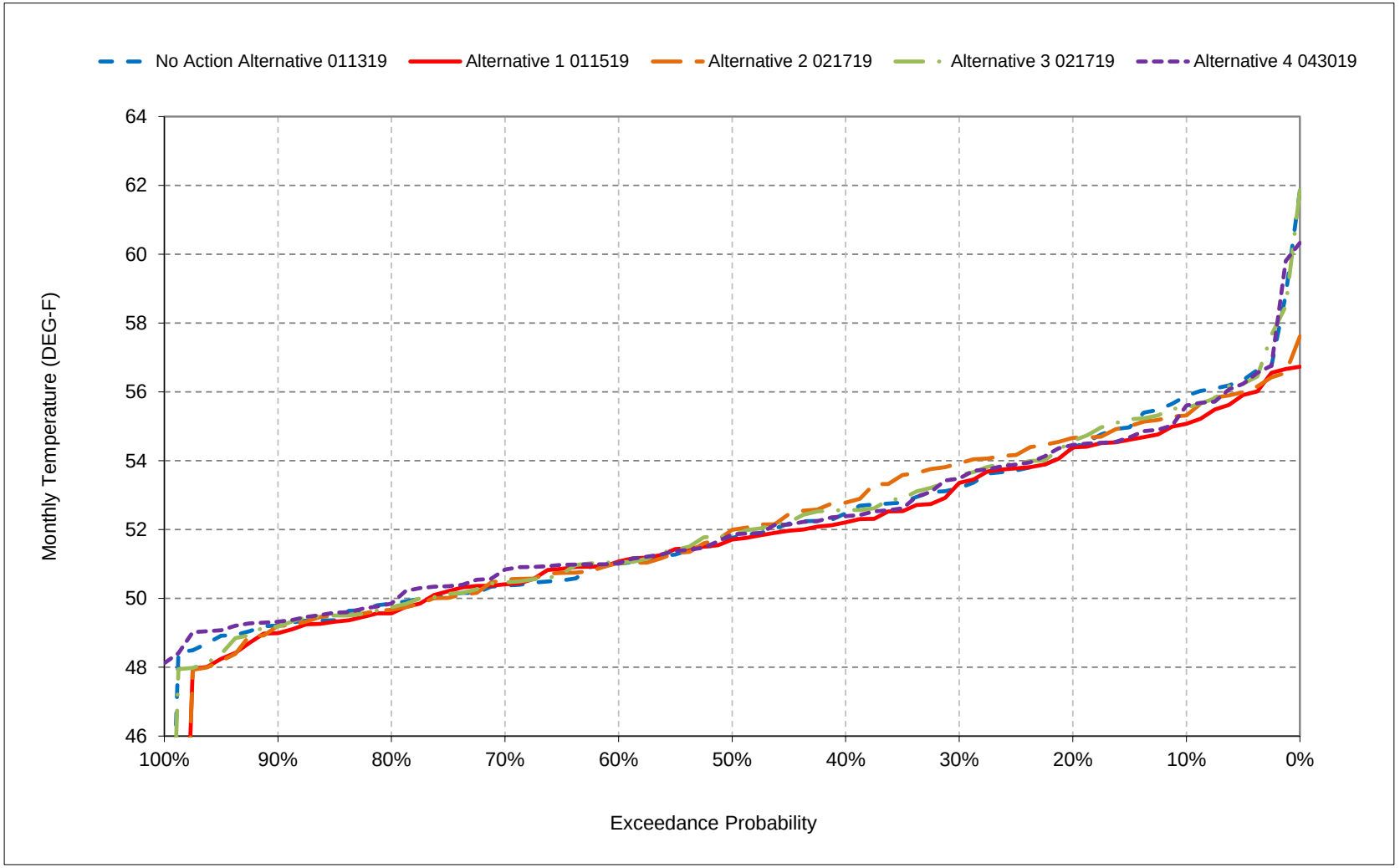

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-6. Trinity River below Lewiston Dam, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

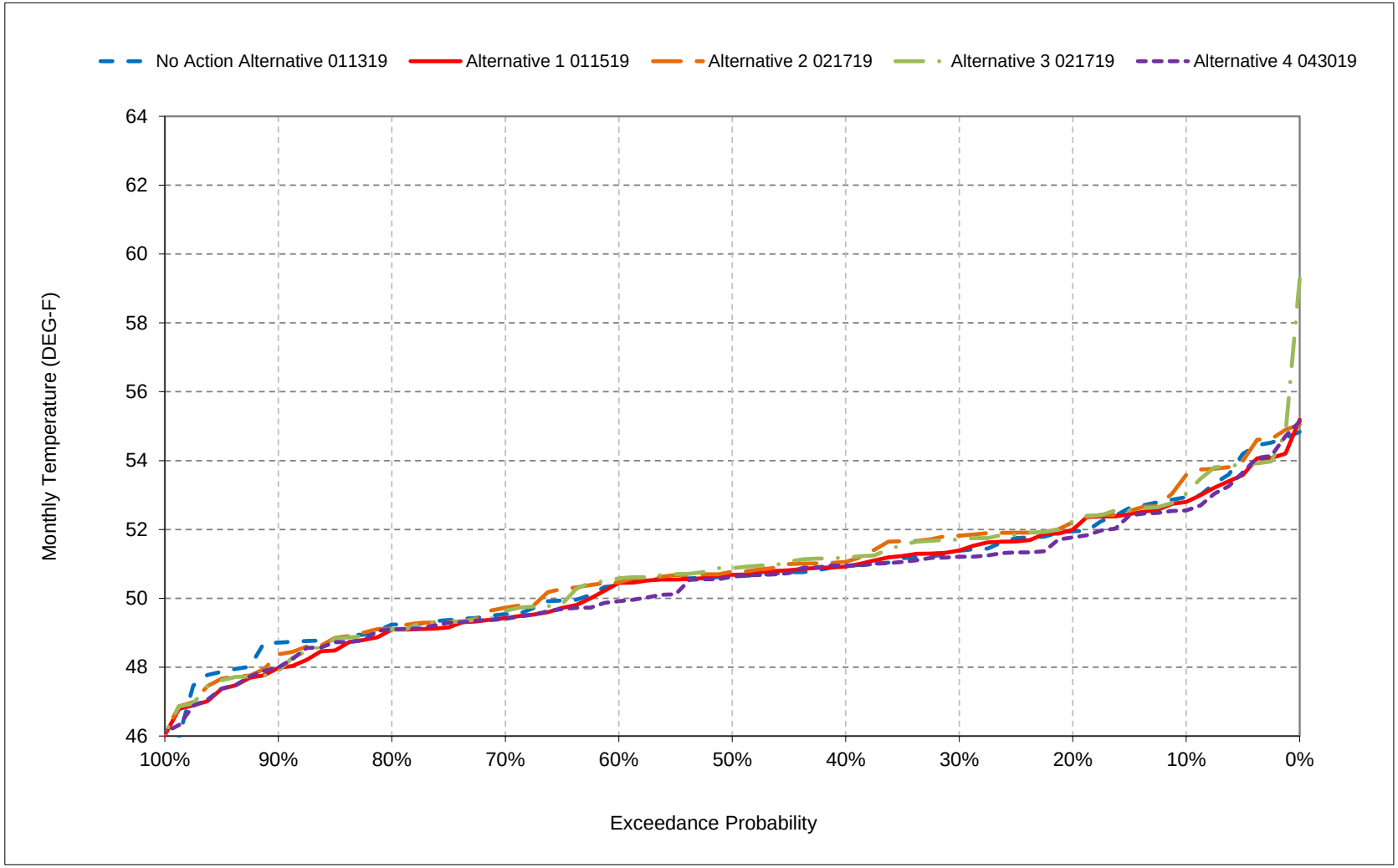
**Figure 1-7. Trinity River below Lewiston Dam, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

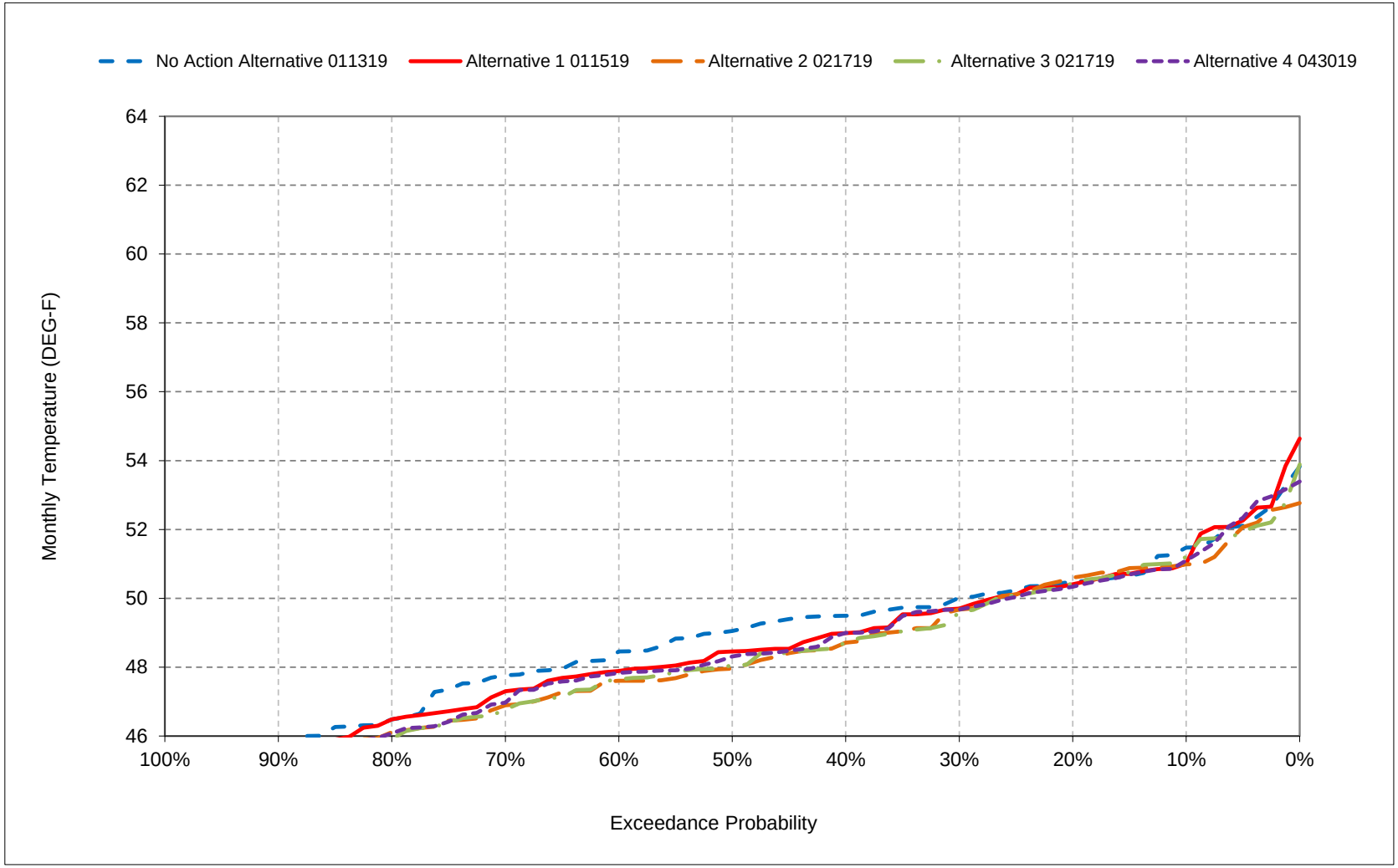
**Figure 1-8. Trinity River below Lewiston Dam, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

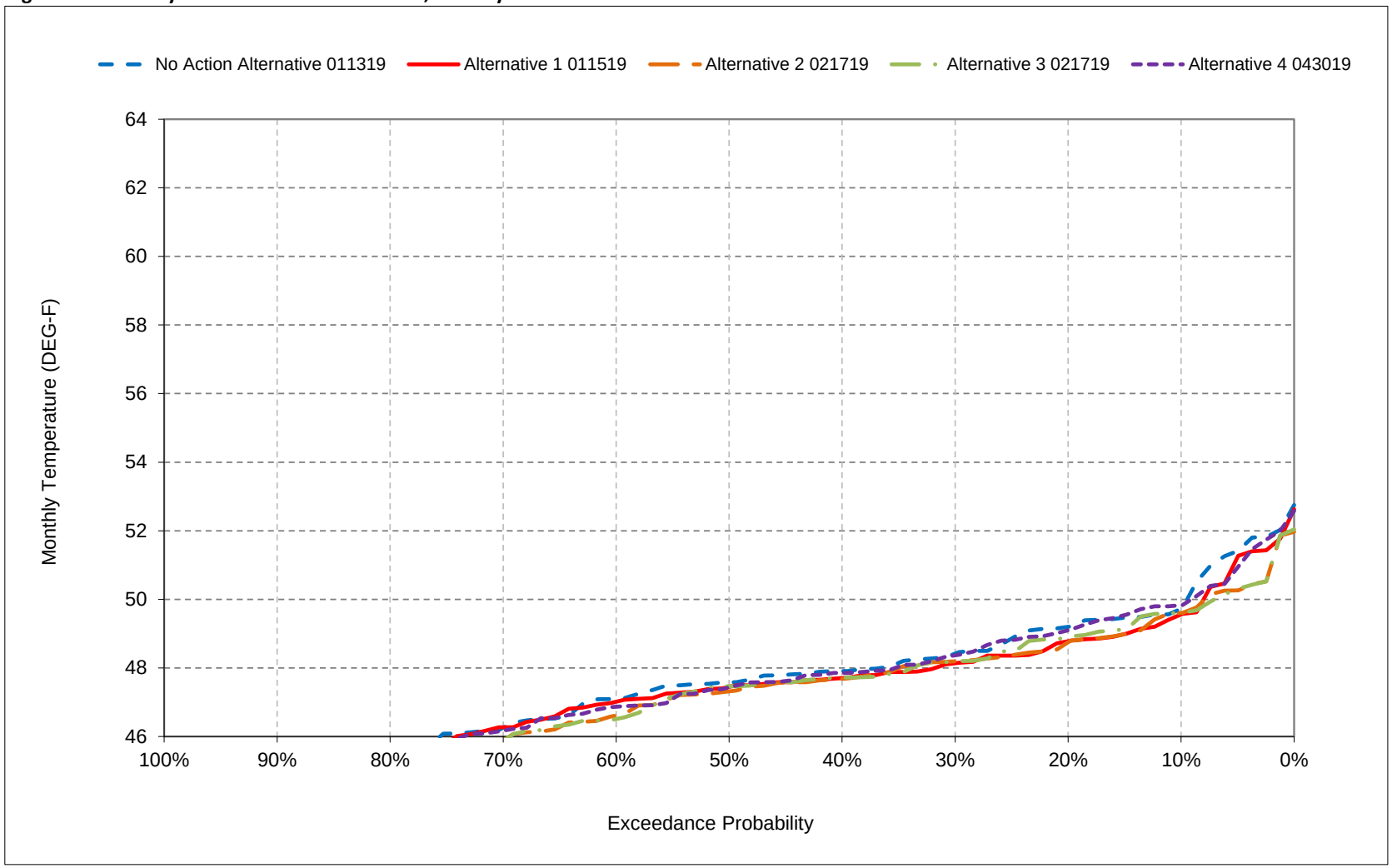
**Figure 1-9. Trinity River below Lewiston Dam, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

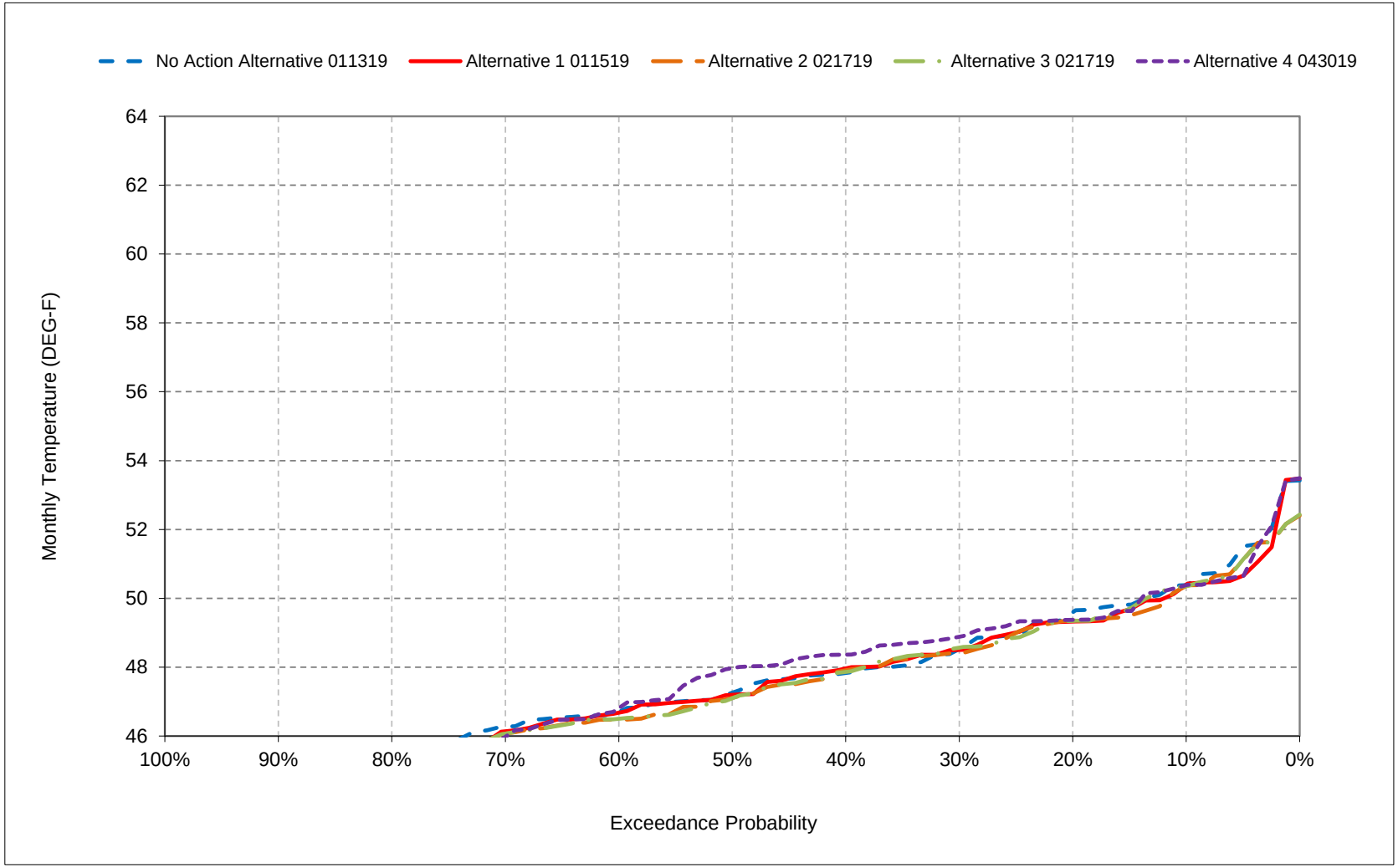
**Figure 1-10. Trinity River below Lewiston Dam, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

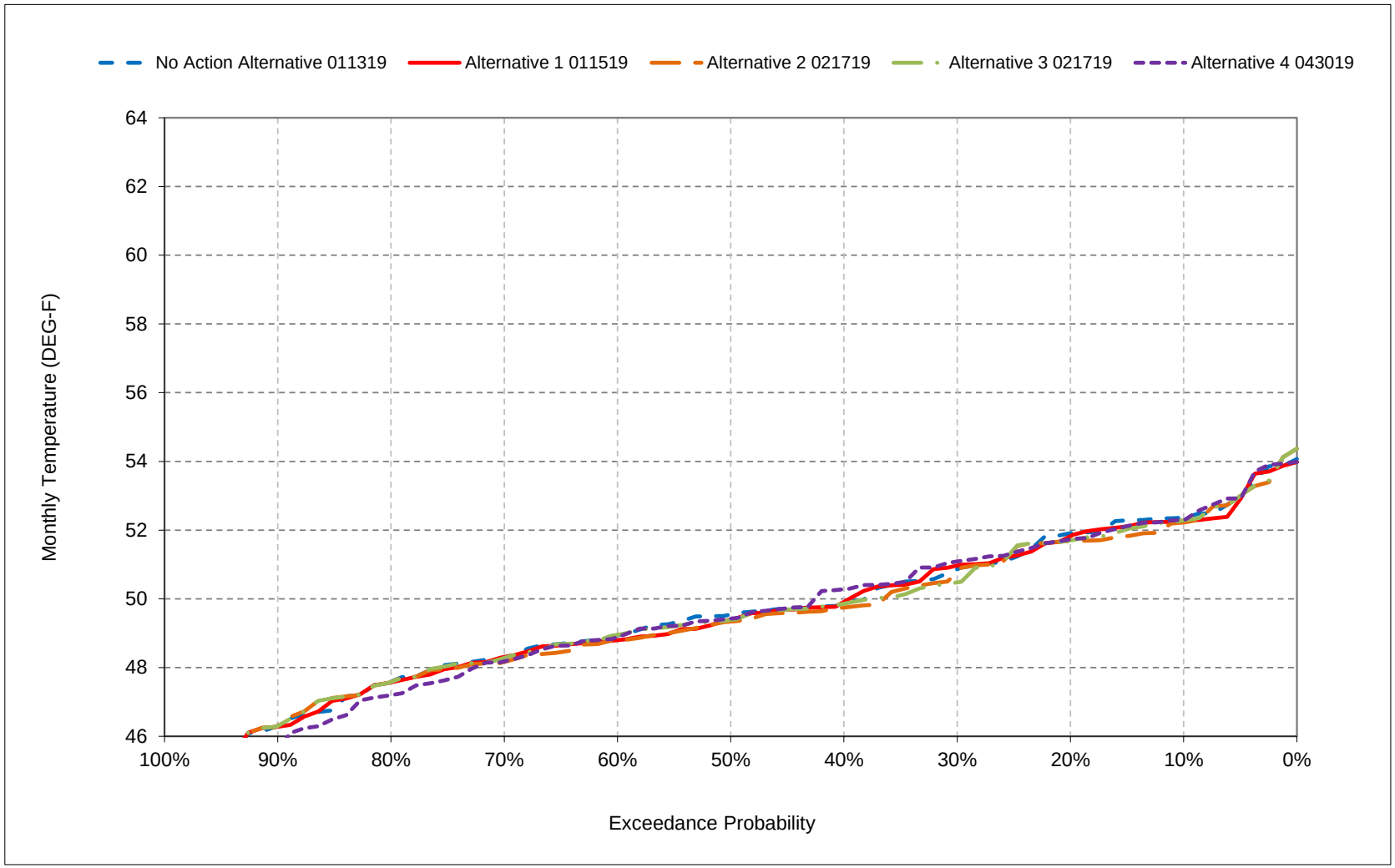
**Figure 1-11. Trinity River below Lewiston Dam, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

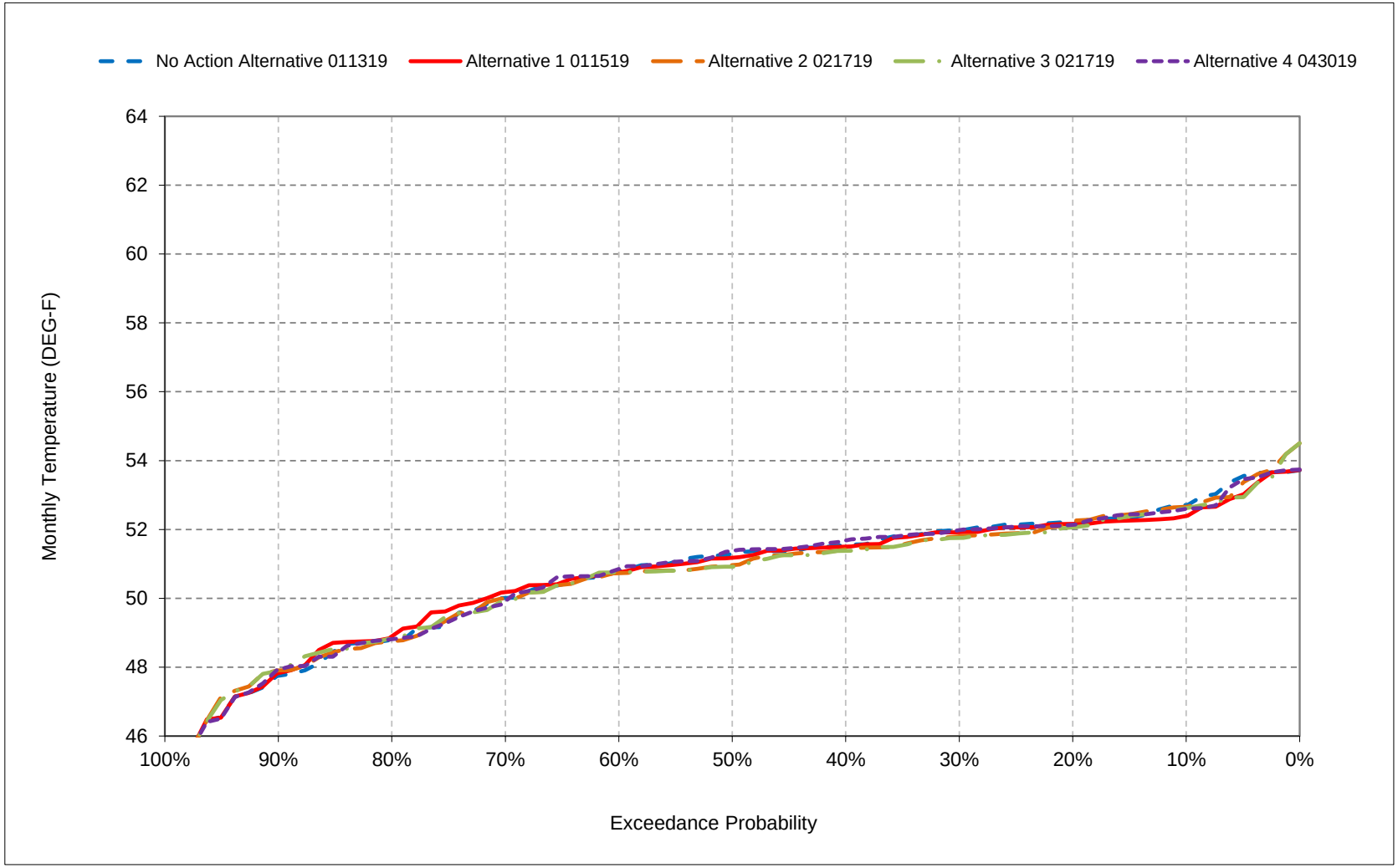
**Figure 1-12. Trinity River below Lewiston Dam, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

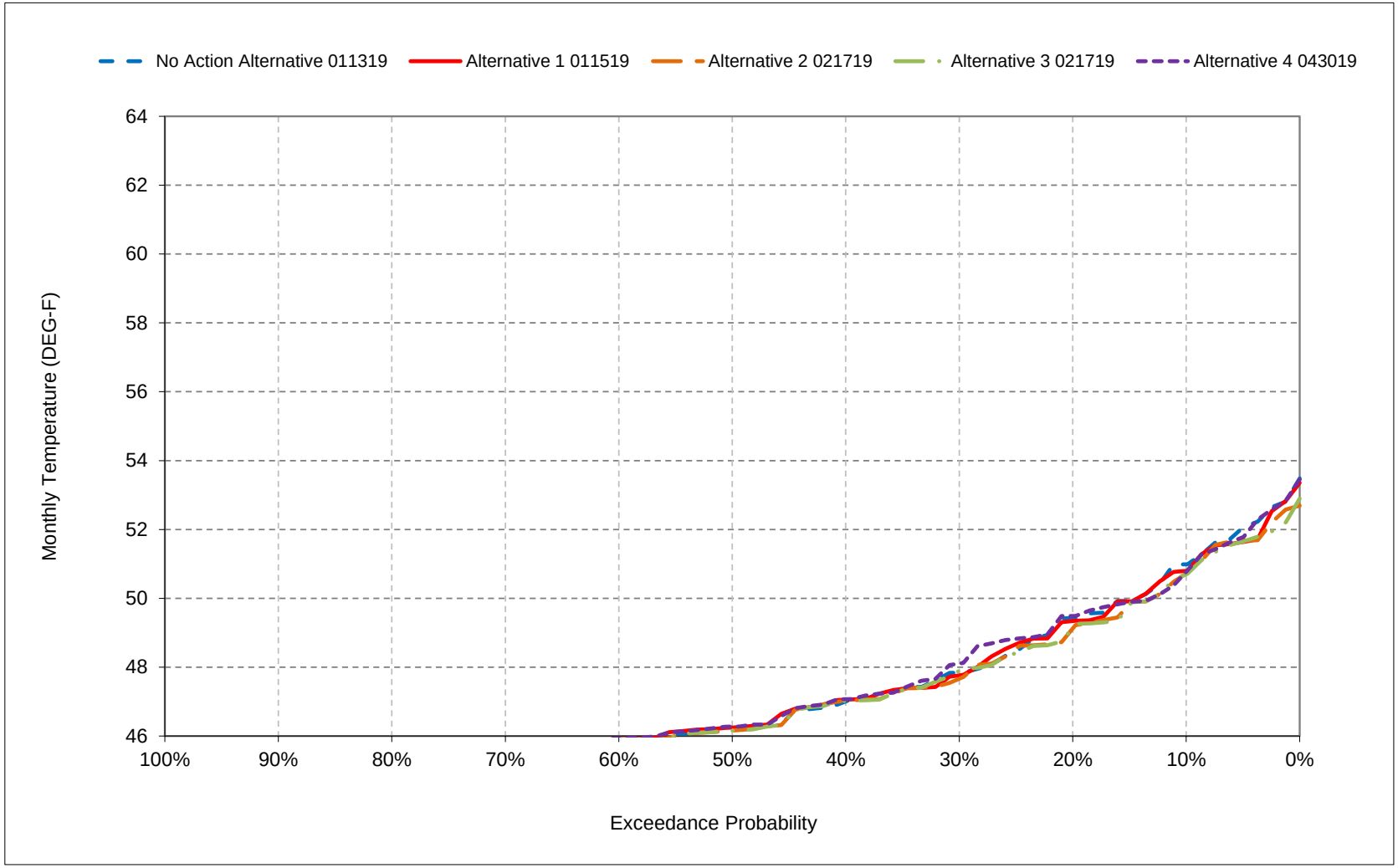
**Figure 1-13. Trinity River below Lewiston Dam, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

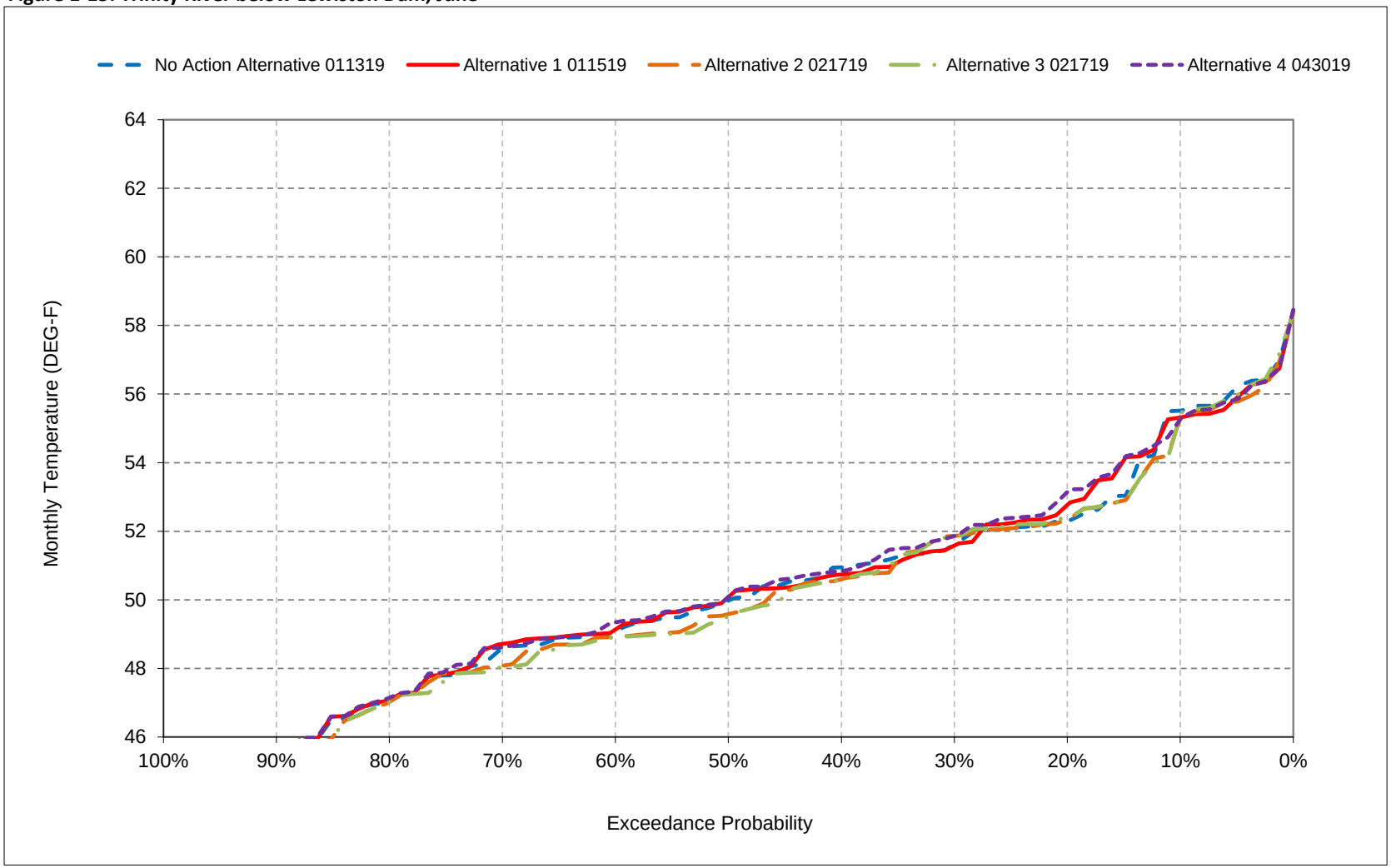
**Figure 1-14. Trinity River below Lewiston Dam, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

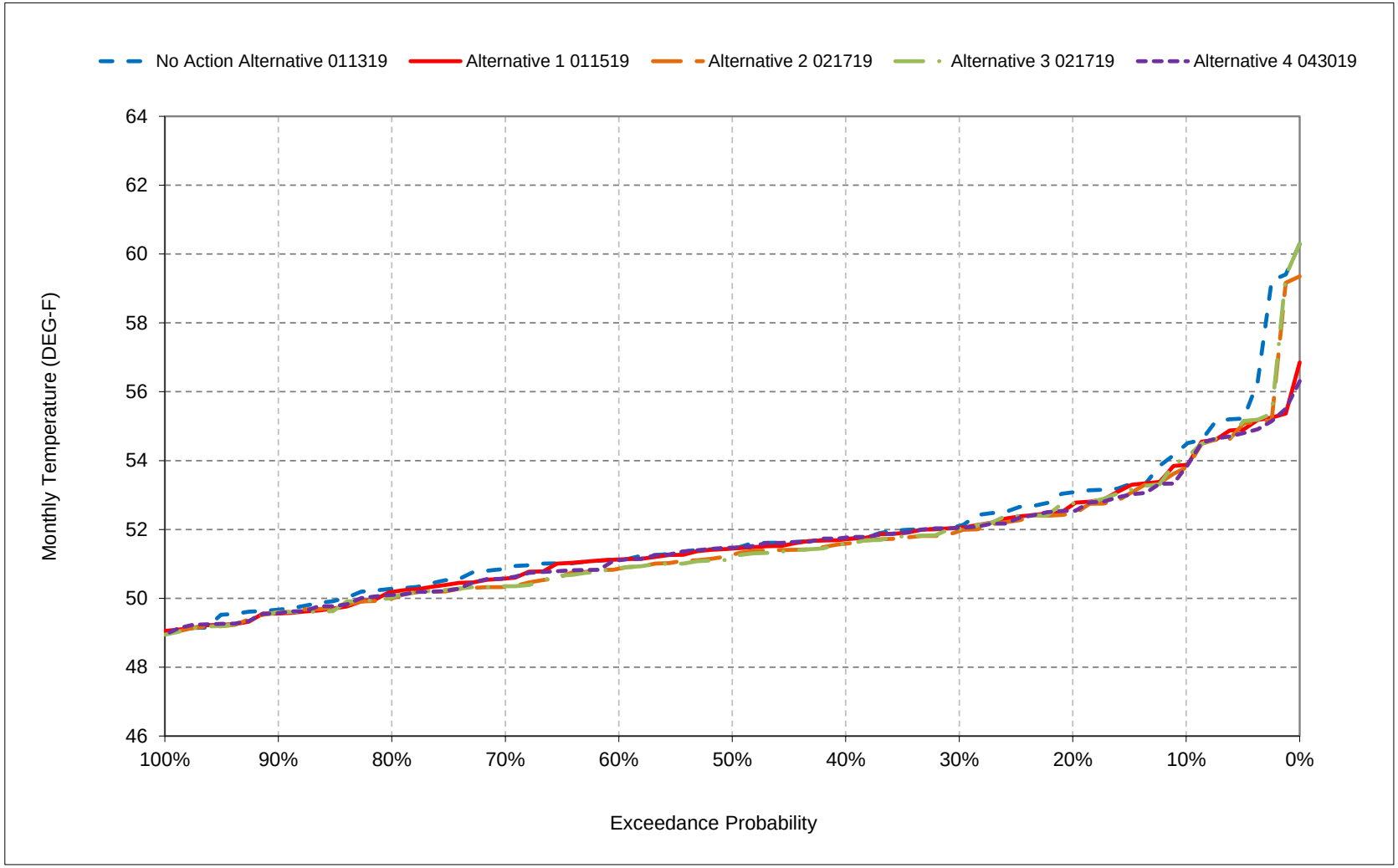
**Figure 1-15. Trinity River below Lewiston Dam, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

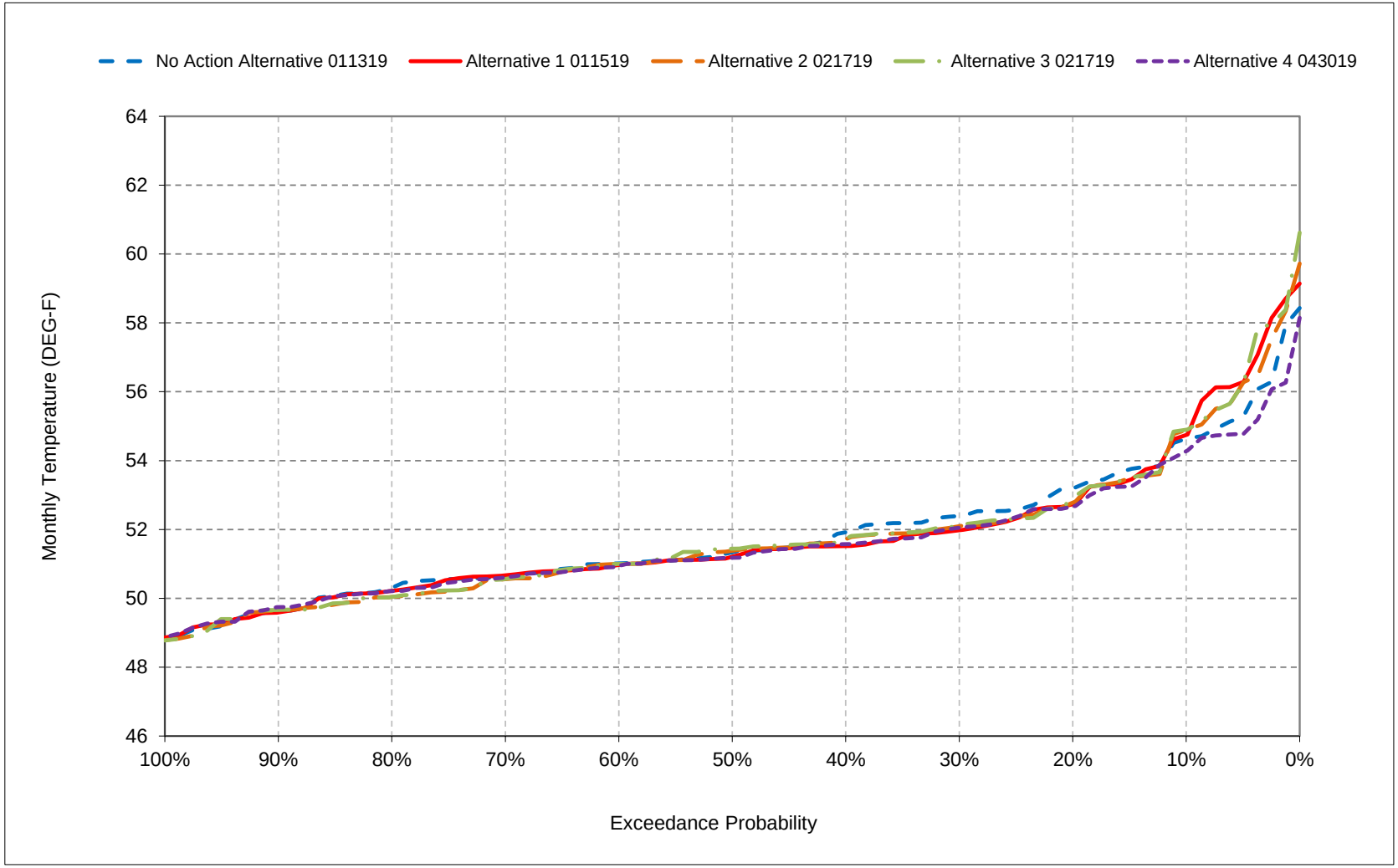
**Figure 1-16. Trinity River below Lewiston Dam, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

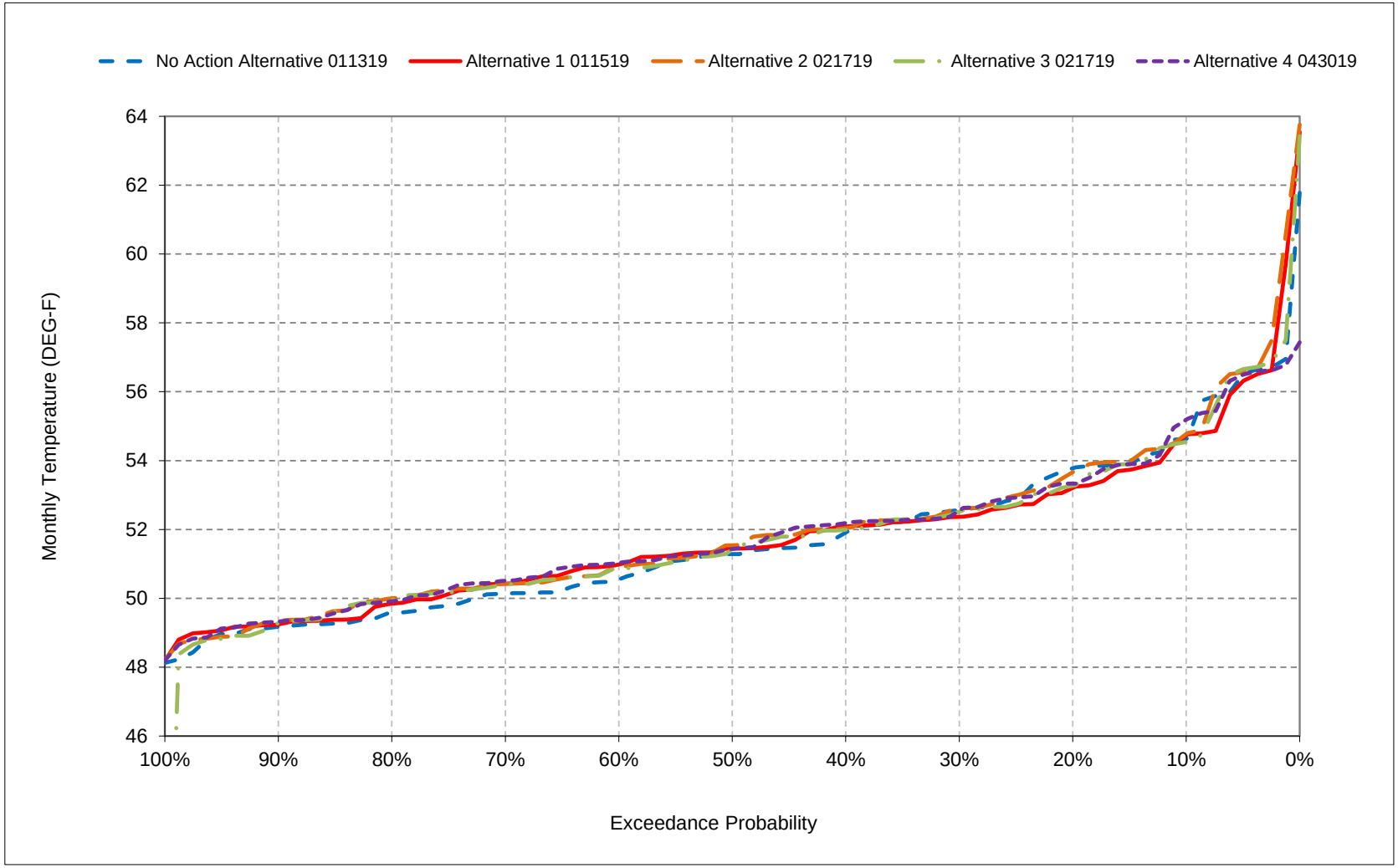
**Figure 1-17. Trinity River below Lewiston Dam, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 1-18. Trinity River below Lewiston Dam, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 2-1. Clear Creek below Whiskeytown, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 54.8 | 52.2 | 48.7 | 46.0 | 45.8 | 46.7 | 48.0 | 49.2 | 50.9 | 52.9 | 53.7 | 54.6 |
| 20% | 53.9 | 51.8 | 48.0 | 45.3 | 45.1 | 46.1 | 47.5 | 48.7 | 50.4 | 52.2 | 53.2 | 53.6 |
| 30% | 53.4 | 51.0 | 47.1 | 45.0 | 44.8 | 45.6 | 47.2 | 48.5 | 50.0 | 51.7 | 52.8 | 53.2 |
| 40% | 52.8 | 50.7 | 46.7 | 44.8 | 44.5 | 45.3 | 46.9 | 48.1 | 49.7 | 51.4 | 52.3 | 52.4 |
| 50% | 52.4 | 50.4 | 46.4 | 44.3 | 44.3 | 45.2 | 46.6 | 47.9 | 49.4 | 51.1 | 52.1 | 52.1 |
| 60% | 51.7 | 50.2 | 46.2 | 44.2 | 44.1 | 45.1 | 46.4 | 47.6 | 49.2 | 50.9 | 51.8 | 51.6 |
| 70% | 51.1 | 50.0 | 46.0 | 43.9 | 43.9 | 44.9 | 46.1 | 47.4 | 49.0 | 50.7 | 51.6 | 51.2 |
| 80% | 50.6 | 49.6 | 45.8 | 43.6 | 43.6 | 44.6 | 45.9 | 46.9 | 48.4 | 50.3 | 51.1 | 50.9 |
| 90% | 50.3 | 49.2 | 45.5 | 43.4 | 43.3 | 44.1 | 45.4 | 46.3 | 47.8 | 49.8 | 50.8 | 50.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.5 | 50.6 | 46.8 | 44.6 | 44.5 | 45.3 | 46.7 | 47.8 | 49.4 | 51.2 | 52.1 | 52.3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 50.8 | 49.8 | 46.5 | 44.3 | 44.1 | 44.8 | 46.3 | 47.7 | 49.3 | 51.1 | 51.7 | 51.2 |
| Above Normal (16%) | 51.2 | 49.8 | 46.2 | 44.4 | 44.2 | 44.9 | 46.3 | 47.6 | 49.1 | 51.0 | 51.6 | 51.2 |
| Below Normal (13%) | 52.5 | 50.9 | 46.8 | 44.1 | 44.2 | 45.2 | 46.6 | 47.5 | 49.1 | 51.1 | 52.0 | 52.1 |
| Dry (24%) | 53.4 | 51.0 | 47.2 | 44.8 | 44.7 | 45.6 | 46.9 | 47.9 | 49.4 | 51.4 | 52.7 | 53.1 |
| Critical (15%) | 55.7 | 52.1 | 47.4 | 45.6 | 45.5 | 46.4 | 47.7 | 48.8 | 50.4 | 51.6 | 52.8 | 54.5 |

## Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 54.5 | 52.2 | 48.7 | 46.0 | 45.8 | 46.6 | 47.9 | 49.2 | 50.9 | 52.9 | 53.5 | 54.3 |
| 20% | 53.6 | 51.6 | 48.0 | 45.3 | 45.2 | 46.1 | 47.6 | 48.8 | 50.4 | 52.2 | 53.2 | 53.4 |
| 30% | 53.2 | 51.0 | 47.0 | 45.0 | 44.8 | 45.6 | 47.2 | 48.5 | 49.9 | 51.7 | 52.6 | 52.9 |
| 40% | 52.8 | 50.7 | 46.7 | 44.7 | 44.5 | 45.3 | 46.9 | 48.1 | 49.6 | 51.4 | 52.4 | 52.5 |
| 50% | 52.4 | 50.5 | 46.3 | 44.3 | 44.3 | 45.2 | 46.6 | 47.8 | 49.5 | 51.2 | 52.2 | 52.1 |
| 60% | 52.0 | 50.2 | 46.1 | 44.2 | 44.1 | 45.1 | 46.4 | 47.6 | 49.2 | 51.0 | 52.0 | 51.7 |
| 70% | 51.2 | 49.9 | 46.0 | 43.9 | 43.9 | 44.9 | 46.2 | 47.4 | 48.9 | 50.8 | 51.7 | 51.4 |
| 80% | 50.6 | 49.5 | 45.8 | 43.7 | 43.6 | 44.6 | 45.9 | 47.0 | 48.5 | 50.5 | 51.3 | 51.0 |
| 90% | 50.1 | 49.2 | 45.3 | 43.4 | 43.3 | 44.2 | 45.4 | 46.4 | 47.8 | 49.8 | 50.9 | 50.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.4 | 50.6 | 46.8 | 44.6 | 44.5 | 45.3 | 46.7 | 47.8 | 49.5 | 51.3 | 52.2 | 52.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 50.9 | 49.9 | 46.4 | 44.3 | 44.1 | 44.8 | 46.3 | 47.6 | 49.3 | 51.1 | 51.7 | 51.4 |
| Above Normal (16%) | 51.3 | 50.0 | 46.3 | 44.4 | 44.2 | 45.0 | 46.4 | 47.7 | 49.2 | 51.1 | 51.7 | 51.3 |
| Below Normal (13%) | 52.6 | 50.8 | 46.8 | 44.0 | 44.1 | 45.2 | 46.6 | 47.5 | 49.2 | 51.4 | 52.1 | 52.2 |
| Dry (24%) | 53.1 | 50.9 | 47.1 | 44.8 | 44.7 | 45.6 | 46.9 | 47.9 | 49.4 | 51.4 | 52.7 | 52.9 |
| Critical (15%) | 55.5 | 52.1 | 47.4 | 45.6 | 45.5 | 46.4 | 47.8 | 48.8 | 50.5 | 51.8 | 53.3 | 55.2 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.4 | -0.1 | **0.0** | 0.0 | **0.0** | -0.1 | -0.1 | 0.0 | 0.0 | 0.0 | -0.1 | -0.3 |
| 20% | -0.3 | -0.1 | **0.0** | **0.0** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.0** | -0.1 |
| 30% | -0.2 | **0.0** | -0.1 | **0.0** | 0.0 | 0.0 | **0.0** | 0.0 | 0.0 | **0.0** | -0.2 | -0.2 |
| 40% | 0.0 | **0.0** | 0.0 | -0.1 | **0.0** | 0.0 | **0.0** | **0.0** | -0.1 | **0.0** | **0.1** | **0.1** |
| 50% | 0.0 | **0.1** | -0.1 | 0.0 | -0.1 | 0.0 | **0.0** | -0.1 | **0.0** | **0.0** | **0.1** | **0.0** |
| 60% | **0.3** | -0.1 | 0.0 | **0.0** | **0.0** | 0.0 | **0.1** | 0.0 | **0.0** | **0.1** | **0.2** | **0.1** |
| 70% | **0.2** | 0.0 | 0.0 | 0.0 | 0.0 | **0.0** | **0.0** | **0.0** | -0.1 | **0.1** | **0.1** | **0.2** |
| 80% | **0.0** | -0.1 | 0.0 | **0.0** | 0.0 | 0.0 | 0.0 | **0.1** | **0.1** | **0.2** | **0.2** | **0.1** |
| 90% | -0.2 | 0.0 | -0.2 | **0.0** | **0.1** | **0.0** | **0.0** | **0.1** | 0.0 | **0.1** | **0.1** | **0.3** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | **0.0** | **0.0** | **0.0** | **0.1** | **0.1** | **0.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.0** | **0.0** | 0.0 | **0.0** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | **0.0** | 0.0 | **0.2** |
| Above Normal (16%) | **0.2** | **0.2** | **0.0** | 0.0 | 0.0 | **0.0** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** |
| Below Normal (13%) | **0.0** | 0.0 | **0.0** | -0.1 | -0.1 | 0.0 | 0.0 | 0.0 | **0.1** | **0.2** | **0.0** | **0.0** |
| Dry (24%) | -0.3 | -0.1 | -0.1 | **0.0** | **0.0** | **0.0** | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | -0.2 |
| Critical (15%) | -0.2 | -0.1 | **0.0** | 0.0 | 0.0 | 0.0 | **0.0** | **0.0** | **0.1** | **0.2** | **0.5** | **0.7** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 2-2. Clear Creek below Whiskeytown, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 54.8 | 52.2 | 48.7 | 46.0 | 45.8 | 46.7 | 48.0 | 49.2 | 50.9 | 52.9 | 53.7 | 54.6 |
| 20% | 53.9 | 51.8 | 48.0 | 45.3 | 45.1 | 46.1 | 47.5 | 48.7 | 50.4 | 52.2 | 53.2 | 53.6 |
| 30% | 53.4 | 51.0 | 47.1 | 45.0 | 44.8 | 45.6 | 47.2 | 48.5 | 50.0 | 51.7 | 52.8 | 53.2 |
| 40% | 52.8 | 50.7 | 46.7 | 44.8 | 44.5 | 45.3 | 46.9 | 48.1 | 49.7 | 51.4 | 52.3 | 52.4 |
| 50% | 52.4 | 50.4 | 46.4 | 44.3 | 44.3 | 45.2 | 46.6 | 47.9 | 49.4 | 51.1 | 52.1 | 52.1 |
| 60% | 51.7 | 50.2 | 46.2 | 44.2 | 44.1 | 45.1 | 46.4 | 47.6 | 49.2 | 50.9 | 51.8 | 51.6 |
| 70% | 51.1 | 50.0 | 46.0 | 43.9 | 43.9 | 44.9 | 46.1 | 47.4 | 49.0 | 50.7 | 51.6 | 51.2 |
| 80% | 50.6 | 49.6 | 45.8 | 43.6 | 43.6 | 44.6 | 45.9 | 46.9 | 48.4 | 50.3 | 51.1 | 50.9 |
| 90% | 50.3 | 49.2 | 45.5 | 43.4 | 43.3 | 44.1 | 45.4 | 46.3 | 47.8 | 49.8 | 50.8 | 50.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.5 | 50.6 | 46.8 | 44.6 | 44.5 | 45.3 | 46.7 | 47.8 | 49.4 | 51.2 | 52.1 | 52.3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 50.8 | 49.8 | 46.5 | 44.3 | 44.1 | 44.8 | 46.3 | 47.7 | 49.3 | 51.1 | 51.7 | 51.2 |
| Above Normal (16%) | 51.2 | 49.8 | 46.2 | 44.4 | 44.2 | 44.9 | 46.3 | 47.6 | 49.1 | 51.0 | 51.6 | 51.2 |
| Below Normal (13%) | 52.5 | 50.9 | 46.8 | 44.1 | 44.2 | 45.2 | 46.6 | 47.5 | 49.1 | 51.1 | 52.0 | 52.1 |
| Dry (24%) | 53.4 | 51.0 | 47.2 | 44.8 | 44.7 | 45.6 | 46.9 | 47.9 | 49.4 | 51.4 | 52.7 | 53.1 |
| Critical (15%) | 55.7 | 52.1 | 47.4 | 45.6 | 45.5 | 46.4 | 47.7 | 48.8 | 50.4 | 51.6 | 52.8 | 54.5 |

## Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 54.4 | 51.7 | 47.6 | 45.6 | 45.8 | 46.2 | 47.7 | 48.9 | 51.9 | 53.0 | 54.1 | 54.4 |
| 20% | 53.8 | 51.2 | 47.3 | 45.0 | 45.0 | 45.9 | 47.3 | 48.6 | 51.6 | 52.4 | 53.5 | 54.0 |
| 30% | 53.3 | 50.8 | 46.8 | 44.8 | 44.7 | 45.7 | 47.1 | 48.3 | 51.1 | 52.1 | 52.9 | 53.7 |
| 40% | 53.2 | 50.4 | 46.6 | 44.5 | 44.6 | 45.2 | 46.6 | 47.9 | 50.7 | 51.8 | 52.7 | 53.1 |
| 50% | 52.5 | 50.1 | 46.2 | 44.3 | 44.3 | 45.1 | 46.5 | 47.7 | 50.5 | 51.6 | 52.4 | 52.7 |
| 60% | 51.9 | 50.0 | 46.1 | 44.0 | 44.0 | 45.0 | 46.3 | 47.4 | 50.3 | 51.4 | 52.2 | 52.5 |
| 70% | 51.5 | 49.8 | 45.9 | 43.8 | 43.8 | 44.8 | 46.1 | 47.2 | 50.0 | 51.1 | 52.0 | 52.2 |
| 80% | 51.0 | 49.4 | 45.6 | 43.5 | 43.6 | 44.6 | 45.8 | 46.8 | 49.7 | 50.8 | 51.8 | 51.8 |
| 90% | 50.7 | 49.1 | 45.3 | 43.3 | 43.2 | 44.2 | 45.3 | 46.5 | 49.1 | 50.2 | 51.2 | 51.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.6 | 50.3 | 46.4 | 44.4 | 44.4 | 45.2 | 46.5 | 47.7 | 50.6 | 51.6 | 52.6 | 52.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 51.3 | 49.8 | 46.2 | 44.3 | 44.2 | 44.8 | 46.3 | 47.7 | 50.6 | 51.6 | 52.2 | 52.2 |
| Above Normal (16%) | 51.7 | 49.7 | 46.1 | 44.4 | 44.2 | 45.0 | 46.3 | 47.6 | 50.5 | 51.4 | 52.1 | 52.2 |
| Below Normal (13%) | 52.6 | 50.4 | 46.2 | 43.9 | 43.9 | 45.0 | 46.4 | 47.3 | 50.2 | 51.4 | 52.6 | 52.8 |
| Dry (24%) | 53.3 | 50.6 | 46.7 | 44.4 | 44.5 | 45.4 | 46.6 | 47.7 | 50.5 | 51.7 | 52.9 | 53.6 |
| Critical (15%) | 54.9 | 51.7 | 47.0 | 44.9 | 45.2 | 46.1 | 47.4 | 48.4 | 51.1 | 52.2 | 53.3 | 54.4 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.4 | -0.5 | -1.0 | -0.5 | 0.0 | -0.4 | -0.3 | -0.3 | **1.0** | **0.1** | **0.4** | -0.2 |
| 20% | -0.1 | -0.6 | -0.7 | -0.3 | -0.1 | -0.1 | -0.3 | -0.1 | **1.2** | **0.3** | **0.3** | **0.4** |
| 30% | -0.1 | -0.2 | -0.3 | -0.2 | -0.1 | **0.1** | -0.1 | -0.2 | **1.2** | **0.5** | **0.2** | **0.5** |
| 40% | **0.3** | -0.3 | -0.1 | -0.2 | **0.0** | -0.1 | -0.3 | -0.2 | **1.0** | **0.4** | **0.4** | **0.7** |
| 50% | **0.1** | -0.2 | -0.1 | -0.1 | 0.0 | -0.2 | -0.1 | -0.2 | **1.0** | **0.4** | **0.3** | **0.6** |
| 60% | **0.3** | -0.3 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | **1.1** | **0.5** | **0.4** | **0.8** |
| 70% | **0.4** | -0.2 | -0.1 | -0.1 | -0.1 | 0.0 | -0.1 | -0.2 | **1.0** | **0.4** | **0.4** | **1.0** |
| 80% | **0.4** | -0.2 | -0.2 | -0.1 | 0.0 | 0.0 | -0.1 | -0.1 | **1.2** | **0.5** | **0.7** | **0.9** |
| 90% | **0.4** | -0.1 | -0.2 | -0.1 | -0.1 | **0.0** | -0.1 | **0.2** | **1.3** | **0.4** | **0.4** | **1.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | -0.3 | -0.4 | -0.2 | -0.1 | -0.1 | -0.2 | -0.1 | **1.1** | **0.4** | **0.4** | **0.7** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.5** | -0.1 | -0.3 | 0.0 | **0.0** | **0.0** | 0.0 | **0.0** | **1.3** | **0.5** | **0.4** | **1.0** |
| Above Normal (16%) | **0.6** | -0.1 | -0.1 | 0.0 | **0.1** | **0.1** | **0.0** | **0.0** | **1.4** | **0.5** | **0.6** | **1.0** |
| Below Normal (13%) | **0.0** | -0.5 | -0.5 | -0.3 | -0.3 | -0.3 | -0.2 | -0.2 | **1.1** | **0.3** | **0.5** | **0.7** |
| Dry (24%) | 0.0 | -0.3 | -0.5 | -0.4 | -0.2 | -0.2 | -0.3 | -0.2 | **1.1** | **0.3** | **0.2** | **0.5** |
| Critical (15%) | -0.8 | -0.4 | -0.4 | -0.7 | -0.3 | -0.3 | -0.4 | -0.4 | **0.7** | **0.5** | **0.5** | 0.0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 2-3. Clear Creek below Whiskeytown, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 54.8 | 52.2 | 48.7 | 46.0 | 45.8 | 46.7 | 48.0 | 49.2 | 50.9 | 52.9 | 53.7 | 54.6 |
| 20% | 53.9 | 51.8 | 48.0 | 45.3 | 45.1 | 46.1 | 47.5 | 48.7 | 50.4 | 52.2 | 53.2 | 53.6 |
| 30% | 53.4 | 51.0 | 47.1 | 45.0 | 44.8 | 45.6 | 47.2 | 48.5 | 50.0 | 51.7 | 52.8 | 53.2 |
| 40% | 52.8 | 50.7 | 46.7 | 44.8 | 44.5 | 45.3 | 46.9 | 48.1 | 49.7 | 51.4 | 52.3 | 52.4 |
| 50% | 52.4 | 50.4 | 46.4 | 44.3 | 44.3 | 45.2 | 46.6 | 47.9 | 49.4 | 51.1 | 52.1 | 52.1 |
| 60% | 51.7 | 50.2 | 46.2 | 44.2 | 44.1 | 45.1 | 46.4 | 47.6 | 49.2 | 50.9 | 51.8 | 51.6 |
| 70% | 51.1 | 50.0 | 46.0 | 43.9 | 43.9 | 44.9 | 46.1 | 47.4 | 49.0 | 50.7 | 51.6 | 51.2 |
| 80% | 50.6 | 49.6 | 45.8 | 43.6 | 43.6 | 44.6 | 45.9 | 46.9 | 48.4 | 50.3 | 51.1 | 50.9 |
| 90% | 50.3 | 49.2 | 45.5 | 43.4 | 43.3 | 44.1 | 45.4 | 46.3 | 47.8 | 49.8 | 50.8 | 50.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.5 | 50.6 | 46.8 | 44.6 | 44.5 | 45.3 | 46.7 | 47.8 | 49.4 | 51.2 | 52.1 | 52.3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 50.8 | 49.8 | 46.5 | 44.3 | 44.1 | 44.8 | 46.3 | 47.7 | 49.3 | 51.1 | 51.7 | 51.2 |
| Above Normal (16%) | 51.2 | 49.8 | 46.2 | 44.4 | 44.2 | 44.9 | 46.3 | 47.6 | 49.1 | 51.0 | 51.6 | 51.2 |
| Below Normal (13%) | 52.5 | 50.9 | 46.8 | 44.1 | 44.2 | 45.2 | 46.6 | 47.5 | 49.1 | 51.1 | 52.0 | 52.1 |
| Dry (24%) | 53.4 | 51.0 | 47.2 | 44.8 | 44.7 | 45.6 | 46.9 | 47.9 | 49.4 | 51.4 | 52.7 | 53.1 |
| Critical (15%) | 55.7 | 52.1 | 47.4 | 45.6 | 45.5 | 46.4 | 47.7 | 48.8 | 50.4 | 51.6 | 52.8 | 54.5 |

## Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 54.5 | 51.7 | 47.7 | 45.5 | 45.8 | 46.2 | 47.7 | 48.9 | 51.9 | 53.1 | 54.1 | 54.6 |
| 20% | 53.7 | 51.2 | 47.3 | 45.0 | 45.0 | 45.9 | 47.3 | 48.6 | 51.5 | 52.4 | 53.4 | 54.0 |
| 30% | 53.3 | 50.8 | 46.8 | 44.8 | 44.7 | 45.6 | 47.1 | 48.2 | 51.1 | 52.1 | 52.9 | 53.6 |
| 40% | 53.0 | 50.4 | 46.6 | 44.6 | 44.6 | 45.3 | 46.6 | 47.9 | 50.7 | 51.8 | 52.7 | 53.1 |
| 50% | 52.5 | 50.1 | 46.2 | 44.2 | 44.3 | 45.1 | 46.4 | 47.7 | 50.4 | 51.6 | 52.4 | 52.8 |
| 60% | 51.9 | 50.0 | 46.0 | 44.0 | 44.0 | 45.0 | 46.3 | 47.4 | 50.3 | 51.4 | 52.2 | 52.5 |
| 70% | 51.4 | 49.8 | 45.9 | 43.8 | 43.8 | 44.8 | 46.1 | 47.2 | 49.9 | 51.1 | 51.9 | 52.2 |
| 80% | 51.0 | 49.4 | 45.7 | 43.5 | 43.6 | 44.6 | 45.8 | 46.8 | 49.6 | 50.8 | 51.7 | 51.7 |
| 90% | 50.7 | 49.1 | 45.3 | 43.3 | 43.2 | 44.2 | 45.3 | 46.5 | 49.2 | 50.2 | 51.2 | 51.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.5 | 50.3 | 46.4 | 44.4 | 44.4 | 45.2 | 46.5 | 47.7 | 50.6 | 51.6 | 52.5 | 53.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 51.3 | 49.7 | 46.2 | 44.3 | 44.2 | 44.8 | 46.2 | 47.6 | 50.5 | 51.5 | 52.1 | 52.2 |
| Above Normal (16%) | 51.7 | 49.7 | 46.1 | 44.4 | 44.2 | 45.0 | 46.3 | 47.6 | 50.5 | 51.5 | 52.2 | 52.2 |
| Below Normal (13%) | 52.5 | 50.3 | 46.2 | 43.8 | 43.9 | 45.0 | 46.4 | 47.4 | 50.2 | 51.4 | 52.5 | 52.8 |
| Dry (24%) | 53.3 | 50.6 | 46.8 | 44.4 | 44.5 | 45.4 | 46.7 | 47.7 | 50.5 | 51.7 | 52.9 | 53.6 |
| Critical (15%) | 54.8 | 51.7 | 47.0 | 44.9 | 45.2 | 46.1 | 47.4 | 48.5 | 51.1 | 52.2 | 53.2 | 54.5 |

## Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.4 | -0.5 | -1.0 | -0.5 | 0.0 | -0.4 | -0.3 | -0.3 | **0.9** | **0.2** | **0.5** | 0.0 |
| 20% | -0.3 | -0.6 | -0.7 | -0.3 | -0.1 | -0.1 | -0.3 | -0.2 | **1.2** | **0.2** | **0.2** | **0.4** |
| 30% | -0.1 | -0.2 | -0.2 | -0.2 | -0.1 | **0.0** | -0.1 | -0.2 | **1.1** | **0.4** | **0.1** | **0.5** |
| 40% | **0.2** | -0.3 | -0.1 | -0.2 | **0.1** | -0.1 | -0.3 | -0.2 | **1.0** | **0.4** | **0.4** | **0.7** |
| 50% | **0.1** | -0.2 | -0.2 | -0.1 | 0.0 | -0.2 | -0.2 | -0.2 | **1.0** | **0.4** | **0.3** | **0.7** |
| 60% | **0.2** | -0.2 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | **1.1** | **0.5** | **0.4** | **0.9** |
| 70% | **0.4** | -0.2 | -0.1 | -0.1 | -0.1 | 0.0 | -0.1 | -0.2 | **1.0** | **0.4** | **0.4** | **1.0** |
| 80% | **0.5** | -0.2 | -0.1 | -0.1 | 0.0 | 0.0 | -0.1 | -0.1 | **1.2** | **0.5** | **0.5** | **0.8** |
| 90% | **0.3** | -0.1 | -0.2 | -0.1 | 0.0 | **0.0** | -0.1 | **0.2** | **1.4** | **0.4** | **0.4** | **1.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | -0.3 | -0.4 | -0.2 | -0.1 | -0.1 | -0.2 | -0.1 | **1.1** | **0.4** | **0.4** | **0.7** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.5** | -0.1 | -0.3 | 0.0 | **0.0** | **0.0** | -0.1 | -0.1 | **1.2** | **0.4** | **0.4** | **1.0** |
| Above Normal (16%) | **0.5** | -0.1 | -0.2 | **0.0** | **0.1** | **0.1** | **0.0** | **0.1** | **1.4** | **0.5** | **0.6** | **1.0** |
| Below Normal (13%) | **0.0** | -0.5 | -0.5 | -0.3 | -0.3 | -0.3 | -0.2 | -0.2 | **1.1** | **0.3** | **0.5** | **0.7** |
| Dry (24%) | 0.0 | -0.3 | -0.4 | -0.4 | -0.2 | -0.2 | -0.3 | -0.2 | **1.1** | **0.3** | **0.2** | **0.5** |
| Critical (15%) | -1.0 | -0.5 | -0.5 | -0.7 | -0.3 | -0.3 | -0.3 | -0.3 | **0.7** | **0.6** | **0.5** | **0.0** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 2-4. Clear Creek below Whiskeytown, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 54.8 | 52.2 | 48.7 | 46.0 | 45.8 | 46.7 | 48.0 | 49.2 | 50.9 | 52.9 | 53.7 | 54.6 |
| 20% | 53.9 | 51.8 | 48.0 | 45.3 | 45.1 | 46.1 | 47.5 | 48.7 | 50.4 | 52.2 | 53.2 | 53.6 |
| 30% | 53.4 | 51.0 | 47.1 | 45.0 | 44.8 | 45.6 | 47.2 | 48.5 | 50.0 | 51.7 | 52.8 | 53.2 |
| 40% | 52.8 | 50.7 | 46.7 | 44.8 | 44.5 | 45.3 | 46.9 | 48.1 | 49.7 | 51.4 | 52.3 | 52.4 |
| 50% | 52.4 | 50.4 | 46.4 | 44.3 | 44.3 | 45.2 | 46.6 | 47.9 | 49.4 | 51.1 | 52.1 | 52.1 |
| 60% | 51.7 | 50.2 | 46.2 | 44.2 | 44.1 | 45.1 | 46.4 | 47.6 | 49.2 | 50.9 | 51.8 | 51.6 |
| 70% | 51.1 | 50.0 | 46.0 | 43.9 | 43.9 | 44.9 | 46.1 | 47.4 | 49.0 | 50.7 | 51.6 | 51.2 |
| 80% | 50.6 | 49.6 | 45.8 | 43.6 | 43.6 | 44.6 | 45.9 | 46.9 | 48.4 | 50.3 | 51.1 | 50.9 |
| 90% | 50.3 | 49.2 | 45.5 | 43.4 | 43.3 | 44.1 | 45.4 | 46.3 | 47.8 | 49.8 | 50.8 | 50.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.5 | 50.6 | 46.8 | 44.6 | 44.5 | 45.3 | 46.7 | 47.8 | 49.4 | 51.2 | 52.1 | 52.3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 50.8 | 49.8 | 46.5 | 44.3 | 44.1 | 44.8 | 46.3 | 47.7 | 49.3 | 51.1 | 51.7 | 51.2 |
| Above Normal (16%) | 51.2 | 49.8 | 46.2 | 44.4 | 44.2 | 44.9 | 46.3 | 47.6 | 49.1 | 51.0 | 51.6 | 51.2 |
| Below Normal (13%) | 52.5 | 50.9 | 46.8 | 44.1 | 44.2 | 45.2 | 46.6 | 47.5 | 49.1 | 51.1 | 52.0 | 52.1 |
| Dry (24%) | 53.4 | 51.0 | 47.2 | 44.8 | 44.7 | 45.6 | 46.9 | 47.9 | 49.4 | 51.4 | 52.7 | 53.1 |
| Critical (15%) | 55.7 | 52.1 | 47.4 | 45.6 | 45.5 | 46.4 | 47.7 | 48.8 | 50.4 | 51.6 | 52.8 | 54.5 |

## Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 54.8 | 52.2 | 48.7 | 46.2 | 46.5 | 47.0 | 48.3 | 49.5 | 51.0 | 52.7 | 53.4 | 54.4 |
| 20% | 53.6 | 51.8 | 48.3 | 45.7 | 45.5 | 46.6 | 48.1 | 49.0 | 50.4 | 52.1 | 53.1 | 53.4 |
| 30% | 53.2 | 51.0 | 47.4 | 45.3 | 45.0 | 46.1 | 47.8 | 48.7 | 50.0 | 51.8 | 52.9 | 52.9 |
| 40% | 52.7 | 50.7 | 46.8 | 44.9 | 44.8 | 45.8 | 47.3 | 48.5 | 49.8 | 51.5 | 52.4 | 52.6 |
| 50% | 52.2 | 50.4 | 46.6 | 44.5 | 44.5 | 45.7 | 47.0 | 48.2 | 49.6 | 51.1 | 52.2 | 52.1 |
| 60% | 51.8 | 50.2 | 46.2 | 44.2 | 44.3 | 45.4 | 46.9 | 48.0 | 49.4 | 51.0 | 52.0 | 51.8 |
| 70% | 51.3 | 49.9 | 46.0 | 44.0 | 44.1 | 45.2 | 46.5 | 47.8 | 49.2 | 50.9 | 51.7 | 51.4 |
| 80% | 50.8 | 49.7 | 45.8 | 43.7 | 43.8 | 44.8 | 46.2 | 47.4 | 48.9 | 50.5 | 51.5 | 51.1 |
| 90% | 50.3 | 49.4 | 45.4 | 43.4 | 43.5 | 44.5 | 45.6 | 46.7 | 48.0 | 50.1 | 51.1 | 50.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.4 | 50.6 | 46.9 | 44.8 | 44.7 | 45.7 | 47.1 | 48.2 | 49.6 | 51.3 | 52.3 | 52.3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 51.0 | 50.0 | 46.6 | 44.6 | 44.4 | 45.4 | 46.8 | 48.0 | 49.5 | 51.1 | 51.9 | 51.4 |
| Above Normal (16%) | 51.3 | 50.2 | 46.5 | 44.6 | 44.8 | 45.2 | 46.8 | 48.1 | 49.3 | 51.1 | 51.8 | 51.3 |
| Below Normal (13%) | 52.6 | 50.8 | 46.9 | 44.1 | 44.3 | 45.5 | 46.9 | 47.8 | 49.3 | 51.2 | 52.1 | 52.2 |
| Dry (24%) | 53.1 | 50.9 | 47.2 | 44.8 | 44.8 | 45.8 | 47.1 | 48.1 | 49.5 | 51.4 | 52.6 | 52.9 |
| Critical (15%) | 55.2 | 52.1 | 47.5 | 45.6 | 45.6 | 46.6 | 48.1 | 49.1 | 50.7 | 51.9 | 53.3 | 54.8 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | 0.0 | **0.0** | **0.1** | **0.2** | **0.7** | **0.3** | **0.3** | **0.3** | **0.1** | -0.2 | -0.3 | -0.2 |
| 20% | -0.3 | **0.0** | **0.3** | **0.4** | **0.4** | **0.5** | **0.6** | **0.3** | **0.0** | -0.1 | 0.0 | -0.1 |
| 30% | -0.2 | **0.1** | **0.3** | **0.3** | **0.2** | **0.5** | **0.6** | **0.2** | **0.1** | **0.2** | **0.1** | -0.2 |
| 40% | -0.1 | 0.0 | **0.1** | **0.1** | **0.2** | **0.5** | **0.4** | **0.4** | **0.2** | **0.1** | **0.1** | **0.2** |
| 50% | -0.2 | **0.1** | **0.2** | **0.2** | **0.2** | **0.4** | **0.4** | **0.3** | **0.2** | 0.0 | **0.1** | **0.0** |
| 60% | **0.1** | 0.0 | **0.1** | **0.0** | **0.2** | **0.3** | **0.5** | **0.4** | **0.2** | **0.1** | **0.2** | **0.1** |
| 70% | **0.2** | 0.0 | 0.0 | **0.1** | **0.2** | **0.4** | **0.4** | **0.4** | **0.2** | **0.2** | **0.1** | **0.2** |
| 80% | **0.2** | **0.1** | **0.0** | **0.0** | **0.2** | **0.2** | **0.3** | **0.4** | **0.4** | **0.2** | **0.3** | **0.2** |
| 90% | **0.0** | **0.1** | -0.1 | **0.0** | **0.3** | **0.3** | **0.3** | **0.4** | **0.2** | **0.3** | **0.3** | **0.3** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | **0.0** | **0.1** | **0.2** | **0.3** | **0.4** | **0.4** | **0.3** | **0.2** | **0.1** | **0.1** | **0.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.2** | **0.1** | **0.1** | **0.4** | **0.3** | **0.6** | **0.5** | **0.4** | **0.2** | 0.0 | **0.1** | **0.2** |
| Above Normal (16%) | **0.1** | **0.4** | **0.2** | **0.2** | **0.7** | **0.3** | **0.5** | **0.5** | **0.2** | **0.1** | **0.2** | **0.1** |
| Below Normal (13%) | **0.0** | -0.1 | **0.1** | **0.0** | **0.1** | **0.3** | **0.3** | **0.3** | **0.2** | **0.1** | **0.1** | **0.1** |
| Dry (24%) | -0.3 | -0.1 | 0.0 | **0.0** | **0.1** | **0.2** | **0.2** | **0.2** | **0.0** | 0.0 | -0.1 | -0.2 |
| Critical (15%) | -0.5 | 0.0 | **0.1** | **0.0** | **0.1** | **0.3** | **0.3** | **0.3** | **0.3** | **0.3** | **0.5** | **0.3** |

a Based on the 82-year simulation period.

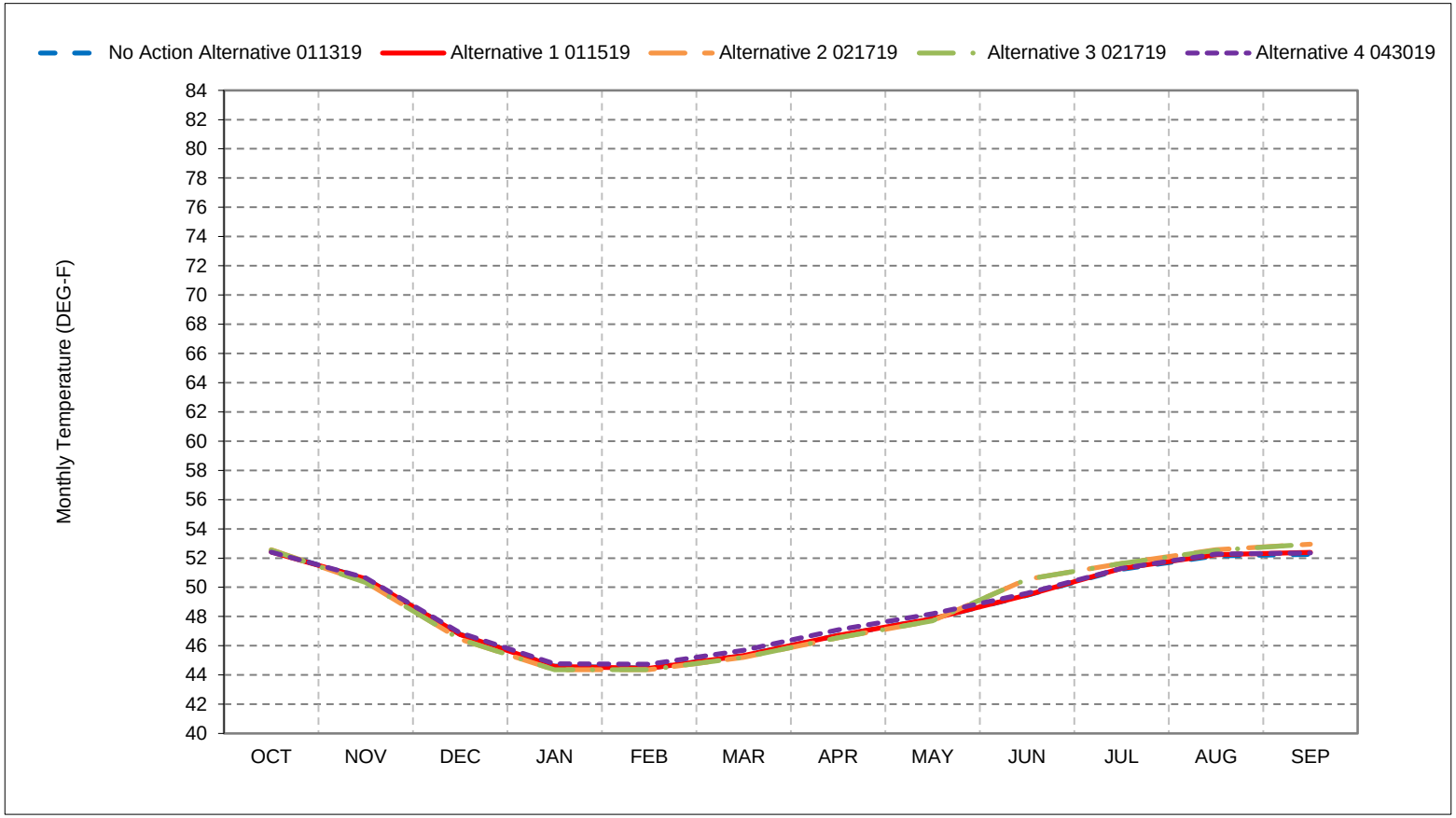
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

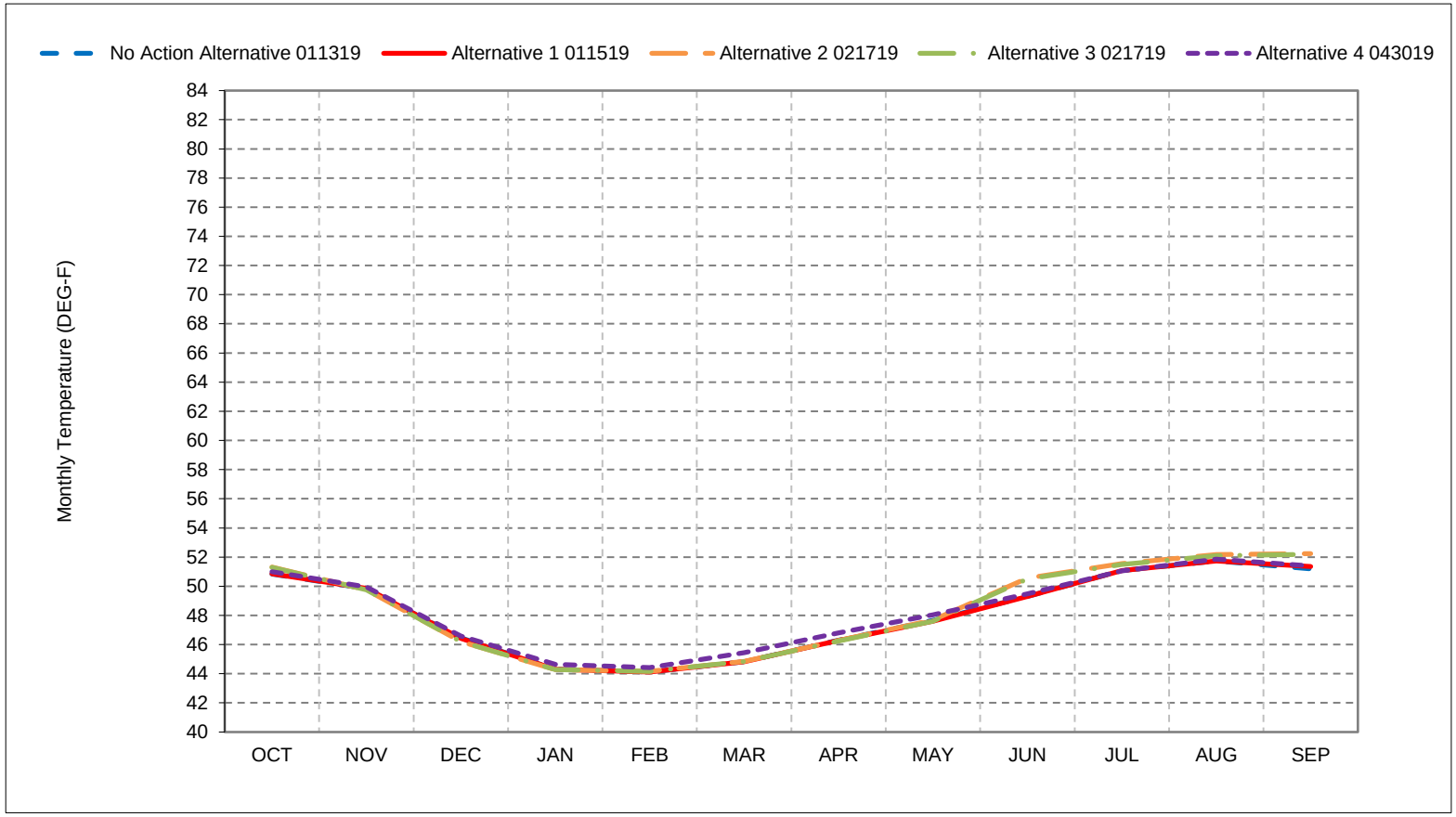
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 2-1. Clear Creek below Whiskeytown, Long-Term Average Temperature



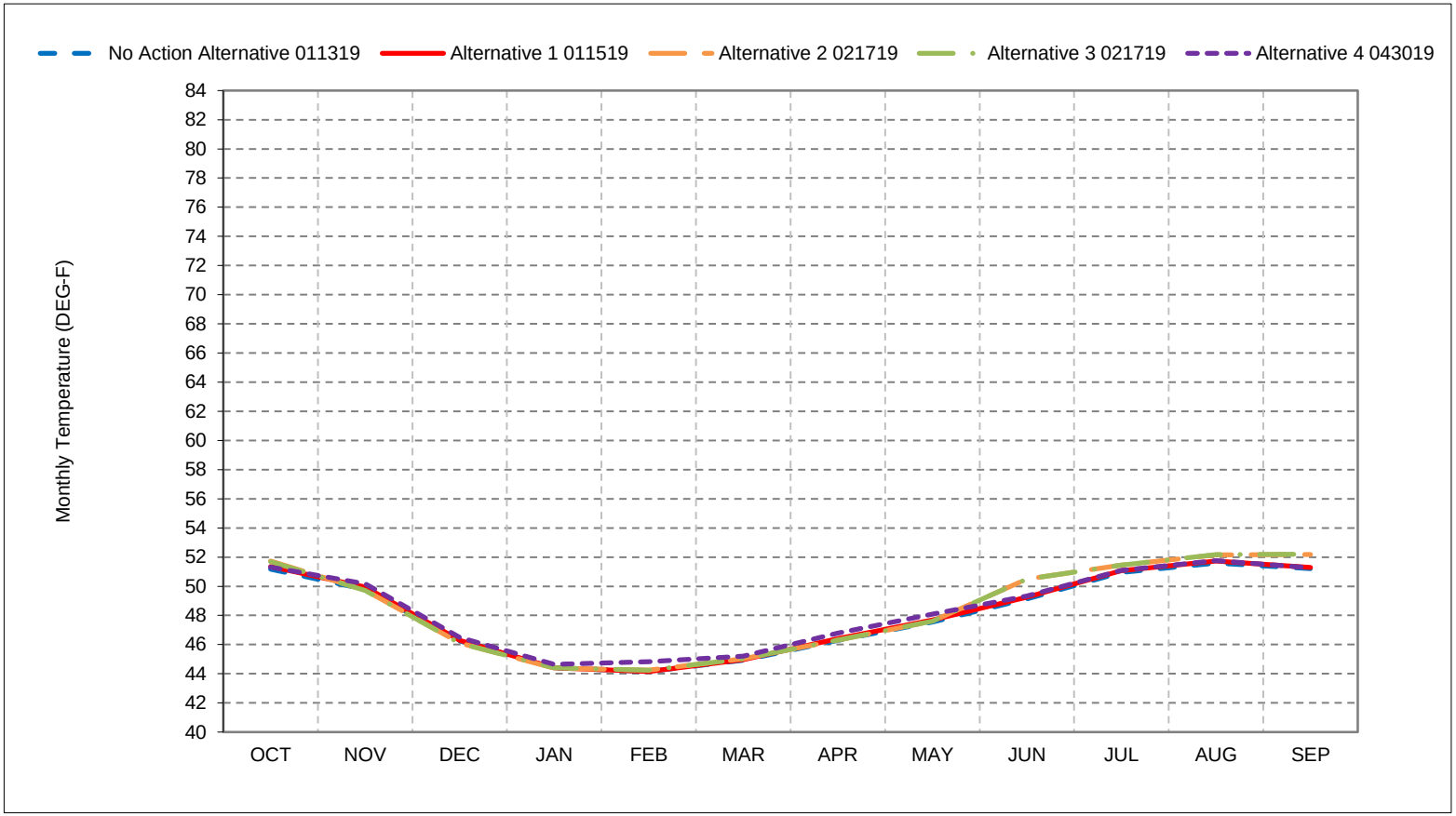

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 2-2. Clear Creek below Whiskeytown, Wet Year Average Temperature



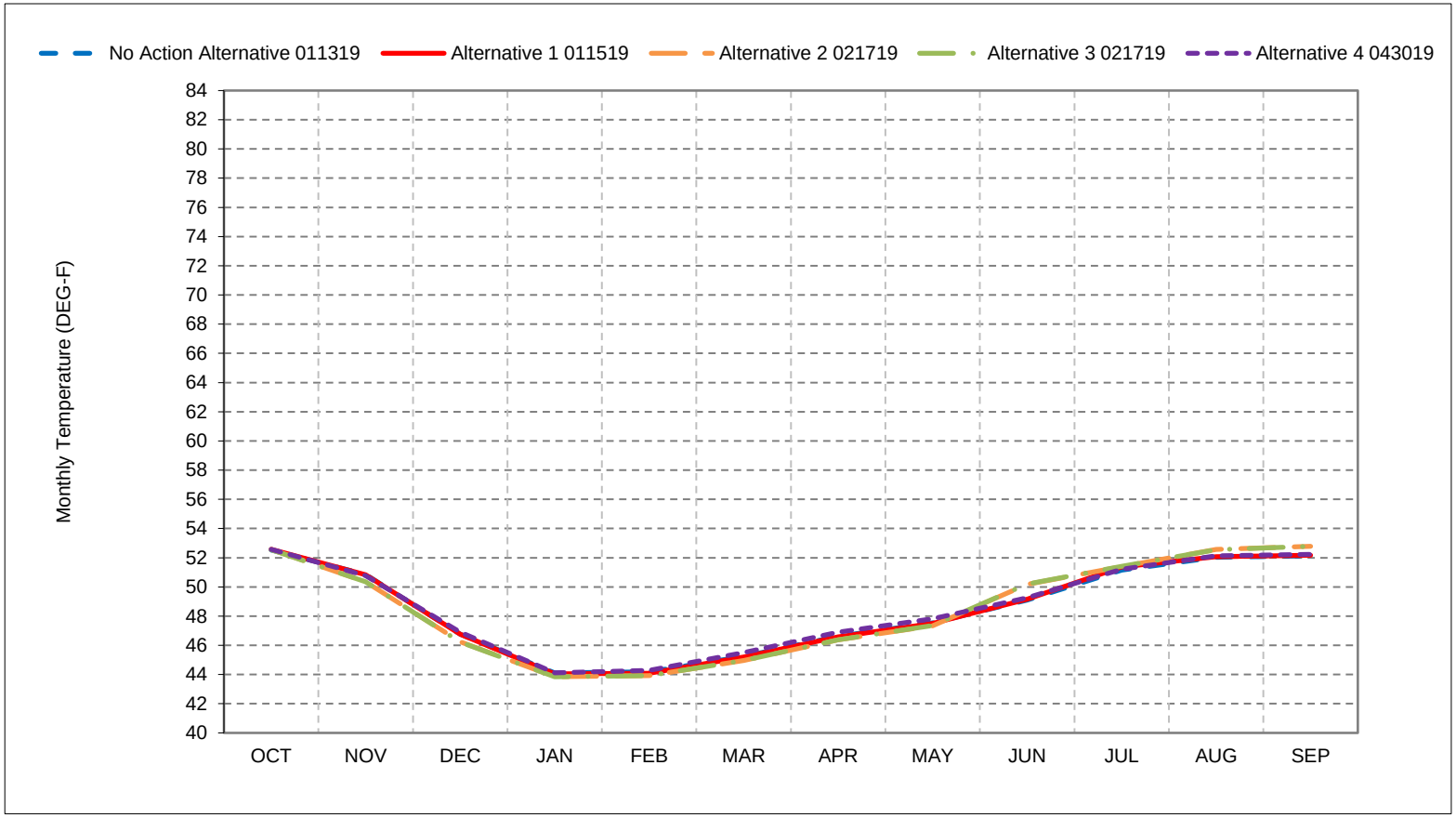

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 2-3. Clear Creek below Whiskeytown, Above Normal Year Average Temperature



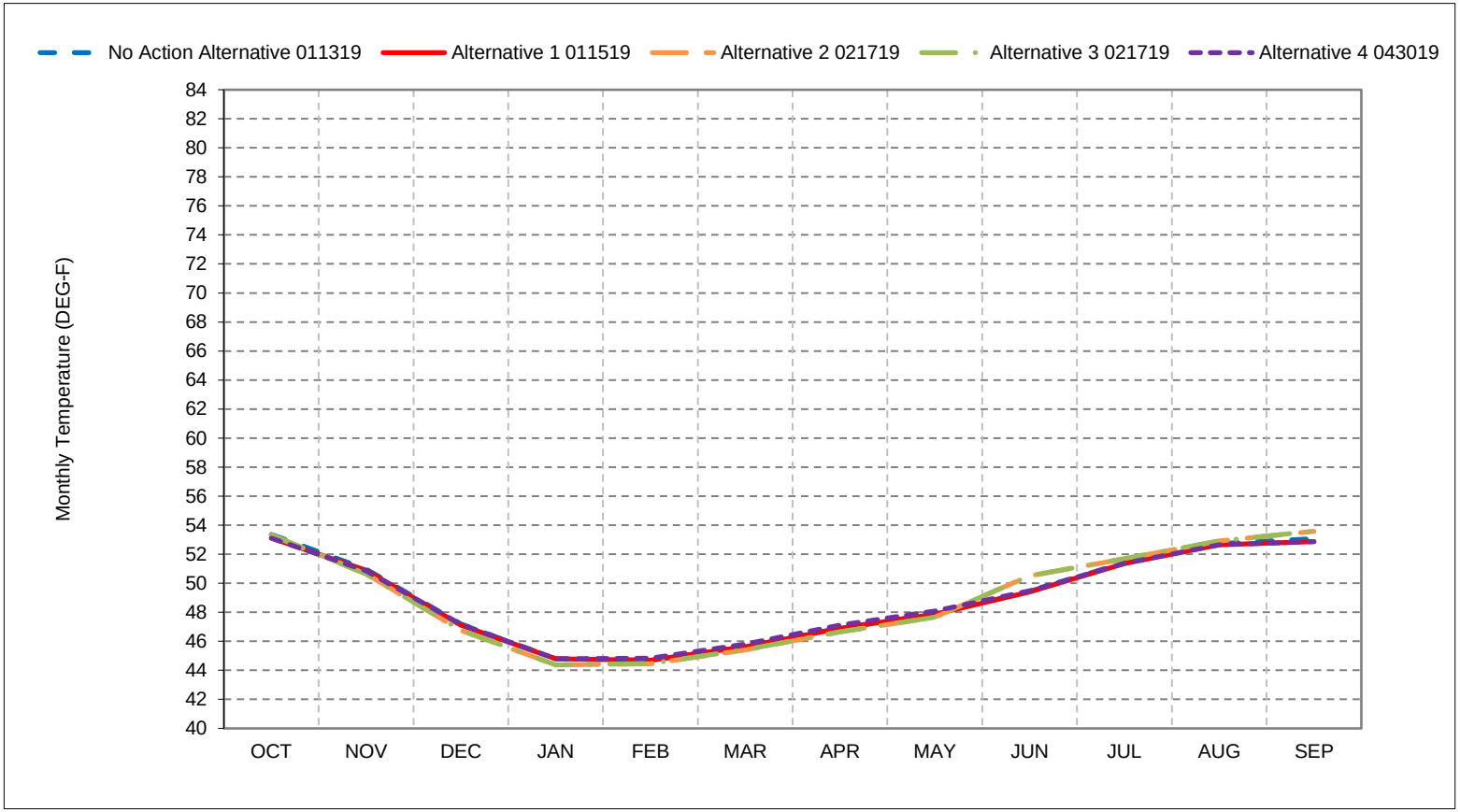

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 2-4. Clear Creek below Whiskeytown, Below Normal Year Average Temperature



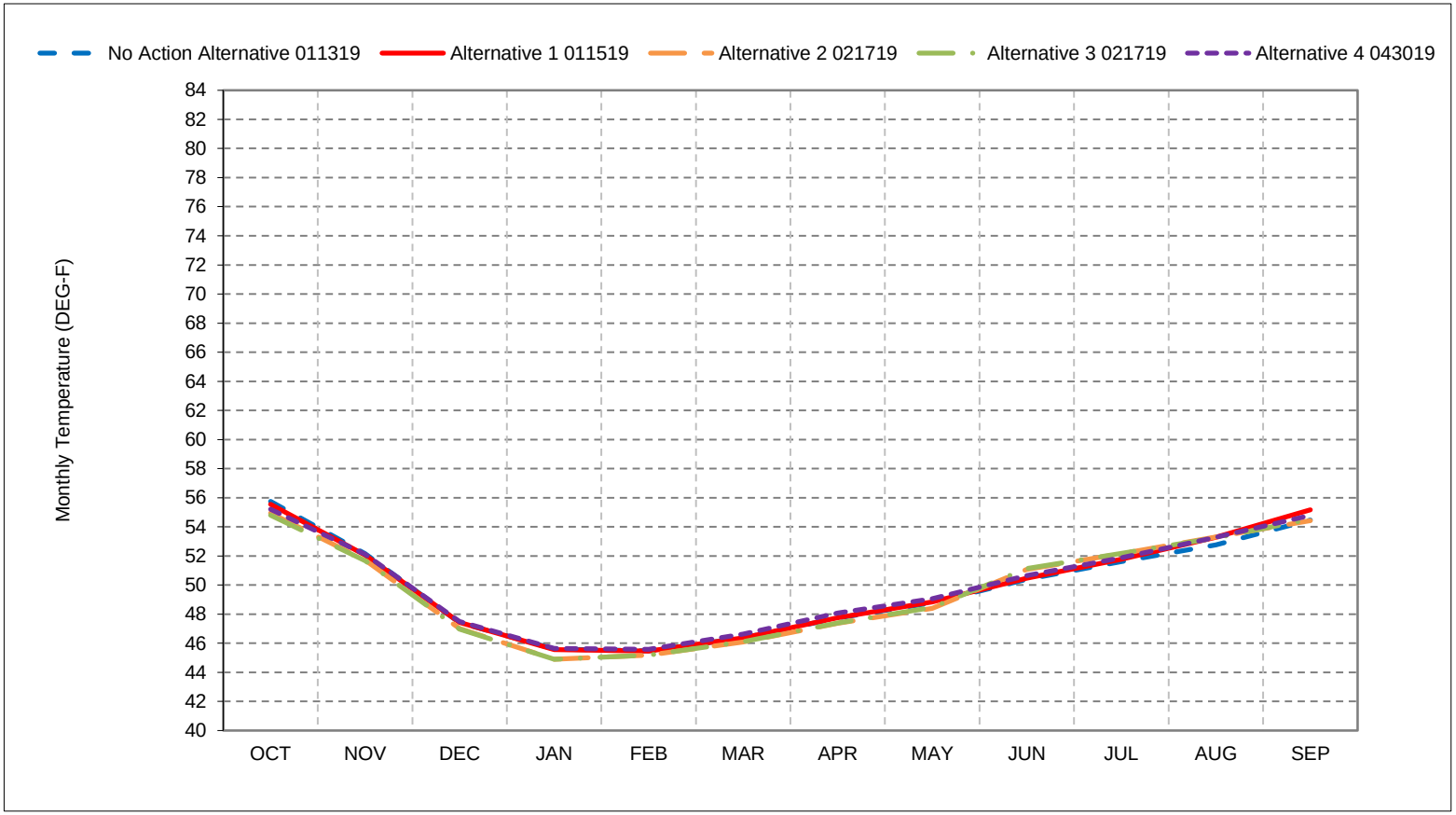

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 2-5. Clear Creek below Whiskeytown, Dry Year Average Temperature



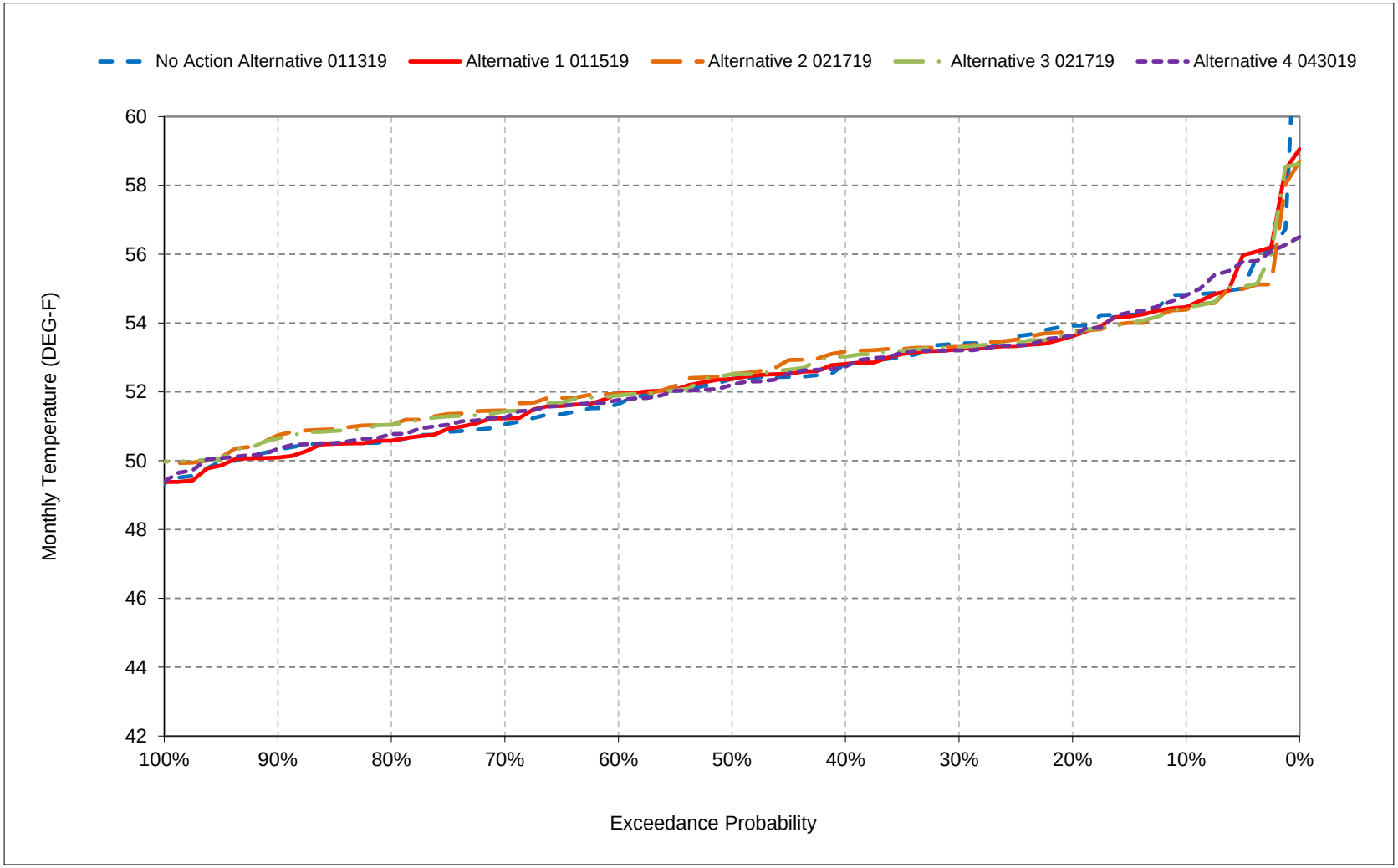

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 2-6. Clear Creek below Whiskeytown, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

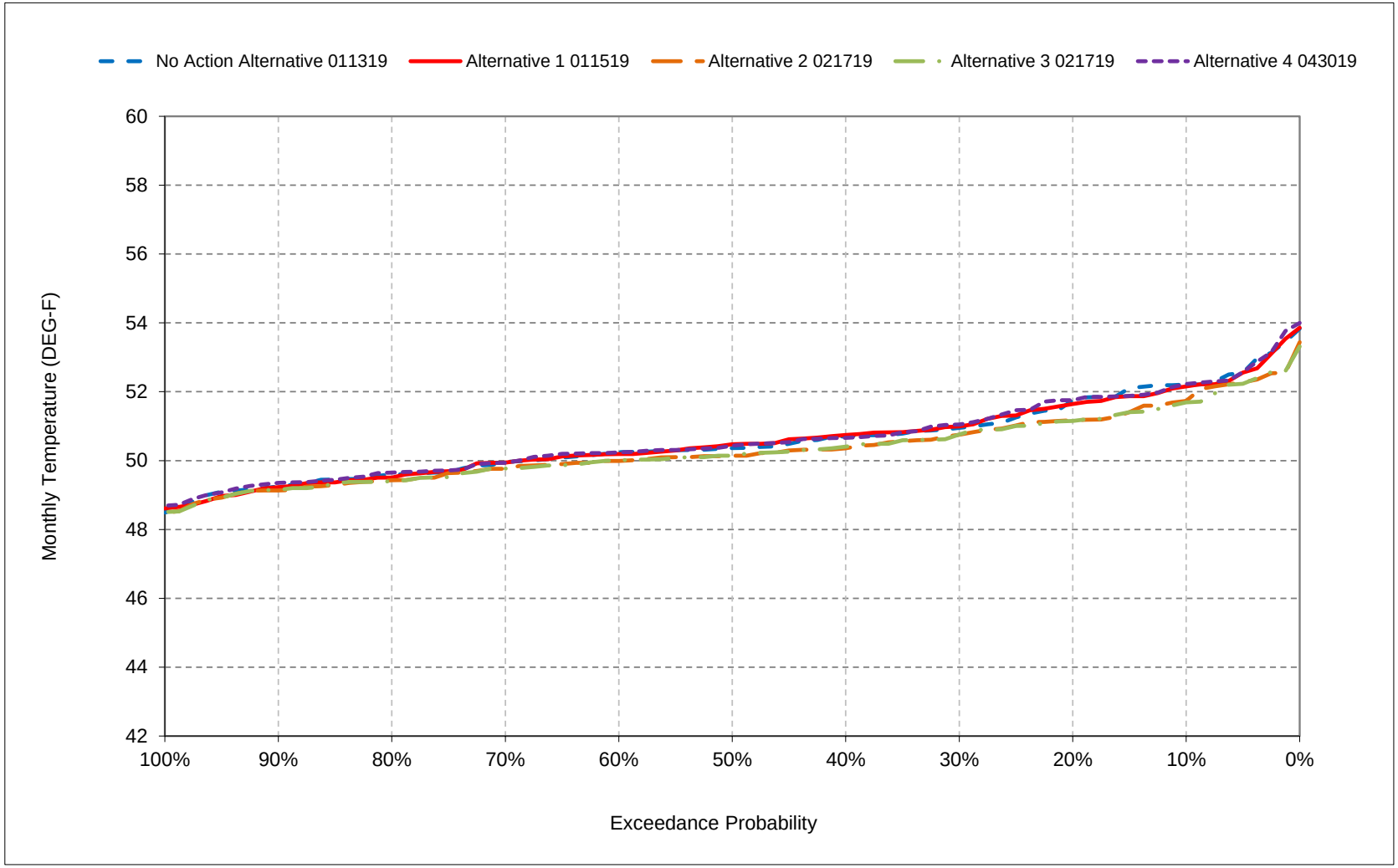
**Figure 2-7. Clear Creek below Whiskeytown, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

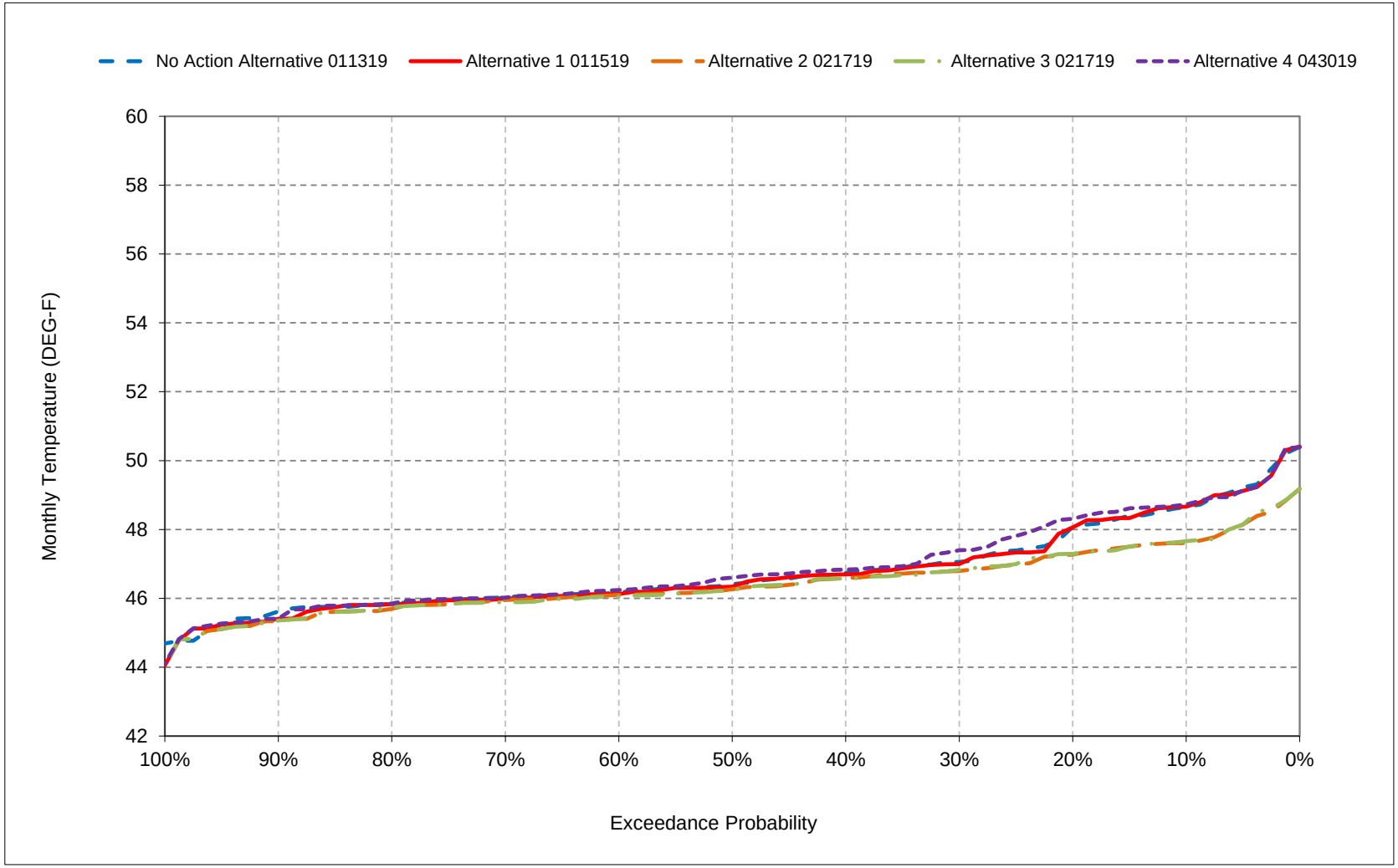
**Figure 2-8. Clear Creek below Whiskeytown, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

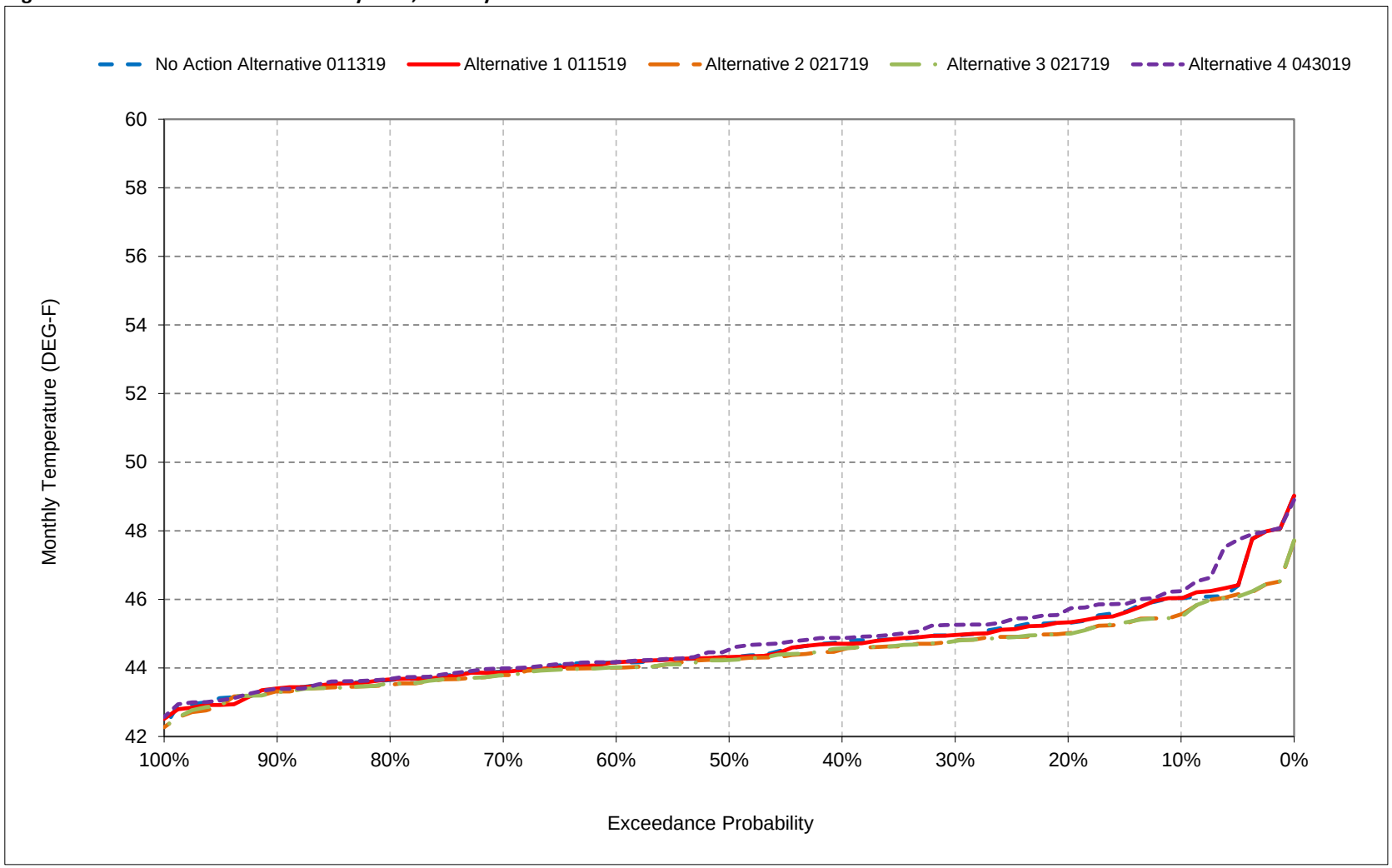
**Figure 2-9. Clear Creek below Whiskeytown, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

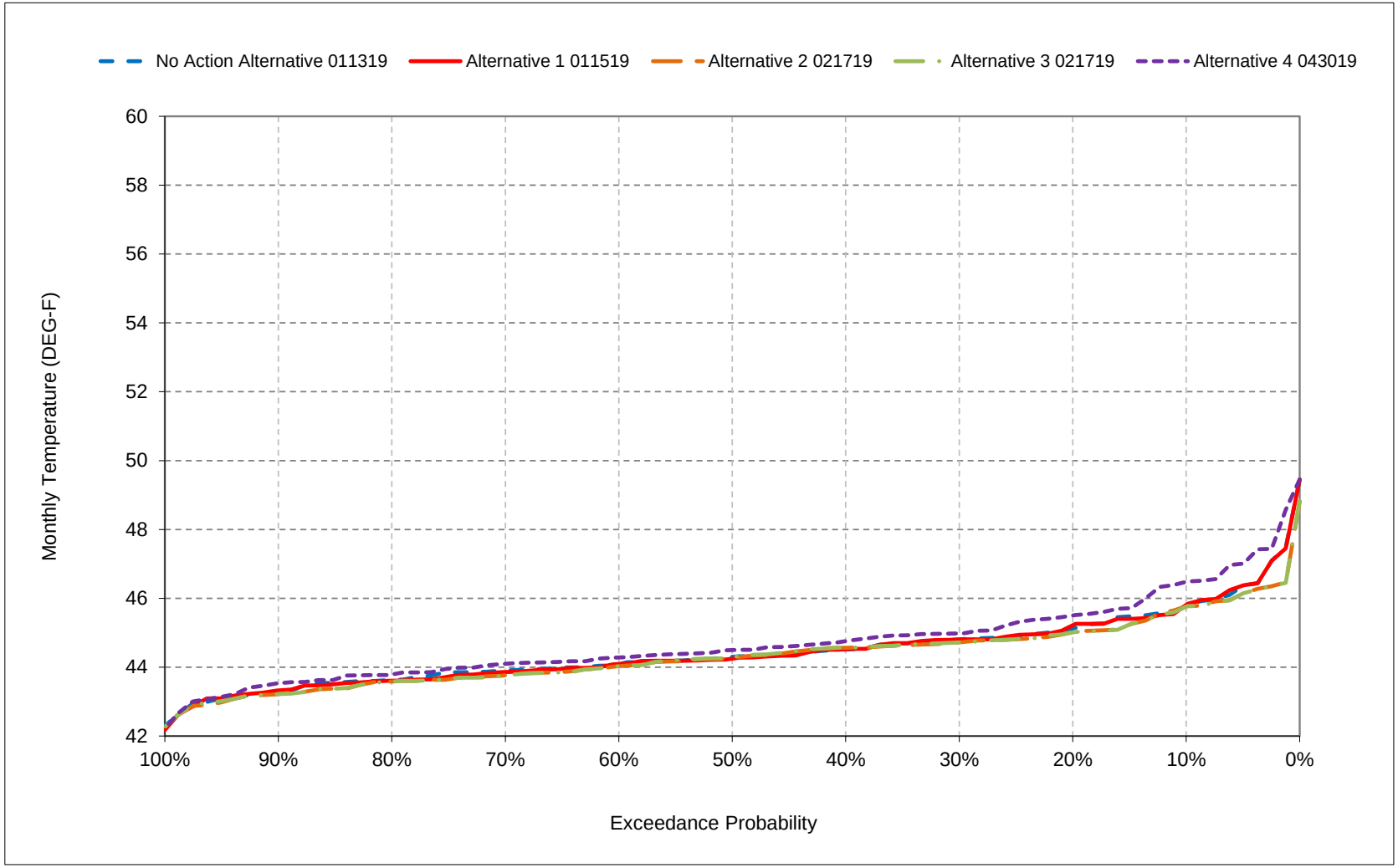
**Figure 2-10. Clear Creek below Whiskeytown, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

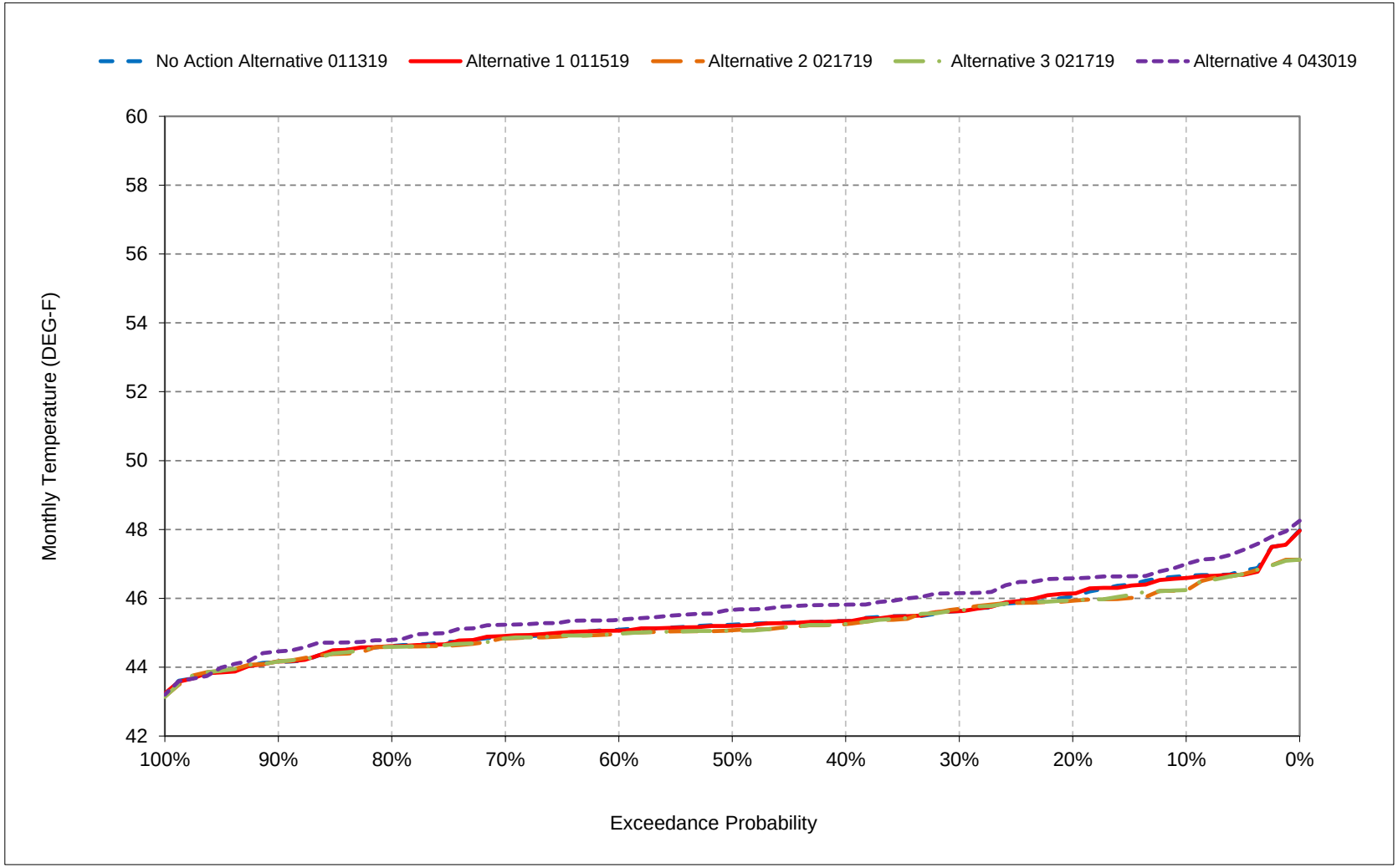
**Figure 2-11. Clear Creek below Whiskeytown, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

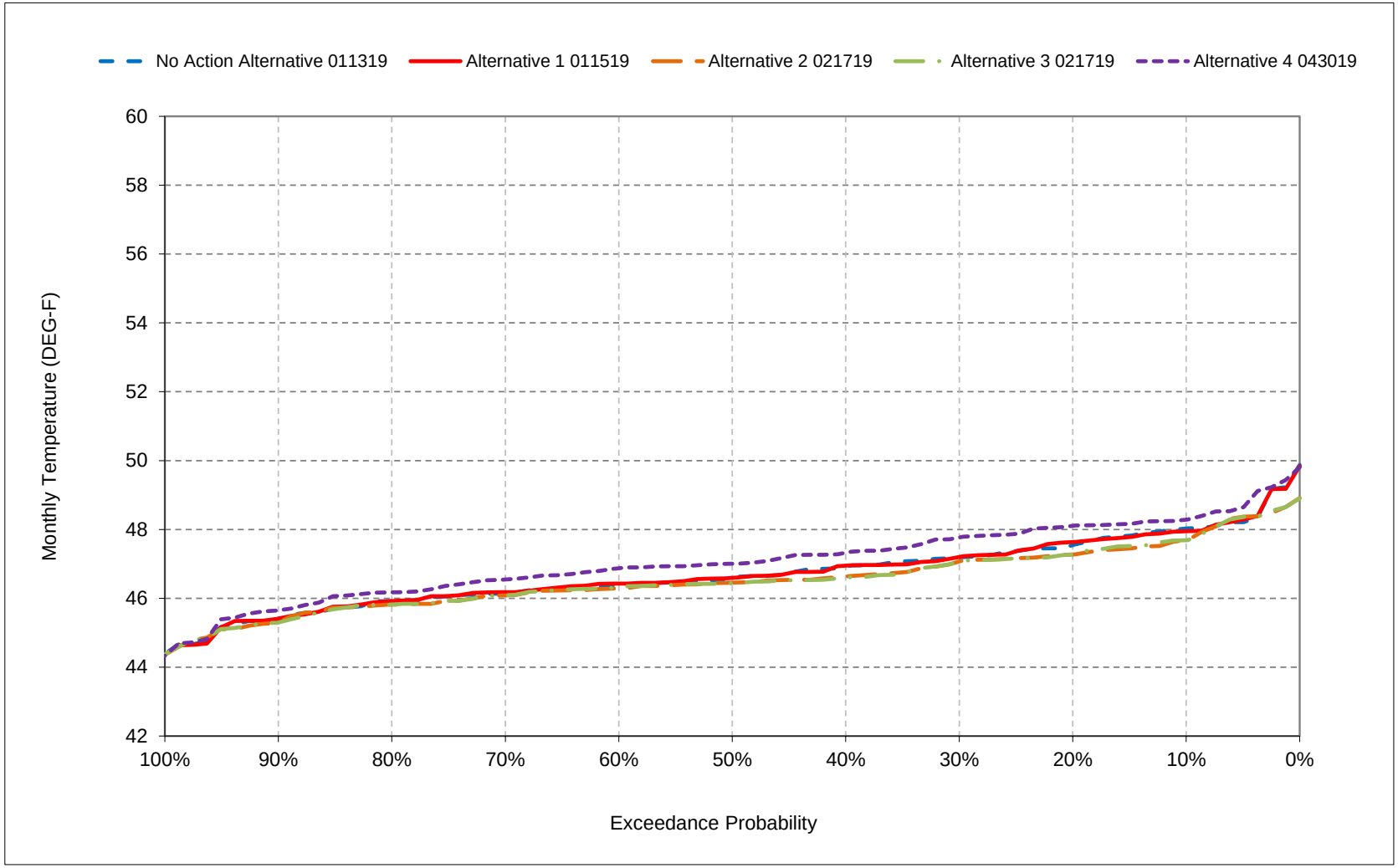
**Figure 2-12. Clear Creek below Whiskeytown, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

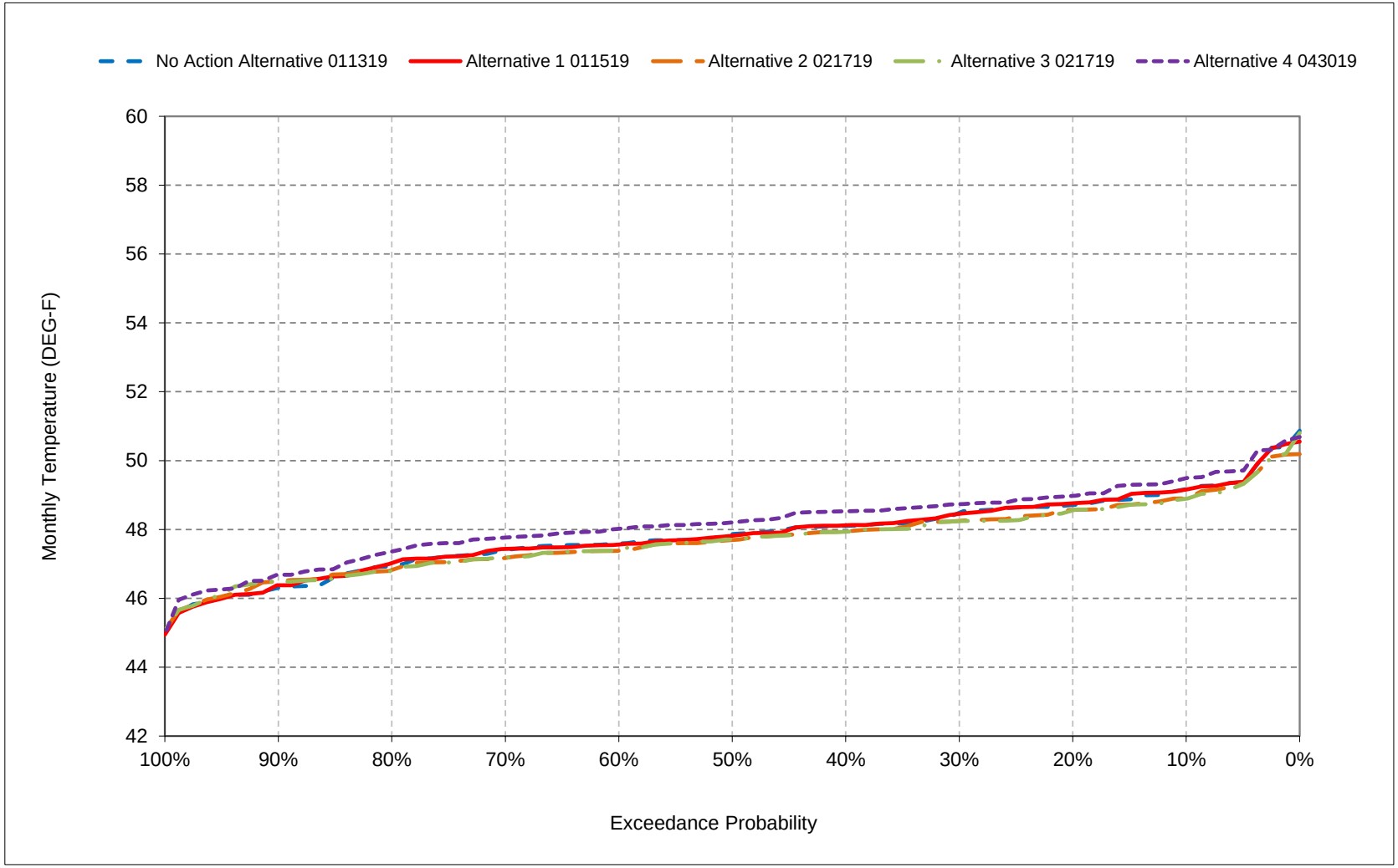
**Figure 2-13. Clear Creek below Whiskeytown, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

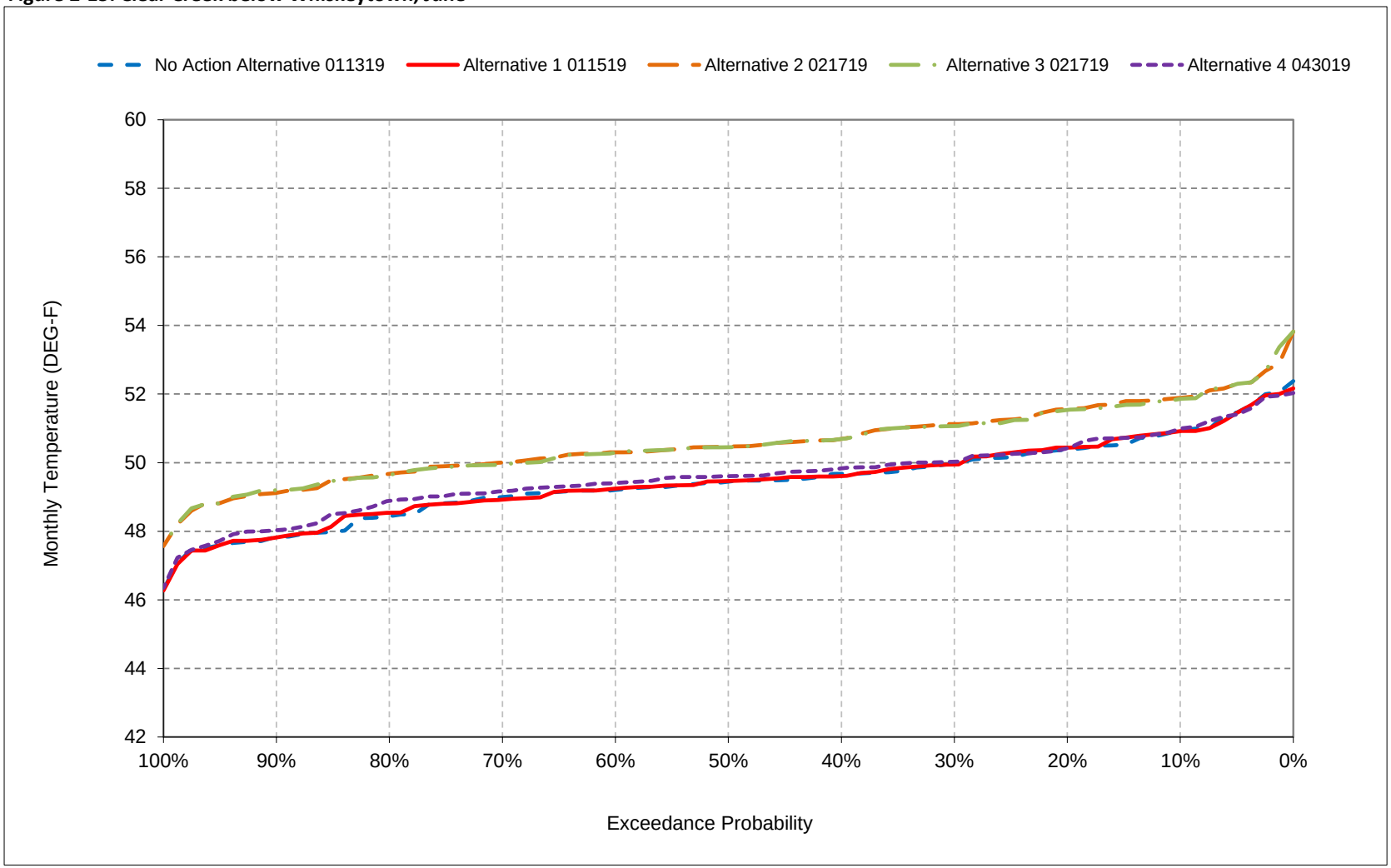
**Figure 2-14. Clear Creek below Whiskeytown, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

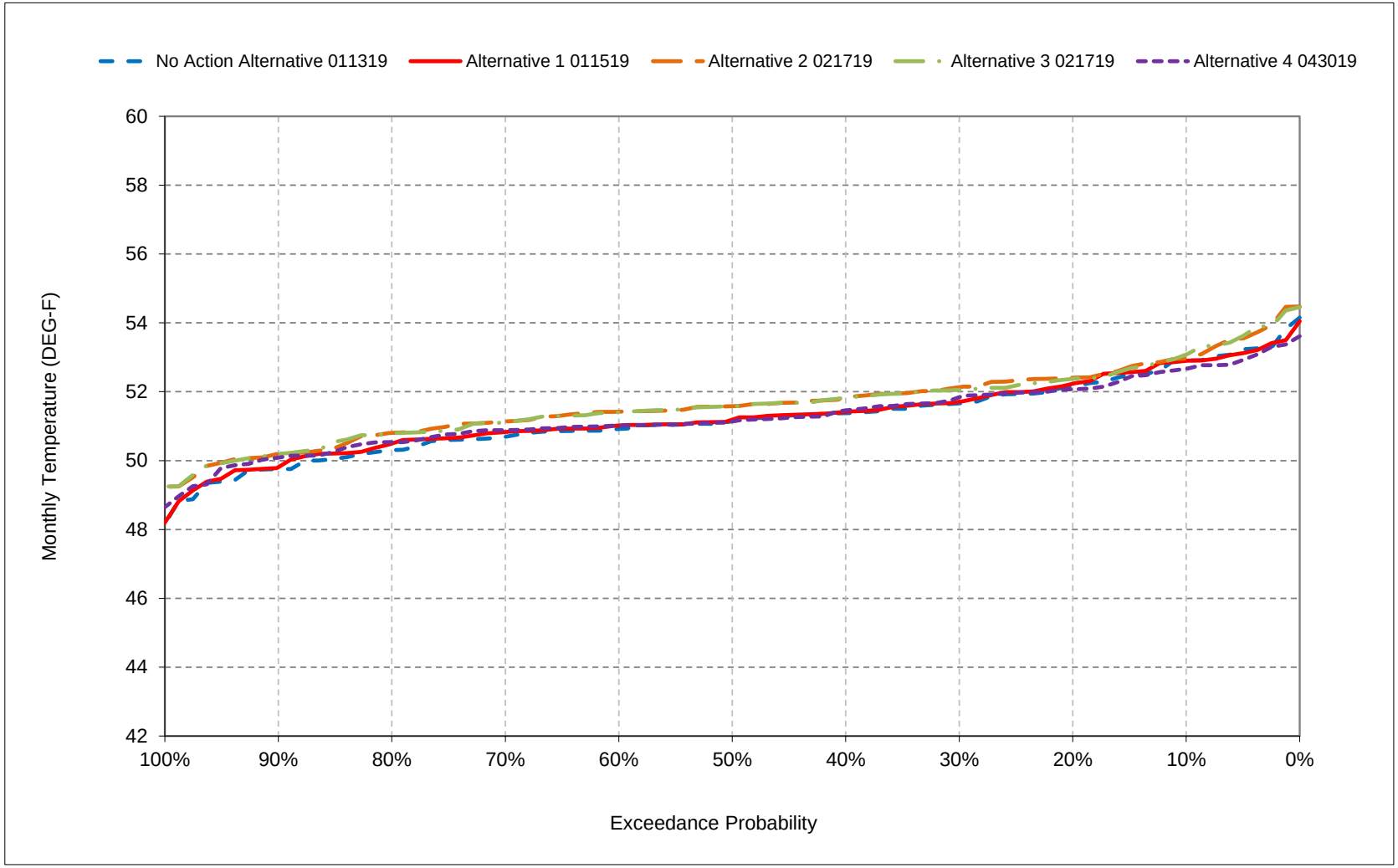
**Figure 2-15. Clear Creek below Whiskeytown, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

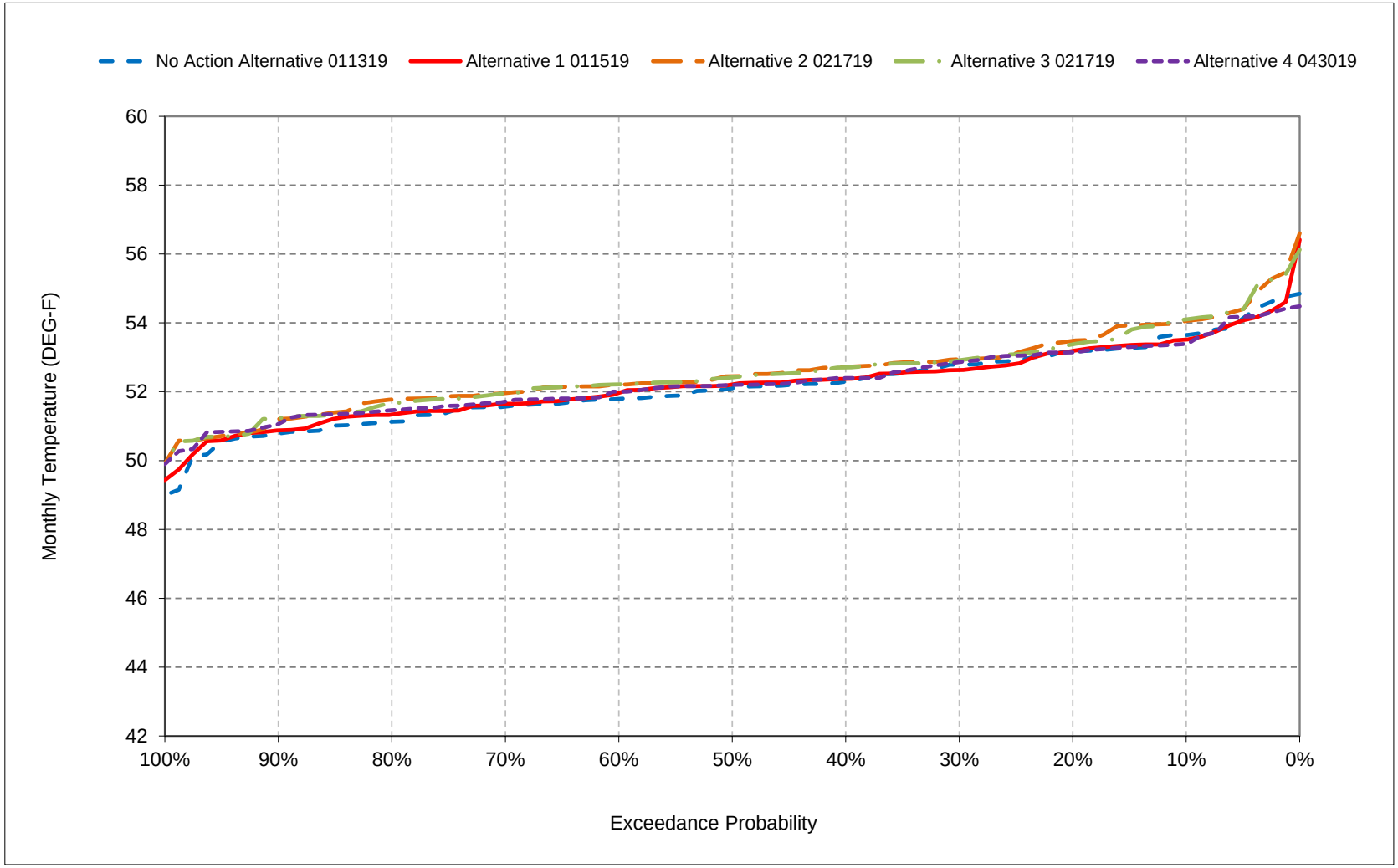
**Figure 2-16. Clear Creek below Whiskeytown, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

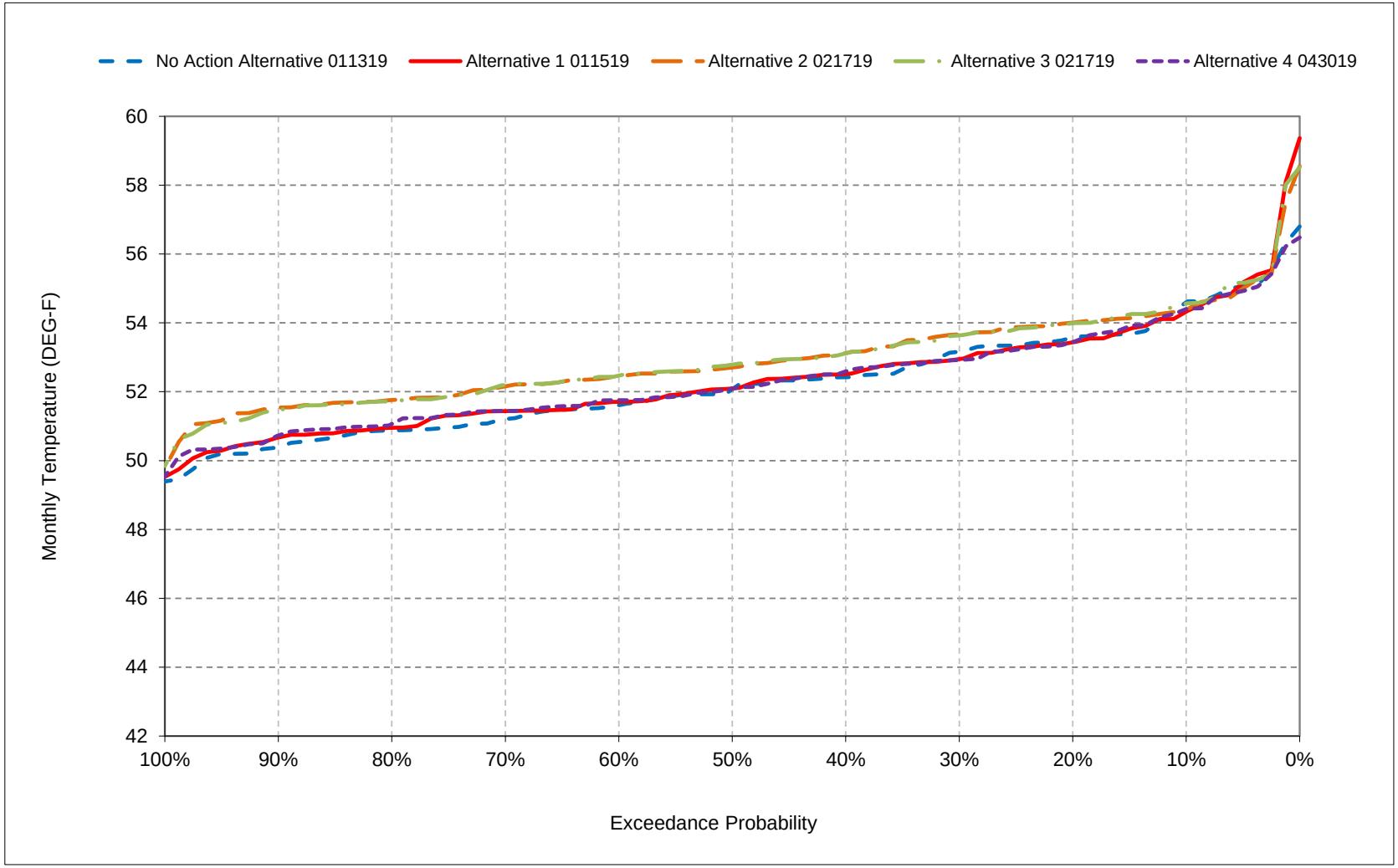
**Figure 2-17. Clear Creek below Whiskeytown, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 2-18. Clear Creek below Whiskeytown, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 3-1. Clear Creek at Igo, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.4 | 52.4 | 48.7 | 46.2 | 46.1 | 47.3 | 49.1 | 50.3 | 53.1 | 56.4 | 56.7 | 55.9 |
| 20% | 54.5 | 51.9 | 48.0 | 45.6 | 45.6 | 46.8 | 48.6 | 49.9 | 52.5 | 56.0 | 56.2 | 54.9 |
| 30% | 53.9 | 51.1 | 47.2 | 45.2 | 45.2 | 46.4 | 48.1 | 49.4 | 51.9 | 55.3 | 55.8 | 54.4 |
| 40% | 53.3 | 50.9 | 46.8 | 45.0 | 45.0 | 46.2 | 47.9 | 49.1 | 51.5 | 55.1 | 55.6 | 53.8 |
| 50% | 52.9 | 50.5 | 46.5 | 44.6 | 44.7 | 45.9 | 47.5 | 49.0 | 51.2 | 55.0 | 55.2 | 53.5 |
| 60% | 52.1 | 50.4 | 46.3 | 44.4 | 44.5 | 45.8 | 47.4 | 48.7 | 51.1 | 54.6 | 55.0 | 53.0 |
| 70% | 51.6 | 50.2 | 46.1 | 44.1 | 44.3 | 45.5 | 47.2 | 48.5 | 50.7 | 54.4 | 54.8 | 52.6 |
| 80% | 51.1 | 49.8 | 45.9 | 43.8 | 44.1 | 45.3 | 46.9 | 48.0 | 50.1 | 54.1 | 54.3 | 52.3 |
| 90% | 50.9 | 49.5 | 45.6 | 43.6 | 43.7 | 44.8 | 46.4 | 47.4 | 49.6 | 53.7 | 54.0 | 51.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 53.1 | 50.8 | 46.9 | 44.8 | 44.9 | 46.0 | 47.7 | 48.9 | 51.4 | 55.0 | 55.3 | 53.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 51.4 | 50.1 | 46.6 | 44.5 | 44.5 | 45.5 | 47.2 | 48.7 | 50.9 | 54.9 | 55.0 | 52.6 |
| Above Normal (16%) | 51.7 | 50.0 | 46.4 | 44.6 | 44.6 | 45.6 | 47.3 | 48.6 | 50.8 | 54.7 | 54.7 | 52.6 |
| Below Normal (13%) | 53.0 | 51.0 | 46.8 | 44.3 | 44.6 | 45.9 | 47.7 | 48.5 | 50.8 | 54.8 | 55.1 | 53.5 |
| Dry (24%) | 53.9 | 51.2 | 47.3 | 45.0 | 45.1 | 46.3 | 47.9 | 48.9 | 51.3 | 55.1 | 55.8 | 54.4 |
| Critical (15%) | 56.7 | 52.5 | 47.5 | 45.8 | 46.0 | 47.2 | 48.9 | 50.1 | 53.3 | 55.4 | 55.9 | 56.0 |

## Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.0 | 52.2 | 48.7 | 46.3 | 46.1 | 47.3 | 49.1 | 50.3 | 53.1 | 56.6 | 56.6 | 55.6 |
| 20% | 54.2 | 51.8 | 48.2 | 45.6 | 45.6 | 46.9 | 48.6 | 49.9 | 52.5 | 56.0 | 56.2 | 54.7 |
| 30% | 53.8 | 51.1 | 47.1 | 45.2 | 45.2 | 46.5 | 48.1 | 49.4 | 51.9 | 55.4 | 55.7 | 54.3 |
| 40% | 53.4 | 50.9 | 46.8 | 44.9 | 45.0 | 46.1 | 47.9 | 49.2 | 51.6 | 55.2 | 55.6 | 54.0 |
| 50% | 53.0 | 50.6 | 46.5 | 44.6 | 44.8 | 45.9 | 47.6 | 48.9 | 51.2 | 55.0 | 55.3 | 53.5 |
| 60% | 52.4 | 50.4 | 46.3 | 44.3 | 44.5 | 45.7 | 47.4 | 48.6 | 50.9 | 54.6 | 55.2 | 53.1 |
| 70% | 51.8 | 50.2 | 46.1 | 44.1 | 44.2 | 45.5 | 47.2 | 48.4 | 50.7 | 54.5 | 54.9 | 52.9 |
| 80% | 51.2 | 49.8 | 45.9 | 43.9 | 44.0 | 45.3 | 46.9 | 48.1 | 50.3 | 54.2 | 54.5 | 52.4 |
| 90% | 50.7 | 49.4 | 45.5 | 43.6 | 43.8 | 44.8 | 46.4 | 47.4 | 49.6 | 53.8 | 54.0 | 52.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 53.0 | 50.8 | 46.9 | 44.8 | 44.9 | 46.0 | 47.7 | 48.9 | 51.4 | 55.0 | 55.3 | 53.8 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 51.4 | 50.1 | 46.5 | 44.5 | 44.5 | 45.5 | 47.2 | 48.6 | 50.9 | 54.9 | 55.0 | 52.8 |
| Above Normal (16%) | 51.9 | 50.1 | 46.4 | 44.6 | 44.6 | 45.7 | 47.4 | 48.7 | 50.9 | 54.8 | 54.9 | 52.7 |
| Below Normal (13%) | 53.1 | 51.0 | 46.8 | 44.2 | 44.5 | 45.9 | 47.6 | 48.5 | 50.9 | 55.0 | 55.2 | 53.5 |
| Dry (24%) | 53.6 | 51.1 | 47.2 | 45.0 | 45.1 | 46.3 | 47.9 | 48.9 | 51.3 | 55.0 | 55.7 | 54.2 |
| Critical (15%) | 56.3 | 52.3 | 47.5 | 45.7 | 46.0 | 47.2 | 48.9 | 50.1 | 53.4 | 55.5 | 56.2 | 56.7 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.4 | -0.2 | 0.0 | **0.1** | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | **0.2** | 0.0 | -0.2 |
| 20% | -0.4 | -0.1 | **0.2** | 0.0 | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | 0.0 | -0.1 | -0.1 |
| 30% | -0.2 | **0.1** | 0.0 | 0.0 | **0.0** | **0.1** | 0.0 | **0.0** | 0.0 | **0.1** | -0.1 | -0.1 |
| 40% | **0.0** | 0.0 | 0.0 | -0.1 | **0.0** | -0.1 | 0.0 | **0.0** | **0.1** | **0.1** | **0.0** | **0.2** |
| 50% | **0.1** | **0.1** | 0.0 | **0.0** | **0.0** | 0.0 | **0.0** | 0.0 | 0.0 | -0.1 | **0.1** | **0.0** |
| 60% | **0.3** | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | **0.1** | -0.1 | -0.2 | **0.0** | **0.2** | **0.0** |
| 70% | **0.2** | 0.0 | -0.1 | 0.0 | -0.1 | 0.0 | 0.0 | -0.1 | -0.1 | **0.1** | **0.1** | **0.2** |
| 80% | **0.0** | 0.0 | **0.0** | **0.1** | -0.1 | 0.0 | **0.0** | **0.0** | **0.2** | **0.1** | **0.2** | **0.1** |
| 90% | -0.2 | -0.1 | -0.1 | **0.0** | **0.1** | 0.0 | **0.1** | **0.0** | **0.0** | **0.1** | **0.0** | **0.3** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | **0.0** | **0.0** | **0.0** | **0.1** | **0.1** | **0.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.0** | **0.0** | 0.0 | **0.0** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | **0.0** | 0.0 | **0.2** |
| Above Normal (16%) | **0.2** | **0.2** | **0.0** | 0.0 | 0.0 | **0.0** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** |
| Below Normal (13%) | **0.0** | 0.0 | **0.0** | -0.1 | -0.1 | 0.0 | 0.0 | 0.0 | **0.1** | **0.2** | **0.0** | **0.0** |
| Dry (24%) | -0.2 | -0.1 | -0.1 | **0.0** | **0.0** | **0.0** | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | -0.2 |
| Critical (15%) | -0.4 | -0.2 | **0.0** | 0.0 | 0.0 | 0.0 | **0.0** | **0.0** | **0.1** | **0.2** | **0.3** | **0.7** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 3-2. Clear Creek at Igo, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.4 | 52.4 | 48.7 | 46.2 | 46.1 | 47.3 | 49.1 | 50.3 | 53.1 | 56.4 | 56.7 | 55.9 |
| 20% | 54.5 | 51.9 | 48.0 | 45.6 | 45.6 | 46.8 | 48.6 | 49.9 | 52.5 | 56.0 | 56.2 | 54.9 |
| 30% | 53.9 | 51.1 | 47.2 | 45.2 | 45.2 | 46.4 | 48.1 | 49.4 | 51.9 | 55.3 | 55.8 | 54.4 |
| 40% | 53.3 | 50.9 | 46.8 | 45.0 | 45.0 | 46.2 | 47.9 | 49.1 | 51.5 | 55.1 | 55.6 | 53.8 |
| 50% | 52.9 | 50.5 | 46.5 | 44.6 | 44.7 | 45.9 | 47.5 | 49.0 | 51.2 | 55.0 | 55.2 | 53.5 |
| 60% | 52.1 | 50.4 | 46.3 | 44.4 | 44.5 | 45.8 | 47.4 | 48.7 | 51.1 | 54.6 | 55.0 | 53.0 |
| 70% | 51.6 | 50.2 | 46.1 | 44.1 | 44.3 | 45.5 | 47.2 | 48.5 | 50.7 | 54.4 | 54.8 | 52.6 |
| 80% | 51.1 | 49.8 | 45.9 | 43.8 | 44.1 | 45.3 | 46.9 | 48.0 | 50.1 | 54.1 | 54.3 | 52.3 |
| 90% | 50.9 | 49.5 | 45.6 | 43.6 | 43.7 | 44.8 | 46.4 | 47.4 | 49.6 | 53.7 | 54.0 | 51.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 53.1 | 50.8 | 46.9 | 44.8 | 44.9 | 46.0 | 47.7 | 48.9 | 51.4 | 55.0 | 55.3 | 53.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 51.4 | 50.1 | 46.6 | 44.5 | 44.5 | 45.5 | 47.2 | 48.7 | 50.9 | 54.9 | 55.0 | 52.6 |
| Above Normal (16%) | 51.7 | 50.0 | 46.4 | 44.6 | 44.6 | 45.6 | 47.3 | 48.6 | 50.8 | 54.7 | 54.7 | 52.6 |
| Below Normal (13%) | 53.0 | 51.0 | 46.8 | 44.3 | 44.6 | 45.9 | 47.7 | 48.5 | 50.8 | 54.8 | 55.1 | 53.5 |
| Dry (24%) | 53.9 | 51.2 | 47.3 | 45.0 | 45.1 | 46.3 | 47.9 | 48.9 | 51.3 | 55.1 | 55.8 | 54.4 |
| Critical (15%) | 56.7 | 52.5 | 47.5 | 45.8 | 46.0 | 47.2 | 48.9 | 50.1 | 53.3 | 55.4 | 55.9 | 56.0 |

## Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.0 | 52.1 | 47.9 | 46.1 | 46.3 | 47.7 | 49.9 | 50.7 | 57.3 | 58.7 | 58.8 | 57.8 |
| 20% | 55.4 | 51.6 | 47.4 | 45.4 | 45.9 | 47.4 | 49.5 | 50.3 | 56.9 | 58.4 | 58.3 | 57.5 |
| 30% | 55.1 | 51.2 | 47.0 | 45.2 | 45.5 | 47.2 | 49.1 | 50.0 | 56.4 | 58.0 | 57.9 | 57.1 |
| 40% | 54.8 | 50.8 | 46.9 | 44.9 | 45.3 | 47.0 | 48.6 | 49.7 | 56.2 | 57.6 | 57.6 | 56.7 |
| 50% | 54.5 | 50.5 | 46.4 | 44.7 | 45.1 | 46.4 | 48.4 | 49.5 | 55.8 | 57.4 | 57.4 | 56.2 |
| 60% | 53.7 | 50.3 | 46.3 | 44.4 | 44.9 | 46.2 | 48.2 | 49.2 | 55.6 | 57.1 | 57.2 | 55.9 |
| 70% | 53.4 | 50.1 | 46.1 | 44.1 | 44.5 | 46.0 | 47.9 | 48.9 | 55.2 | 56.9 | 56.9 | 55.7 |
| 80% | 53.1 | 49.8 | 45.8 | 43.8 | 44.3 | 45.8 | 47.6 | 48.6 | 55.0 | 56.6 | 56.6 | 55.3 |
| 90% | 52.6 | 49.5 | 45.4 | 43.6 | 44.1 | 45.4 | 47.1 | 48.2 | 54.6 | 56.2 | 56.0 | 55.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.4 | 50.7 | 46.6 | 44.7 | 45.2 | 46.6 | 48.5 | 49.5 | 55.9 | 57.5 | 57.5 | 56.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.2 | 50.2 | 46.4 | 44.7 | 45.0 | 46.2 | 48.2 | 49.4 | 55.8 | 57.5 | 57.2 | 55.9 |
| Above Normal (16%) | 53.6 | 50.0 | 46.3 | 44.8 | 45.1 | 46.4 | 48.2 | 49.4 | 55.9 | 57.3 | 57.0 | 55.7 |
| Below Normal (13%) | 54.3 | 50.7 | 46.4 | 44.2 | 44.7 | 46.2 | 48.3 | 49.0 | 55.5 | 57.2 | 57.4 | 56.2 |
| Dry (24%) | 55.0 | 51.0 | 47.0 | 44.7 | 45.3 | 46.7 | 48.6 | 49.4 | 55.9 | 57.4 | 57.7 | 56.9 |
| Critical (15%) | 56.5 | 52.1 | 47.2 | 45.2 | 46.1 | 47.5 | 49.4 | 50.2 | 56.3 | 58.0 | 58.1 | 57.7 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.5** | -0.3 | -0.8 | -0.1 | **0.2** | **0.4** | **0.8** | **0.4** | **4.2** | **2.3** | **2.2** | **1.9** |
| 20% | **0.9** | -0.4 | -0.6 | -0.2 | **0.3** | **0.6** | **0.8** | **0.4** | **4.5** | **2.4** | **2.1** | **2.7** |
| 30% | **1.2** | **0.1** | -0.1 | 0.0 | **0.3** | **0.7** | **1.0** | **0.6** | **4.5** | **2.7** | **2.1** | **2.7** |
| 40% | **1.5** | -0.1 | **0.0** | -0.1 | **0.3** | **0.8** | **0.6** | **0.6** | **4.6** | **2.5** | **2.0** | **2.9** |
| 50% | **1.6** | **0.0** | -0.1 | **0.1** | **0.4** | **0.5** | **0.9** | **0.6** | **4.6** | **2.4** | **2.1** | **2.7** |
| 60% | **1.6** | -0.1 | **0.0** | **0.0** | **0.4** | **0.4** | **0.8** | **0.5** | **4.5** | **2.5** | **2.2** | **2.9** |
| 70% | **1.8** | 0.0 | 0.0 | 0.0 | **0.2** | **0.4** | **0.7** | **0.4** | **4.5** | **2.5** | **2.2** | **3.1** |
| 80% | **1.9** | 0.0 | -0.1 | **0.1** | **0.2** | **0.5** | **0.8** | **0.6** | **4.9** | **2.5** | **2.3** | **2.9** |
| 90% | **1.7** | **0.0** | -0.2 | -0.1 | **0.4** | **0.6** | **0.8** | **0.8** | **5.0** | **2.5** | **2.0** | **3.3** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **1.3** | -0.1 | -0.2 | -0.1 | **0.3** | **0.5** | **0.8** | **0.5** | **4.5** | **2.5** | **2.2** | **2.8** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **1.8** | **0.1** | -0.1 | **0.2** | **0.5** | **0.7** | **1.0** | **0.7** | **4.9** | **2.6** | **2.2** | **3.3** |
| Above Normal (16%) | **1.8** | **0.1** | 0.0 | **0.2** | **0.5** | **0.8** | **0.9** | **0.8** | **5.1** | **2.6** | **2.3** | **3.1** |
| Below Normal (13%) | **1.2** | -0.3 | -0.4 | -0.1 | **0.1** | **0.3** | **0.6** | **0.5** | **4.7** | **2.4** | **2.2** | **2.7** |
| Dry (24%) | **1.2** | -0.2 | -0.4 | -0.3 | **0.2** | **0.4** | **0.6** | **0.4** | **4.6** | **2.4** | **1.9** | **2.5** |
| Critical (15%) | -0.2 | -0.4 | -0.3 | -0.6 | **0.1** | **0.3** | **0.4** | **0.1** | **3.0** | **2.6** | **2.2** | **1.7** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 3-3. Clear Creek at Igo, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.4 | 52.4 | 48.7 | 46.2 | 46.1 | 47.3 | 49.1 | 50.3 | 53.1 | 56.4 | 56.7 | 55.9 |
| 20% | 54.5 | 51.9 | 48.0 | 45.6 | 45.6 | 46.8 | 48.6 | 49.9 | 52.5 | 56.0 | 56.2 | 54.9 |
| 30% | 53.9 | 51.1 | 47.2 | 45.2 | 45.2 | 46.4 | 48.1 | 49.4 | 51.9 | 55.3 | 55.8 | 54.4 |
| 40% | 53.3 | 50.9 | 46.8 | 45.0 | 45.0 | 46.2 | 47.9 | 49.1 | 51.5 | 55.1 | 55.6 | 53.8 |
| 50% | 52.9 | 50.5 | 46.5 | 44.6 | 44.7 | 45.9 | 47.5 | 49.0 | 51.2 | 55.0 | 55.2 | 53.5 |
| 60% | 52.1 | 50.4 | 46.3 | 44.4 | 44.5 | 45.8 | 47.4 | 48.7 | 51.1 | 54.6 | 55.0 | 53.0 |
| 70% | 51.6 | 50.2 | 46.1 | 44.1 | 44.3 | 45.5 | 47.2 | 48.5 | 50.7 | 54.4 | 54.8 | 52.6 |
| 80% | 51.1 | 49.8 | 45.9 | 43.8 | 44.1 | 45.3 | 46.9 | 48.0 | 50.1 | 54.1 | 54.3 | 52.3 |
| 90% | 50.9 | 49.5 | 45.6 | 43.6 | 43.7 | 44.8 | 46.4 | 47.4 | 49.6 | 53.7 | 54.0 | 51.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 53.1 | 50.8 | 46.9 | 44.8 | 44.9 | 46.0 | 47.7 | 48.9 | 51.4 | 55.0 | 55.3 | 53.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 51.4 | 50.1 | 46.6 | 44.5 | 44.5 | 45.5 | 47.2 | 48.7 | 50.9 | 54.9 | 55.0 | 52.6 |
| Above Normal (16%) | 51.7 | 50.0 | 46.4 | 44.6 | 44.6 | 45.6 | 47.3 | 48.6 | 50.8 | 54.7 | 54.7 | 52.6 |
| Below Normal (13%) | 53.0 | 51.0 | 46.8 | 44.3 | 44.6 | 45.9 | 47.7 | 48.5 | 50.8 | 54.8 | 55.1 | 53.5 |
| Dry (24%) | 53.9 | 51.2 | 47.3 | 45.0 | 45.1 | 46.3 | 47.9 | 48.9 | 51.3 | 55.1 | 55.8 | 54.4 |
| Critical (15%) | 56.7 | 52.5 | 47.5 | 45.8 | 46.0 | 47.2 | 48.9 | 50.1 | 53.3 | 55.4 | 55.9 | 56.0 |

## Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.0 | 52.1 | 47.9 | 46.1 | 46.3 | 47.7 | 49.9 | 50.8 | 57.3 | 59.0 | 58.8 | 57.9 |
| 20% | 55.4 | 51.6 | 47.5 | 45.4 | 45.9 | 47.4 | 49.5 | 50.3 | 56.8 | 58.4 | 58.2 | 57.4 |
| 30% | 54.9 | 51.2 | 47.0 | 45.2 | 45.5 | 47.2 | 49.1 | 49.9 | 56.4 | 57.9 | 57.8 | 57.1 |
| 40% | 54.8 | 50.7 | 46.8 | 44.9 | 45.3 | 47.0 | 48.6 | 49.7 | 56.2 | 57.6 | 57.6 | 56.7 |
| 50% | 54.1 | 50.5 | 46.4 | 44.7 | 45.2 | 46.4 | 48.4 | 49.5 | 55.9 | 57.4 | 57.4 | 56.2 |
| 60% | 53.7 | 50.3 | 46.3 | 44.4 | 44.9 | 46.2 | 48.2 | 49.2 | 55.6 | 57.1 | 57.2 | 55.9 |
| 70% | 53.2 | 50.1 | 46.1 | 44.1 | 44.5 | 46.0 | 47.9 | 48.9 | 55.2 | 56.9 | 56.9 | 55.7 |
| 80% | 52.9 | 49.8 | 45.8 | 43.8 | 44.3 | 45.8 | 47.7 | 48.6 | 55.0 | 56.6 | 56.5 | 55.2 |
| 90% | 52.5 | 49.5 | 45.4 | 43.5 | 44.1 | 45.3 | 47.2 | 48.2 | 54.7 | 56.2 | 56.0 | 55.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.3 | 50.7 | 46.6 | 44.7 | 45.2 | 46.6 | 48.5 | 49.5 | 55.9 | 57.5 | 57.4 | 56.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.2 | 50.2 | 46.4 | 44.7 | 45.0 | 46.2 | 48.2 | 49.3 | 55.8 | 57.4 | 57.1 | 55.9 |
| Above Normal (16%) | 53.5 | 50.0 | 46.3 | 44.9 | 45.1 | 46.4 | 48.2 | 49.4 | 55.9 | 57.3 | 57.0 | 55.7 |
| Below Normal (13%) | 54.3 | 50.7 | 46.4 | 44.2 | 44.7 | 46.2 | 48.3 | 49.1 | 55.6 | 57.2 | 57.4 | 56.2 |
| Dry (24%) | 55.0 | 51.0 | 47.0 | 44.7 | 45.3 | 46.8 | 48.6 | 49.4 | 55.9 | 57.5 | 57.7 | 56.9 |
| Critical (15%) | 56.4 | 52.0 | 47.1 | 45.2 | 46.1 | 47.5 | 49.4 | 50.3 | 56.4 | 58.0 | 58.1 | 57.8 |

## Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.5** | -0.3 | -0.8 | -0.1 | **0.2** | **0.4** | **0.8** | **0.5** | **4.3** | **2.6** | **2.1** | **2.0** |
| 20% | **0.9** | -0.3 | -0.5 | -0.2 | **0.3** | **0.6** | **0.8** | **0.4** | **4.4** | **2.4** | **2.0** | **2.6** |
| 30% | **1.0** | **0.1** | -0.1 | 0.0 | **0.3** | **0.8** | **0.9** | **0.5** | **4.6** | **2.6** | **2.1** | **2.7** |
| 40% | **1.5** | -0.2 | 0.0 | -0.1 | **0.3** | **0.8** | **0.6** | **0.6** | **4.6** | **2.4** | **2.0** | **2.9** |
| 50% | **1.2** | 0.0 | -0.1 | **0.1** | **0.4** | **0.5** | **0.9** | **0.5** | **4.7** | **2.3** | **2.1** | **2.8** |
| 60% | **1.6** | -0.2 | **0.0** | 0.0 | **0.4** | **0.4** | **0.8** | **0.5** | **4.5** | **2.5** | **2.2** | **2.9** |
| 70% | **1.6** | -0.1 | -0.1 | 0.0 | **0.2** | **0.4** | **0.7** | **0.4** | **4.5** | **2.5** | **2.2** | **3.1** |
| 80% | **1.8** | 0.0 | -0.1 | **0.0** | **0.2** | **0.5** | **0.8** | **0.5** | **4.9** | **2.5** | **2.2** | **2.9** |
| 90% | **1.7** | **0.0** | -0.2 | -0.1 | **0.4** | **0.6** | **0.8** | **0.8** | **5.1** | **2.5** | **2.0** | **3.2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **1.3** | -0.1 | -0.3 | -0.1 | **0.3** | **0.5** | **0.8** | **0.5** | **4.5** | **2.5** | **2.1** | **2.8** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **1.8** | **0.1** | -0.2 | **0.2** | **0.4** | **0.7** | **1.0** | **0.6** | **4.8** | **2.5** | **2.2** | **3.2** |
| Above Normal (16%) | **1.8** | **0.1** | -0.1 | **0.2** | **0.5** | **0.8** | **0.9** | **0.8** | **5.1** | **2.6** | **2.3** | **3.1** |
| Below Normal (13%) | **1.2** | -0.3 | -0.4 | -0.1 | **0.1** | **0.3** | **0.6** | **0.5** | **4.7** | **2.4** | **2.2** | **2.7** |
| Dry (24%) | **1.1** | -0.2 | -0.3 | -0.3 | **0.2** | **0.4** | **0.6** | **0.4** | **4.6** | **2.4** | **1.9** | **2.6** |
| Critical (15%) | -0.3 | -0.5 | -0.4 | -0.6 | **0.1** | **0.3** | **0.5** | **0.2** | **3.0** | **2.6** | **2.2** | **1.8** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 3-4. Clear Creek at Igo, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.4 | 52.4 | 48.7 | 46.2 | 46.1 | 47.3 | 49.1 | 50.3 | 53.1 | 56.4 | 56.7 | 55.9 |
| 20% | 54.5 | 51.9 | 48.0 | 45.6 | 45.6 | 46.8 | 48.6 | 49.9 | 52.5 | 56.0 | 56.2 | 54.9 |
| 30% | 53.9 | 51.1 | 47.2 | 45.2 | 45.2 | 46.4 | 48.1 | 49.4 | 51.9 | 55.3 | 55.8 | 54.4 |
| 40% | 53.3 | 50.9 | 46.8 | 45.0 | 45.0 | 46.2 | 47.9 | 49.1 | 51.5 | 55.1 | 55.6 | 53.8 |
| 50% | 52.9 | 50.5 | 46.5 | 44.6 | 44.7 | 45.9 | 47.5 | 49.0 | 51.2 | 55.0 | 55.2 | 53.5 |
| 60% | 52.1 | 50.4 | 46.3 | 44.4 | 44.5 | 45.8 | 47.4 | 48.7 | 51.1 | 54.6 | 55.0 | 53.0 |
| 70% | 51.6 | 50.2 | 46.1 | 44.1 | 44.3 | 45.5 | 47.2 | 48.5 | 50.7 | 54.4 | 54.8 | 52.6 |
| 80% | 51.1 | 49.8 | 45.9 | 43.8 | 44.1 | 45.3 | 46.9 | 48.0 | 50.1 | 54.1 | 54.3 | 52.3 |
| 90% | 50.9 | 49.5 | 45.6 | 43.6 | 43.7 | 44.8 | 46.4 | 47.4 | 49.6 | 53.7 | 54.0 | 51.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 53.1 | 50.8 | 46.9 | 44.8 | 44.9 | 46.0 | 47.7 | 48.9 | 51.4 | 55.0 | 55.3 | 53.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 51.4 | 50.1 | 46.6 | 44.5 | 44.5 | 45.5 | 47.2 | 48.7 | 50.9 | 54.9 | 55.0 | 52.6 |
| Above Normal (16%) | 51.7 | 50.0 | 46.4 | 44.6 | 44.6 | 45.6 | 47.3 | 48.6 | 50.8 | 54.7 | 54.7 | 52.6 |
| Below Normal (13%) | 53.0 | 51.0 | 46.8 | 44.3 | 44.6 | 45.9 | 47.7 | 48.5 | 50.8 | 54.8 | 55.1 | 53.5 |
| Dry (24%) | 53.9 | 51.2 | 47.3 | 45.0 | 45.1 | 46.3 | 47.9 | 48.9 | 51.3 | 55.1 | 55.8 | 54.4 |
| Critical (15%) | 56.7 | 52.5 | 47.5 | 45.8 | 46.0 | 47.2 | 48.9 | 50.1 | 53.3 | 55.4 | 55.9 | 56.0 |

## Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.6 | 52.4 | 48.7 | 46.4 | 46.6 | 47.4 | 49.2 | 50.5 | 53.2 | 56.5 | 56.5 | 55.6 |
| 20% | 54.1 | 52.0 | 48.3 | 45.7 | 45.8 | 47.0 | 48.7 | 49.9 | 52.4 | 55.7 | 56.2 | 54.8 |
| 30% | 53.7 | 51.3 | 47.4 | 45.4 | 45.3 | 46.6 | 48.5 | 49.7 | 51.9 | 55.4 | 55.8 | 54.2 |
| 40% | 53.2 | 50.8 | 46.9 | 45.0 | 45.0 | 46.2 | 48.1 | 49.5 | 51.7 | 55.0 | 55.5 | 54.0 |
| 50% | 52.7 | 50.6 | 46.6 | 44.7 | 44.7 | 46.0 | 47.7 | 49.2 | 51.3 | 54.8 | 55.3 | 53.5 |
| 60% | 52.2 | 50.4 | 46.3 | 44.3 | 44.4 | 45.9 | 47.4 | 49.0 | 51.0 | 54.7 | 55.1 | 53.1 |
| 70% | 51.9 | 50.1 | 46.1 | 44.1 | 44.3 | 45.5 | 47.1 | 48.7 | 50.8 | 54.5 | 54.7 | 52.8 |
| 80% | 51.4 | 49.8 | 45.9 | 43.8 | 44.1 | 45.2 | 46.8 | 48.3 | 50.5 | 54.1 | 54.5 | 52.5 |
| 90% | 51.0 | 49.5 | 45.5 | 43.5 | 43.8 | 44.8 | 46.4 | 47.7 | 49.8 | 53.3 | 54.0 | 52.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 53.0 | 50.8 | 47.0 | 44.9 | 45.0 | 46.1 | 47.7 | 49.2 | 51.5 | 54.9 | 55.3 | 53.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 51.6 | 50.1 | 46.7 | 44.7 | 44.6 | 45.8 | 47.3 | 49.0 | 51.0 | 54.5 | 55.0 | 52.8 |
| Above Normal (16%) | 51.8 | 50.3 | 46.6 | 44.7 | 45.0 | 45.5 | 47.3 | 49.1 | 51.0 | 54.7 | 54.7 | 52.7 |
| Below Normal (13%) | 53.1 | 50.9 | 47.0 | 44.2 | 44.5 | 46.0 | 47.7 | 48.8 | 51.0 | 54.7 | 55.1 | 53.5 |
| Dry (24%) | 53.6 | 51.0 | 47.2 | 44.9 | 45.1 | 46.2 | 47.9 | 49.1 | 51.3 | 55.0 | 55.7 | 54.2 |
| Critical (15%) | 56.0 | 52.3 | 47.5 | 45.8 | 46.0 | 47.2 | 49.0 | 50.2 | 53.5 | 55.6 | 56.3 | 56.3 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.1** | -0.1 | **0.0** | **0.2** | **0.5** | **0.1** | **0.1** | **0.1** | **0.1** | **0.0** | -0.1 | -0.2 |
| 20% | -0.4 | **0.1** | **0.4** | **0.2** | **0.2** | **0.1** | **0.1** | 0.0 | -0.1 | -0.3 | 0.0 | -0.1 |
| 30% | -0.2 | **0.3** | **0.2** | **0.1** | **0.1** | **0.2** | **0.3** | **0.3** | **0.0** | **0.2** | **0.0** | -0.1 |
| 40% | -0.1 | -0.1 | **0.1** | **0.0** | **0.0** | **0.0** | **0.1** | **0.4** | **0.1** | -0.2 | -0.1 | **0.3** |
| 50% | -0.2 | **0.1** | **0.1** | **0.1** | -0.1 | **0.1** | **0.2** | **0.2** | **0.1** | -0.2 | **0.0** | **0.0** |
| 60% | **0.2** | 0.0 | **0.0** | -0.1 | 0.0 | **0.1** | **0.0** | **0.4** | 0.0 | **0.1** | **0.1** | **0.0** |
| 70% | **0.2** | 0.0 | -0.1 | 0.0 | **0.0** | 0.0 | -0.1 | **0.3** | **0.0** | **0.0** | 0.0 | **0.2** |
| 80% | **0.2** | **0.0** | **0.0** | 0.0 | 0.0 | -0.1 | -0.1 | **0.3** | **0.4** | 0.0 | **0.2** | **0.1** |
| 90% | **0.1** | **0.0** | -0.1 | -0.1 | **0.1** | 0.0 | **0.0** | **0.2** | **0.2** | -0.5 | 0.0 | **0.4** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | **0.0** | **0.1** | **0.1** | **0.1** | **0.0** | **0.0** | **0.2** | **0.1** | -0.1 | **0.0** | **0.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.2** | **0.1** | **0.1** | **0.2** | **0.1** | **0.3** | **0.0** | **0.3** | **0.1** | -0.3 | 0.0 | **0.2** |
| Above Normal (16%) | **0.1** | **0.3** | **0.2** | **0.1** | **0.4** | -0.1 | **0.1** | **0.4** | **0.1** | **0.0** | **0.0** | **0.1** |
| Below Normal (13%) | **0.0** | -0.1 | **0.1** | 0.0 | -0.1 | **0.1** | **0.1** | **0.3** | **0.2** | -0.1 | 0.0 | **0.1** |
| Dry (24%) | -0.3 | -0.1 | -0.1 | 0.0 | **0.0** | -0.1 | 0.0 | **0.1** | **0.0** | 0.0 | -0.1 | -0.2 |
| Critical (15%) | -0.7 | -0.2 | **0.0** | **0.0** | **0.0** | 0.0 | **0.1** | **0.2** | **0.1** | **0.2** | **0.5** | **0.2** |

a Based on the 82-year simulation period.

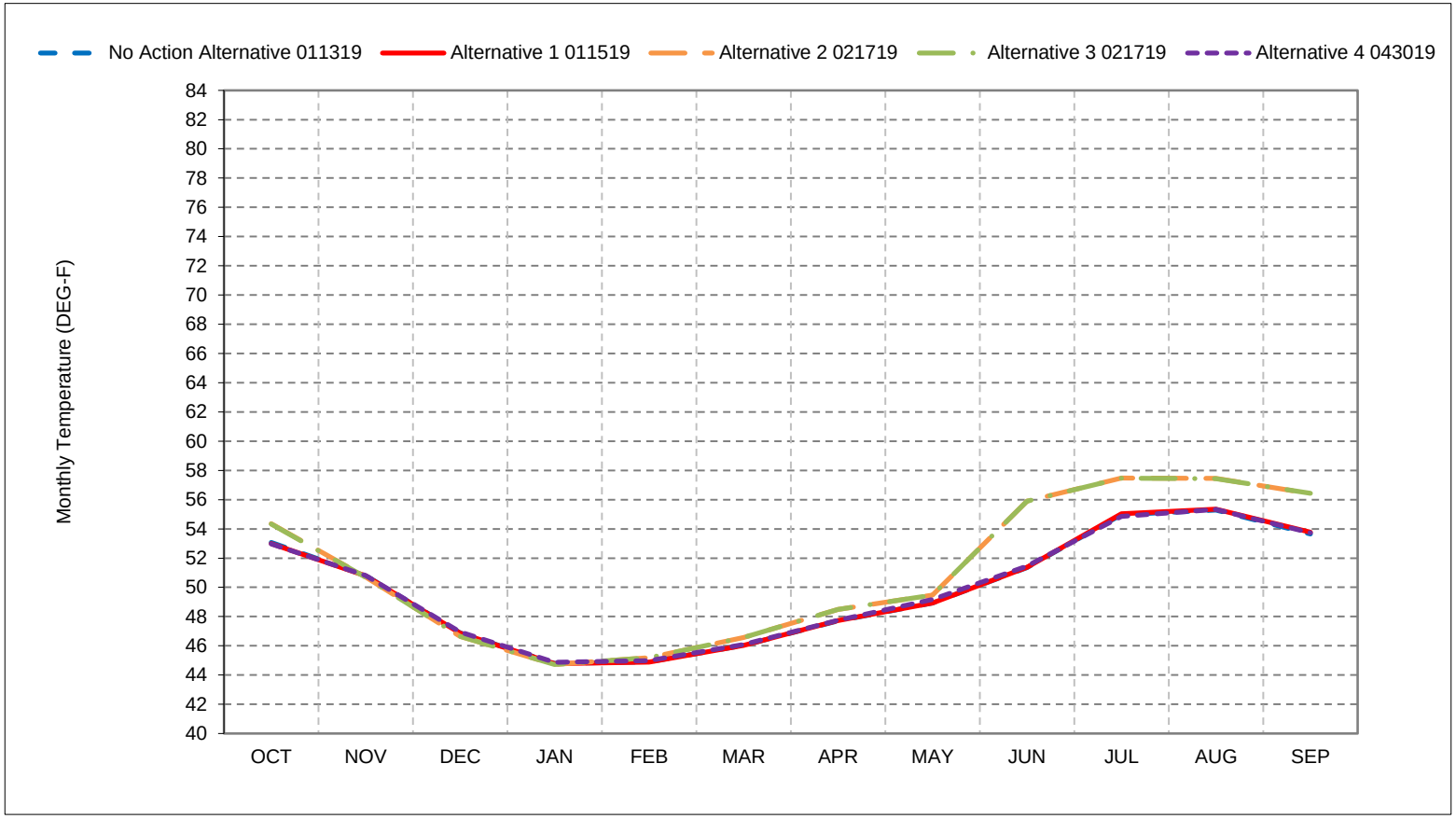
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

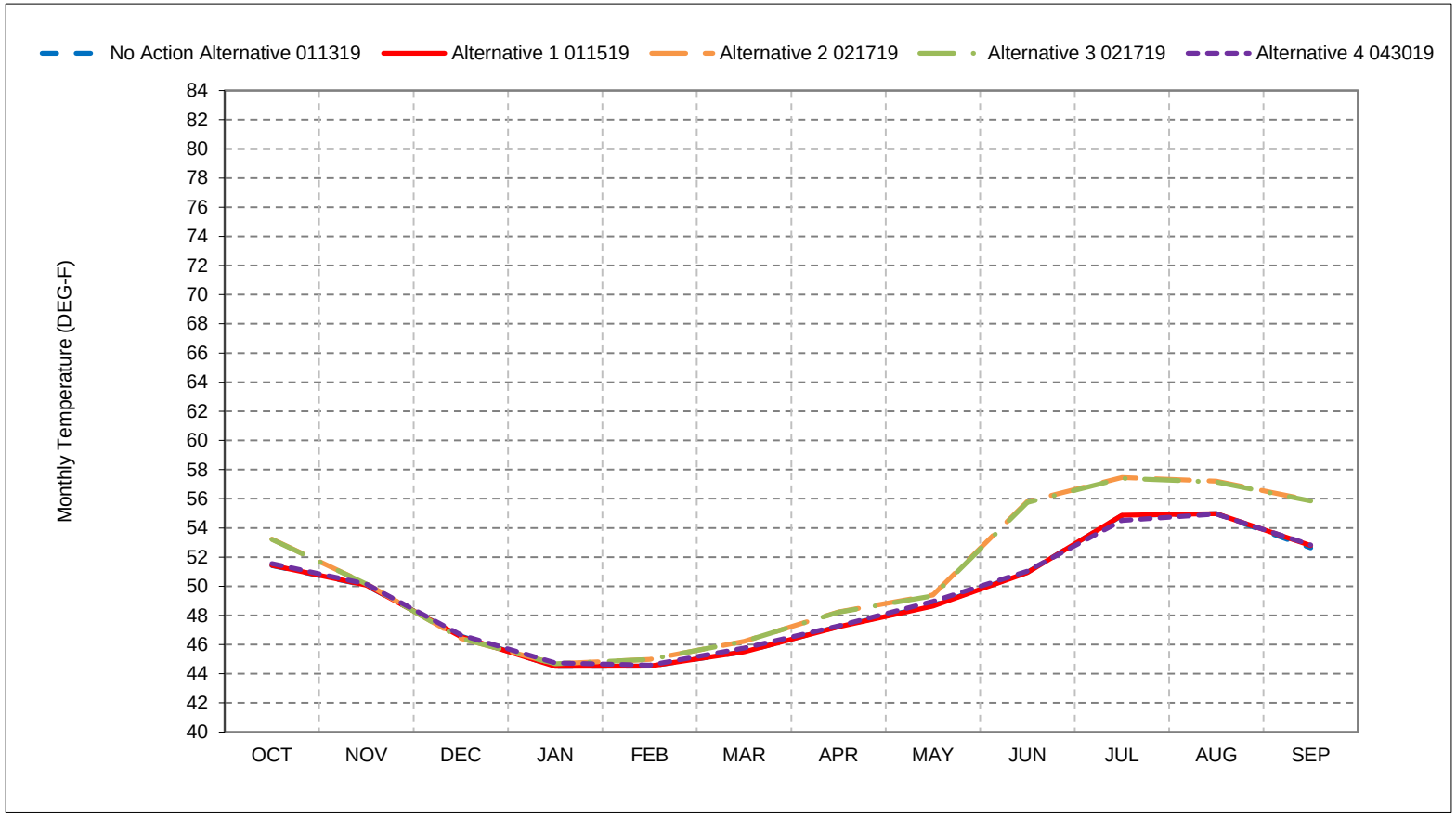
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-1. Clear Creek at Igo, Long-Term Average Temperature



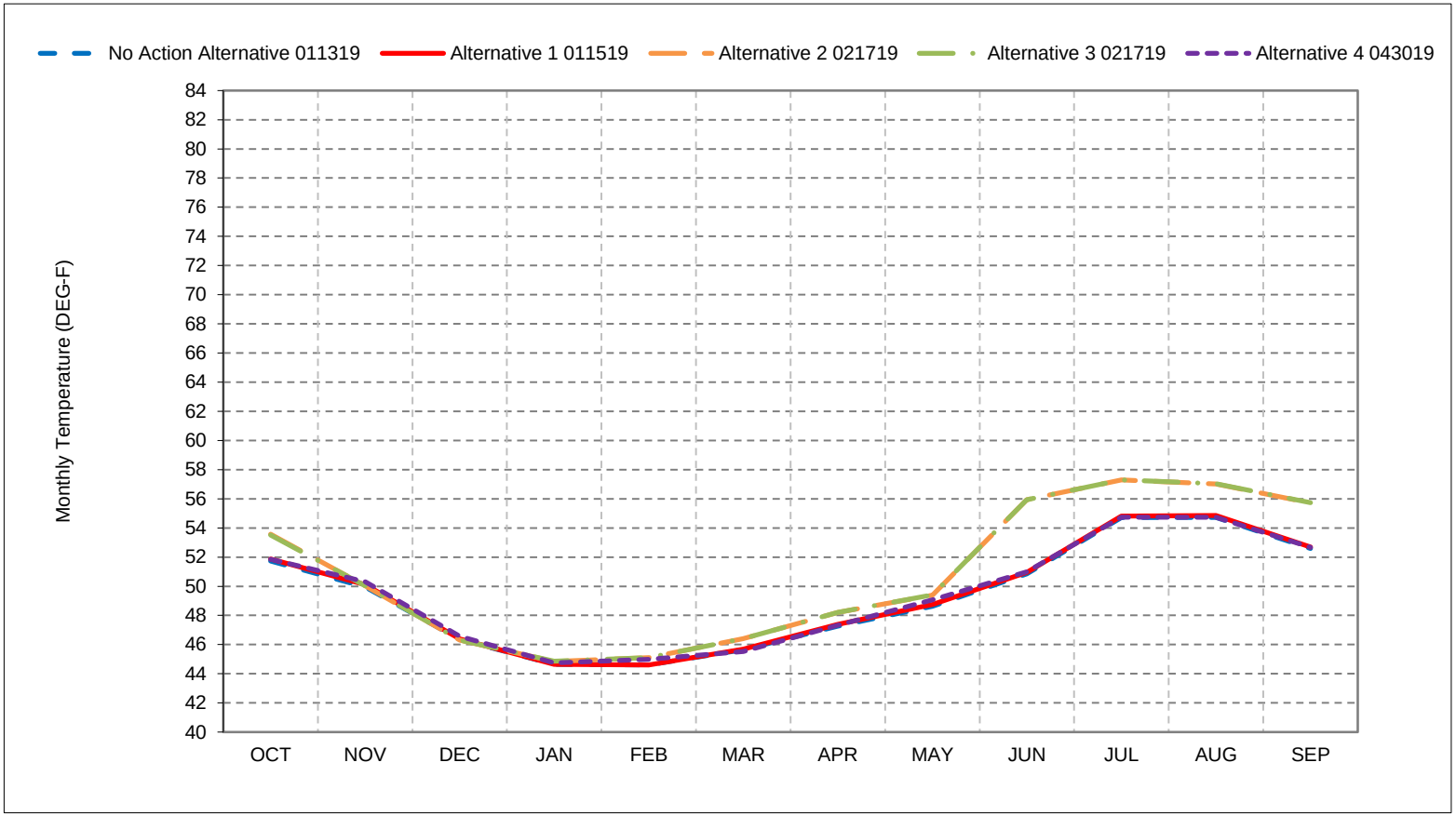

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-2. Clear Creek at Igo, Wet Year Average Temperature



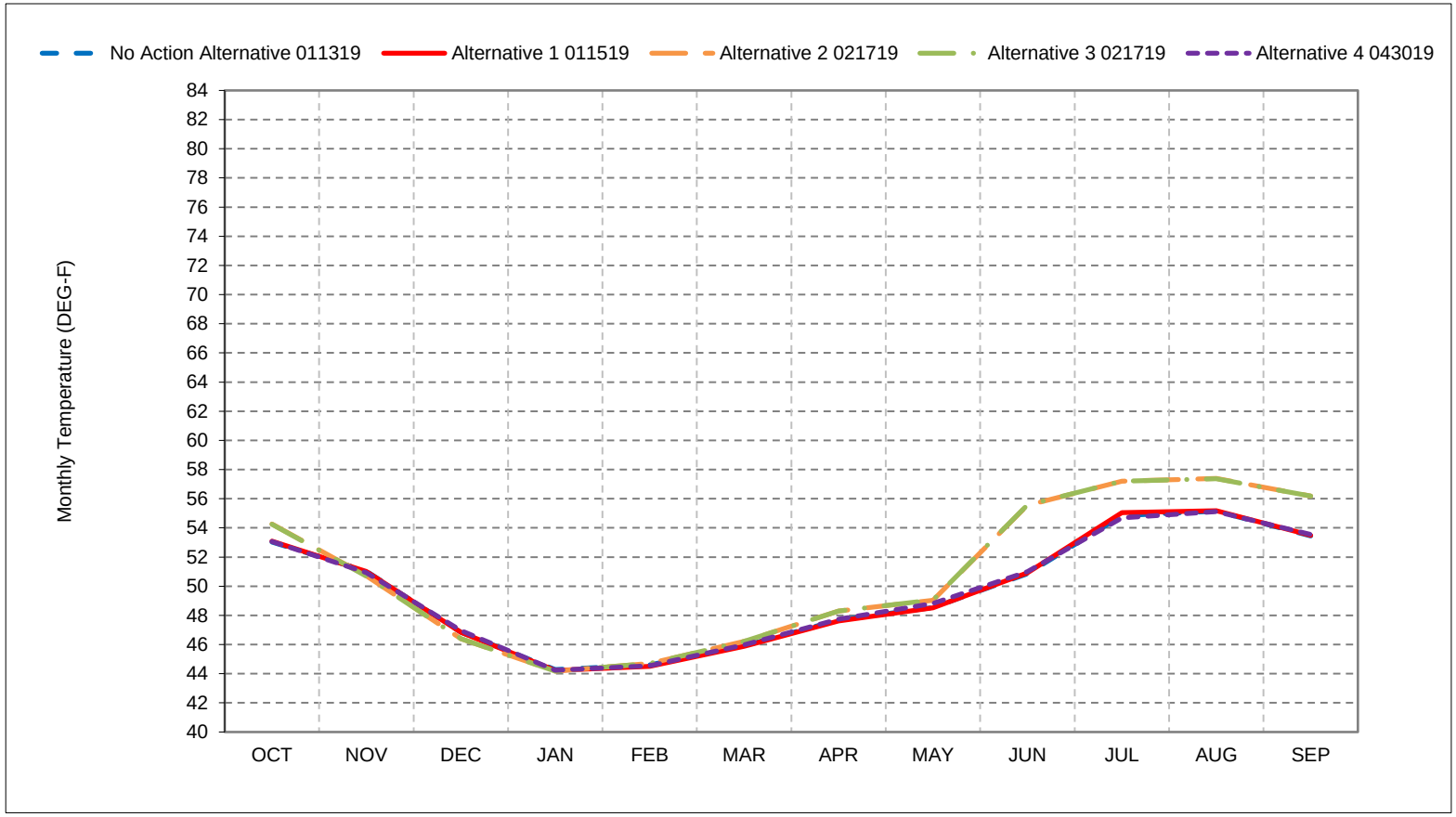

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-3. Clear Creek at Igo, Above Normal Year Average Temperature



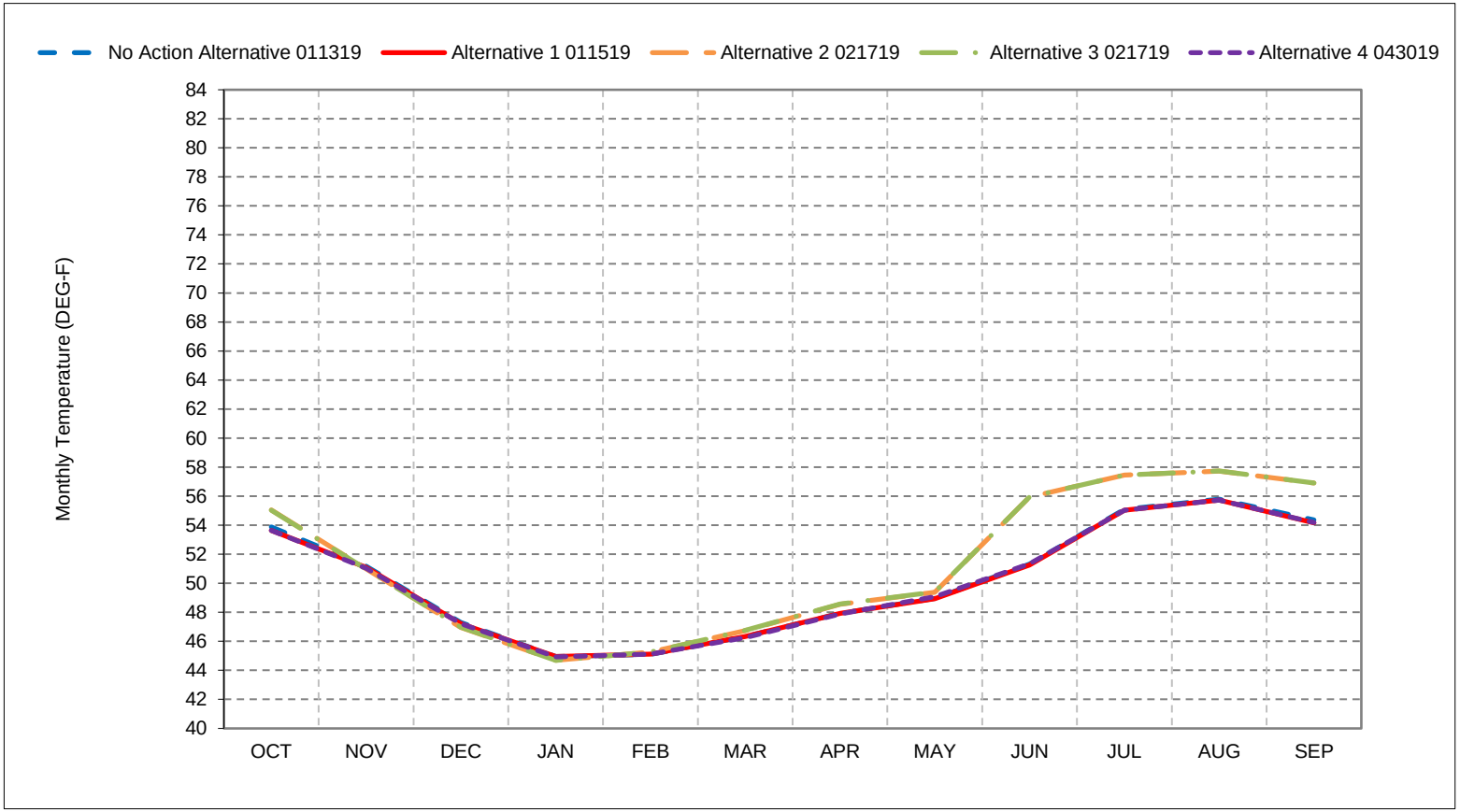

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-4. Clear Creek at Igo, Below Normal Year Average Temperature



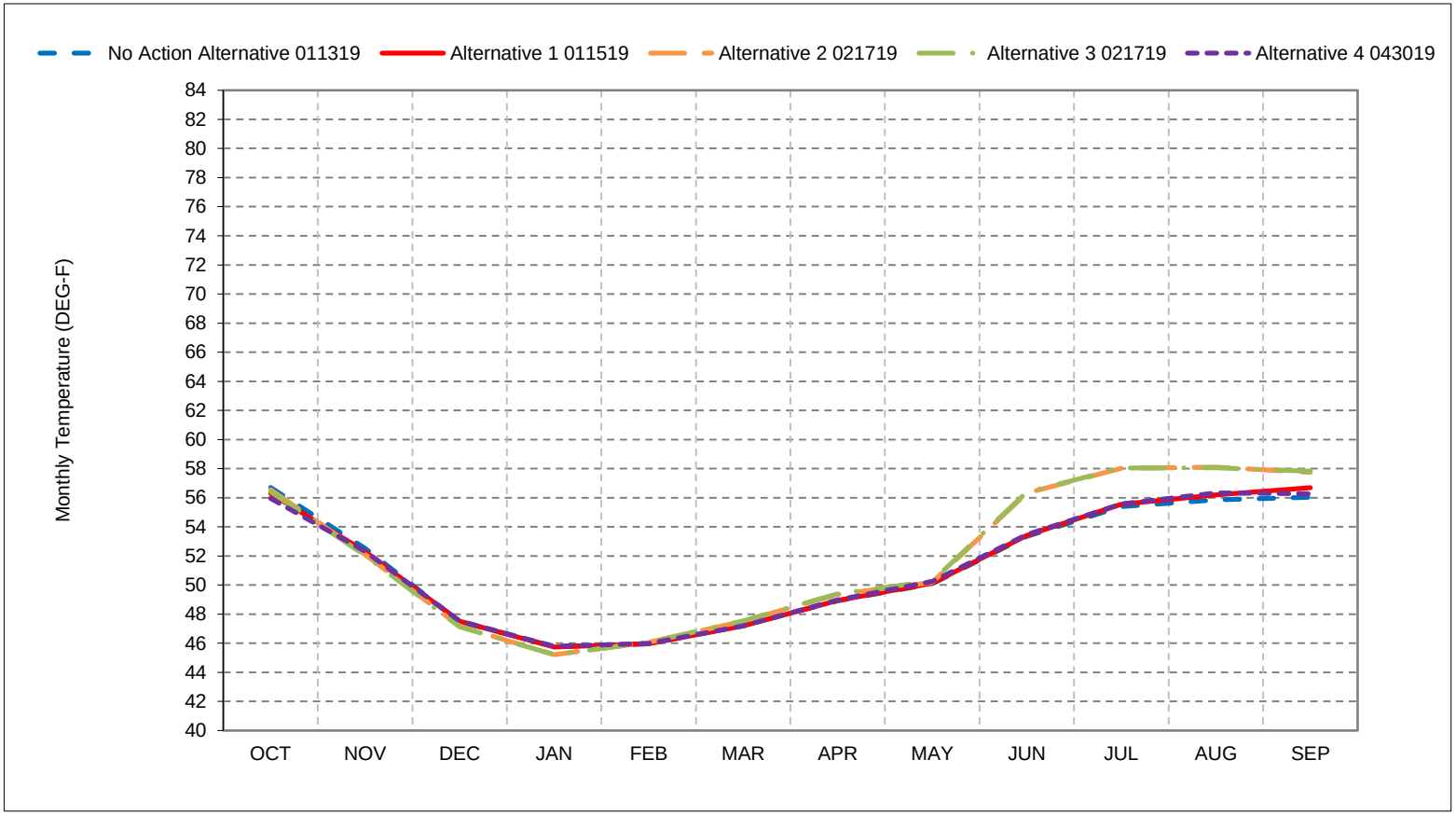

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-5. Clear Creek at Igo, Dry Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-6. Clear Creek at Igo, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

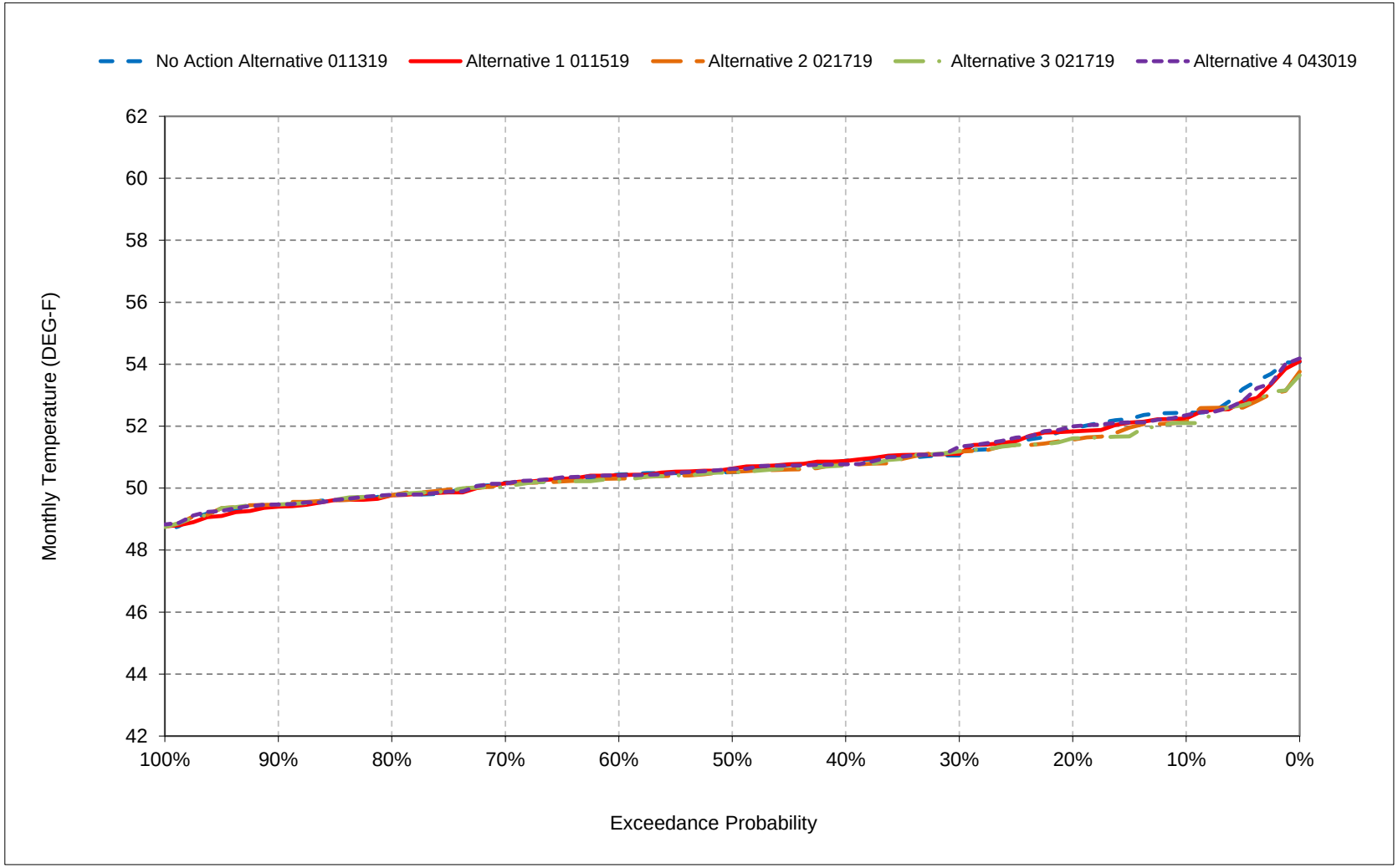
**Figure 3-7. Clear Creek at Igo, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

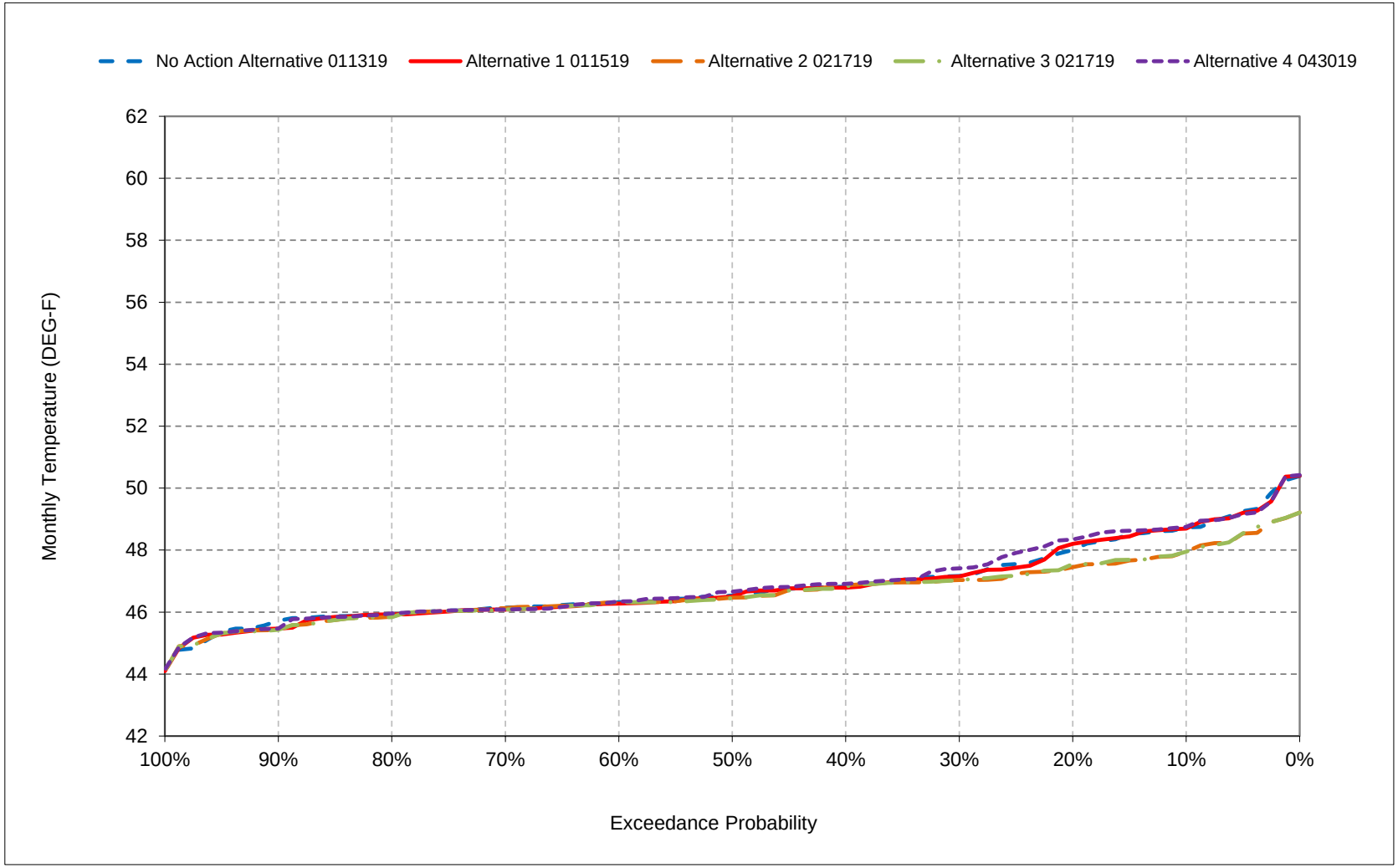
**Figure 3-8. Clear Creek at Igo, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

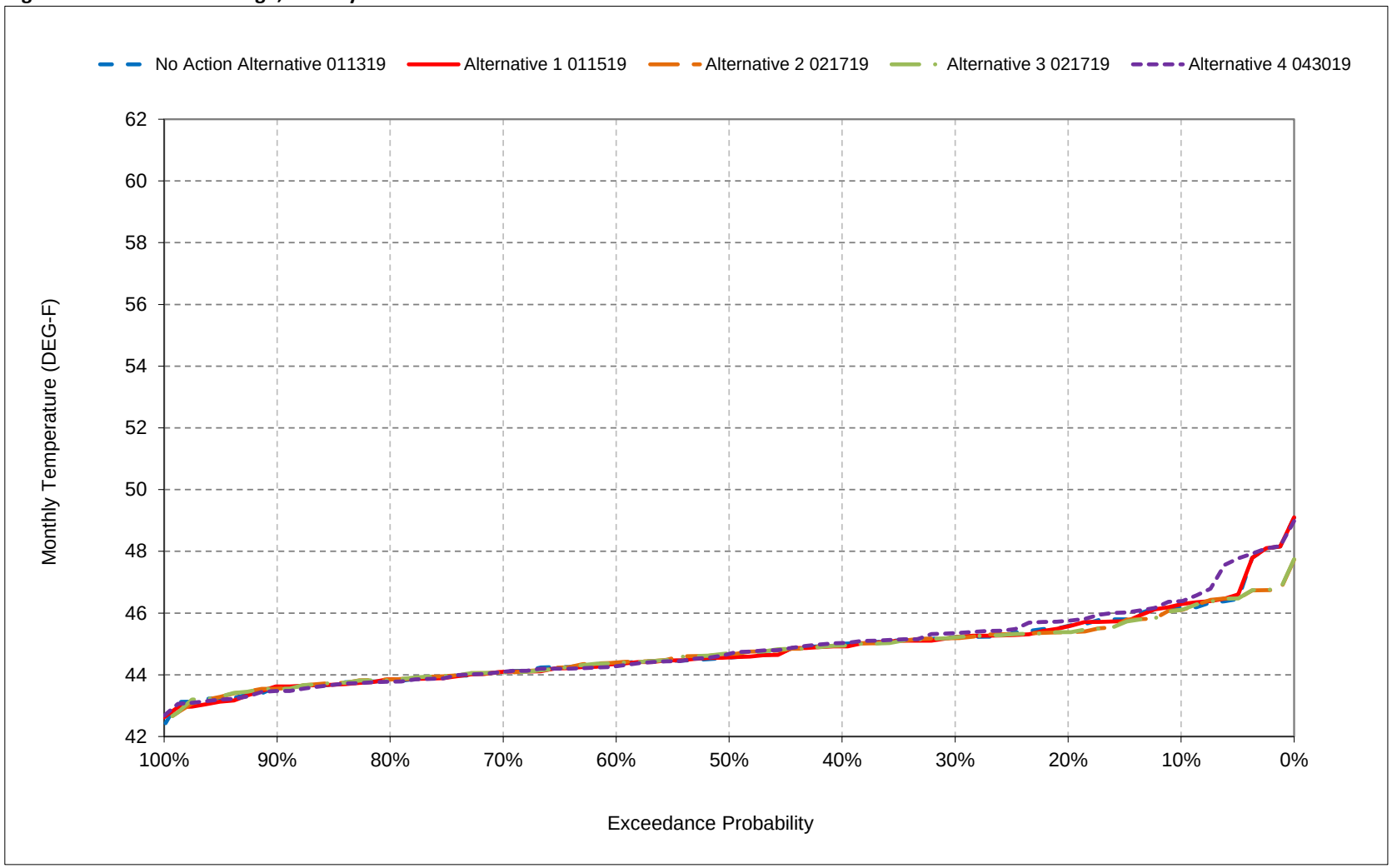
**Figure 3-9. Clear Creek at Igo, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

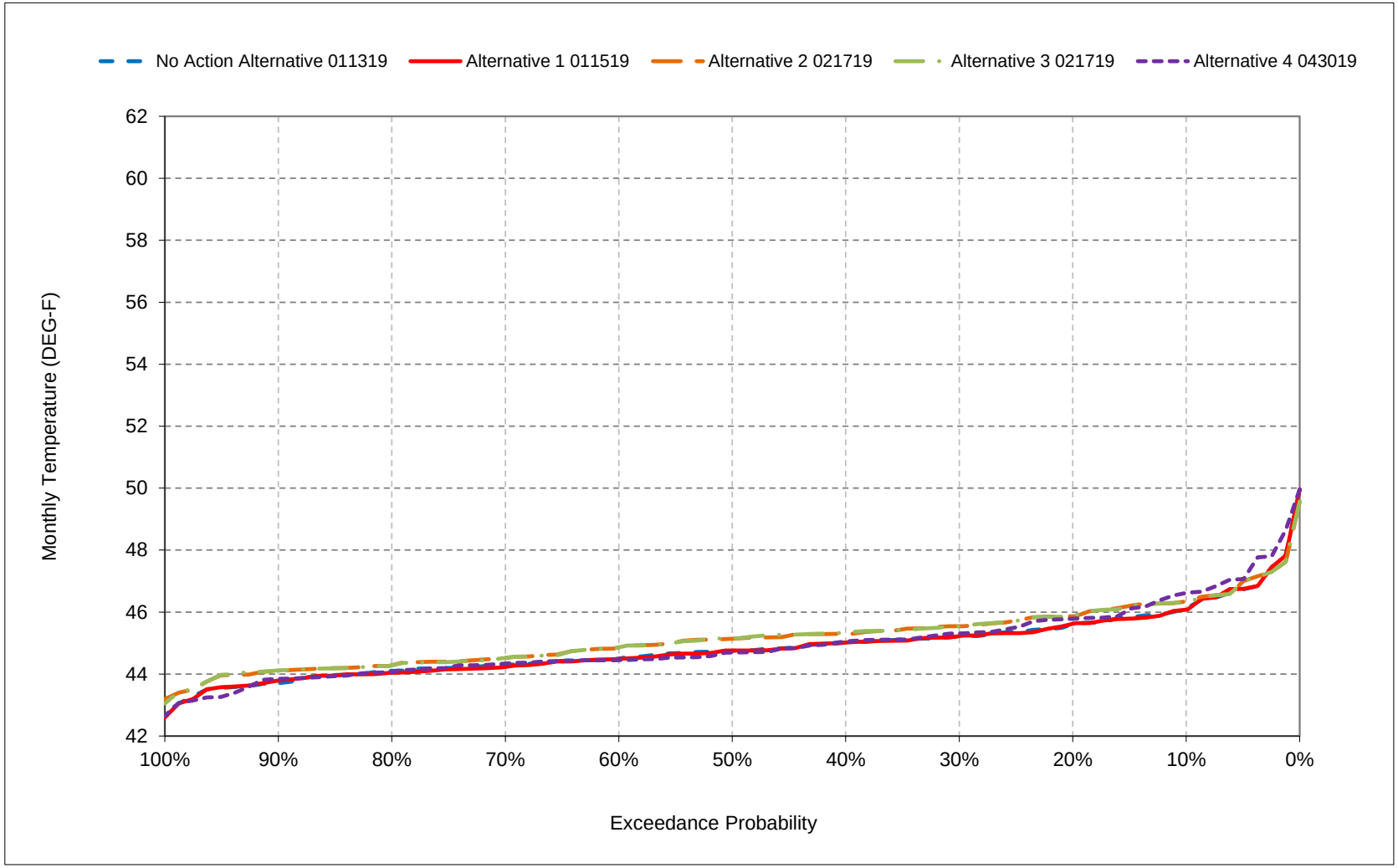
**Figure 3-10. Clear Creek at Igo, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

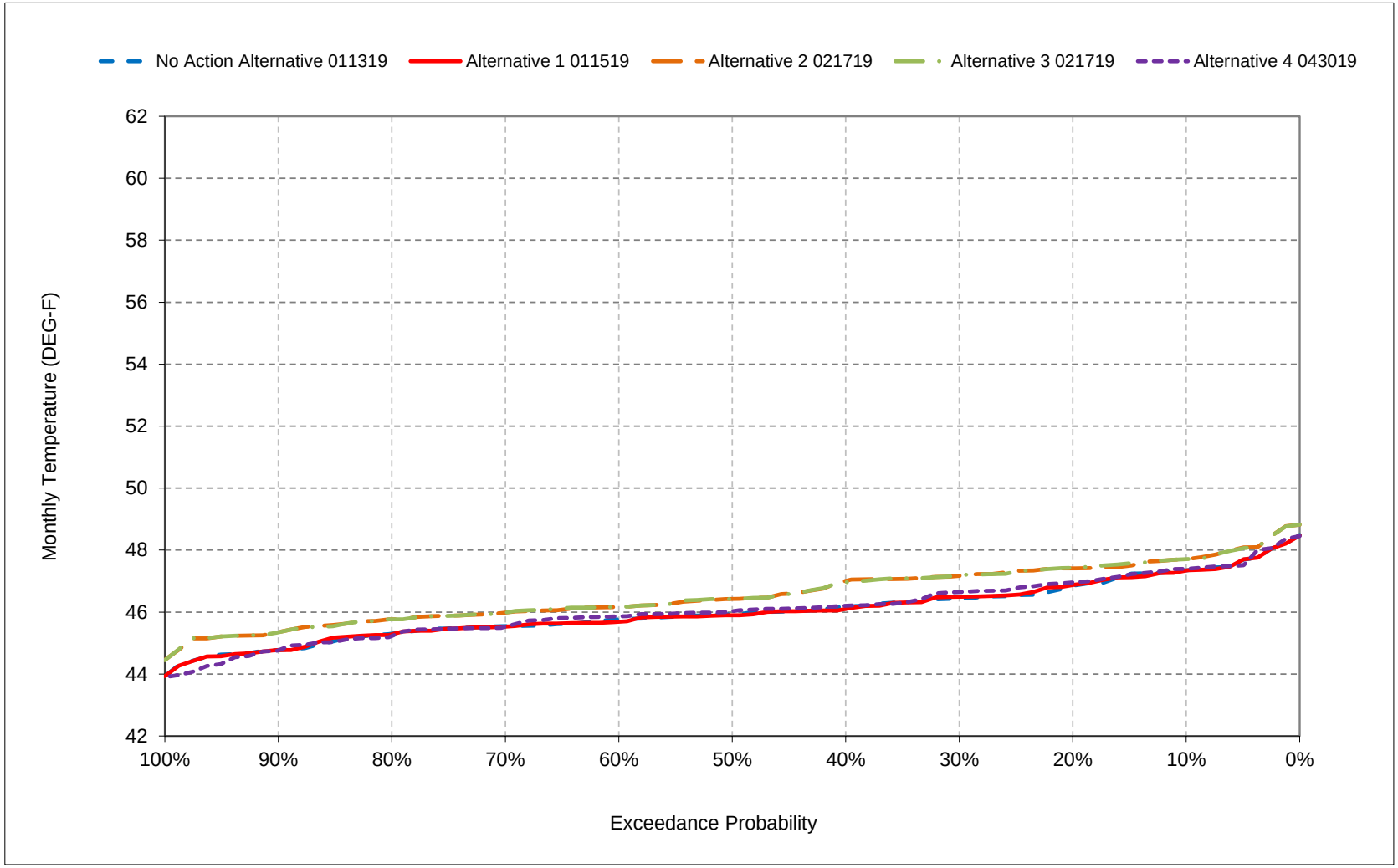
**Figure 3-11. Clear Creek at Igo, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

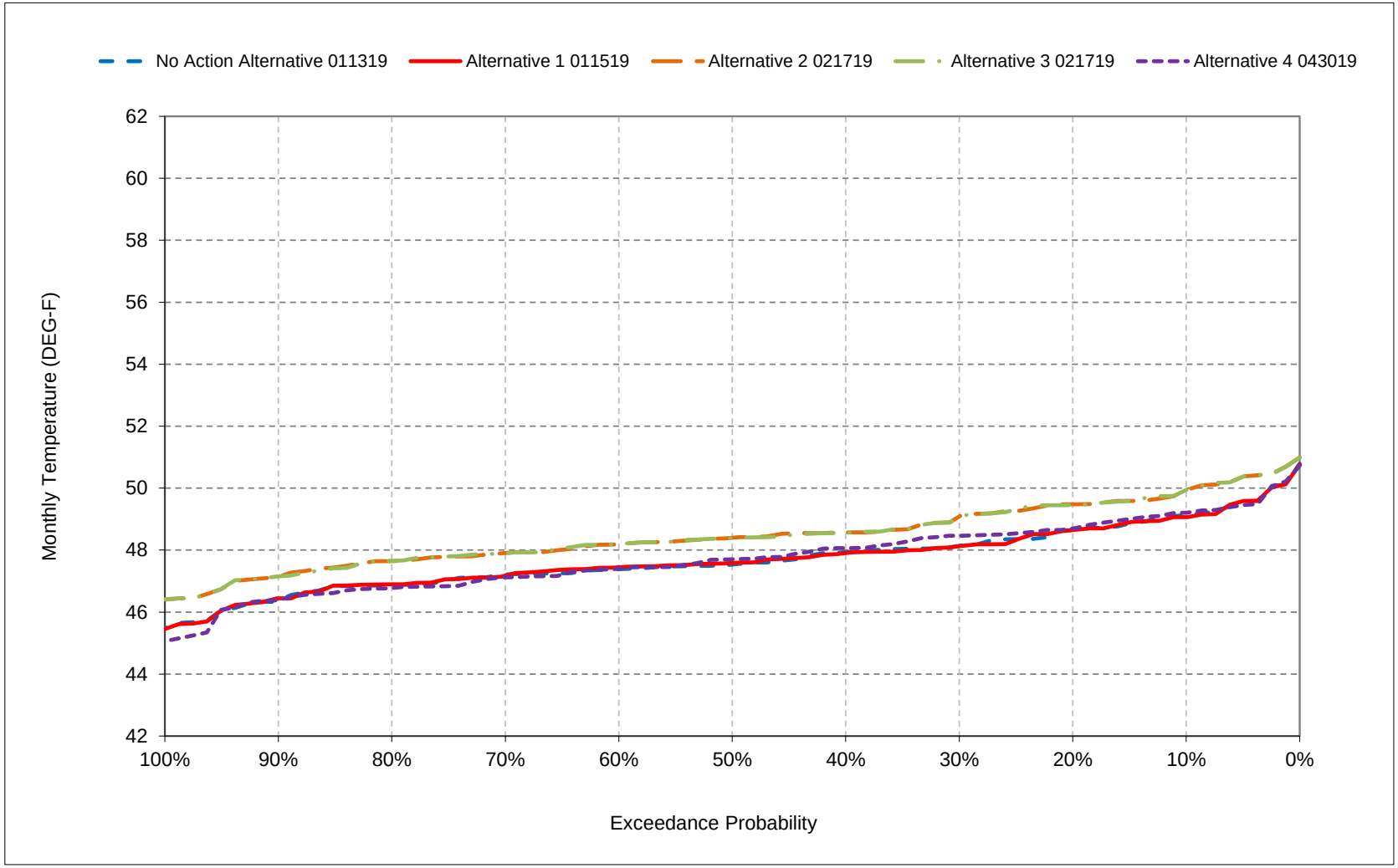
**Figure 3-12. Clear Creek at Igo, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

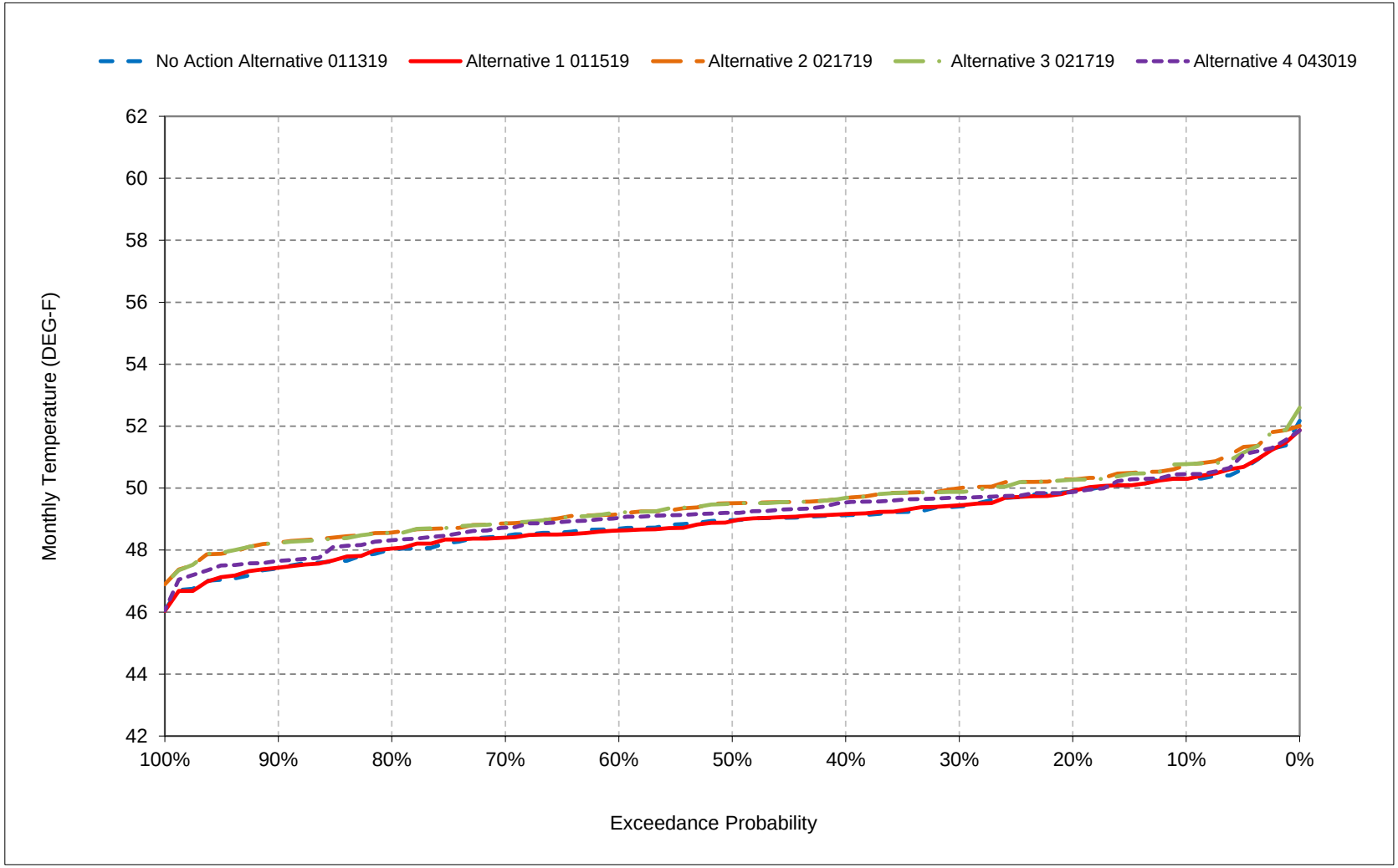
**Figure 3-13. Clear Creek at Igo, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

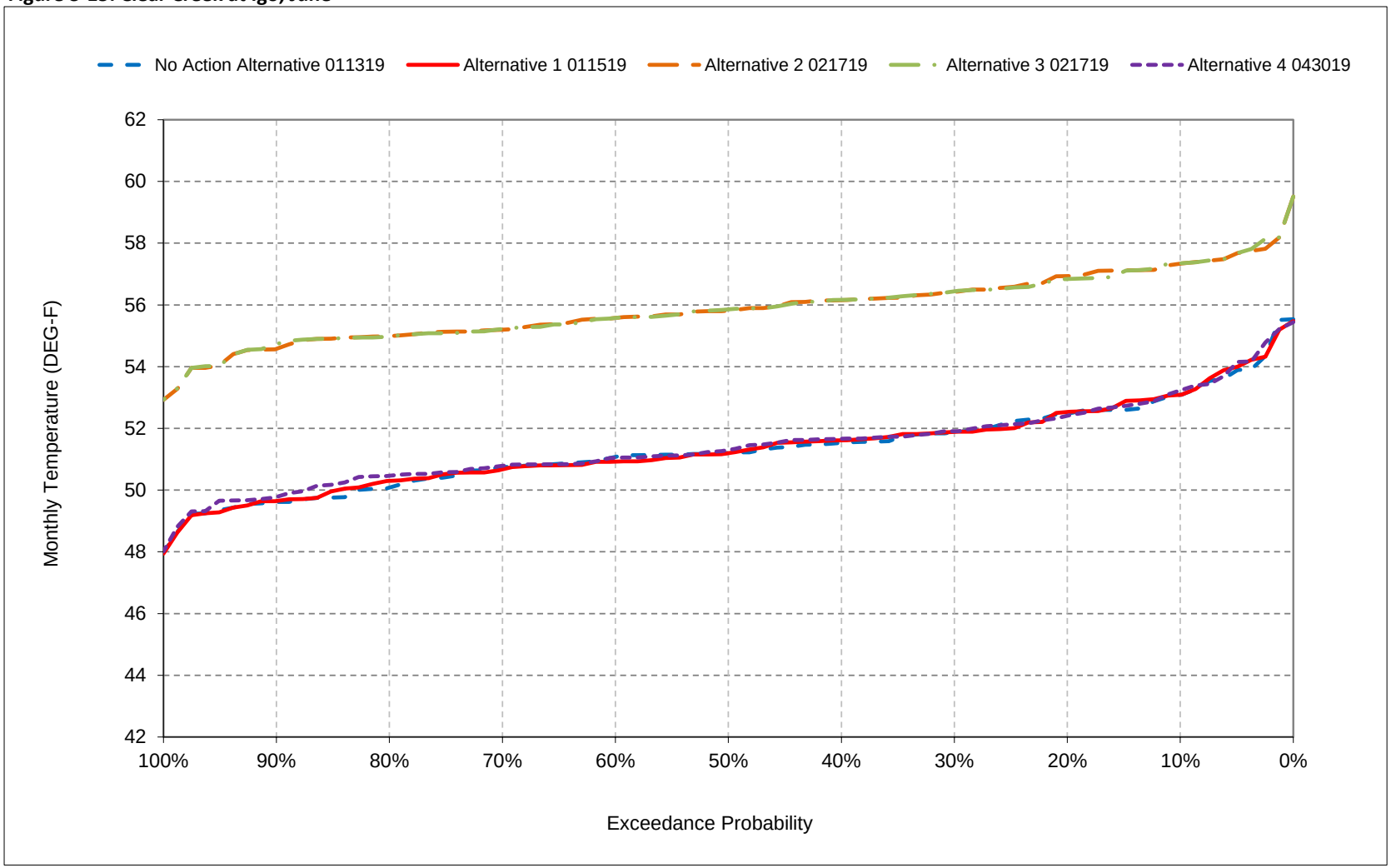
**Figure 3-14. Clear Creek at Igo, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 3-15. Clear Creek at Igo, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 3-16. Clear Creek at Igo, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

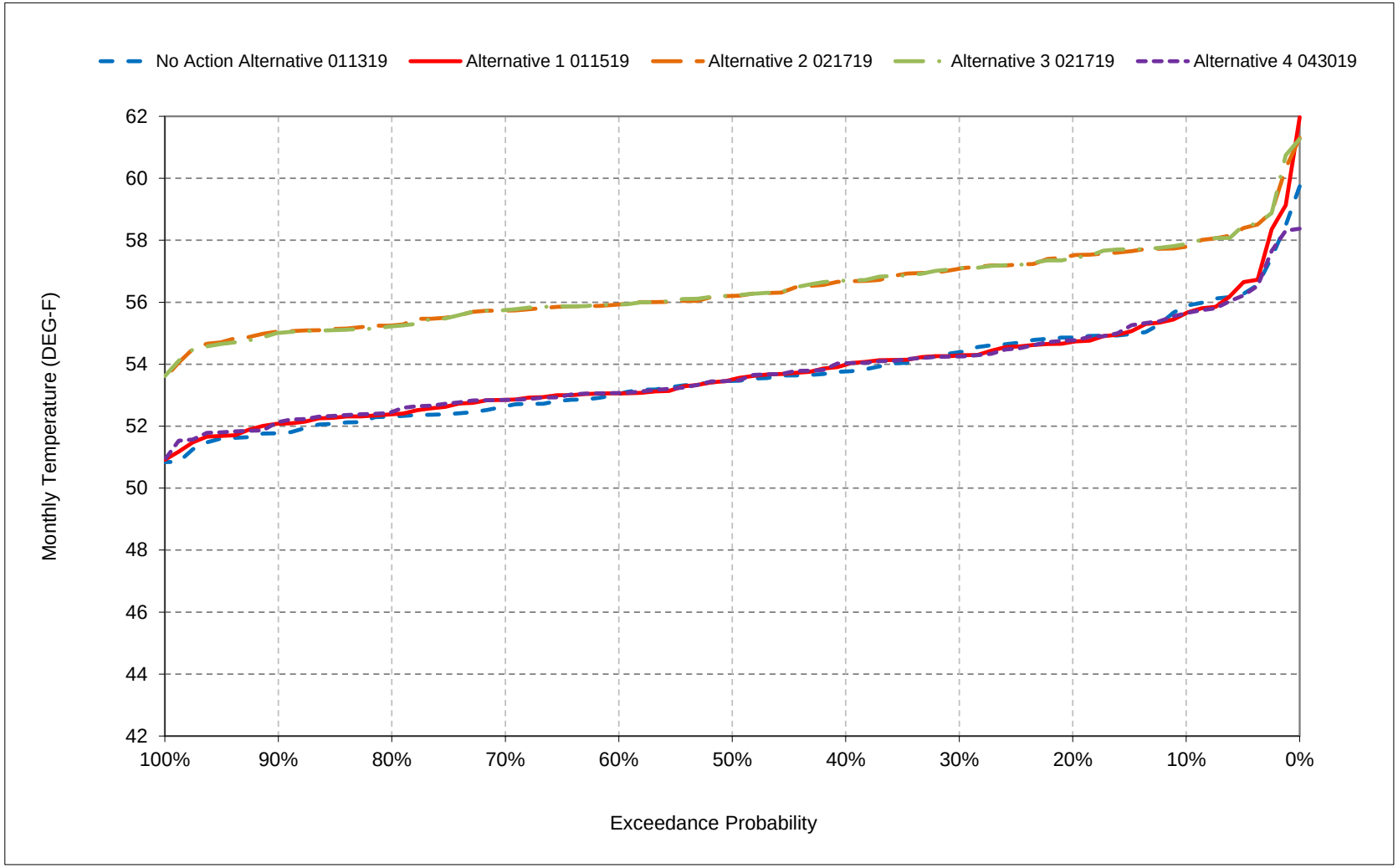
**Figure 3-17. Clear Creek at Igo, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 3-18. Clear Creek at Igo, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 4-1. Clear Creek at Mouth, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.4 | 52.8 | 48.9 | 46.4 | 46.6 | 48.4 | 50.9 | 52.3 | 56.8 | 62.2 | 61.5 | 57.9 |
| 20% | 55.5 | 52.3 | 48.3 | 45.8 | 46.3 | 48.2 | 50.3 | 51.7 | 55.4 | 61.6 | 61.0 | 57.0 |
| 30% | 54.8 | 51.5 | 47.4 | 45.6 | 45.9 | 47.7 | 49.8 | 51.3 | 54.9 | 61.1 | 60.7 | 56.6 |
| 40% | 54.1 | 51.2 | 47.0 | 45.4 | 45.8 | 47.4 | 49.6 | 51.0 | 54.5 | 60.9 | 60.5 | 56.1 |
| 50% | 53.8 | 50.9 | 46.8 | 45.0 | 45.5 | 47.1 | 49.2 | 50.7 | 54.1 | 60.6 | 60.2 | 55.8 |
| 60% | 53.1 | 50.7 | 46.5 | 44.7 | 45.2 | 46.9 | 49.0 | 50.6 | 53.8 | 60.3 | 60.0 | 55.3 |
| 70% | 52.6 | 50.5 | 46.3 | 44.4 | 45.0 | 46.6 | 48.8 | 50.2 | 53.4 | 60.1 | 59.7 | 55.0 |
| 80% | 52.1 | 50.0 | 46.1 | 44.1 | 44.7 | 46.4 | 48.5 | 49.8 | 53.1 | 59.9 | 59.3 | 54.7 |
| 90% | 51.8 | 49.8 | 45.7 | 43.9 | 44.5 | 45.9 | 48.1 | 49.2 | 52.5 | 59.5 | 59.0 | 54.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.0 | 51.1 | 47.1 | 45.1 | 45.6 | 47.2 | 49.4 | 50.8 | 54.5 | 60.6 | 60.2 | 56.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 52.4 | 50.4 | 46.8 | 44.9 | 45.2 | 46.6 | 48.8 | 50.5 | 53.7 | 60.6 | 60.0 | 55.0 |
| Above Normal (16%) | 52.6 | 50.2 | 46.5 | 45.0 | 45.3 | 46.8 | 48.9 | 50.5 | 53.7 | 60.4 | 59.6 | 54.9 |
| Below Normal (13%) | 53.9 | 51.3 | 47.0 | 44.6 | 45.3 | 47.0 | 49.4 | 50.3 | 53.7 | 60.5 | 60.0 | 55.7 |
| Dry (24%) | 54.8 | 51.5 | 47.5 | 45.2 | 45.8 | 47.5 | 49.6 | 50.8 | 54.4 | 60.7 | 60.6 | 56.5 |
| Critical (15%) | 57.9 | 52.9 | 47.6 | 46.0 | 46.8 | 48.5 | 50.9 | 52.2 | 57.8 | 61.2 | 60.7 | 58.6 |

## Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.0 | 52.6 | 48.9 | 46.6 | 46.6 | 48.4 | 50.9 | 52.1 | 56.9 | 62.2 | 61.4 | 57.7 |
| 20% | 55.1 | 52.1 | 48.3 | 45.9 | 46.3 | 48.2 | 50.3 | 51.8 | 55.5 | 61.7 | 61.0 | 56.9 |
| 30% | 54.6 | 51.6 | 47.4 | 45.5 | 45.9 | 47.9 | 49.8 | 51.3 | 54.9 | 61.1 | 60.7 | 56.6 |
| 40% | 54.2 | 51.2 | 47.0 | 45.3 | 45.8 | 47.4 | 49.5 | 50.9 | 54.5 | 60.8 | 60.5 | 56.3 |
| 50% | 53.9 | 50.9 | 46.8 | 44.9 | 45.5 | 47.0 | 49.2 | 50.7 | 54.1 | 60.6 | 60.2 | 55.8 |
| 60% | 53.1 | 50.7 | 46.5 | 44.7 | 45.2 | 46.9 | 49.1 | 50.5 | 53.8 | 60.4 | 60.1 | 55.4 |
| 70% | 52.7 | 50.5 | 46.3 | 44.3 | 45.0 | 46.6 | 48.9 | 50.2 | 53.4 | 60.1 | 59.8 | 55.2 |
| 80% | 52.2 | 50.1 | 46.1 | 44.1 | 44.7 | 46.4 | 48.5 | 49.9 | 53.1 | 59.9 | 59.4 | 54.8 |
| 90% | 51.8 | 49.7 | 45.6 | 43.9 | 44.5 | 45.9 | 48.1 | 49.1 | 52.5 | 59.5 | 59.1 | 54.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 53.9 | 51.1 | 47.0 | 45.1 | 45.6 | 47.2 | 49.4 | 50.8 | 54.5 | 60.7 | 60.2 | 56.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 52.4 | 50.4 | 46.7 | 44.9 | 45.2 | 46.6 | 48.8 | 50.4 | 53.7 | 60.6 | 60.0 | 55.2 |
| Above Normal (16%) | 52.8 | 50.4 | 46.6 | 45.0 | 45.3 | 46.9 | 49.0 | 50.6 | 53.8 | 60.5 | 59.8 | 55.0 |
| Below Normal (13%) | 53.9 | 51.3 | 47.0 | 44.5 | 45.2 | 47.0 | 49.4 | 50.3 | 53.8 | 60.6 | 60.0 | 55.7 |
| Dry (24%) | 54.5 | 51.4 | 47.4 | 45.2 | 45.8 | 47.5 | 49.6 | 50.7 | 54.3 | 60.7 | 60.6 | 56.4 |
| Critical (15%) | 57.5 | 52.7 | 47.6 | 46.0 | 46.8 | 48.5 | 50.9 | 52.3 | 57.9 | 61.3 | 60.8 | 59.1 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.4 | -0.2 | **0.0** | **0.1** | **0.0** | 0.0 | 0.0 | -0.2 | **0.1** | **0.1** | 0.0 | -0.2 |
| 20% | -0.4 | -0.2 | **0.1** | **0.1** | **0.0** | 0.0 | 0.0 | **0.1** | **0.1** | **0.1** | -0.1 | -0.1 |
| 30% | -0.3 | **0.1** | 0.0 | 0.0 | **0.0** | **0.1** | 0.0 | 0.0 | 0.0 | **0.0** | **0.0** | **0.0** |
| 40% | **0.1** | **0.0** | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | **0.0** | -0.1 | 0.0 | **0.2** |
| 50% | **0.0** | **0.1** | 0.0 | 0.0 | 0.0 | -0.1 | **0.1** | 0.0 | **0.1** | 0.0 | **0.0** | **0.1** |
| 60% | **0.1** | **0.1** | 0.0 | 0.0 | 0.0 | 0.0 | **0.1** | -0.1 | **0.0** | **0.1** | **0.1** | **0.1** |
| 70% | **0.1** | **0.0** | 0.0 | -0.1 | 0.0 | 0.0 | **0.0** | 0.0 | **0.0** | **0.1** | **0.1** | **0.3** |
| 80% | **0.0** | **0.1** | **0.0** | **0.0** | 0.0 | 0.0 | **0.0** | **0.1** | **0.0** | **0.0** | **0.1** | **0.1** |
| 90% | 0.0 | -0.1 | -0.1 | **0.0** | 0.0 | **0.0** | 0.0 | -0.1 | -0.1 | 0.0 | **0.1** | **0.3** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | **0.0** | **0.0** | **0.0** | **0.1** | **0.0** | **0.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.0** | **0.0** | 0.0 | **0.0** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | **0.0** | 0.0 | **0.2** |
| Above Normal (16%) | **0.1** | **0.1** | **0.0** | 0.0 | 0.0 | **0.0** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** |
| Below Normal (13%) | **0.0** | 0.0 | **0.0** | -0.1 | -0.1 | 0.0 | 0.0 | 0.0 | **0.1** | **0.2** | **0.0** | **0.0** |
| Dry (24%) | -0.2 | -0.1 | -0.1 | **0.0** | **0.0** | **0.0** | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | -0.2 |
| Critical (15%) | -0.4 | -0.2 | **0.0** | 0.0 | 0.0 | 0.0 | **0.0** | **0.0** | **0.1** | **0.1** | **0.1** | **0.6** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 4-2. Clear Creek at Mouth, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.4 | 52.8 | 48.9 | 46.4 | 46.6 | 48.4 | 50.9 | 52.3 | 56.8 | 62.2 | 61.5 | 57.9 |
| 20% | 55.5 | 52.3 | 48.3 | 45.8 | 46.3 | 48.2 | 50.3 | 51.7 | 55.4 | 61.6 | 61.0 | 57.0 |
| 30% | 54.8 | 51.5 | 47.4 | 45.6 | 45.9 | 47.7 | 49.8 | 51.3 | 54.9 | 61.1 | 60.7 | 56.6 |
| 40% | 54.1 | 51.2 | 47.0 | 45.4 | 45.8 | 47.4 | 49.6 | 51.0 | 54.5 | 60.9 | 60.5 | 56.1 |
| 50% | 53.8 | 50.9 | 46.8 | 45.0 | 45.5 | 47.1 | 49.2 | 50.7 | 54.1 | 60.6 | 60.2 | 55.8 |
| 60% | 53.1 | 50.7 | 46.5 | 44.7 | 45.2 | 46.9 | 49.0 | 50.6 | 53.8 | 60.3 | 60.0 | 55.3 |
| 70% | 52.6 | 50.5 | 46.3 | 44.4 | 45.0 | 46.6 | 48.8 | 50.2 | 53.4 | 60.1 | 59.7 | 55.0 |
| 80% | 52.1 | 50.0 | 46.1 | 44.1 | 44.7 | 46.4 | 48.5 | 49.8 | 53.1 | 59.9 | 59.3 | 54.7 |
| 90% | 51.8 | 49.8 | 45.7 | 43.9 | 44.5 | 45.9 | 48.1 | 49.2 | 52.5 | 59.5 | 59.0 | 54.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.0 | 51.1 | 47.1 | 45.1 | 45.6 | 47.2 | 49.4 | 50.8 | 54.5 | 60.6 | 60.2 | 56.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 52.4 | 50.4 | 46.8 | 44.9 | 45.2 | 46.6 | 48.8 | 50.5 | 53.7 | 60.6 | 60.0 | 55.0 |
| Above Normal (16%) | 52.6 | 50.2 | 46.5 | 45.0 | 45.3 | 46.8 | 48.9 | 50.5 | 53.7 | 60.4 | 59.6 | 54.9 |
| Below Normal (13%) | 53.9 | 51.3 | 47.0 | 44.6 | 45.3 | 47.0 | 49.4 | 50.3 | 53.7 | 60.5 | 60.0 | 55.7 |
| Dry (24%) | 54.8 | 51.5 | 47.5 | 45.2 | 45.8 | 47.5 | 49.6 | 50.8 | 54.4 | 60.7 | 60.6 | 56.5 |
| Critical (15%) | 57.9 | 52.9 | 47.6 | 46.0 | 46.8 | 48.5 | 50.9 | 52.2 | 57.8 | 61.2 | 60.7 | 58.6 |

## Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.4 | 52.9 | 48.5 | 46.9 | 47.8 | 50.3 | 53.4 | 53.6 | 64.8 | 67.1 | 65.8 | 63.2 |
| 20% | 58.0 | 52.2 | 47.6 | 46.1 | 47.2 | 49.7 | 52.6 | 53.1 | 64.3 | 66.7 | 65.3 | 62.6 |
| 30% | 57.7 | 51.9 | 47.4 | 45.8 | 46.8 | 49.3 | 52.2 | 52.9 | 63.7 | 66.1 | 65.0 | 62.2 |
| 40% | 57.4 | 51.3 | 47.1 | 45.5 | 46.5 | 49.0 | 51.6 | 52.6 | 63.4 | 65.8 | 64.8 | 61.8 |
| 50% | 56.9 | 51.1 | 46.8 | 45.3 | 46.3 | 48.5 | 51.3 | 52.3 | 63.2 | 65.6 | 64.5 | 61.4 |
| 60% | 56.4 | 50.9 | 46.5 | 45.0 | 46.1 | 48.2 | 51.1 | 52.0 | 62.8 | 65.3 | 64.2 | 61.2 |
| 70% | 56.1 | 50.6 | 46.4 | 44.6 | 45.8 | 47.8 | 50.8 | 51.8 | 62.5 | 65.0 | 64.0 | 60.8 |
| 80% | 55.8 | 50.4 | 46.1 | 44.3 | 45.6 | 47.6 | 50.4 | 51.3 | 62.1 | 64.8 | 63.7 | 60.5 |
| 90% | 55.3 | 50.0 | 45.7 | 44.0 | 45.2 | 47.3 | 49.9 | 51.0 | 61.6 | 64.4 | 63.3 | 60.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 57.0 | 51.3 | 47.0 | 45.3 | 46.5 | 48.7 | 51.5 | 52.3 | 63.1 | 65.7 | 64.5 | 61.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 56.1 | 50.8 | 46.8 | 45.3 | 46.2 | 48.4 | 51.3 | 52.3 | 63.0 | 65.7 | 64.5 | 61.3 |
| Above Normal (16%) | 56.3 | 50.5 | 46.6 | 45.5 | 46.5 | 48.5 | 51.2 | 52.3 | 63.3 | 65.5 | 64.1 | 61.0 |
| Below Normal (13%) | 56.8 | 51.3 | 46.7 | 44.7 | 45.9 | 48.2 | 51.4 | 51.8 | 62.8 | 65.4 | 64.3 | 61.2 |
| Dry (24%) | 57.6 | 51.5 | 47.3 | 45.2 | 46.5 | 48.8 | 51.5 | 52.2 | 63.3 | 65.6 | 64.7 | 61.9 |
| Critical (15%) | 59.0 | 52.7 | 47.4 | 45.7 | 47.4 | 49.7 | 52.5 | 53.1 | 63.5 | 66.2 | 65.0 | 62.6 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **2.0** | **0.0** | -0.4 | **0.5** | **1.3** | **1.9** | **2.4** | **1.3** | **8.0** | **4.9** | **4.3** | **5.3** |
| 20% | **2.6** | -0.1 | -0.6 | **0.2** | **0.9** | **1.5** | **2.3** | **1.4** | **8.9** | **5.1** | **4.3** | **5.6** |
| 30% | **2.9** | **0.4** | **0.0** | **0.3** | **0.9** | **1.5** | **2.4** | **1.6** | **8.8** | **5.0** | **4.3** | **5.6** |
| 40% | **3.3** | **0.1** | **0.1** | **0.2** | **0.8** | **1.6** | **2.0** | **1.6** | **8.9** | **4.9** | **4.3** | **5.7** |
| 50% | **3.1** | **0.2** | **0.1** | **0.3** | **0.8** | **1.4** | **2.1** | **1.6** | **9.1** | **5.0** | **4.3** | **5.7** |
| 60% | **3.3** | **0.2** | **0.0** | **0.3** | **0.9** | **1.3** | **2.1** | **1.4** | **9.1** | **5.0** | **4.3** | **5.9** |
| 70% | **3.5** | **0.1** | **0.1** | **0.2** | **0.8** | **1.2** | **1.9** | **1.5** | **9.2** | **4.9** | **4.3** | **5.9** |
| 80% | **3.6** | **0.4** | **0.1** | **0.2** | **0.9** | **1.2** | **1.8** | **1.5** | **9.0** | **4.9** | **4.3** | **5.7** |
| 90% | **3.5** | **0.3** | 0.0 | **0.1** | **0.7** | **1.4** | **1.9** | **1.8** | **9.1** | **4.9** | **4.3** | **6.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3.0** | **0.2** | -0.1 | **0.2** | **0.8** | **1.5** | **2.1** | **1.6** | **8.7** | **5.0** | **4.3** | **5.6** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **3.7** | **0.4** | **0.0** | **0.4** | **1.0** | **1.7** | **2.5** | **1.8** | **9.3** | **5.1** | **4.4** | **6.2** |
| Above Normal (16%) | **3.7** | **0.3** | **0.1** | **0.5** | **1.1** | **1.7** | **2.3** | **1.9** | **9.6** | **5.1** | **4.4** | **6.0** |
| Below Normal (13%) | **2.9** | 0.0 | -0.3 | **0.1** | **0.6** | **1.1** | **1.9** | **1.6** | **9.1** | **4.9** | **4.3** | **5.5** |
| Dry (24%) | **2.8** | **0.1** | -0.2 | 0.0 | **0.7** | **1.3** | **1.9** | **1.5** | **8.9** | **4.9** | **4.1** | **5.3** |
| Critical (15%) | **1.0** | -0.2 | -0.2 | -0.3 | **0.6** | **1.1** | **1.6** | **0.9** | **5.6** | **5.0** | **4.3** | **4.1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 4-3. Clear Creek at Mouth, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.4 | 52.8 | 48.9 | 46.4 | 46.6 | 48.4 | 50.9 | 52.3 | 56.8 | 62.2 | 61.5 | 57.9 |
| 20% | 55.5 | 52.3 | 48.3 | 45.8 | 46.3 | 48.2 | 50.3 | 51.7 | 55.4 | 61.6 | 61.0 | 57.0 |
| 30% | 54.8 | 51.5 | 47.4 | 45.6 | 45.9 | 47.7 | 49.8 | 51.3 | 54.9 | 61.1 | 60.7 | 56.6 |
| 40% | 54.1 | 51.2 | 47.0 | 45.4 | 45.8 | 47.4 | 49.6 | 51.0 | 54.5 | 60.9 | 60.5 | 56.1 |
| 50% | 53.8 | 50.9 | 46.8 | 45.0 | 45.5 | 47.1 | 49.2 | 50.7 | 54.1 | 60.6 | 60.2 | 55.8 |
| 60% | 53.1 | 50.7 | 46.5 | 44.7 | 45.2 | 46.9 | 49.0 | 50.6 | 53.8 | 60.3 | 60.0 | 55.3 |
| 70% | 52.6 | 50.5 | 46.3 | 44.4 | 45.0 | 46.6 | 48.8 | 50.2 | 53.4 | 60.1 | 59.7 | 55.0 |
| 80% | 52.1 | 50.0 | 46.1 | 44.1 | 44.7 | 46.4 | 48.5 | 49.8 | 53.1 | 59.9 | 59.3 | 54.7 |
| 90% | 51.8 | 49.8 | 45.7 | 43.9 | 44.5 | 45.9 | 48.1 | 49.2 | 52.5 | 59.5 | 59.0 | 54.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.0 | 51.1 | 47.1 | 45.1 | 45.6 | 47.2 | 49.4 | 50.8 | 54.5 | 60.6 | 60.2 | 56.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 52.4 | 50.4 | 46.8 | 44.9 | 45.2 | 46.6 | 48.8 | 50.5 | 53.7 | 60.6 | 60.0 | 55.0 |
| Above Normal (16%) | 52.6 | 50.2 | 46.5 | 45.0 | 45.3 | 46.8 | 48.9 | 50.5 | 53.7 | 60.4 | 59.6 | 54.9 |
| Below Normal (13%) | 53.9 | 51.3 | 47.0 | 44.6 | 45.3 | 47.0 | 49.4 | 50.3 | 53.7 | 60.5 | 60.0 | 55.7 |
| Dry (24%) | 54.8 | 51.5 | 47.5 | 45.2 | 45.8 | 47.5 | 49.6 | 50.8 | 54.4 | 60.7 | 60.6 | 56.5 |
| Critical (15%) | 57.9 | 52.9 | 47.6 | 46.0 | 46.8 | 48.5 | 50.9 | 52.2 | 57.8 | 61.2 | 60.7 | 58.6 |

## Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.5 | 52.8 | 48.5 | 46.9 | 47.8 | 50.3 | 53.4 | 53.6 | 64.7 | 67.1 | 65.8 | 63.1 |
| 20% | 58.0 | 52.2 | 47.7 | 46.1 | 47.2 | 49.7 | 52.6 | 53.1 | 64.2 | 66.7 | 65.3 | 62.5 |
| 30% | 57.7 | 51.9 | 47.4 | 45.8 | 46.8 | 49.3 | 52.2 | 52.9 | 63.7 | 66.1 | 65.0 | 62.2 |
| 40% | 57.4 | 51.3 | 47.1 | 45.6 | 46.5 | 49.0 | 51.6 | 52.6 | 63.4 | 65.7 | 64.7 | 61.8 |
| 50% | 56.9 | 51.0 | 46.8 | 45.3 | 46.3 | 48.5 | 51.3 | 52.3 | 63.2 | 65.6 | 64.4 | 61.5 |
| 60% | 56.3 | 50.9 | 46.5 | 45.0 | 46.1 | 48.2 | 51.1 | 52.0 | 62.8 | 65.3 | 64.3 | 61.2 |
| 70% | 56.1 | 50.5 | 46.3 | 44.6 | 45.8 | 47.8 | 50.8 | 51.8 | 62.5 | 65.0 | 64.0 | 60.8 |
| 80% | 55.7 | 50.3 | 46.1 | 44.3 | 45.6 | 47.6 | 50.4 | 51.4 | 62.1 | 64.8 | 63.7 | 60.4 |
| 90% | 55.2 | 50.0 | 45.7 | 44.0 | 45.2 | 47.3 | 49.9 | 51.0 | 61.6 | 64.4 | 63.3 | 60.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 57.0 | 51.3 | 47.0 | 45.3 | 46.5 | 48.7 | 51.5 | 52.3 | 63.1 | 65.6 | 64.5 | 61.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 56.1 | 50.8 | 46.8 | 45.3 | 46.2 | 48.4 | 51.2 | 52.2 | 62.9 | 65.7 | 64.4 | 61.3 |
| Above Normal (16%) | 56.3 | 50.5 | 46.6 | 45.6 | 46.5 | 48.5 | 51.2 | 52.3 | 63.3 | 65.5 | 64.1 | 61.0 |
| Below Normal (13%) | 56.8 | 51.3 | 46.6 | 44.7 | 45.9 | 48.2 | 51.4 | 51.9 | 62.9 | 65.4 | 64.3 | 61.2 |
| Dry (24%) | 57.6 | 51.5 | 47.3 | 45.2 | 46.5 | 48.8 | 51.6 | 52.2 | 63.3 | 65.6 | 64.7 | 61.9 |
| Critical (15%) | 58.9 | 52.6 | 47.4 | 45.7 | 47.4 | 49.7 | 52.5 | 53.2 | 63.5 | 66.2 | 65.0 | 62.7 |

## Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **2.1** | **0.0** | -0.4 | **0.4** | **1.3** | **1.8** | **2.4** | **1.2** | **7.9** | **4.9** | **4.3** | **5.2** |
| 20% | **2.5** | -0.1 | -0.5 | **0.2** | **0.9** | **1.5** | **2.3** | **1.4** | **8.9** | **5.1** | **4.3** | **5.5** |
| 30% | **2.8** | **0.4** | **0.0** | **0.2** | **0.9** | **1.6** | **2.4** | **1.6** | **8.8** | **5.0** | **4.3** | **5.6** |
| 40% | **3.3** | **0.1** | **0.1** | **0.2** | **0.8** | **1.6** | **2.0** | **1.6** | **8.9** | **4.8** | **4.1** | **5.7** |
| 50% | **3.1** | **0.2** | **0.0** | **0.3** | **0.8** | **1.4** | **2.1** | **1.6** | **9.2** | **5.0** | **4.2** | **5.7** |
| 60% | **3.3** | **0.2** | **0.0** | **0.3** | **0.9** | **1.3** | **2.1** | **1.5** | **9.1** | **5.0** | **4.3** | **5.9** |
| 70% | **3.5** | **0.1** | **0.1** | **0.2** | **0.8** | **1.2** | **1.9** | **1.5** | **9.1** | **5.0** | **4.3** | **5.9** |
| 80% | **3.6** | **0.3** | **0.0** | **0.2** | **0.9** | **1.2** | **1.8** | **1.6** | **9.0** | **4.9** | **4.3** | **5.7** |
| 90% | **3.4** | **0.2** | 0.0 | **0.1** | **0.7** | **1.4** | **1.9** | **1.8** | **9.1** | **4.8** | **4.3** | **6.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3.0** | **0.2** | -0.1 | **0.2** | **0.8** | **1.5** | **2.1** | **1.6** | **8.7** | **5.0** | **4.3** | **5.6** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **3.7** | **0.4** | **0.0** | **0.4** | **1.0** | **1.7** | **2.4** | **1.7** | **9.2** | **5.1** | **4.4** | **6.2** |
| Above Normal (16%) | **3.6** | **0.3** | **0.1** | **0.5** | **1.1** | **1.7** | **2.3** | **1.9** | **9.6** | **5.1** | **4.4** | **6.1** |
| Below Normal (13%) | **2.9** | 0.0 | -0.3 | **0.1** | **0.6** | **1.1** | **1.9** | **1.6** | **9.1** | **4.9** | **4.3** | **5.5** |
| Dry (24%) | **2.8** | **0.1** | -0.2 | 0.0 | **0.7** | **1.3** | **1.9** | **1.5** | **8.9** | **4.9** | **4.1** | **5.3** |
| Critical (15%) | **0.9** | -0.2 | -0.2 | -0.3 | **0.6** | **1.2** | **1.6** | **0.9** | **5.7** | **5.1** | **4.3** | **4.2** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 4-4. Clear Creek at Mouth, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.4 | 52.8 | 48.9 | 46.4 | 46.6 | 48.4 | 50.9 | 52.3 | 56.8 | 62.2 | 61.5 | 57.9 |
| 20% | 55.5 | 52.3 | 48.3 | 45.8 | 46.3 | 48.2 | 50.3 | 51.7 | 55.4 | 61.6 | 61.0 | 57.0 |
| 30% | 54.8 | 51.5 | 47.4 | 45.6 | 45.9 | 47.7 | 49.8 | 51.3 | 54.9 | 61.1 | 60.7 | 56.6 |
| 40% | 54.1 | 51.2 | 47.0 | 45.4 | 45.8 | 47.4 | 49.6 | 51.0 | 54.5 | 60.9 | 60.5 | 56.1 |
| 50% | 53.8 | 50.9 | 46.8 | 45.0 | 45.5 | 47.1 | 49.2 | 50.7 | 54.1 | 60.6 | 60.2 | 55.8 |
| 60% | 53.1 | 50.7 | 46.5 | 44.7 | 45.2 | 46.9 | 49.0 | 50.6 | 53.8 | 60.3 | 60.0 | 55.3 |
| 70% | 52.6 | 50.5 | 46.3 | 44.4 | 45.0 | 46.6 | 48.8 | 50.2 | 53.4 | 60.1 | 59.7 | 55.0 |
| 80% | 52.1 | 50.0 | 46.1 | 44.1 | 44.7 | 46.4 | 48.5 | 49.8 | 53.1 | 59.9 | 59.3 | 54.7 |
| 90% | 51.8 | 49.8 | 45.7 | 43.9 | 44.5 | 45.9 | 48.1 | 49.2 | 52.5 | 59.5 | 59.0 | 54.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.0 | 51.1 | 47.1 | 45.1 | 45.6 | 47.2 | 49.4 | 50.8 | 54.5 | 60.6 | 60.2 | 56.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 52.4 | 50.4 | 46.8 | 44.9 | 45.2 | 46.6 | 48.8 | 50.5 | 53.7 | 60.6 | 60.0 | 55.0 |
| Above Normal (16%) | 52.6 | 50.2 | 46.5 | 45.0 | 45.3 | 46.8 | 48.9 | 50.5 | 53.7 | 60.4 | 59.6 | 54.9 |
| Below Normal (13%) | 53.9 | 51.3 | 47.0 | 44.6 | 45.3 | 47.0 | 49.4 | 50.3 | 53.7 | 60.5 | 60.0 | 55.7 |
| Dry (24%) | 54.8 | 51.5 | 47.5 | 45.2 | 45.8 | 47.5 | 49.6 | 50.8 | 54.4 | 60.7 | 60.6 | 56.5 |
| Critical (15%) | 57.9 | 52.9 | 47.6 | 46.0 | 46.8 | 48.5 | 50.9 | 52.2 | 57.8 | 61.2 | 60.7 | 58.6 |

## Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.7 | 52.7 | 48.8 | 46.6 | 46.9 | 48.3 | 50.8 | 52.3 | 56.4 | 62.1 | 61.5 | 57.7 |
| 20% | 55.2 | 52.3 | 48.3 | 46.1 | 46.3 | 47.6 | 50.1 | 51.6 | 55.4 | 61.4 | 61.0 | 57.0 |
| 30% | 54.5 | 51.7 | 47.5 | 45.5 | 45.8 | 47.4 | 49.6 | 51.4 | 55.0 | 61.0 | 60.7 | 56.6 |
| 40% | 54.2 | 51.1 | 47.0 | 45.3 | 45.3 | 46.9 | 49.2 | 51.1 | 54.4 | 60.6 | 60.5 | 56.3 |
| 50% | 53.6 | 50.9 | 46.7 | 44.9 | 45.1 | 46.8 | 48.8 | 50.9 | 54.1 | 60.4 | 60.2 | 55.9 |
| 60% | 53.1 | 50.7 | 46.5 | 44.5 | 44.9 | 46.4 | 48.4 | 50.6 | 53.7 | 60.2 | 59.9 | 55.4 |
| 70% | 52.7 | 50.5 | 46.2 | 44.3 | 44.7 | 46.1 | 48.1 | 50.3 | 53.5 | 59.9 | 59.6 | 55.2 |
| 80% | 52.3 | 49.9 | 46.1 | 44.0 | 44.6 | 45.9 | 47.6 | 50.0 | 53.1 | 59.4 | 59.3 | 54.9 |
| 90% | 51.8 | 49.7 | 45.6 | 43.6 | 44.2 | 45.4 | 47.3 | 49.4 | 52.5 | 58.5 | 58.8 | 54.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 53.9 | 51.1 | 47.1 | 45.1 | 45.4 | 46.8 | 48.9 | 50.9 | 54.5 | 60.3 | 60.1 | 56.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 52.5 | 50.5 | 46.8 | 44.9 | 44.9 | 46.3 | 48.1 | 50.5 | 53.6 | 59.8 | 59.8 | 55.2 |
| Above Normal (16%) | 52.7 | 50.5 | 46.7 | 44.9 | 45.2 | 46.0 | 48.3 | 50.7 | 53.7 | 60.3 | 59.4 | 55.0 |
| Below Normal (13%) | 53.9 | 51.2 | 47.0 | 44.4 | 45.0 | 46.8 | 49.1 | 50.5 | 53.9 | 60.0 | 59.8 | 55.8 |
| Dry (24%) | 54.5 | 51.3 | 47.3 | 45.1 | 45.6 | 47.0 | 49.2 | 50.8 | 54.4 | 60.6 | 60.6 | 56.4 |
| Critical (15%) | 57.1 | 52.7 | 47.6 | 46.0 | 46.7 | 48.1 | 50.5 | 52.2 | 57.8 | 61.2 | 61.1 | 58.7 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.3** | -0.1 | -0.1 | **0.2** | **0.3** | -0.2 | -0.1 | 0.0 | -0.4 | -0.1 | **0.0** | -0.2 |
| 20% | -0.3 | **0.0** | **0.0** | **0.2** | **0.0** | -0.6 | -0.3 | -0.1 | **0.1** | -0.2 | -0.1 | -0.1 |
| 30% | -0.3 | **0.2** | **0.1** | -0.1 | -0.1 | -0.4 | -0.2 | **0.1** | **0.1** | -0.1 | **0.0** | 0.0 |
| 40% | **0.1** | 0.0 | 0.0 | -0.1 | -0.4 | -0.5 | -0.3 | **0.2** | -0.1 | -0.2 | -0.1 | **0.2** |
| 50% | -0.2 | 0.0 | 0.0 | -0.1 | -0.5 | -0.3 | -0.4 | **0.1** | 0.0 | -0.2 | 0.0 | **0.1** |
| 60% | **0.0** | 0.0 | 0.0 | -0.2 | -0.3 | -0.5 | -0.6 | **0.0** | -0.1 | -0.1 | 0.0 | **0.1** |
| 70% | **0.1** | **0.0** | -0.1 | -0.1 | -0.3 | -0.5 | -0.7 | **0.0** | **0.1** | -0.1 | -0.1 | **0.2** |
| 80% | **0.2** | -0.1 | 0.0 | -0.2 | -0.2 | -0.5 | -0.9 | **0.1** | **0.1** | -0.5 | **0.0** | **0.2** |
| 90% | **0.0** | -0.1 | -0.1 | -0.2 | -0.3 | -0.5 | -0.8 | **0.2** | 0.0 | -1.1 | -0.2 | **0.3** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | 0.0 | **0.0** | 0.0 | -0.2 | -0.4 | -0.5 | **0.1** | **0.0** | -0.3 | -0.1 | **0.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.1** | **0.1** | **0.0** | **0.0** | -0.3 | -0.3 | -0.7 | **0.1** | 0.0 | -0.8 | -0.2 | **0.2** |
| Above Normal (16%) | **0.1** | **0.3** | **0.2** | -0.1 | -0.1 | -0.8 | -0.7 | **0.3** | **0.1** | -0.1 | -0.2 | **0.1** |
| Below Normal (13%) | **0.0** | -0.1 | **0.1** | -0.1 | -0.3 | -0.3 | -0.3 | **0.2** | **0.1** | -0.5 | -0.2 | **0.1** |
| Dry (24%) | -0.2 | -0.2 | -0.2 | -0.1 | -0.2 | -0.5 | -0.4 | **0.0** | **0.0** | -0.1 | 0.0 | -0.2 |
| Critical (15%) | -0.8 | -0.2 | 0.0 | 0.0 | -0.1 | -0.4 | -0.4 | 0.0 | -0.1 | **0.0** | **0.4** | **0.1** |

a Based on the 82-year simulation period.

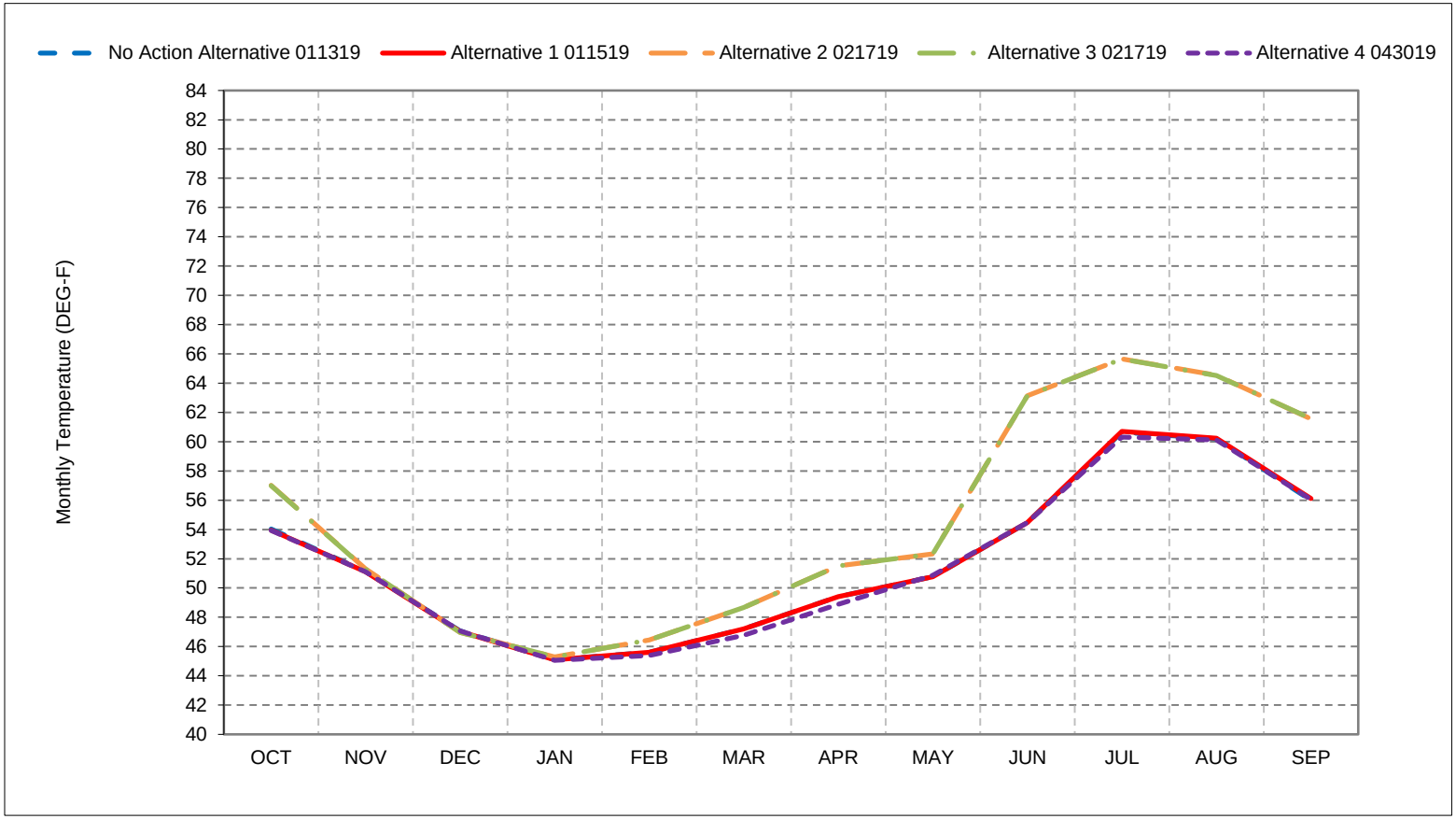
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

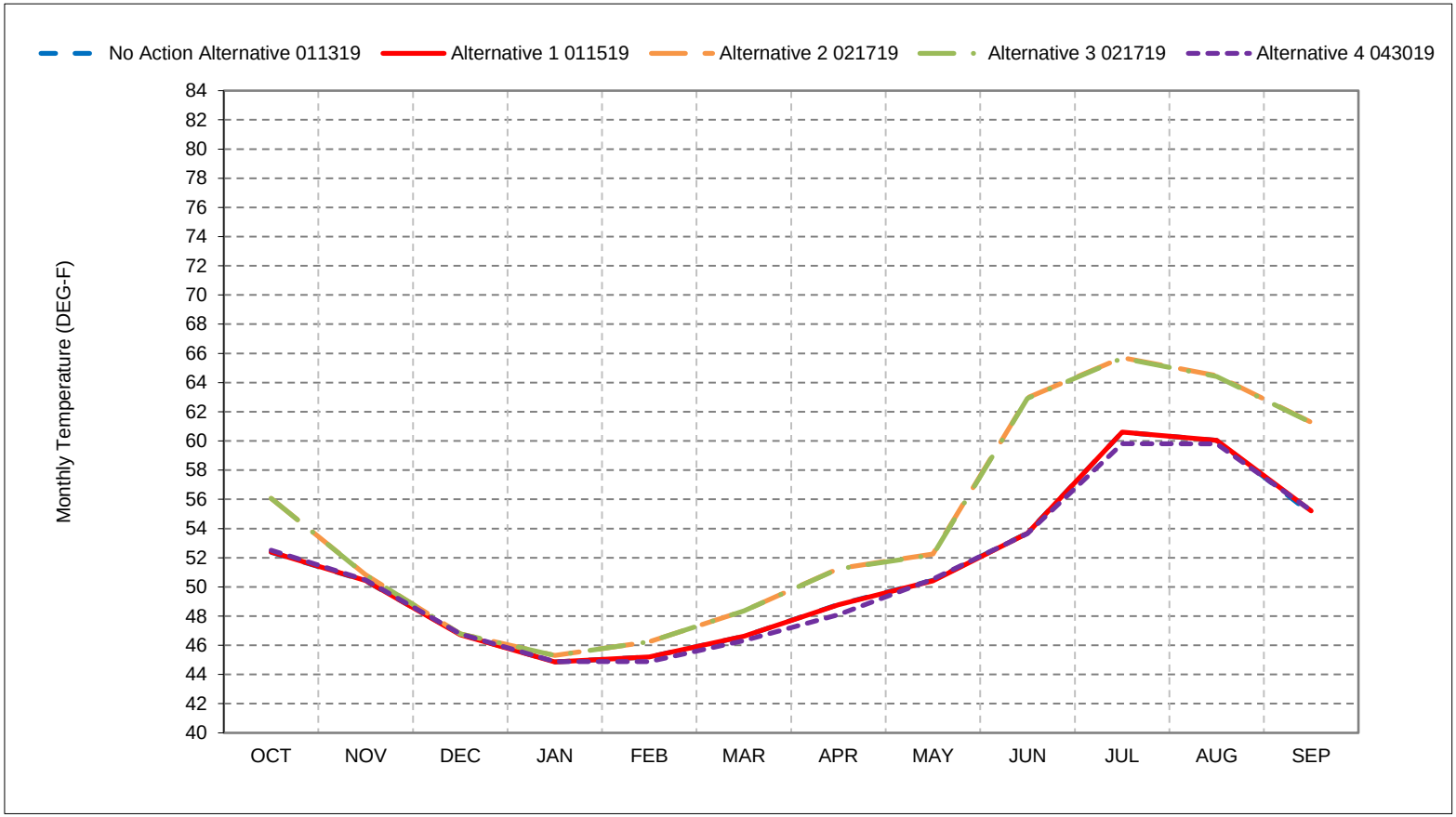
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-1. Clear Creek at Mouth, Long-Term Average Temperature



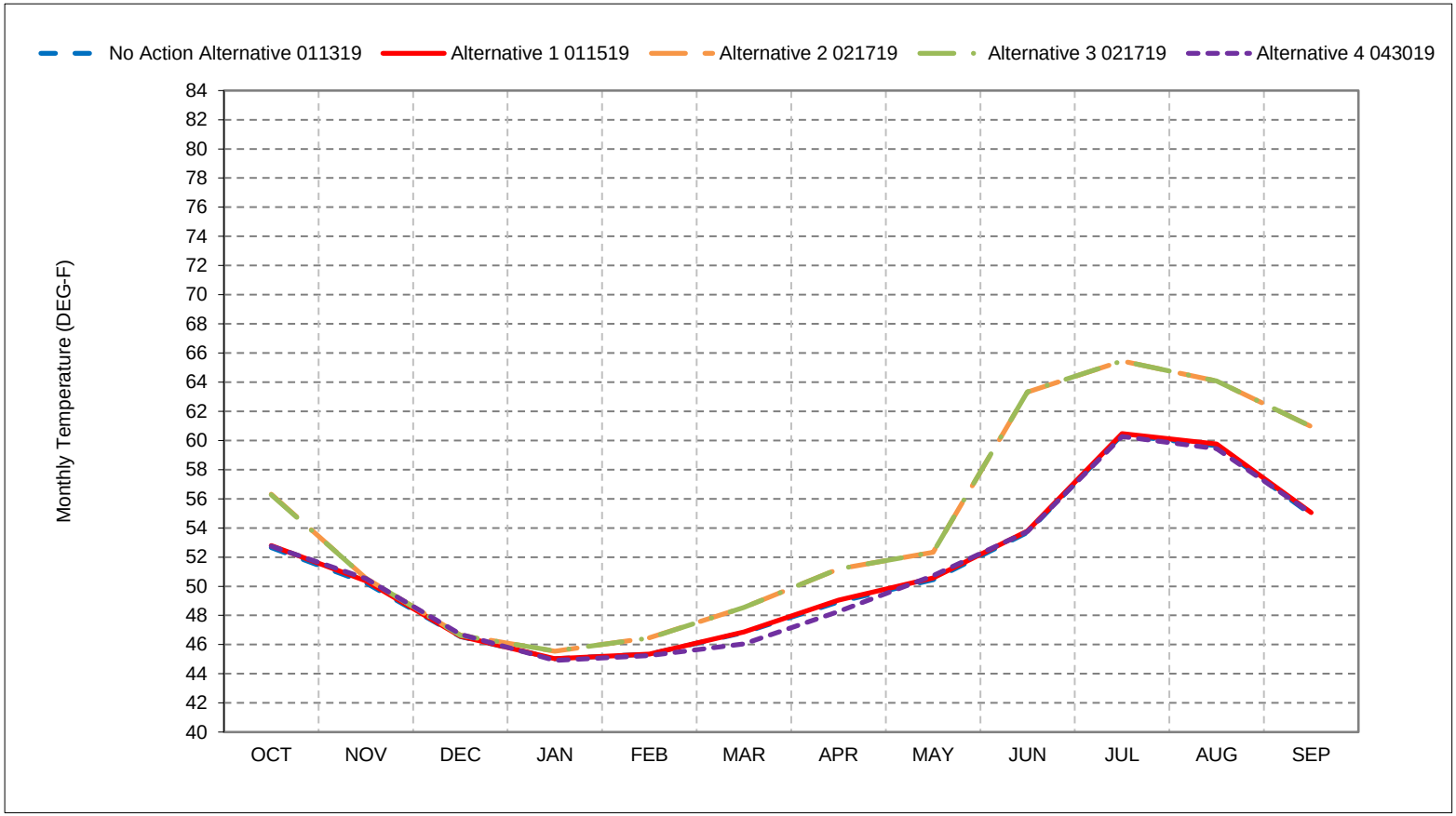

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-2. Clear Creek at Mouth, Wet Year Average Temperature



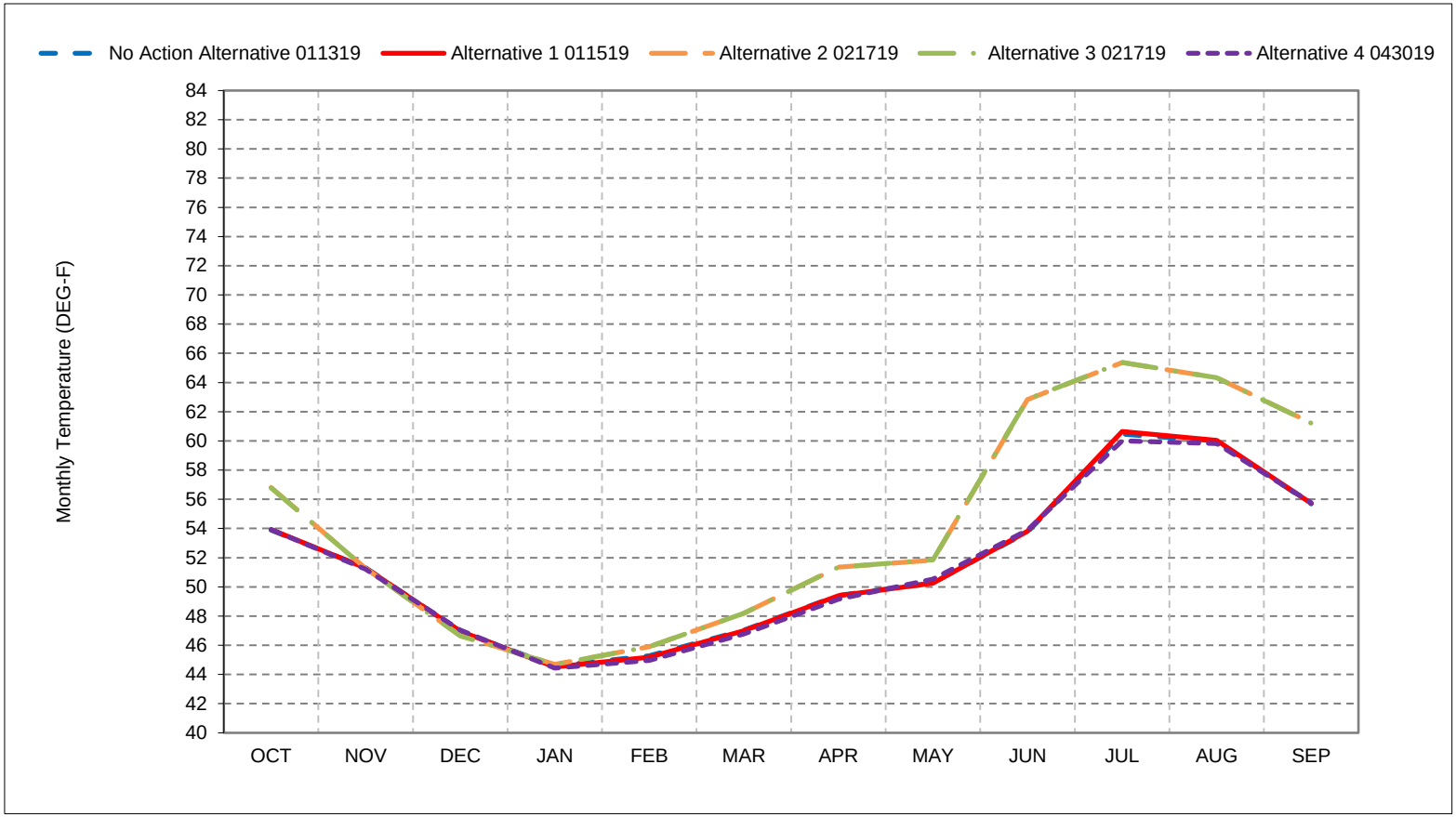

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-3. Clear Creek at Mouth, Above Normal Year Average Temperature



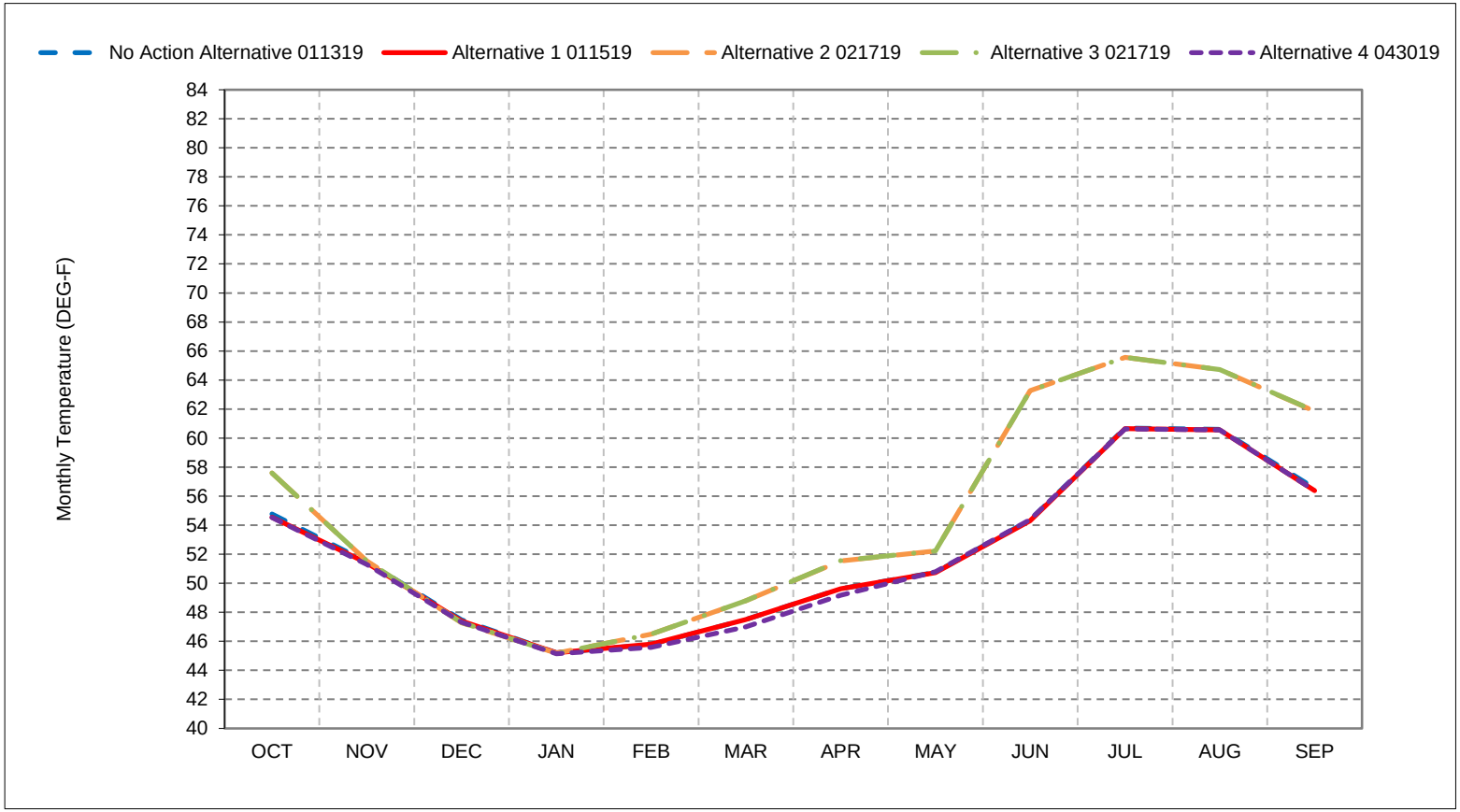

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-4. Clear Creek at Mouth, Below Normal Year Average Temperature



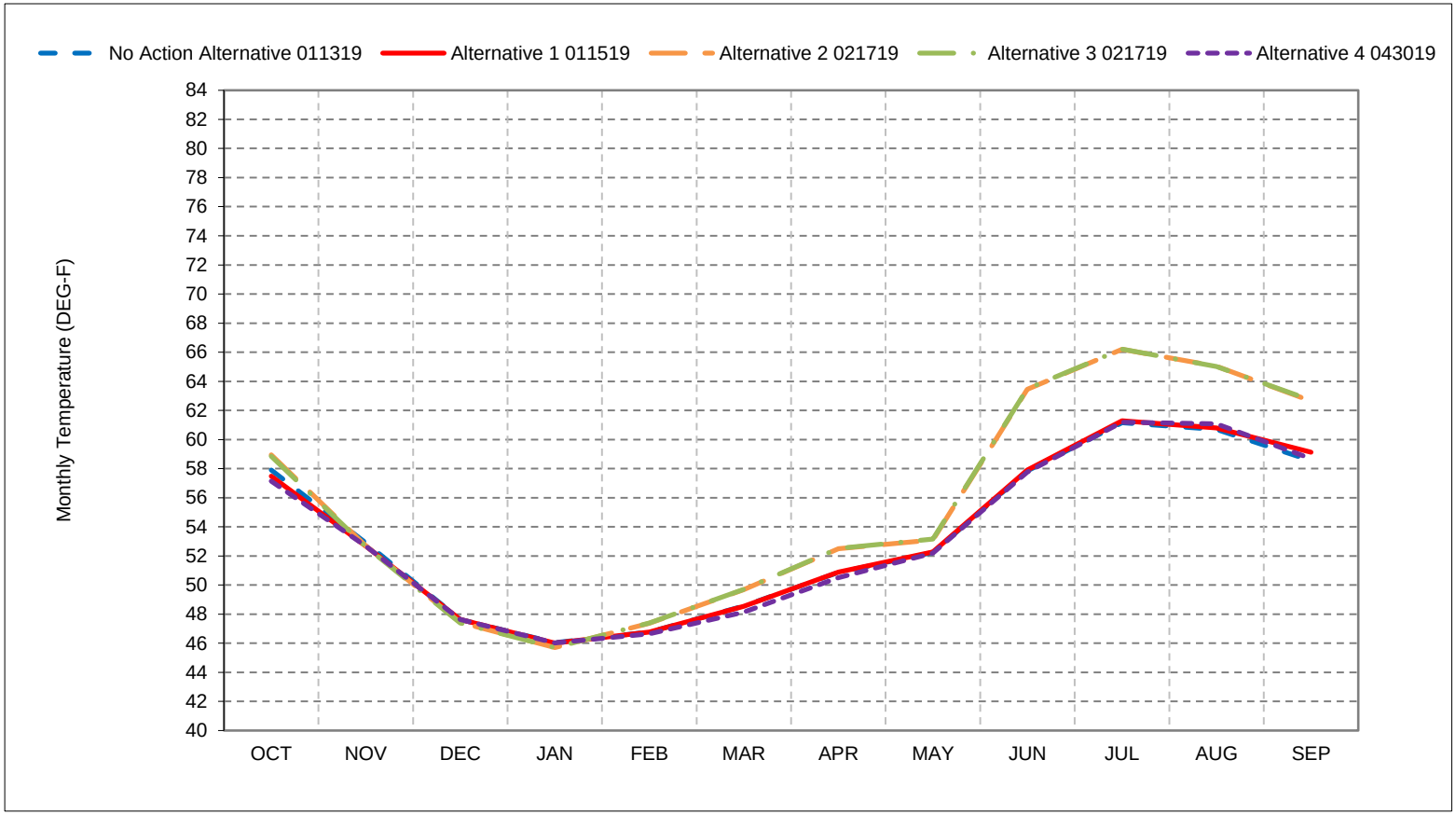

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-5. Clear Creek at Mouth, Dry Year Average Temperature



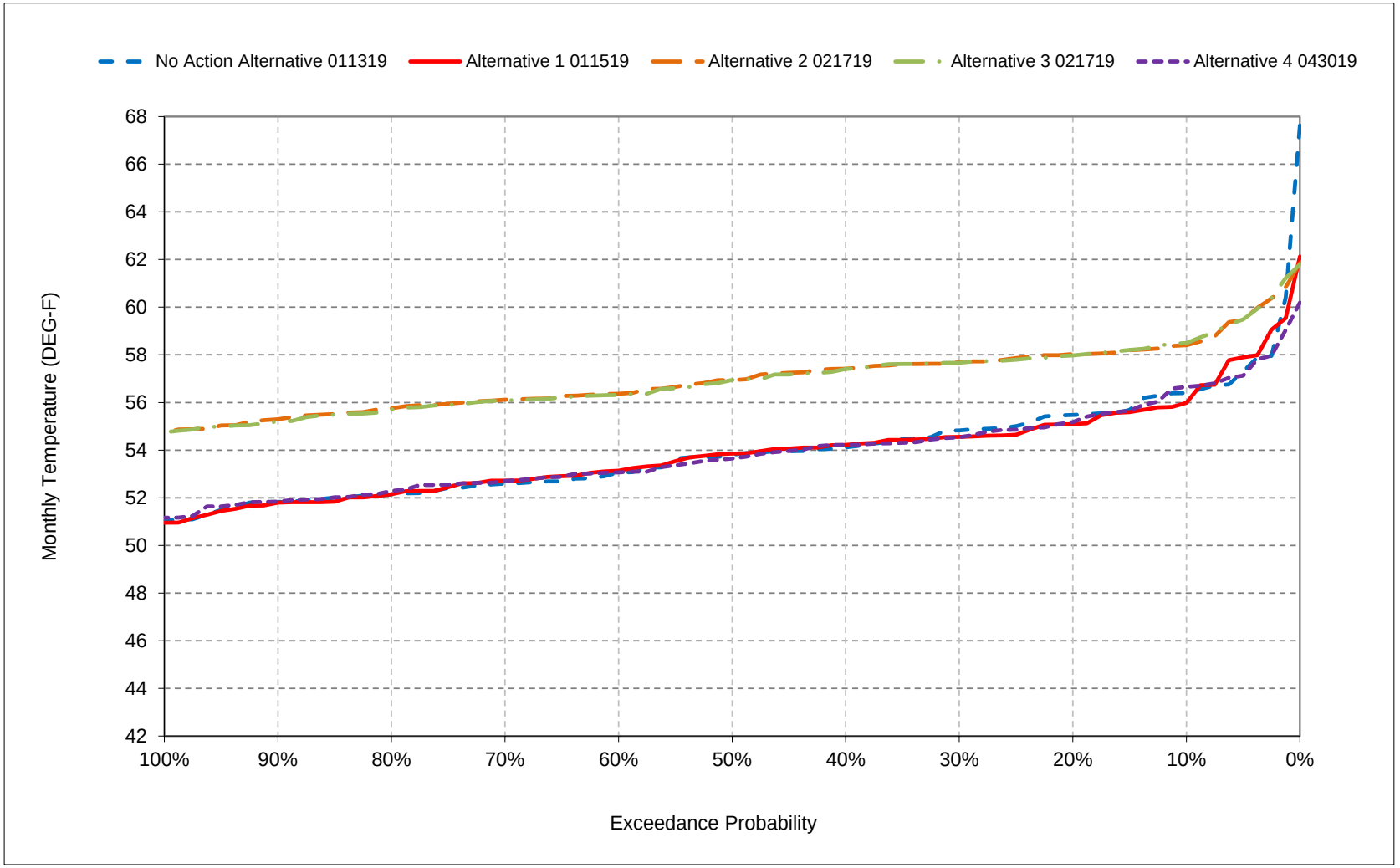

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-6. Clear Creek at Mouth, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

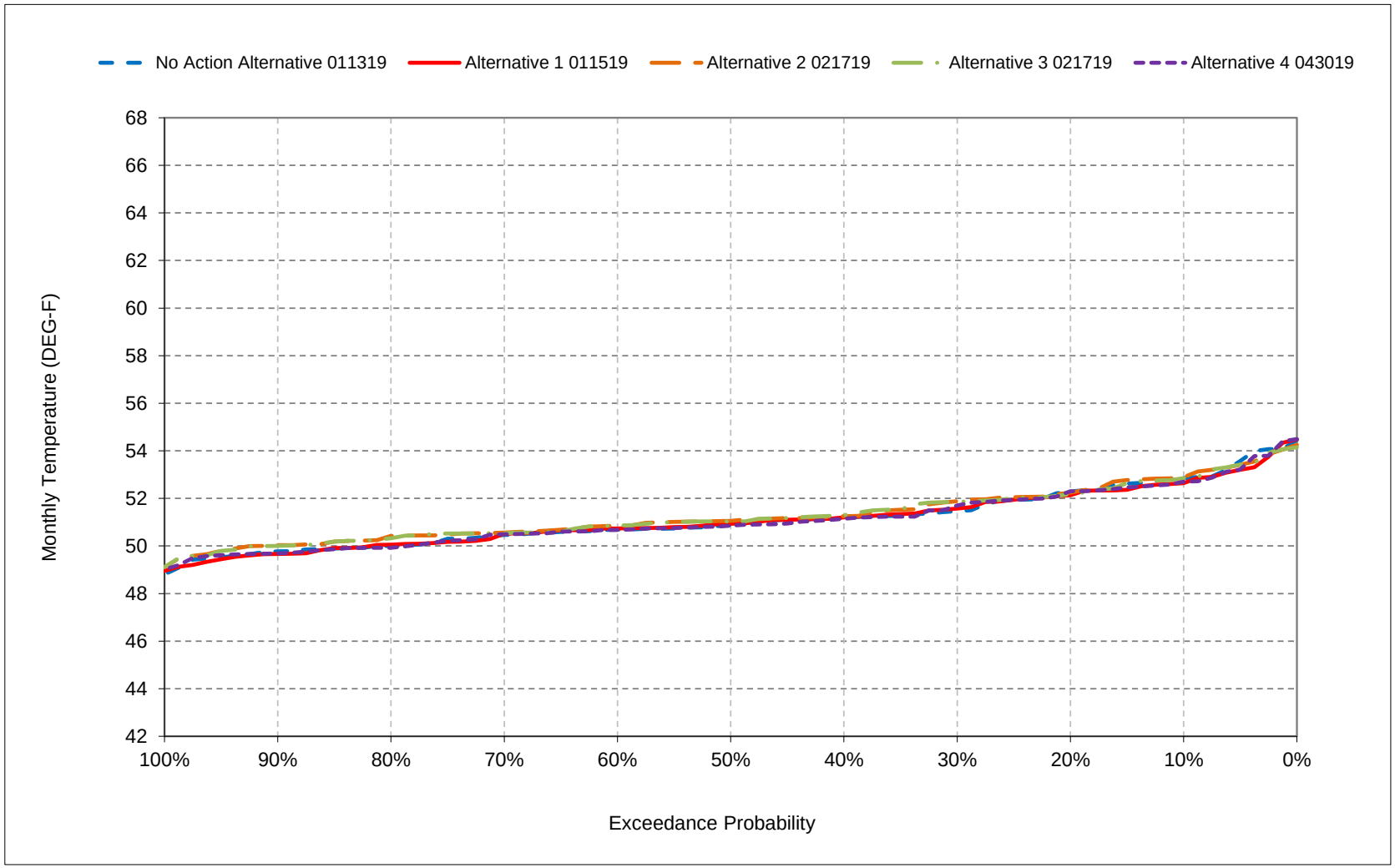
**Figure 4-7. Clear Creek at Mouth, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

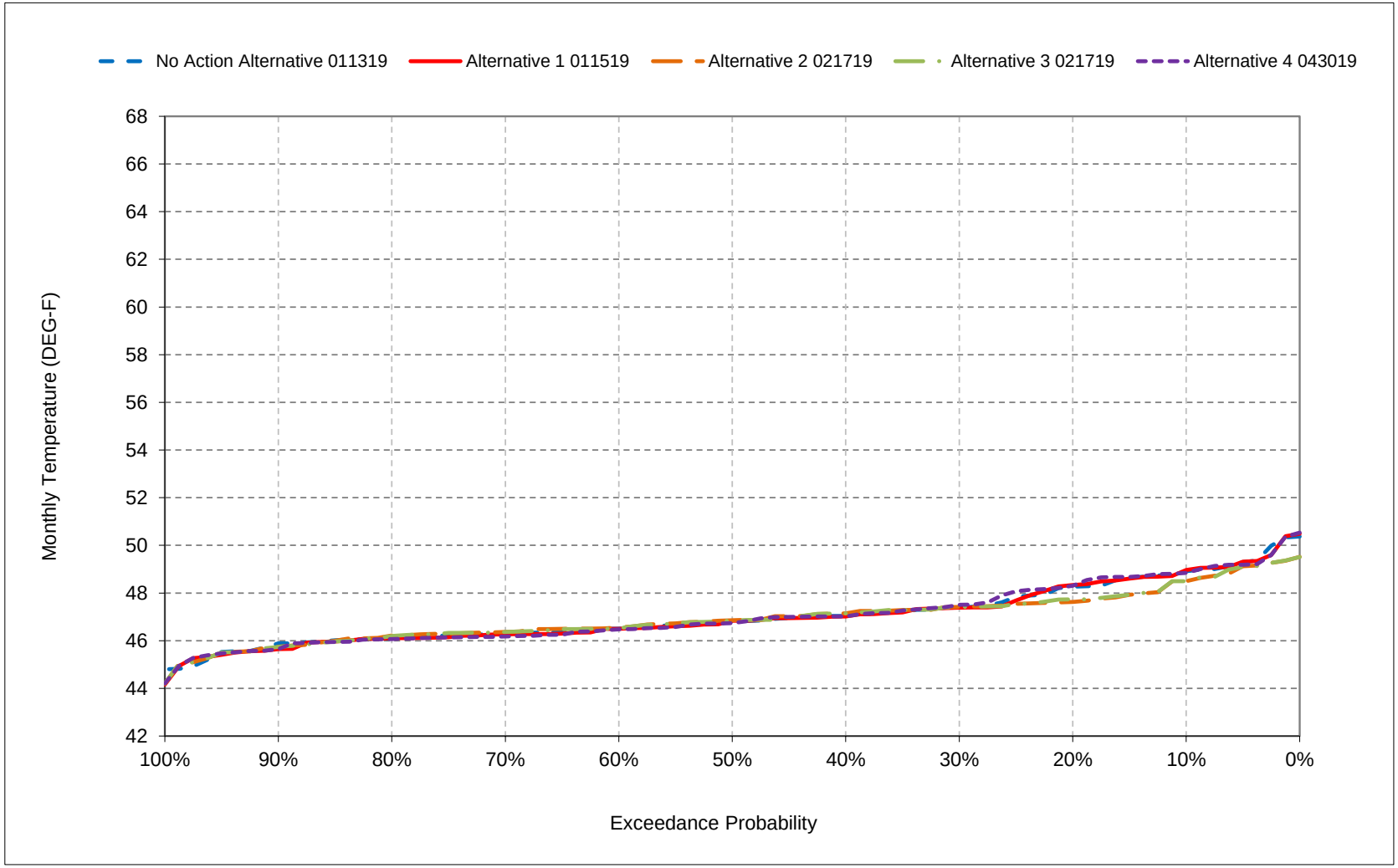
**Figure 4-8. Clear Creek at Mouth, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

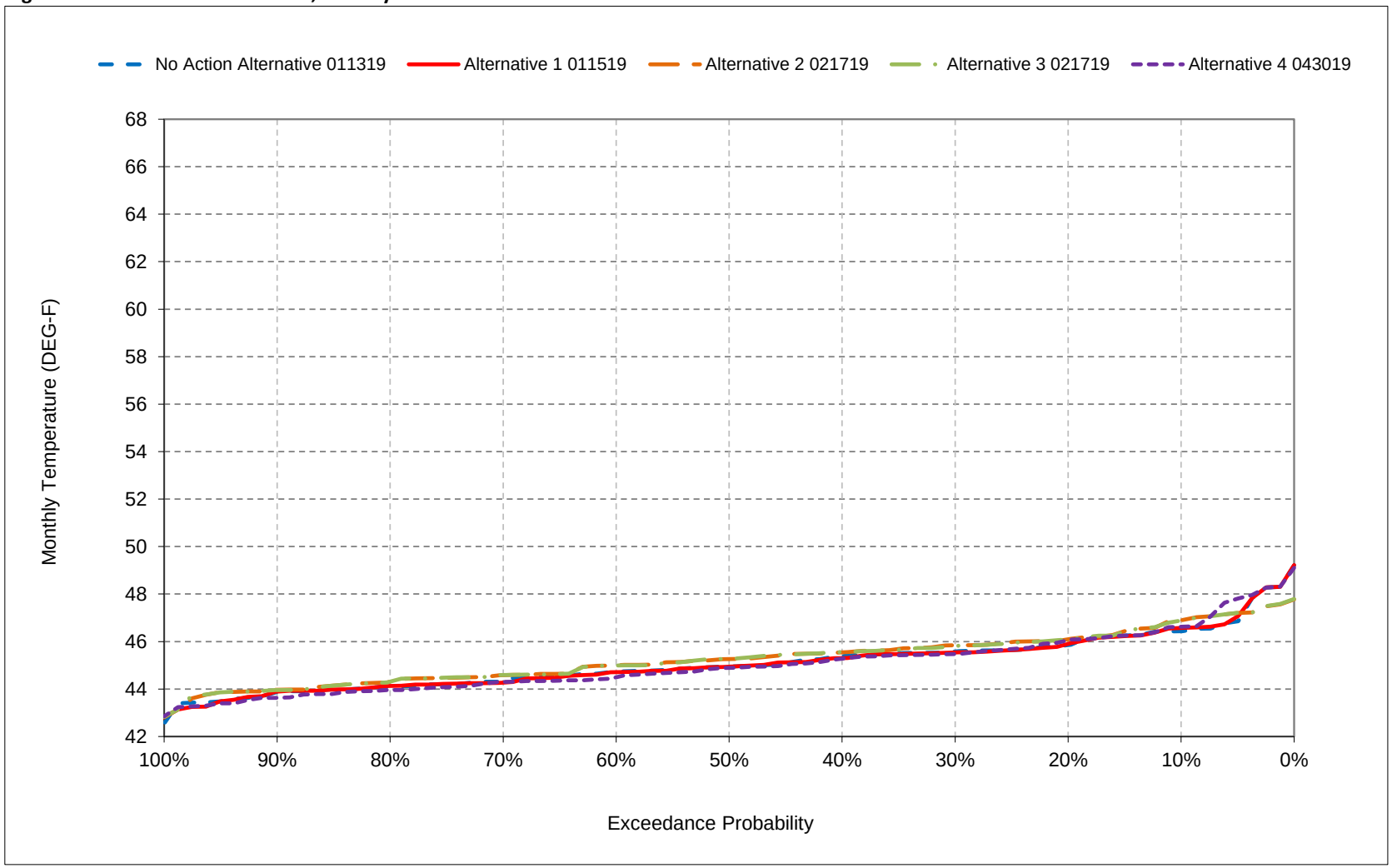
**Figure 4-9. Clear Creek at Mouth, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

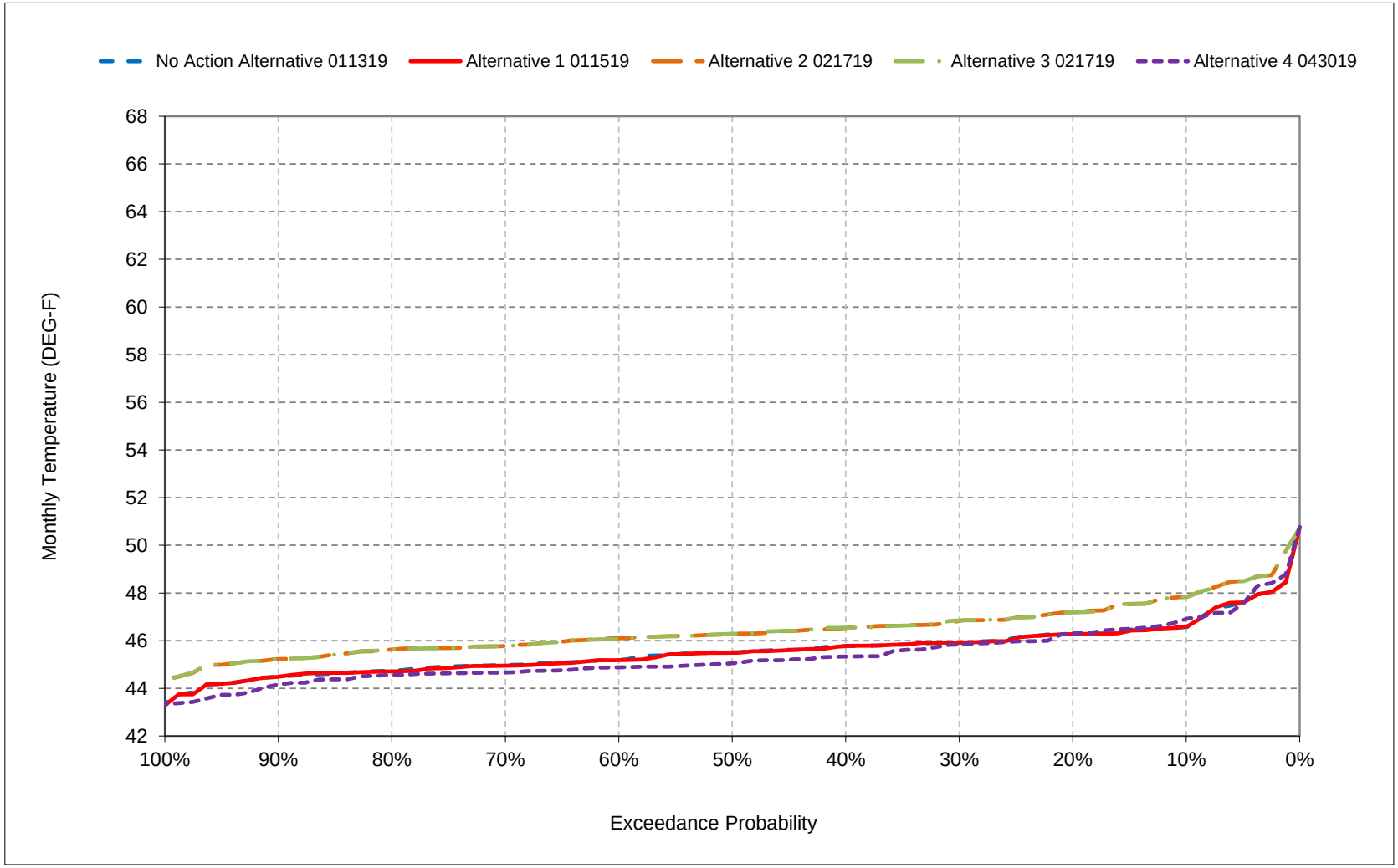
**Figure 4-10. Clear Creek at Mouth, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

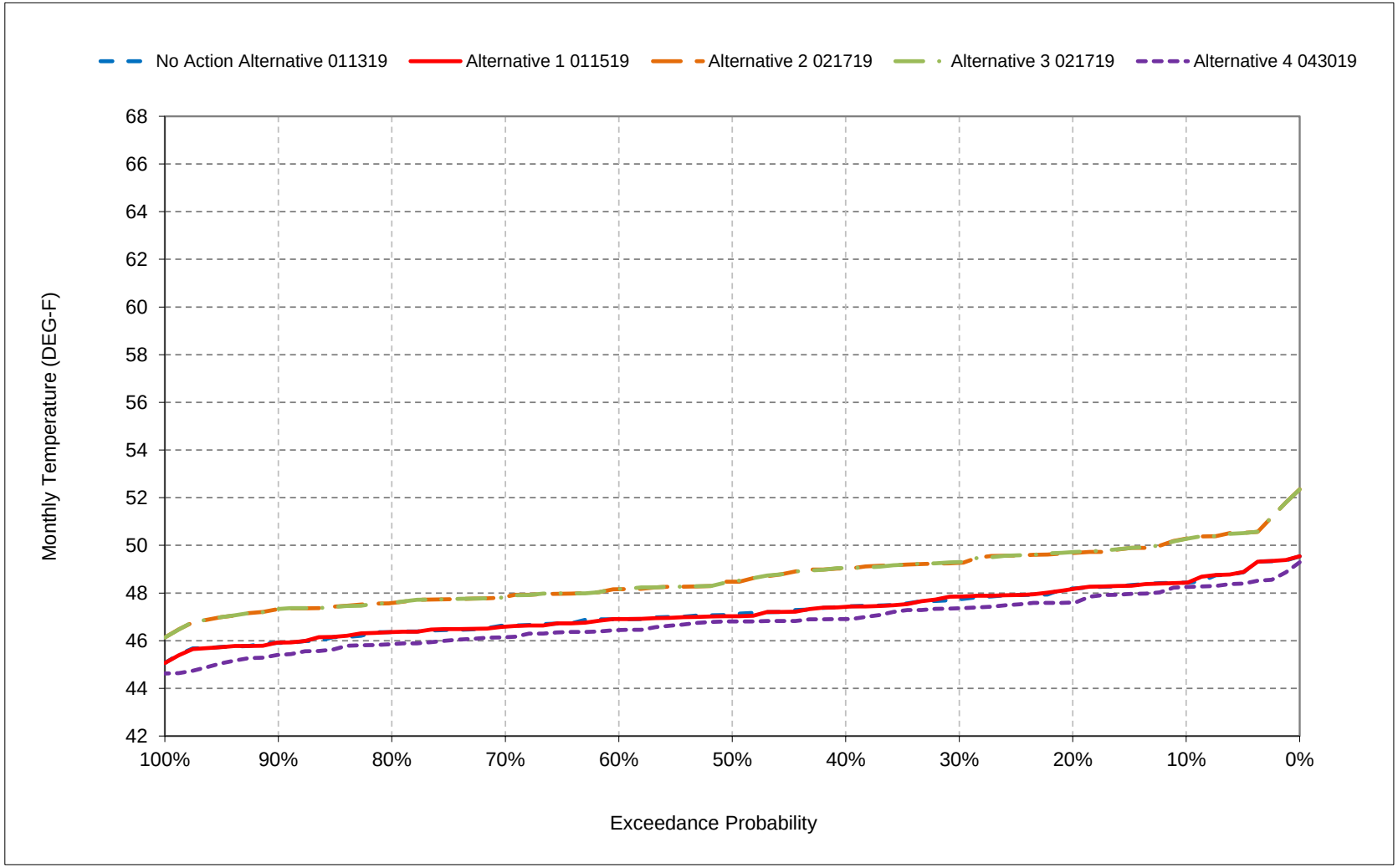
**Figure 4-11. Clear Creek at Mouth, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

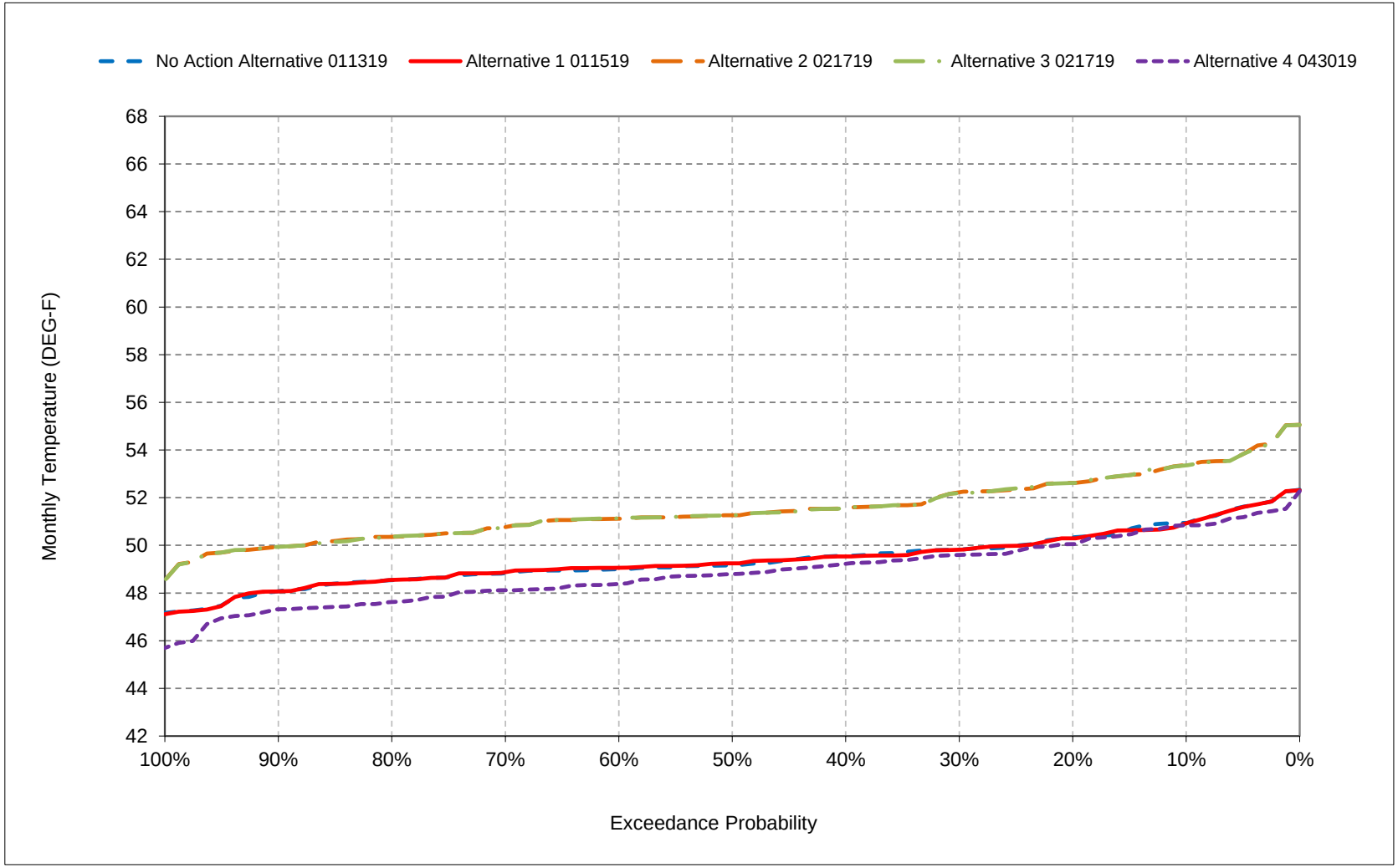
**Figure 4-12. Clear Creek at Mouth, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

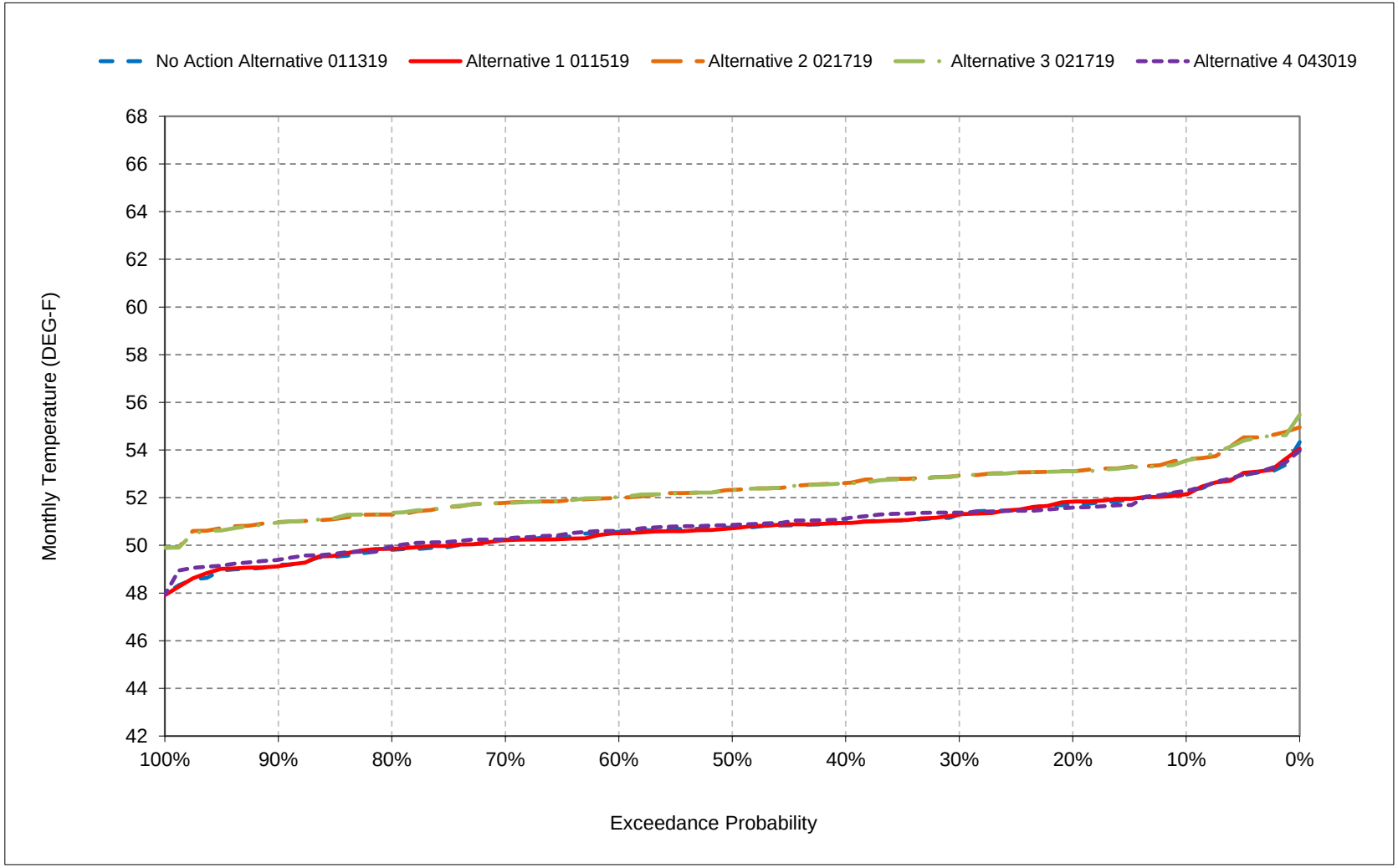
**Figure 4-13. Clear Creek at Mouth, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

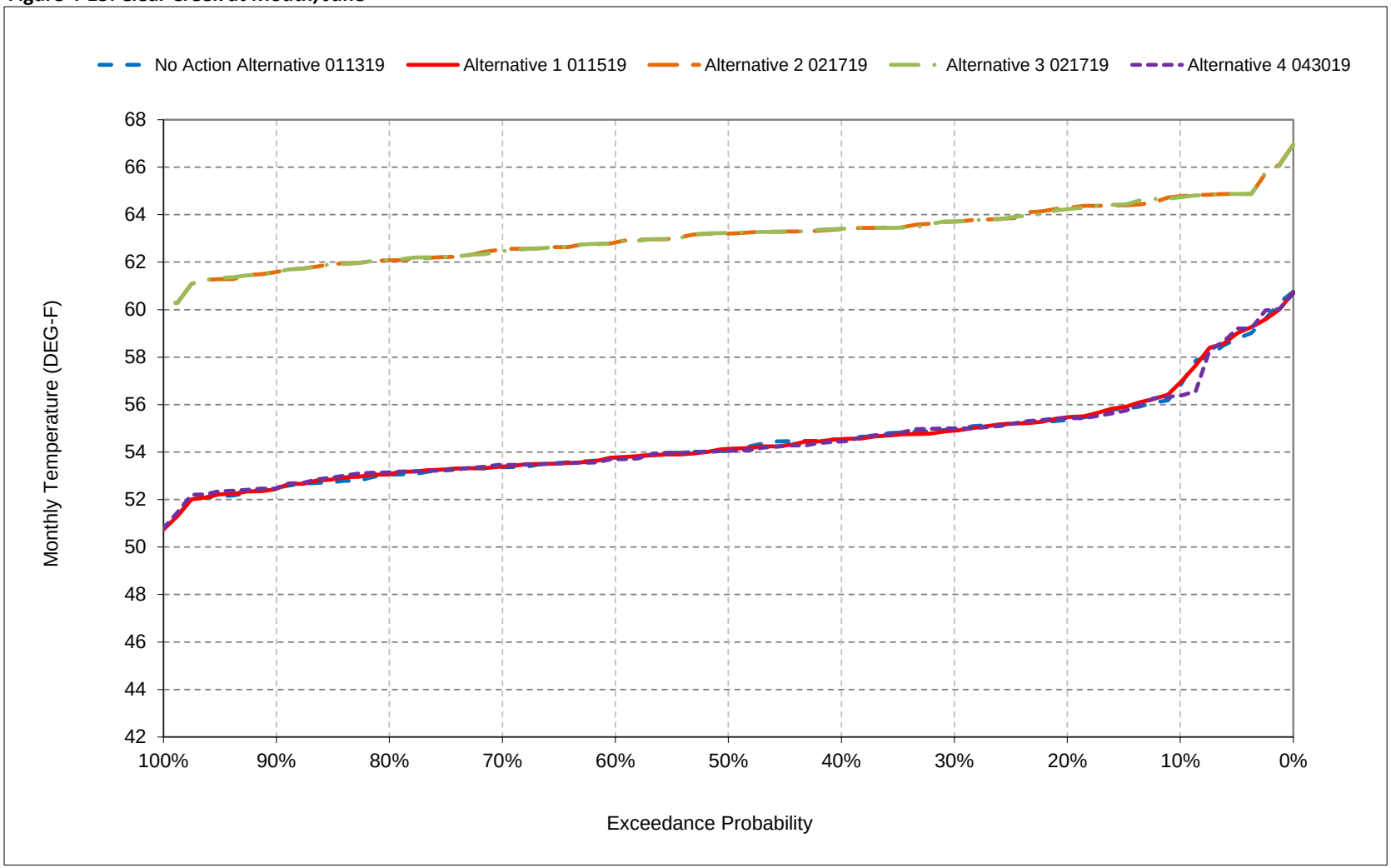
**Figure 4-14. Clear Creek at Mouth, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

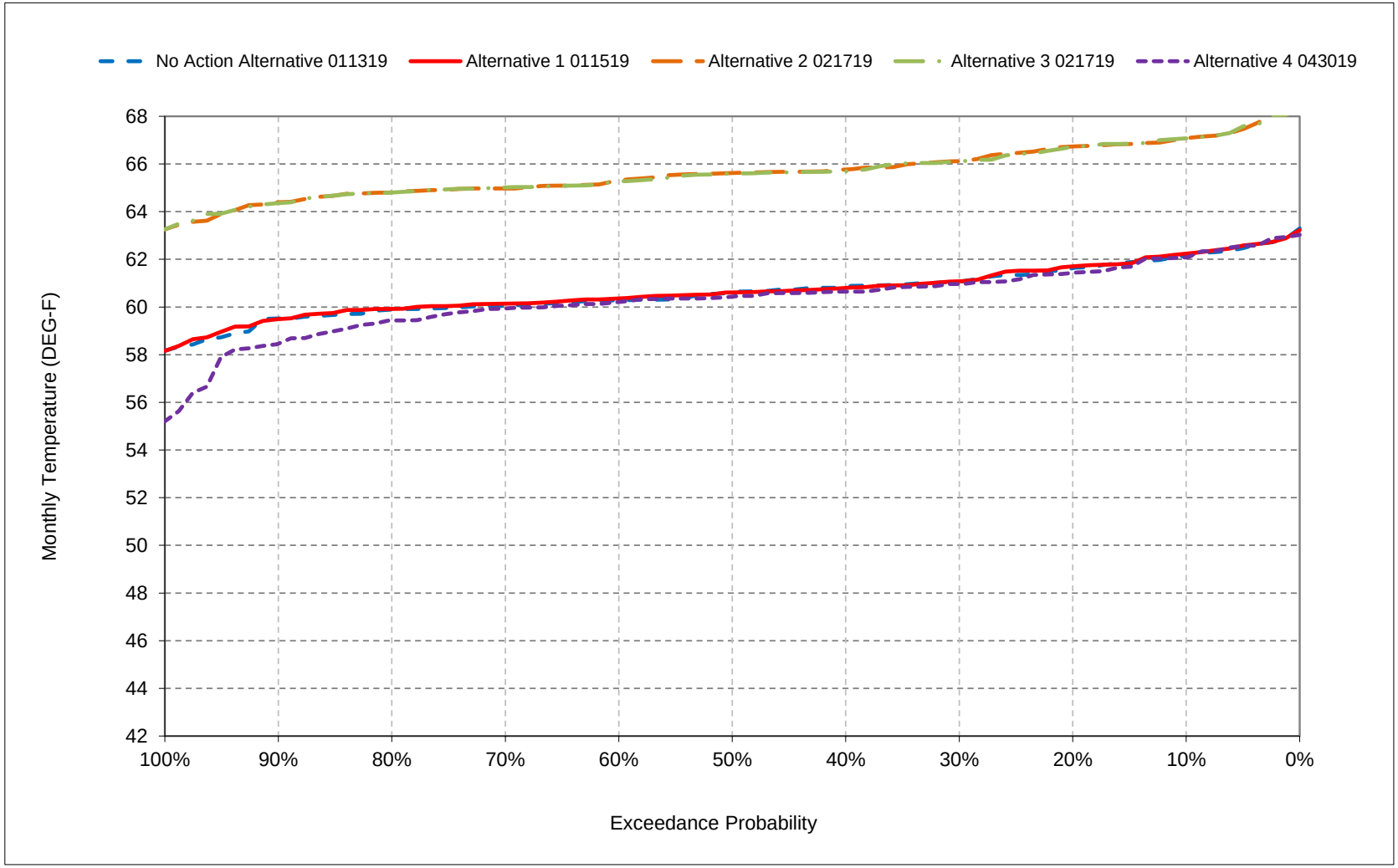
**Figure 4-15. Clear Creek at Mouth, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

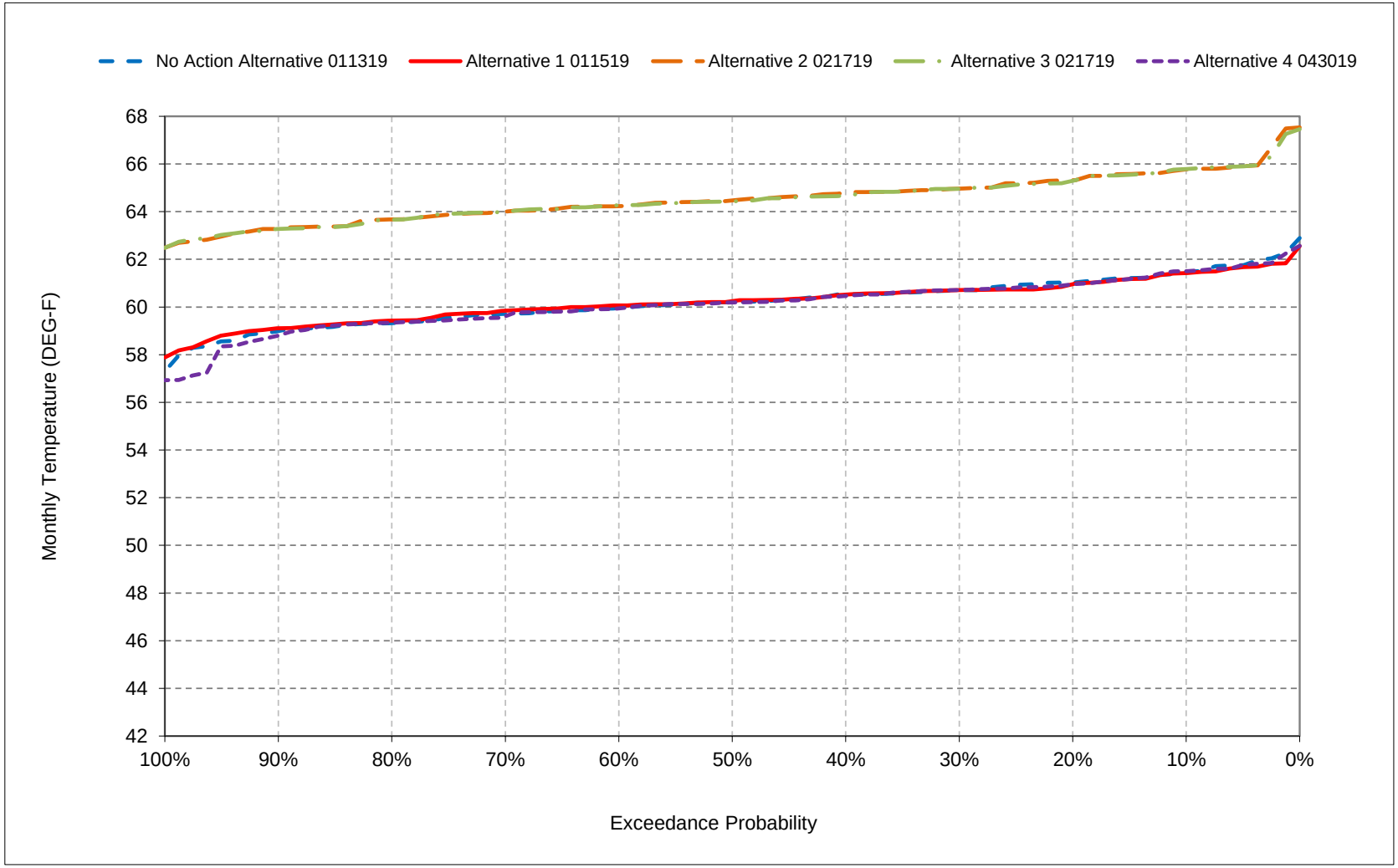
**Figure 4-16. Clear Creek at Mouth, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

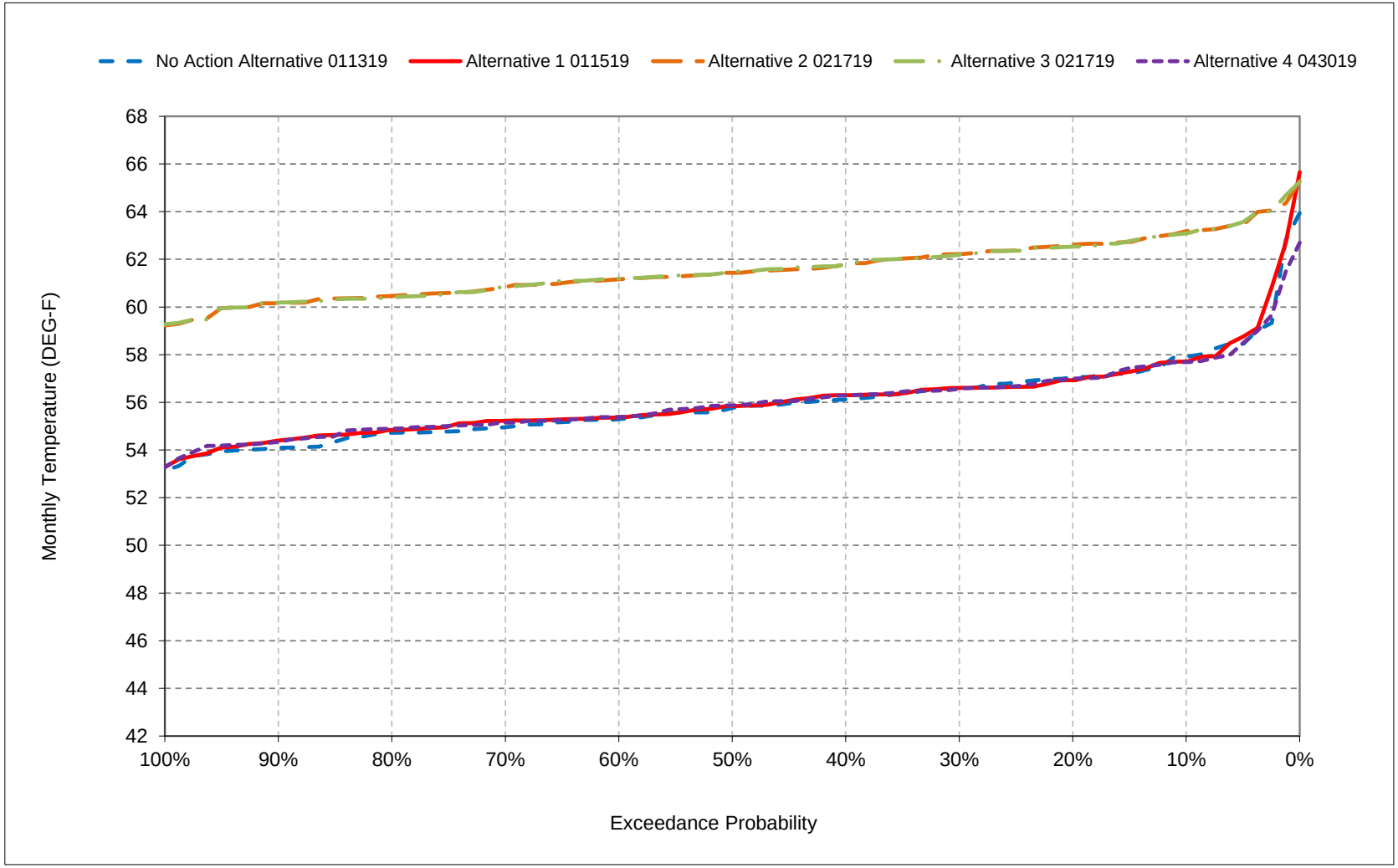
**Figure 4-17. Clear Creek at Mouth, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 4-18. Clear Creek at Mouth, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 5-1. Sacramento River below Keswick, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.1 | 56.1 | 53.6 | 50.2 | 48.2 | 49.1 | 50.3 | 50.5 | 52.0 | 53.9 | 54.4 | 54.6 |
| 20% | 55.5 | 55.9 | 52.4 | 49.2 | 47.7 | 48.4 | 49.7 | 50.2 | 51.0 | 52.4 | 54.2 | 54.0 |
| 30% | 55.2 | 55.7 | 52.0 | 48.6 | 47.3 | 48.1 | 49.3 | 49.8 | 50.5 | 51.9 | 53.0 | 53.6 |
| 40% | 54.7 | 55.4 | 51.9 | 48.1 | 47.1 | 47.6 | 49.1 | 49.4 | 50.1 | 51.1 | 52.3 | 52.8 |
| 50% | 54.4 | 55.1 | 51.5 | 47.8 | 46.8 | 47.1 | 48.7 | 49.1 | 49.9 | 50.8 | 51.9 | 52.0 |
| 60% | 54.1 | 54.9 | 50.8 | 47.4 | 46.0 | 46.7 | 48.2 | 48.9 | 49.6 | 50.5 | 51.5 | 51.6 |
| 70% | 53.9 | 54.6 | 50.6 | 47.1 | 45.8 | 46.4 | 47.9 | 48.7 | 49.4 | 50.1 | 51.3 | 51.0 |
| 80% | 53.7 | 54.1 | 50.2 | 46.7 | 45.4 | 45.8 | 47.5 | 48.2 | 49.2 | 49.8 | 51.1 | 50.8 |
| 90% | 53.5 | 53.4 | 49.4 | 46.0 | 44.7 | 45.4 | 46.8 | 47.8 | 48.5 | 49.3 | 50.8 | 50.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.9 | 55.1 | 51.4 | 47.9 | 46.6 | 47.2 | 48.6 | 49.3 | 50.1 | 51.2 | 52.6 | 52.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.3 | 55.4 | 52.0 | 47.3 | 45.9 | 46.3 | 47.8 | 48.7 | 49.6 | 50.4 | 51.4 | 51.0 |
| Above Normal (16%) | 53.9 | 54.9 | 51.4 | 47.6 | 46.0 | 46.5 | 48.1 | 48.6 | 49.3 | 50.0 | 51.1 | 51.0 |
| Below Normal (13%) | 54.2 | 54.3 | 51.3 | 48.2 | 46.9 | 47.8 | 49.1 | 49.4 | 49.7 | 50.8 | 52.0 | 52.8 |
| Dry (24%) | 54.5 | 54.4 | 50.8 | 48.4 | 47.3 | 47.8 | 49.1 | 49.5 | 50.1 | 51.4 | 53.0 | 53.2 |
| Critical (15%) | 58.9 | 56.3 | 51.5 | 48.2 | 47.1 | 48.1 | 49.5 | 50.7 | 52.3 | 53.9 | 56.2 | 58.4 |

## Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.6 | 56.5 | 53.5 | 50.2 | 48.5 | 49.1 | 50.3 | 50.5 | 51.6 | 52.5 | 53.5 | 56.0 |
| 20% | 54.6 | 56.0 | 52.8 | 49.4 | 48.1 | 48.5 | 49.8 | 50.2 | 51.0 | 51.9 | 52.4 | 54.4 |
| 30% | 53.5 | 55.6 | 52.2 | 48.9 | 47.5 | 48.0 | 49.5 | 49.7 | 50.4 | 51.7 | 52.0 | 53.1 |
| 40% | 52.8 | 55.3 | 51.8 | 48.3 | 47.2 | 47.5 | 49.2 | 49.5 | 50.1 | 51.3 | 51.8 | 52.7 |
| 50% | 52.7 | 54.9 | 51.4 | 47.9 | 46.9 | 47.2 | 48.9 | 49.2 | 49.8 | 51.0 | 51.7 | 52.1 |
| 60% | 52.6 | 54.5 | 51.0 | 47.7 | 46.2 | 46.9 | 48.2 | 48.9 | 49.6 | 50.7 | 51.6 | 51.6 |
| 70% | 52.5 | 54.2 | 50.8 | 47.4 | 45.9 | 46.5 | 48.0 | 48.7 | 49.5 | 50.3 | 51.4 | 51.4 |
| 80% | 52.4 | 53.7 | 50.6 | 46.8 | 45.5 | 45.8 | 47.7 | 48.2 | 49.1 | 50.0 | 51.1 | 51.0 |
| 90% | 52.2 | 53.5 | 49.5 | 45.9 | 44.7 | 45.5 | 46.8 | 47.7 | 48.6 | 49.6 | 50.8 | 50.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 53.9 | 54.9 | 51.6 | 48.1 | 46.7 | 47.3 | 48.7 | 49.2 | 50.0 | 51.1 | 52.2 | 53.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 52.7 | 54.7 | 51.7 | 47.5 | 46.0 | 46.4 | 47.8 | 48.7 | 49.6 | 50.5 | 51.3 | 51.5 |
| Above Normal (16%) | 52.4 | 54.1 | 51.1 | 47.7 | 46.0 | 46.6 | 48.2 | 48.6 | 49.4 | 50.1 | 51.4 | 51.9 |
| Below Normal (13%) | 53.7 | 54.8 | 51.9 | 48.4 | 47.0 | 47.9 | 49.3 | 49.2 | 49.7 | 50.7 | 51.6 | 52.6 |
| Dry (24%) | 53.2 | 54.8 | 51.4 | 48.5 | 47.4 | 47.9 | 49.2 | 49.4 | 49.9 | 51.2 | 52.0 | 52.6 |
| Critical (15%) | 59.0 | 56.5 | 51.8 | 48.6 | 47.4 | 48.3 | 49.7 | 50.6 | 51.7 | 53.3 | 55.8 | 59.2 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.6** | **0.4** | -0.1 | 0.0 | **0.3** | **0.0** | **0.0** | **0.0** | -0.4 | -1.4 | -0.9 | **1.3** |
| 20% | -0.9 | **0.1** | **0.4** | **0.2** | **0.3** | **0.1** | **0.1** | 0.0 | 0.0 | -0.5 | -1.8 | **0.4** |
| 30% | -1.7 | -0.1 | **0.1** | **0.3** | **0.2** | -0.1 | **0.2** | -0.1 | 0.0 | -0.3 | -1.0 | -0.5 |
| 40% | -1.9 | -0.2 | -0.1 | **0.2** | **0.1** | -0.1 | **0.1** | **0.1** | **0.0** | **0.2** | -0.5 | -0.1 |
| 50% | -1.6 | -0.2 | -0.1 | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | -0.1 | **0.2** | -0.3 | **0.1** |
| 60% | -1.5 | -0.4 | **0.2** | **0.3** | **0.1** | **0.2** | **0.0** | 0.0 | **0.0** | **0.2** | **0.0** | **0.0** |
| 70% | -1.5 | -0.4 | **0.1** | **0.3** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.3** |
| 80% | -1.3 | -0.4 | **0.3** | **0.1** | **0.1** | **0.1** | **0.1** | 0.0 | -0.1 | **0.2** | **0.1** | **0.2** |
| 90% | -1.2 | **0.1** | **0.1** | -0.1 | 0.0 | **0.1** | **0.1** | -0.1 | **0.0** | **0.3** | **0.1** | **0.3** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -1.1 | -0.1 | **0.1** | **0.2** | **0.1** | **0.1** | **0.1** | -0.1 | -0.1 | -0.1 | -0.4 | **0.2** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -1.5 | -0.7 | -0.2 | **0.1** | **0.1** | **0.1** | 0.0 | -0.1 | **0.1** | **0.1** | -0.1 | **0.5** |
| Above Normal (16%) | -1.5 | -0.8 | -0.3 | **0.0** | **0.1** | **0.1** | **0.1** | **0.0** | **0.1** | **0.1** | **0.2** | **0.9** |
| Below Normal (13%) | -0.5 | **0.5** | **0.6** | **0.1** | **0.1** | **0.1** | **0.2** | -0.3 | **0.0** | -0.1 | -0.4 | -0.2 |
| Dry (24%) | -1.3 | **0.4** | **0.6** | **0.1** | **0.2** | **0.0** | **0.1** | 0.0 | -0.1 | -0.1 | -1.0 | -0.6 |
| Critical (15%) | **0.1** | **0.2** | **0.3** | **0.5** | **0.4** | **0.2** | **0.2** | -0.2 | -0.5 | -0.6 | -0.5 | **0.8** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 5-2. Sacramento River below Keswick, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.1 | 56.1 | 53.6 | 50.2 | 48.2 | 49.1 | 50.3 | 50.5 | 52.0 | 53.9 | 54.4 | 54.6 |
| 20% | 55.5 | 55.9 | 52.4 | 49.2 | 47.7 | 48.4 | 49.7 | 50.2 | 51.0 | 52.4 | 54.2 | 54.0 |
| 30% | 55.2 | 55.7 | 52.0 | 48.6 | 47.3 | 48.1 | 49.3 | 49.8 | 50.5 | 51.9 | 53.0 | 53.6 |
| 40% | 54.7 | 55.4 | 51.9 | 48.1 | 47.1 | 47.6 | 49.1 | 49.4 | 50.1 | 51.1 | 52.3 | 52.8 |
| 50% | 54.4 | 55.1 | 51.5 | 47.8 | 46.8 | 47.1 | 48.7 | 49.1 | 49.9 | 50.8 | 51.9 | 52.0 |
| 60% | 54.1 | 54.9 | 50.8 | 47.4 | 46.0 | 46.7 | 48.2 | 48.9 | 49.6 | 50.5 | 51.5 | 51.6 |
| 70% | 53.9 | 54.6 | 50.6 | 47.1 | 45.8 | 46.4 | 47.9 | 48.7 | 49.4 | 50.1 | 51.3 | 51.0 |
| 80% | 53.7 | 54.1 | 50.2 | 46.7 | 45.4 | 45.8 | 47.5 | 48.2 | 49.2 | 49.8 | 51.1 | 50.8 |
| 90% | 53.5 | 53.4 | 49.4 | 46.0 | 44.7 | 45.4 | 46.8 | 47.8 | 48.5 | 49.3 | 50.8 | 50.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.9 | 55.1 | 51.4 | 47.9 | 46.6 | 47.2 | 48.6 | 49.3 | 50.1 | 51.2 | 52.6 | 52.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.3 | 55.4 | 52.0 | 47.3 | 45.9 | 46.3 | 47.8 | 48.7 | 49.6 | 50.4 | 51.4 | 51.0 |
| Above Normal (16%) | 53.9 | 54.9 | 51.4 | 47.6 | 46.0 | 46.5 | 48.1 | 48.6 | 49.3 | 50.0 | 51.1 | 51.0 |
| Below Normal (13%) | 54.2 | 54.3 | 51.3 | 48.2 | 46.9 | 47.8 | 49.1 | 49.4 | 49.7 | 50.8 | 52.0 | 52.8 |
| Dry (24%) | 54.5 | 54.4 | 50.8 | 48.4 | 47.3 | 47.8 | 49.1 | 49.5 | 50.1 | 51.4 | 53.0 | 53.2 |
| Critical (15%) | 58.9 | 56.3 | 51.5 | 48.2 | 47.1 | 48.1 | 49.5 | 50.7 | 52.3 | 53.9 | 56.2 | 58.4 |

## Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.3 | 56.3 | 53.2 | 49.9 | 48.2 | 48.8 | 50.2 | 50.5 | 51.9 | 53.4 | 54.8 | 55.9 |
| 20% | 55.5 | 55.9 | 52.4 | 49.1 | 47.8 | 48.4 | 49.7 | 50.0 | 50.9 | 52.6 | 53.9 | 53.9 |
| 30% | 55.0 | 55.7 | 51.9 | 48.6 | 47.3 | 48.0 | 49.4 | 49.4 | 50.4 | 52.1 | 53.1 | 53.5 |
| 40% | 54.6 | 55.3 | 51.5 | 48.1 | 47.1 | 47.4 | 49.0 | 49.2 | 50.1 | 51.4 | 52.3 | 52.9 |
| 50% | 54.4 | 55.0 | 51.2 | 47.7 | 46.9 | 47.1 | 48.7 | 48.9 | 49.8 | 51.1 | 52.0 | 52.4 |
| 60% | 54.2 | 54.5 | 50.8 | 47.5 | 46.1 | 46.8 | 48.1 | 48.7 | 49.5 | 50.7 | 51.6 | 52.2 |
| 70% | 53.7 | 54.2 | 50.6 | 47.0 | 45.8 | 46.4 | 47.9 | 48.5 | 49.2 | 50.3 | 51.3 | 51.8 |
| 80% | 53.5 | 53.7 | 50.2 | 46.7 | 45.4 | 45.8 | 47.5 | 48.1 | 48.9 | 49.9 | 51.0 | 51.5 |
| 90% | 53.3 | 53.3 | 49.4 | 45.7 | 44.6 | 45.4 | 46.6 | 47.4 | 48.4 | 49.7 | 50.7 | 51.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.0 | 54.9 | 51.3 | 47.8 | 46.6 | 47.2 | 48.6 | 49.1 | 50.0 | 51.3 | 52.6 | 53.3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.8 | 54.5 | 51.5 | 47.3 | 45.9 | 46.4 | 47.8 | 48.7 | 49.5 | 50.6 | 51.5 | 51.7 |
| Above Normal (16%) | 53.9 | 54.4 | 51.1 | 47.5 | 45.9 | 46.5 | 48.1 | 48.5 | 49.1 | 50.2 | 51.2 | 52.2 |
| Below Normal (13%) | 54.6 | 54.9 | 51.7 | 48.1 | 46.8 | 47.8 | 49.1 | 49.2 | 49.7 | 51.0 | 51.8 | 52.8 |
| Dry (24%) | 54.6 | 54.8 | 51.0 | 48.4 | 47.3 | 47.8 | 49.1 | 49.1 | 49.9 | 51.5 | 53.0 | 53.1 |
| Critical (15%) | 59.6 | 56.6 | 51.6 | 48.4 | 47.2 | 48.0 | 49.5 | 50.6 | 52.3 | 54.1 | 56.4 | 58.8 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **2.3** | **0.2** | -0.3 | -0.3 | **0.0** | -0.2 | -0.1 | **0.0** | -0.1 | -0.5 | **0.3** | **1.3** |
| 20% | 0.0 | **0.1** | 0.0 | 0.0 | **0.1** | 0.0 | 0.0 | -0.2 | -0.1 | **0.2** | -0.3 | -0.1 |
| 30% | -0.1 | 0.0 | -0.1 | **0.0** | **0.0** | -0.1 | **0.0** | -0.3 | -0.1 | **0.1** | **0.1** | -0.2 |
| 40% | -0.1 | -0.1 | -0.4 | **0.0** | 0.0 | -0.2 | -0.1 | -0.1 | -0.1 | **0.3** | **0.0** | **0.2** |
| 50% | **0.0** | -0.1 | -0.3 | -0.1 | **0.1** | **0.0** | **0.0** | -0.1 | -0.1 | **0.2** | **0.0** | **0.5** |
| 60% | **0.1** | -0.4 | 0.0 | **0.1** | **0.0** | **0.1** | -0.1 | -0.1 | -0.1 | **0.3** | **0.1** | **0.6** |
| 70% | -0.3 | -0.4 | -0.1 | -0.1 | 0.0 | -0.1 | **0.0** | -0.1 | -0.2 | **0.1** | 0.0 | **0.7** |
| 80% | -0.2 | -0.4 | 0.0 | 0.0 | 0.0 | **0.0** | 0.0 | -0.2 | -0.3 | **0.1** | -0.1 | **0.6** |
| 90% | -0.2 | -0.1 | **0.0** | -0.4 | 0.0 | **0.0** | -0.1 | -0.4 | -0.2 | **0.4** | -0.1 | **0.6** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.0** | -0.1 | -0.1 | 0.0 | 0.0 | **0.0** | 0.0 | -0.2 | -0.1 | **0.2** | **0.0** | **0.4** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.4 | -0.9 | -0.5 | 0.0 | 0.0 | **0.0** | **0.0** | 0.0 | -0.1 | **0.1** | **0.0** | **0.7** |
| Above Normal (16%) | -0.1 | -0.5 | -0.3 | -0.2 | 0.0 | **0.0** | **0.0** | -0.1 | -0.2 | **0.2** | **0.1** | **1.3** |
| Below Normal (13%) | **0.4** | **0.6** | **0.4** | -0.2 | -0.1 | **0.0** | 0.0 | -0.2 | 0.0 | **0.2** | -0.2 | -0.1 |
| Dry (24%) | **0.1** | **0.4** | **0.1** | 0.0 | **0.0** | **0.0** | 0.0 | -0.3 | -0.2 | **0.1** | **0.0** | -0.2 |
| Critical (15%) | **0.7** | **0.3** | **0.1** | **0.2** | **0.1** | -0.1 | 0.0 | -0.1 | **0.0** | **0.2** | **0.2** | **0.4** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 5-3. Sacramento River below Keswick, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.1 | 56.1 | 53.6 | 50.2 | 48.2 | 49.1 | 50.3 | 50.5 | 52.0 | 53.9 | 54.4 | 54.6 |
| 20% | 55.5 | 55.9 | 52.4 | 49.2 | 47.7 | 48.4 | 49.7 | 50.2 | 51.0 | 52.4 | 54.2 | 54.0 |
| 30% | 55.2 | 55.7 | 52.0 | 48.6 | 47.3 | 48.1 | 49.3 | 49.8 | 50.5 | 51.9 | 53.0 | 53.6 |
| 40% | 54.7 | 55.4 | 51.9 | 48.1 | 47.1 | 47.6 | 49.1 | 49.4 | 50.1 | 51.1 | 52.3 | 52.8 |
| 50% | 54.4 | 55.1 | 51.5 | 47.8 | 46.8 | 47.1 | 48.7 | 49.1 | 49.9 | 50.8 | 51.9 | 52.0 |
| 60% | 54.1 | 54.9 | 50.8 | 47.4 | 46.0 | 46.7 | 48.2 | 48.9 | 49.6 | 50.5 | 51.5 | 51.6 |
| 70% | 53.9 | 54.6 | 50.6 | 47.1 | 45.8 | 46.4 | 47.9 | 48.7 | 49.4 | 50.1 | 51.3 | 51.0 |
| 80% | 53.7 | 54.1 | 50.2 | 46.7 | 45.4 | 45.8 | 47.5 | 48.2 | 49.2 | 49.8 | 51.1 | 50.8 |
| 90% | 53.5 | 53.4 | 49.4 | 46.0 | 44.7 | 45.4 | 46.8 | 47.8 | 48.5 | 49.3 | 50.8 | 50.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.9 | 55.1 | 51.4 | 47.9 | 46.6 | 47.2 | 48.6 | 49.3 | 50.1 | 51.2 | 52.6 | 52.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.3 | 55.4 | 52.0 | 47.3 | 45.9 | 46.3 | 47.8 | 48.7 | 49.6 | 50.4 | 51.4 | 51.0 |
| Above Normal (16%) | 53.9 | 54.9 | 51.4 | 47.6 | 46.0 | 46.5 | 48.1 | 48.6 | 49.3 | 50.0 | 51.1 | 51.0 |
| Below Normal (13%) | 54.2 | 54.3 | 51.3 | 48.2 | 46.9 | 47.8 | 49.1 | 49.4 | 49.7 | 50.8 | 52.0 | 52.8 |
| Dry (24%) | 54.5 | 54.4 | 50.8 | 48.4 | 47.3 | 47.8 | 49.1 | 49.5 | 50.1 | 51.4 | 53.0 | 53.2 |
| Critical (15%) | 58.9 | 56.3 | 51.5 | 48.2 | 47.1 | 48.1 | 49.5 | 50.7 | 52.3 | 53.9 | 56.2 | 58.4 |

## Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 59.5 | 56.5 | 53.2 | 49.9 | 48.2 | 48.9 | 50.1 | 50.5 | 52.1 | 53.7 | 54.5 | 56.0 |
| 20% | 55.4 | 55.9 | 52.5 | 49.1 | 47.8 | 48.4 | 49.6 | 50.0 | 50.8 | 52.7 | 53.8 | 54.0 |
| 30% | 55.0 | 55.7 | 52.0 | 48.6 | 47.3 | 48.1 | 49.4 | 49.5 | 50.4 | 52.0 | 53.1 | 53.6 |
| 40% | 54.6 | 55.3 | 51.4 | 48.0 | 47.1 | 47.6 | 49.0 | 49.2 | 50.1 | 51.4 | 52.4 | 53.1 |
| 50% | 54.4 | 55.1 | 51.2 | 47.7 | 46.9 | 47.1 | 48.7 | 49.0 | 49.8 | 51.0 | 51.9 | 52.5 |
| 60% | 54.2 | 54.5 | 50.8 | 47.5 | 46.0 | 46.8 | 48.1 | 48.7 | 49.6 | 50.7 | 51.6 | 52.2 |
| 70% | 53.7 | 54.2 | 50.6 | 47.0 | 45.8 | 46.4 | 47.9 | 48.5 | 49.3 | 50.2 | 51.3 | 51.8 |
| 80% | 53.5 | 53.8 | 50.2 | 46.7 | 45.3 | 45.8 | 47.5 | 48.1 | 48.9 | 49.9 | 51.0 | 51.4 |
| 90% | 53.2 | 53.3 | 49.4 | 45.7 | 44.6 | 45.4 | 46.6 | 47.8 | 48.4 | 49.7 | 50.7 | 51.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.0 | 54.9 | 51.3 | 47.8 | 46.5 | 47.2 | 48.6 | 49.1 | 50.0 | 51.3 | 52.6 | 53.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.8 | 54.5 | 51.5 | 47.3 | 45.9 | 46.4 | 47.8 | 48.7 | 49.5 | 50.5 | 51.4 | 51.8 |
| Above Normal (16%) | 53.8 | 54.4 | 51.1 | 47.4 | 45.9 | 46.6 | 48.1 | 48.5 | 49.1 | 50.2 | 51.2 | 52.2 |
| Below Normal (13%) | 54.5 | 54.9 | 51.7 | 48.1 | 46.8 | 47.8 | 49.1 | 49.2 | 49.7 | 51.0 | 51.8 | 52.8 |
| Dry (24%) | 54.5 | 54.8 | 51.0 | 48.4 | 47.3 | 47.9 | 49.1 | 49.1 | 49.9 | 51.5 | 53.0 | 53.1 |
| Critical (15%) | 59.9 | 56.6 | 51.5 | 48.3 | 47.1 | 48.0 | 49.4 | 50.7 | 52.4 | 54.1 | 56.6 | 59.2 |

## Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **3.4** | **0.4** | -0.3 | -0.3 | 0.0 | -0.2 | -0.2 | **0.0** | **0.1** | -0.2 | **0.1** | **1.4** |
| 20% | -0.1 | **0.0** | **0.1** | -0.1 | **0.1** | 0.0 | 0.0 | -0.2 | -0.2 | **0.3** | -0.3 | 0.0 |
| 30% | -0.2 | **0.0** | 0.0 | **0.0** | **0.0** | **0.0** | **0.0** | -0.3 | -0.1 | **0.1** | **0.1** | 0.0 |
| 40% | -0.1 | -0.1 | -0.5 | 0.0 | 0.0 | 0.0 | -0.1 | -0.2 | -0.1 | **0.3** | **0.2** | **0.4** |
| 50% | **0.0** | **0.0** | -0.3 | -0.1 | **0.1** | **0.0** | 0.0 | -0.1 | -0.1 | **0.2** | 0.0 | **0.6** |
| 60% | **0.1** | -0.4 | 0.0 | **0.1** | 0.0 | **0.1** | -0.1 | -0.1 | 0.0 | **0.2** | **0.0** | **0.7** |
| 70% | -0.3 | -0.4 | 0.0 | -0.1 | **0.0** | -0.1 | **0.0** | -0.1 | -0.1 | **0.1** | 0.0 | **0.7** |
| 80% | -0.2 | -0.3 | -0.1 | 0.0 | 0.0 | **0.0** | -0.1 | -0.1 | -0.3 | **0.1** | -0.1 | **0.6** |
| 90% | -0.2 | -0.1 | **0.0** | -0.3 | 0.0 | **0.0** | -0.2 | -0.1 | -0.1 | **0.4** | -0.1 | **0.6** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.0** | -0.1 | -0.1 | 0.0 | 0.0 | **0.0** | 0.0 | -0.1 | -0.1 | **0.2** | **0.0** | **0.5** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.5 | -0.9 | -0.5 | 0.0 | 0.0 | **0.0** | -0.1 | **0.0** | 0.0 | **0.1** | 0.0 | **0.7** |
| Above Normal (16%) | -0.1 | -0.5 | -0.3 | -0.2 | -0.1 | **0.0** | 0.0 | -0.1 | -0.2 | **0.2** | **0.1** | **1.2** |
| Below Normal (13%) | **0.4** | **0.6** | **0.4** | -0.2 | -0.1 | **0.0** | 0.0 | -0.2 | 0.0 | **0.2** | -0.2 | -0.1 |
| Dry (24%) | **0.0** | **0.4** | **0.2** | 0.0 | **0.0** | **0.1** | 0.0 | -0.3 | -0.2 | **0.1** | **0.0** | -0.1 |
| Critical (15%) | **1.0** | **0.3** | **0.0** | **0.1** | **0.1** | -0.1 | -0.1 | -0.1 | **0.1** | **0.2** | **0.3** | **0.8** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 5-4. Sacramento River below Keswick, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.1 | 56.1 | 53.6 | 50.2 | 48.2 | 49.1 | 50.3 | 50.5 | 52.0 | 53.9 | 54.4 | 54.6 |
| 20% | 55.5 | 55.9 | 52.4 | 49.2 | 47.7 | 48.4 | 49.7 | 50.2 | 51.0 | 52.4 | 54.2 | 54.0 |
| 30% | 55.2 | 55.7 | 52.0 | 48.6 | 47.3 | 48.1 | 49.3 | 49.8 | 50.5 | 51.9 | 53.0 | 53.6 |
| 40% | 54.7 | 55.4 | 51.9 | 48.1 | 47.1 | 47.6 | 49.1 | 49.4 | 50.1 | 51.1 | 52.3 | 52.8 |
| 50% | 54.4 | 55.1 | 51.5 | 47.8 | 46.8 | 47.1 | 48.7 | 49.1 | 49.9 | 50.8 | 51.9 | 52.0 |
| 60% | 54.1 | 54.9 | 50.8 | 47.4 | 46.0 | 46.7 | 48.2 | 48.9 | 49.6 | 50.5 | 51.5 | 51.6 |
| 70% | 53.9 | 54.6 | 50.6 | 47.1 | 45.8 | 46.4 | 47.9 | 48.7 | 49.4 | 50.1 | 51.3 | 51.0 |
| 80% | 53.7 | 54.1 | 50.2 | 46.7 | 45.4 | 45.8 | 47.5 | 48.2 | 49.2 | 49.8 | 51.1 | 50.8 |
| 90% | 53.5 | 53.4 | 49.4 | 46.0 | 44.7 | 45.4 | 46.8 | 47.8 | 48.5 | 49.3 | 50.8 | 50.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.9 | 55.1 | 51.4 | 47.9 | 46.6 | 47.2 | 48.6 | 49.3 | 50.1 | 51.2 | 52.6 | 52.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.3 | 55.4 | 52.0 | 47.3 | 45.9 | 46.3 | 47.8 | 48.7 | 49.6 | 50.4 | 51.4 | 51.0 |
| Above Normal (16%) | 53.9 | 54.9 | 51.4 | 47.6 | 46.0 | 46.5 | 48.1 | 48.6 | 49.3 | 50.0 | 51.1 | 51.0 |
| Below Normal (13%) | 54.2 | 54.3 | 51.3 | 48.2 | 46.9 | 47.8 | 49.1 | 49.4 | 49.7 | 50.8 | 52.0 | 52.8 |
| Dry (24%) | 54.5 | 54.4 | 50.8 | 48.4 | 47.3 | 47.8 | 49.1 | 49.5 | 50.1 | 51.4 | 53.0 | 53.2 |
| Critical (15%) | 58.9 | 56.3 | 51.5 | 48.2 | 47.1 | 48.1 | 49.5 | 50.7 | 52.3 | 53.9 | 56.2 | 58.4 |

## Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.4 | 56.3 | 53.5 | 50.2 | 48.5 | 49.1 | 50.2 | 50.6 | 51.8 | 52.5 | 53.4 | 55.0 |
| 20% | 54.0 | 56.0 | 52.9 | 49.5 | 48.1 | 48.6 | 49.8 | 50.2 | 51.0 | 51.9 | 52.4 | 54.0 |
| 30% | 53.6 | 55.5 | 52.2 | 48.9 | 47.5 | 48.0 | 49.6 | 49.8 | 50.5 | 51.7 | 51.9 | 53.1 |
| 40% | 52.9 | 55.3 | 51.8 | 48.5 | 47.2 | 47.5 | 49.0 | 49.5 | 50.2 | 51.3 | 51.7 | 52.8 |
| 50% | 52.7 | 55.0 | 51.5 | 48.0 | 46.8 | 47.1 | 48.4 | 49.2 | 49.9 | 51.0 | 51.6 | 52.0 |
| 60% | 52.6 | 54.5 | 51.1 | 47.7 | 46.2 | 46.7 | 48.0 | 49.0 | 49.7 | 50.9 | 51.5 | 51.7 |
| 70% | 52.5 | 54.1 | 50.8 | 47.4 | 45.8 | 46.3 | 47.8 | 48.7 | 49.5 | 50.3 | 51.4 | 51.4 |
| 80% | 52.4 | 53.8 | 50.6 | 46.8 | 45.5 | 45.8 | 47.2 | 48.3 | 49.3 | 49.9 | 51.2 | 51.1 |
| 90% | 52.4 | 53.4 | 49.7 | 45.7 | 44.6 | 45.4 | 46.5 | 47.9 | 48.7 | 49.6 | 50.9 | 50.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 53.7 | 54.9 | 51.6 | 48.1 | 46.7 | 47.2 | 48.6 | 49.3 | 50.1 | 51.1 | 52.0 | 52.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 52.8 | 54.7 | 51.8 | 47.5 | 46.0 | 46.3 | 47.6 | 48.7 | 49.7 | 50.5 | 51.4 | 51.5 |
| Above Normal (16%) | 52.5 | 54.1 | 51.2 | 47.6 | 46.1 | 46.5 | 48.1 | 48.8 | 49.5 | 50.2 | 51.4 | 51.8 |
| Below Normal (13%) | 53.0 | 54.7 | 51.7 | 48.4 | 47.1 | 47.8 | 49.2 | 49.3 | 49.7 | 50.8 | 51.6 | 52.5 |
| Dry (24%) | 53.3 | 54.8 | 51.5 | 48.6 | 47.4 | 47.8 | 49.1 | 49.6 | 50.0 | 51.3 | 51.9 | 52.8 |
| Critical (15%) | 58.4 | 56.2 | 52.0 | 49.0 | 47.6 | 48.3 | 49.9 | 50.9 | 52.0 | 53.1 | 54.8 | 57.6 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.4** | **0.2** | -0.1 | **0.1** | **0.3** | **0.0** | -0.1 | **0.1** | -0.1 | -1.4 | -1.1 | **0.3** |
| 20% | -1.5 | **0.1** | **0.5** | **0.3** | **0.4** | **0.2** | **0.1** | **0.1** | **0.0** | -0.4 | -1.8 | -0.1 |
| 30% | -1.6 | -0.2 | **0.2** | **0.3** | **0.2** | -0.1 | **0.2** | **0.1** | **0.1** | -0.2 | -1.2 | -0.5 |
| 40% | -1.8 | -0.1 | -0.1 | **0.4** | **0.2** | -0.1 | -0.2 | **0.1** | **0.1** | **0.3** | -0.6 | **0.0** |
| 50% | -1.6 | -0.1 | **0.0** | **0.2** | 0.0 | **0.0** | -0.3 | **0.1** | **0.1** | **0.2** | -0.3 | **0.0** |
| 60% | -1.5 | -0.4 | **0.3** | **0.3** | **0.2** | 0.0 | -0.2 | **0.1** | **0.1** | **0.4** | 0.0 | **0.1** |
| 70% | -1.4 | -0.5 | **0.2** | **0.3** | **0.0** | -0.1 | -0.1 | **0.0** | **0.1** | **0.2** | **0.1** | **0.3** |
| 80% | -1.3 | -0.3 | **0.3** | **0.0** | **0.2** | **0.1** | -0.3 | **0.1** | **0.1** | **0.1** | **0.2** | **0.3** |
| 90% | -1.1 | **0.0** | **0.3** | -0.3 | 0.0 | 0.0 | -0.2 | **0.1** | **0.2** | **0.3** | **0.1** | **0.4** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -1.2 | -0.2 | **0.2** | **0.2** | **0.2** | **0.0** | 0.0 | **0.1** | **0.0** | -0.1 | -0.5 | **0.0** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -1.5 | -0.6 | -0.2 | **0.2** | **0.1** | 0.0 | -0.3 | 0.0 | **0.1** | **0.1** | -0.1 | **0.5** |
| Above Normal (16%) | -1.4 | -0.7 | -0.2 | **0.0** | **0.1** | 0.0 | -0.1 | **0.2** | **0.2** | **0.2** | **0.2** | **0.8** |
| Below Normal (13%) | -1.1 | **0.4** | **0.4** | **0.2** | **0.1** | **0.0** | **0.1** | -0.1 | **0.0** | 0.0 | -0.4 | -0.3 |
| Dry (24%) | -1.2 | **0.4** | **0.7** | **0.2** | **0.2** | 0.0 | **0.0** | **0.1** | 0.0 | -0.1 | -1.1 | -0.5 |
| Critical (15%) | -0.6 | 0.0 | **0.5** | **0.8** | **0.5** | **0.2** | **0.4** | **0.2** | -0.3 | -0.8 | -1.5 | -0.8 |

a Based on the 82-year simulation period.

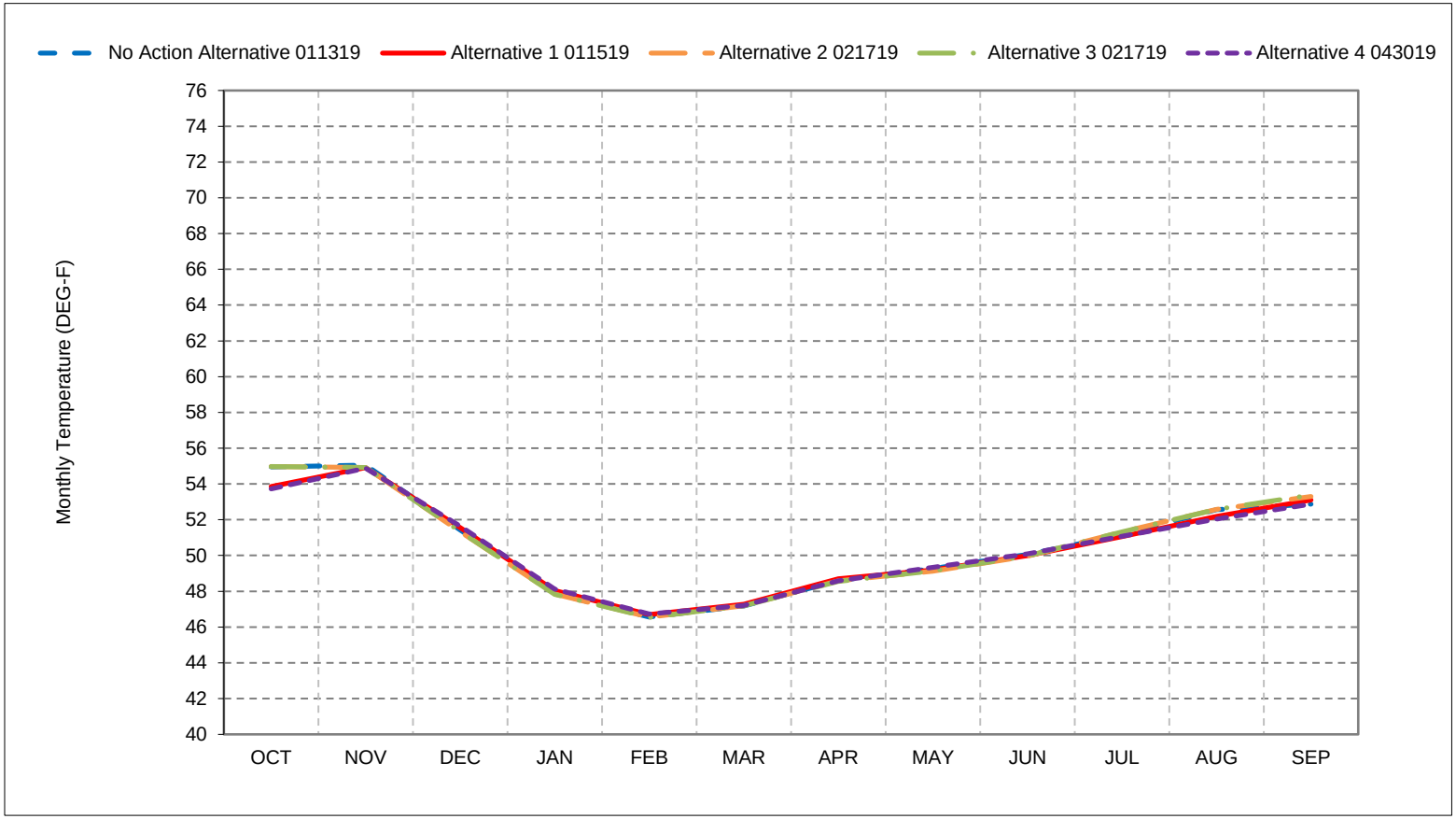
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

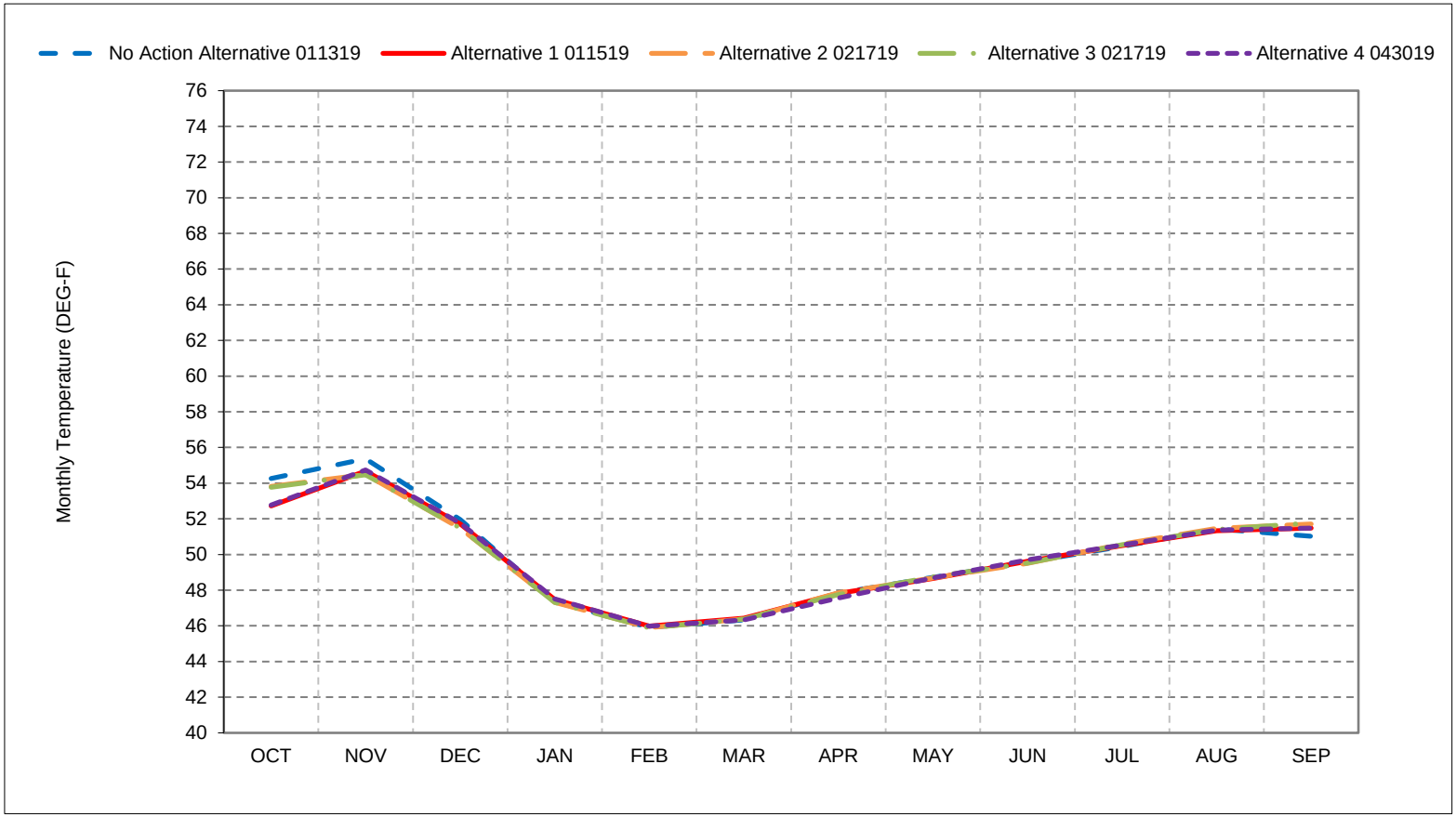
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-1. Sacramento River below Keswick, Long-Term Average Temperature



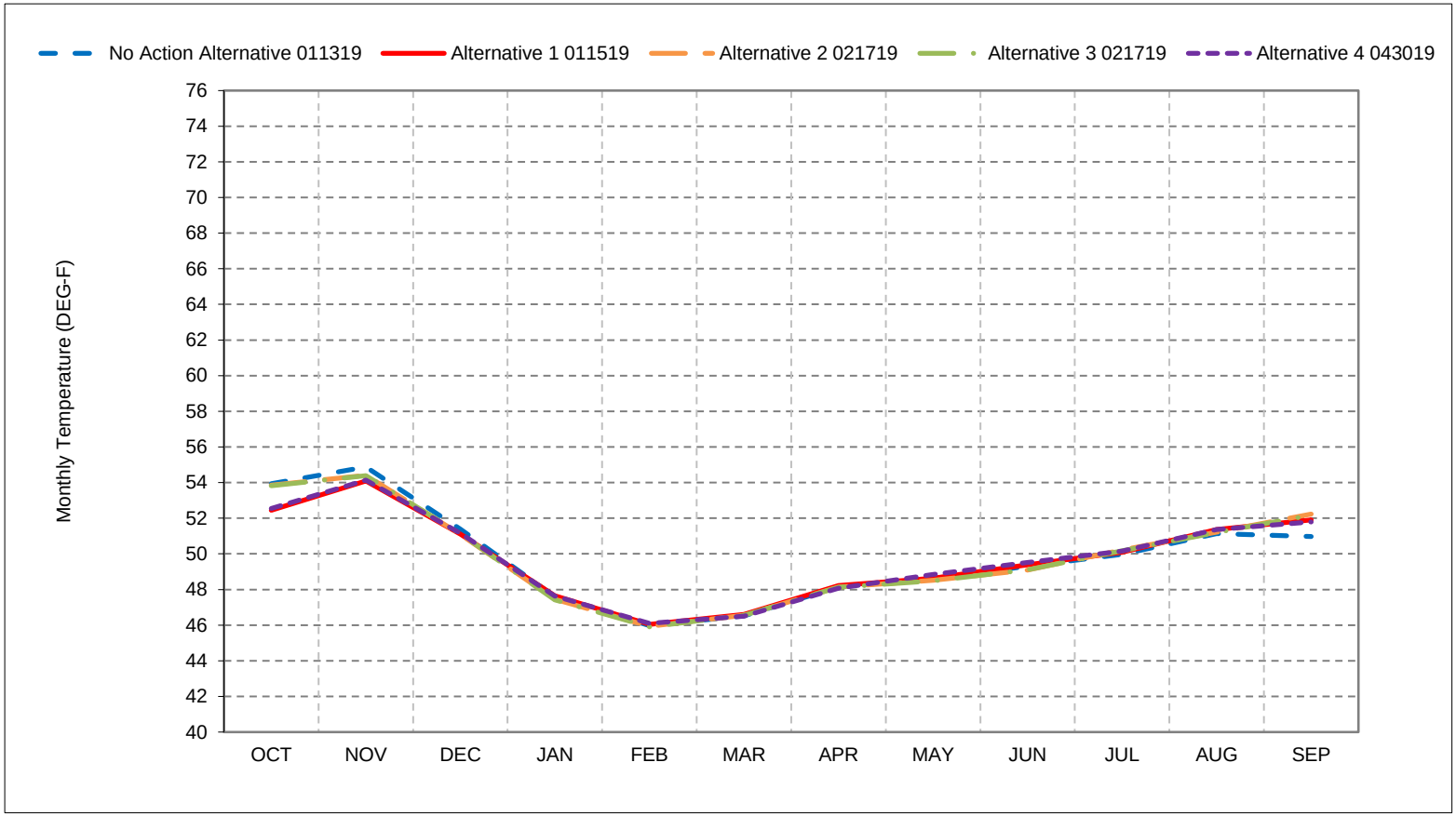

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-2. Sacramento River below Keswick, Wet Year Average Temperature



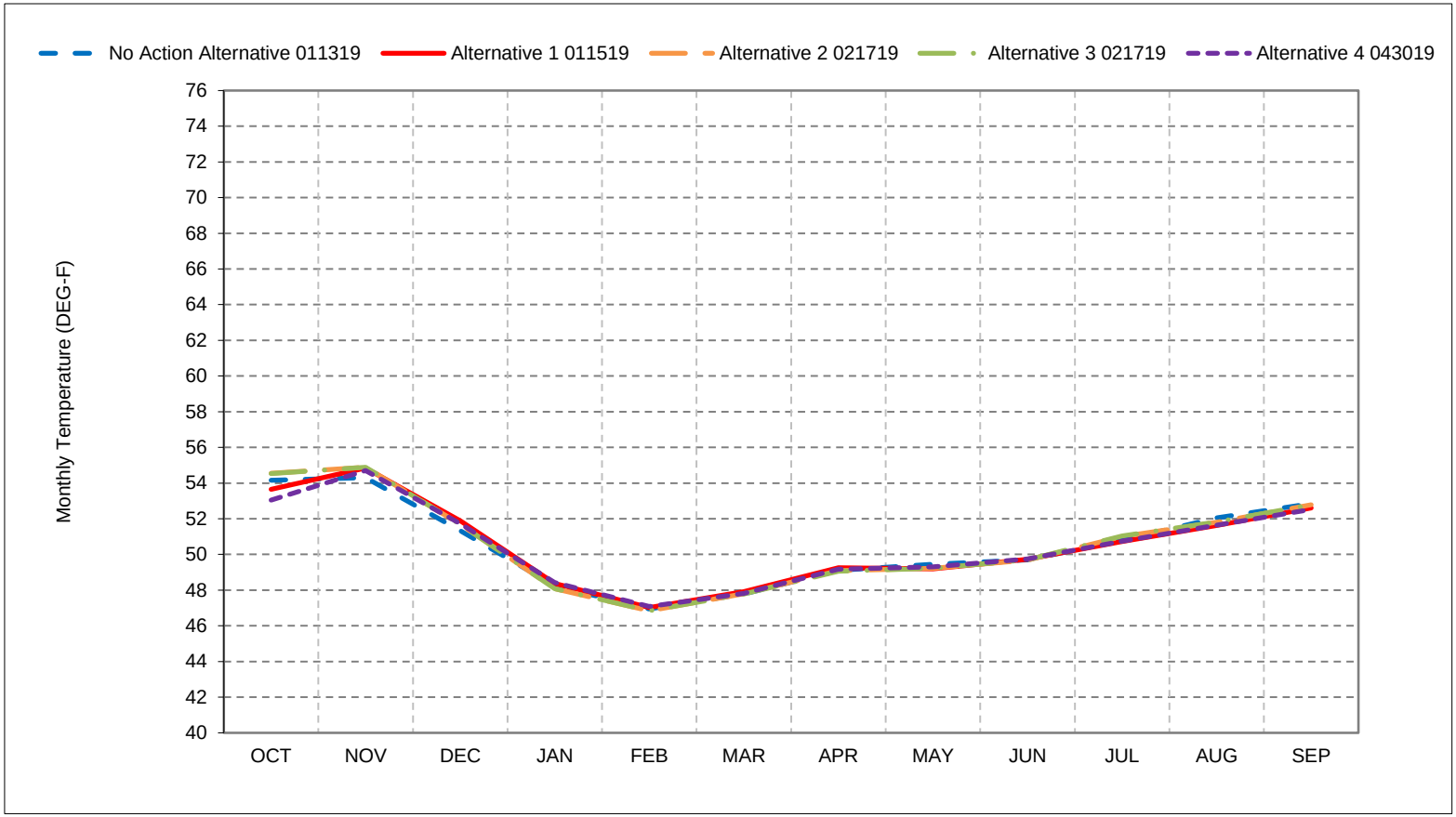

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-3. Sacramento River below Keswick, Above Normal Year Average Temperature



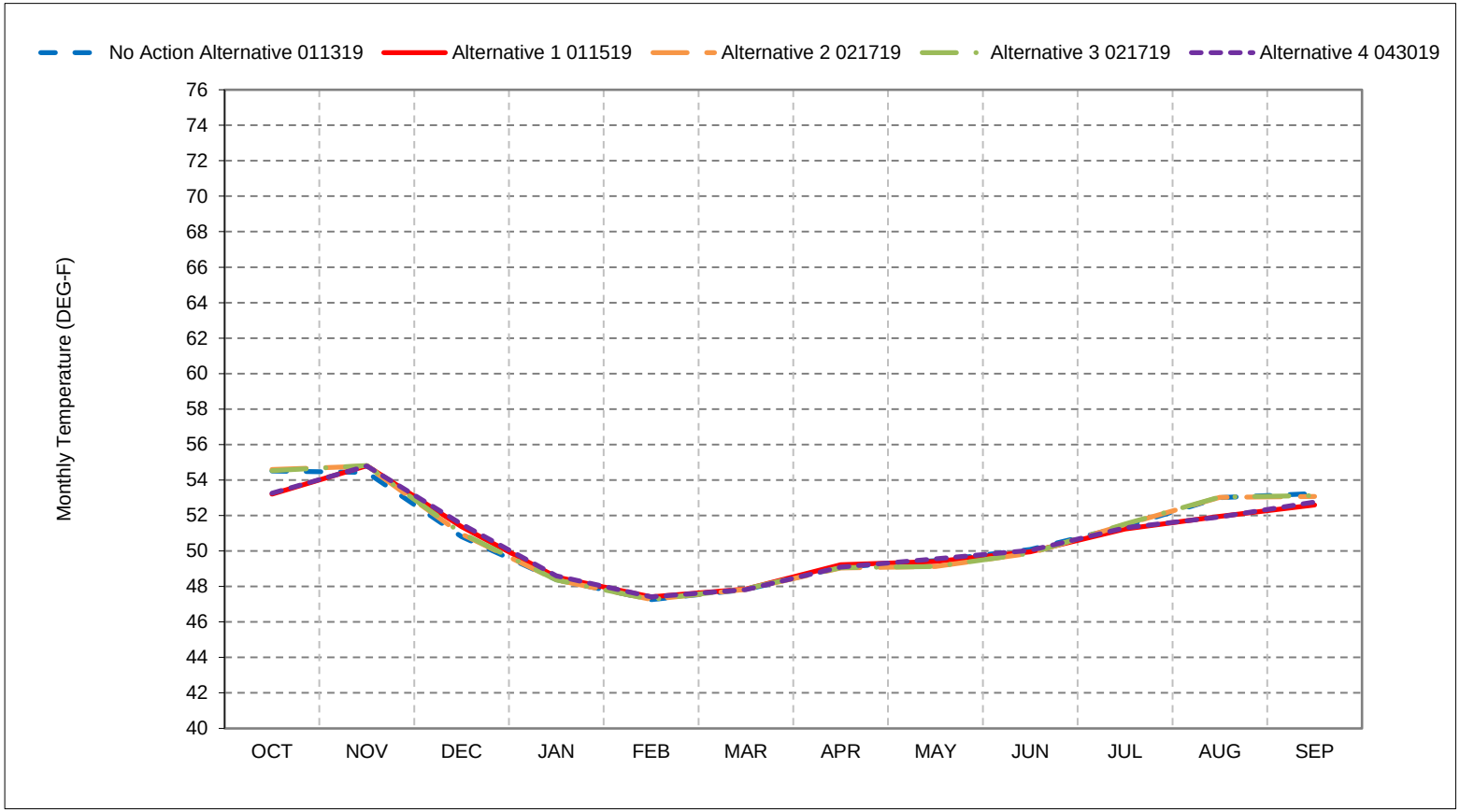

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-4. Sacramento River below Keswick, Below Normal Year Average Temperature



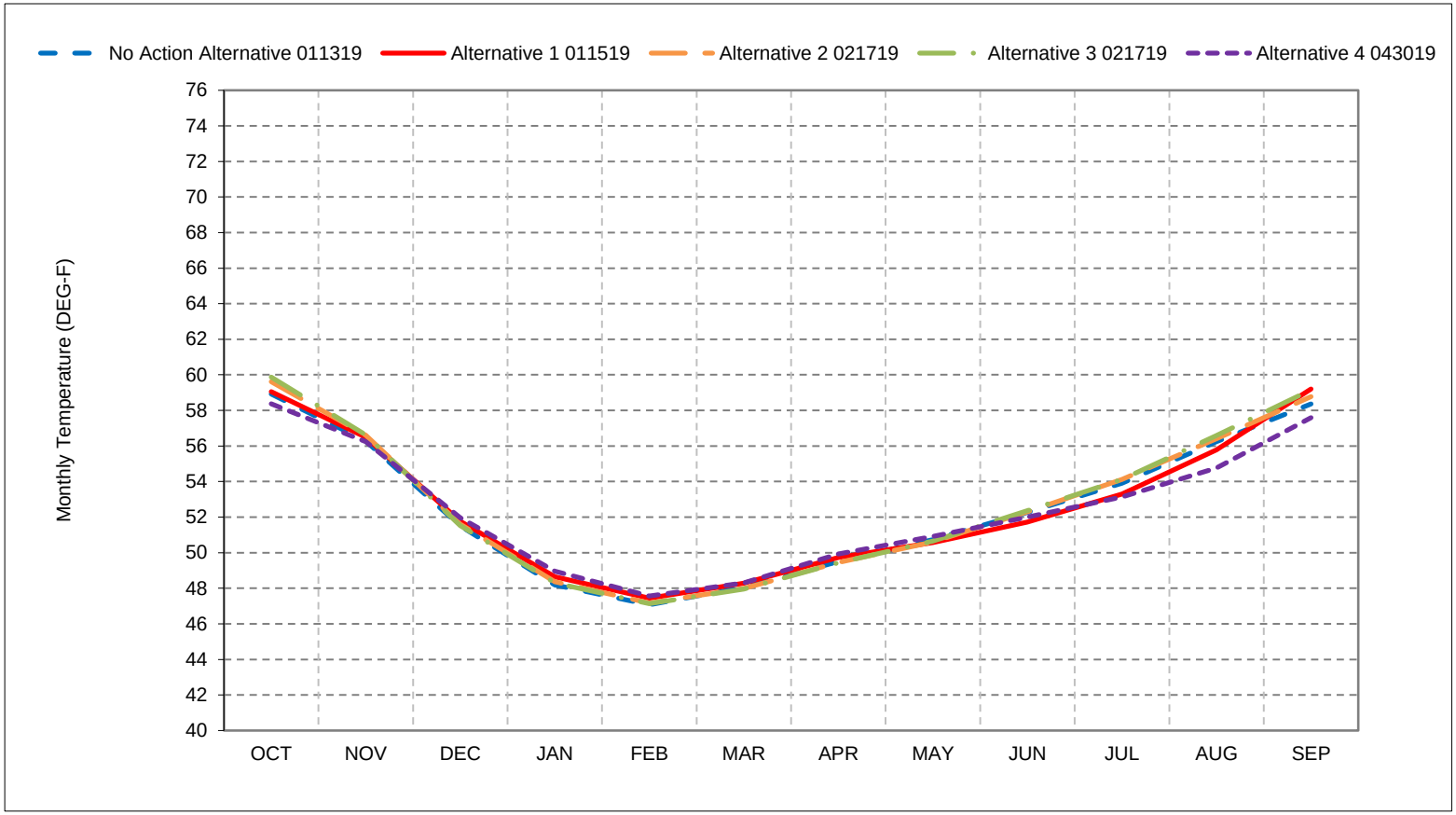

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-5. Sacramento River below Keswick, Dry Year Average Temperature



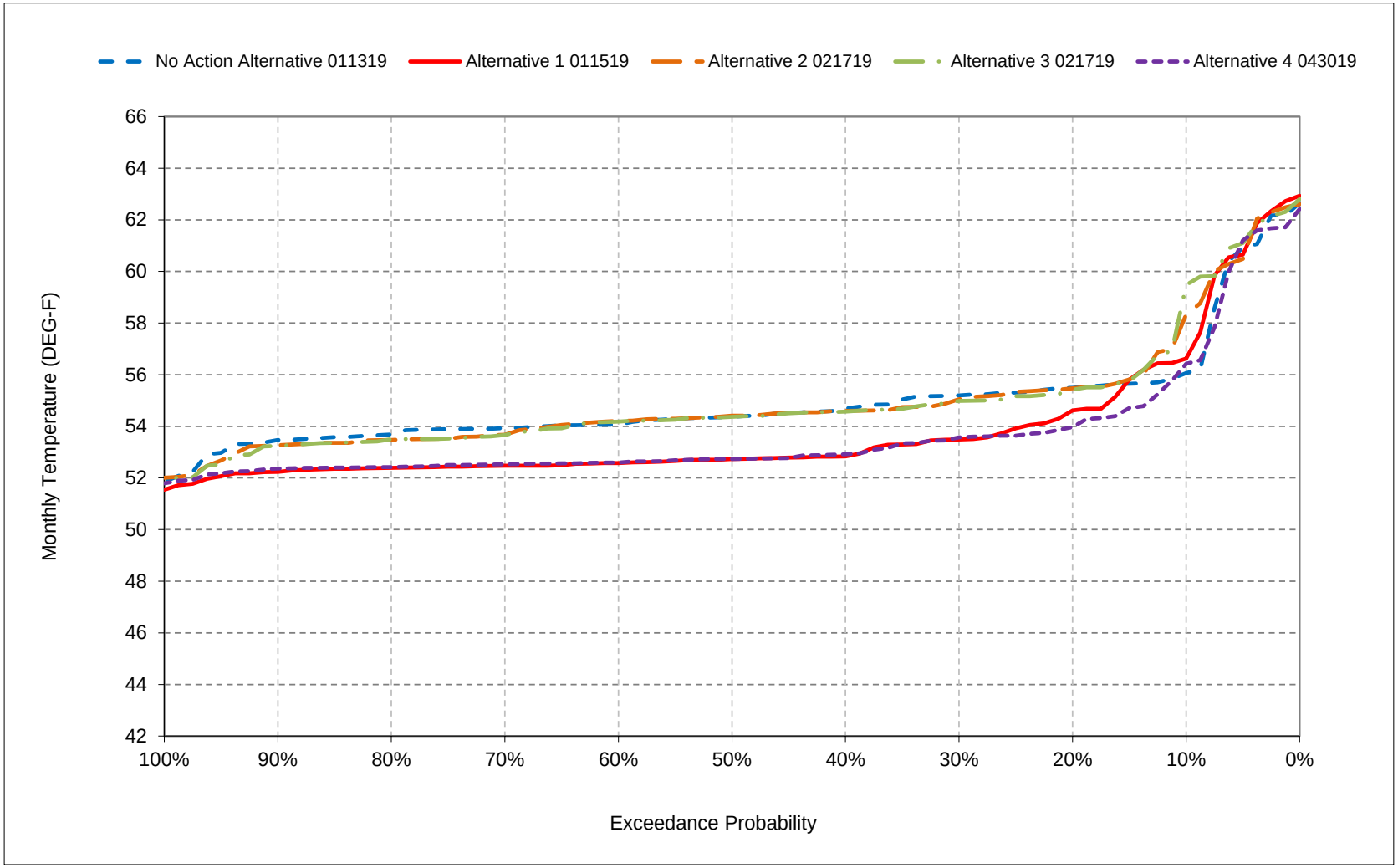

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-6. Sacramento River below Keswick, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

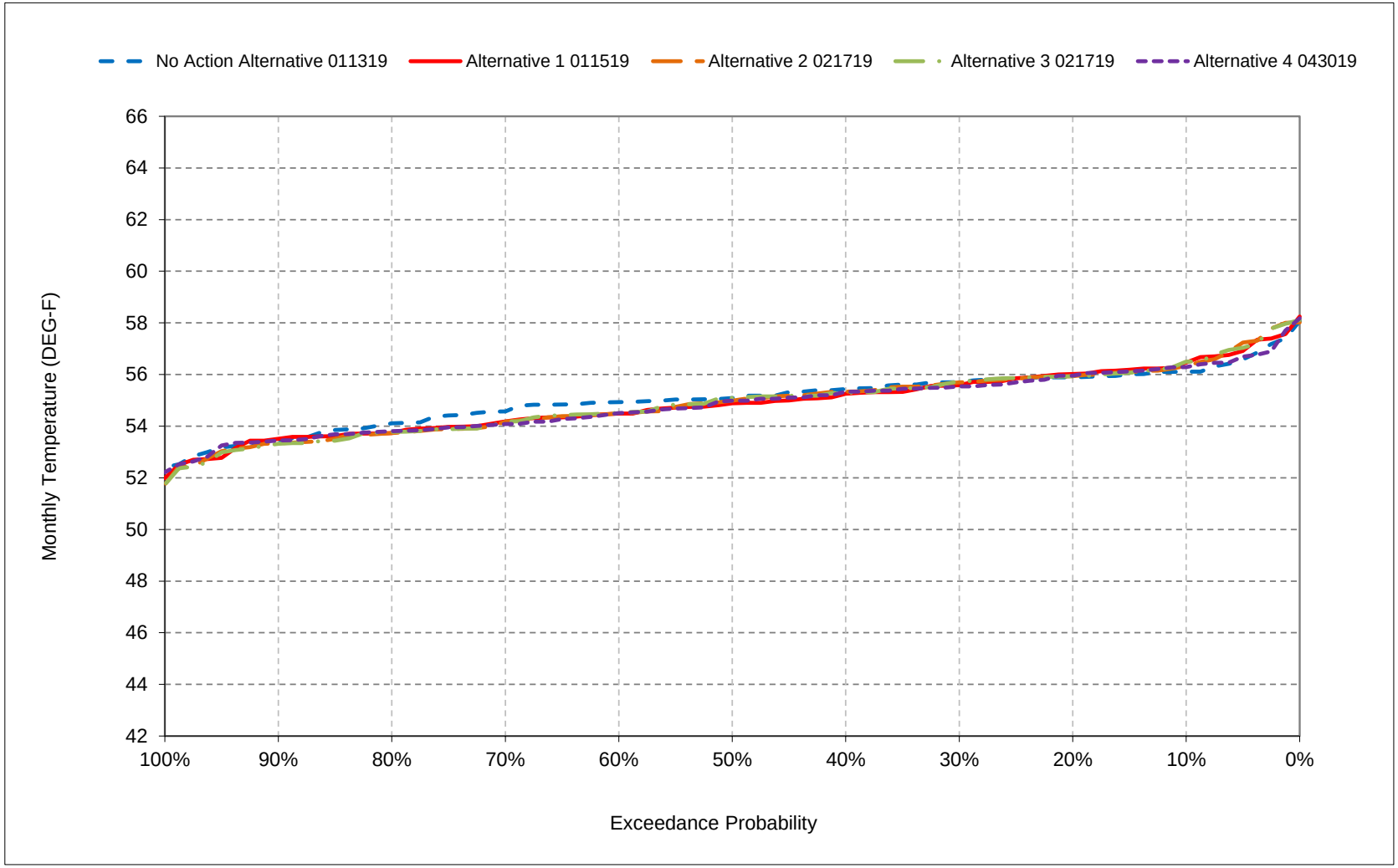
**Figure 5-7. Sacramento River below Keswick, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

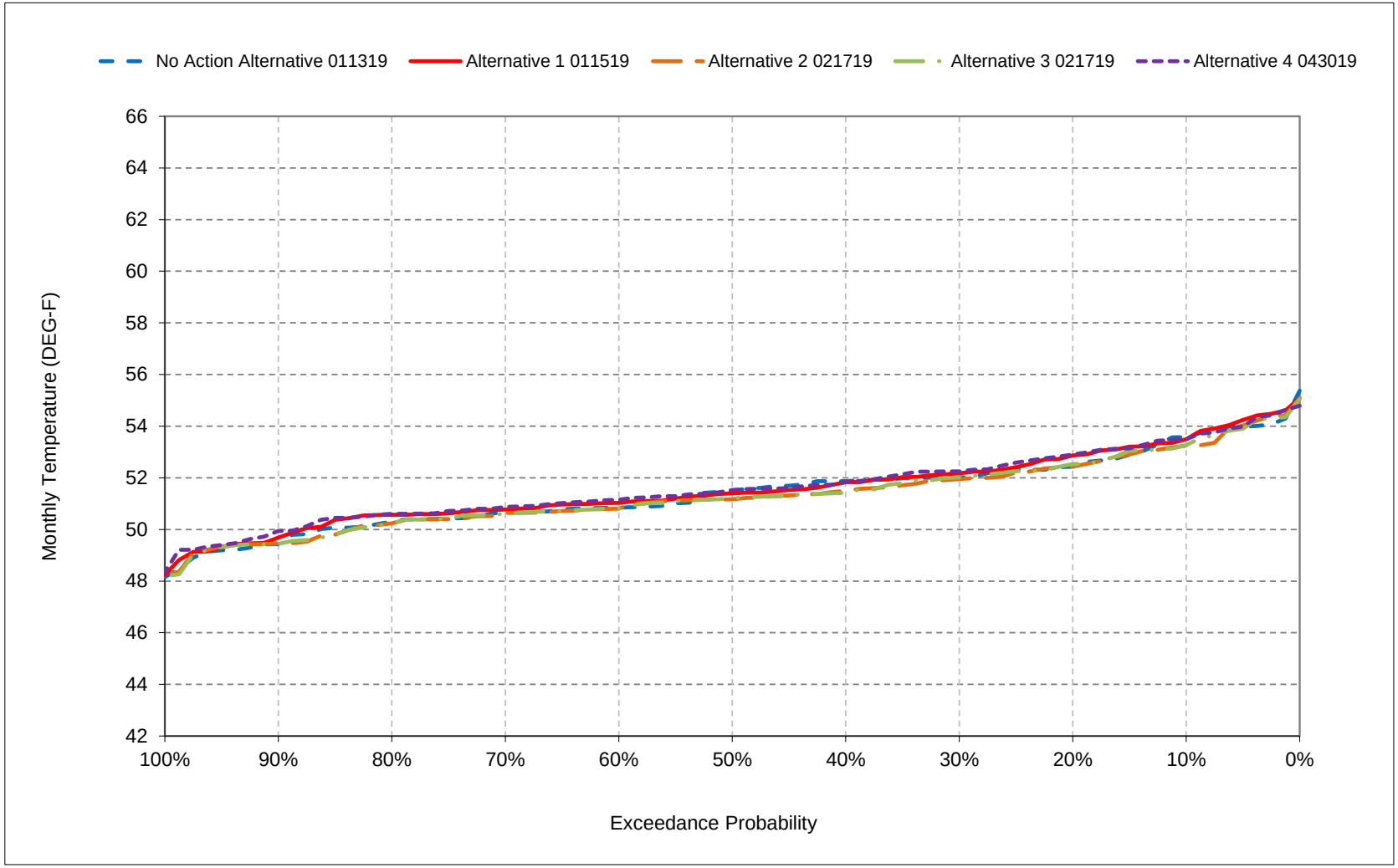
**Figure 5-8. Sacramento River below Keswick, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

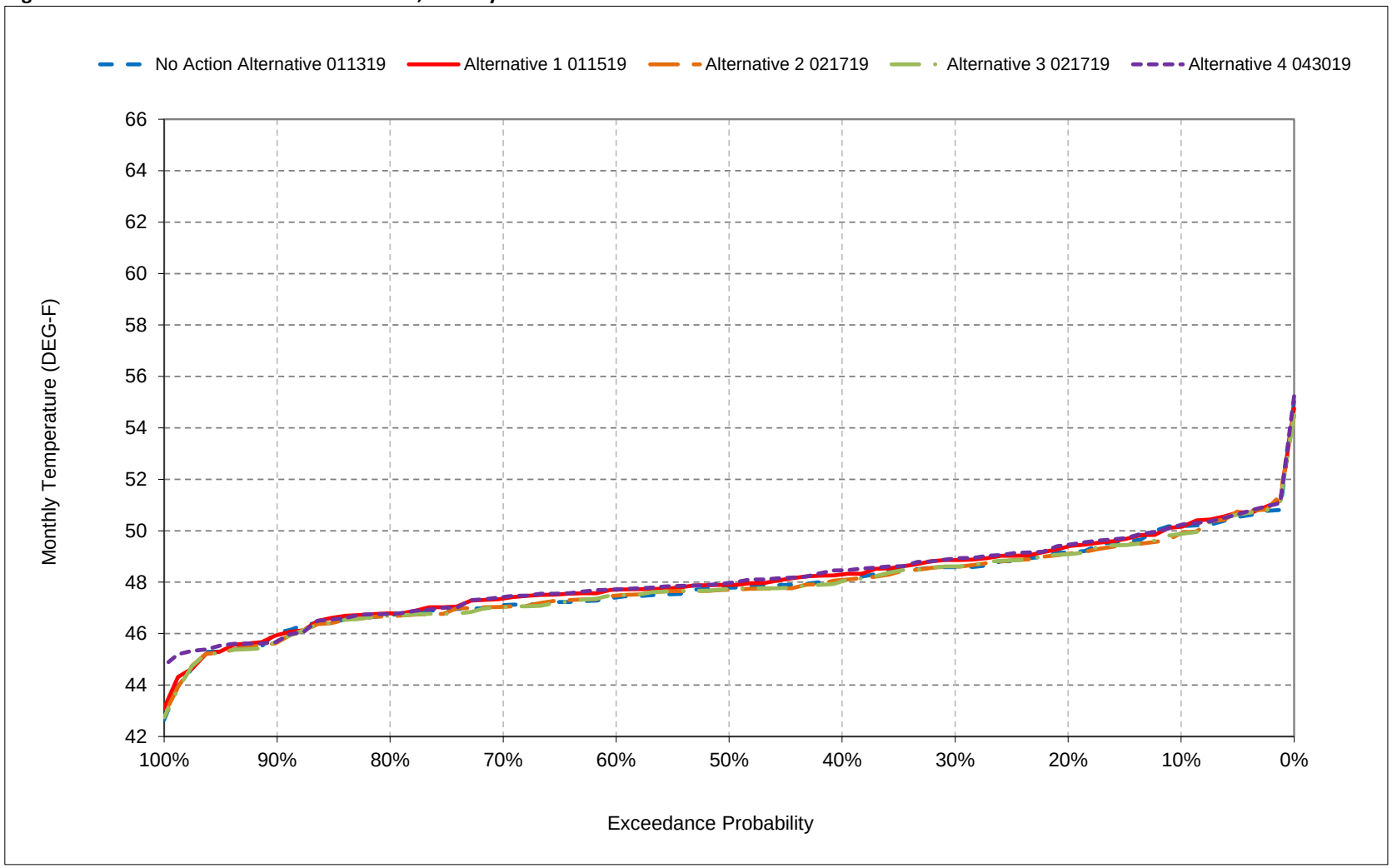
**Figure 5-9. Sacramento River below Keswick, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

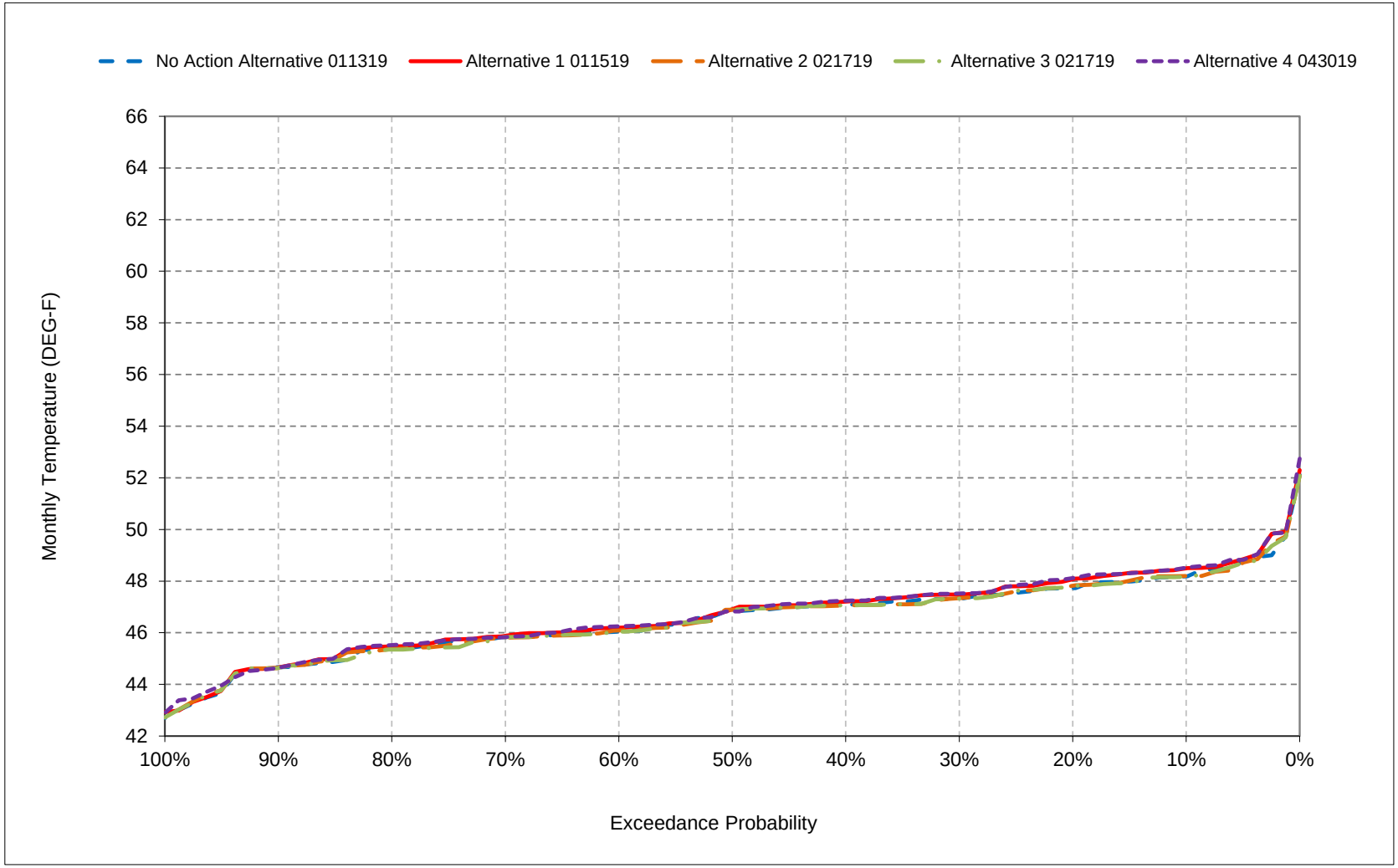
**Figure 5-10. Sacramento River below Keswick, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

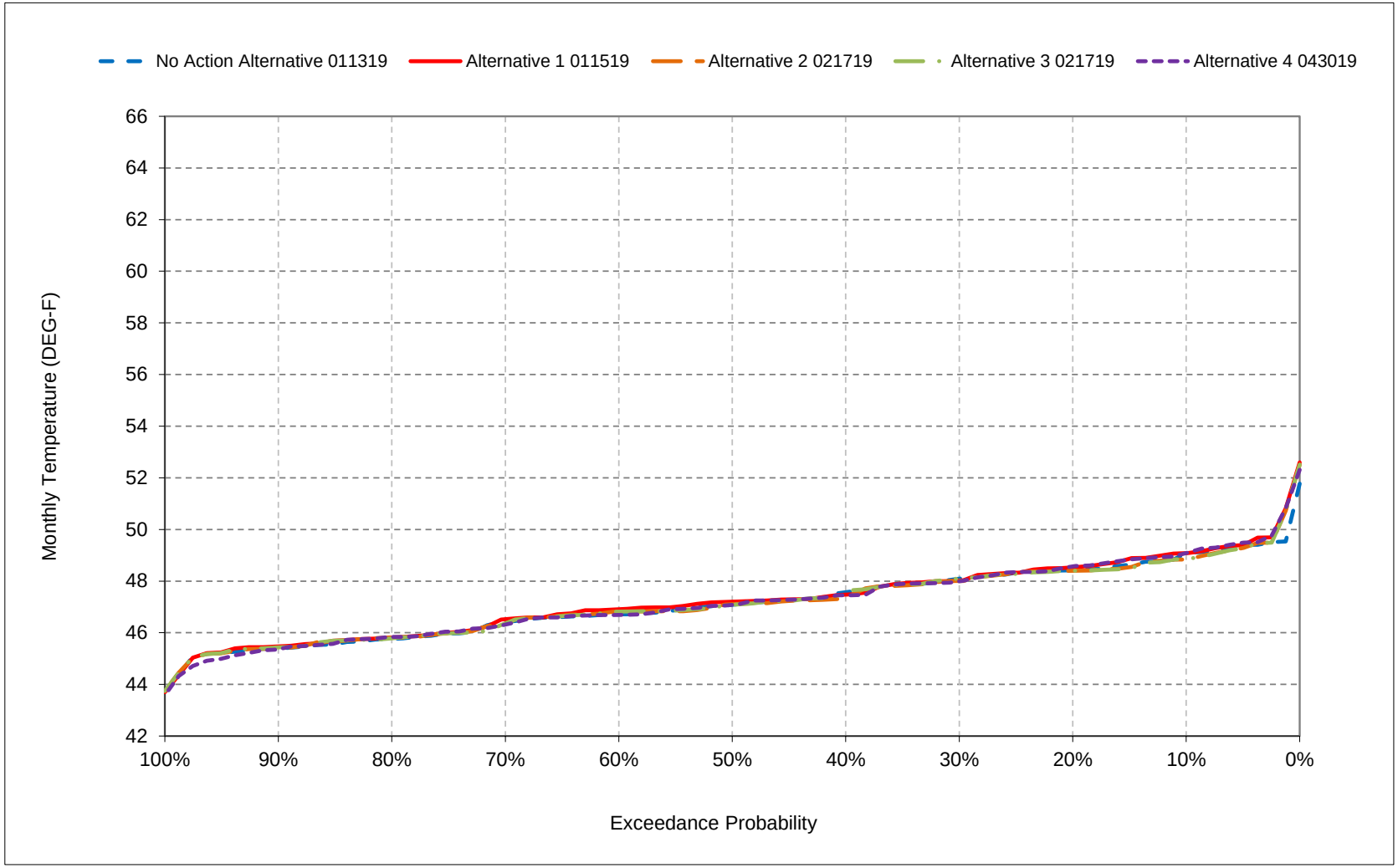
**Figure 5-11. Sacramento River below Keswick, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

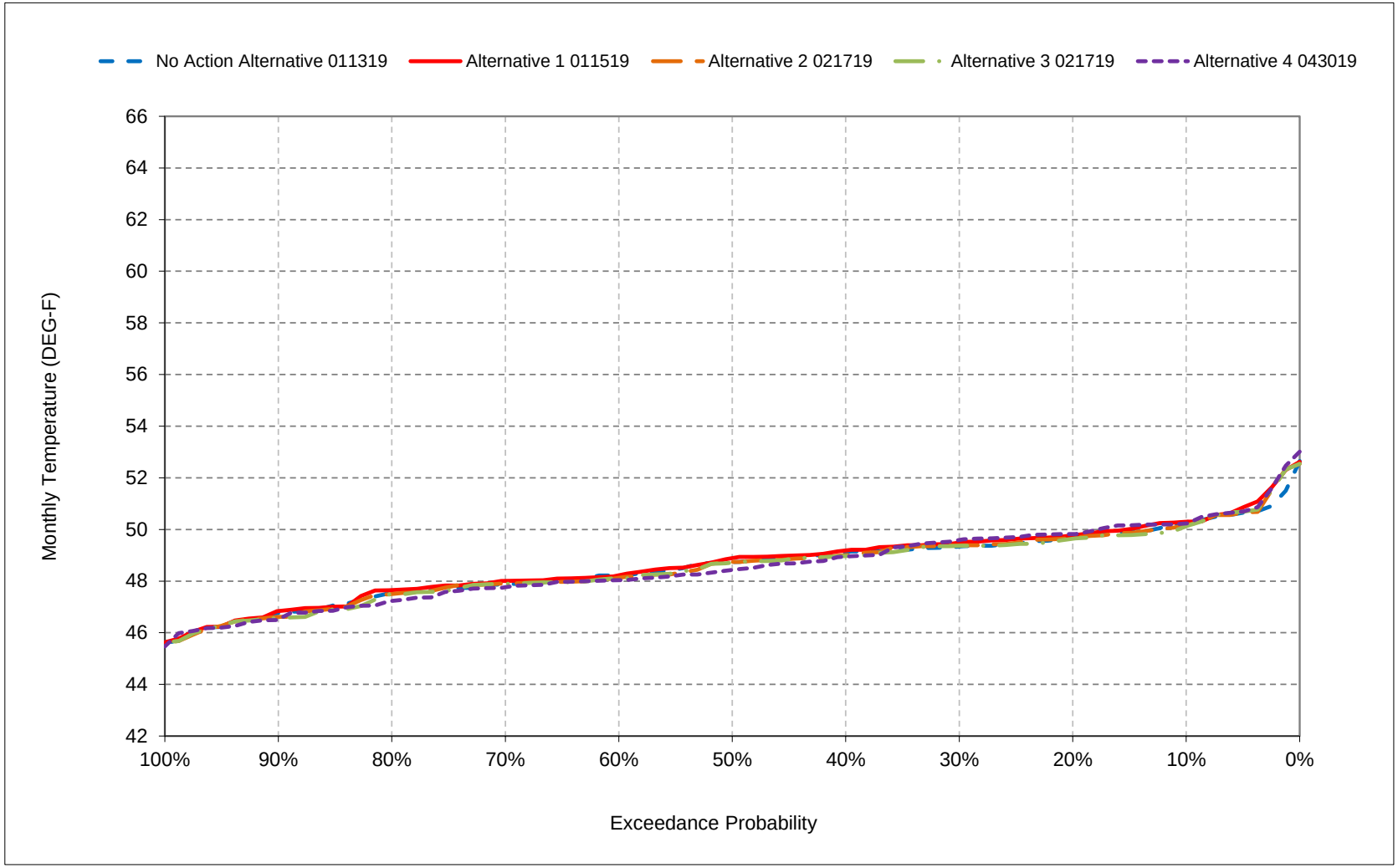
**Figure 5-12. Sacramento River below Keswick, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

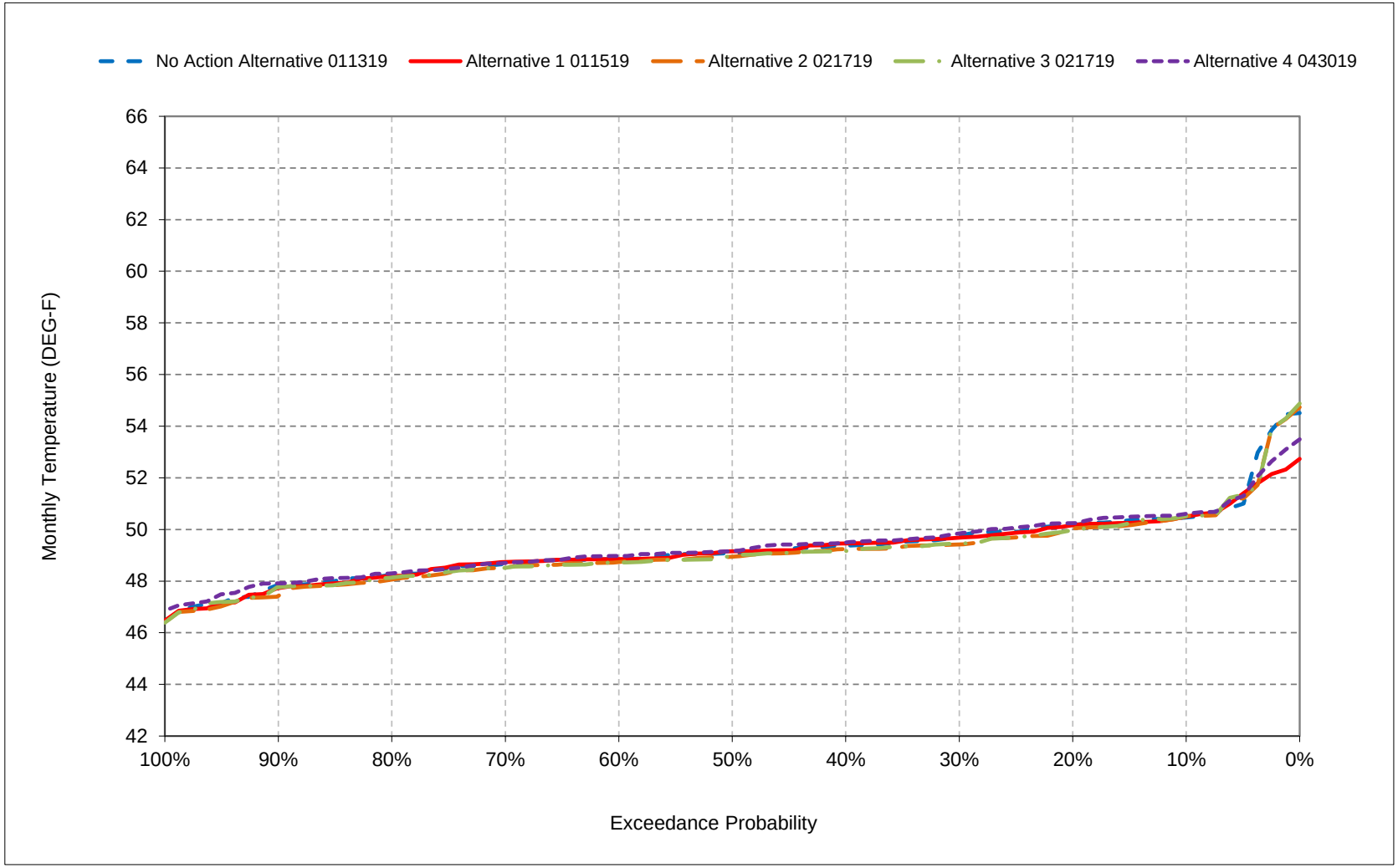
**Figure 5-13. Sacramento River below Keswick, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

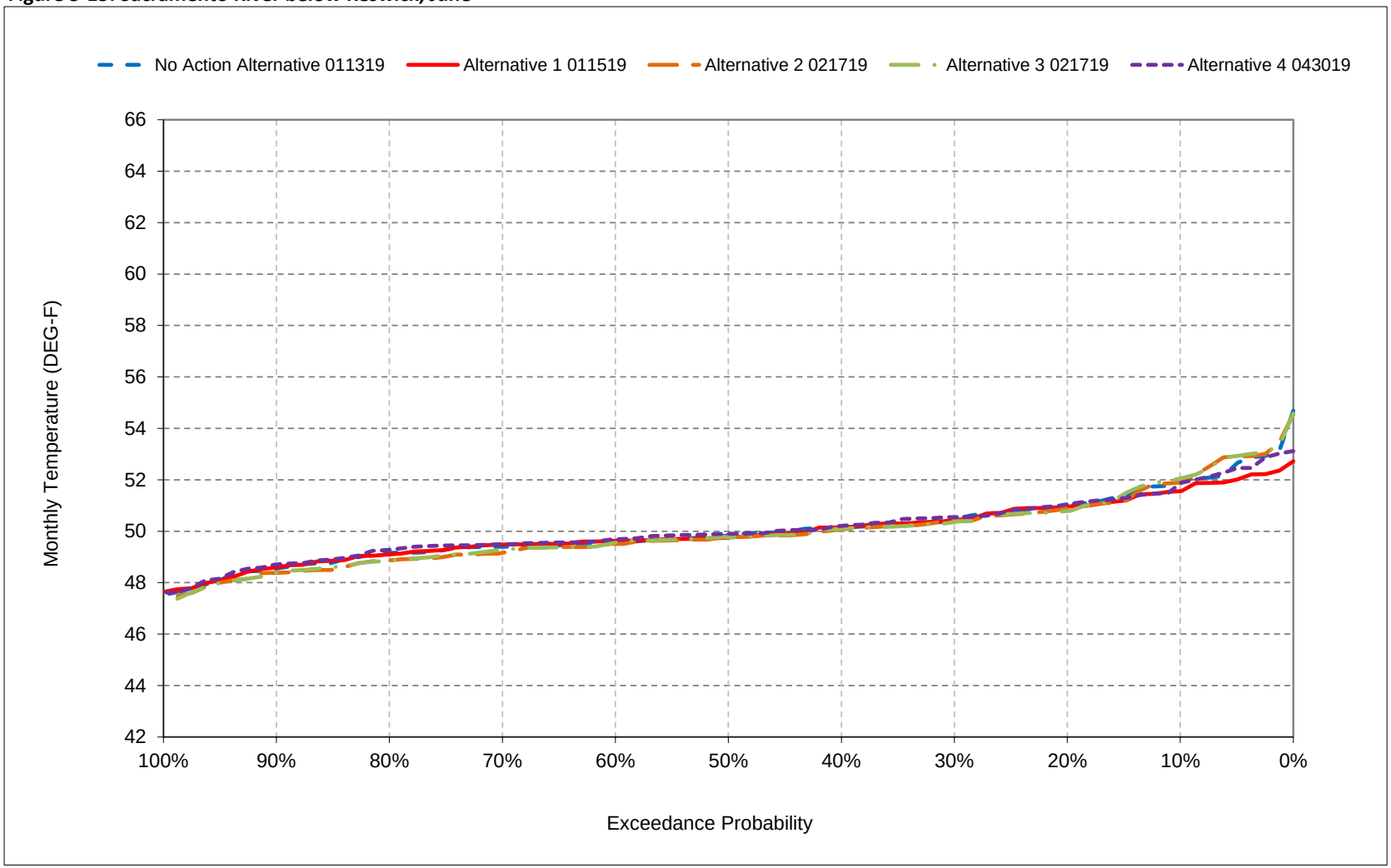
**Figure 5-14. Sacramento River below Keswick, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

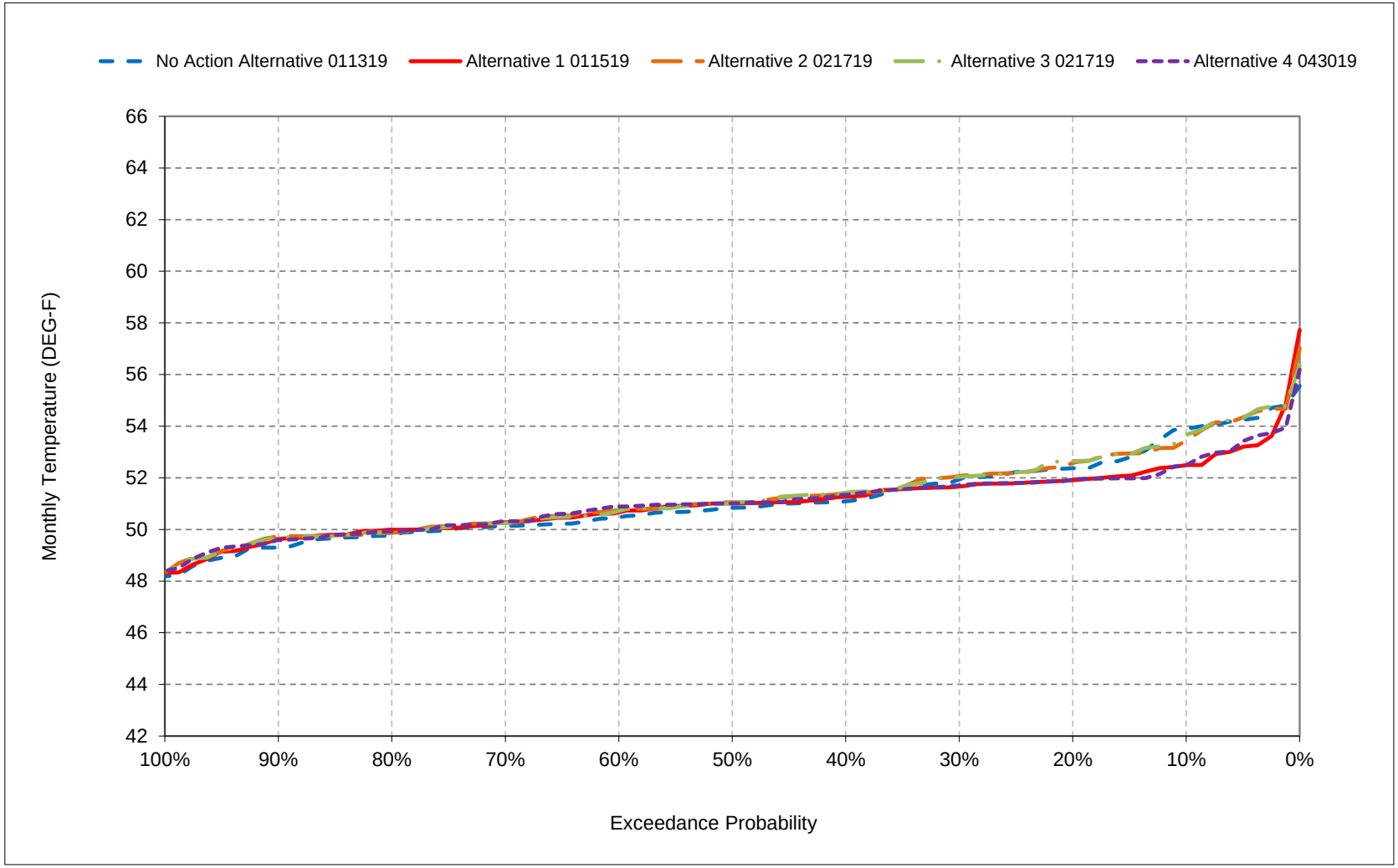
**Figure 5-15. Sacramento River below Keswick, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

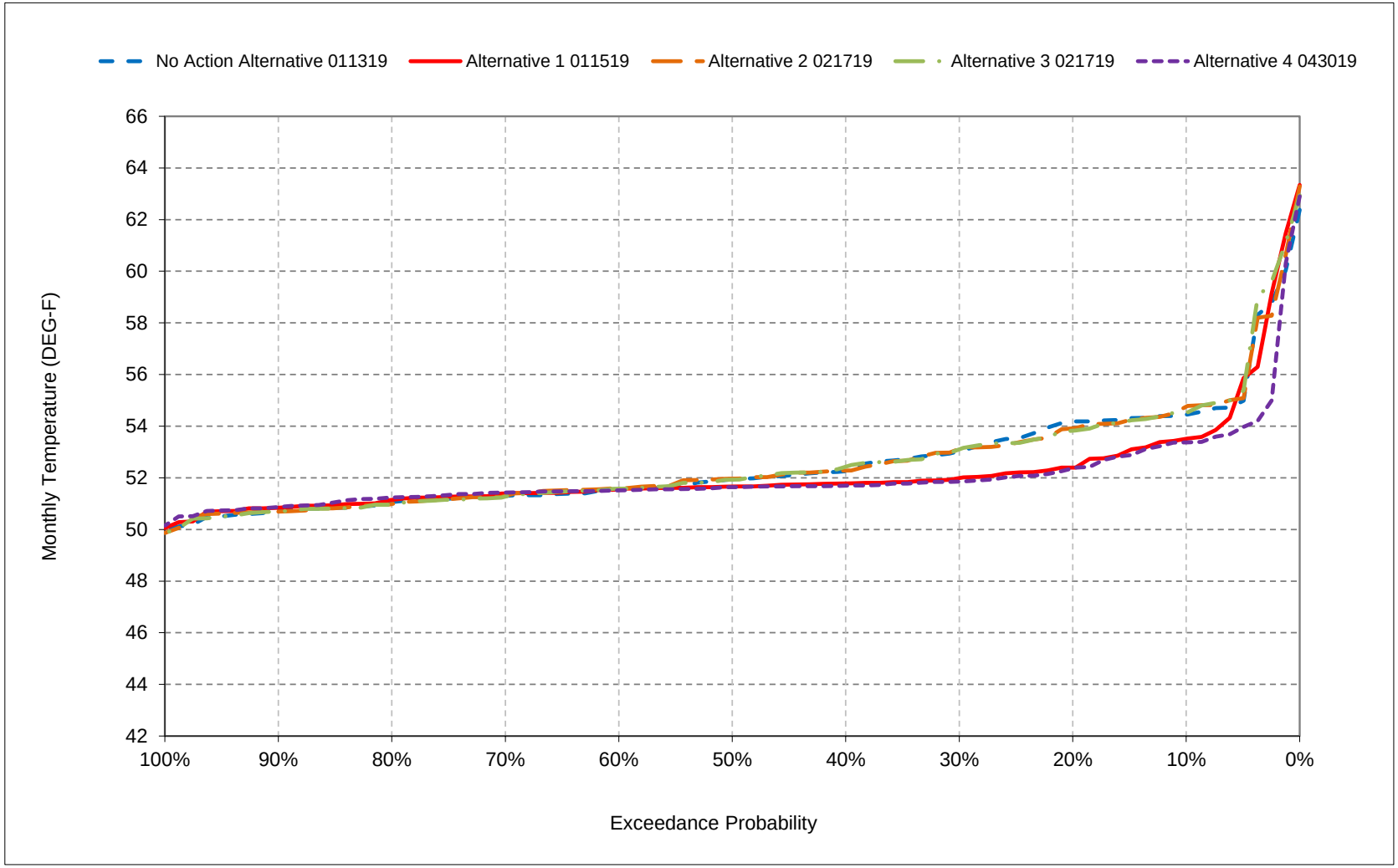
**Figure 5-16. Sacramento River below Keswick, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

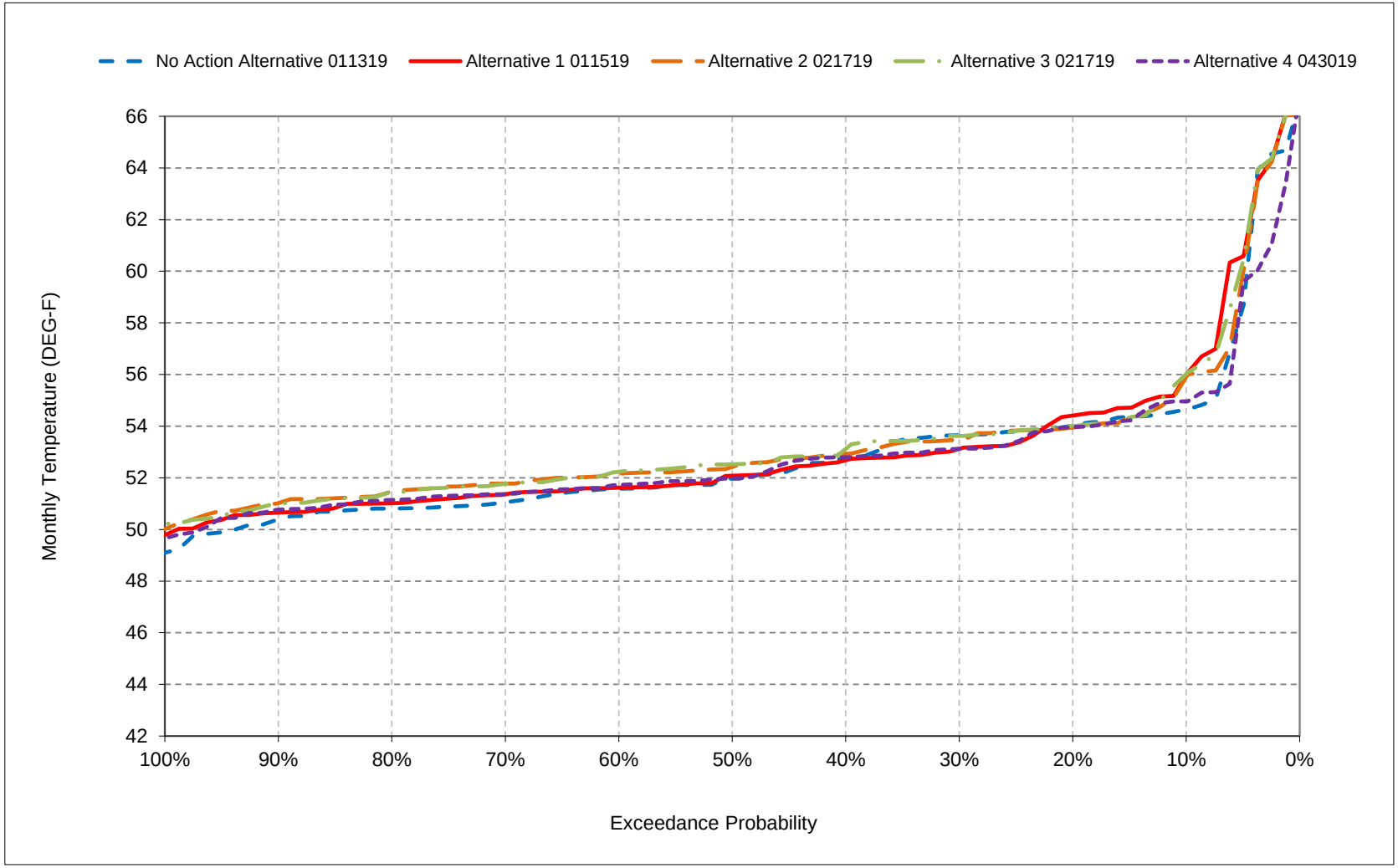
**Figure 5-17. Sacramento River below Keswick, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 5-18. Sacramento River below Keswick, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 6-1. Sacramento River at Clear Creek, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.8 | 56.1 | 53.1 | 50.0 | 48.8 | 50.2 | 52.5 | 52.5 | 53.9 | 55.5 | 56.3 | 56.4 |
| 20% | 56.1 | 55.8 | 52.2 | 49.0 | 48.3 | 49.7 | 51.8 | 51.8 | 52.8 | 53.9 | 55.6 | 55.8 |
| 30% | 55.7 | 55.6 | 51.7 | 48.6 | 48.0 | 49.3 | 51.3 | 51.5 | 52.1 | 53.4 | 54.5 | 55.3 |
| 40% | 55.2 | 55.3 | 51.4 | 48.1 | 47.8 | 48.9 | 51.1 | 51.0 | 51.8 | 52.6 | 54.0 | 54.2 |
| 50% | 54.8 | 55.0 | 51.0 | 47.8 | 47.2 | 48.2 | 50.7 | 50.9 | 51.5 | 52.3 | 53.4 | 53.6 |
| 60% | 54.6 | 54.7 | 50.6 | 47.4 | 46.6 | 47.8 | 50.0 | 50.6 | 51.4 | 51.9 | 53.1 | 52.7 |
| 70% | 54.4 | 54.4 | 50.4 | 47.1 | 46.2 | 47.1 | 49.8 | 50.2 | 51.1 | 51.5 | 52.8 | 52.1 |
| 80% | 54.2 | 54.0 | 50.0 | 46.7 | 45.5 | 46.5 | 48.9 | 49.9 | 50.8 | 51.3 | 52.5 | 51.7 |
| 90% | 53.9 | 53.4 | 49.4 | 46.1 | 45.1 | 46.0 | 47.4 | 49.1 | 50.4 | 50.8 | 52.1 | 51.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.5 | 54.9 | 51.1 | 47.9 | 47.0 | 48.2 | 50.3 | 50.9 | 51.8 | 52.6 | 54.1 | 54.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.7 | 55.3 | 51.6 | 47.3 | 46.2 | 47.0 | 49.2 | 50.3 | 51.4 | 51.9 | 52.9 | 51.9 |
| Above Normal (16%) | 54.4 | 54.7 | 51.0 | 47.7 | 46.4 | 47.4 | 49.9 | 50.3 | 51.0 | 51.3 | 52.6 | 52.1 |
| Below Normal (13%) | 54.7 | 54.2 | 51.0 | 48.1 | 47.4 | 49.0 | 51.1 | 51.0 | 51.3 | 52.1 | 53.5 | 54.5 |
| Dry (24%) | 55.2 | 54.3 | 50.6 | 48.3 | 47.9 | 49.1 | 51.0 | 51.2 | 51.7 | 52.8 | 54.6 | 55.0 |
| Critical (15%) | 59.4 | 56.1 | 51.2 | 48.2 | 47.8 | 49.5 | 51.4 | 52.4 | 54.0 | 55.5 | 57.8 | 59.8 |

## Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.1 | 56.5 | 53.3 | 50.1 | 49.0 | 50.4 | 52.3 | 52.6 | 53.4 | 54.1 | 55.3 | 58.0 |
| 20% | 55.2 | 55.9 | 52.3 | 49.2 | 48.5 | 49.8 | 51.8 | 51.7 | 52.7 | 53.5 | 54.0 | 55.8 |
| 30% | 54.1 | 55.4 | 51.8 | 48.7 | 48.1 | 49.2 | 51.4 | 51.4 | 52.1 | 53.1 | 53.6 | 55.0 |
| 40% | 53.6 | 54.9 | 51.4 | 48.3 | 47.6 | 48.7 | 51.1 | 51.0 | 51.7 | 52.7 | 53.4 | 54.5 |
| 50% | 53.5 | 54.7 | 51.0 | 47.9 | 47.2 | 48.1 | 50.8 | 50.9 | 51.5 | 52.4 | 53.2 | 53.7 |
| 60% | 53.4 | 54.3 | 50.7 | 47.6 | 46.7 | 47.9 | 50.2 | 50.4 | 51.2 | 52.2 | 53.0 | 53.5 |
| 70% | 53.2 | 54.0 | 50.6 | 47.4 | 46.2 | 47.2 | 49.8 | 50.2 | 51.0 | 51.5 | 52.8 | 52.9 |
| 80% | 52.9 | 53.6 | 50.2 | 46.8 | 45.6 | 46.5 | 49.0 | 49.7 | 50.7 | 51.3 | 52.7 | 52.6 |
| 90% | 52.7 | 53.4 | 49.4 | 46.0 | 45.1 | 46.1 | 47.4 | 49.0 | 50.4 | 51.0 | 52.2 | 51.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.5 | 54.8 | 51.3 | 48.0 | 47.2 | 48.2 | 50.4 | 50.8 | 51.6 | 52.5 | 53.7 | 54.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.3 | 54.6 | 51.4 | 47.5 | 46.3 | 47.1 | 49.2 | 50.2 | 51.5 | 52.0 | 52.8 | 52.9 |
| Above Normal (16%) | 53.1 | 53.9 | 50.8 | 47.7 | 46.4 | 47.4 | 49.9 | 50.3 | 51.0 | 51.4 | 52.8 | 53.7 |
| Below Normal (13%) | 54.3 | 54.7 | 51.5 | 48.2 | 47.4 | 49.0 | 51.1 | 50.6 | 51.2 | 52.1 | 53.0 | 54.2 |
| Dry (24%) | 54.0 | 54.6 | 51.1 | 48.4 | 48.0 | 49.0 | 51.2 | 51.1 | 51.5 | 52.7 | 53.6 | 54.4 |
| Critical (15%) | 59.5 | 56.3 | 51.4 | 48.6 | 48.2 | 49.6 | 51.6 | 52.2 | 53.4 | 55.0 | 57.4 | 60.5 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.3** | **0.4** | **0.2** | **0.1** | **0.2** | **0.2** | -0.1 | **0.1** | -0.5 | -1.4 | -0.9 | **1.6** |
| 20% | -0.9 | **0.1** | **0.1** | **0.2** | **0.2** | **0.1** | 0.0 | -0.2 | -0.1 | -0.5 | -1.6 | **0.1** |
| 30% | -1.6 | -0.1 | **0.1** | **0.1** | **0.1** | -0.1 | **0.1** | -0.1 | **0.0** | -0.3 | -1.0 | -0.3 |
| 40% | -1.6 | -0.4 | **0.0** | **0.2** | -0.2 | -0.2 | **0.0** | **0.0** | -0.2 | **0.1** | -0.5 | **0.3** |
| 50% | -1.4 | -0.3 | **0.0** | **0.2** | **0.0** | -0.1 | **0.0** | 0.0 | 0.0 | **0.2** | -0.2 | **0.1** |
| 60% | -1.2 | -0.4 | **0.1** | **0.2** | **0.1** | **0.1** | **0.2** | -0.2 | -0.2 | **0.3** | -0.1 | **0.7** |
| 70% | -1.2 | -0.5 | **0.2** | **0.2** | **0.1** | **0.1** | -0.1 | 0.0 | -0.1 | **0.1** | **0.0** | **0.8** |
| 80% | -1.3 | -0.4 | **0.2** | **0.1** | **0.1** | **0.1** | **0.1** | -0.2 | 0.0 | **0.0** | **0.1** | **1.0** |
| 90% | -1.2 | **0.1** | **0.0** | -0.1 | **0.1** | **0.1** | **0.1** | -0.1 | 0.0 | **0.1** | **0.2** | **0.5** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -1.0 | -0.2 | **0.1** | **0.1** | **0.1** | **0.0** | **0.1** | -0.2 | -0.1 | -0.1 | -0.4 | **0.5** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -1.4 | -0.7 | -0.2 | **0.1** | **0.1** | **0.1** | 0.0 | -0.1 | **0.0** | **0.1** | -0.1 | **1.0** |
| Above Normal (16%) | -1.4 | -0.8 | -0.3 | **0.0** | **0.0** | **0.0** | **0.1** | -0.1 | **0.0** | **0.1** | **0.2** | **1.7** |
| Below Normal (13%) | -0.4 | **0.5** | **0.5** | **0.1** | **0.0** | 0.0 | **0.0** | -0.4 | -0.1 | -0.1 | -0.4 | -0.3 |
| Dry (24%) | -1.2 | **0.3** | **0.5** | **0.1** | **0.1** | 0.0 | **0.1** | -0.2 | -0.2 | -0.1 | -1.0 | -0.6 |
| Critical (15%) | **0.1** | **0.2** | **0.2** | **0.4** | **0.3** | **0.2** | **0.2** | -0.2 | -0.6 | -0.5 | -0.4 | **0.8** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 6-2. Sacramento River at Clear Creek, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.8 | 56.1 | 53.1 | 50.0 | 48.8 | 50.2 | 52.5 | 52.5 | 53.9 | 55.5 | 56.3 | 56.4 |
| 20% | 56.1 | 55.8 | 52.2 | 49.0 | 48.3 | 49.7 | 51.8 | 51.8 | 52.8 | 53.9 | 55.6 | 55.8 |
| 30% | 55.7 | 55.6 | 51.7 | 48.6 | 48.0 | 49.3 | 51.3 | 51.5 | 52.1 | 53.4 | 54.5 | 55.3 |
| 40% | 55.2 | 55.3 | 51.4 | 48.1 | 47.8 | 48.9 | 51.1 | 51.0 | 51.8 | 52.6 | 54.0 | 54.2 |
| 50% | 54.8 | 55.0 | 51.0 | 47.8 | 47.2 | 48.2 | 50.7 | 50.9 | 51.5 | 52.3 | 53.4 | 53.6 |
| 60% | 54.6 | 54.7 | 50.6 | 47.4 | 46.6 | 47.8 | 50.0 | 50.6 | 51.4 | 51.9 | 53.1 | 52.7 |
| 70% | 54.4 | 54.4 | 50.4 | 47.1 | 46.2 | 47.1 | 49.8 | 50.2 | 51.1 | 51.5 | 52.8 | 52.1 |
| 80% | 54.2 | 54.0 | 50.0 | 46.7 | 45.5 | 46.5 | 48.9 | 49.9 | 50.8 | 51.3 | 52.5 | 51.7 |
| 90% | 53.9 | 53.4 | 49.4 | 46.1 | 45.1 | 46.0 | 47.4 | 49.1 | 50.4 | 50.8 | 52.1 | 51.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.5 | 54.9 | 51.1 | 47.9 | 47.0 | 48.2 | 50.3 | 50.9 | 51.8 | 52.6 | 54.1 | 54.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.7 | 55.3 | 51.6 | 47.3 | 46.2 | 47.0 | 49.2 | 50.3 | 51.4 | 51.9 | 52.9 | 51.9 |
| Above Normal (16%) | 54.4 | 54.7 | 51.0 | 47.7 | 46.4 | 47.4 | 49.9 | 50.3 | 51.0 | 51.3 | 52.6 | 52.1 |
| Below Normal (13%) | 54.7 | 54.2 | 51.0 | 48.1 | 47.4 | 49.0 | 51.1 | 51.0 | 51.3 | 52.1 | 53.5 | 54.5 |
| Dry (24%) | 55.2 | 54.3 | 50.6 | 48.3 | 47.9 | 49.1 | 51.0 | 51.2 | 51.7 | 52.8 | 54.6 | 55.0 |
| Critical (15%) | 59.4 | 56.1 | 51.2 | 48.2 | 47.8 | 49.5 | 51.4 | 52.4 | 54.0 | 55.5 | 57.8 | 59.8 |

## Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.8 | 56.3 | 52.9 | 49.9 | 48.9 | 50.1 | 52.4 | 52.5 | 53.8 | 54.9 | 56.5 | 57.5 |
| 20% | 56.1 | 55.9 | 52.2 | 49.1 | 48.4 | 49.7 | 51.7 | 51.5 | 52.4 | 53.9 | 55.3 | 55.8 |
| 30% | 55.6 | 55.5 | 51.7 | 48.6 | 48.0 | 49.3 | 51.5 | 51.2 | 52.0 | 53.4 | 54.4 | 55.1 |
| 40% | 55.1 | 55.2 | 51.2 | 48.1 | 47.8 | 48.6 | 51.1 | 50.8 | 51.5 | 52.8 | 53.8 | 54.6 |
| 50% | 54.9 | 54.8 | 51.0 | 47.8 | 47.2 | 48.2 | 50.7 | 50.6 | 51.4 | 52.5 | 53.4 | 54.0 |
| 60% | 54.7 | 54.4 | 50.7 | 47.5 | 46.6 | 47.9 | 50.0 | 50.3 | 51.1 | 52.3 | 53.1 | 53.7 |
| 70% | 54.3 | 54.1 | 50.4 | 47.2 | 46.2 | 47.1 | 49.6 | 50.1 | 50.9 | 51.7 | 52.8 | 53.4 |
| 80% | 53.9 | 53.7 | 50.0 | 46.7 | 45.6 | 46.5 | 48.9 | 49.3 | 50.4 | 51.3 | 52.4 | 53.0 |
| 90% | 53.8 | 53.3 | 49.4 | 45.9 | 45.1 | 46.0 | 47.4 | 48.9 | 49.9 | 51.0 | 52.1 | 52.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.5 | 54.8 | 51.1 | 47.9 | 47.1 | 48.2 | 50.4 | 50.7 | 51.5 | 52.7 | 54.0 | 54.8 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.4 | 54.5 | 51.3 | 47.3 | 46.2 | 47.1 | 49.3 | 50.2 | 51.2 | 52.1 | 52.9 | 53.1 |
| Above Normal (16%) | 54.4 | 54.3 | 50.9 | 47.6 | 46.3 | 47.5 | 49.9 | 50.1 | 50.6 | 51.5 | 52.6 | 53.9 |
| Below Normal (13%) | 55.2 | 54.8 | 51.4 | 48.1 | 47.3 | 49.0 | 51.0 | 50.6 | 51.1 | 52.3 | 53.1 | 54.2 |
| Dry (24%) | 55.3 | 54.7 | 50.8 | 48.3 | 48.0 | 49.2 | 51.0 | 50.7 | 51.4 | 52.9 | 54.7 | 54.7 |
| Critical (15%) | 60.1 | 56.5 | 51.3 | 48.4 | 48.0 | 49.3 | 51.4 | 52.2 | 53.9 | 55.6 | 57.9 | 60.1 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **2.1** | **0.2** | -0.2 | -0.1 | **0.1** | -0.1 | 0.0 | 0.0 | 0.0 | -0.6 | **0.2** | **1.1** |
| 20% | **0.0** | **0.1** | **0.0** | **0.1** | **0.1** | **0.0** | -0.1 | -0.3 | -0.3 | 0.0 | -0.3 | **0.0** |
| 30% | -0.1 | 0.0 | 0.0 | **0.0** | 0.0 | 0.0 | **0.2** | -0.3 | -0.1 | **0.1** | -0.1 | -0.2 |
| 40% | -0.1 | -0.1 | -0.2 | **0.1** | **0.0** | -0.3 | **0.0** | -0.2 | -0.3 | **0.1** | -0.1 | **0.4** |
| 50% | **0.1** | -0.2 | **0.0** | 0.0 | -0.1 | -0.1 | 0.0 | -0.3 | -0.2 | **0.2** | **0.0** | **0.5** |
| 60% | **0.1** | -0.4 | **0.1** | **0.1** | **0.0** | **0.1** | 0.0 | -0.3 | -0.3 | **0.4** | **0.1** | **0.9** |
| 70% | -0.1 | -0.4 | 0.0 | **0.0** | 0.0 | **0.0** | -0.2 | -0.2 | -0.2 | **0.2** | 0.0 | **1.3** |
| 80% | -0.3 | -0.3 | 0.0 | **0.0** | **0.1** | **0.0** | 0.0 | -0.6 | -0.3 | **0.0** | -0.1 | **1.3** |
| 90% | -0.1 | 0.0 | **0.0** | -0.2 | **0.0** | **0.0** | 0.0 | -0.2 | -0.5 | **0.2** | 0.0 | **0.9** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | -0.1 | 0.0 | **0.0** | **0.0** | **0.0** | **0.0** | -0.3 | -0.2 | **0.2** | 0.0 | **0.6** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.3 | -0.8 | -0.3 | **0.0** | **0.0** | **0.1** | **0.0** | -0.1 | -0.2 | **0.1** | 0.0 | **1.2** |
| Above Normal (16%) | 0.0 | -0.4 | -0.2 | -0.1 | 0.0 | **0.1** | **0.1** | -0.2 | -0.4 | **0.2** | **0.0** | **1.8** |
| Below Normal (13%) | **0.4** | **0.6** | **0.4** | -0.1 | -0.1 | 0.0 | -0.1 | -0.4 | -0.2 | **0.2** | -0.4 | -0.3 |
| Dry (24%) | **0.1** | **0.4** | **0.2** | **0.1** | **0.1** | **0.1** | **0.0** | -0.5 | -0.3 | **0.1** | **0.0** | -0.3 |
| Critical (15%) | **0.7** | **0.3** | **0.2** | **0.2** | **0.1** | -0.1 | -0.1 | -0.2 | -0.1 | **0.2** | **0.1** | **0.4** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 6-3. Sacramento River at Clear Creek, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.8 | 56.1 | 53.1 | 50.0 | 48.8 | 50.2 | 52.5 | 52.5 | 53.9 | 55.5 | 56.3 | 56.4 |
| 20% | 56.1 | 55.8 | 52.2 | 49.0 | 48.3 | 49.7 | 51.8 | 51.8 | 52.8 | 53.9 | 55.6 | 55.8 |
| 30% | 55.7 | 55.6 | 51.7 | 48.6 | 48.0 | 49.3 | 51.3 | 51.5 | 52.1 | 53.4 | 54.5 | 55.3 |
| 40% | 55.2 | 55.3 | 51.4 | 48.1 | 47.8 | 48.9 | 51.1 | 51.0 | 51.8 | 52.6 | 54.0 | 54.2 |
| 50% | 54.8 | 55.0 | 51.0 | 47.8 | 47.2 | 48.2 | 50.7 | 50.9 | 51.5 | 52.3 | 53.4 | 53.6 |
| 60% | 54.6 | 54.7 | 50.6 | 47.4 | 46.6 | 47.8 | 50.0 | 50.6 | 51.4 | 51.9 | 53.1 | 52.7 |
| 70% | 54.4 | 54.4 | 50.4 | 47.1 | 46.2 | 47.1 | 49.8 | 50.2 | 51.1 | 51.5 | 52.8 | 52.1 |
| 80% | 54.2 | 54.0 | 50.0 | 46.7 | 45.5 | 46.5 | 48.9 | 49.9 | 50.8 | 51.3 | 52.5 | 51.7 |
| 90% | 53.9 | 53.4 | 49.4 | 46.1 | 45.1 | 46.0 | 47.4 | 49.1 | 50.4 | 50.8 | 52.1 | 51.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.5 | 54.9 | 51.1 | 47.9 | 47.0 | 48.2 | 50.3 | 50.9 | 51.8 | 52.6 | 54.1 | 54.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.7 | 55.3 | 51.6 | 47.3 | 46.2 | 47.0 | 49.2 | 50.3 | 51.4 | 51.9 | 52.9 | 51.9 |
| Above Normal (16%) | 54.4 | 54.7 | 51.0 | 47.7 | 46.4 | 47.4 | 49.9 | 50.3 | 51.0 | 51.3 | 52.6 | 52.1 |
| Below Normal (13%) | 54.7 | 54.2 | 51.0 | 48.1 | 47.4 | 49.0 | 51.1 | 51.0 | 51.3 | 52.1 | 53.5 | 54.5 |
| Dry (24%) | 55.2 | 54.3 | 50.6 | 48.3 | 47.9 | 49.1 | 51.0 | 51.2 | 51.7 | 52.8 | 54.6 | 55.0 |
| Critical (15%) | 59.4 | 56.1 | 51.2 | 48.2 | 47.8 | 49.5 | 51.4 | 52.4 | 54.0 | 55.5 | 57.8 | 59.8 |

## Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.1 | 56.3 | 53.1 | 49.9 | 48.9 | 50.2 | 52.3 | 52.6 | 54.0 | 55.0 | 56.5 | 57.6 |
| 20% | 56.1 | 55.9 | 52.3 | 49.1 | 48.3 | 49.8 | 51.7 | 51.5 | 52.5 | 54.0 | 55.2 | 55.8 |
| 30% | 55.5 | 55.6 | 51.7 | 48.6 | 48.0 | 49.3 | 51.3 | 51.1 | 52.0 | 53.4 | 54.5 | 55.2 |
| 40% | 55.2 | 55.2 | 51.2 | 48.0 | 47.7 | 48.9 | 51.1 | 50.8 | 51.5 | 52.8 | 53.9 | 54.7 |
| 50% | 54.9 | 54.8 | 51.0 | 47.8 | 47.2 | 48.2 | 50.7 | 50.5 | 51.4 | 52.5 | 53.4 | 54.2 |
| 60% | 54.7 | 54.4 | 50.7 | 47.5 | 46.6 | 47.9 | 50.0 | 50.3 | 51.1 | 52.2 | 53.1 | 53.7 |
| 70% | 54.3 | 54.0 | 50.4 | 47.1 | 46.1 | 47.2 | 49.6 | 50.1 | 50.9 | 51.6 | 52.8 | 53.3 |
| 80% | 54.0 | 53.7 | 50.0 | 46.7 | 45.6 | 46.5 | 48.8 | 49.7 | 50.4 | 51.3 | 52.3 | 52.8 |
| 90% | 53.7 | 53.3 | 49.4 | 45.8 | 45.1 | 46.0 | 47.4 | 49.0 | 49.8 | 51.0 | 52.0 | 52.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.5 | 54.8 | 51.1 | 47.9 | 47.1 | 48.2 | 50.3 | 50.7 | 51.6 | 52.7 | 54.1 | 54.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.3 | 54.5 | 51.3 | 47.3 | 46.2 | 47.1 | 49.2 | 50.3 | 51.3 | 52.0 | 52.8 | 53.2 |
| Above Normal (16%) | 54.4 | 54.3 | 50.9 | 47.6 | 46.3 | 47.5 | 49.9 | 50.1 | 50.6 | 51.5 | 52.6 | 53.8 |
| Below Normal (13%) | 55.1 | 54.8 | 51.4 | 48.1 | 47.3 | 48.9 | 50.9 | 50.6 | 51.1 | 52.3 | 53.1 | 54.2 |
| Dry (24%) | 55.1 | 54.7 | 50.8 | 48.3 | 48.0 | 49.2 | 51.1 | 50.7 | 51.4 | 53.0 | 54.7 | 54.8 |
| Critical (15%) | 60.3 | 56.5 | 51.3 | 48.3 | 48.0 | 49.3 | 51.4 | 52.3 | 53.9 | 55.7 | 58.1 | 60.5 |

## Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **3.3** | **0.2** | 0.0 | -0.1 | **0.1** | -0.1 | -0.1 | **0.0** | **0.1** | -0.5 | **0.2** | **1.2** |
| 20% | **0.0** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | -0.1 | -0.3 | -0.2 | **0.1** | -0.5 | **0.1** |
| 30% | -0.2 | 0.0 | **0.0** | **0.1** | 0.0 | **0.0** | **0.1** | -0.4 | -0.1 | **0.1** | 0.0 | -0.1 |
| 40% | 0.0 | -0.1 | -0.2 | 0.0 | 0.0 | **0.0** | **0.0** | -0.2 | -0.3 | **0.2** | -0.1 | **0.4** |
| 50% | **0.1** | -0.2 | **0.0** | 0.0 | 0.0 | **0.0** | 0.0 | -0.4 | -0.1 | **0.2** | **0.0** | **0.7** |
| 60% | **0.1** | -0.3 | **0.1** | **0.1** | 0.0 | **0.1** | 0.0 | -0.3 | -0.3 | **0.4** | 0.0 | **1.0** |
| 70% | -0.1 | -0.4 | **0.0** | -0.1 | -0.1 | **0.1** | -0.2 | -0.2 | -0.2 | **0.1** | 0.0 | **1.2** |
| 80% | -0.3 | -0.3 | 0.0 | **0.0** | **0.1** | 0.0 | -0.1 | -0.2 | -0.3 | 0.0 | -0.2 | **1.2** |
| 90% | -0.2 | -0.1 | **0.0** | -0.3 | **0.0** | **0.0** | 0.0 | -0.1 | -0.6 | **0.1** | 0.0 | **0.9** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.0** | -0.1 | **0.0** | **0.0** | **0.0** | **0.1** | 0.0 | -0.2 | -0.2 | **0.2** | 0.0 | **0.7** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.4 | -0.8 | -0.3 | **0.0** | 0.0 | **0.1** | -0.1 | **0.0** | -0.2 | **0.1** | -0.1 | **1.3** |
| Above Normal (16%) | 0.0 | -0.5 | -0.1 | -0.1 | -0.1 | **0.1** | **0.1** | -0.2 | -0.4 | **0.2** | **0.0** | **1.8** |
| Below Normal (13%) | **0.4** | **0.6** | **0.4** | -0.1 | -0.1 | 0.0 | -0.1 | -0.4 | -0.2 | **0.2** | -0.3 | -0.3 |
| Dry (24%) | 0.0 | **0.4** | **0.2** | **0.1** | **0.1** | **0.2** | **0.0** | -0.5 | -0.3 | **0.1** | **0.0** | -0.2 |
| Critical (15%) | **0.9** | **0.4** | **0.1** | **0.1** | **0.1** | -0.2 | -0.1 | -0.1 | 0.0 | **0.2** | **0.3** | **0.7** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 6-4. Sacramento River at Clear Creek, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 56.8 | 56.1 | 53.1 | 50.0 | 48.8 | 50.2 | 52.5 | 52.5 | 53.9 | 55.5 | 56.3 | 56.4 |
| 20% | 56.1 | 55.8 | 52.2 | 49.0 | 48.3 | 49.7 | 51.8 | 51.8 | 52.8 | 53.9 | 55.6 | 55.8 |
| 30% | 55.7 | 55.6 | 51.7 | 48.6 | 48.0 | 49.3 | 51.3 | 51.5 | 52.1 | 53.4 | 54.5 | 55.3 |
| 40% | 55.2 | 55.3 | 51.4 | 48.1 | 47.8 | 48.9 | 51.1 | 51.0 | 51.8 | 52.6 | 54.0 | 54.2 |
| 50% | 54.8 | 55.0 | 51.0 | 47.8 | 47.2 | 48.2 | 50.7 | 50.9 | 51.5 | 52.3 | 53.4 | 53.6 |
| 60% | 54.6 | 54.7 | 50.6 | 47.4 | 46.6 | 47.8 | 50.0 | 50.6 | 51.4 | 51.9 | 53.1 | 52.7 |
| 70% | 54.4 | 54.4 | 50.4 | 47.1 | 46.2 | 47.1 | 49.8 | 50.2 | 51.1 | 51.5 | 52.8 | 52.1 |
| 80% | 54.2 | 54.0 | 50.0 | 46.7 | 45.5 | 46.5 | 48.9 | 49.9 | 50.8 | 51.3 | 52.5 | 51.7 |
| 90% | 53.9 | 53.4 | 49.4 | 46.1 | 45.1 | 46.0 | 47.4 | 49.1 | 50.4 | 50.8 | 52.1 | 51.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.5 | 54.9 | 51.1 | 47.9 | 47.0 | 48.2 | 50.3 | 50.9 | 51.8 | 52.6 | 54.1 | 54.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.7 | 55.3 | 51.6 | 47.3 | 46.2 | 47.0 | 49.2 | 50.3 | 51.4 | 51.9 | 52.9 | 51.9 |
| Above Normal (16%) | 54.4 | 54.7 | 51.0 | 47.7 | 46.4 | 47.4 | 49.9 | 50.3 | 51.0 | 51.3 | 52.6 | 52.1 |
| Below Normal (13%) | 54.7 | 54.2 | 51.0 | 48.1 | 47.4 | 49.0 | 51.1 | 51.0 | 51.3 | 52.1 | 53.5 | 54.5 |
| Dry (24%) | 55.2 | 54.3 | 50.6 | 48.3 | 47.9 | 49.1 | 51.0 | 51.2 | 51.7 | 52.8 | 54.6 | 55.0 |
| Critical (15%) | 59.4 | 56.1 | 51.2 | 48.2 | 47.8 | 49.5 | 51.4 | 52.4 | 54.0 | 55.5 | 57.8 | 59.8 |

## Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.1 | 56.2 | 53.0 | 50.0 | 49.0 | 50.3 | 52.3 | 52.6 | 53.5 | 54.2 | 55.1 | 56.9 |
| 20% | 54.9 | 55.8 | 52.3 | 49.1 | 48.5 | 49.6 | 51.8 | 51.9 | 52.8 | 53.4 | 54.0 | 55.7 |
| 30% | 54.2 | 55.3 | 51.8 | 48.8 | 48.0 | 49.1 | 51.4 | 51.4 | 52.2 | 53.2 | 53.5 | 55.0 |
| 40% | 53.7 | 55.0 | 51.4 | 48.2 | 47.7 | 48.4 | 50.7 | 51.1 | 51.8 | 52.8 | 53.3 | 54.5 |
| 50% | 53.4 | 54.7 | 51.0 | 47.9 | 47.1 | 48.0 | 50.0 | 50.9 | 51.6 | 52.5 | 53.3 | 53.8 |
| 60% | 53.4 | 54.3 | 50.8 | 47.6 | 46.5 | 47.5 | 49.6 | 50.6 | 51.3 | 52.2 | 53.0 | 53.4 |
| 70% | 53.2 | 53.9 | 50.5 | 47.3 | 46.3 | 47.1 | 49.0 | 50.4 | 51.0 | 51.6 | 52.9 | 53.1 |
| 80% | 53.0 | 53.6 | 50.2 | 46.8 | 45.6 | 46.4 | 48.4 | 50.0 | 50.9 | 51.4 | 52.7 | 52.7 |
| 90% | 52.9 | 53.3 | 49.5 | 46.0 | 45.0 | 46.0 | 47.5 | 49.2 | 50.4 | 51.0 | 52.2 | 51.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.4 | 54.7 | 51.3 | 48.0 | 47.1 | 48.1 | 50.1 | 51.0 | 51.8 | 52.5 | 53.6 | 54.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.3 | 54.6 | 51.4 | 47.4 | 46.2 | 46.9 | 48.7 | 50.3 | 51.5 | 52.0 | 52.9 | 52.9 |
| Above Normal (16%) | 53.2 | 53.9 | 50.8 | 47.6 | 46.4 | 47.2 | 49.5 | 50.6 | 51.2 | 51.4 | 52.8 | 53.6 |
| Below Normal (13%) | 53.8 | 54.5 | 51.3 | 48.2 | 47.4 | 48.7 | 50.9 | 50.8 | 51.3 | 52.1 | 53.1 | 54.3 |
| Dry (24%) | 54.0 | 54.6 | 51.2 | 48.4 | 47.9 | 48.9 | 50.9 | 51.3 | 51.5 | 52.8 | 53.6 | 54.6 |
| Critical (15%) | 58.9 | 56.1 | 51.5 | 48.8 | 48.2 | 49.6 | 51.8 | 52.6 | 53.7 | 54.9 | 56.5 | 59.1 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.3** | **0.1** | -0.1 | 0.0 | **0.2** | **0.1** | -0.1 | **0.1** | -0.4 | -1.3 | -1.1 | **0.5** |
| 20% | -1.2 | **0.0** | **0.2** | **0.1** | **0.2** | -0.1 | 0.0 | **0.1** | **0.0** | -0.6 | -1.6 | -0.1 |
| 30% | -1.6 | -0.3 | **0.1** | **0.2** | 0.0 | -0.2 | **0.2** | -0.1 | **0.1** | -0.2 | -1.0 | -0.3 |
| 40% | -1.6 | -0.3 | 0.0 | **0.2** | -0.1 | -0.5 | -0.4 | **0.0** | **0.0** | **0.2** | -0.6 | **0.3** |
| 50% | -1.4 | -0.4 | **0.1** | **0.1** | -0.1 | -0.2 | -0.7 | 0.0 | **0.0** | **0.2** | -0.2 | **0.2** |
| 60% | -1.3 | -0.4 | **0.2** | **0.2** | -0.1 | -0.3 | -0.4 | 0.0 | -0.1 | **0.3** | -0.1 | **0.7** |
| 70% | -1.2 | -0.5 | **0.2** | **0.1** | **0.1** | 0.0 | -0.8 | **0.2** | -0.1 | **0.2** | **0.1** | **1.0** |
| 80% | -1.2 | -0.4 | **0.2** | **0.1** | **0.1** | -0.1 | -0.5 | **0.1** | **0.1** | **0.1** | **0.2** | **1.1** |
| 90% | -1.0 | 0.0 | **0.1** | -0.1 | -0.1 | 0.0 | **0.2** | **0.1** | -0.1 | **0.2** | **0.2** | **0.6** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -1.1 | -0.2 | **0.1** | **0.2** | **0.1** | -0.1 | -0.2 | **0.0** | 0.0 | -0.1 | -0.5 | **0.3** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -1.3 | -0.7 | -0.2 | **0.1** | 0.0 | -0.1 | -0.5 | -0.1 | **0.1** | **0.1** | -0.1 | **1.0** |
| Above Normal (16%) | -1.3 | -0.8 | -0.2 | 0.0 | **0.0** | -0.2 | -0.4 | **0.3** | **0.2** | **0.1** | **0.2** | **1.5** |
| Below Normal (13%) | -1.0 | **0.3** | **0.3** | **0.1** | 0.0 | -0.2 | -0.2 | -0.1 | 0.0 | 0.0 | -0.3 | -0.2 |
| Dry (24%) | -1.1 | **0.3** | **0.6** | **0.2** | **0.0** | -0.2 | -0.2 | **0.0** | -0.2 | -0.1 | -1.0 | -0.4 |
| Critical (15%) | -0.5 | -0.1 | **0.3** | **0.7** | **0.4** | **0.1** | **0.4** | **0.2** | -0.3 | -0.6 | -1.3 | -0.7 |

a Based on the 82-year simulation period.

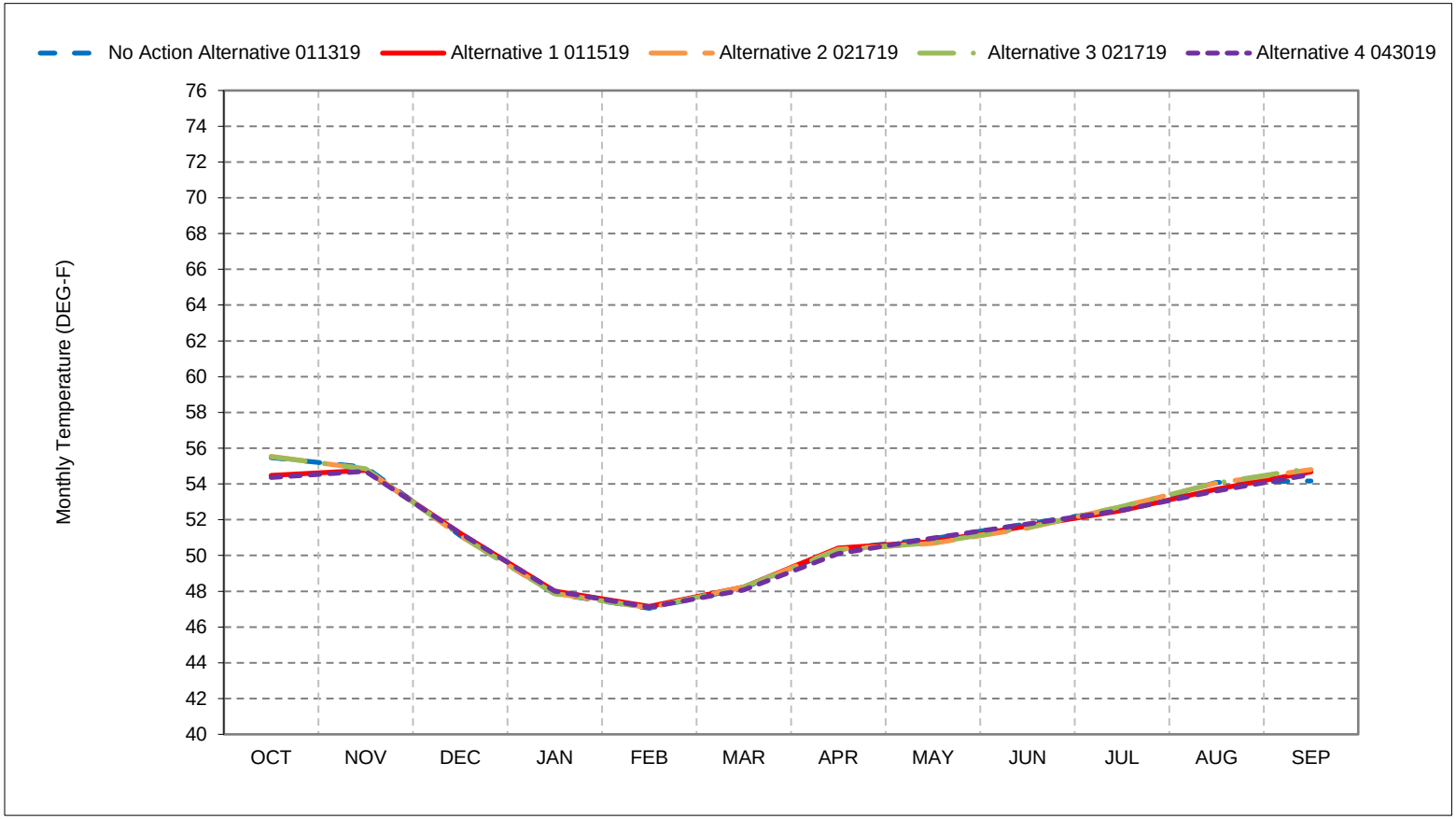
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

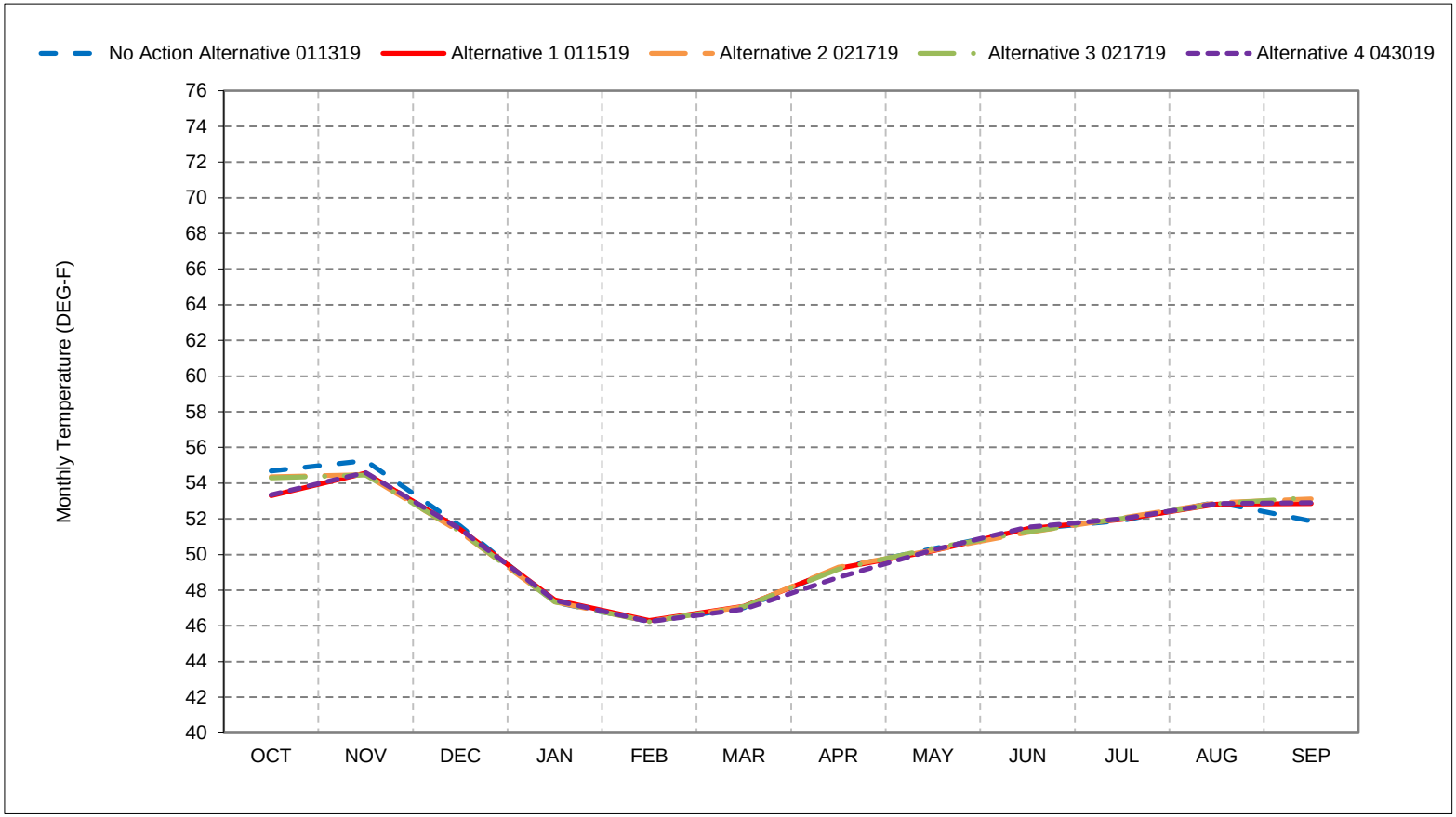
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-1. Sacramento River at Clear Creek, Long-Term Average Temperature



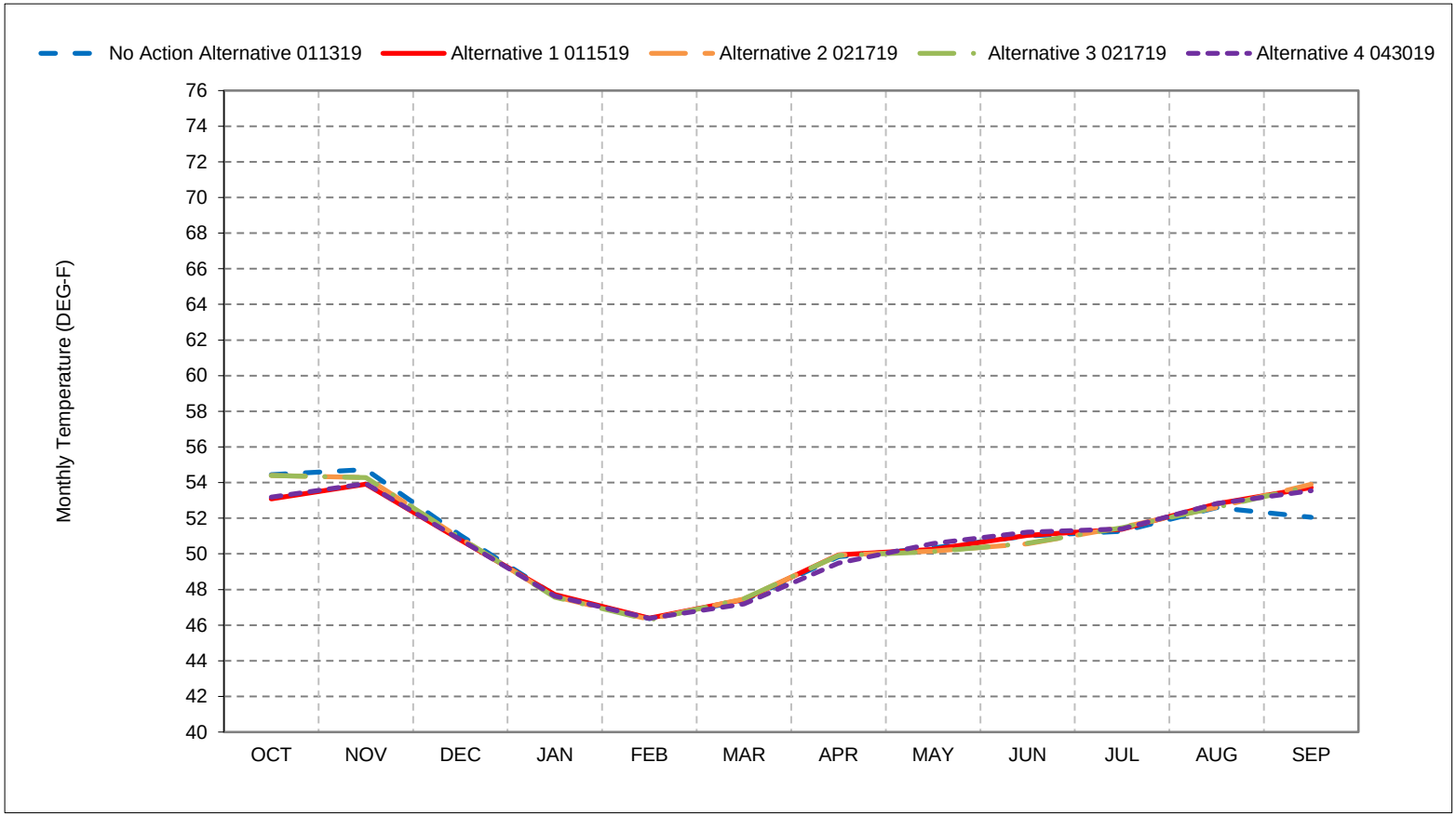

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-2. Sacramento River at Clear Creek, Wet Year Average Temperature



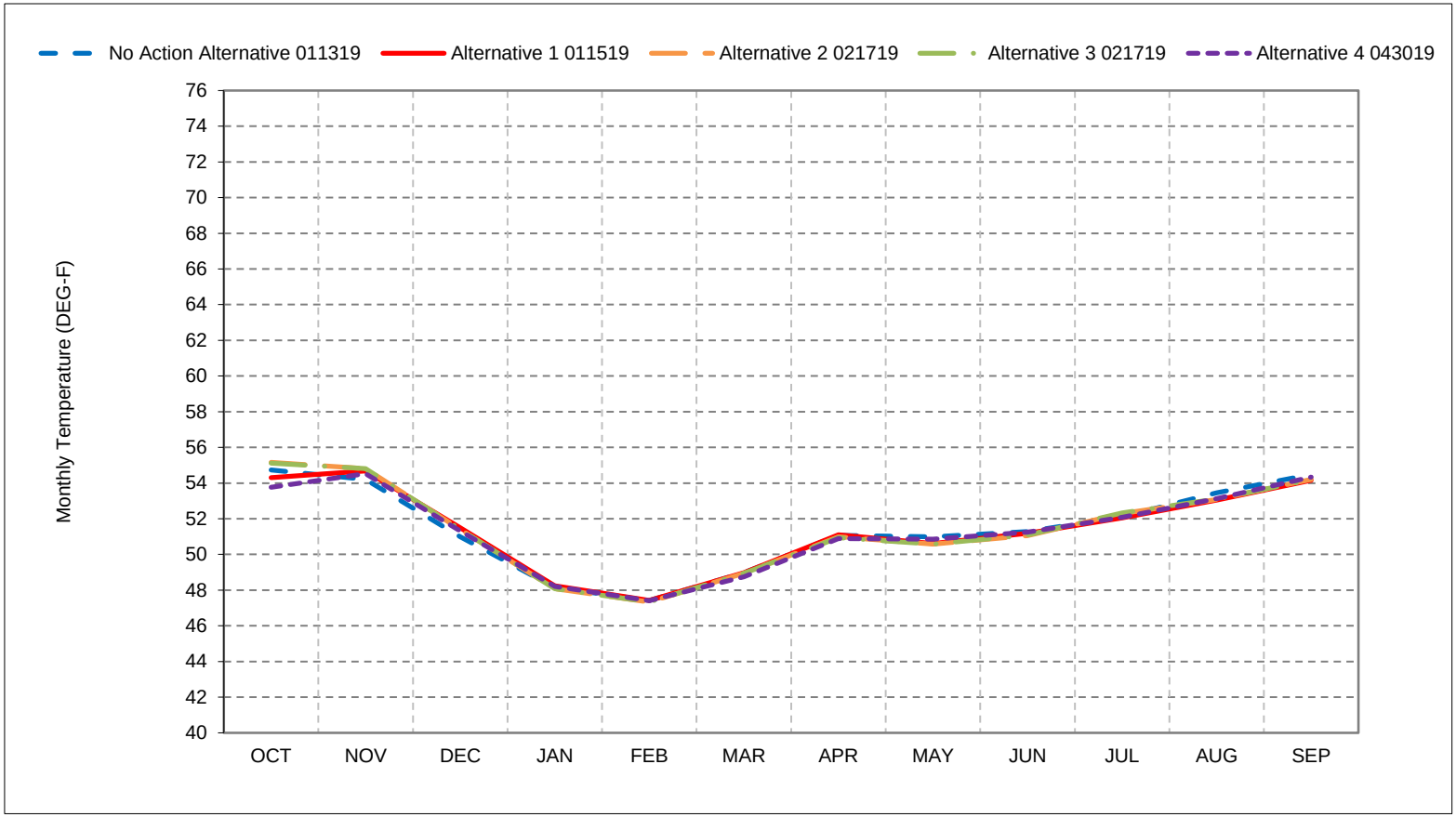

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-3. Sacramento River at Clear Creek, Above Normal Year Average Temperature



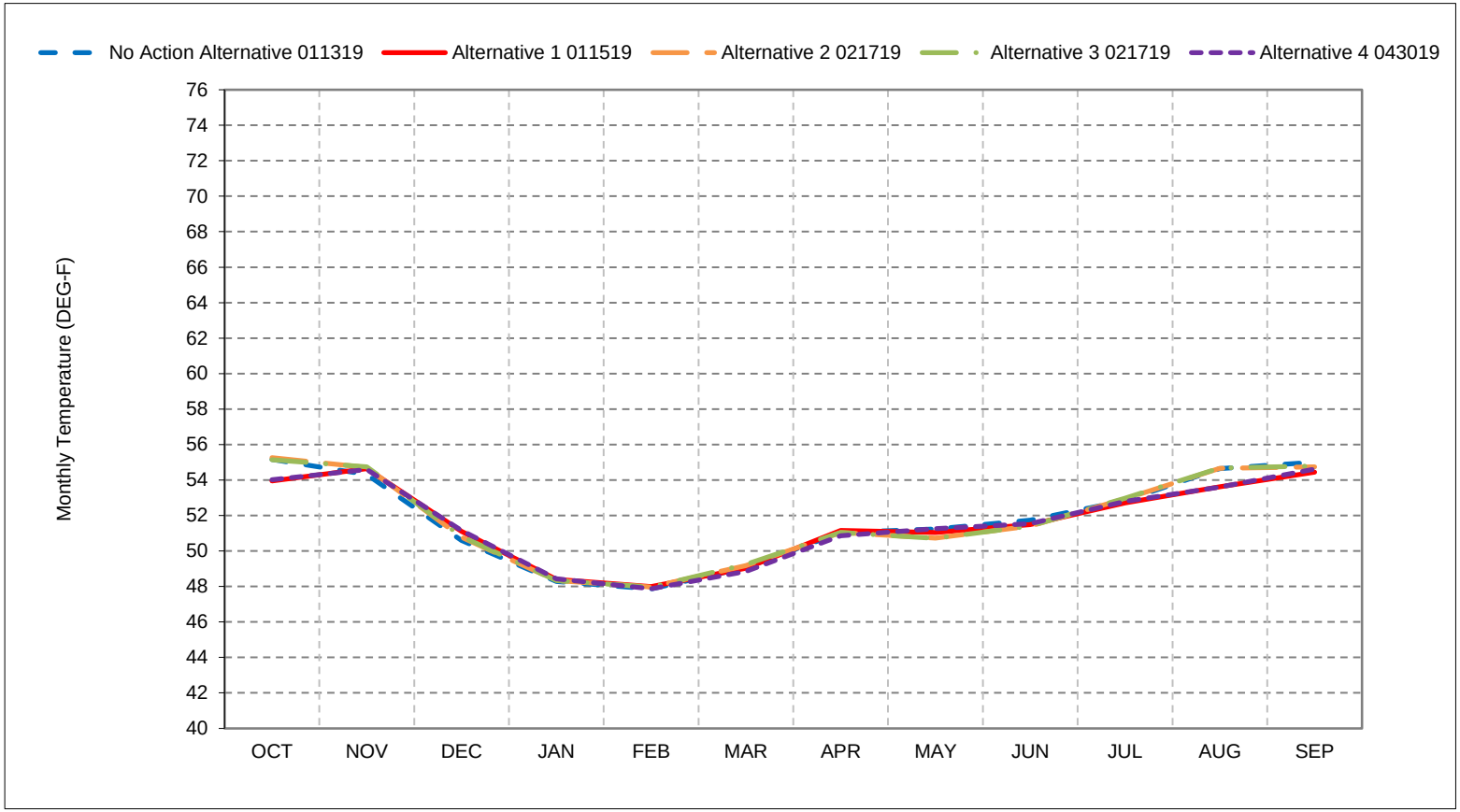

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-4. Sacramento River at Clear Creek, Below Normal Year Average Temperature



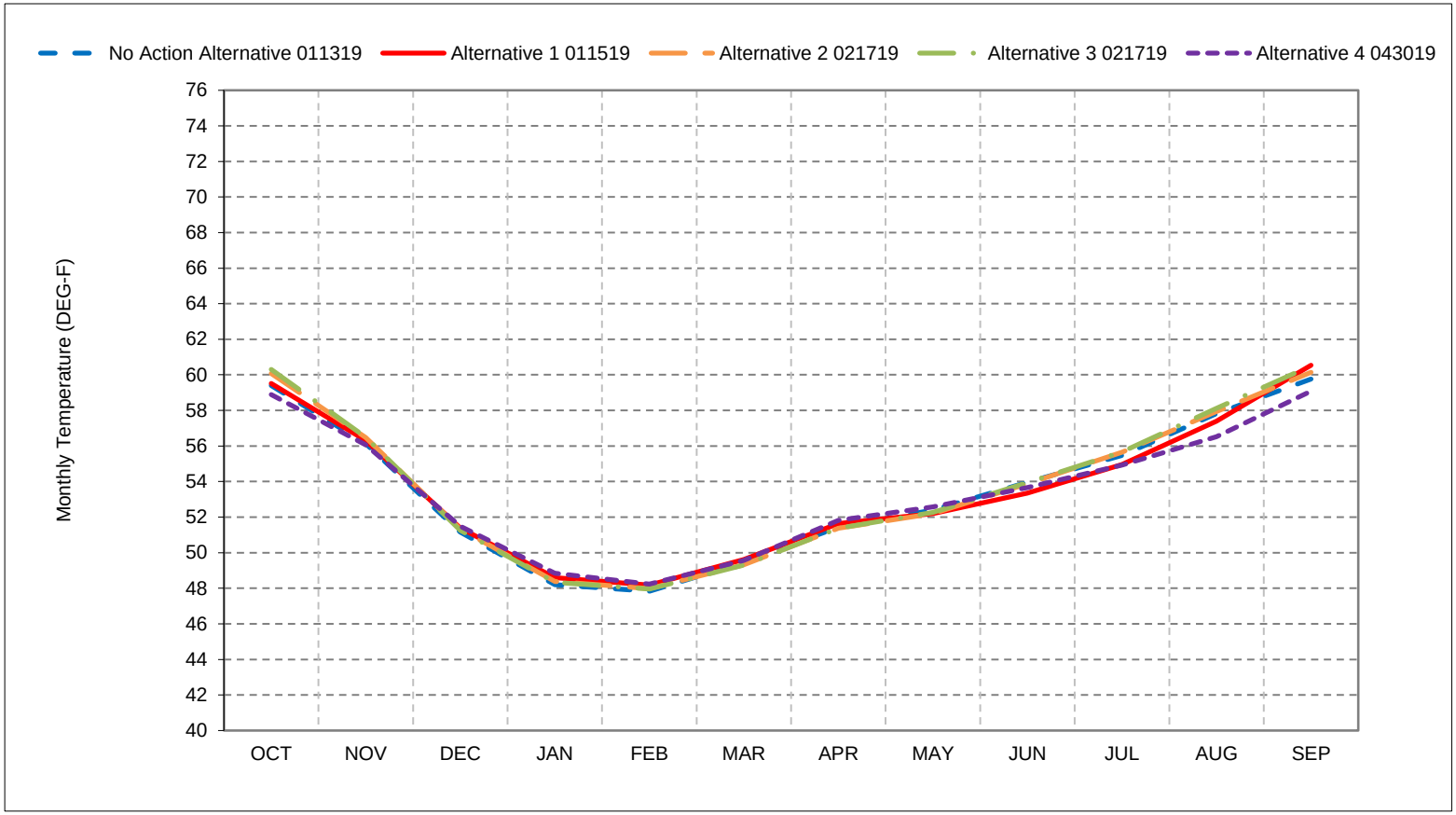

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-5. Sacramento River at Clear Creek, Dry Year Average Temperature



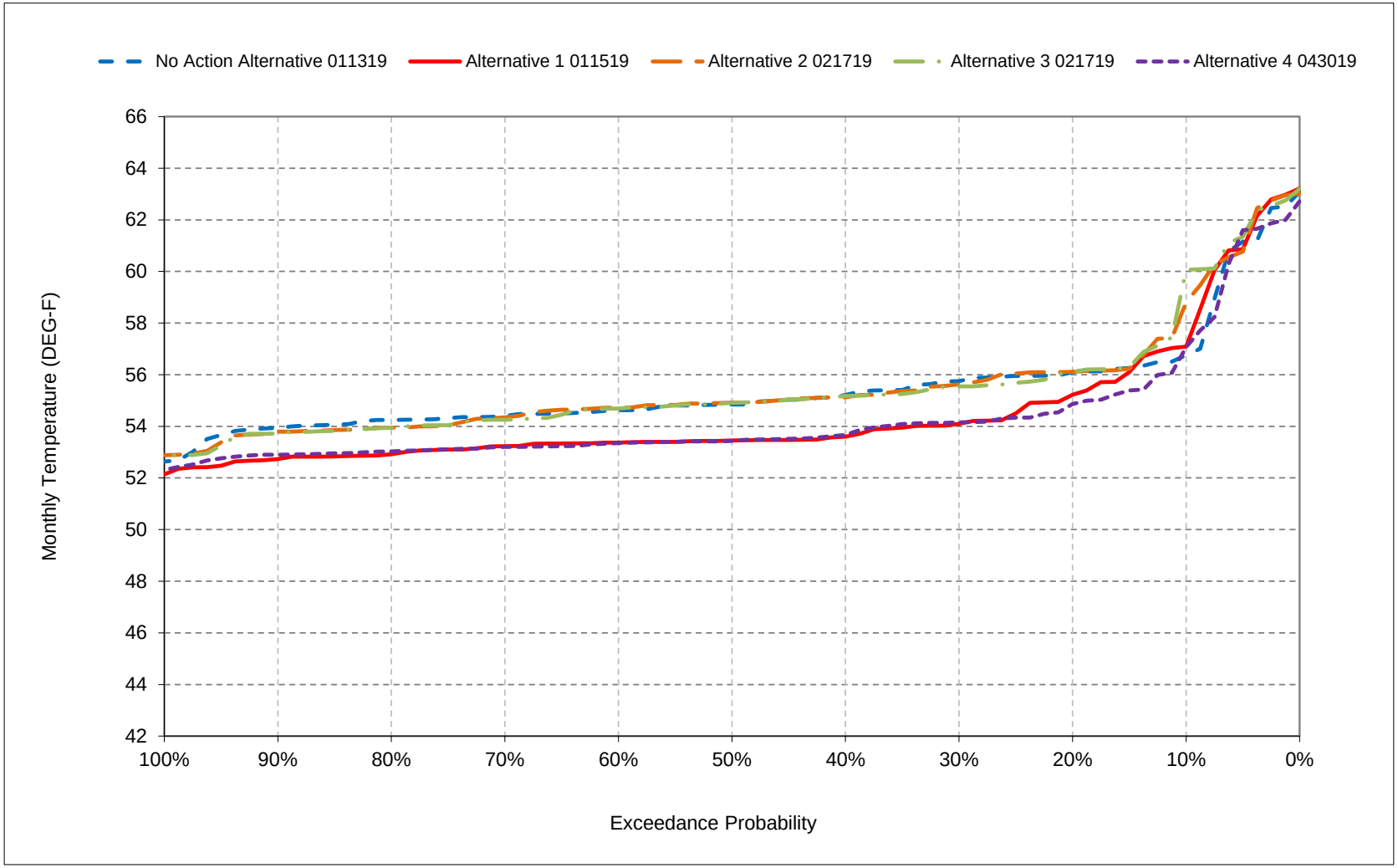

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-6. Sacramento River at Clear Creek, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

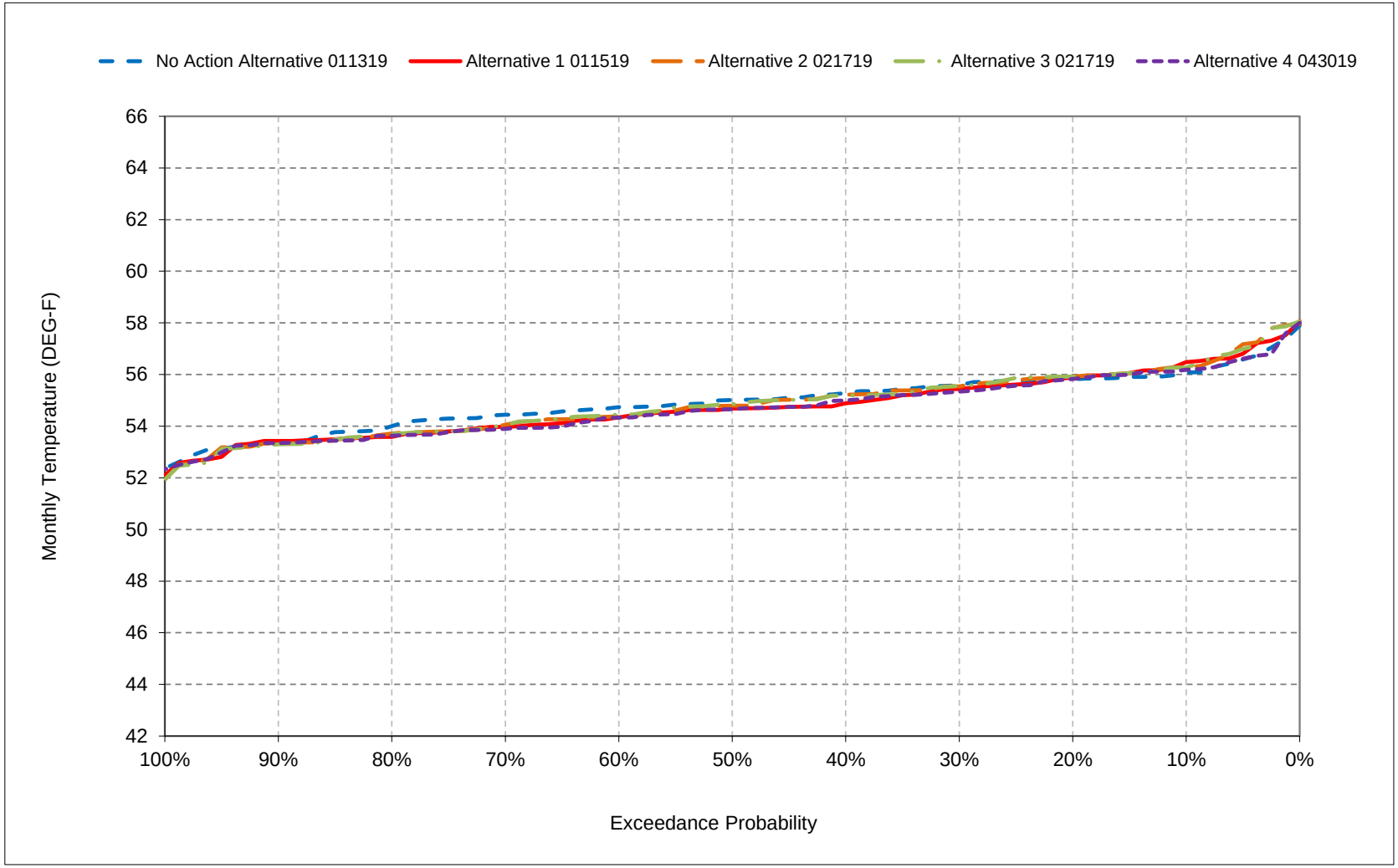
**Figure 6-7. Sacramento River at Clear Creek, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

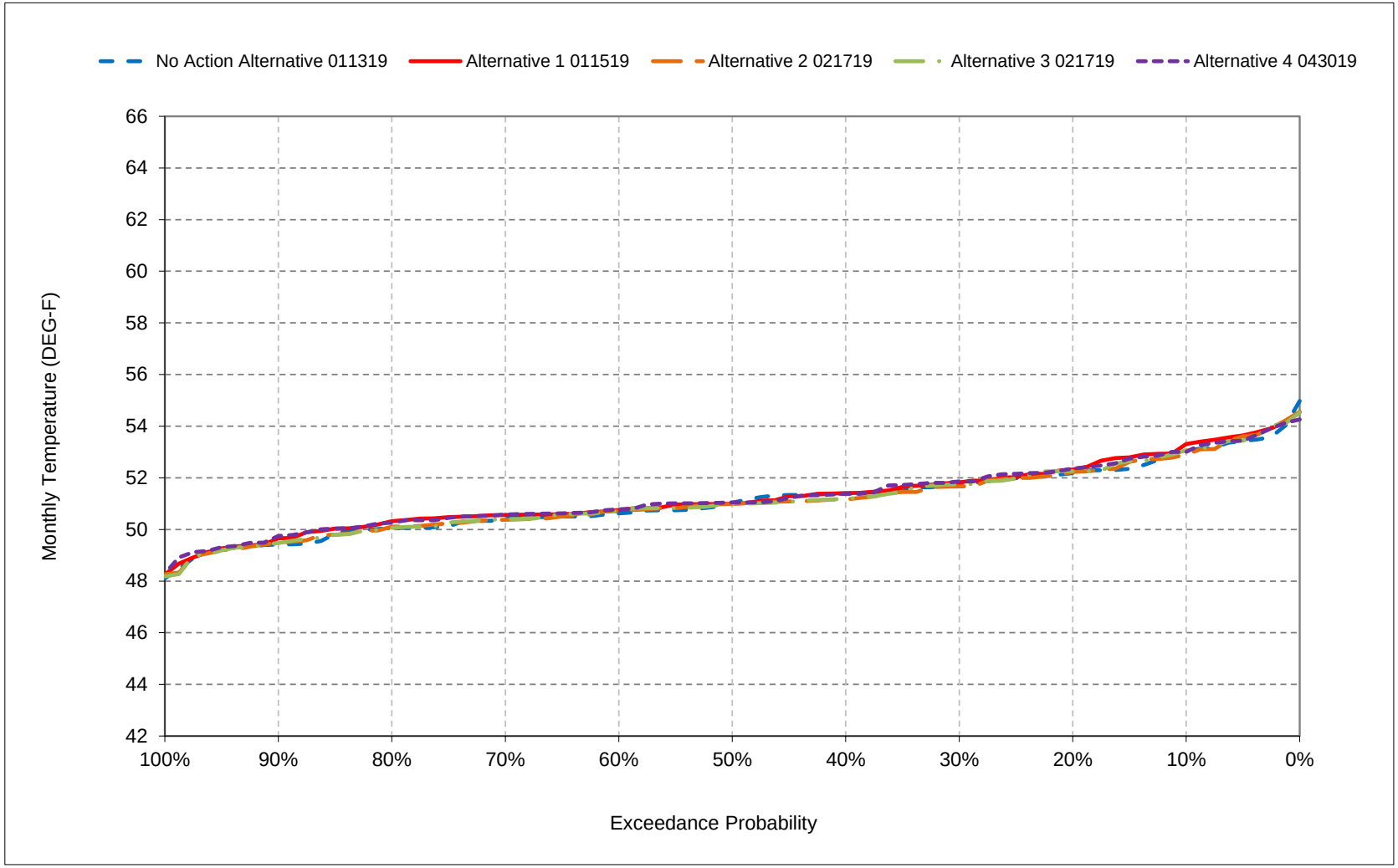
**Figure 6-8. Sacramento River at Clear Creek, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

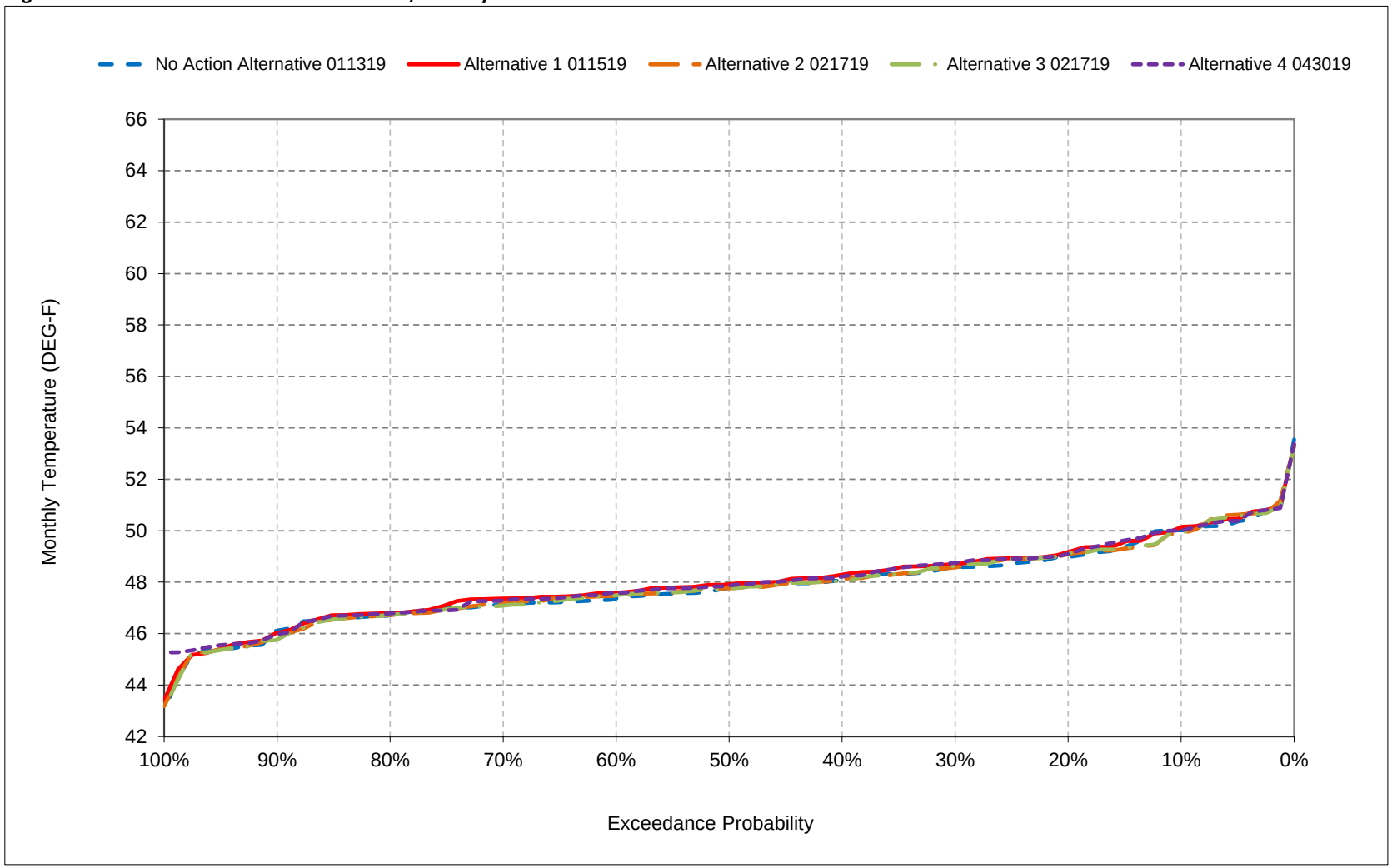
**Figure 6-9. Sacramento River at Clear Creek, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

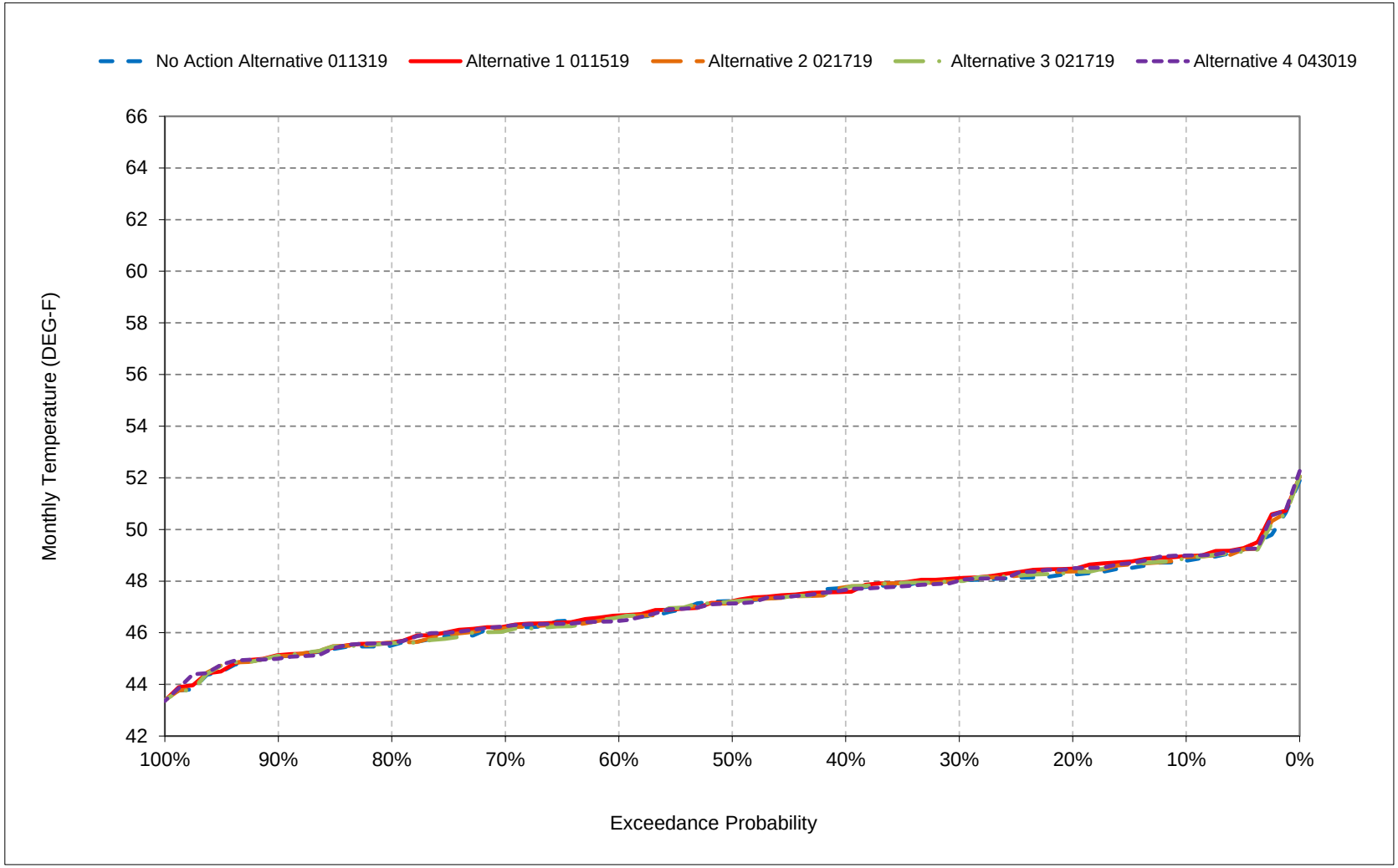
**Figure 6-10. Sacramento River at Clear Creek, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

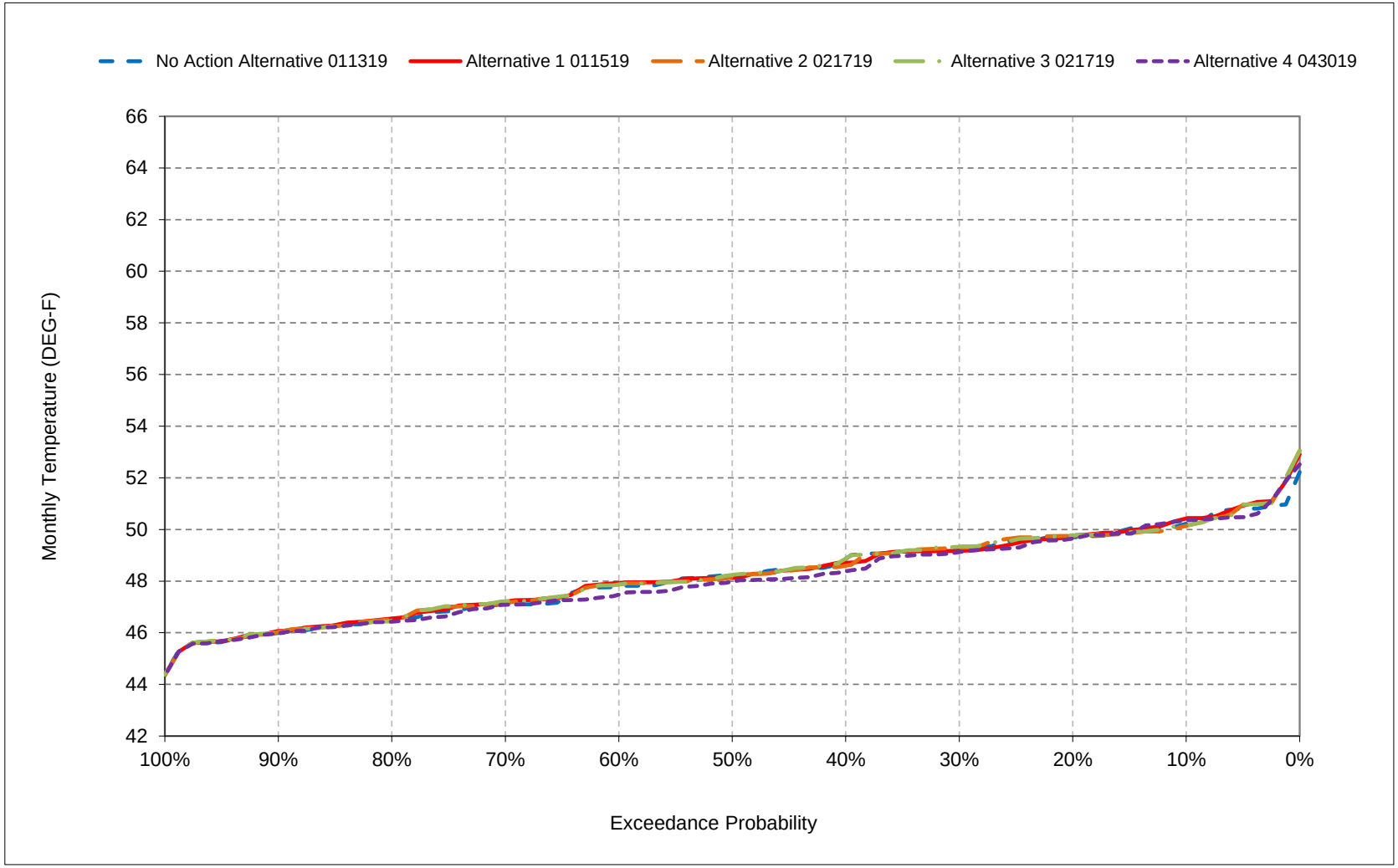
**Figure 6-11. Sacramento River at Clear Creek, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

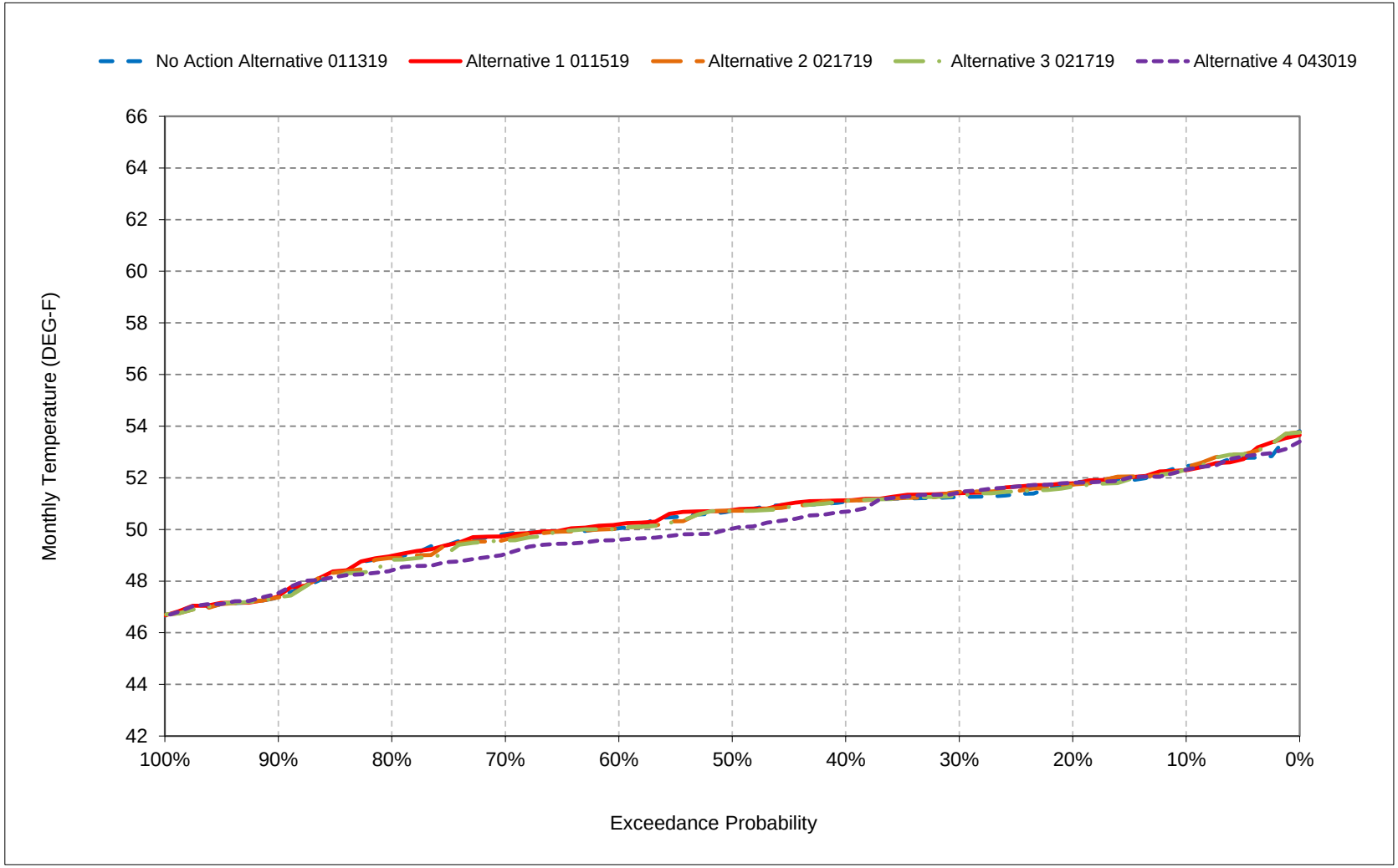
**Figure 6-12. Sacramento River at Clear Creek, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

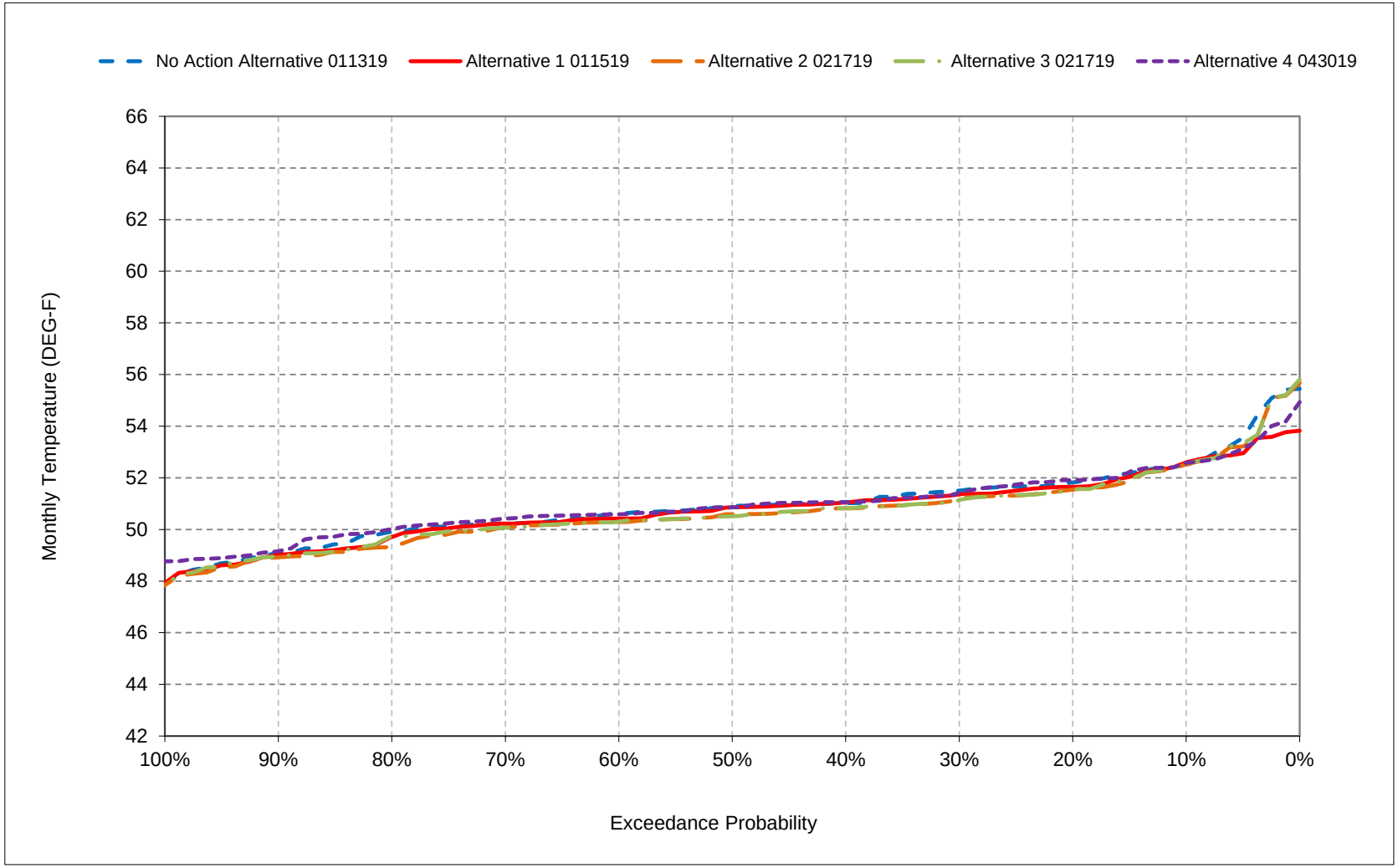
**Figure 6-13. Sacramento River at Clear Creek, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

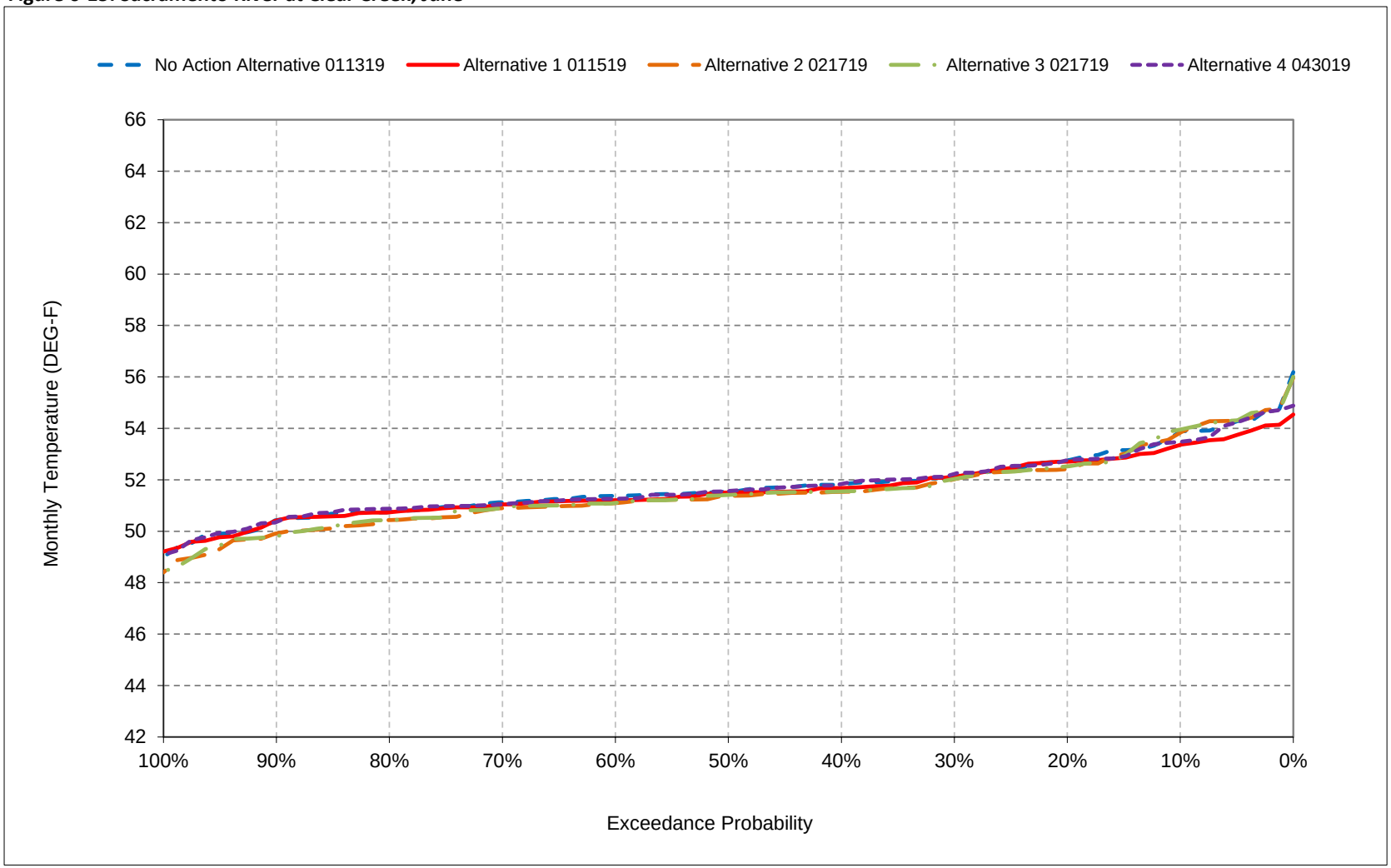
**Figure 6-14. Sacramento River at Clear Creek, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

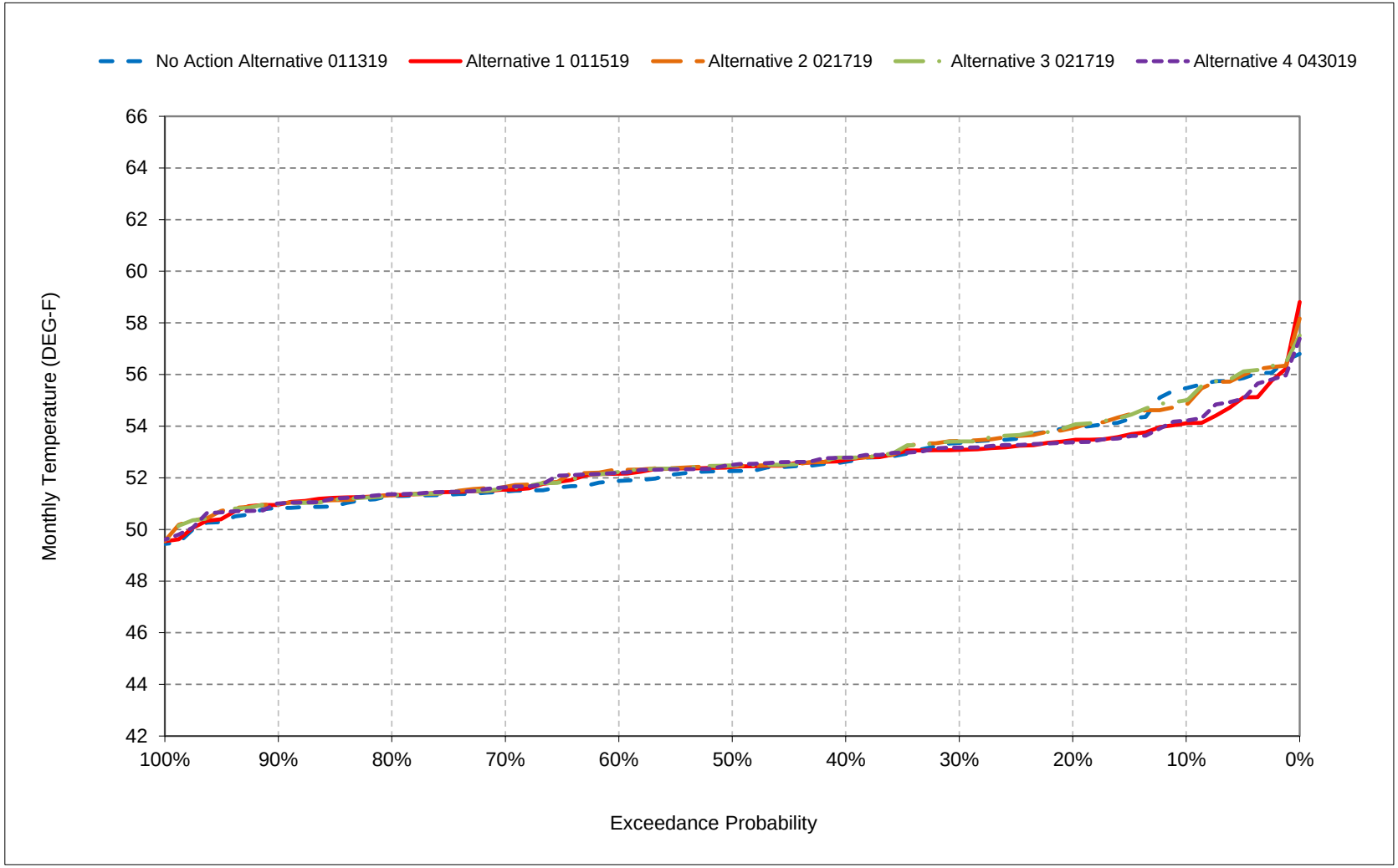
**Figure 6-15. Sacramento River at Clear Creek, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

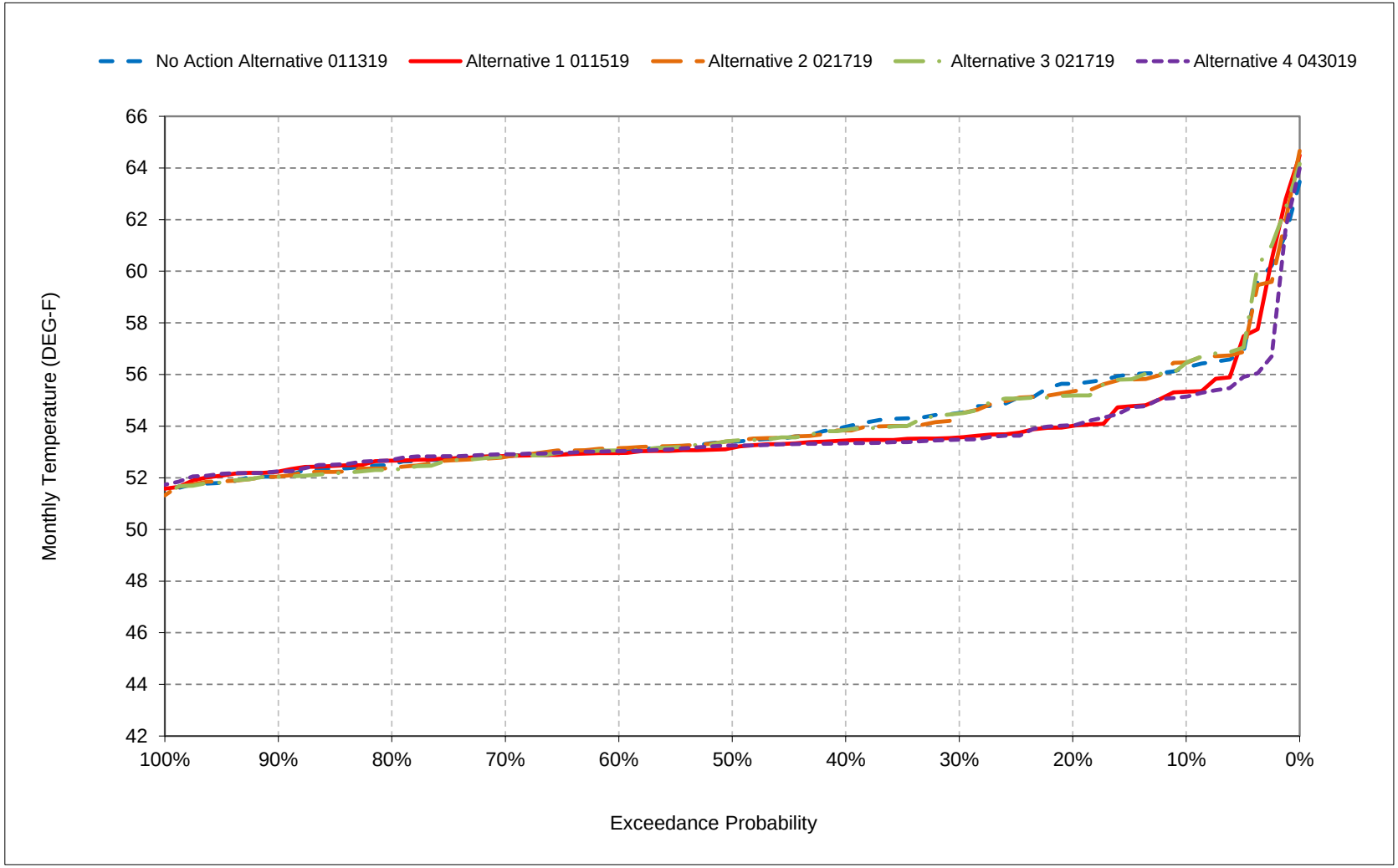
**Figure 6-16. Sacramento River at Clear Creek, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6-17. Sacramento River at Clear Creek, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6-18. Sacramento River at Clear Creek, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 7-1. Sacramento River at Balls Ferry, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.2 | 55.8 | 52.5 | 49.2 | 48.8 | 51.1 | 54.3 | 54.8 | 55.4 | 56.7 | 57.7 | 57.8 |
| 20% | 56.6 | 55.7 | 51.3 | 48.6 | 48.4 | 50.4 | 53.4 | 53.7 | 54.6 | 55.2 | 56.8 | 57.2 |
| 30% | 56.2 | 55.3 | 50.8 | 47.9 | 48.1 | 50.1 | 53.1 | 53.3 | 54.1 | 54.5 | 55.8 | 56.5 |
| 40% | 55.7 | 55.0 | 50.4 | 47.4 | 47.7 | 49.5 | 52.9 | 52.9 | 53.7 | 54.1 | 55.3 | 55.5 |
| 50% | 55.3 | 54.6 | 50.2 | 47.2 | 47.3 | 49.2 | 52.3 | 52.6 | 53.3 | 53.6 | 54.6 | 54.7 |
| 60% | 55.1 | 54.2 | 49.7 | 46.8 | 46.9 | 48.5 | 51.9 | 52.3 | 53.1 | 53.1 | 54.4 | 53.7 |
| 70% | 54.9 | 53.8 | 49.4 | 46.6 | 46.3 | 48.0 | 51.7 | 52.0 | 52.8 | 52.7 | 54.1 | 53.0 |
| 80% | 54.6 | 53.4 | 48.8 | 46.4 | 45.9 | 47.2 | 50.7 | 51.7 | 52.6 | 52.4 | 53.8 | 52.4 |
| 90% | 54.4 | 52.8 | 48.4 | 45.8 | 45.3 | 46.6 | 48.7 | 51.1 | 52.0 | 51.9 | 53.1 | 52.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.9 | 54.5 | 50.2 | 47.3 | 47.2 | 49.0 | 52.0 | 52.8 | 53.5 | 53.8 | 55.3 | 55.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.1 | 54.9 | 50.7 | 46.9 | 46.4 | 47.7 | 50.8 | 52.5 | 53.6 | 53.3 | 54.2 | 52.6 |
| Above Normal (16%) | 54.9 | 54.4 | 50.2 | 47.0 | 46.6 | 48.2 | 51.6 | 52.3 | 52.7 | 52.4 | 53.8 | 53.0 |
| Below Normal (13%) | 55.3 | 53.8 | 50.2 | 47.4 | 47.6 | 49.8 | 52.9 | 52.6 | 52.8 | 53.3 | 54.6 | 55.8 |
| Dry (24%) | 55.7 | 53.8 | 49.8 | 47.7 | 47.9 | 49.8 | 52.8 | 53.0 | 53.2 | 54.1 | 55.9 | 56.4 |
| Critical (15%) | 59.7 | 55.7 | 50.1 | 47.9 | 48.2 | 50.4 | 53.0 | 54.0 | 55.4 | 56.7 | 59.1 | 60.8 |

## Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.5 | 56.4 | 52.6 | 49.5 | 49.1 | 51.2 | 54.1 | 54.8 | 54.8 | 55.4 | 56.8 | 59.1 |
| 20% | 55.9 | 55.5 | 51.5 | 48.7 | 48.5 | 50.5 | 53.5 | 53.6 | 54.5 | 54.8 | 55.3 | 57.1 |
| 30% | 54.6 | 54.9 | 50.8 | 48.1 | 48.2 | 50.0 | 53.2 | 53.2 | 54.0 | 54.3 | 54.9 | 56.3 |
| 40% | 54.4 | 54.5 | 50.5 | 47.7 | 47.7 | 49.5 | 52.9 | 52.8 | 53.8 | 54.1 | 54.7 | 55.9 |
| 50% | 54.1 | 54.2 | 50.2 | 47.4 | 47.4 | 49.2 | 52.5 | 52.5 | 53.2 | 53.8 | 54.4 | 55.1 |
| 60% | 54.0 | 53.8 | 50.0 | 47.0 | 46.9 | 48.6 | 52.0 | 52.2 | 52.8 | 53.2 | 54.2 | 54.8 |
| 70% | 53.7 | 53.4 | 49.8 | 46.8 | 46.4 | 47.9 | 51.6 | 51.9 | 52.6 | 52.9 | 54.1 | 54.2 |
| 80% | 53.4 | 53.1 | 49.2 | 46.5 | 45.9 | 47.3 | 50.7 | 51.3 | 52.3 | 52.6 | 53.9 | 53.8 |
| 90% | 53.2 | 52.8 | 48.7 | 45.7 | 45.4 | 46.7 | 48.9 | 51.0 | 51.9 | 52.1 | 53.6 | 53.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.0 | 54.3 | 50.4 | 47.5 | 47.3 | 49.0 | 52.1 | 52.6 | 53.3 | 53.8 | 55.0 | 55.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.8 | 54.2 | 50.7 | 47.1 | 46.5 | 47.8 | 50.8 | 52.4 | 53.6 | 53.4 | 54.1 | 54.0 |
| Above Normal (16%) | 53.7 | 53.5 | 50.0 | 47.2 | 46.6 | 48.2 | 51.7 | 52.1 | 52.7 | 52.5 | 54.0 | 55.2 |
| Below Normal (13%) | 54.9 | 54.3 | 50.7 | 47.6 | 47.6 | 49.7 | 52.8 | 52.1 | 52.6 | 53.2 | 54.2 | 55.4 |
| Dry (24%) | 54.6 | 54.1 | 50.3 | 47.9 | 48.0 | 49.8 | 52.9 | 52.7 | 52.8 | 53.9 | 55.0 | 55.8 |
| Critical (15%) | 59.8 | 55.9 | 50.3 | 48.2 | 48.5 | 50.5 | 53.1 | 53.7 | 54.7 | 56.3 | 58.6 | 61.5 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.3** | **0.6** | **0.1** | **0.3** | **0.3** | **0.1** | -0.2 | -0.1 | -0.6 | -1.3 | -0.9 | **1.3** |
| 20% | -0.6 | -0.2 | **0.2** | **0.1** | **0.1** | **0.0** | **0.1** | -0.1 | -0.1 | -0.5 | -1.5 | -0.2 |
| 30% | -1.5 | -0.4 | **0.0** | **0.2** | **0.1** | -0.1 | **0.1** | -0.1 | -0.1 | -0.1 | -0.9 | -0.2 |
| 40% | -1.3 | -0.5 | **0.0** | **0.3** | 0.0 | 0.0 | **0.0** | -0.1 | **0.1** | **0.0** | -0.6 | **0.5** |
| 50% | -1.2 | -0.4 | **0.1** | **0.2** | **0.0** | -0.1 | **0.2** | -0.1 | -0.1 | **0.2** | -0.2 | **0.4** |
| 60% | -1.1 | -0.4 | **0.3** | **0.2** | **0.0** | **0.1** | **0.1** | -0.1 | -0.4 | **0.1** | -0.1 | **1.2** |
| 70% | -1.2 | -0.4 | **0.4** | **0.1** | **0.1** | -0.1 | 0.0 | -0.1 | -0.3 | **0.2** | 0.0 | **1.2** |
| 80% | -1.2 | -0.3 | **0.4** | **0.1** | **0.1** | **0.1** | **0.1** | -0.4 | -0.3 | **0.2** | **0.0** | **1.5** |
| 90% | -1.2 | **0.0** | **0.2** | -0.1 | **0.0** | **0.1** | **0.2** | -0.1 | -0.1 | **0.2** | **0.4** | **0.8** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.9 | -0.2 | **0.2** | **0.2** | **0.1** | **0.0** | **0.0** | -0.2 | -0.2 | -0.1 | -0.4 | **0.7** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -1.3 | -0.7 | 0.0 | **0.1** | **0.1** | **0.1** | 0.0 | -0.1 | **0.0** | **0.1** | -0.1 | **1.4** |
| Above Normal (16%) | -1.2 | -0.9 | -0.1 | **0.1** | **0.0** | **0.0** | **0.1** | -0.1 | 0.0 | **0.1** | **0.2** | **2.2** |
| Below Normal (13%) | -0.4 | **0.4** | **0.4** | **0.2** | 0.0 | -0.1 | -0.1 | -0.5 | -0.2 | -0.1 | -0.4 | -0.4 |
| Dry (24%) | -1.1 | **0.3** | **0.5** | **0.1** | **0.1** | 0.0 | **0.1** | -0.3 | -0.3 | -0.1 | -1.0 | -0.5 |
| Critical (15%) | **0.1** | **0.2** | **0.2** | **0.3** | **0.3** | **0.1** | **0.2** | -0.2 | -0.6 | -0.5 | -0.4 | **0.7** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 7-2. Sacramento River at Balls Ferry, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.2 | 55.8 | 52.5 | 49.2 | 48.8 | 51.1 | 54.3 | 54.8 | 55.4 | 56.7 | 57.7 | 57.8 |
| 20% | 56.6 | 55.7 | 51.3 | 48.6 | 48.4 | 50.4 | 53.4 | 53.7 | 54.6 | 55.2 | 56.8 | 57.2 |
| 30% | 56.2 | 55.3 | 50.8 | 47.9 | 48.1 | 50.1 | 53.1 | 53.3 | 54.1 | 54.5 | 55.8 | 56.5 |
| 40% | 55.7 | 55.0 | 50.4 | 47.4 | 47.7 | 49.5 | 52.9 | 52.9 | 53.7 | 54.1 | 55.3 | 55.5 |
| 50% | 55.3 | 54.6 | 50.2 | 47.2 | 47.3 | 49.2 | 52.3 | 52.6 | 53.3 | 53.6 | 54.6 | 54.7 |
| 60% | 55.1 | 54.2 | 49.7 | 46.8 | 46.9 | 48.5 | 51.9 | 52.3 | 53.1 | 53.1 | 54.4 | 53.7 |
| 70% | 54.9 | 53.8 | 49.4 | 46.6 | 46.3 | 48.0 | 51.7 | 52.0 | 52.8 | 52.7 | 54.1 | 53.0 |
| 80% | 54.6 | 53.4 | 48.8 | 46.4 | 45.9 | 47.2 | 50.7 | 51.7 | 52.6 | 52.4 | 53.8 | 52.4 |
| 90% | 54.4 | 52.8 | 48.4 | 45.8 | 45.3 | 46.6 | 48.7 | 51.1 | 52.0 | 51.9 | 53.1 | 52.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.9 | 54.5 | 50.2 | 47.3 | 47.2 | 49.0 | 52.0 | 52.8 | 53.5 | 53.8 | 55.3 | 55.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.1 | 54.9 | 50.7 | 46.9 | 46.4 | 47.7 | 50.8 | 52.5 | 53.6 | 53.3 | 54.2 | 52.6 |
| Above Normal (16%) | 54.9 | 54.4 | 50.2 | 47.0 | 46.6 | 48.2 | 51.6 | 52.3 | 52.7 | 52.4 | 53.8 | 53.0 |
| Below Normal (13%) | 55.3 | 53.8 | 50.2 | 47.4 | 47.6 | 49.8 | 52.9 | 52.6 | 52.8 | 53.3 | 54.6 | 55.8 |
| Dry (24%) | 55.7 | 53.8 | 49.8 | 47.7 | 47.9 | 49.8 | 52.8 | 53.0 | 53.2 | 54.1 | 55.9 | 56.4 |
| Critical (15%) | 59.7 | 55.7 | 50.1 | 47.9 | 48.2 | 50.4 | 53.0 | 54.0 | 55.4 | 56.7 | 59.1 | 60.8 |

## Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 59.1 | 56.2 | 52.4 | 49.5 | 49.0 | 50.8 | 54.1 | 54.8 | 55.4 | 56.2 | 58.0 | 58.9 |
| 20% | 56.7 | 55.6 | 51.2 | 48.6 | 48.5 | 50.5 | 53.6 | 53.6 | 54.6 | 55.2 | 56.5 | 57.1 |
| 30% | 56.1 | 55.0 | 50.8 | 48.0 | 48.2 | 50.2 | 53.2 | 53.0 | 53.9 | 54.7 | 55.6 | 56.5 |
| 40% | 55.6 | 54.7 | 50.2 | 47.6 | 47.7 | 49.5 | 52.9 | 52.5 | 53.4 | 54.1 | 54.9 | 55.9 |
| 50% | 55.4 | 54.2 | 50.1 | 47.3 | 47.3 | 49.2 | 52.3 | 52.2 | 52.9 | 53.8 | 54.7 | 55.5 |
| 60% | 55.2 | 53.8 | 49.9 | 46.9 | 46.8 | 48.6 | 52.0 | 51.9 | 52.7 | 53.4 | 54.4 | 54.9 |
| 70% | 54.9 | 53.6 | 49.3 | 46.6 | 46.4 | 48.0 | 51.2 | 51.6 | 52.5 | 53.0 | 54.1 | 54.6 |
| 80% | 54.5 | 53.1 | 48.8 | 46.4 | 45.8 | 47.2 | 50.5 | 51.1 | 51.8 | 52.4 | 53.7 | 54.0 |
| 90% | 54.1 | 52.7 | 48.5 | 45.5 | 45.4 | 46.6 | 48.8 | 50.8 | 51.1 | 52.2 | 53.2 | 53.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.0 | 54.4 | 50.2 | 47.4 | 47.3 | 49.0 | 52.0 | 52.5 | 53.2 | 54.0 | 55.3 | 56.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.8 | 54.1 | 50.5 | 46.9 | 46.4 | 47.8 | 50.9 | 52.4 | 53.3 | 53.5 | 54.2 | 54.3 |
| Above Normal (16%) | 54.9 | 53.8 | 50.0 | 47.0 | 46.6 | 48.3 | 51.7 | 52.0 | 52.1 | 52.6 | 53.8 | 55.3 |
| Below Normal (13%) | 55.7 | 54.4 | 50.5 | 47.4 | 47.5 | 49.7 | 52.7 | 52.0 | 52.4 | 53.4 | 54.2 | 55.3 |
| Dry (24%) | 55.8 | 54.1 | 49.9 | 47.8 | 48.0 | 49.9 | 52.8 | 52.4 | 52.8 | 54.1 | 56.0 | 56.0 |
| Critical (15%) | 60.3 | 56.0 | 50.2 | 48.1 | 48.3 | 50.2 | 52.9 | 53.7 | 55.2 | 56.9 | 59.1 | 61.1 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **1.9** | **0.4** | -0.1 | **0.3** | **0.1** | -0.2 | -0.2 | -0.1 | **0.0** | -0.4 | **0.3** | **1.1** |
| 20% | **0.1** | -0.1 | 0.0 | **0.0** | **0.1** | **0.1** | **0.1** | -0.1 | -0.1 | -0.1 | -0.4 | -0.2 |
| 30% | -0.1 | -0.2 | **0.0** | **0.1** | **0.1** | **0.1** | **0.1** | -0.3 | -0.2 | **0.2** | -0.2 | 0.0 |
| 40% | -0.1 | -0.3 | -0.2 | **0.1** | -0.1 | 0.0 | **0.1** | -0.4 | -0.3 | **0.0** | -0.4 | **0.5** |
| 50% | **0.1** | -0.4 | -0.1 | **0.1** | 0.0 | -0.1 | 0.0 | -0.4 | -0.3 | **0.3** | **0.0** | **0.8** |
| 60% | **0.1** | -0.4 | **0.2** | **0.1** | 0.0 | **0.0** | **0.0** | -0.4 | -0.4 | **0.2** | **0.0** | **1.3** |
| 70% | 0.0 | -0.2 | -0.1 | **0.0** | **0.0** | **0.0** | -0.5 | -0.4 | -0.4 | **0.2** | 0.0 | **1.6** |
| 80% | -0.1 | -0.3 | 0.0 | **0.0** | 0.0 | **0.1** | -0.1 | -0.6 | -0.8 | **0.0** | -0.2 | **1.6** |
| 90% | -0.2 | -0.1 | **0.0** | -0.3 | **0.0** | **0.0** | **0.1** | -0.2 | -0.9 | **0.3** | **0.0** | **1.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | -0.1 | **0.0** | **0.0** | **0.0** | **0.0** | 0.0 | -0.4 | -0.4 | **0.1** | -0.1 | **0.8** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.3 | -0.8 | -0.2 | **0.0** | **0.0** | **0.1** | **0.0** | -0.1 | -0.3 | **0.2** | -0.1 | **1.7** |
| Above Normal (16%) | 0.0 | -0.6 | -0.1 | **0.0** | 0.0 | **0.1** | **0.1** | -0.3 | -0.6 | **0.2** | 0.0 | **2.3** |
| Below Normal (13%) | **0.4** | **0.5** | **0.3** | **0.0** | -0.1 | -0.1 | -0.2 | -0.6 | -0.4 | **0.2** | -0.5 | -0.4 |
| Dry (24%) | **0.1** | **0.4** | **0.1** | **0.0** | **0.1** | **0.1** | 0.0 | -0.7 | -0.4 | **0.1** | **0.0** | -0.3 |
| Critical (15%) | **0.6** | **0.3** | **0.1** | **0.2** | **0.1** | -0.2 | -0.1 | -0.2 | -0.2 | **0.1** | **0.1** | **0.3** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 7-3. Sacramento River at Balls Ferry, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.2 | 55.8 | 52.5 | 49.2 | 48.8 | 51.1 | 54.3 | 54.8 | 55.4 | 56.7 | 57.7 | 57.8 |
| 20% | 56.6 | 55.7 | 51.3 | 48.6 | 48.4 | 50.4 | 53.4 | 53.7 | 54.6 | 55.2 | 56.8 | 57.2 |
| 30% | 56.2 | 55.3 | 50.8 | 47.9 | 48.1 | 50.1 | 53.1 | 53.3 | 54.1 | 54.5 | 55.8 | 56.5 |
| 40% | 55.7 | 55.0 | 50.4 | 47.4 | 47.7 | 49.5 | 52.9 | 52.9 | 53.7 | 54.1 | 55.3 | 55.5 |
| 50% | 55.3 | 54.6 | 50.2 | 47.2 | 47.3 | 49.2 | 52.3 | 52.6 | 53.3 | 53.6 | 54.6 | 54.7 |
| 60% | 55.1 | 54.2 | 49.7 | 46.8 | 46.9 | 48.5 | 51.9 | 52.3 | 53.1 | 53.1 | 54.4 | 53.7 |
| 70% | 54.9 | 53.8 | 49.4 | 46.6 | 46.3 | 48.0 | 51.7 | 52.0 | 52.8 | 52.7 | 54.1 | 53.0 |
| 80% | 54.6 | 53.4 | 48.8 | 46.4 | 45.9 | 47.2 | 50.7 | 51.7 | 52.6 | 52.4 | 53.8 | 52.4 |
| 90% | 54.4 | 52.8 | 48.4 | 45.8 | 45.3 | 46.6 | 48.7 | 51.1 | 52.0 | 51.9 | 53.1 | 52.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.9 | 54.5 | 50.2 | 47.3 | 47.2 | 49.0 | 52.0 | 52.8 | 53.5 | 53.8 | 55.3 | 55.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.1 | 54.9 | 50.7 | 46.9 | 46.4 | 47.7 | 50.8 | 52.5 | 53.6 | 53.3 | 54.2 | 52.6 |
| Above Normal (16%) | 54.9 | 54.4 | 50.2 | 47.0 | 46.6 | 48.2 | 51.6 | 52.3 | 52.7 | 52.4 | 53.8 | 53.0 |
| Below Normal (13%) | 55.3 | 53.8 | 50.2 | 47.4 | 47.6 | 49.8 | 52.9 | 52.6 | 52.8 | 53.3 | 54.6 | 55.8 |
| Dry (24%) | 55.7 | 53.8 | 49.8 | 47.7 | 47.9 | 49.8 | 52.8 | 53.0 | 53.2 | 54.1 | 55.9 | 56.4 |
| Critical (15%) | 59.7 | 55.7 | 50.1 | 47.9 | 48.2 | 50.4 | 53.0 | 54.0 | 55.4 | 56.7 | 59.1 | 60.8 |

## Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.2 | 56.3 | 52.3 | 49.4 | 49.0 | 50.8 | 54.1 | 54.8 | 55.4 | 56.4 | 58.0 | 58.8 |
| 20% | 56.6 | 55.5 | 51.4 | 48.7 | 48.5 | 50.6 | 53.4 | 53.6 | 54.6 | 55.3 | 56.4 | 57.3 |
| 30% | 56.0 | 55.1 | 50.9 | 48.0 | 48.2 | 50.1 | 53.1 | 53.0 | 53.9 | 54.7 | 55.8 | 56.5 |
| 40% | 55.6 | 54.7 | 50.3 | 47.6 | 47.7 | 49.5 | 52.9 | 52.5 | 53.5 | 54.2 | 55.0 | 55.9 |
| 50% | 55.3 | 54.3 | 50.1 | 47.2 | 47.3 | 49.2 | 52.3 | 52.2 | 53.0 | 53.8 | 54.7 | 55.5 |
| 60% | 55.1 | 53.8 | 49.8 | 46.9 | 46.8 | 48.6 | 51.9 | 51.9 | 52.7 | 53.3 | 54.4 | 54.9 |
| 70% | 54.7 | 53.6 | 49.3 | 46.7 | 46.3 | 48.0 | 51.2 | 51.7 | 52.5 | 52.9 | 54.1 | 54.5 |
| 80% | 54.4 | 53.1 | 48.9 | 46.4 | 45.8 | 47.3 | 50.3 | 51.3 | 51.9 | 52.5 | 53.5 | 53.9 |
| 90% | 54.2 | 52.6 | 48.5 | 45.5 | 45.4 | 46.6 | 48.8 | 50.9 | 51.2 | 52.2 | 53.1 | 53.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.0 | 54.4 | 50.3 | 47.4 | 47.2 | 49.0 | 52.0 | 52.5 | 53.2 | 54.0 | 55.3 | 56.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.7 | 54.1 | 50.6 | 46.9 | 46.4 | 47.7 | 50.7 | 52.5 | 53.4 | 53.4 | 54.1 | 54.4 |
| Above Normal (16%) | 54.9 | 53.8 | 50.1 | 47.0 | 46.5 | 48.3 | 51.7 | 52.0 | 52.1 | 52.6 | 53.8 | 55.2 |
| Below Normal (13%) | 55.6 | 54.4 | 50.5 | 47.4 | 47.5 | 49.7 | 52.6 | 52.0 | 52.5 | 53.4 | 54.2 | 55.3 |
| Dry (24%) | 55.6 | 54.1 | 50.0 | 47.8 | 48.0 | 50.0 | 52.8 | 52.4 | 52.8 | 54.2 | 56.0 | 56.1 |
| Critical (15%) | 60.6 | 56.1 | 50.1 | 48.0 | 48.3 | 50.2 | 52.9 | 53.8 | 55.3 | 56.9 | 59.3 | 61.5 |

## Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **3.0** | **0.5** | -0.1 | **0.2** | **0.2** | -0.2 | -0.2 | -0.1 | **0.0** | -0.3 | **0.3** | **1.0** |
| 20% | **0.1** | -0.1 | **0.1** | **0.0** | **0.0** | **0.1** | 0.0 | -0.2 | 0.0 | **0.0** | -0.4 | **0.0** |
| 30% | -0.2 | -0.2 | **0.1** | **0.1** | **0.1** | **0.0** | **0.0** | -0.4 | -0.2 | **0.2** | 0.0 | 0.0 |
| 40% | -0.1 | -0.3 | -0.1 | **0.1** | -0.1 | **0.0** | **0.0** | -0.4 | -0.2 | **0.1** | -0.3 | **0.5** |
| 50% | 0.0 | -0.4 | -0.1 | **0.0** | 0.0 | 0.0 | 0.0 | -0.4 | -0.3 | **0.2** | **0.0** | **0.8** |
| 60% | **0.0** | -0.3 | **0.1** | **0.0** | -0.1 | **0.1** | 0.0 | -0.4 | -0.4 | **0.1** | 0.0 | **1.3** |
| 70% | -0.2 | -0.2 | -0.1 | **0.0** | **0.0** | **0.0** | -0.5 | -0.3 | -0.3 | **0.2** | -0.1 | **1.5** |
| 80% | -0.2 | -0.3 | **0.1** | **0.0** | 0.0 | **0.1** | -0.3 | -0.5 | -0.7 | **0.1** | -0.3 | **1.5** |
| 90% | -0.2 | -0.2 | **0.1** | -0.3 | **0.1** | 0.0 | **0.1** | -0.2 | -0.8 | **0.2** | 0.0 | **1.0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.0** | -0.2 | **0.0** | **0.0** | **0.0** | **0.0** | -0.1 | -0.3 | -0.3 | **0.1** | -0.1 | **0.9** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.4 | -0.8 | -0.1 | **0.0** | **0.0** | **0.1** | -0.1 | **0.0** | -0.2 | **0.1** | -0.2 | **1.8** |
| Above Normal (16%) | 0.0 | -0.6 | -0.1 | 0.0 | -0.1 | **0.1** | **0.1** | -0.3 | -0.6 | **0.2** | 0.0 | **2.2** |
| Below Normal (13%) | **0.4** | **0.5** | **0.3** | **0.0** | -0.1 | -0.1 | -0.2 | -0.6 | -0.3 | **0.2** | -0.4 | -0.5 |
| Dry (24%) | -0.1 | **0.3** | **0.2** | **0.0** | **0.1** | **0.2** | 0.0 | -0.7 | -0.4 | **0.1** | **0.0** | -0.3 |
| Critical (15%) | **0.8** | **0.3** | **0.1** | **0.1** | **0.1** | -0.2 | -0.1 | -0.2 | -0.1 | **0.2** | **0.2** | **0.7** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 7-4. Sacramento River at Balls Ferry, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.2 | 55.8 | 52.5 | 49.2 | 48.8 | 51.1 | 54.3 | 54.8 | 55.4 | 56.7 | 57.7 | 57.8 |
| 20% | 56.6 | 55.7 | 51.3 | 48.6 | 48.4 | 50.4 | 53.4 | 53.7 | 54.6 | 55.2 | 56.8 | 57.2 |
| 30% | 56.2 | 55.3 | 50.8 | 47.9 | 48.1 | 50.1 | 53.1 | 53.3 | 54.1 | 54.5 | 55.8 | 56.5 |
| 40% | 55.7 | 55.0 | 50.4 | 47.4 | 47.7 | 49.5 | 52.9 | 52.9 | 53.7 | 54.1 | 55.3 | 55.5 |
| 50% | 55.3 | 54.6 | 50.2 | 47.2 | 47.3 | 49.2 | 52.3 | 52.6 | 53.3 | 53.6 | 54.6 | 54.7 |
| 60% | 55.1 | 54.2 | 49.7 | 46.8 | 46.9 | 48.5 | 51.9 | 52.3 | 53.1 | 53.1 | 54.4 | 53.7 |
| 70% | 54.9 | 53.8 | 49.4 | 46.6 | 46.3 | 48.0 | 51.7 | 52.0 | 52.8 | 52.7 | 54.1 | 53.0 |
| 80% | 54.6 | 53.4 | 48.8 | 46.4 | 45.9 | 47.2 | 50.7 | 51.7 | 52.6 | 52.4 | 53.8 | 52.4 |
| 90% | 54.4 | 52.8 | 48.4 | 45.8 | 45.3 | 46.6 | 48.7 | 51.1 | 52.0 | 51.9 | 53.1 | 52.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.9 | 54.5 | 50.2 | 47.3 | 47.2 | 49.0 | 52.0 | 52.8 | 53.5 | 53.8 | 55.3 | 55.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.1 | 54.9 | 50.7 | 46.9 | 46.4 | 47.7 | 50.8 | 52.5 | 53.6 | 53.3 | 54.2 | 52.6 |
| Above Normal (16%) | 54.9 | 54.4 | 50.2 | 47.0 | 46.6 | 48.2 | 51.6 | 52.3 | 52.7 | 52.4 | 53.8 | 53.0 |
| Below Normal (13%) | 55.3 | 53.8 | 50.2 | 47.4 | 47.6 | 49.8 | 52.9 | 52.6 | 52.8 | 53.3 | 54.6 | 55.8 |
| Dry (24%) | 55.7 | 53.8 | 49.8 | 47.7 | 47.9 | 49.8 | 52.8 | 53.0 | 53.2 | 54.1 | 55.9 | 56.4 |
| Critical (15%) | 59.7 | 55.7 | 50.1 | 47.9 | 48.2 | 50.4 | 53.0 | 54.0 | 55.4 | 56.7 | 59.1 | 60.8 |

## Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.5 | 56.0 | 52.5 | 49.5 | 49.1 | 51.2 | 54.0 | 54.1 | 55.4 | 55.6 | 56.6 | 58.2 |
| 20% | 55.5 | 55.4 | 51.7 | 48.5 | 48.5 | 50.4 | 53.5 | 53.6 | 54.6 | 54.8 | 55.5 | 57.0 |
| 30% | 54.7 | 54.8 | 50.9 | 48.1 | 48.1 | 49.9 | 53.1 | 53.3 | 54.3 | 54.4 | 54.9 | 56.4 |
| 40% | 54.3 | 54.5 | 50.5 | 47.8 | 47.7 | 49.4 | 52.4 | 53.1 | 53.8 | 54.1 | 54.7 | 56.0 |
| 50% | 54.1 | 54.1 | 50.2 | 47.4 | 47.3 | 48.7 | 51.7 | 52.8 | 53.3 | 53.7 | 54.6 | 55.3 |
| 60% | 53.9 | 53.8 | 50.0 | 47.0 | 46.7 | 48.1 | 51.3 | 52.4 | 52.9 | 53.3 | 54.3 | 54.8 |
| 70% | 53.7 | 53.5 | 49.7 | 46.7 | 46.5 | 47.7 | 50.8 | 52.1 | 52.6 | 53.0 | 54.2 | 54.3 |
| 80% | 53.6 | 53.1 | 49.3 | 46.5 | 45.9 | 47.2 | 50.0 | 52.0 | 52.4 | 52.6 | 53.9 | 53.9 |
| 90% | 53.3 | 52.6 | 48.7 | 45.8 | 45.4 | 46.7 | 49.2 | 51.3 | 51.9 | 52.1 | 53.5 | 53.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.9 | 54.3 | 50.4 | 47.5 | 47.3 | 48.8 | 51.7 | 52.8 | 53.5 | 53.8 | 54.9 | 55.8 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.8 | 54.2 | 50.7 | 47.0 | 46.4 | 47.6 | 50.2 | 52.4 | 53.7 | 53.4 | 54.2 | 54.1 |
| Above Normal (16%) | 53.7 | 53.5 | 50.1 | 47.1 | 46.6 | 47.9 | 51.1 | 52.5 | 52.9 | 52.5 | 54.0 | 55.0 |
| Below Normal (13%) | 54.4 | 54.1 | 50.5 | 47.6 | 47.6 | 49.5 | 52.6 | 52.5 | 52.7 | 53.2 | 54.4 | 55.7 |
| Dry (24%) | 54.6 | 54.0 | 50.4 | 47.9 | 47.9 | 49.6 | 52.6 | 53.0 | 52.9 | 54.0 | 55.0 | 56.0 |
| Critical (15%) | 59.2 | 55.7 | 50.3 | 48.4 | 48.6 | 50.4 | 53.3 | 54.1 | 55.1 | 56.3 | 57.9 | 60.2 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.3** | **0.2** | **0.1** | **0.2** | **0.3** | **0.1** | -0.3 | -0.7 | 0.0 | -1.1 | -1.1 | **0.4** |
| 20% | -1.1 | -0.3 | **0.4** | -0.1 | **0.1** | **0.0** | **0.0** | -0.1 | -0.1 | -0.5 | -1.4 | -0.3 |
| 30% | -1.5 | -0.4 | **0.1** | **0.2** | **0.0** | -0.2 | 0.0 | -0.1 | **0.2** | 0.0 | -0.9 | -0.2 |
| 40% | -1.4 | -0.5 | **0.1** | **0.4** | 0.0 | -0.1 | -0.5 | **0.1** | **0.1** | **0.0** | -0.6 | **0.6** |
| 50% | -1.2 | -0.5 | **0.0** | **0.2** | 0.0 | -0.6 | -0.6 | **0.2** | **0.0** | **0.1** | -0.1 | **0.6** |
| 60% | -1.2 | -0.4 | **0.3** | **0.2** | -0.1 | -0.4 | -0.7 | **0.1** | -0.2 | **0.2** | -0.1 | **1.1** |
| 70% | -1.2 | -0.3 | **0.3** | **0.1** | **0.1** | -0.3 | -0.9 | **0.2** | -0.2 | **0.3** | **0.1** | **1.3** |
| 80% | -1.0 | -0.3 | **0.4** | **0.1** | 0.0 | **0.0** | -0.7 | **0.2** | -0.2 | **0.1** | **0.0** | **1.5** |
| 90% | -1.1 | -0.2 | **0.2** | 0.0 | **0.1** | **0.1** | **0.5** | **0.3** | -0.1 | **0.2** | **0.4** | **1.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -1.0 | -0.3 | **0.2** | **0.2** | **0.1** | -0.1 | -0.3 | 0.0 | -0.1 | 0.0 | -0.4 | **0.6** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -1.2 | -0.7 | 0.0 | **0.1** | **0.0** | -0.1 | -0.6 | -0.1 | **0.1** | **0.1** | -0.1 | **1.5** |
| Above Normal (16%) | -1.2 | -0.9 | -0.1 | **0.1** | **0.0** | -0.3 | -0.5 | **0.3** | **0.2** | **0.1** | **0.2** | **2.0** |
| Below Normal (13%) | -0.9 | **0.3** | **0.3** | **0.2** | 0.0 | -0.3 | -0.3 | -0.1 | -0.1 | 0.0 | -0.3 | 0.0 |
| Dry (24%) | -1.1 | **0.2** | **0.6** | **0.1** | **0.0** | -0.2 | -0.3 | -0.1 | -0.3 | 0.0 | -1.0 | -0.3 |
| Critical (15%) | -0.5 | 0.0 | **0.3** | **0.5** | **0.4** | **0.1** | **0.3** | **0.2** | -0.3 | -0.4 | -1.2 | -0.6 |

a Based on the 82-year simulation period.

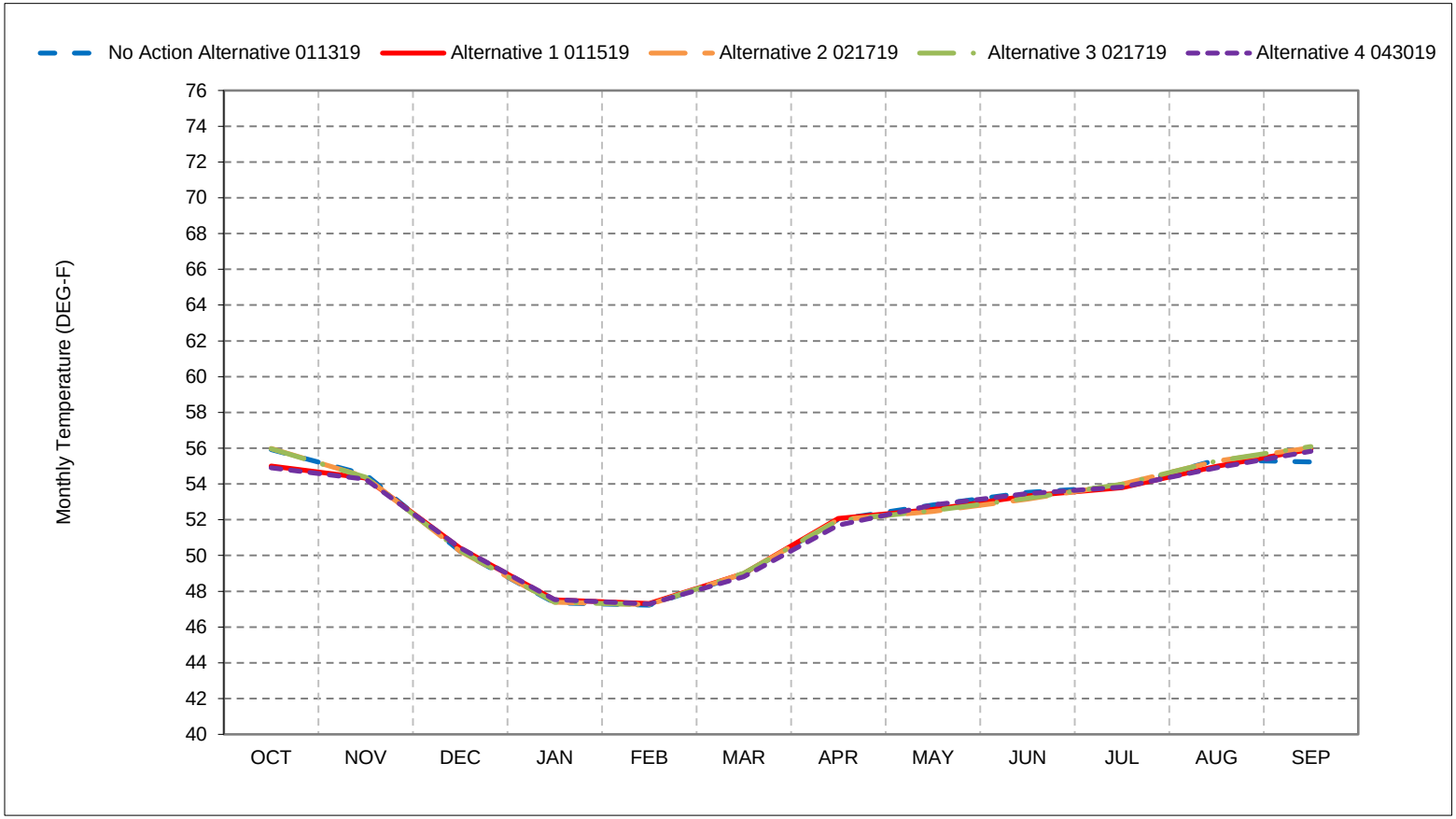
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

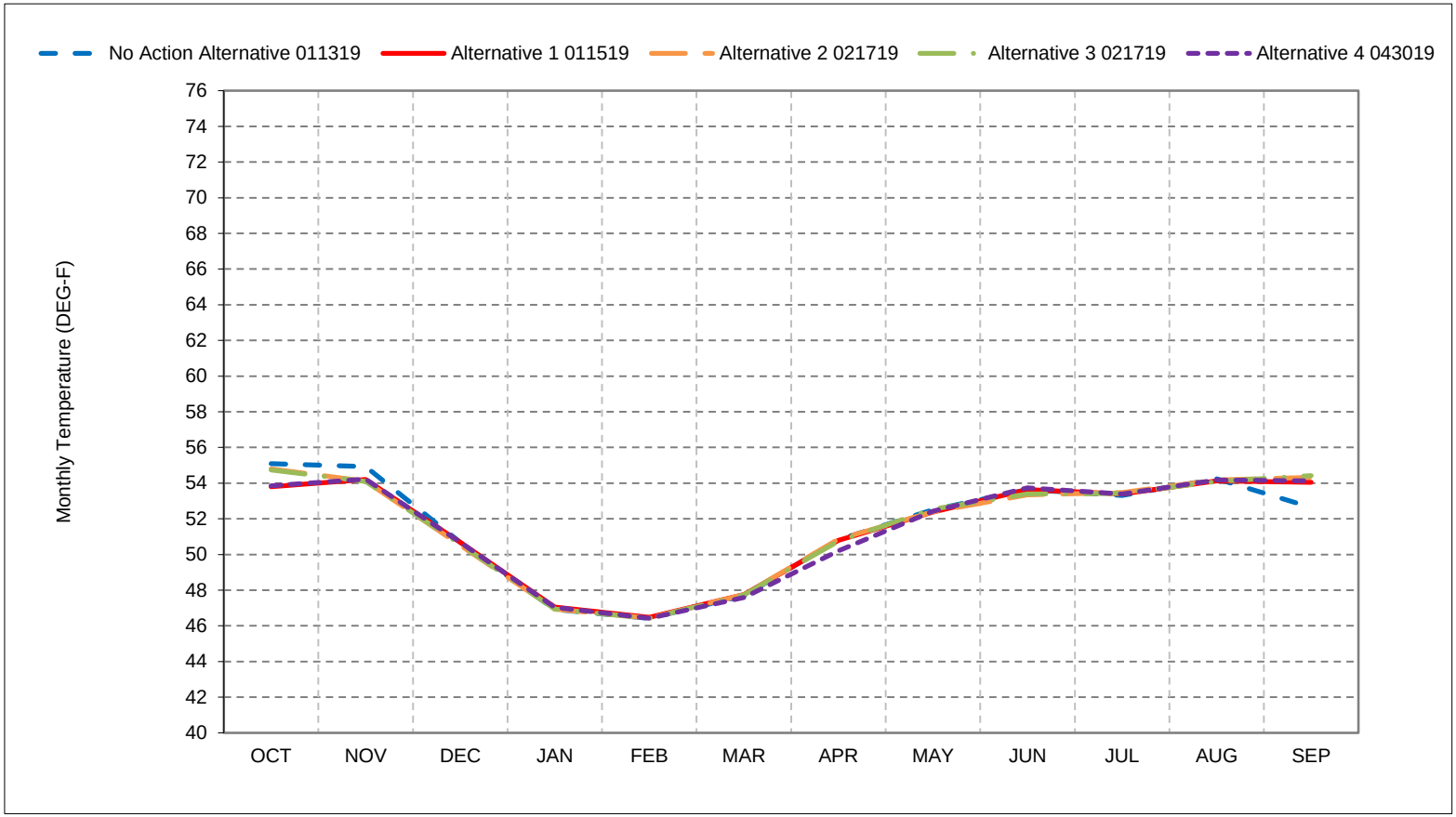
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-1. Sacramento River at Balls Ferry, Long-Term Average Temperature



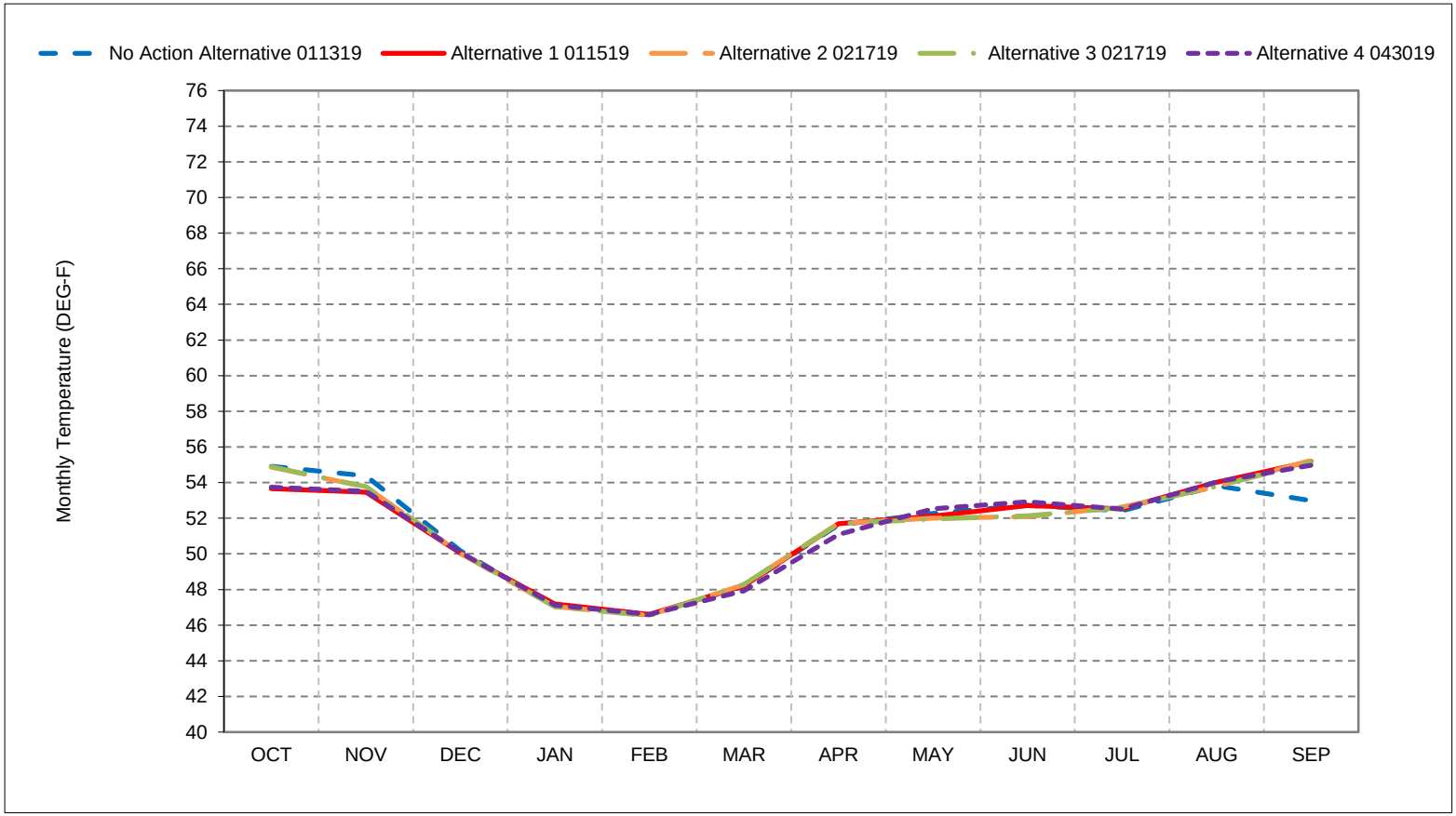

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-2. Sacramento River at Balls Ferry, Wet Year Average Temperature



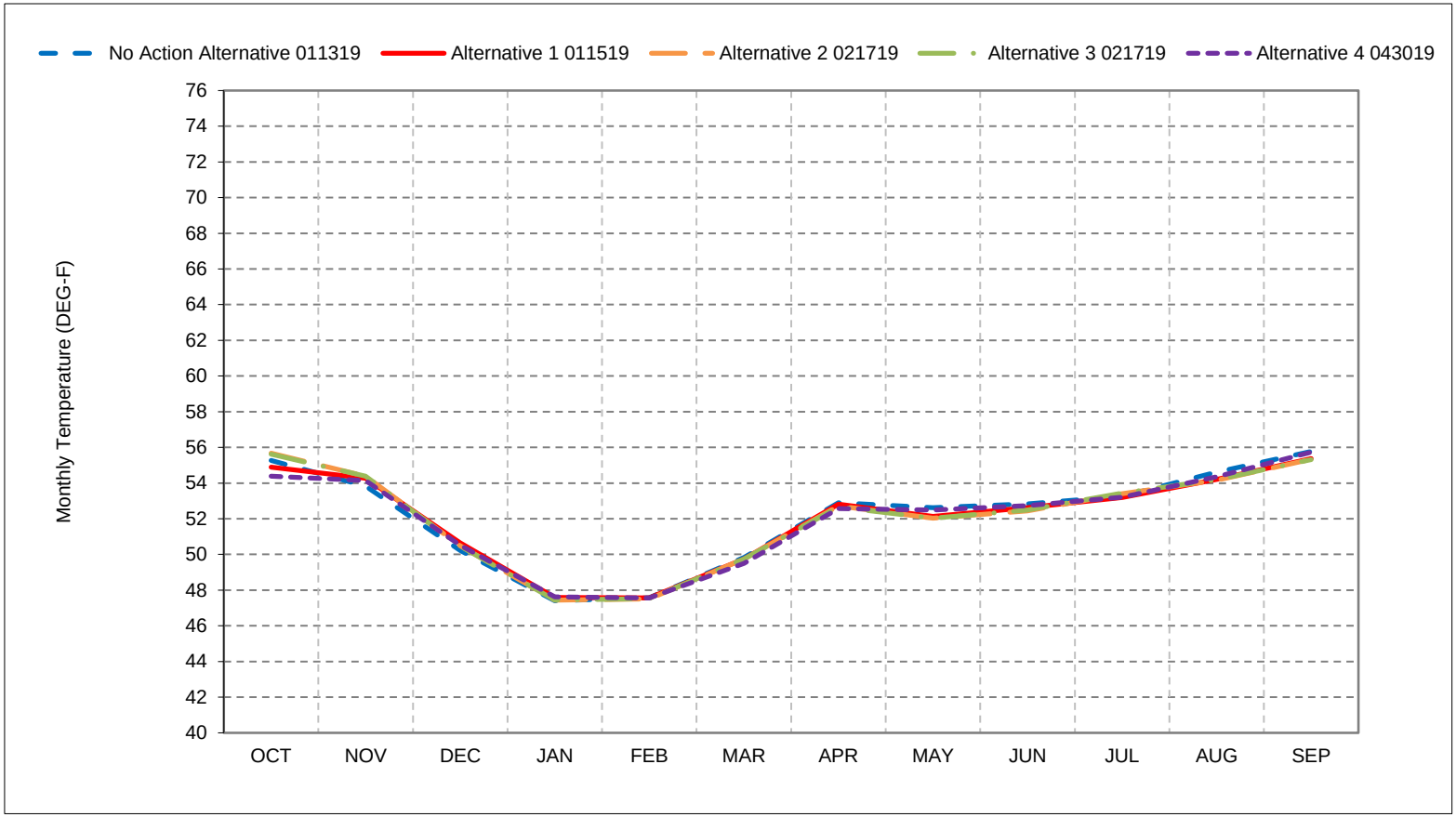

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-3. Sacramento River at Balls Ferry, Above Normal Year Average Temperature



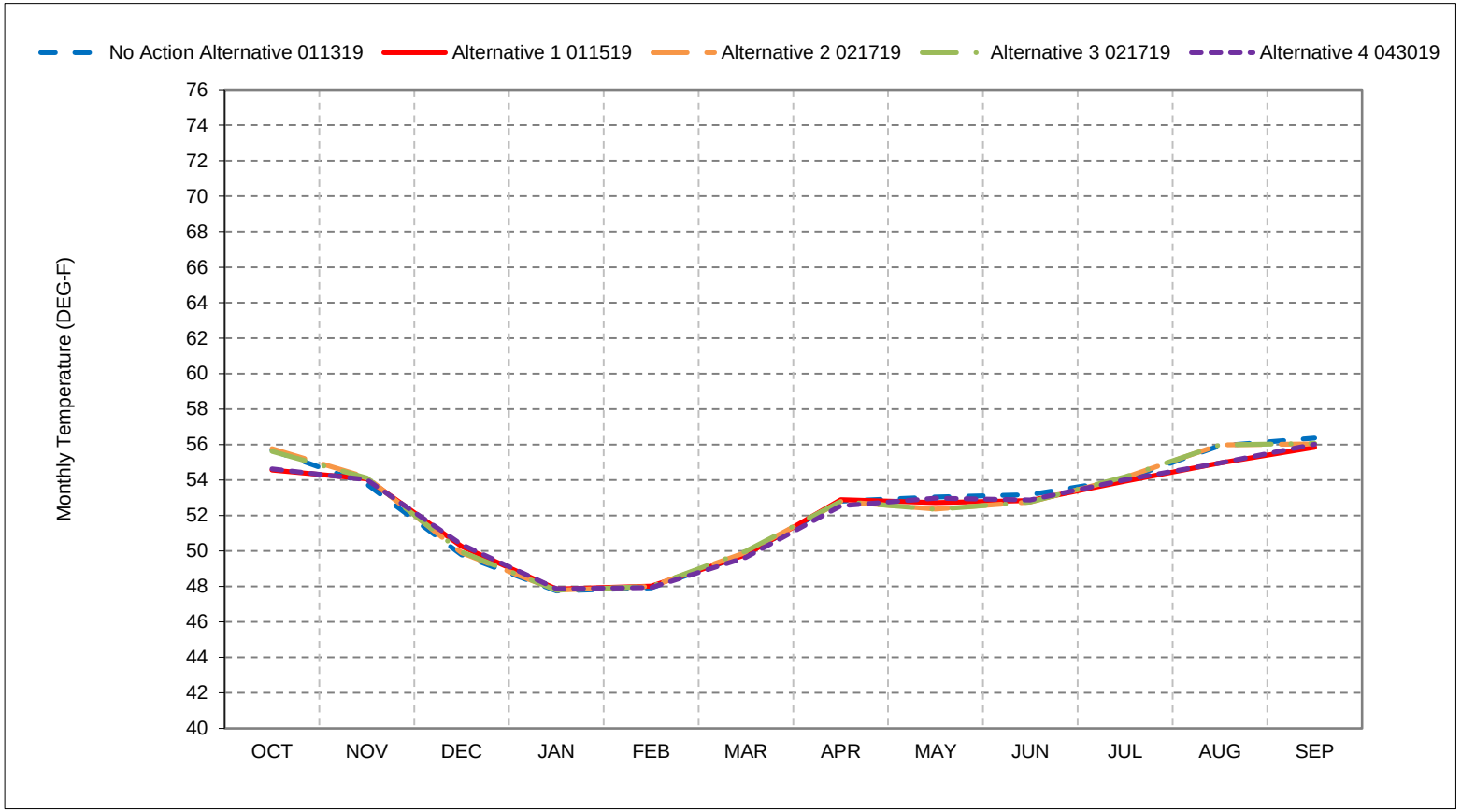

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-4. Sacramento River at Balls Ferry, Below Normal Year Average Temperature



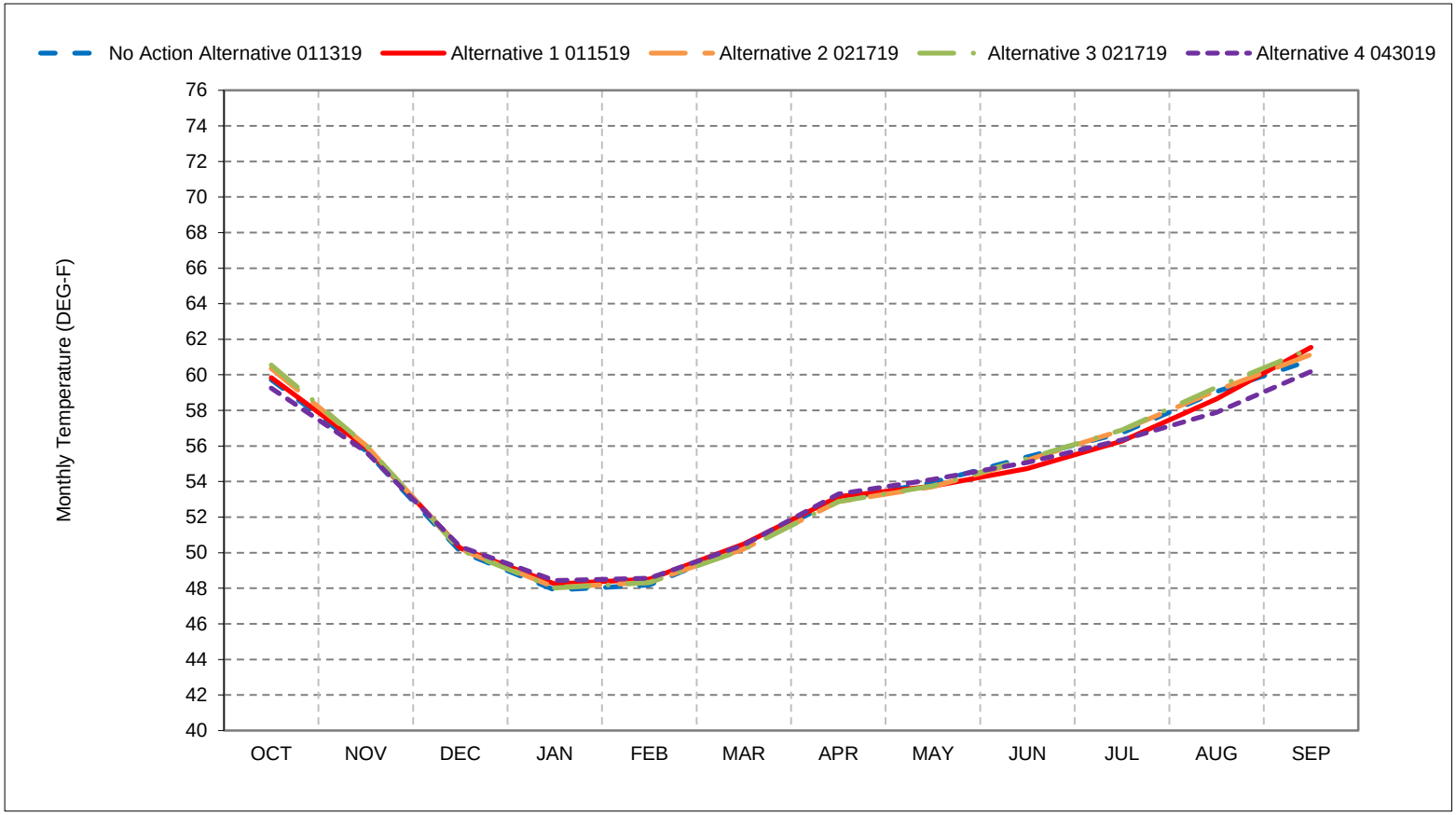

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-5. Sacramento River at Balls Ferry, Dry Year Average Temperature



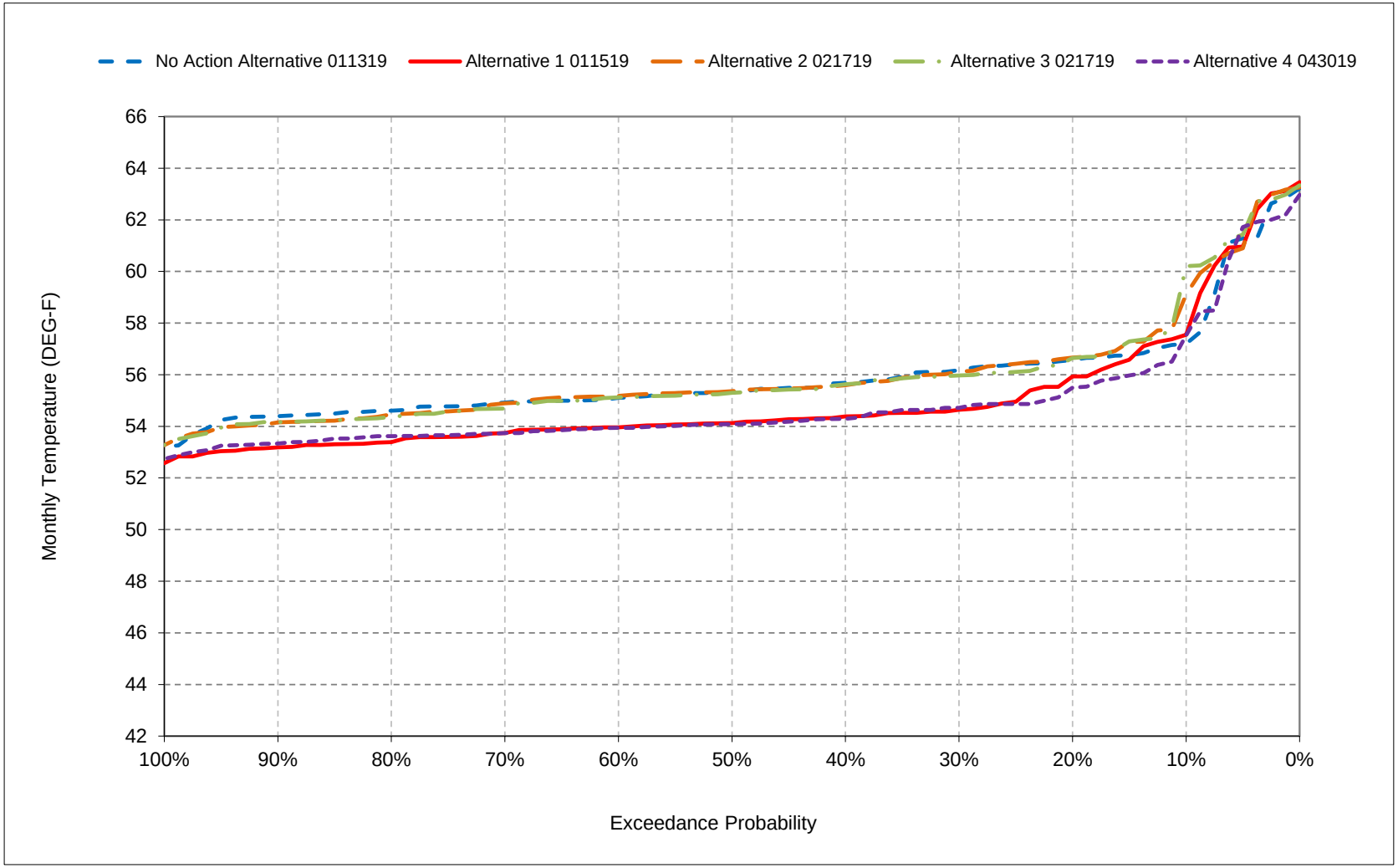

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-6. Sacramento River at Balls Ferry, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

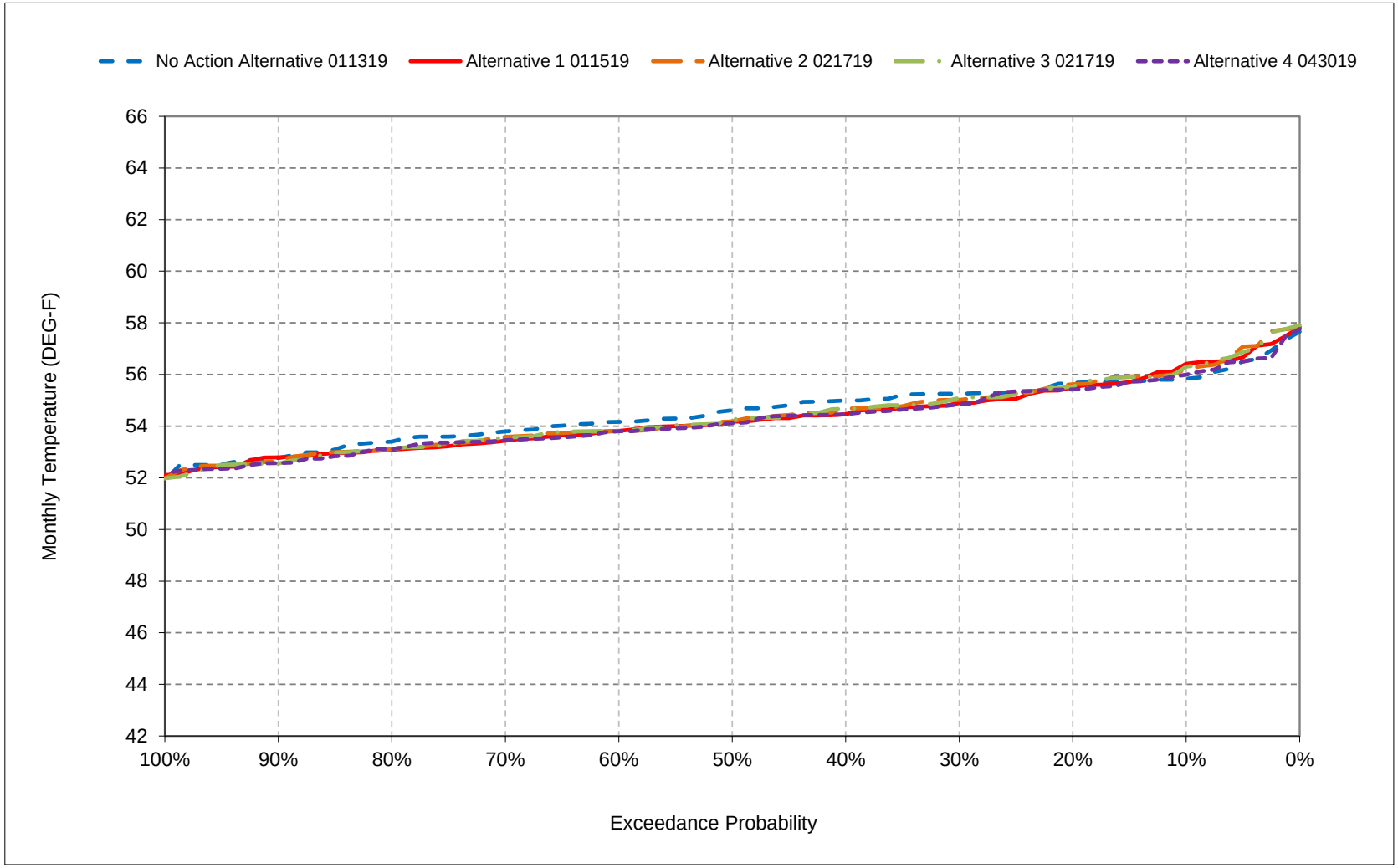
**Figure 7-7. Sacramento River at Balls Ferry, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

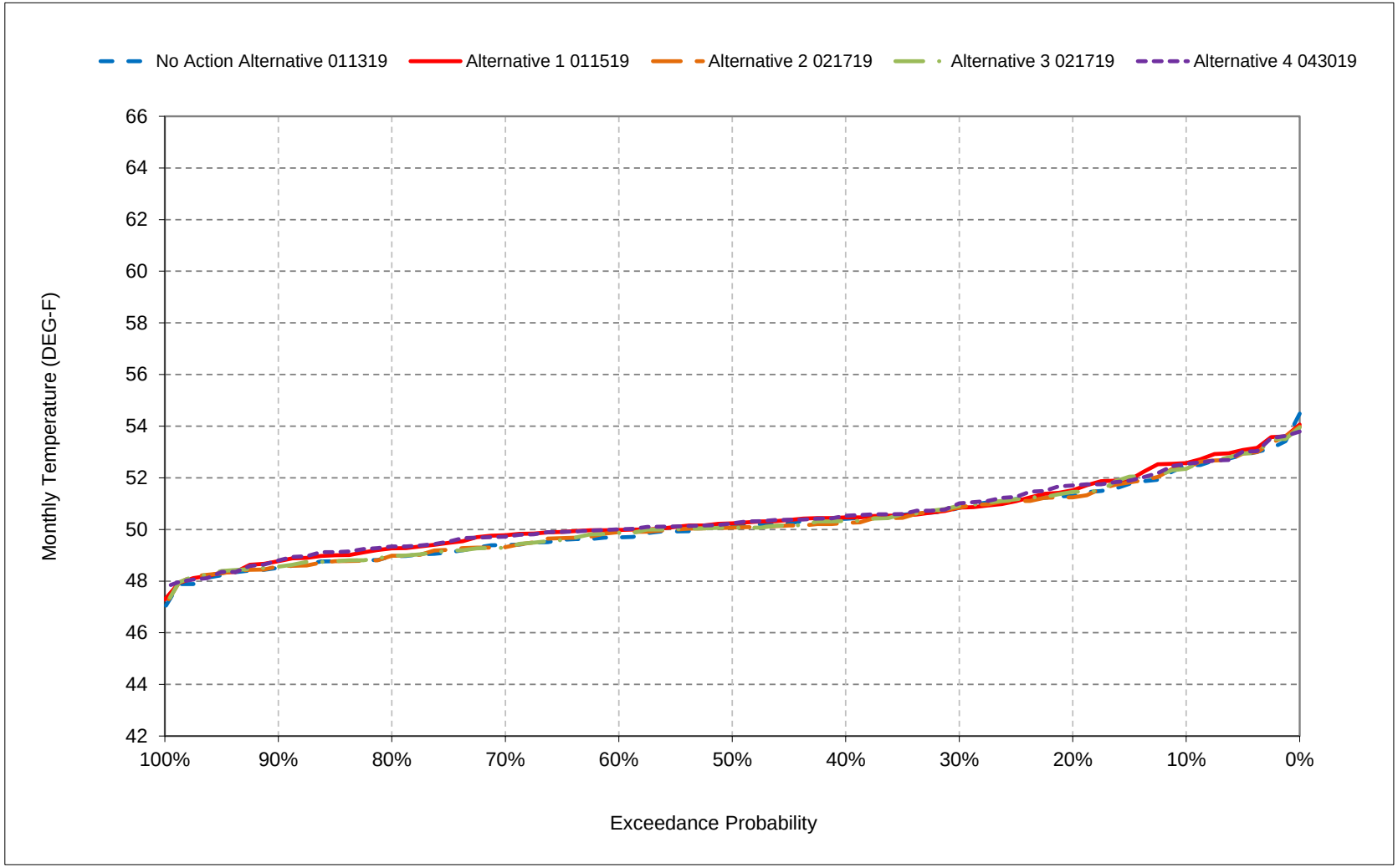
**Figure 7-8. Sacramento River at Balls Ferry, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

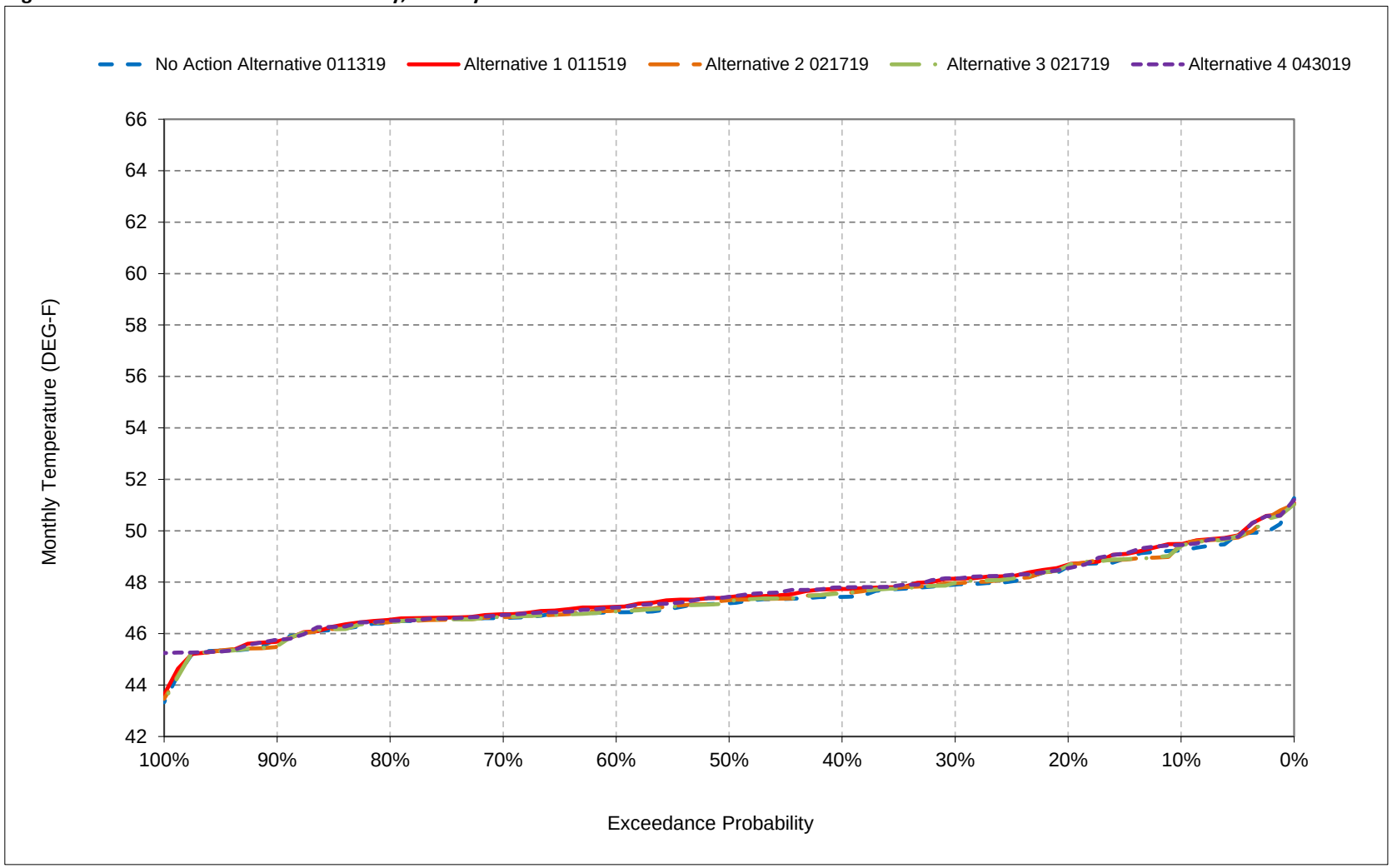
**Figure 7-9. Sacramento River at Balls Ferry, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

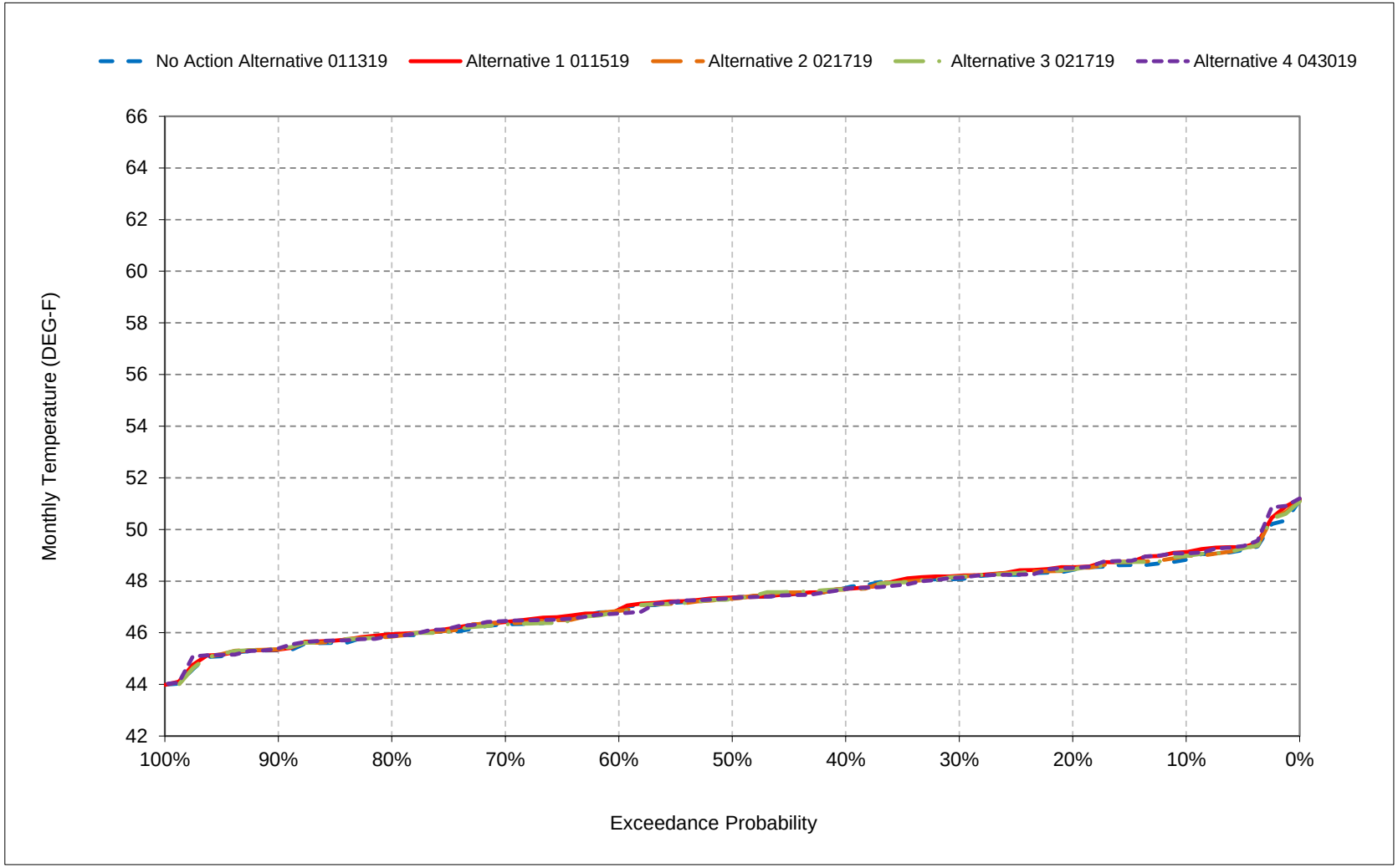
**Figure 7-10. Sacramento River at Balls Ferry, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

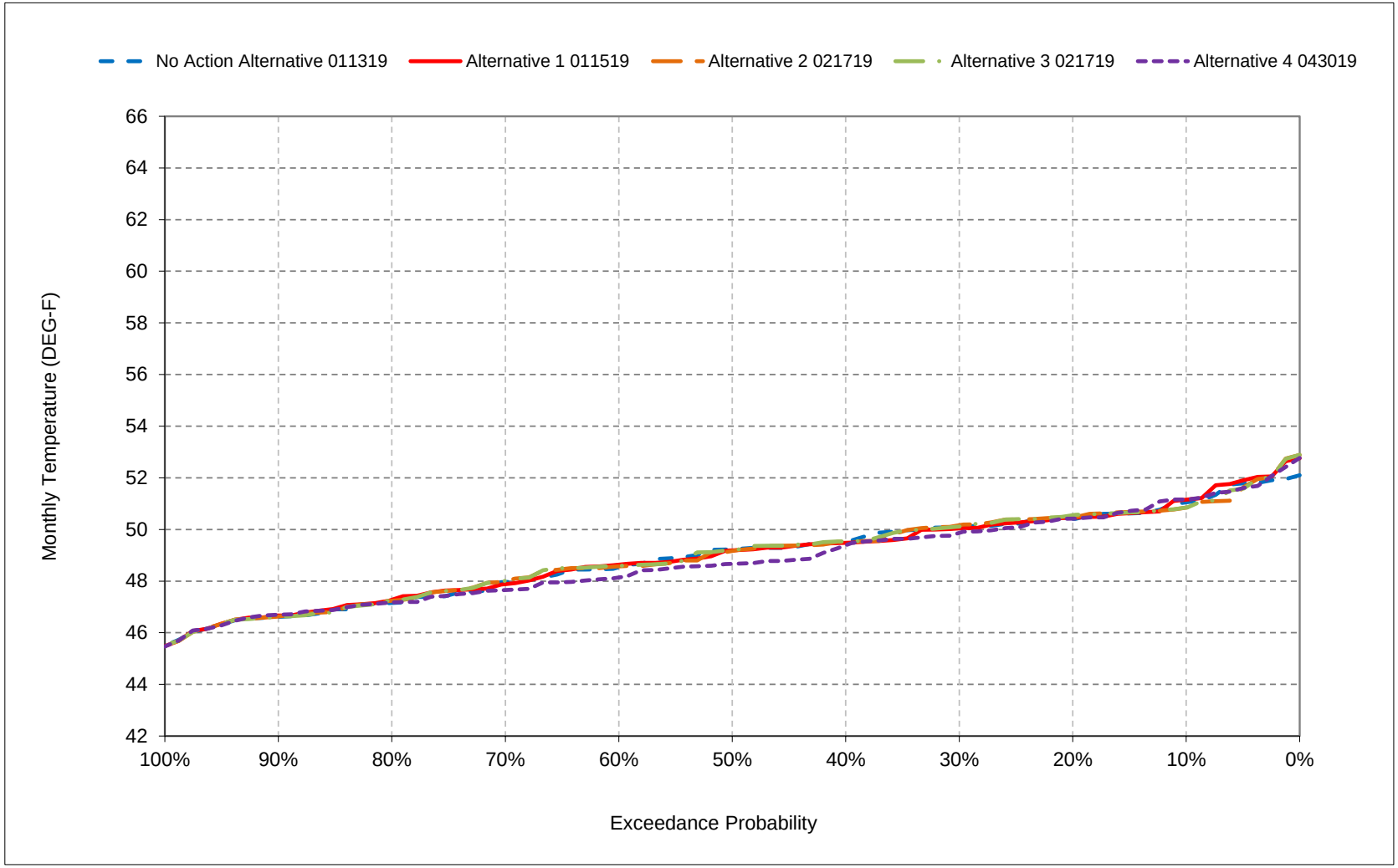
**Figure 7-11. Sacramento River at Balls Ferry, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

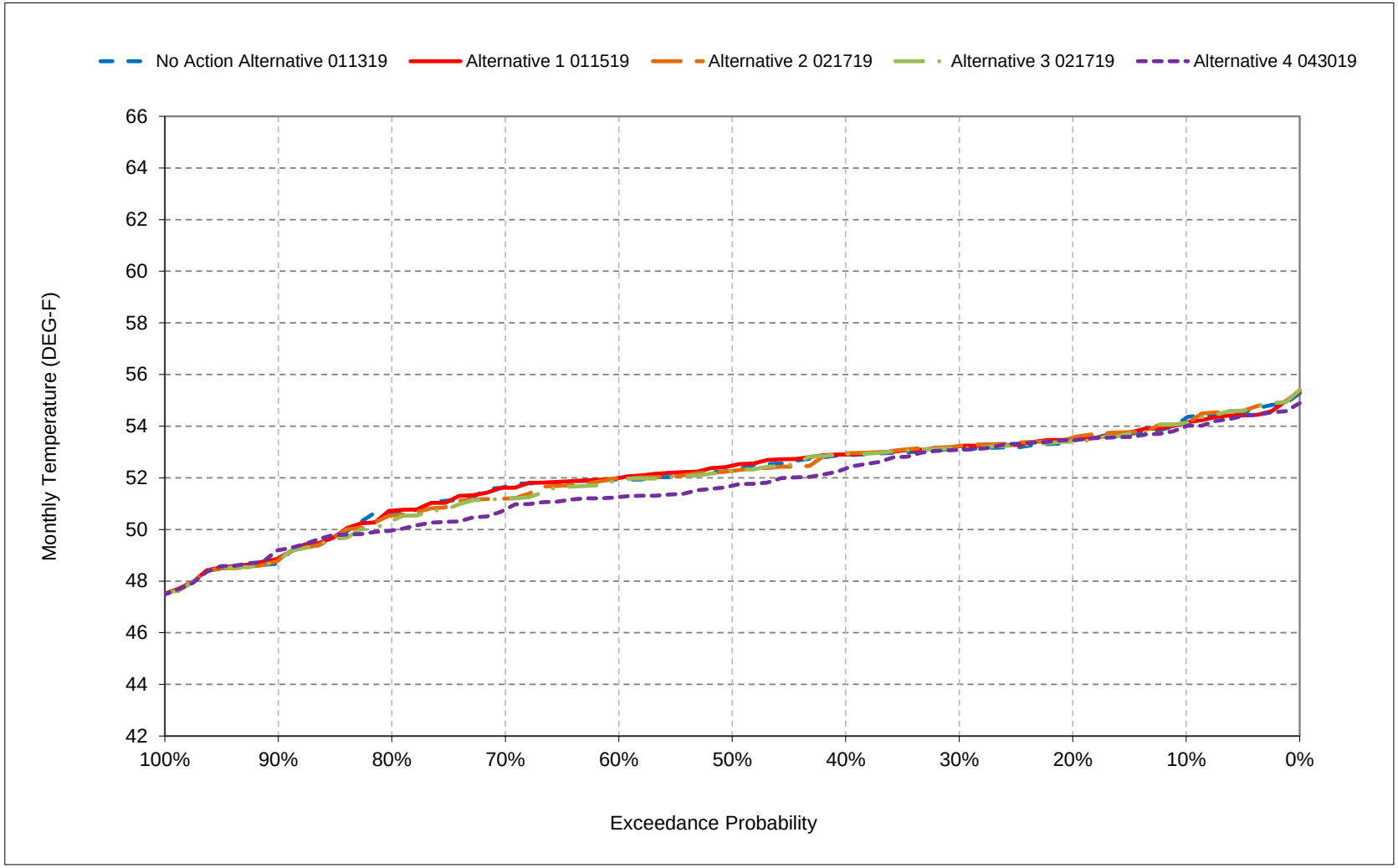
**Figure 7-12. Sacramento River at Balls Ferry, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

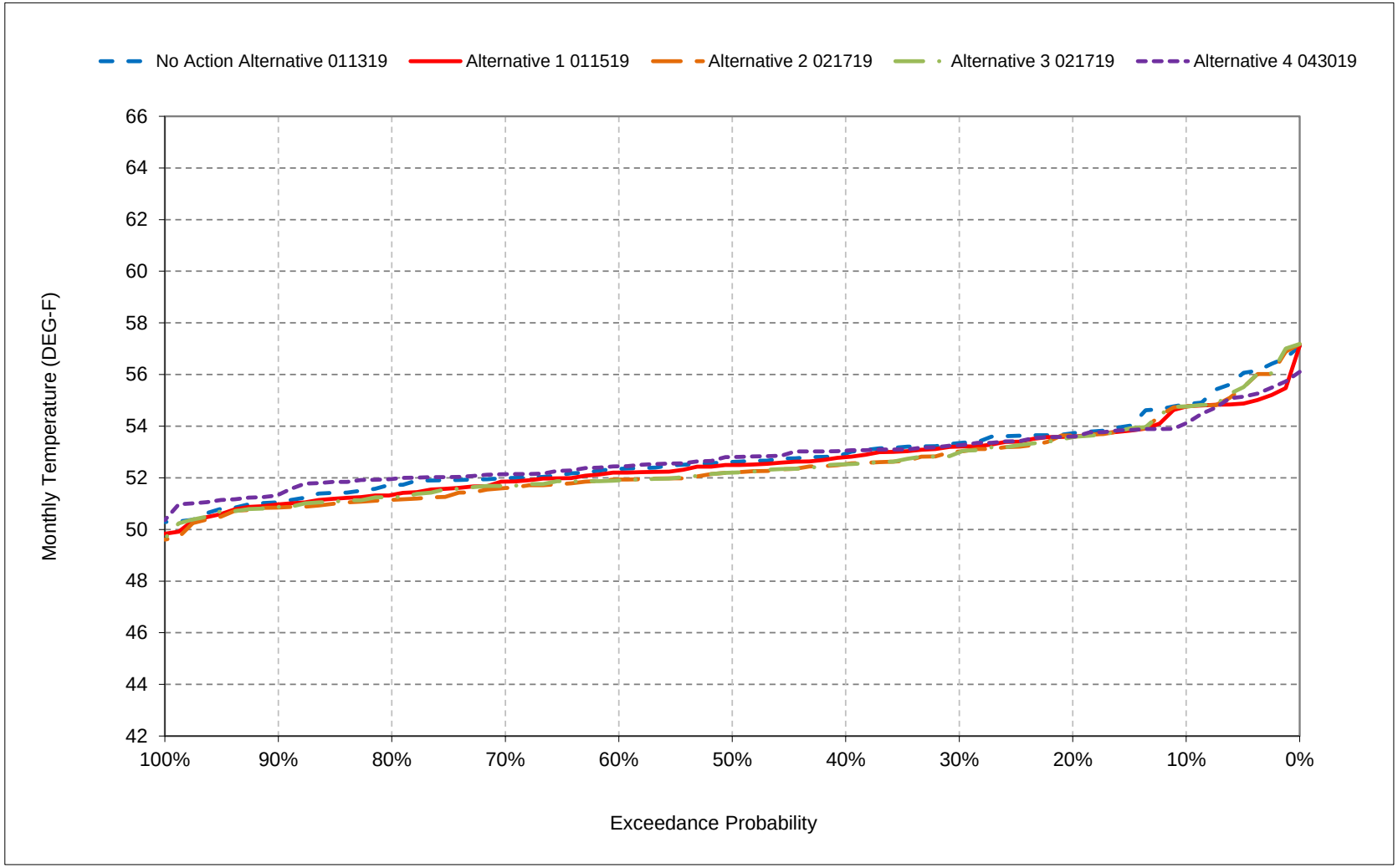
**Figure 7-13. Sacramento River at Balls Ferry, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

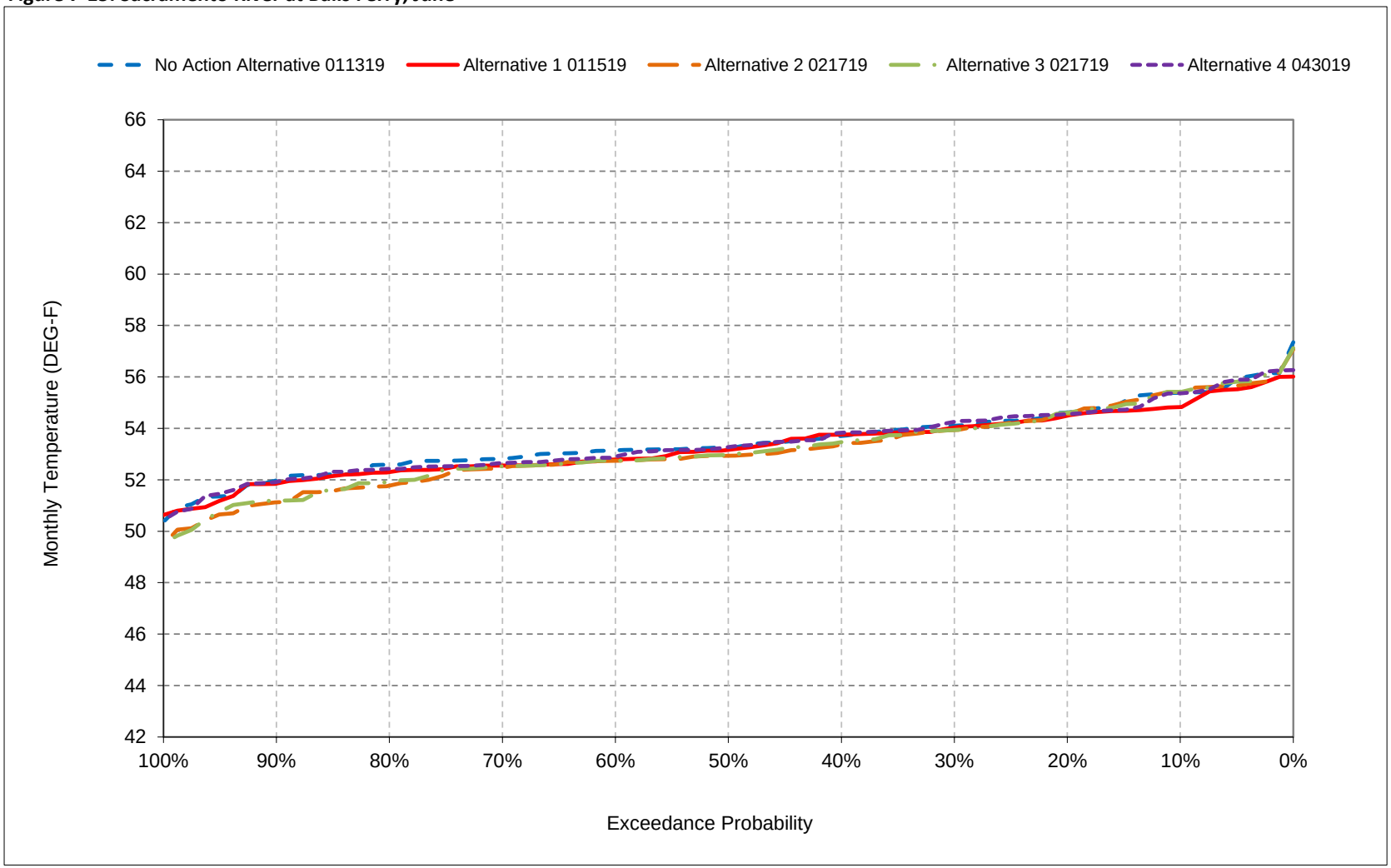
**Figure 7-14. Sacramento River at Balls Ferry, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

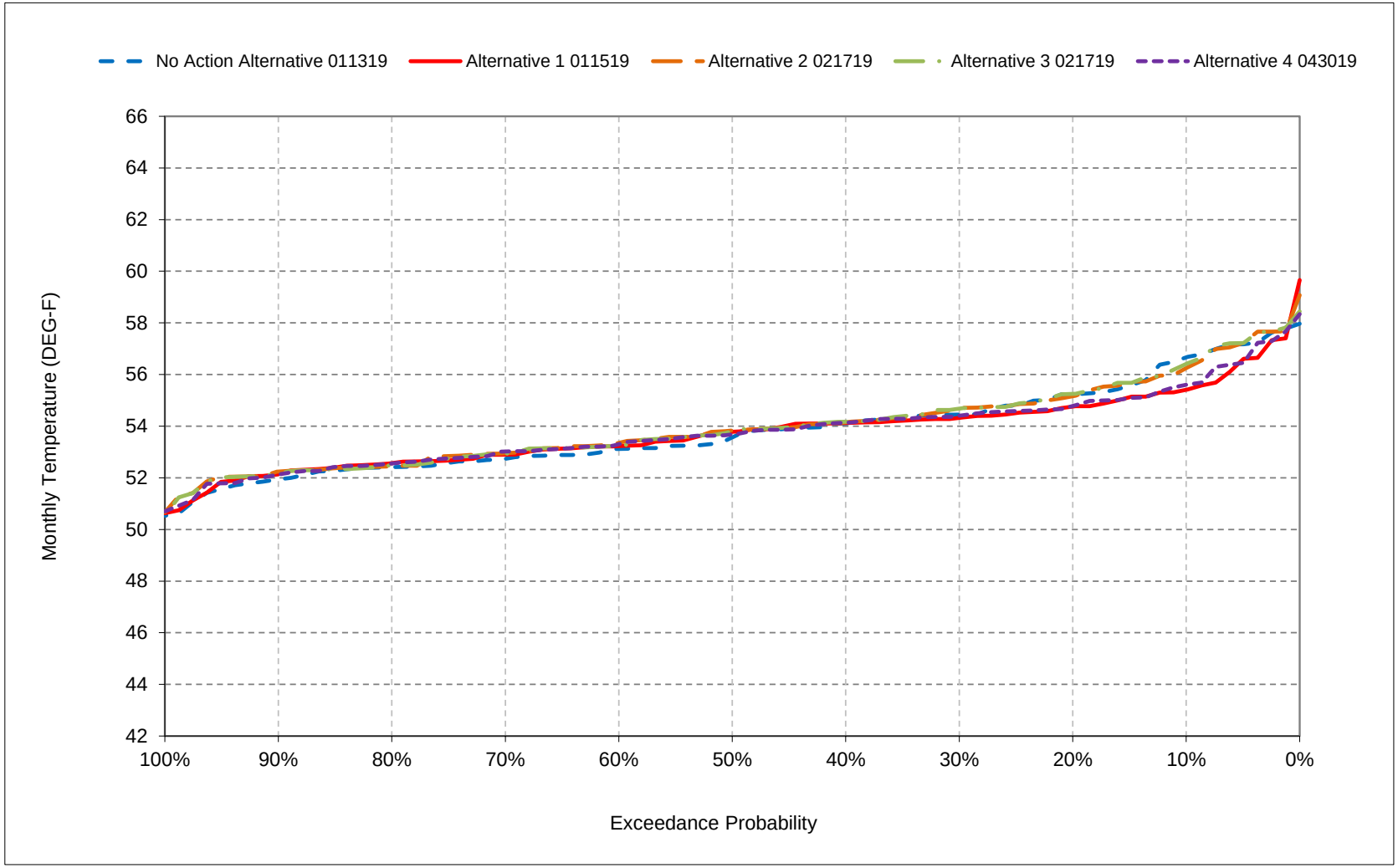
**Figure 7-15. Sacramento River at Balls Ferry, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

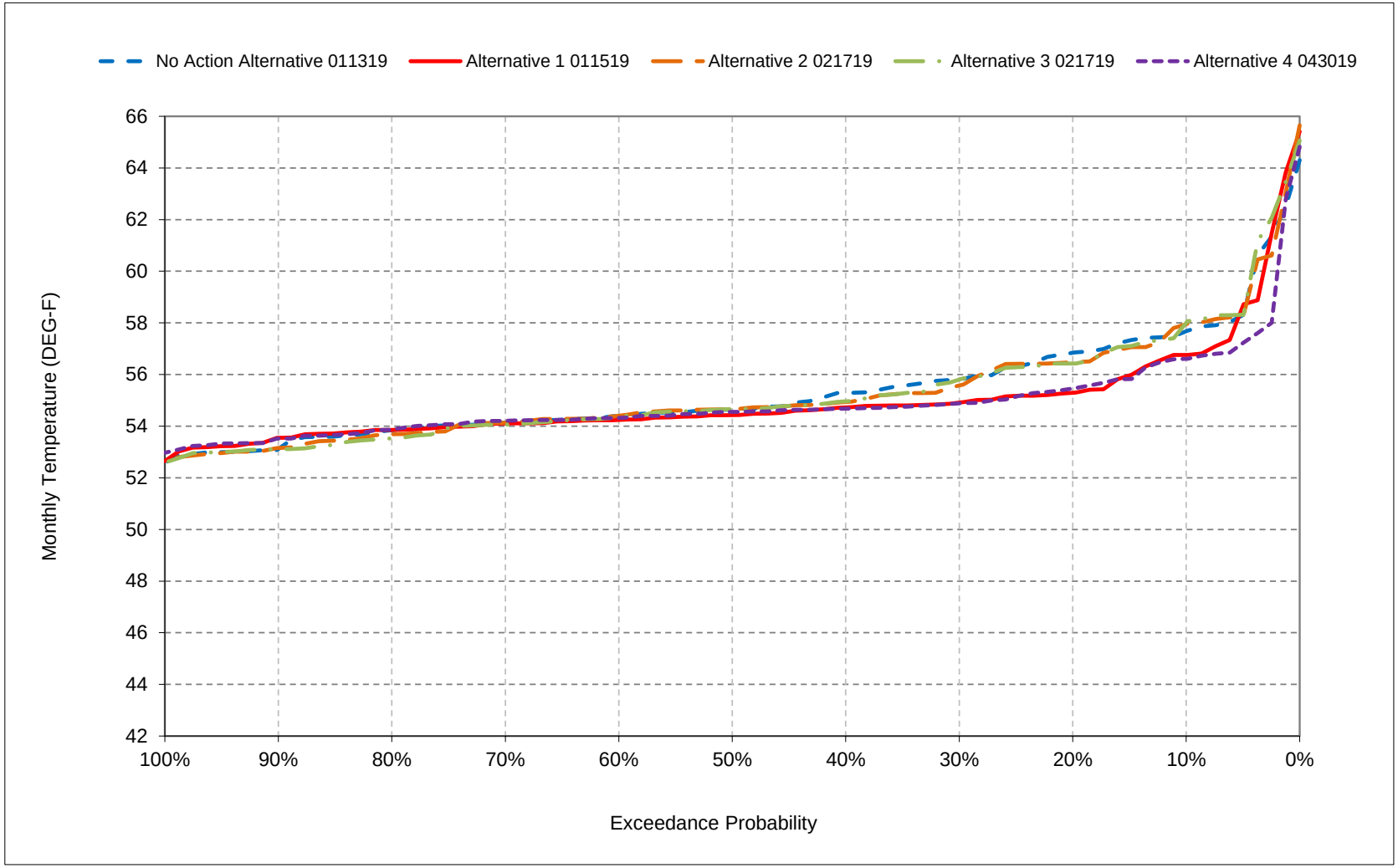
**Figure 7-16. Sacramento River at Balls Ferry, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

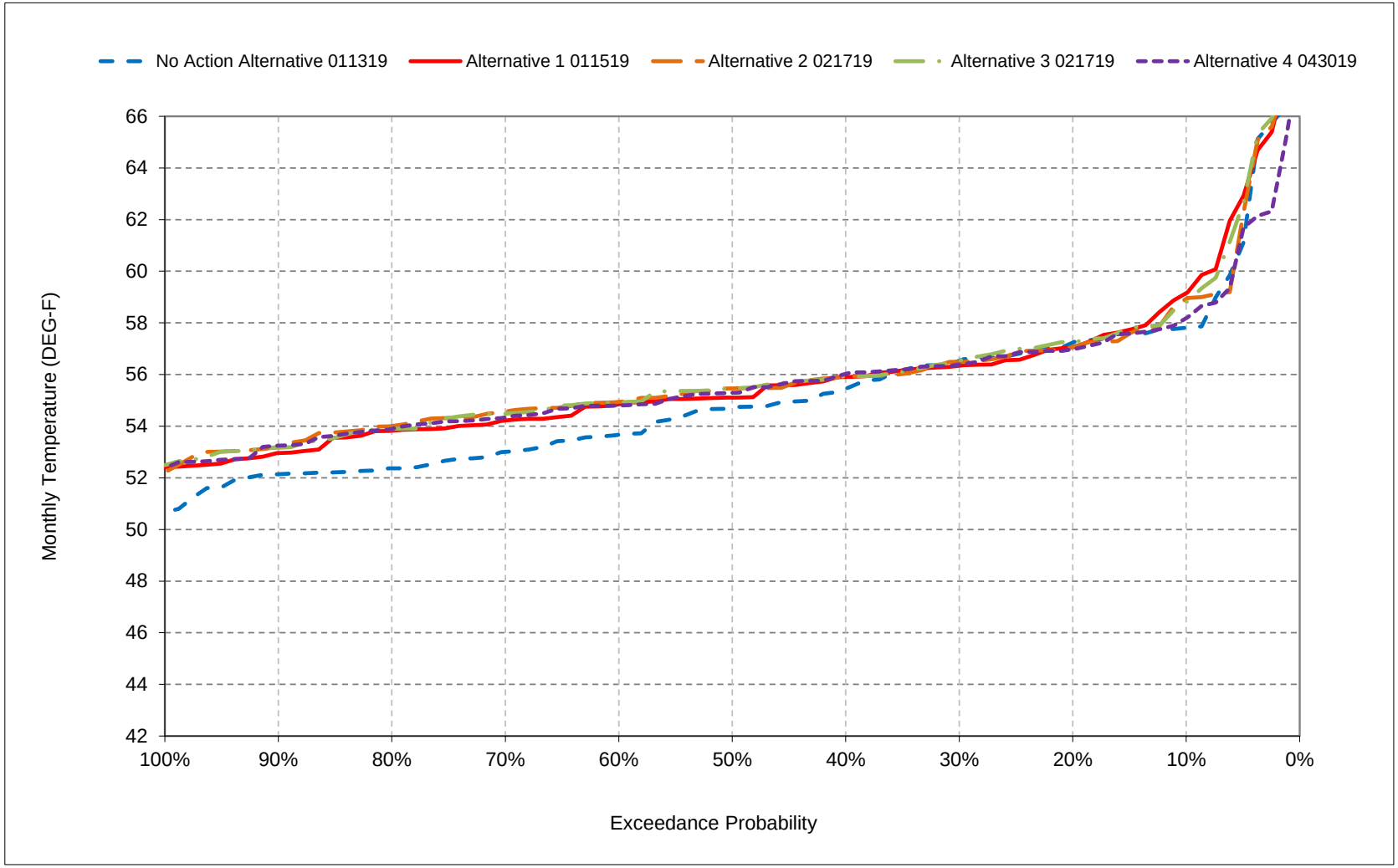
**Figure 7-17. Sacramento River at Balls Ferry, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 7-18. Sacramento River at Balls Ferry, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 8-1. Sacramento River at Jellys Ferry, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.6 | 55.7 | 51.3 | 48.6 | 48.9 | 51.8 | 55.7 | 57.0 | 57.6 | 58.0 | 59.3 | 59.5 |
| 20% | 57.0 | 55.4 | 50.5 | 47.8 | 48.5 | 51.2 | 55.0 | 56.1 | 56.8 | 56.7 | 58.2 | 58.8 |
| 30% | 56.6 | 54.8 | 50.0 | 47.4 | 48.0 | 50.7 | 54.6 | 55.3 | 56.5 | 56.2 | 57.3 | 57.9 |
| 40% | 56.2 | 54.6 | 49.5 | 46.9 | 47.7 | 50.3 | 54.4 | 55.0 | 56.0 | 55.7 | 56.7 | 57.1 |
| 50% | 55.8 | 54.2 | 49.2 | 46.7 | 47.4 | 50.0 | 53.9 | 54.7 | 55.4 | 55.1 | 56.2 | 56.1 |
| 60% | 55.6 | 53.7 | 48.7 | 46.5 | 47.1 | 49.4 | 53.5 | 54.4 | 54.9 | 54.5 | 56.0 | 55.0 |
| 70% | 55.4 | 53.3 | 48.4 | 46.2 | 46.5 | 48.7 | 53.0 | 54.0 | 54.6 | 54.1 | 55.7 | 53.9 |
| 80% | 55.0 | 53.0 | 48.1 | 46.0 | 46.2 | 47.9 | 52.2 | 53.7 | 54.4 | 53.8 | 55.4 | 53.3 |
| 90% | 54.8 | 52.5 | 47.7 | 45.5 | 45.7 | 47.3 | 50.4 | 53.1 | 53.7 | 53.3 | 54.7 | 53.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.4 | 54.1 | 49.4 | 46.9 | 47.3 | 49.7 | 53.6 | 54.9 | 55.6 | 55.3 | 56.8 | 56.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.5 | 54.5 | 49.8 | 46.5 | 46.6 | 48.4 | 52.3 | 54.8 | 56.2 | 55.1 | 55.8 | 53.6 |
| Above Normal (16%) | 55.4 | 54.0 | 49.3 | 46.6 | 46.7 | 48.9 | 53.2 | 54.5 | 54.8 | 53.8 | 55.3 | 54.1 |
| Below Normal (13%) | 55.8 | 53.4 | 49.5 | 46.8 | 47.7 | 50.5 | 54.5 | 54.4 | 54.6 | 54.6 | 56.0 | 57.3 |
| Dry (24%) | 56.2 | 53.3 | 49.0 | 47.2 | 47.9 | 50.4 | 54.3 | 55.0 | 54.9 | 55.5 | 57.4 | 57.9 |
| Critical (15%) | 59.9 | 55.2 | 49.2 | 47.5 | 48.4 | 51.1 | 54.5 | 55.6 | 57.1 | 58.2 | 60.4 | 62.0 |

## Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.0 | 56.1 | 51.8 | 48.7 | 49.1 | 51.8 | 55.6 | 56.4 | 57.4 | 57.2 | 58.5 | 60.6 |
| 20% | 56.4 | 55.0 | 50.7 | 48.0 | 48.7 | 51.1 | 55.0 | 55.7 | 56.8 | 56.5 | 56.9 | 58.8 |
| 30% | 55.3 | 54.3 | 50.0 | 47.7 | 48.1 | 50.8 | 54.7 | 55.2 | 56.1 | 56.0 | 56.5 | 57.9 |
| 40% | 55.1 | 54.0 | 49.7 | 47.2 | 47.7 | 50.1 | 54.5 | 54.8 | 55.9 | 55.7 | 56.3 | 57.5 |
| 50% | 54.8 | 53.7 | 49.3 | 46.9 | 47.4 | 49.9 | 53.9 | 54.5 | 55.3 | 55.2 | 56.0 | 56.9 |
| 60% | 54.6 | 53.4 | 49.0 | 46.6 | 47.1 | 49.3 | 53.6 | 54.0 | 54.6 | 54.7 | 55.8 | 56.5 |
| 70% | 54.4 | 53.0 | 48.9 | 46.4 | 46.6 | 48.8 | 53.2 | 53.7 | 54.1 | 54.4 | 55.6 | 55.7 |
| 80% | 54.0 | 52.6 | 48.3 | 46.1 | 46.2 | 47.9 | 52.2 | 53.2 | 53.9 | 54.0 | 55.2 | 55.3 |
| 90% | 53.7 | 52.1 | 48.0 | 45.6 | 45.8 | 47.3 | 50.5 | 52.9 | 53.6 | 53.5 | 54.9 | 54.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.5 | 53.9 | 49.6 | 47.0 | 47.4 | 49.7 | 53.6 | 54.6 | 55.3 | 55.3 | 56.5 | 57.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.4 | 53.8 | 49.9 | 46.7 | 46.6 | 48.4 | 52.3 | 54.6 | 56.2 | 55.1 | 55.7 | 55.5 |
| Above Normal (16%) | 54.3 | 53.0 | 49.2 | 46.8 | 46.7 | 48.9 | 53.2 | 54.3 | 54.8 | 53.9 | 55.5 | 56.9 |
| Below Normal (13%) | 55.4 | 53.8 | 49.8 | 47.0 | 47.6 | 50.4 | 54.3 | 53.8 | 54.2 | 54.5 | 55.6 | 56.8 |
| Dry (24%) | 55.2 | 53.6 | 49.4 | 47.3 | 48.0 | 50.4 | 54.4 | 54.6 | 54.5 | 55.4 | 56.5 | 57.5 |
| Critical (15%) | 60.0 | 55.4 | 49.4 | 47.7 | 48.7 | 51.2 | 54.6 | 55.4 | 56.4 | 57.8 | 60.0 | 62.6 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.4** | **0.4** | **0.5** | **0.1** | **0.3** | 0.0 | -0.1 | -0.5 | -0.2 | -0.8 | -0.8 | **1.2** |
| 20% | -0.6 | -0.4 | **0.2** | **0.2** | **0.2** | -0.1 | **0.0** | -0.4 | 0.0 | -0.2 | -1.3 | 0.0 |
| 30% | -1.3 | -0.5 | **0.0** | **0.2** | **0.1** | **0.0** | **0.1** | -0.1 | -0.4 | -0.2 | -0.8 | 0.0 |
| 40% | -1.1 | -0.6 | **0.2** | **0.3** | **0.0** | -0.1 | **0.1** | -0.1 | -0.2 | 0.0 | -0.4 | **0.4** |
| 50% | -1.0 | -0.5 | **0.1** | **0.2** | **0.1** | -0.1 | **0.0** | -0.2 | -0.1 | **0.1** | -0.2 | **0.8** |
| 60% | -1.0 | -0.3 | **0.3** | **0.1** | 0.0 | 0.0 | **0.1** | -0.4 | -0.4 | **0.3** | -0.2 | **1.5** |
| 70% | -0.9 | -0.3 | **0.5** | **0.1** | **0.1** | **0.1** | **0.1** | -0.3 | -0.5 | **0.3** | -0.1 | **1.9** |
| 80% | -1.0 | -0.4 | **0.2** | **0.1** | **0.0** | **0.0** | **0.1** | -0.5 | -0.5 | **0.2** | -0.1 | **2.0** |
| 90% | -1.1 | -0.4 | **0.3** | **0.1** | **0.1** | **0.0** | **0.0** | -0.3 | -0.1 | **0.2** | **0.2** | **1.3** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.8 | -0.2 | **0.2** | **0.2** | **0.1** | 0.0 | **0.0** | -0.3 | -0.3 | 0.0 | -0.4 | **1.0** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -1.2 | -0.8 | **0.1** | **0.1** | **0.0** | **0.0** | 0.0 | -0.2 | 0.0 | **0.1** | -0.1 | **1.9** |
| Above Normal (16%) | -1.1 | -1.0 | -0.1 | **0.2** | **0.0** | 0.0 | **0.1** | -0.2 | -0.1 | **0.1** | **0.2** | **2.8** |
| Below Normal (13%) | -0.3 | **0.4** | **0.4** | **0.2** | 0.0 | -0.1 | -0.2 | -0.6 | -0.3 | -0.1 | -0.4 | -0.5 |
| Dry (24%) | -1.0 | **0.3** | **0.4** | **0.1** | **0.1** | 0.0 | **0.1** | -0.4 | -0.4 | -0.1 | -0.9 | -0.5 |
| Critical (15%) | **0.1** | **0.2** | **0.2** | **0.3** | **0.3** | **0.1** | **0.1** | -0.2 | -0.7 | -0.4 | -0.4 | **0.6** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 8-2. Sacramento River at Jellys Ferry, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.6 | 55.7 | 51.3 | 48.6 | 48.9 | 51.8 | 55.7 | 57.0 | 57.6 | 58.0 | 59.3 | 59.5 |
| 20% | 57.0 | 55.4 | 50.5 | 47.8 | 48.5 | 51.2 | 55.0 | 56.1 | 56.8 | 56.7 | 58.2 | 58.8 |
| 30% | 56.6 | 54.8 | 50.0 | 47.4 | 48.0 | 50.7 | 54.6 | 55.3 | 56.5 | 56.2 | 57.3 | 57.9 |
| 40% | 56.2 | 54.6 | 49.5 | 46.9 | 47.7 | 50.3 | 54.4 | 55.0 | 56.0 | 55.7 | 56.7 | 57.1 |
| 50% | 55.8 | 54.2 | 49.2 | 46.7 | 47.4 | 50.0 | 53.9 | 54.7 | 55.4 | 55.1 | 56.2 | 56.1 |
| 60% | 55.6 | 53.7 | 48.7 | 46.5 | 47.1 | 49.4 | 53.5 | 54.4 | 54.9 | 54.5 | 56.0 | 55.0 |
| 70% | 55.4 | 53.3 | 48.4 | 46.2 | 46.5 | 48.7 | 53.0 | 54.0 | 54.6 | 54.1 | 55.7 | 53.9 |
| 80% | 55.0 | 53.0 | 48.1 | 46.0 | 46.2 | 47.9 | 52.2 | 53.7 | 54.4 | 53.8 | 55.4 | 53.3 |
| 90% | 54.8 | 52.5 | 47.7 | 45.5 | 45.7 | 47.3 | 50.4 | 53.1 | 53.7 | 53.3 | 54.7 | 53.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.4 | 54.1 | 49.4 | 46.9 | 47.3 | 49.7 | 53.6 | 54.9 | 55.6 | 55.3 | 56.8 | 56.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.5 | 54.5 | 49.8 | 46.5 | 46.6 | 48.4 | 52.3 | 54.8 | 56.2 | 55.1 | 55.8 | 53.6 |
| Above Normal (16%) | 55.4 | 54.0 | 49.3 | 46.6 | 46.7 | 48.9 | 53.2 | 54.5 | 54.8 | 53.8 | 55.3 | 54.1 |
| Below Normal (13%) | 55.8 | 53.4 | 49.5 | 46.8 | 47.7 | 50.5 | 54.5 | 54.4 | 54.6 | 54.6 | 56.0 | 57.3 |
| Dry (24%) | 56.2 | 53.3 | 49.0 | 47.2 | 47.9 | 50.4 | 54.3 | 55.0 | 54.9 | 55.5 | 57.4 | 57.9 |
| Critical (15%) | 59.9 | 55.2 | 49.2 | 47.5 | 48.4 | 51.1 | 54.5 | 55.6 | 57.1 | 58.2 | 60.4 | 62.0 |

## Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 59.3 | 55.9 | 51.7 | 48.5 | 48.9 | 51.8 | 55.7 | 57.0 | 57.4 | 57.9 | 59.4 | 59.9 |
| 20% | 57.1 | 55.1 | 50.5 | 47.7 | 48.5 | 51.1 | 55.1 | 55.7 | 56.9 | 56.7 | 58.0 | 58.6 |
| 30% | 56.6 | 54.5 | 50.0 | 47.5 | 48.0 | 50.8 | 54.8 | 55.0 | 56.6 | 56.2 | 57.1 | 58.0 |
| 40% | 56.1 | 54.0 | 49.5 | 47.1 | 47.7 | 50.2 | 54.5 | 54.7 | 55.6 | 55.7 | 56.5 | 57.3 |
| 50% | 55.8 | 53.6 | 49.2 | 46.7 | 47.4 | 49.9 | 53.8 | 54.0 | 54.9 | 55.3 | 56.2 | 57.0 |
| 60% | 55.7 | 53.4 | 48.8 | 46.5 | 47.1 | 49.3 | 53.4 | 53.7 | 54.3 | 54.7 | 55.9 | 56.5 |
| 70% | 55.4 | 53.0 | 48.4 | 46.3 | 46.5 | 49.0 | 52.8 | 53.4 | 54.1 | 54.5 | 55.7 | 56.0 |
| 80% | 55.0 | 52.8 | 48.2 | 46.0 | 46.1 | 47.9 | 52.1 | 53.1 | 53.4 | 54.0 | 55.1 | 55.6 |
| 90% | 54.6 | 52.2 | 47.7 | 45.5 | 45.8 | 47.3 | 50.4 | 52.7 | 52.8 | 53.6 | 54.4 | 54.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.4 | 53.9 | 49.4 | 46.9 | 47.4 | 49.7 | 53.5 | 54.4 | 55.1 | 55.5 | 56.7 | 57.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.3 | 53.7 | 49.7 | 46.5 | 46.6 | 48.4 | 52.3 | 54.6 | 55.8 | 55.2 | 55.7 | 55.8 |
| Above Normal (16%) | 55.4 | 53.3 | 49.2 | 46.7 | 46.7 | 49.0 | 53.2 | 54.2 | 54.0 | 54.0 | 55.2 | 56.8 |
| Below Normal (13%) | 56.1 | 53.9 | 49.6 | 46.9 | 47.6 | 50.4 | 54.2 | 53.7 | 54.0 | 54.7 | 55.4 | 56.7 |
| Dry (24%) | 56.3 | 53.7 | 49.1 | 47.3 | 48.0 | 50.5 | 54.3 | 54.2 | 54.4 | 55.5 | 57.5 | 57.6 |
| Critical (15%) | 60.5 | 55.5 | 49.3 | 47.6 | 48.5 | 50.9 | 54.4 | 55.3 | 56.8 | 58.3 | 60.5 | 62.2 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **1.7** | **0.2** | **0.4** | -0.1 | **0.1** | 0.0 | **0.0** | 0.0 | -0.2 | -0.1 | **0.1** | **0.4** |
| 20% | **0.1** | -0.3 | -0.1 | 0.0 | **0.0** | -0.1 | **0.1** | -0.4 | **0.1** | **0.0** | -0.2 | -0.3 |
| 30% | -0.1 | -0.3 | 0.0 | **0.1** | -0.1 | **0.1** | **0.1** | -0.3 | **0.0** | **0.1** | -0.2 | **0.1** |
| 40% | -0.1 | -0.6 | **0.1** | **0.2** | 0.0 | 0.0 | **0.1** | -0.3 | -0.4 | **0.0** | -0.2 | **0.2** |
| 50% | **0.0** | -0.6 | **0.0** | **0.0** | **0.0** | -0.1 | -0.1 | -0.7 | -0.6 | **0.2** | 0.0 | **0.9** |
| 60% | **0.1** | -0.3 | **0.1** | 0.0 | 0.0 | 0.0 | -0.1 | -0.6 | -0.6 | **0.2** | -0.1 | **1.5** |
| 70% | **0.0** | -0.3 | **0.0** | **0.1** | **0.0** | **0.2** | -0.2 | -0.6 | -0.5 | **0.3** | **0.0** | **2.1** |
| 80% | -0.1 | -0.2 | **0.0** | **0.0** | -0.1 | **0.0** | -0.1 | -0.6 | -1.0 | **0.2** | -0.3 | **2.2** |
| 90% | -0.2 | -0.3 | 0.0 | 0.0 | **0.0** | **0.0** | 0.0 | -0.5 | -0.9 | **0.2** | -0.3 | **1.6** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | -0.2 | **0.0** | **0.0** | **0.0** | **0.0** | 0.0 | -0.5 | -0.5 | **0.1** | -0.1 | **1.0** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.2 | -0.8 | 0.0 | **0.0** | **0.0** | **0.0** | **0.0** | -0.2 | -0.4 | **0.2** | -0.1 | **2.2** |
| Above Normal (16%) | -0.1 | -0.8 | -0.1 | **0.0** | 0.0 | **0.1** | **0.1** | -0.4 | -0.9 | **0.2** | -0.1 | **2.7** |
| Below Normal (13%) | **0.4** | **0.5** | **0.2** | **0.1** | -0.1 | -0.1 | -0.3 | -0.7 | -0.6 | **0.1** | -0.6 | -0.6 |
| Dry (24%) | **0.1** | **0.3** | **0.1** | **0.0** | **0.1** | **0.1** | 0.0 | -0.8 | -0.5 | **0.1** | **0.1** | -0.4 |
| Critical (15%) | **0.5** | **0.3** | **0.1** | **0.1** | **0.1** | -0.2 | -0.1 | -0.3 | -0.3 | **0.1** | **0.0** | **0.2** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 8-3. Sacramento River at Jellys Ferry, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.6 | 55.7 | 51.3 | 48.6 | 48.9 | 51.8 | 55.7 | 57.0 | 57.6 | 58.0 | 59.3 | 59.5 |
| 20% | 57.0 | 55.4 | 50.5 | 47.8 | 48.5 | 51.2 | 55.0 | 56.1 | 56.8 | 56.7 | 58.2 | 58.8 |
| 30% | 56.6 | 54.8 | 50.0 | 47.4 | 48.0 | 50.7 | 54.6 | 55.3 | 56.5 | 56.2 | 57.3 | 57.9 |
| 40% | 56.2 | 54.6 | 49.5 | 46.9 | 47.7 | 50.3 | 54.4 | 55.0 | 56.0 | 55.7 | 56.7 | 57.1 |
| 50% | 55.8 | 54.2 | 49.2 | 46.7 | 47.4 | 50.0 | 53.9 | 54.7 | 55.4 | 55.1 | 56.2 | 56.1 |
| 60% | 55.6 | 53.7 | 48.7 | 46.5 | 47.1 | 49.4 | 53.5 | 54.4 | 54.9 | 54.5 | 56.0 | 55.0 |
| 70% | 55.4 | 53.3 | 48.4 | 46.2 | 46.5 | 48.7 | 53.0 | 54.0 | 54.6 | 54.1 | 55.7 | 53.9 |
| 80% | 55.0 | 53.0 | 48.1 | 46.0 | 46.2 | 47.9 | 52.2 | 53.7 | 54.4 | 53.8 | 55.4 | 53.3 |
| 90% | 54.8 | 52.5 | 47.7 | 45.5 | 45.7 | 47.3 | 50.4 | 53.1 | 53.7 | 53.3 | 54.7 | 53.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.4 | 54.1 | 49.4 | 46.9 | 47.3 | 49.7 | 53.6 | 54.9 | 55.6 | 55.3 | 56.8 | 56.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.5 | 54.5 | 49.8 | 46.5 | 46.6 | 48.4 | 52.3 | 54.8 | 56.2 | 55.1 | 55.8 | 53.6 |
| Above Normal (16%) | 55.4 | 54.0 | 49.3 | 46.6 | 46.7 | 48.9 | 53.2 | 54.5 | 54.8 | 53.8 | 55.3 | 54.1 |
| Below Normal (13%) | 55.8 | 53.4 | 49.5 | 46.8 | 47.7 | 50.5 | 54.5 | 54.4 | 54.6 | 54.6 | 56.0 | 57.3 |
| Dry (24%) | 56.2 | 53.3 | 49.0 | 47.2 | 47.9 | 50.4 | 54.3 | 55.0 | 54.9 | 55.5 | 57.4 | 57.9 |
| Critical (15%) | 59.9 | 55.2 | 49.2 | 47.5 | 48.4 | 51.1 | 54.5 | 55.6 | 57.1 | 58.2 | 60.4 | 62.0 |

## Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.1 | 56.1 | 51.7 | 48.6 | 48.9 | 51.8 | 55.7 | 57.0 | 57.3 | 57.9 | 59.7 | 60.1 |
| 20% | 57.0 | 54.9 | 50.6 | 47.8 | 48.5 | 51.3 | 55.0 | 55.8 | 56.9 | 56.8 | 58.0 | 58.9 |
| 30% | 56.5 | 54.4 | 50.0 | 47.5 | 48.0 | 50.8 | 54.7 | 55.0 | 56.6 | 56.2 | 57.2 | 58.0 |
| 40% | 56.1 | 54.1 | 49.6 | 47.1 | 47.7 | 50.2 | 54.5 | 54.7 | 55.7 | 55.8 | 56.4 | 57.4 |
| 50% | 55.8 | 53.6 | 49.2 | 46.6 | 47.4 | 49.9 | 53.8 | 54.2 | 54.9 | 55.2 | 56.1 | 57.1 |
| 60% | 55.6 | 53.4 | 48.8 | 46.5 | 47.1 | 49.3 | 53.3 | 53.7 | 54.4 | 54.7 | 55.9 | 56.4 |
| 70% | 55.3 | 53.0 | 48.4 | 46.3 | 46.5 | 49.0 | 52.8 | 53.5 | 54.1 | 54.4 | 55.7 | 56.0 |
| 80% | 54.8 | 52.8 | 48.2 | 46.0 | 46.1 | 47.9 | 52.1 | 53.2 | 53.6 | 53.9 | 55.0 | 55.3 |
| 90% | 54.6 | 52.1 | 47.7 | 45.4 | 45.8 | 47.3 | 50.4 | 52.7 | 52.8 | 53.6 | 54.4 | 54.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.4 | 53.9 | 49.4 | 46.9 | 47.4 | 49.7 | 53.5 | 54.5 | 55.1 | 55.5 | 56.7 | 57.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.2 | 53.7 | 49.8 | 46.5 | 46.6 | 48.4 | 52.2 | 54.8 | 55.8 | 55.2 | 55.6 | 55.9 |
| Above Normal (16%) | 55.4 | 53.3 | 49.2 | 46.6 | 46.7 | 49.0 | 53.2 | 54.1 | 54.0 | 54.0 | 55.2 | 56.7 |
| Below Normal (13%) | 56.1 | 53.9 | 49.6 | 46.9 | 47.6 | 50.4 | 54.2 | 53.7 | 54.0 | 54.7 | 55.5 | 56.6 |
| Dry (24%) | 56.1 | 53.6 | 49.1 | 47.2 | 48.0 | 50.6 | 54.3 | 54.2 | 54.4 | 55.6 | 57.5 | 57.6 |
| Critical (15%) | 60.7 | 55.5 | 49.3 | 47.6 | 48.5 | 50.9 | 54.4 | 55.4 | 56.9 | 58.3 | 60.6 | 62.5 |

## Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **2.5** | **0.4** | **0.4** | 0.0 | **0.0** | 0.0 | **0.0** | **0.0** | -0.3 | -0.1 | **0.4** | **0.6** |
| 20% | 0.0 | -0.4 | **0.0** | 0.0 | **0.0** | **0.1** | 0.0 | -0.3 | **0.1** | **0.1** | -0.2 | **0.1** |
| 30% | -0.2 | -0.4 | **0.0** | **0.1** | 0.0 | **0.1** | **0.0** | -0.3 | **0.0** | **0.1** | -0.1 | **0.1** |
| 40% | -0.1 | -0.5 | **0.1** | **0.2** | 0.0 | 0.0 | **0.1** | -0.3 | -0.3 | **0.1** | -0.3 | **0.3** |
| 50% | 0.0 | -0.5 | 0.0 | 0.0 | **0.0** | 0.0 | -0.1 | -0.5 | -0.5 | **0.1** | 0.0 | **1.0** |
| 60% | 0.0 | -0.3 | **0.1** | 0.0 | -0.1 | 0.0 | -0.2 | -0.7 | -0.6 | **0.2** | -0.1 | **1.5** |
| 70% | 0.0 | -0.3 | **0.0** | **0.1** | 0.0 | **0.2** | -0.3 | -0.5 | -0.5 | **0.3** | 0.0 | **2.2** |
| 80% | -0.2 | -0.2 | **0.0** | **0.0** | -0.1 | **0.0** | -0.1 | -0.5 | -0.8 | **0.1** | -0.4 | **2.0** |
| 90% | -0.3 | -0.4 | 0.0 | 0.0 | **0.0** | 0.0 | 0.0 | -0.5 | -0.9 | **0.3** | -0.3 | **1.5** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.0** | -0.2 | **0.0** | **0.0** | **0.0** | **0.0** | -0.1 | -0.4 | -0.5 | **0.1** | -0.1 | **1.0** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.3 | -0.9 | **0.0** | **0.0** | **0.0** | **0.0** | -0.1 | **0.0** | -0.3 | **0.1** | -0.2 | **2.3** |
| Above Normal (16%) | 0.0 | -0.7 | -0.1 | **0.0** | 0.0 | **0.1** | **0.1** | -0.4 | -0.8 | **0.2** | -0.1 | **2.6** |
| Below Normal (13%) | **0.3** | **0.5** | **0.2** | **0.1** | 0.0 | -0.1 | -0.3 | -0.8 | -0.5 | **0.1** | -0.5 | -0.6 |
| Dry (24%) | -0.1 | **0.3** | **0.1** | **0.0** | **0.1** | **0.2** | 0.0 | -0.8 | -0.5 | **0.1** | **0.1** | -0.4 |
| Critical (15%) | **0.7** | **0.3** | **0.0** | **0.1** | **0.1** | -0.2 | -0.1 | -0.3 | -0.2 | **0.1** | **0.2** | **0.5** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 8-4. Sacramento River at Jellys Ferry, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.6 | 55.7 | 51.3 | 48.6 | 48.9 | 51.8 | 55.7 | 57.0 | 57.6 | 58.0 | 59.3 | 59.5 |
| 20% | 57.0 | 55.4 | 50.5 | 47.8 | 48.5 | 51.2 | 55.0 | 56.1 | 56.8 | 56.7 | 58.2 | 58.8 |
| 30% | 56.6 | 54.8 | 50.0 | 47.4 | 48.0 | 50.7 | 54.6 | 55.3 | 56.5 | 56.2 | 57.3 | 57.9 |
| 40% | 56.2 | 54.6 | 49.5 | 46.9 | 47.7 | 50.3 | 54.4 | 55.0 | 56.0 | 55.7 | 56.7 | 57.1 |
| 50% | 55.8 | 54.2 | 49.2 | 46.7 | 47.4 | 50.0 | 53.9 | 54.7 | 55.4 | 55.1 | 56.2 | 56.1 |
| 60% | 55.6 | 53.7 | 48.7 | 46.5 | 47.1 | 49.4 | 53.5 | 54.4 | 54.9 | 54.5 | 56.0 | 55.0 |
| 70% | 55.4 | 53.3 | 48.4 | 46.2 | 46.5 | 48.7 | 53.0 | 54.0 | 54.6 | 54.1 | 55.7 | 53.9 |
| 80% | 55.0 | 53.0 | 48.1 | 46.0 | 46.2 | 47.9 | 52.2 | 53.7 | 54.4 | 53.8 | 55.4 | 53.3 |
| 90% | 54.8 | 52.5 | 47.7 | 45.5 | 45.7 | 47.3 | 50.4 | 53.1 | 53.7 | 53.3 | 54.7 | 53.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.4 | 54.1 | 49.4 | 46.9 | 47.3 | 49.7 | 53.6 | 54.9 | 55.6 | 55.3 | 56.8 | 56.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.5 | 54.5 | 49.8 | 46.5 | 46.6 | 48.4 | 52.3 | 54.8 | 56.2 | 55.1 | 55.8 | 53.6 |
| Above Normal (16%) | 55.4 | 54.0 | 49.3 | 46.6 | 46.7 | 48.9 | 53.2 | 54.5 | 54.8 | 53.8 | 55.3 | 54.1 |
| Below Normal (13%) | 55.8 | 53.4 | 49.5 | 46.8 | 47.7 | 50.5 | 54.5 | 54.4 | 54.6 | 54.6 | 56.0 | 57.3 |
| Dry (24%) | 56.2 | 53.3 | 49.0 | 47.2 | 47.9 | 50.4 | 54.3 | 55.0 | 54.9 | 55.5 | 57.4 | 57.9 |
| Critical (15%) | 59.9 | 55.2 | 49.2 | 47.5 | 48.4 | 51.1 | 54.5 | 55.6 | 57.1 | 58.2 | 60.4 | 62.0 |

## Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.0 | 55.6 | 51.6 | 48.7 | 49.1 | 51.8 | 55.2 | 56.0 | 57.6 | 57.4 | 58.4 | 59.6 |
| 20% | 56.1 | 55.1 | 50.6 | 48.0 | 48.6 | 51.2 | 54.9 | 55.6 | 57.0 | 56.7 | 57.1 | 58.7 |
| 30% | 55.3 | 54.4 | 50.2 | 47.7 | 48.0 | 50.6 | 54.7 | 55.4 | 56.5 | 56.0 | 56.6 | 58.1 |
| 40% | 55.0 | 54.0 | 49.5 | 47.2 | 47.7 | 50.0 | 54.0 | 55.2 | 55.9 | 55.6 | 56.3 | 57.6 |
| 50% | 54.8 | 53.8 | 49.3 | 46.9 | 47.4 | 49.4 | 53.4 | 54.7 | 55.3 | 55.1 | 56.0 | 57.2 |
| 60% | 54.5 | 53.2 | 49.1 | 46.6 | 47.1 | 49.0 | 52.8 | 54.5 | 54.7 | 54.8 | 55.9 | 56.4 |
| 70% | 54.4 | 53.1 | 49.0 | 46.3 | 46.5 | 48.4 | 52.4 | 54.1 | 54.4 | 54.3 | 55.7 | 55.9 |
| 80% | 54.2 | 52.7 | 48.4 | 46.1 | 46.2 | 47.9 | 51.7 | 53.9 | 54.0 | 54.0 | 55.2 | 55.4 |
| 90% | 53.9 | 52.1 | 48.0 | 45.6 | 45.8 | 47.3 | 50.6 | 53.6 | 53.5 | 53.6 | 55.0 | 54.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.5 | 53.8 | 49.6 | 47.1 | 47.4 | 49.5 | 53.2 | 54.9 | 55.4 | 55.3 | 56.4 | 57.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.4 | 53.8 | 49.9 | 46.7 | 46.6 | 48.3 | 51.7 | 54.7 | 56.2 | 55.1 | 55.8 | 55.6 |
| Above Normal (16%) | 54.4 | 53.1 | 49.3 | 46.7 | 46.7 | 48.7 | 52.6 | 54.8 | 55.0 | 53.8 | 55.5 | 56.6 |
| Below Normal (13%) | 55.0 | 53.7 | 49.7 | 47.0 | 47.6 | 50.2 | 54.2 | 54.3 | 54.4 | 54.5 | 55.8 | 57.4 |
| Dry (24%) | 55.3 | 53.5 | 49.5 | 47.3 | 47.9 | 50.3 | 54.1 | 54.9 | 54.5 | 55.4 | 56.5 | 57.7 |
| Critical (15%) | 59.5 | 55.1 | 49.4 | 47.9 | 48.7 | 51.2 | 54.8 | 55.8 | 56.7 | 58.0 | 59.4 | 61.4 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.4** | -0.1 | **0.3** | **0.1** | **0.2** | **0.0** | -0.5 | -1.0 | **0.0** | -0.7 | -0.9 | **0.1** |
| 20% | -1.0 | -0.3 | **0.1** | **0.2** | **0.1** | 0.0 | -0.1 | -0.5 | **0.2** | **0.0** | -1.1 | -0.2 |
| 30% | -1.3 | -0.4 | **0.2** | **0.2** | 0.0 | -0.1 | **0.0** | **0.1** | 0.0 | -0.2 | -0.8 | **0.2** |
| 40% | -1.2 | -0.6 | 0.0 | **0.3** | 0.0 | -0.3 | -0.4 | **0.2** | -0.1 | -0.1 | -0.4 | **0.5** |
| 50% | -1.0 | -0.4 | **0.1** | **0.2** | **0.1** | -0.6 | -0.5 | **0.0** | -0.1 | **0.0** | -0.2 | **1.1** |
| 60% | -1.0 | -0.4 | **0.4** | **0.1** | -0.1 | -0.4 | -0.7 | **0.1** | -0.2 | **0.3** | -0.1 | **1.4** |
| 70% | -1.0 | -0.2 | **0.6** | **0.1** | **0.1** | -0.3 | -0.7 | **0.1** | -0.2 | **0.2** | **0.1** | **2.0** |
| 80% | -0.8 | -0.3 | **0.2** | **0.1** | 0.0 | **0.0** | -0.5 | **0.2** | -0.4 | **0.2** | -0.2 | **2.1** |
| 90% | -0.9 | -0.4 | **0.3** | **0.1** | **0.1** | **0.0** | **0.1** | **0.5** | -0.2 | **0.3** | **0.3** | **1.8** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.9 | -0.3 | **0.2** | **0.2** | **0.1** | -0.1 | -0.3 | 0.0 | -0.1 | 0.0 | -0.4 | **0.9** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -1.1 | -0.8 | **0.1** | **0.1** | **0.0** | -0.1 | -0.6 | -0.1 | **0.1** | **0.1** | -0.1 | **2.0** |
| Above Normal (16%) | -1.0 | -0.9 | 0.0 | **0.1** | **0.0** | -0.3 | -0.5 | **0.2** | **0.2** | **0.0** | **0.2** | **2.5** |
| Below Normal (13%) | -0.8 | **0.3** | **0.3** | **0.3** | 0.0 | -0.3 | -0.4 | -0.1 | -0.2 | 0.0 | -0.2 | **0.1** |
| Dry (24%) | -0.9 | **0.2** | **0.5** | **0.1** | **0.0** | -0.1 | -0.2 | -0.1 | -0.4 | 0.0 | -0.9 | -0.3 |
| Critical (15%) | -0.4 | 0.0 | **0.2** | **0.4** | **0.3** | **0.0** | **0.3** | **0.1** | -0.3 | -0.2 | -1.0 | -0.6 |

a Based on the 82-year simulation period.

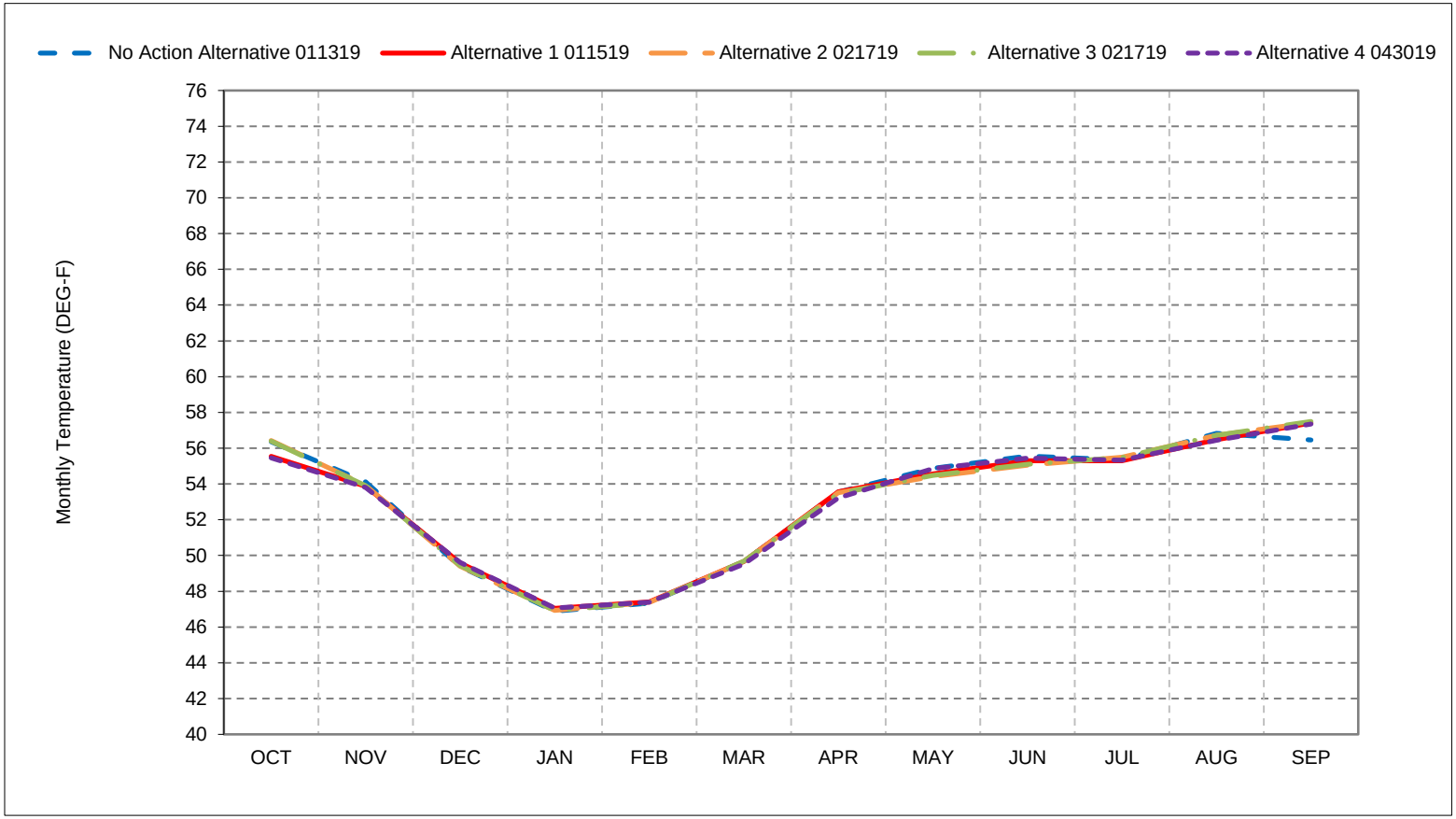
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

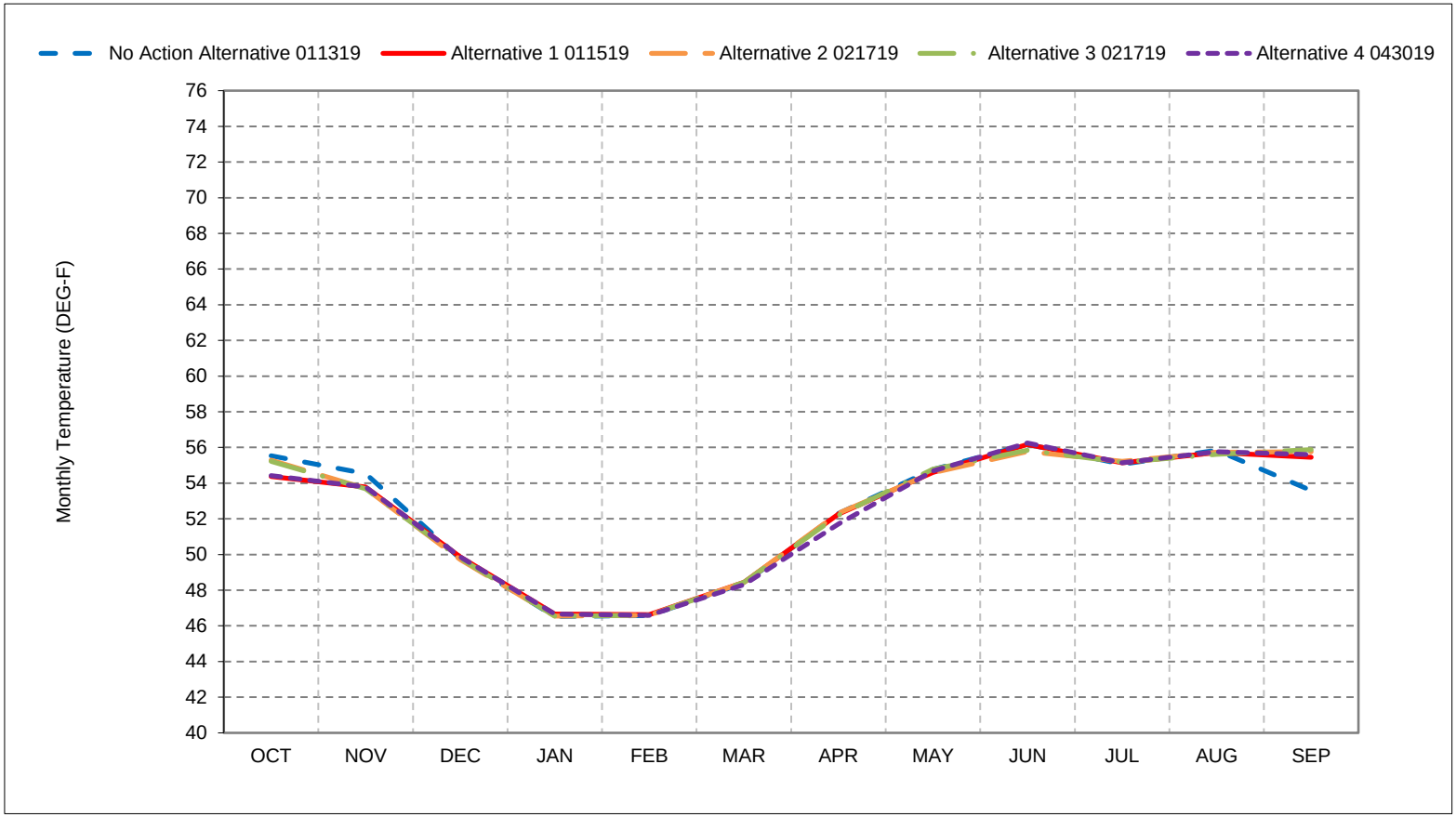
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-1. Sacramento River at Jellys Ferry, Long-Term Average Temperature



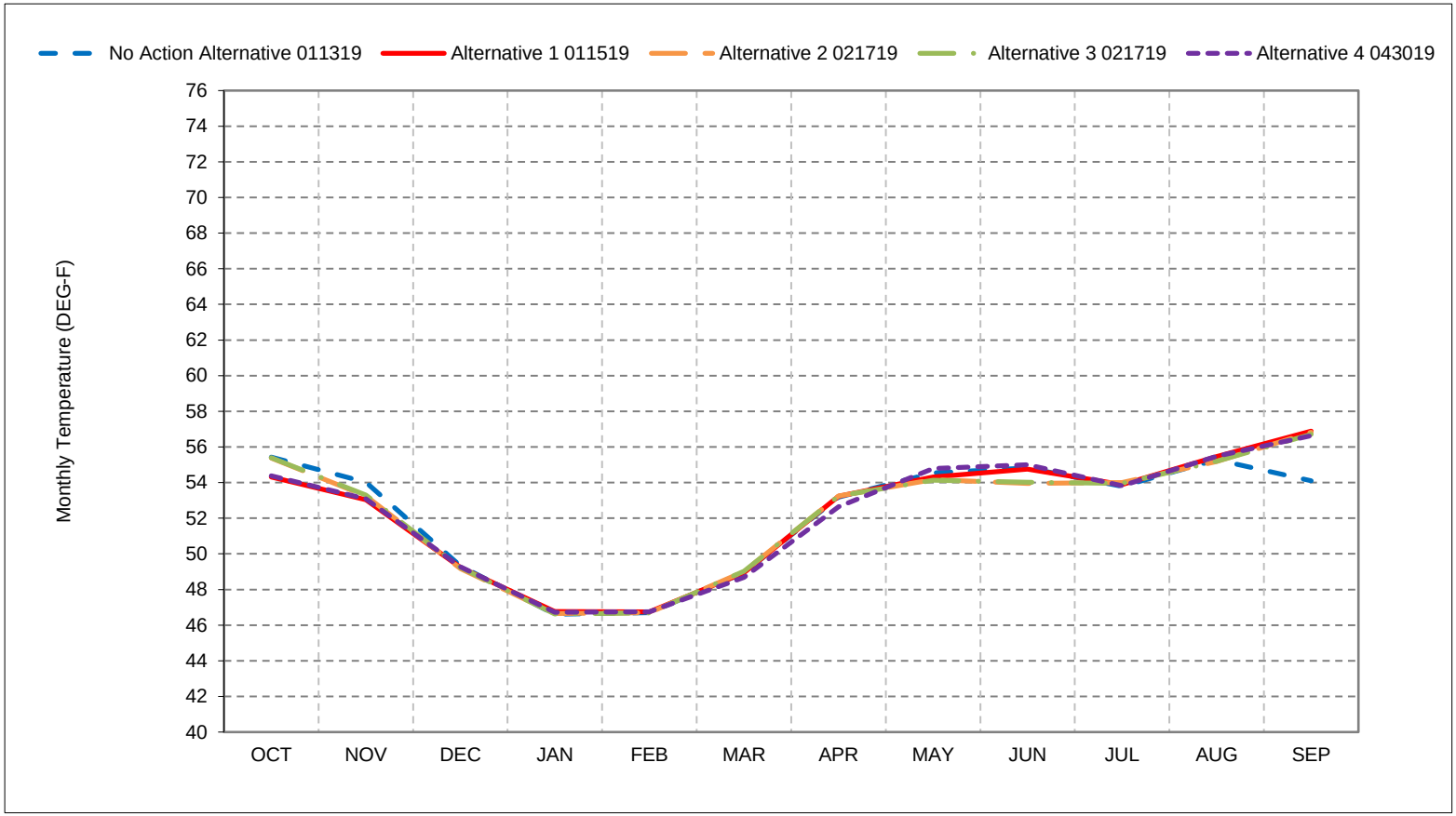

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-2. Sacramento River at Jellys Ferry, Wet Year Average Temperature



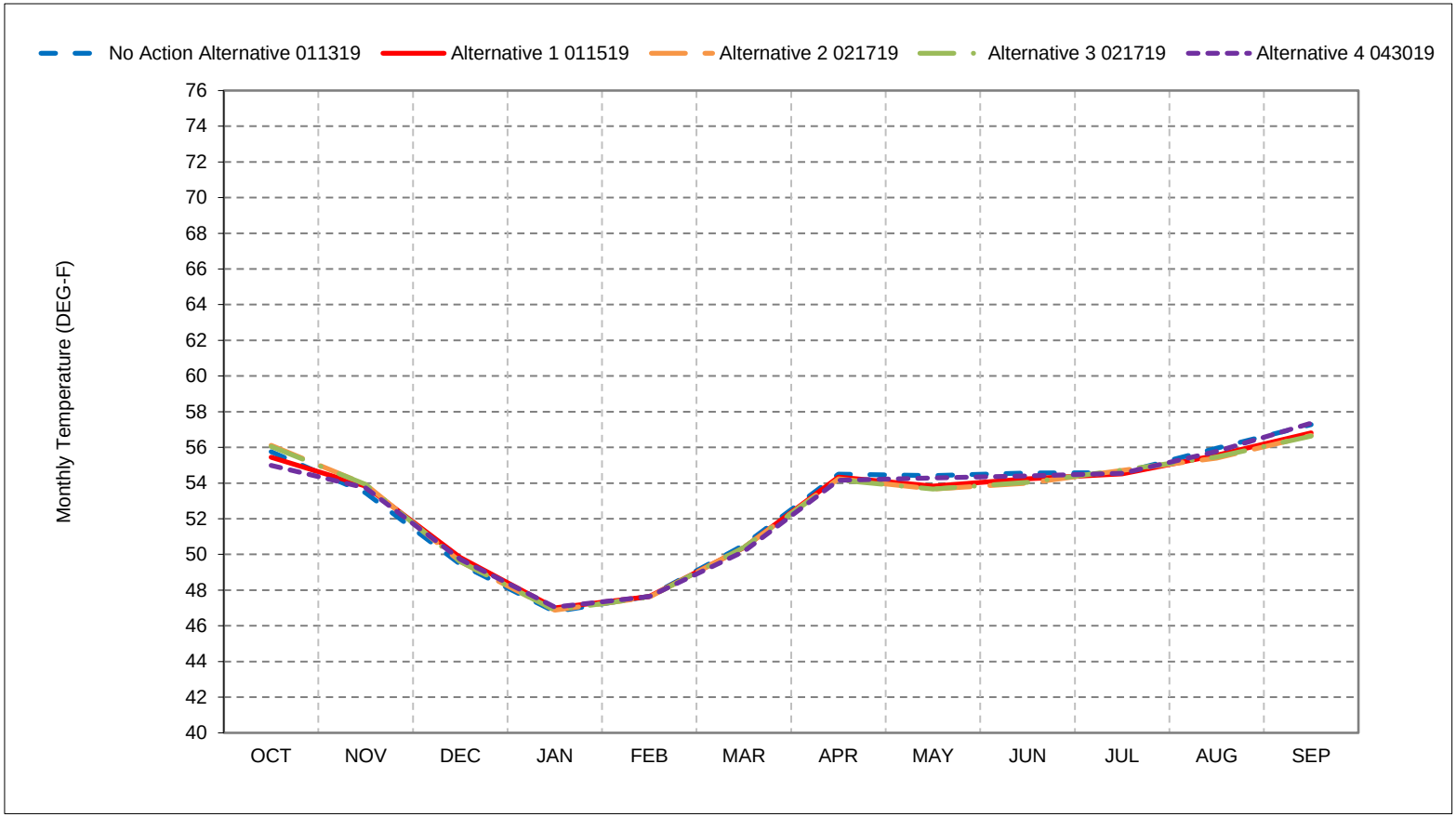

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-3. Sacramento River at Jellys Ferry, Above Normal Year Average Temperature



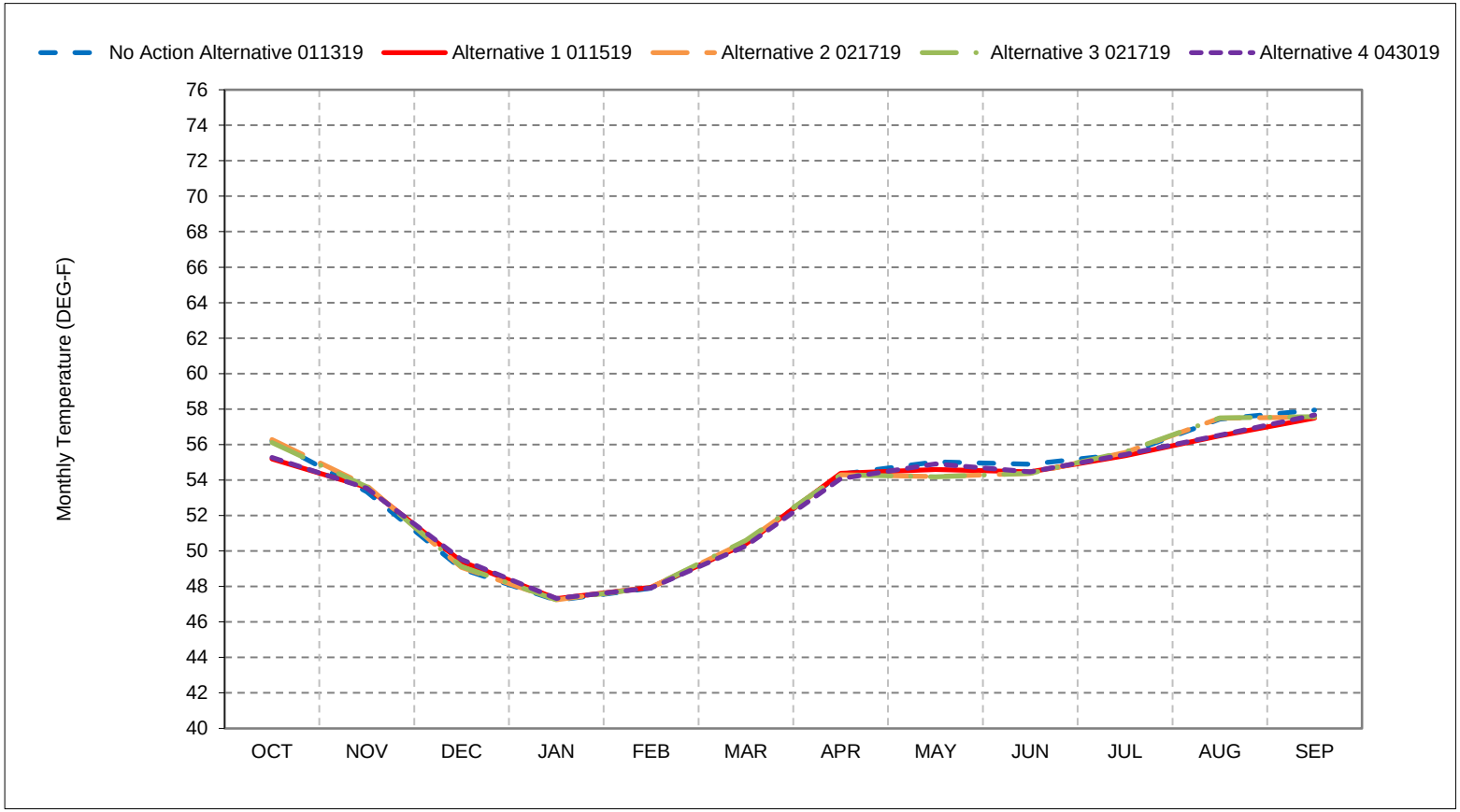

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-4. Sacramento River at Jellys Ferry, Below Normal Year Average Temperature



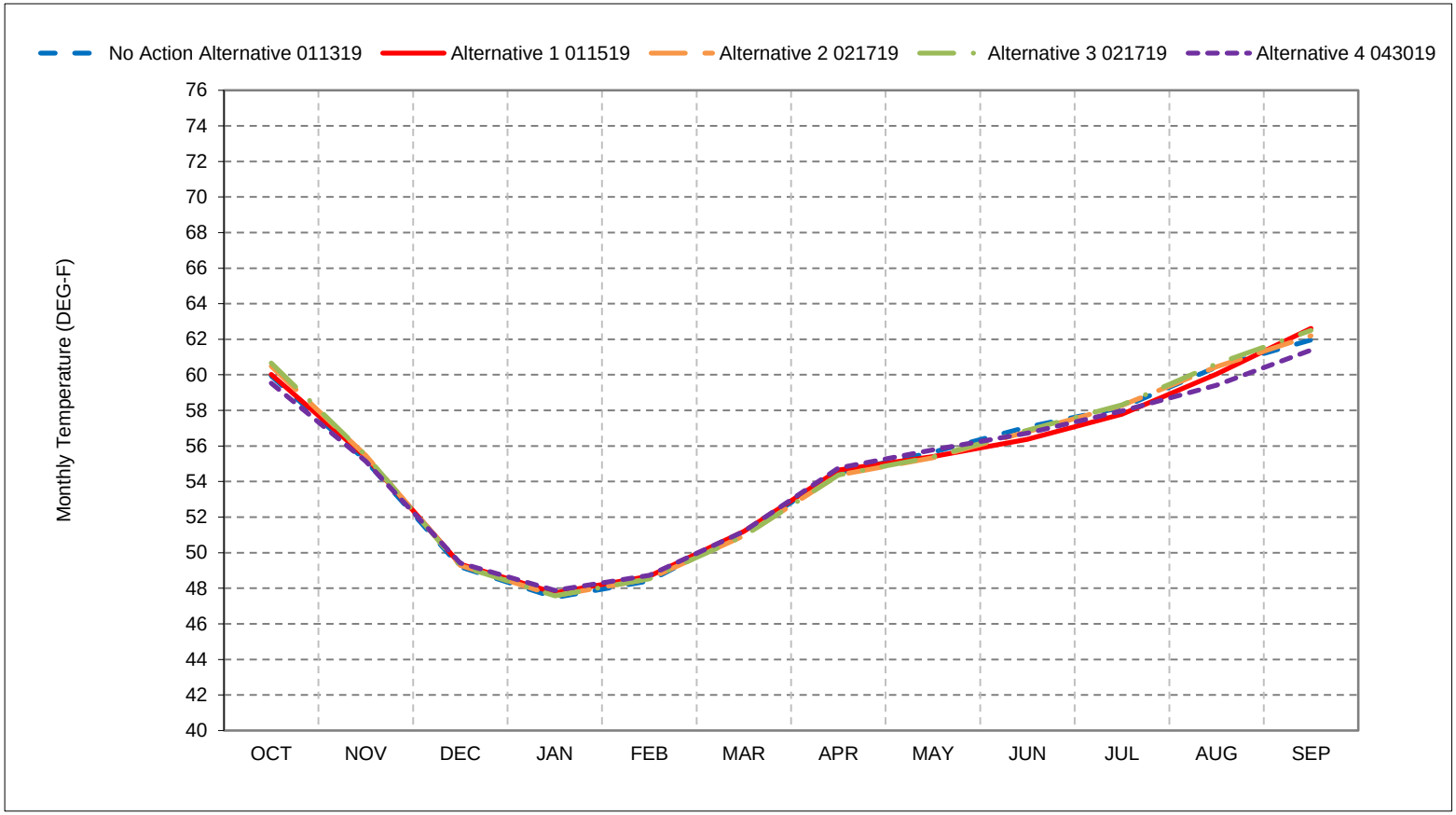

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-5. Sacramento River at Jellys Ferry, Dry Year Average Temperature



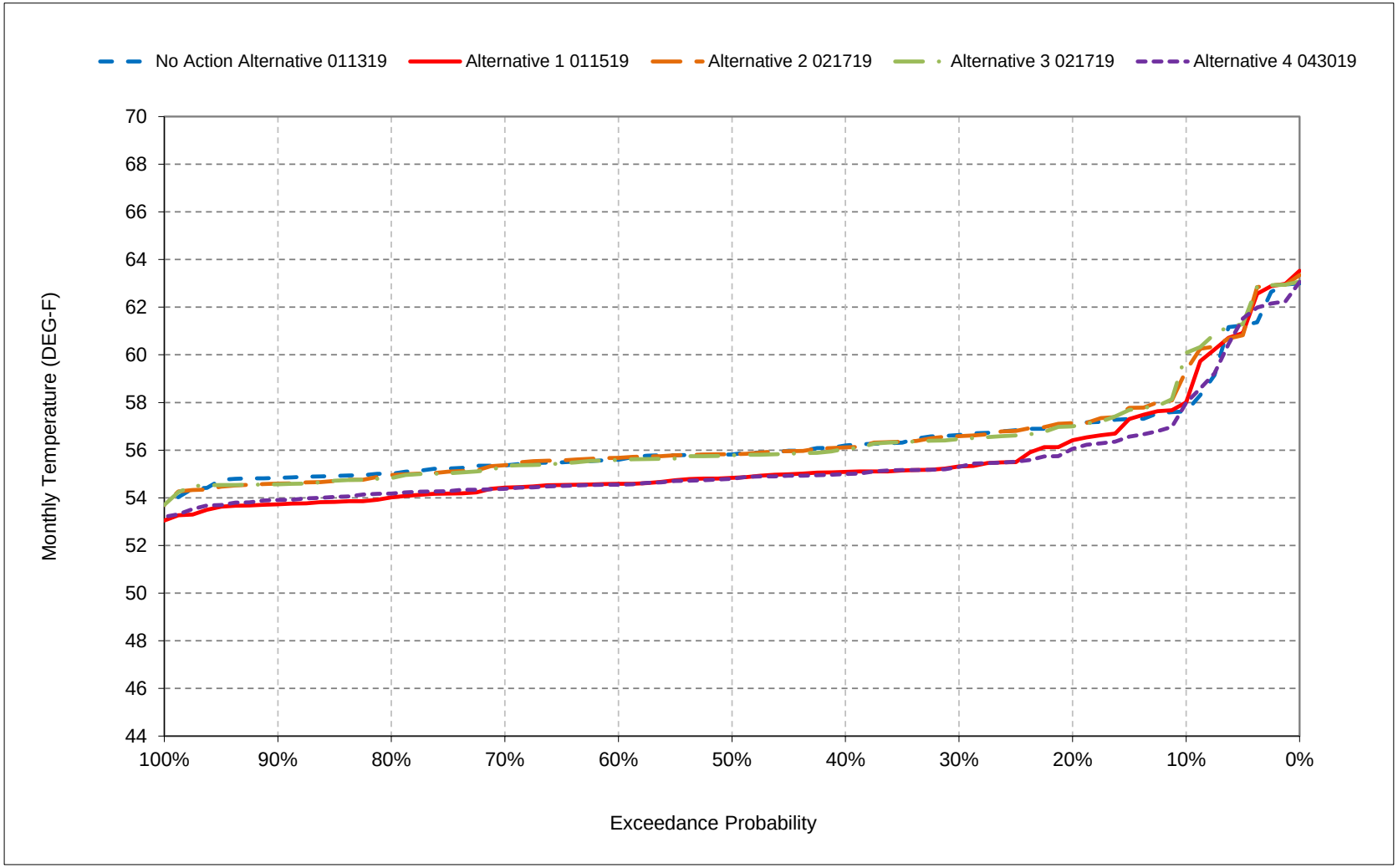

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-6. Sacramento River at Jellys Ferry, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

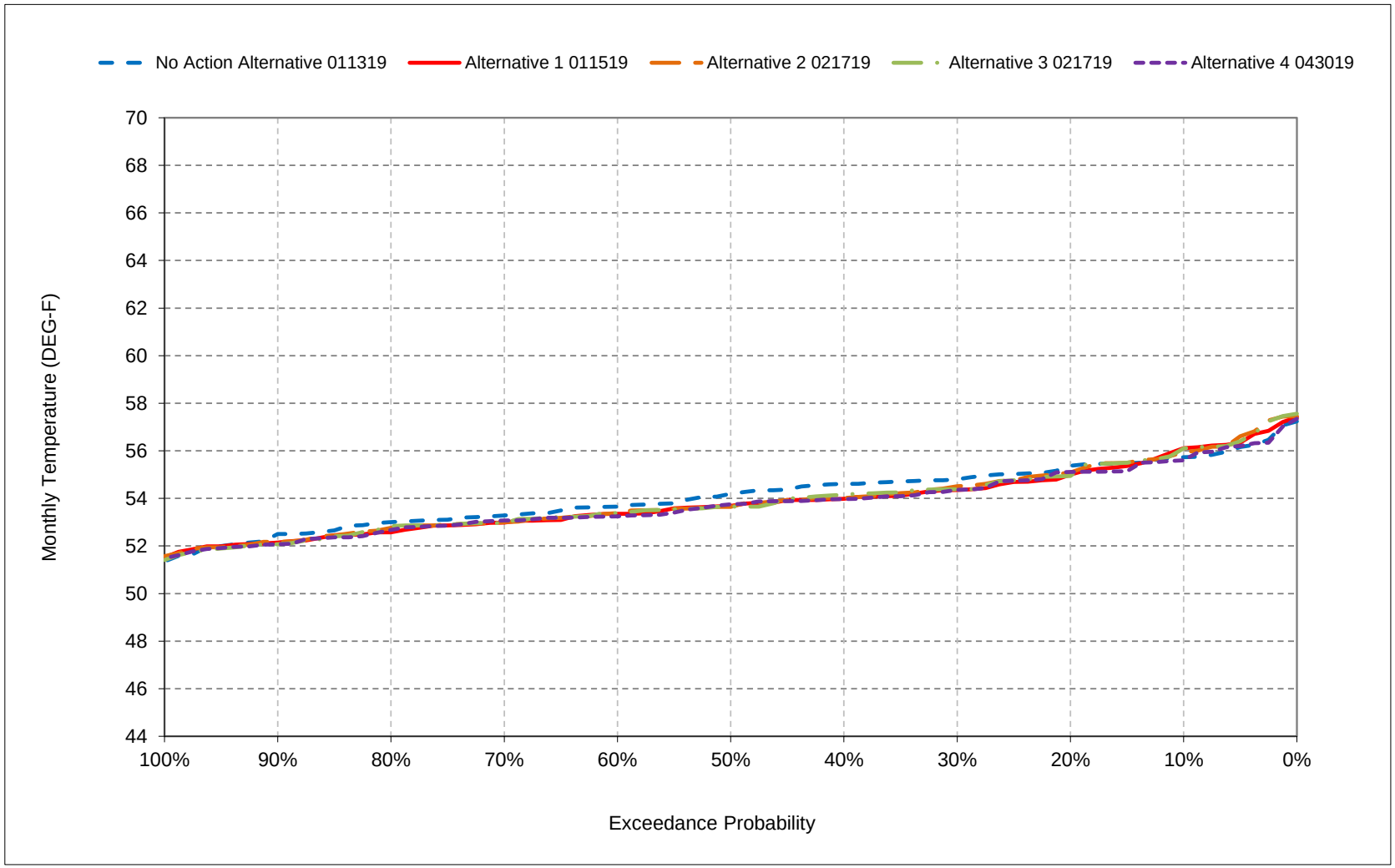
**Figure 8-7. Sacramento River at Jellys Ferry, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

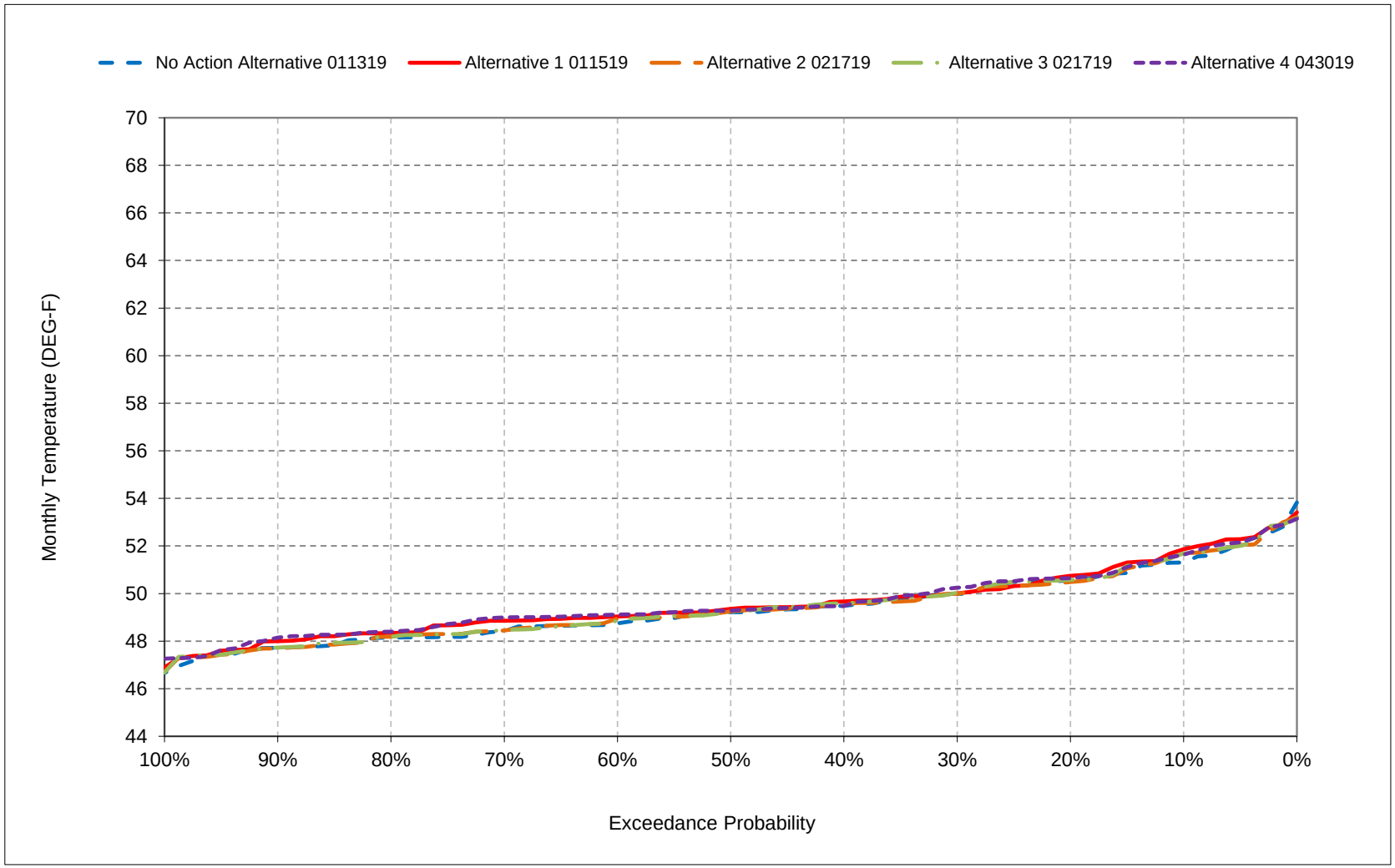
**Figure 8-8. Sacramento River at Jellys Ferry, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

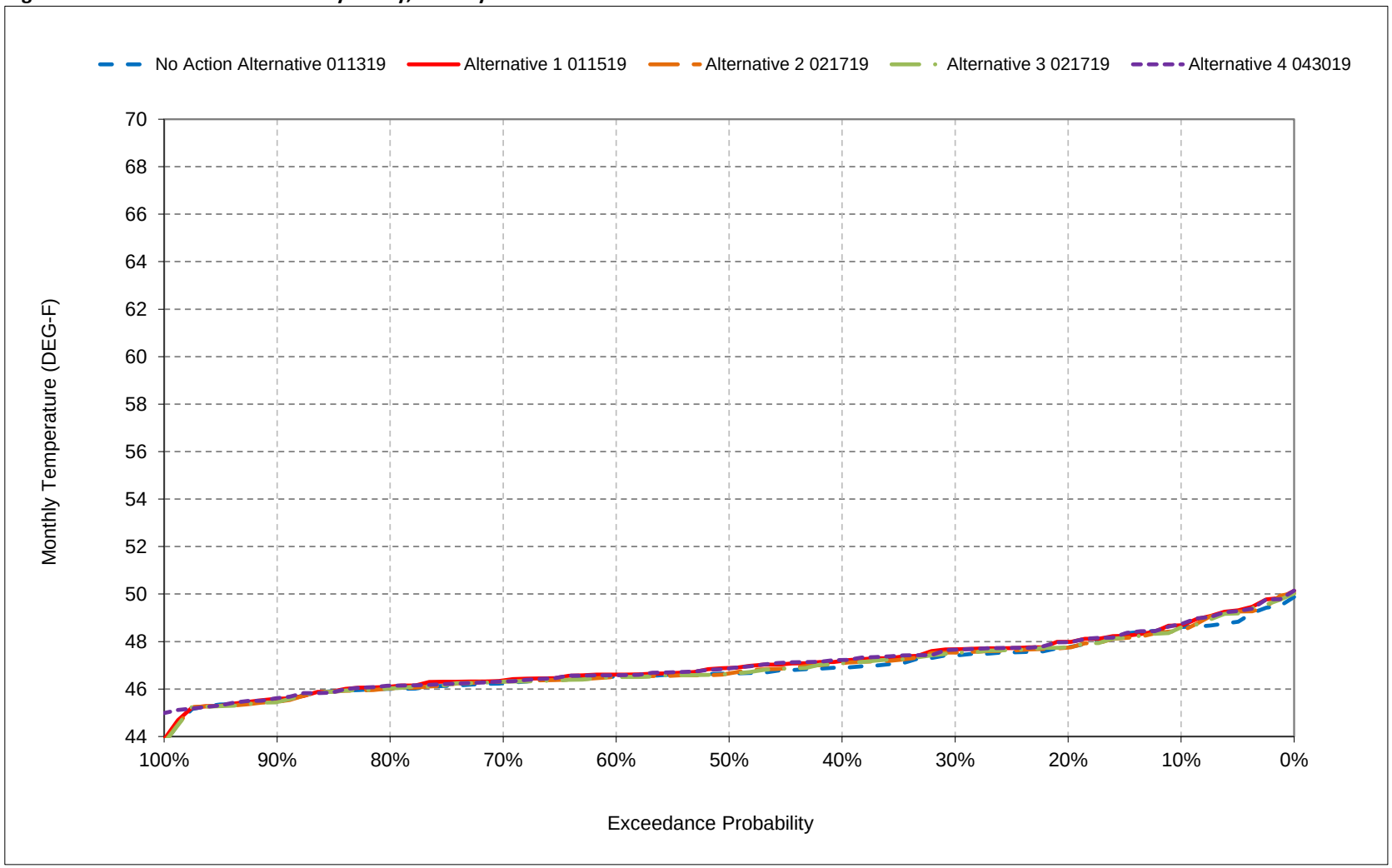
**Figure 8-9. Sacramento River at Jellys Ferry, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

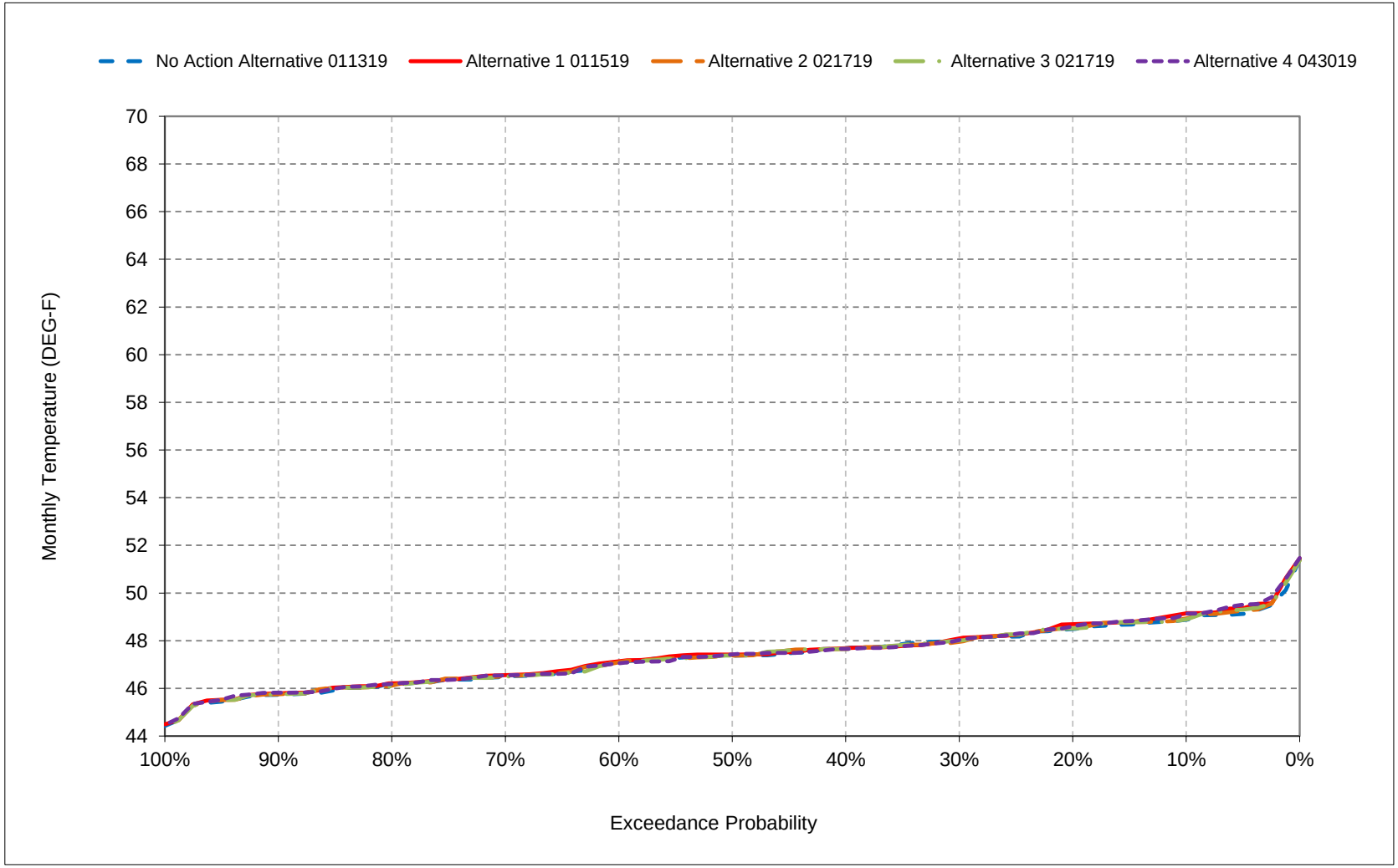
**Figure 8-10. Sacramento River at Jellys Ferry, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

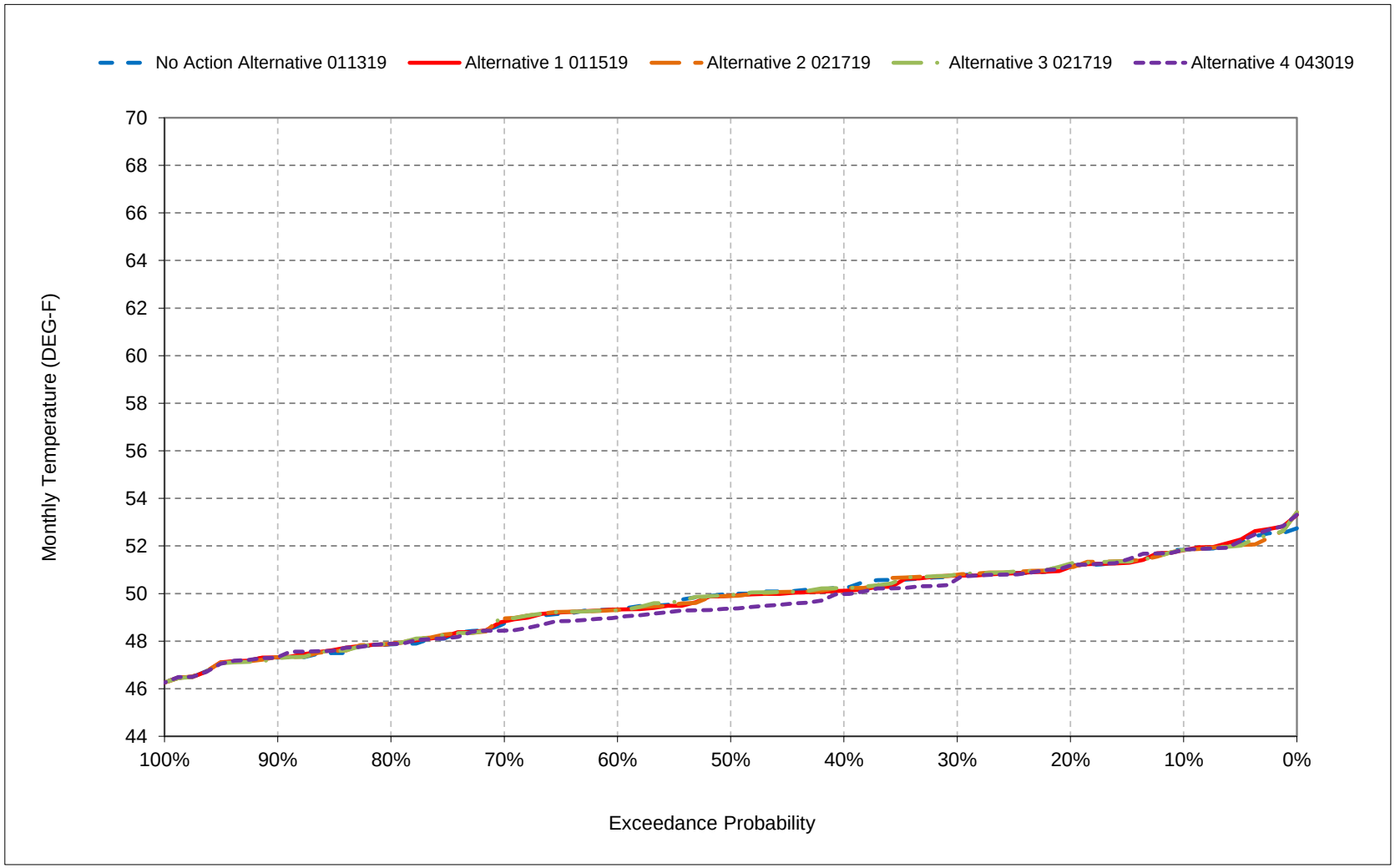
**Figure 8-11. Sacramento River at Jellys Ferry, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

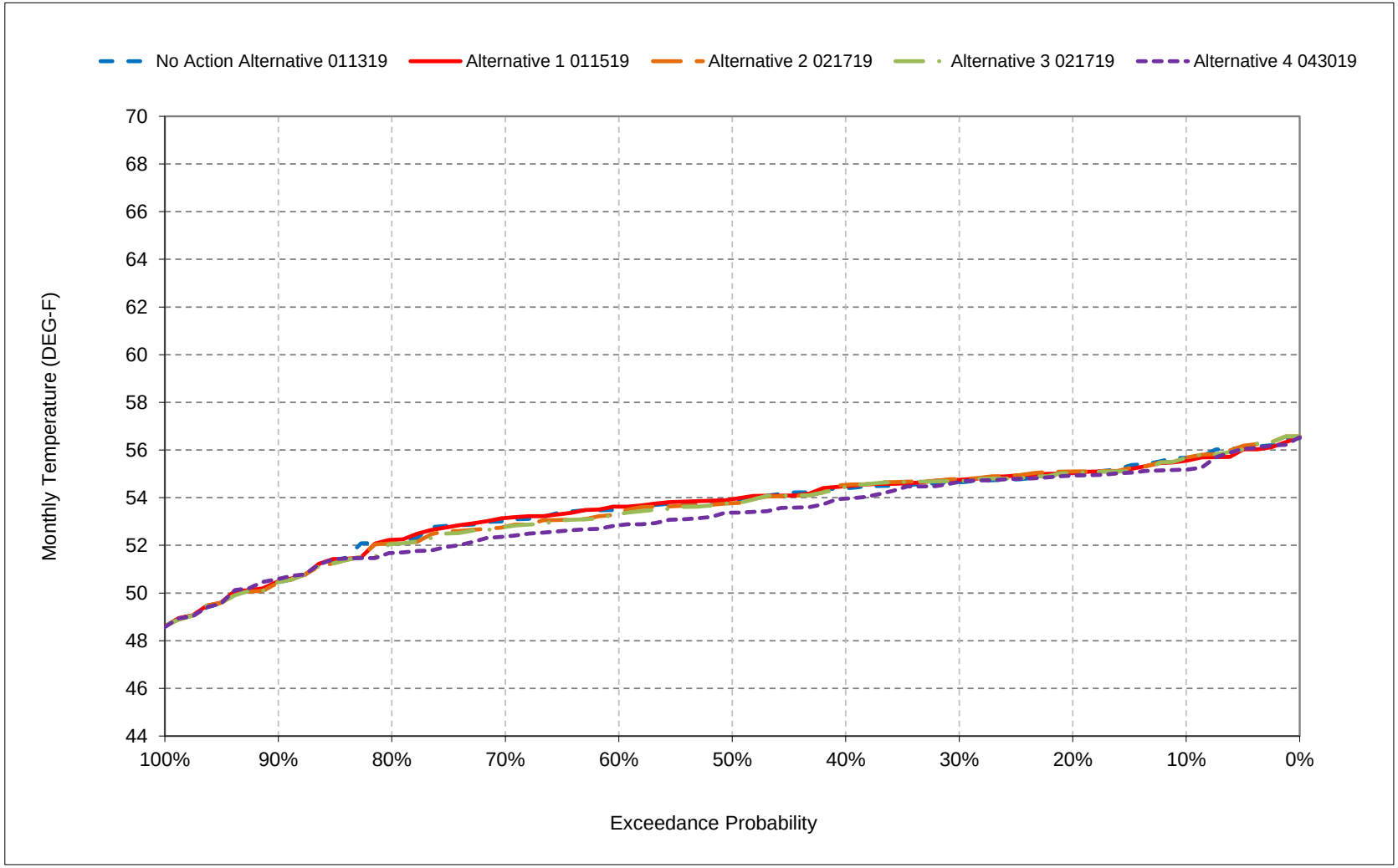
**Figure 8-12. Sacramento River at Jellys Ferry, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

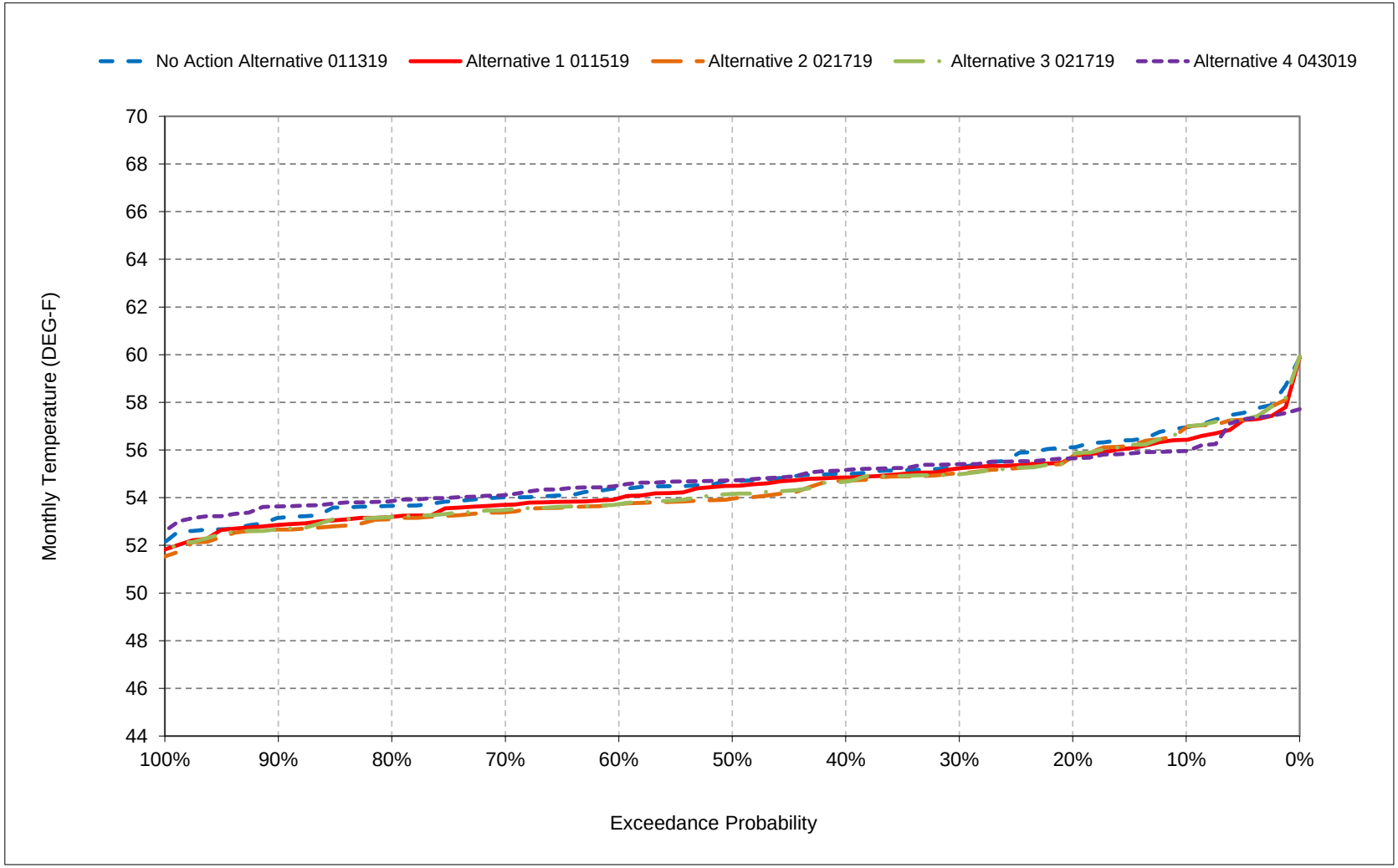
**Figure 8-13. Sacramento River at Jellys Ferry, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

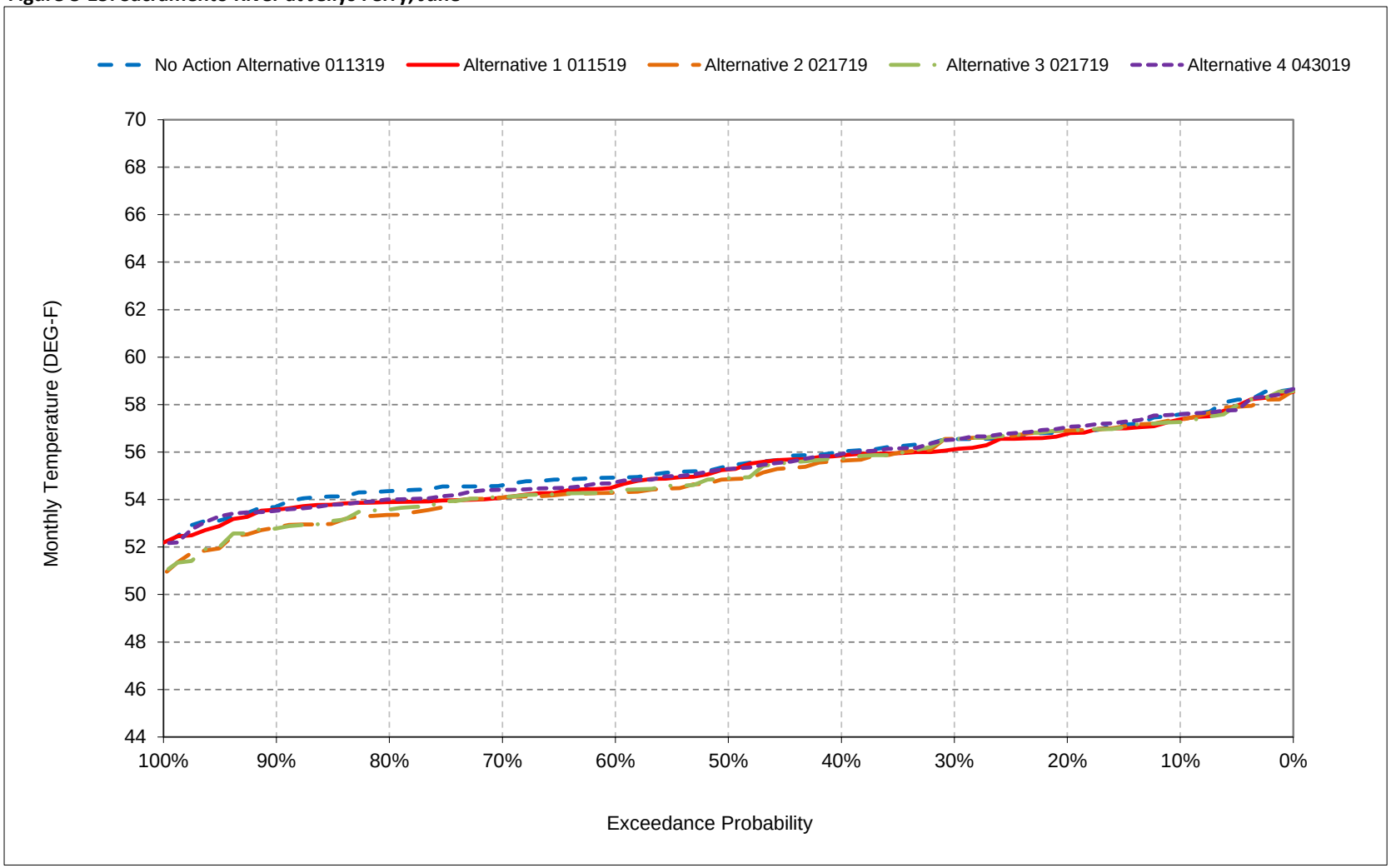
**Figure 8-14. Sacramento River at Jellys Ferry, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

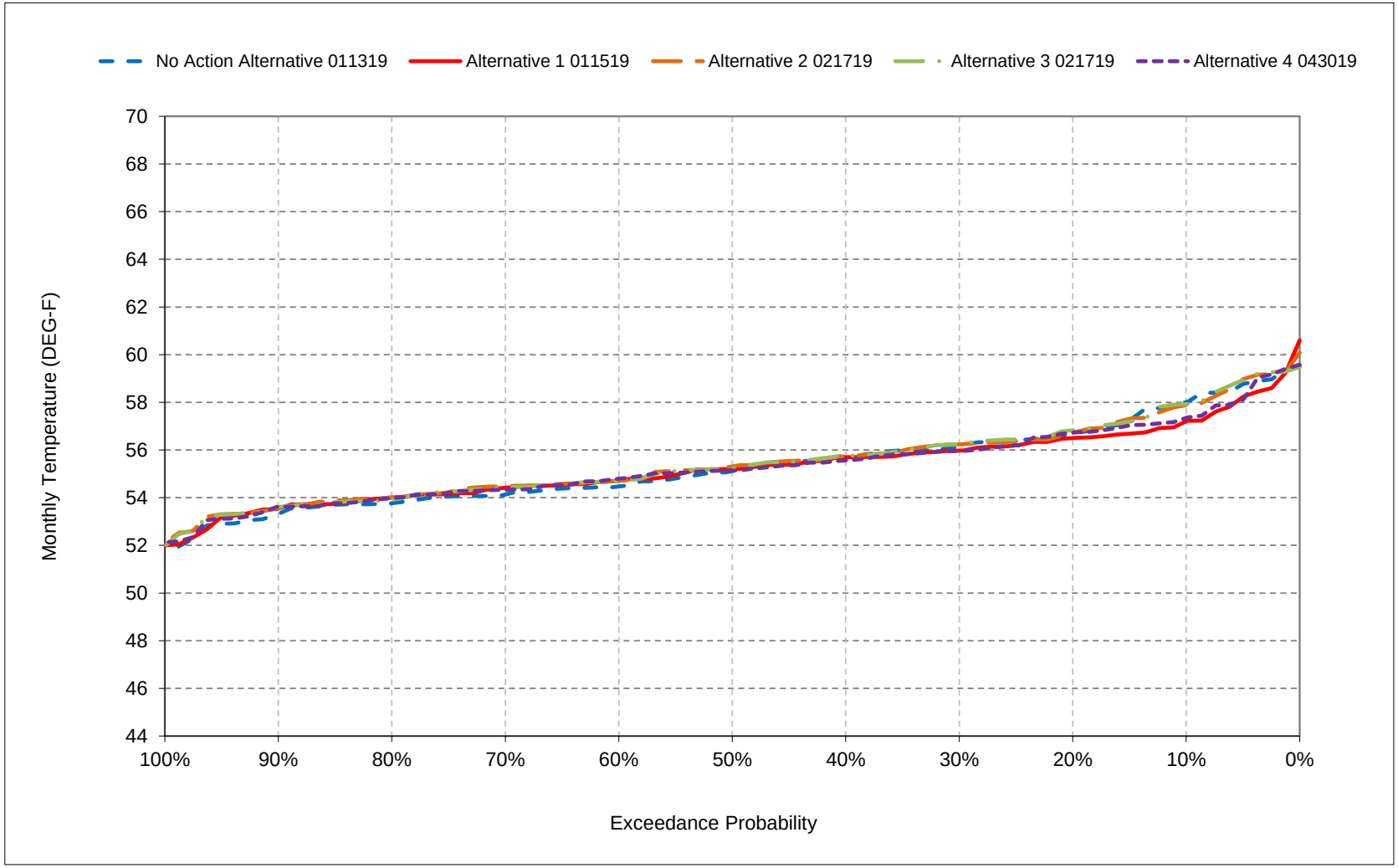
**Figure 8-15. Sacramento River at Jellys Ferry, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

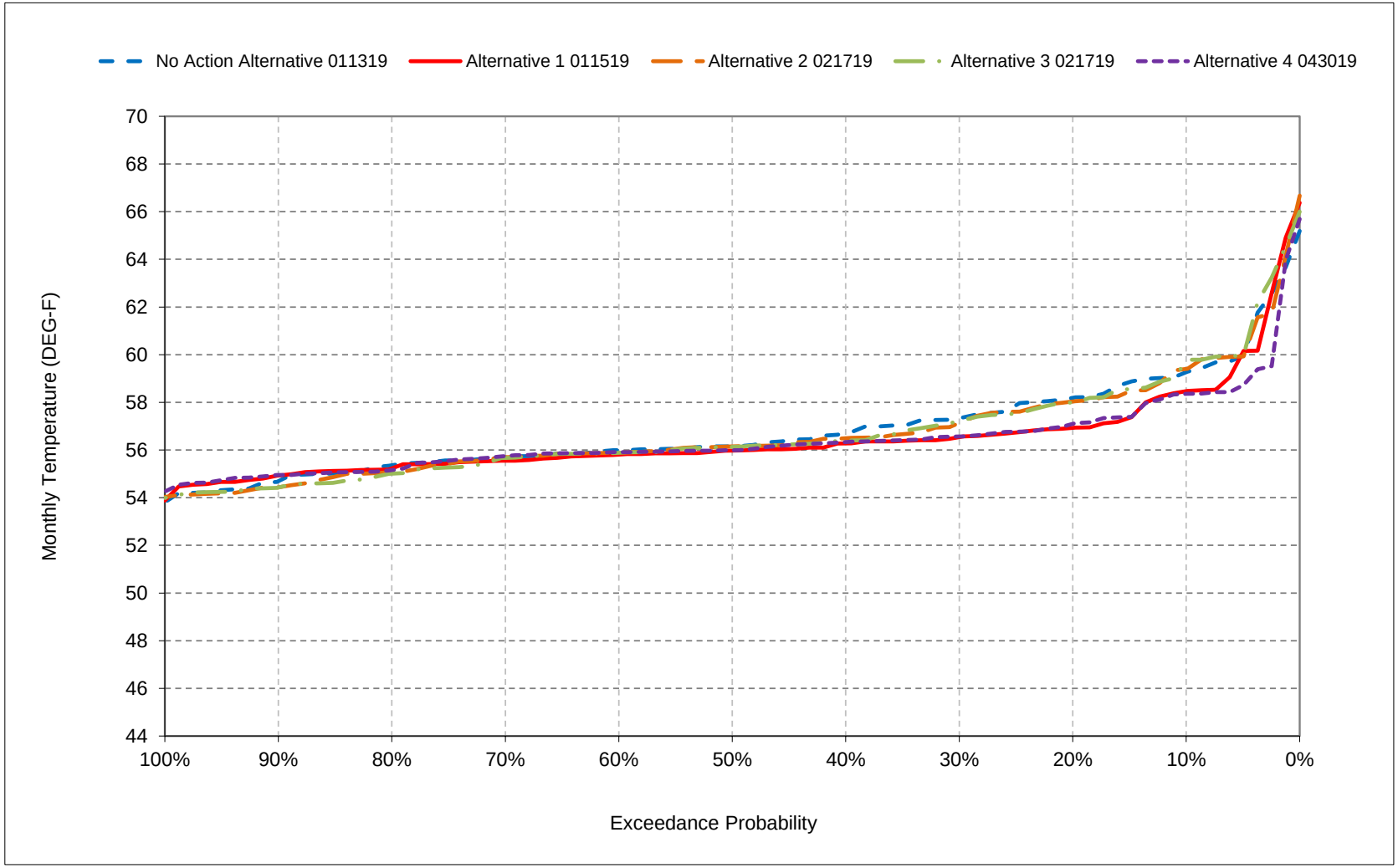
**Figure 8-16. Sacramento River at Jellys Ferry, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8-17. Sacramento River at Jellys Ferry, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8-18. Sacramento River at Jellys Ferry, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 9-1. Sacramento River at Bend Bridge, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.0 | 55.6 | 51.0 | 48.1 | 48.9 | 52.3 | 56.3 | 57.9 | 58.8 | 59.3 | 60.6 | 60.7 |
| 20% | 57.4 | 55.2 | 50.2 | 47.6 | 48.5 | 51.7 | 55.9 | 57.1 | 58.1 | 58.0 | 59.4 | 59.8 |
| 30% | 56.9 | 54.6 | 49.3 | 47.1 | 48.2 | 51.3 | 55.5 | 56.6 | 57.5 | 57.4 | 58.9 | 59.1 |
| 40% | 56.5 | 54.2 | 48.9 | 46.7 | 47.7 | 50.8 | 55.1 | 55.9 | 57.1 | 56.9 | 58.0 | 58.1 |
| 50% | 56.1 | 53.8 | 48.7 | 46.6 | 47.5 | 50.5 | 54.6 | 55.6 | 56.5 | 56.3 | 57.5 | 57.3 |
| 60% | 56.0 | 53.2 | 48.4 | 46.4 | 47.2 | 50.0 | 54.3 | 55.4 | 56.1 | 55.8 | 57.1 | 55.8 |
| 70% | 55.7 | 53.0 | 47.9 | 46.2 | 46.7 | 49.3 | 54.0 | 55.1 | 55.8 | 55.4 | 56.9 | 54.7 |
| 80% | 55.3 | 52.5 | 47.7 | 46.0 | 46.4 | 48.5 | 52.9 | 54.6 | 55.5 | 54.9 | 56.4 | 54.1 |
| 90% | 55.1 | 51.9 | 47.3 | 45.6 | 46.0 | 47.9 | 51.4 | 53.9 | 54.9 | 54.3 | 55.9 | 53.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.7 | 53.8 | 48.9 | 46.7 | 47.5 | 50.2 | 54.4 | 55.8 | 56.7 | 56.5 | 58.0 | 57.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.8 | 54.3 | 49.3 | 46.5 | 46.8 | 48.9 | 53.0 | 55.6 | 57.3 | 56.2 | 57.0 | 54.3 |
| Above Normal (16%) | 55.7 | 53.7 | 48.9 | 46.5 | 46.9 | 49.6 | 54.1 | 55.6 | 55.9 | 54.8 | 56.5 | 55.0 |
| Below Normal (13%) | 56.1 | 53.2 | 49.0 | 46.7 | 47.8 | 51.1 | 55.3 | 55.4 | 55.6 | 55.7 | 57.1 | 58.4 |
| Dry (24%) | 56.6 | 52.9 | 48.6 | 46.9 | 48.0 | 51.0 | 55.1 | 56.1 | 56.1 | 56.7 | 58.7 | 59.1 |
| Critical (15%) | 60.1 | 54.6 | 48.7 | 47.2 | 48.5 | 51.7 | 55.4 | 56.6 | 58.2 | 59.3 | 61.5 | 62.7 |

## Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.3 | 55.9 | 51.2 | 48.2 | 49.0 | 52.4 | 56.3 | 57.3 | 58.5 | 58.4 | 59.5 | 61.5 |
| 20% | 56.7 | 54.7 | 50.1 | 47.7 | 48.6 | 51.7 | 55.8 | 56.6 | 57.9 | 57.7 | 58.4 | 59.9 |
| 30% | 55.8 | 53.9 | 49.6 | 47.3 | 48.2 | 51.3 | 55.7 | 56.2 | 57.2 | 57.2 | 57.9 | 59.2 |
| 40% | 55.5 | 53.6 | 49.2 | 47.0 | 47.7 | 50.8 | 55.2 | 55.7 | 57.0 | 56.8 | 57.5 | 58.6 |
| 50% | 55.3 | 53.3 | 48.9 | 46.7 | 47.5 | 50.3 | 54.7 | 55.5 | 56.3 | 56.3 | 57.2 | 58.1 |
| 60% | 55.0 | 52.9 | 48.5 | 46.5 | 47.2 | 49.9 | 54.3 | 55.1 | 55.8 | 56.0 | 56.9 | 57.5 |
| 70% | 54.8 | 52.7 | 48.2 | 46.3 | 46.7 | 49.5 | 54.0 | 54.6 | 55.2 | 55.4 | 56.7 | 56.9 |
| 80% | 54.3 | 52.3 | 48.1 | 46.0 | 46.4 | 48.5 | 53.0 | 54.1 | 54.9 | 55.2 | 56.4 | 56.3 |
| 90% | 54.1 | 51.8 | 47.4 | 45.6 | 46.0 | 48.0 | 51.4 | 53.7 | 54.6 | 54.5 | 56.0 | 55.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.9 | 53.5 | 49.1 | 46.9 | 47.5 | 50.2 | 54.4 | 55.5 | 56.4 | 56.4 | 57.7 | 58.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.7 | 53.5 | 49.5 | 46.6 | 46.8 | 49.0 | 53.0 | 55.4 | 57.3 | 56.3 | 56.9 | 56.5 |
| Above Normal (16%) | 54.7 | 52.7 | 48.8 | 46.7 | 46.9 | 49.6 | 54.2 | 55.3 | 55.9 | 54.9 | 56.7 | 58.1 |
| Below Normal (13%) | 55.8 | 53.5 | 49.3 | 46.9 | 47.7 | 50.9 | 55.1 | 54.8 | 55.3 | 55.6 | 56.7 | 57.9 |
| Dry (24%) | 55.6 | 53.2 | 48.9 | 47.0 | 48.0 | 50.9 | 55.2 | 55.6 | 55.6 | 56.6 | 57.8 | 58.7 |
| Critical (15%) | 60.2 | 54.8 | 48.8 | 47.5 | 48.8 | 51.7 | 55.5 | 56.4 | 57.5 | 59.0 | 61.1 | 63.3 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.4** | **0.3** | **0.2** | **0.1** | **0.1** | **0.1** | 0.0 | -0.6 | -0.3 | -0.9 | -1.1 | **0.8** |
| 20% | -0.7 | -0.5 | -0.1 | **0.1** | **0.0** | **0.0** | 0.0 | -0.4 | -0.2 | -0.2 | -0.9 | **0.2** |
| 30% | -1.2 | -0.7 | **0.2** | **0.3** | -0.1 | **0.0** | **0.1** | -0.4 | -0.3 | -0.2 | -0.9 | **0.1** |
| 40% | -1.0 | -0.7 | **0.3** | **0.2** | **0.0** | -0.1 | **0.0** | -0.2 | -0.2 | -0.1 | -0.5 | **0.5** |
| 50% | -0.8 | -0.5 | **0.2** | **0.2** | **0.0** | -0.1 | **0.1** | -0.1 | -0.2 | -0.1 | -0.2 | **0.8** |
| 60% | -1.0 | -0.3 | **0.1** | **0.1** | **0.0** | -0.1 | 0.0 | -0.3 | -0.3 | **0.2** | -0.2 | **1.6** |
| 70% | -0.9 | -0.3 | **0.3** | **0.1** | **0.1** | **0.2** | **0.0** | -0.5 | -0.6 | **0.1** | -0.2 | **2.2** |
| 80% | -0.9 | -0.2 | **0.3** | **0.1** | **0.1** | **0.0** | **0.1** | -0.5 | -0.6 | **0.3** | 0.0 | **2.2** |
| 90% | -1.0 | -0.2 | **0.2** | **0.0** | **0.0** | **0.1** | **0.0** | -0.2 | -0.3 | **0.2** | **0.1** | **1.6** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.8 | -0.3 | **0.2** | **0.1** | **0.1** | 0.0 | 0.0 | -0.3 | -0.3 | 0.0 | -0.3 | **1.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -1.1 | -0.8 | **0.1** | **0.1** | **0.0** | **0.0** | 0.0 | -0.2 | 0.0 | **0.1** | -0.1 | **2.2** |
| Above Normal (16%) | -1.0 | -1.0 | -0.1 | **0.2** | **0.0** | 0.0 | **0.0** | -0.3 | -0.1 | **0.1** | **0.2** | **3.1** |
| Below Normal (13%) | -0.3 | **0.4** | **0.3** | **0.2** | 0.0 | -0.2 | -0.2 | -0.6 | -0.4 | -0.1 | -0.4 | -0.5 |
| Dry (24%) | -0.9 | **0.2** | **0.4** | **0.1** | **0.0** | 0.0 | **0.1** | -0.5 | -0.5 | -0.1 | -0.9 | -0.4 |
| Critical (15%) | **0.1** | **0.2** | **0.1** | **0.2** | **0.2** | **0.0** | **0.1** | -0.3 | -0.7 | -0.3 | -0.4 | **0.6** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 9-2. Sacramento River at Bend Bridge, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.0 | 55.6 | 51.0 | 48.1 | 48.9 | 52.3 | 56.3 | 57.9 | 58.8 | 59.3 | 60.6 | 60.7 |
| 20% | 57.4 | 55.2 | 50.2 | 47.6 | 48.5 | 51.7 | 55.9 | 57.1 | 58.1 | 58.0 | 59.4 | 59.8 |
| 30% | 56.9 | 54.6 | 49.3 | 47.1 | 48.2 | 51.3 | 55.5 | 56.6 | 57.5 | 57.4 | 58.9 | 59.1 |
| 40% | 56.5 | 54.2 | 48.9 | 46.7 | 47.7 | 50.8 | 55.1 | 55.9 | 57.1 | 56.9 | 58.0 | 58.1 |
| 50% | 56.1 | 53.8 | 48.7 | 46.6 | 47.5 | 50.5 | 54.6 | 55.6 | 56.5 | 56.3 | 57.5 | 57.3 |
| 60% | 56.0 | 53.2 | 48.4 | 46.4 | 47.2 | 50.0 | 54.3 | 55.4 | 56.1 | 55.8 | 57.1 | 55.8 |
| 70% | 55.7 | 53.0 | 47.9 | 46.2 | 46.7 | 49.3 | 54.0 | 55.1 | 55.8 | 55.4 | 56.9 | 54.7 |
| 80% | 55.3 | 52.5 | 47.7 | 46.0 | 46.4 | 48.5 | 52.9 | 54.6 | 55.5 | 54.9 | 56.4 | 54.1 |
| 90% | 55.1 | 51.9 | 47.3 | 45.6 | 46.0 | 47.9 | 51.4 | 53.9 | 54.9 | 54.3 | 55.9 | 53.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.7 | 53.8 | 48.9 | 46.7 | 47.5 | 50.2 | 54.4 | 55.8 | 56.7 | 56.5 | 58.0 | 57.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.8 | 54.3 | 49.3 | 46.5 | 46.8 | 48.9 | 53.0 | 55.6 | 57.3 | 56.2 | 57.0 | 54.3 |
| Above Normal (16%) | 55.7 | 53.7 | 48.9 | 46.5 | 46.9 | 49.6 | 54.1 | 55.6 | 55.9 | 54.8 | 56.5 | 55.0 |
| Below Normal (13%) | 56.1 | 53.2 | 49.0 | 46.7 | 47.8 | 51.1 | 55.3 | 55.4 | 55.6 | 55.7 | 57.1 | 58.4 |
| Dry (24%) | 56.6 | 52.9 | 48.6 | 46.9 | 48.0 | 51.0 | 55.1 | 56.1 | 56.1 | 56.7 | 58.7 | 59.1 |
| Critical (15%) | 60.1 | 54.6 | 48.7 | 47.2 | 48.5 | 51.7 | 55.4 | 56.6 | 58.2 | 59.3 | 61.5 | 62.7 |

## Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 59.4 | 55.8 | 51.0 | 48.0 | 48.9 | 52.3 | 56.4 | 57.7 | 58.5 | 59.0 | 60.6 | 60.8 |
| 20% | 57.4 | 54.9 | 49.9 | 47.6 | 48.5 | 51.7 | 55.9 | 56.7 | 58.1 | 58.0 | 59.4 | 60.0 |
| 30% | 56.9 | 54.0 | 49.5 | 47.2 | 48.1 | 51.3 | 55.7 | 56.0 | 57.4 | 57.3 | 58.5 | 59.1 |
| 40% | 56.4 | 53.7 | 49.1 | 46.8 | 47.7 | 50.8 | 55.2 | 55.5 | 56.8 | 57.0 | 57.8 | 58.5 |
| 50% | 56.2 | 53.3 | 48.7 | 46.6 | 47.5 | 50.3 | 54.5 | 55.1 | 55.9 | 56.3 | 57.4 | 58.0 |
| 60% | 56.0 | 52.9 | 48.3 | 46.4 | 47.2 | 50.0 | 54.2 | 54.7 | 55.4 | 56.1 | 57.0 | 57.6 |
| 70% | 55.7 | 52.7 | 48.0 | 46.3 | 46.7 | 49.5 | 53.8 | 54.3 | 55.1 | 55.5 | 56.8 | 57.1 |
| 80% | 55.3 | 52.4 | 47.8 | 45.9 | 46.4 | 48.5 | 52.8 | 53.9 | 54.4 | 55.2 | 56.3 | 56.6 |
| 90% | 54.9 | 51.8 | 47.2 | 45.6 | 46.0 | 47.8 | 51.3 | 53.6 | 53.8 | 54.6 | 55.5 | 55.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.7 | 53.5 | 48.9 | 46.8 | 47.5 | 50.2 | 54.3 | 55.3 | 56.1 | 56.6 | 57.9 | 58.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.6 | 53.4 | 49.3 | 46.5 | 46.8 | 49.0 | 53.0 | 55.4 | 56.8 | 56.4 | 56.9 | 56.8 |
| Above Normal (16%) | 55.7 | 52.8 | 48.8 | 46.6 | 46.9 | 49.6 | 54.2 | 55.2 | 55.0 | 55.0 | 56.4 | 58.0 |
| Below Normal (13%) | 56.4 | 53.6 | 49.1 | 46.7 | 47.7 | 50.9 | 55.0 | 54.6 | 55.0 | 55.8 | 56.5 | 57.7 |
| Dry (24%) | 56.6 | 53.3 | 48.7 | 47.0 | 48.0 | 51.1 | 55.1 | 55.2 | 55.5 | 56.7 | 58.8 | 58.7 |
| Critical (15%) | 60.6 | 54.9 | 48.8 | 47.3 | 48.7 | 51.4 | 55.2 | 56.3 | 57.8 | 59.4 | 61.5 | 62.9 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **1.5** | **0.2** | 0.0 | -0.1 | 0.0 | **0.0** | **0.1** | -0.2 | -0.2 | -0.3 | **0.0** | **0.1** |
| 20% | **0.0** | -0.3 | -0.3 | 0.0 | 0.0 | **0.1** | **0.0** | -0.4 | **0.0** | 0.0 | 0.0 | **0.2** |
| 30% | 0.0 | -0.6 | **0.1** | **0.1** | -0.1 | **0.0** | **0.2** | -0.5 | -0.1 | 0.0 | -0.4 | **0.0** |
| 40% | -0.1 | -0.5 | **0.2** | **0.0** | **0.1** | 0.0 | **0.0** | -0.4 | -0.3 | **0.0** | -0.2 | **0.3** |
| 50% | **0.0** | -0.5 | **0.1** | **0.0** | **0.0** | -0.1 | -0.1 | -0.5 | -0.7 | 0.0 | -0.1 | **0.7** |
| 60% | 0.0 | -0.3 | -0.1 | 0.0 | -0.1 | 0.0 | -0.1 | -0.7 | -0.7 | **0.3** | -0.1 | **1.7** |
| 70% | 0.0 | -0.2 | **0.1** | **0.1** | **0.0** | **0.2** | -0.2 | -0.8 | -0.7 | **0.2** | -0.1 | **2.3** |
| 80% | 0.0 | -0.1 | **0.1** | 0.0 | **0.1** | **0.0** | -0.1 | -0.7 | -1.1 | **0.3** | -0.1 | **2.5** |
| 90% | -0.2 | -0.1 | -0.1 | 0.0 | **0.0** | -0.1 | 0.0 | -0.4 | -1.1 | **0.2** | -0.4 | **1.8** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.0** | -0.2 | **0.0** | **0.0** | **0.0** | 0.0 | -0.1 | -0.5 | -0.6 | **0.1** | -0.1 | **1.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.2 | -0.8 | 0.0 | **0.0** | **0.0** | **0.0** | **0.0** | -0.2 | -0.5 | **0.2** | -0.2 | **2.5** |
| Above Normal (16%) | -0.1 | -0.9 | -0.1 | **0.0** | 0.0 | **0.0** | **0.1** | -0.4 | -1.0 | **0.2** | -0.1 | **3.0** |
| Below Normal (13%) | **0.3** | **0.4** | **0.1** | **0.1** | 0.0 | -0.1 | -0.3 | -0.8 | -0.7 | **0.1** | -0.6 | -0.7 |
| Dry (24%) | **0.1** | **0.3** | **0.1** | **0.0** | **0.0** | **0.1** | 0.0 | -0.9 | -0.6 | **0.1** | **0.1** | -0.4 |
| Critical (15%) | **0.5** | **0.3** | **0.1** | **0.1** | **0.1** | -0.2 | -0.1 | -0.3 | -0.3 | **0.1** | 0.0 | **0.2** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 9-3. Sacramento River at Bend Bridge, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.0 | 55.6 | 51.0 | 48.1 | 48.9 | 52.3 | 56.3 | 57.9 | 58.8 | 59.3 | 60.6 | 60.7 |
| 20% | 57.4 | 55.2 | 50.2 | 47.6 | 48.5 | 51.7 | 55.9 | 57.1 | 58.1 | 58.0 | 59.4 | 59.8 |
| 30% | 56.9 | 54.6 | 49.3 | 47.1 | 48.2 | 51.3 | 55.5 | 56.6 | 57.5 | 57.4 | 58.9 | 59.1 |
| 40% | 56.5 | 54.2 | 48.9 | 46.7 | 47.7 | 50.8 | 55.1 | 55.9 | 57.1 | 56.9 | 58.0 | 58.1 |
| 50% | 56.1 | 53.8 | 48.7 | 46.6 | 47.5 | 50.5 | 54.6 | 55.6 | 56.5 | 56.3 | 57.5 | 57.3 |
| 60% | 56.0 | 53.2 | 48.4 | 46.4 | 47.2 | 50.0 | 54.3 | 55.4 | 56.1 | 55.8 | 57.1 | 55.8 |
| 70% | 55.7 | 53.0 | 47.9 | 46.2 | 46.7 | 49.3 | 54.0 | 55.1 | 55.8 | 55.4 | 56.9 | 54.7 |
| 80% | 55.3 | 52.5 | 47.7 | 46.0 | 46.4 | 48.5 | 52.9 | 54.6 | 55.5 | 54.9 | 56.4 | 54.1 |
| 90% | 55.1 | 51.9 | 47.3 | 45.6 | 46.0 | 47.9 | 51.4 | 53.9 | 54.9 | 54.3 | 55.9 | 53.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.7 | 53.8 | 48.9 | 46.7 | 47.5 | 50.2 | 54.4 | 55.8 | 56.7 | 56.5 | 58.0 | 57.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.8 | 54.3 | 49.3 | 46.5 | 46.8 | 48.9 | 53.0 | 55.6 | 57.3 | 56.2 | 57.0 | 54.3 |
| Above Normal (16%) | 55.7 | 53.7 | 48.9 | 46.5 | 46.9 | 49.6 | 54.1 | 55.6 | 55.9 | 54.8 | 56.5 | 55.0 |
| Below Normal (13%) | 56.1 | 53.2 | 49.0 | 46.7 | 47.8 | 51.1 | 55.3 | 55.4 | 55.6 | 55.7 | 57.1 | 58.4 |
| Dry (24%) | 56.6 | 52.9 | 48.6 | 46.9 | 48.0 | 51.0 | 55.1 | 56.1 | 56.1 | 56.7 | 58.7 | 59.1 |
| Critical (15%) | 60.1 | 54.6 | 48.7 | 47.2 | 48.5 | 51.7 | 55.4 | 56.6 | 58.2 | 59.3 | 61.5 | 62.7 |

## Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.1 | 56.0 | 51.1 | 48.0 | 48.9 | 52.3 | 56.4 | 57.7 | 58.5 | 59.2 | 60.9 | 61.0 |
| 20% | 57.4 | 54.9 | 50.2 | 47.6 | 48.5 | 51.8 | 55.8 | 56.7 | 58.1 | 58.0 | 59.6 | 60.0 |
| 30% | 56.8 | 54.0 | 49.5 | 47.2 | 48.2 | 51.3 | 55.5 | 55.9 | 57.5 | 57.4 | 58.5 | 59.1 |
| 40% | 56.3 | 53.7 | 49.2 | 46.8 | 47.7 | 50.8 | 55.1 | 55.6 | 57.0 | 56.9 | 57.8 | 58.5 |
| 50% | 56.1 | 53.3 | 48.8 | 46.6 | 47.5 | 50.4 | 54.5 | 55.2 | 55.9 | 56.4 | 57.2 | 58.1 |
| 60% | 55.9 | 52.9 | 48.3 | 46.4 | 47.2 | 50.0 | 54.1 | 54.8 | 55.4 | 56.0 | 57.0 | 57.6 |
| 70% | 55.6 | 52.7 | 48.0 | 46.3 | 46.7 | 49.5 | 53.7 | 54.4 | 55.1 | 55.5 | 56.8 | 57.0 |
| 80% | 55.2 | 52.4 | 47.8 | 45.9 | 46.4 | 48.5 | 52.8 | 54.0 | 54.6 | 55.3 | 56.2 | 56.3 |
| 90% | 54.9 | 51.7 | 47.3 | 45.6 | 46.0 | 47.8 | 51.4 | 53.5 | 53.8 | 54.6 | 55.5 | 55.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.7 | 53.5 | 49.0 | 46.8 | 47.5 | 50.2 | 54.2 | 55.4 | 56.2 | 56.6 | 57.9 | 58.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.5 | 53.4 | 49.4 | 46.5 | 46.8 | 49.0 | 52.9 | 55.6 | 56.9 | 56.3 | 56.8 | 56.9 |
| Above Normal (16%) | 55.7 | 52.9 | 48.8 | 46.6 | 46.9 | 49.6 | 54.2 | 55.2 | 55.0 | 55.0 | 56.4 | 57.8 |
| Below Normal (13%) | 56.3 | 53.6 | 49.1 | 46.7 | 47.7 | 50.9 | 54.9 | 54.6 | 55.0 | 55.8 | 56.5 | 57.6 |
| Dry (24%) | 56.4 | 53.2 | 48.7 | 46.9 | 48.0 | 51.1 | 55.1 | 55.2 | 55.5 | 56.8 | 58.8 | 58.7 |
| Critical (15%) | 60.8 | 54.9 | 48.7 | 47.3 | 48.7 | 51.4 | 55.2 | 56.3 | 57.9 | 59.5 | 61.6 | 63.2 |

## Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **2.1** | **0.4** | **0.1** | -0.1 | 0.0 | **0.0** | **0.1** | -0.2 | -0.3 | -0.1 | **0.3** | **0.3** |
| 20% | 0.0 | -0.3 | 0.0 | 0.0 | 0.0 | **0.1** | 0.0 | -0.4 | **0.0** | 0.0 | **0.2** | **0.2** |
| 30% | -0.2 | -0.6 | **0.1** | **0.1** | 0.0 | **0.1** | -0.1 | -0.6 | 0.0 | **0.0** | -0.4 | **0.0** |
| 40% | -0.2 | -0.6 | **0.2** | **0.0** | **0.1** | -0.1 | 0.0 | -0.4 | -0.1 | -0.1 | -0.2 | **0.3** |
| 50% | 0.0 | -0.5 | **0.1** | **0.0** | 0.0 | 0.0 | -0.1 | -0.4 | -0.6 | **0.1** | -0.3 | **0.8** |
| 60% | -0.1 | -0.3 | -0.1 | 0.0 | 0.0 | 0.0 | -0.2 | -0.6 | -0.7 | **0.2** | -0.1 | **1.7** |
| 70% | -0.1 | -0.2 | **0.1** | **0.1** | **0.0** | **0.2** | -0.2 | -0.7 | -0.7 | **0.2** | -0.1 | **2.3** |
| 80% | 0.0 | -0.1 | **0.1** | 0.0 | **0.1** | **0.0** | -0.1 | -0.6 | -0.9 | **0.4** | -0.2 | **2.2** |
| 90% | -0.2 | -0.2 | 0.0 | 0.0 | **0.0** | -0.1 | 0.0 | -0.4 | -1.1 | **0.2** | -0.4 | **1.8** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.0** | -0.2 | **0.0** | **0.0** | **0.0** | **0.0** | -0.1 | -0.4 | -0.5 | **0.1** | -0.1 | **1.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.3 | -0.9 | **0.0** | **0.0** | **0.0** | **0.0** | -0.1 | **0.0** | -0.4 | **0.1** | -0.3 | **2.6** |
| Above Normal (16%) | 0.0 | -0.8 | -0.1 | **0.0** | 0.0 | **0.1** | **0.1** | -0.4 | -0.9 | **0.1** | -0.1 | **2.9** |
| Below Normal (13%) | **0.2** | **0.4** | **0.1** | **0.1** | 0.0 | -0.2 | -0.4 | -0.8 | -0.6 | **0.1** | -0.6 | -0.8 |
| Dry (24%) | -0.1 | **0.3** | **0.1** | **0.0** | **0.0** | **0.2** | 0.0 | -0.9 | -0.6 | **0.1** | **0.1** | -0.4 |
| Critical (15%) | **0.7** | **0.3** | **0.0** | **0.1** | **0.1** | -0.2 | -0.1 | -0.3 | -0.2 | **0.1** | **0.1** | **0.5** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 9-4. Sacramento River at Bend Bridge, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.0 | 55.6 | 51.0 | 48.1 | 48.9 | 52.3 | 56.3 | 57.9 | 58.8 | 59.3 | 60.6 | 60.7 |
| 20% | 57.4 | 55.2 | 50.2 | 47.6 | 48.5 | 51.7 | 55.9 | 57.1 | 58.1 | 58.0 | 59.4 | 59.8 |
| 30% | 56.9 | 54.6 | 49.3 | 47.1 | 48.2 | 51.3 | 55.5 | 56.6 | 57.5 | 57.4 | 58.9 | 59.1 |
| 40% | 56.5 | 54.2 | 48.9 | 46.7 | 47.7 | 50.8 | 55.1 | 55.9 | 57.1 | 56.9 | 58.0 | 58.1 |
| 50% | 56.1 | 53.8 | 48.7 | 46.6 | 47.5 | 50.5 | 54.6 | 55.6 | 56.5 | 56.3 | 57.5 | 57.3 |
| 60% | 56.0 | 53.2 | 48.4 | 46.4 | 47.2 | 50.0 | 54.3 | 55.4 | 56.1 | 55.8 | 57.1 | 55.8 |
| 70% | 55.7 | 53.0 | 47.9 | 46.2 | 46.7 | 49.3 | 54.0 | 55.1 | 55.8 | 55.4 | 56.9 | 54.7 |
| 80% | 55.3 | 52.5 | 47.7 | 46.0 | 46.4 | 48.5 | 52.9 | 54.6 | 55.5 | 54.9 | 56.4 | 54.1 |
| 90% | 55.1 | 51.9 | 47.3 | 45.6 | 46.0 | 47.9 | 51.4 | 53.9 | 54.9 | 54.3 | 55.9 | 53.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.7 | 53.8 | 48.9 | 46.7 | 47.5 | 50.2 | 54.4 | 55.8 | 56.7 | 56.5 | 58.0 | 57.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.8 | 54.3 | 49.3 | 46.5 | 46.8 | 48.9 | 53.0 | 55.6 | 57.3 | 56.2 | 57.0 | 54.3 |
| Above Normal (16%) | 55.7 | 53.7 | 48.9 | 46.5 | 46.9 | 49.6 | 54.1 | 55.6 | 55.9 | 54.8 | 56.5 | 55.0 |
| Below Normal (13%) | 56.1 | 53.2 | 49.0 | 46.7 | 47.8 | 51.1 | 55.3 | 55.4 | 55.6 | 55.7 | 57.1 | 58.4 |
| Dry (24%) | 56.6 | 52.9 | 48.6 | 46.9 | 48.0 | 51.0 | 55.1 | 56.1 | 56.1 | 56.7 | 58.7 | 59.1 |
| Critical (15%) | 60.1 | 54.6 | 48.7 | 47.2 | 48.5 | 51.7 | 55.4 | 56.6 | 58.2 | 59.3 | 61.5 | 62.7 |

## Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.3 | 55.4 | 51.1 | 48.3 | 49.0 | 52.3 | 56.0 | 57.0 | 58.8 | 58.8 | 59.5 | 60.8 |
| 20% | 56.5 | 54.8 | 50.1 | 47.6 | 48.6 | 51.7 | 55.7 | 56.7 | 58.2 | 58.0 | 58.6 | 59.9 |
| 30% | 55.7 | 54.0 | 49.7 | 47.4 | 48.2 | 51.1 | 55.3 | 56.3 | 57.5 | 57.2 | 58.0 | 59.4 |
| 40% | 55.5 | 53.6 | 49.2 | 47.0 | 47.7 | 50.4 | 54.7 | 56.0 | 57.0 | 56.8 | 57.7 | 58.7 |
| 50% | 55.2 | 53.3 | 48.8 | 46.8 | 47.5 | 50.0 | 54.1 | 55.7 | 56.3 | 56.4 | 57.4 | 58.3 |
| 60% | 55.0 | 52.9 | 48.6 | 46.5 | 47.2 | 49.6 | 53.6 | 55.6 | 55.8 | 55.9 | 57.1 | 57.7 |
| 70% | 54.8 | 52.7 | 48.4 | 46.3 | 46.7 | 49.0 | 53.2 | 55.2 | 55.5 | 55.4 | 56.9 | 57.1 |
| 80% | 54.5 | 52.3 | 48.1 | 46.1 | 46.4 | 48.5 | 52.5 | 55.0 | 55.0 | 55.1 | 56.4 | 56.4 |
| 90% | 54.2 | 51.7 | 47.6 | 45.7 | 46.1 | 48.0 | 51.4 | 54.5 | 54.4 | 54.6 | 56.0 | 55.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.8 | 53.5 | 49.1 | 46.9 | 47.5 | 50.1 | 54.0 | 55.8 | 56.5 | 56.5 | 57.7 | 58.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 54.8 | 53.5 | 49.5 | 46.6 | 46.8 | 48.8 | 52.5 | 55.5 | 57.3 | 56.3 | 56.9 | 56.6 |
| Above Normal (16%) | 54.8 | 52.7 | 48.9 | 46.7 | 46.9 | 49.3 | 53.6 | 55.8 | 56.1 | 54.8 | 56.7 | 57.8 |
| Below Normal (13%) | 55.4 | 53.5 | 49.2 | 46.9 | 47.7 | 50.7 | 54.9 | 55.3 | 55.4 | 55.6 | 57.0 | 58.5 |
| Dry (24%) | 55.7 | 53.1 | 49.0 | 47.0 | 48.0 | 50.9 | 54.9 | 56.0 | 55.6 | 56.6 | 57.9 | 58.9 |
| Critical (15%) | 59.8 | 54.6 | 48.9 | 47.6 | 48.8 | 51.7 | 55.6 | 56.8 | 57.8 | 59.3 | 60.6 | 62.2 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.3** | -0.3 | **0.1** | **0.1** | **0.1** | **0.0** | -0.3 | -0.9 | **0.0** | -0.5 | -1.1 | **0.1** |
| 20% | -0.9 | -0.4 | -0.2 | **0.0** | **0.1** | 0.0 | -0.2 | -0.4 | **0.1** | **0.1** | -0.8 | **0.1** |
| 30% | -1.2 | -0.6 | **0.4** | **0.4** | -0.1 | -0.1 | -0.2 | -0.3 | **0.0** | -0.2 | -0.9 | **0.3** |
| 40% | -1.1 | -0.6 | **0.3** | **0.2** | **0.0** | -0.5 | -0.4 | **0.1** | -0.1 | -0.2 | -0.3 | **0.6** |
| 50% | -0.9 | -0.5 | **0.2** | **0.2** | **0.0** | -0.5 | -0.5 | **0.1** | -0.2 | **0.0** | -0.1 | **1.0** |
| 60% | -1.0 | -0.3 | **0.1** | **0.1** | 0.0 | -0.4 | -0.7 | **0.2** | -0.3 | **0.1** | 0.0 | **1.8** |
| 70% | -0.9 | -0.3 | **0.4** | **0.1** | **0.0** | -0.3 | -0.8 | **0.1** | -0.3 | **0.0** | 0.0 | **2.3** |
| 80% | -0.7 | -0.2 | **0.4** | **0.1** | **0.1** | **0.0** | -0.4 | **0.3** | -0.5 | **0.2** | -0.1 | **2.3** |
| 90% | -0.9 | -0.3 | **0.3** | **0.1** | **0.1** | **0.1** | **0.0** | **0.5** | -0.5 | **0.3** | **0.1** | **2.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.8 | -0.3 | **0.2** | **0.2** | **0.0** | -0.1 | -0.3 | 0.0 | -0.2 | **0.0** | -0.3 | **1.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -1.0 | -0.8 | **0.1** | **0.1** | **0.0** | -0.1 | -0.6 | -0.1 | **0.1** | **0.1** | -0.1 | **2.3** |
| Above Normal (16%) | -0.9 | -1.0 | 0.0 | **0.1** | **0.0** | -0.3 | -0.5 | **0.2** | **0.2** | 0.0 | **0.2** | **2.9** |
| Below Normal (13%) | -0.7 | **0.3** | **0.3** | **0.3** | 0.0 | -0.4 | -0.4 | -0.1 | -0.2 | 0.0 | -0.1 | **0.1** |
| Dry (24%) | -0.9 | **0.2** | **0.5** | **0.1** | **0.0** | -0.1 | -0.2 | -0.1 | -0.5 | 0.0 | -0.8 | -0.2 |
| Critical (15%) | -0.4 | 0.0 | **0.2** | **0.3** | **0.3** | **0.0** | **0.2** | **0.1** | -0.4 | 0.0 | -0.9 | -0.5 |

a Based on the 82-year simulation period.

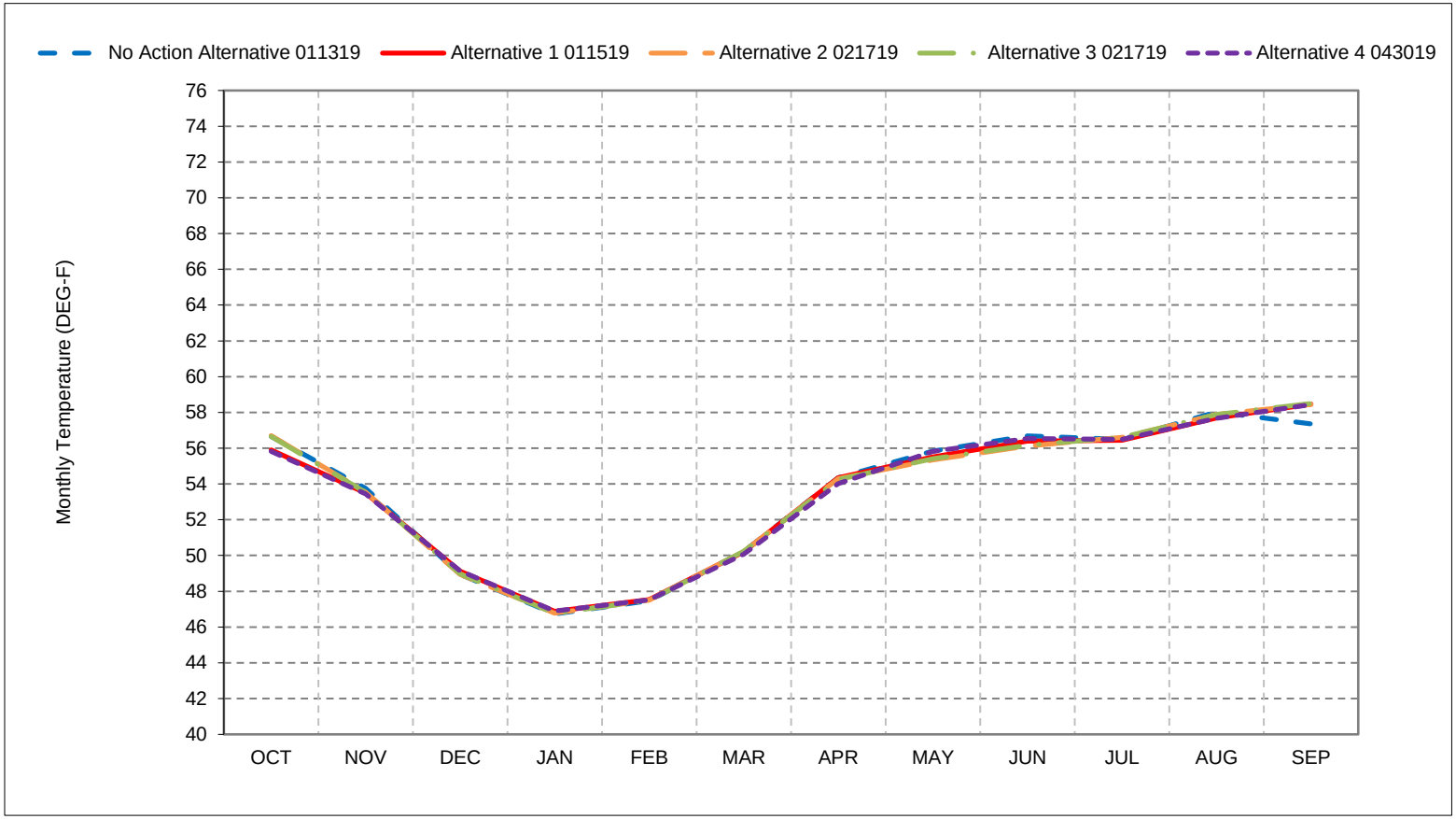
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

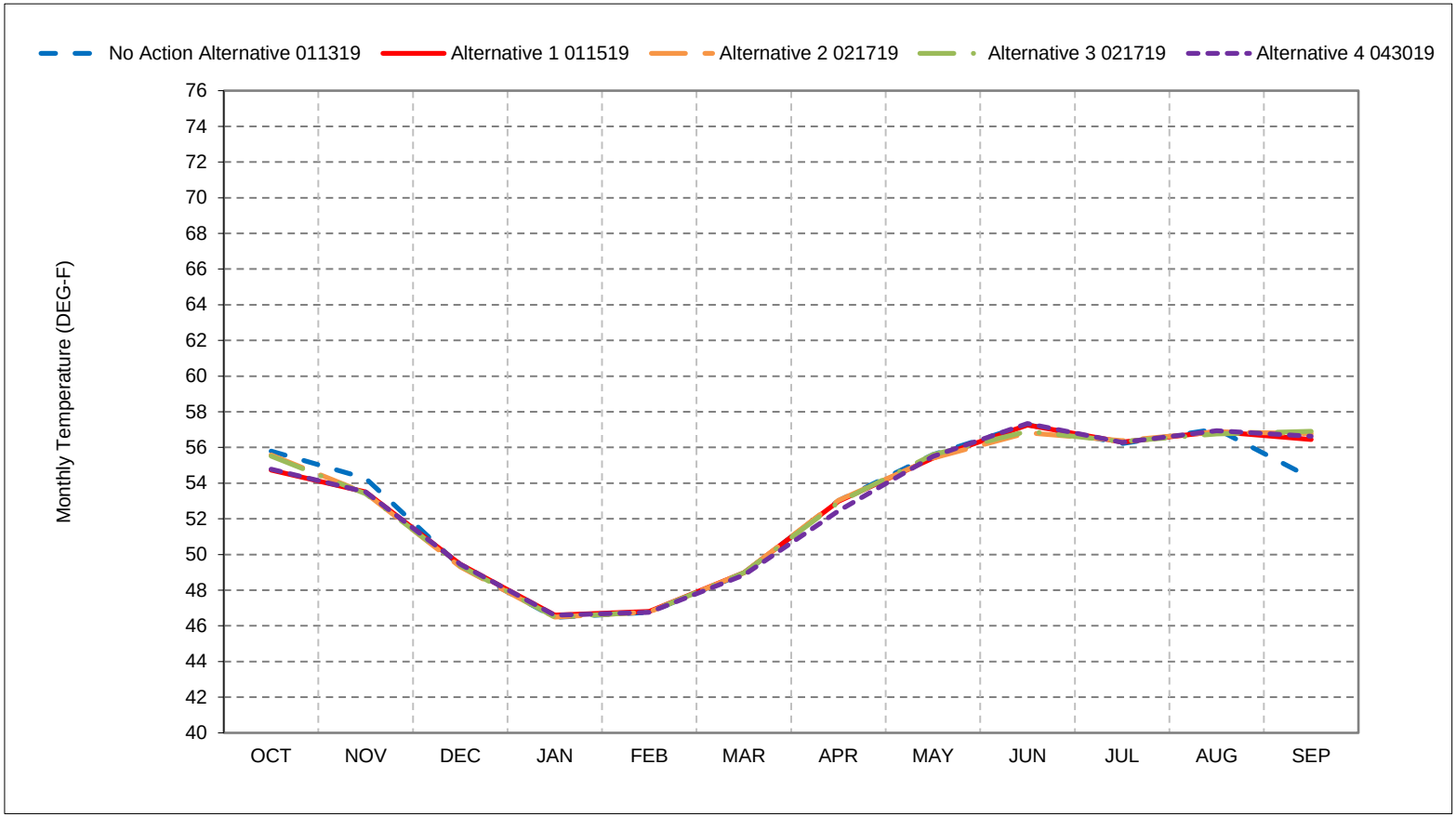
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 9-1. Sacramento River at Bend Bridge, Long-Term Average Temperature



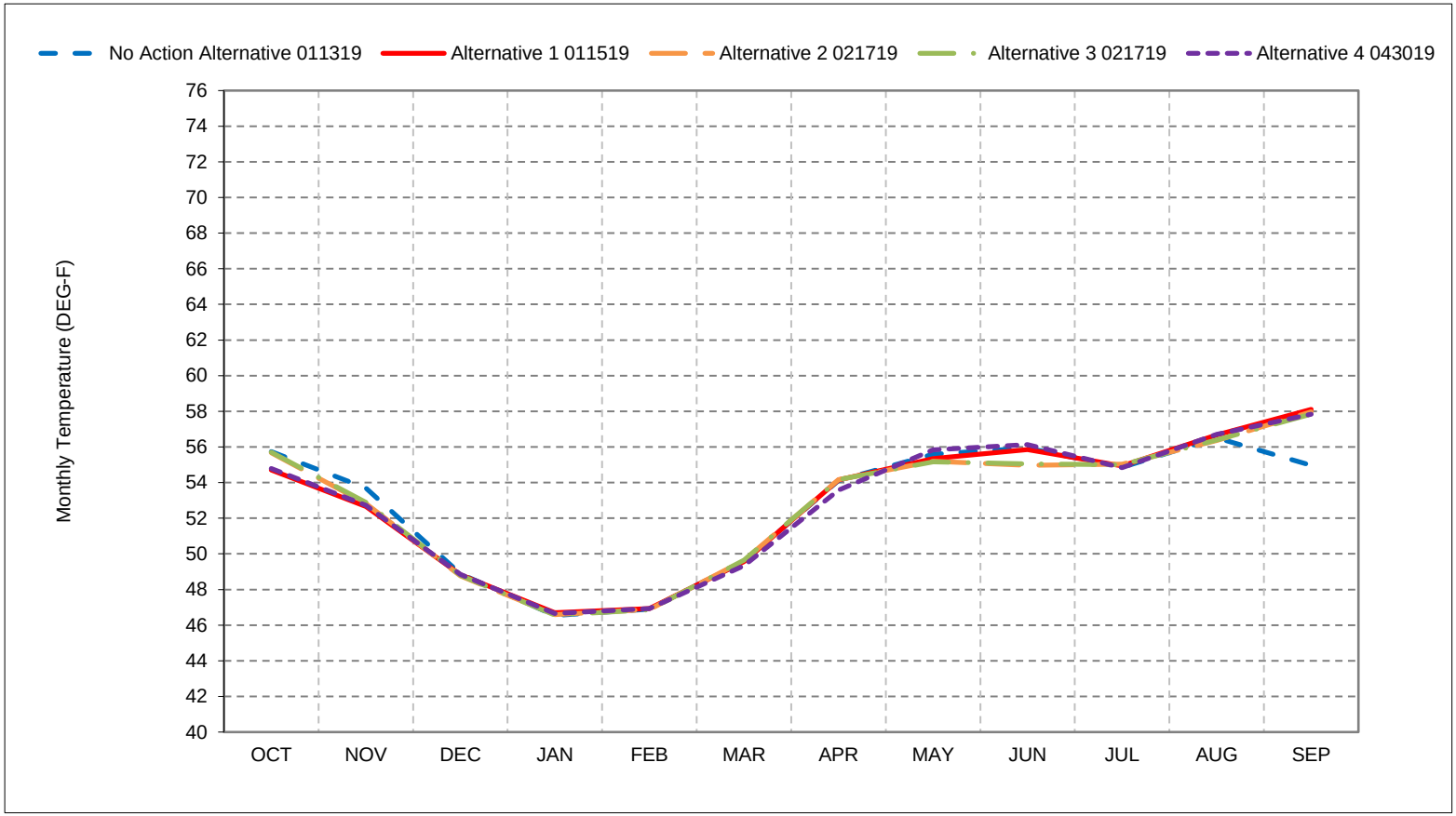

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 9-2. Sacramento River at Bend Bridge, Wet Year Average Temperature



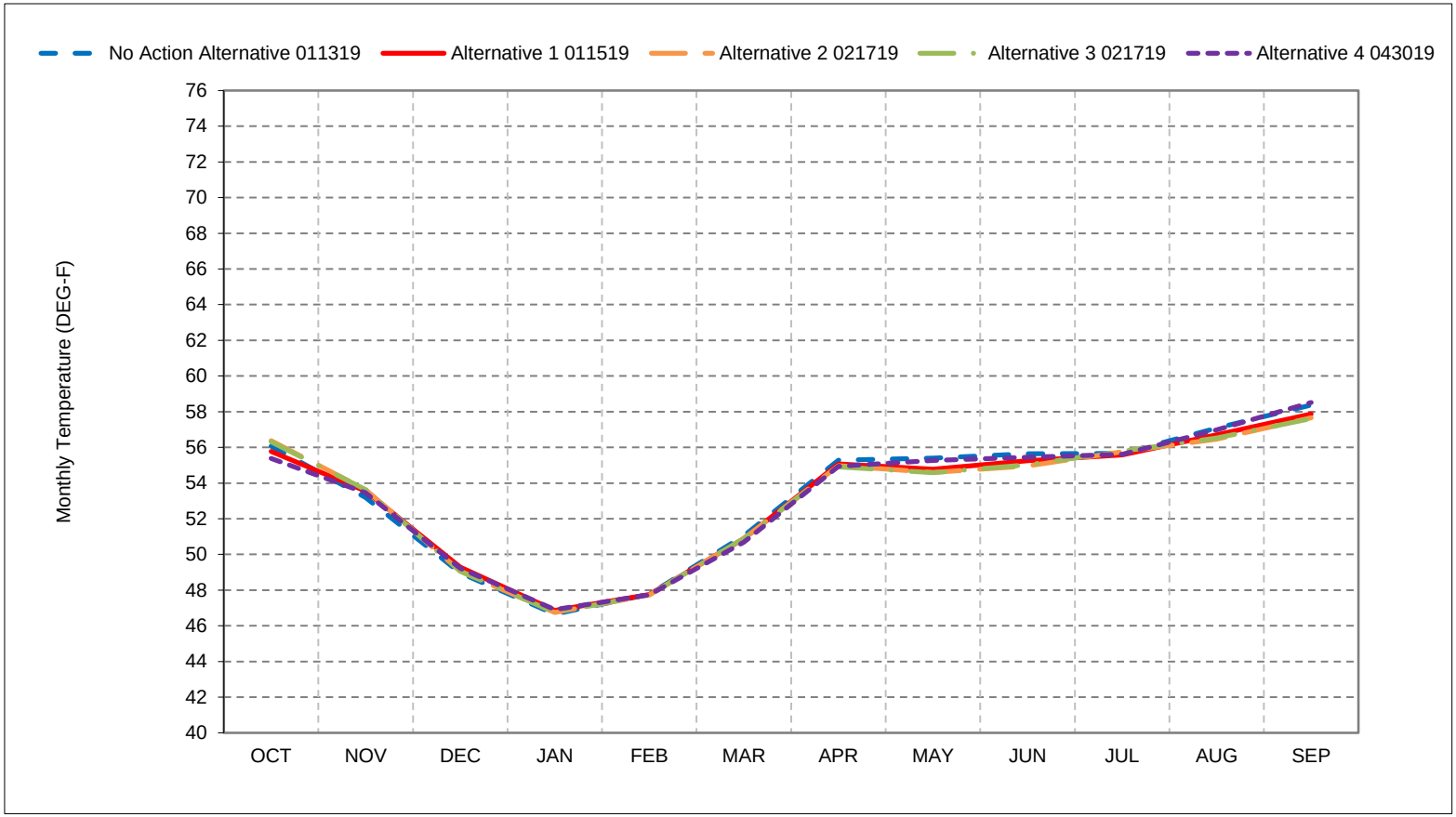

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 9-3. Sacramento River at Bend Bridge, Above Normal Year Average Temperature



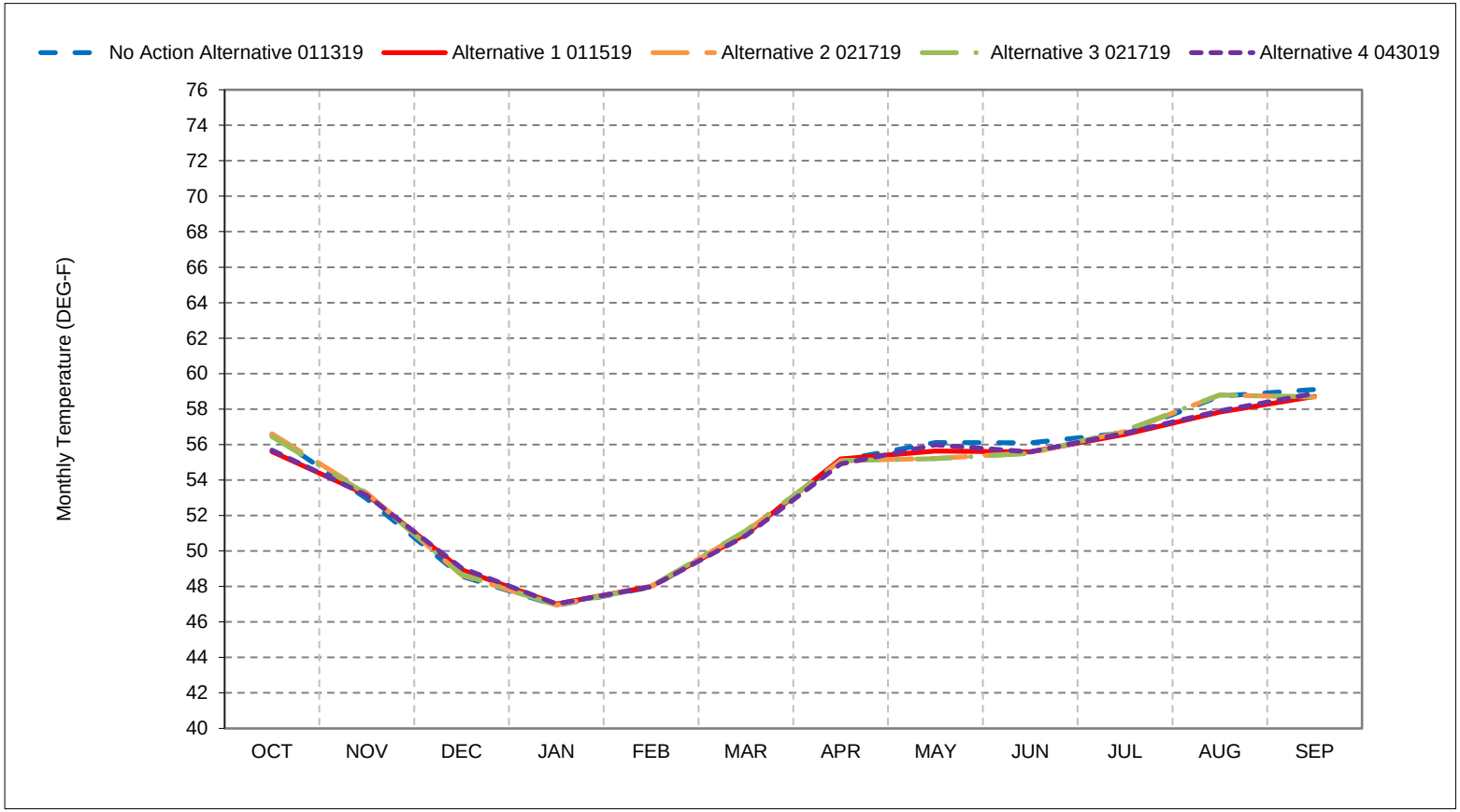

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 9-4. Sacramento River at Bend Bridge, Below Normal Year Average Temperature



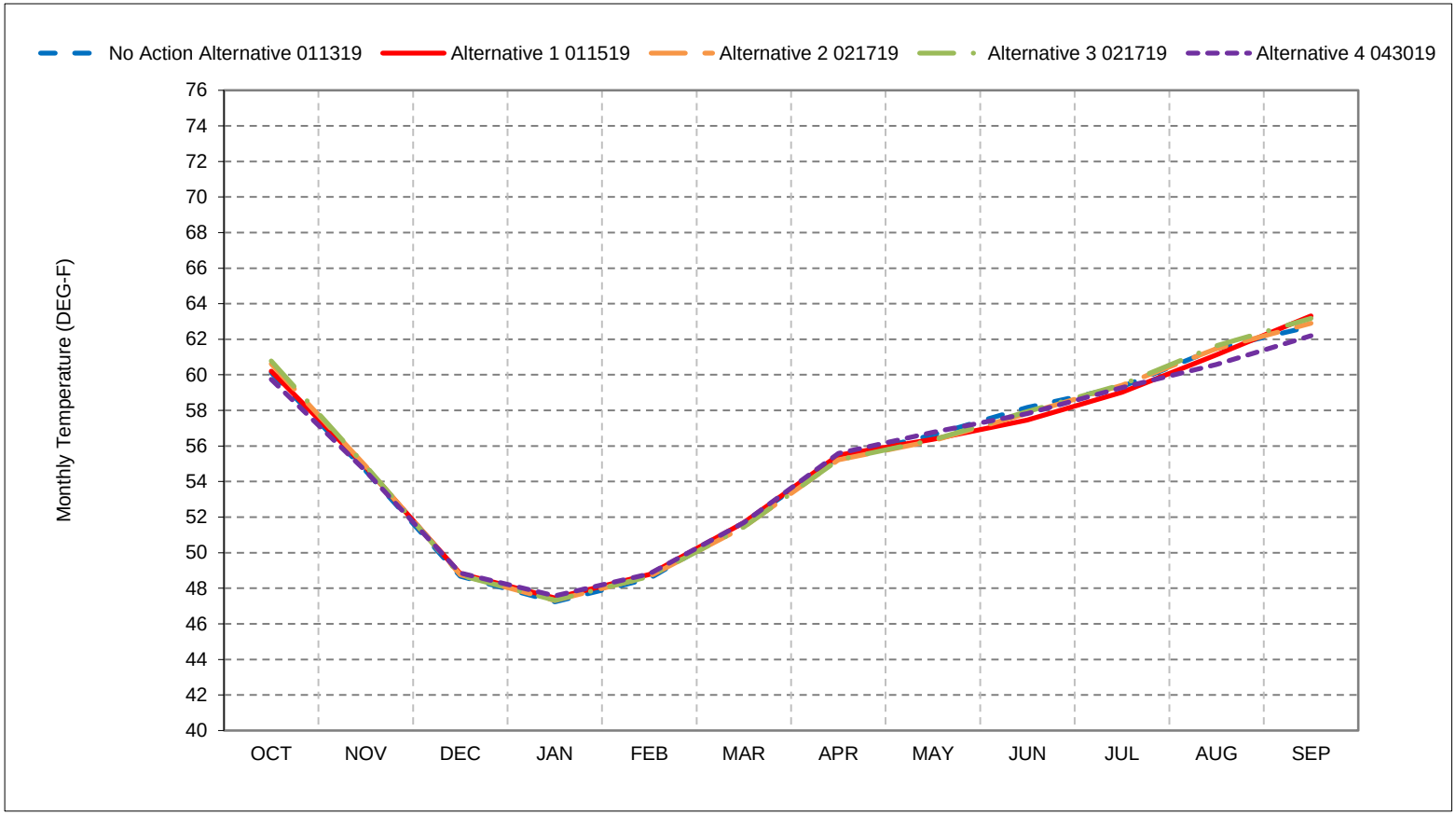

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 9-5. Sacramento River at Bend Bridge, Dry Year Average Temperature



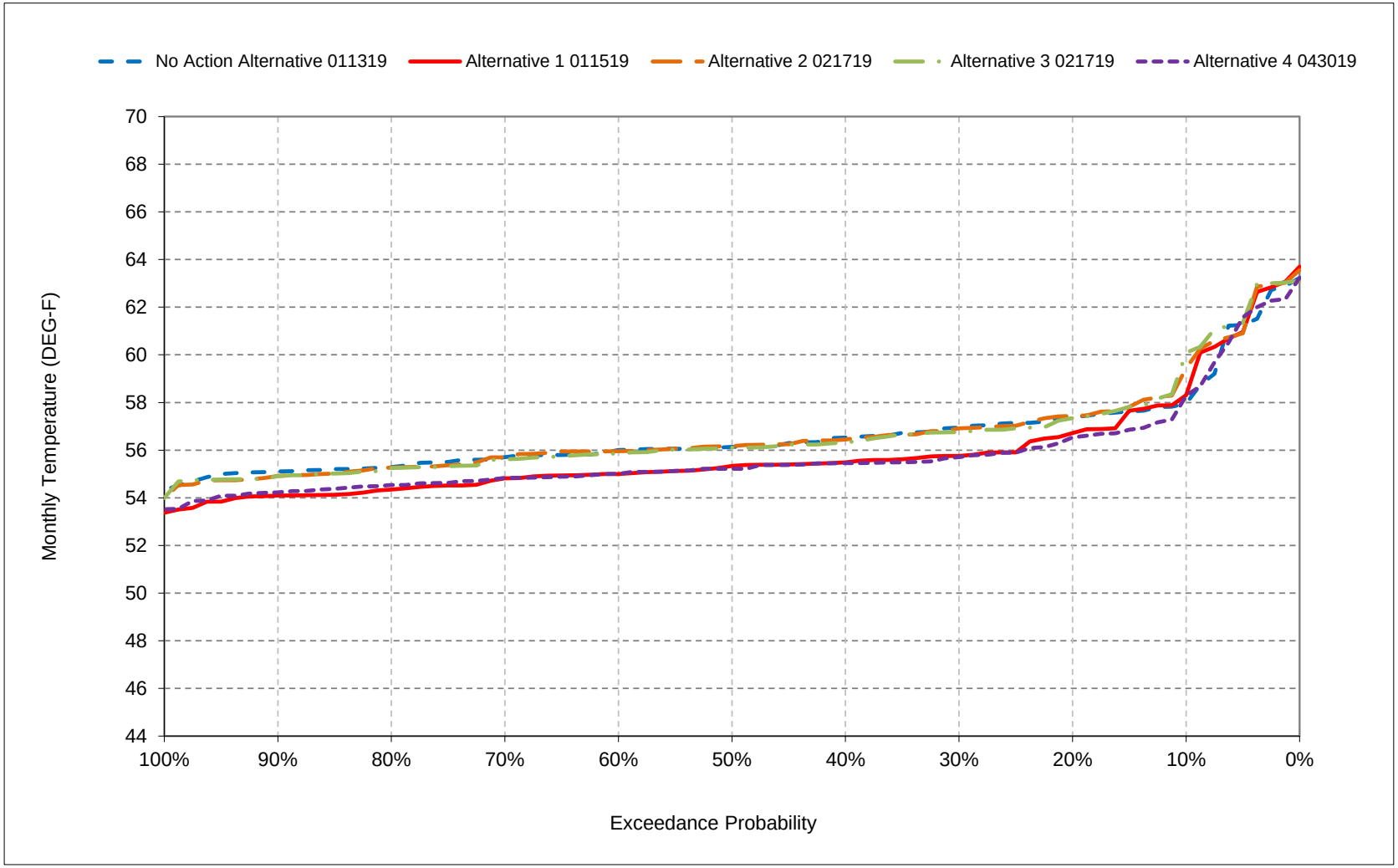

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 9-6. Sacramento River at Bend Bridge, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

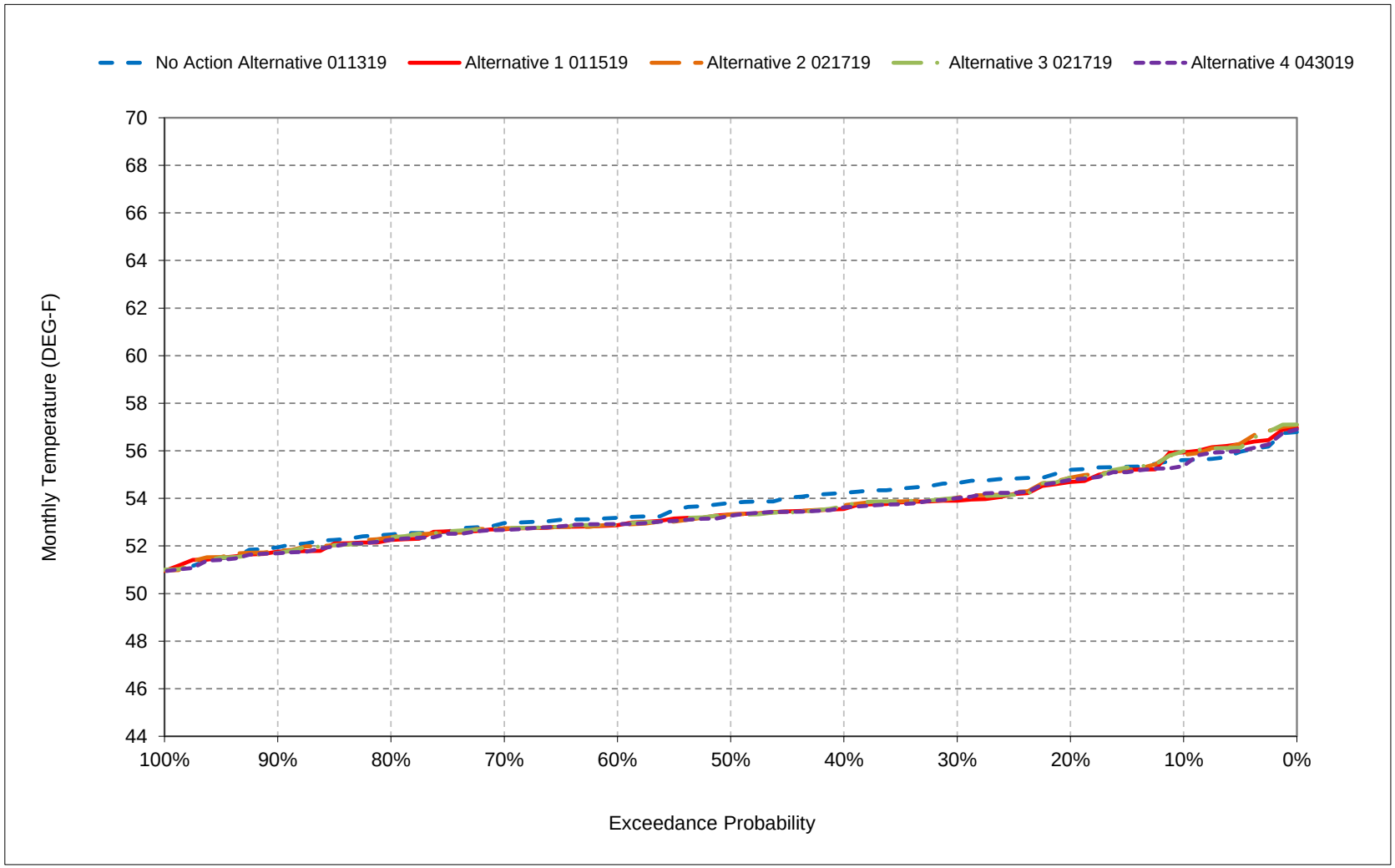
**Figure 9-7. Sacramento River at Bend Bridge, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

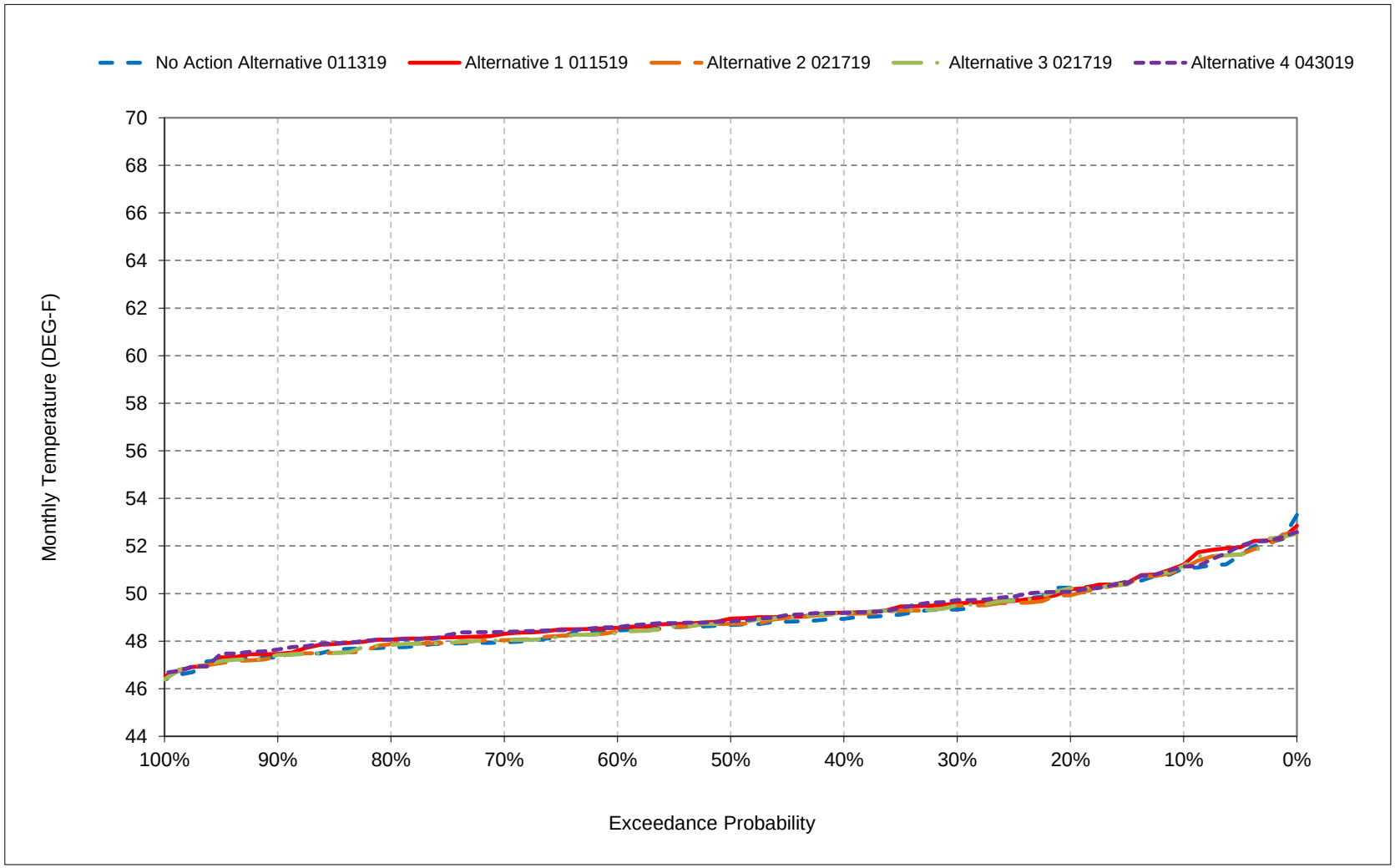
**Figure 9-8. Sacramento River at Bend Bridge, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

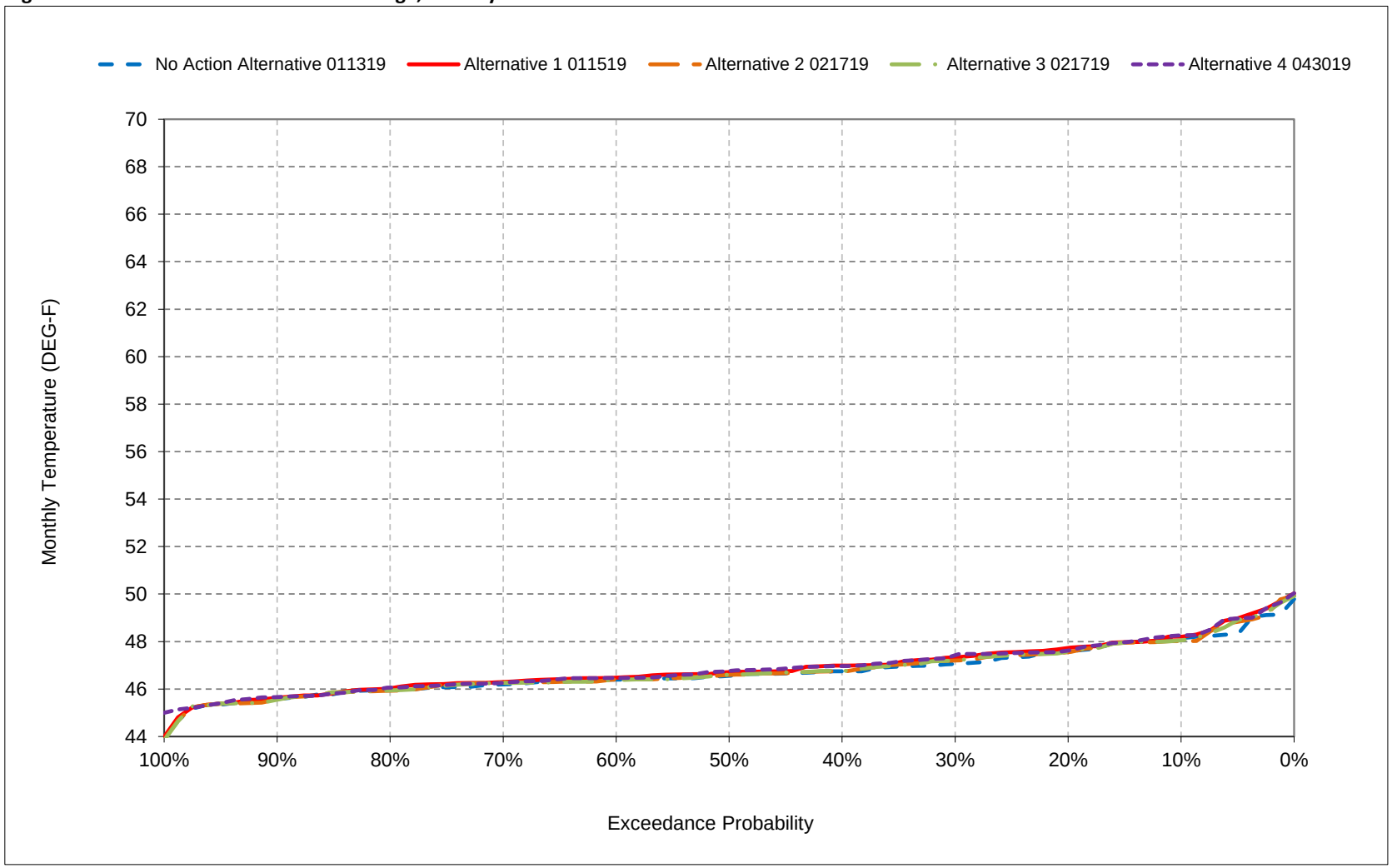
**Figure 9-9. Sacramento River at Bend Bridge, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

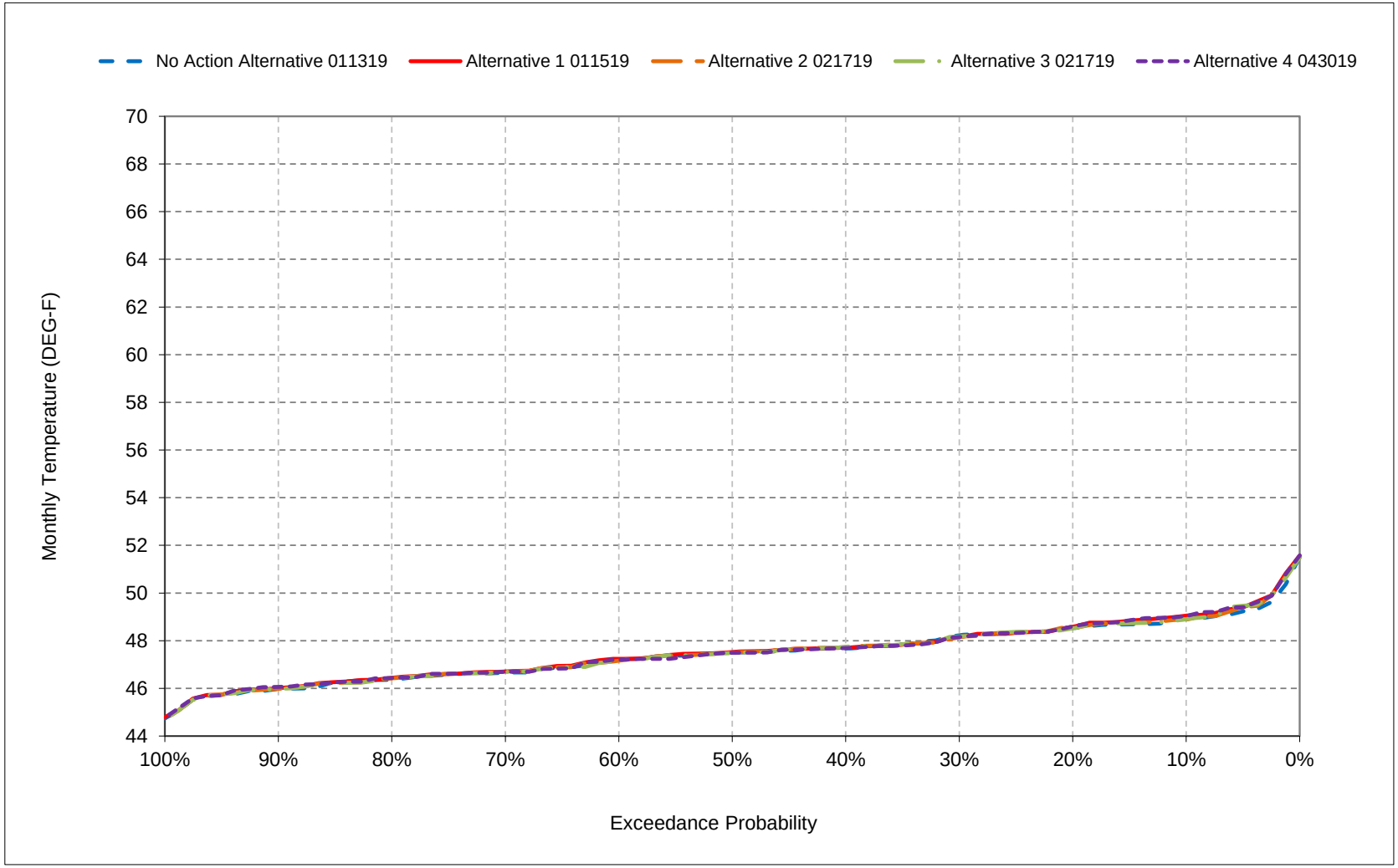
**Figure 9-10. Sacramento River at Bend Bridge, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

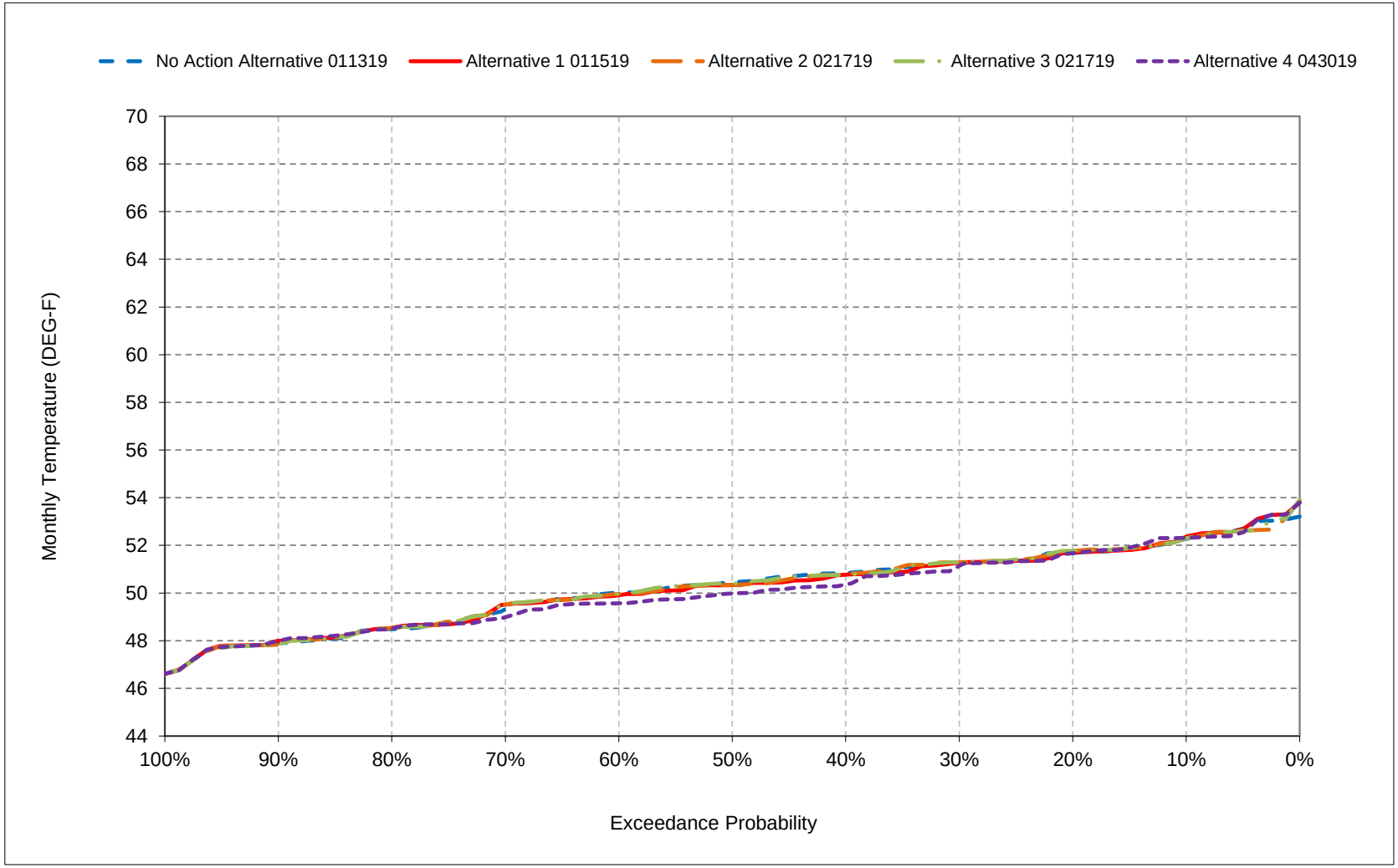
**Figure 9-11. Sacramento River at Bend Bridge, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

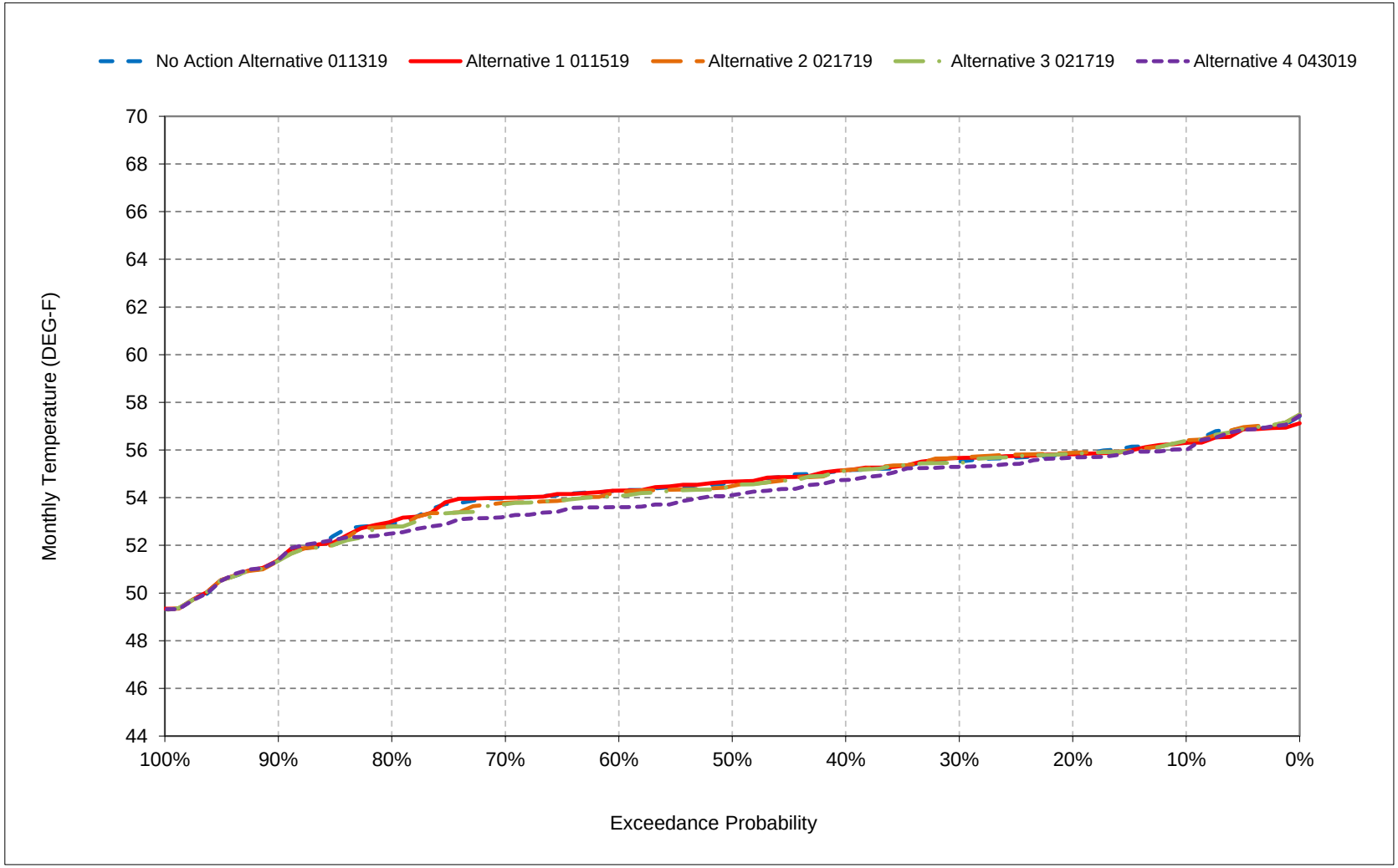
**Figure 9-12. Sacramento River at Bend Bridge, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

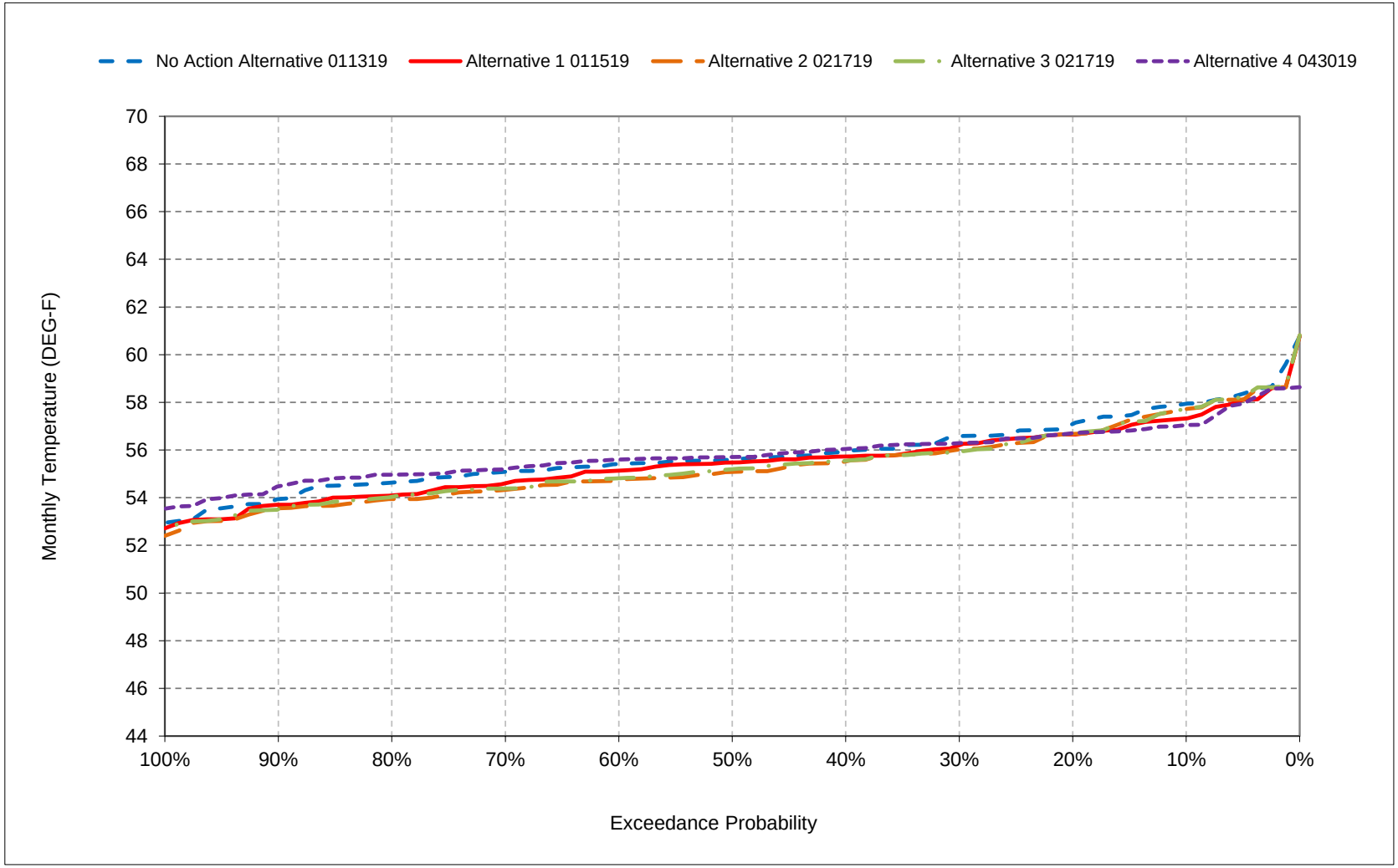
**Figure 9-13. Sacramento River at Bend Bridge, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

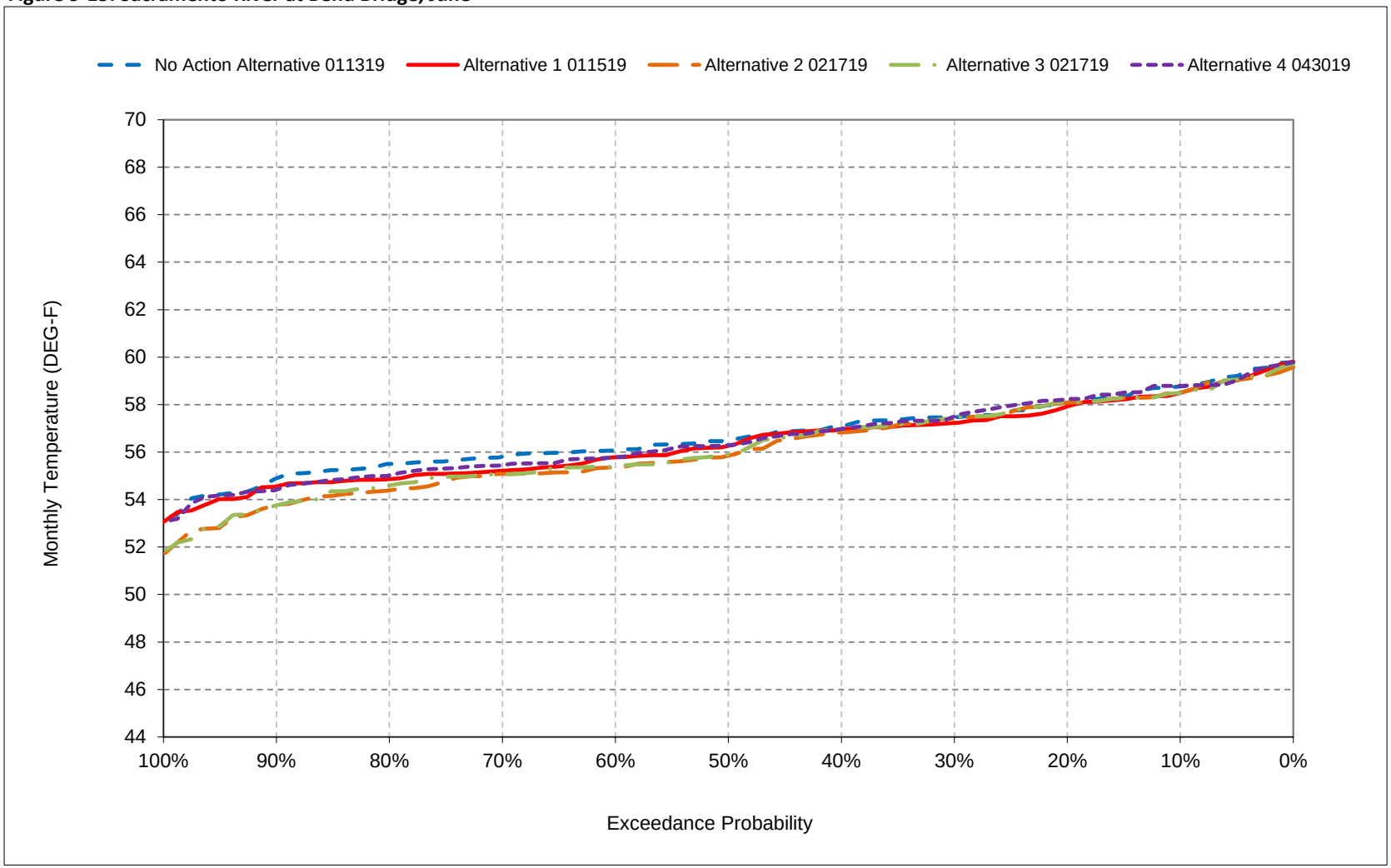
**Figure 9-14. Sacramento River at Bend Bridge, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

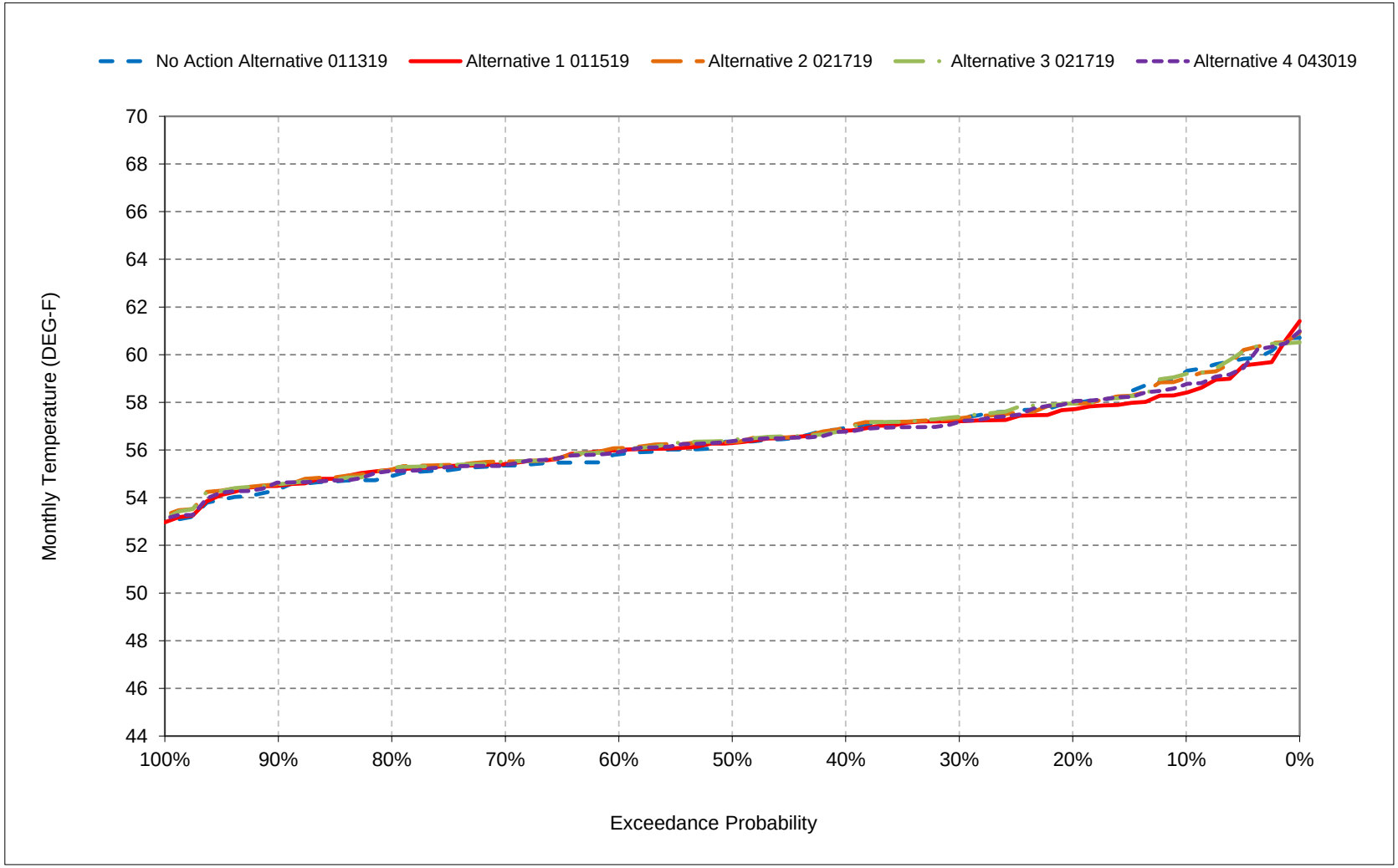
**Figure 9-15. Sacramento River at Bend Bridge, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

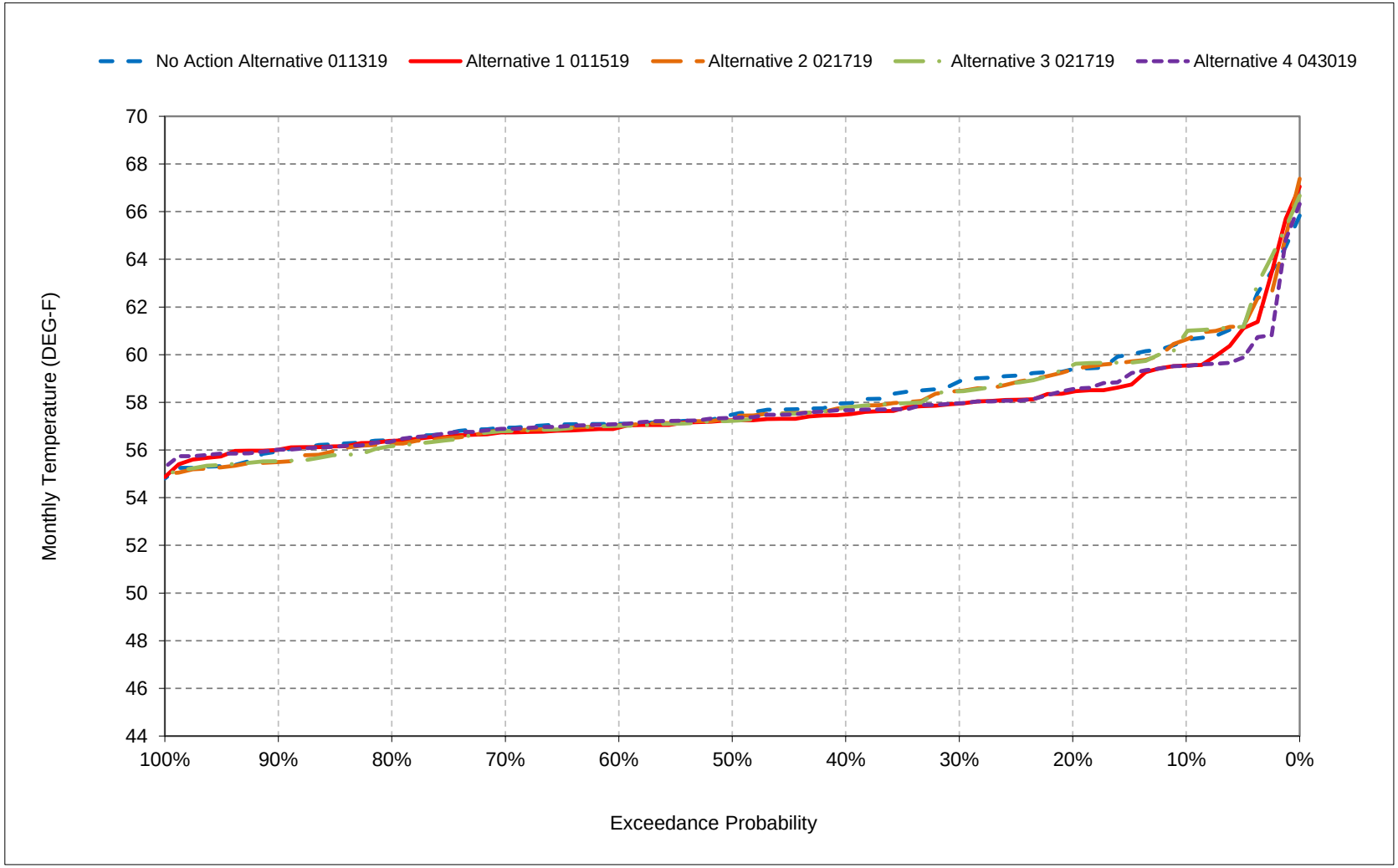
**Figure 9-16. Sacramento River at Bend Bridge, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

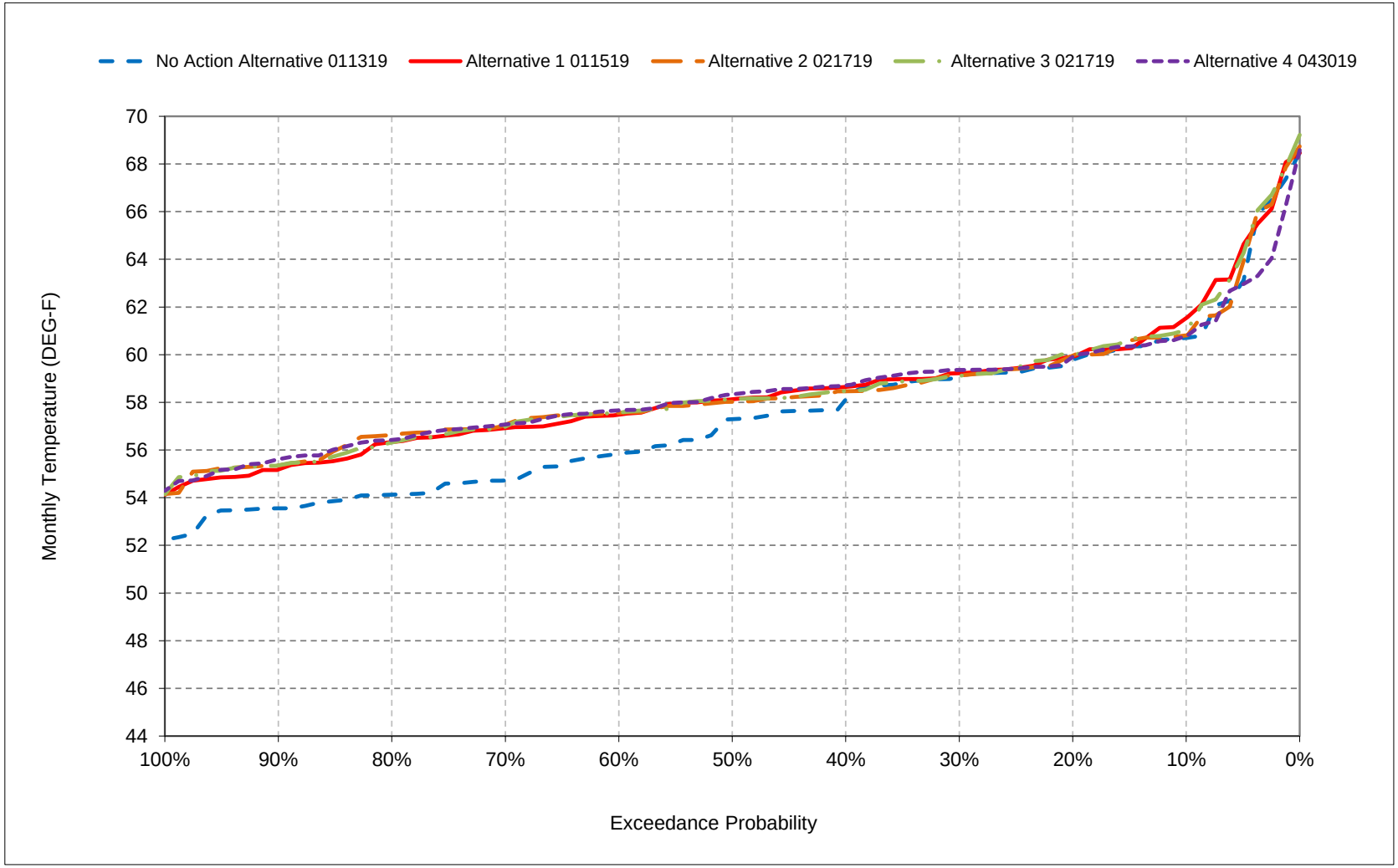
**Figure 9-17. Sacramento River at Bend Bridge, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 9-18. Sacramento River at Bend Bridge, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 10-1. Sacramento River at Red Bluff, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.7 | 55.7 | 50.7 | 48.2 | 49.3 | 53.0 | 57.5 | 59.3 | 60.4 | 61.1 | 62.5 | 62.7 |
| 20% | 58.1 | 55.3 | 50.0 | 47.5 | 48.8 | 52.4 | 56.9 | 58.5 | 59.8 | 59.9 | 61.2 | 61.5 |
| 30% | 57.6 | 54.7 | 49.3 | 47.1 | 48.6 | 51.9 | 56.6 | 57.9 | 59.3 | 59.5 | 60.8 | 60.9 |
| 40% | 57.1 | 54.2 | 48.9 | 46.8 | 48.0 | 51.5 | 56.1 | 57.2 | 58.9 | 58.7 | 59.7 | 59.9 |
| 50% | 56.7 | 53.8 | 48.6 | 46.5 | 47.7 | 51.0 | 55.6 | 56.9 | 58.4 | 58.1 | 59.4 | 58.8 |
| 60% | 56.4 | 53.2 | 48.4 | 46.4 | 47.4 | 50.5 | 55.3 | 56.7 | 57.9 | 57.5 | 59.0 | 57.1 |
| 70% | 56.2 | 53.0 | 47.9 | 46.2 | 46.9 | 49.8 | 54.7 | 56.3 | 57.6 | 57.1 | 58.7 | 56.0 |
| 80% | 55.8 | 52.5 | 47.7 | 46.0 | 46.6 | 48.8 | 53.9 | 55.9 | 57.2 | 56.6 | 58.1 | 55.2 |
| 90% | 55.5 | 52.1 | 47.3 | 45.6 | 46.1 | 48.1 | 51.9 | 55.1 | 56.6 | 55.9 | 57.9 | 54.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 57.2 | 53.8 | 48.9 | 46.8 | 47.7 | 50.8 | 55.3 | 57.1 | 58.5 | 58.3 | 59.9 | 58.8 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 56.2 | 54.3 | 49.3 | 46.5 | 47.0 | 49.3 | 53.7 | 56.7 | 59.1 | 58.1 | 58.9 | 55.4 |
| Above Normal (16%) | 56.2 | 53.7 | 48.8 | 46.6 | 47.1 | 50.0 | 54.9 | 56.9 | 57.8 | 56.5 | 58.3 | 56.3 |
| Below Normal (13%) | 56.6 | 53.3 | 48.9 | 46.7 | 48.0 | 51.7 | 56.4 | 56.7 | 57.4 | 57.4 | 58.8 | 60.1 |
| Dry (24%) | 57.1 | 53.0 | 48.5 | 46.9 | 48.3 | 51.5 | 56.1 | 57.5 | 57.9 | 58.5 | 60.6 | 60.9 |
| Critical (15%) | 60.6 | 54.7 | 48.6 | 47.3 | 49.0 | 52.4 | 56.6 | 58.0 | 60.0 | 61.2 | 63.3 | 64.3 |

## Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.9 | 56.0 | 51.2 | 48.2 | 49.4 | 52.9 | 57.4 | 58.8 | 60.3 | 60.5 | 61.6 | 63.3 |
| 20% | 57.3 | 54.7 | 50.0 | 47.7 | 48.9 | 52.3 | 57.0 | 58.0 | 59.7 | 59.6 | 60.4 | 61.7 |
| 30% | 56.4 | 54.0 | 49.4 | 47.4 | 48.4 | 51.9 | 56.5 | 57.5 | 59.1 | 59.1 | 60.0 | 61.0 |
| 40% | 56.2 | 53.5 | 49.1 | 47.0 | 48.0 | 51.4 | 56.1 | 57.0 | 58.8 | 58.7 | 59.4 | 60.6 |
| 50% | 55.9 | 53.3 | 48.8 | 46.7 | 47.7 | 50.8 | 55.6 | 56.7 | 58.0 | 58.1 | 59.1 | 59.9 |
| 60% | 55.7 | 53.0 | 48.6 | 46.5 | 47.4 | 50.4 | 55.3 | 56.4 | 57.5 | 57.7 | 58.9 | 59.3 |
| 70% | 55.4 | 52.7 | 48.2 | 46.3 | 46.9 | 49.9 | 54.7 | 55.7 | 57.0 | 57.1 | 58.4 | 58.8 |
| 80% | 54.9 | 52.3 | 47.9 | 46.1 | 46.6 | 48.8 | 53.7 | 55.4 | 56.6 | 56.8 | 58.1 | 57.8 |
| 90% | 54.6 | 51.8 | 47.4 | 45.7 | 46.2 | 48.2 | 51.9 | 54.8 | 56.1 | 56.1 | 57.7 | 56.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.5 | 53.5 | 49.0 | 46.9 | 47.8 | 50.7 | 55.3 | 56.7 | 58.1 | 58.3 | 59.5 | 60.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.3 | 53.6 | 49.4 | 46.6 | 47.0 | 49.4 | 53.7 | 56.5 | 59.0 | 58.2 | 58.7 | 58.0 |
| Above Normal (16%) | 55.3 | 52.7 | 48.8 | 46.8 | 47.1 | 50.0 | 55.0 | 56.6 | 57.7 | 56.6 | 58.5 | 59.9 |
| Below Normal (13%) | 56.4 | 53.6 | 49.2 | 46.9 | 48.0 | 51.5 | 56.1 | 56.0 | 56.9 | 57.3 | 58.4 | 59.5 |
| Dry (24%) | 56.3 | 53.2 | 48.9 | 47.0 | 48.3 | 51.5 | 56.2 | 56.9 | 57.3 | 58.4 | 59.8 | 60.6 |
| Critical (15%) | 60.7 | 54.9 | 48.7 | 47.5 | 49.2 | 52.4 | 56.7 | 57.7 | 59.2 | 61.0 | 63.0 | 64.8 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.3** | **0.3** | **0.4** | **0.0** | **0.1** | -0.1 | 0.0 | -0.5 | -0.1 | -0.6 | -0.9 | **0.6** |
| 20% | -0.8 | -0.5 | 0.0 | **0.2** | **0.1** | 0.0 | **0.1** | -0.6 | -0.2 | -0.2 | -0.8 | **0.2** |
| 30% | -1.1 | -0.6 | **0.0** | **0.3** | -0.2 | -0.1 | -0.1 | -0.4 | -0.2 | -0.4 | -0.8 | **0.1** |
| 40% | -0.8 | -0.7 | **0.2** | **0.2** | **0.0** | -0.1 | 0.0 | -0.2 | -0.1 | **0.0** | -0.3 | **0.7** |
| 50% | -0.8 | -0.5 | **0.2** | **0.2** | **0.0** | -0.1 | **0.0** | -0.2 | -0.4 | 0.0 | -0.3 | **1.1** |
| 60% | -0.7 | -0.2 | **0.1** | **0.1** | **0.0** | -0.1 | **0.0** | -0.3 | -0.4 | **0.3** | 0.0 | **2.2** |
| 70% | -0.8 | -0.3 | **0.3** | **0.1** | **0.0** | **0.1** | **0.0** | -0.6 | -0.7 | **0.0** | -0.3 | **2.7** |
| 80% | -0.9 | -0.2 | **0.3** | **0.1** | **0.0** | **0.0** | -0.2 | -0.5 | -0.6 | **0.2** | **0.0** | **2.6** |
| 90% | -0.9 | -0.3 | **0.1** | **0.1** | **0.1** | **0.1** | **0.0** | -0.3 | -0.5 | **0.2** | -0.1 | **2.0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.7 | -0.3 | **0.2** | **0.1** | **0.1** | 0.0 | 0.0 | -0.4 | -0.4 | 0.0 | -0.3 | **1.3** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.9 | -0.7 | **0.1** | **0.1** | **0.0** | **0.0** | 0.0 | -0.2 | 0.0 | **0.1** | -0.2 | **2.6** |
| Above Normal (16%) | -0.9 | -1.0 | -0.1 | **0.1** | **0.0** | 0.0 | **0.0** | -0.3 | -0.1 | **0.1** | **0.2** | **3.6** |
| Below Normal (13%) | -0.3 | **0.3** | **0.3** | **0.2** | 0.0 | -0.2 | -0.3 | -0.7 | -0.5 | -0.1 | -0.4 | -0.6 |
| Dry (24%) | -0.9 | **0.2** | **0.3** | **0.1** | **0.0** | 0.0 | **0.0** | -0.5 | -0.6 | -0.1 | -0.8 | -0.4 |
| Critical (15%) | **0.1** | **0.2** | **0.1** | **0.2** | **0.2** | **0.0** | **0.1** | -0.3 | -0.7 | -0.2 | -0.3 | **0.5** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 10-2. Sacramento River at Red Bluff, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.7 | 55.7 | 50.7 | 48.2 | 49.3 | 53.0 | 57.5 | 59.3 | 60.4 | 61.1 | 62.5 | 62.7 |
| 20% | 58.1 | 55.3 | 50.0 | 47.5 | 48.8 | 52.4 | 56.9 | 58.5 | 59.8 | 59.9 | 61.2 | 61.5 |
| 30% | 57.6 | 54.7 | 49.3 | 47.1 | 48.6 | 51.9 | 56.6 | 57.9 | 59.3 | 59.5 | 60.8 | 60.9 |
| 40% | 57.1 | 54.2 | 48.9 | 46.8 | 48.0 | 51.5 | 56.1 | 57.2 | 58.9 | 58.7 | 59.7 | 59.9 |
| 50% | 56.7 | 53.8 | 48.6 | 46.5 | 47.7 | 51.0 | 55.6 | 56.9 | 58.4 | 58.1 | 59.4 | 58.8 |
| 60% | 56.4 | 53.2 | 48.4 | 46.4 | 47.4 | 50.5 | 55.3 | 56.7 | 57.9 | 57.5 | 59.0 | 57.1 |
| 70% | 56.2 | 53.0 | 47.9 | 46.2 | 46.9 | 49.8 | 54.7 | 56.3 | 57.6 | 57.1 | 58.7 | 56.0 |
| 80% | 55.8 | 52.5 | 47.7 | 46.0 | 46.6 | 48.8 | 53.9 | 55.9 | 57.2 | 56.6 | 58.1 | 55.2 |
| 90% | 55.5 | 52.1 | 47.3 | 45.6 | 46.1 | 48.1 | 51.9 | 55.1 | 56.6 | 55.9 | 57.9 | 54.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 57.2 | 53.8 | 48.9 | 46.8 | 47.7 | 50.8 | 55.3 | 57.1 | 58.5 | 58.3 | 59.9 | 58.8 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 56.2 | 54.3 | 49.3 | 46.5 | 47.0 | 49.3 | 53.7 | 56.7 | 59.1 | 58.1 | 58.9 | 55.4 |
| Above Normal (16%) | 56.2 | 53.7 | 48.8 | 46.6 | 47.1 | 50.0 | 54.9 | 56.9 | 57.8 | 56.5 | 58.3 | 56.3 |
| Below Normal (13%) | 56.6 | 53.3 | 48.9 | 46.7 | 48.0 | 51.7 | 56.4 | 56.7 | 57.4 | 57.4 | 58.8 | 60.1 |
| Dry (24%) | 57.1 | 53.0 | 48.5 | 46.9 | 48.3 | 51.5 | 56.1 | 57.5 | 57.9 | 58.5 | 60.6 | 60.9 |
| Critical (15%) | 60.6 | 54.7 | 48.6 | 47.3 | 49.0 | 52.4 | 56.6 | 58.0 | 60.0 | 61.2 | 63.3 | 64.3 |

## Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 59.9 | 55.9 | 51.0 | 48.1 | 49.3 | 52.9 | 57.6 | 59.1 | 60.3 | 60.9 | 62.6 | 62.7 |
| 20% | 58.1 | 54.9 | 49.8 | 47.5 | 48.8 | 52.4 | 57.0 | 58.0 | 59.8 | 59.8 | 61.2 | 61.7 |
| 30% | 57.4 | 54.1 | 49.3 | 47.2 | 48.4 | 51.9 | 56.6 | 57.4 | 59.1 | 59.3 | 60.3 | 60.9 |
| 40% | 57.0 | 53.7 | 49.0 | 46.8 | 48.0 | 51.4 | 56.1 | 56.7 | 58.7 | 58.6 | 59.6 | 60.1 |
| 50% | 56.7 | 53.3 | 48.6 | 46.6 | 47.7 | 50.9 | 55.5 | 56.3 | 57.7 | 58.3 | 59.2 | 59.8 |
| 60% | 56.5 | 52.9 | 48.3 | 46.4 | 47.4 | 50.5 | 54.9 | 55.9 | 57.1 | 57.8 | 58.9 | 59.3 |
| 70% | 56.2 | 52.8 | 48.0 | 46.3 | 46.9 | 49.9 | 54.6 | 55.6 | 56.7 | 57.2 | 58.4 | 58.7 |
| 80% | 55.8 | 52.4 | 47.8 | 46.0 | 46.6 | 48.8 | 53.7 | 55.1 | 56.0 | 56.8 | 57.9 | 58.2 |
| 90% | 55.4 | 51.9 | 47.3 | 45.6 | 46.1 | 48.2 | 51.9 | 54.5 | 55.3 | 56.1 | 57.2 | 56.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 57.2 | 53.6 | 48.9 | 46.8 | 47.8 | 50.7 | 55.2 | 56.6 | 57.8 | 58.4 | 59.7 | 60.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 56.1 | 53.5 | 49.2 | 46.5 | 47.0 | 49.4 | 53.7 | 56.5 | 58.5 | 58.2 | 58.7 | 58.3 |
| Above Normal (16%) | 56.2 | 52.9 | 48.7 | 46.7 | 47.1 | 50.1 | 55.0 | 56.5 | 56.6 | 56.7 | 58.1 | 59.6 |
| Below Normal (13%) | 56.9 | 53.7 | 49.0 | 46.8 | 48.0 | 51.5 | 56.0 | 55.8 | 56.5 | 57.4 | 58.1 | 59.2 |
| Dry (24%) | 57.2 | 53.3 | 48.6 | 47.0 | 48.3 | 51.7 | 56.1 | 56.5 | 57.3 | 58.6 | 60.7 | 60.5 |
| Critical (15%) | 61.1 | 54.9 | 48.7 | 47.3 | 49.1 | 52.2 | 56.4 | 57.6 | 59.5 | 61.3 | 63.3 | 64.4 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **1.3** | **0.2** | **0.3** | -0.1 | 0.0 | -0.1 | **0.1** | -0.2 | -0.1 | -0.2 | **0.1** | **0.0** |
| 20% | 0.0 | -0.4 | -0.1 | **0.1** | 0.0 | 0.0 | **0.0** | -0.6 | 0.0 | -0.1 | 0.0 | **0.2** |
| 30% | -0.1 | -0.5 | -0.1 | **0.1** | -0.2 | **0.0** | 0.0 | -0.5 | -0.2 | -0.1 | -0.5 | **0.0** |
| 40% | -0.1 | -0.5 | **0.1** | 0.0 | **0.1** | -0.1 | **0.0** | -0.5 | -0.2 | 0.0 | -0.1 | **0.2** |
| 50% | **0.1** | -0.6 | **0.0** | **0.1** | **0.0** | -0.1 | -0.1 | -0.6 | -0.8 | **0.2** | -0.2 | **1.0** |
| 60% | **0.1** | -0.3 | -0.1 | **0.0** | **0.0** | 0.0 | -0.4 | -0.8 | -0.8 | **0.3** | -0.1 | **2.2** |
| 70% | **0.0** | -0.3 | **0.1** | **0.0** | **0.0** | **0.1** | -0.1 | -0.7 | -0.9 | **0.2** | -0.2 | **2.7** |
| 80% | **0.0** | -0.1 | **0.1** | 0.0 | 0.0 | **0.0** | -0.2 | -0.8 | -1.3 | **0.2** | -0.2 | **3.0** |
| 90% | -0.2 | -0.1 | -0.1 | 0.0 | **0.0** | **0.0** | 0.0 | -0.6 | -1.4 | **0.2** | -0.7 | **2.2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | -0.2 | **0.0** | **0.0** | **0.0** | 0.0 | -0.1 | -0.5 | -0.7 | **0.1** | -0.2 | **1.2** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.2 | -0.8 | 0.0 | **0.0** | **0.0** | **0.0** | **0.0** | -0.2 | -0.5 | **0.2** | -0.2 | **2.9** |
| Above Normal (16%) | 0.0 | -0.8 | -0.1 | **0.0** | 0.0 | **0.0** | **0.1** | -0.4 | -1.2 | **0.2** | -0.2 | **3.4** |
| Below Normal (13%) | **0.3** | **0.4** | **0.1** | **0.1** | 0.0 | -0.2 | -0.4 | -0.9 | -0.9 | **0.1** | -0.7 | -0.9 |
| Dry (24%) | **0.0** | **0.3** | **0.1** | **0.0** | **0.0** | **0.1** | 0.0 | -1.0 | -0.7 | **0.1** | **0.1** | -0.5 |
| Critical (15%) | **0.4** | **0.3** | **0.1** | **0.1** | **0.1** | -0.2 | -0.2 | -0.4 | -0.4 | **0.0** | -0.1 | **0.1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 10-3. Sacramento River at Red Bluff, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.7 | 55.7 | 50.7 | 48.2 | 49.3 | 53.0 | 57.5 | 59.3 | 60.4 | 61.1 | 62.5 | 62.7 |
| 20% | 58.1 | 55.3 | 50.0 | 47.5 | 48.8 | 52.4 | 56.9 | 58.5 | 59.8 | 59.9 | 61.2 | 61.5 |
| 30% | 57.6 | 54.7 | 49.3 | 47.1 | 48.6 | 51.9 | 56.6 | 57.9 | 59.3 | 59.5 | 60.8 | 60.9 |
| 40% | 57.1 | 54.2 | 48.9 | 46.8 | 48.0 | 51.5 | 56.1 | 57.2 | 58.9 | 58.7 | 59.7 | 59.9 |
| 50% | 56.7 | 53.8 | 48.6 | 46.5 | 47.7 | 51.0 | 55.6 | 56.9 | 58.4 | 58.1 | 59.4 | 58.8 |
| 60% | 56.4 | 53.2 | 48.4 | 46.4 | 47.4 | 50.5 | 55.3 | 56.7 | 57.9 | 57.5 | 59.0 | 57.1 |
| 70% | 56.2 | 53.0 | 47.9 | 46.2 | 46.9 | 49.8 | 54.7 | 56.3 | 57.6 | 57.1 | 58.7 | 56.0 |
| 80% | 55.8 | 52.5 | 47.7 | 46.0 | 46.6 | 48.8 | 53.9 | 55.9 | 57.2 | 56.6 | 58.1 | 55.2 |
| 90% | 55.5 | 52.1 | 47.3 | 45.6 | 46.1 | 48.1 | 51.9 | 55.1 | 56.6 | 55.9 | 57.9 | 54.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 57.2 | 53.8 | 48.9 | 46.8 | 47.7 | 50.8 | 55.3 | 57.1 | 58.5 | 58.3 | 59.9 | 58.8 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 56.2 | 54.3 | 49.3 | 46.5 | 47.0 | 49.3 | 53.7 | 56.7 | 59.1 | 58.1 | 58.9 | 55.4 |
| Above Normal (16%) | 56.2 | 53.7 | 48.8 | 46.6 | 47.1 | 50.0 | 54.9 | 56.9 | 57.8 | 56.5 | 58.3 | 56.3 |
| Below Normal (13%) | 56.6 | 53.3 | 48.9 | 46.7 | 48.0 | 51.7 | 56.4 | 56.7 | 57.4 | 57.4 | 58.8 | 60.1 |
| Dry (24%) | 57.1 | 53.0 | 48.5 | 46.9 | 48.3 | 51.5 | 56.1 | 57.5 | 57.9 | 58.5 | 60.6 | 60.9 |
| Critical (15%) | 60.6 | 54.7 | 48.6 | 47.3 | 49.0 | 52.4 | 56.6 | 58.0 | 60.0 | 61.2 | 63.3 | 64.3 |

## Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.4 | 56.0 | 51.1 | 48.1 | 49.3 | 52.9 | 57.6 | 59.1 | 60.2 | 61.1 | 62.9 | 62.7 |
| 20% | 58.0 | 54.9 | 50.1 | 47.5 | 48.8 | 52.4 | 56.9 | 58.0 | 59.8 | 59.8 | 61.4 | 61.8 |
| 30% | 57.3 | 54.1 | 49.2 | 47.2 | 48.5 | 51.9 | 56.5 | 57.4 | 59.1 | 59.5 | 60.3 | 60.9 |
| 40% | 56.9 | 53.7 | 49.1 | 46.8 | 48.0 | 51.4 | 56.0 | 56.8 | 58.8 | 58.5 | 59.6 | 60.2 |
| 50% | 56.6 | 53.2 | 48.7 | 46.6 | 47.7 | 51.0 | 55.5 | 56.5 | 57.7 | 58.3 | 59.1 | 59.9 |
| 60% | 56.4 | 53.0 | 48.3 | 46.4 | 47.3 | 50.5 | 54.9 | 56.0 | 57.1 | 57.8 | 58.7 | 59.3 |
| 70% | 56.0 | 52.8 | 48.0 | 46.3 | 46.9 | 49.9 | 54.5 | 55.6 | 56.8 | 57.2 | 58.5 | 58.6 |
| 80% | 55.8 | 52.3 | 47.8 | 46.0 | 46.6 | 48.9 | 53.4 | 55.3 | 56.2 | 56.8 | 57.8 | 57.7 |
| 90% | 55.3 | 51.8 | 47.3 | 45.6 | 46.1 | 48.2 | 51.9 | 54.6 | 55.2 | 56.1 | 57.2 | 56.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 57.2 | 53.6 | 48.9 | 46.8 | 47.8 | 50.8 | 55.1 | 56.6 | 57.9 | 58.4 | 59.7 | 60.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 56.0 | 53.5 | 49.3 | 46.5 | 47.0 | 49.4 | 53.6 | 56.7 | 58.6 | 58.2 | 58.5 | 58.5 |
| Above Normal (16%) | 56.2 | 52.9 | 48.7 | 46.6 | 47.1 | 50.1 | 55.0 | 56.4 | 56.7 | 56.7 | 58.2 | 59.5 |
| Below Normal (13%) | 56.8 | 53.7 | 49.0 | 46.8 | 48.0 | 51.5 | 55.9 | 55.8 | 56.6 | 57.5 | 58.2 | 59.2 |
| Dry (24%) | 57.0 | 53.3 | 48.6 | 47.0 | 48.3 | 51.7 | 56.1 | 56.5 | 57.2 | 58.6 | 60.7 | 60.5 |
| Critical (15%) | 61.2 | 54.9 | 48.6 | 47.4 | 49.1 | 52.2 | 56.4 | 57.7 | 59.6 | 61.3 | 63.4 | 64.6 |

## Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **1.7** | **0.4** | **0.3** | -0.1 | **0.0** | -0.1 | **0.1** | -0.2 | -0.2 | 0.0 | **0.4** | 0.0 |
| 20% | 0.0 | -0.4 | **0.1** | **0.1** | 0.0 | **0.1** | -0.1 | -0.6 | 0.0 | -0.1 | **0.1** | **0.2** |
| 30% | -0.3 | -0.6 | -0.1 | **0.1** | -0.1 | 0.0 | -0.1 | -0.5 | -0.1 | **0.0** | -0.5 | 0.0 |
| 40% | -0.2 | -0.5 | **0.2** | **0.0** | **0.0** | -0.1 | -0.1 | -0.4 | -0.1 | -0.1 | -0.1 | **0.3** |
| 50% | 0.0 | -0.6 | **0.1** | **0.1** | **0.0** | **0.0** | -0.1 | -0.4 | -0.7 | **0.2** | -0.3 | **1.0** |
| 60% | **0.0** | -0.2 | -0.1 | **0.0** | 0.0 | 0.0 | -0.4 | -0.7 | -0.8 | **0.3** | -0.2 | **2.2** |
| 70% | -0.2 | -0.2 | **0.1** | **0.0** | **0.0** | **0.1** | -0.2 | -0.7 | -0.9 | **0.1** | -0.2 | **2.6** |
| 80% | 0.0 | -0.2 | **0.1** | 0.0 | 0.0 | **0.0** | -0.4 | -0.6 | -1.0 | **0.2** | -0.3 | **2.5** |
| 90% | -0.2 | -0.3 | **0.0** | 0.0 | **0.0** | **0.0** | 0.0 | -0.5 | -1.4 | **0.2** | -0.6 | **2.2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.0** | -0.2 | **0.0** | **0.0** | **0.0** | **0.0** | -0.1 | -0.5 | -0.6 | **0.1** | -0.2 | **1.3** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.2 | -0.8 | **0.0** | **0.0** | **0.0** | **0.0** | -0.1 | **0.0** | -0.4 | **0.1** | -0.3 | **3.1** |
| Above Normal (16%) | 0.0 | -0.8 | -0.1 | **0.0** | 0.0 | **0.1** | **0.1** | -0.5 | -1.1 | **0.1** | -0.2 | **3.2** |
| Below Normal (13%) | **0.2** | **0.4** | **0.1** | **0.1** | 0.0 | -0.2 | -0.4 | -0.9 | -0.8 | **0.1** | -0.6 | -0.9 |
| Dry (24%) | -0.2 | **0.2** | **0.1** | **0.0** | **0.0** | **0.2** | 0.0 | -1.0 | -0.7 | **0.1** | **0.1** | -0.5 |
| Critical (15%) | **0.6** | **0.3** | **0.0** | **0.1** | **0.1** | -0.2 | -0.2 | -0.3 | -0.3 | **0.1** | **0.1** | **0.3** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 10-4. Sacramento River at Red Bluff, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.7 | 55.7 | 50.7 | 48.2 | 49.3 | 53.0 | 57.5 | 59.3 | 60.4 | 61.1 | 62.5 | 62.7 |
| 20% | 58.1 | 55.3 | 50.0 | 47.5 | 48.8 | 52.4 | 56.9 | 58.5 | 59.8 | 59.9 | 61.2 | 61.5 |
| 30% | 57.6 | 54.7 | 49.3 | 47.1 | 48.6 | 51.9 | 56.6 | 57.9 | 59.3 | 59.5 | 60.8 | 60.9 |
| 40% | 57.1 | 54.2 | 48.9 | 46.8 | 48.0 | 51.5 | 56.1 | 57.2 | 58.9 | 58.7 | 59.7 | 59.9 |
| 50% | 56.7 | 53.8 | 48.6 | 46.5 | 47.7 | 51.0 | 55.6 | 56.9 | 58.4 | 58.1 | 59.4 | 58.8 |
| 60% | 56.4 | 53.2 | 48.4 | 46.4 | 47.4 | 50.5 | 55.3 | 56.7 | 57.9 | 57.5 | 59.0 | 57.1 |
| 70% | 56.2 | 53.0 | 47.9 | 46.2 | 46.9 | 49.8 | 54.7 | 56.3 | 57.6 | 57.1 | 58.7 | 56.0 |
| 80% | 55.8 | 52.5 | 47.7 | 46.0 | 46.6 | 48.8 | 53.9 | 55.9 | 57.2 | 56.6 | 58.1 | 55.2 |
| 90% | 55.5 | 52.1 | 47.3 | 45.6 | 46.1 | 48.1 | 51.9 | 55.1 | 56.6 | 55.9 | 57.9 | 54.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 57.2 | 53.8 | 48.9 | 46.8 | 47.7 | 50.8 | 55.3 | 57.1 | 58.5 | 58.3 | 59.9 | 58.8 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 56.2 | 54.3 | 49.3 | 46.5 | 47.0 | 49.3 | 53.7 | 56.7 | 59.1 | 58.1 | 58.9 | 55.4 |
| Above Normal (16%) | 56.2 | 53.7 | 48.8 | 46.6 | 47.1 | 50.0 | 54.9 | 56.9 | 57.8 | 56.5 | 58.3 | 56.3 |
| Below Normal (13%) | 56.6 | 53.3 | 48.9 | 46.7 | 48.0 | 51.7 | 56.4 | 56.7 | 57.4 | 57.4 | 58.8 | 60.1 |
| Dry (24%) | 57.1 | 53.0 | 48.5 | 46.9 | 48.3 | 51.5 | 56.1 | 57.5 | 57.9 | 58.5 | 60.6 | 60.9 |
| Critical (15%) | 60.6 | 54.7 | 48.6 | 47.3 | 49.0 | 52.4 | 56.6 | 58.0 | 60.0 | 61.2 | 63.3 | 64.3 |

## Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.9 | 55.5 | 51.1 | 48.3 | 49.3 | 53.0 | 57.3 | 58.5 | 60.5 | 60.8 | 61.7 | 62.8 |
| 20% | 57.2 | 54.7 | 50.0 | 47.6 | 48.9 | 52.3 | 56.7 | 58.1 | 60.0 | 59.9 | 60.6 | 61.7 |
| 30% | 56.4 | 54.1 | 49.6 | 47.4 | 48.4 | 51.7 | 56.3 | 57.4 | 59.3 | 59.1 | 59.9 | 61.1 |
| 40% | 56.1 | 53.5 | 49.1 | 47.0 | 47.9 | 50.9 | 55.8 | 57.3 | 58.6 | 58.6 | 59.7 | 60.7 |
| 50% | 55.9 | 53.2 | 48.8 | 46.8 | 47.7 | 50.5 | 55.2 | 57.1 | 58.2 | 58.1 | 59.3 | 60.2 |
| 60% | 55.7 | 53.0 | 48.5 | 46.5 | 47.4 | 50.1 | 54.5 | 56.9 | 57.6 | 57.7 | 59.0 | 59.4 |
| 70% | 55.5 | 52.7 | 48.3 | 46.3 | 46.8 | 49.6 | 54.1 | 56.4 | 57.3 | 57.1 | 58.7 | 58.8 |
| 80% | 55.1 | 52.4 | 48.0 | 46.1 | 46.7 | 48.8 | 53.2 | 56.2 | 56.8 | 56.6 | 58.1 | 58.0 |
| 90% | 54.8 | 51.8 | 47.6 | 45.7 | 46.2 | 48.3 | 51.9 | 55.6 | 56.1 | 56.2 | 57.7 | 57.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.4 | 53.5 | 49.1 | 46.9 | 47.8 | 50.6 | 54.9 | 57.1 | 58.3 | 58.3 | 59.6 | 60.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.3 | 53.6 | 49.4 | 46.6 | 47.0 | 49.2 | 53.1 | 56.6 | 59.1 | 58.1 | 58.8 | 58.2 |
| Above Normal (16%) | 55.4 | 52.7 | 48.8 | 46.7 | 47.1 | 49.7 | 54.3 | 57.1 | 58.0 | 56.5 | 58.5 | 59.6 |
| Below Normal (13%) | 56.0 | 53.5 | 49.1 | 46.9 | 48.0 | 51.3 | 56.0 | 56.6 | 57.1 | 57.3 | 58.8 | 60.3 |
| Dry (24%) | 56.3 | 53.2 | 49.0 | 47.0 | 48.3 | 51.4 | 55.9 | 57.3 | 57.3 | 58.5 | 59.9 | 60.7 |
| Critical (15%) | 60.3 | 54.6 | 48.8 | 47.6 | 49.2 | 52.4 | 56.8 | 58.1 | 59.6 | 61.4 | 62.6 | 63.8 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.2** | -0.2 | **0.4** | **0.1** | **0.0** | -0.1 | -0.2 | -0.8 | **0.1** | -0.3 | -0.8 | **0.2** |
| 20% | -0.9 | -0.5 | 0.0 | **0.2** | **0.1** | 0.0 | -0.2 | -0.5 | **0.1** | **0.0** | -0.7 | **0.2** |
| 30% | -1.2 | -0.6 | **0.2** | **0.3** | -0.2 | -0.2 | -0.3 | -0.4 | **0.0** | -0.4 | -0.9 | **0.2** |
| 40% | -1.0 | -0.7 | **0.2** | **0.2** | 0.0 | -0.6 | -0.3 | **0.1** | -0.3 | -0.1 | -0.1 | **0.8** |
| 50% | -0.8 | -0.6 | **0.2** | **0.3** | 0.0 | -0.5 | -0.4 | **0.2** | -0.3 | **0.0** | -0.1 | **1.4** |
| 60% | -0.7 | -0.3 | **0.1** | **0.1** | **0.0** | -0.4 | -0.8 | **0.2** | -0.3 | **0.2** | **0.0** | **2.4** |
| 70% | -0.7 | -0.3 | **0.4** | **0.1** | -0.1 | -0.2 | -0.6 | **0.1** | -0.4 | **0.0** | 0.0 | **2.8** |
| 80% | -0.7 | -0.1 | **0.3** | **0.1** | **0.1** | **0.0** | -0.6 | **0.4** | -0.4 | 0.0 | 0.0 | **2.8** |
| 90% | -0.7 | -0.3 | **0.3** | **0.1** | **0.1** | **0.1** | 0.0 | **0.5** | -0.6 | **0.3** | -0.2 | **2.7** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.7 | -0.3 | **0.2** | **0.1** | **0.0** | -0.2 | -0.4 | 0.0 | -0.2 | **0.0** | -0.3 | **1.3** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.9 | -0.7 | **0.1** | **0.1** | 0.0 | -0.1 | -0.6 | -0.1 | **0.0** | **0.1** | -0.1 | **2.8** |
| Above Normal (16%) | -0.8 | -0.9 | 0.0 | **0.1** | **0.0** | -0.3 | -0.6 | **0.2** | **0.2** | -0.1 | **0.2** | **3.3** |
| Below Normal (13%) | -0.6 | **0.2** | **0.2** | **0.2** | 0.0 | -0.4 | -0.4 | -0.1 | -0.3 | 0.0 | 0.0 | **0.2** |
| Dry (24%) | -0.8 | **0.2** | **0.4** | **0.1** | **0.0** | -0.1 | -0.2 | -0.2 | -0.6 | 0.0 | -0.8 | -0.2 |
| Critical (15%) | -0.3 | 0.0 | **0.2** | **0.3** | **0.3** | **0.0** | **0.2** | **0.1** | -0.4 | **0.1** | -0.7 | -0.5 |

a Based on the 82-year simulation period.

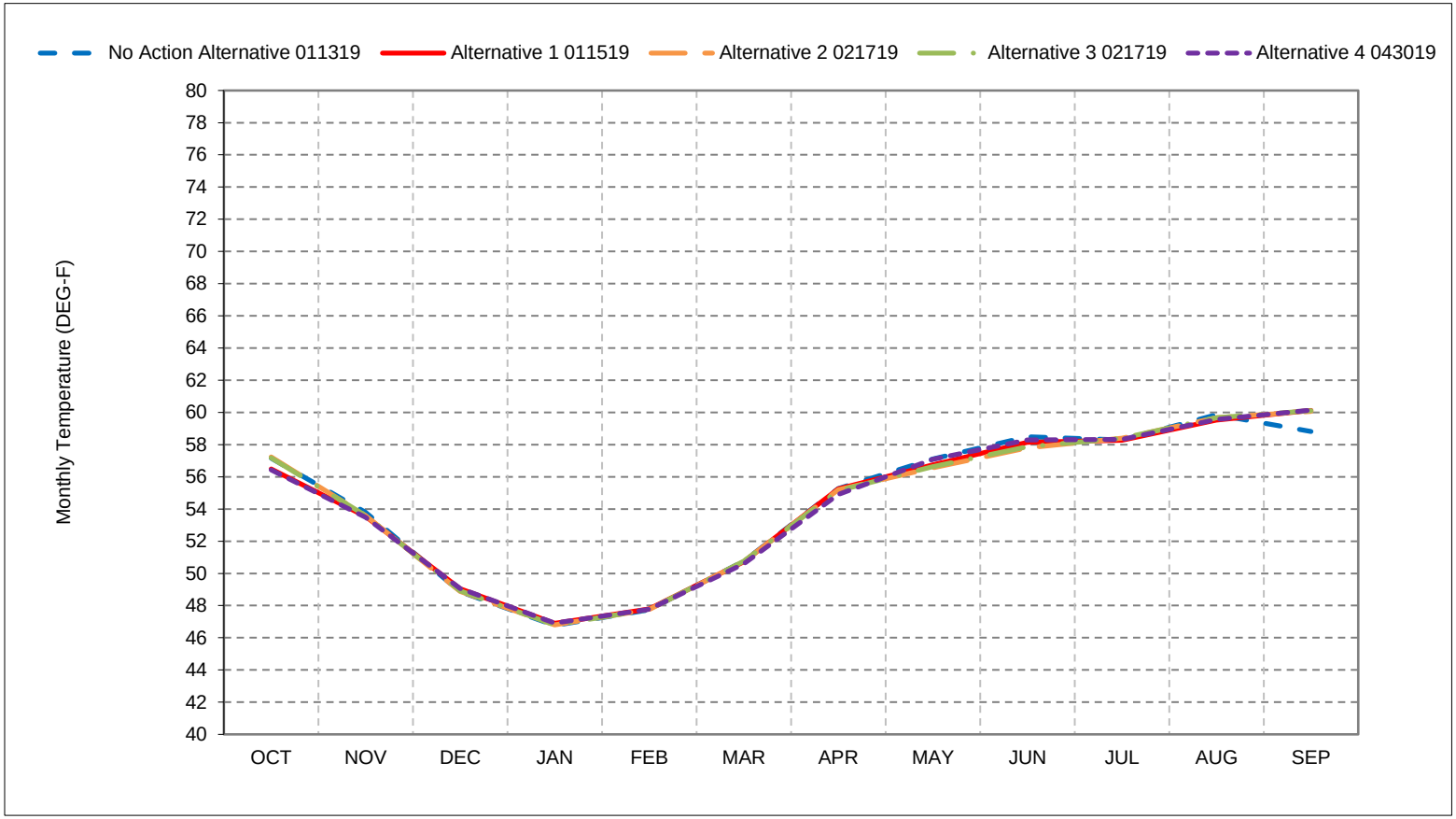
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

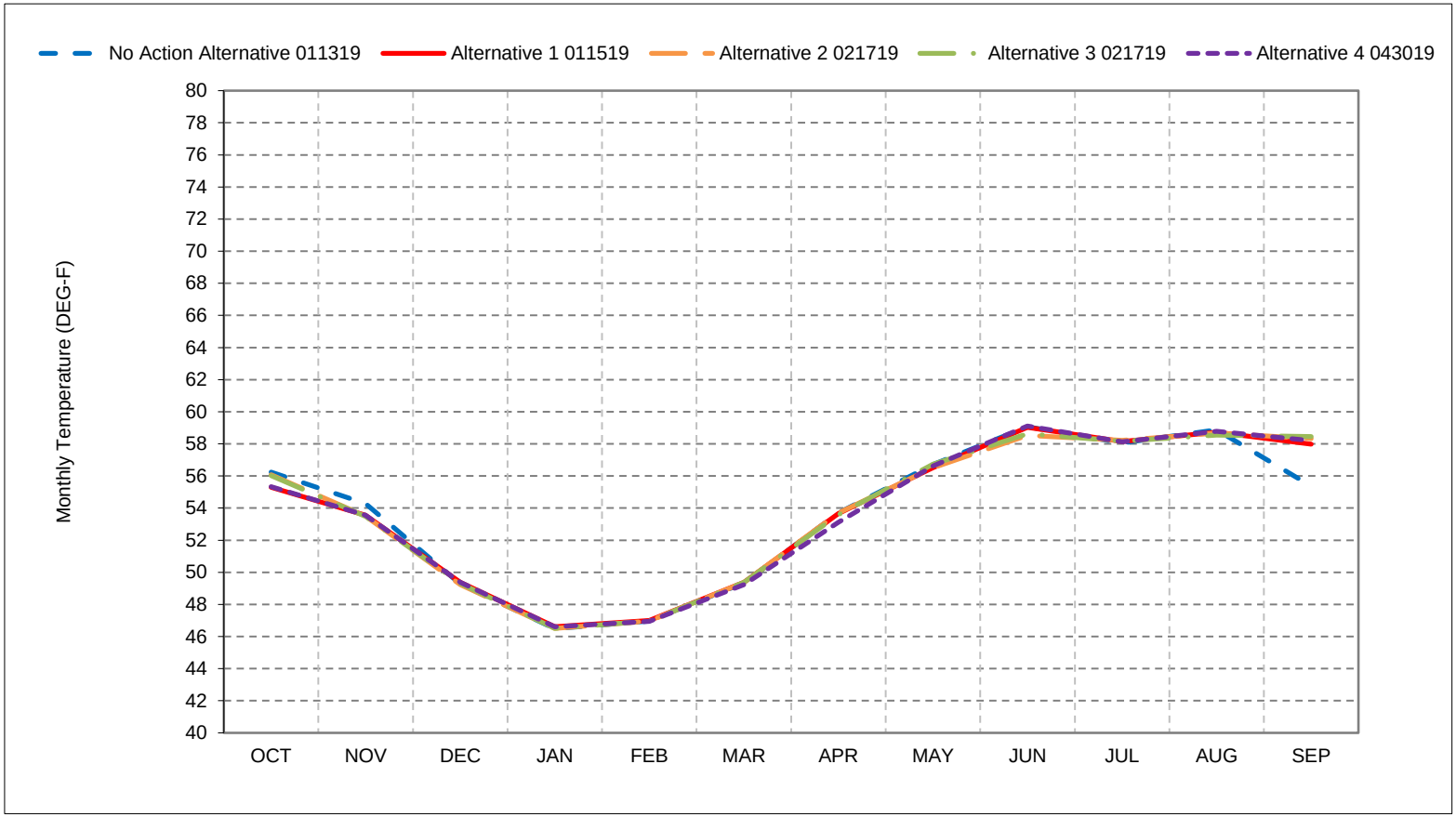
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 10-1. Sacramento River at Red Bluff, Long-Term Average Temperature



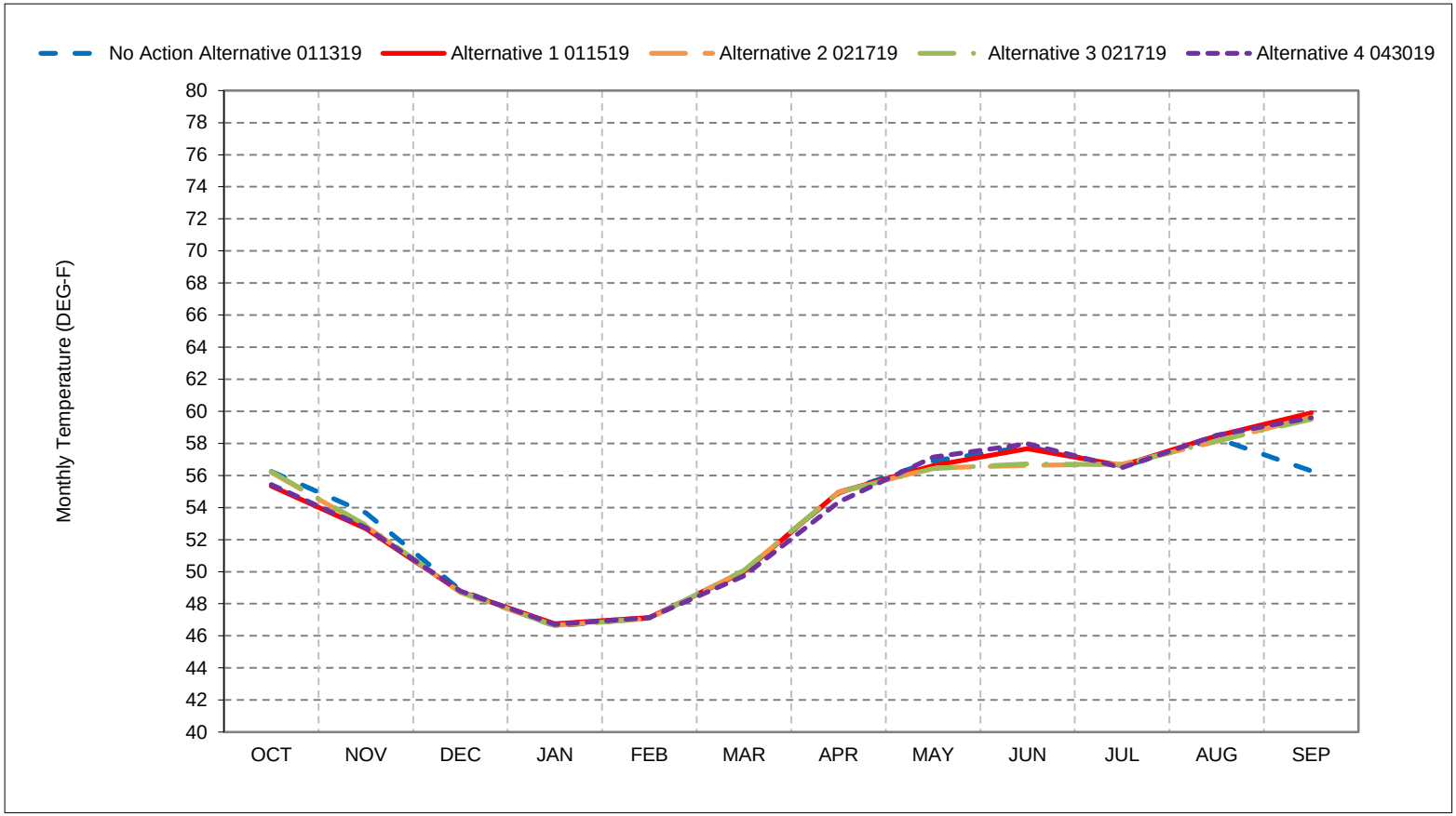

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 10-2. Sacramento River at Red Bluff, Wet Year Average Temperature



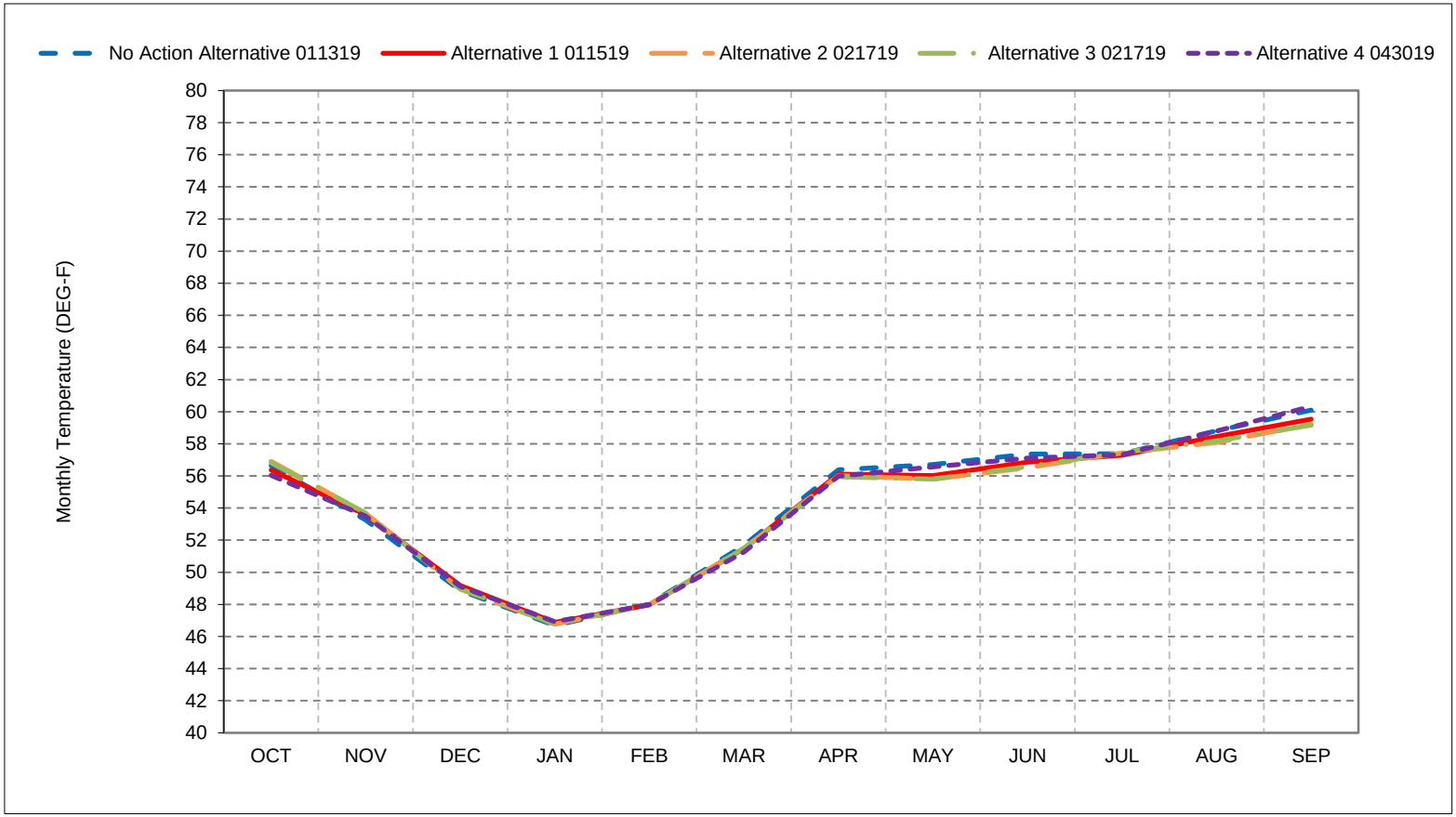

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 10-3. Sacramento River at Red Bluff, Above Normal Year Average Temperature



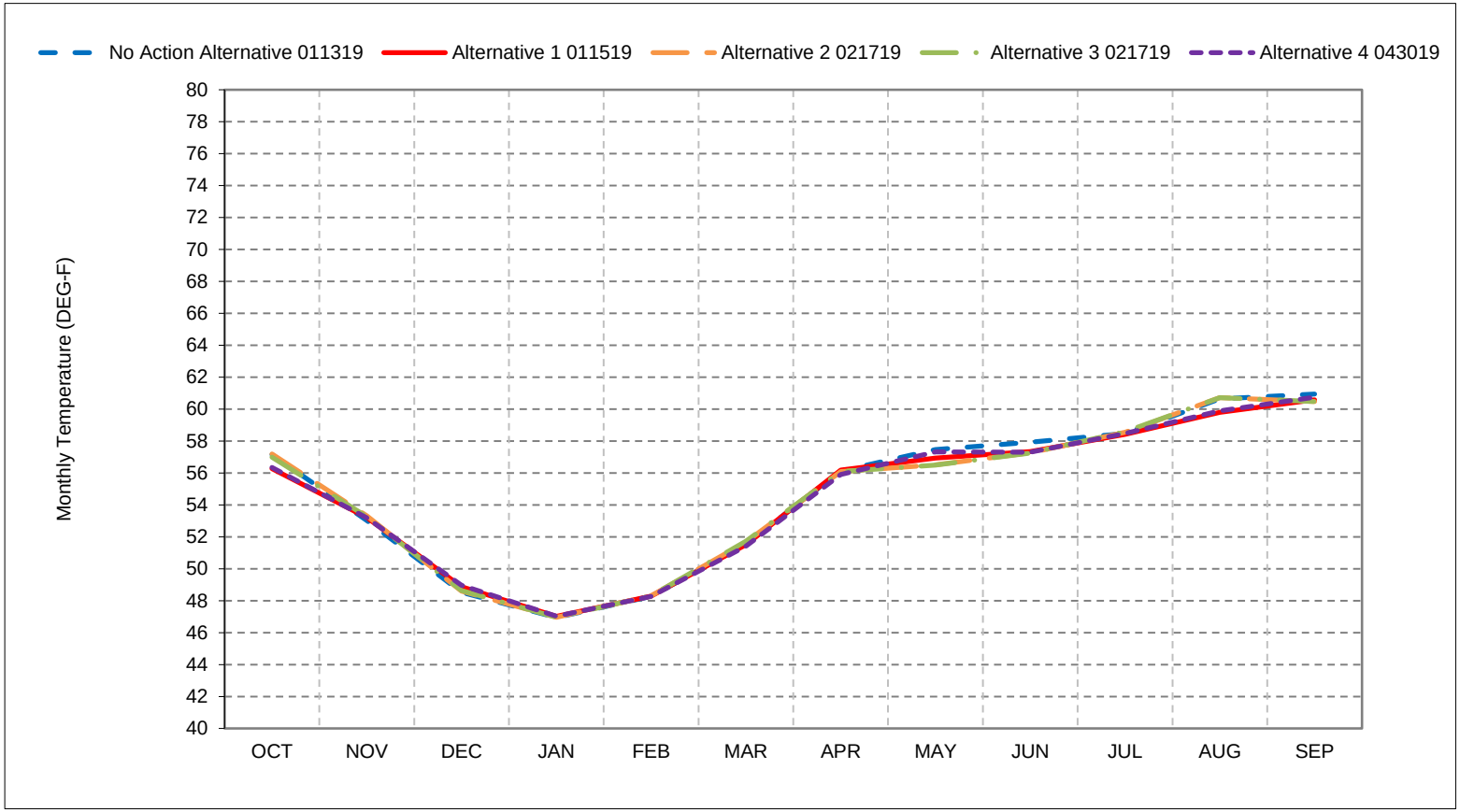

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 10-4. Sacramento River at Red Bluff, Below Normal Year Average Temperature



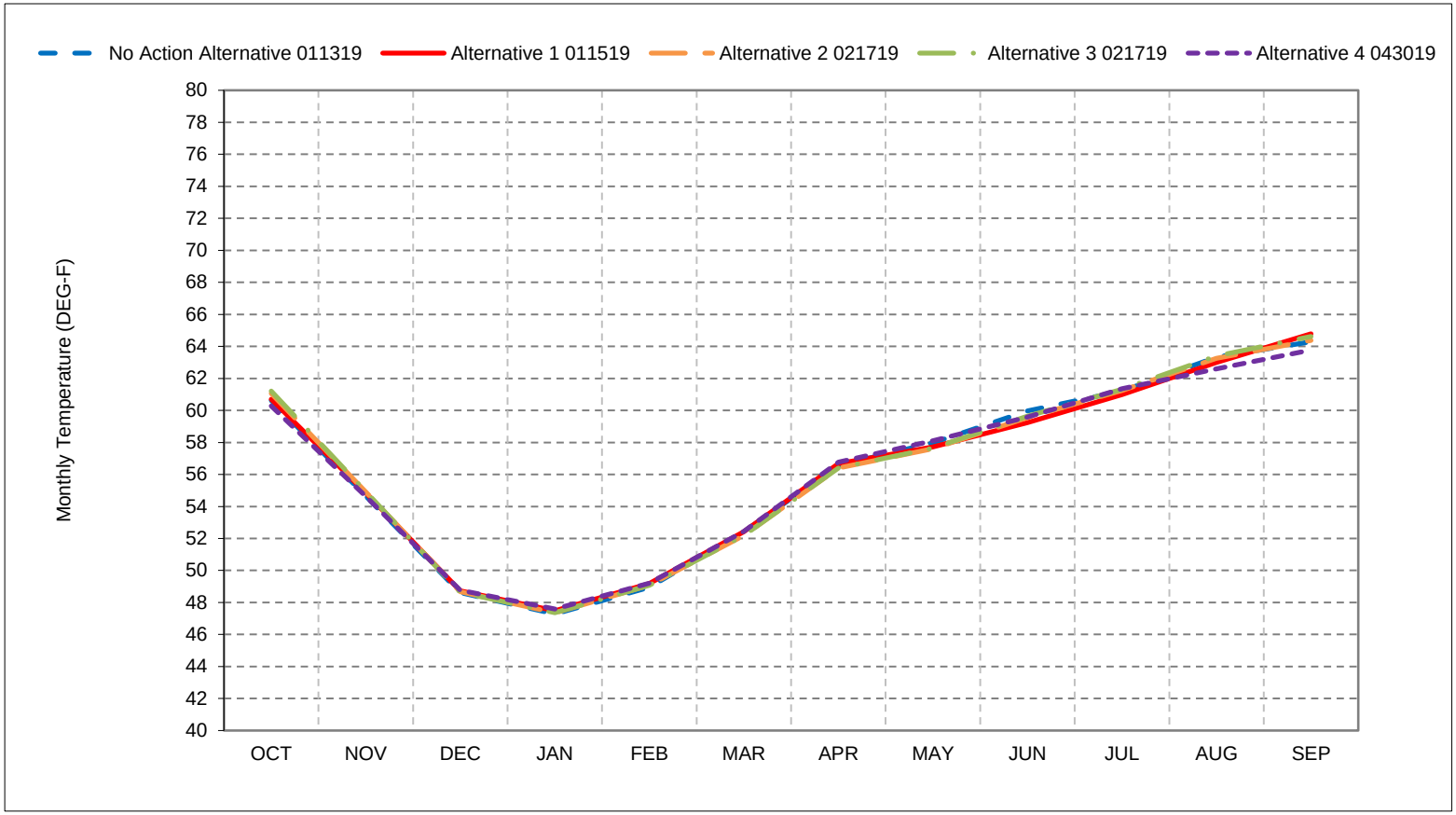

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 10-5. Sacramento River at Red Bluff, Dry Year Average Temperature



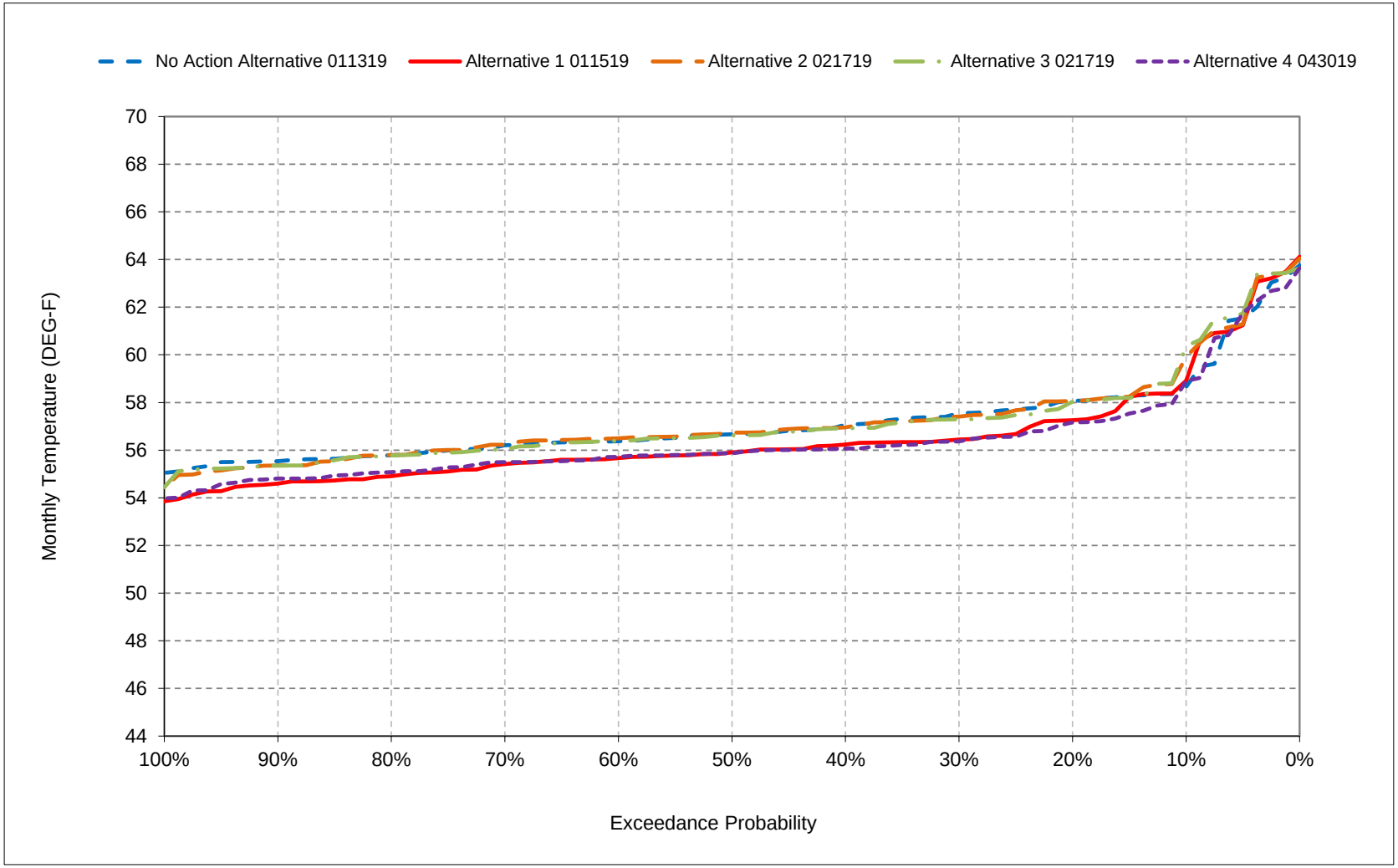

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 10-6. Sacramento River at Red Bluff, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

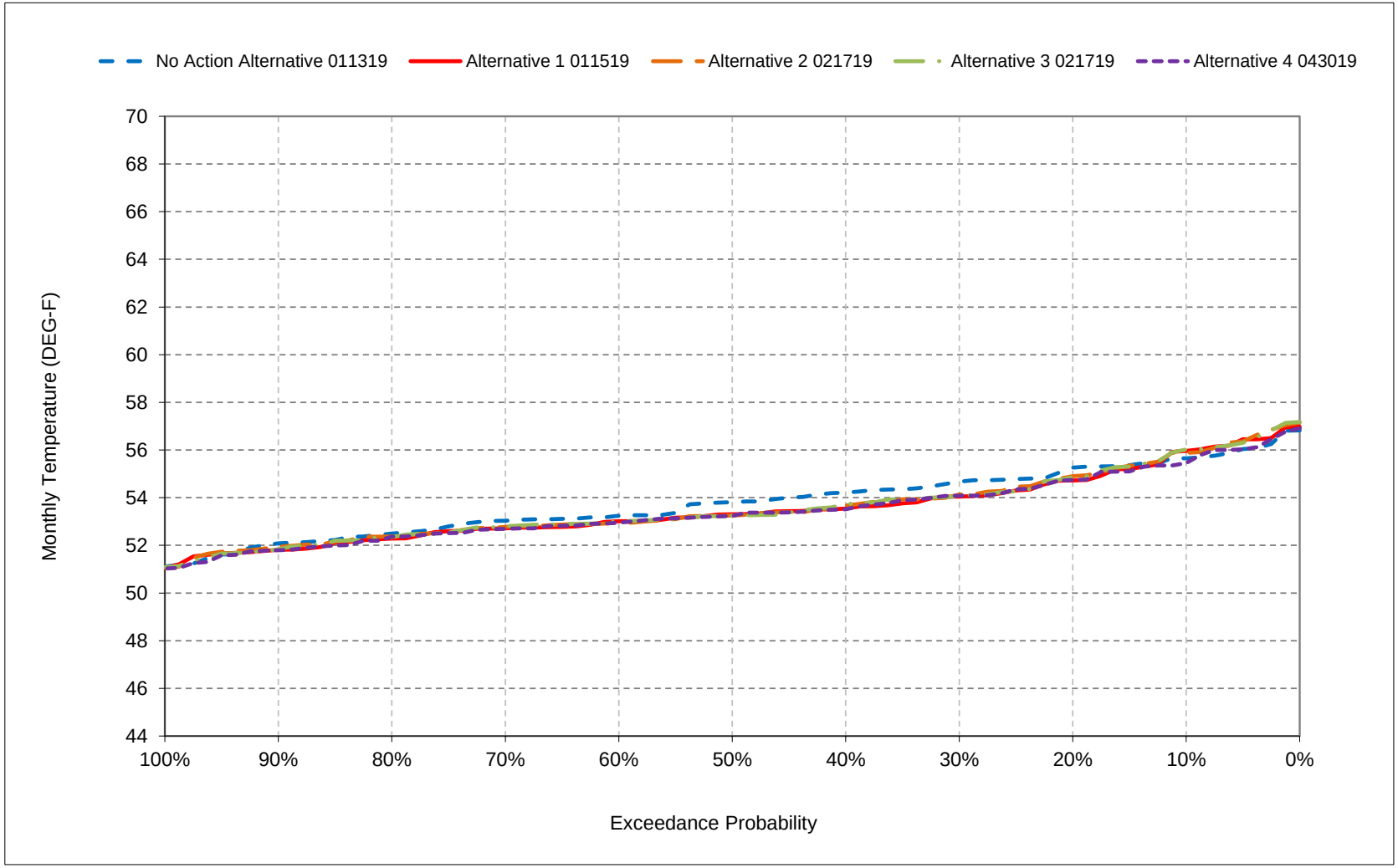
**Figure 10-7. Sacramento River at Red Bluff, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

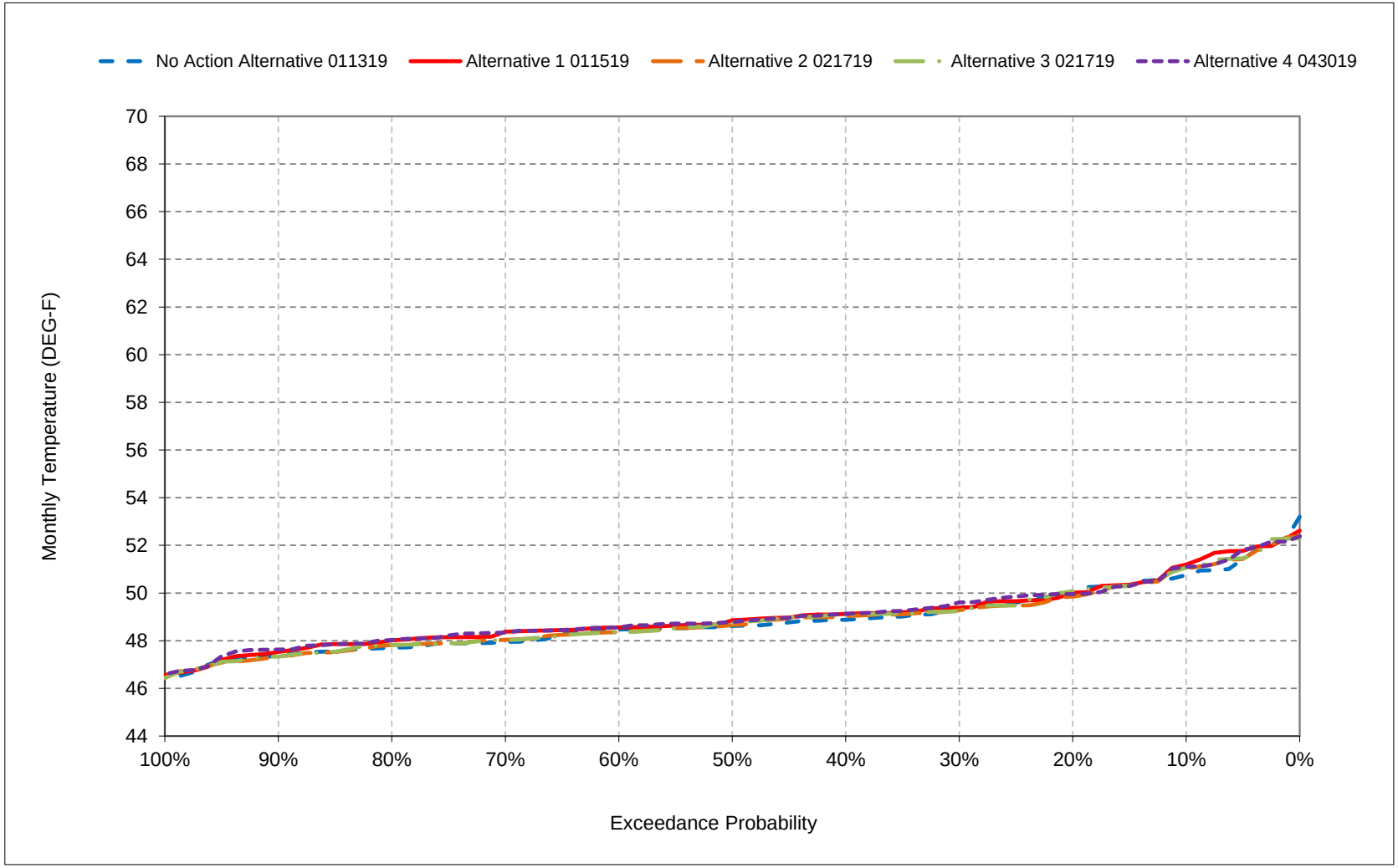
**Figure 10-8. Sacramento River at Red Bluff, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

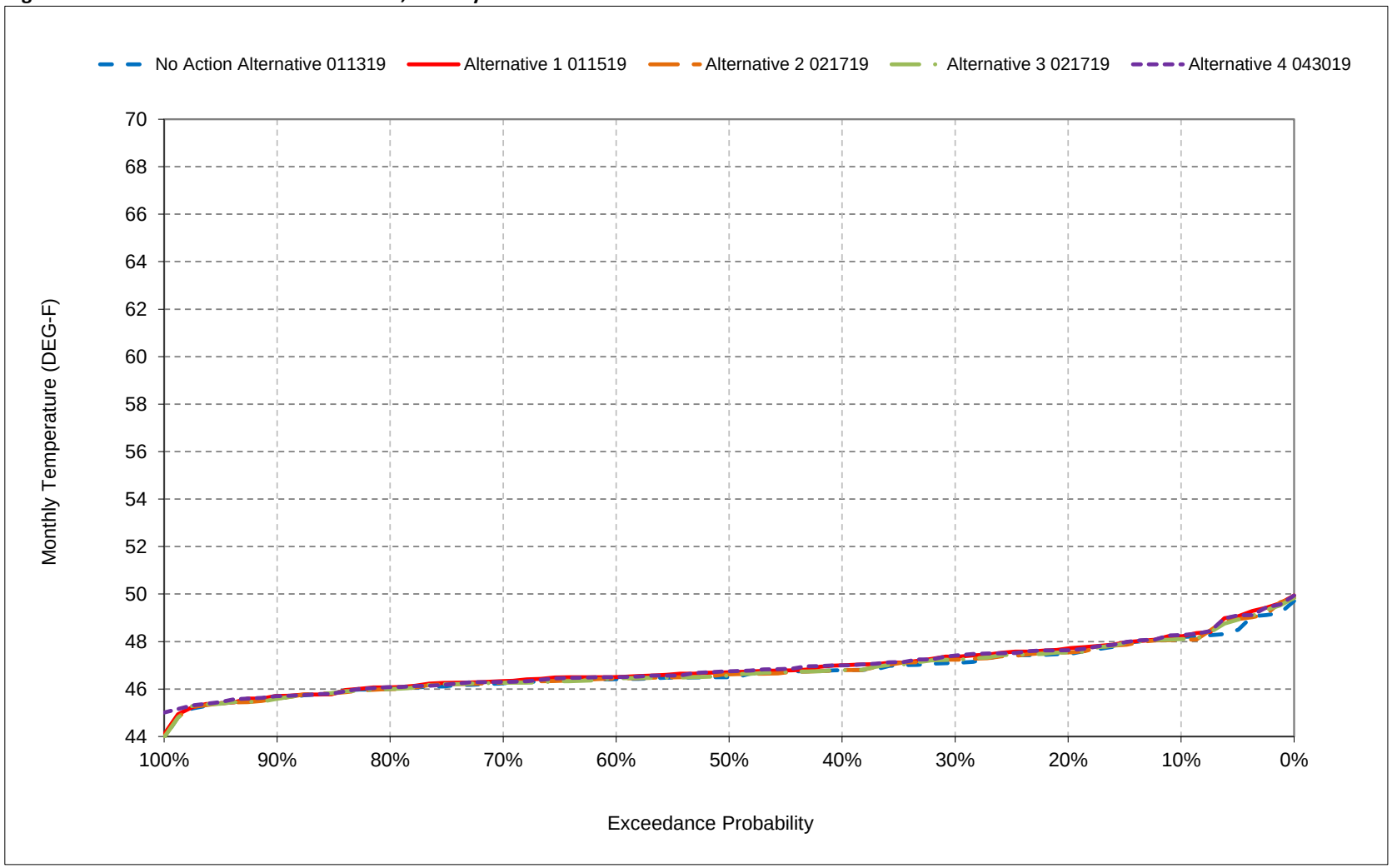
**Figure 10-9. Sacramento River at Red Bluff, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

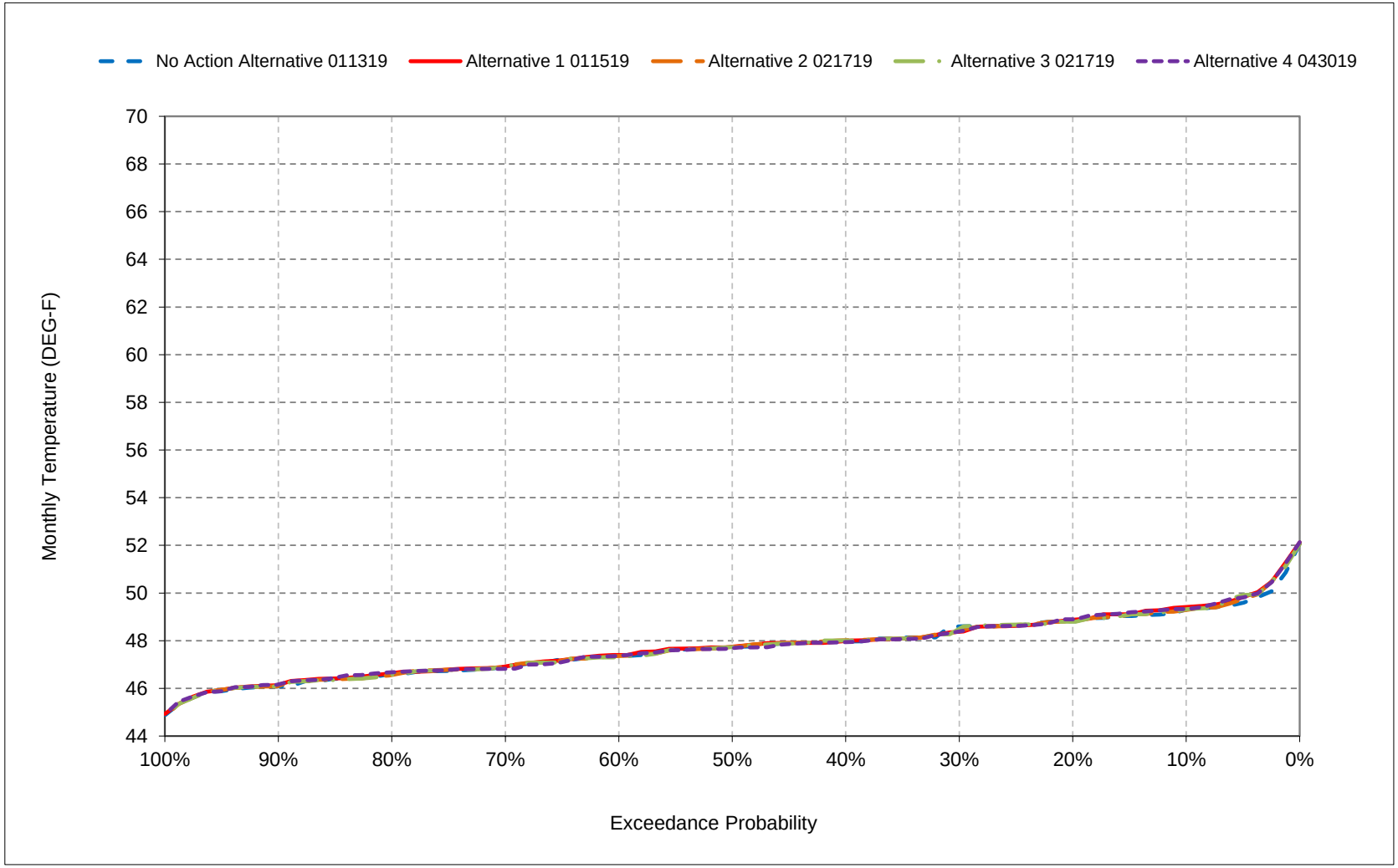
**Figure 10-10. Sacramento River at Red Bluff, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

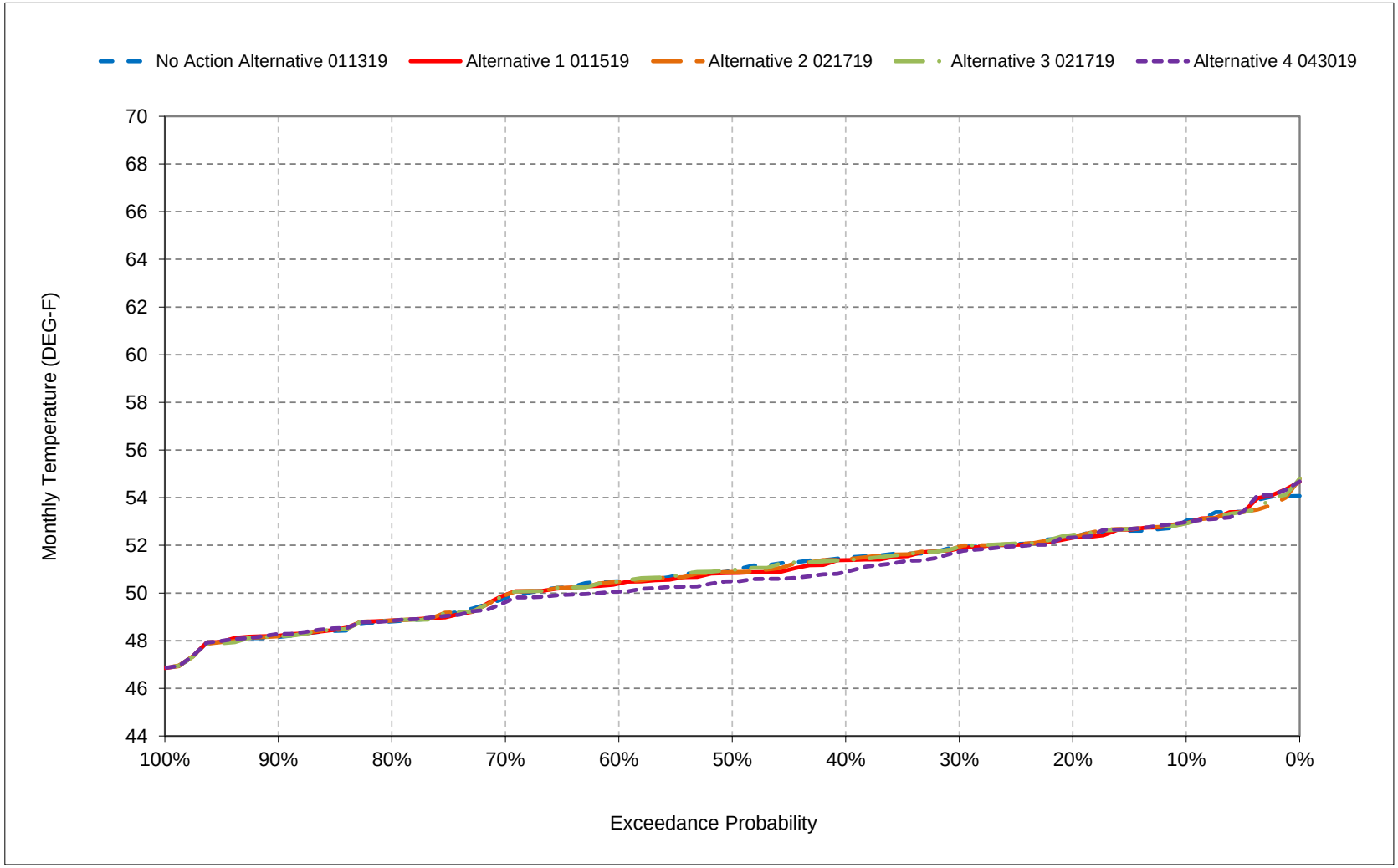
**Figure 10-11. Sacramento River at Red Bluff, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

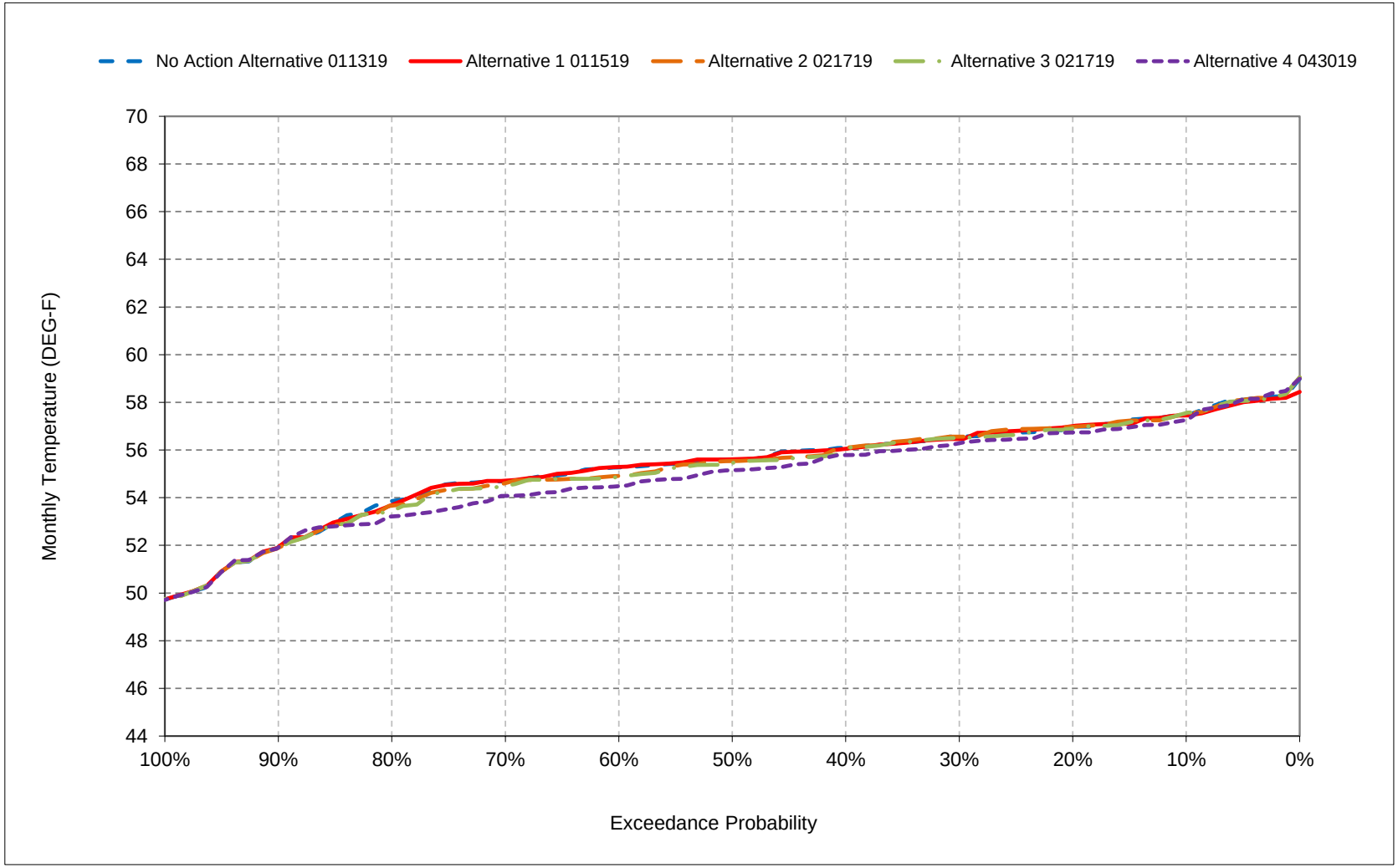
**Figure 10-12. Sacramento River at Red Bluff, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

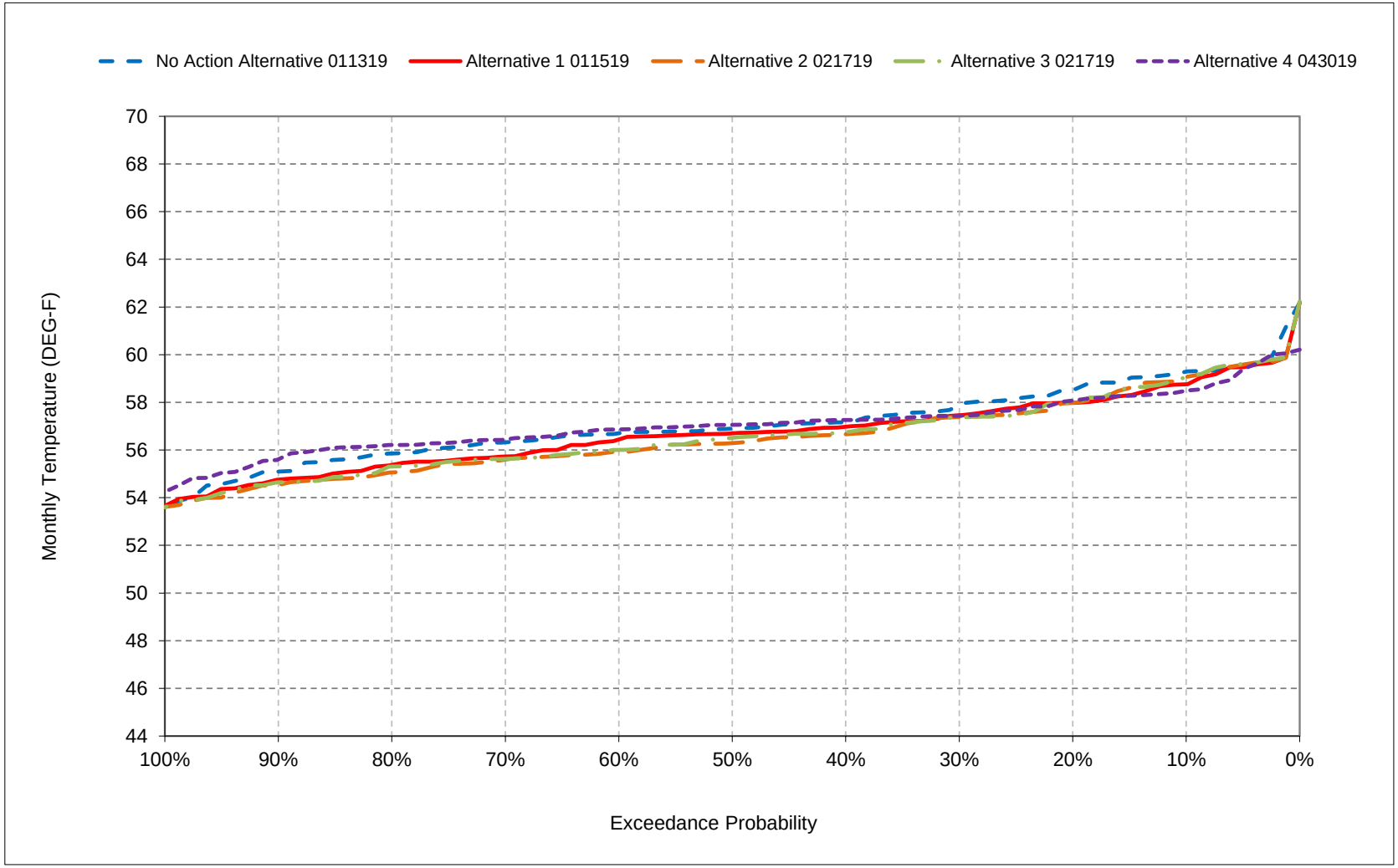
**Figure 10-13. Sacramento River at Red Bluff, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

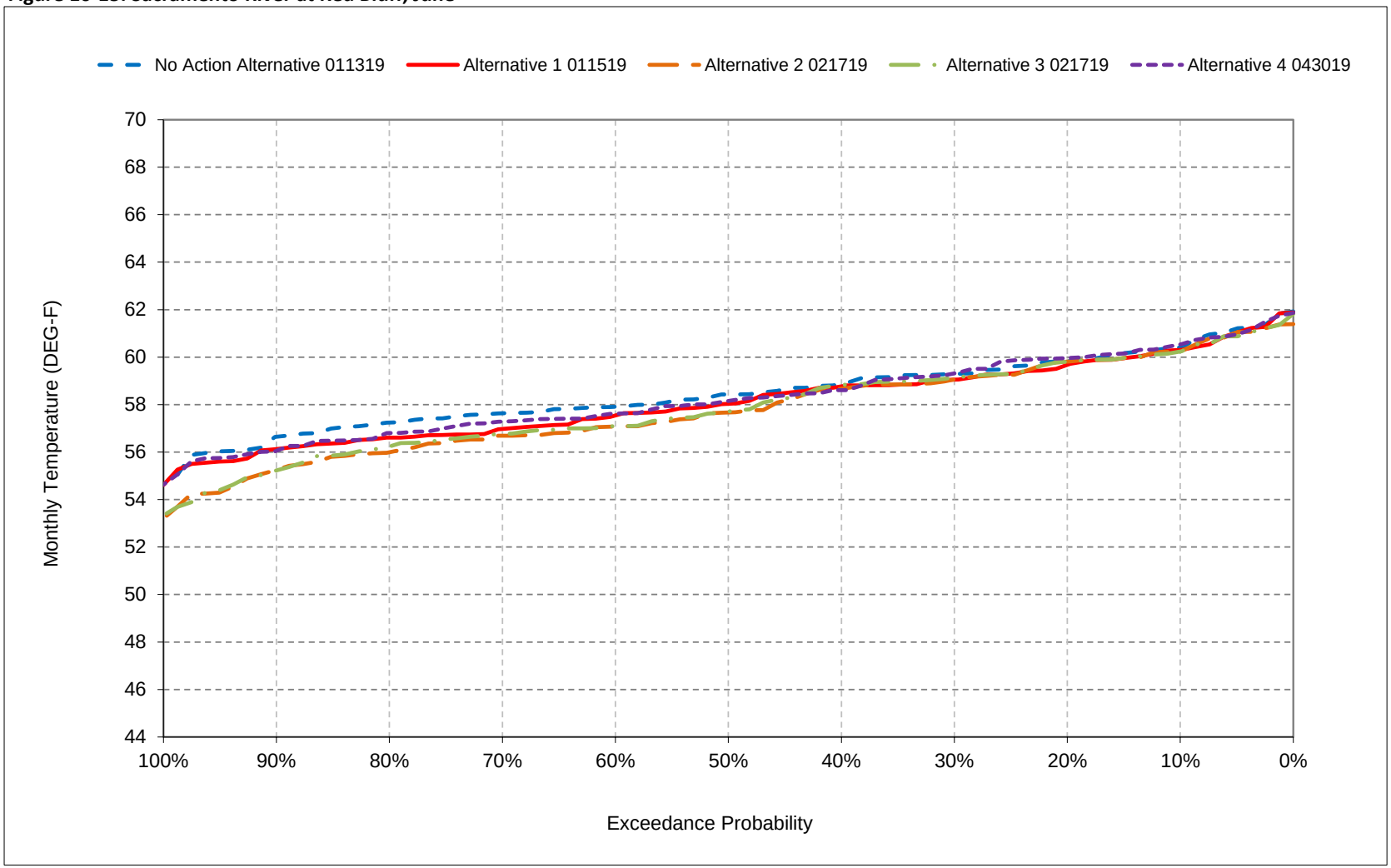
**Figure 10-14. Sacramento River at Red Bluff, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

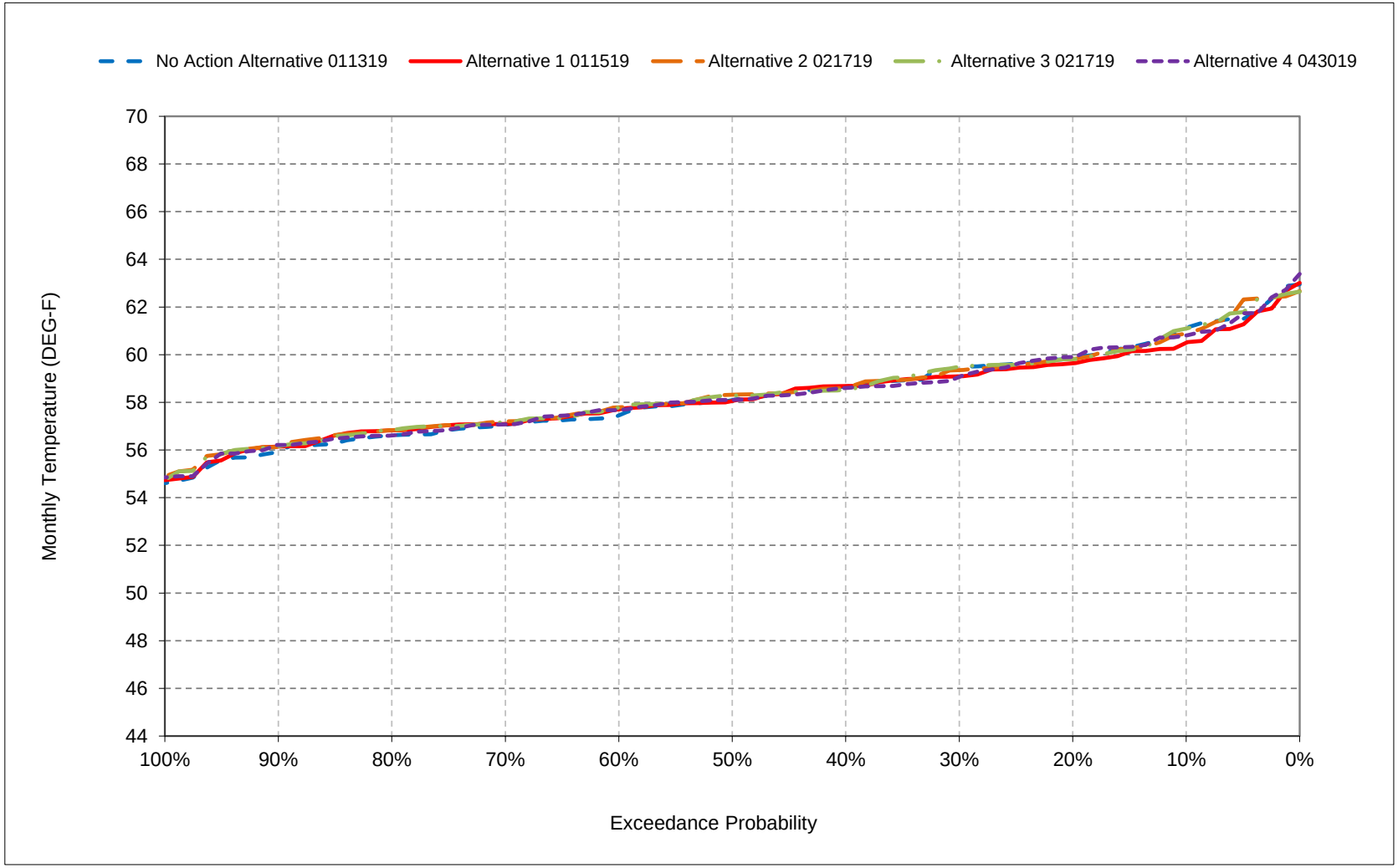
**Figure 10-15. Sacramento River at Red Bluff, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

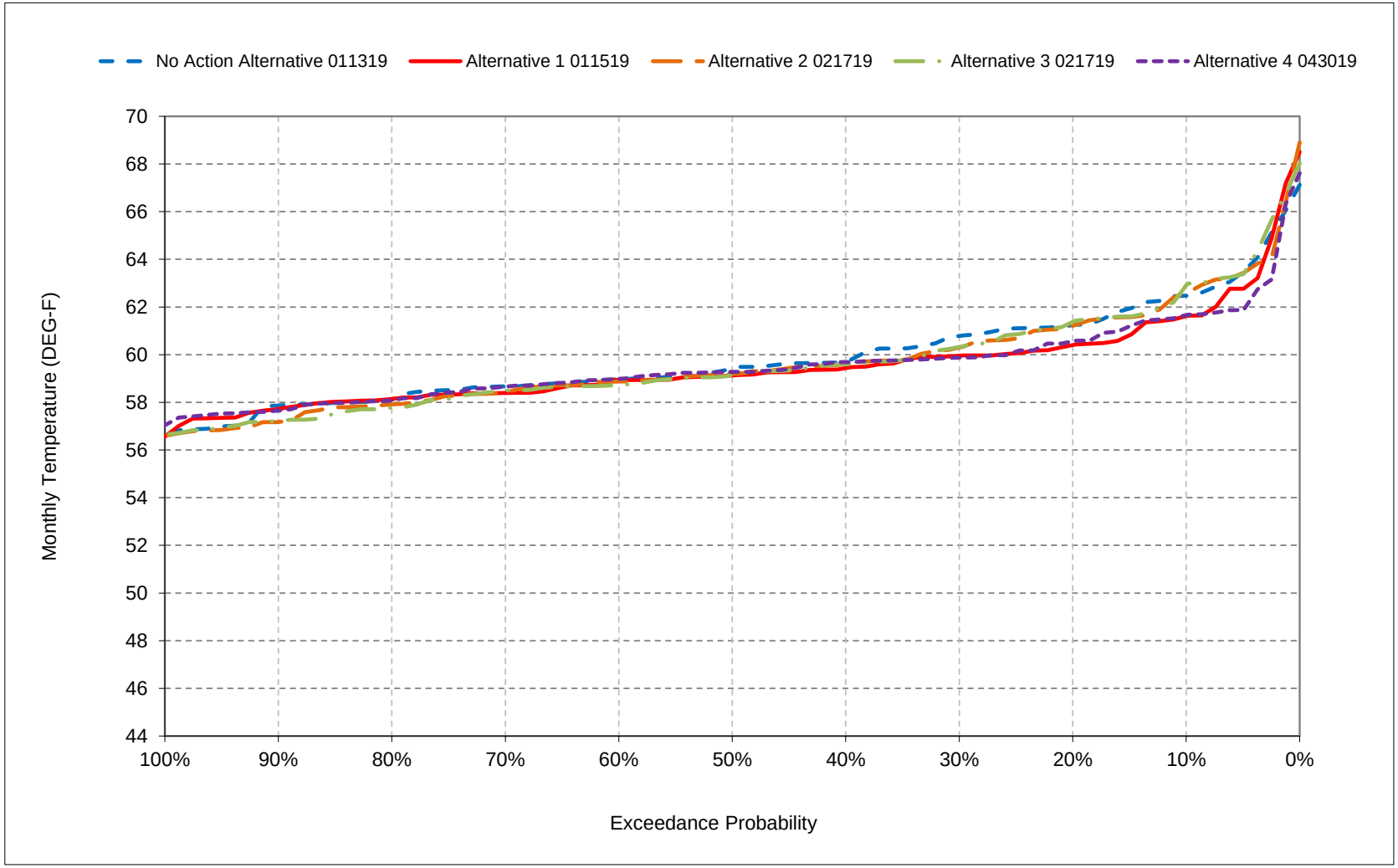
**Figure 10-16. Sacramento River at Red Bluff, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 10-17. Sacramento River at Red Bluff, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 10-18. Sacramento River at Red Bluff, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 12-1. Sacramento River below Hamilton City, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.6 | 55.9 | 50.2 | 48.2 | 50.3 | 54.8 | 60.1 | 63.2 | 65.5 | 65.6 | 67.3 | 67.1 |
| 20% | 60.0 | 55.1 | 49.7 | 47.7 | 49.6 | 53.9 | 59.6 | 62.7 | 64.8 | 65.0 | 66.2 | 65.7 |
| 30% | 59.5 | 54.7 | 48.9 | 47.1 | 49.1 | 53.3 | 59.0 | 62.2 | 64.3 | 64.4 | 65.6 | 65.1 |
| 40% | 58.9 | 54.2 | 48.5 | 46.8 | 48.6 | 52.8 | 58.5 | 61.4 | 63.9 | 63.4 | 64.8 | 63.9 |
| 50% | 58.4 | 53.8 | 48.4 | 46.6 | 48.3 | 52.2 | 57.9 | 61.0 | 63.2 | 62.9 | 64.2 | 62.5 |
| 60% | 58.2 | 53.4 | 48.1 | 46.4 | 48.0 | 51.5 | 57.6 | 60.6 | 62.9 | 62.2 | 63.7 | 60.3 |
| 70% | 57.7 | 53.2 | 47.7 | 46.2 | 47.6 | 50.9 | 56.6 | 60.1 | 62.3 | 61.4 | 63.2 | 59.2 |
| 80% | 57.5 | 52.7 | 47.6 | 46.0 | 47.0 | 49.6 | 55.3 | 59.7 | 61.9 | 60.8 | 62.8 | 58.1 |
| 90% | 57.1 | 52.1 | 47.2 | 45.7 | 46.4 | 49.1 | 53.6 | 58.4 | 61.0 | 60.2 | 62.2 | 57.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 58.9 | 53.9 | 48.6 | 46.8 | 48.4 | 52.0 | 57.5 | 61.0 | 63.3 | 63.0 | 64.5 | 62.3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 57.8 | 54.3 | 48.9 | 46.5 | 47.4 | 50.4 | 55.4 | 60.2 | 64.1 | 63.0 | 63.7 | 58.2 |
| Above Normal (16%) | 58.0 | 53.6 | 48.6 | 46.7 | 47.6 | 51.1 | 56.8 | 61.0 | 62.8 | 61.0 | 62.9 | 59.6 |
| Below Normal (13%) | 58.5 | 53.5 | 48.5 | 46.7 | 48.6 | 53.1 | 58.9 | 60.7 | 62.0 | 61.8 | 63.2 | 64.2 |
| Dry (24%) | 59.1 | 53.3 | 48.3 | 46.9 | 49.0 | 52.8 | 58.5 | 61.5 | 62.7 | 63.1 | 65.3 | 65.1 |
| Critical (15%) | 62.2 | 54.8 | 48.3 | 47.4 | 50.0 | 54.2 | 59.6 | 62.1 | 64.5 | 65.9 | 67.9 | 67.9 |

## Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.9 | 56.2 | 50.8 | 48.2 | 50.3 | 54.7 | 60.2 | 63.0 | 65.2 | 65.7 | 66.8 | 67.4 |
| 20% | 59.2 | 54.8 | 49.5 | 47.8 | 49.6 | 53.8 | 59.6 | 62.1 | 64.7 | 65.0 | 65.4 | 66.1 |
| 30% | 58.8 | 54.4 | 48.9 | 47.3 | 48.8 | 53.3 | 59.0 | 61.4 | 64.1 | 64.2 | 64.9 | 65.4 |
| 40% | 58.4 | 53.6 | 48.7 | 46.9 | 48.6 | 52.7 | 58.5 | 61.0 | 63.6 | 63.6 | 64.4 | 64.9 |
| 50% | 57.9 | 53.3 | 48.5 | 46.8 | 48.3 | 51.9 | 58.0 | 60.6 | 63.0 | 63.0 | 63.9 | 64.1 |
| 60% | 57.7 | 53.1 | 48.3 | 46.5 | 48.0 | 51.4 | 57.5 | 60.1 | 62.0 | 62.1 | 63.7 | 63.5 |
| 70% | 57.4 | 52.8 | 48.0 | 46.3 | 47.6 | 50.9 | 56.4 | 59.6 | 61.6 | 61.5 | 63.0 | 62.9 |
| 80% | 56.9 | 52.4 | 47.8 | 46.0 | 46.9 | 49.7 | 55.3 | 59.1 | 61.1 | 61.0 | 62.7 | 61.5 |
| 90% | 56.3 | 52.1 | 47.4 | 45.7 | 46.5 | 49.1 | 53.6 | 58.4 | 60.4 | 60.3 | 62.1 | 60.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 58.4 | 53.7 | 48.7 | 46.9 | 48.4 | 52.0 | 57.4 | 60.6 | 62.9 | 63.0 | 64.2 | 64.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 57.2 | 53.7 | 49.0 | 46.6 | 47.4 | 50.4 | 55.3 | 60.0 | 64.1 | 63.1 | 63.5 | 61.7 |
| Above Normal (16%) | 57.4 | 52.8 | 48.5 | 46.8 | 47.6 | 51.0 | 56.8 | 60.6 | 62.6 | 61.0 | 63.0 | 64.2 |
| Below Normal (13%) | 58.3 | 53.7 | 48.7 | 46.8 | 48.6 | 52.9 | 58.6 | 60.0 | 61.2 | 61.7 | 62.9 | 63.5 |
| Dry (24%) | 58.4 | 53.4 | 48.6 | 47.0 | 49.0 | 52.8 | 58.5 | 60.9 | 61.9 | 63.1 | 64.7 | 64.9 |
| Critical (15%) | 62.2 | 55.0 | 48.4 | 47.5 | 50.2 | 54.2 | 59.7 | 61.8 | 63.7 | 65.9 | 67.6 | 68.2 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.3** | **0.3** | **0.6** | **0.0** | **0.0** | -0.1 | **0.1** | -0.3 | -0.2 | **0.1** | -0.5 | **0.3** |
| 20% | -0.9 | -0.3 | -0.2 | **0.1** | **0.0** | -0.1 | 0.0 | -0.5 | -0.1 | 0.0 | -0.8 | **0.4** |
| 30% | -0.7 | -0.3 | 0.0 | **0.2** | -0.3 | -0.1 | 0.0 | -0.7 | -0.3 | -0.2 | -0.7 | **0.3** |
| 40% | -0.5 | -0.6 | **0.1** | **0.1** | **0.1** | -0.1 | **0.0** | -0.4 | -0.4 | **0.2** | -0.4 | **1.0** |
| 50% | -0.5 | -0.5 | **0.1** | **0.2** | **0.0** | -0.3 | **0.0** | -0.4 | -0.2 | **0.1** | -0.3 | **1.6** |
| 60% | -0.4 | -0.3 | **0.1** | **0.1** | **0.0** | -0.1 | -0.1 | -0.5 | -0.9 | 0.0 | 0.0 | **3.2** |
| 70% | -0.3 | -0.4 | **0.3** | **0.1** | 0.0 | 0.0 | -0.2 | -0.5 | -0.8 | **0.1** | -0.2 | **3.7** |
| 80% | -0.6 | -0.3 | **0.2** | **0.0** | 0.0 | **0.0** | **0.0** | -0.6 | -0.9 | **0.2** | -0.1 | **3.4** |
| 90% | -0.8 | **0.0** | **0.1** | **0.0** | **0.1** | **0.0** | 0.0 | 0.0 | -0.6 | **0.2** | 0.0 | **2.7** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.5 | -0.2 | **0.1** | **0.1** | **0.0** | -0.1 | 0.0 | -0.4 | -0.5 | **0.0** | -0.3 | **1.7** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.6 | -0.6 | **0.1** | **0.1** | **0.0** | **0.0** | 0.0 | -0.2 | -0.1 | **0.1** | -0.2 | **3.5** |
| Above Normal (16%) | -0.6 | -0.8 | -0.1 | **0.1** | **0.0** | -0.1 | **0.0** | -0.4 | -0.2 | **0.1** | **0.1** | **4.6** |
| Below Normal (13%) | -0.2 | **0.2** | **0.2** | **0.1** | -0.1 | -0.2 | -0.3 | -0.7 | -0.7 | -0.1 | -0.3 | -0.7 |
| Dry (24%) | -0.7 | **0.1** | **0.3** | **0.1** | **0.0** | 0.0 | **0.0** | -0.6 | -0.8 | **0.0** | -0.7 | -0.2 |
| Critical (15%) | **0.1** | **0.1** | **0.1** | **0.2** | **0.2** | -0.1 | **0.1** | -0.3 | -0.8 | 0.0 | -0.2 | **0.3** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 12-2. Sacramento River below Hamilton City, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.6 | 55.9 | 50.2 | 48.2 | 50.3 | 54.8 | 60.1 | 63.2 | 65.5 | 65.6 | 67.3 | 67.1 |
| 20% | 60.0 | 55.1 | 49.7 | 47.7 | 49.6 | 53.9 | 59.6 | 62.7 | 64.8 | 65.0 | 66.2 | 65.7 |
| 30% | 59.5 | 54.7 | 48.9 | 47.1 | 49.1 | 53.3 | 59.0 | 62.2 | 64.3 | 64.4 | 65.6 | 65.1 |
| 40% | 58.9 | 54.2 | 48.5 | 46.8 | 48.6 | 52.8 | 58.5 | 61.4 | 63.9 | 63.4 | 64.8 | 63.9 |
| 50% | 58.4 | 53.8 | 48.4 | 46.6 | 48.3 | 52.2 | 57.9 | 61.0 | 63.2 | 62.9 | 64.2 | 62.5 |
| 60% | 58.2 | 53.4 | 48.1 | 46.4 | 48.0 | 51.5 | 57.6 | 60.6 | 62.9 | 62.2 | 63.7 | 60.3 |
| 70% | 57.7 | 53.2 | 47.7 | 46.2 | 47.6 | 50.9 | 56.6 | 60.1 | 62.3 | 61.4 | 63.2 | 59.2 |
| 80% | 57.5 | 52.7 | 47.6 | 46.0 | 47.0 | 49.6 | 55.3 | 59.7 | 61.9 | 60.8 | 62.8 | 58.1 |
| 90% | 57.1 | 52.1 | 47.2 | 45.7 | 46.4 | 49.1 | 53.6 | 58.4 | 61.0 | 60.2 | 62.2 | 57.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 58.9 | 53.9 | 48.6 | 46.8 | 48.4 | 52.0 | 57.5 | 61.0 | 63.3 | 63.0 | 64.5 | 62.3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 57.8 | 54.3 | 48.9 | 46.5 | 47.4 | 50.4 | 55.4 | 60.2 | 64.1 | 63.0 | 63.7 | 58.2 |
| Above Normal (16%) | 58.0 | 53.6 | 48.6 | 46.7 | 47.6 | 51.1 | 56.8 | 61.0 | 62.8 | 61.0 | 62.9 | 59.6 |
| Below Normal (13%) | 58.5 | 53.5 | 48.5 | 46.7 | 48.6 | 53.1 | 58.9 | 60.7 | 62.0 | 61.8 | 63.2 | 64.2 |
| Dry (24%) | 59.1 | 53.3 | 48.3 | 46.9 | 49.0 | 52.8 | 58.5 | 61.5 | 62.7 | 63.1 | 65.3 | 65.1 |
| Critical (15%) | 62.2 | 54.8 | 48.3 | 47.4 | 50.0 | 54.2 | 59.6 | 62.1 | 64.5 | 65.9 | 67.9 | 67.9 |

## Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 61.4 | 56.1 | 50.6 | 48.2 | 50.2 | 54.8 | 60.2 | 62.9 | 65.1 | 66.0 | 67.3 | 67.1 |
| 20% | 60.0 | 55.0 | 49.5 | 47.7 | 49.6 | 53.8 | 59.6 | 62.0 | 64.5 | 65.0 | 65.9 | 65.6 |
| 30% | 59.3 | 54.3 | 48.7 | 47.2 | 49.1 | 53.4 | 59.0 | 61.4 | 64.0 | 64.4 | 65.0 | 64.9 |
| 40% | 58.9 | 53.7 | 48.6 | 46.8 | 48.6 | 52.7 | 58.2 | 60.5 | 63.5 | 63.4 | 64.5 | 64.3 |
| 50% | 58.6 | 53.3 | 48.3 | 46.7 | 48.3 | 52.0 | 57.7 | 60.1 | 62.5 | 62.9 | 63.9 | 63.8 |
| 60% | 58.3 | 53.0 | 48.1 | 46.4 | 48.0 | 51.6 | 57.3 | 59.8 | 61.5 | 62.3 | 63.4 | 63.4 |
| 70% | 58.1 | 52.9 | 47.8 | 46.2 | 47.6 | 50.9 | 56.4 | 59.4 | 60.9 | 61.6 | 63.0 | 62.7 |
| 80% | 57.6 | 52.6 | 47.6 | 46.0 | 47.0 | 49.7 | 55.2 | 58.7 | 60.5 | 61.2 | 62.4 | 61.7 |
| 90% | 56.9 | 52.1 | 47.2 | 45.6 | 46.5 | 49.1 | 53.6 | 58.0 | 59.3 | 60.4 | 61.5 | 60.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 59.0 | 53.8 | 48.5 | 46.8 | 48.4 | 52.0 | 57.4 | 60.3 | 62.4 | 63.1 | 64.2 | 63.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 57.8 | 53.7 | 48.9 | 46.5 | 47.4 | 50.4 | 55.4 | 59.9 | 63.4 | 63.2 | 63.4 | 62.1 |
| Above Normal (16%) | 58.0 | 52.9 | 48.4 | 46.7 | 47.6 | 51.1 | 56.8 | 60.4 | 61.2 | 61.1 | 62.6 | 63.7 |
| Below Normal (13%) | 58.7 | 53.9 | 48.5 | 46.8 | 48.6 | 52.9 | 58.5 | 59.7 | 60.7 | 61.8 | 62.3 | 63.0 |
| Dry (24%) | 59.1 | 53.5 | 48.3 | 47.0 | 49.0 | 52.9 | 58.4 | 60.4 | 61.8 | 63.2 | 65.5 | 64.5 |
| Critical (15%) | 62.5 | 55.0 | 48.3 | 47.4 | 50.1 | 54.0 | 59.4 | 61.6 | 63.9 | 65.8 | 67.7 | 67.8 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.8** | **0.2** | **0.4** | -0.1 | 0.0 | 0.0 | **0.0** | -0.4 | -0.4 | **0.4** | 0.0 | **0.0** |
| 20% | 0.0 | -0.1 | -0.2 | **0.0** | 0.0 | -0.1 | **0.0** | -0.7 | -0.3 | 0.0 | -0.3 | -0.1 |
| 30% | -0.2 | -0.4 | -0.2 | **0.1** | **0.0** | **0.0** | **0.0** | -0.8 | -0.3 | 0.0 | -0.6 | -0.2 |
| 40% | 0.0 | -0.5 | **0.1** | 0.0 | **0.0** | 0.0 | -0.3 | -0.9 | -0.5 | 0.0 | -0.4 | **0.3** |
| 50% | **0.2** | -0.5 | 0.0 | **0.1** | 0.0 | -0.2 | -0.2 | -0.9 | -0.7 | **0.0** | -0.3 | **1.3** |
| 60% | **0.1** | -0.4 | 0.0 | **0.0** | **0.0** | **0.1** | -0.3 | -0.8 | -1.4 | **0.1** | -0.2 | **3.0** |
| 70% | **0.3** | -0.3 | **0.0** | 0.0 | -0.1 | -0.1 | -0.2 | -0.7 | -1.5 | **0.2** | -0.2 | **3.5** |
| 80% | **0.1** | -0.1 | **0.0** | 0.0 | **0.0** | **0.1** | 0.0 | -1.0 | -1.5 | **0.4** | -0.4 | **3.6** |
| 90% | -0.2 | **0.1** | -0.1 | -0.1 | **0.1** | **0.0** | **0.0** | -0.4 | -1.7 | **0.2** | -0.6 | **2.9** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | -0.2 | 0.0 | **0.0** | **0.0** | 0.0 | -0.1 | -0.7 | -0.9 | **0.1** | -0.3 | **1.6** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.0** | -0.6 | 0.0 | **0.0** | **0.0** | **0.0** | 0.0 | -0.3 | -0.7 | **0.2** | -0.3 | **3.9** |
| Above Normal (16%) | 0.0 | -0.6 | -0.2 | **0.0** | 0.0 | **0.0** | **0.0** | -0.5 | -1.6 | **0.1** | -0.3 | **4.1** |
| Below Normal (13%) | **0.1** | **0.4** | **0.1** | **0.1** | 0.0 | -0.2 | -0.4 | -1.1 | -1.2 | **0.0** | -0.9 | -1.2 |
| Dry (24%) | 0.0 | **0.2** | **0.1** | **0.0** | **0.0** | **0.1** | 0.0 | -1.1 | -0.9 | **0.1** | **0.1** | -0.5 |
| Critical (15%) | **0.3** | **0.2** | **0.0** | **0.0** | **0.1** | -0.3 | -0.2 | -0.5 | -0.6 | -0.1 | -0.2 | -0.1 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 12-3. Sacramento River below Hamilton City, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.6 | 55.9 | 50.2 | 48.2 | 50.3 | 54.8 | 60.1 | 63.2 | 65.5 | 65.6 | 67.3 | 67.1 |
| 20% | 60.0 | 55.1 | 49.7 | 47.7 | 49.6 | 53.9 | 59.6 | 62.7 | 64.8 | 65.0 | 66.2 | 65.7 |
| 30% | 59.5 | 54.7 | 48.9 | 47.1 | 49.1 | 53.3 | 59.0 | 62.2 | 64.3 | 64.4 | 65.6 | 65.1 |
| 40% | 58.9 | 54.2 | 48.5 | 46.8 | 48.6 | 52.8 | 58.5 | 61.4 | 63.9 | 63.4 | 64.8 | 63.9 |
| 50% | 58.4 | 53.8 | 48.4 | 46.6 | 48.3 | 52.2 | 57.9 | 61.0 | 63.2 | 62.9 | 64.2 | 62.5 |
| 60% | 58.2 | 53.4 | 48.1 | 46.4 | 48.0 | 51.5 | 57.6 | 60.6 | 62.9 | 62.2 | 63.7 | 60.3 |
| 70% | 57.7 | 53.2 | 47.7 | 46.2 | 47.6 | 50.9 | 56.6 | 60.1 | 62.3 | 61.4 | 63.2 | 59.2 |
| 80% | 57.5 | 52.7 | 47.6 | 46.0 | 47.0 | 49.6 | 55.3 | 59.7 | 61.9 | 60.8 | 62.8 | 58.1 |
| 90% | 57.1 | 52.1 | 47.2 | 45.7 | 46.4 | 49.1 | 53.6 | 58.4 | 61.0 | 60.2 | 62.2 | 57.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 58.9 | 53.9 | 48.6 | 46.8 | 48.4 | 52.0 | 57.5 | 61.0 | 63.3 | 63.0 | 64.5 | 62.3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 57.8 | 54.3 | 48.9 | 46.5 | 47.4 | 50.4 | 55.4 | 60.2 | 64.1 | 63.0 | 63.7 | 58.2 |
| Above Normal (16%) | 58.0 | 53.6 | 48.6 | 46.7 | 47.6 | 51.1 | 56.8 | 61.0 | 62.8 | 61.0 | 62.9 | 59.6 |
| Below Normal (13%) | 58.5 | 53.5 | 48.5 | 46.7 | 48.6 | 53.1 | 58.9 | 60.7 | 62.0 | 61.8 | 63.2 | 64.2 |
| Dry (24%) | 59.1 | 53.3 | 48.3 | 46.9 | 49.0 | 52.8 | 58.5 | 61.5 | 62.7 | 63.1 | 65.3 | 65.1 |
| Critical (15%) | 62.2 | 54.8 | 48.3 | 47.4 | 50.0 | 54.2 | 59.6 | 62.1 | 64.5 | 65.9 | 67.9 | 67.9 |

## Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 61.2 | 56.2 | 50.7 | 48.2 | 50.3 | 54.8 | 60.2 | 62.8 | 65.1 | 66.0 | 67.7 | 67.2 |
| 20% | 59.8 | 55.0 | 49.6 | 47.7 | 49.6 | 53.8 | 59.4 | 62.2 | 64.6 | 64.9 | 66.0 | 65.7 |
| 30% | 59.2 | 54.3 | 48.8 | 47.2 | 49.1 | 53.3 | 58.8 | 61.4 | 64.0 | 64.3 | 65.0 | 64.9 |
| 40% | 58.8 | 53.7 | 48.6 | 46.8 | 48.5 | 52.7 | 58.1 | 60.8 | 63.5 | 63.4 | 64.4 | 64.6 |
| 50% | 58.4 | 53.3 | 48.4 | 46.6 | 48.3 | 52.2 | 57.7 | 60.1 | 62.7 | 63.0 | 63.8 | 63.7 |
| 60% | 58.1 | 53.0 | 48.1 | 46.4 | 48.0 | 51.6 | 57.3 | 59.8 | 61.5 | 62.2 | 63.4 | 63.4 |
| 70% | 57.9 | 52.9 | 47.8 | 46.2 | 47.5 | 50.9 | 56.4 | 59.5 | 61.0 | 61.6 | 62.8 | 62.7 |
| 80% | 57.6 | 52.6 | 47.6 | 46.0 | 46.9 | 49.7 | 55.3 | 58.8 | 60.6 | 61.2 | 62.0 | 61.5 |
| 90% | 56.9 | 52.1 | 47.2 | 45.6 | 46.5 | 49.1 | 53.6 | 58.1 | 59.3 | 60.4 | 61.6 | 60.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 58.9 | 53.8 | 48.6 | 46.8 | 48.4 | 52.0 | 57.3 | 60.4 | 62.5 | 63.1 | 64.2 | 64.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 57.8 | 53.7 | 48.9 | 46.5 | 47.4 | 50.4 | 55.3 | 60.2 | 63.5 | 63.1 | 63.2 | 62.3 |
| Above Normal (16%) | 58.0 | 53.0 | 48.5 | 46.7 | 47.6 | 51.1 | 56.8 | 60.4 | 61.3 | 61.1 | 62.6 | 63.5 |
| Below Normal (13%) | 58.5 | 53.9 | 48.5 | 46.8 | 48.6 | 52.9 | 58.4 | 59.7 | 60.8 | 61.8 | 62.4 | 62.9 |
| Dry (24%) | 58.8 | 53.4 | 48.4 | 47.0 | 49.0 | 53.0 | 58.4 | 60.4 | 61.8 | 63.2 | 65.5 | 64.5 |
| Critical (15%) | 62.6 | 55.0 | 48.3 | 47.4 | 50.1 | 54.0 | 59.4 | 61.7 | 64.0 | 65.9 | 67.8 | 68.0 |

## Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.7** | **0.3** | **0.5** | 0.0 | 0.0 | 0.0 | **0.0** | -0.4 | -0.4 | **0.3** | **0.4** | **0.1** |
| 20% | -0.3 | -0.1 | -0.1 | **0.0** | **0.0** | -0.1 | -0.2 | -0.5 | -0.2 | -0.1 | -0.1 | 0.0 |
| 30% | -0.3 | -0.4 | -0.1 | **0.1** | **0.0** | 0.0 | -0.2 | -0.8 | -0.3 | -0.1 | -0.6 | -0.2 |
| 40% | -0.1 | -0.4 | **0.1** | 0.0 | 0.0 | 0.0 | -0.3 | -0.5 | -0.5 | 0.0 | -0.4 | **0.7** |
| 50% | **0.0** | -0.5 | **0.0** | **0.0** | 0.0 | 0.0 | -0.2 | -0.9 | -0.5 | **0.1** | -0.4 | **1.2** |
| 60% | 0.0 | -0.4 | **0.0** | **0.0** | **0.0** | **0.1** | -0.3 | -0.8 | -1.4 | 0.0 | -0.3 | **3.0** |
| 70% | **0.1** | -0.3 | **0.0** | 0.0 | -0.1 | -0.1 | -0.2 | -0.6 | -1.3 | **0.1** | -0.4 | **3.5** |
| 80% | **0.1** | -0.1 | **0.0** | 0.0 | 0.0 | **0.1** | **0.0** | -0.9 | -1.4 | **0.4** | -0.8 | **3.4** |
| 90% | -0.2 | 0.0 | -0.1 | -0.1 | **0.1** | 0.0 | **0.0** | -0.3 | -1.7 | **0.2** | -0.6 | **2.8** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0.0 | -0.2 | **0.0** | **0.0** | **0.0** | 0.0 | -0.1 | -0.6 | -0.9 | **0.1** | -0.3 | **1.6** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.1 | -0.6 | **0.0** | **0.0** | **0.0** | **0.0** | -0.1 | 0.0 | -0.6 | **0.1** | -0.5 | **4.1** |
| Above Normal (16%) | **0.0** | -0.6 | -0.1 | **0.0** | 0.0 | **0.0** | **0.0** | -0.6 | -1.5 | **0.1** | -0.3 | **4.0** |
| Below Normal (13%) | **0.0** | **0.4** | **0.1** | **0.1** | 0.0 | -0.2 | -0.5 | -1.1 | -1.2 | **0.0** | -0.8 | -1.2 |
| Dry (24%) | -0.3 | **0.2** | **0.1** | **0.0** | **0.0** | **0.2** | 0.0 | -1.1 | -0.9 | **0.1** | **0.1** | -0.6 |
| Critical (15%) | **0.4** | **0.2** | **0.0** | **0.1** | **0.1** | -0.3 | -0.2 | -0.4 | -0.5 | **0.0** | 0.0 | **0.1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 12-4. Sacramento River below Hamilton City, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.6 | 55.9 | 50.2 | 48.2 | 50.3 | 54.8 | 60.1 | 63.2 | 65.5 | 65.6 | 67.3 | 67.1 |
| 20% | 60.0 | 55.1 | 49.7 | 47.7 | 49.6 | 53.9 | 59.6 | 62.7 | 64.8 | 65.0 | 66.2 | 65.7 |
| 30% | 59.5 | 54.7 | 48.9 | 47.1 | 49.1 | 53.3 | 59.0 | 62.2 | 64.3 | 64.4 | 65.6 | 65.1 |
| 40% | 58.9 | 54.2 | 48.5 | 46.8 | 48.6 | 52.8 | 58.5 | 61.4 | 63.9 | 63.4 | 64.8 | 63.9 |
| 50% | 58.4 | 53.8 | 48.4 | 46.6 | 48.3 | 52.2 | 57.9 | 61.0 | 63.2 | 62.9 | 64.2 | 62.5 |
| 60% | 58.2 | 53.4 | 48.1 | 46.4 | 48.0 | 51.5 | 57.6 | 60.6 | 62.9 | 62.2 | 63.7 | 60.3 |
| 70% | 57.7 | 53.2 | 47.7 | 46.2 | 47.6 | 50.9 | 56.6 | 60.1 | 62.3 | 61.4 | 63.2 | 59.2 |
| 80% | 57.5 | 52.7 | 47.6 | 46.0 | 47.0 | 49.6 | 55.3 | 59.7 | 61.9 | 60.8 | 62.8 | 58.1 |
| 90% | 57.1 | 52.1 | 47.2 | 45.7 | 46.4 | 49.1 | 53.6 | 58.4 | 61.0 | 60.2 | 62.2 | 57.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 58.9 | 53.9 | 48.6 | 46.8 | 48.4 | 52.0 | 57.5 | 61.0 | 63.3 | 63.0 | 64.5 | 62.3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 57.8 | 54.3 | 48.9 | 46.5 | 47.4 | 50.4 | 55.4 | 60.2 | 64.1 | 63.0 | 63.7 | 58.2 |
| Above Normal (16%) | 58.0 | 53.6 | 48.6 | 46.7 | 47.6 | 51.1 | 56.8 | 61.0 | 62.8 | 61.0 | 62.9 | 59.6 |
| Below Normal (13%) | 58.5 | 53.5 | 48.5 | 46.7 | 48.6 | 53.1 | 58.9 | 60.7 | 62.0 | 61.8 | 63.2 | 64.2 |
| Dry (24%) | 59.1 | 53.3 | 48.3 | 46.9 | 49.0 | 52.8 | 58.5 | 61.5 | 62.7 | 63.1 | 65.3 | 65.1 |
| Critical (15%) | 62.2 | 54.8 | 48.3 | 47.4 | 50.0 | 54.2 | 59.6 | 62.1 | 64.5 | 65.9 | 67.9 | 67.9 |

## Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.2 | 55.8 | 50.7 | 48.3 | 50.3 | 54.7 | 60.3 | 62.9 | 65.5 | 66.1 | 66.7 | 67.0 |
| 20% | 59.2 | 54.8 | 49.5 | 47.8 | 49.6 | 53.9 | 59.4 | 62.0 | 65.0 | 65.3 | 65.6 | 65.9 |
| 30% | 58.7 | 54.3 | 49.1 | 47.3 | 49.0 | 53.0 | 58.7 | 61.7 | 64.2 | 64.3 | 64.9 | 65.4 |
| 40% | 58.3 | 53.5 | 48.7 | 46.9 | 48.5 | 52.2 | 58.1 | 61.2 | 63.6 | 63.3 | 64.5 | 64.9 |
| 50% | 58.0 | 53.3 | 48.5 | 46.8 | 48.3 | 51.8 | 57.6 | 60.9 | 63.0 | 62.8 | 64.2 | 64.4 |
| 60% | 57.8 | 53.1 | 48.3 | 46.5 | 48.0 | 51.2 | 57.0 | 60.5 | 62.3 | 62.2 | 63.6 | 63.6 |
| 70% | 57.6 | 52.7 | 48.0 | 46.3 | 47.5 | 50.8 | 55.7 | 60.3 | 61.7 | 61.6 | 63.1 | 62.9 |
| 80% | 57.1 | 52.4 | 47.9 | 46.0 | 46.9 | 49.7 | 54.7 | 59.9 | 61.3 | 60.9 | 62.8 | 61.8 |
| 90% | 56.6 | 52.1 | 47.3 | 45.7 | 46.5 | 49.2 | 53.6 | 59.3 | 60.4 | 60.3 | 62.1 | 61.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 58.4 | 53.6 | 48.7 | 46.9 | 48.4 | 51.9 | 57.1 | 61.0 | 63.0 | 63.0 | 64.3 | 64.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 57.2 | 53.7 | 49.0 | 46.6 | 47.4 | 50.3 | 54.9 | 60.1 | 64.1 | 63.0 | 63.6 | 62.1 |
| Above Normal (16%) | 57.5 | 52.8 | 48.5 | 46.8 | 47.6 | 50.8 | 56.3 | 61.1 | 63.0 | 60.8 | 63.1 | 63.8 |
| Below Normal (13%) | 58.1 | 53.6 | 48.7 | 46.9 | 48.6 | 52.7 | 58.5 | 60.6 | 61.6 | 61.7 | 63.4 | 64.5 |
| Dry (24%) | 58.5 | 53.3 | 48.6 | 47.0 | 48.9 | 52.7 | 58.3 | 61.4 | 61.8 | 63.1 | 64.8 | 65.0 |
| Critical (15%) | 61.9 | 54.8 | 48.4 | 47.6 | 50.2 | 54.2 | 59.7 | 62.1 | 64.1 | 66.4 | 67.4 | 67.4 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.3 | -0.1 | **0.5** | **0.0** | **0.0** | -0.1 | **0.2** | -0.4 | **0.1** | **0.5** | -0.6 | -0.1 |
| 20% | -0.8 | -0.3 | -0.1 | **0.1** | 0.0 | **0.0** | -0.2 | -0.6 | **0.2** | **0.3** | -0.6 | **0.2** |
| 30% | -0.8 | -0.4 | **0.2** | **0.2** | -0.1 | -0.3 | -0.3 | -0.5 | -0.1 | -0.1 | -0.7 | **0.3** |
| 40% | -0.6 | -0.6 | **0.2** | **0.1** | 0.0 | -0.5 | -0.4 | -0.1 | -0.3 | -0.2 | -0.4 | **0.9** |
| 50% | -0.5 | -0.5 | **0.1** | **0.2** | 0.0 | -0.4 | -0.4 | -0.1 | -0.2 | -0.1 | **0.0** | **1.9** |
| 60% | -0.4 | -0.3 | **0.2** | **0.1** | 0.0 | -0.3 | -0.6 | -0.1 | -0.7 | **0.0** | -0.1 | **3.2** |
| 70% | -0.1 | -0.4 | **0.3** | **0.0** | -0.1 | -0.1 | -0.9 | **0.3** | -0.7 | **0.2** | -0.1 | **3.7** |
| 80% | -0.4 | -0.3 | **0.3** | 0.0 | 0.0 | **0.0** | -0.5 | **0.2** | -0.7 | **0.1** | 0.0 | **3.7** |
| 90% | -0.5 | 0.0 | **0.1** | **0.0** | **0.1** | **0.1** | **0.0** | **0.9** | -0.6 | **0.1** | -0.1 | **3.6** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.5 | -0.3 | **0.2** | **0.1** | **0.0** | -0.2 | -0.3 | 0.0 | -0.3 | **0.1** | -0.2 | **1.8** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.6 | -0.6 | **0.1** | **0.1** | 0.0 | -0.1 | -0.5 | -0.1 | **0.0** | **0.0** | -0.1 | **3.8** |
| Above Normal (16%) | -0.5 | -0.8 | -0.1 | **0.1** | **0.0** | -0.3 | -0.5 | **0.2** | **0.2** | -0.2 | **0.2** | **4.2** |
| Below Normal (13%) | -0.4 | **0.1** | **0.2** | **0.2** | -0.1 | -0.4 | -0.4 | -0.1 | -0.4 | 0.0 | **0.2** | **0.4** |
| Dry (24%) | -0.6 | **0.1** | **0.4** | **0.1** | 0.0 | -0.1 | -0.2 | -0.1 | -0.9 | **0.0** | -0.6 | -0.1 |
| Critical (15%) | -0.3 | 0.0 | **0.1** | **0.2** | **0.2** | 0.0 | **0.1** | **0.1** | -0.5 | **0.5** | -0.4 | -0.5 |

a Based on the 82-year simulation period.

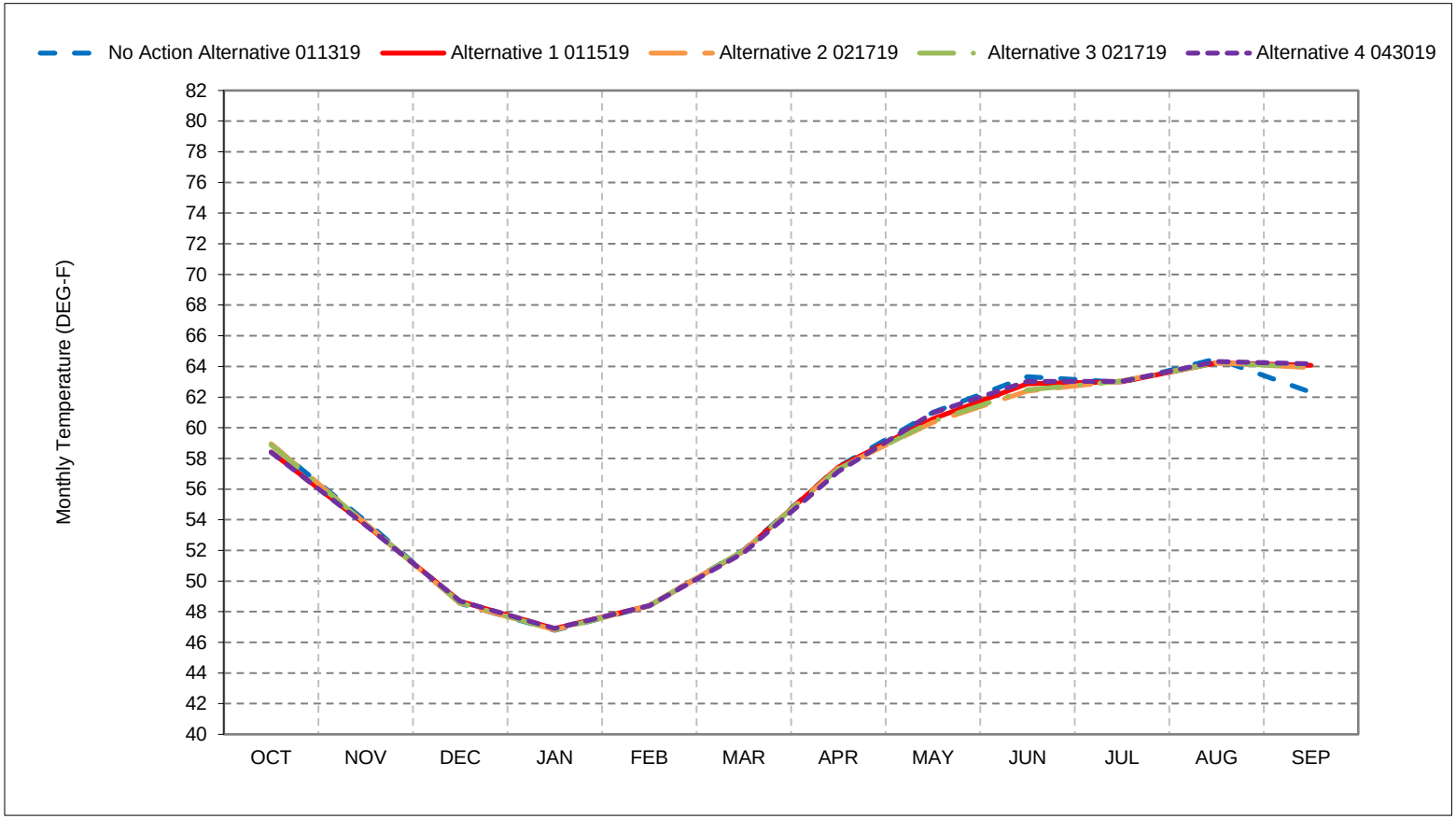
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

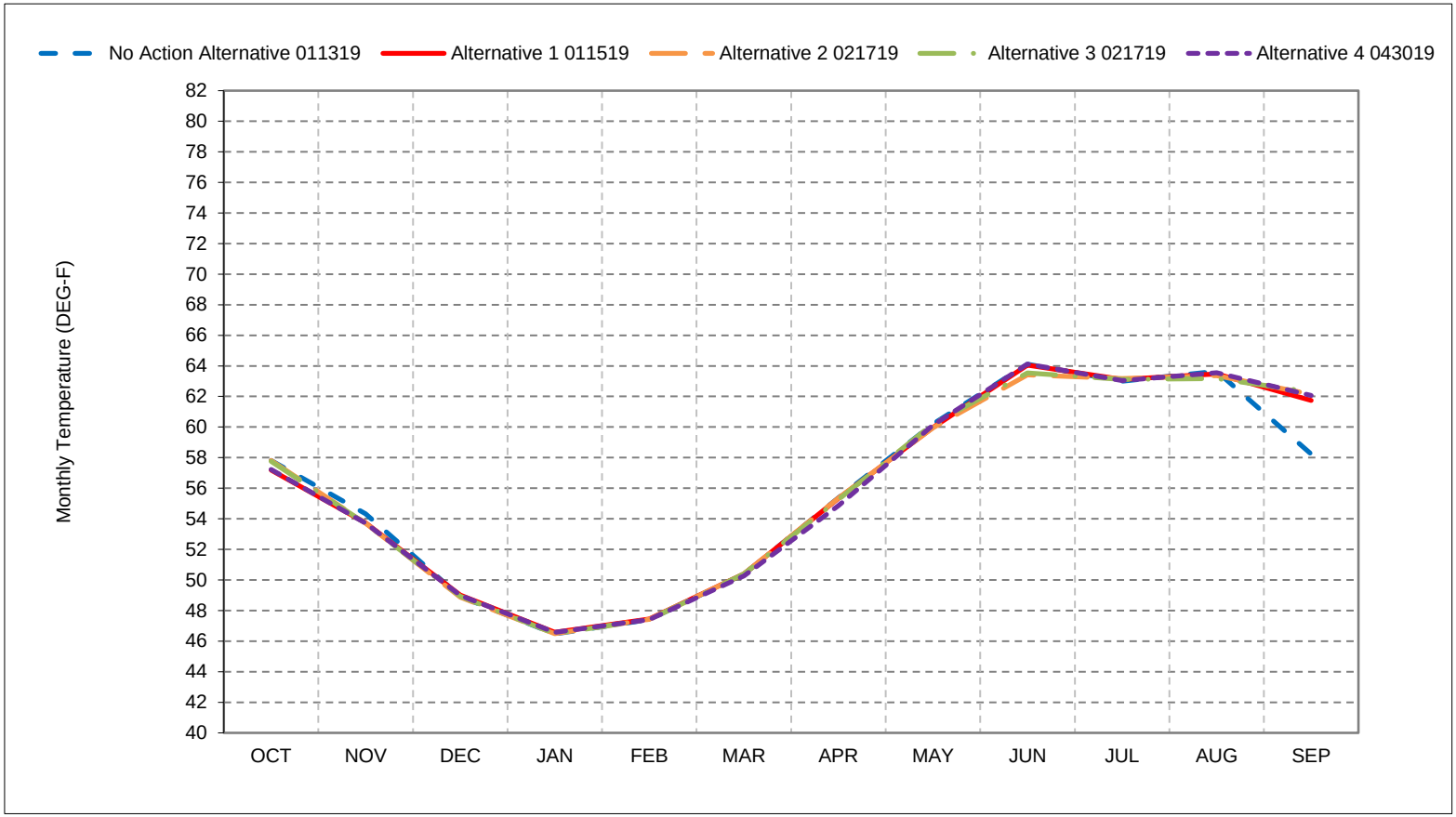
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-1. Sacramento River below Hamilton City, Long-Term Average Temperature



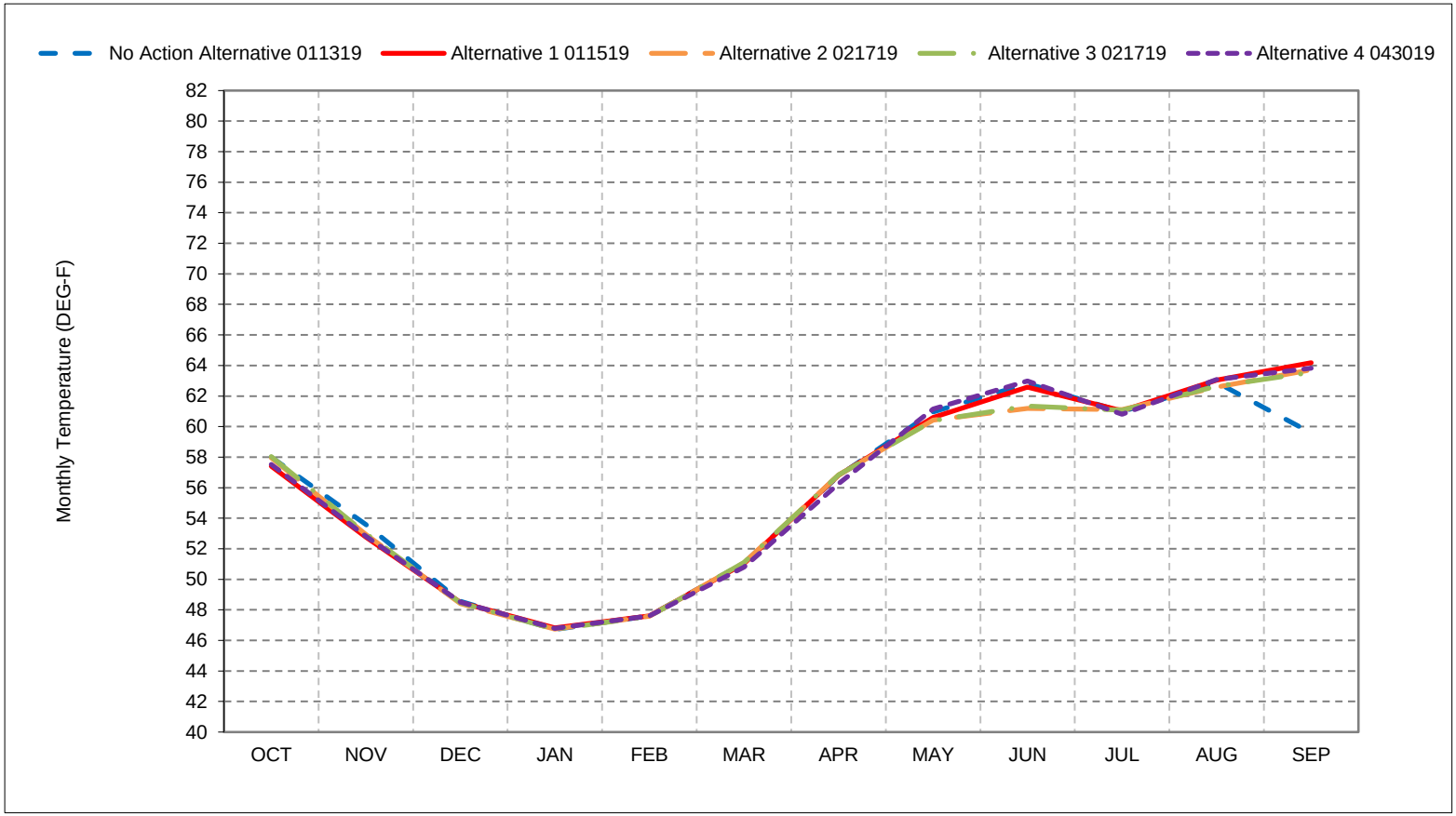

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-2. Sacramento River below Hamilton City, Wet Year Average Temperature



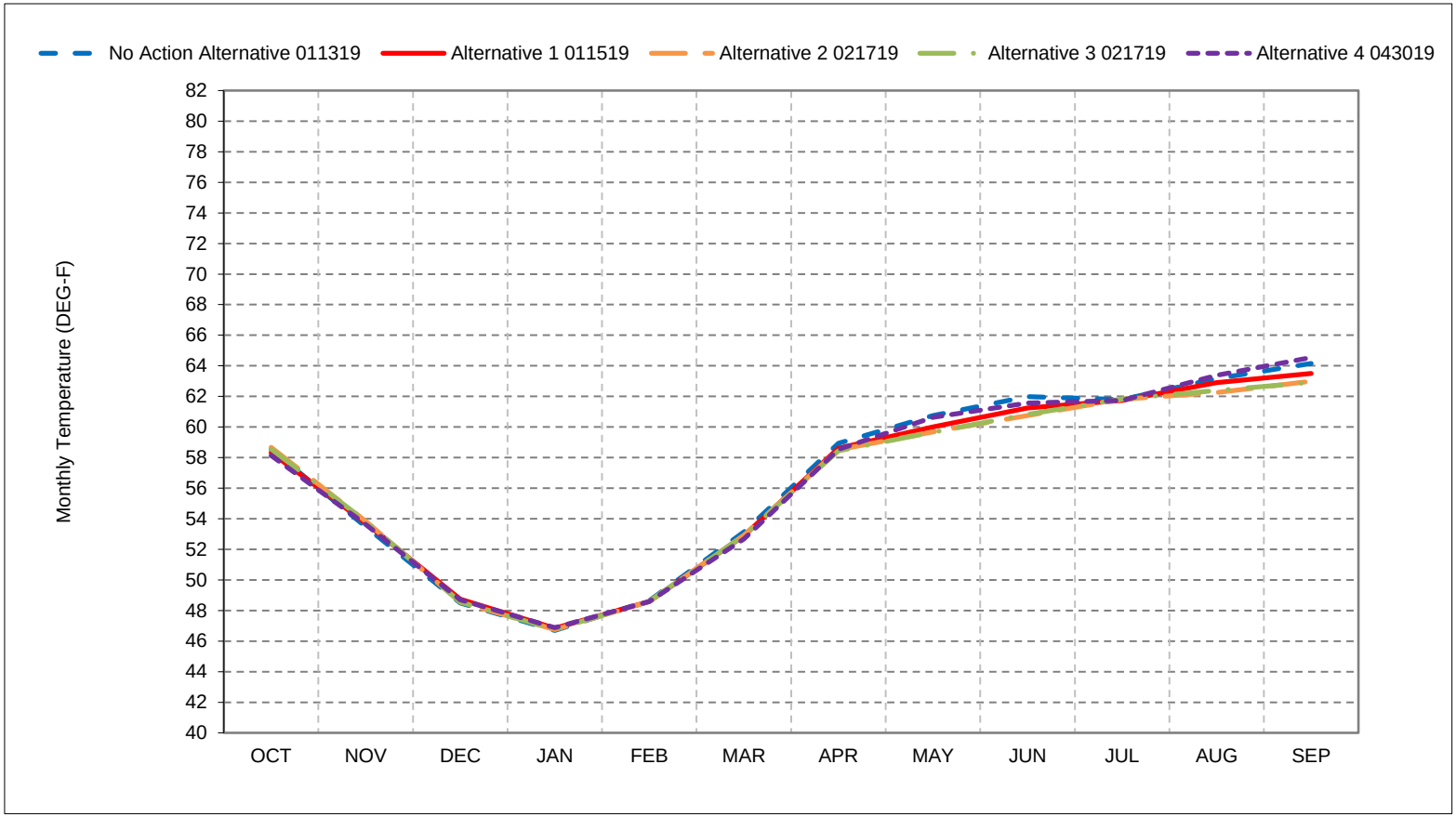

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-3. Sacramento River below Hamilton City, Above Normal Year Average Temperature



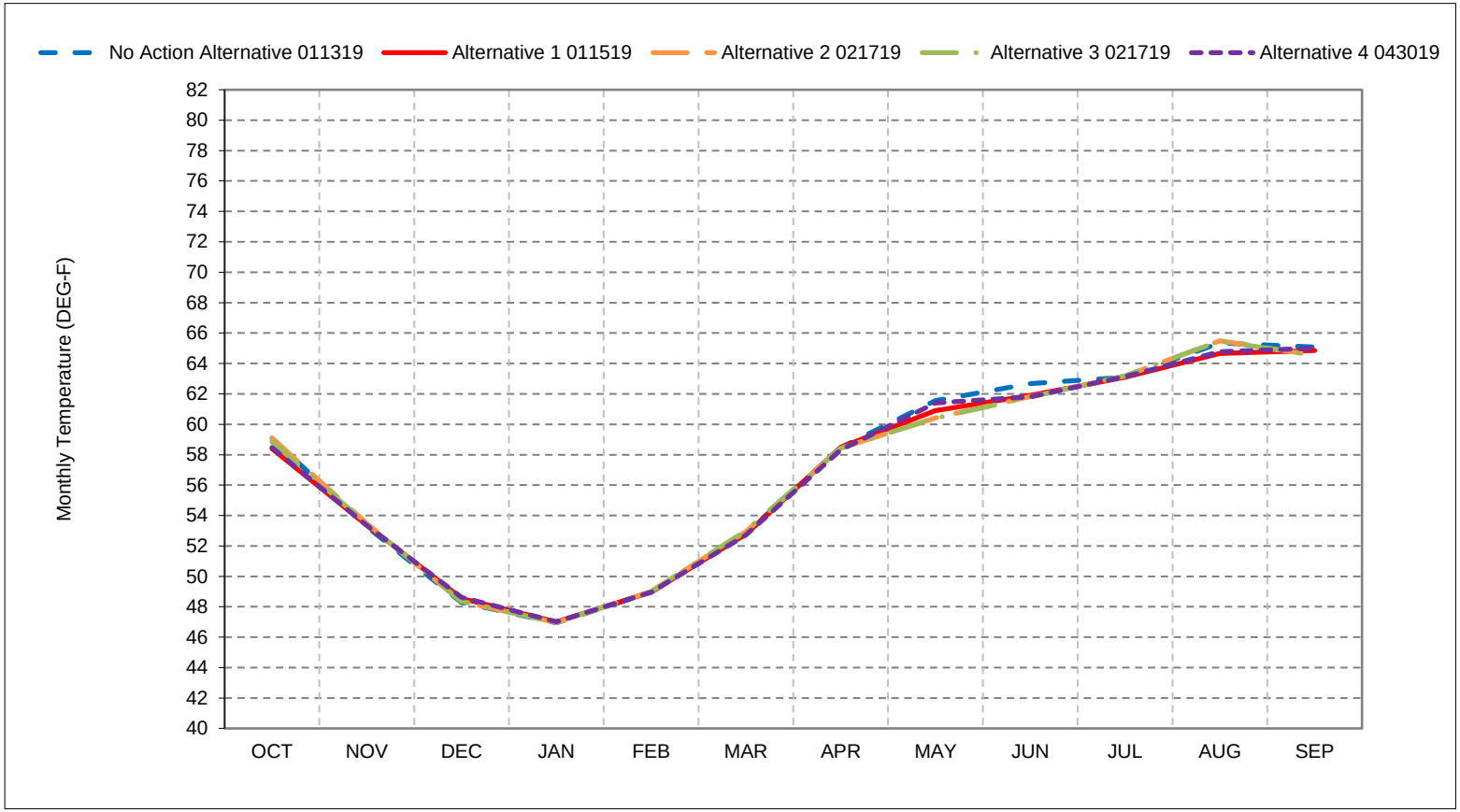

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-4. Sacramento River below Hamilton City, Below Normal Year Average Temperature



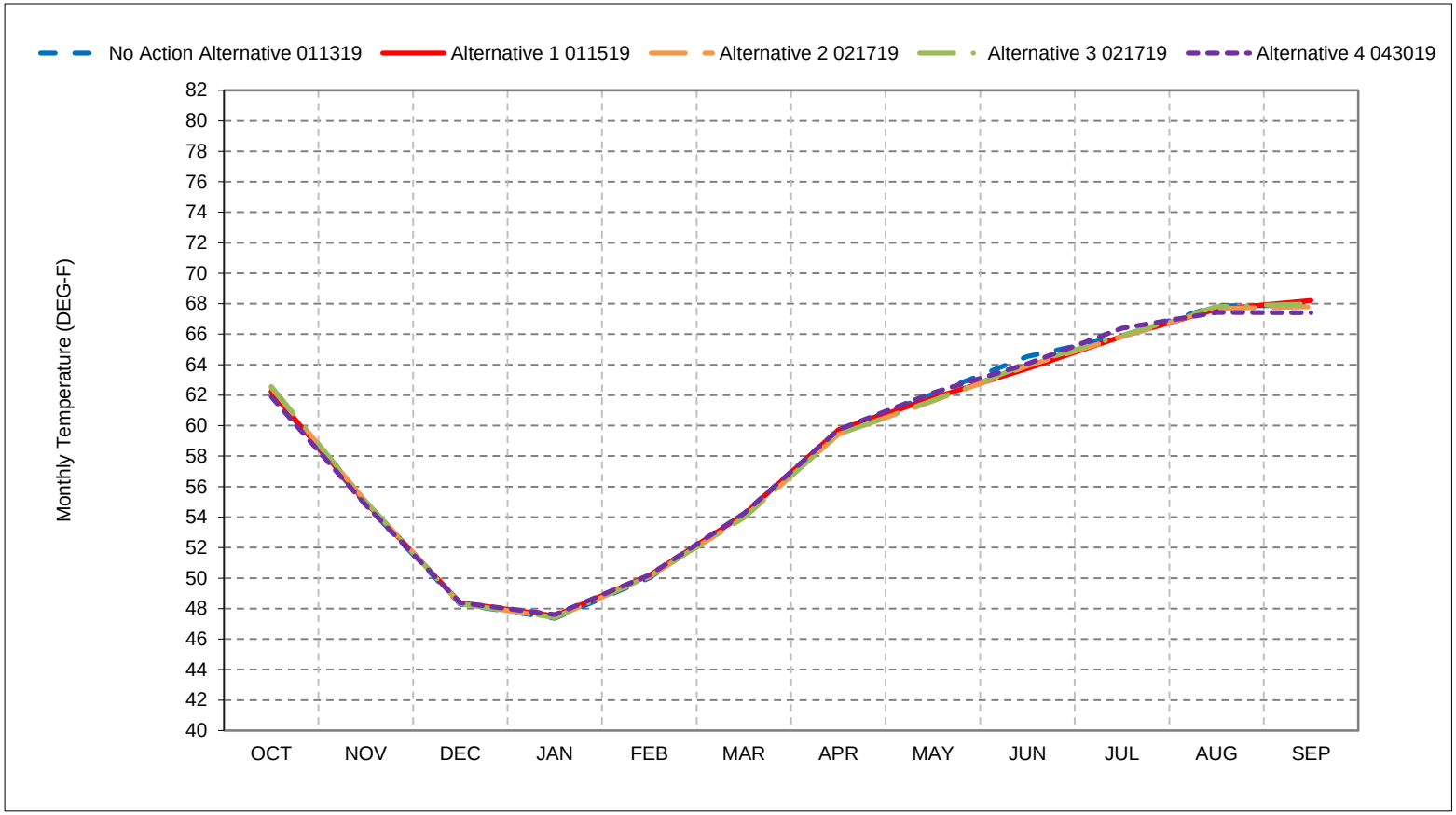

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-5. Sacramento River below Hamilton City, Dry Year Average Temperature



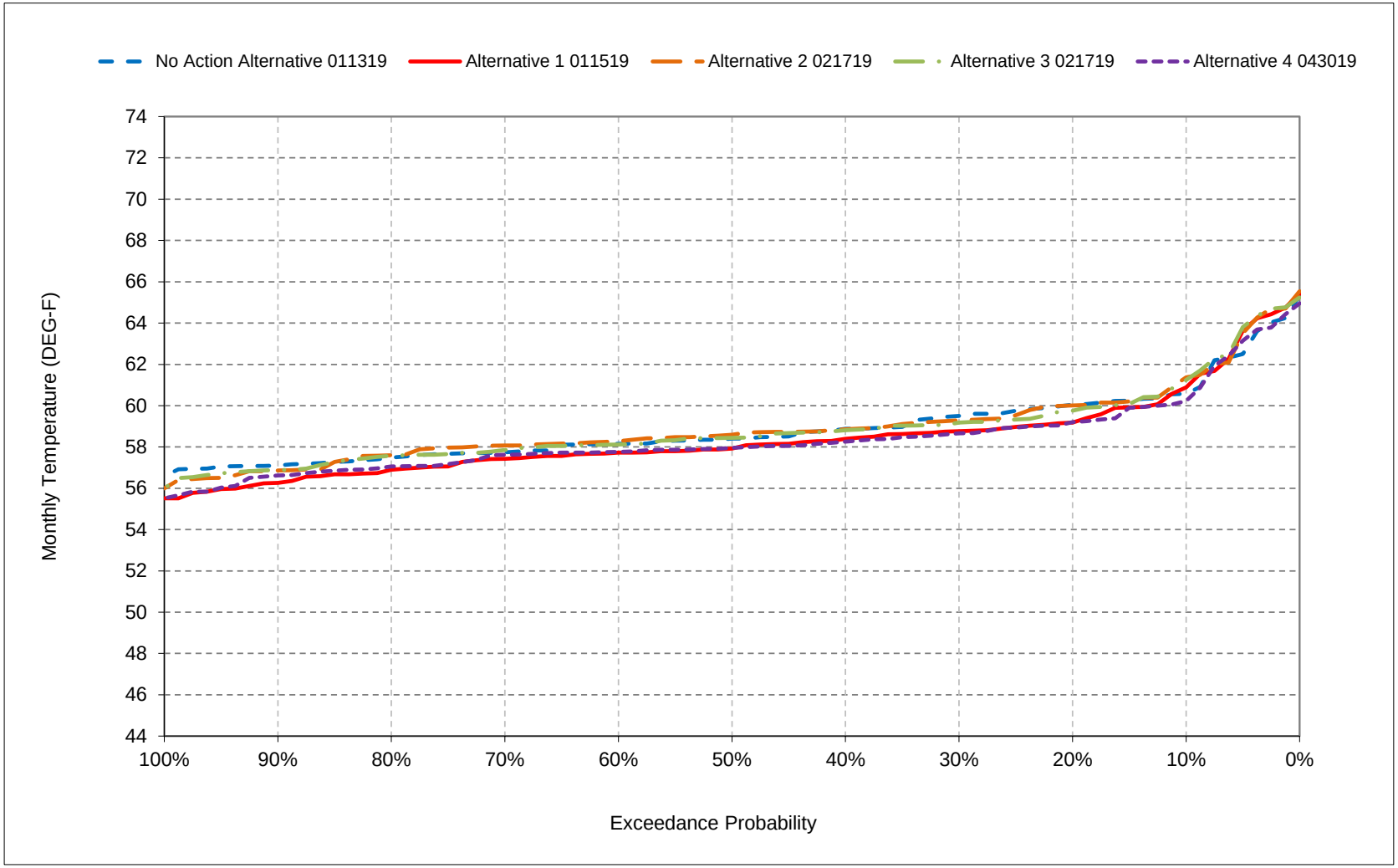

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-6. Sacramento River below Hamilton City, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

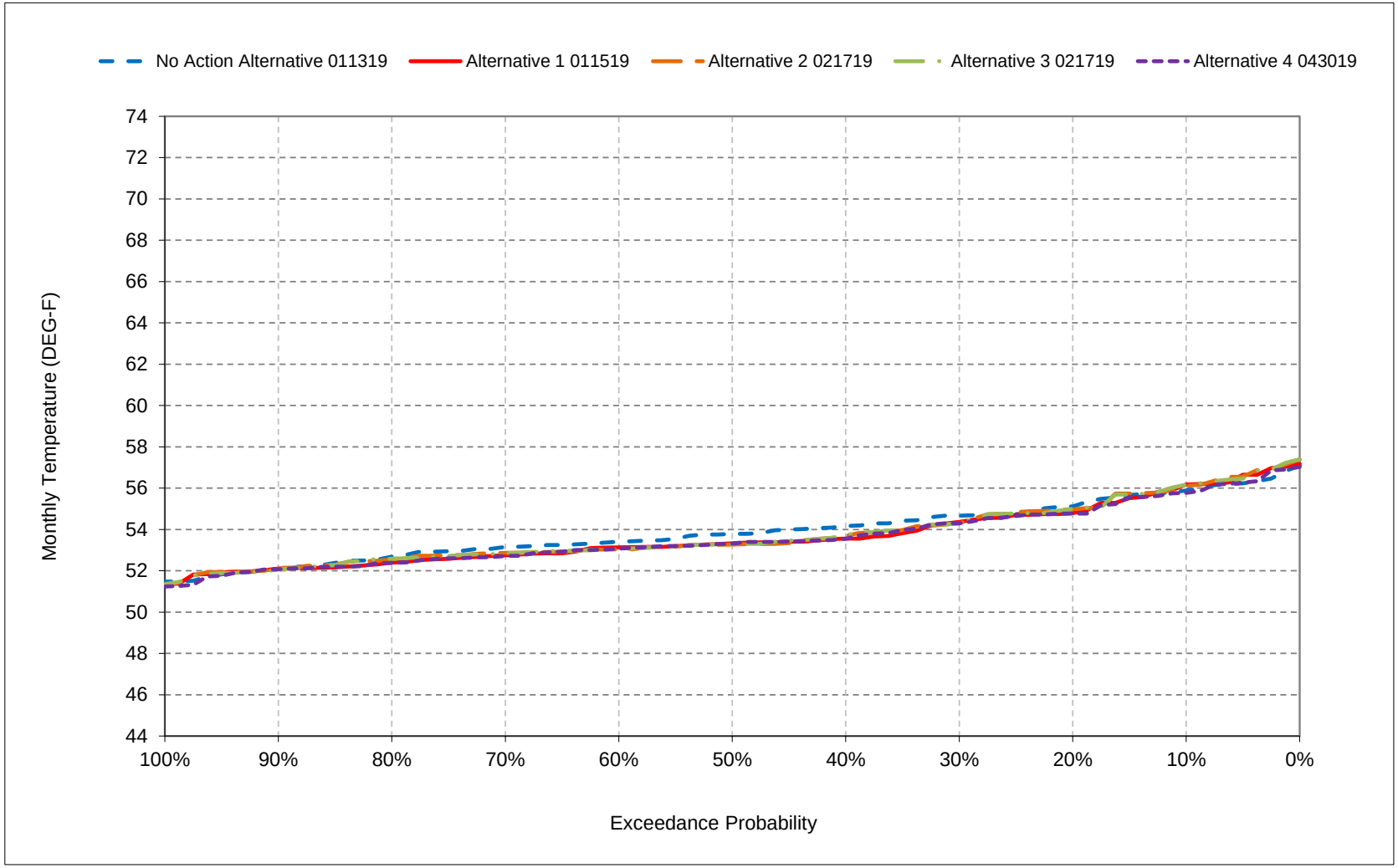
**Figure 12-7. Sacramento River below Hamilton City, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

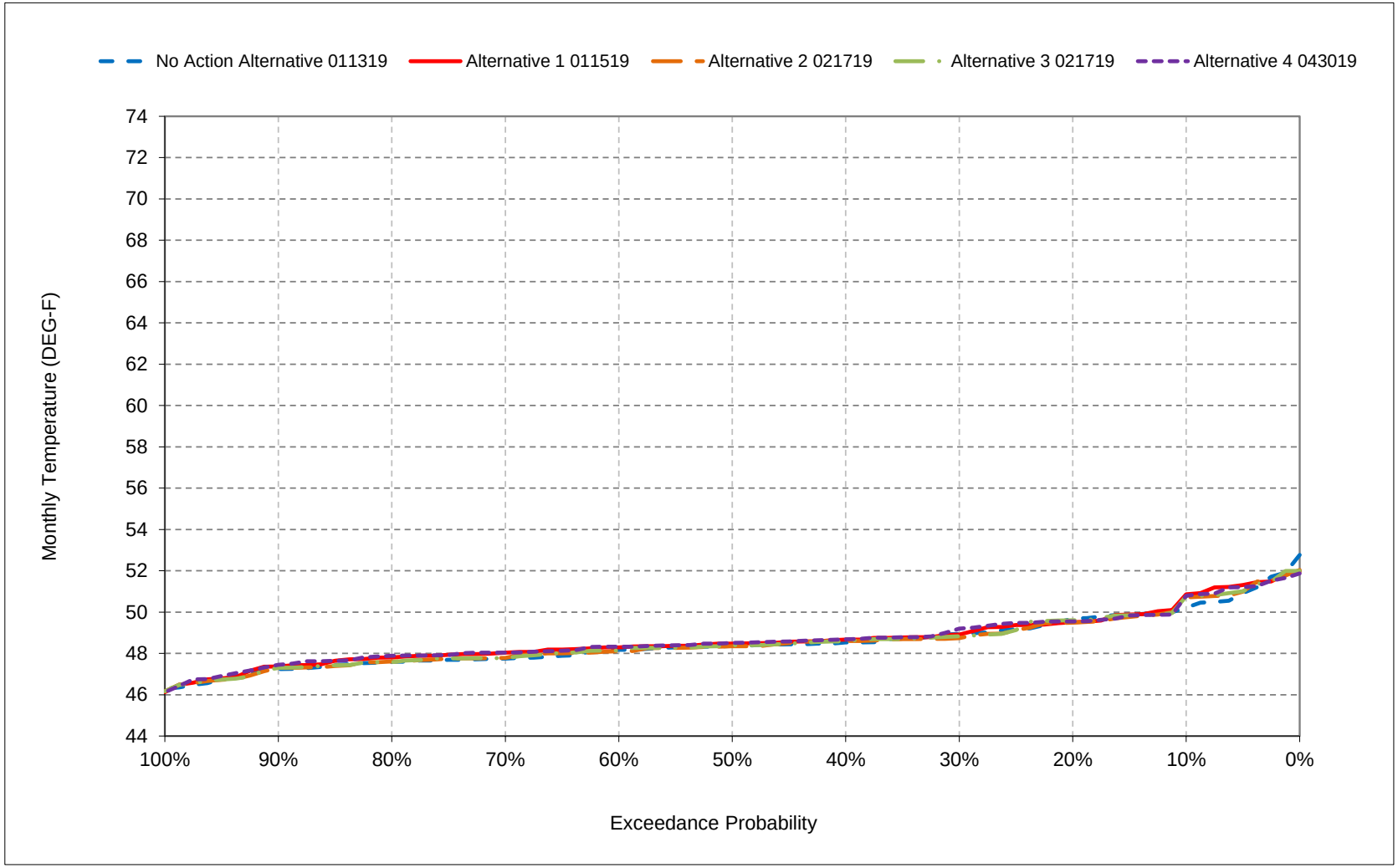
**Figure 12-8. Sacramento River below Hamilton City, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

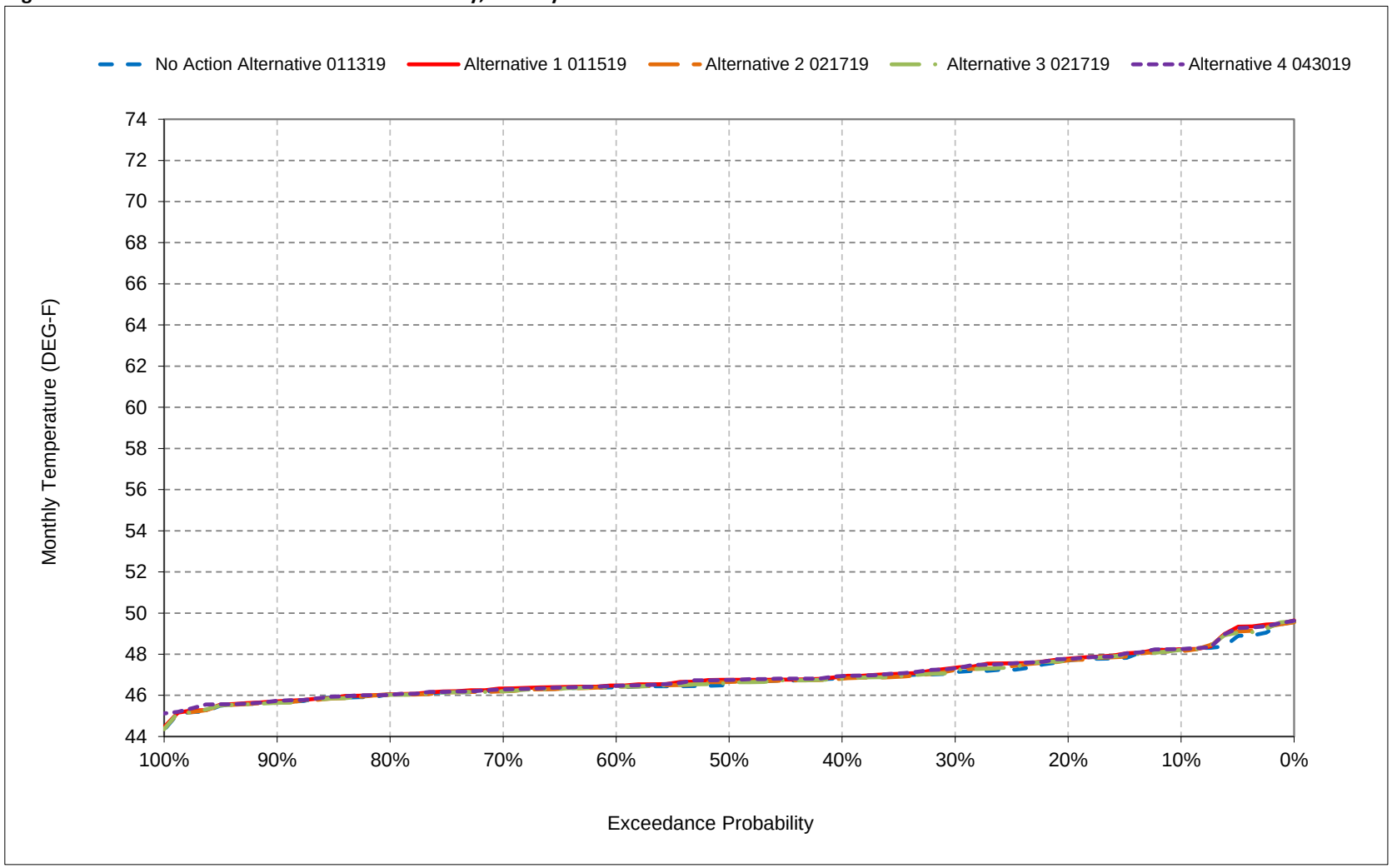
**Figure 12-9. Sacramento River below Hamilton City, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

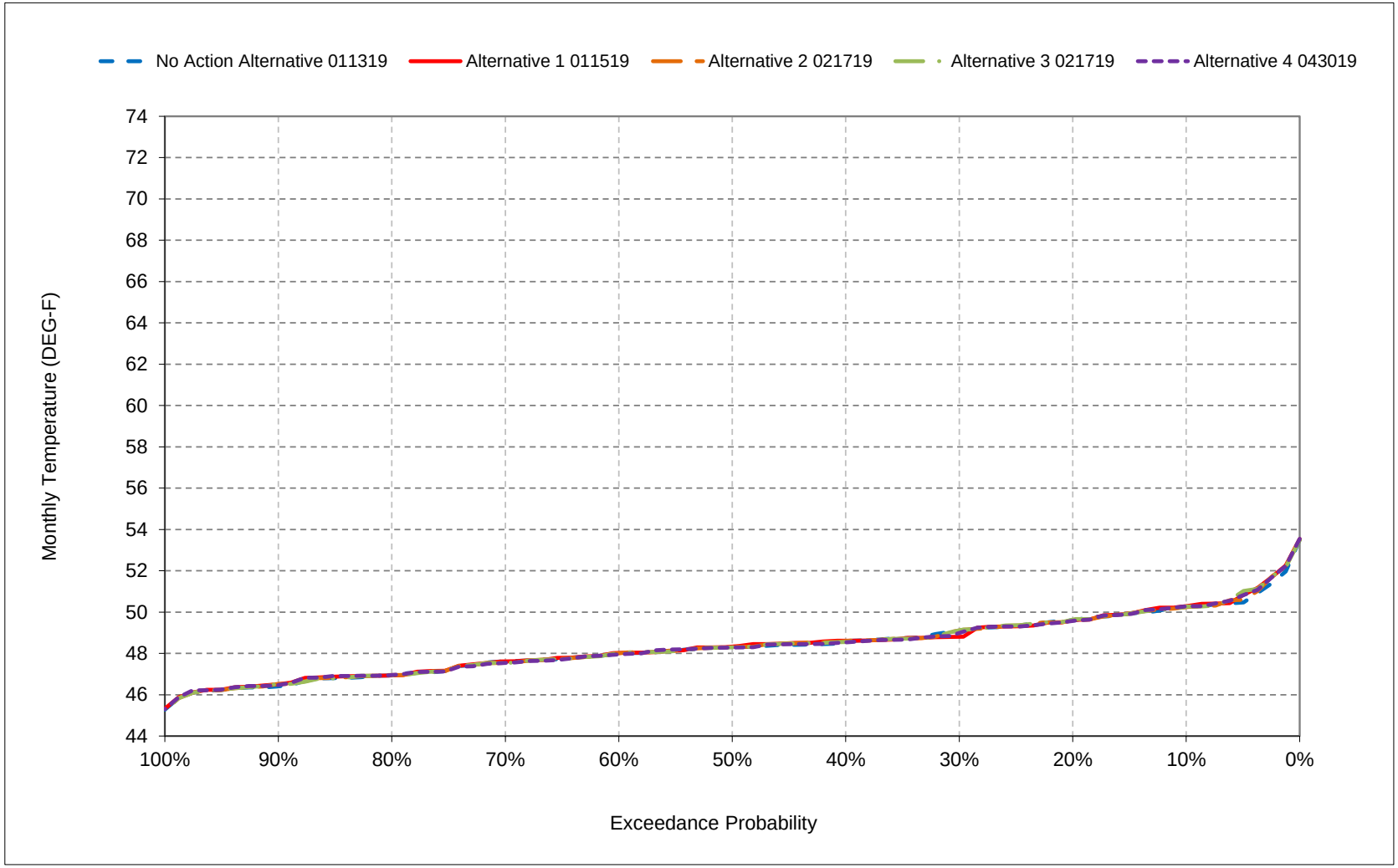
**Figure 12-10. Sacramento River below Hamilton City, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

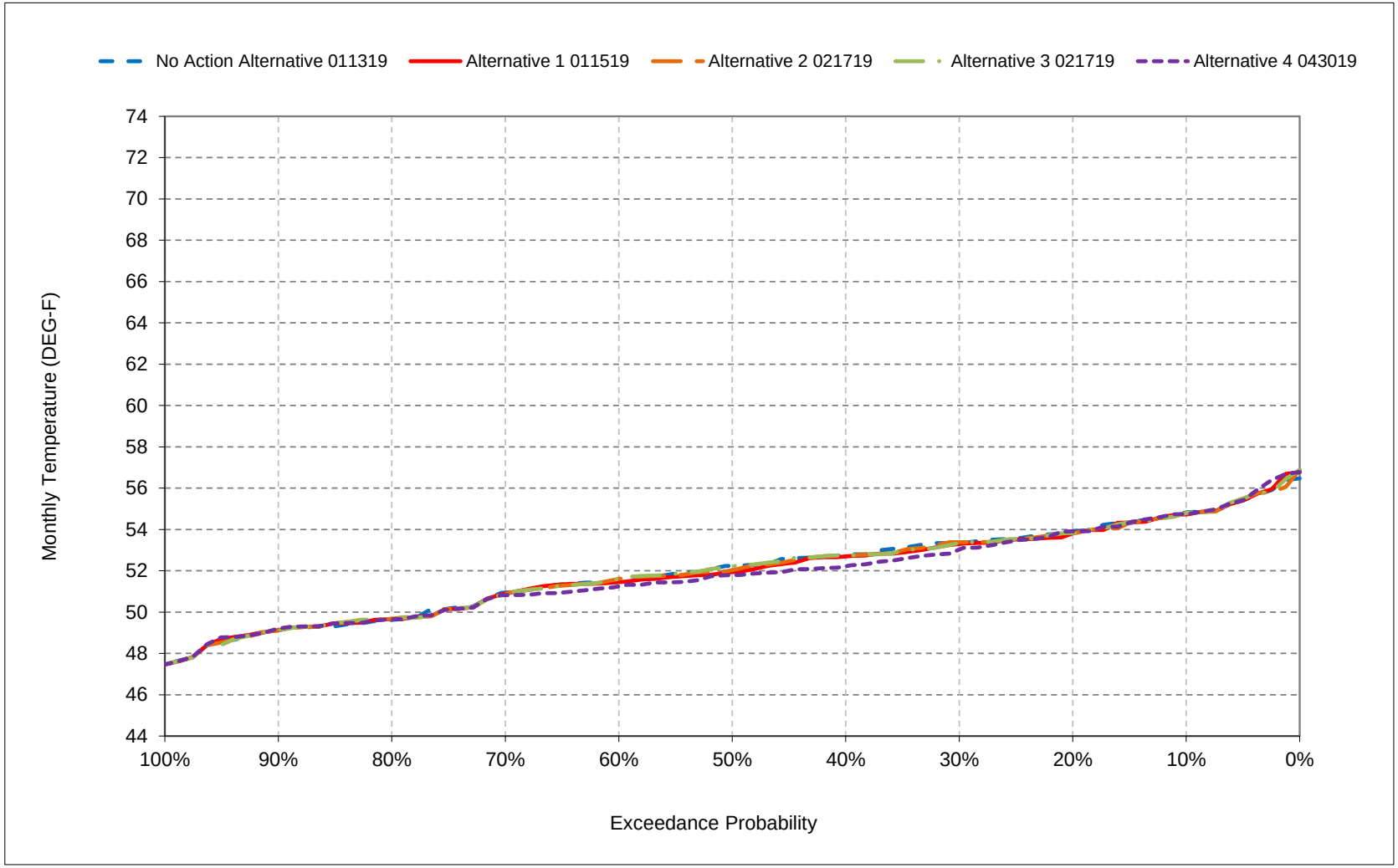
**Figure 12-11. Sacramento River below Hamilton City, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

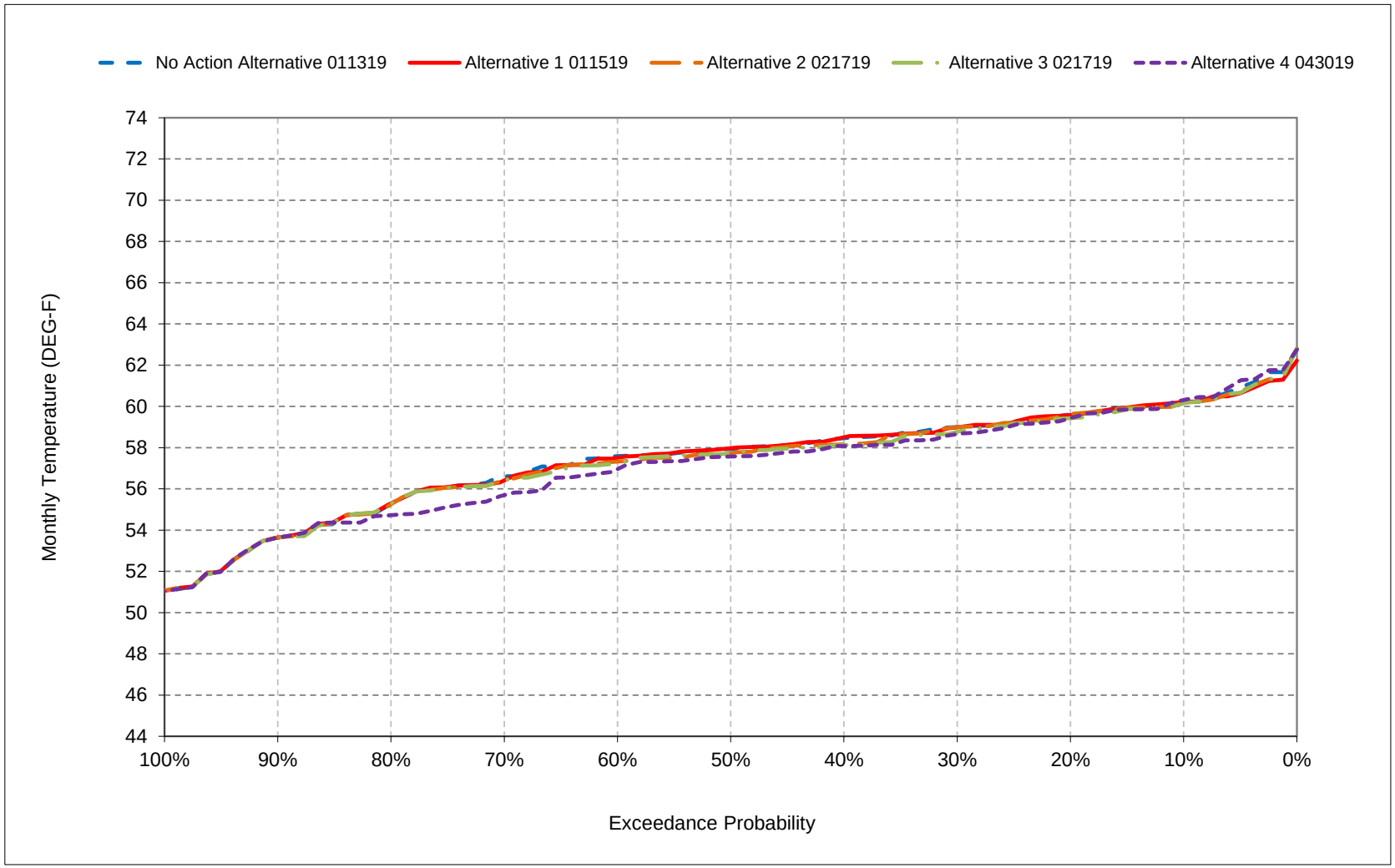
**Figure 12-12. Sacramento River below Hamilton City, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

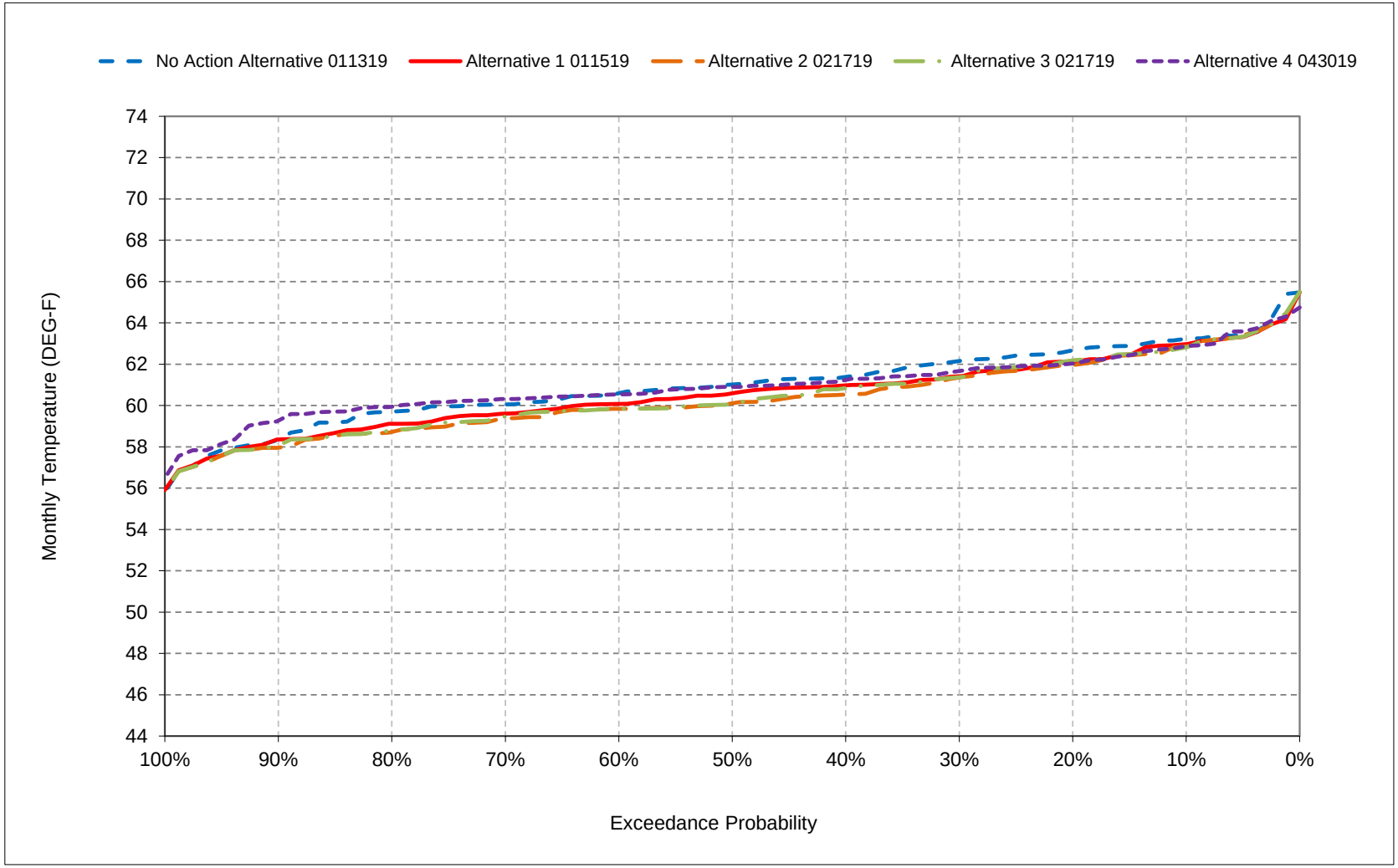
**Figure 12-13. Sacramento River below Hamilton City, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

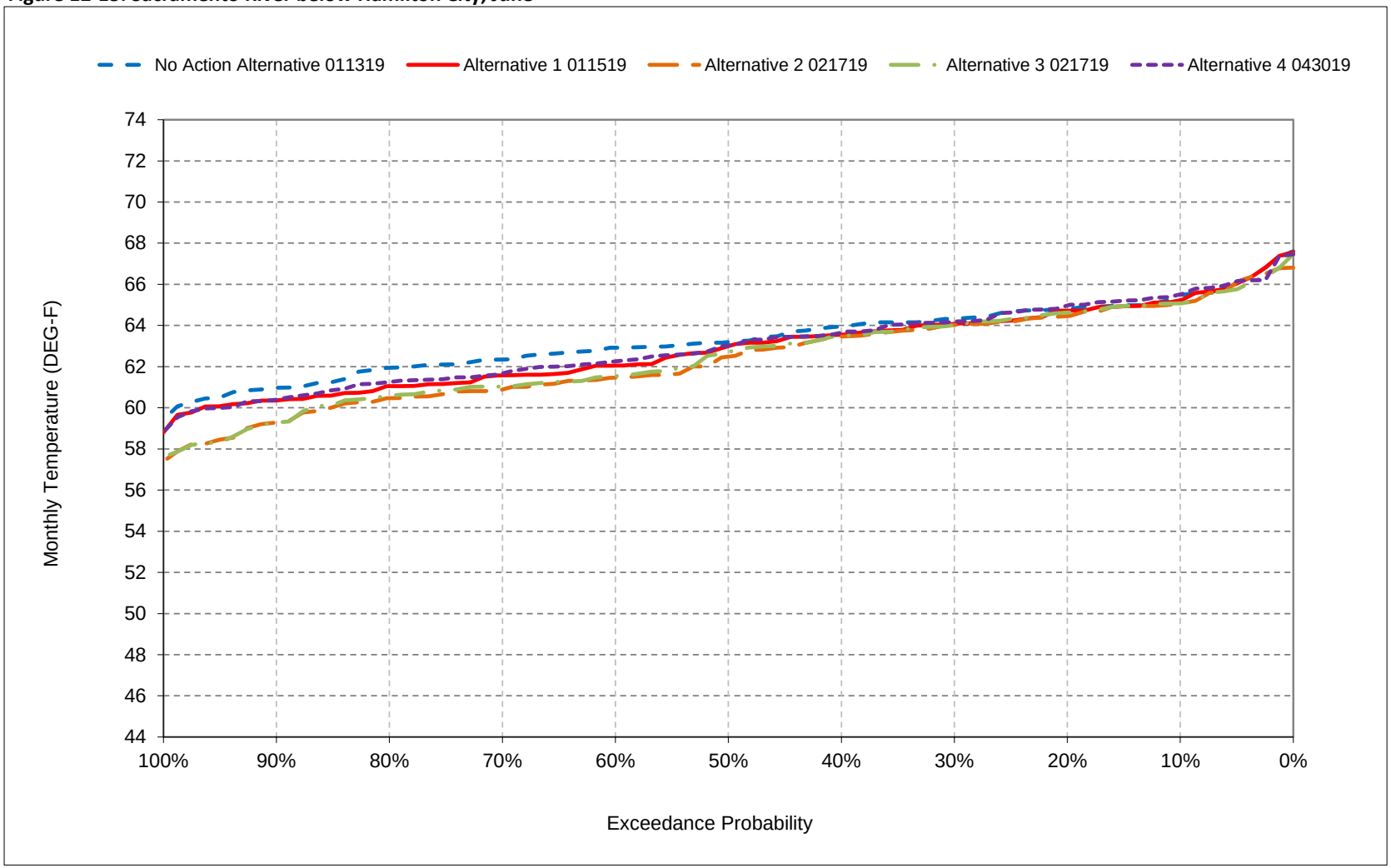
**Figure 12-14. Sacramento River below Hamilton City, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

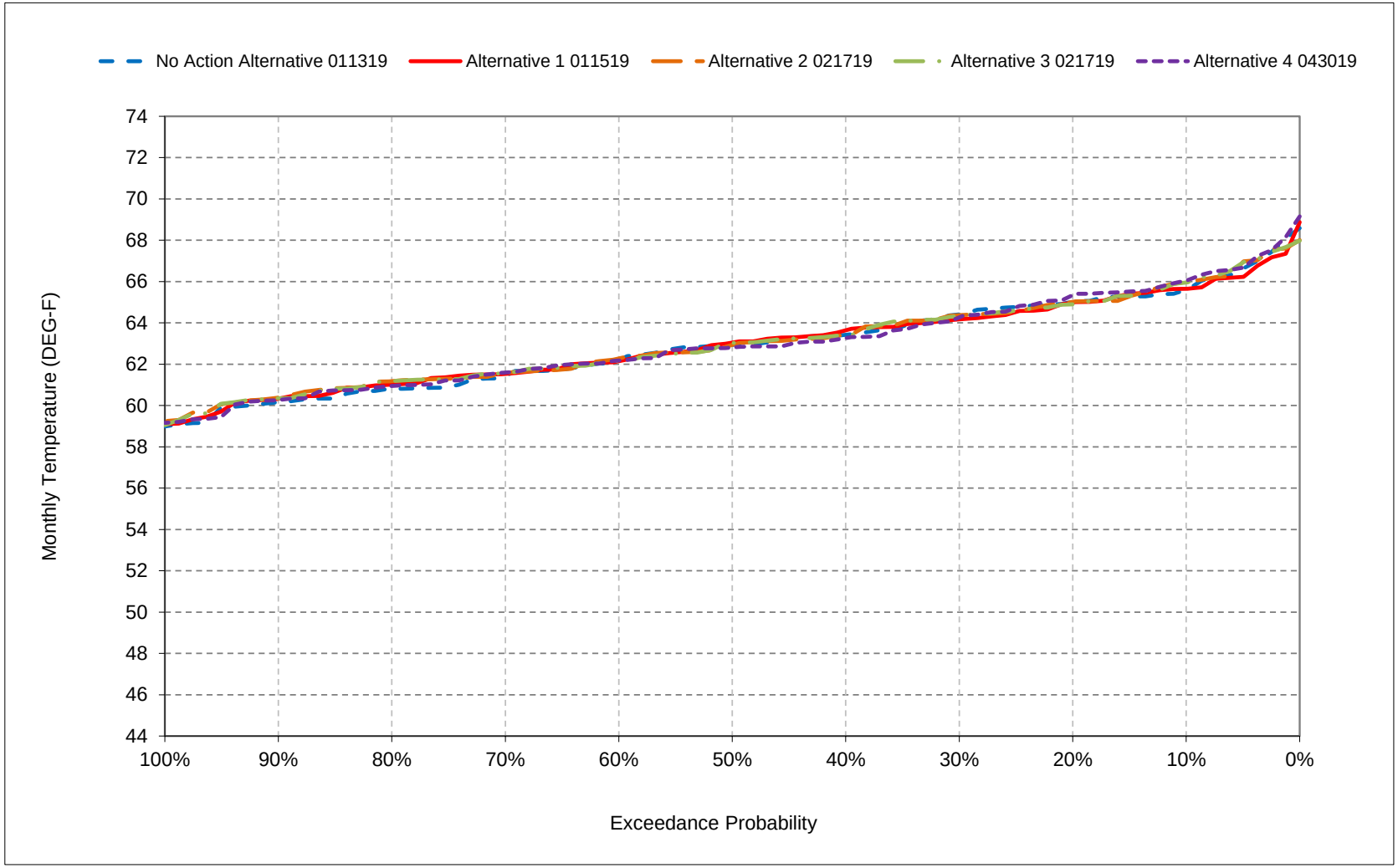
**Figure 12-15. Sacramento River below Hamilton City, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

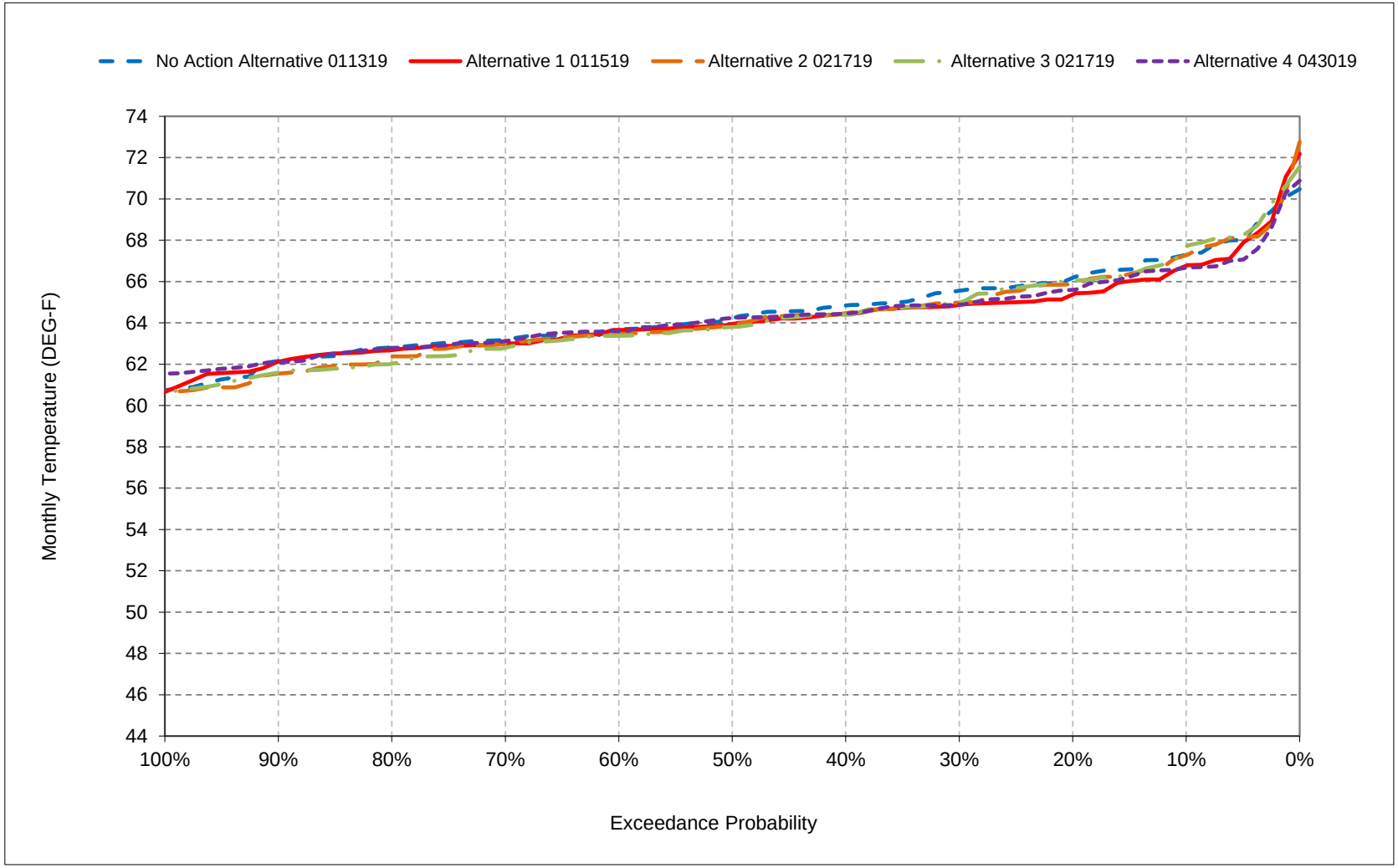
**Figure 12-16. Sacramento River below Hamilton City, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

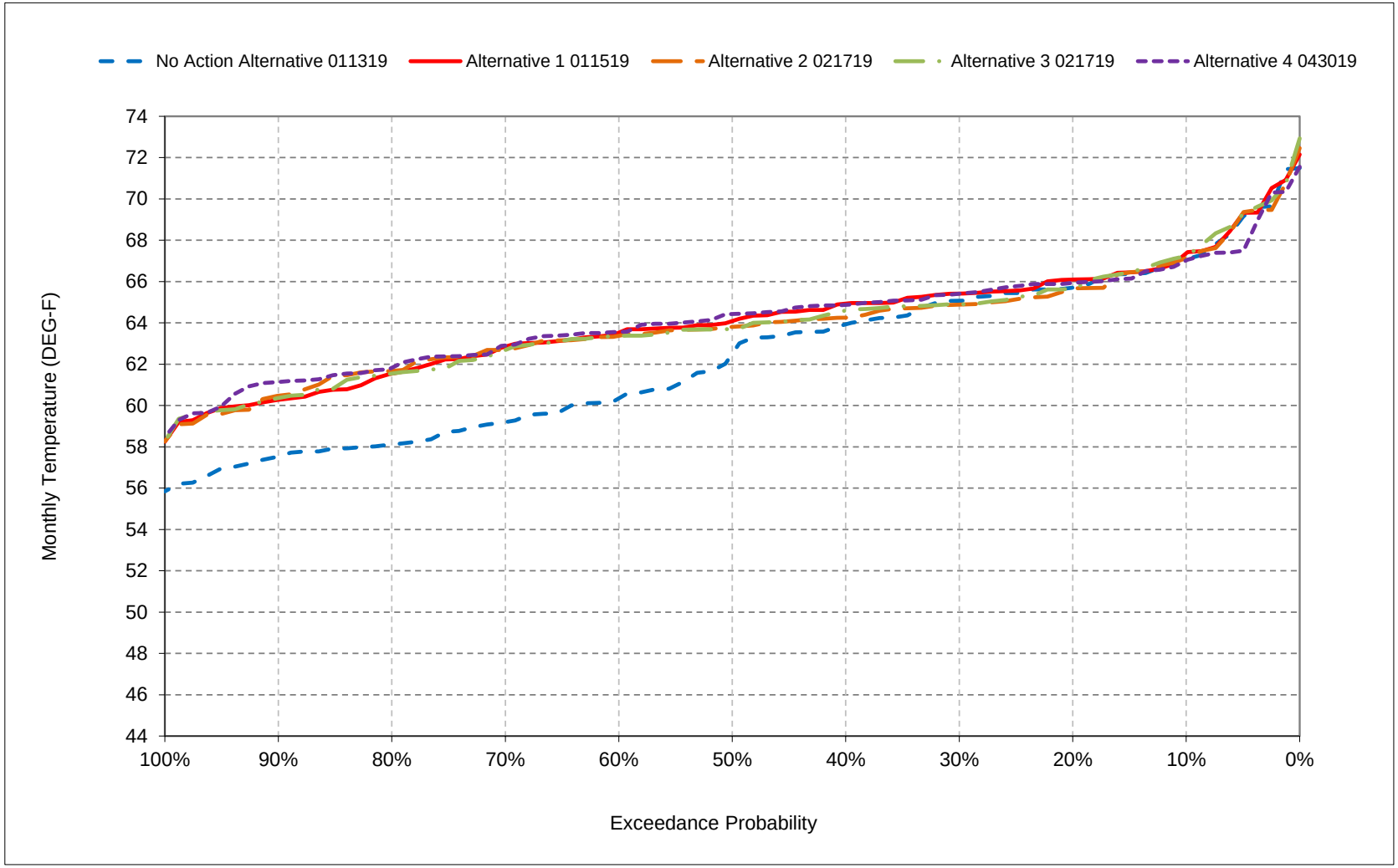
**Figure 12-17. Sacramento River below Hamilton City, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 12-18. Sacramento River below Hamilton City, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Table 14-1. Sacramento River at Knights Landing, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 65.1 | 57.4 | 50.2 | 48.3 | 51.1 | 57.2 | 63.7 | 69.5 | 73.2 | 74.9 | 75.2 | 73.3 |
| 20% | 64.2 | 56.7 | 49.6 | 47.8 | 50.4 | 56.4 | 62.7 | 69.0 | 72.7 | 74.2 | 74.6 | 72.2 |
| 30% | 63.6 | 56.0 | 49.1 | 47.2 | 49.8 | 55.5 | 61.9 | 68.2 | 72.0 | 73.1 | 73.8 | 71.4 |
| 40% | 62.9 | 55.3 | 48.6 | 47.0 | 49.2 | 54.5 | 61.6 | 67.9 | 71.5 | 72.4 | 73.6 | 70.7 |
| 50% | 62.6 | 54.9 | 48.4 | 46.7 | 48.7 | 53.7 | 60.7 | 67.3 | 71.0 | 71.8 | 73.0 | 69.0 |
| 60% | 61.7 | 54.6 | 48.2 | 46.5 | 48.5 | 52.8 | 60.1 | 66.7 | 70.6 | 70.9 | 72.4 | 66.4 |
| 70% | 61.3 | 54.3 | 47.8 | 46.3 | 48.0 | 52.3 | 58.6 | 66.2 | 70.1 | 69.8 | 72.0 | 65.3 |
| 80% | 60.6 | 54.1 | 47.5 | 46.1 | 47.6 | 51.1 | 56.9 | 64.6 | 69.5 | 69.1 | 71.2 | 63.9 |
| 90% | 60.0 | 53.5 | 46.9 | 45.5 | 47.2 | 50.6 | 55.6 | 62.8 | 68.9 | 68.6 | 70.1 | 63.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.6 | 55.2 | 48.6 | 46.9 | 49.1 | 53.8 | 60.0 | 66.8 | 71.0 | 71.7 | 72.9 | 68.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.0 | 55.1 | 48.8 | 46.5 | 48.0 | 51.9 | 57.4 | 65.0 | 70.9 | 71.8 | 72.4 | 63.9 |
| Above Normal (16%) | 61.6 | 54.3 | 48.5 | 47.0 | 48.3 | 52.5 | 59.1 | 66.6 | 70.8 | 69.7 | 71.6 | 65.8 |
| Below Normal (13%) | 62.7 | 55.1 | 48.4 | 46.9 | 49.2 | 55.1 | 62.0 | 67.1 | 69.9 | 70.5 | 71.4 | 70.5 |
| Dry (24%) | 63.2 | 54.9 | 48.4 | 46.9 | 49.7 | 54.5 | 61.1 | 68.0 | 71.3 | 71.9 | 73.6 | 71.7 |
| Critical (15%) | 65.9 | 56.9 | 48.5 | 47.5 | 51.1 | 56.5 | 63.2 | 68.6 | 72.4 | 74.3 | 75.5 | 73.3 |

## Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.7 | 57.3 | 50.4 | 48.4 | 51.2 | 57.1 | 63.6 | 69.2 | 72.9 | 74.8 | 75.2 | 73.0 |
| 20% | 64.0 | 56.7 | 49.6 | 47.9 | 50.4 | 55.8 | 62.8 | 68.4 | 72.4 | 74.1 | 74.0 | 72.2 |
| 30% | 63.4 | 55.8 | 49.1 | 47.4 | 49.8 | 55.1 | 61.8 | 67.7 | 71.5 | 73.1 | 73.7 | 71.8 |
| 40% | 63.0 | 55.2 | 48.7 | 47.0 | 49.3 | 54.4 | 61.5 | 67.3 | 70.8 | 72.6 | 73.3 | 71.1 |
| 50% | 62.4 | 54.6 | 48.5 | 46.8 | 48.8 | 53.6 | 60.7 | 66.7 | 70.3 | 71.9 | 72.8 | 70.6 |
| 60% | 61.9 | 54.4 | 48.1 | 46.6 | 48.5 | 52.8 | 60.1 | 66.2 | 69.9 | 70.8 | 72.3 | 70.3 |
| 70% | 61.5 | 54.1 | 47.9 | 46.3 | 48.0 | 52.3 | 58.6 | 65.4 | 69.1 | 70.0 | 71.8 | 69.6 |
| 80% | 61.0 | 53.9 | 47.6 | 46.1 | 47.7 | 51.1 | 57.0 | 64.5 | 68.6 | 69.4 | 71.2 | 68.4 |
| 90% | 60.1 | 53.3 | 47.0 | 45.6 | 47.3 | 50.6 | 55.6 | 62.8 | 68.4 | 68.6 | 70.1 | 66.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.6 | 55.1 | 48.6 | 46.9 | 49.1 | 53.7 | 60.0 | 66.4 | 70.4 | 71.8 | 72.8 | 70.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.2 | 55.0 | 48.8 | 46.6 | 48.0 | 51.9 | 57.4 | 64.7 | 70.8 | 71.9 | 72.2 | 68.2 |
| Above Normal (16%) | 61.8 | 54.1 | 48.4 | 47.0 | 48.3 | 52.5 | 59.1 | 66.2 | 70.4 | 69.7 | 71.7 | 70.4 |
| Below Normal (13%) | 62.5 | 55.1 | 48.6 | 47.0 | 49.2 | 54.8 | 61.7 | 66.4 | 68.8 | 70.5 | 71.3 | 69.9 |
| Dry (24%) | 62.8 | 54.9 | 48.6 | 47.0 | 49.8 | 54.5 | 61.1 | 67.4 | 70.2 | 72.0 | 73.3 | 71.6 |
| Critical (15%) | 66.0 | 56.8 | 48.6 | 47.6 | 51.2 | 56.4 | 63.3 | 68.4 | 71.6 | 74.6 | 75.5 | 73.4 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.3 | -0.2 | **0.2** | **0.1** | **0.1** | -0.1 | -0.1 | -0.3 | -0.3 | 0.0 | **0.0** | -0.3 |
| 20% | -0.2 | **0.0** | -0.1 | **0.1** | **0.0** | -0.5 | **0.0** | -0.6 | -0.3 | 0.0 | -0.6 | **0.0** |
| 30% | -0.2 | -0.1 | 0.0 | **0.2** | -0.1 | -0.4 | -0.1 | -0.6 | -0.5 | **0.1** | -0.1 | **0.4** |
| 40% | **0.1** | -0.1 | **0.1** | **0.0** | **0.1** | -0.1 | -0.1 | -0.6 | -0.7 | **0.2** | -0.3 | **0.4** |
| 50% | -0.3 | -0.3 | **0.1** | **0.1** | **0.1** | -0.1 | 0.0 | -0.6 | -0.7 | **0.1** | -0.2 | **1.6** |
| 60% | **0.2** | -0.2 | -0.1 | **0.1** | 0.0 | **0.0** | **0.0** | -0.5 | -0.7 | -0.1 | -0.2 | **3.9** |
| 70% | **0.1** | -0.2 | **0.1** | **0.0** | -0.1 | **0.0** | **0.0** | -0.8 | -1.0 | **0.2** | -0.2 | **4.3** |
| 80% | **0.4** | -0.3 | **0.1** | **0.1** | **0.0** | **0.0** | **0.0** | -0.1 | -0.9 | **0.3** | 0.0 | **4.5** |
| 90% | **0.0** | -0.3 | **0.1** | **0.1** | **0.1** | 0.0 | 0.0 | **0.0** | -0.5 | 0.0 | **0.0** | **3.7** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0.0 | -0.1 | **0.1** | **0.1** | **0.0** | -0.1 | 0.0 | -0.4 | -0.6 | **0.1** | -0.1 | **2.0** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.2** | -0.1 | **0.0** | **0.1** | **0.0** | **0.0** | 0.0 | -0.2 | -0.1 | **0.1** | -0.1 | **4.3** |
| Above Normal (16%) | **0.3** | -0.2 | -0.1 | **0.0** | 0.0 | -0.1 | **0.0** | -0.4 | -0.3 | **0.0** | **0.1** | **4.6** |
| Below Normal (13%) | -0.2 | **0.1** | **0.2** | **0.1** | -0.1 | -0.3 | -0.3 | -0.7 | -1.1 | 0.0 | -0.1 | -0.6 |
| Dry (24%) | -0.4 | -0.1 | **0.2** | **0.0** | **0.0** | 0.0 | **0.0** | -0.7 | -1.0 | **0.1** | -0.3 | -0.1 |
| Critical (15%) | **0.1** | 0.0 | **0.1** | **0.1** | **0.1** | -0.1 | **0.1** | -0.2 | -0.8 | **0.2** | 0.0 | **0.0** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 14-2. Sacramento River at Knights Landing, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 65.1 | 57.4 | 50.2 | 48.3 | 51.1 | 57.2 | 63.7 | 69.5 | 73.2 | 74.9 | 75.2 | 73.3 |
| 20% | 64.2 | 56.7 | 49.6 | 47.8 | 50.4 | 56.4 | 62.7 | 69.0 | 72.7 | 74.2 | 74.6 | 72.2 |
| 30% | 63.6 | 56.0 | 49.1 | 47.2 | 49.8 | 55.5 | 61.9 | 68.2 | 72.0 | 73.1 | 73.8 | 71.4 |
| 40% | 62.9 | 55.3 | 48.6 | 47.0 | 49.2 | 54.5 | 61.6 | 67.9 | 71.5 | 72.4 | 73.6 | 70.7 |
| 50% | 62.6 | 54.9 | 48.4 | 46.7 | 48.7 | 53.7 | 60.7 | 67.3 | 71.0 | 71.8 | 73.0 | 69.0 |
| 60% | 61.7 | 54.6 | 48.2 | 46.5 | 48.5 | 52.8 | 60.1 | 66.7 | 70.6 | 70.9 | 72.4 | 66.4 |
| 70% | 61.3 | 54.3 | 47.8 | 46.3 | 48.0 | 52.3 | 58.6 | 66.2 | 70.1 | 69.8 | 72.0 | 65.3 |
| 80% | 60.6 | 54.1 | 47.5 | 46.1 | 47.6 | 51.1 | 56.9 | 64.6 | 69.5 | 69.1 | 71.2 | 63.9 |
| 90% | 60.0 | 53.5 | 46.9 | 45.5 | 47.2 | 50.6 | 55.6 | 62.8 | 68.9 | 68.6 | 70.1 | 63.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.6 | 55.2 | 48.6 | 46.9 | 49.1 | 53.8 | 60.0 | 66.8 | 71.0 | 71.7 | 72.9 | 68.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.0 | 55.1 | 48.8 | 46.5 | 48.0 | 51.9 | 57.4 | 65.0 | 70.9 | 71.8 | 72.4 | 63.9 |
| Above Normal (16%) | 61.6 | 54.3 | 48.5 | 47.0 | 48.3 | 52.5 | 59.1 | 66.6 | 70.8 | 69.7 | 71.6 | 65.8 |
| Below Normal (13%) | 62.7 | 55.1 | 48.4 | 46.9 | 49.2 | 55.1 | 62.0 | 67.1 | 69.9 | 70.5 | 71.4 | 70.5 |
| Dry (24%) | 63.2 | 54.9 | 48.4 | 46.9 | 49.7 | 54.5 | 61.1 | 68.0 | 71.3 | 71.9 | 73.6 | 71.7 |
| Critical (15%) | 65.9 | 56.9 | 48.5 | 47.5 | 51.1 | 56.5 | 63.2 | 68.6 | 72.4 | 74.3 | 75.5 | 73.3 |

## Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.9 | 57.6 | 50.3 | 48.3 | 51.1 | 57.0 | 63.6 | 69.3 | 72.9 | 74.7 | 75.1 | 72.7 |
| 20% | 64.1 | 57.0 | 49.4 | 47.8 | 50.4 | 56.1 | 62.6 | 68.2 | 71.9 | 74.2 | 74.5 | 71.9 |
| 30% | 63.6 | 56.0 | 49.0 | 47.3 | 49.7 | 55.3 | 61.8 | 67.4 | 71.0 | 73.1 | 73.8 | 71.2 |
| 40% | 63.2 | 55.4 | 48.6 | 46.9 | 49.3 | 54.4 | 61.2 | 66.7 | 70.2 | 72.3 | 73.1 | 71.0 |
| 50% | 62.5 | 54.7 | 48.4 | 46.7 | 48.7 | 53.7 | 60.7 | 66.3 | 69.7 | 71.3 | 72.6 | 70.5 |
| 60% | 62.2 | 54.5 | 48.0 | 46.5 | 48.5 | 52.7 | 60.1 | 66.0 | 69.2 | 70.7 | 72.1 | 70.0 |
| 70% | 61.6 | 54.3 | 47.8 | 46.3 | 47.9 | 52.3 | 58.6 | 65.2 | 68.6 | 70.1 | 71.3 | 69.2 |
| 80% | 61.3 | 53.9 | 47.5 | 46.1 | 47.7 | 51.1 | 56.9 | 64.5 | 68.0 | 69.3 | 70.6 | 68.1 |
| 90% | 60.2 | 53.5 | 46.9 | 45.6 | 47.2 | 50.6 | 55.6 | 62.8 | 67.0 | 68.6 | 69.5 | 67.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.8 | 55.3 | 48.5 | 46.9 | 49.1 | 53.7 | 60.0 | 66.1 | 69.8 | 71.7 | 72.5 | 70.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.6 | 55.1 | 48.7 | 46.5 | 48.0 | 51.9 | 57.4 | 64.7 | 70.1 | 71.9 | 72.0 | 68.5 |
| Above Normal (16%) | 61.8 | 54.4 | 48.3 | 47.0 | 48.3 | 52.5 | 59.1 | 66.0 | 68.7 | 69.7 | 71.1 | 69.8 |
| Below Normal (13%) | 62.5 | 55.3 | 48.5 | 46.9 | 49.2 | 54.8 | 61.7 | 66.0 | 68.2 | 70.4 | 70.3 | 69.2 |
| Dry (24%) | 63.1 | 55.0 | 48.4 | 46.9 | 49.8 | 54.6 | 61.1 | 66.9 | 70.1 | 72.0 | 73.8 | 71.3 |
| Critical (15%) | 66.0 | 57.0 | 48.5 | 47.5 | 51.1 | 56.3 | 63.0 | 68.1 | 71.4 | 74.1 | 75.2 | 73.0 |

## Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.2 | **0.2** | **0.1** | 0.0 | **0.1** | -0.2 | -0.1 | -0.2 | -0.3 | -0.1 | -0.1 | -0.6 |
| 20% | -0.1 | **0.3** | -0.2 | 0.0 | **0.0** | -0.3 | -0.1 | -0.7 | -0.7 | **0.0** | -0.1 | -0.3 |
| 30% | -0.1 | **0.0** | -0.1 | **0.1** | -0.1 | -0.3 | -0.1 | -0.8 | -1.0 | **0.0** | **0.0** | -0.2 |
| 40% | **0.3** | **0.1** | **0.0** | 0.0 | **0.1** | -0.1 | -0.4 | -1.2 | -1.3 | -0.2 | -0.4 | **0.3** |
| 50% | -0.1 | -0.1 | 0.0 | **0.0** | **0.0** | **0.0** | 0.0 | -1.0 | -1.2 | -0.5 | -0.4 | **1.5** |
| 60% | **0.5** | 0.0 | -0.1 | **0.0** | **0.0** | 0.0 | **0.0** | -0.7 | -1.4 | -0.3 | -0.4 | **3.6** |
| 70% | **0.3** | **0.0** | **0.0** | 0.0 | -0.1 | **0.0** | **0.0** | -1.0 | -1.6 | **0.3** | -0.7 | **4.0** |
| 80% | **0.6** | -0.2 | **0.0** | 0.0 | **0.0** | **0.0** | 0.0 | 0.0 | -1.5 | **0.2** | -0.6 | **4.3** |
| 90% | **0.2** | -0.1 | 0.0 | **0.0** | **0.0** | **0.0** | 0.0 | 0.0 | -1.9 | **0.0** | -0.5 | **3.8** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.2** | **0.1** | 0.0 | **0.0** | **0.0** | 0.0 | -0.1 | -0.7 | -1.2 | 0.0 | -0.3 | **1.8** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.6** | 0.0 | -0.1 | **0.0** | **0.0** | **0.0** | 0.0 | -0.3 | -0.8 | **0.1** | -0.3 | **4.6** |
| Above Normal (16%) | **0.2** | **0.1** | -0.2 | 0.0 | 0.0 | 0.0 | **0.0** | -0.5 | -2.1 | -0.1 | -0.5 | **4.0** |
| Below Normal (13%) | -0.2 | **0.2** | **0.1** | **0.0** | 0.0 | -0.3 | -0.4 | -1.1 | -1.8 | -0.1 | -1.1 | -1.3 |
| Dry (24%) | -0.1 | **0.1** | **0.0** | **0.0** | **0.0** | **0.1** | 0.0 | -1.2 | -1.1 | **0.0** | **0.2** | -0.4 |
| Critical (15%) | **0.1** | **0.1** | **0.0** | **0.0** | **0.0** | -0.2 | -0.2 | -0.5 | -0.9 | -0.3 | -0.3 | -0.3 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 14-3. Sacramento River at Knights Landing, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 65.1 | 57.4 | 50.2 | 48.3 | 51.1 | 57.2 | 63.7 | 69.5 | 73.2 | 74.9 | 75.2 | 73.3 |
| 20% | 64.2 | 56.7 | 49.6 | 47.8 | 50.4 | 56.4 | 62.7 | 69.0 | 72.7 | 74.2 | 74.6 | 72.2 |
| 30% | 63.6 | 56.0 | 49.1 | 47.2 | 49.8 | 55.5 | 61.9 | 68.2 | 72.0 | 73.1 | 73.8 | 71.4 |
| 40% | 62.9 | 55.3 | 48.6 | 47.0 | 49.2 | 54.5 | 61.6 | 67.9 | 71.5 | 72.4 | 73.6 | 70.7 |
| 50% | 62.6 | 54.9 | 48.4 | 46.7 | 48.7 | 53.7 | 60.7 | 67.3 | 71.0 | 71.8 | 73.0 | 69.0 |
| 60% | 61.7 | 54.6 | 48.2 | 46.5 | 48.5 | 52.8 | 60.1 | 66.7 | 70.6 | 70.9 | 72.4 | 66.4 |
| 70% | 61.3 | 54.3 | 47.8 | 46.3 | 48.0 | 52.3 | 58.6 | 66.2 | 70.1 | 69.8 | 72.0 | 65.3 |
| 80% | 60.6 | 54.1 | 47.5 | 46.1 | 47.6 | 51.1 | 56.9 | 64.6 | 69.5 | 69.1 | 71.2 | 63.9 |
| 90% | 60.0 | 53.5 | 46.9 | 45.5 | 47.2 | 50.6 | 55.6 | 62.8 | 68.9 | 68.6 | 70.1 | 63.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.6 | 55.2 | 48.6 | 46.9 | 49.1 | 53.8 | 60.0 | 66.8 | 71.0 | 71.7 | 72.9 | 68.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.0 | 55.1 | 48.8 | 46.5 | 48.0 | 51.9 | 57.4 | 65.0 | 70.9 | 71.8 | 72.4 | 63.9 |
| Above Normal (16%) | 61.6 | 54.3 | 48.5 | 47.0 | 48.3 | 52.5 | 59.1 | 66.6 | 70.8 | 69.7 | 71.6 | 65.8 |
| Below Normal (13%) | 62.7 | 55.1 | 48.4 | 46.9 | 49.2 | 55.1 | 62.0 | 67.1 | 69.9 | 70.5 | 71.4 | 70.5 |
| Dry (24%) | 63.2 | 54.9 | 48.4 | 46.9 | 49.7 | 54.5 | 61.1 | 68.0 | 71.3 | 71.9 | 73.6 | 71.7 |
| Critical (15%) | 65.9 | 56.9 | 48.5 | 47.5 | 51.1 | 56.5 | 63.2 | 68.6 | 72.4 | 74.3 | 75.5 | 73.3 |

## Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.9 | 57.6 | 50.3 | 48.4 | 51.1 | 57.0 | 63.6 | 69.4 | 72.9 | 75.0 | 75.1 | 72.8 |
| 20% | 63.9 | 57.0 | 49.5 | 47.8 | 50.4 | 56.0 | 62.5 | 68.5 | 72.0 | 74.2 | 74.6 | 71.9 |
| 30% | 63.3 | 56.0 | 49.1 | 47.3 | 49.7 | 55.4 | 61.8 | 67.5 | 71.2 | 73.1 | 73.8 | 71.2 |
| 40% | 62.8 | 55.4 | 48.6 | 46.9 | 49.3 | 54.5 | 61.1 | 66.8 | 70.4 | 72.2 | 73.4 | 71.1 |
| 50% | 62.3 | 54.7 | 48.4 | 46.7 | 48.7 | 53.7 | 60.6 | 66.3 | 69.8 | 71.5 | 72.6 | 70.5 |
| 60% | 61.9 | 54.5 | 48.0 | 46.5 | 48.5 | 52.7 | 60.1 | 66.0 | 69.1 | 70.7 | 71.9 | 69.8 |
| 70% | 61.5 | 54.3 | 47.8 | 46.3 | 47.9 | 52.3 | 58.6 | 65.2 | 68.7 | 70.0 | 71.2 | 69.2 |
| 80% | 61.2 | 53.9 | 47.5 | 46.1 | 47.6 | 51.1 | 57.0 | 64.5 | 68.2 | 69.3 | 70.2 | 68.1 |
| 90% | 60.3 | 53.5 | 46.9 | 45.6 | 47.2 | 50.6 | 55.6 | 62.8 | 67.0 | 68.7 | 69.4 | 66.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.6 | 55.3 | 48.6 | 46.9 | 49.1 | 53.7 | 59.9 | 66.2 | 69.9 | 71.7 | 72.5 | 70.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.5 | 55.1 | 48.8 | 46.5 | 48.0 | 51.9 | 57.3 | 64.9 | 70.2 | 71.9 | 71.8 | 68.7 |
| Above Normal (16%) | 61.9 | 54.4 | 48.4 | 47.0 | 48.3 | 52.5 | 59.1 | 66.0 | 69.0 | 69.6 | 71.2 | 69.6 |
| Below Normal (13%) | 62.3 | 55.3 | 48.5 | 46.9 | 49.2 | 54.8 | 61.6 | 66.0 | 68.3 | 70.4 | 70.5 | 69.1 |
| Dry (24%) | 62.7 | 55.0 | 48.5 | 46.9 | 49.8 | 54.7 | 61.1 | 66.9 | 70.1 | 72.0 | 73.8 | 71.2 |
| Critical (15%) | 66.0 | 57.0 | 48.5 | 47.5 | 51.1 | 56.3 | 63.0 | 68.1 | 71.6 | 74.2 | 75.3 | 73.1 |

## Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.1 | **0.1** | **0.1** | **0.0** | **0.0** | -0.2 | -0.1 | -0.1 | -0.3 | **0.1** | -0.1 | -0.5 |
| 20% | -0.3 | **0.3** | -0.1 | **0.0** | **0.0** | -0.4 | -0.2 | -0.5 | -0.7 | **0.0** | 0.0 | -0.3 |
| 30% | -0.3 | **0.0** | 0.0 | **0.1** | -0.1 | -0.1 | -0.1 | -0.7 | -0.8 | **0.0** | 0.0 | -0.2 |
| 40% | -0.1 | **0.1** | **0.0** | 0.0 | **0.1** | -0.1 | -0.5 | -1.0 | -1.1 | -0.3 | -0.2 | **0.4** |
| 50% | -0.3 | -0.1 | 0.0 | **0.0** | **0.0** | **0.0** | -0.1 | -1.0 | -1.2 | -0.3 | -0.4 | **1.5** |
| 60% | **0.2** | -0.1 | -0.2 | 0.0 | **0.0** | 0.0 | **0.0** | -0.7 | -1.4 | -0.2 | -0.6 | **3.4** |
| 70% | **0.2** | -0.1 | **0.0** | **0.0** | -0.1 | **0.0** | **0.0** | -1.0 | -1.4 | **0.2** | -0.7 | **3.9** |
| 80% | **0.5** | -0.2 | **0.1** | 0.0 | **0.0** | 0.0 | **0.0** | 0.0 | -1.4 | **0.3** | -1.0 | **4.2** |
| 90% | **0.2** | -0.1 | 0.0 | **0.0** | **0.0** | 0.0 | 0.0 | **0.0** | -1.9 | **0.1** | -0.6 | **3.5** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | **0.1** | 0.0 | **0.0** | **0.0** | 0.0 | -0.1 | -0.6 | -1.1 | 0.0 | -0.3 | **1.8** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.5** | -0.1 | 0.0 | **0.0** | **0.0** | **0.0** | -0.1 | 0.0 | -0.7 | **0.1** | -0.6 | **4.7** |
| Above Normal (16%) | **0.3** | **0.1** | -0.2 | 0.0 | 0.0 | **0.0** | **0.0** | -0.6 | -1.8 | -0.1 | -0.3 | **3.9** |
| Below Normal (13%) | -0.4 | **0.2** | **0.1** | **0.1** | 0.0 | -0.3 | -0.4 | -1.1 | -1.7 | -0.1 | -0.9 | -1.4 |
| Dry (24%) | -0.5 | **0.1** | **0.1** | **0.0** | **0.0** | **0.1** | 0.0 | -1.2 | -1.2 | **0.0** | **0.1** | -0.5 |
| Critical (15%) | **0.1** | **0.1** | **0.0** | **0.0** | **0.1** | -0.2 | -0.2 | -0.5 | -0.7 | -0.1 | -0.2 | -0.2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 14-4. Sacramento River at Knights Landing, Monthly Temperature

## No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 65.1 | 57.4 | 50.2 | 48.3 | 51.1 | 57.2 | 63.7 | 69.5 | 73.2 | 74.9 | 75.2 | 73.3 |
| 20% | 64.2 | 56.7 | 49.6 | 47.8 | 50.4 | 56.4 | 62.7 | 69.0 | 72.7 | 74.2 | 74.6 | 72.2 |
| 30% | 63.6 | 56.0 | 49.1 | 47.2 | 49.8 | 55.5 | 61.9 | 68.2 | 72.0 | 73.1 | 73.8 | 71.4 |
| 40% | 62.9 | 55.3 | 48.6 | 47.0 | 49.2 | 54.5 | 61.6 | 67.9 | 71.5 | 72.4 | 73.6 | 70.7 |
| 50% | 62.6 | 54.9 | 48.4 | 46.7 | 48.7 | 53.7 | 60.7 | 67.3 | 71.0 | 71.8 | 73.0 | 69.0 |
| 60% | 61.7 | 54.6 | 48.2 | 46.5 | 48.5 | 52.8 | 60.1 | 66.7 | 70.6 | 70.9 | 72.4 | 66.4 |
| 70% | 61.3 | 54.3 | 47.8 | 46.3 | 48.0 | 52.3 | 58.6 | 66.2 | 70.1 | 69.8 | 72.0 | 65.3 |
| 80% | 60.6 | 54.1 | 47.5 | 46.1 | 47.6 | 51.1 | 56.9 | 64.6 | 69.5 | 69.1 | 71.2 | 63.9 |
| 90% | 60.0 | 53.5 | 46.9 | 45.5 | 47.2 | 50.6 | 55.6 | 62.8 | 68.9 | 68.6 | 70.1 | 63.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.6 | 55.2 | 48.6 | 46.9 | 49.1 | 53.8 | 60.0 | 66.8 | 71.0 | 71.7 | 72.9 | 68.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.0 | 55.1 | 48.8 | 46.5 | 48.0 | 51.9 | 57.4 | 65.0 | 70.9 | 71.8 | 72.4 | 63.9 |
| Above Normal (16%) | 61.6 | 54.3 | 48.5 | 47.0 | 48.3 | 52.5 | 59.1 | 66.6 | 70.8 | 69.7 | 71.6 | 65.8 |
| Below Normal (13%) | 62.7 | 55.1 | 48.4 | 46.9 | 49.2 | 55.1 | 62.0 | 67.1 | 69.9 | 70.5 | 71.4 | 70.5 |
| Dry (24%) | 63.2 | 54.9 | 48.4 | 46.9 | 49.7 | 54.5 | 61.1 | 68.0 | 71.3 | 71.9 | 73.6 | 71.7 |
| Critical (15%) | 65.9 | 56.9 | 48.5 | 47.5 | 51.1 | 56.5 | 63.2 | 68.6 | 72.4 | 74.3 | 75.5 | 73.3 |

## Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.9 | 57.2 | 50.4 | 48.4 | 51.2 | 57.1 | 63.6 | 69.2 | 73.1 | 75.3 | 75.5 | 73.1 |
| 20% | 63.8 | 56.6 | 49.6 | 47.9 | 50.4 | 56.2 | 63.0 | 68.8 | 72.3 | 74.5 | 74.8 | 72.2 |
| 30% | 63.1 | 56.0 | 49.1 | 47.4 | 49.8 | 55.0 | 61.6 | 68.3 | 71.8 | 73.2 | 73.9 | 71.7 |
| 40% | 62.7 | 55.4 | 48.7 | 47.0 | 49.3 | 54.2 | 61.0 | 67.6 | 71.1 | 72.3 | 73.3 | 71.3 |
| 50% | 62.3 | 54.7 | 48.5 | 46.8 | 48.8 | 53.3 | 60.5 | 66.9 | 70.5 | 71.4 | 72.7 | 71.0 |
| 60% | 62.1 | 54.4 | 48.1 | 46.6 | 48.5 | 52.6 | 59.8 | 66.6 | 69.9 | 70.7 | 72.3 | 70.4 |
| 70% | 61.7 | 54.2 | 47.9 | 46.3 | 48.0 | 52.1 | 57.6 | 66.0 | 69.4 | 70.1 | 71.8 | 69.7 |
| 80% | 61.2 | 53.8 | 47.6 | 46.1 | 47.7 | 51.1 | 56.5 | 64.9 | 69.2 | 69.5 | 71.3 | 68.6 |
| 90% | 60.4 | 53.4 | 47.0 | 45.6 | 47.3 | 50.7 | 55.6 | 62.7 | 68.4 | 68.7 | 70.6 | 67.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.6 | 55.1 | 48.6 | 47.0 | 49.1 | 53.6 | 59.8 | 66.8 | 70.6 | 71.8 | 72.9 | 70.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.2 | 55.1 | 48.8 | 46.6 | 48.0 | 51.8 | 57.0 | 64.9 | 70.8 | 71.8 | 72.3 | 68.6 |
| Above Normal (16%) | 61.9 | 54.2 | 48.4 | 47.0 | 48.3 | 52.3 | 58.7 | 66.6 | 70.9 | 69.4 | 71.7 | 70.1 |
| Below Normal (13%) | 62.7 | 55.0 | 48.6 | 47.0 | 49.2 | 54.6 | 61.6 | 67.0 | 69.3 | 70.4 | 72.0 | 70.9 |
| Dry (24%) | 62.9 | 54.8 | 48.6 | 47.0 | 49.7 | 54.4 | 61.0 | 68.0 | 70.1 | 72.0 | 73.5 | 71.7 |
| Critical (15%) | 65.7 | 56.8 | 48.6 | 47.6 | 51.2 | 56.5 | 63.3 | 68.6 | 71.8 | 75.2 | 75.6 | 73.0 |

## Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.2 | -0.2 | **0.2** | **0.1** | **0.1** | -0.1 | -0.1 | -0.3 | -0.1 | **0.4** | **0.3** | -0.2 |
| 20% | -0.4 | 0.0 | 0.0 | **0.1** | **0.0** | -0.2 | **0.3** | -0.1 | -0.4 | **0.4** | **0.2** | **0.0** |
| 30% | -0.5 | **0.0** | 0.0 | **0.2** | -0.1 | -0.5 | -0.3 | **0.0** | -0.2 | **0.2** | **0.1** | **0.3** |
| 40% | -0.2 | **0.1** | **0.1** | **0.1** | **0.0** | -0.4 | -0.6 | -0.3 | -0.4 | -0.1 | -0.3 | **0.6** |
| 50% | -0.3 | -0.2 | **0.1** | **0.1** | **0.1** | -0.4 | -0.2 | -0.3 | -0.5 | -0.4 | -0.3 | **2.0** |
| 60% | **0.4** | -0.2 | 0.0 | **0.2** | -0.1 | -0.2 | -0.3 | -0.1 | -0.7 | -0.2 | -0.1 | **4.0** |
| 70% | **0.4** | -0.1 | **0.1** | **0.0** | 0.0 | -0.1 | -0.9 | -0.2 | -0.7 | **0.3** | -0.2 | **4.4** |
| 80% | **0.5** | -0.3 | **0.1** | **0.1** | **0.0** | **0.0** | -0.4 | **0.3** | -0.4 | **0.5** | **0.1** | **4.7** |
| 90% | **0.3** | -0.2 | **0.1** | **0.1** | **0.1** | **0.0** | 0.0 | 0.0 | -0.5 | **0.1** | **0.6** | **4.4** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.0** | -0.1 | **0.1** | **0.1** | **0.0** | -0.1 | -0.2 | 0.0 | -0.4 | **0.1** | **0.1** | **2.2** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.2** | -0.1 | 0.0 | **0.1** | **0.0** | -0.1 | -0.4 | 0.0 | 0.0 | **0.0** | -0.1 | **4.6** |
| Above Normal (16%) | **0.4** | -0.1 | -0.1 | **0.0** | 0.0 | -0.2 | -0.4 | **0.1** | **0.1** | -0.4 | **0.1** | **4.4** |
| Below Normal (13%) | -0.1 | 0.0 | **0.2** | **0.1** | -0.1 | -0.4 | -0.4 | -0.1 | -0.6 | -0.1 | **0.6** | **0.4** |
| Dry (24%) | -0.3 | -0.1 | **0.2** | **0.1** | 0.0 | -0.1 | -0.1 | -0.1 | -1.1 | **0.0** | -0.1 | **0.0** |
| Critical (15%) | -0.2 | -0.1 | **0.0** | **0.2** | **0.1** | 0.0 | **0.0** | **0.0** | -0.6 | **0.9** | **0.1** | -0.3 |

a Based on the 82-year simulation period.

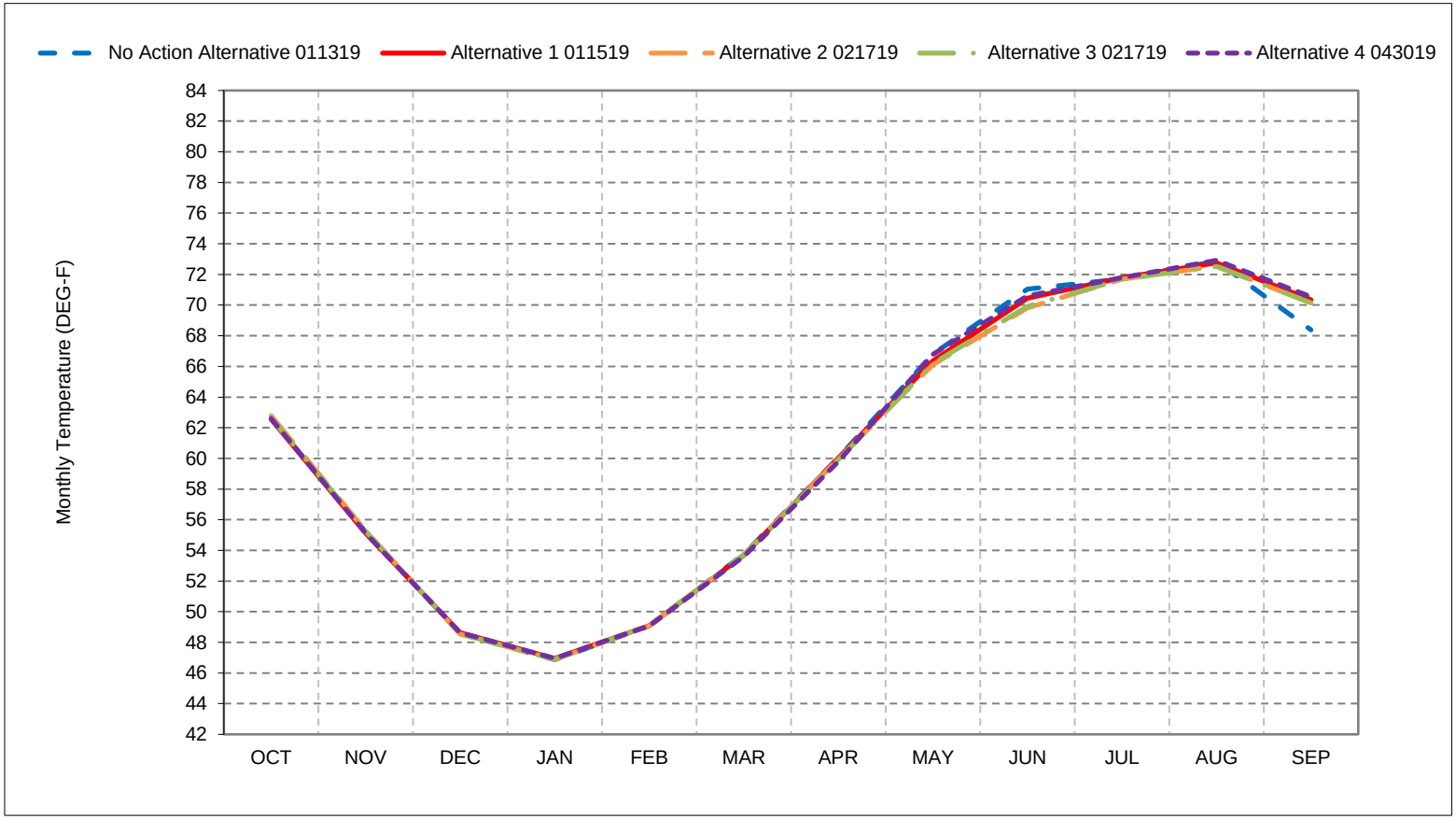
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

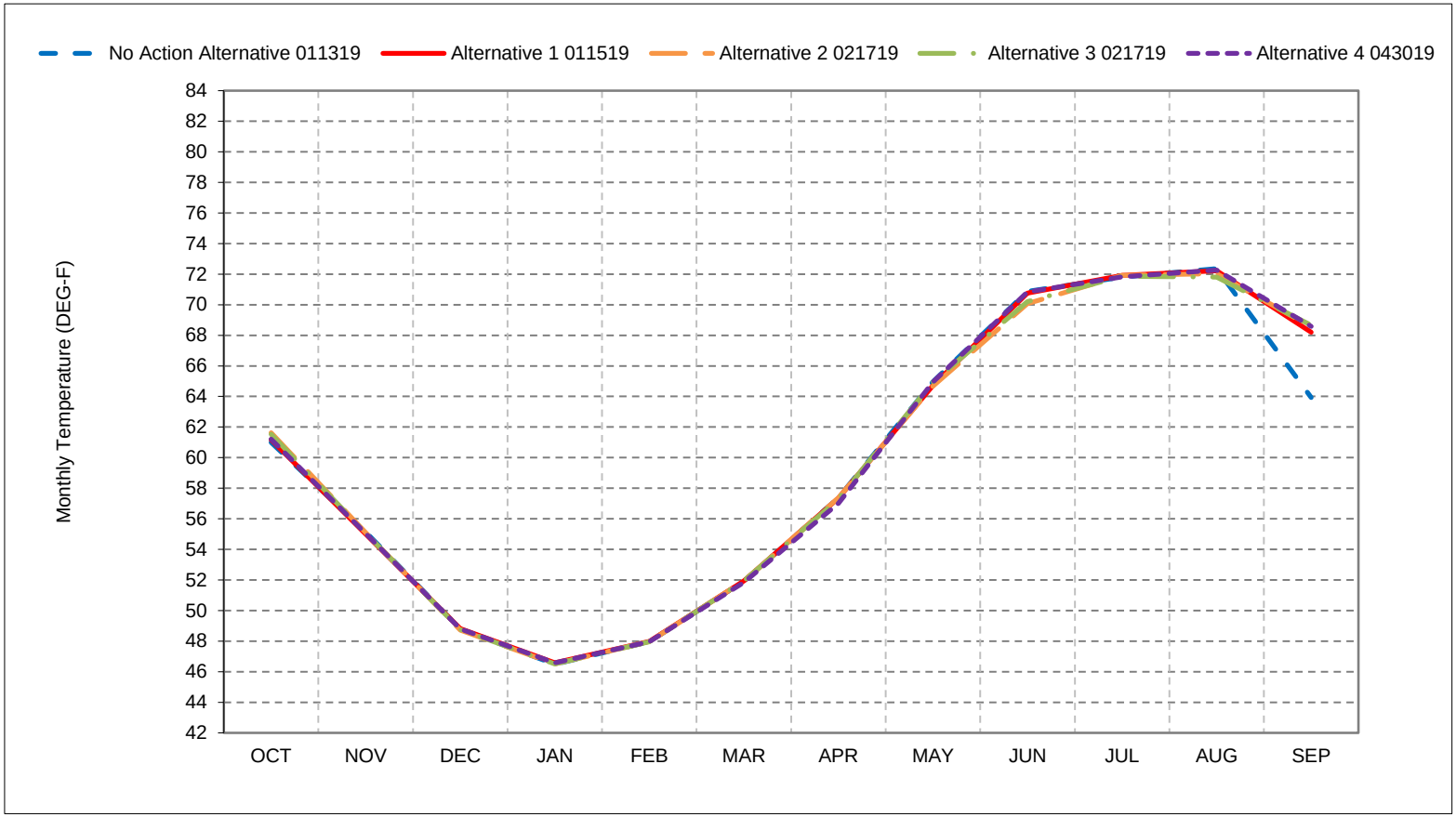
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-1. Sacramento River at Knights Landing, Long-Term Average Temperature



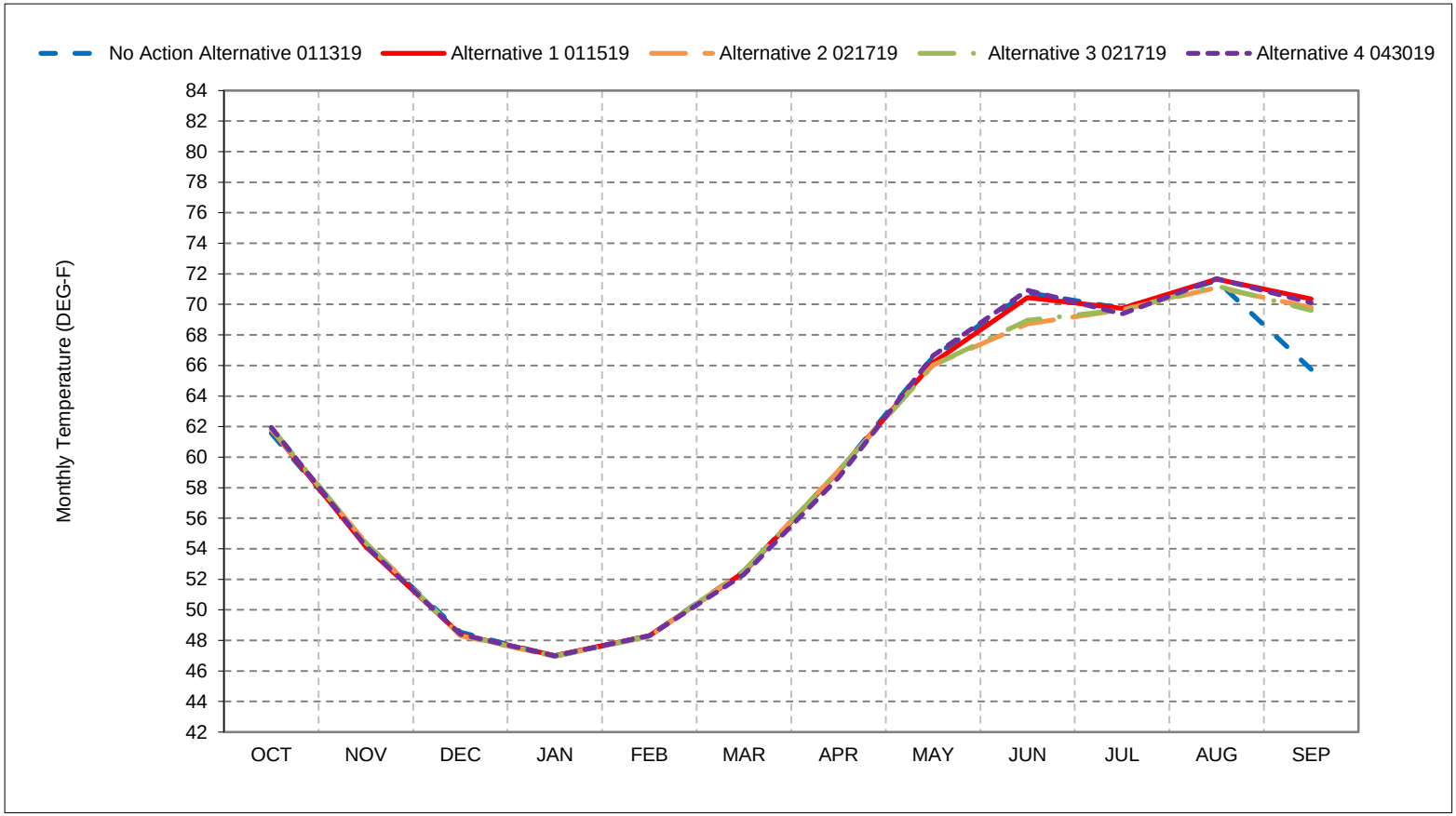

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-2. Sacramento River at Knights Landing, Wet Year Average Temperature



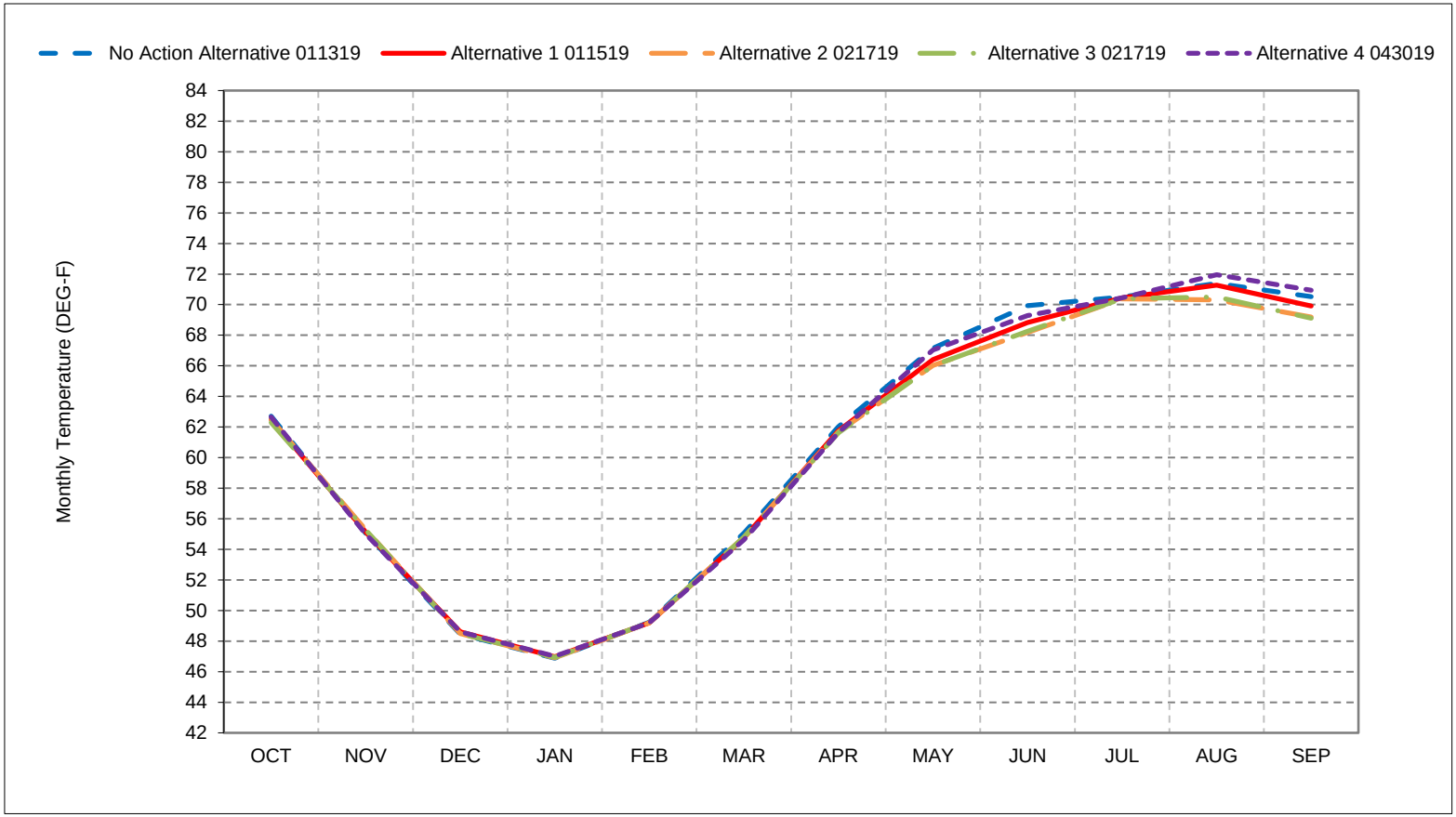

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-3. Sacramento River at Knights Landing, Above Normal Year Average Temperature



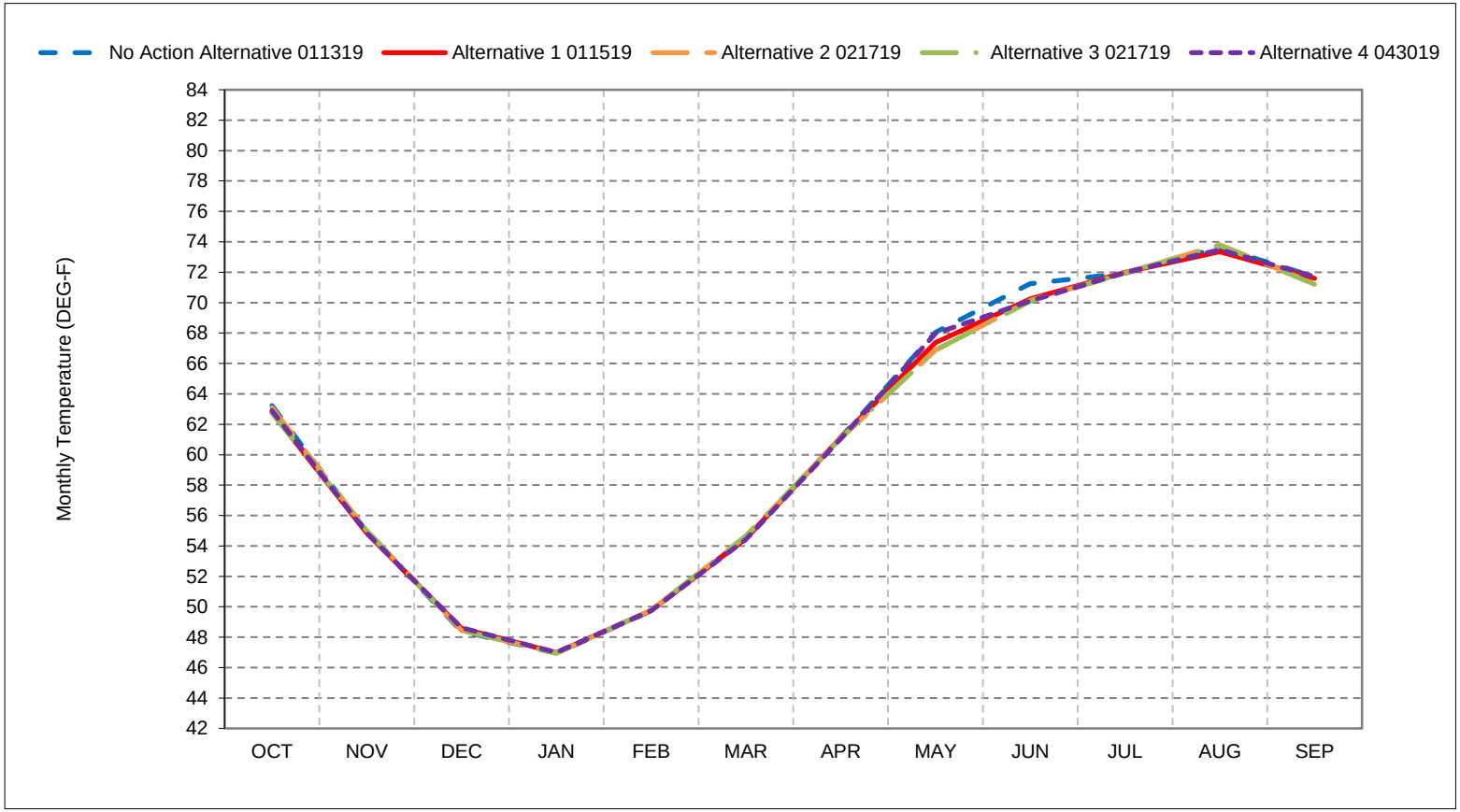

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-4. Sacramento River at Knights Landing, Below Normal Year Average Temperature



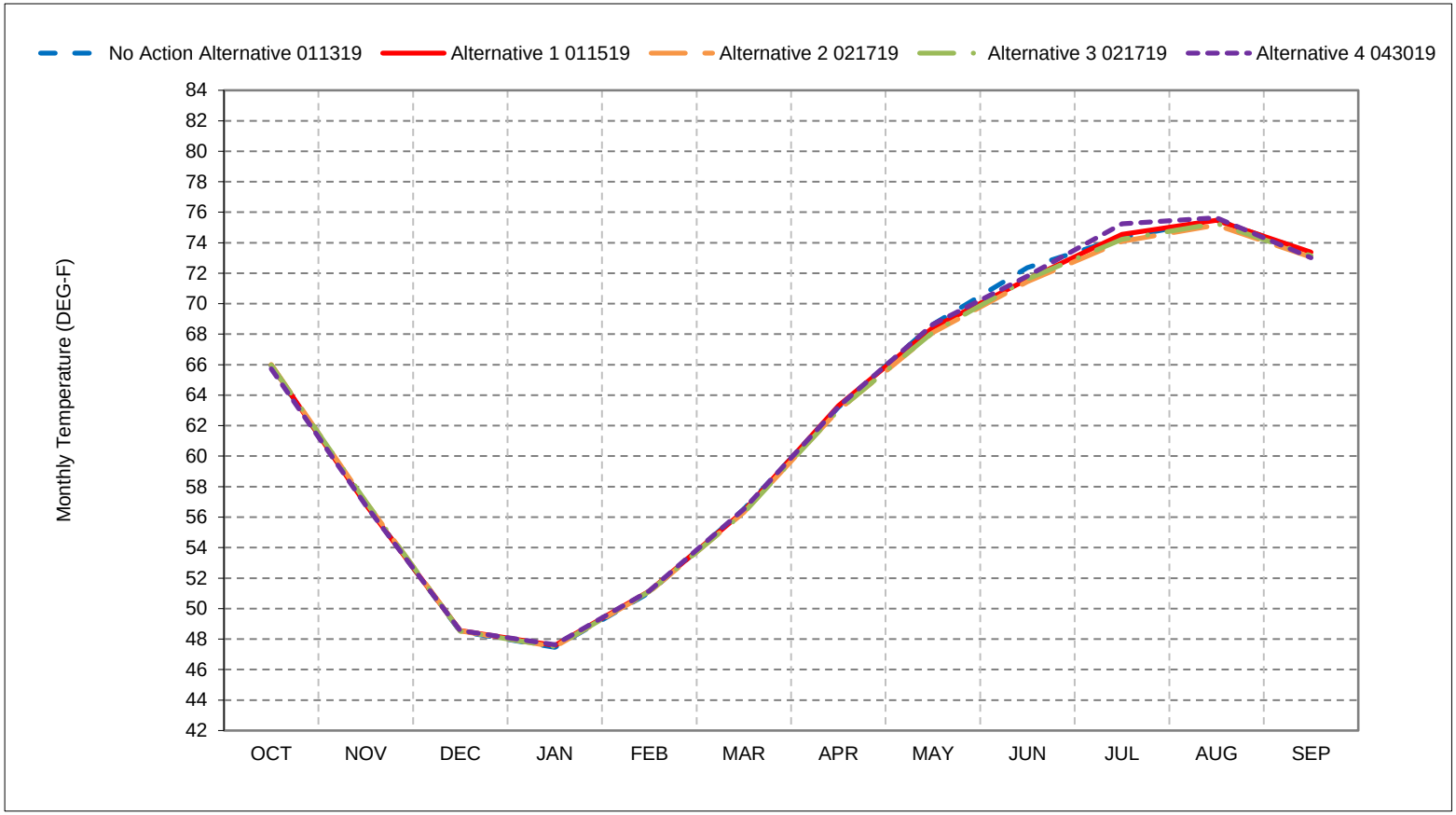

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-5. Sacramento River at Knights Landing, Dry Year Average Temperature



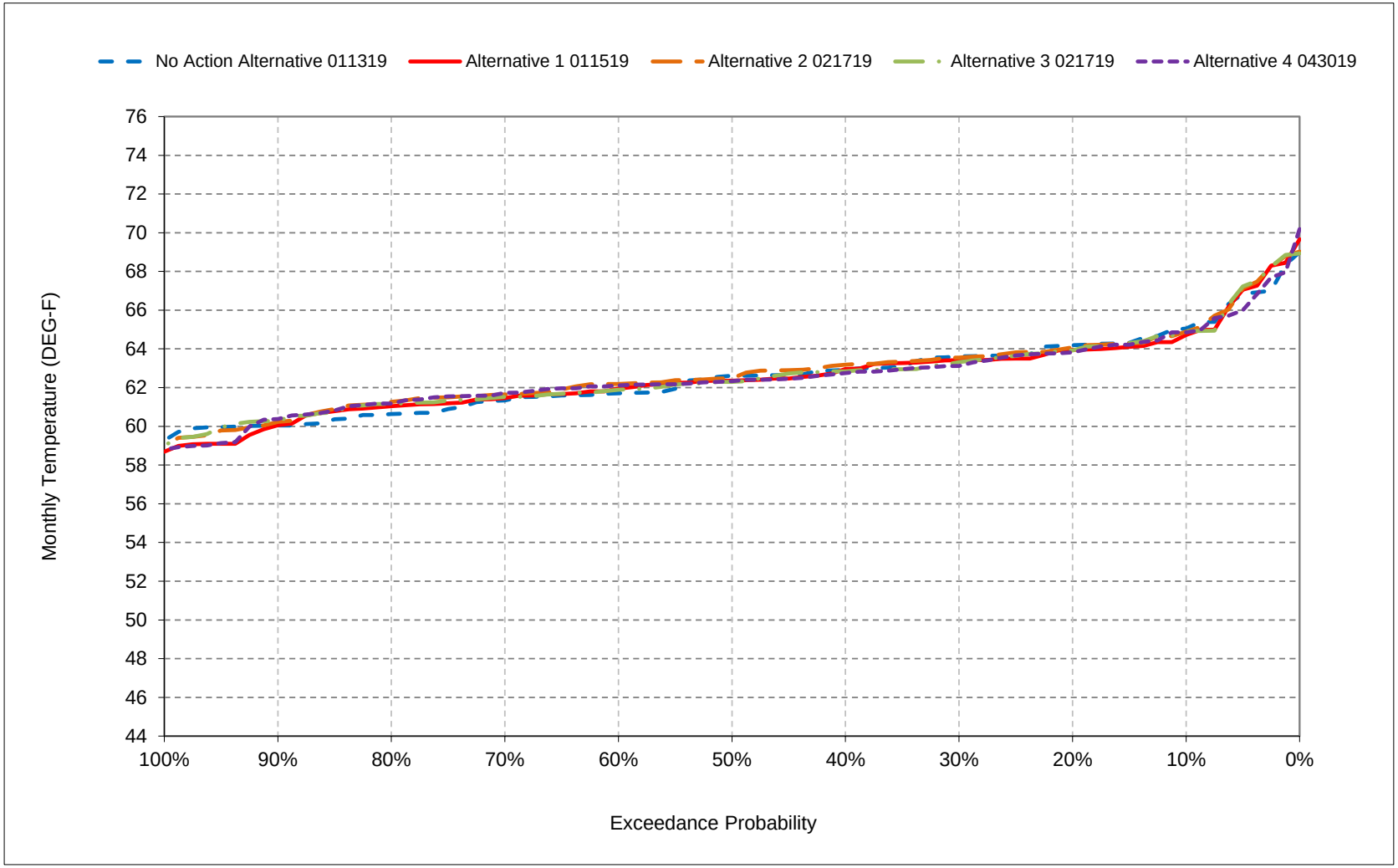

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-6. Sacramento River at Knights Landing, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

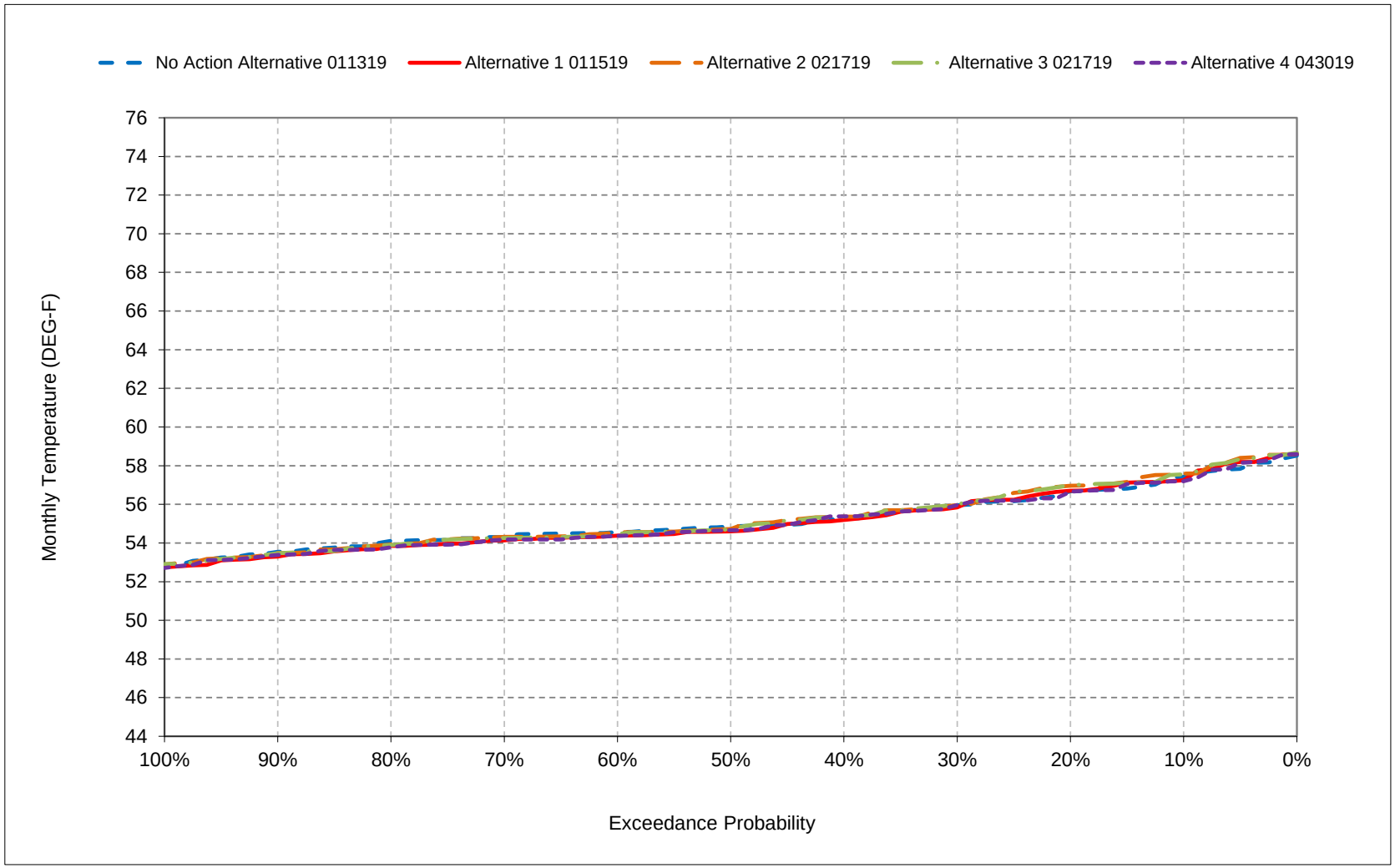
**Figure 14-7. Sacramento River at Knights Landing, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

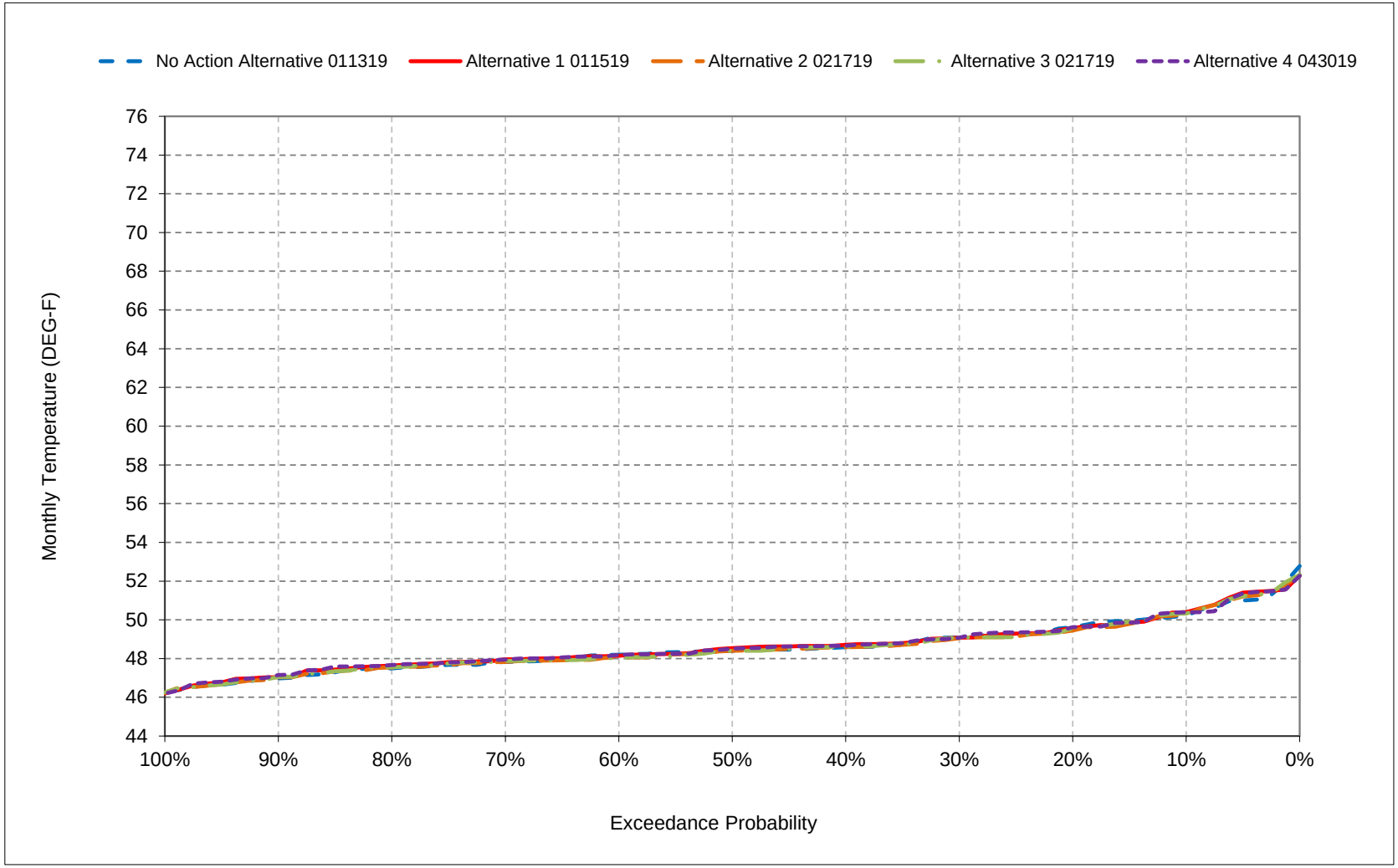
**Figure 14-8. Sacramento River at Knights Landing, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

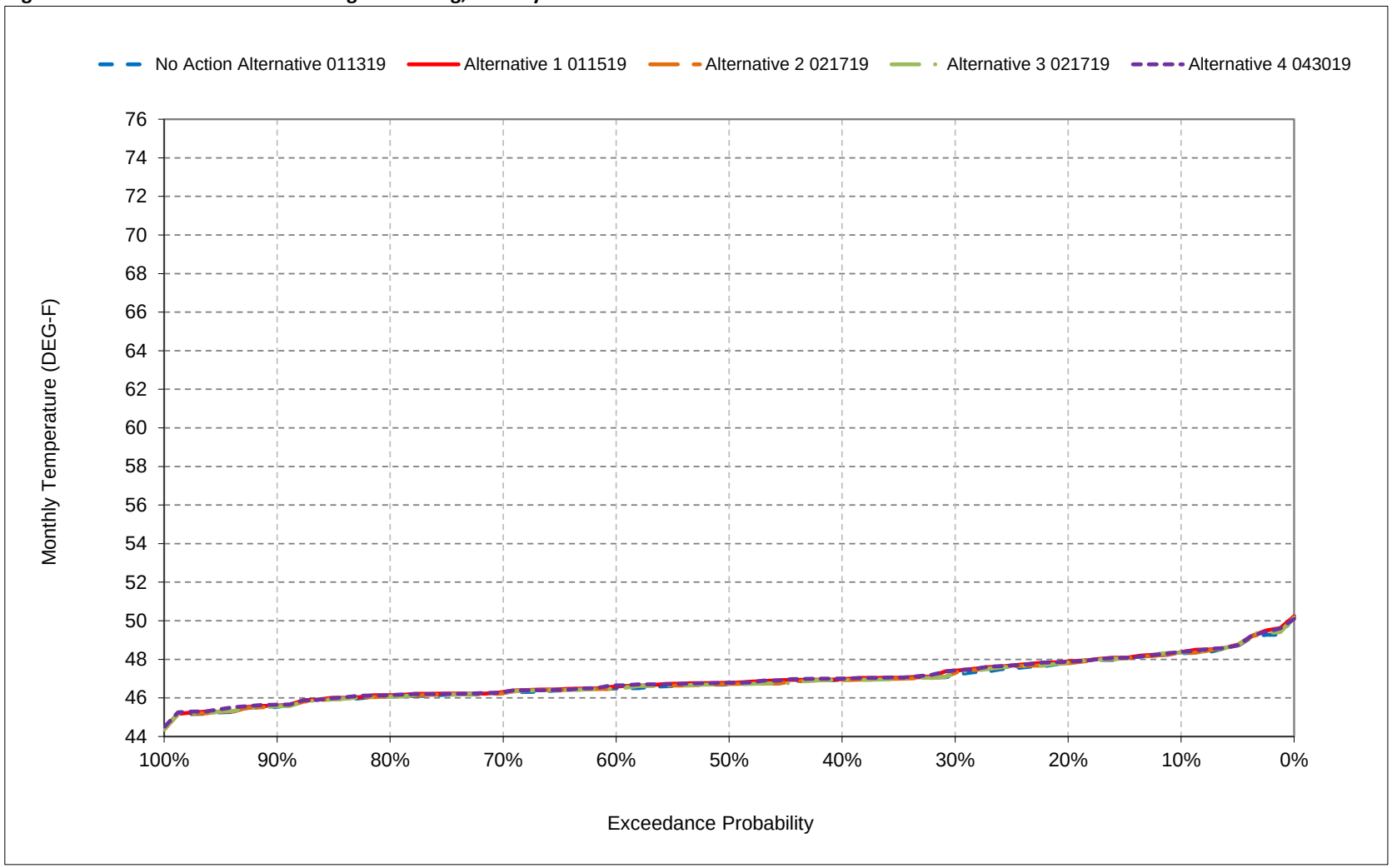
**Figure 14-9. Sacramento River at Knights Landing, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

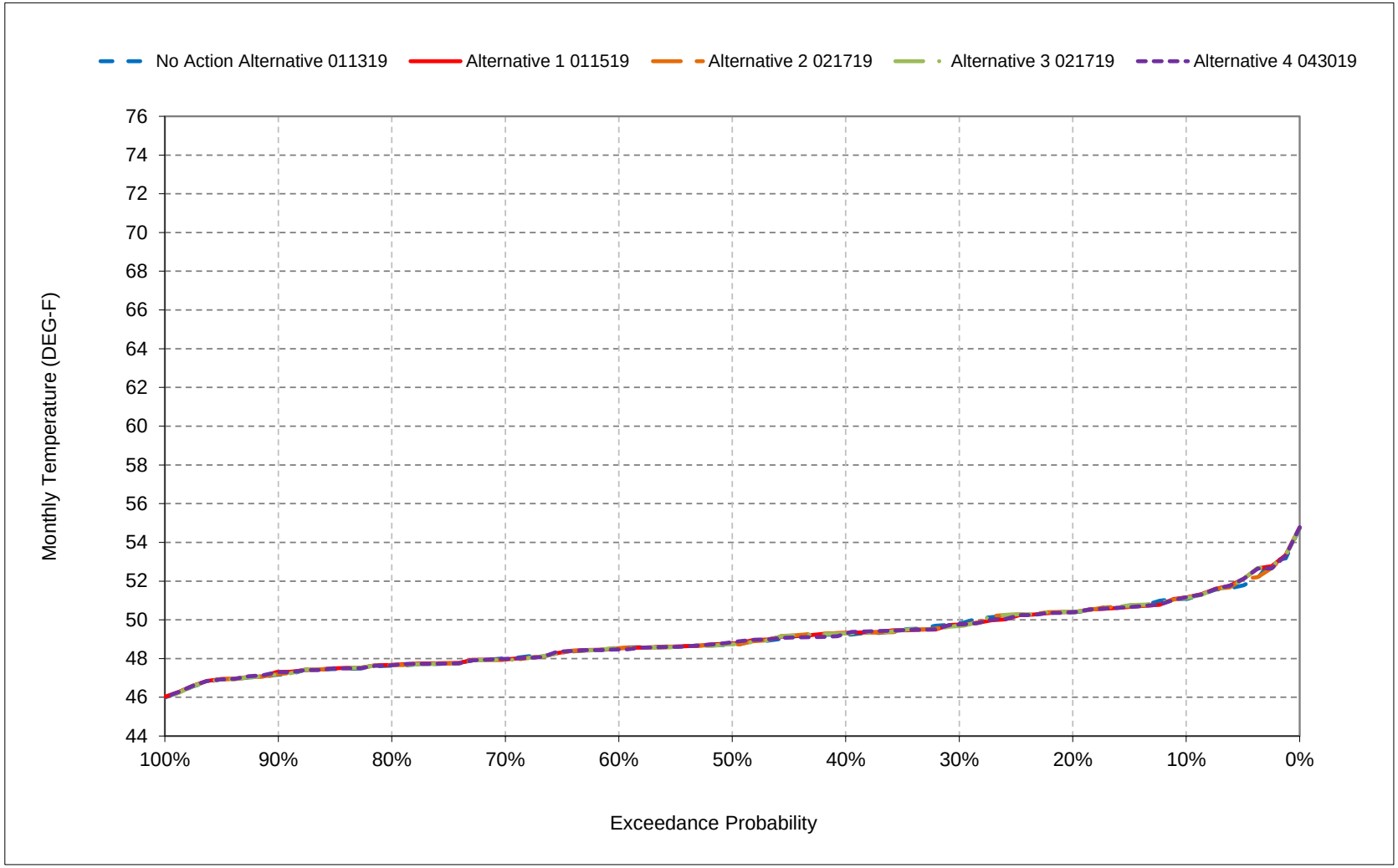
**Figure 14-10. Sacramento River at Knights Landing, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

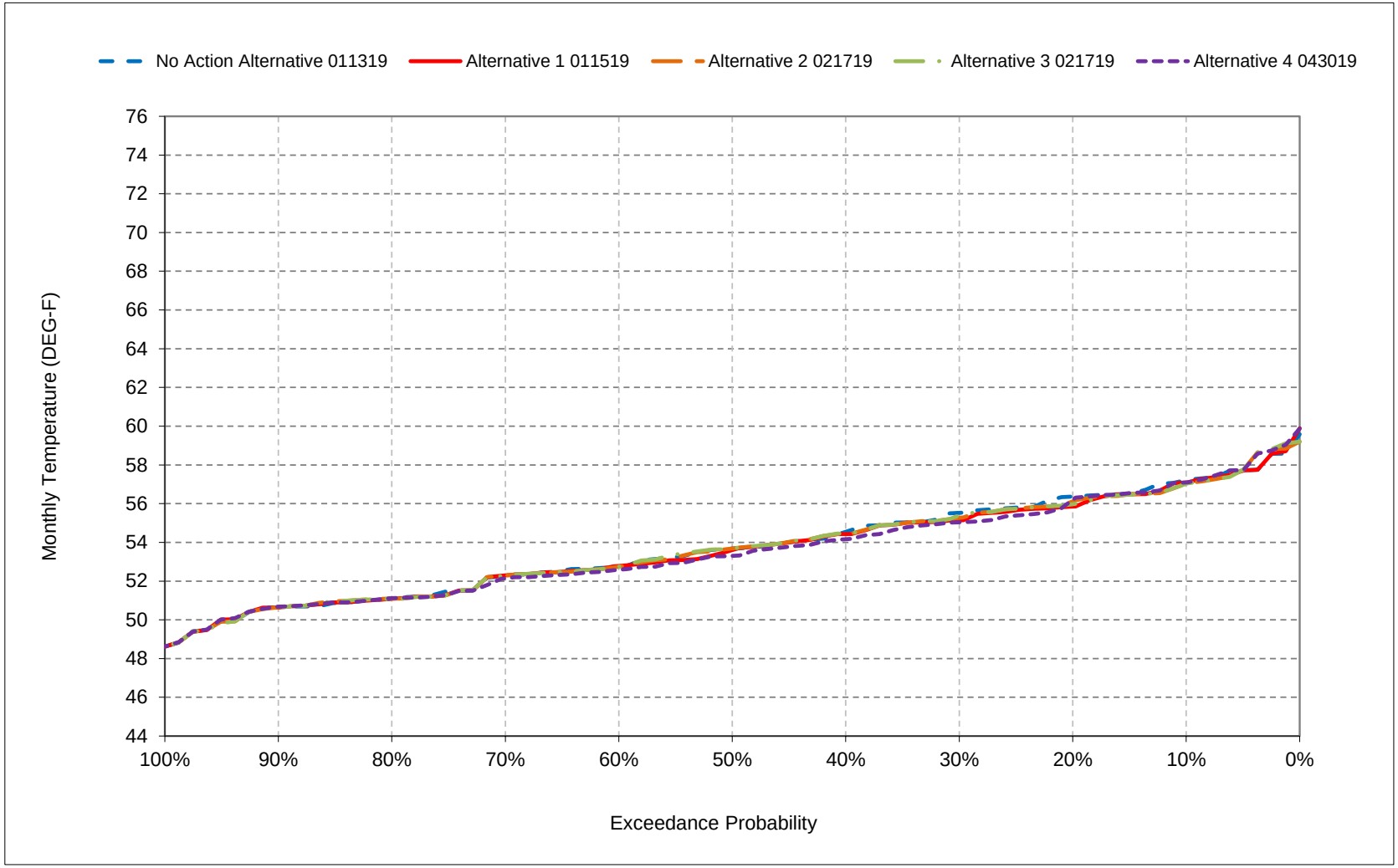
**Figure 14-11. Sacramento River at Knights Landing, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

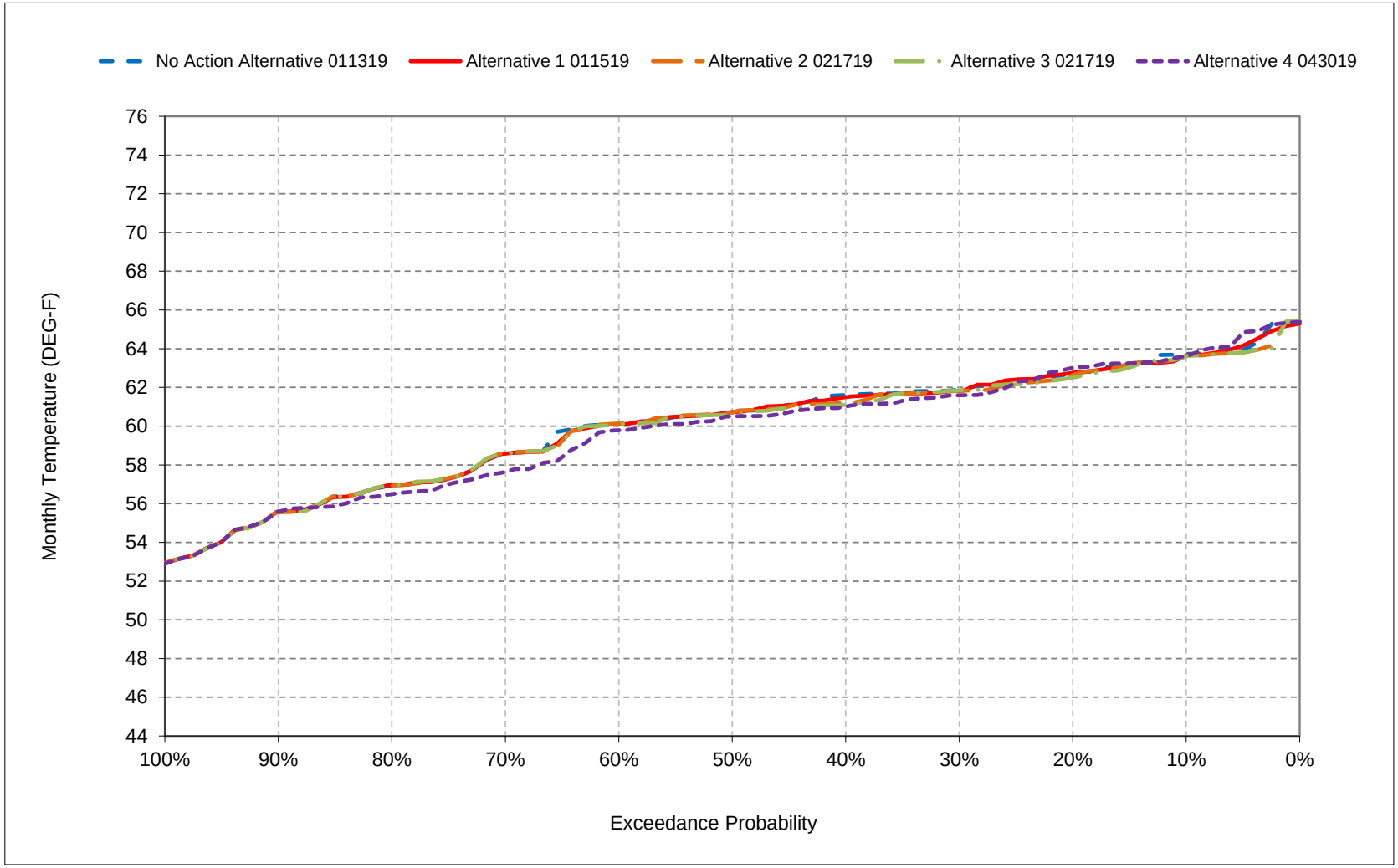
**Figure 14-12. Sacramento River at Knights Landing, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

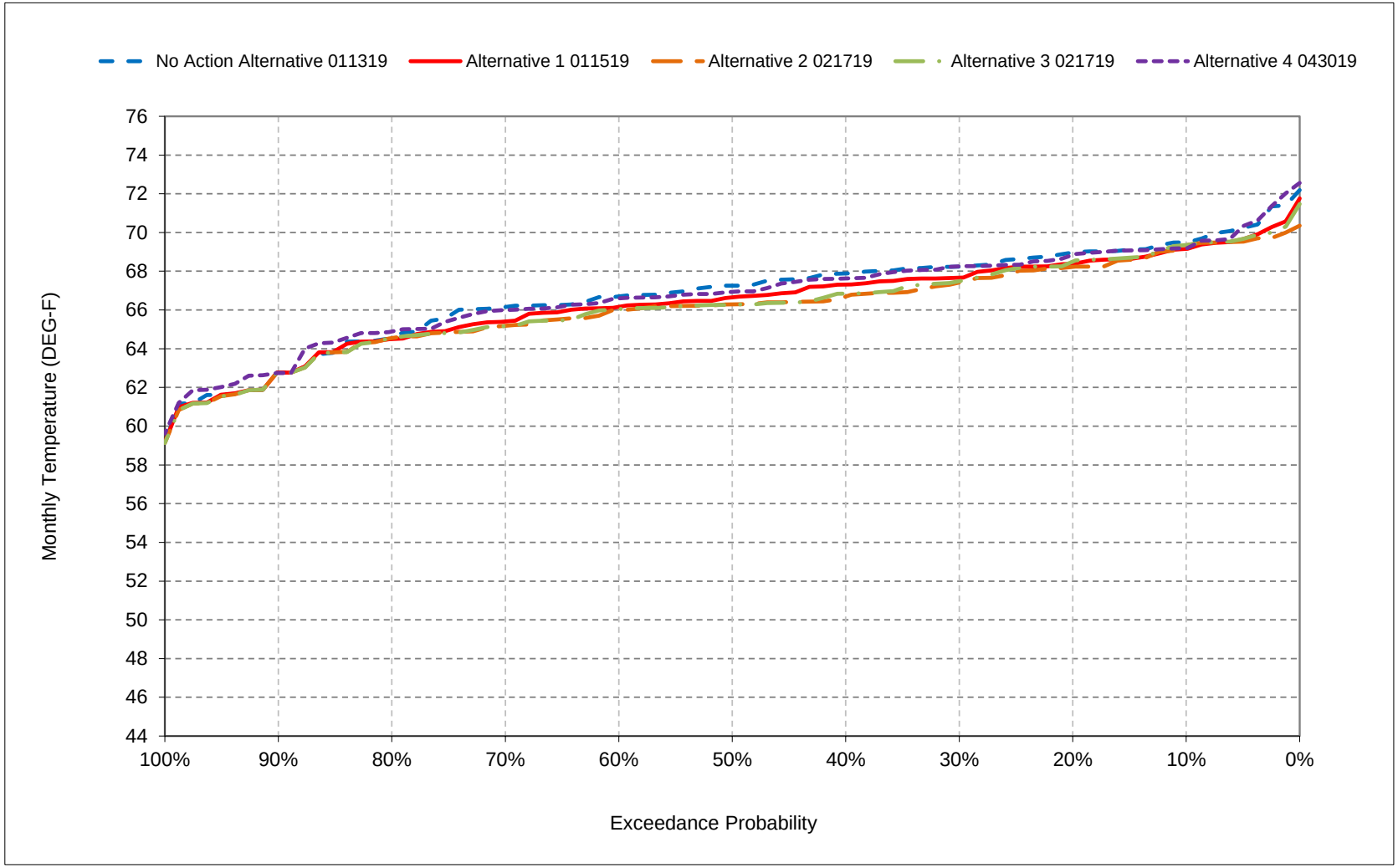
**Figure 14-13. Sacramento River at Knights Landing, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

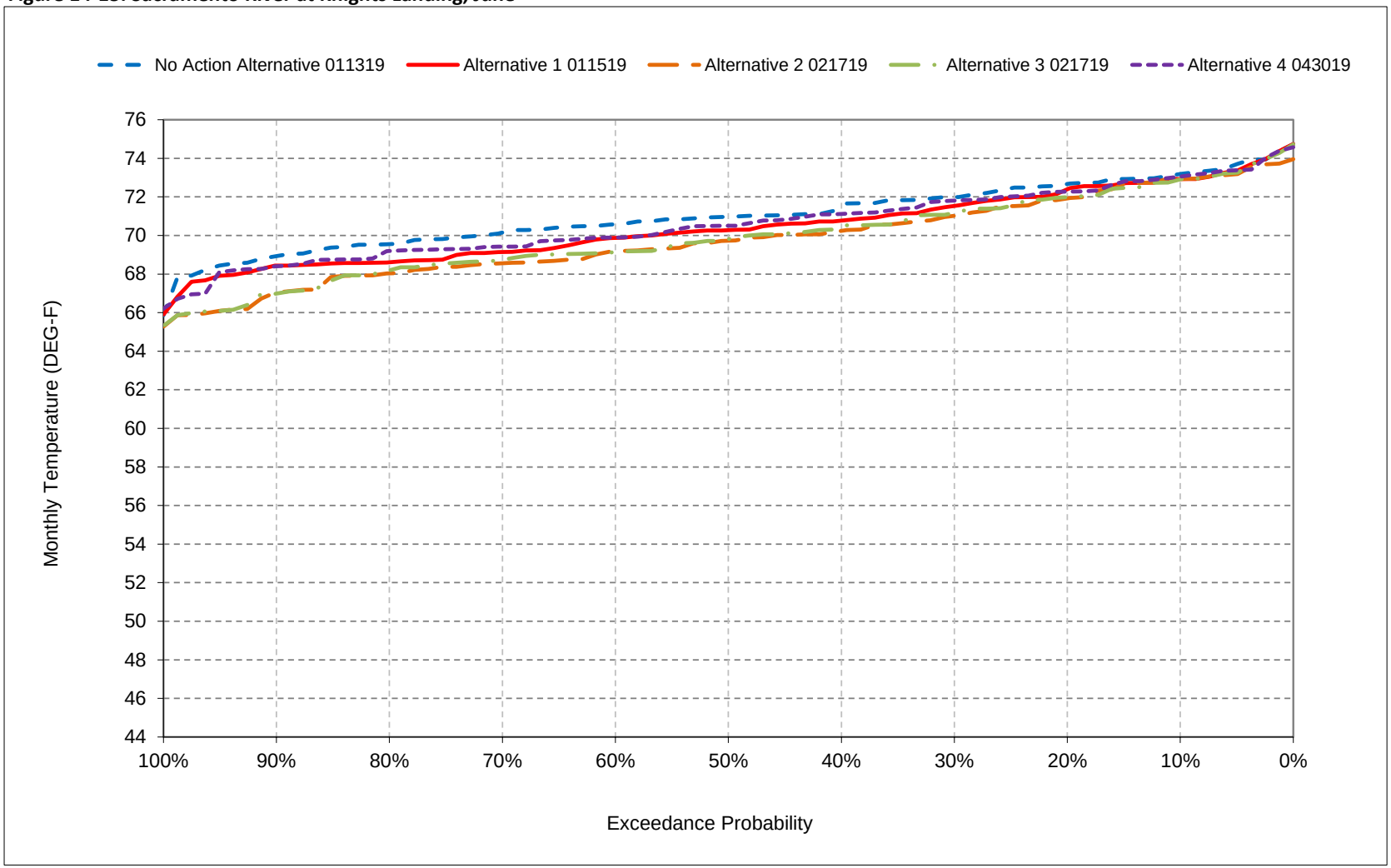
**Figure 14-14. Sacramento River at Knights Landing, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

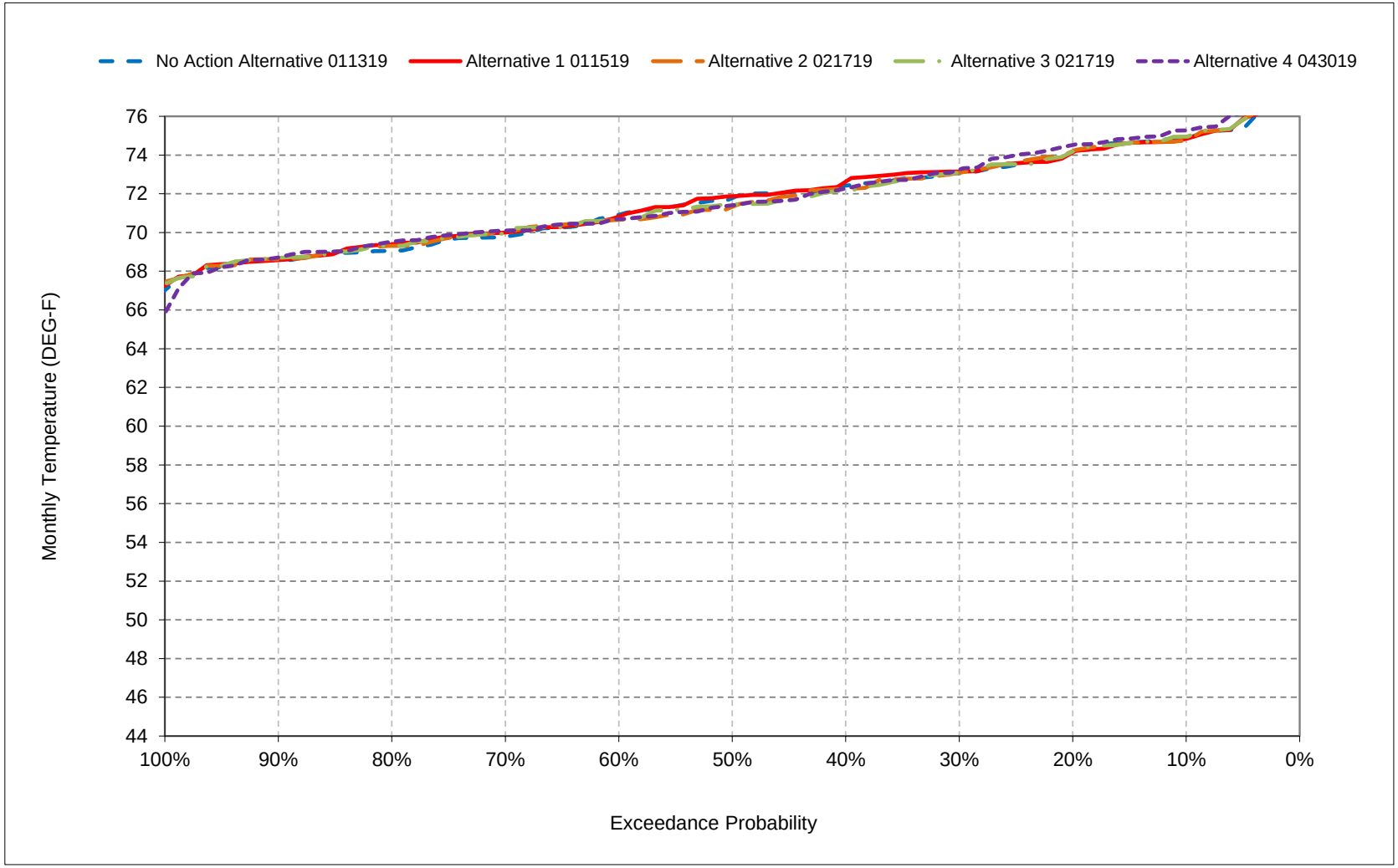
**Figure 14-15. Sacramento River at Knights Landing, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

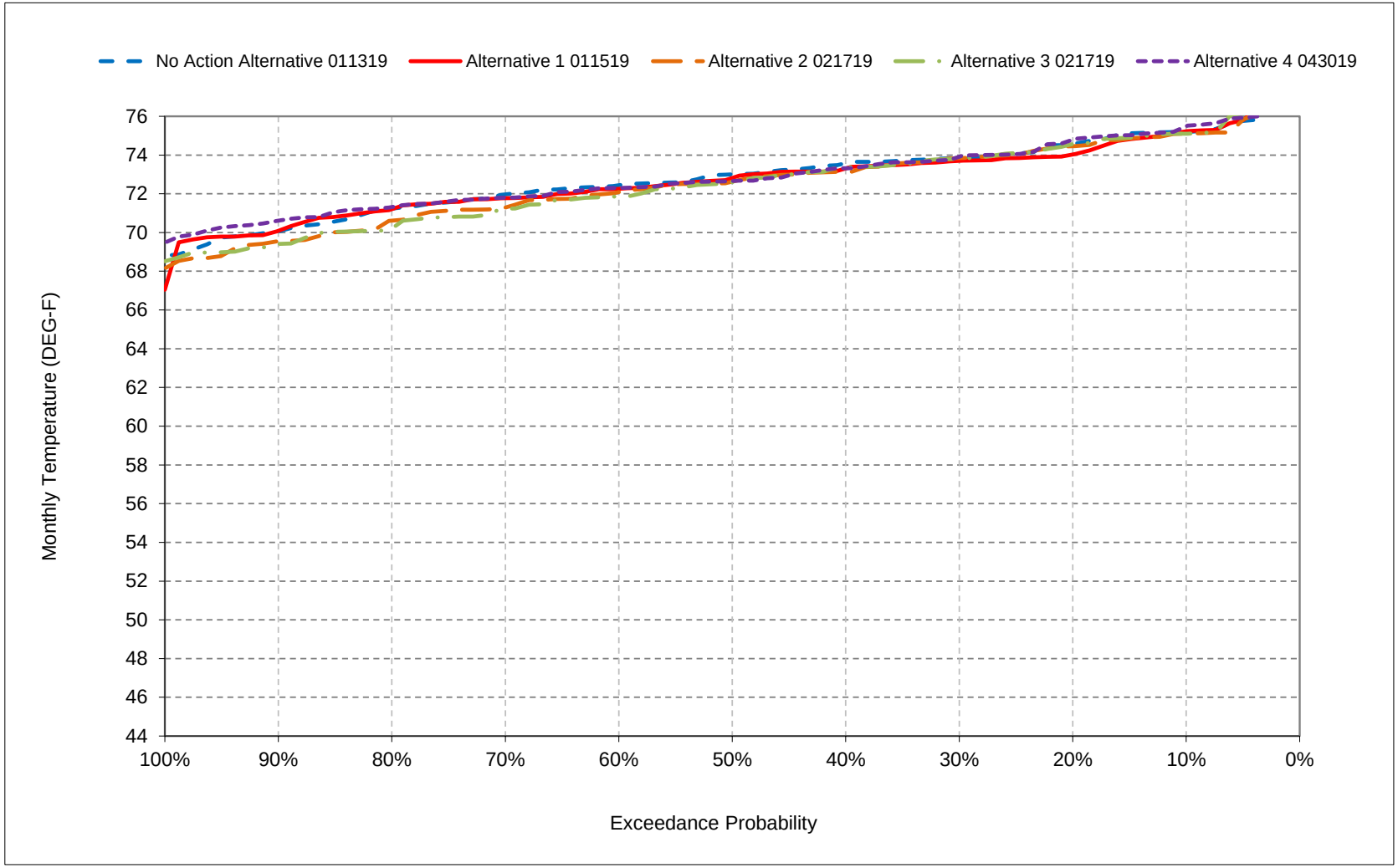
**Figure 14-16. Sacramento River at Knights Landing, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

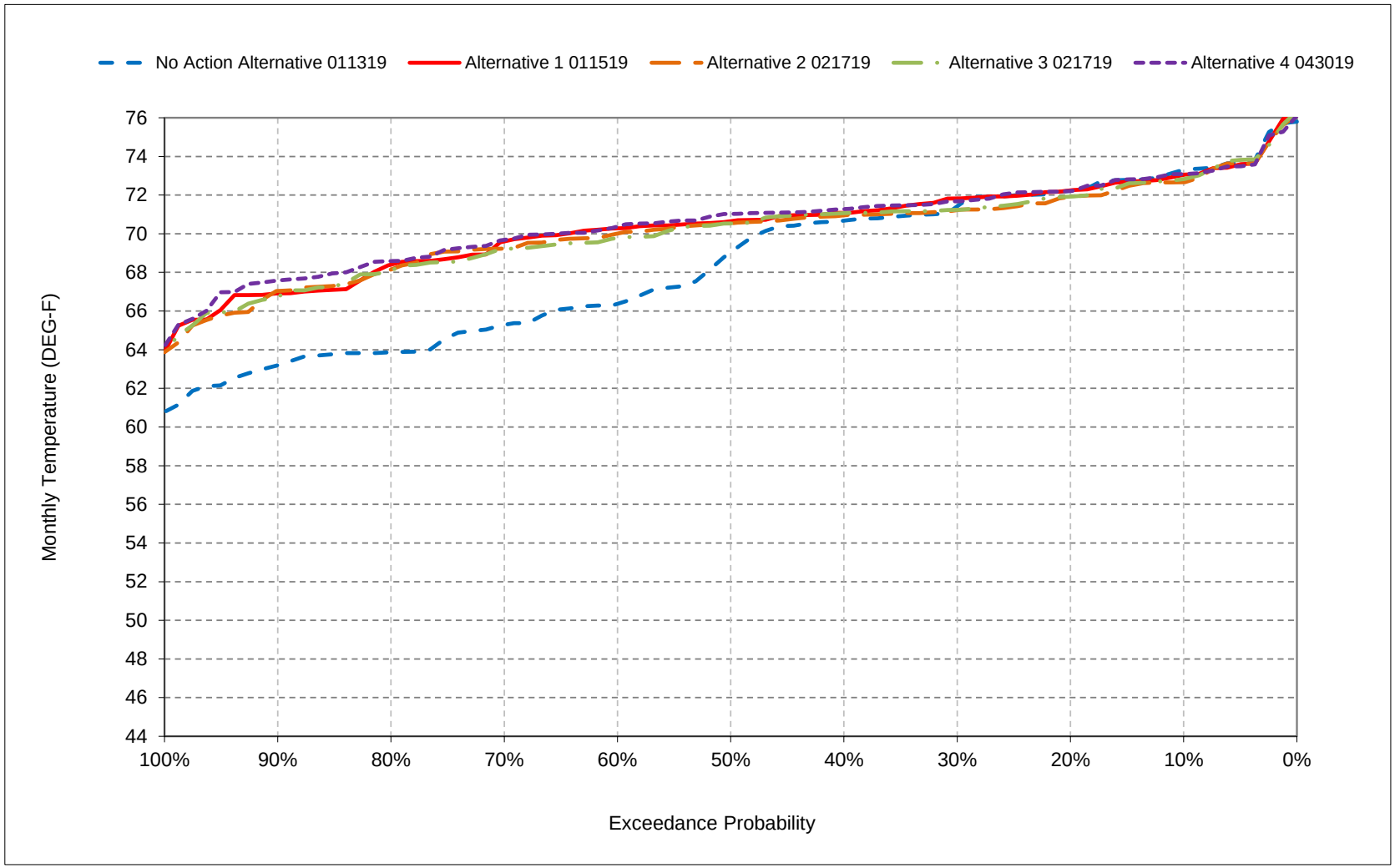
**Figure 14-17. Sacramento River at Knights Landing, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 14-18. Sacramento River at Knights Landing, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 15-1. American River below Nimbus Dam, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 66.6 | 58.4 | 53.0 | 47.8 | 48.5 | 52.1 | 58.0 | 63.1 | 68.1 | 69.6 | 67.3 | 68.1 |
| 20% | 65.6 | 57.9 | 51.7 | 47.2 | 47.7 | 51.6 | 57.0 | 62.0 | 65.9 | 67.6 | 66.9 | 67.6 |
| 30% | 64.7 | 57.7 | 51.2 | 46.9 | 47.3 | 50.7 | 56.0 | 60.6 | 64.8 | 65.7 | 65.5 | 66.4 |
| 40% | 63.6 | 57.5 | 50.7 | 46.8 | 46.9 | 49.9 | 55.2 | 59.5 | 63.1 | 65.1 | 65.0 | 65.8 |
| 50% | 63.3 | 57.2 | 50.2 | 46.3 | 46.7 | 49.4 | 54.6 | 58.5 | 61.8 | 64.7 | 64.5 | 65.3 |
| 60% | 63.1 | 56.9 | 49.3 | 45.7 | 46.3 | 49.0 | 54.0 | 57.8 | 60.6 | 64.5 | 63.8 | 64.8 |
| 70% | 62.8 | 56.6 | 48.7 | 45.4 | 46.0 | 48.6 | 53.4 | 57.0 | 59.7 | 64.2 | 63.3 | 64.2 |
| 80% | 62.6 | 56.2 | 48.2 | 45.0 | 45.8 | 48.3 | 52.4 | 56.5 | 59.3 | 63.5 | 62.8 | 64.0 |
| 90% | 59.2 | 55.6 | 46.9 | 44.6 | 45.4 | 48.0 | 51.9 | 54.9 | 59.0 | 63.1 | 62.5 | 63.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 63.6 | 57.1 | 50.1 | 46.2 | 46.8 | 49.9 | 54.8 | 59.0 | 62.6 | 65.6 | 64.7 | 65.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.7 | 57.0 | 50.6 | 45.6 | 46.0 | 48.6 | 52.8 | 56.6 | 59.9 | 63.8 | 62.8 | 63.7 |
| Above Normal (16%) | 63.2 | 56.7 | 49.9 | 46.3 | 46.5 | 49.0 | 54.2 | 58.3 | 61.9 | 64.3 | 64.3 | 65.0 |
| Below Normal (13%) | 64.1 | 57.3 | 50.2 | 46.6 | 46.7 | 50.0 | 56.1 | 60.3 | 63.8 | 65.1 | 65.3 | 65.8 |
| Dry (24%) | 64.7 | 57.1 | 49.6 | 46.5 | 47.3 | 50.7 | 55.6 | 60.2 | 64.2 | 66.1 | 65.4 | 66.4 |
| Critical (15%) | 65.6 | 57.7 | 49.6 | 46.7 | 48.0 | 52.1 | 57.3 | 61.8 | 65.8 | 70.4 | 67.2 | 67.9 |

### Alternative 1 011519

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 66.3 | 58.8 | 53.0 | 48.3 | 48.6 | 52.1 | 57.0 | 63.5 | 67.0 | 69.6 | 67.6 | 67.9 |
| 20% | 65.3 | 58.0 | 52.0 | 47.7 | 47.9 | 51.2 | 56.6 | 61.7 | 65.7 | 66.8 | 65.9 | 67.1 |
| 30% | 64.7 | 57.8 | 51.7 | 47.2 | 47.6 | 50.5 | 55.9 | 60.3 | 65.0 | 65.3 | 65.5 | 66.3 |
| 40% | 63.4 | 57.6 | 51.0 | 46.9 | 47.1 | 49.9 | 55.2 | 59.4 | 63.2 | 65.0 | 64.8 | 65.7 |
| 50% | 63.1 | 57.3 | 50.6 | 46.4 | 46.8 | 49.4 | 54.6 | 58.5 | 62.3 | 64.6 | 64.4 | 65.3 |
| 60% | 63.0 | 57.0 | 49.8 | 46.1 | 46.3 | 49.0 | 54.1 | 57.8 | 61.0 | 64.3 | 64.0 | 64.8 |
| 70% | 62.7 | 56.7 | 49.2 | 45.7 | 46.1 | 48.7 | 53.4 | 57.0 | 59.8 | 64.1 | 63.3 | 64.4 |
| 80% | 62.4 | 56.4 | 48.6 | 45.1 | 45.8 | 48.3 | 52.4 | 56.5 | 59.5 | 63.7 | 63.0 | 64.0 |
| 90% | 59.2 | 55.7 | 47.3 | 44.6 | 45.5 | 48.0 | 51.9 | 54.9 | 59.0 | 63.2 | 62.5 | 63.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 63.4 | 57.2 | 50.4 | 46.5 | 46.9 | 49.8 | 54.6 | 59.0 | 62.5 | 65.4 | 64.6 | 65.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.6 | 57.1 | 51.3 | 45.7 | 46.1 | 48.6 | 52.8 | 56.6 | 59.9 | 63.8 | 62.8 | 63.9 |
| Above Normal (16%) | 63.2 | 56.8 | 50.2 | 46.6 | 46.7 | 49.0 | 54.2 | 58.2 | 62.0 | 64.2 | 64.2 | 65.0 |
| Below Normal (13%) | 63.9 | 57.0 | 50.1 | 47.1 | 46.9 | 49.9 | 55.7 | 60.3 | 63.4 | 65.3 | 64.6 | 65.9 |
| Dry (24%) | 64.4 | 57.2 | 49.9 | 46.6 | 47.3 | 50.6 | 55.3 | 60.5 | 63.9 | 65.9 | 65.5 | 66.3 |
| Critical (15%) | 65.2 | 57.6 | 49.9 | 47.2 | 48.3 | 51.9 | 56.7 | 61.1 | 65.7 | 69.2 | 67.3 | 67.5 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.3 | **0.4** | **0.0** | **0.4** | **0.1** | 0.0 | -1.0 | **0.4** | -1.1 | **0.0** | **0.3** | -0.1 |
| 20% | -0.3 | **0.1** | **0.3** | **0.5** | **0.2** | -0.3 | -0.4 | -0.3 | -0.1 | -0.8 | -1.0 | -0.4 |
| 30% | **0.0** | **0.0** | **0.5** | **0.3** | **0.2** | -0.2 | -0.1 | -0.3 | **0.2** | -0.4 | **0.0** | -0.2 |
| 40% | -0.2 | **0.1** | **0.3** | **0.1** | **0.2** | **0.1** | **0.0** | -0.1 | **0.1** | -0.1 | -0.2 | -0.1 |
| 50% | -0.1 | **0.1** | **0.4** | **0.1** | **0.1** | **0.1** | **0.0** | **0.1** | **0.5** | -0.1 | -0.1 | 0.0 |
| 60% | -0.1 | **0.1** | **0.5** | **0.3** | **0.1** | **0.0** | **0.1** | 0.0 | **0.4** | -0.1 | **0.2** | **0.1** |
| 70% | -0.1 | **0.1** | **0.5** | **0.3** | **0.1** | **0.1** | 0.0 | **0.0** | **0.1** | -0.1 | **0.0** | **0.2** |
| 80% | -0.2 | **0.1** | **0.4** | **0.2** | **0.1** | 0.0 | **0.0** | 0.0 | **0.2** | **0.2** | **0.2** | **0.0** |
| 90% | **0.0** | **0.0** | **0.3** | 0.0 | **0.1** | **0.1** | **0.0** | **0.0** | **0.0** | **0.1** | -0.1 | **0.4** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.2 | **0.1** | **0.3** | **0.3** | **0.1** | -0.1 | -0.2 | -0.1 | -0.1 | -0.2 | -0.1 | 0.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.1 | **0.2** | **0.6** | **0.2** | **0.0** | **0.0** | **0.0** | 0.0 | **0.1** | 0.0 | **0.0** | **0.2** |
| Above Normal (16%) | **0.0** | **0.1** | **0.3** | **0.3** | **0.1** | **0.0** | **0.0** | 0.0 | **0.1** | -0.1 | -0.1 | **0.0** |
| Below Normal (13%) | -0.3 | -0.2 | -0.1 | **0.5** | **0.2** | -0.1 | -0.4 | **0.0** | -0.4 | **0.3** | -0.7 | **0.0** |
| Dry (24%) | -0.3 | **0.1** | **0.3** | **0.1** | **0.1** | -0.1 | -0.2 | **0.3** | -0.3 | -0.2 | **0.0** | -0.1 |
| Critical (15%) | -0.4 | -0.1 | **0.3** | **0.6** | **0.3** | -0.2 | -0.7 | -0.7 | -0.1 | -1.1 | **0.1** | -0.4 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 15-2. American River below Nimbus Dam, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 66.6 | 58.4 | 53.0 | 47.8 | 48.5 | 52.1 | 58.0 | 63.1 | 68.1 | 69.6 | 67.3 | 68.1 |
| 20% | 65.6 | 57.9 | 51.7 | 47.2 | 47.7 | 51.6 | 57.0 | 62.0 | 65.9 | 67.6 | 66.9 | 67.6 |
| 30% | 64.7 | 57.7 | 51.2 | 46.9 | 47.3 | 50.7 | 56.0 | 60.6 | 64.8 | 65.7 | 65.5 | 66.4 |
| 40% | 63.6 | 57.5 | 50.7 | 46.8 | 46.9 | 49.9 | 55.2 | 59.5 | 63.1 | 65.1 | 65.0 | 65.8 |
| 50% | 63.3 | 57.2 | 50.2 | 46.3 | 46.7 | 49.4 | 54.6 | 58.5 | 61.8 | 64.7 | 64.5 | 65.3 |
| 60% | 63.1 | 56.9 | 49.3 | 45.7 | 46.3 | 49.0 | 54.0 | 57.8 | 60.6 | 64.5 | 63.8 | 64.8 |
| 70% | 62.8 | 56.6 | 48.7 | 45.4 | 46.0 | 48.6 | 53.4 | 57.0 | 59.7 | 64.2 | 63.3 | 64.2 |
| 80% | 62.6 | 56.2 | 48.2 | 45.0 | 45.8 | 48.3 | 52.4 | 56.5 | 59.3 | 63.5 | 62.8 | 64.0 |
| 90% | 59.2 | 55.6 | 46.9 | 44.6 | 45.4 | 48.0 | 51.9 | 54.9 | 59.0 | 63.1 | 62.5 | 63.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 63.6 | 57.1 | 50.1 | 46.2 | 46.8 | 49.9 | 54.8 | 59.0 | 62.6 | 65.6 | 64.7 | 65.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.7 | 57.0 | 50.6 | 45.6 | 46.0 | 48.6 | 52.8 | 56.6 | 59.9 | 63.8 | 62.8 | 63.7 |
| Above Normal (16%) | 63.2 | 56.7 | 49.9 | 46.3 | 46.5 | 49.0 | 54.2 | 58.3 | 61.9 | 64.3 | 64.3 | 65.0 |
| Below Normal (13%) | 64.1 | 57.3 | 50.2 | 46.6 | 46.7 | 50.0 | 56.1 | 60.3 | 63.8 | 65.1 | 65.3 | 65.8 |
| Dry (24%) | 64.7 | 57.1 | 49.6 | 46.5 | 47.3 | 50.7 | 55.6 | 60.2 | 64.2 | 66.1 | 65.4 | 66.4 |
| Critical (15%) | 65.6 | 57.7 | 49.6 | 46.7 | 48.0 | 52.1 | 57.3 | 61.8 | 65.8 | 70.4 | 67.2 | 67.9 |

### Alternative 2 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 66.5 | 58.4 | 53.0 | 48.2 | 48.6 | 52.1 | 58.0 | 63.1 | 65.7 | 69.9 | 67.9 | 68.3 |
| 20% | 65.1 | 57.9 | 51.8 | 47.4 | 47.8 | 51.4 | 57.0 | 62.0 | 64.9 | 67.3 | 66.7 | 67.3 |
| 30% | 64.4 | 57.6 | 51.3 | 47.0 | 47.5 | 50.7 | 56.0 | 60.6 | 64.0 | 66.2 | 65.8 | 66.5 |
| 40% | 63.6 | 57.4 | 50.7 | 46.8 | 47.0 | 49.9 | 55.2 | 59.3 | 62.9 | 65.3 | 65.4 | 65.8 |
| 50% | 63.2 | 57.0 | 50.3 | 46.3 | 46.7 | 49.5 | 54.6 | 58.4 | 62.5 | 64.6 | 64.5 | 65.4 |
| 60% | 63.0 | 56.8 | 49.4 | 45.7 | 46.3 | 49.0 | 54.1 | 57.6 | 60.9 | 64.3 | 64.0 | 64.9 |
| 70% | 62.7 | 56.4 | 48.8 | 45.4 | 46.0 | 48.7 | 53.4 | 57.0 | 60.2 | 64.2 | 63.1 | 64.6 |
| 80% | 62.5 | 56.1 | 48.0 | 45.1 | 45.8 | 48.3 | 52.4 | 56.5 | 59.6 | 63.6 | 62.7 | 64.1 |
| 90% | 59.1 | 55.4 | 46.8 | 44.5 | 45.5 | 48.0 | 51.9 | 54.9 | 59.0 | 63.1 | 62.1 | 63.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 63.4 | 56.9 | 50.1 | 46.3 | 46.8 | 49.9 | 54.8 | 59.0 | 62.4 | 65.6 | 64.8 | 65.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.7 | 57.1 | 51.2 | 45.6 | 46.1 | 48.6 | 52.8 | 56.6 | 60.1 | 63.9 | 62.7 | 64.0 |
| Above Normal (16%) | 63.1 | 56.4 | 49.8 | 46.5 | 46.6 | 49.0 | 54.2 | 58.3 | 62.1 | 64.1 | 64.6 | 65.1 |
| Below Normal (13%) | 63.5 | 56.4 | 49.7 | 47.0 | 46.9 | 50.0 | 56.0 | 60.1 | 62.4 | 65.2 | 65.0 | 65.4 |
| Dry (24%) | 64.6 | 57.0 | 49.5 | 46.5 | 47.3 | 50.6 | 55.5 | 60.3 | 63.4 | 66.4 | 65.7 | 66.5 |
| Critical (15%) | 65.4 | 57.5 | 49.4 | 46.6 | 48.0 | 52.2 | 57.2 | 61.5 | 66.0 | 70.1 | 68.0 | 68.0 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.1 | 0.0 | **0.0** | **0.4** | **0.0** | 0.0 | **0.0** | **0.0** | -2.4 | **0.3** | **0.6** | **0.2** |
| 20% | -0.5 | 0.0 | **0.2** | **0.1** | **0.0** | -0.2 | -0.1 | **0.1** | -1.0 | -0.3 | -0.2 | -0.3 |
| 30% | -0.3 | -0.1 | **0.1** | **0.1** | **0.1** | **0.0** | **0.0** | 0.0 | -0.7 | **0.5** | **0.3** | **0.0** |
| 40% | 0.0 | -0.1 | 0.0 | 0.0 | **0.1** | **0.0** | 0.0 | -0.1 | -0.2 | **0.2** | **0.4** | 0.0 |
| 50% | -0.1 | -0.2 | **0.1** | **0.0** | **0.0** | **0.1** | **0.0** | -0.1 | **0.7** | -0.1 | **0.0** | **0.0** |
| 60% | -0.1 | -0.1 | **0.1** | 0.0 | **0.0** | **0.0** | **0.1** | -0.2 | **0.2** | -0.1 | **0.2** | **0.1** |
| 70% | -0.1 | -0.2 | **0.1** | **0.1** | 0.0 | **0.0** | 0.0 | **0.0** | **0.4** | **0.0** | -0.2 | **0.4** |
| 80% | -0.1 | -0.2 | -0.2 | **0.1** | **0.0** | **0.0** | **0.0** | **0.0** | **0.4** | **0.1** | -0.1 | **0.1** |
| 90% | -0.2 | -0.2 | -0.1 | -0.1 | **0.1** | **0.0** | **0.0** | **0.0** | 0.0 | 0.0 | -0.4 | **0.3** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.2 | -0.2 | **0.0** | **0.1** | **0.0** | 0.0 | 0.0 | -0.1 | -0.3 | **0.0** | **0.2** | **0.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0.0 | **0.2** | **0.6** | **0.1** | **0.0** | **0.0** | **0.0** | 0.0 | **0.2** | **0.0** | -0.1 | **0.3** |
| Above Normal (16%) | -0.1 | -0.3 | -0.2 | **0.2** | **0.1** | **0.0** | **0.0** | 0.0 | **0.1** | -0.2 | **0.3** | **0.2** |
| Below Normal (13%) | -0.7 | -0.8 | -0.5 | **0.4** | **0.2** | 0.0 | 0.0 | -0.2 | -1.4 | **0.1** | -0.3 | -0.5 |
| Dry (24%) | -0.1 | -0.1 | -0.1 | 0.0 | **0.0** | -0.1 | -0.1 | **0.1** | -0.7 | **0.3** | **0.3** | **0.0** |
| Critical (15%) | -0.2 | -0.1 | -0.2 | 0.0 | **0.0** | **0.1** | -0.1 | -0.3 | **0.2** | -0.3 | **0.9** | **0.1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 15-3. American River below Nimbus Dam, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 66.6 | 58.4 | 53.0 | 47.8 | 48.5 | 52.1 | 58.0 | 63.1 | 68.1 | 69.6 | 67.3 | 68.1 |
| 20% | 65.6 | 57.9 | 51.7 | 47.2 | 47.7 | 51.6 | 57.0 | 62.0 | 65.9 | 67.6 | 66.9 | 67.6 |
| 30% | 64.7 | 57.7 | 51.2 | 46.9 | 47.3 | 50.7 | 56.0 | 60.6 | 64.8 | 65.7 | 65.5 | 66.4 |
| 40% | 63.6 | 57.5 | 50.7 | 46.8 | 46.9 | 49.9 | 55.2 | 59.5 | 63.1 | 65.1 | 65.0 | 65.8 |
| 50% | 63.3 | 57.2 | 50.2 | 46.3 | 46.7 | 49.4 | 54.6 | 58.5 | 61.8 | 64.7 | 64.5 | 65.3 |
| 60% | 63.1 | 56.9 | 49.3 | 45.7 | 46.3 | 49.0 | 54.0 | 57.8 | 60.6 | 64.5 | 63.8 | 64.8 |
| 70% | 62.8 | 56.6 | 48.7 | 45.4 | 46.0 | 48.6 | 53.4 | 57.0 | 59.7 | 64.2 | 63.3 | 64.2 |
| 80% | 62.6 | 56.2 | 48.2 | 45.0 | 45.8 | 48.3 | 52.4 | 56.5 | 59.3 | 63.5 | 62.8 | 64.0 |
| 90% | 59.2 | 55.6 | 46.9 | 44.6 | 45.4 | 48.0 | 51.9 | 54.9 | 59.0 | 63.1 | 62.5 | 63.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 63.6 | 57.1 | 50.1 | 46.2 | 46.8 | 49.9 | 54.8 | 59.0 | 62.6 | 65.6 | 64.7 | 65.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.7 | 57.0 | 50.6 | 45.6 | 46.0 | 48.6 | 52.8 | 56.6 | 59.9 | 63.8 | 62.8 | 63.7 |
| Above Normal (16%) | 63.2 | 56.7 | 49.9 | 46.3 | 46.5 | 49.0 | 54.2 | 58.3 | 61.9 | 64.3 | 64.3 | 65.0 |
| Below Normal (13%) | 64.1 | 57.3 | 50.2 | 46.6 | 46.7 | 50.0 | 56.1 | 60.3 | 63.8 | 65.1 | 65.3 | 65.8 |
| Dry (24%) | 64.7 | 57.1 | 49.6 | 46.5 | 47.3 | 50.7 | 55.6 | 60.2 | 64.2 | 66.1 | 65.4 | 66.4 |
| Critical (15%) | 65.6 | 57.7 | 49.6 | 46.7 | 48.0 | 52.1 | 57.3 | 61.8 | 65.8 | 70.4 | 67.2 | 67.9 |

### Alternative 3 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 66.5 | 58.4 | 53.0 | 48.2 | 48.6 | 52.2 | 58.0 | 63.2 | 66.1 | 69.9 | 68.1 | 68.5 |
| 20% | 65.3 | 57.9 | 51.9 | 47.3 | 47.7 | 51.4 | 56.9 | 61.9 | 65.0 | 67.2 | 66.6 | 67.5 |
| 30% | 64.4 | 57.7 | 51.1 | 47.0 | 47.5 | 50.6 | 56.0 | 60.6 | 63.9 | 65.8 | 65.7 | 66.6 |
| 40% | 63.8 | 57.4 | 50.6 | 46.7 | 47.0 | 49.9 | 55.1 | 59.4 | 63.2 | 65.2 | 65.3 | 65.8 |
| 50% | 63.4 | 57.1 | 50.3 | 46.2 | 46.7 | 49.4 | 54.6 | 58.4 | 62.6 | 64.6 | 64.5 | 65.4 |
| 60% | 63.1 | 56.8 | 49.4 | 45.7 | 46.3 | 49.0 | 53.9 | 57.8 | 60.9 | 64.4 | 64.0 | 64.9 |
| 70% | 62.7 | 56.3 | 48.9 | 45.5 | 46.0 | 48.7 | 53.4 | 57.0 | 60.1 | 64.1 | 63.2 | 64.6 |
| 80% | 62.5 | 55.9 | 48.1 | 45.1 | 45.8 | 48.3 | 52.4 | 56.5 | 59.5 | 63.7 | 62.7 | 64.1 |
| 90% | 59.1 | 55.4 | 46.7 | 44.5 | 45.5 | 48.0 | 51.9 | 54.9 | 59.0 | 63.1 | 62.2 | 63.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 63.4 | 57.0 | 50.1 | 46.3 | 46.8 | 49.9 | 54.7 | 59.0 | 62.4 | 65.6 | 64.8 | 65.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.7 | 57.1 | 51.3 | 45.7 | 46.1 | 48.6 | 52.8 | 56.6 | 60.0 | 63.9 | 62.9 | 64.1 |
| Above Normal (16%) | 63.2 | 56.4 | 49.7 | 46.5 | 46.6 | 49.0 | 54.2 | 58.3 | 62.1 | 64.1 | 64.3 | 65.1 |
| Below Normal (13%) | 63.6 | 56.6 | 49.6 | 47.0 | 46.9 | 50.0 | 56.0 | 60.1 | 62.5 | 65.2 | 65.0 | 65.6 |
| Dry (24%) | 64.6 | 57.0 | 49.5 | 46.5 | 47.3 | 50.6 | 55.4 | 60.4 | 63.5 | 66.3 | 65.8 | 66.6 |
| Critical (15%) | 65.5 | 57.6 | 49.5 | 46.6 | 48.0 | 52.3 | 57.2 | 61.4 | 66.1 | 70.1 | 67.8 | 68.0 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.1 | 0.0 | 0.0 | **0.4** | **0.0** | **0.1** | **0.0** | **0.1** | -2.1 | **0.3** | **0.8** | **0.5** |
| 20% | -0.3 | 0.0 | **0.2** | **0.1** | 0.0 | -0.2 | -0.1 | -0.1 | -0.9 | -0.4 | -0.4 | -0.1 |
| 30% | -0.3 | -0.1 | 0.0 | **0.1** | **0.1** | -0.1 | 0.0 | 0.0 | -0.9 | **0.1** | **0.2** | **0.1** |
| 40% | **0.2** | 0.0 | -0.2 | -0.1 | **0.1** | **0.0** | -0.1 | 0.0 | **0.1** | **0.1** | **0.3** | 0.0 |
| 50% | **0.1** | -0.1 | **0.1** | 0.0 | **0.0** | **0.1** | **0.0** | 0.0 | **0.7** | -0.1 | **0.0** | **0.1** |
| 60% | 0.0 | -0.1 | **0.1** | 0.0 | **0.0** | **0.0** | -0.1 | 0.0 | **0.3** | -0.1 | **0.1** | **0.1** |
| 70% | -0.1 | -0.3 | **0.1** | **0.1** | 0.0 | **0.0** | **0.0** | **0.0** | **0.4** | -0.1 | 0.0 | **0.3** |
| 80% | -0.1 | -0.3 | -0.1 | **0.1** | **0.0** | **0.0** | 0.0 | **0.0** | **0.2** | **0.1** | 0.0 | **0.1** |
| 90% | -0.2 | -0.2 | -0.2 | -0.1 | **0.1** | **0.0** | 0.0 | 0.0 | **0.0** | 0.0 | -0.3 | **0.3** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | -0.1 | **0.0** | **0.1** | **0.0** | **0.0** | -0.1 | -0.1 | -0.2 | **0.0** | **0.1** | **0.2** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.0** | **0.1** | **0.6** | **0.1** | **0.0** | **0.0** | 0.0 | **0.0** | **0.1** | **0.0** | **0.1** | **0.4** |
| Above Normal (16%) | 0.0 | -0.4 | -0.2 | **0.2** | **0.1** | **0.0** | **0.0** | 0.0 | **0.1** | -0.2 | 0.0 | **0.1** |
| Below Normal (13%) | -0.5 | -0.7 | -0.6 | **0.4** | **0.2** | 0.0 | -0.1 | -0.2 | -1.3 | **0.1** | -0.3 | -0.2 |
| Dry (24%) | -0.1 | -0.1 | -0.1 | 0.0 | 0.0 | -0.1 | -0.1 | **0.1** | -0.7 | **0.2** | **0.3** | **0.1** |
| Critical (15%) | 0.0 | -0.1 | -0.1 | -0.1 | 0.0 | **0.2** | -0.1 | -0.4 | **0.3** | -0.3 | **0.6** | **0.1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 15-4. American River below Nimbus Dam, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 66.6 | 58.4 | 53.0 | 47.8 | 48.5 | 52.1 | 58.0 | 63.1 | 68.1 | 69.6 | 67.3 | 68.1 |
| 20% | 65.6 | 57.9 | 51.7 | 47.2 | 47.7 | 51.6 | 57.0 | 62.0 | 65.9 | 67.6 | 66.9 | 67.6 |
| 30% | 64.7 | 57.7 | 51.2 | 46.9 | 47.3 | 50.7 | 56.0 | 60.6 | 64.8 | 65.7 | 65.5 | 66.4 |
| 40% | 63.6 | 57.5 | 50.7 | 46.8 | 46.9 | 49.9 | 55.2 | 59.5 | 63.1 | 65.1 | 65.0 | 65.8 |
| 50% | 63.3 | 57.2 | 50.2 | 46.3 | 46.7 | 49.4 | 54.6 | 58.5 | 61.8 | 64.7 | 64.5 | 65.3 |
| 60% | 63.1 | 56.9 | 49.3 | 45.7 | 46.3 | 49.0 | 54.0 | 57.8 | 60.6 | 64.5 | 63.8 | 64.8 |
| 70% | 62.8 | 56.6 | 48.7 | 45.4 | 46.0 | 48.6 | 53.4 | 57.0 | 59.7 | 64.2 | 63.3 | 64.2 |
| 80% | 62.6 | 56.2 | 48.2 | 45.0 | 45.8 | 48.3 | 52.4 | 56.5 | 59.3 | 63.5 | 62.8 | 64.0 |
| 90% | 59.2 | 55.6 | 46.9 | 44.6 | 45.4 | 48.0 | 51.9 | 54.9 | 59.0 | 63.1 | 62.5 | 63.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 63.6 | 57.1 | 50.1 | 46.2 | 46.8 | 49.9 | 54.8 | 59.0 | 62.6 | 65.6 | 64.7 | 65.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.7 | 57.0 | 50.6 | 45.6 | 46.0 | 48.6 | 52.8 | 56.6 | 59.9 | 63.8 | 62.8 | 63.7 |
| Above Normal (16%) | 63.2 | 56.7 | 49.9 | 46.3 | 46.5 | 49.0 | 54.2 | 58.3 | 61.9 | 64.3 | 64.3 | 65.0 |
| Below Normal (13%) | 64.1 | 57.3 | 50.2 | 46.6 | 46.7 | 50.0 | 56.1 | 60.3 | 63.8 | 65.1 | 65.3 | 65.8 |
| Dry (24%) | 64.7 | 57.1 | 49.6 | 46.5 | 47.3 | 50.7 | 55.6 | 60.2 | 64.2 | 66.1 | 65.4 | 66.4 |
| Critical (15%) | 65.6 | 57.7 | 49.6 | 46.7 | 48.0 | 52.1 | 57.3 | 61.8 | 65.8 | 70.4 | 67.2 | 67.9 |

### Alternative 4 043019

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 66.1 | 58.3 | 53.1 | 48.2 | 48.7 | 52.3 | 57.3 | 63.1 | 67.2 | 69.6 | 67.3 | 68.0 |
| 20% | 65.4 | 57.9 | 52.0 | 47.5 | 47.9 | 51.3 | 56.7 | 61.7 | 66.3 | 66.7 | 66.2 | 67.1 |
| 30% | 64.6 | 57.8 | 51.5 | 47.1 | 47.5 | 50.6 | 55.9 | 60.4 | 65.2 | 66.1 | 65.5 | 66.6 |
| 40% | 63.6 | 57.5 | 51.0 | 46.8 | 47.0 | 50.0 | 55.1 | 59.5 | 63.9 | 65.8 | 64.9 | 65.9 |
| 50% | 63.2 | 57.1 | 50.4 | 46.4 | 46.7 | 49.5 | 54.6 | 58.5 | 63.1 | 65.1 | 64.5 | 65.4 |
| 60% | 63.0 | 56.9 | 49.7 | 46.0 | 46.4 | 49.0 | 54.1 | 57.8 | 62.2 | 64.5 | 64.1 | 65.0 |
| 70% | 62.7 | 56.6 | 49.2 | 45.7 | 46.1 | 48.7 | 53.3 | 57.1 | 61.4 | 64.3 | 63.8 | 64.7 |
| 80% | 62.5 | 56.3 | 48.7 | 45.3 | 45.8 | 48.3 | 52.4 | 56.8 | 60.0 | 64.0 | 63.4 | 64.4 |
| 90% | 59.2 | 55.7 | 47.5 | 44.7 | 45.5 | 48.0 | 51.7 | 54.9 | 59.0 | 63.0 | 62.5 | 63.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 63.4 | 57.1 | 50.4 | 46.5 | 46.9 | 49.8 | 54.6 | 59.0 | 63.1 | 65.6 | 64.7 | 65.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.6 | 57.1 | 51.2 | 45.7 | 46.1 | 48.6 | 52.8 | 56.6 | 60.7 | 64.2 | 63.0 | 64.0 |
| Above Normal (16%) | 63.3 | 56.7 | 50.1 | 46.7 | 46.7 | 49.0 | 54.2 | 58.3 | 62.6 | 64.3 | 64.4 | 65.2 |
| Below Normal (13%) | 63.9 | 57.2 | 50.3 | 47.1 | 46.9 | 49.9 | 55.6 | 60.9 | 63.6 | 65.5 | 64.8 | 66.0 |
| Dry (24%) | 64.3 | 57.0 | 49.8 | 46.6 | 47.3 | 50.7 | 55.3 | 60.4 | 64.8 | 66.3 | 65.3 | 66.5 |
| Critical (15%) | 65.4 | 57.4 | 49.8 | 47.1 | 48.3 | 52.0 | 56.5 | 61.0 | 65.8 | 69.3 | 67.5 | 67.4 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.6 | -0.1 | **0.1** | **0.4** | **0.2** | **0.2** | -0.7 | **0.0** | -0.9 | **0.0** | 0.0 | -0.1 |
| 20% | -0.2 | **0.0** | **0.3** | **0.3** | **0.2** | -0.3 | -0.4 | -0.3 | **0.4** | -0.9 | -0.8 | -0.5 |
| 30% | 0.0 | **0.0** | **0.4** | **0.2** | **0.2** | -0.2 | -0.1 | -0.2 | **0.4** | **0.4** | 0.0 | **0.1** |
| 40% | 0.0 | **0.0** | **0.3** | **0.0** | **0.1** | **0.1** | -0.2 | **0.0** | **0.8** | **0.7** | -0.1 | **0.0** |
| 50% | -0.1 | 0.0 | **0.2** | **0.1** | **0.0** | **0.1** | **0.0** | **0.1** | **1.2** | **0.4** | **0.0** | **0.1** |
| 60% | -0.1 | **0.0** | **0.4** | **0.2** | **0.1** | **0.0** | **0.0** | 0.0 | **1.6** | **0.0** | **0.2** | **0.3** |
| 70% | -0.1 | 0.0 | **0.4** | **0.3** | **0.1** | **0.1** | -0.1 | **0.2** | **1.6** | **0.0** | **0.6** | **0.5** |
| 80% | -0.1 | **0.1** | **0.5** | **0.3** | **0.1** | **0.0** | **0.0** | **0.3** | **0.8** | **0.4** | **0.6** | **0.4** |
| 90% | 0.0 | **0.1** | **0.6** | **0.1** | **0.1** | **0.0** | -0.2 | **0.0** | **0.0** | -0.1 | -0.1 | **0.4** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.2 | 0.0 | **0.3** | **0.2** | **0.1** | 0.0 | -0.2 | 0.0 | **0.5** | **0.0** | **0.0** | **0.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.1 | **0.1** | **0.6** | **0.2** | **0.0** | **0.0** | **0.0** | **0.0** | **0.8** | **0.3** | **0.2** | **0.3** |
| Above Normal (16%) | **0.1** | **0.0** | **0.2** | **0.4** | **0.1** | **0.0** | **0.0** | **0.0** | **0.7** | 0.0 | **0.1** | **0.2** |
| Below Normal (13%) | -0.2 | -0.1 | **0.1** | **0.5** | **0.2** | -0.1 | -0.4 | **0.6** | -0.1 | **0.4** | -0.5 | **0.2** |
| Dry (24%) | -0.3 | -0.1 | **0.2** | **0.0** | **0.1** | 0.0 | -0.3 | **0.1** | **0.6** | **0.2** | -0.1 | **0.1** |
| Critical (15%) | -0.1 | -0.2 | **0.3** | **0.4** | **0.3** | -0.1 | -0.8 | -0.8 | **0.0** | -1.1 | **0.3** | -0.5 |

a Based on the 82-year simulation period.

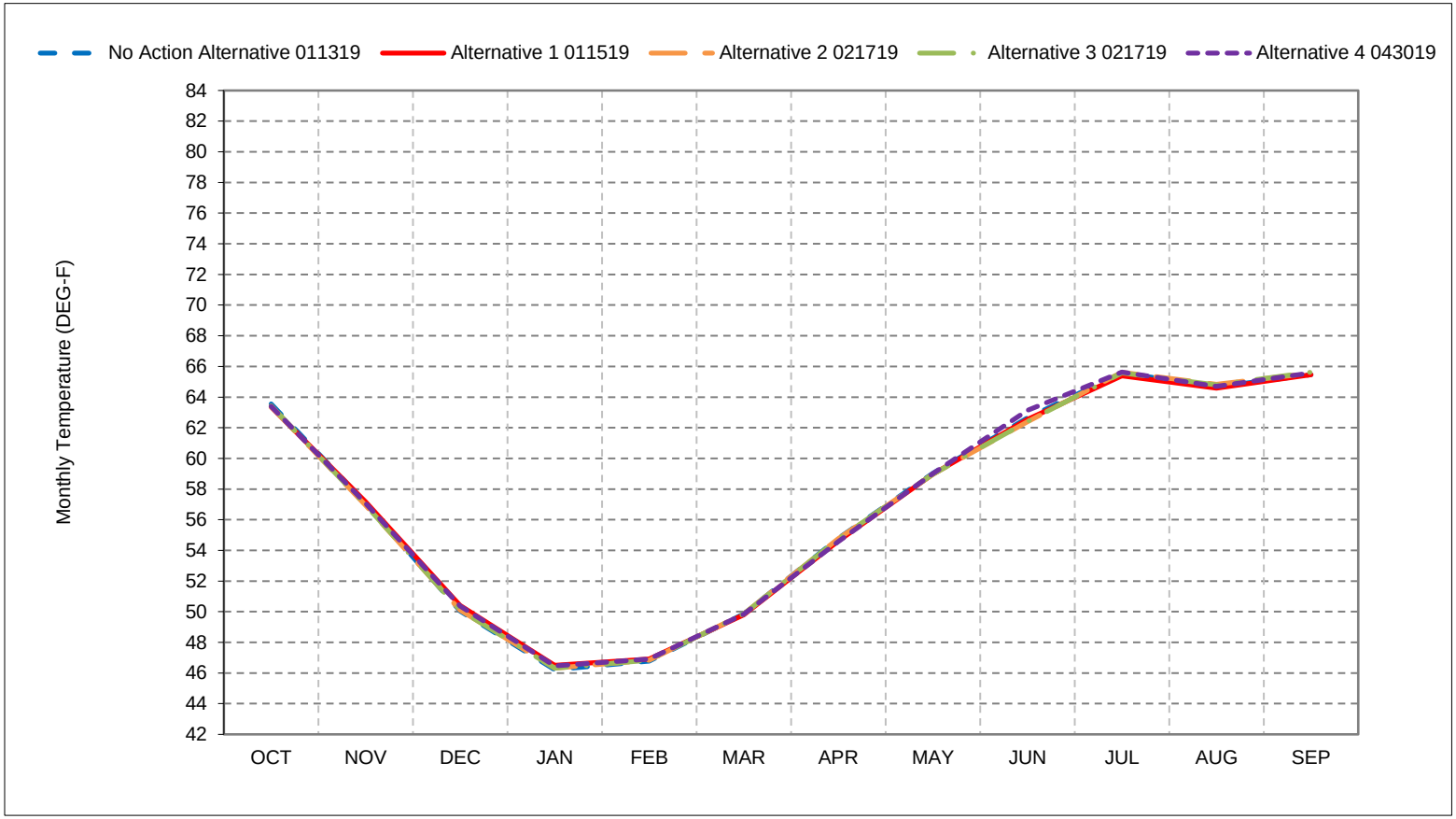
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

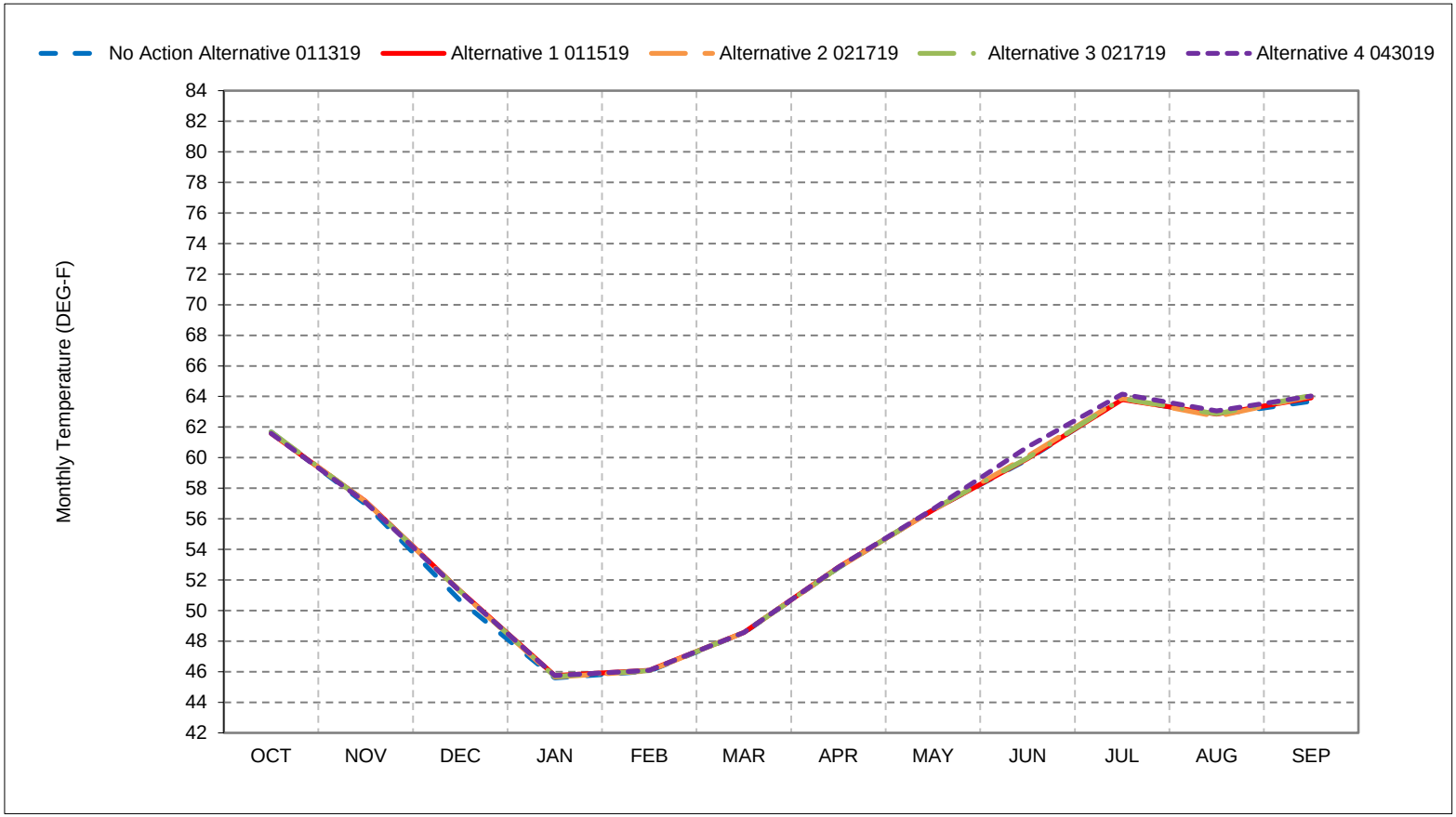
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-1. American River below Nimbus Dam, Long-Term Average Temperature



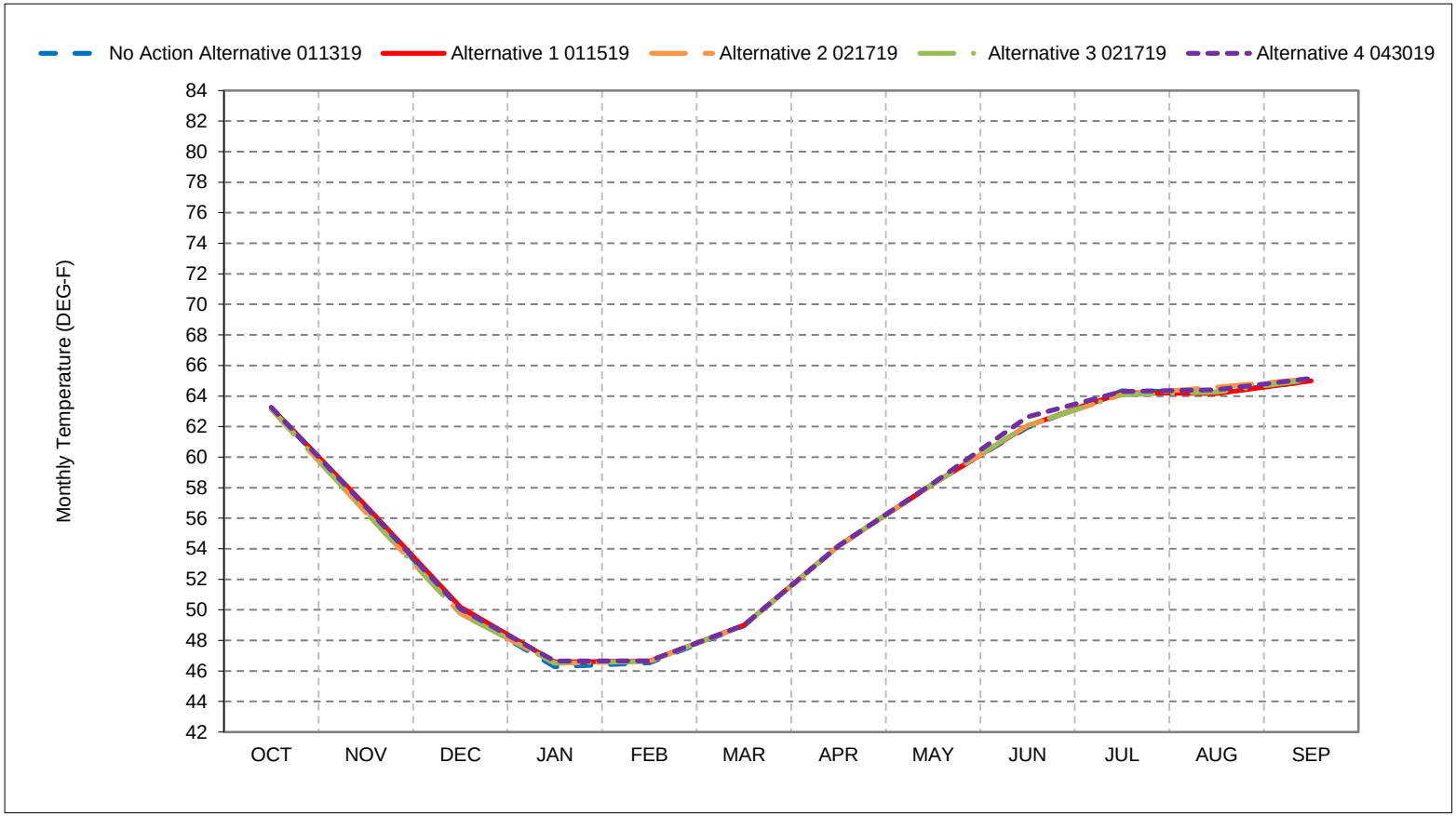

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-2. American River below Nimbus Dam, Wet Year Average Temperature



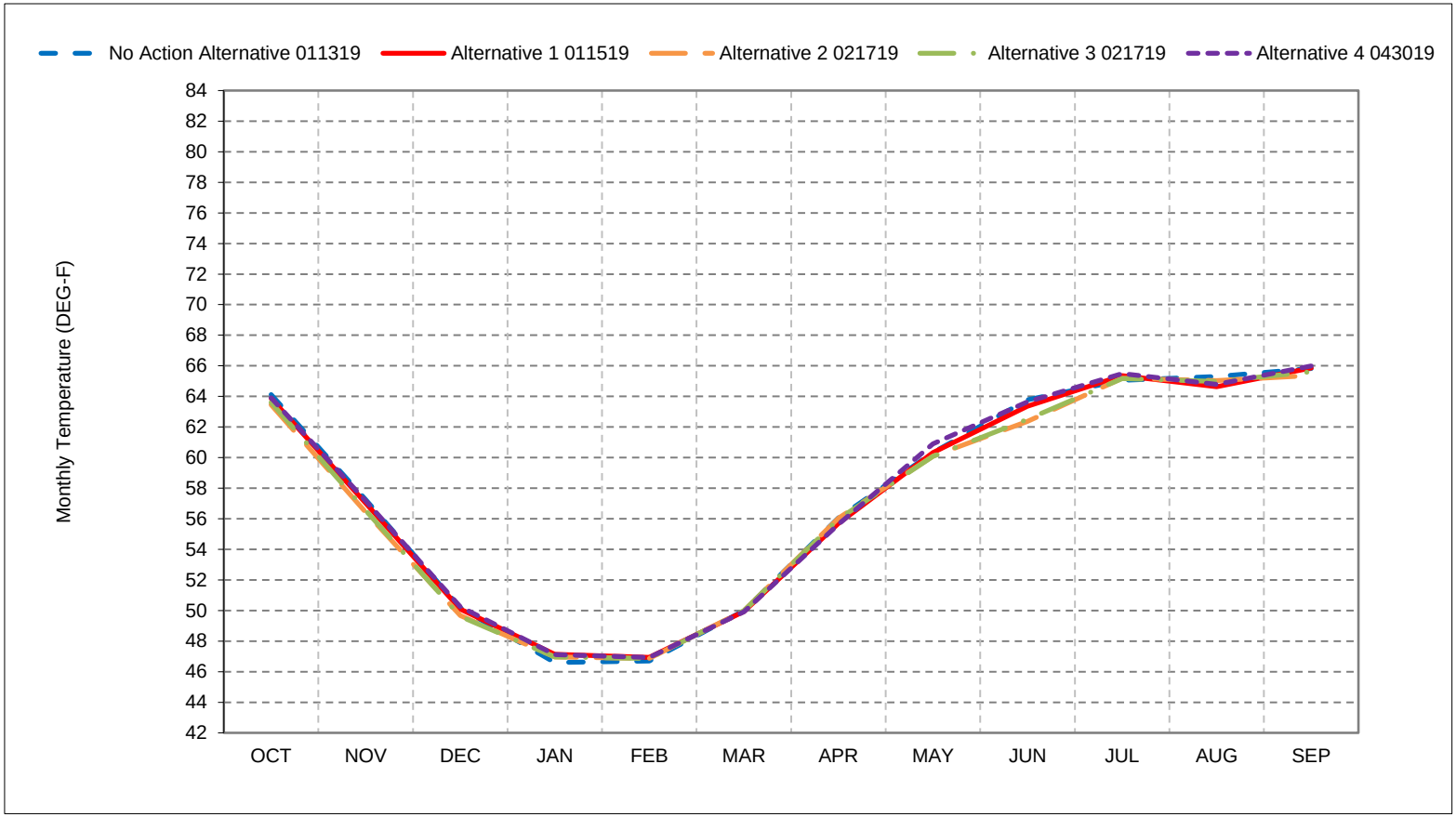

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-3. American River below Nimbus Dam, Above Normal Year Average Temperature



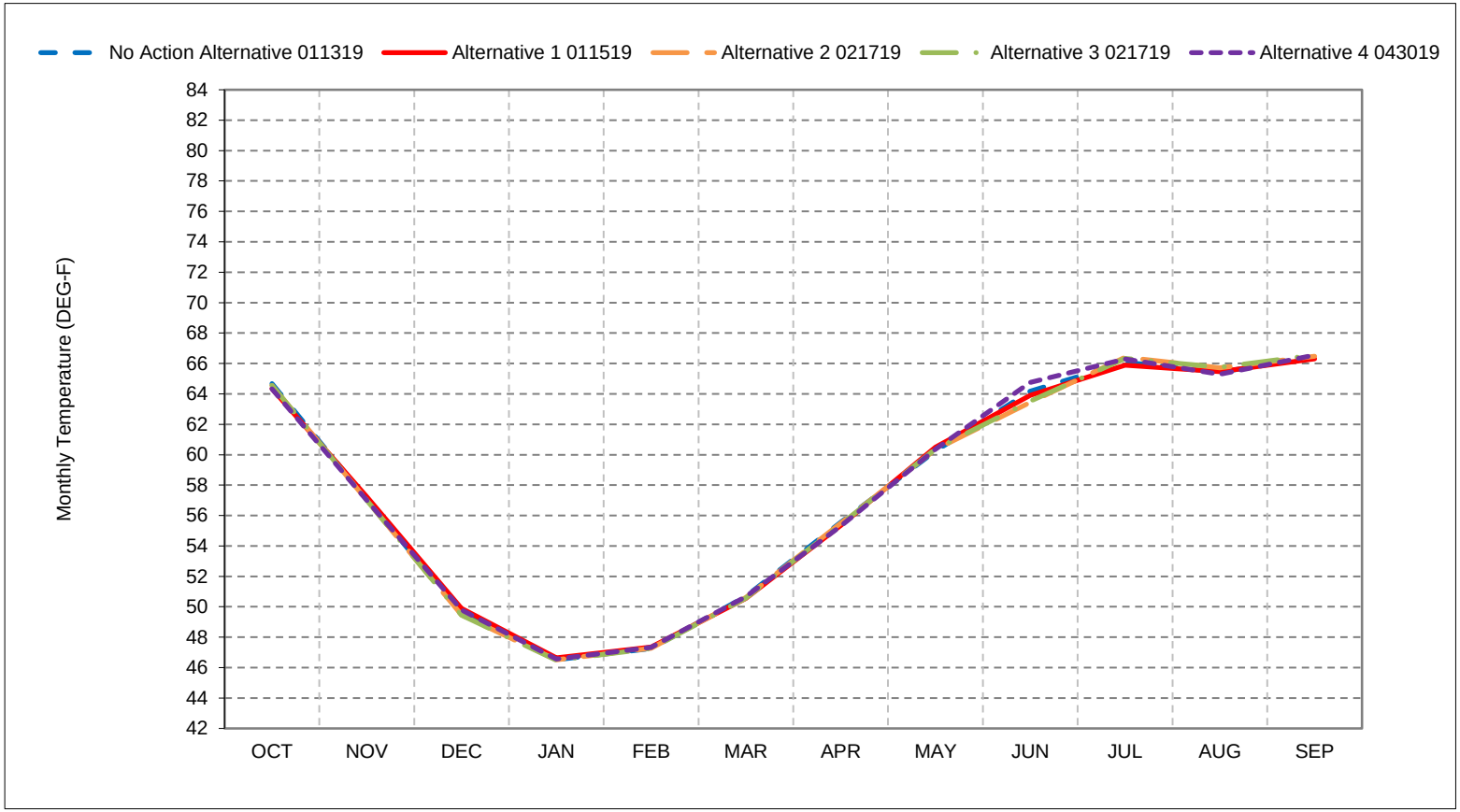

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-4. American River below Nimbus Dam, Below Normal Year Average Temperature



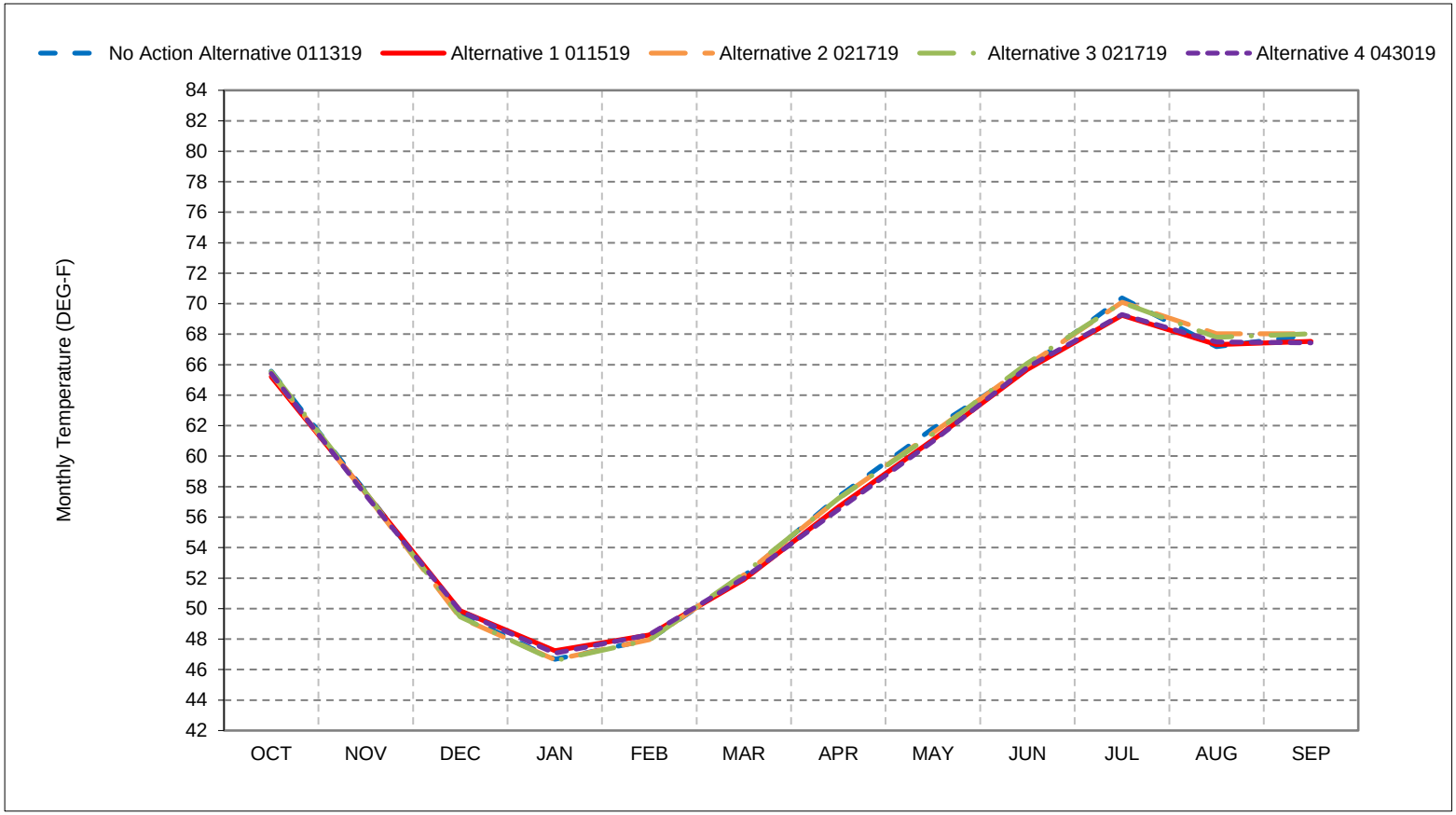

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-5. American River below Nimbus Dam, Dry Year Average Temperature



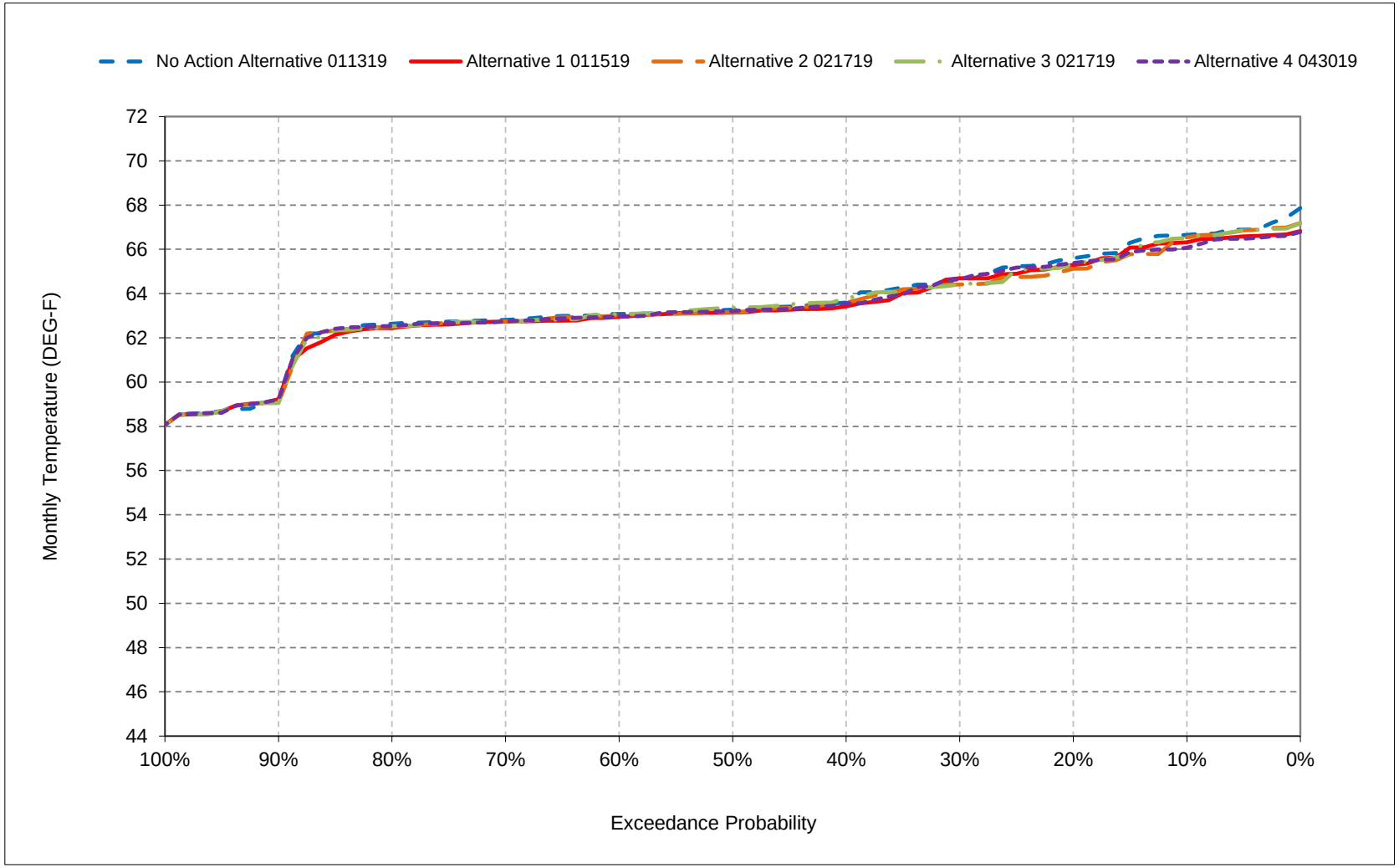

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-6. American River below Nimbus Dam, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

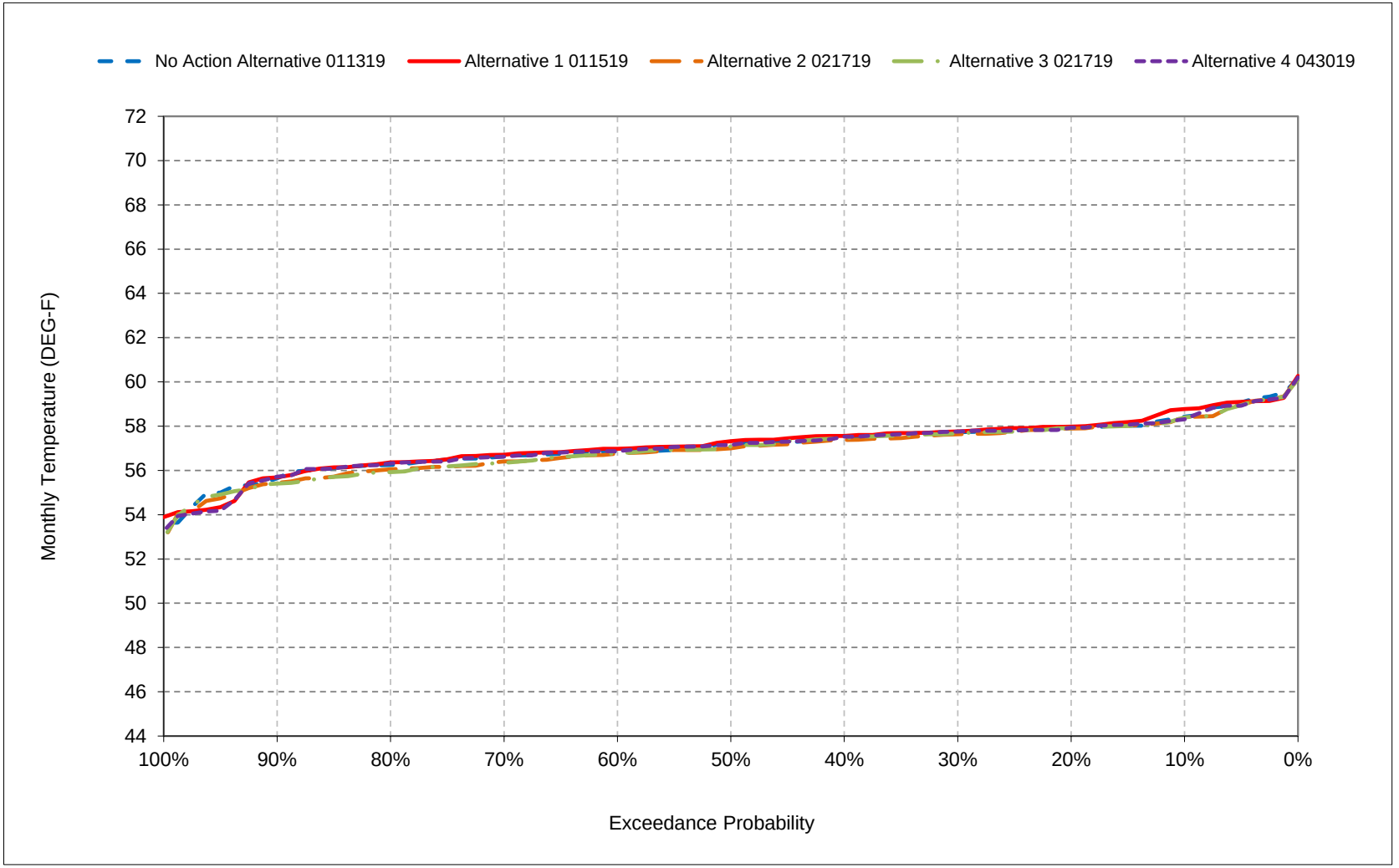
**Figure 15-7. American River below Nimbus Dam, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

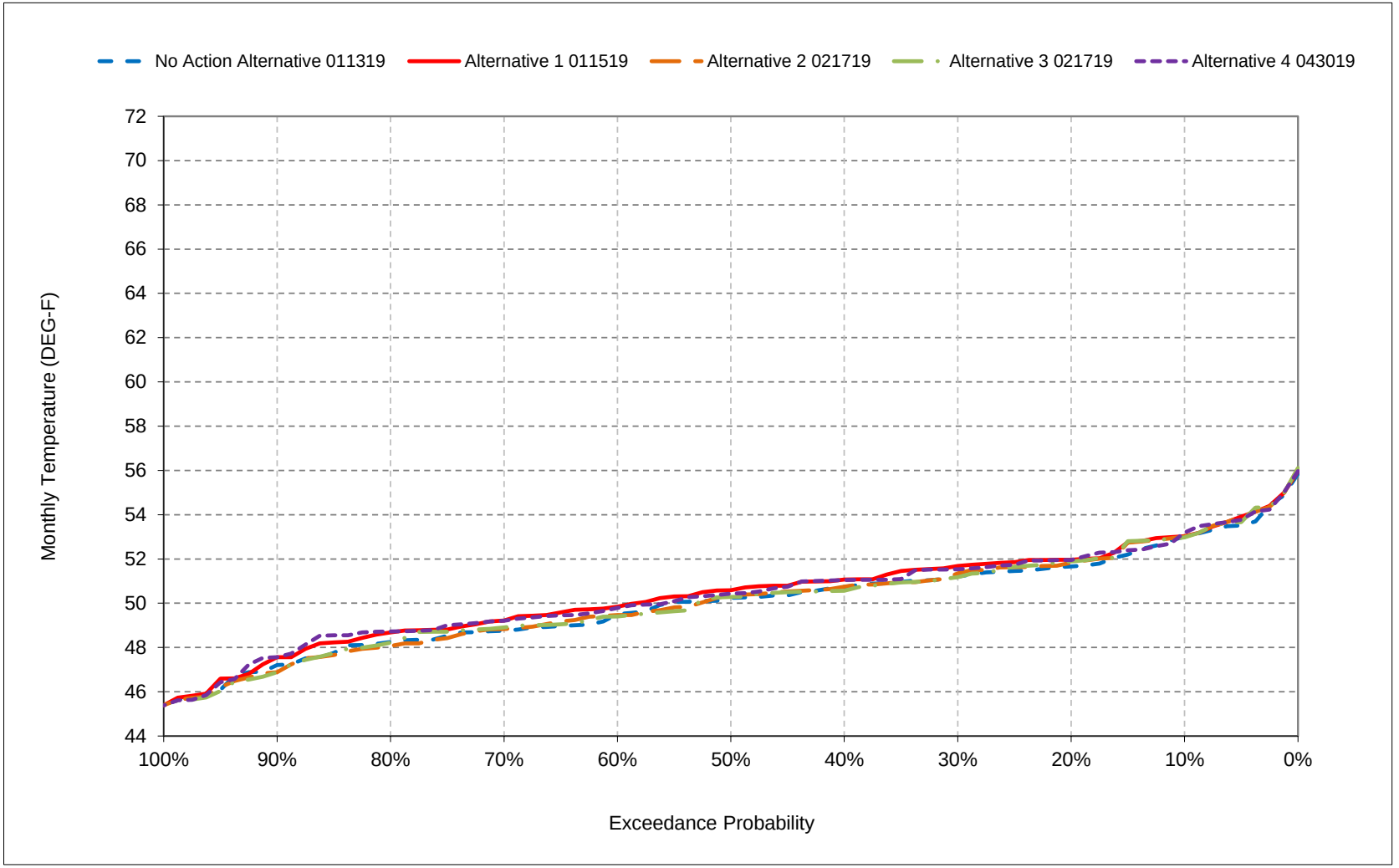
**Figure 15-8. American River below Nimbus Dam, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

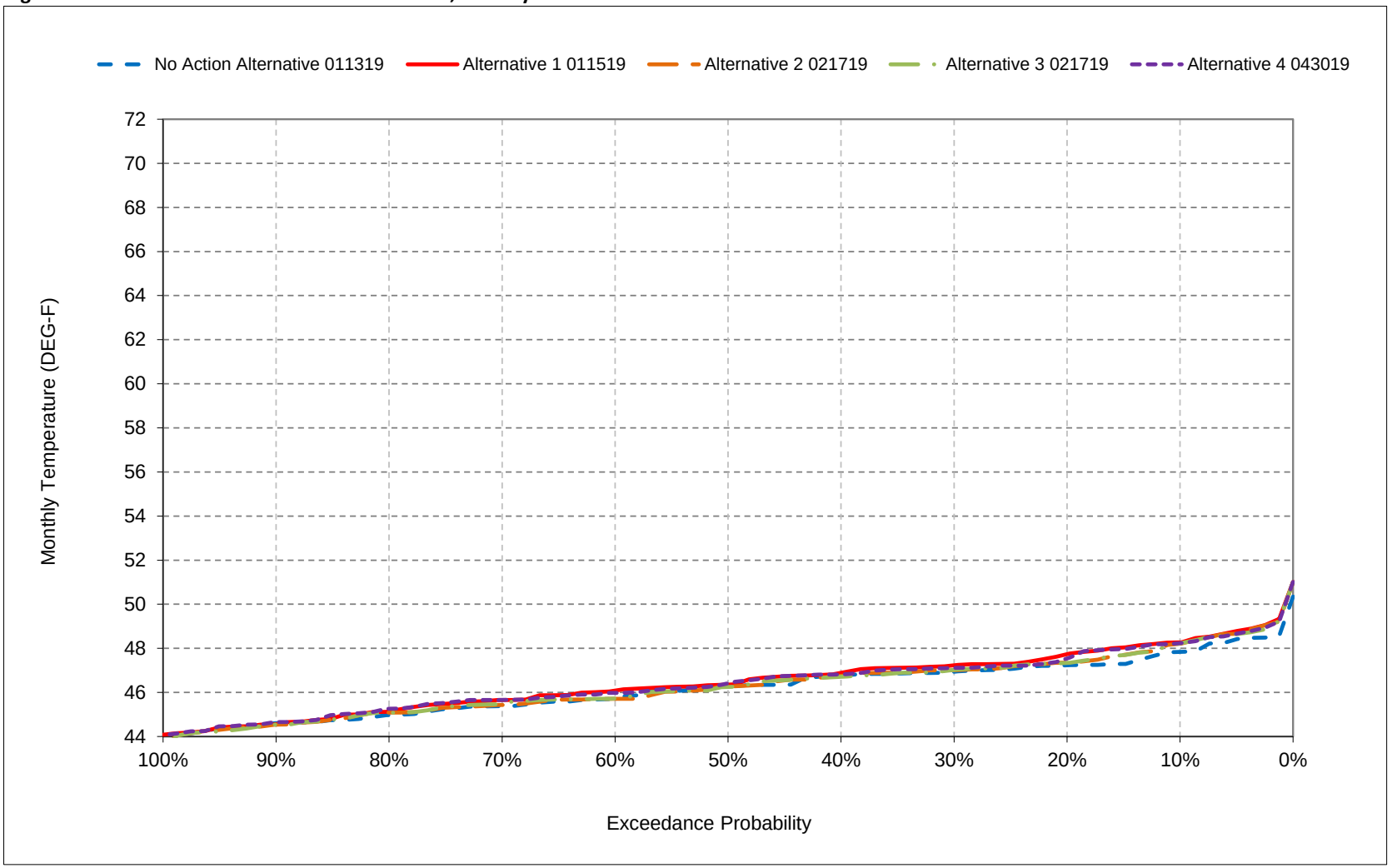
**Figure 15-9. American River below Nimbus Dam, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

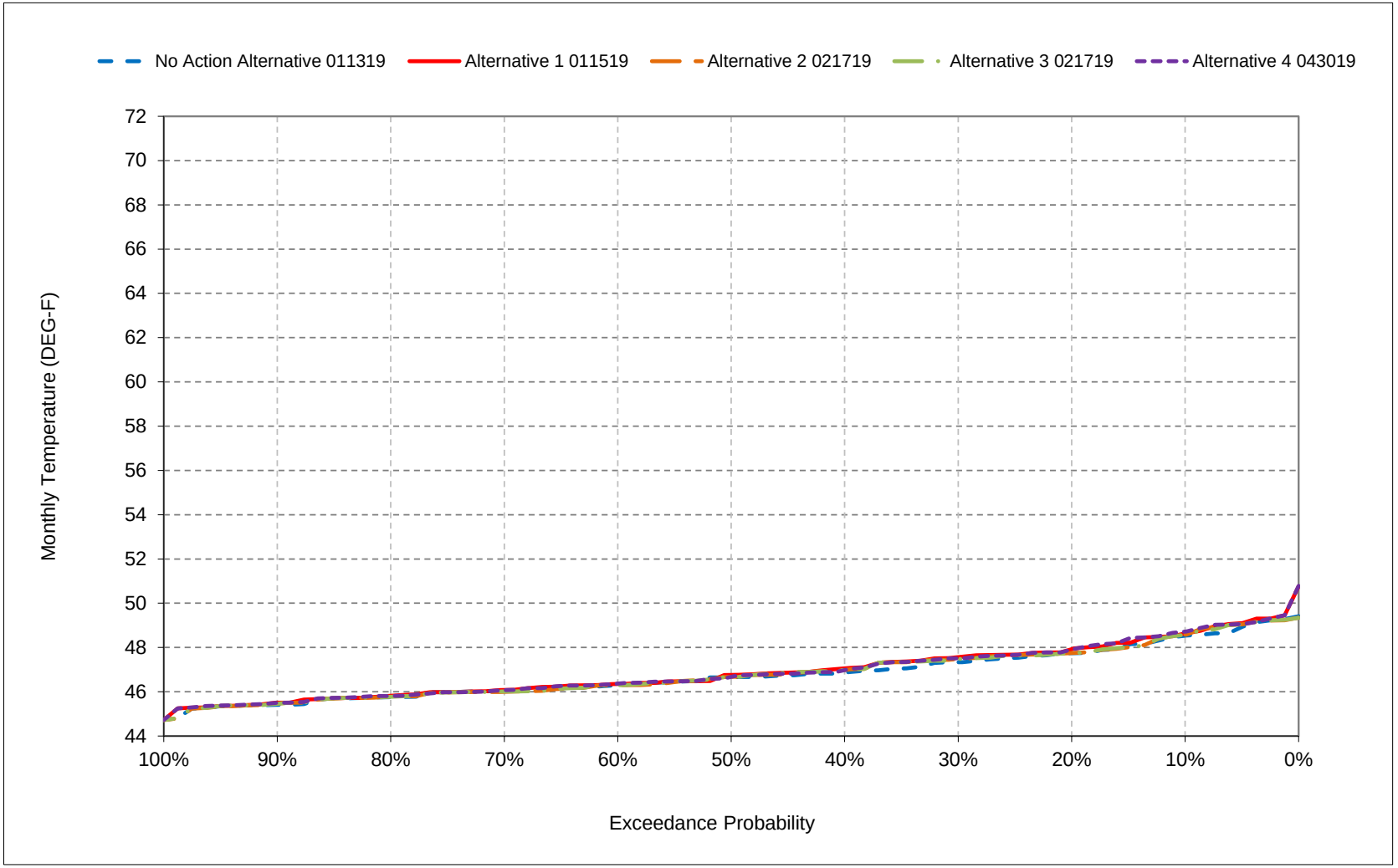
**Figure 15-10. American River below Nimbus Dam, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

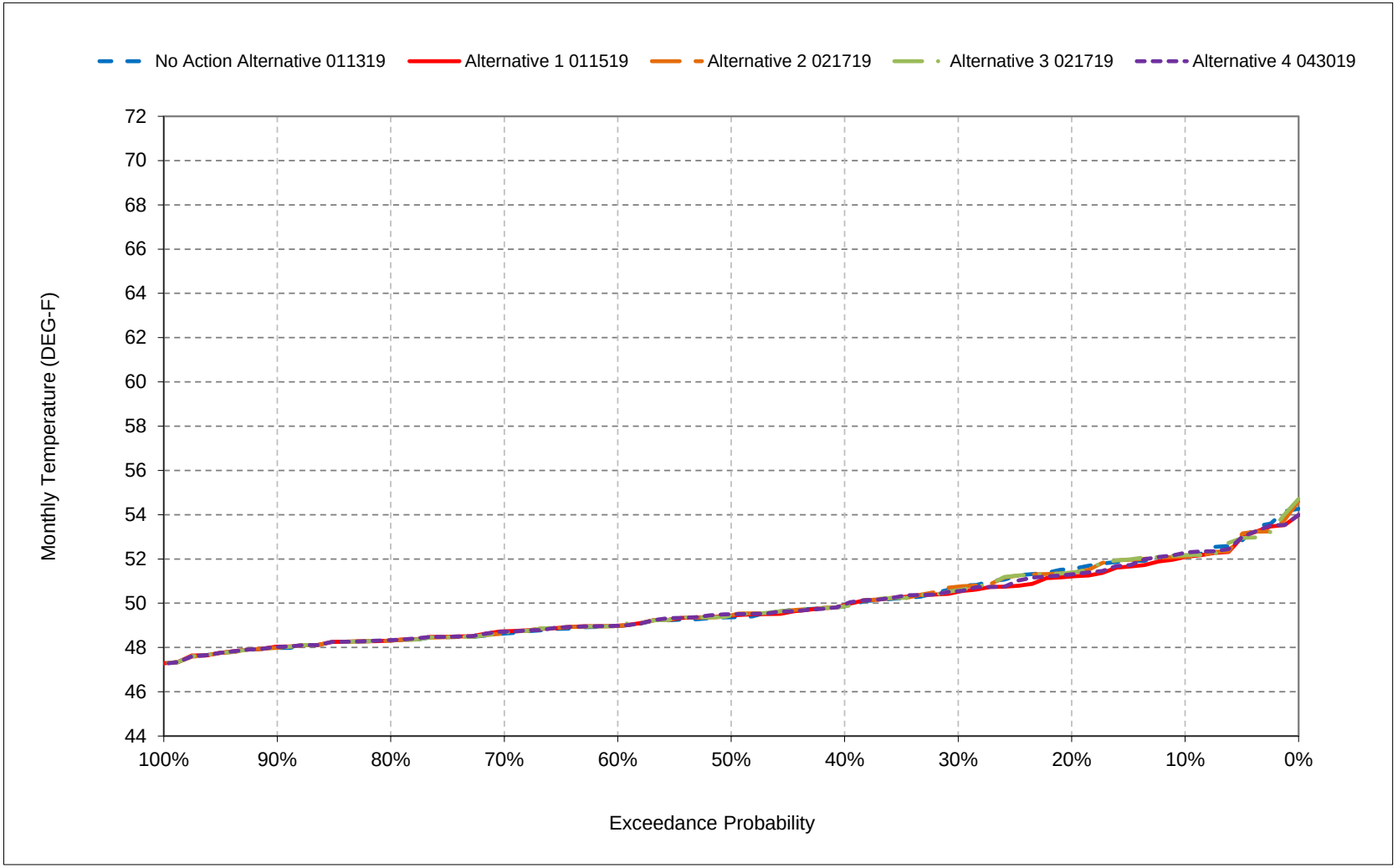
**Figure 15-11. American River below Nimbus Dam, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

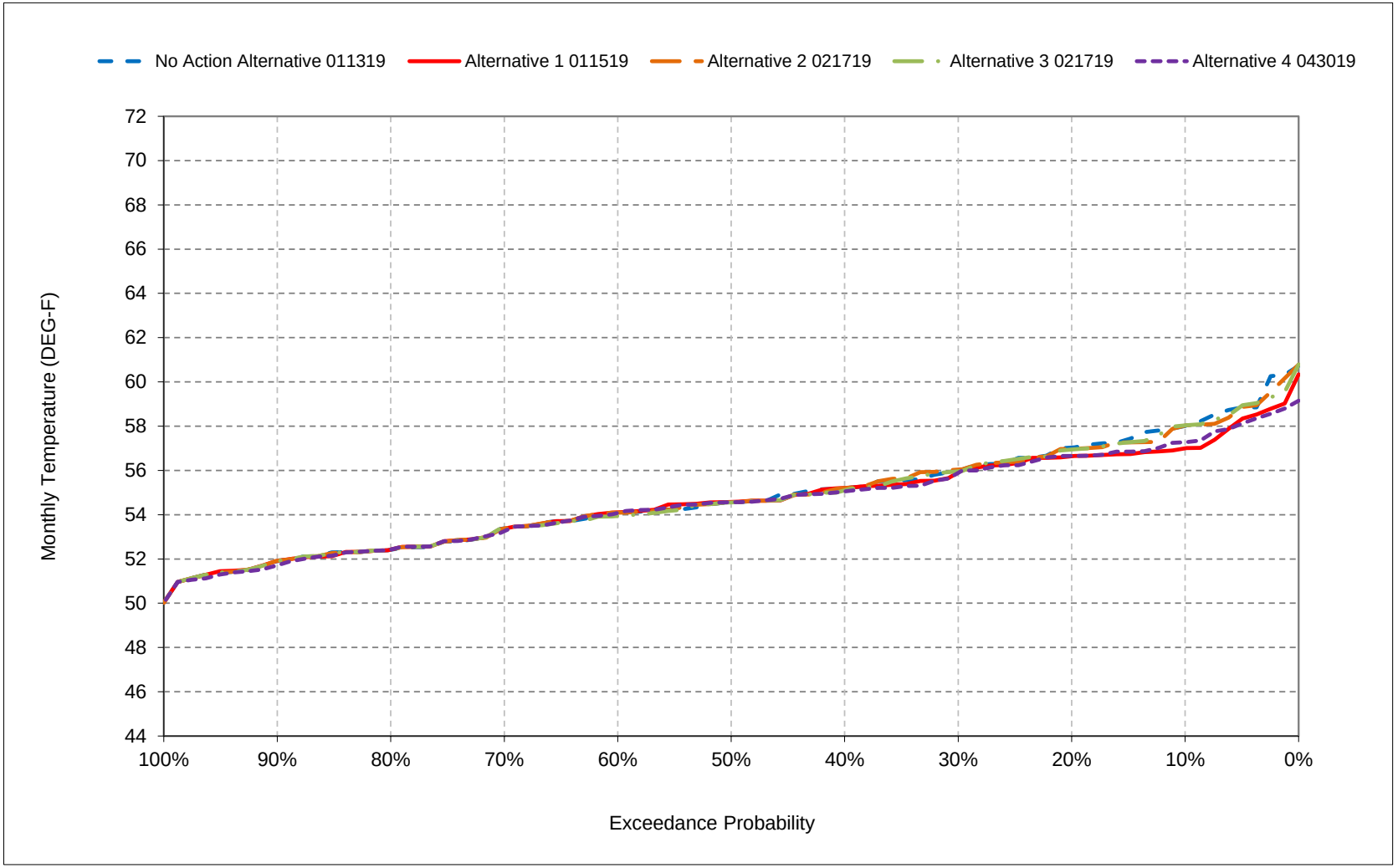
**Figure 15-12. American River below Nimbus Dam, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

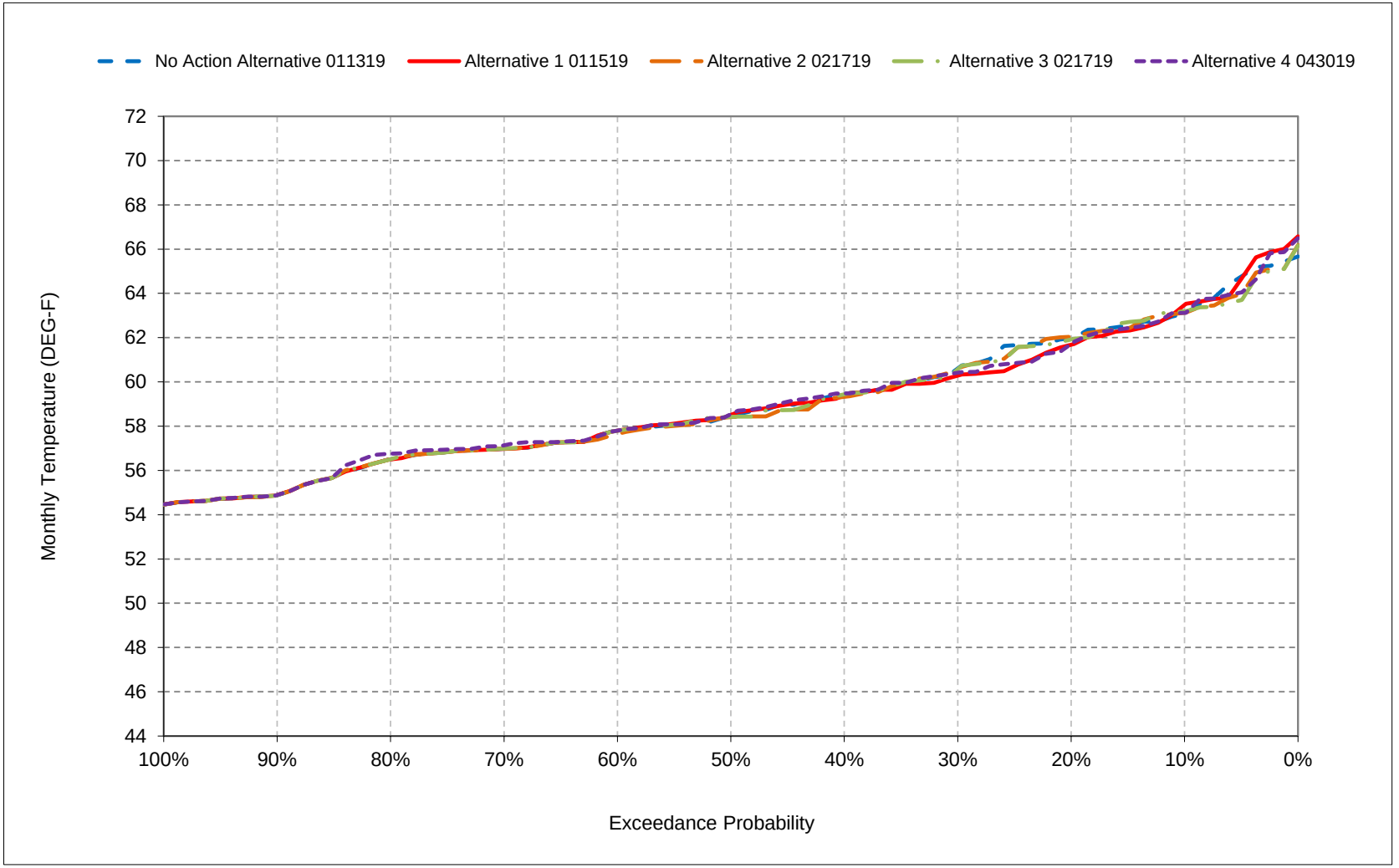
**Figure 15-13. American River below Nimbus Dam, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

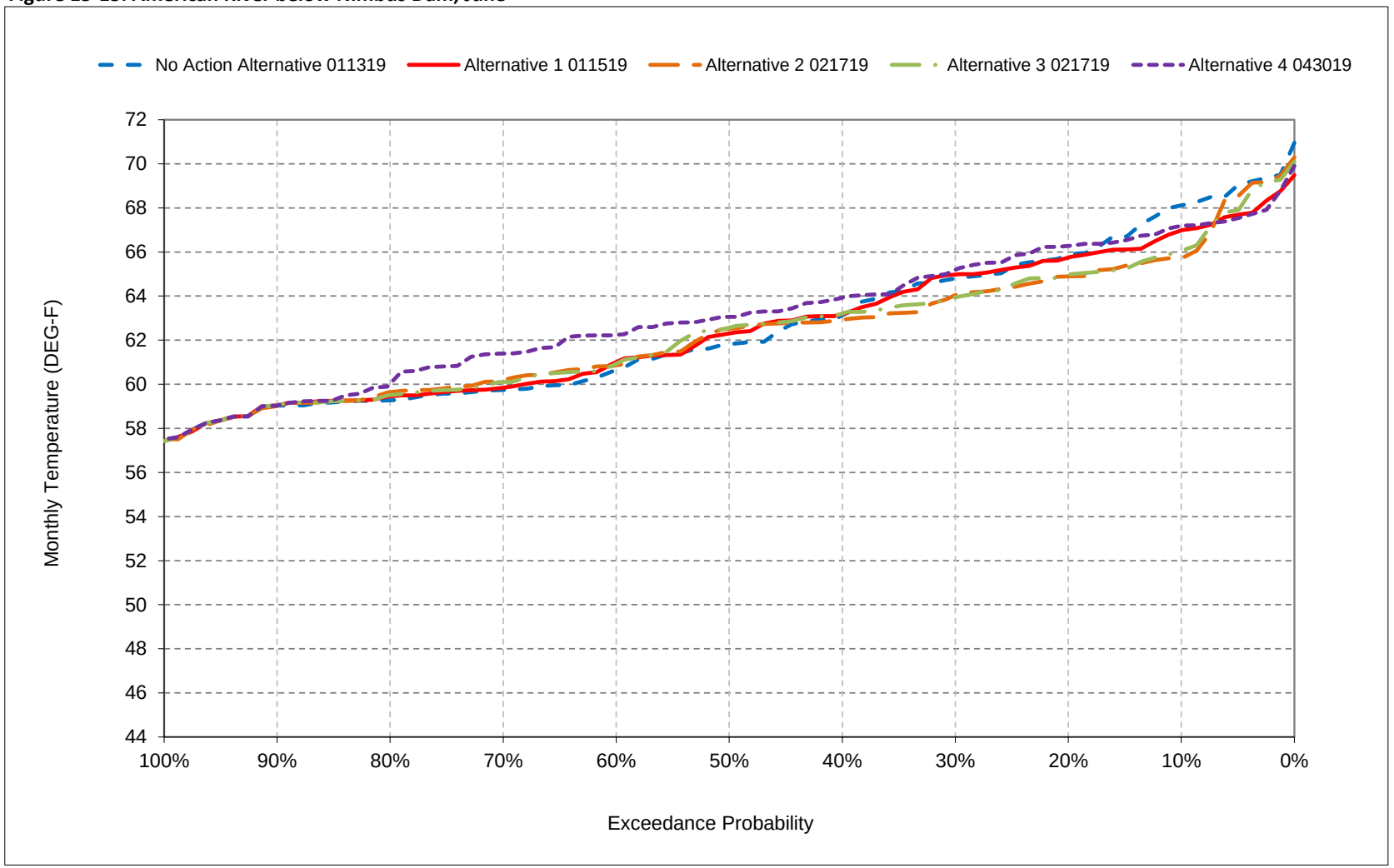
**Figure 15-14. American River below Nimbus Dam, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

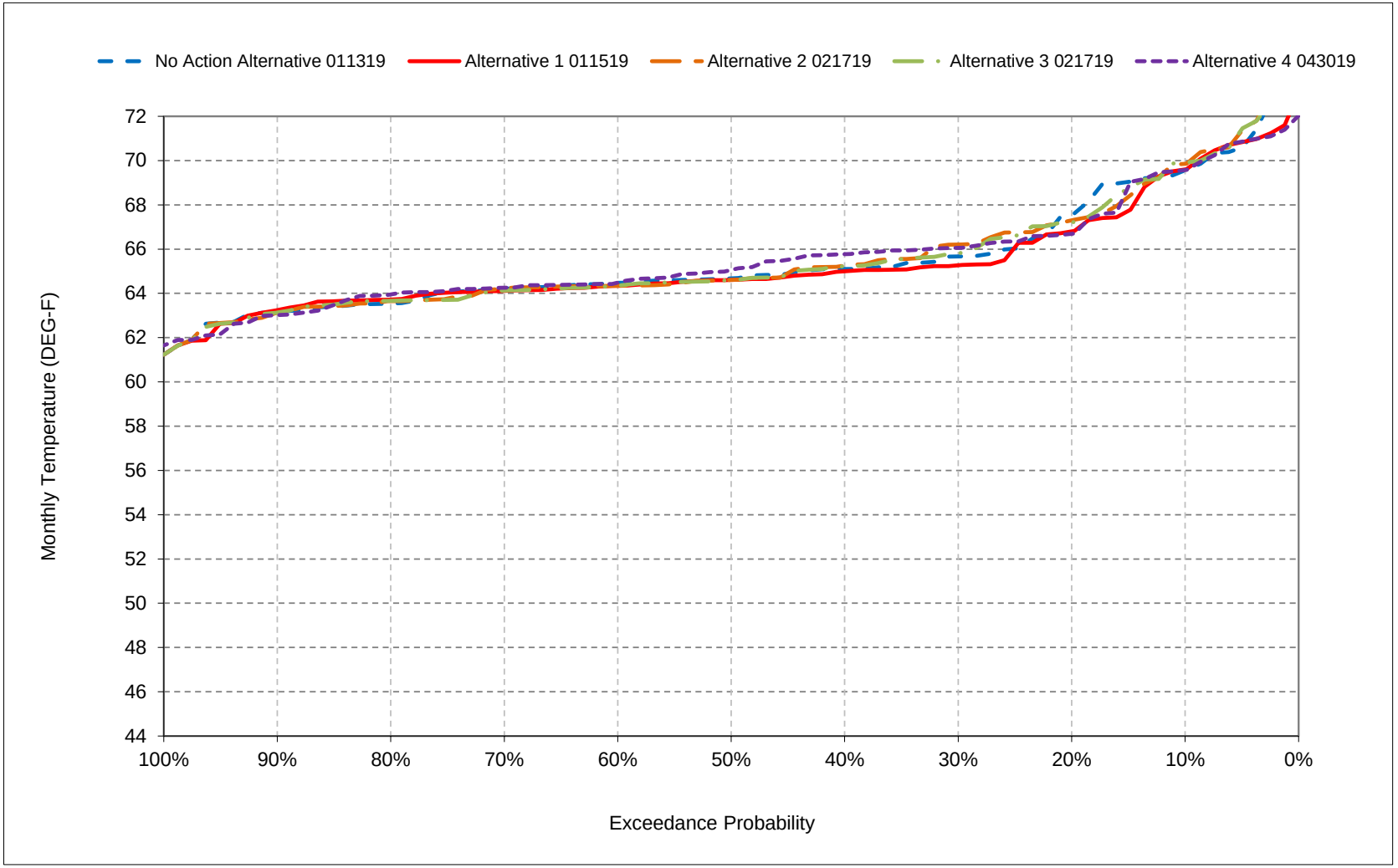
**Figure 15-15. American River below Nimbus Dam, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

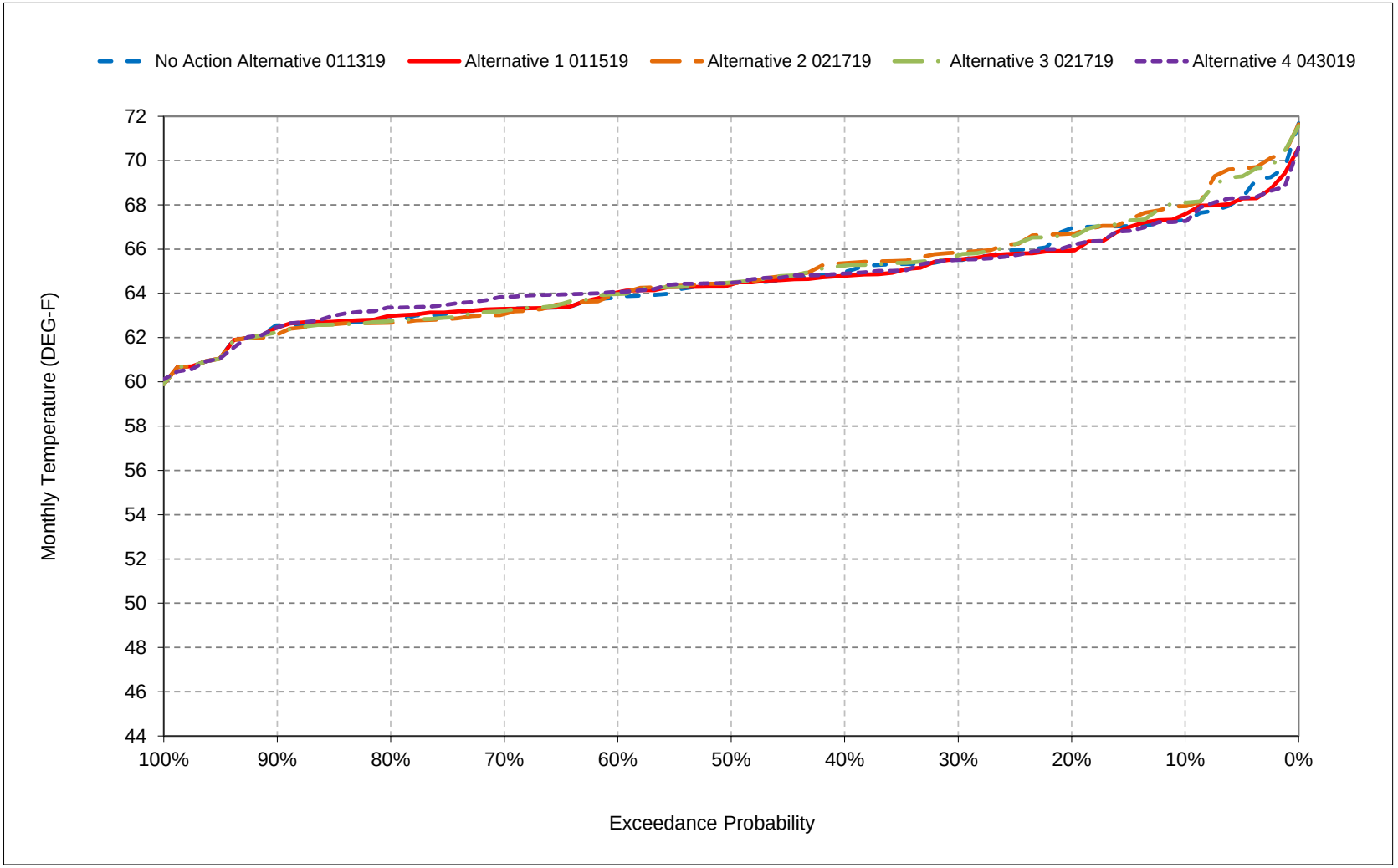
**Figure 15-16. American River below Nimbus Dam, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

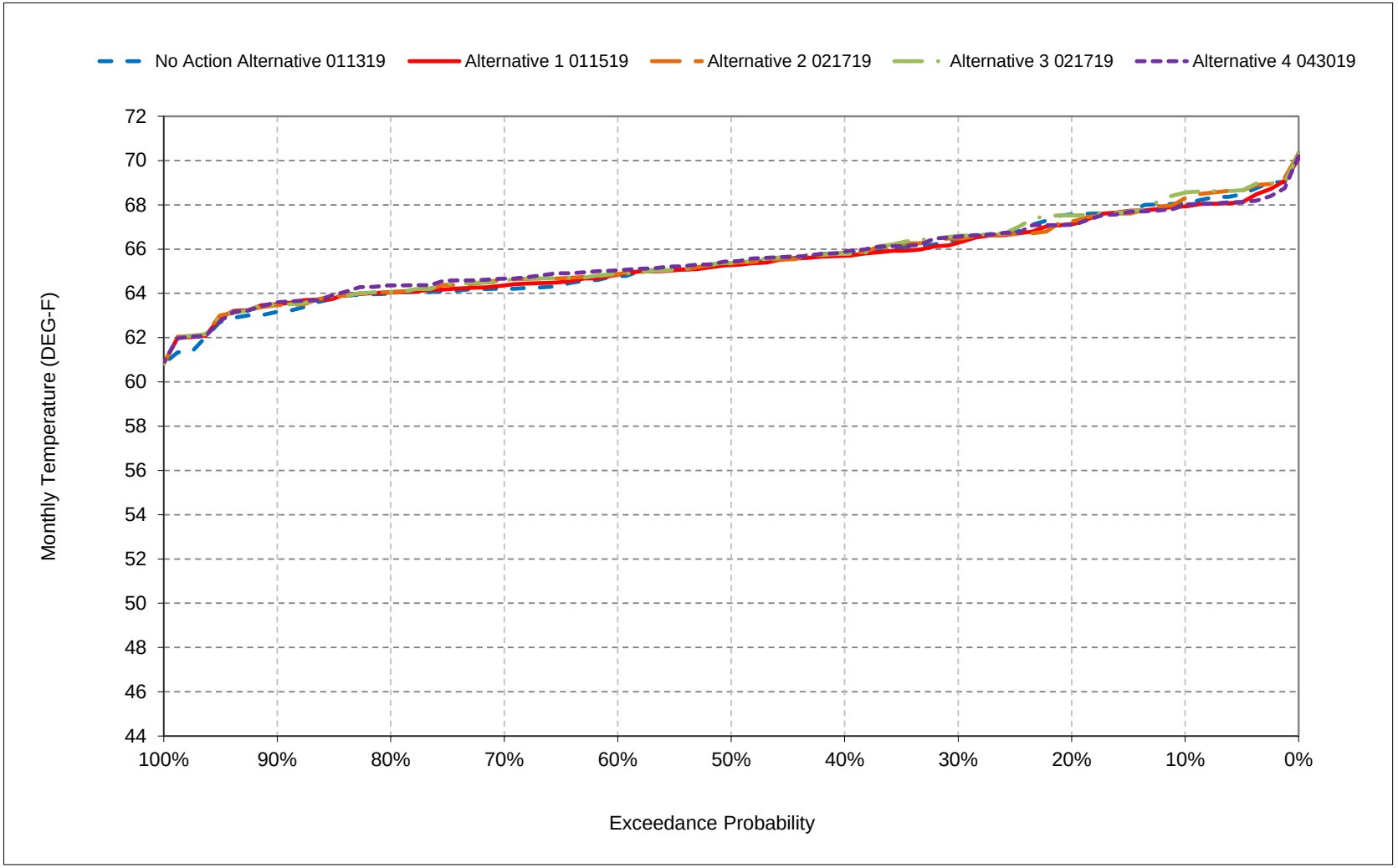
**Figure 15-17. American River below Nimbus Dam, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 15-18. American River below Nimbus Dam, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 16-1. American River at Watt Avenue, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67.3 | 58.4 | 52.2 | 48.3 | 49.9 | 56.2 | 62.7 | 68.0 | 73.9 | 74.8 | 73.2 | 71.4 |
| 20% | 65.9 | 58.0 | 51.5 | 47.8 | 49.5 | 55.0 | 60.6 | 66.8 | 70.6 | 71.0 | 72.0 | 70.2 |
| 30% | 65.0 | 57.7 | 50.8 | 47.3 | 48.6 | 53.5 | 59.1 | 65.3 | 68.9 | 69.5 | 69.7 | 69.0 |
| 40% | 64.5 | 57.3 | 50.4 | 47.1 | 48.2 | 51.9 | 57.8 | 63.9 | 67.1 | 68.6 | 69.2 | 68.3 |
| 50% | 64.1 | 57.1 | 50.1 | 46.8 | 47.7 | 51.3 | 57.0 | 62.4 | 66.1 | 68.2 | 68.7 | 67.8 |
| 60% | 63.7 | 56.8 | 49.2 | 46.4 | 47.2 | 50.4 | 56.5 | 61.1 | 64.6 | 67.7 | 67.9 | 66.7 |
| 70% | 63.3 | 56.5 | 48.6 | 45.8 | 46.9 | 50.0 | 55.0 | 59.8 | 63.7 | 67.5 | 67.3 | 66.3 |
| 80% | 63.0 | 56.2 | 48.0 | 45.4 | 46.5 | 49.7 | 54.2 | 59.1 | 63.1 | 67.0 | 66.8 | 66.0 |
| 90% | 61.1 | 55.8 | 47.3 | 44.9 | 46.1 | 49.2 | 53.4 | 57.1 | 61.9 | 66.4 | 65.9 | 65.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.2 | 57.1 | 49.9 | 46.7 | 48.0 | 52.0 | 57.5 | 62.7 | 66.8 | 69.5 | 69.1 | 68.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 62.5 | 57.0 | 50.4 | 45.9 | 46.7 | 49.9 | 54.7 | 59.3 | 63.3 | 67.5 | 66.8 | 65.8 |
| Above Normal (16%) | 63.9 | 56.6 | 49.7 | 46.7 | 47.5 | 50.4 | 56.4 | 62.0 | 66.0 | 67.2 | 68.4 | 67.3 |
| Below Normal (13%) | 64.6 | 57.2 | 49.9 | 47.0 | 47.8 | 52.6 | 59.2 | 64.0 | 68.2 | 68.2 | 70.0 | 68.7 |
| Dry (24%) | 65.2 | 57.0 | 49.4 | 47.1 | 48.7 | 53.1 | 58.7 | 64.4 | 68.5 | 70.2 | 69.9 | 69.2 |
| Critical (15%) | 66.2 | 57.7 | 49.5 | 47.3 | 50.5 | 55.7 | 61.4 | 66.7 | 71.0 | 76.4 | 72.7 | 71.0 |

### Alternative 1 011519

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67.2 | 58.4 | 52.4 | 48.7 | 50.4 | 55.2 | 61.3 | 67.6 | 72.8 | 74.6 | 73.2 | 71.1 |
| 20% | 65.8 | 58.1 | 51.8 | 48.0 | 49.4 | 53.9 | 60.1 | 66.3 | 71.2 | 70.5 | 70.2 | 69.4 |
| 30% | 64.9 | 57.7 | 51.3 | 47.6 | 48.7 | 53.1 | 59.2 | 65.2 | 68.7 | 69.5 | 69.6 | 68.7 |
| 40% | 64.5 | 57.4 | 50.6 | 47.3 | 48.1 | 51.9 | 58.2 | 64.2 | 67.1 | 68.7 | 69.0 | 68.2 |
| 50% | 63.9 | 57.2 | 50.3 | 46.7 | 47.7 | 51.2 | 57.2 | 62.5 | 66.1 | 68.3 | 68.5 | 67.6 |
| 60% | 63.6 | 56.9 | 49.6 | 46.5 | 47.2 | 50.5 | 56.5 | 61.0 | 64.7 | 67.9 | 67.8 | 67.3 |
| 70% | 63.3 | 56.8 | 49.1 | 46.2 | 46.9 | 50.0 | 55.1 | 59.8 | 63.9 | 67.6 | 67.2 | 66.9 |
| 80% | 62.8 | 56.1 | 48.5 | 45.6 | 46.4 | 49.7 | 54.1 | 59.1 | 62.9 | 67.2 | 66.6 | 66.5 |
| 90% | 61.1 | 55.7 | 47.3 | 45.0 | 46.2 | 49.2 | 53.4 | 57.1 | 62.0 | 66.5 | 65.9 | 66.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.1 | 57.1 | 50.1 | 46.9 | 48.0 | 51.7 | 57.3 | 62.6 | 66.6 | 69.4 | 68.9 | 68.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 62.5 | 57.2 | 51.0 | 46.0 | 46.8 | 49.9 | 54.7 | 59.4 | 63.2 | 67.6 | 66.8 | 66.6 |
| Above Normal (16%) | 63.9 | 56.7 | 50.0 | 47.0 | 47.5 | 50.4 | 56.4 | 62.0 | 65.9 | 67.2 | 68.2 | 67.4 |
| Below Normal (13%) | 64.5 | 57.0 | 49.8 | 47.4 | 47.9 | 52.2 | 58.8 | 63.8 | 67.6 | 68.5 | 68.7 | 68.3 |
| Dry (24%) | 65.0 | 57.1 | 49.6 | 47.2 | 48.7 | 52.8 | 58.5 | 64.6 | 68.5 | 70.3 | 69.8 | 68.8 |
| Critical (15%) | 66.0 | 57.6 | 49.6 | 47.8 | 50.2 | 54.9 | 60.4 | 65.9 | 70.8 | 74.9 | 72.9 | 70.5 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.2 | 0.0 | **0.2** | **0.3** | **0.5** | -1.0 | -1.4 | -0.5 | -1.1 | -0.2 | 0.0 | -0.4 |
| 20% | -0.1 | **0.1** | **0.3** | **0.2** | -0.1 | -1.0 | -0.5 | -0.5 | **0.7** | -0.5 | -1.8 | -0.8 |
| 30% | -0.1 | **0.0** | **0.5** | **0.3** | **0.1** | -0.4 | **0.1** | -0.1 | -0.2 | 0.0 | -0.1 | -0.3 |
| 40% | **0.1** | **0.1** | **0.2** | **0.2** | -0.1 | **0.0** | **0.4** | **0.4** | **0.0** | **0.0** | -0.1 | -0.1 |
| 50% | -0.2 | **0.0** | **0.2** | 0.0 | 0.0 | -0.1 | **0.1** | **0.0** | **0.0** | **0.0** | -0.2 | -0.2 |
| 60% | -0.1 | **0.1** | **0.4** | **0.1** | **0.0** | **0.1** | **0.0** | -0.1 | **0.1** | **0.2** | 0.0 | **0.6** |
| 70% | 0.0 | **0.3** | **0.4** | **0.4** | 0.0 | **0.0** | **0.1** | **0.0** | **0.2** | **0.1** | 0.0 | **0.5** |
| 80% | -0.2 | -0.1 | **0.4** | **0.2** | 0.0 | **0.0** | 0.0 | 0.0 | -0.2 | **0.2** | -0.2 | **0.5** |
| 90% | 0.0 | -0.1 | **0.0** | **0.1** | **0.0** | 0.0 | **0.0** | **0.0** | **0.0** | **0.1** | **0.0** | **0.4** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | **0.0** | **0.3** | **0.2** | 0.0 | -0.2 | -0.2 | -0.1 | -0.2 | -0.1 | -0.2 | **0.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.0** | **0.1** | **0.6** | **0.1** | **0.0** | **0.0** | **0.1** | **0.0** | -0.1 | **0.1** | **0.0** | **0.8** |
| Above Normal (16%) | **0.0** | **0.1** | **0.2** | **0.3** | **0.0** | 0.0 | **0.1** | **0.0** | -0.1 | **0.1** | -0.1 | **0.1** |
| Below Normal (13%) | -0.1 | -0.2 | -0.1 | **0.5** | **0.0** | -0.3 | -0.4 | -0.2 | -0.6 | **0.3** | -1.3 | -0.4 |
| Dry (24%) | -0.2 | **0.1** | **0.2** | **0.1** | **0.0** | -0.3 | -0.2 | **0.2** | -0.1 | **0.2** | -0.1 | -0.4 |
| Critical (15%) | -0.2 | -0.1 | **0.1** | **0.4** | -0.3 | -0.8 | -1.0 | -0.8 | -0.1 | -1.5 | **0.2** | -0.5 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 16-2. American River at Watt Avenue, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67.3 | 58.4 | 52.2 | 48.3 | 49.9 | 56.2 | 62.7 | 68.0 | 73.9 | 74.8 | 73.2 | 71.4 |
| 20% | 65.9 | 58.0 | 51.5 | 47.8 | 49.5 | 55.0 | 60.6 | 66.8 | 70.6 | 71.0 | 72.0 | 70.2 |
| 30% | 65.0 | 57.7 | 50.8 | 47.3 | 48.6 | 53.5 | 59.1 | 65.3 | 68.9 | 69.5 | 69.7 | 69.0 |
| 40% | 64.5 | 57.3 | 50.4 | 47.1 | 48.2 | 51.9 | 57.8 | 63.9 | 67.1 | 68.6 | 69.2 | 68.3 |
| 50% | 64.1 | 57.1 | 50.1 | 46.8 | 47.7 | 51.3 | 57.0 | 62.4 | 66.1 | 68.2 | 68.7 | 67.8 |
| 60% | 63.7 | 56.8 | 49.2 | 46.4 | 47.2 | 50.4 | 56.5 | 61.1 | 64.6 | 67.7 | 67.9 | 66.7 |
| 70% | 63.3 | 56.5 | 48.6 | 45.8 | 46.9 | 50.0 | 55.0 | 59.8 | 63.7 | 67.5 | 67.3 | 66.3 |
| 80% | 63.0 | 56.2 | 48.0 | 45.4 | 46.5 | 49.7 | 54.2 | 59.1 | 63.1 | 67.0 | 66.8 | 66.0 |
| 90% | 61.1 | 55.8 | 47.3 | 44.9 | 46.1 | 49.2 | 53.4 | 57.1 | 61.9 | 66.4 | 65.9 | 65.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.2 | 57.1 | 49.9 | 46.7 | 48.0 | 52.0 | 57.5 | 62.7 | 66.8 | 69.5 | 69.1 | 68.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 62.5 | 57.0 | 50.4 | 45.9 | 46.7 | 49.9 | 54.7 | 59.3 | 63.3 | 67.5 | 66.8 | 65.8 |
| Above Normal (16%) | 63.9 | 56.6 | 49.7 | 46.7 | 47.5 | 50.4 | 56.4 | 62.0 | 66.0 | 67.2 | 68.4 | 67.3 |
| Below Normal (13%) | 64.6 | 57.2 | 49.9 | 47.0 | 47.8 | 52.6 | 59.2 | 64.0 | 68.2 | 68.2 | 70.0 | 68.7 |
| Dry (24%) | 65.2 | 57.0 | 49.4 | 47.1 | 48.7 | 53.1 | 58.7 | 64.4 | 68.5 | 70.2 | 69.9 | 69.2 |
| Critical (15%) | 66.2 | 57.7 | 49.5 | 47.3 | 50.5 | 55.7 | 61.4 | 66.7 | 71.0 | 76.4 | 72.7 | 71.0 |

### Alternative 2 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67.2 | 58.3 | 52.3 | 48.7 | 50.1 | 56.1 | 62.3 | 67.7 | 71.5 | 75.8 | 74.4 | 71.4 |
| 20% | 65.6 | 58.0 | 51.7 | 47.8 | 49.5 | 54.7 | 60.1 | 66.3 | 68.8 | 70.9 | 72.2 | 70.1 |
| 30% | 65.0 | 57.6 | 51.0 | 47.5 | 48.8 | 53.6 | 59.0 | 64.8 | 67.8 | 69.6 | 70.4 | 69.3 |
| 40% | 64.5 | 57.3 | 50.4 | 47.2 | 48.2 | 51.9 | 58.0 | 63.2 | 66.3 | 68.7 | 69.4 | 68.7 |
| 50% | 64.1 | 57.0 | 50.0 | 46.6 | 47.7 | 51.3 | 57.0 | 62.1 | 65.8 | 68.4 | 68.9 | 68.0 |
| 60% | 63.7 | 56.6 | 49.4 | 46.3 | 47.2 | 50.5 | 56.5 | 61.0 | 64.6 | 67.7 | 68.1 | 67.6 |
| 70% | 63.4 | 56.4 | 48.6 | 45.9 | 46.8 | 50.0 | 55.1 | 59.8 | 63.8 | 67.4 | 66.7 | 67.2 |
| 80% | 63.0 | 56.0 | 47.9 | 45.4 | 46.5 | 49.7 | 54.2 | 59.1 | 63.0 | 66.9 | 66.4 | 66.7 |
| 90% | 60.6 | 55.5 | 47.1 | 44.9 | 46.2 | 49.2 | 53.4 | 57.1 | 62.0 | 66.5 | 65.7 | 66.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.1 | 57.0 | 49.9 | 46.7 | 48.1 | 52.0 | 57.5 | 62.5 | 66.2 | 69.5 | 69.4 | 68.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 62.6 | 57.1 | 50.9 | 45.9 | 46.7 | 49.9 | 54.7 | 59.3 | 63.2 | 67.7 | 66.5 | 66.8 |
| Above Normal (16%) | 63.9 | 56.3 | 49.6 | 46.9 | 47.5 | 50.4 | 56.4 | 61.9 | 65.4 | 67.0 | 68.8 | 67.9 |
| Below Normal (13%) | 64.3 | 56.6 | 49.4 | 47.3 | 47.9 | 52.5 | 59.2 | 63.5 | 66.0 | 68.2 | 69.7 | 68.4 |
| Dry (24%) | 65.1 | 57.0 | 49.3 | 47.1 | 48.8 | 53.1 | 58.6 | 64.2 | 67.9 | 70.5 | 70.4 | 69.2 |
| Critical (15%) | 66.1 | 57.6 | 49.3 | 47.3 | 50.5 | 55.8 | 61.2 | 66.4 | 71.3 | 76.0 | 74.1 | 71.1 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.1 | -0.1 | **0.2** | **0.3** | **0.2** | -0.1 | -0.4 | -0.4 | -2.4 | **1.0** | **1.1** | -0.1 |
| 20% | -0.3 | **0.0** | **0.2** | **0.0** | **0.1** | -0.2 | -0.4 | -0.5 | -1.8 | -0.1 | **0.1** | 0.0 |
| 30% | 0.0 | -0.1 | **0.2** | **0.2** | **0.2** | **0.1** | -0.1 | -0.5 | -1.1 | **0.1** | **0.8** | **0.4** |
| 40% | **0.1** | 0.0 | 0.0 | **0.1** | 0.0 | 0.0 | **0.2** | -0.7 | -0.7 | **0.0** | **0.3** | **0.4** |
| 50% | **0.0** | -0.2 | -0.1 | -0.1 | **0.0** | **0.0** | **0.0** | -0.3 | -0.2 | **0.1** | **0.2** | **0.2** |
| 60% | **0.1** | -0.2 | **0.2** | -0.1 | **0.0** | **0.0** | **0.0** | -0.1 | **0.1** | **0.0** | **0.3** | **0.8** |
| 70% | **0.1** | -0.1 | -0.1 | **0.1** | 0.0 | **0.0** | **0.1** | **0.0** | **0.1** | -0.1 | -0.5 | **0.9** |
| 80% | -0.1 | -0.1 | -0.1 | 0.0 | 0.0 | **0.0** | **0.0** | 0.0 | -0.1 | -0.1 | -0.3 | **0.8** |
| 90% | -0.5 | -0.4 | -0.2 | 0.0 | **0.1** | **0.0** | **0.0** | **0.0** | **0.0** | **0.1** | -0.2 | **0.4** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | -0.1 | **0.0** | **0.1** | **0.0** | **0.0** | 0.0 | -0.2 | -0.5 | **0.0** | **0.3** | **0.4** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.1** | **0.1** | **0.5** | **0.1** | **0.0** | **0.0** | **0.0** | -0.1 | -0.1 | **0.2** | -0.3 | **1.1** |
| Above Normal (16%) | 0.0 | -0.3 | -0.2 | **0.2** | 0.0 | 0.0 | **0.0** | -0.1 | -0.7 | -0.2 | **0.5** | **0.6** |
| Below Normal (13%) | -0.3 | -0.7 | -0.5 | **0.3** | **0.0** | -0.1 | -0.1 | -0.6 | -2.2 | **0.0** | -0.2 | -0.3 |
| Dry (24%) | -0.1 | -0.1 | -0.1 | **0.0** | **0.0** | **0.0** | -0.1 | -0.2 | -0.7 | **0.3** | **0.5** | **0.0** |
| Critical (15%) | -0.1 | -0.1 | -0.2 | 0.0 | **0.0** | **0.1** | -0.2 | -0.3 | **0.3** | -0.4 | **1.4** | **0.1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 16-3. American River at Watt Avenue, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67.3 | 58.4 | 52.2 | 48.3 | 49.9 | 56.2 | 62.7 | 68.0 | 73.9 | 74.8 | 73.2 | 71.4 |
| 20% | 65.9 | 58.0 | 51.5 | 47.8 | 49.5 | 55.0 | 60.6 | 66.8 | 70.6 | 71.0 | 72.0 | 70.2 |
| 30% | 65.0 | 57.7 | 50.8 | 47.3 | 48.6 | 53.5 | 59.1 | 65.3 | 68.9 | 69.5 | 69.7 | 69.0 |
| 40% | 64.5 | 57.3 | 50.4 | 47.1 | 48.2 | 51.9 | 57.8 | 63.9 | 67.1 | 68.6 | 69.2 | 68.3 |
| 50% | 64.1 | 57.1 | 50.1 | 46.8 | 47.7 | 51.3 | 57.0 | 62.4 | 66.1 | 68.2 | 68.7 | 67.8 |
| 60% | 63.7 | 56.8 | 49.2 | 46.4 | 47.2 | 50.4 | 56.5 | 61.1 | 64.6 | 67.7 | 67.9 | 66.7 |
| 70% | 63.3 | 56.5 | 48.6 | 45.8 | 46.9 | 50.0 | 55.0 | 59.8 | 63.7 | 67.5 | 67.3 | 66.3 |
| 80% | 63.0 | 56.2 | 48.0 | 45.4 | 46.5 | 49.7 | 54.2 | 59.1 | 63.1 | 67.0 | 66.8 | 66.0 |
| 90% | 61.1 | 55.8 | 47.3 | 44.9 | 46.1 | 49.2 | 53.4 | 57.1 | 61.9 | 66.4 | 65.9 | 65.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.2 | 57.1 | 49.9 | 46.7 | 48.0 | 52.0 | 57.5 | 62.7 | 66.8 | 69.5 | 69.1 | 68.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 62.5 | 57.0 | 50.4 | 45.9 | 46.7 | 49.9 | 54.7 | 59.3 | 63.3 | 67.5 | 66.8 | 65.8 |
| Above Normal (16%) | 63.9 | 56.6 | 49.7 | 46.7 | 47.5 | 50.4 | 56.4 | 62.0 | 66.0 | 67.2 | 68.4 | 67.3 |
| Below Normal (13%) | 64.6 | 57.2 | 49.9 | 47.0 | 47.8 | 52.6 | 59.2 | 64.0 | 68.2 | 68.2 | 70.0 | 68.7 |
| Dry (24%) | 65.2 | 57.0 | 49.4 | 47.1 | 48.7 | 53.1 | 58.7 | 64.4 | 68.5 | 70.2 | 69.9 | 69.2 |
| Critical (15%) | 66.2 | 57.7 | 49.5 | 47.3 | 50.5 | 55.7 | 61.4 | 66.7 | 71.0 | 76.4 | 72.7 | 71.0 |

### Alternative 3 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67.3 | 58.3 | 52.3 | 48.6 | 50.2 | 56.2 | 62.6 | 67.7 | 71.6 | 75.8 | 74.2 | 71.8 |
| 20% | 65.7 | 58.0 | 51.7 | 47.7 | 49.6 | 54.8 | 60.0 | 66.3 | 68.9 | 70.8 | 72.2 | 70.4 |
| 30% | 65.0 | 57.6 | 50.8 | 47.5 | 48.7 | 53.6 | 59.0 | 64.5 | 67.7 | 69.6 | 70.4 | 69.4 |
| 40% | 64.6 | 57.4 | 50.3 | 47.3 | 48.3 | 51.9 | 57.8 | 63.2 | 66.6 | 68.7 | 69.4 | 68.7 |
| 50% | 64.2 | 57.0 | 50.0 | 46.7 | 47.8 | 51.3 | 57.0 | 62.3 | 65.8 | 68.3 | 68.8 | 67.9 |
| 60% | 63.7 | 56.8 | 49.4 | 46.3 | 47.2 | 50.5 | 56.5 | 61.0 | 64.6 | 67.7 | 68.1 | 67.6 |
| 70% | 63.4 | 56.4 | 48.7 | 45.9 | 46.9 | 50.0 | 55.1 | 59.8 | 63.8 | 67.5 | 66.8 | 67.3 |
| 80% | 63.0 | 56.1 | 48.0 | 45.3 | 46.5 | 49.7 | 54.2 | 59.1 | 62.9 | 66.8 | 66.4 | 66.7 |
| 90% | 60.6 | 55.4 | 47.0 | 44.9 | 46.2 | 49.2 | 53.4 | 57.1 | 62.0 | 66.3 | 65.6 | 66.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.2 | 57.0 | 49.9 | 46.7 | 48.1 | 52.0 | 57.4 | 62.5 | 66.3 | 69.5 | 69.3 | 68.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 62.6 | 57.1 | 51.0 | 46.0 | 46.8 | 49.9 | 54.7 | 59.3 | 63.1 | 67.6 | 66.8 | 67.0 |
| Above Normal (16%) | 63.9 | 56.3 | 49.6 | 46.9 | 47.5 | 50.4 | 56.4 | 61.9 | 65.4 | 66.9 | 68.2 | 67.7 |
| Below Normal (13%) | 64.3 | 56.7 | 49.4 | 47.3 | 47.9 | 52.5 | 59.0 | 63.4 | 66.1 | 68.3 | 69.7 | 68.6 |
| Dry (24%) | 65.1 | 57.0 | 49.3 | 47.0 | 48.8 | 53.1 | 58.5 | 64.2 | 67.9 | 70.4 | 70.5 | 69.3 |
| Critical (15%) | 66.2 | 57.6 | 49.4 | 47.2 | 50.6 | 55.9 | 61.3 | 66.3 | 71.4 | 76.2 | 73.7 | 71.1 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.0** | -0.1 | **0.1** | **0.3** | **0.2** | 0.0 | -0.1 | -0.3 | -2.3 | **1.0** | **1.0** | **0.4** |
| 20% | -0.2 | **0.0** | **0.2** | 0.0 | **0.1** | -0.2 | -0.5 | -0.5 | -1.7 | -0.2 | **0.2** | **0.3** |
| 30% | 0.0 | 0.0 | **0.0** | **0.2** | **0.2** | **0.1** | -0.1 | -0.7 | -1.2 | **0.0** | **0.7** | **0.5** |
| 40% | **0.1** | **0.1** | -0.1 | **0.1** | **0.0** | **0.0** | **0.0** | -0.7 | -0.4 | **0.0** | **0.2** | **0.4** |
| 50% | **0.1** | -0.2 | 0.0 | -0.1 | **0.1** | **0.0** | -0.1 | -0.2 | -0.3 | **0.1** | **0.1** | **0.1** |
| 60% | **0.1** | 0.0 | **0.1** | -0.1 | 0.0 | **0.0** | **0.0** | -0.1 | **0.1** | **0.0** | **0.2** | **0.8** |
| 70% | **0.0** | -0.1 | **0.0** | **0.1** | 0.0 | **0.0** | **0.1** | **0.0** | **0.1** | 0.0 | -0.4 | **0.9** |
| 80% | 0.0 | -0.1 | **0.0** | -0.1 | 0.0 | **0.0** | **0.0** | 0.0 | -0.2 | -0.2 | -0.4 | **0.7** |
| 90% | -0.5 | -0.4 | -0.3 | 0.0 | **0.1** | **0.0** | 0.0 | 0.0 | **0.0** | 0.0 | -0.2 | **0.5** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0.0 | -0.1 | **0.0** | **0.1** | **0.0** | **0.0** | -0.1 | -0.2 | -0.5 | **0.0** | **0.2** | **0.5** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.1** | **0.1** | **0.6** | **0.1** | **0.0** | **0.0** | 0.0 | **0.0** | -0.2 | **0.1** | **0.0** | **1.2** |
| Above Normal (16%) | **0.0** | -0.3 | -0.2 | **0.2** | 0.0 | **0.0** | **0.0** | -0.1 | -0.6 | -0.2 | -0.1 | **0.4** |
| Below Normal (13%) | -0.3 | -0.6 | -0.5 | **0.3** | **0.0** | -0.1 | -0.2 | -0.6 | -2.1 | **0.1** | -0.2 | -0.2 |
| Dry (24%) | -0.1 | -0.1 | -0.1 | 0.0 | **0.1** | 0.0 | -0.2 | -0.2 | -0.6 | **0.3** | **0.6** | **0.1** |
| Critical (15%) | **0.0** | 0.0 | -0.1 | -0.1 | **0.1** | **0.2** | -0.1 | -0.4 | **0.4** | -0.2 | **1.0** | **0.1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 16-4. American River at Watt Avenue, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67.3 | 58.4 | 52.2 | 48.3 | 49.9 | 56.2 | 62.7 | 68.0 | 73.9 | 74.8 | 73.2 | 71.4 |
| 20% | 65.9 | 58.0 | 51.5 | 47.8 | 49.5 | 55.0 | 60.6 | 66.8 | 70.6 | 71.0 | 72.0 | 70.2 |
| 30% | 65.0 | 57.7 | 50.8 | 47.3 | 48.6 | 53.5 | 59.1 | 65.3 | 68.9 | 69.5 | 69.7 | 69.0 |
| 40% | 64.5 | 57.3 | 50.4 | 47.1 | 48.2 | 51.9 | 57.8 | 63.9 | 67.1 | 68.6 | 69.2 | 68.3 |
| 50% | 64.1 | 57.1 | 50.1 | 46.8 | 47.7 | 51.3 | 57.0 | 62.4 | 66.1 | 68.2 | 68.7 | 67.8 |
| 60% | 63.7 | 56.8 | 49.2 | 46.4 | 47.2 | 50.4 | 56.5 | 61.1 | 64.6 | 67.7 | 67.9 | 66.7 |
| 70% | 63.3 | 56.5 | 48.6 | 45.8 | 46.9 | 50.0 | 55.0 | 59.8 | 63.7 | 67.5 | 67.3 | 66.3 |
| 80% | 63.0 | 56.2 | 48.0 | 45.4 | 46.5 | 49.7 | 54.2 | 59.1 | 63.1 | 67.0 | 66.8 | 66.0 |
| 90% | 61.1 | 55.8 | 47.3 | 44.9 | 46.1 | 49.2 | 53.4 | 57.1 | 61.9 | 66.4 | 65.9 | 65.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.2 | 57.1 | 49.9 | 46.7 | 48.0 | 52.0 | 57.5 | 62.7 | 66.8 | 69.5 | 69.1 | 68.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 62.5 | 57.0 | 50.4 | 45.9 | 46.7 | 49.9 | 54.7 | 59.3 | 63.3 | 67.5 | 66.8 | 65.8 |
| Above Normal (16%) | 63.9 | 56.6 | 49.7 | 46.7 | 47.5 | 50.4 | 56.4 | 62.0 | 66.0 | 67.2 | 68.4 | 67.3 |
| Below Normal (13%) | 64.6 | 57.2 | 49.9 | 47.0 | 47.8 | 52.6 | 59.2 | 64.0 | 68.2 | 68.2 | 70.0 | 68.7 |
| Dry (24%) | 65.2 | 57.0 | 49.4 | 47.1 | 48.7 | 53.1 | 58.7 | 64.4 | 68.5 | 70.2 | 69.9 | 69.2 |
| Critical (15%) | 66.2 | 57.7 | 49.5 | 47.3 | 50.5 | 55.7 | 61.4 | 66.7 | 71.0 | 76.4 | 72.7 | 71.0 |

### Alternative 4 043019

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67.1 | 58.3 | 52.7 | 48.6 | 50.4 | 55.5 | 61.3 | 68.1 | 73.1 | 74.8 | 72.9 | 71.1 |
| 20% | 65.9 | 58.0 | 51.7 | 48.0 | 49.4 | 54.2 | 60.1 | 66.4 | 71.3 | 70.9 | 70.6 | 69.3 |
| 30% | 65.0 | 57.7 | 51.1 | 47.6 | 48.7 | 53.1 | 59.2 | 65.3 | 69.4 | 70.0 | 69.5 | 68.8 |
| 40% | 64.5 | 57.3 | 50.6 | 47.3 | 48.2 | 52.0 | 58.3 | 63.7 | 67.9 | 69.3 | 69.2 | 68.4 |
| 50% | 64.1 | 57.0 | 50.1 | 46.8 | 47.7 | 51.2 | 57.0 | 62.3 | 66.8 | 68.6 | 68.7 | 67.6 |
| 60% | 63.7 | 56.9 | 49.6 | 46.4 | 47.2 | 50.5 | 56.1 | 60.7 | 65.9 | 68.1 | 68.2 | 67.5 |
| 70% | 63.3 | 56.5 | 49.1 | 46.0 | 46.9 | 50.0 | 54.9 | 59.5 | 65.3 | 67.7 | 67.8 | 67.2 |
| 80% | 63.0 | 56.1 | 48.5 | 45.6 | 46.5 | 49.7 | 54.1 | 59.0 | 64.2 | 67.2 | 67.3 | 66.8 |
| 90% | 61.0 | 55.6 | 47.6 | 45.0 | 46.2 | 49.2 | 53.0 | 57.1 | 62.0 | 66.8 | 65.9 | 66.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.2 | 57.0 | 50.1 | 46.9 | 48.0 | 51.8 | 57.2 | 62.5 | 67.3 | 69.6 | 69.0 | 68.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 62.5 | 57.1 | 50.9 | 46.0 | 46.8 | 49.9 | 54.6 | 59.2 | 63.9 | 67.9 | 67.0 | 66.7 |
| Above Normal (16%) | 63.9 | 56.6 | 49.9 | 47.0 | 47.5 | 50.4 | 56.4 | 61.7 | 66.8 | 67.5 | 68.3 | 67.6 |
| Below Normal (13%) | 64.5 | 57.1 | 49.9 | 47.4 | 47.9 | 52.2 | 58.7 | 64.2 | 68.2 | 68.9 | 68.8 | 68.4 |
| Dry (24%) | 65.0 | 56.9 | 49.5 | 47.1 | 48.7 | 52.9 | 58.5 | 64.5 | 69.3 | 70.6 | 69.8 | 69.0 |
| Critical (15%) | 66.2 | 57.5 | 49.6 | 47.6 | 50.2 | 55.1 | 60.4 | 65.9 | 71.0 | 74.6 | 73.0 | 70.6 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.2 | -0.1 | **0.6** | **0.3** | **0.4** | -0.7 | -1.4 | **0.1** | -0.8 | 0.0 | -0.3 | -0.4 |
| 20% | -0.1 | **0.0** | **0.2** | **0.3** | -0.1 | -0.8 | -0.5 | -0.5 | **0.7** | -0.1 | -1.4 | -0.8 |
| 30% | **0.0** | **0.0** | **0.3** | **0.2** | **0.1** | -0.4 | **0.1** | **0.0** | **0.5** | **0.5** | -0.2 | -0.1 |
| 40% | **0.0** | 0.0 | **0.2** | **0.1** | -0.1 | **0.0** | **0.5** | -0.2 | **0.8** | **0.6** | **0.0** | **0.1** |
| 50% | 0.0 | -0.1 | **0.0** | **0.1** | 0.0 | -0.1 | **0.0** | -0.2 | **0.7** | **0.4** | 0.0 | -0.1 |
| 60% | **0.0** | **0.1** | **0.3** | **0.0** | 0.0 | **0.1** | -0.4 | -0.4 | **1.3** | **0.4** | **0.3** | **0.7** |
| 70% | 0.0 | **0.0** | **0.5** | **0.2** | **0.0** | **0.0** | -0.1 | -0.3 | **1.6** | **0.2** | **0.6** | **0.9** |
| 80% | 0.0 | -0.1 | **0.5** | **0.2** | 0.0 | **0.0** | -0.1 | -0.1 | **1.0** | **0.2** | **0.5** | **0.8** |
| 90% | -0.1 | -0.2 | **0.3** | **0.1** | **0.0** | **0.0** | -0.4 | **0.0** | **0.0** | **0.5** | **0.1** | **0.5** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0.0 | 0.0 | **0.2** | **0.2** | 0.0 | -0.2 | -0.3 | -0.2 | **0.5** | **0.1** | -0.1 | **0.2** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.0** | **0.1** | **0.5** | **0.1** | **0.0** | **0.0** | 0.0 | -0.1 | **0.7** | **0.4** | **0.2** | **0.9** |
| Above Normal (16%) | **0.1** | **0.0** | **0.1** | **0.3** | **0.0** | 0.0 | **0.0** | -0.3 | **0.7** | **0.3** | 0.0 | **0.3** |
| Below Normal (13%) | -0.1 | -0.1 | **0.0** | **0.4** | **0.0** | -0.4 | -0.6 | **0.2** | 0.0 | **0.7** | -1.2 | -0.3 |
| Dry (24%) | -0.2 | -0.1 | **0.1** | **0.0** | 0.0 | -0.1 | -0.2 | **0.1** | **0.8** | **0.4** | -0.1 | -0.2 |
| Critical (15%) | 0.0 | -0.2 | **0.1** | **0.3** | -0.3 | -0.6 | -0.9 | -0.8 | 0.0 | -1.8 | **0.3** | -0.4 |

a Based on the 82-year simulation period.

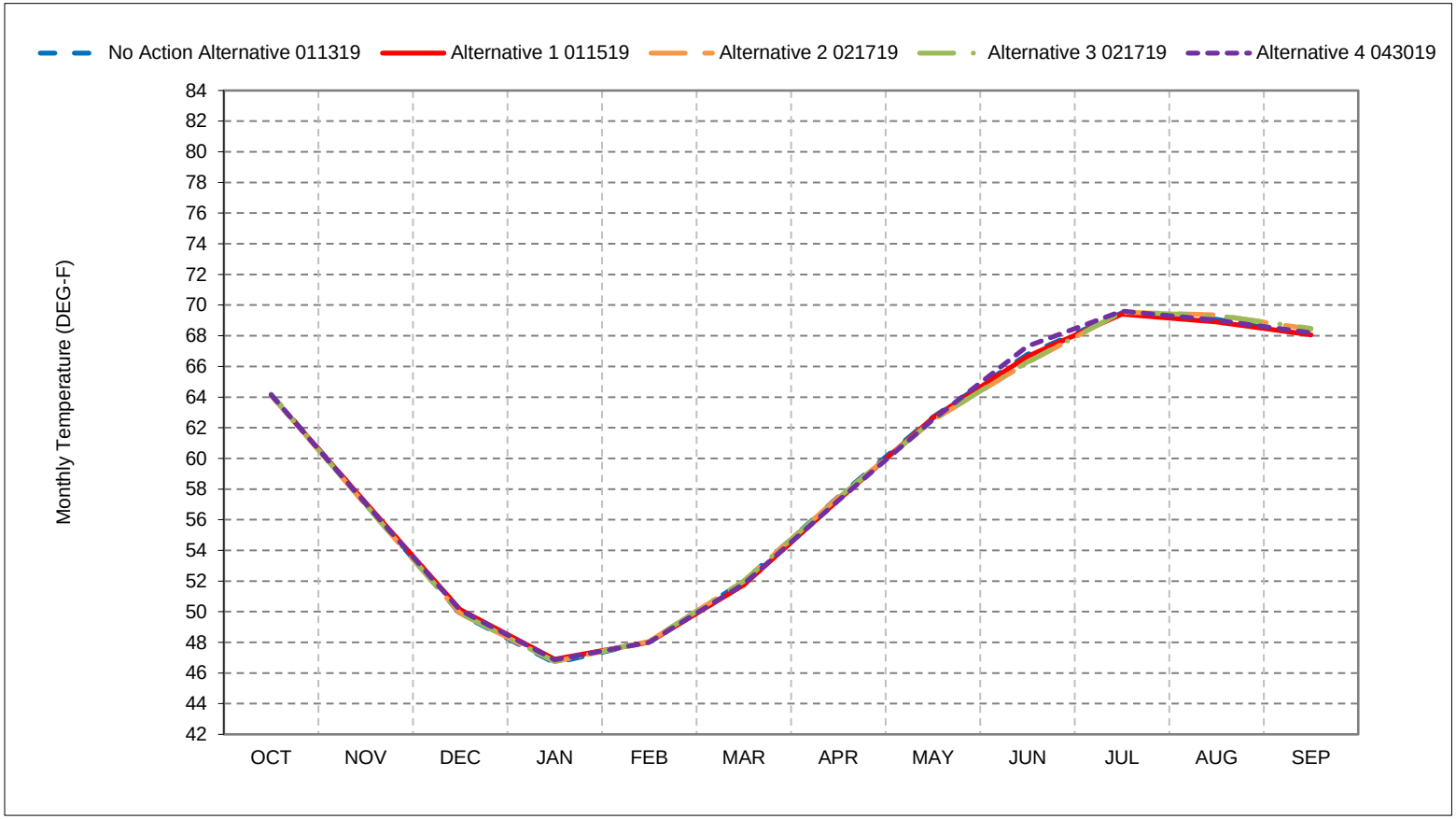
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

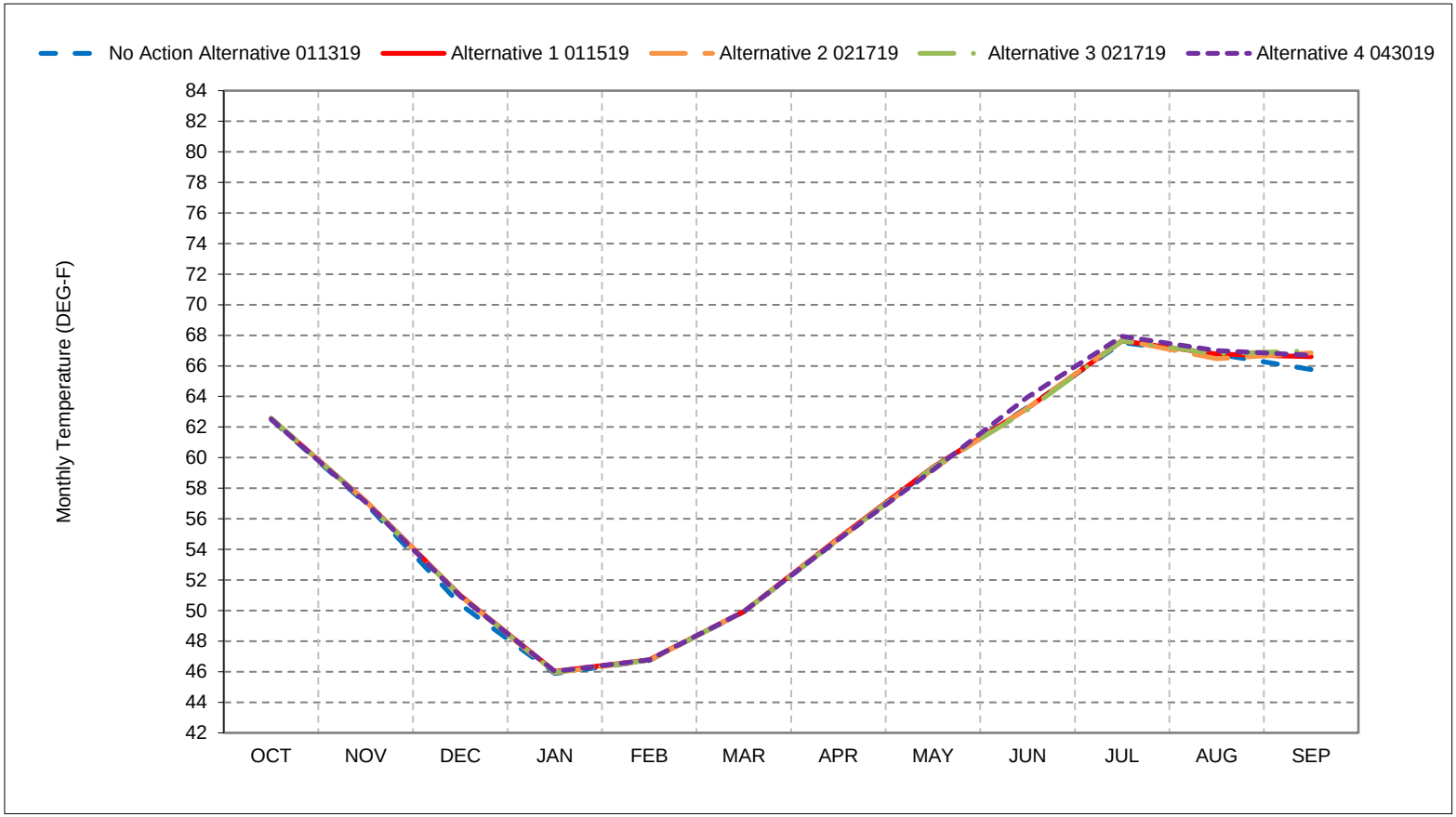
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-1. American River at Watt Avenue, Long-Term Average Temperature



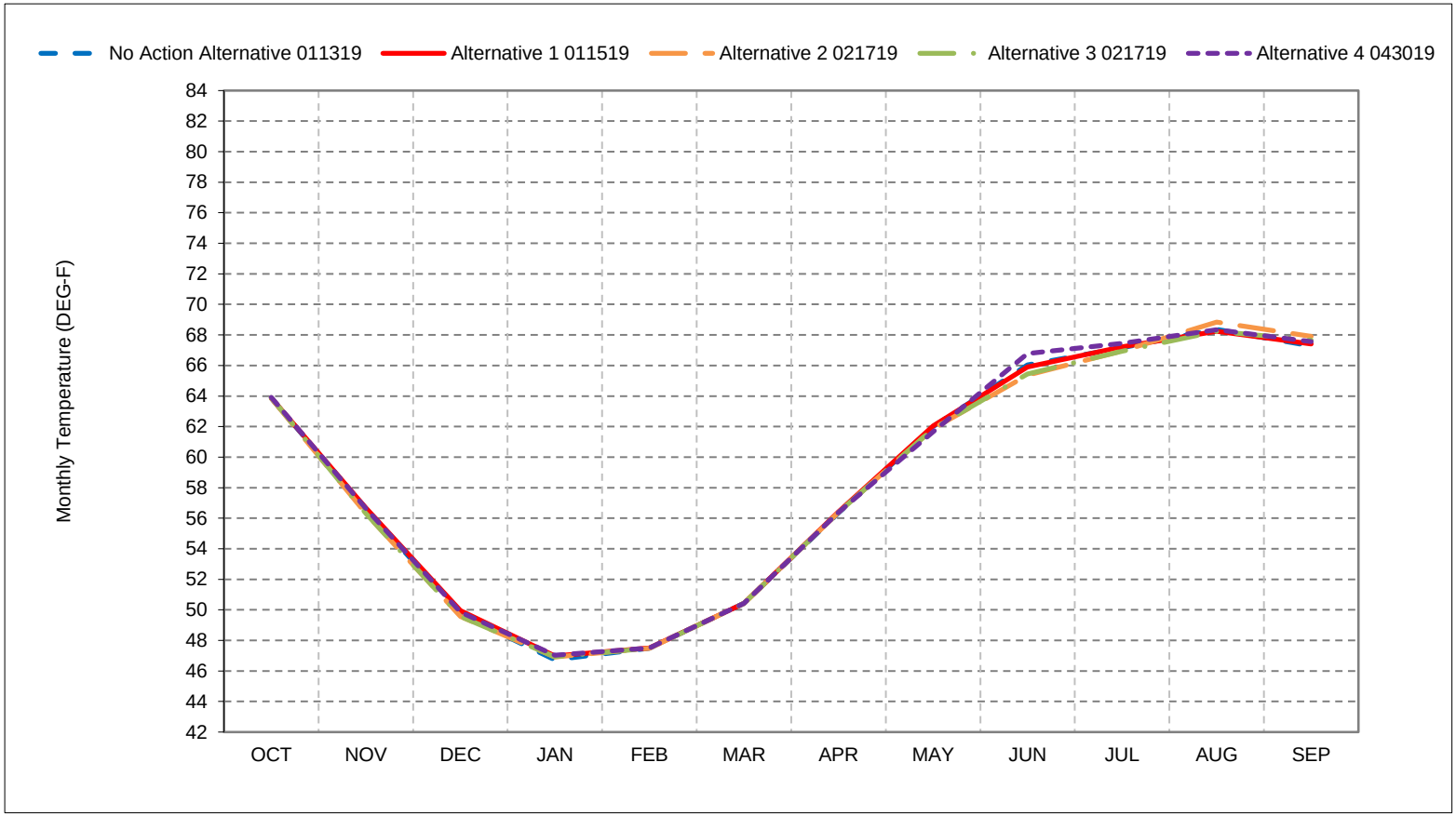

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-2. American River at Watt Avenue, Wet Year Average Temperature



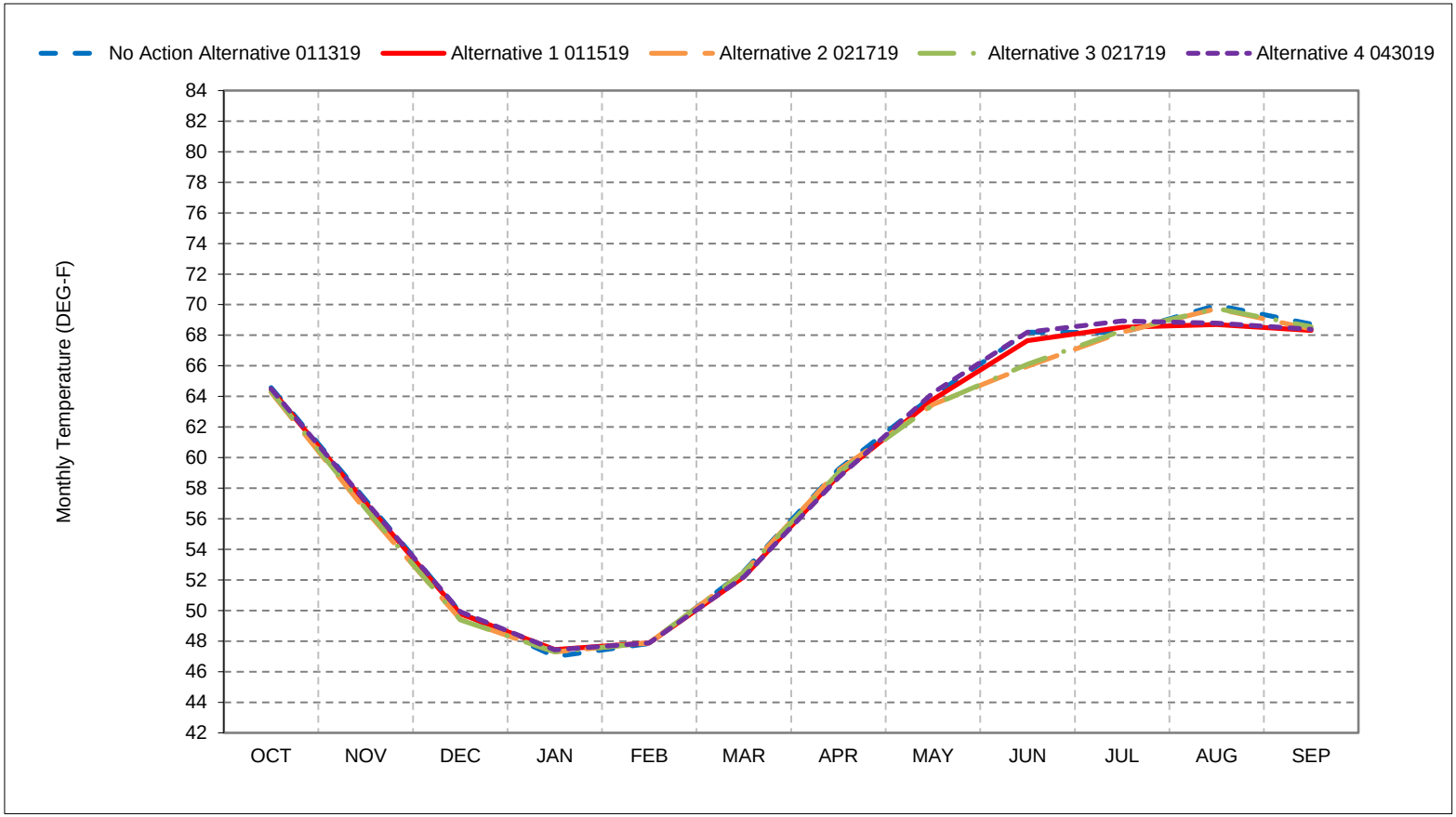

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-3. American River at Watt Avenue, Above Normal Year Average Temperature



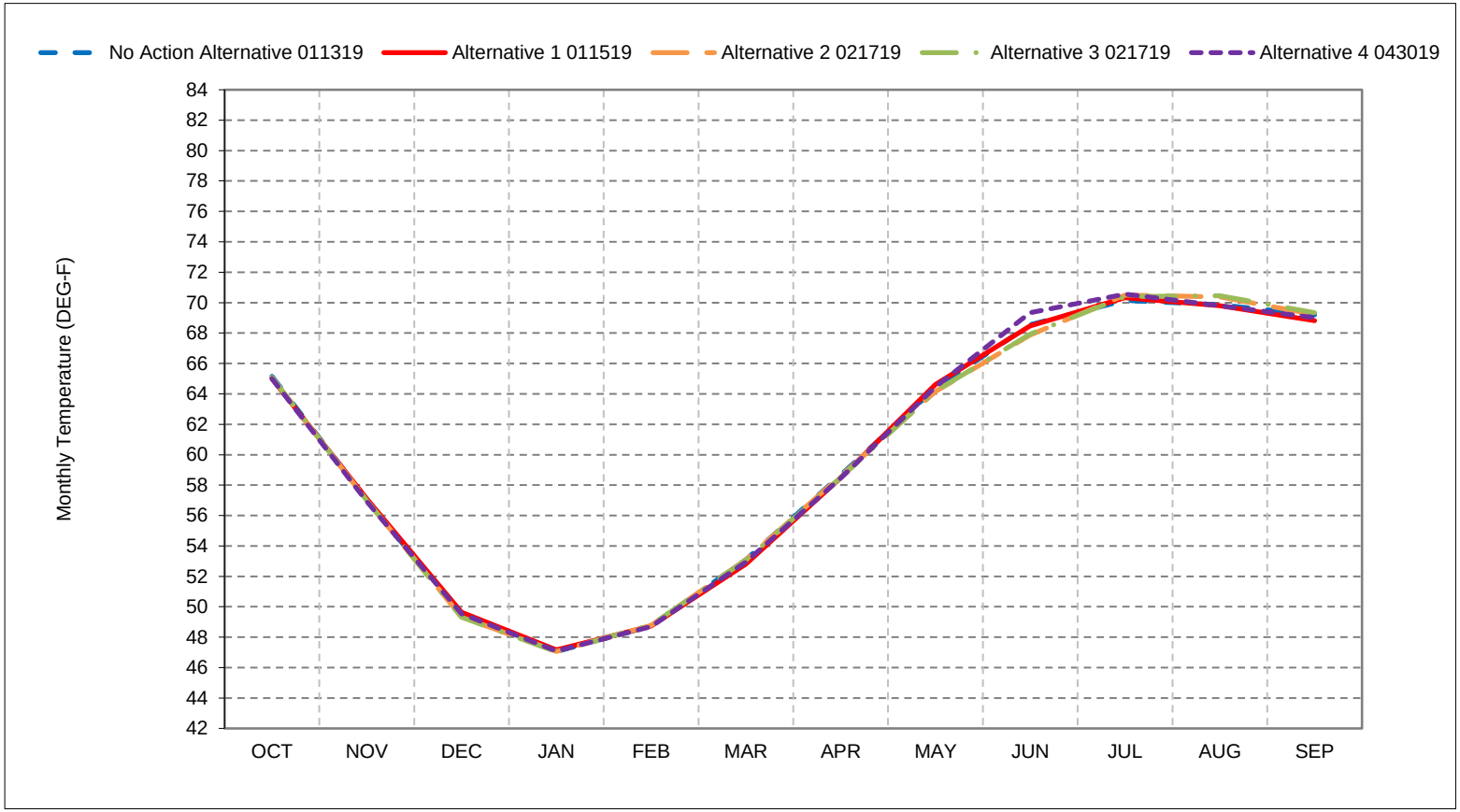

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-4. American River at Watt Avenue, Below Normal Year Average Temperature



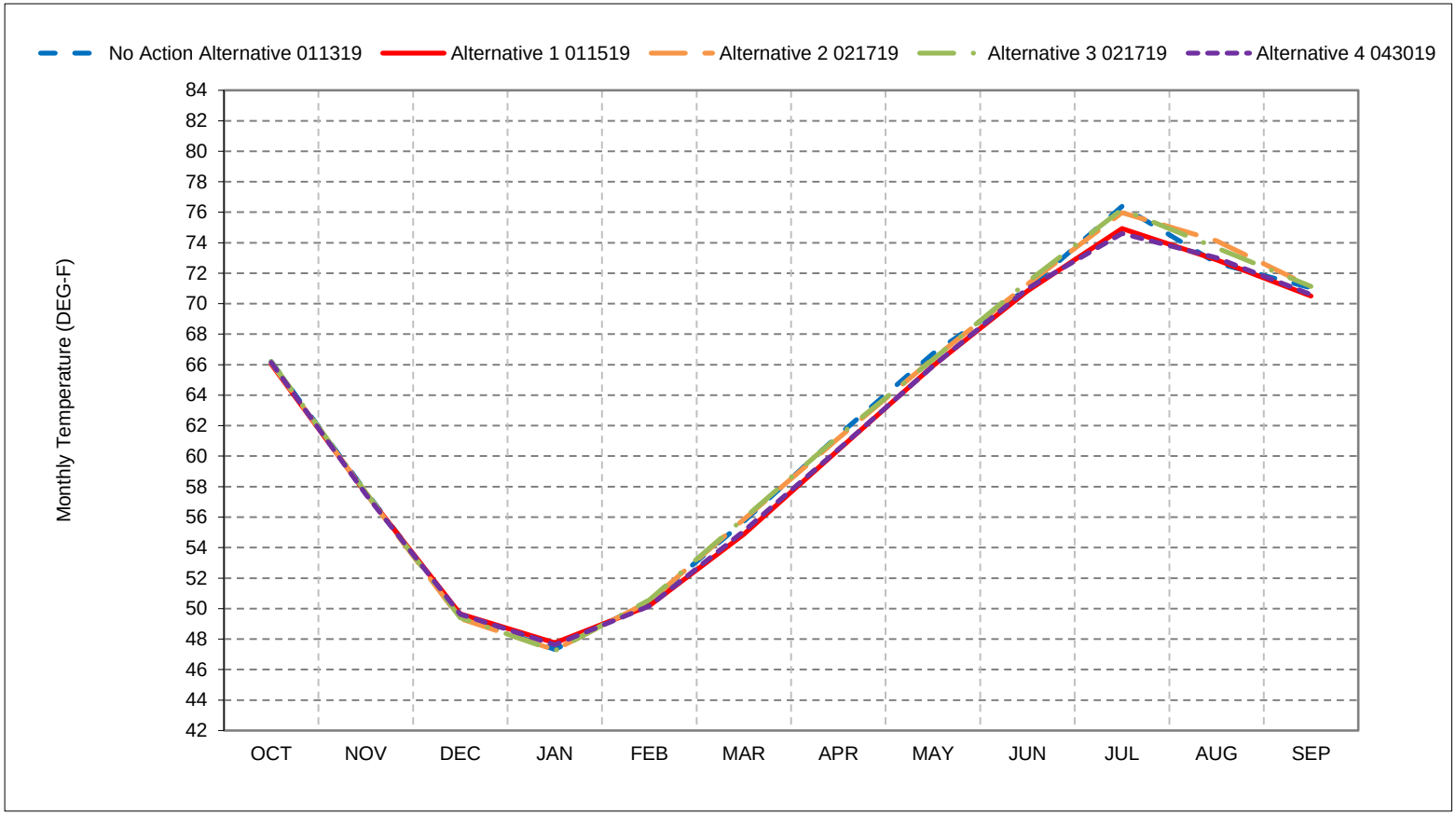

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-5. American River at Watt Avenue, Dry Year Average Temperature



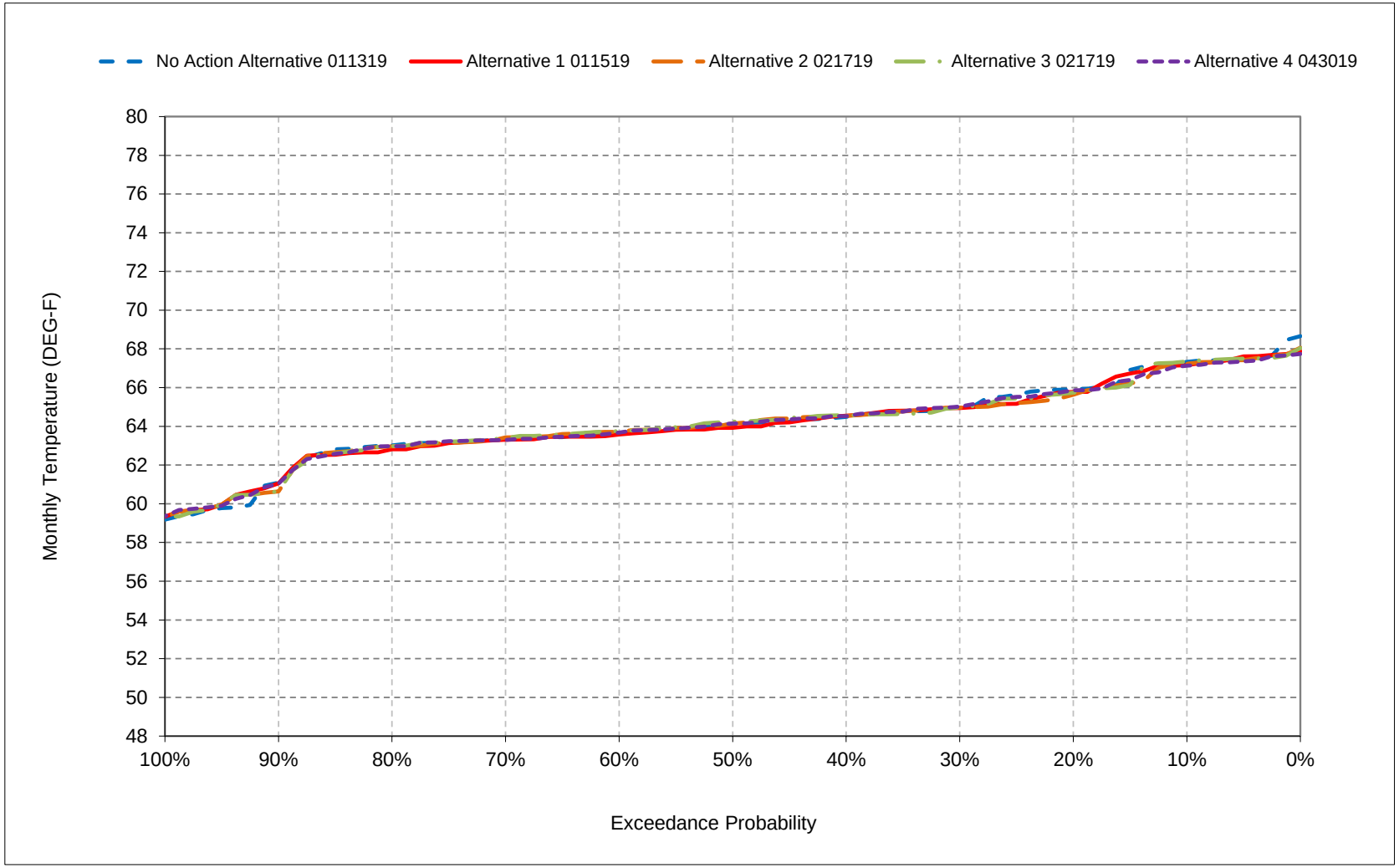

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-6. American River at Watt Avenue, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

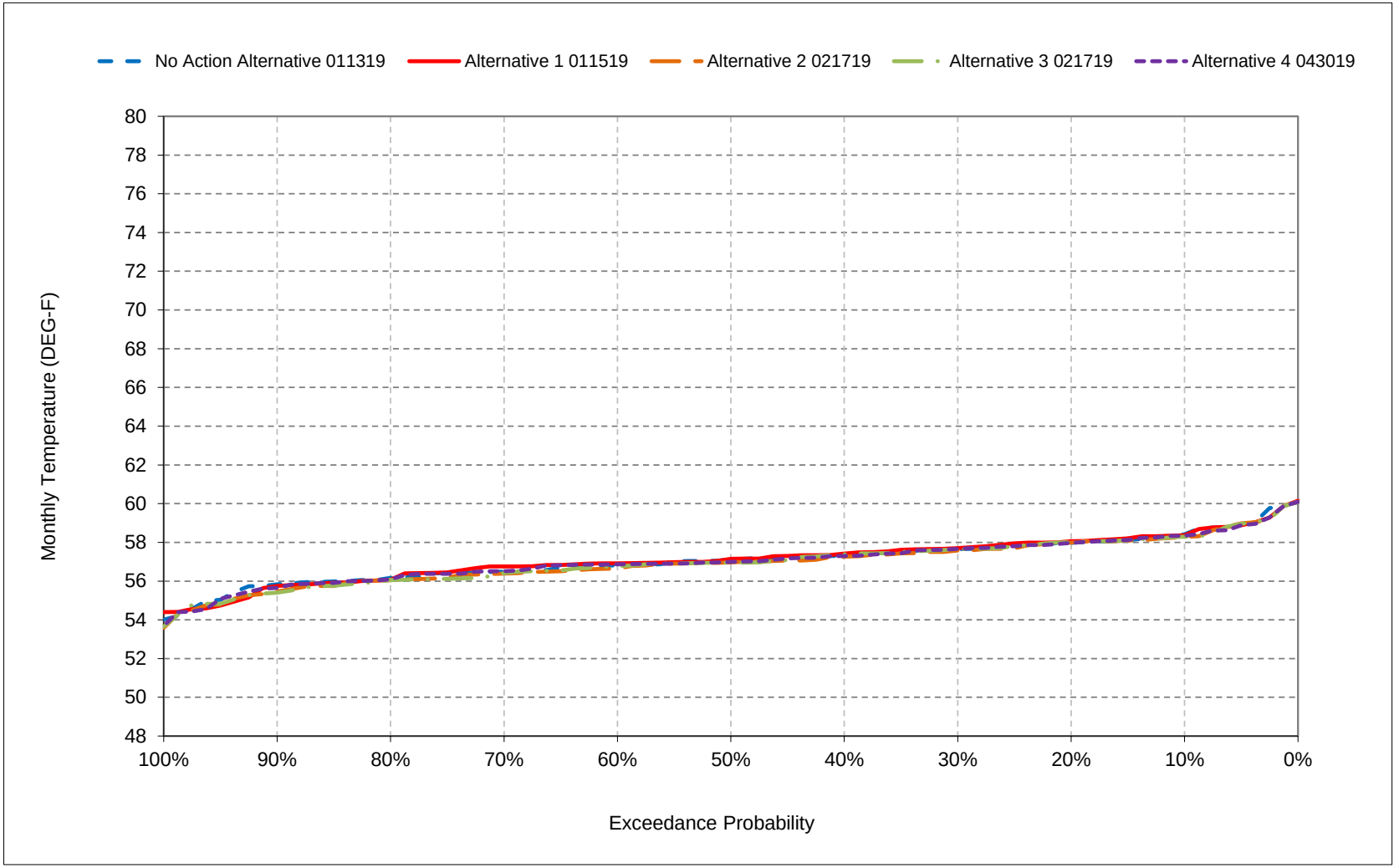
**Figure 16-7. American River at Watt Avenue, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

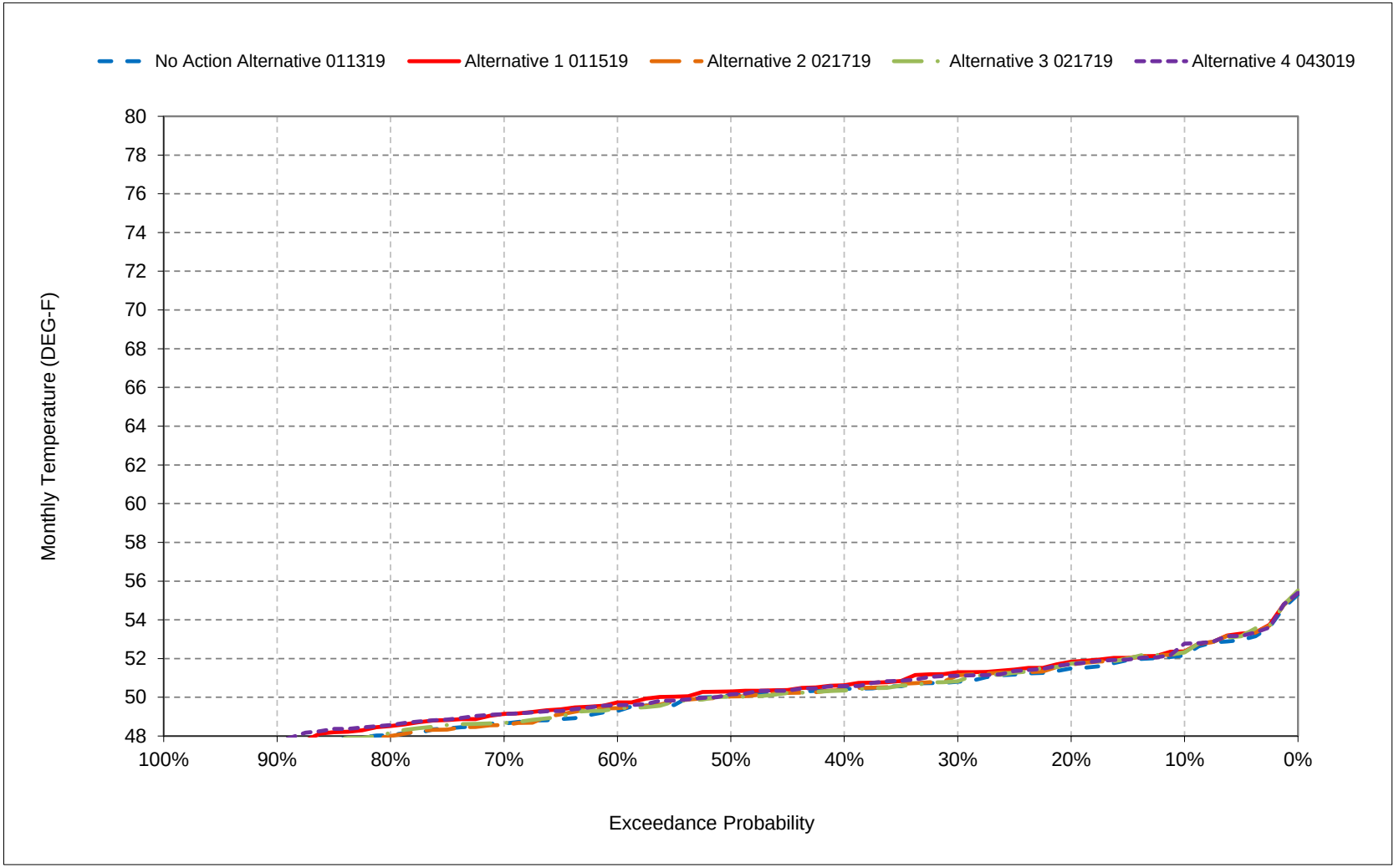
**Figure 16-8. American River at Watt Avenue, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

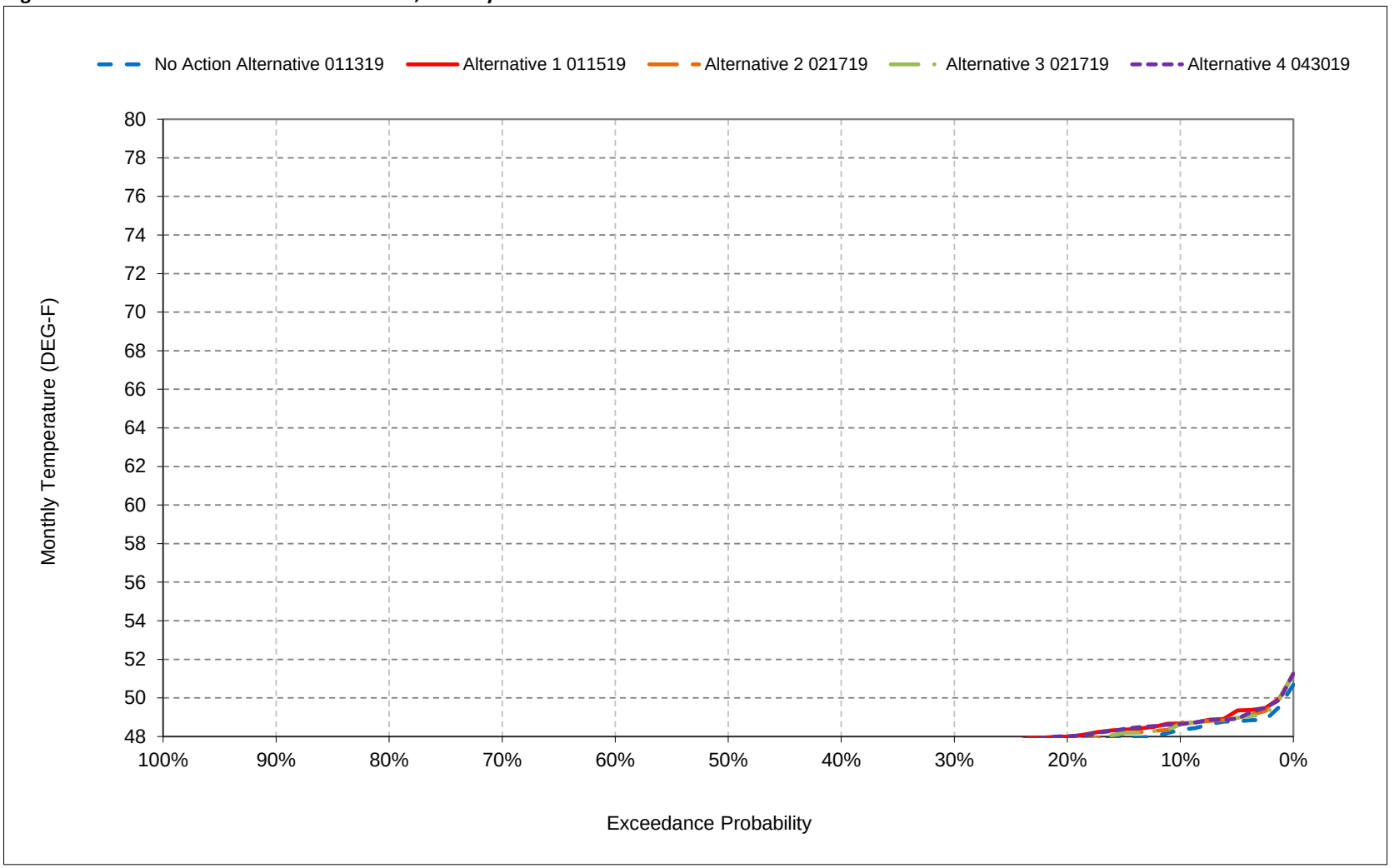
**Figure 16-9. American River at Watt Avenue, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

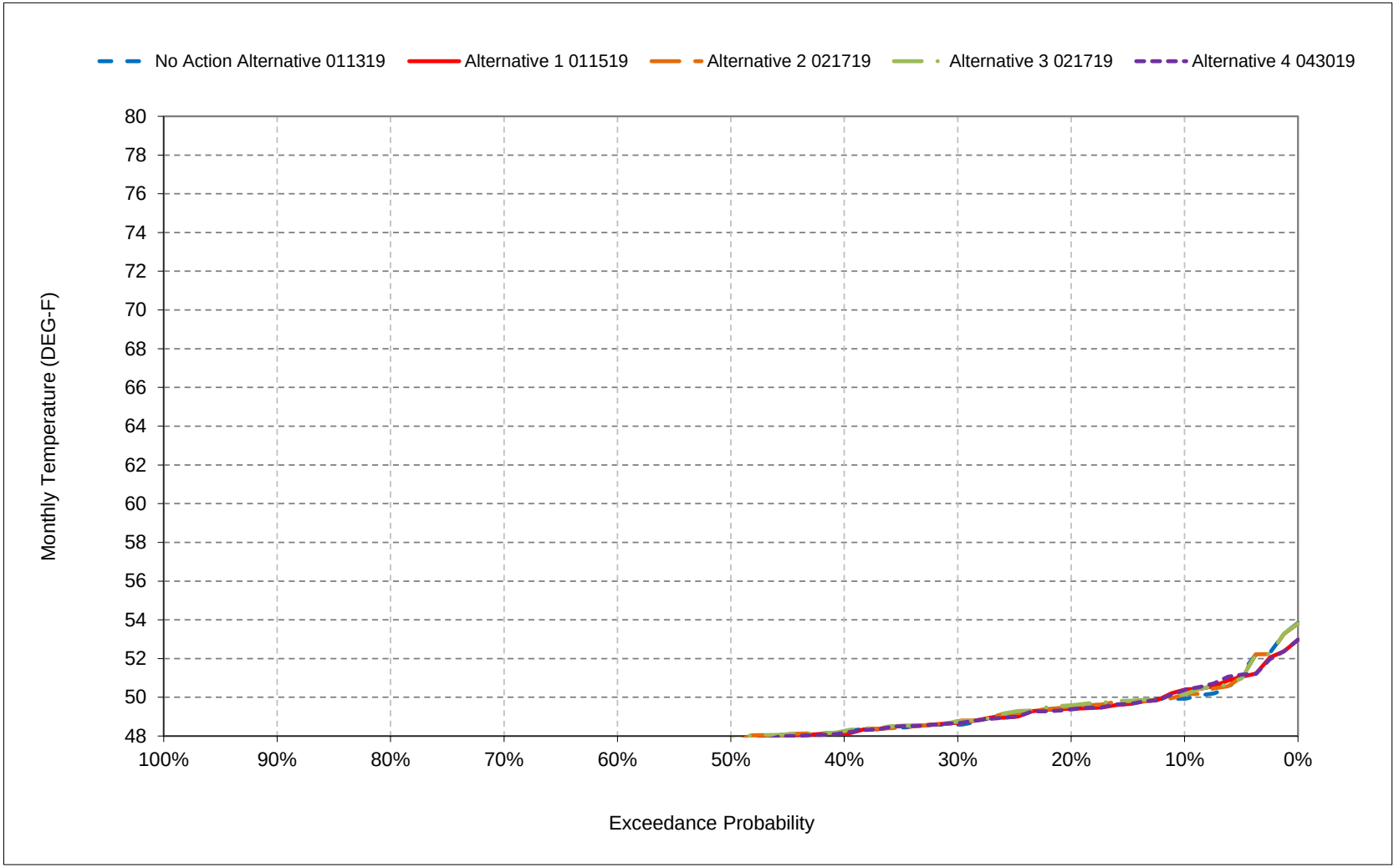
**Figure 16-10. American River at Watt Avenue, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

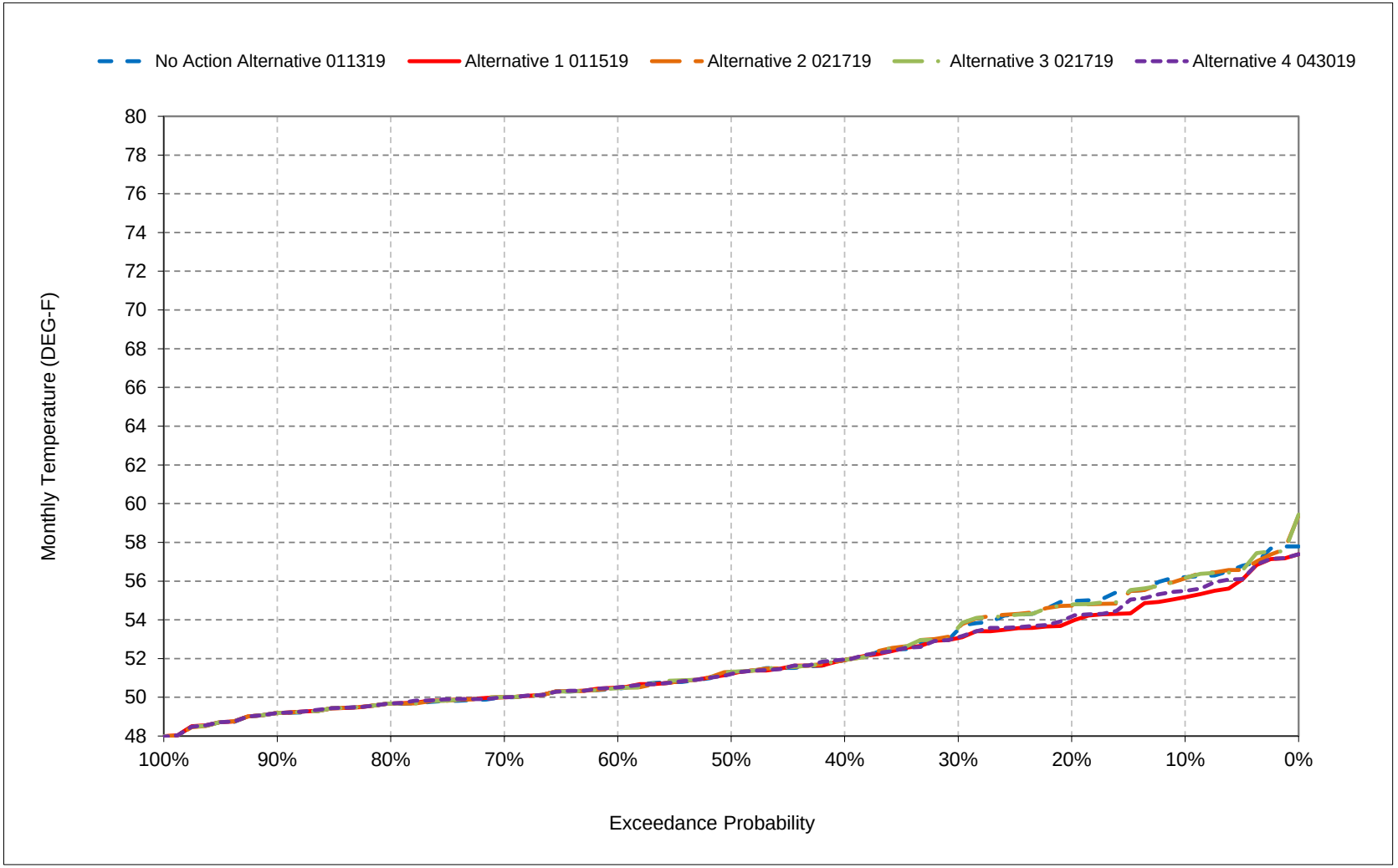
**Figure 16-11. American River at Watt Avenue, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

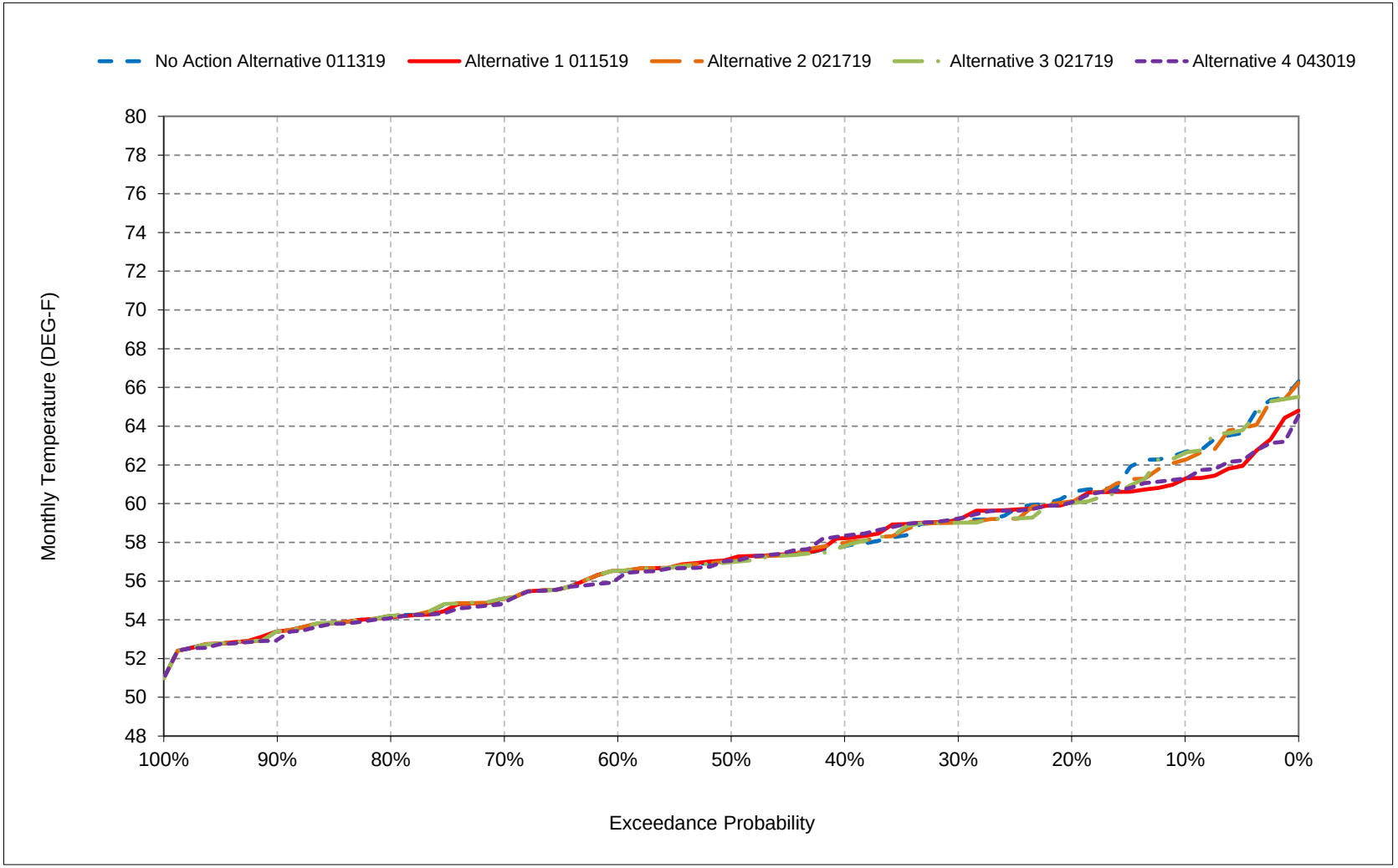
**Figure 16-12. American River at Watt Avenue, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

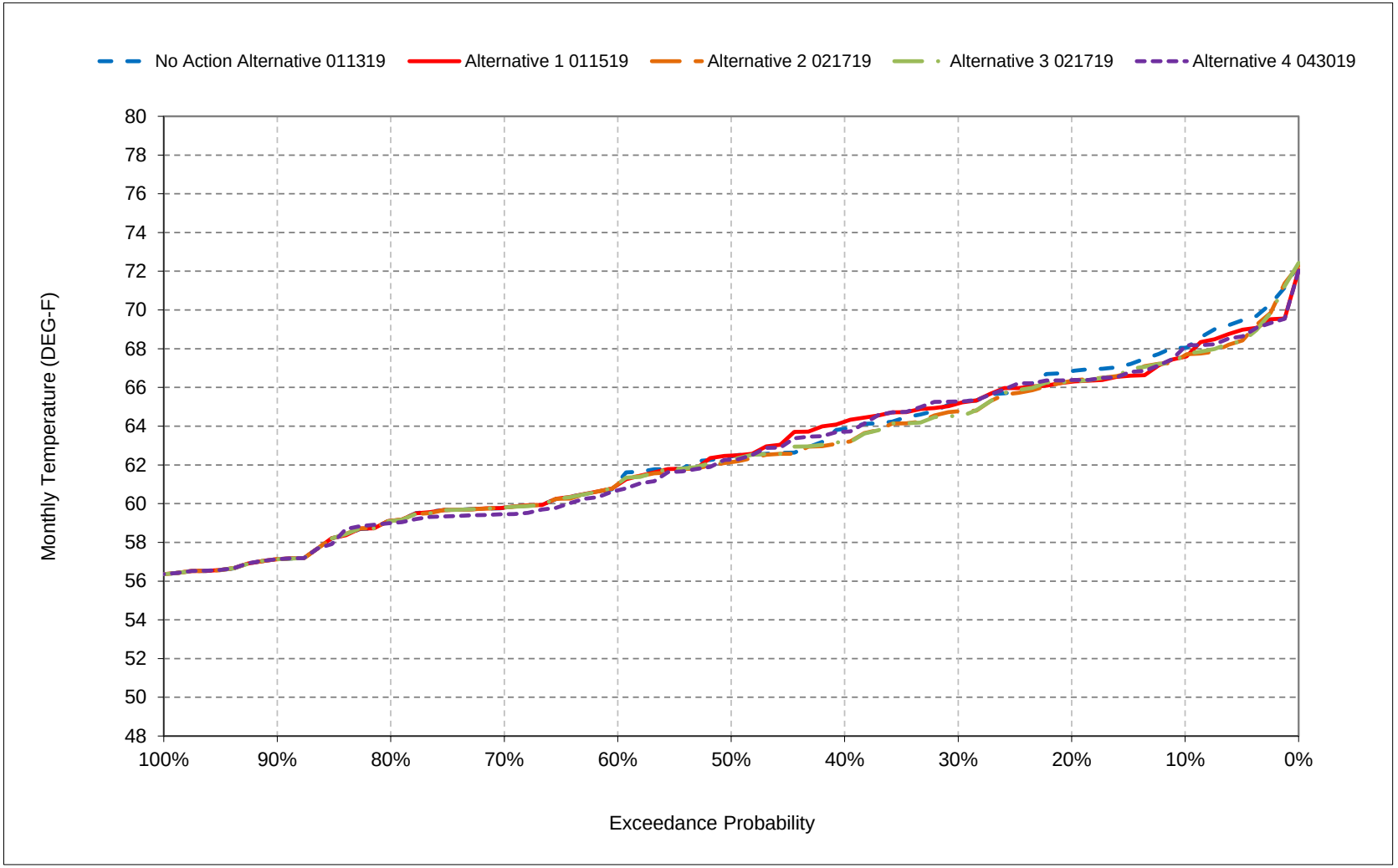
**Figure 16-13. American River at Watt Avenue, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

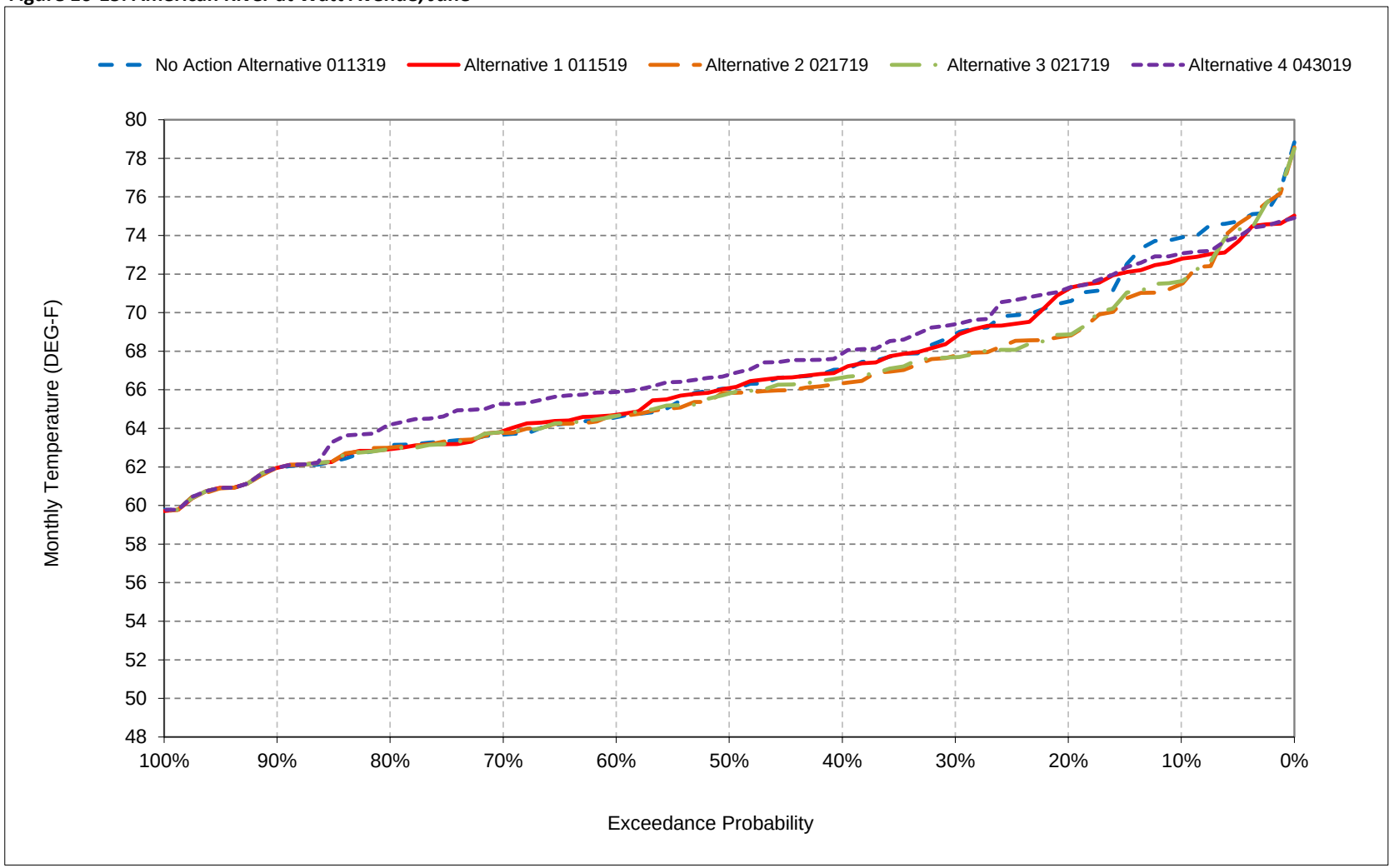
**Figure 16-14. American River at Watt Avenue, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

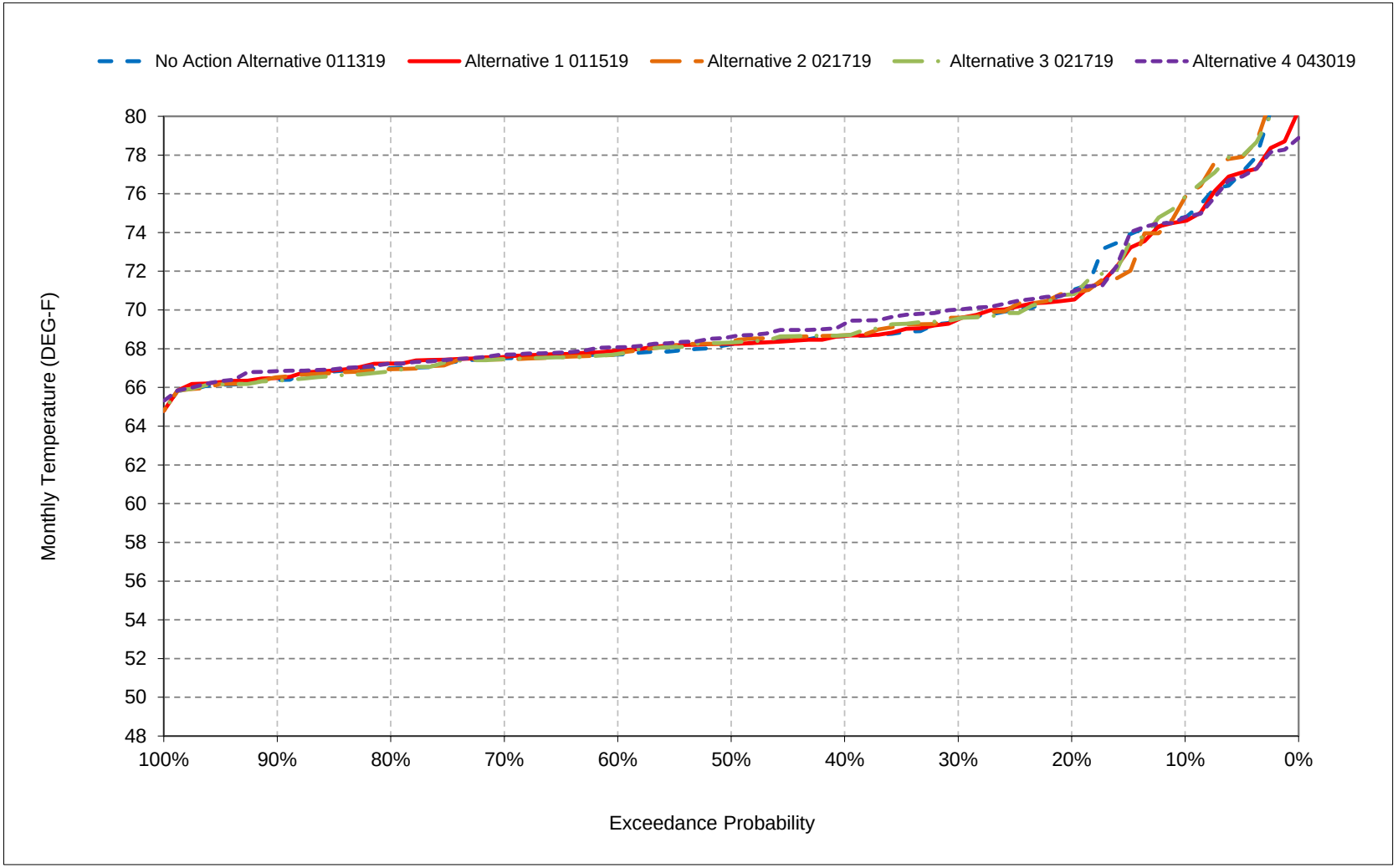
**Figure 16-15. American River at Watt Avenue, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

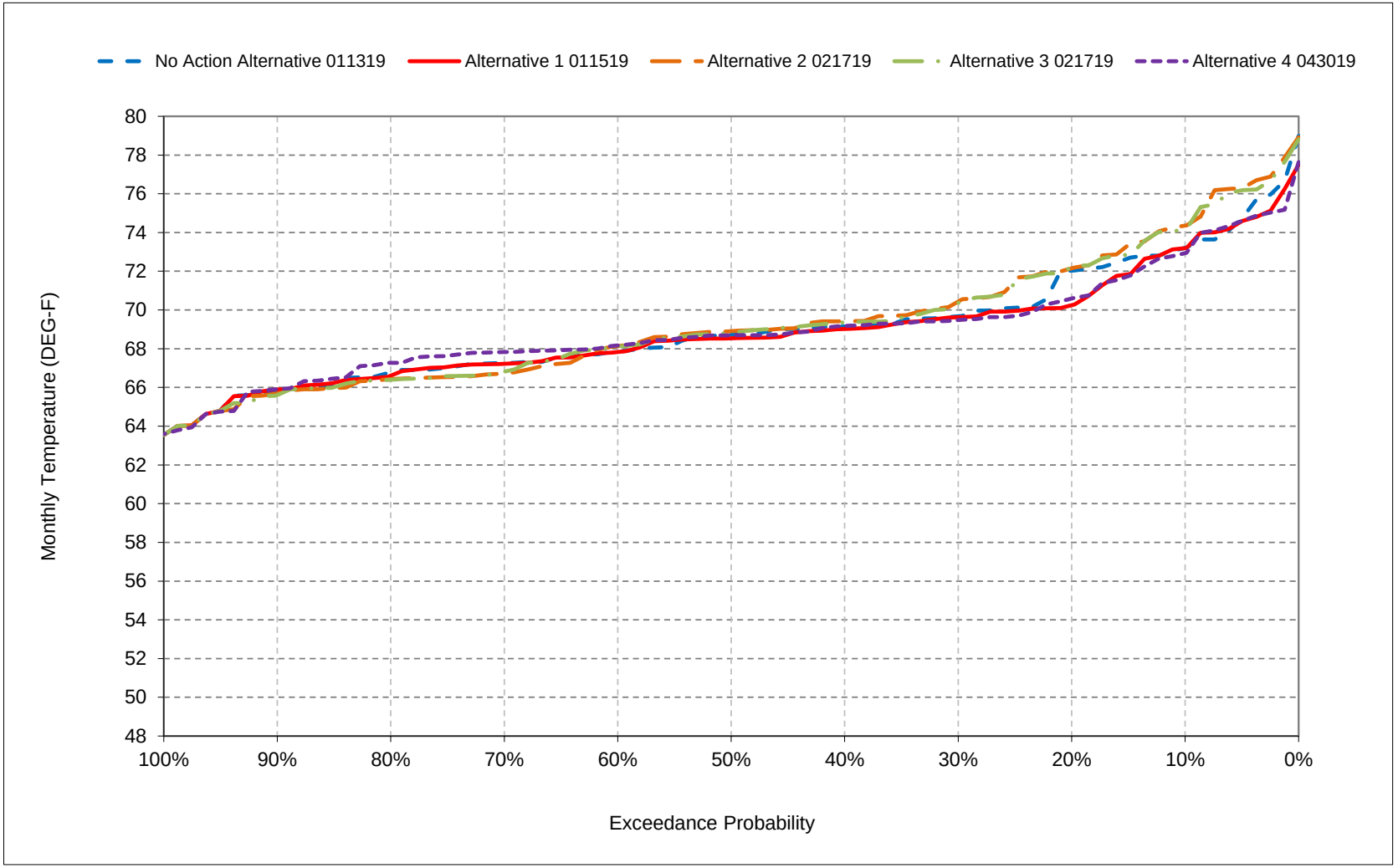
**Figure 16-16. American River at Watt Avenue, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

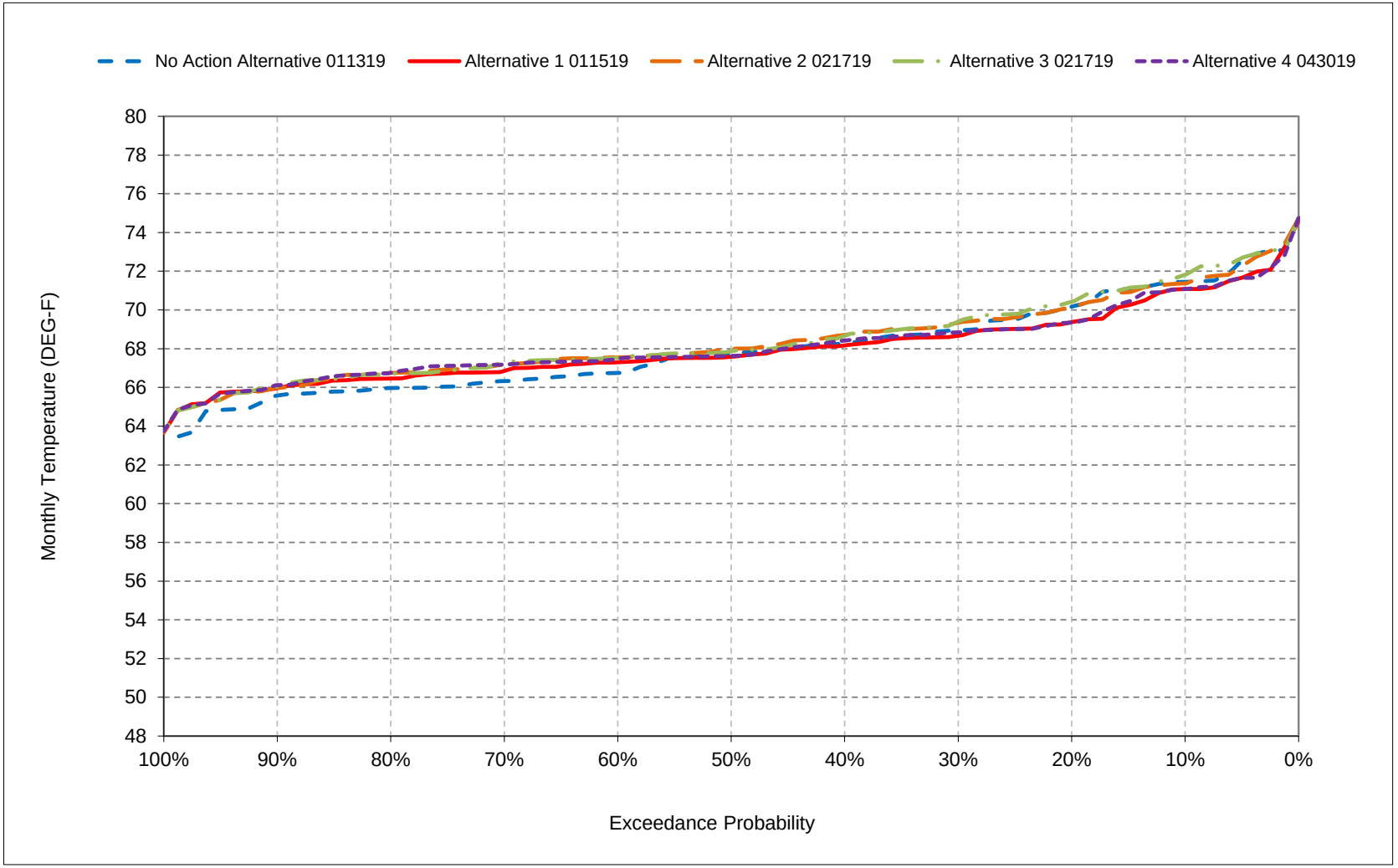
**Figure 16-17. American River at Watt Avenue, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 16-18. American River at Watt Avenue, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 17-1. American River at the Mouth, Monthly Temperature (above the confluence with the Sacramento River)

No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67.9 | 58.6 | 52.1 | 48.7 | 51.4 | 58.9 | 66.0 | 71.8 | 77.9 | 78.6 | 77.4 | 74.2 |
| 20% | 66.4 | 58.1 | 51.2 | 48.1 | 50.6 | 57.3 | 62.7 | 70.2 | 73.8 | 73.8 | 75.7 | 72.5 |
| 30% | 65.7 | 57.7 | 50.7 | 47.6 | 49.8 | 55.3 | 61.0 | 68.0 | 71.7 | 72.4 | 72.8 | 71.1 |
| 40% | 65.1 | 57.4 | 50.3 | 47.4 | 49.2 | 53.3 | 60.0 | 66.9 | 70.0 | 71.6 | 72.2 | 70.1 |
| 50% | 64.6 | 57.1 | 49.9 | 47.1 | 48.4 | 52.6 | 58.7 | 65.0 | 68.6 | 71.0 | 71.8 | 69.6 |
| 60% | 64.2 | 56.8 | 49.0 | 46.6 | 48.0 | 51.5 | 58.1 | 63.4 | 67.5 | 70.5 | 70.9 | 68.7 |
| 70% | 63.8 | 56.5 | 48.6 | 46.0 | 47.3 | 50.9 | 56.5 | 61.8 | 66.4 | 69.7 | 70.2 | 68.0 |
| 80% | 63.3 | 56.2 | 48.0 | 45.6 | 46.9 | 50.4 | 55.2 | 60.8 | 65.5 | 69.1 | 69.6 | 67.5 |
| 90% | 62.4 | 55.9 | 47.3 | 45.0 | 46.5 | 49.8 | 54.2 | 58.4 | 64.0 | 68.5 | 68.5 | 66.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.8 | 57.1 | 49.7 | 47.0 | 48.9 | 53.4 | 59.4 | 65.2 | 69.6 | 72.2 | 72.3 | 70.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 63.2 | 57.1 | 50.2 | 46.1 | 47.2 | 50.8 | 55.9 | 61.1 | 65.6 | 70.2 | 69.7 | 67.4 |
| Above Normal (16%) | 64.4 | 56.6 | 49.6 | 47.0 | 48.1 | 51.4 | 57.9 | 64.6 | 68.9 | 69.1 | 71.4 | 69.1 |
| Below Normal (13%) | 65.0 | 57.3 | 49.7 | 47.3 | 48.6 | 54.4 | 61.6 | 66.7 | 71.3 | 70.5 | 73.3 | 71.1 |
| Dry (24%) | 65.6 | 57.1 | 49.3 | 47.4 | 49.8 | 54.8 | 60.9 | 67.3 | 71.6 | 73.1 | 73.1 | 71.4 |
| Critical (15%) | 66.9 | 57.8 | 49.4 | 47.8 | 52.2 | 58.2 | 64.2 | 69.8 | 74.1 | 80.0 | 76.4 | 73.5 |

Alternative 1 011519

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 68.1 | 58.7 | 52.2 | 49.0 | 51.6 | 57.5 | 64.2 | 71.0 | 77.2 | 77.7 | 77.3 | 73.5 |
| 20% | 66.3 | 58.1 | 51.4 | 48.4 | 50.5 | 55.9 | 62.9 | 69.5 | 74.1 | 73.8 | 73.6 | 71.2 |
| 30% | 65.6 | 57.7 | 50.9 | 47.8 | 49.7 | 54.9 | 61.6 | 68.5 | 71.7 | 72.7 | 72.6 | 70.7 |
| 40% | 65.1 | 57.4 | 50.4 | 47.6 | 49.0 | 53.4 | 60.4 | 67.3 | 69.9 | 71.7 | 72.1 | 70.0 |
| 50% | 64.6 | 57.2 | 50.0 | 47.3 | 48.4 | 52.5 | 58.7 | 65.3 | 68.4 | 71.3 | 71.5 | 69.5 |
| 60% | 64.1 | 56.9 | 49.5 | 46.7 | 47.8 | 51.3 | 58.2 | 63.1 | 67.8 | 70.9 | 70.9 | 69.3 |
| 70% | 63.9 | 56.6 | 49.0 | 46.4 | 47.3 | 50.9 | 56.4 | 61.8 | 66.6 | 70.0 | 70.1 | 68.8 |
| 80% | 63.3 | 56.1 | 48.3 | 45.9 | 46.9 | 50.4 | 55.2 | 60.8 | 65.2 | 69.4 | 69.5 | 68.6 |
| 90% | 62.5 | 55.8 | 47.4 | 45.1 | 46.5 | 49.8 | 54.2 | 58.4 | 64.0 | 68.6 | 68.5 | 67.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.8 | 57.2 | 49.9 | 47.2 | 48.8 | 53.1 | 59.2 | 65.2 | 69.5 | 72.3 | 72.0 | 70.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 63.3 | 57.2 | 50.8 | 46.2 | 47.2 | 50.8 | 56.0 | 61.2 | 65.5 | 70.4 | 69.7 | 68.7 |
| Above Normal (16%) | 64.5 | 56.6 | 49.8 | 47.3 | 48.1 | 51.4 | 58.0 | 64.7 | 68.6 | 69.4 | 71.2 | 69.3 |
| Below Normal (13%) | 65.0 | 57.1 | 49.6 | 47.7 | 48.5 | 53.9 | 61.1 | 66.3 | 70.6 | 70.9 | 71.7 | 70.2 |
| Dry (24%) | 65.6 | 57.1 | 49.4 | 47.5 | 49.7 | 54.4 | 60.7 | 67.5 | 71.6 | 73.5 | 72.9 | 70.8 |
| Critical (15%) | 66.9 | 57.8 | 49.5 | 48.1 | 51.5 | 57.0 | 63.1 | 69.2 | 74.2 | 78.7 | 76.8 | 72.9 |

Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.2** | **0.1** | **0.1** | **0.2** | **0.2** | -1.4 | -1.8 | -0.8 | -0.7 | -0.9 | 0.0 | -0.7 |
| 20% | -0.1 | **0.0** | **0.2** | **0.3** | -0.2 | -1.4 | **0.2** | -0.7 | **0.2** | **0.0** | -2.1 | -1.4 |
| 30% | -0.2 | **0.1** | **0.2** | **0.2** | -0.1 | -0.4 | **0.6** | **0.5** | **0.0** | **0.3** | -0.2 | -0.4 |
| 40% | **0.0** | **0.0** | **0.2** | **0.3** | -0.3 | **0.1** | **0.4** | **0.5** | -0.1 | **0.1** | -0.1 | -0.1 |
| 50% | **0.0** | **0.1** | **0.1** | **0.1** | 0.0 | -0.1 | **0.0** | **0.3** | -0.2 | **0.3** | -0.2 | -0.1 |
| 60% | -0.1 | **0.1** | **0.4** | **0.1** | -0.2 | -0.2 | **0.1** | -0.2 | **0.3** | **0.4** | 0.0 | **0.6** |
| 70% | **0.0** | **0.1** | **0.4** | **0.4** | **0.0** | 0.0 | -0.1 | **0.0** | **0.3** | **0.2** | -0.1 | **0.8** |
| 80% | **0.0** | 0.0 | **0.2** | **0.3** | **0.1** | **0.0** | **0.0** | 0.0 | -0.2 | **0.4** | -0.1 | **1.1** |
| 90% | **0.1** | -0.1 | **0.1** | **0.1** | 0.0 | 0.0 | **0.1** | **0.0** | **0.0** | **0.1** | **0.0** | **1.0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | **0.0** | **0.2** | **0.2** | -0.1 | -0.3 | -0.2 | -0.1 | -0.2 | **0.1** | -0.2 | **0.1** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.2** | **0.1** | **0.5** | **0.1** | **0.0** | **0.0** | **0.1** | **0.1** | -0.1 | **0.3** | 0.0 | **1.3** |
| Above Normal (16%) | **0.0** | **0.1** | **0.2** | **0.2** | -0.1 | 0.0 | **0.1** | **0.1** | -0.3 | **0.2** | -0.2 | **0.2** |
| Below Normal (13%) | 0.0 | -0.2 | -0.1 | **0.4** | -0.1 | -0.6 | -0.5 | -0.4 | -0.7 | **0.4** | -1.6 | -0.8 |
| Dry (24%) | 0.0 | **0.0** | **0.2** | **0.1** | -0.1 | -0.4 | -0.2 | **0.2** | **0.0** | **0.4** | -0.1 | -0.6 |
| Critical (15%) | 0.0 | -0.1 | **0.0** | **0.3** | -0.6 | -1.2 | -1.1 | -0.6 | **0.1** | -1.4 | **0.3** | -0.6 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 17-2. American River at the Mouth, Monthly Temperature (above the confluence with the Sacramento River)

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67.9 | 58.6 | 52.1 | 48.7 | 51.4 | 58.9 | 66.0 | 71.8 | 77.9 | 78.6 | 77.4 | 74.2 |
| 20% | 66.4 | 58.1 | 51.2 | 48.1 | 50.6 | 57.3 | 62.7 | 70.2 | 73.8 | 73.8 | 75.7 | 72.5 |
| 30% | 65.7 | 57.7 | 50.7 | 47.6 | 49.8 | 55.3 | 61.0 | 68.0 | 71.7 | 72.4 | 72.8 | 71.1 |
| 40% | 65.1 | 57.4 | 50.3 | 47.4 | 49.2 | 53.3 | 60.0 | 66.9 | 70.0 | 71.6 | 72.2 | 70.1 |
| 50% | 64.6 | 57.1 | 49.9 | 47.1 | 48.4 | 52.6 | 58.7 | 65.0 | 68.6 | 71.0 | 71.8 | 69.6 |
| 60% | 64.2 | 56.8 | 49.0 | 46.6 | 48.0 | 51.5 | 58.1 | 63.4 | 67.5 | 70.5 | 70.9 | 68.7 |
| 70% | 63.8 | 56.5 | 48.6 | 46.0 | 47.3 | 50.9 | 56.5 | 61.8 | 66.4 | 69.7 | 70.2 | 68.0 |
| 80% | 63.3 | 56.2 | 48.0 | 45.6 | 46.9 | 50.4 | 55.2 | 60.8 | 65.5 | 69.1 | 69.6 | 67.5 |
| 90% | 62.4 | 55.9 | 47.3 | 45.0 | 46.5 | 49.8 | 54.2 | 58.4 | 64.0 | 68.5 | 68.5 | 66.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.8 | 57.1 | 49.7 | 47.0 | 48.9 | 53.4 | 59.4 | 65.2 | 69.6 | 72.2 | 72.3 | 70.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 63.2 | 57.1 | 50.2 | 46.1 | 47.2 | 50.8 | 55.9 | 61.1 | 65.6 | 70.2 | 69.7 | 67.4 |
| Above Normal (16%) | 64.4 | 56.6 | 49.6 | 47.0 | 48.1 | 51.4 | 57.9 | 64.6 | 68.9 | 69.1 | 71.4 | 69.1 |
| Below Normal (13%) | 65.0 | 57.3 | 49.7 | 47.3 | 48.6 | 54.4 | 61.6 | 66.7 | 71.3 | 70.5 | 73.3 | 71.1 |
| Dry (24%) | 65.6 | 57.1 | 49.3 | 47.4 | 49.8 | 54.8 | 60.9 | 67.3 | 71.6 | 73.1 | 73.1 | 71.4 |
| Critical (15%) | 66.9 | 57.8 | 49.4 | 47.8 | 52.2 | 58.2 | 64.2 | 69.8 | 74.1 | 80.0 | 76.4 | 73.5 |

### Alternative 2 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67.9 | 58.6 | 52.2 | 48.9 | 51.6 | 59.0 | 65.3 | 70.9 | 76.1 | 79.5 | 79.5 | 74.3 |
| 20% | 66.3 | 58.1 | 51.3 | 48.3 | 50.7 | 57.1 | 62.3 | 69.0 | 71.8 | 73.8 | 76.0 | 72.6 |
| 30% | 65.7 | 57.6 | 50.8 | 47.7 | 49.7 | 55.5 | 61.0 | 67.4 | 70.4 | 72.2 | 73.7 | 71.6 |
| 40% | 65.2 | 57.3 | 50.2 | 47.5 | 49.1 | 53.3 | 60.2 | 66.3 | 68.9 | 71.7 | 72.4 | 70.7 |
| 50% | 64.9 | 57.0 | 49.7 | 47.1 | 48.5 | 52.6 | 58.7 | 64.7 | 68.0 | 71.2 | 72.0 | 70.0 |
| 60% | 64.3 | 56.8 | 49.4 | 46.5 | 47.9 | 51.3 | 58.2 | 63.2 | 67.0 | 70.3 | 71.4 | 69.6 |
| 70% | 63.9 | 56.5 | 48.5 | 46.1 | 47.3 | 50.9 | 56.6 | 61.8 | 66.3 | 69.8 | 69.6 | 69.3 |
| 80% | 63.3 | 56.0 | 47.9 | 45.6 | 46.9 | 50.4 | 55.2 | 60.8 | 65.3 | 69.3 | 69.1 | 68.8 |
| 90% | 61.9 | 55.6 | 47.2 | 45.1 | 46.5 | 49.8 | 54.2 | 58.4 | 64.0 | 68.5 | 68.4 | 67.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.8 | 57.1 | 49.8 | 47.0 | 48.9 | 53.5 | 59.3 | 64.9 | 68.9 | 72.3 | 72.6 | 70.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 63.4 | 57.2 | 50.7 | 46.1 | 47.2 | 50.8 | 55.9 | 61.0 | 65.4 | 70.5 | 69.3 | 69.0 |
| Above Normal (16%) | 64.5 | 56.3 | 49.4 | 47.2 | 48.0 | 51.4 | 57.9 | 64.4 | 67.7 | 69.0 | 72.0 | 70.0 |
| Below Normal (13%) | 65.0 | 56.8 | 49.3 | 47.5 | 48.6 | 54.3 | 61.5 | 65.9 | 68.5 | 70.4 | 73.2 | 70.8 |
| Dry (24%) | 65.6 | 57.0 | 49.2 | 47.4 | 49.8 | 54.9 | 60.8 | 66.9 | 71.0 | 73.5 | 73.8 | 71.4 |
| Critical (15%) | 66.9 | 57.7 | 49.3 | 47.8 | 52.2 | 58.4 | 63.9 | 69.5 | 74.5 | 79.6 | 78.1 | 73.6 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.0** | 0.0 | **0.1** | **0.2** | **0.1** | **0.0** | -0.7 | -1.0 | -1.9 | **0.9** | **2.1** | **0.1** |
| 20% | -0.1 | 0.0 | **0.1** | **0.2** | **0.0** | -0.3 | -0.3 | -1.2 | -2.0 | -0.1 | **0.3** | **0.0** |
| 30% | 0.0 | -0.1 | **0.2** | **0.1** | -0.1 | **0.2** | -0.1 | -0.6 | -1.3 | -0.2 | **0.9** | **0.4** |
| 40% | **0.1** | -0.1 | 0.0 | **0.2** | -0.1 | **0.1** | **0.1** | -0.6 | -1.1 | **0.1** | **0.2** | **0.6** |
| 50% | **0.2** | -0.1 | -0.2 | **0.0** | **0.0** | **0.0** | **0.0** | -0.3 | -0.6 | **0.2** | **0.2** | **0.4** |
| 60% | **0.1** | 0.0 | **0.4** | -0.1 | -0.1 | -0.2 | **0.1** | -0.2 | -0.5 | -0.2 | **0.4** | **0.9** |
| 70% | **0.1** | **0.1** | -0.2 | **0.1** | **0.0** | 0.0 | **0.1** | **0.0** | -0.1 | **0.1** | -0.6 | **1.2** |
| 80% | **0.0** | -0.1 | -0.2 | 0.0 | 0.0 | 0.0 | 0.0 | **0.0** | -0.2 | **0.2** | -0.5 | **1.3** |
| 90% | -0.5 | -0.3 | -0.1 | **0.1** | 0.0 | 0.0 | **0.0** | 0.0 | 0.0 | **0.0** | -0.1 | **0.9** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.0** | -0.1 | **0.0** | **0.1** | 0.0 | **0.0** | -0.1 | -0.3 | -0.8 | **0.1** | **0.4** | **0.6** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.2** | **0.1** | **0.5** | **0.1** | 0.0 | **0.0** | **0.0** | -0.1 | -0.2 | **0.3** | -0.4 | **1.6** |
| Above Normal (16%) | **0.1** | -0.2 | -0.1 | **0.2** | -0.1 | 0.0 | **0.0** | -0.2 | -1.2 | -0.2 | **0.6** | **0.9** |
| Below Normal (13%) | **0.0** | -0.5 | -0.4 | **0.3** | -0.1 | -0.1 | -0.1 | -0.8 | -2.8 | -0.1 | -0.2 | -0.2 |
| Dry (24%) | -0.1 | 0.0 | -0.1 | **0.0** | **0.1** | **0.1** | -0.1 | -0.4 | -0.6 | **0.4** | **0.7** | **0.0** |
| Critical (15%) | 0.0 | -0.1 | -0.1 | 0.0 | **0.0** | **0.1** | -0.3 | -0.4 | **0.3** | -0.5 | **1.7** | **0.1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 17-3. American River at the Mouth, Monthly Temperature (above the confluence with the Sacramento River)

No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67.9 | 58.6 | 52.1 | 48.7 | 51.4 | 58.9 | 66.0 | 71.8 | 77.9 | 78.6 | 77.4 | 74.2 |
| 20% | 66.4 | 58.1 | 51.2 | 48.1 | 50.6 | 57.3 | 62.7 | 70.2 | 73.8 | 73.8 | 75.7 | 72.5 |
| 30% | 65.7 | 57.7 | 50.7 | 47.6 | 49.8 | 55.3 | 61.0 | 68.0 | 71.7 | 72.4 | 72.8 | 71.1 |
| 40% | 65.1 | 57.4 | 50.3 | 47.4 | 49.2 | 53.3 | 60.0 | 66.9 | 70.0 | 71.6 | 72.2 | 70.1 |
| 50% | 64.6 | 57.1 | 49.9 | 47.1 | 48.4 | 52.6 | 58.7 | 65.0 | 68.6 | 71.0 | 71.8 | 69.6 |
| 60% | 64.2 | 56.8 | 49.0 | 46.6 | 48.0 | 51.5 | 58.1 | 63.4 | 67.5 | 70.5 | 70.9 | 68.7 |
| 70% | 63.8 | 56.5 | 48.6 | 46.0 | 47.3 | 50.9 | 56.5 | 61.8 | 66.4 | 69.7 | 70.2 | 68.0 |
| 80% | 63.3 | 56.2 | 48.0 | 45.6 | 46.9 | 50.4 | 55.2 | 60.8 | 65.5 | 69.1 | 69.6 | 67.5 |
| 90% | 62.4 | 55.9 | 47.3 | 45.0 | 46.5 | 49.8 | 54.2 | 58.4 | 64.0 | 68.5 | 68.5 | 66.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.8 | 57.1 | 49.7 | 47.0 | 48.9 | 53.4 | 59.4 | 65.2 | 69.6 | 72.2 | 72.3 | 70.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 63.2 | 57.1 | 50.2 | 46.1 | 47.2 | 50.8 | 55.9 | 61.1 | 65.6 | 70.2 | 69.7 | 67.4 |
| Above Normal (16%) | 64.4 | 56.6 | 49.6 | 47.0 | 48.1 | 51.4 | 57.9 | 64.6 | 68.9 | 69.1 | 71.4 | 69.1 |
| Below Normal (13%) | 65.0 | 57.3 | 49.7 | 47.3 | 48.6 | 54.4 | 61.6 | 66.7 | 71.3 | 70.5 | 73.3 | 71.1 |
| Dry (24%) | 65.6 | 57.1 | 49.3 | 47.4 | 49.8 | 54.8 | 60.9 | 67.3 | 71.6 | 73.1 | 73.1 | 71.4 |
| Critical (15%) | 66.9 | 57.8 | 49.4 | 47.8 | 52.2 | 58.2 | 64.2 | 69.8 | 74.1 | 80.0 | 76.4 | 73.5 |

Alternative 3 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67.9 | 58.6 | 52.2 | 48.9 | 51.6 | 59.0 | 65.4 | 70.7 | 76.1 | 79.6 | 79.8 | 75.3 |
| 20% | 66.3 | 58.1 | 51.3 | 48.2 | 50.8 | 57.0 | 62.3 | 69.0 | 71.5 | 73.7 | 76.1 | 72.8 |
| 30% | 65.8 | 57.7 | 50.8 | 47.8 | 49.7 | 55.6 | 60.9 | 67.3 | 70.3 | 72.3 | 73.7 | 71.5 |
| 40% | 65.1 | 57.4 | 50.2 | 47.6 | 49.1 | 53.3 | 60.1 | 66.2 | 68.8 | 71.7 | 72.4 | 70.7 |
| 50% | 64.8 | 57.0 | 49.8 | 47.2 | 48.5 | 52.6 | 58.7 | 64.9 | 68.3 | 71.2 | 71.9 | 69.8 |
| 60% | 64.4 | 56.8 | 49.4 | 46.5 | 47.9 | 51.3 | 58.2 | 63.2 | 67.2 | 70.7 | 71.2 | 69.6 |
| 70% | 64.0 | 56.5 | 48.6 | 46.2 | 47.3 | 50.9 | 56.6 | 61.8 | 66.3 | 69.7 | 69.6 | 69.3 |
| 80% | 63.3 | 56.1 | 48.1 | 45.6 | 46.9 | 50.4 | 55.2 | 60.7 | 65.4 | 69.3 | 69.1 | 68.8 |
| 90% | 61.9 | 55.3 | 47.1 | 45.1 | 46.5 | 49.8 | 54.2 | 58.4 | 64.0 | 68.4 | 68.4 | 68.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.8 | 57.1 | 49.8 | 47.0 | 48.9 | 53.5 | 59.3 | 64.9 | 68.9 | 72.3 | 72.6 | 70.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 63.3 | 57.2 | 50.7 | 46.1 | 47.2 | 50.8 | 55.9 | 61.1 | 65.3 | 70.4 | 69.7 | 69.2 |
| Above Normal (16%) | 64.6 | 56.3 | 49.4 | 47.2 | 48.0 | 51.4 | 57.9 | 64.4 | 67.8 | 68.9 | 71.2 | 69.6 |
| Below Normal (13%) | 65.0 | 56.8 | 49.2 | 47.5 | 48.6 | 54.3 | 61.2 | 65.8 | 68.7 | 70.6 | 73.2 | 70.9 |
| Dry (24%) | 65.6 | 57.0 | 49.2 | 47.4 | 49.9 | 54.9 | 60.7 | 66.9 | 71.0 | 73.4 | 73.8 | 71.6 |
| Critical (15%) | 67.0 | 57.8 | 49.4 | 47.7 | 52.3 | 58.4 | 64.1 | 69.5 | 74.6 | 79.9 | 77.6 | 73.6 |

Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | 0.0 | 0.0 | **0.1** | **0.2** | **0.2** | **0.0** | -0.6 | -1.1 | -1.8 | **1.0** | **2.4** | **1.1** |
| 20% | -0.1 | 0.0 | **0.0** | **0.1** | **0.2** | -0.3 | -0.3 | -1.2 | -2.3 | -0.1 | **0.4** | **0.2** |
| 30% | **0.0** | **0.0** | **0.1** | **0.1** | -0.1 | **0.3** | -0.2 | -0.7 | -1.4 | -0.1 | **0.9** | **0.4** |
| 40% | **0.1** | 0.0 | -0.1 | **0.2** | -0.1 | **0.1** | **0.0** | -0.6 | -1.2 | **0.2** | **0.2** | **0.6** |
| 50% | **0.2** | -0.1 | -0.1 | **0.1** | **0.0** | **0.0** | **0.0** | 0.0 | -0.3 | **0.2** | **0.1** | **0.3** |
| 60% | **0.2** | 0.0 | **0.4** | -0.1 | 0.0 | -0.2 | **0.1** | -0.2 | -0.3 | **0.2** | **0.2** | **0.8** |
| 70% | **0.2** | **0.0** | -0.1 | **0.2** | **0.0** | 0.0 | **0.1** | **0.0** | 0.0 | 0.0 | -0.6 | **1.3** |
| 80% | 0.0 | -0.1 | **0.0** | 0.0 | 0.0 | **0.0** | 0.0 | 0.0 | -0.1 | **0.2** | -0.5 | **1.2** |
| 90% | -0.5 | -0.6 | -0.1 | **0.1** | 0.0 | **0.0** | **0.0** | **0.0** | **0.0** | -0.2 | -0.1 | **1.2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | -0.1 | **0.0** | **0.1** | **0.0** | **0.0** | -0.1 | -0.3 | -0.7 | **0.1** | **0.3** | **0.7** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.2** | **0.1** | **0.5** | **0.1** | **0.0** | **0.0** | **0.0** | 0.0 | -0.3 | **0.2** | 0.0 | **1.8** |
| Above Normal (16%) | **0.1** | -0.3 | -0.1 | **0.2** | -0.1 | 0.0 | **0.0** | -0.2 | -1.1 | -0.2 | -0.2 | **0.5** |
| Below Normal (13%) | 0.0 | -0.5 | -0.4 | **0.3** | -0.1 | -0.1 | -0.4 | -0.9 | -2.6 | **0.1** | -0.1 | -0.2 |
| Dry (24%) | -0.1 | 0.0 | -0.1 | **0.0** | **0.1** | **0.1** | -0.2 | -0.4 | -0.6 | **0.3** | **0.7** | **0.2** |
| Critical (15%) | **0.1** | 0.0 | -0.1 | -0.1 | **0.2** | **0.2** | -0.1 | -0.4 | **0.5** | -0.1 | **1.2** | **0.1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 17-4. American River at the Mouth, Monthly Temperature (above the confluence with the Sacramento River)

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 67.9 | 58.6 | 52.1 | 48.7 | 51.4 | 58.9 | 66.0 | 71.8 | 77.9 | 78.6 | 77.4 | 74.2 |
| 20% | 66.4 | 58.1 | 51.2 | 48.1 | 50.6 | 57.3 | 62.7 | 70.2 | 73.8 | 73.8 | 75.7 | 72.5 |
| 30% | 65.7 | 57.7 | 50.7 | 47.6 | 49.8 | 55.3 | 61.0 | 68.0 | 71.7 | 72.4 | 72.8 | 71.1 |
| 40% | 65.1 | 57.4 | 50.3 | 47.4 | 49.2 | 53.3 | 60.0 | 66.9 | 70.0 | 71.6 | 72.2 | 70.1 |
| 50% | 64.6 | 57.1 | 49.9 | 47.1 | 48.4 | 52.6 | 58.7 | 65.0 | 68.6 | 71.0 | 71.8 | 69.6 |
| 60% | 64.2 | 56.8 | 49.0 | 46.6 | 48.0 | 51.5 | 58.1 | 63.4 | 67.5 | 70.5 | 70.9 | 68.7 |
| 70% | 63.8 | 56.5 | 48.6 | 46.0 | 47.3 | 50.9 | 56.5 | 61.8 | 66.4 | 69.7 | 70.2 | 68.0 |
| 80% | 63.3 | 56.2 | 48.0 | 45.6 | 46.9 | 50.4 | 55.2 | 60.8 | 65.5 | 69.1 | 69.6 | 67.5 |
| 90% | 62.4 | 55.9 | 47.3 | 45.0 | 46.5 | 49.8 | 54.2 | 58.4 | 64.0 | 68.5 | 68.5 | 66.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.8 | 57.1 | 49.7 | 47.0 | 48.9 | 53.4 | 59.4 | 65.2 | 69.6 | 72.2 | 72.3 | 70.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 63.2 | 57.1 | 50.2 | 46.1 | 47.2 | 50.8 | 55.9 | 61.1 | 65.6 | 70.2 | 69.7 | 67.4 |
| Above Normal (16%) | 64.4 | 56.6 | 49.6 | 47.0 | 48.1 | 51.4 | 57.9 | 64.6 | 68.9 | 69.1 | 71.4 | 69.1 |
| Below Normal (13%) | 65.0 | 57.3 | 49.7 | 47.3 | 48.6 | 54.4 | 61.6 | 66.7 | 71.3 | 70.5 | 73.3 | 71.1 |
| Dry (24%) | 65.6 | 57.1 | 49.3 | 47.4 | 49.8 | 54.8 | 60.9 | 67.3 | 71.6 | 73.1 | 73.1 | 71.4 |
| Critical (15%) | 66.9 | 57.8 | 49.4 | 47.8 | 52.2 | 58.2 | 64.2 | 69.8 | 74.1 | 80.0 | 76.4 | 73.5 |

### Alternative 4 043019

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 68.0 | 58.6 | 52.2 | 49.0 | 51.6 | 57.7 | 64.5 | 71.0 | 77.6 | 78.0 | 76.9 | 73.6 |
| 20% | 66.3 | 58.1 | 51.4 | 48.4 | 50.5 | 56.2 | 62.8 | 69.5 | 74.8 | 74.1 | 73.9 | 71.3 |
| 30% | 65.7 | 57.8 | 50.8 | 47.9 | 49.7 | 54.9 | 61.7 | 68.9 | 72.5 | 73.0 | 72.5 | 70.7 |
| 40% | 65.4 | 57.4 | 50.4 | 47.6 | 48.9 | 53.5 | 60.5 | 66.5 | 70.9 | 72.2 | 72.2 | 70.2 |
| 50% | 64.9 | 57.0 | 49.7 | 47.2 | 48.4 | 52.5 | 58.7 | 64.7 | 69.4 | 71.4 | 71.7 | 69.5 |
| 60% | 64.2 | 56.7 | 49.4 | 46.7 | 47.8 | 51.4 | 57.6 | 62.7 | 68.5 | 71.0 | 71.2 | 69.3 |
| 70% | 63.9 | 56.6 | 49.1 | 46.2 | 47.3 | 50.9 | 56.1 | 61.2 | 67.8 | 70.4 | 70.7 | 69.1 |
| 80% | 63.4 | 56.1 | 48.3 | 45.8 | 46.9 | 50.5 | 55.2 | 60.4 | 66.5 | 69.4 | 70.1 | 68.8 |
| 90% | 62.3 | 55.8 | 47.7 | 45.1 | 46.5 | 49.8 | 53.9 | 58.4 | 64.0 | 68.9 | 68.8 | 68.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 64.8 | 57.1 | 49.9 | 47.1 | 48.7 | 53.2 | 59.1 | 64.9 | 70.2 | 72.5 | 72.2 | 70.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 63.3 | 57.1 | 50.7 | 46.2 | 47.2 | 50.8 | 55.9 | 60.9 | 66.2 | 70.8 | 69.9 | 68.7 |
| Above Normal (16%) | 64.5 | 56.6 | 49.7 | 47.3 | 48.1 | 51.4 | 57.9 | 64.0 | 69.7 | 69.7 | 71.2 | 69.4 |
| Below Normal (13%) | 65.1 | 57.2 | 49.7 | 47.6 | 48.5 | 53.8 | 60.9 | 66.6 | 71.4 | 71.5 | 71.7 | 70.2 |
| Dry (24%) | 65.7 | 57.0 | 49.4 | 47.4 | 49.7 | 54.6 | 60.7 | 67.3 | 72.5 | 73.7 | 73.1 | 71.0 |
| Critical (15%) | 66.9 | 57.7 | 49.5 | 48.0 | 51.5 | 57.3 | 63.3 | 69.2 | 74.4 | 78.2 | 76.9 | 73.1 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **0.1** | **0.0** | **0.1** | **0.2** | **0.2** | -1.2 | -1.5 | -0.8 | -0.3 | -0.6 | -0.5 | -0.6 |
| 20% | -0.1 | **0.0** | **0.2** | **0.2** | -0.2 | -1.1 | **0.1** | -0.7 | **1.0** | **0.3** | -1.9 | -1.2 |
| 30% | 0.0 | **0.1** | **0.1** | **0.3** | -0.1 | -0.4 | **0.7** | **0.8** | **0.8** | **0.6** | -0.3 | -0.4 |
| 40% | **0.4** | 0.0 | **0.1** | **0.2** | -0.3 | **0.2** | **0.5** | -0.4 | **0.9** | **0.6** | **0.0** | **0.1** |
| 50% | **0.3** | -0.1 | -0.2 | **0.1** | 0.0 | -0.1 | 0.0 | -0.3 | **0.8** | **0.5** | -0.1 | 0.0 |
| 60% | 0.0 | -0.1 | **0.3** | **0.1** | -0.2 | -0.2 | -0.6 | -0.7 | **1.0** | **0.6** | **0.3** | **0.5** |
| 70% | **0.1** | **0.1** | **0.4** | **0.2** | **0.0** | **0.0** | -0.4 | -0.6 | **1.5** | **0.7** | **0.6** | **1.0** |
| 80% | **0.1** | 0.0 | **0.2** | **0.2** | **0.0** | **0.0** | 0.0 | -0.3 | **1.0** | **0.4** | **0.5** | **1.2** |
| 90% | -0.1 | -0.1 | **0.4** | **0.1** | 0.0 | **0.0** | -0.3 | **0.0** | **0.0** | **0.3** | **0.3** | **1.2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | 0.0 | **0.2** | **0.2** | -0.1 | -0.3 | -0.3 | -0.3 | **0.6** | **0.3** | -0.1 | **0.2** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.1** | **0.0** | **0.5** | **0.1** | **0.0** | **0.0** | 0.0 | -0.3 | **0.5** | **0.6** | **0.2** | **1.3** |
| Above Normal (16%) | **0.1** | **0.0** | **0.1** | **0.2** | -0.1 | 0.0 | **0.0** | -0.6 | **0.8** | **0.6** | -0.2 | **0.3** |
| Below Normal (13%) | **0.0** | -0.1 | 0.0 | **0.4** | -0.1 | -0.6 | -0.7 | -0.1 | **0.0** | **1.0** | -1.6 | -0.8 |
| Dry (24%) | **0.0** | -0.1 | **0.1** | **0.0** | -0.1 | -0.2 | -0.2 | **0.0** | **0.9** | **0.6** | 0.0 | -0.4 |
| Critical (15%) | **0.0** | -0.1 | **0.0** | **0.2** | -0.6 | -0.9 | -0.9 | -0.6 | **0.2** | -1.8 | **0.4** | -0.4 |

a Based on the 82-year simulation period.

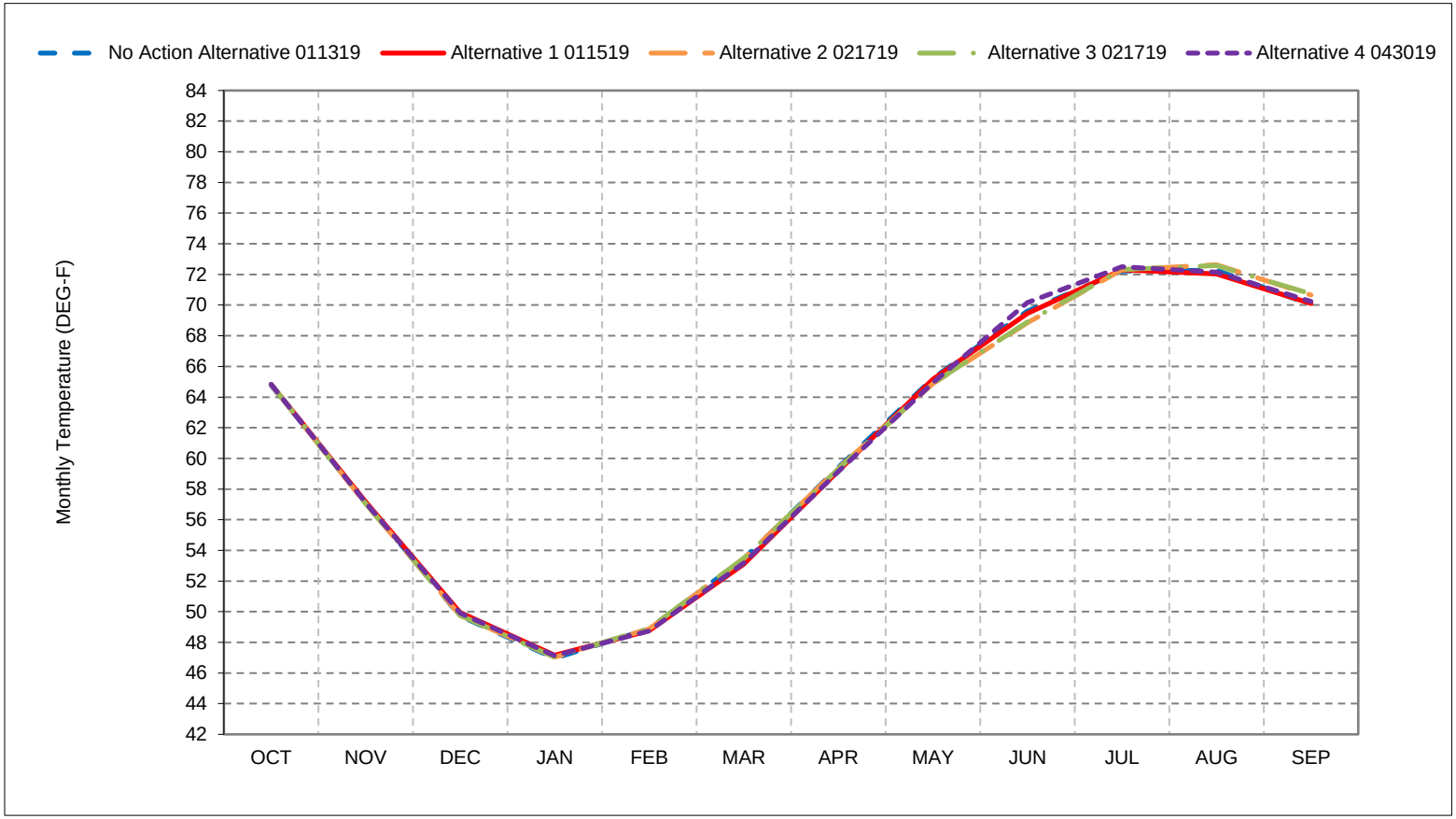
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

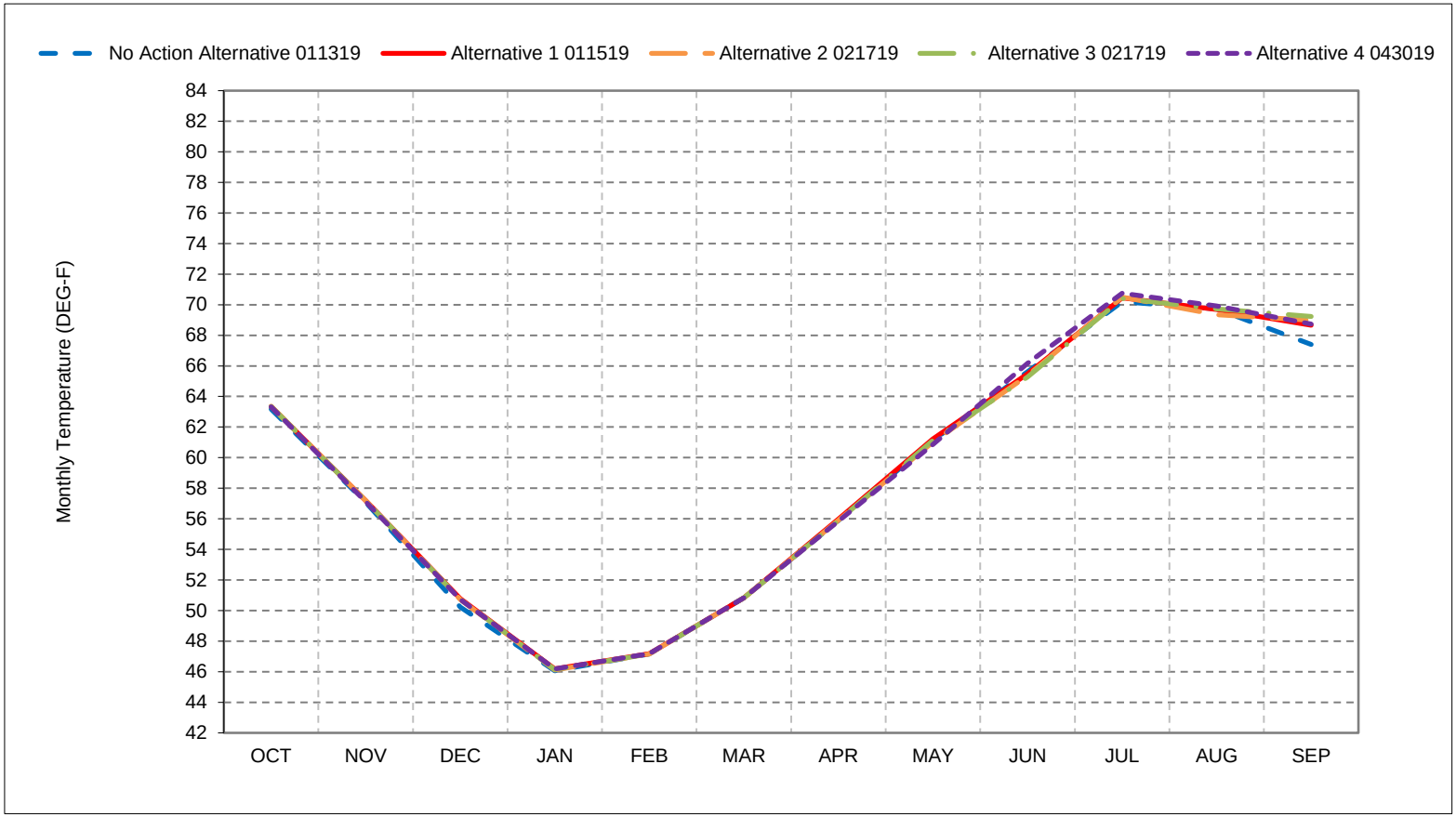
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-1. American River at the Mouth, Long-Term Average Temperature



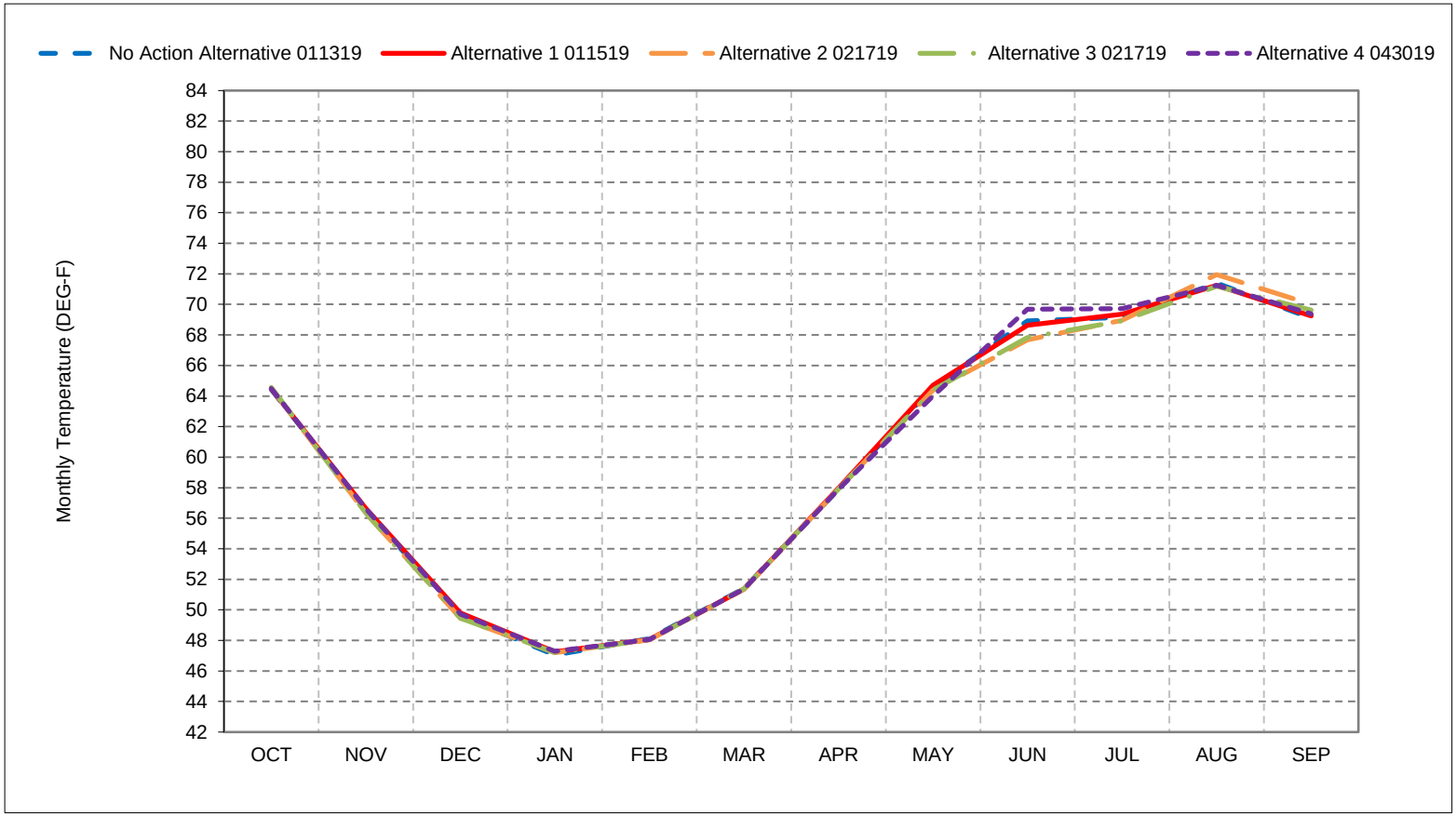

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-2. American River at the Mouth, Wet Year Average Temperature



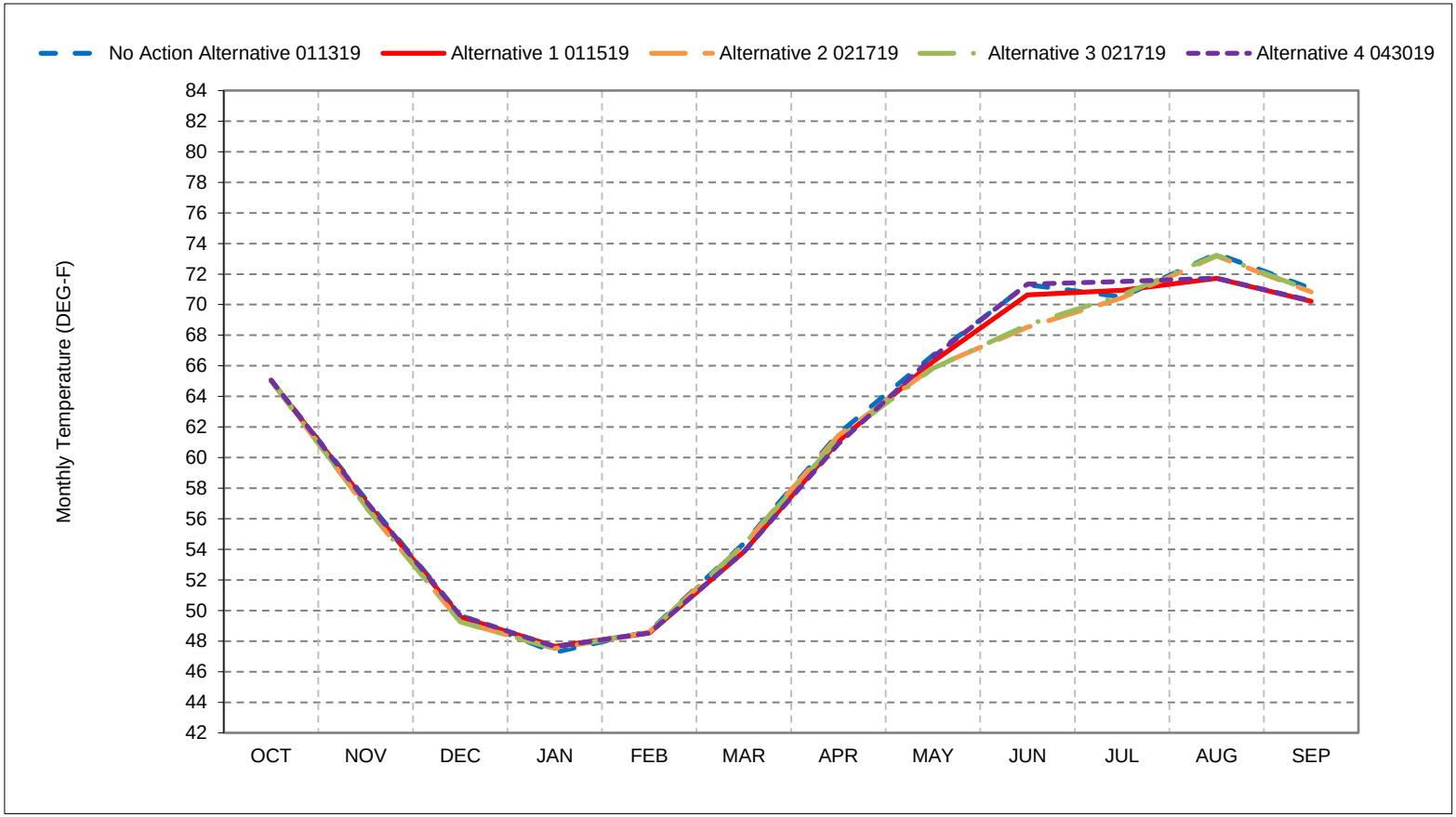

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-3. American River at the Mouth, Above Normal Year Average Temperature



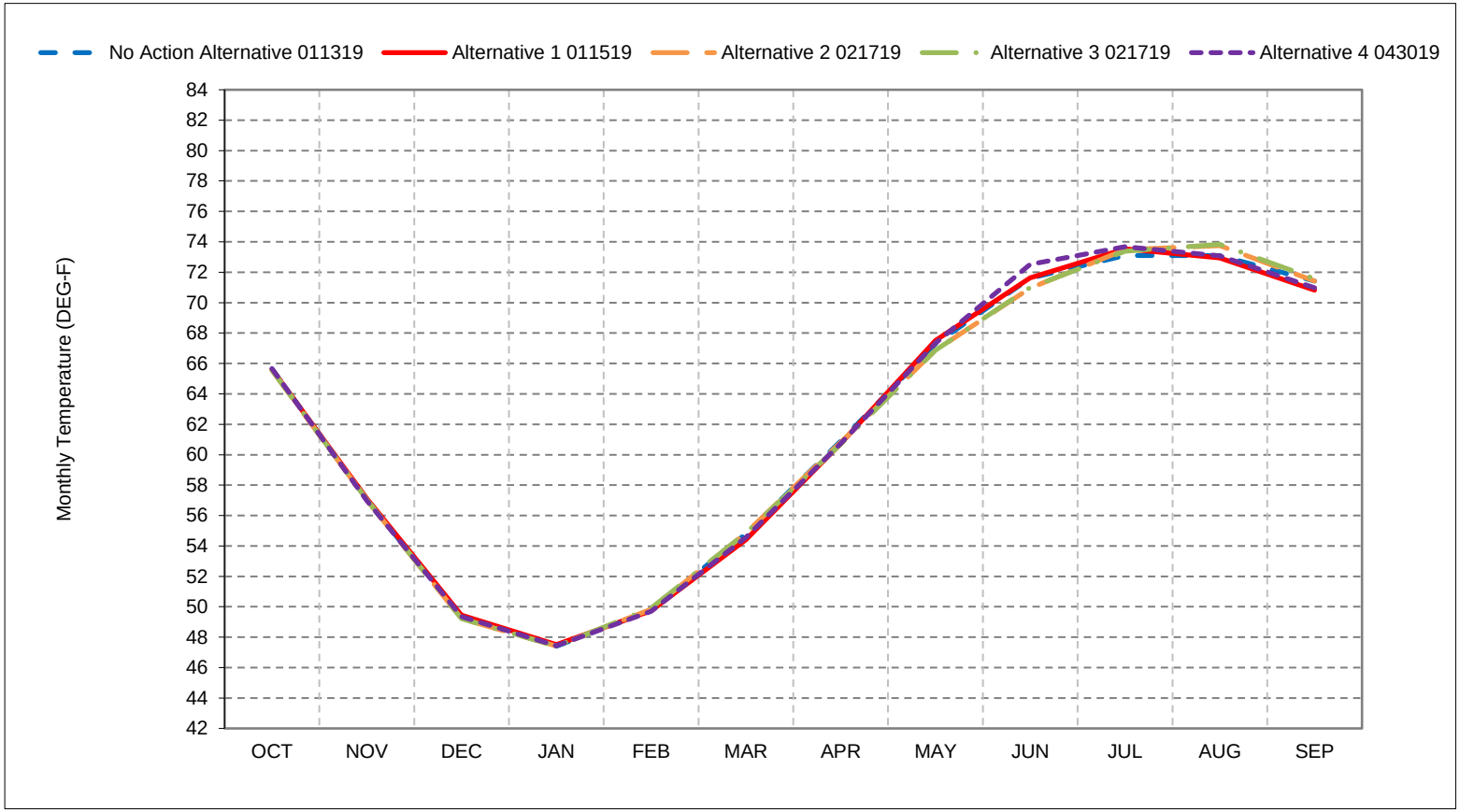

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-4. American River at the Mouth, Below Normal Year Average Temperature



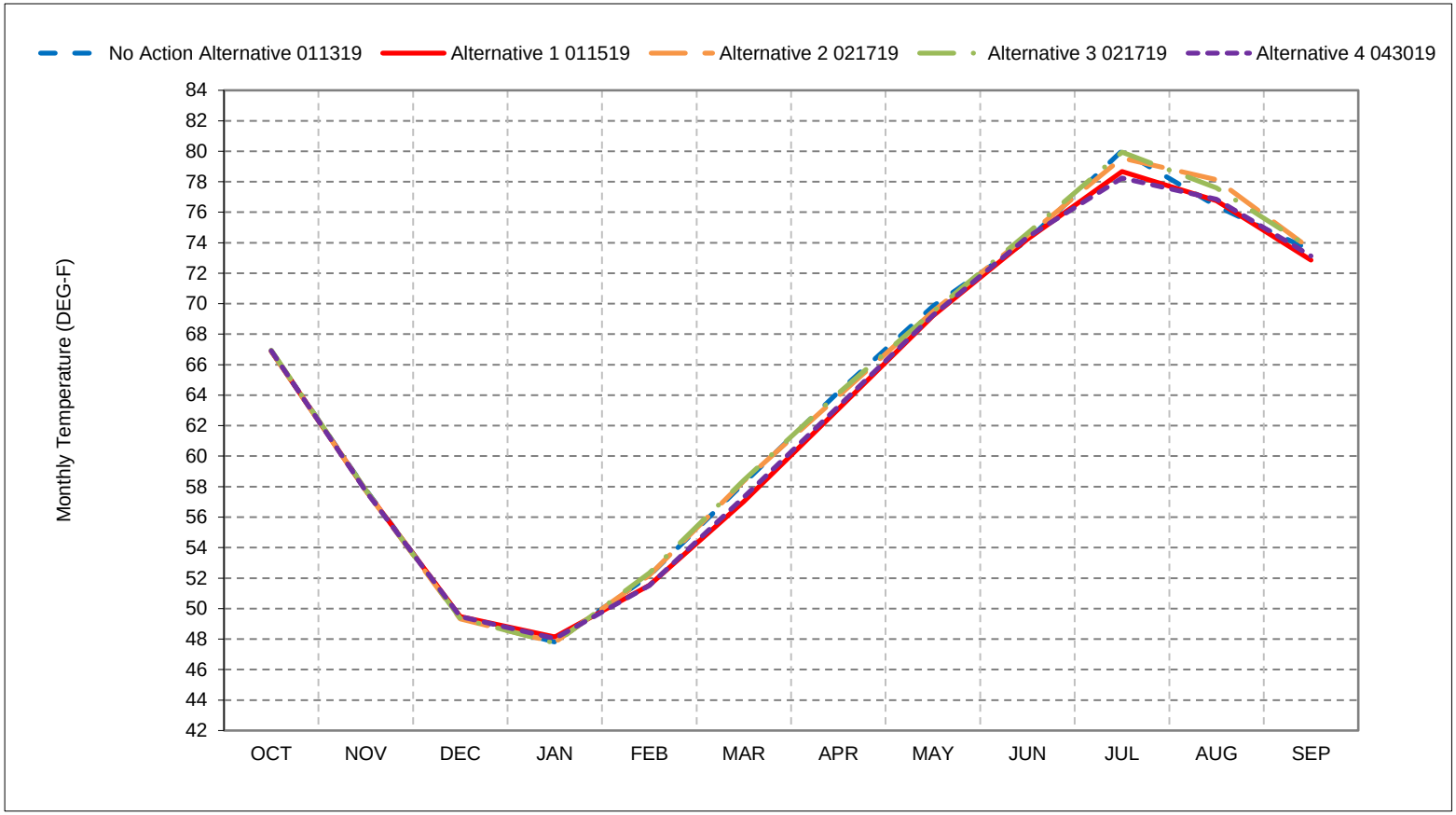

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-5. American River at the Mouth, Dry Year Average Temperature



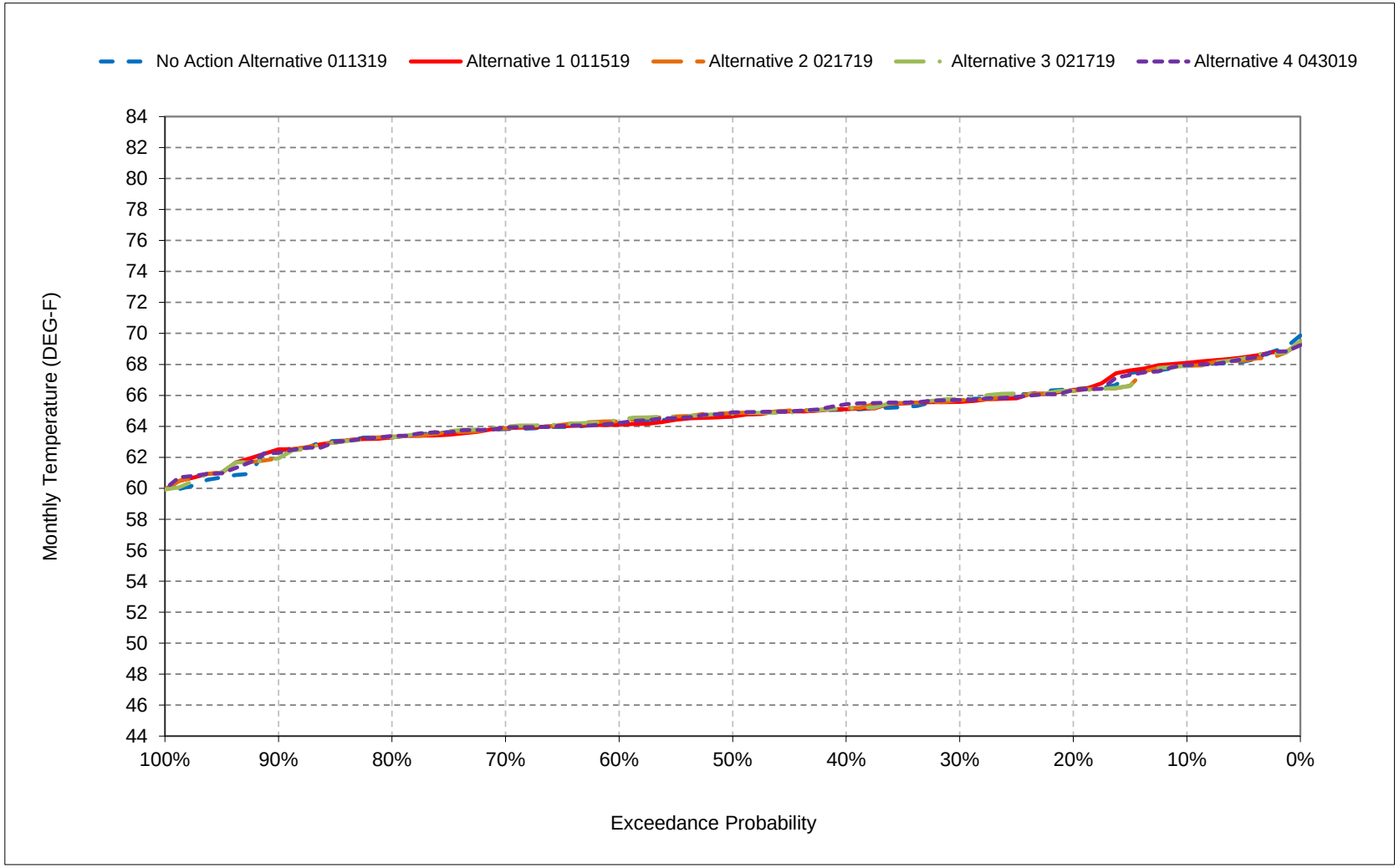

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-6. American River at the Mouth, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

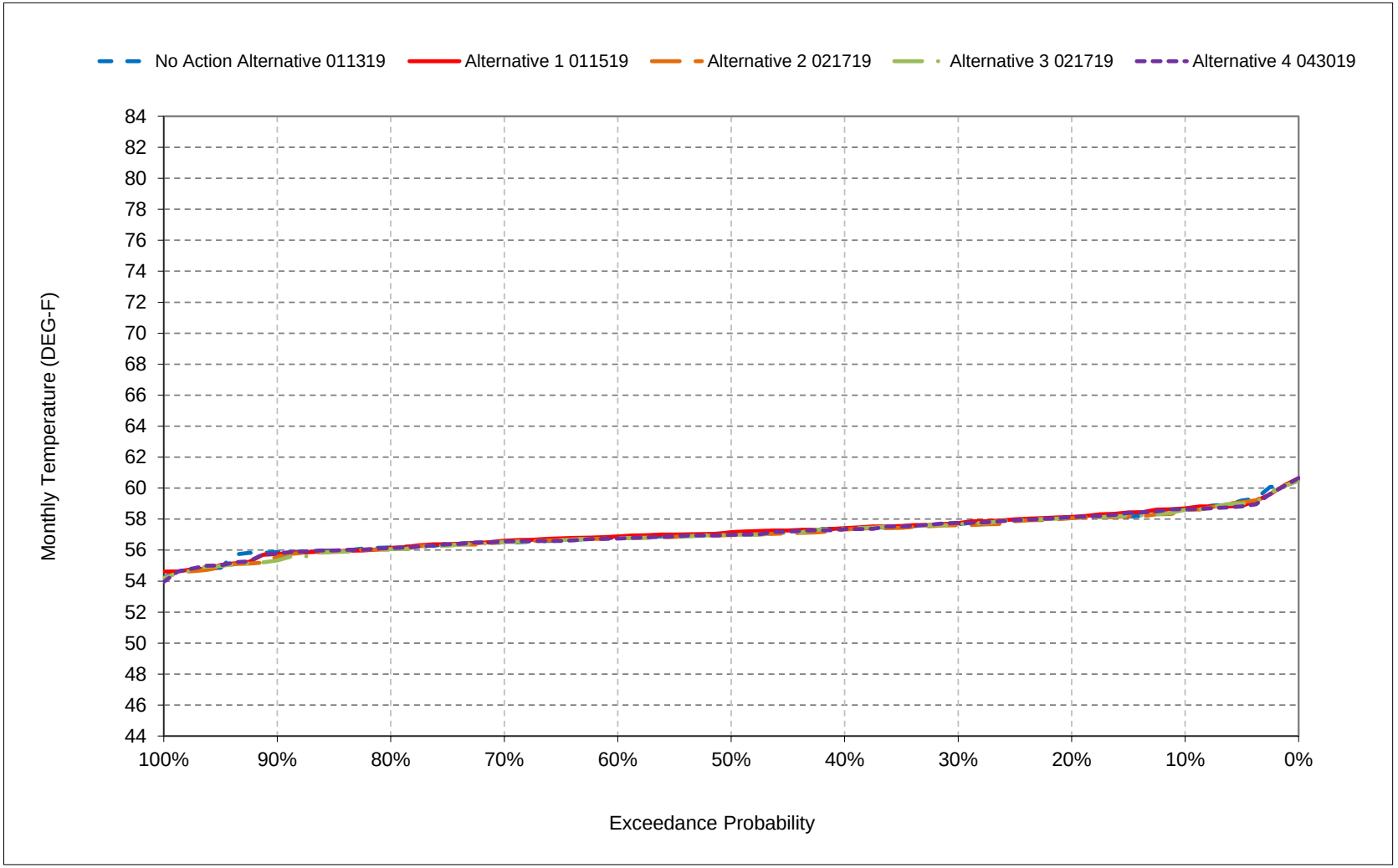
**Figure 17-7. American River at the Mouth, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

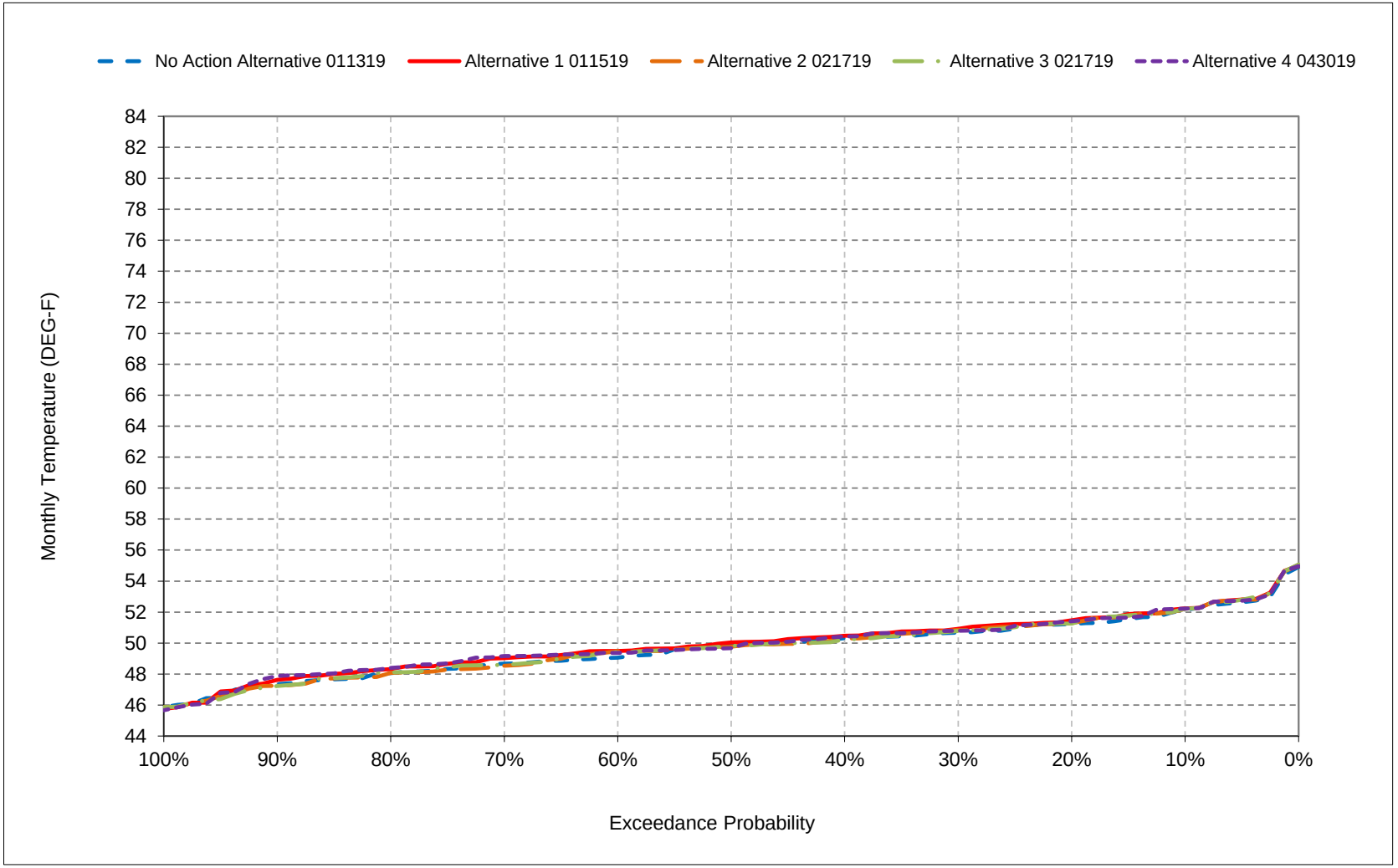
**Figure 17-8. American River at the Mouth, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

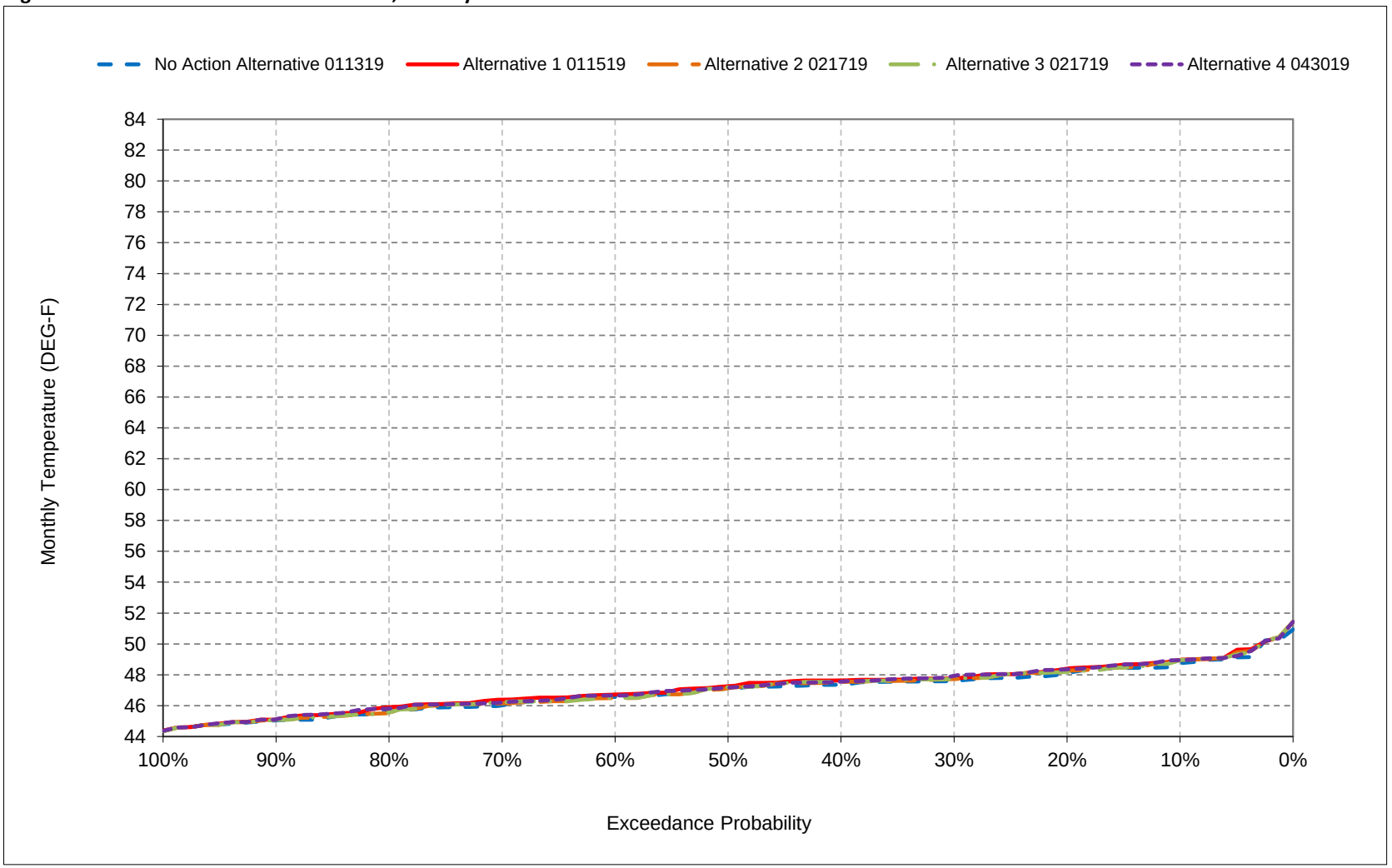
**Figure 17-9. American River at the Mouth, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

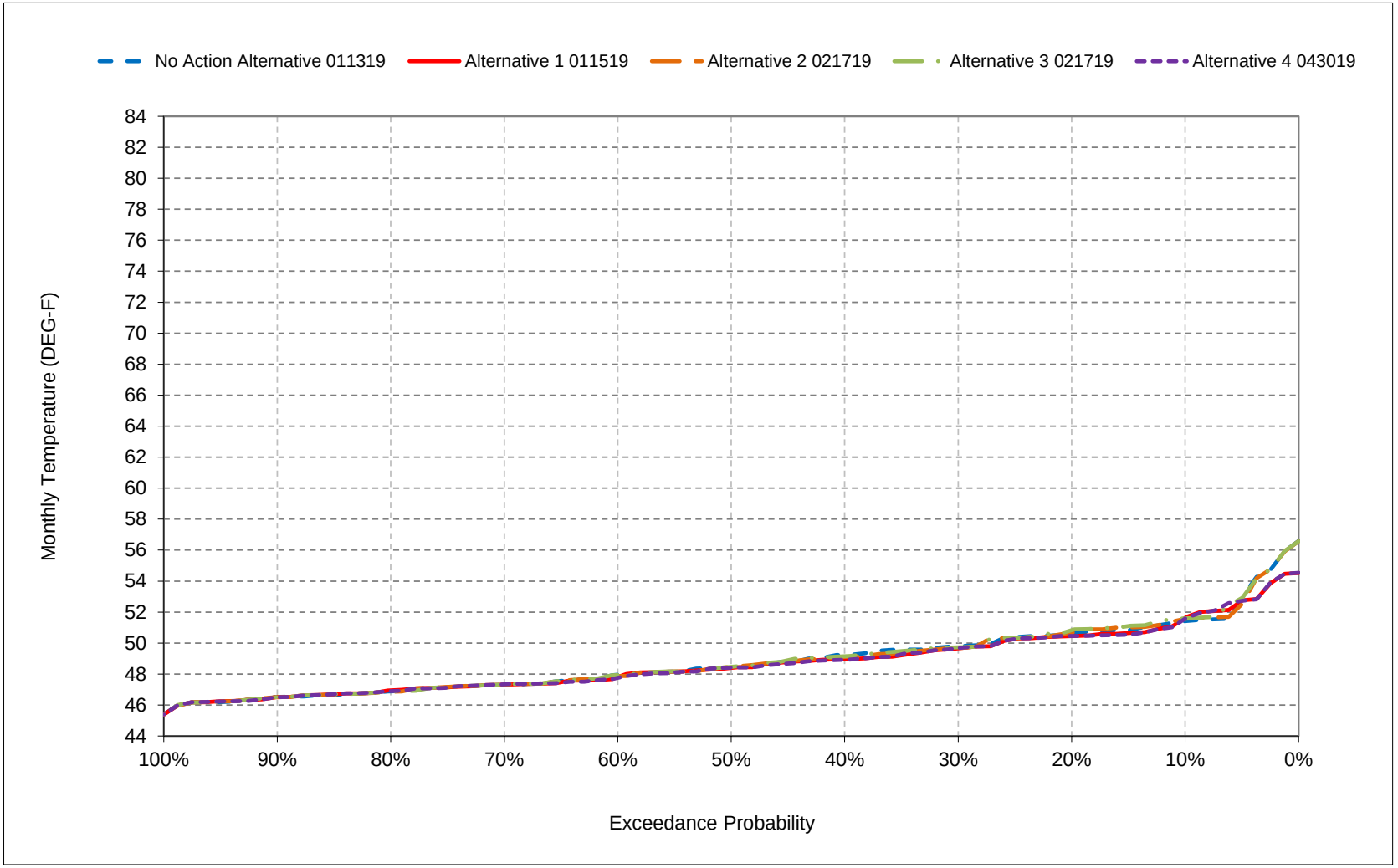
**Figure 17-10. American River at the Mouth, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

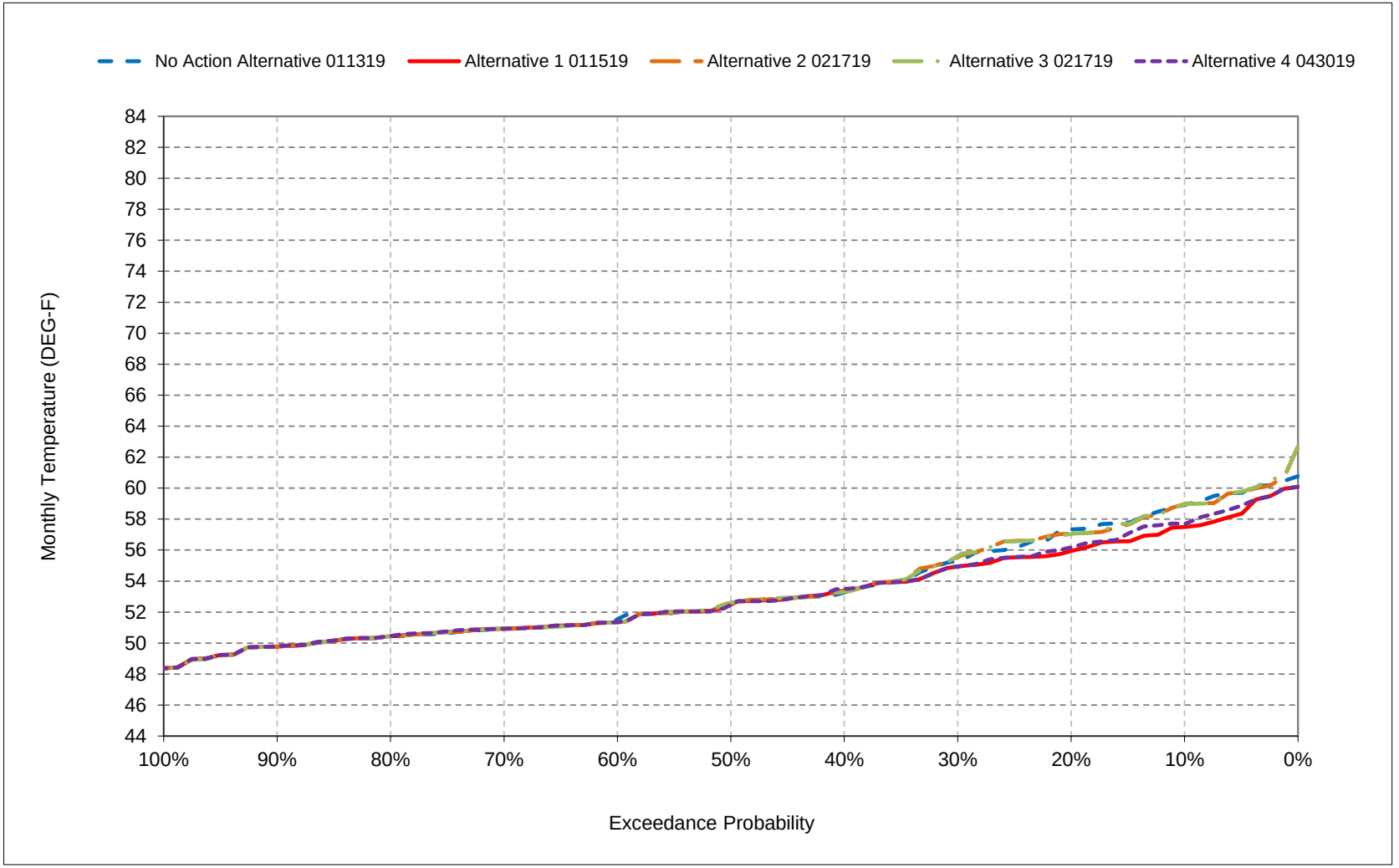
**Figure 17-11. American River at the Mouth, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

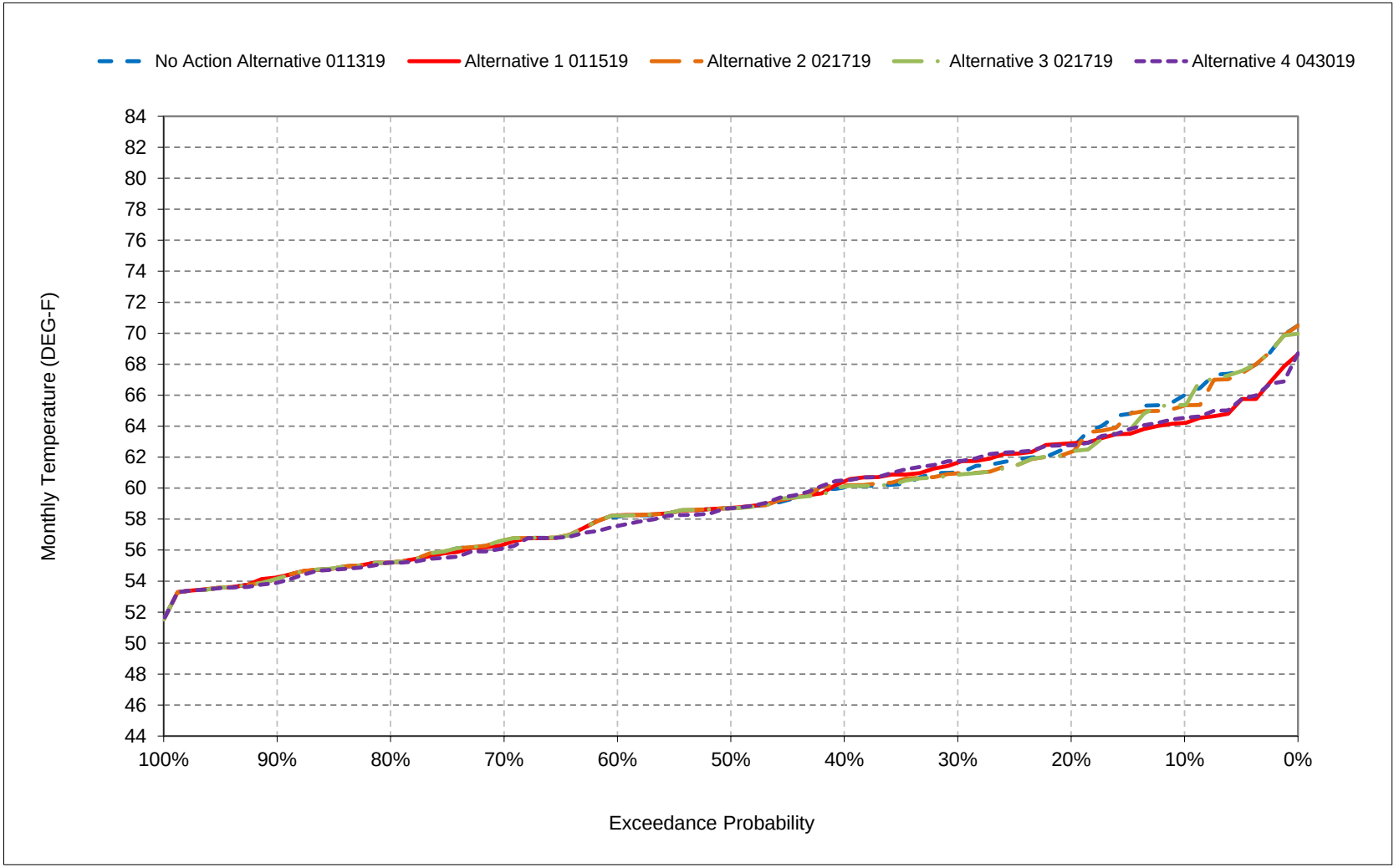
**Figure 17-12. American River at the Mouth, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

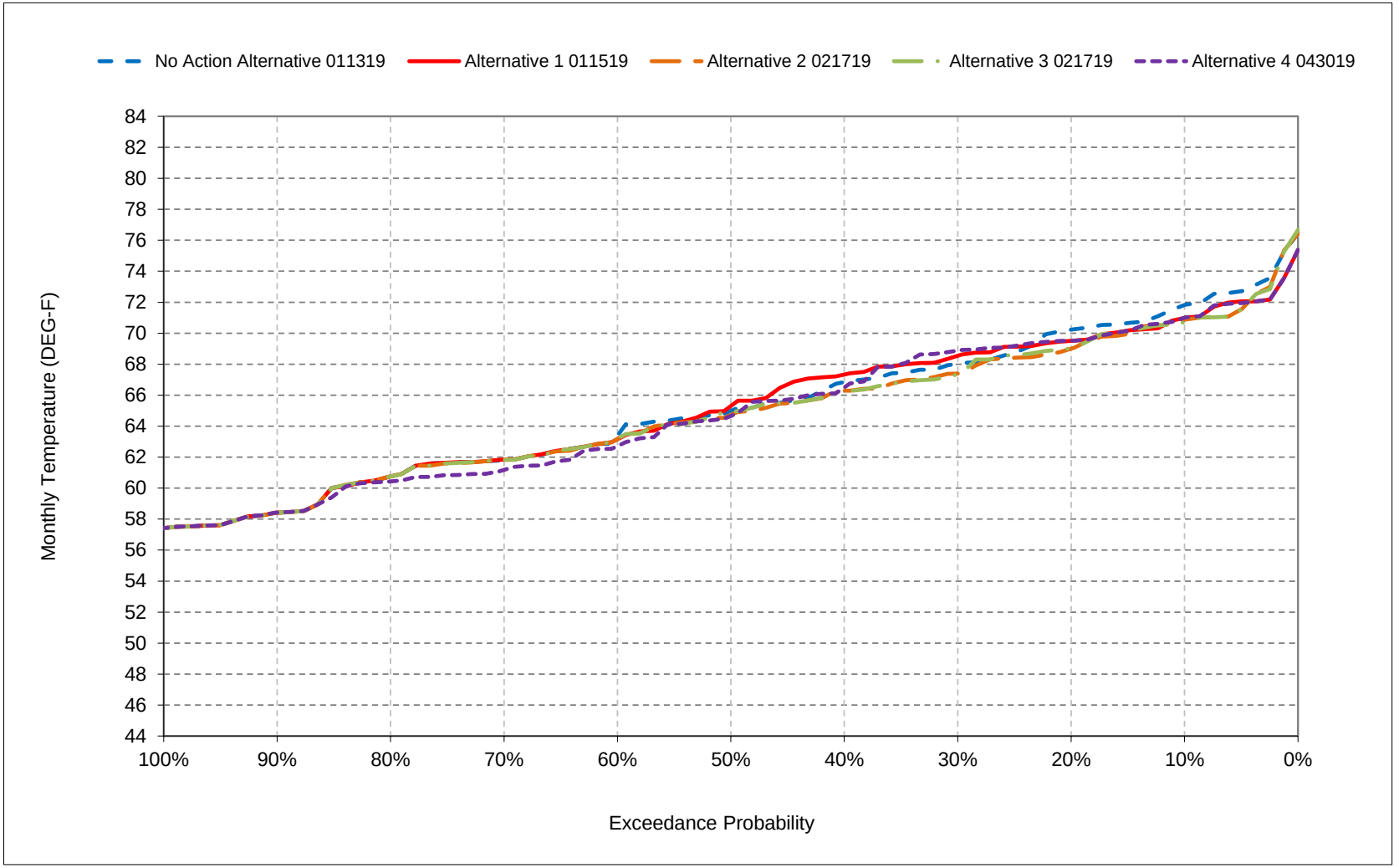
**Figure 17-13. American River at the Mouth, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

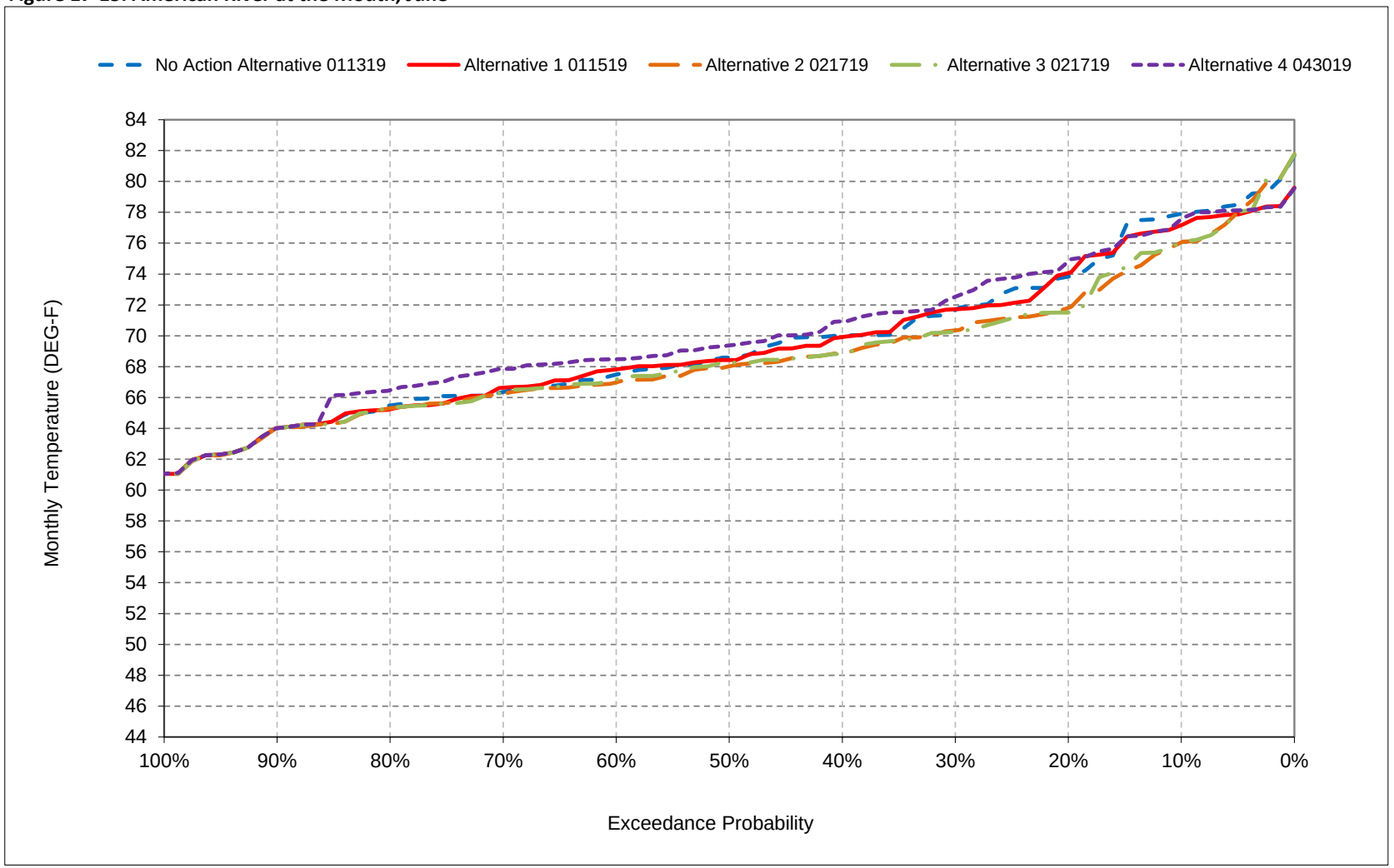
**Figure 17-14. American River at the Mouth, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

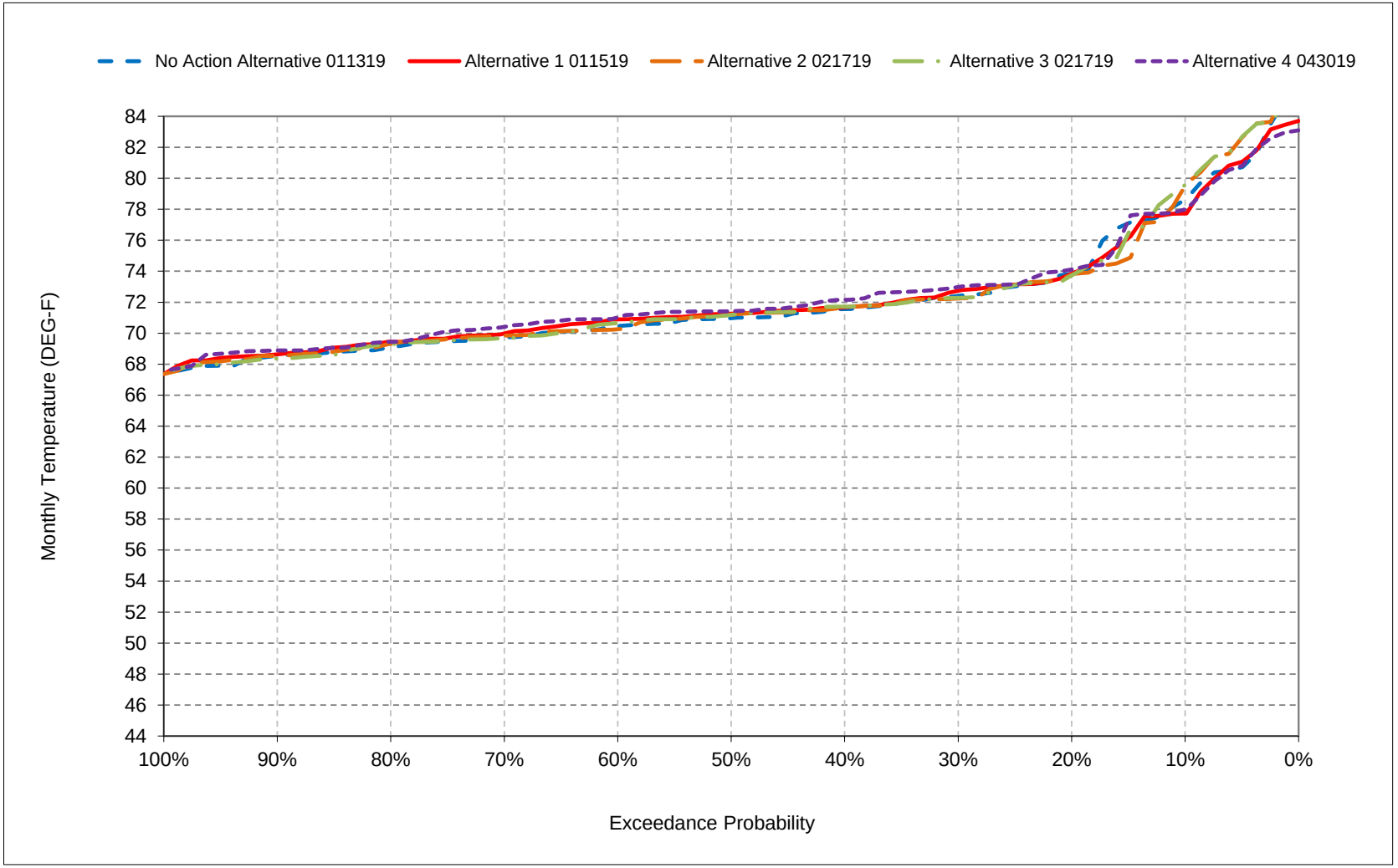
**Figure 17-15. American River at the Mouth, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

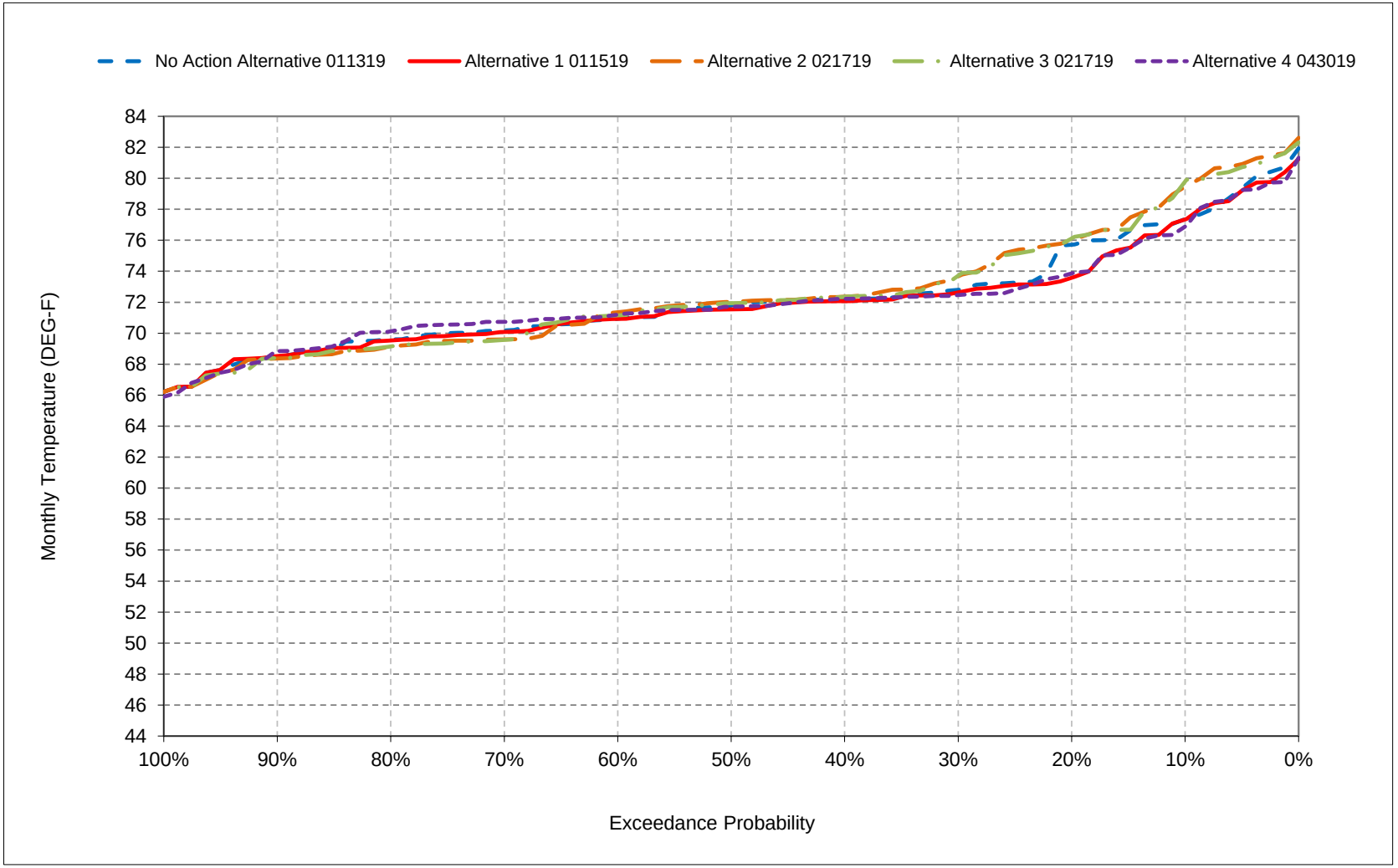
**Figure 17-16. American River at the Mouth, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

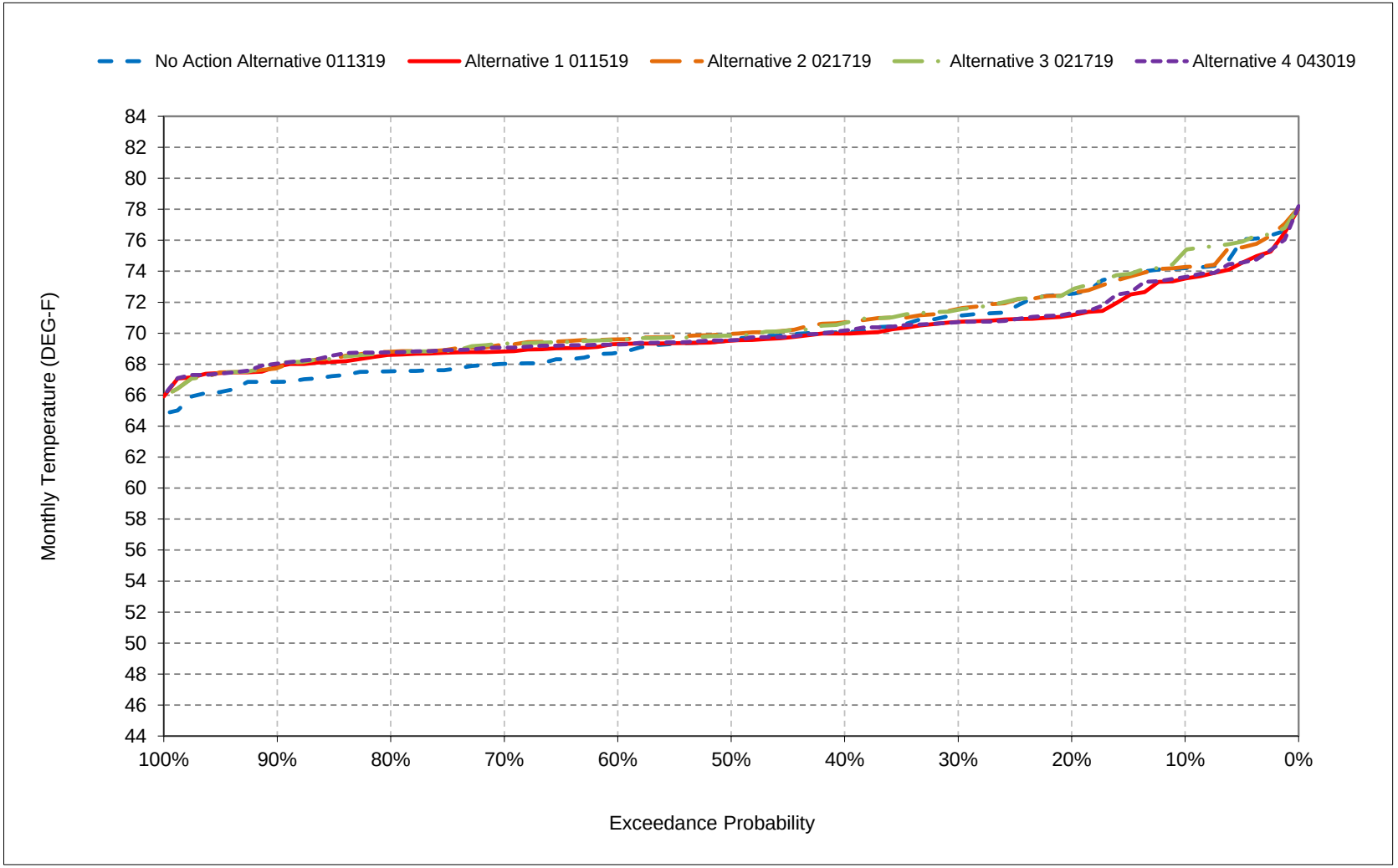
**Figure 17-17. American River at the Mouth, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 17-18. American River at the Mouth, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 20-1. Stanislaus River below New Melones Reservoir, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.9 | 56.0 | 53.6 | 52.1 | 51.1 | 50.7 | 51.0 | 51.6 | 52.6 | 53.7 | 55.2 | 57.5 |
| 20% | 55.6 | 54.6 | 52.7 | 51.5 | 50.4 | 49.9 | 50.2 | 51.1 | 51.8 | 52.5 | 53.0 | 54.4 |
| 30% | 53.4 | 53.3 | 52.3 | 50.9 | 49.7 | 49.5 | 49.9 | 50.5 | 51.1 | 51.8 | 52.5 | 53.0 |
| 40% | 52.9 | 52.8 | 51.8 | 50.6 | 49.4 | 49.2 | 49.7 | 50.3 | 50.8 | 51.4 | 51.9 | 52.5 |
| 50% | 52.4 | 52.5 | 51.5 | 50.2 | 49.2 | 49.0 | 49.3 | 49.7 | 50.3 | 51.1 | 51.6 | 52.0 |
| 60% | 52.0 | 52.1 | 51.3 | 49.9 | 48.9 | 48.7 | 48.9 | 49.3 | 49.7 | 50.4 | 50.9 | 51.4 |
| 70% | 51.4 | 51.6 | 51.0 | 49.6 | 48.7 | 48.1 | 48.4 | 49.0 | 49.3 | 50.0 | 50.5 | 51.0 |
| 80% | 51.1 | 51.2 | 50.2 | 49.2 | 48.0 | 47.5 | 48.0 | 48.4 | 48.9 | 49.6 | 50.1 | 50.7 |
| 90% | 49.9 | 50.0 | 49.7 | 48.3 | 47.0 | 46.8 | 46.9 | 47.2 | 47.5 | 48.5 | 48.9 | 49.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 53.4 | 52.8 | 51.7 | 50.2 | 49.1 | 48.8 | 49.2 | 49.9 | 50.6 | 51.3 | 52.2 | 53.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 50.4 | 50.6 | 50.6 | 49.4 | 48.1 | 47.8 | 47.8 | 48.1 | 48.5 | 49.0 | 49.5 | 49.9 |
| Above Normal (24%) | 52.7 | 52.6 | 51.6 | 49.6 | 48.2 | 48.0 | 48.4 | 48.9 | 49.6 | 50.4 | 51.4 | 52.2 |
| Below Normal (10%) | 52.5 | 52.5 | 51.8 | 50.3 | 49.2 | 48.8 | 49.1 | 49.6 | 50.2 | 50.9 | 51.5 | 52.1 |
| Dry (16%) | 54.3 | 53.6 | 52.0 | 50.7 | 49.8 | 49.4 | 49.7 | 50.3 | 51.0 | 51.9 | 53.0 | 53.8 |
| Critical (27%) | 56.3 | 54.5 | 52.4 | 51.2 | 50.4 | 50.0 | 50.8 | 52.1 | 53.1 | 53.8 | 55.0 | 56.8 |

### Alternative 1 011519

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.9 | 55.4 | 53.1 | 52.0 | 51.1 | 50.8 | 51.0 | 51.5 | 52.2 | 52.6 | 54.2 | 55.7 |
| 20% | 53.2 | 53.1 | 52.5 | 51.3 | 50.4 | 50.1 | 50.4 | 51.0 | 51.4 | 52.0 | 52.6 | 52.9 |
| 30% | 52.5 | 52.5 | 52.0 | 50.9 | 50.0 | 49.6 | 50.0 | 50.3 | 50.9 | 51.6 | 52.1 | 52.3 |
| 40% | 52.1 | 52.2 | 51.7 | 50.7 | 49.6 | 49.3 | 49.6 | 50.1 | 50.6 | 51.1 | 51.6 | 51.9 |
| 50% | 51.8 | 52.0 | 51.4 | 50.5 | 49.3 | 49.1 | 49.3 | 49.7 | 50.1 | 50.7 | 51.2 | 51.6 |
| 60% | 51.5 | 51.6 | 51.2 | 50.2 | 49.1 | 48.8 | 49.1 | 49.5 | 49.9 | 50.5 | 50.9 | 51.2 |
| 70% | 51.2 | 51.3 | 51.0 | 49.6 | 48.7 | 48.6 | 48.8 | 49.1 | 49.6 | 50.1 | 50.5 | 50.9 |
| 80% | 50.8 | 51.0 | 50.4 | 49.3 | 48.0 | 47.7 | 47.9 | 48.6 | 49.1 | 49.5 | 50.0 | 50.6 |
| 90% | 50.0 | 50.1 | 49.6 | 48.3 | 47.4 | 47.1 | 47.4 | 47.6 | 48.1 | 48.5 | 49.3 | 49.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.5 | 52.3 | 51.5 | 50.3 | 49.3 | 48.9 | 49.2 | 49.8 | 50.4 | 51.1 | 51.9 | 52.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 50.5 | 50.8 | 50.7 | 49.3 | 48.1 | 47.8 | 47.9 | 48.2 | 48.7 | 49.1 | 49.7 | 50.1 |
| Above Normal (24%) | 52.8 | 52.2 | 51.4 | 49.7 | 48.5 | 48.1 | 48.4 | 49.1 | 49.8 | 50.7 | 51.7 | 52.6 |
| Below Normal (10%) | 52.0 | 52.1 | 51.7 | 50.3 | 49.4 | 49.1 | 49.3 | 49.8 | 50.3 | 50.8 | 51.3 | 51.6 |
| Dry (16%) | 52.8 | 52.6 | 51.7 | 50.5 | 49.8 | 49.6 | 49.8 | 50.2 | 50.7 | 51.3 | 51.9 | 52.5 |
| Critical (27%) | 54.0 | 53.7 | 52.1 | 51.4 | 50.7 | 50.2 | 50.6 | 51.4 | 52.2 | 53.3 | 54.3 | 54.4 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -3.0 | -0.7 | -0.5 | -0.1 | **0.0** | **0.1** | -0.1 | -0.2 | -0.4 | -1.1 | -1.0 | -1.8 |
| 20% | -2.4 | -1.4 | -0.3 | -0.1 | **0.0** | **0.2** | **0.2** | -0.1 | -0.4 | -0.5 | -0.3 | -1.5 |
| 30% | -0.9 | -0.8 | -0.3 | 0.0 | **0.3** | **0.2** | **0.1** | -0.2 | -0.2 | -0.3 | -0.4 | -0.7 |
| 40% | -0.8 | -0.6 | -0.1 | **0.1** | **0.2** | **0.2** | -0.1 | -0.2 | -0.2 | -0.3 | -0.4 | -0.6 |
| 50% | -0.5 | -0.5 | -0.2 | **0.3** | **0.1** | **0.0** | 0.0 | 0.0 | -0.2 | -0.4 | -0.3 | -0.4 |
| 60% | -0.5 | -0.5 | -0.1 | **0.3** | **0.1** | **0.1** | **0.2** | **0.1** | **0.2** | **0.1** | **0.0** | -0.2 |
| 70% | -0.2 | -0.2 | 0.0 | **0.0** | **0.1** | **0.4** | **0.4** | **0.2** | **0.2** | **0.1** | **0.0** | -0.1 |
| 80% | -0.3 | -0.2 | **0.1** | **0.1** | -0.1 | **0.2** | 0.0 | **0.2** | **0.2** | -0.1 | -0.1 | -0.2 |
| 90% | **0.0** | **0.1** | -0.1 | 0.0 | **0.4** | **0.2** | **0.4** | **0.4** | **0.5** | **0.0** | **0.4** | **0.5** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.9 | -0.5 | -0.2 | **0.1** | **0.2** | **0.1** | **0.0** | -0.1 | -0.2 | -0.2 | -0.2 | -0.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **0.2** | **0.1** | **0.1** | -0.1 | **0.0** | -0.1 | **0.1** | **0.1** | **0.2** | **0.2** | **0.2** | **0.2** |
| Above Normal (24%) | **0.1** | -0.4 | -0.2 | **0.2** | **0.3** | **0.0** | **0.1** | **0.2** | **0.2** | **0.2** | **0.3** | **0.4** |
| Below Normal (10%) | -0.5 | -0.4 | -0.1 | **0.1** | **0.2** | **0.3** | **0.3** | **0.2** | **0.0** | -0.1 | -0.3 | -0.4 |
| Dry (16%) | -1.5 | -1.0 | -0.2 | -0.1 | **0.1** | **0.2** | **0.1** | -0.1 | -0.3 | -0.6 | -1.0 | -1.3 |
| Critical (27%) | -2.4 | -0.9 | -0.4 | **0.2** | **0.2** | **0.3** | -0.2 | -0.7 | -0.9 | -0.6 | -0.6 | -2.4 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 20-2. Stanislaus River below New Melones Reservoir, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.9 | 56.0 | 53.6 | 52.1 | 51.1 | 50.7 | 51.0 | 51.6 | 52.6 | 53.7 | 55.2 | 57.5 |
| 20% | 55.6 | 54.6 | 52.7 | 51.5 | 50.4 | 49.9 | 50.2 | 51.1 | 51.8 | 52.5 | 53.0 | 54.4 |
| 30% | 53.4 | 53.3 | 52.3 | 50.9 | 49.7 | 49.5 | 49.9 | 50.5 | 51.1 | 51.8 | 52.5 | 53.0 |
| 40% | 52.9 | 52.8 | 51.8 | 50.6 | 49.4 | 49.2 | 49.7 | 50.3 | 50.8 | 51.4 | 51.9 | 52.5 |
| 50% | 52.4 | 52.5 | 51.5 | 50.2 | 49.2 | 49.0 | 49.3 | 49.7 | 50.3 | 51.1 | 51.6 | 52.0 |
| 60% | 52.0 | 52.1 | 51.3 | 49.9 | 48.9 | 48.7 | 48.9 | 49.3 | 49.7 | 50.4 | 50.9 | 51.4 |
| 70% | 51.4 | 51.6 | 51.0 | 49.6 | 48.7 | 48.1 | 48.4 | 49.0 | 49.3 | 50.0 | 50.5 | 51.0 |
| 80% | 51.1 | 51.2 | 50.2 | 49.2 | 48.0 | 47.5 | 48.0 | 48.4 | 48.9 | 49.6 | 50.1 | 50.7 |
| 90% | 49.9 | 50.0 | 49.7 | 48.3 | 47.0 | 46.8 | 46.9 | 47.2 | 47.5 | 48.5 | 48.9 | 49.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 53.4 | 52.8 | 51.7 | 50.2 | 49.1 | 48.8 | 49.2 | 49.9 | 50.6 | 51.3 | 52.2 | 53.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 50.4 | 50.6 | 50.6 | 49.4 | 48.1 | 47.8 | 47.8 | 48.1 | 48.5 | 49.0 | 49.5 | 49.9 |
| Above Normal (24%) | 52.7 | 52.6 | 51.6 | 49.6 | 48.2 | 48.0 | 48.4 | 48.9 | 49.6 | 50.4 | 51.4 | 52.2 |
| Below Normal (10%) | 52.5 | 52.5 | 51.8 | 50.3 | 49.2 | 48.8 | 49.1 | 49.6 | 50.2 | 50.9 | 51.5 | 52.1 |
| Dry (16%) | 54.3 | 53.6 | 52.0 | 50.7 | 49.8 | 49.4 | 49.7 | 50.3 | 51.0 | 51.9 | 53.0 | 53.8 |
| Critical (27%) | 56.3 | 54.5 | 52.4 | 51.2 | 50.4 | 50.0 | 50.8 | 52.1 | 53.1 | 53.8 | 55.0 | 56.8 |

### Alternative 2 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 54.4 | 54.4 | 53.3 | 52.2 | 51.0 | 50.8 | 51.0 | 51.5 | 52.1 | 52.8 | 53.2 | 54.1 |
| 20% | 53.2 | 53.4 | 52.4 | 51.4 | 50.4 | 50.1 | 50.3 | 50.9 | 51.4 | 51.9 | 52.4 | 53.0 |
| 30% | 52.3 | 52.4 | 52.1 | 51.0 | 50.0 | 49.7 | 49.9 | 50.3 | 50.8 | 51.3 | 51.9 | 52.2 |
| 40% | 52.0 | 52.1 | 51.6 | 50.8 | 49.7 | 49.4 | 49.7 | 50.0 | 50.4 | 50.9 | 51.5 | 51.8 |
| 50% | 51.4 | 51.6 | 51.3 | 50.4 | 49.5 | 49.3 | 49.4 | 49.6 | 50.0 | 50.5 | 51.0 | 51.3 |
| 60% | 51.2 | 51.4 | 51.0 | 50.2 | 49.2 | 48.9 | 48.9 | 49.3 | 49.8 | 50.2 | 50.7 | 51.0 |
| 70% | 50.9 | 51.1 | 50.9 | 49.7 | 49.0 | 48.6 | 48.8 | 49.0 | 49.4 | 49.8 | 50.3 | 50.7 |
| 80% | 50.5 | 50.7 | 50.5 | 49.5 | 48.7 | 48.4 | 48.0 | 48.5 | 49.1 | 49.5 | 49.9 | 50.3 |
| 90% | 49.6 | 50.0 | 49.8 | 48.9 | 47.7 | 47.4 | 47.4 | 47.7 | 48.1 | 48.6 | 49.2 | 49.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.1 | 52.1 | 51.5 | 50.4 | 49.5 | 49.1 | 49.3 | 49.7 | 50.2 | 50.8 | 51.3 | 51.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 50.3 | 50.5 | 50.5 | 49.5 | 48.4 | 48.2 | 48.1 | 48.4 | 48.7 | 49.1 | 49.6 | 50.0 |
| Above Normal (24%) | 51.3 | 51.4 | 51.1 | 50.0 | 48.8 | 48.4 | 48.5 | 48.8 | 49.3 | 49.9 | 50.5 | 51.0 |
| Below Normal (10%) | 51.4 | 51.5 | 51.3 | 50.3 | 49.4 | 49.0 | 49.2 | 49.5 | 49.9 | 50.4 | 50.8 | 51.2 |
| Dry (16%) | 52.2 | 52.3 | 51.7 | 50.5 | 49.9 | 49.7 | 49.8 | 50.2 | 50.7 | 51.2 | 51.7 | 52.1 |
| Critical (27%) | 54.7 | 54.3 | 52.7 | 51.4 | 50.7 | 50.3 | 50.6 | 51.2 | 52.0 | 53.1 | 53.4 | 54.5 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -4.5 | -1.7 | -0.4 | **0.1** | -0.1 | **0.1** | -0.1 | -0.2 | -0.5 | -0.9 | -2.0 | -3.3 |
| 20% | -2.4 | -1.2 | -0.3 | -0.1 | **0.0** | **0.2** | **0.1** | -0.2 | -0.4 | -0.6 | -0.5 | -1.4 |
| 30% | -1.0 | -0.9 | -0.3 | **0.0** | **0.3** | **0.2** | **0.0** | -0.2 | -0.3 | -0.6 | -0.6 | -0.8 |
| 40% | -1.0 | -0.8 | -0.2 | **0.2** | **0.3** | **0.2** | 0.0 | -0.2 | -0.4 | -0.5 | -0.5 | -0.7 |
| 50% | -1.0 | -0.9 | -0.3 | **0.2** | **0.3** | **0.2** | **0.0** | -0.1 | -0.4 | -0.6 | -0.5 | -0.8 |
| 60% | -0.8 | -0.8 | -0.3 | **0.2** | **0.2** | **0.2** | **0.0** | 0.0 | **0.0** | -0.1 | -0.2 | -0.4 |
| 70% | -0.4 | -0.4 | -0.1 | **0.1** | **0.4** | **0.5** | **0.4** | **0.1** | **0.0** | -0.2 | -0.2 | -0.3 |
| 80% | -0.6 | -0.5 | **0.3** | **0.3** | **0.6** | **0.8** | 0.0 | **0.1** | **0.2** | -0.1 | -0.2 | -0.4 |
| 90% | -0.3 | **0.0** | **0.1** | **0.6** | **0.8** | **0.6** | **0.5** | **0.5** | **0.6** | **0.1** | **0.3** | **0.2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -1.2 | -0.6 | -0.2 | **0.2** | **0.4** | **0.3** | **0.1** | -0.2 | -0.4 | -0.5 | -0.9 | -1.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | -0.1 | -0.1 | 0.0 | **0.0** | **0.3** | **0.4** | **0.3** | **0.3** | **0.2** | **0.2** | **0.1** | **0.1** |
| Above Normal (24%) | -1.4 | -1.1 | -0.5 | **0.5** | **0.7** | **0.3** | **0.2** | 0.0 | -0.2 | -0.5 | -0.9 | -1.1 |
| Below Normal (10%) | -1.1 | -0.9 | -0.5 | **0.1** | **0.2** | **0.3** | **0.2** | -0.1 | -0.3 | -0.5 | -0.7 | -0.9 |
| Dry (16%) | -2.1 | -1.3 | -0.3 | -0.1 | **0.1** | **0.2** | **0.1** | -0.1 | -0.3 | -0.7 | -1.3 | -1.7 |
| Critical (27%) | -1.6 | -0.2 | **0.3** | **0.2** | **0.3** | **0.3** | -0.2 | -0.9 | -1.2 | -0.8 | -1.6 | -2.2 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 20-3. Stanislaus River below New Melones Reservoir, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.9 | 56.0 | 53.6 | 52.1 | 51.1 | 50.7 | 51.0 | 51.6 | 52.6 | 53.7 | 55.2 | 57.5 |
| 20% | 55.6 | 54.6 | 52.7 | 51.5 | 50.4 | 49.9 | 50.2 | 51.1 | 51.8 | 52.5 | 53.0 | 54.4 |
| 30% | 53.4 | 53.3 | 52.3 | 50.9 | 49.7 | 49.5 | 49.9 | 50.5 | 51.1 | 51.8 | 52.5 | 53.0 |
| 40% | 52.9 | 52.8 | 51.8 | 50.6 | 49.4 | 49.2 | 49.7 | 50.3 | 50.8 | 51.4 | 51.9 | 52.5 |
| 50% | 52.4 | 52.5 | 51.5 | 50.2 | 49.2 | 49.0 | 49.3 | 49.7 | 50.3 | 51.1 | 51.6 | 52.0 |
| 60% | 52.0 | 52.1 | 51.3 | 49.9 | 48.9 | 48.7 | 48.9 | 49.3 | 49.7 | 50.4 | 50.9 | 51.4 |
| 70% | 51.4 | 51.6 | 51.0 | 49.6 | 48.7 | 48.1 | 48.4 | 49.0 | 49.3 | 50.0 | 50.5 | 51.0 |
| 80% | 51.1 | 51.2 | 50.2 | 49.2 | 48.0 | 47.5 | 48.0 | 48.4 | 48.9 | 49.6 | 50.1 | 50.7 |
| 90% | 49.9 | 50.0 | 49.7 | 48.3 | 47.0 | 46.8 | 46.9 | 47.2 | 47.5 | 48.5 | 48.9 | 49.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 53.4 | 52.8 | 51.7 | 50.2 | 49.1 | 48.8 | 49.2 | 49.9 | 50.6 | 51.3 | 52.2 | 53.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 50.4 | 50.6 | 50.6 | 49.4 | 48.1 | 47.8 | 47.8 | 48.1 | 48.5 | 49.0 | 49.5 | 49.9 |
| Above Normal (24%) | 52.7 | 52.6 | 51.6 | 49.6 | 48.2 | 48.0 | 48.4 | 48.9 | 49.6 | 50.4 | 51.4 | 52.2 |
| Below Normal (10%) | 52.5 | 52.5 | 51.8 | 50.3 | 49.2 | 48.8 | 49.1 | 49.6 | 50.2 | 50.9 | 51.5 | 52.1 |
| Dry (16%) | 54.3 | 53.6 | 52.0 | 50.7 | 49.8 | 49.4 | 49.7 | 50.3 | 51.0 | 51.9 | 53.0 | 53.8 |
| Critical (27%) | 56.3 | 54.5 | 52.4 | 51.2 | 50.4 | 50.0 | 50.8 | 52.1 | 53.1 | 53.8 | 55.0 | 56.8 |

### Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 54.4 | 54.4 | 53.3 | 52.2 | 51.0 | 50.8 | 51.0 | 51.5 | 52.1 | 52.8 | 53.2 | 54.1 |
| 20% | 53.2 | 53.4 | 52.4 | 51.4 | 50.4 | 50.1 | 50.3 | 50.9 | 51.4 | 51.9 | 52.4 | 53.0 |
| 30% | 52.4 | 52.4 | 52.1 | 51.0 | 50.0 | 49.7 | 49.9 | 50.3 | 50.8 | 51.3 | 51.9 | 52.2 |
| 40% | 52.0 | 52.1 | 51.6 | 50.8 | 49.7 | 49.4 | 49.7 | 50.0 | 50.4 | 50.9 | 51.5 | 51.8 |
| 50% | 51.4 | 51.6 | 51.3 | 50.4 | 49.5 | 49.3 | 49.4 | 49.6 | 50.0 | 50.5 | 51.0 | 51.3 |
| 60% | 51.2 | 51.4 | 51.0 | 50.2 | 49.2 | 48.9 | 48.9 | 49.3 | 49.8 | 50.2 | 50.7 | 51.0 |
| 70% | 50.9 | 51.1 | 50.9 | 49.7 | 49.0 | 48.6 | 48.8 | 49.0 | 49.4 | 49.8 | 50.3 | 50.7 |
| 80% | 50.5 | 50.7 | 50.5 | 49.5 | 48.7 | 48.4 | 48.0 | 48.5 | 49.1 | 49.5 | 49.9 | 50.3 |
| 90% | 49.6 | 50.0 | 49.8 | 48.9 | 47.7 | 47.4 | 47.4 | 47.7 | 48.1 | 48.6 | 49.2 | 49.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.1 | 52.1 | 51.5 | 50.4 | 49.5 | 49.1 | 49.3 | 49.7 | 50.2 | 50.8 | 51.3 | 51.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 50.3 | 50.5 | 50.5 | 49.5 | 48.4 | 48.2 | 48.1 | 48.4 | 48.7 | 49.1 | 49.6 | 50.0 |
| Above Normal (24%) | 51.3 | 51.4 | 51.1 | 50.0 | 48.8 | 48.4 | 48.5 | 48.8 | 49.3 | 49.9 | 50.5 | 51.0 |
| Below Normal (10%) | 51.4 | 51.5 | 51.3 | 50.3 | 49.4 | 49.0 | 49.2 | 49.5 | 49.9 | 50.4 | 50.8 | 51.2 |
| Dry (16%) | 52.2 | 52.3 | 51.7 | 50.5 | 49.9 | 49.7 | 49.8 | 50.2 | 50.7 | 51.2 | 51.7 | 52.1 |
| Critical (27%) | 54.7 | 54.3 | 52.7 | 51.4 | 50.7 | 50.3 | 50.6 | 51.2 | 52.0 | 53.1 | 53.4 | 54.5 |

### Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -4.5 | -1.7 | -0.4 | **0.1** | -0.1 | **0.1** | -0.1 | -0.2 | -0.5 | -0.9 | -2.0 | -3.3 |
| 20% | -2.4 | -1.2 | -0.3 | -0.1 | **0.0** | **0.2** | **0.1** | -0.2 | -0.4 | -0.6 | -0.5 | -1.4 |
| 30% | -1.0 | -0.9 | -0.3 | **0.0** | **0.3** | **0.2** | **0.0** | -0.2 | -0.3 | -0.6 | -0.6 | -0.8 |
| 40% | -1.0 | -0.8 | -0.2 | **0.2** | **0.3** | **0.2** | 0.0 | -0.2 | -0.4 | -0.5 | -0.5 | -0.7 |
| 50% | -1.0 | -0.9 | -0.3 | **0.2** | **0.3** | **0.2** | **0.0** | -0.1 | -0.4 | -0.6 | -0.5 | -0.8 |
| 60% | -0.8 | -0.8 | -0.3 | **0.2** | **0.2** | **0.2** | **0.0** | 0.0 | **0.0** | -0.1 | -0.2 | -0.4 |
| 70% | -0.4 | -0.4 | -0.1 | **0.1** | **0.4** | **0.5** | **0.4** | **0.1** | **0.0** | -0.2 | -0.2 | -0.3 |
| 80% | -0.6 | -0.5 | **0.3** | **0.3** | **0.6** | **0.8** | 0.0 | **0.1** | **0.2** | -0.1 | -0.2 | -0.4 |
| 90% | -0.3 | **0.0** | **0.1** | **0.6** | **0.8** | **0.6** | **0.5** | **0.5** | **0.6** | **0.1** | **0.3** | **0.2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -1.2 | -0.6 | -0.2 | **0.2** | **0.4** | **0.3** | **0.1** | -0.2 | -0.4 | -0.5 | -0.9 | -1.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | -0.1 | -0.1 | 0.0 | **0.0** | **0.3** | **0.4** | **0.4** | **0.3** | **0.2** | **0.2** | **0.1** | **0.1** |
| Above Normal (24%) | -1.4 | -1.1 | -0.5 | **0.5** | **0.7** | **0.3** | **0.2** | 0.0 | -0.2 | -0.5 | -0.9 | -1.1 |
| Below Normal (10%) | -1.1 | -0.9 | -0.5 | **0.1** | **0.2** | **0.3** | **0.2** | -0.1 | -0.3 | -0.5 | -0.7 | -0.9 |
| Dry (16%) | -2.1 | -1.3 | -0.3 | -0.1 | **0.1** | **0.2** | **0.1** | -0.1 | -0.3 | -0.7 | -1.3 | -1.7 |
| Critical (27%) | -1.6 | -0.2 | **0.3** | **0.2** | **0.3** | **0.3** | -0.2 | -0.9 | -1.2 | -0.8 | -1.6 | -2.2 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 20-4. Stanislaus River below New Melones Reservoir, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.9 | 56.0 | 53.6 | 52.1 | 51.1 | 50.7 | 51.0 | 51.6 | 52.6 | 53.7 | 55.2 | 57.5 |
| 20% | 55.6 | 54.6 | 52.7 | 51.5 | 50.4 | 49.9 | 50.2 | 51.1 | 51.8 | 52.5 | 53.0 | 54.4 |
| 30% | 53.4 | 53.3 | 52.3 | 50.9 | 49.7 | 49.5 | 49.9 | 50.5 | 51.1 | 51.8 | 52.5 | 53.0 |
| 40% | 52.9 | 52.8 | 51.8 | 50.6 | 49.4 | 49.2 | 49.7 | 50.3 | 50.8 | 51.4 | 51.9 | 52.5 |
| 50% | 52.4 | 52.5 | 51.5 | 50.2 | 49.2 | 49.0 | 49.3 | 49.7 | 50.3 | 51.1 | 51.6 | 52.0 |
| 60% | 52.0 | 52.1 | 51.3 | 49.9 | 48.9 | 48.7 | 48.9 | 49.3 | 49.7 | 50.4 | 50.9 | 51.4 |
| 70% | 51.4 | 51.6 | 51.0 | 49.6 | 48.7 | 48.1 | 48.4 | 49.0 | 49.3 | 50.0 | 50.5 | 51.0 |
| 80% | 51.1 | 51.2 | 50.2 | 49.2 | 48.0 | 47.5 | 48.0 | 48.4 | 48.9 | 49.6 | 50.1 | 50.7 |
| 90% | 49.9 | 50.0 | 49.7 | 48.3 | 47.0 | 46.8 | 46.9 | 47.2 | 47.5 | 48.5 | 48.9 | 49.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 53.4 | 52.8 | 51.7 | 50.2 | 49.1 | 48.8 | 49.2 | 49.9 | 50.6 | 51.3 | 52.2 | 53.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 50.4 | 50.6 | 50.6 | 49.4 | 48.1 | 47.8 | 47.8 | 48.1 | 48.5 | 49.0 | 49.5 | 49.9 |
| Above Normal (24%) | 52.7 | 52.6 | 51.6 | 49.6 | 48.2 | 48.0 | 48.4 | 48.9 | 49.6 | 50.4 | 51.4 | 52.2 |
| Below Normal (10%) | 52.5 | 52.5 | 51.8 | 50.3 | 49.2 | 48.8 | 49.1 | 49.6 | 50.2 | 50.9 | 51.5 | 52.1 |
| Dry (16%) | 54.3 | 53.6 | 52.0 | 50.7 | 49.8 | 49.4 | 49.7 | 50.3 | 51.0 | 51.9 | 53.0 | 53.8 |
| Critical (27%) | 56.3 | 54.5 | 52.4 | 51.2 | 50.4 | 50.0 | 50.8 | 52.1 | 53.1 | 53.8 | 55.0 | 56.8 |

### Alternative 4 043019

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 55.9 | 55.4 | 53.1 | 52.0 | 51.1 | 50.8 | 51.0 | 51.5 | 52.2 | 52.6 | 54.2 | 55.7 |
| 20% | 53.2 | 53.1 | 52.5 | 51.3 | 50.4 | 50.1 | 50.4 | 51.0 | 51.4 | 52.0 | 52.6 | 52.9 |
| 30% | 52.5 | 52.5 | 52.0 | 50.9 | 50.0 | 49.6 | 50.0 | 50.3 | 50.9 | 51.6 | 52.1 | 52.3 |
| 40% | 52.1 | 52.2 | 51.7 | 50.7 | 49.6 | 49.3 | 49.6 | 50.1 | 50.6 | 51.1 | 51.6 | 51.9 |
| 50% | 51.8 | 52.0 | 51.4 | 50.5 | 49.3 | 49.1 | 49.3 | 49.7 | 50.1 | 50.7 | 51.2 | 51.6 |
| 60% | 51.5 | 51.6 | 51.2 | 50.2 | 49.1 | 48.8 | 49.1 | 49.5 | 49.9 | 50.5 | 50.9 | 51.2 |
| 70% | 51.2 | 51.3 | 51.0 | 49.6 | 48.7 | 48.6 | 48.8 | 49.1 | 49.6 | 50.1 | 50.5 | 50.9 |
| 80% | 50.8 | 51.0 | 50.4 | 49.3 | 48.0 | 47.7 | 47.9 | 48.6 | 49.1 | 49.5 | 50.0 | 50.6 |
| 90% | 50.0 | 50.1 | 49.6 | 48.3 | 47.4 | 47.1 | 47.4 | 47.6 | 48.1 | 48.5 | 49.3 | 49.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 52.5 | 52.3 | 51.5 | 50.3 | 49.3 | 48.9 | 49.2 | 49.8 | 50.4 | 51.1 | 51.9 | 52.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 50.5 | 50.8 | 50.7 | 49.3 | 48.1 | 47.8 | 47.9 | 48.2 | 48.7 | 49.1 | 49.7 | 50.1 |
| Above Normal (24%) | 52.8 | 52.2 | 51.4 | 49.7 | 48.5 | 48.1 | 48.4 | 49.1 | 49.8 | 50.7 | 51.7 | 52.6 |
| Below Normal (10%) | 52.0 | 52.1 | 51.7 | 50.3 | 49.4 | 49.1 | 49.3 | 49.8 | 50.3 | 50.8 | 51.3 | 51.6 |
| Dry (16%) | 52.8 | 52.6 | 51.7 | 50.5 | 49.8 | 49.6 | 49.8 | 50.2 | 50.7 | 51.3 | 51.9 | 52.5 |
| Critical (27%) | 54.0 | 53.7 | 52.1 | 51.4 | 50.7 | 50.2 | 50.6 | 51.4 | 52.2 | 53.3 | 54.3 | 54.4 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -3.0 | -0.7 | -0.5 | -0.1 | **0.0** | **0.1** | -0.1 | -0.2 | -0.4 | -1.1 | -1.0 | -1.8 |
| 20% | -2.4 | -1.4 | -0.3 | -0.1 | **0.0** | **0.2** | **0.2** | -0.1 | -0.4 | -0.5 | -0.3 | -1.5 |
| 30% | -0.9 | -0.8 | -0.3 | 0.0 | **0.3** | **0.2** | **0.1** | -0.2 | -0.2 | -0.3 | -0.4 | -0.7 |
| 40% | -0.8 | -0.6 | -0.1 | **0.1** | **0.2** | **0.2** | -0.1 | -0.2 | -0.2 | -0.3 | -0.4 | -0.6 |
| 50% | -0.5 | -0.5 | -0.2 | **0.3** | **0.1** | **0.0** | 0.0 | 0.0 | -0.2 | -0.4 | -0.3 | -0.4 |
| 60% | -0.5 | -0.5 | -0.1 | **0.3** | **0.1** | **0.1** | **0.2** | **0.1** | **0.2** | **0.1** | **0.0** | -0.2 |
| 70% | -0.2 | -0.2 | 0.0 | **0.0** | **0.1** | **0.4** | **0.4** | **0.2** | **0.2** | **0.1** | **0.0** | -0.1 |
| 80% | -0.3 | -0.2 | **0.1** | **0.1** | -0.1 | **0.2** | 0.0 | **0.2** | **0.2** | -0.1 | -0.1 | -0.2 |
| 90% | **0.0** | **0.1** | -0.1 | 0.0 | **0.4** | **0.2** | **0.4** | **0.4** | **0.5** | **0.0** | **0.4** | **0.5** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.9 | -0.5 | -0.2 | **0.1** | **0.2** | **0.1** | **0.0** | -0.1 | -0.2 | -0.2 | -0.2 | -0.7 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **0.2** | **0.1** | **0.1** | -0.1 | **0.0** | -0.1 | **0.1** | **0.1** | **0.2** | **0.2** | **0.2** | **0.2** |
| Above Normal (24%) | **0.1** | -0.4 | -0.2 | **0.2** | **0.3** | **0.0** | **0.1** | **0.2** | **0.2** | **0.2** | **0.3** | **0.4** |
| Below Normal (10%) | -0.5 | -0.4 | -0.1 | **0.1** | **0.2** | **0.3** | **0.3** | **0.2** | **0.0** | -0.1 | -0.3 | -0.4 |
| Dry (16%) | -1.5 | -1.0 | -0.2 | -0.1 | **0.1** | **0.2** | **0.1** | -0.1 | -0.3 | -0.6 | -1.0 | -1.3 |
| Critical (27%) | -2.4 | -0.9 | -0.4 | **0.2** | **0.2** | **0.3** | -0.2 | -0.7 | -0.9 | -0.6 | -0.6 | -2.4 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

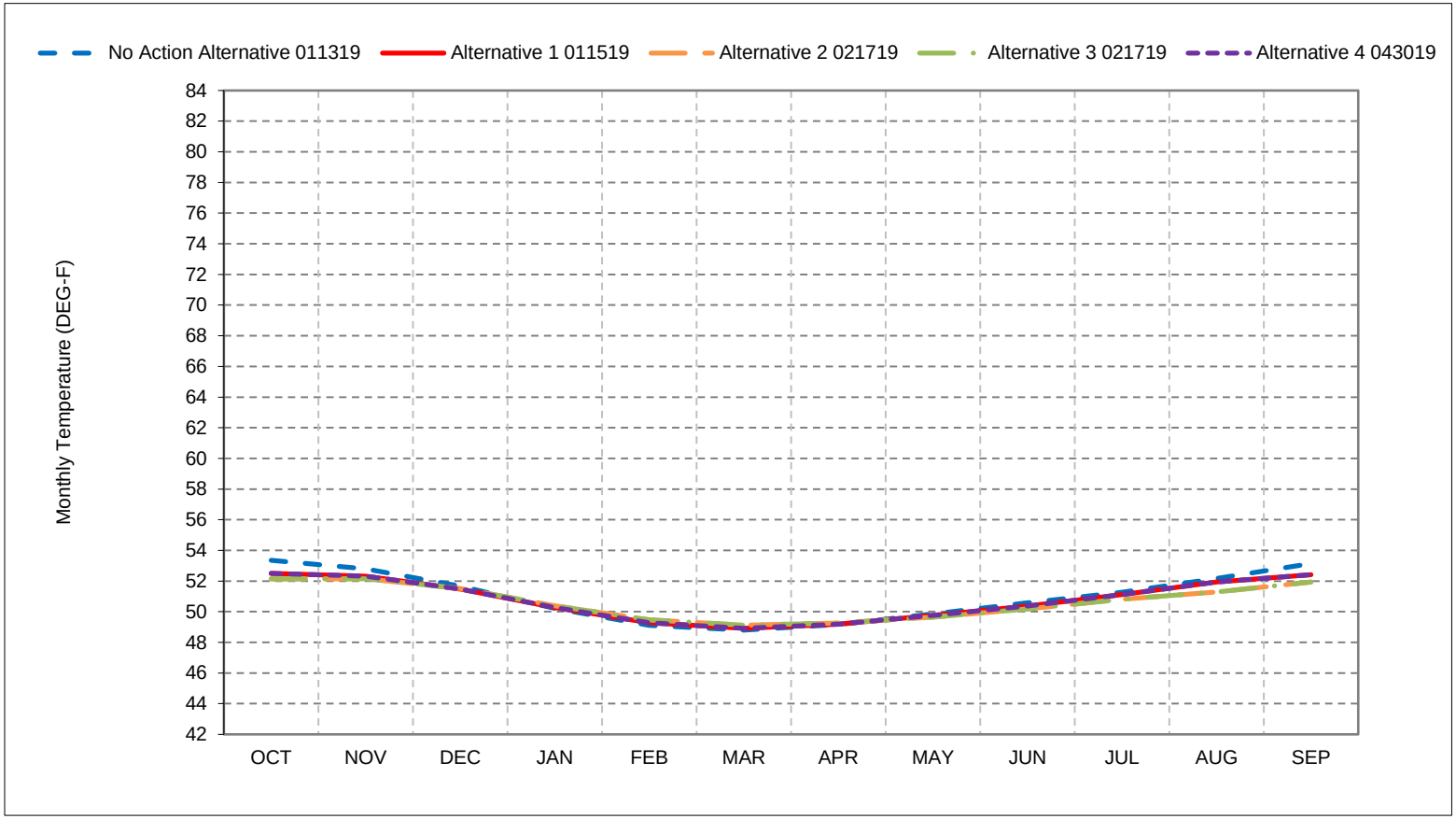
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

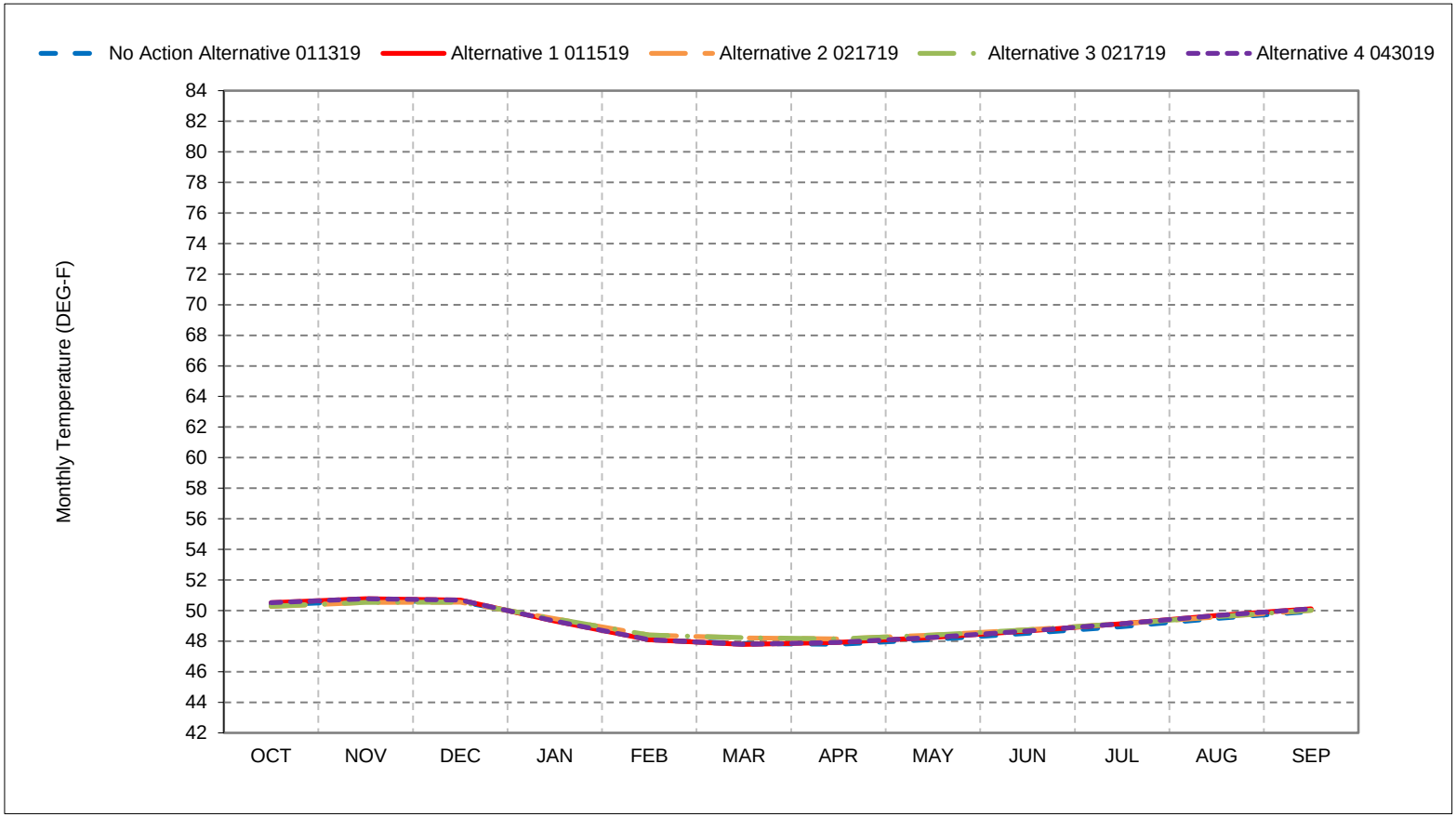
f New Melones forecasts are used as the basis of water operations.

## Figure 20-1. Stanislaus River below New Melones Reservoir, Long-Term Average Temperature



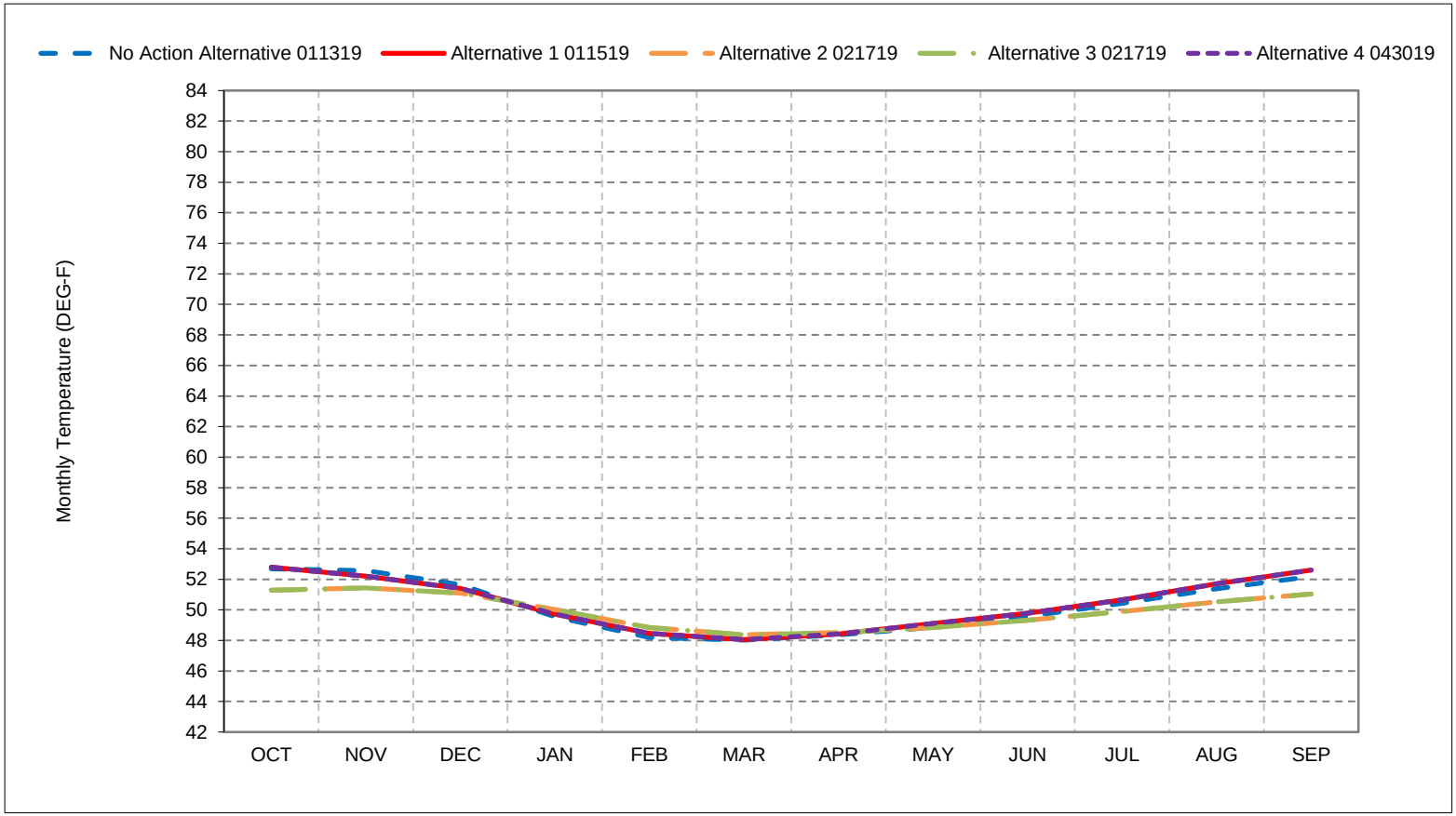

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 20-2. Stanislaus River below New Melones Reservoir, Wet Year Average Temperature



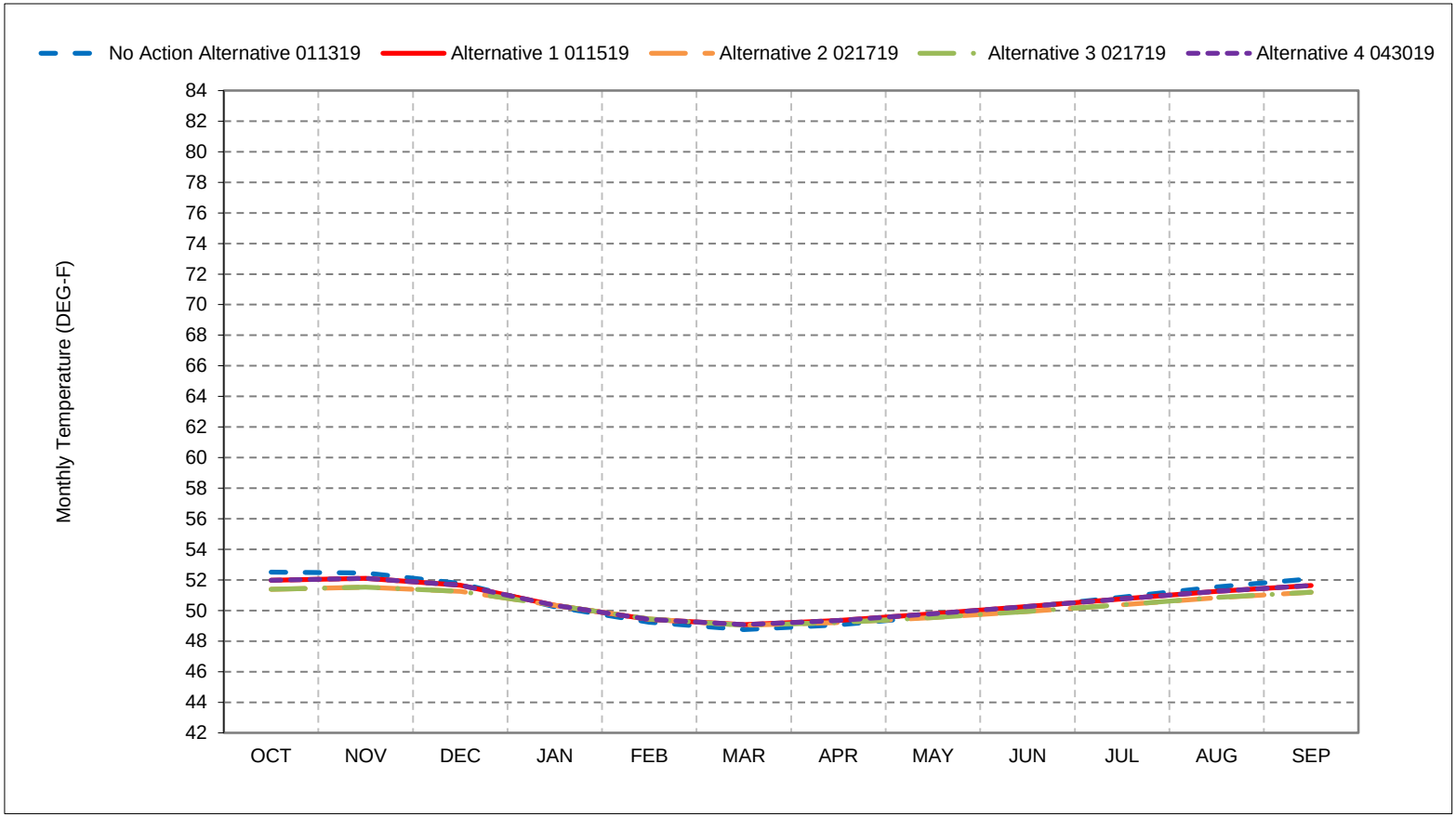

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 20-3. Stanislaus River below New Melones Reservoir, Above Normal Year Average Temper



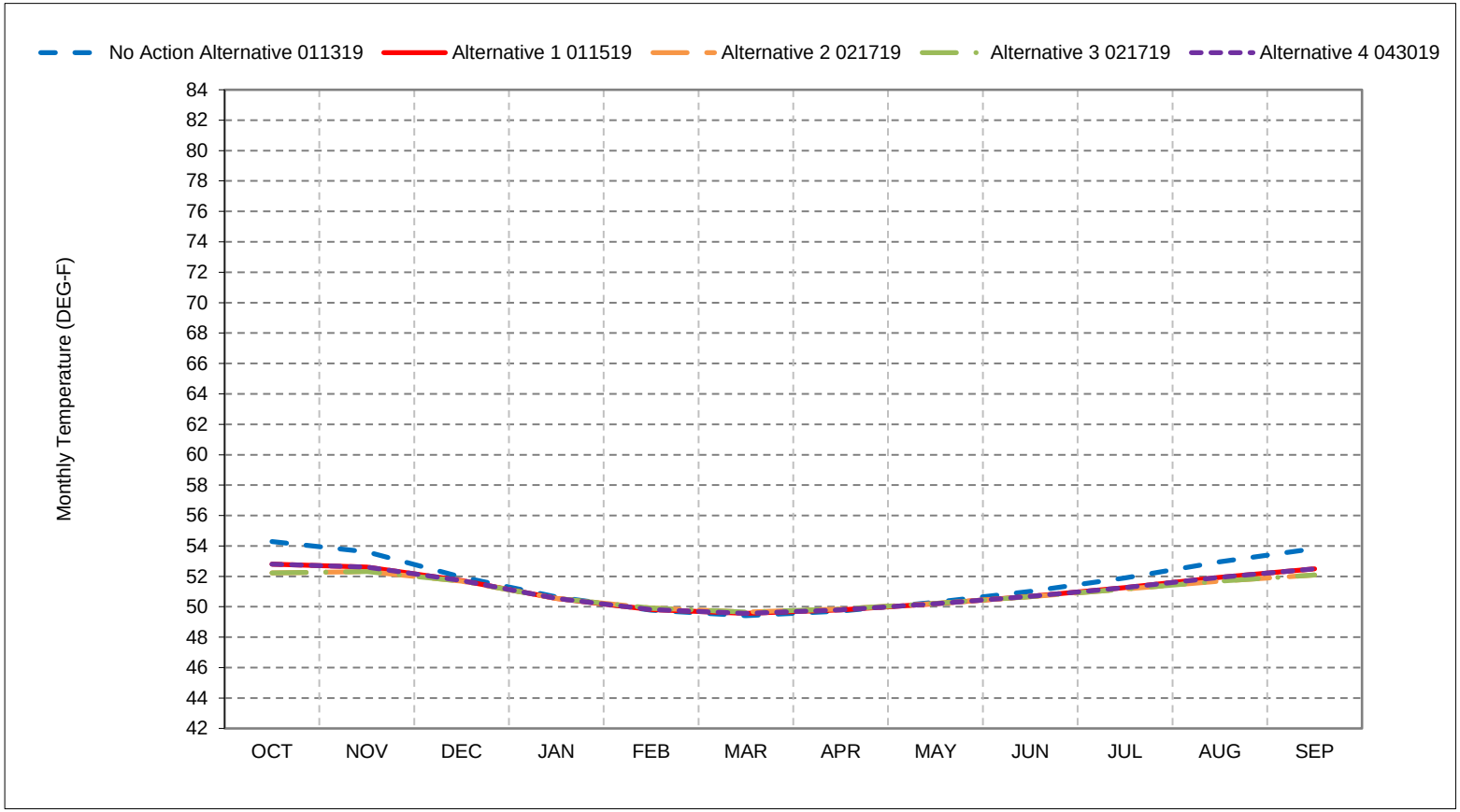

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 20-4. Stanislaus River below New Melones Reservoir, Below Normal Year Average Tempera



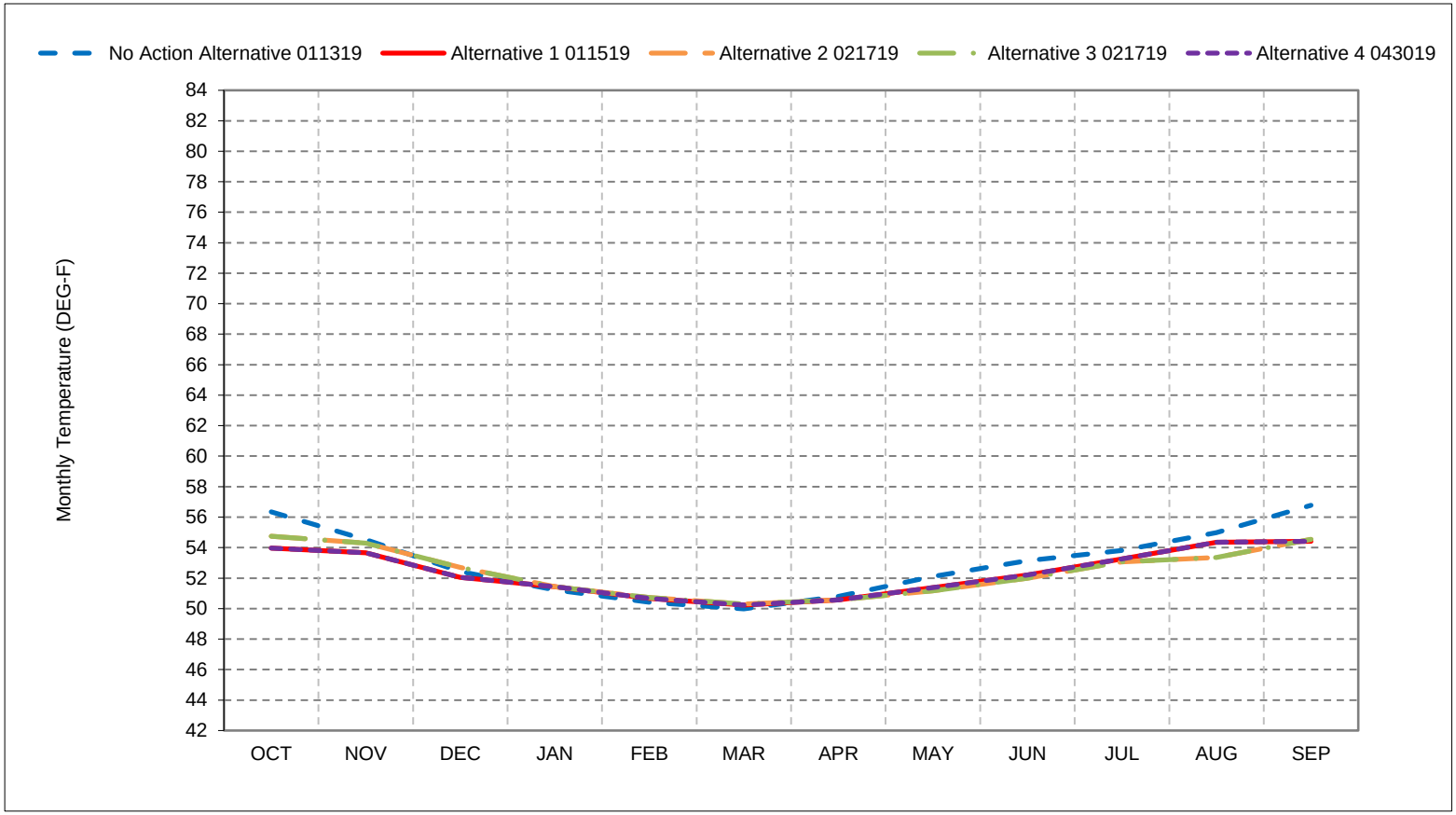

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 20-5. Stanislaus River below New Melones Reservoir, Dry Year Average Temperature



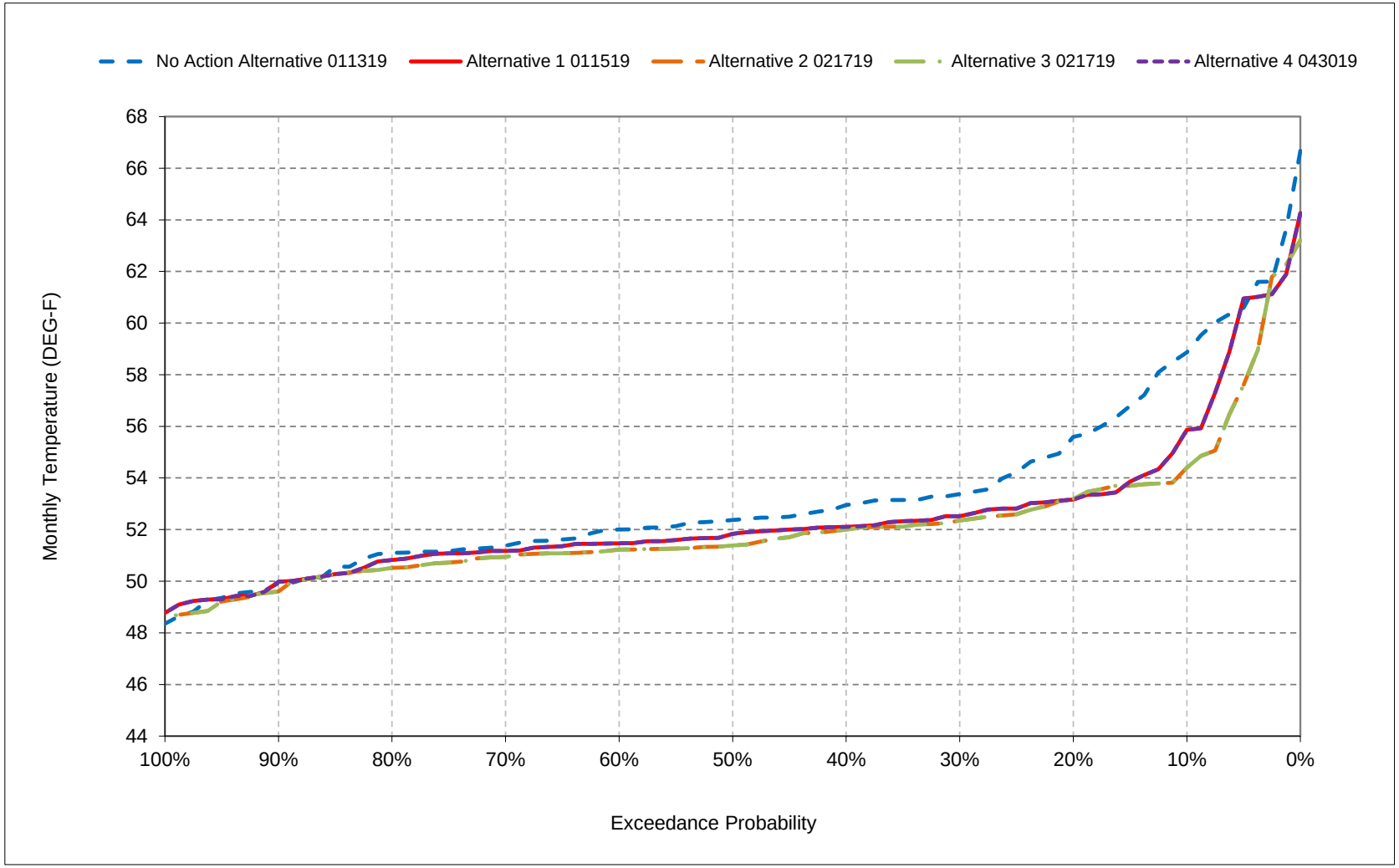

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 20-6. Stanislaus River below New Melones Reservoir, Critical Year Average Temperature




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

**Figure 20-7. Stanislaus River below New Melones Reservoir, October**

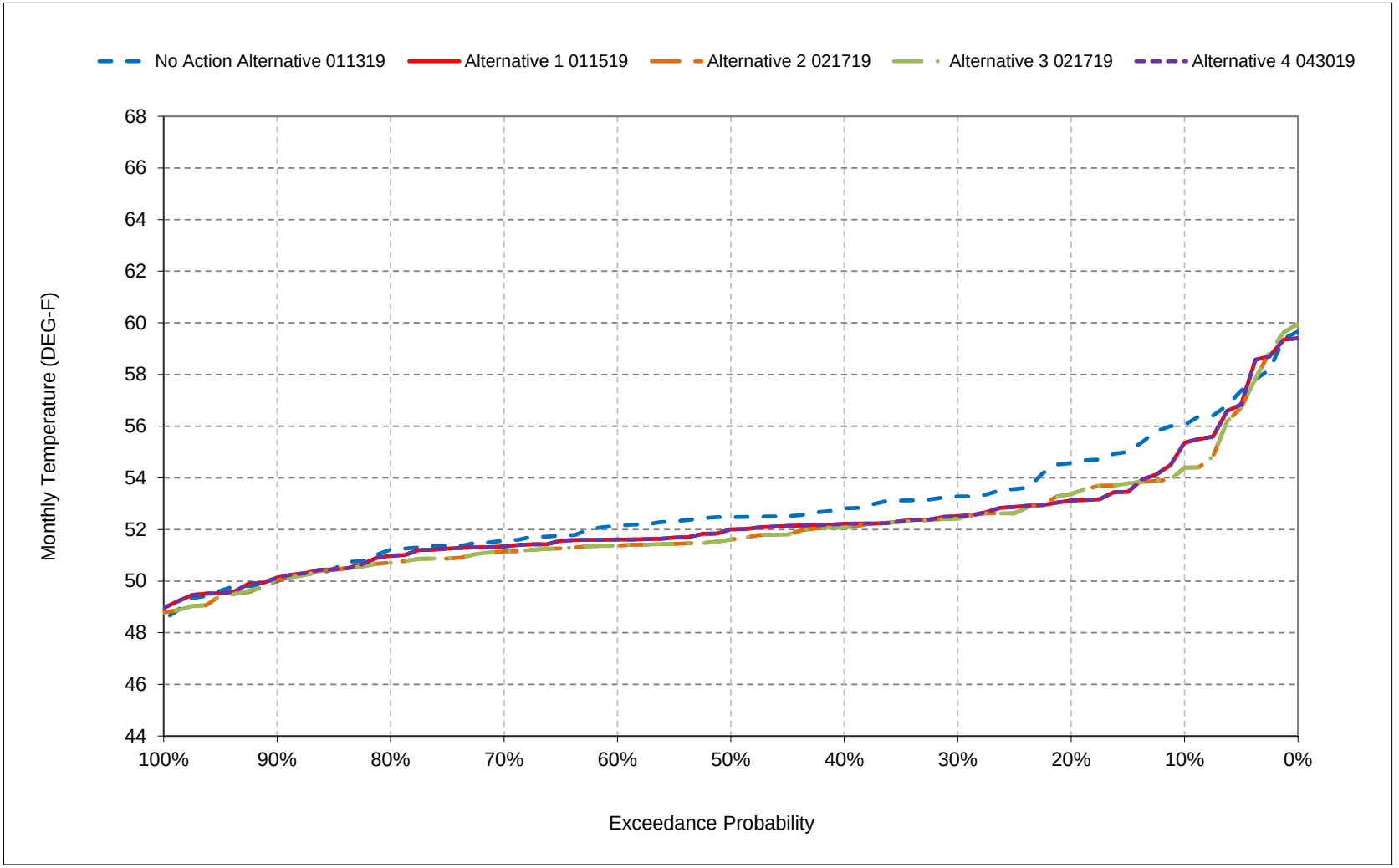



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 20-8. Stanislaus River below New Melones Reservoir, November**

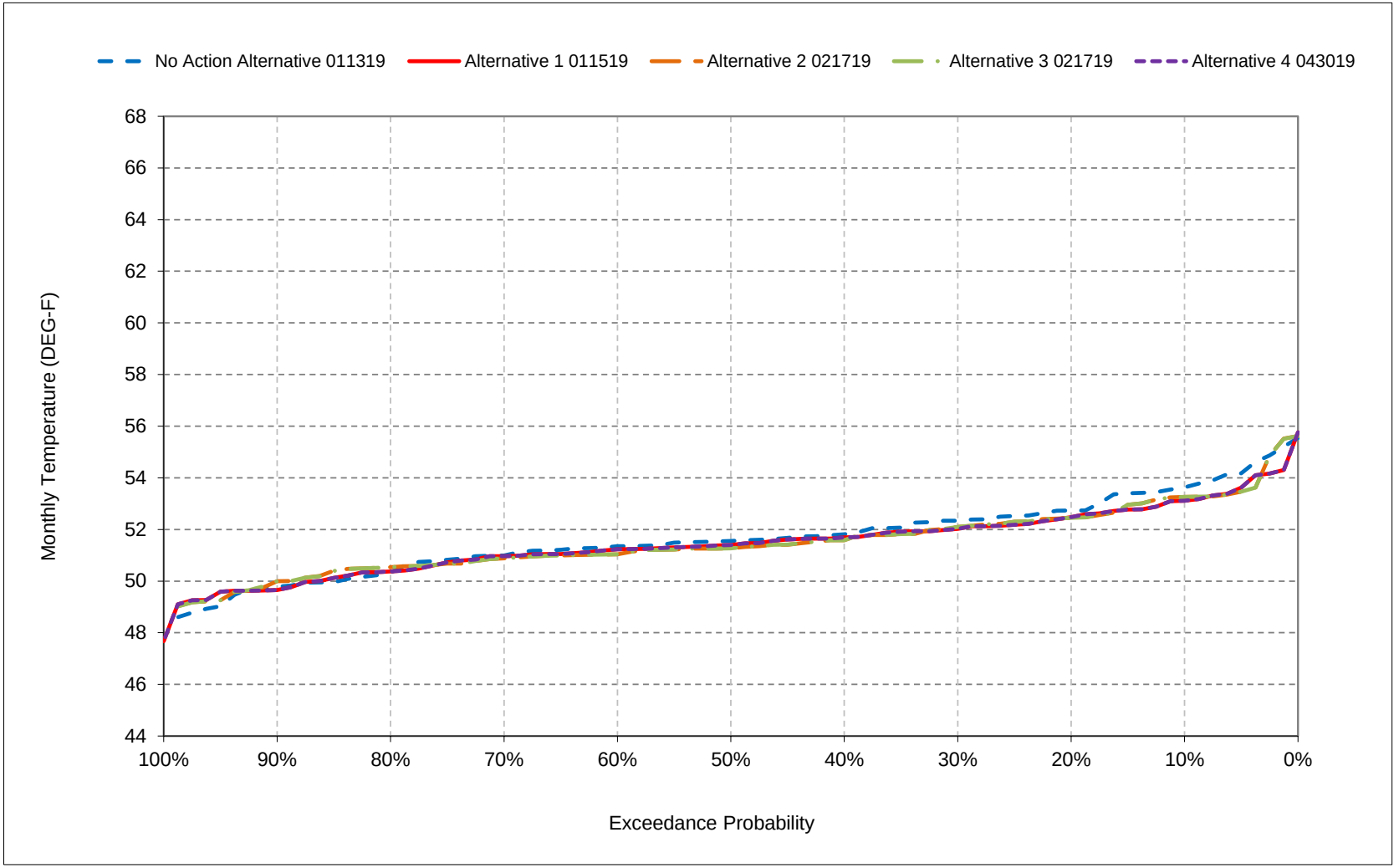



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 20-9. Stanislaus River below New Melones Reservoir, December**

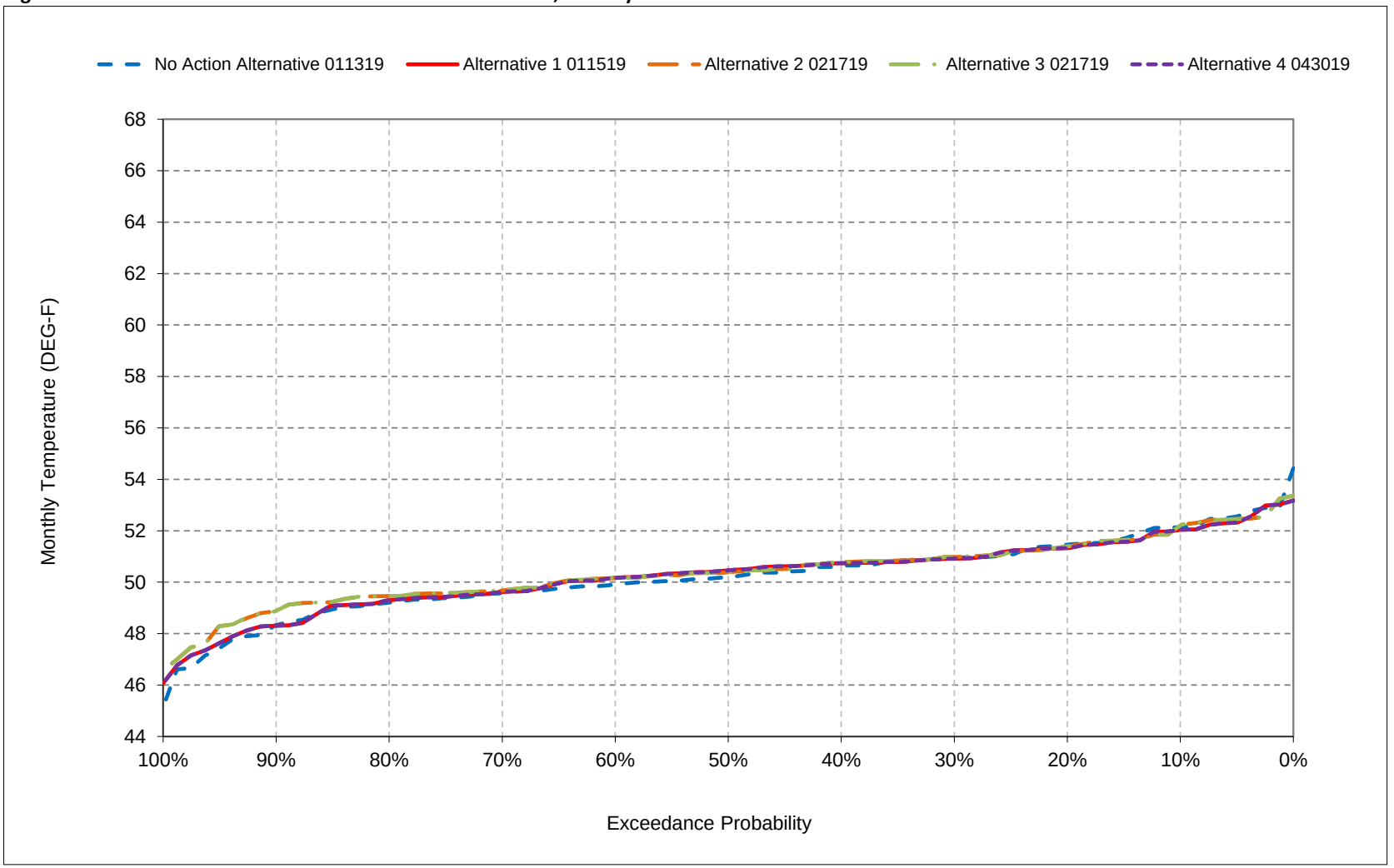



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 20-10. Stanislaus River below New Melones Reservoir, January**

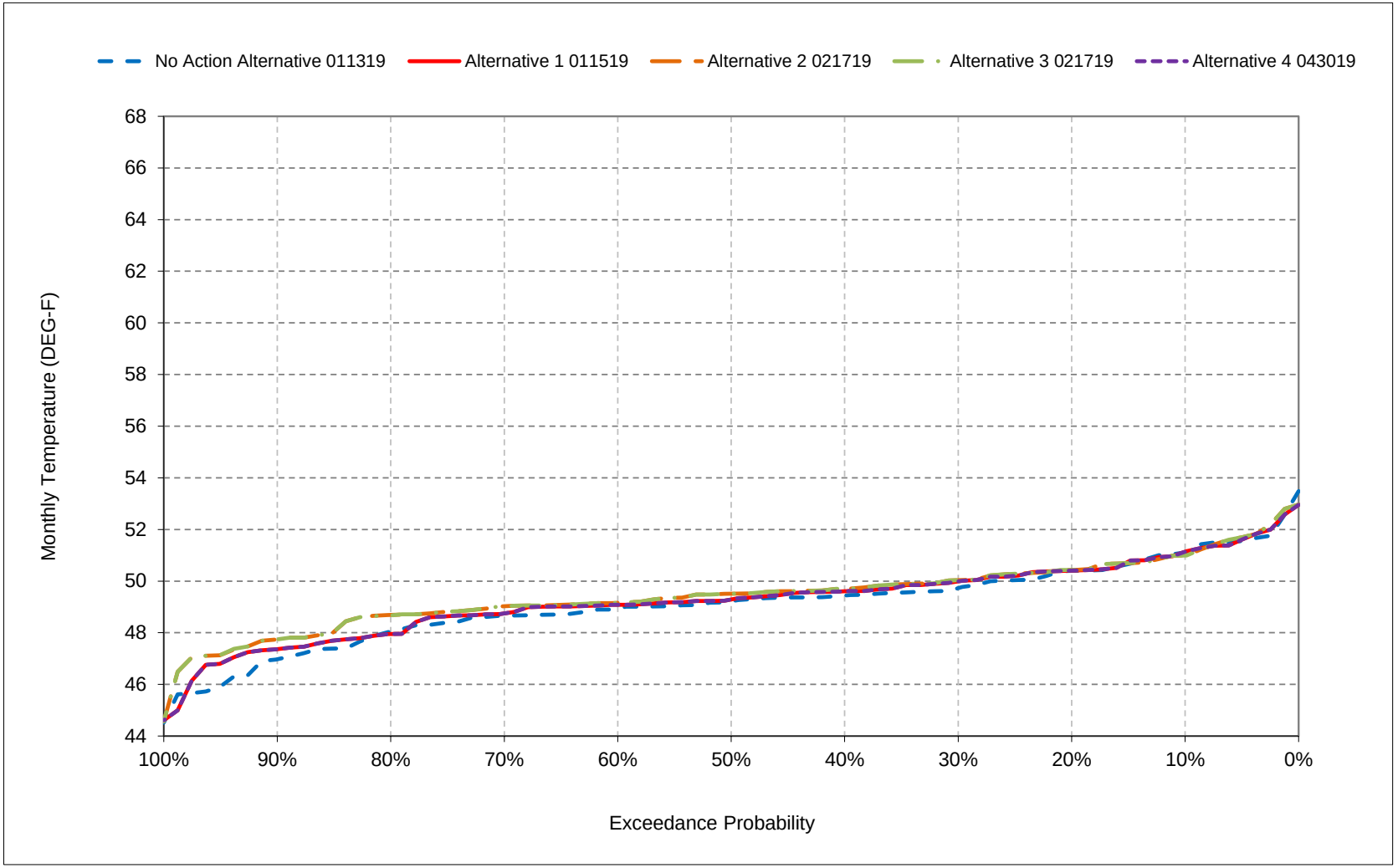



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 20-11. Stanislaus River below New Melones Reservoir, February**

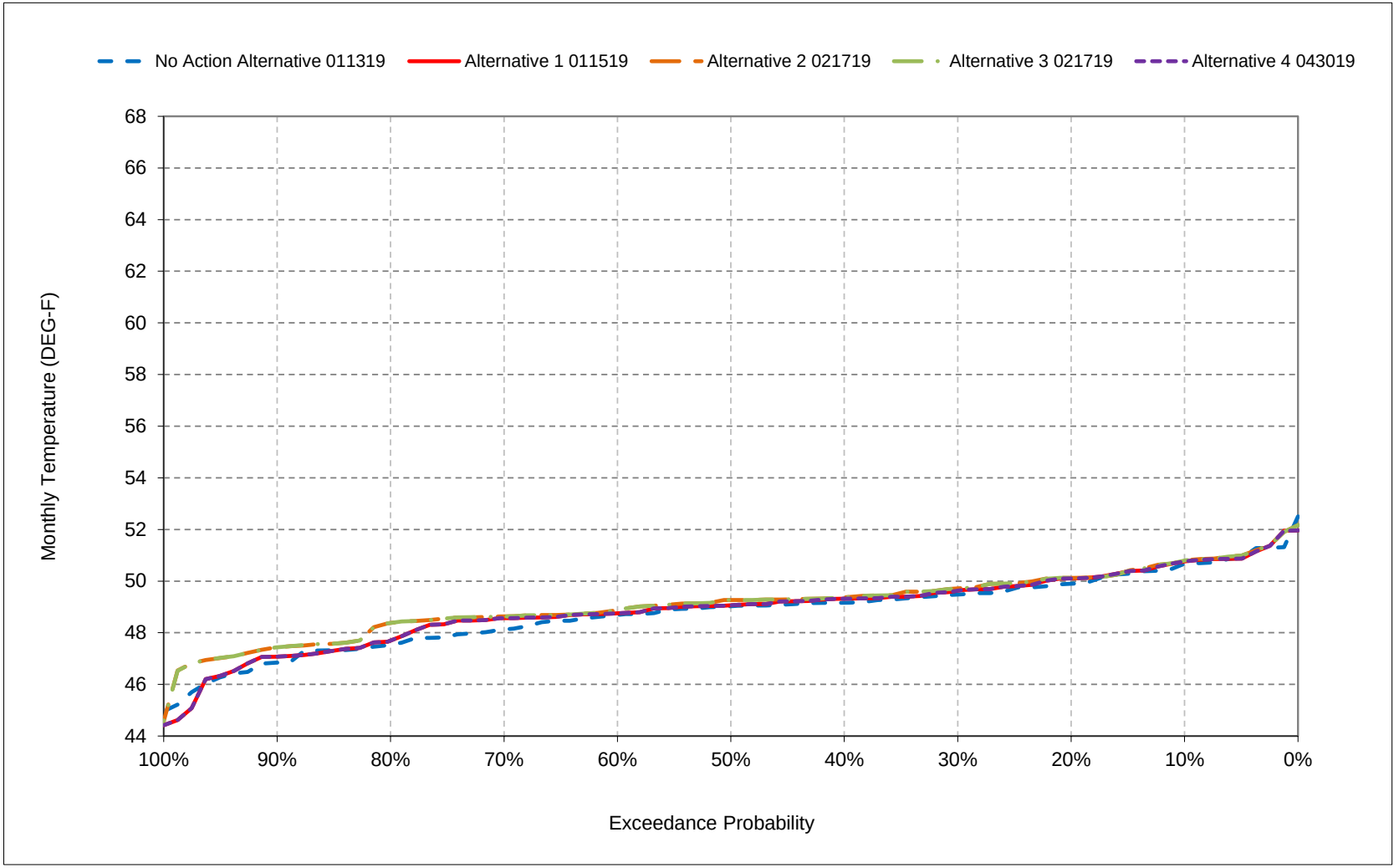



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 20-12. Stanislaus River below New Melones Reservoir, March**

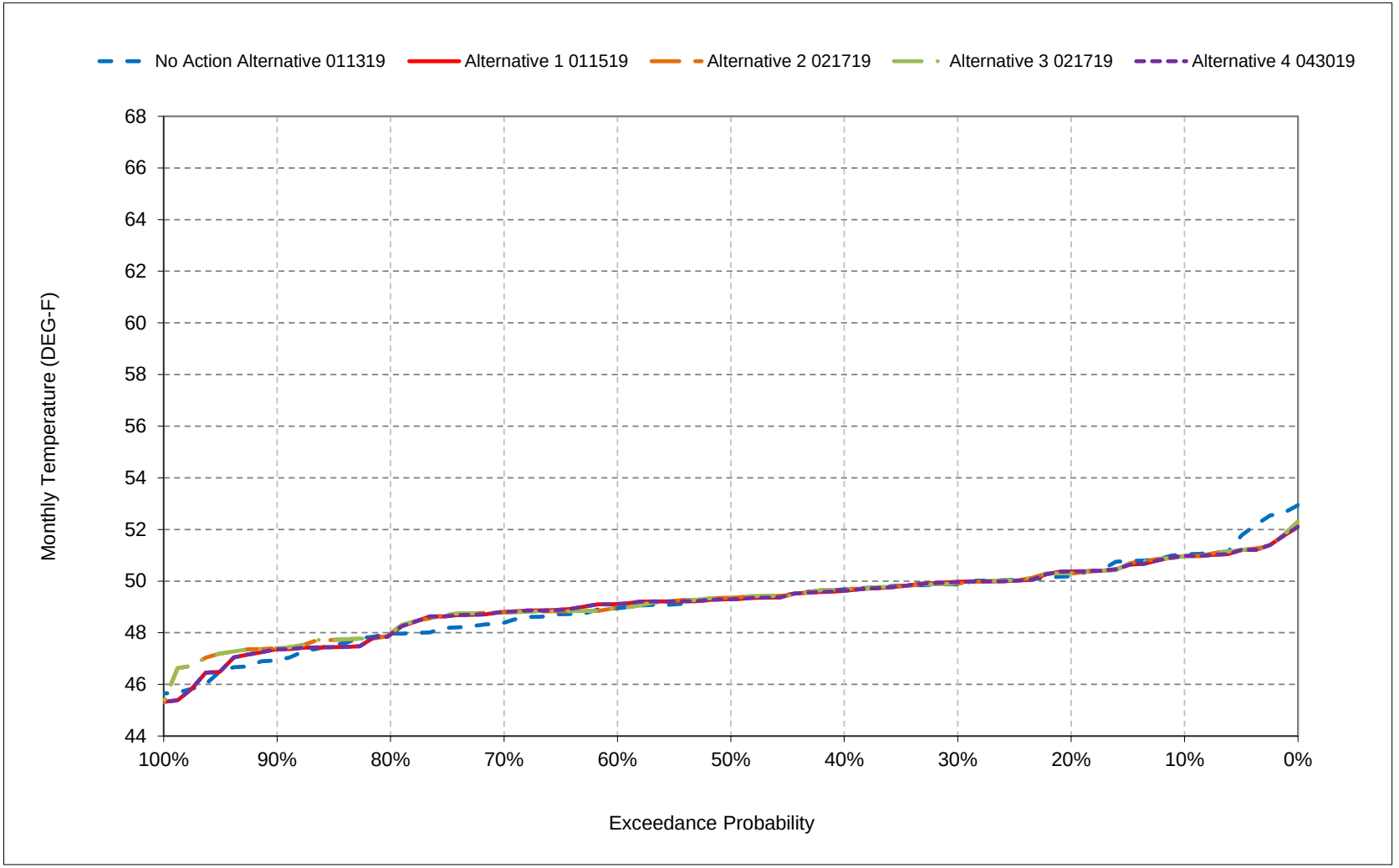



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 20-13. Stanislaus River below New Melones Reservoir, April**

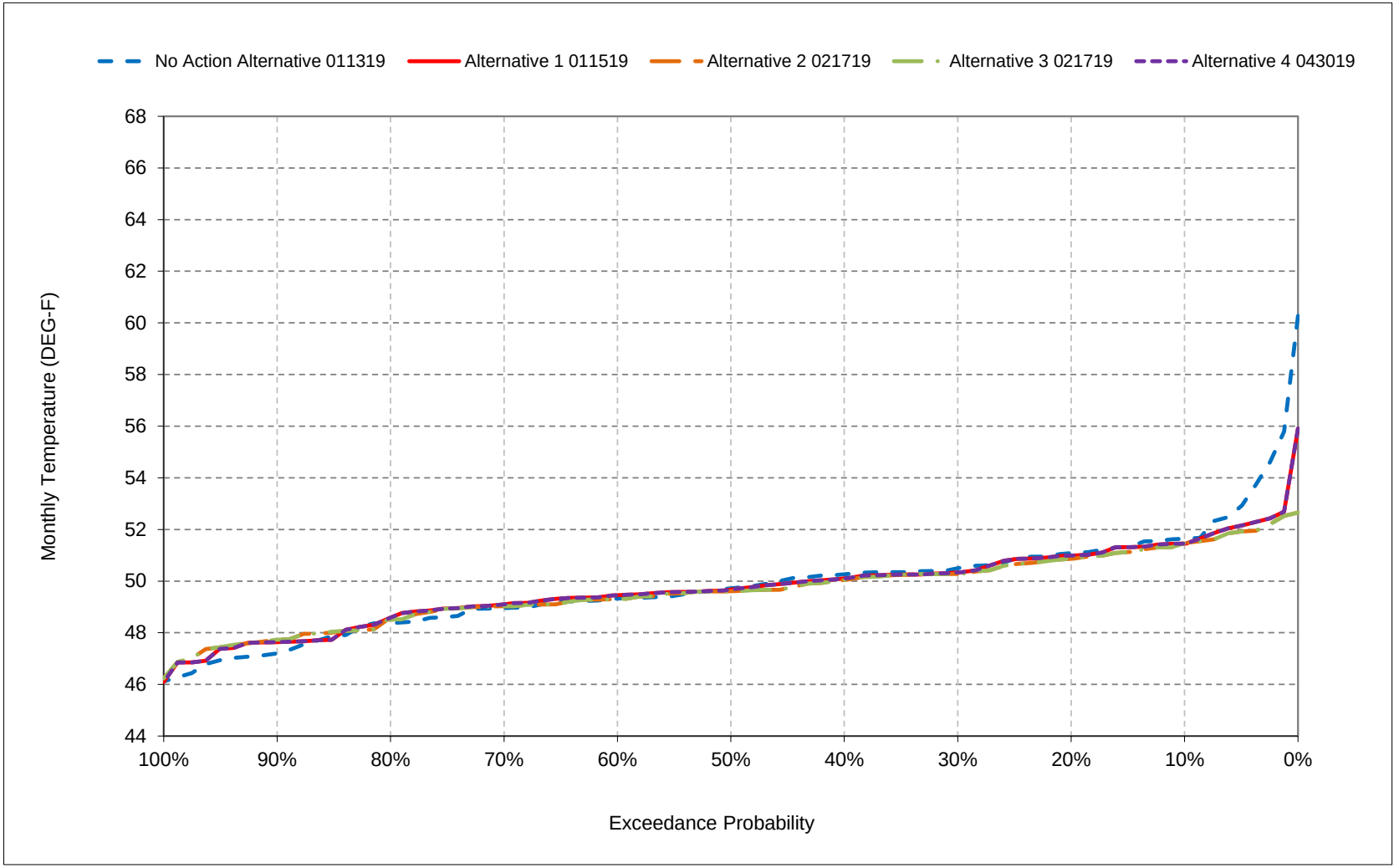



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 20-14. Stanislaus River below New Melones Reservoir, May**

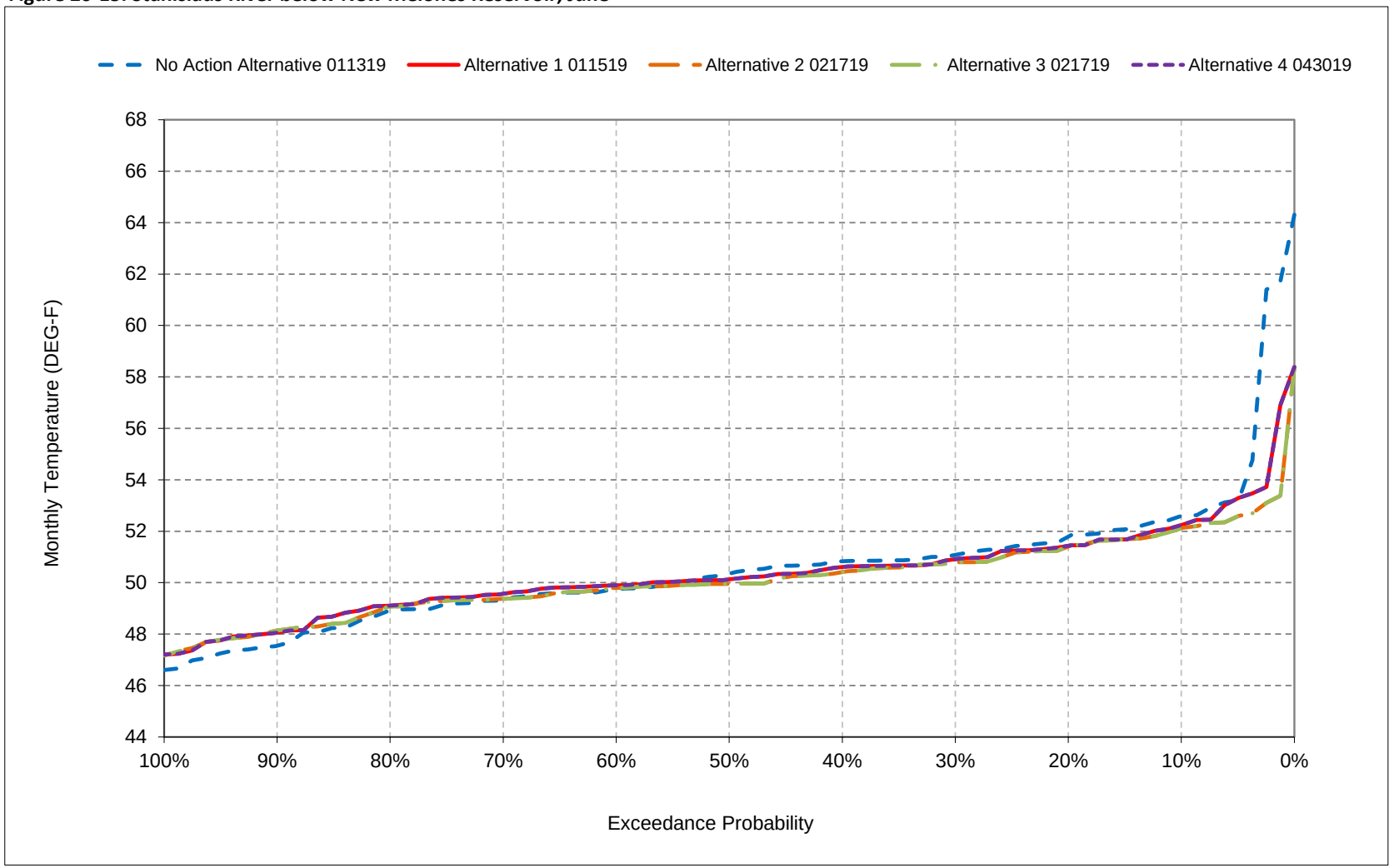



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 20-15. Stanislaus River below New Melones Reservoir, June**

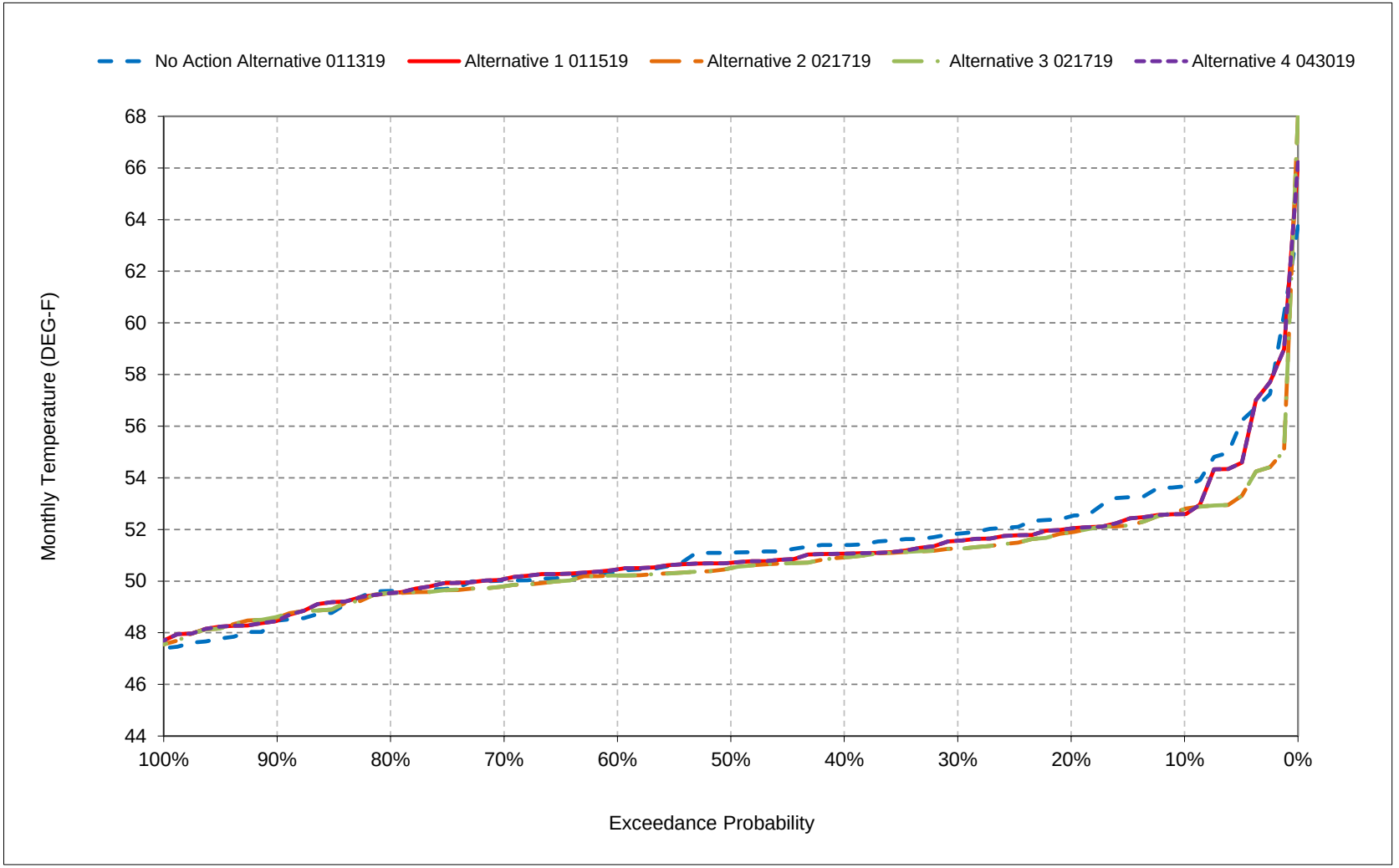



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 20-16. Stanislaus River below New Melones Reservoir, July**

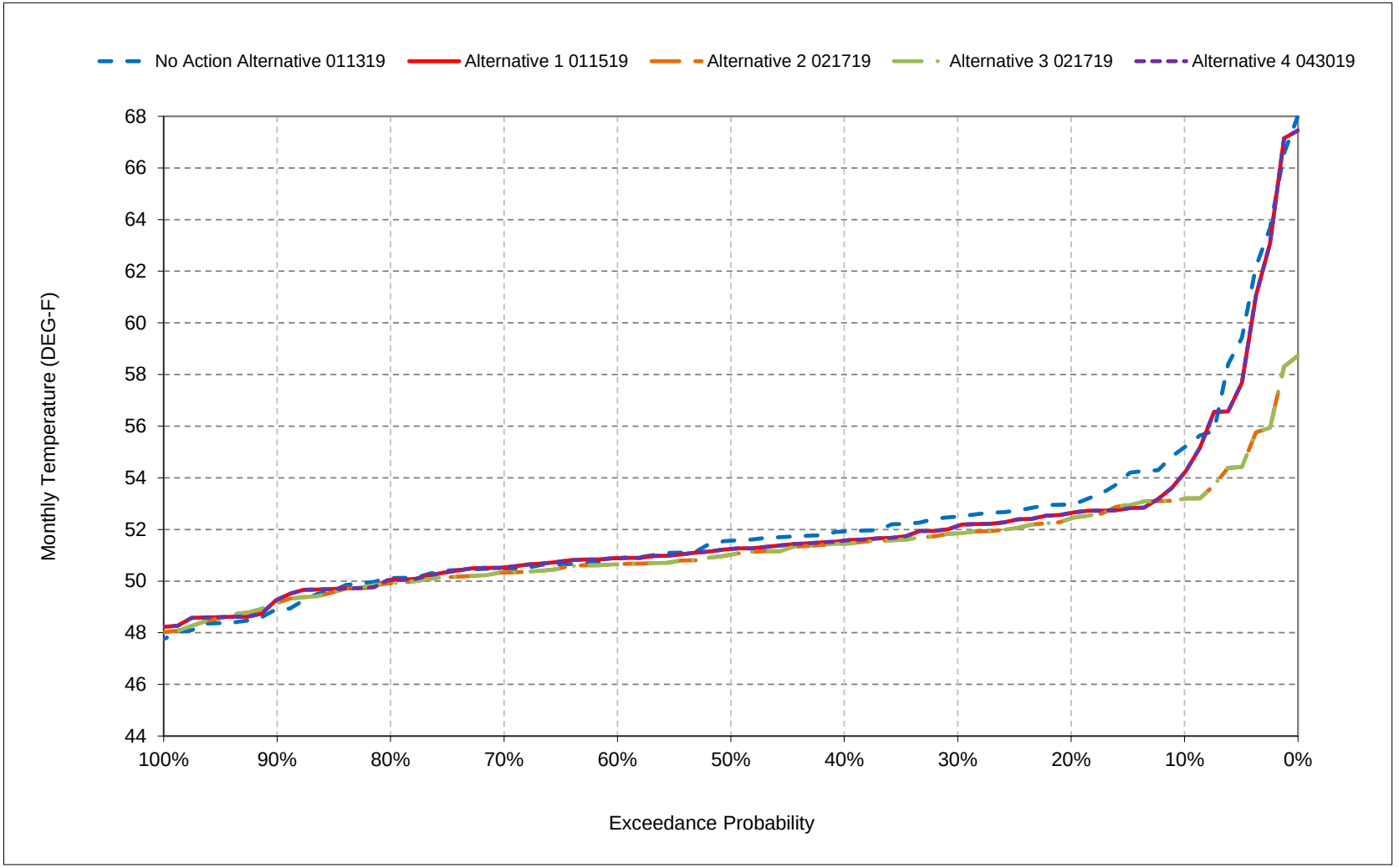



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 20-17. Stanislaus River below New Melones Reservoir, August**

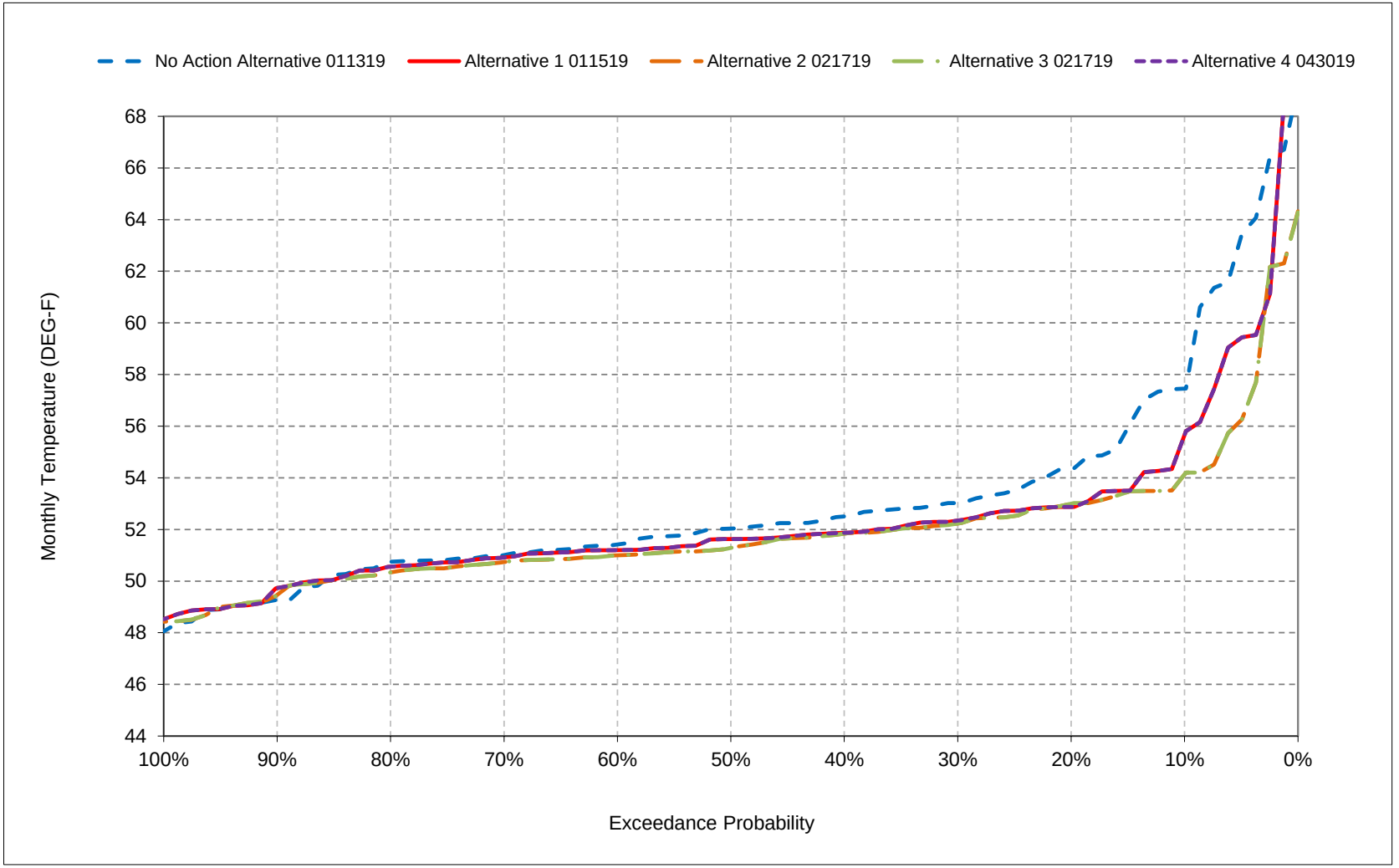



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 20-18. Stanislaus River below New Melones Reservoir, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

## Table 21-1. Stanislaus River below Tulloch Reservoir, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.5 | 59.0 | 54.7 | 50.7 | 50.2 | 51.2 | 52.6 | 53.6 | 54.7 | 56.5 | 57.4 | 59.2 |
| 20% | 57.4 | 56.5 | 53.3 | 50.3 | 49.5 | 50.6 | 52.1 | 53.0 | 54.1 | 55.0 | 55.7 | 56.7 |
| 30% | 55.6 | 55.1 | 52.7 | 49.5 | 48.9 | 50.2 | 51.7 | 52.6 | 53.4 | 54.3 | 55.0 | 55.6 |
| 40% | 55.1 | 54.6 | 51.9 | 49.0 | 48.5 | 49.8 | 51.3 | 52.4 | 52.9 | 53.9 | 54.5 | 54.9 |
| 50% | 54.5 | 54.0 | 51.6 | 48.7 | 48.0 | 49.6 | 51.0 | 52.1 | 52.6 | 53.7 | 54.1 | 54.5 |
| 60% | 54.1 | 53.9 | 51.3 | 48.3 | 47.8 | 49.3 | 50.6 | 51.7 | 52.2 | 52.7 | 53.5 | 54.0 |
| 70% | 53.6 | 53.2 | 50.9 | 47.8 | 47.5 | 48.9 | 50.1 | 51.3 | 51.8 | 52.4 | 53.1 | 53.5 |
| 80% | 53.1 | 52.6 | 50.3 | 47.1 | 46.7 | 48.4 | 49.7 | 51.0 | 51.4 | 51.8 | 52.8 | 53.1 |
| 90% | 52.0 | 51.8 | 49.6 | 46.3 | 45.8 | 47.5 | 48.8 | 50.2 | 50.2 | 50.8 | 51.5 | 51.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.6 | 54.7 | 51.9 | 48.6 | 48.1 | 49.5 | 50.9 | 52.1 | 52.8 | 53.7 | 54.6 | 55.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 52.5 | 52.1 | 50.6 | 47.5 | 47.1 | 48.8 | 49.6 | 50.9 | 51.0 | 51.5 | 52.2 | 52.4 |
| Above Normal (24%) | 54.8 | 54.3 | 51.8 | 48.1 | 47.4 | 48.7 | 50.2 | 51.4 | 51.9 | 52.7 | 53.7 | 54.5 |
| Below Normal (10%) | 54.5 | 54.0 | 51.6 | 48.3 | 48.1 | 49.4 | 51.0 | 51.7 | 52.2 | 53.3 | 54.0 | 54.4 |
| Dry (16%) | 56.3 | 55.4 | 52.3 | 49.0 | 48.6 | 50.0 | 51.6 | 52.3 | 53.2 | 54.3 | 55.3 | 56.0 |
| Critical (27%) | 59.0 | 57.1 | 53.0 | 49.6 | 49.2 | 50.7 | 52.3 | 53.7 | 55.1 | 56.4 | 57.3 | 58.8 |

### Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.6 | 57.0 | 53.7 | 50.6 | 50.1 | 51.3 | 52.6 | 53.6 | 54.6 | 55.8 | 56.5 | 57.5 |
| 20% | 56.0 | 55.4 | 53.1 | 50.0 | 49.4 | 50.6 | 52.1 | 53.0 | 53.8 | 54.7 | 55.4 | 55.8 |
| 30% | 55.2 | 54.5 | 52.6 | 49.4 | 48.9 | 50.2 | 51.6 | 52.6 | 53.2 | 54.3 | 54.9 | 55.2 |
| 40% | 54.5 | 54.1 | 51.9 | 49.0 | 48.6 | 49.9 | 51.3 | 52.3 | 52.8 | 53.7 | 54.2 | 54.5 |
| 50% | 54.2 | 53.7 | 51.5 | 48.7 | 48.1 | 49.6 | 51.1 | 52.1 | 52.5 | 53.4 | 53.9 | 54.2 |
| 60% | 53.8 | 53.4 | 51.2 | 48.3 | 47.8 | 49.5 | 50.9 | 51.8 | 52.1 | 53.0 | 53.5 | 53.8 |
| 70% | 53.6 | 53.0 | 50.8 | 47.9 | 47.5 | 49.0 | 50.5 | 51.5 | 51.7 | 52.6 | 53.1 | 53.5 |
| 80% | 53.0 | 52.5 | 50.4 | 47.2 | 46.8 | 48.5 | 49.8 | 51.0 | 51.3 | 52.1 | 52.6 | 53.0 |
| 90% | 51.9 | 51.8 | 49.4 | 46.6 | 46.4 | 47.8 | 49.0 | 50.4 | 50.5 | 51.3 | 52.0 | 51.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.9 | 54.2 | 51.7 | 48.5 | 48.1 | 49.6 | 50.9 | 52.0 | 52.6 | 53.6 | 54.4 | 54.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 52.6 | 52.3 | 50.7 | 47.5 | 47.4 | 48.8 | 49.6 | 51.0 | 51.2 | 51.7 | 52.3 | 52.5 |
| Above Normal (24%) | 55.0 | 54.1 | 51.6 | 48.3 | 47.6 | 48.9 | 50.3 | 51.5 | 51.8 | 53.1 | 54.0 | 54.8 |
| Below Normal (10%) | 54.0 | 53.6 | 51.4 | 48.3 | 48.2 | 49.5 | 51.3 | 51.8 | 52.2 | 53.3 | 53.8 | 54.1 |
| Dry (16%) | 55.1 | 54.4 | 52.0 | 48.8 | 48.5 | 50.0 | 51.5 | 52.3 | 53.1 | 53.9 | 54.5 | 55.0 |
| Critical (27%) | 56.9 | 56.1 | 52.8 | 49.5 | 49.2 | 50.8 | 52.2 | 53.3 | 54.6 | 55.7 | 56.9 | 57.2 |

### Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -1.8 | -2.0 | -1.0 | -0.1 | -0.2 | **0.1** | 0.0 | **0.0** | -0.1 | -0.7 | -0.9 | -1.7 |
| 20% | -1.4 | -1.1 | -0.2 | -0.3 | -0.1 | **0.1** | **0.0** | **0.0** | -0.3 | -0.3 | -0.3 | -0.9 |
| 30% | -0.5 | -0.6 | -0.1 | -0.2 | **0.1** | 0.0 | -0.1 | **0.0** | -0.1 | **0.0** | -0.2 | -0.4 |
| 40% | -0.6 | -0.5 | 0.0 | -0.1 | **0.1** | **0.1** | **0.0** | -0.1 | -0.1 | -0.2 | -0.3 | -0.4 |
| 50% | -0.3 | -0.3 | -0.1 | **0.0** | **0.1** | **0.0** | **0.1** | 0.0 | -0.1 | -0.3 | -0.2 | -0.3 |
| 60% | -0.2 | -0.4 | -0.1 | 0.0 | **0.0** | **0.1** | **0.2** | **0.1** | -0.1 | **0.2** | **0.0** | -0.1 |
| 70% | -0.1 | -0.2 | 0.0 | **0.1** | 0.0 | **0.0** | **0.4** | **0.2** | -0.1 | **0.2** | 0.0 | 0.0 |
| 80% | -0.1 | 0.0 | **0.1** | **0.2** | **0.1** | **0.1** | **0.1** | 0.0 | -0.1 | **0.3** | -0.1 | -0.1 |
| 90% | -0.1 | -0.1 | -0.2 | **0.4** | **0.5** | **0.2** | **0.2** | **0.2** | **0.3** | **0.5** | **0.5** | **0.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.7 | -0.5 | -0.2 | 0.0 | **0.1** | **0.1** | **0.0** | 0.0 | -0.2 | -0.1 | -0.1 | -0.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **0.2** | **0.2** | **0.0** | 0.0 | **0.3** | 0.0 | **0.0** | **0.1** | **0.2** | **0.2** | **0.1** | **0.2** |
| Above Normal (24%) | **0.2** | -0.2 | -0.2 | **0.1** | **0.2** | **0.2** | **0.1** | **0.1** | -0.2 | **0.4** | **0.3** | **0.4** |
| Below Normal (10%) | -0.5 | -0.4 | -0.2 | **0.1** | **0.1** | **0.1** | **0.3** | **0.2** | **0.0** | -0.1 | -0.2 | -0.4 |
| Dry (16%) | -1.2 | -0.9 | -0.3 | -0.2 | -0.1 | 0.0 | -0.1 | 0.0 | -0.1 | -0.4 | -0.7 | -1.0 |
| Critical (27%) | -2.1 | -1.0 | -0.3 | -0.1 | -0.1 | **0.0** | -0.1 | -0.4 | -0.6 | -0.7 | -0.4 | -1.5 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 21-2. Stanislaus River below Tulloch Reservoir, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.5 | 59.0 | 54.7 | 50.7 | 50.2 | 51.2 | 52.6 | 53.6 | 54.7 | 56.5 | 57.4 | 59.2 |
| 20% | 57.4 | 56.5 | 53.3 | 50.3 | 49.5 | 50.6 | 52.1 | 53.0 | 54.1 | 55.0 | 55.7 | 56.7 |
| 30% | 55.6 | 55.1 | 52.7 | 49.5 | 48.9 | 50.2 | 51.7 | 52.6 | 53.4 | 54.3 | 55.0 | 55.6 |
| 40% | 55.1 | 54.6 | 51.9 | 49.0 | 48.5 | 49.8 | 51.3 | 52.4 | 52.9 | 53.9 | 54.5 | 54.9 |
| 50% | 54.5 | 54.0 | 51.6 | 48.7 | 48.0 | 49.6 | 51.0 | 52.1 | 52.6 | 53.7 | 54.1 | 54.5 |
| 60% | 54.1 | 53.9 | 51.3 | 48.3 | 47.8 | 49.3 | 50.6 | 51.7 | 52.2 | 52.7 | 53.5 | 54.0 |
| 70% | 53.6 | 53.2 | 50.9 | 47.8 | 47.5 | 48.9 | 50.1 | 51.3 | 51.8 | 52.4 | 53.1 | 53.5 |
| 80% | 53.1 | 52.6 | 50.3 | 47.1 | 46.7 | 48.4 | 49.7 | 51.0 | 51.4 | 51.8 | 52.8 | 53.1 |
| 90% | 52.0 | 51.8 | 49.6 | 46.3 | 45.8 | 47.5 | 48.8 | 50.2 | 50.2 | 50.8 | 51.5 | 51.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.6 | 54.7 | 51.9 | 48.6 | 48.1 | 49.5 | 50.9 | 52.1 | 52.8 | 53.7 | 54.6 | 55.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 52.5 | 52.1 | 50.6 | 47.5 | 47.1 | 48.8 | 49.6 | 50.9 | 51.0 | 51.5 | 52.2 | 52.4 |
| Above Normal (24%) | 54.8 | 54.3 | 51.8 | 48.1 | 47.4 | 48.7 | 50.2 | 51.4 | 51.9 | 52.7 | 53.7 | 54.5 |
| Below Normal (10%) | 54.5 | 54.0 | 51.6 | 48.3 | 48.1 | 49.4 | 51.0 | 51.7 | 52.2 | 53.3 | 54.0 | 54.4 |
| Dry (16%) | 56.3 | 55.4 | 52.3 | 49.0 | 48.6 | 50.0 | 51.6 | 52.3 | 53.2 | 54.3 | 55.3 | 56.0 |
| Critical (27%) | 59.0 | 57.1 | 53.0 | 49.6 | 49.2 | 50.7 | 52.3 | 53.7 | 55.1 | 56.4 | 57.3 | 58.8 |

### Alternative 2 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.1 | 56.8 | 54.1 | 50.7 | 50.2 | 51.4 | 52.7 | 53.5 | 54.3 | 55.5 | 56.1 | 56.5 |
| 20% | 55.7 | 55.4 | 53.2 | 49.9 | 49.7 | 50.8 | 52.0 | 52.9 | 53.9 | 54.7 | 55.0 | 55.4 |
| 30% | 55.1 | 54.6 | 52.7 | 49.5 | 49.2 | 50.2 | 51.6 | 52.6 | 53.2 | 53.8 | 54.4 | 54.8 |
| 40% | 54.4 | 54.0 | 51.7 | 49.0 | 48.9 | 49.9 | 51.4 | 52.2 | 52.9 | 53.5 | 53.9 | 54.3 |
| 50% | 53.9 | 53.6 | 51.5 | 48.7 | 48.4 | 49.8 | 51.1 | 51.9 | 52.6 | 53.1 | 53.7 | 53.9 |
| 60% | 53.7 | 53.3 | 51.3 | 48.5 | 48.0 | 49.5 | 50.8 | 51.7 | 52.2 | 52.8 | 53.3 | 53.5 |
| 70% | 53.3 | 52.9 | 50.9 | 48.1 | 47.6 | 49.2 | 50.5 | 51.4 | 52.1 | 52.5 | 52.9 | 53.1 |
| 80% | 52.9 | 52.7 | 50.6 | 47.7 | 47.3 | 48.5 | 50.0 | 51.1 | 51.4 | 52.0 | 52.7 | 52.7 |
| 90% | 52.0 | 51.8 | 49.5 | 46.9 | 46.4 | 48.0 | 49.3 | 50.3 | 50.6 | 51.4 | 51.9 | 51.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.6 | 54.2 | 51.8 | 48.7 | 48.4 | 49.7 | 51.0 | 51.9 | 52.6 | 53.4 | 53.9 | 54.3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 52.5 | 52.2 | 50.7 | 47.7 | 47.9 | 48.8 | 49.9 | 51.0 | 51.4 | 51.9 | 52.3 | 52.3 |
| Above Normal (24%) | 53.9 | 53.6 | 51.4 | 48.6 | 47.8 | 49.1 | 50.3 | 51.3 | 52.0 | 52.3 | 53.1 | 53.6 |
| Below Normal (10%) | 53.9 | 53.6 | 51.4 | 48.4 | 48.2 | 49.5 | 50.9 | 51.6 | 52.3 | 53.0 | 53.5 | 53.7 |
| Dry (16%) | 54.7 | 54.3 | 51.9 | 48.9 | 48.6 | 50.1 | 51.6 | 52.3 | 53.1 | 53.8 | 54.2 | 54.6 |
| Critical (27%) | 57.2 | 56.6 | 53.3 | 49.5 | 49.1 | 50.8 | 52.2 | 53.2 | 54.2 | 55.5 | 55.9 | 56.8 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -3.3 | -2.3 | -0.6 | 0.0 | 0.0 | **0.2** | **0.1** | -0.1 | -0.4 | -1.0 | -1.3 | -2.7 |
| 20% | -1.6 | -1.1 | -0.1 | -0.4 | **0.2** | **0.2** | -0.1 | -0.1 | -0.2 | -0.4 | -0.6 | -1.3 |
| 30% | -0.5 | -0.6 | **0.0** | -0.1 | **0.4** | **0.0** | -0.1 | **0.0** | -0.2 | -0.4 | -0.6 | -0.8 |
| 40% | -0.7 | -0.6 | -0.2 | 0.0 | **0.5** | **0.1** | **0.1** | -0.2 | 0.0 | -0.4 | -0.6 | -0.6 |
| 50% | -0.6 | -0.5 | -0.1 | **0.0** | **0.4** | **0.2** | **0.1** | -0.2 | 0.0 | -0.6 | -0.5 | -0.6 |
| 60% | -0.4 | -0.6 | 0.0 | **0.3** | **0.2** | **0.1** | **0.1** | **0.0** | **0.0** | **0.1** | -0.2 | -0.4 |
| 70% | -0.3 | -0.3 | **0.0** | **0.3** | **0.1** | **0.2** | **0.4** | **0.1** | **0.3** | **0.1** | -0.2 | -0.4 |
| 80% | -0.3 | **0.1** | **0.2** | **0.6** | **0.5** | **0.1** | **0.3** | **0.0** | **0.1** | **0.2** | -0.1 | -0.3 |
| 90% | **0.0** | 0.0 | -0.1 | **0.6** | **0.5** | **0.4** | **0.5** | **0.1** | **0.4** | **0.6** | **0.4** | **0.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -1.0 | -0.5 | -0.1 | **0.1** | **0.3** | **0.1** | **0.1** | -0.1 | -0.2 | -0.4 | -0.7 | -1.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **0.0** | **0.1** | **0.1** | **0.1** | **0.9** | **0.1** | **0.3** | **0.1** | **0.3** | **0.4** | **0.2** | -0.1 |
| Above Normal (24%) | -0.9 | -0.7 | -0.3 | **0.5** | **0.4** | **0.4** | **0.2** | -0.1 | **0.0** | -0.4 | -0.6 | -0.9 |
| Below Normal (10%) | -0.6 | -0.4 | -0.2 | **0.1** | **0.1** | **0.1** | -0.1 | 0.0 | **0.1** | -0.3 | -0.6 | -0.7 |
| Dry (16%) | -1.6 | -1.1 | -0.4 | -0.1 | 0.0 | **0.1** | 0.0 | **0.0** | -0.1 | -0.5 | -1.0 | -1.4 |
| Critical (27%) | -1.8 | -0.5 | **0.2** | -0.1 | -0.1 | **0.1** | -0.1 | -0.6 | -0.9 | -0.9 | -1.3 | -2.0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 21-3. Stanislaus River below Tulloch Reservoir, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.5 | 59.0 | 54.7 | 50.7 | 50.2 | 51.2 | 52.6 | 53.6 | 54.7 | 56.5 | 57.4 | 59.2 |
| 20% | 57.4 | 56.5 | 53.3 | 50.3 | 49.5 | 50.6 | 52.1 | 53.0 | 54.1 | 55.0 | 55.7 | 56.7 |
| 30% | 55.6 | 55.1 | 52.7 | 49.5 | 48.9 | 50.2 | 51.7 | 52.6 | 53.4 | 54.3 | 55.0 | 55.6 |
| 40% | 55.1 | 54.6 | 51.9 | 49.0 | 48.5 | 49.8 | 51.3 | 52.4 | 52.9 | 53.9 | 54.5 | 54.9 |
| 50% | 54.5 | 54.0 | 51.6 | 48.7 | 48.0 | 49.6 | 51.0 | 52.1 | 52.6 | 53.7 | 54.1 | 54.5 |
| 60% | 54.1 | 53.9 | 51.3 | 48.3 | 47.8 | 49.3 | 50.6 | 51.7 | 52.2 | 52.7 | 53.5 | 54.0 |
| 70% | 53.6 | 53.2 | 50.9 | 47.8 | 47.5 | 48.9 | 50.1 | 51.3 | 51.8 | 52.4 | 53.1 | 53.5 |
| 80% | 53.1 | 52.6 | 50.3 | 47.1 | 46.7 | 48.4 | 49.7 | 51.0 | 51.4 | 51.8 | 52.8 | 53.1 |
| 90% | 52.0 | 51.8 | 49.6 | 46.3 | 45.8 | 47.5 | 48.8 | 50.2 | 50.2 | 50.8 | 51.5 | 51.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.6 | 54.7 | 51.9 | 48.6 | 48.1 | 49.5 | 50.9 | 52.1 | 52.8 | 53.7 | 54.6 | 55.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 52.5 | 52.1 | 50.6 | 47.5 | 47.1 | 48.8 | 49.6 | 50.9 | 51.0 | 51.5 | 52.2 | 52.4 |
| Above Normal (24%) | 54.8 | 54.3 | 51.8 | 48.1 | 47.4 | 48.7 | 50.2 | 51.4 | 51.9 | 52.7 | 53.7 | 54.5 |
| Below Normal (10%) | 54.5 | 54.0 | 51.6 | 48.3 | 48.1 | 49.4 | 51.0 | 51.7 | 52.2 | 53.3 | 54.0 | 54.4 |
| Dry (16%) | 56.3 | 55.4 | 52.3 | 49.0 | 48.6 | 50.0 | 51.6 | 52.3 | 53.2 | 54.3 | 55.3 | 56.0 |
| Critical (27%) | 59.0 | 57.1 | 53.0 | 49.6 | 49.2 | 50.7 | 52.3 | 53.7 | 55.1 | 56.4 | 57.3 | 58.8 |

### Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.1 | 56.8 | 54.1 | 50.7 | 50.2 | 51.4 | 52.7 | 53.5 | 54.3 | 55.5 | 56.1 | 56.5 |
| 20% | 55.7 | 55.4 | 53.2 | 49.9 | 49.7 | 50.8 | 52.0 | 52.9 | 53.9 | 54.7 | 55.0 | 55.3 |
| 30% | 55.1 | 54.6 | 52.7 | 49.5 | 49.2 | 50.2 | 51.6 | 52.6 | 53.2 | 53.8 | 54.4 | 54.8 |
| 40% | 54.4 | 54.0 | 51.7 | 49.0 | 48.9 | 49.9 | 51.4 | 52.2 | 52.9 | 53.5 | 53.9 | 54.3 |
| 50% | 53.9 | 53.6 | 51.5 | 48.7 | 48.4 | 49.8 | 51.1 | 51.9 | 52.6 | 53.1 | 53.7 | 53.9 |
| 60% | 53.7 | 53.3 | 51.3 | 48.5 | 48.0 | 49.5 | 50.8 | 51.7 | 52.2 | 52.8 | 53.3 | 53.5 |
| 70% | 53.3 | 52.9 | 51.0 | 48.1 | 47.6 | 49.2 | 50.5 | 51.4 | 52.1 | 52.5 | 52.9 | 53.1 |
| 80% | 52.9 | 52.7 | 50.6 | 47.7 | 47.3 | 48.5 | 50.0 | 51.1 | 51.4 | 52.0 | 52.6 | 52.7 |
| 90% | 52.0 | 51.8 | 49.5 | 46.9 | 46.4 | 48.0 | 49.3 | 50.3 | 50.6 | 51.4 | 51.9 | 51.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.6 | 54.2 | 51.8 | 48.7 | 48.4 | 49.7 | 51.0 | 51.9 | 52.6 | 53.4 | 53.9 | 54.3 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 52.5 | 52.2 | 50.7 | 47.7 | 47.9 | 48.9 | 49.9 | 51.0 | 51.4 | 51.9 | 52.3 | 52.3 |
| Above Normal (24%) | 53.9 | 53.6 | 51.4 | 48.6 | 47.8 | 49.1 | 50.3 | 51.3 | 52.0 | 52.3 | 53.1 | 53.6 |
| Below Normal (10%) | 53.9 | 53.6 | 51.4 | 48.4 | 48.3 | 49.5 | 50.9 | 51.6 | 52.3 | 53.0 | 53.5 | 53.7 |
| Dry (16%) | 54.7 | 54.3 | 51.9 | 48.9 | 48.6 | 50.1 | 51.6 | 52.3 | 53.1 | 53.8 | 54.2 | 54.6 |
| Critical (27%) | 57.2 | 56.6 | 53.3 | 49.5 | 49.1 | 50.8 | 52.2 | 53.2 | 54.2 | 55.5 | 55.9 | 56.8 |

### Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -3.3 | -2.3 | -0.6 | 0.0 | 0.0 | **0.2** | **0.1** | -0.1 | -0.4 | -1.0 | -1.3 | -2.7 |
| 20% | -1.6 | -1.1 | -0.1 | -0.4 | **0.2** | **0.2** | -0.1 | -0.1 | -0.2 | -0.4 | -0.6 | -1.3 |
| 30% | -0.6 | -0.6 | **0.0** | -0.1 | **0.4** | **0.0** | -0.1 | **0.0** | -0.2 | -0.4 | -0.6 | -0.8 |
| 40% | -0.7 | -0.6 | -0.2 | 0.0 | **0.5** | **0.1** | **0.1** | -0.2 | 0.0 | -0.4 | -0.6 | -0.6 |
| 50% | -0.6 | -0.5 | -0.1 | **0.0** | **0.4** | **0.2** | **0.1** | -0.2 | 0.0 | -0.6 | -0.5 | -0.6 |
| 60% | -0.4 | -0.6 | 0.0 | **0.3** | **0.2** | **0.1** | **0.1** | **0.0** | **0.0** | **0.1** | -0.2 | -0.4 |
| 70% | -0.3 | -0.3 | **0.1** | **0.3** | **0.1** | **0.2** | **0.4** | **0.1** | **0.3** | **0.1** | -0.2 | -0.4 |
| 80% | -0.3 | **0.1** | **0.2** | **0.6** | **0.5** | **0.1** | **0.3** | **0.0** | **0.1** | **0.2** | -0.1 | -0.3 |
| 90% | **0.0** | 0.0 | -0.1 | **0.6** | **0.5** | **0.4** | **0.5** | **0.1** | **0.4** | **0.6** | **0.4** | **0.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -1.0 | -0.5 | -0.1 | **0.1** | **0.3** | **0.1** | **0.1** | -0.1 | -0.2 | -0.4 | -0.7 | -1.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **0.0** | **0.1** | **0.1** | **0.1** | **0.9** | **0.1** | **0.3** | **0.1** | **0.3** | **0.4** | **0.2** | -0.1 |
| Above Normal (24%) | -0.9 | -0.7 | -0.3 | **0.5** | **0.4** | **0.4** | **0.2** | -0.1 | **0.0** | -0.4 | -0.6 | -0.9 |
| Below Normal (10%) | -0.6 | -0.4 | -0.2 | **0.1** | **0.1** | **0.1** | -0.1 | 0.0 | **0.1** | -0.3 | -0.5 | -0.7 |
| Dry (16%) | -1.6 | -1.1 | -0.4 | -0.1 | 0.0 | **0.1** | 0.0 | **0.0** | -0.1 | -0.5 | -1.0 | -1.4 |
| Critical (27%) | -1.8 | -0.5 | **0.2** | -0.1 | -0.1 | **0.1** | -0.1 | -0.6 | -0.9 | -1.0 | -1.3 | -2.0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 21-4. Stanislaus River below Tulloch Reservoir, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.5 | 59.0 | 54.7 | 50.7 | 50.2 | 51.2 | 52.6 | 53.6 | 54.7 | 56.5 | 57.4 | 59.2 |
| 20% | 57.4 | 56.5 | 53.3 | 50.3 | 49.5 | 50.6 | 52.1 | 53.0 | 54.1 | 55.0 | 55.7 | 56.7 |
| 30% | 55.6 | 55.1 | 52.7 | 49.5 | 48.9 | 50.2 | 51.7 | 52.6 | 53.4 | 54.3 | 55.0 | 55.6 |
| 40% | 55.1 | 54.6 | 51.9 | 49.0 | 48.5 | 49.8 | 51.3 | 52.4 | 52.9 | 53.9 | 54.5 | 54.9 |
| 50% | 54.5 | 54.0 | 51.6 | 48.7 | 48.0 | 49.6 | 51.0 | 52.1 | 52.6 | 53.7 | 54.1 | 54.5 |
| 60% | 54.1 | 53.9 | 51.3 | 48.3 | 47.8 | 49.3 | 50.6 | 51.7 | 52.2 | 52.7 | 53.5 | 54.0 |
| 70% | 53.6 | 53.2 | 50.9 | 47.8 | 47.5 | 48.9 | 50.1 | 51.3 | 51.8 | 52.4 | 53.1 | 53.5 |
| 80% | 53.1 | 52.6 | 50.3 | 47.1 | 46.7 | 48.4 | 49.7 | 51.0 | 51.4 | 51.8 | 52.8 | 53.1 |
| 90% | 52.0 | 51.8 | 49.6 | 46.3 | 45.8 | 47.5 | 48.8 | 50.2 | 50.2 | 50.8 | 51.5 | 51.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.6 | 54.7 | 51.9 | 48.6 | 48.1 | 49.5 | 50.9 | 52.1 | 52.8 | 53.7 | 54.6 | 55.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 52.5 | 52.1 | 50.6 | 47.5 | 47.1 | 48.8 | 49.6 | 50.9 | 51.0 | 51.5 | 52.2 | 52.4 |
| Above Normal (24%) | 54.8 | 54.3 | 51.8 | 48.1 | 47.4 | 48.7 | 50.2 | 51.4 | 51.9 | 52.7 | 53.7 | 54.5 |
| Below Normal (10%) | 54.5 | 54.0 | 51.6 | 48.3 | 48.1 | 49.4 | 51.0 | 51.7 | 52.2 | 53.3 | 54.0 | 54.4 |
| Dry (16%) | 56.3 | 55.4 | 52.3 | 49.0 | 48.6 | 50.0 | 51.6 | 52.3 | 53.2 | 54.3 | 55.3 | 56.0 |
| Critical (27%) | 59.0 | 57.1 | 53.0 | 49.6 | 49.2 | 50.7 | 52.3 | 53.7 | 55.1 | 56.4 | 57.3 | 58.8 |

### Alternative 4 043019

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.6 | 57.0 | 53.7 | 50.6 | 50.1 | 51.3 | 52.6 | 53.6 | 54.6 | 55.8 | 56.5 | 57.5 |
| 20% | 56.0 | 55.4 | 53.1 | 50.0 | 49.4 | 50.6 | 52.1 | 53.0 | 53.8 | 54.7 | 55.4 | 55.8 |
| 30% | 55.2 | 54.5 | 52.6 | 49.4 | 48.9 | 50.2 | 51.6 | 52.6 | 53.2 | 54.3 | 54.9 | 55.2 |
| 40% | 54.5 | 54.1 | 51.9 | 49.0 | 48.6 | 49.9 | 51.3 | 52.3 | 52.8 | 53.7 | 54.2 | 54.5 |
| 50% | 54.2 | 53.7 | 51.5 | 48.7 | 48.1 | 49.6 | 51.1 | 52.1 | 52.5 | 53.4 | 53.9 | 54.2 |
| 60% | 53.8 | 53.4 | 51.2 | 48.3 | 47.8 | 49.5 | 50.9 | 51.8 | 52.1 | 53.0 | 53.5 | 53.8 |
| 70% | 53.6 | 53.0 | 50.8 | 47.9 | 47.5 | 49.0 | 50.5 | 51.5 | 51.7 | 52.6 | 53.1 | 53.5 |
| 80% | 53.0 | 52.5 | 50.4 | 47.2 | 46.8 | 48.5 | 49.8 | 51.0 | 51.3 | 52.1 | 52.6 | 53.0 |
| 90% | 51.9 | 51.8 | 49.4 | 46.6 | 46.4 | 47.8 | 49.0 | 50.4 | 50.5 | 51.3 | 52.0 | 51.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.9 | 54.2 | 51.7 | 48.5 | 48.1 | 49.6 | 50.9 | 52.0 | 52.6 | 53.6 | 54.4 | 54.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 52.6 | 52.3 | 50.7 | 47.5 | 47.4 | 48.8 | 49.6 | 51.0 | 51.2 | 51.7 | 52.3 | 52.5 |
| Above Normal (24%) | 55.0 | 54.1 | 51.6 | 48.3 | 47.6 | 48.9 | 50.3 | 51.5 | 51.8 | 53.1 | 54.0 | 54.8 |
| Below Normal (10%) | 54.0 | 53.6 | 51.4 | 48.3 | 48.2 | 49.5 | 51.3 | 51.8 | 52.2 | 53.3 | 53.8 | 54.1 |
| Dry (16%) | 55.1 | 54.4 | 52.0 | 48.8 | 48.5 | 50.0 | 51.5 | 52.3 | 53.1 | 53.9 | 54.5 | 55.0 |
| Critical (27%) | 56.9 | 56.1 | 52.8 | 49.5 | 49.2 | 50.8 | 52.2 | 53.3 | 54.6 | 55.7 | 56.9 | 57.2 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -1.8 | -2.0 | -1.0 | -0.1 | -0.2 | **0.1** | 0.0 | **0.0** | -0.1 | -0.7 | -0.9 | -1.7 |
| 20% | -1.4 | -1.1 | -0.2 | -0.3 | -0.1 | **0.1** | **0.0** | **0.0** | -0.3 | -0.3 | -0.3 | -0.9 |
| 30% | -0.5 | -0.6 | -0.1 | -0.2 | **0.1** | 0.0 | -0.1 | **0.0** | -0.1 | **0.0** | -0.2 | -0.4 |
| 40% | -0.6 | -0.5 | 0.0 | -0.1 | **0.1** | **0.1** | **0.0** | -0.1 | -0.1 | -0.2 | -0.3 | -0.4 |
| 50% | -0.3 | -0.3 | -0.1 | **0.0** | **0.1** | **0.0** | **0.1** | 0.0 | -0.1 | -0.3 | -0.2 | -0.3 |
| 60% | -0.2 | -0.4 | -0.1 | 0.0 | **0.0** | **0.1** | **0.2** | **0.1** | -0.1 | **0.2** | **0.0** | -0.1 |
| 70% | -0.1 | -0.2 | 0.0 | **0.1** | 0.0 | **0.0** | **0.4** | **0.2** | -0.1 | **0.2** | 0.0 | 0.0 |
| 80% | -0.1 | 0.0 | **0.1** | **0.2** | **0.1** | **0.1** | **0.1** | 0.0 | -0.1 | **0.3** | -0.1 | -0.1 |
| 90% | -0.1 | -0.1 | -0.2 | **0.4** | **0.5** | **0.2** | **0.2** | **0.2** | **0.3** | **0.5** | **0.5** | **0.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.7 | -0.5 | -0.2 | 0.0 | **0.1** | **0.1** | **0.0** | 0.0 | -0.2 | -0.1 | -0.1 | -0.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **0.2** | **0.2** | **0.0** | 0.0 | **0.3** | 0.0 | **0.0** | **0.1** | **0.2** | **0.2** | **0.1** | **0.2** |
| Above Normal (24%) | **0.2** | -0.2 | -0.2 | **0.1** | **0.2** | **0.2** | **0.1** | **0.1** | -0.2 | **0.4** | **0.3** | **0.4** |
| Below Normal (10%) | -0.5 | -0.4 | -0.2 | **0.1** | **0.1** | **0.1** | **0.3** | **0.2** | **0.0** | -0.1 | -0.2 | -0.4 |
| Dry (16%) | -1.2 | -0.9 | -0.3 | -0.2 | -0.1 | 0.0 | -0.1 | 0.0 | -0.1 | -0.4 | -0.7 | -1.0 |
| Critical (27%) | -2.1 | -1.0 | -0.3 | -0.1 | -0.1 | **0.0** | -0.1 | -0.4 | -0.6 | -0.7 | -0.4 | -1.5 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

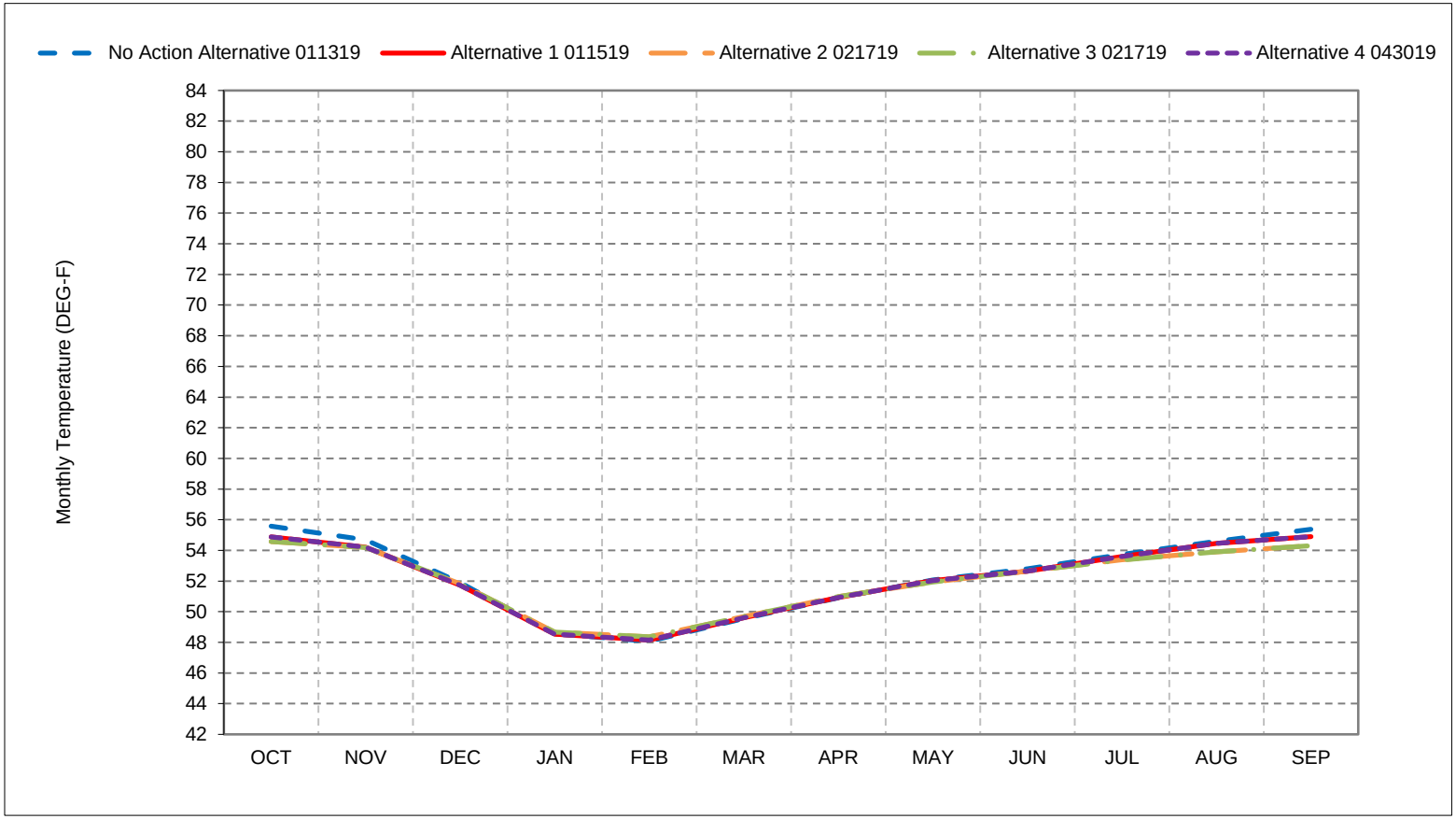
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

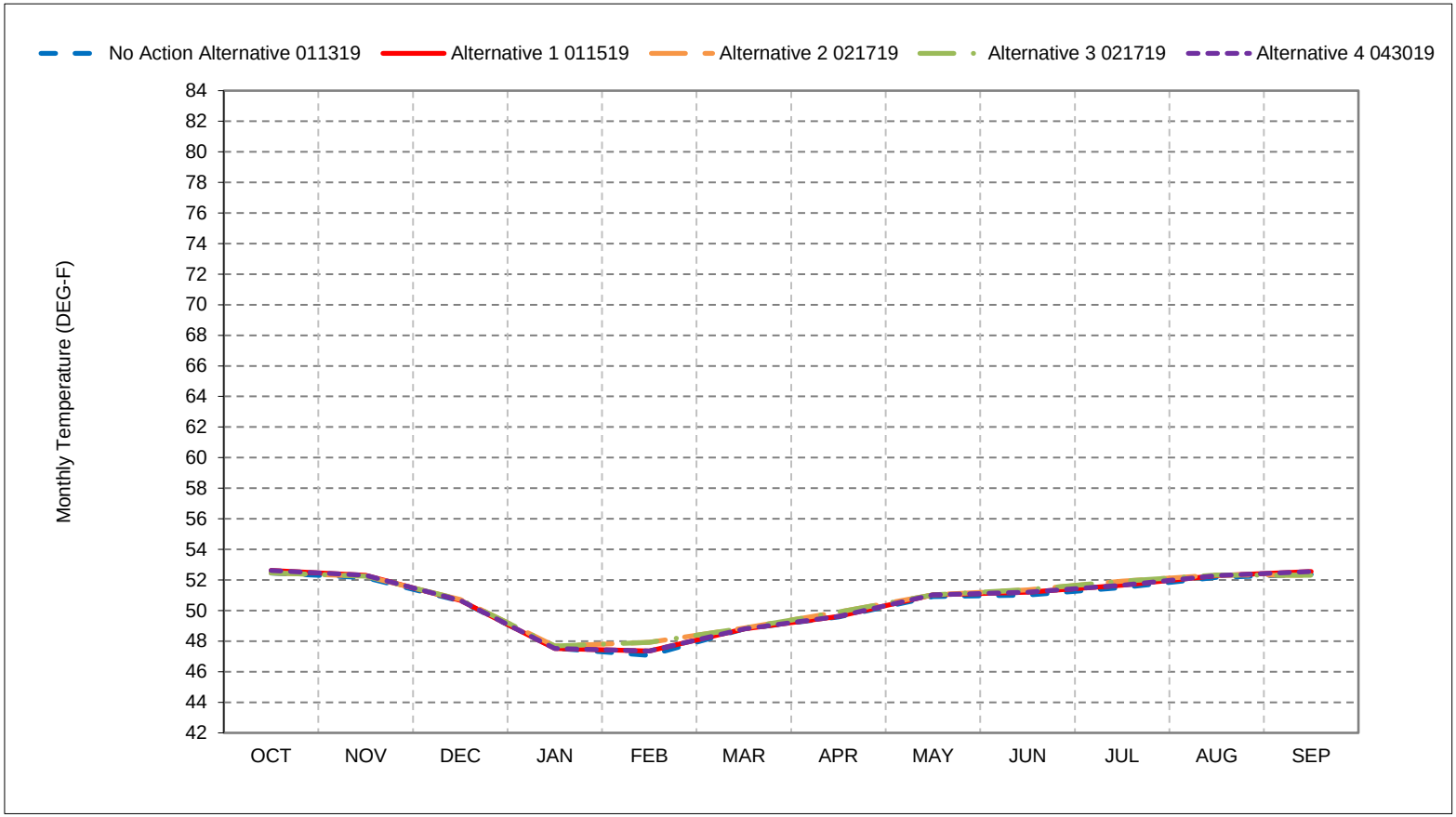
f New Melones forecasts are used as the basis of water operations.

## Figure 21-1. Stanislaus River below Tulloch Reservoir, Long-Term Average Temperature



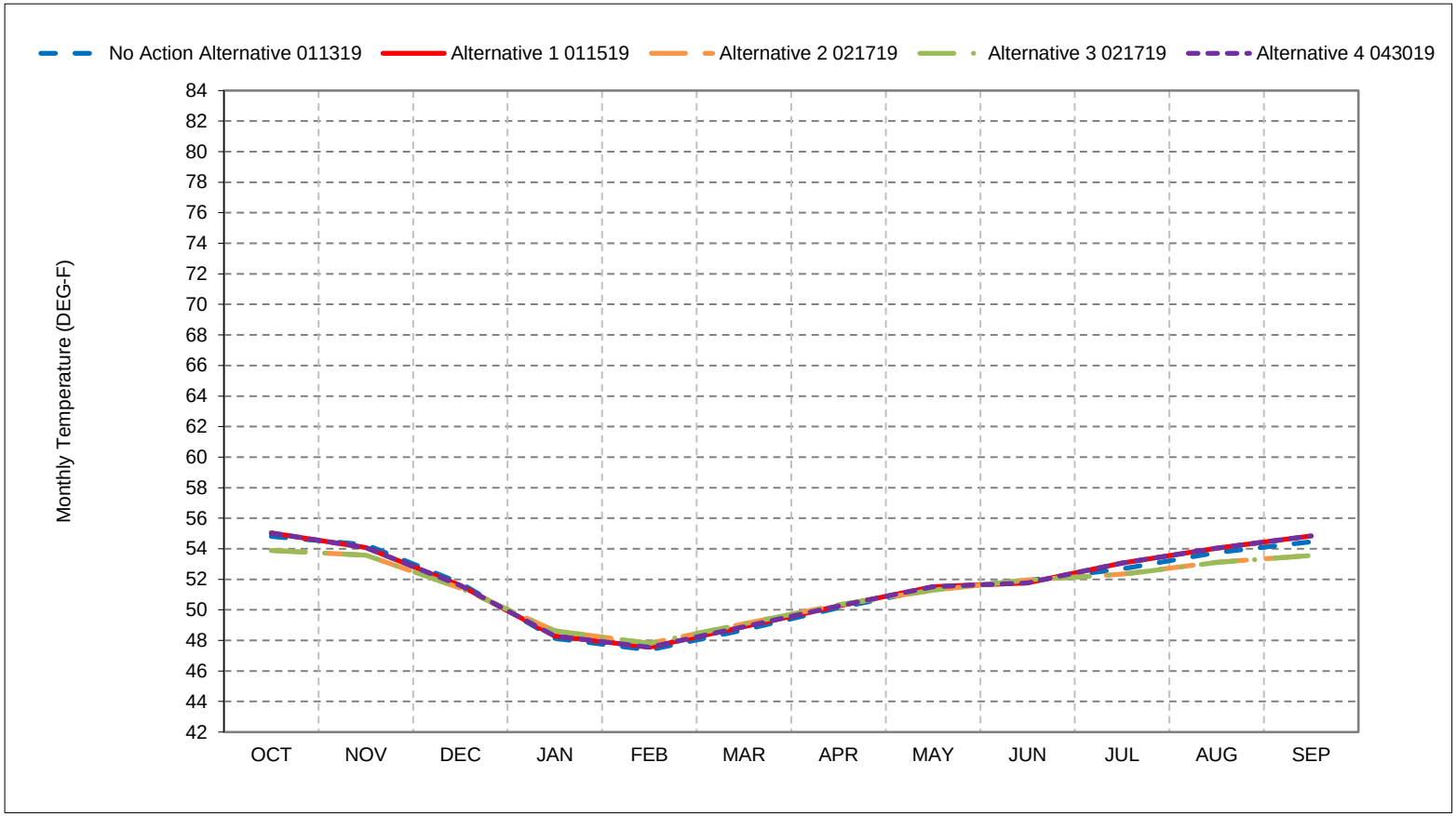

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 21-2. Stanislaus River below Tulloch Reservoir, Wet Year Average Temperature



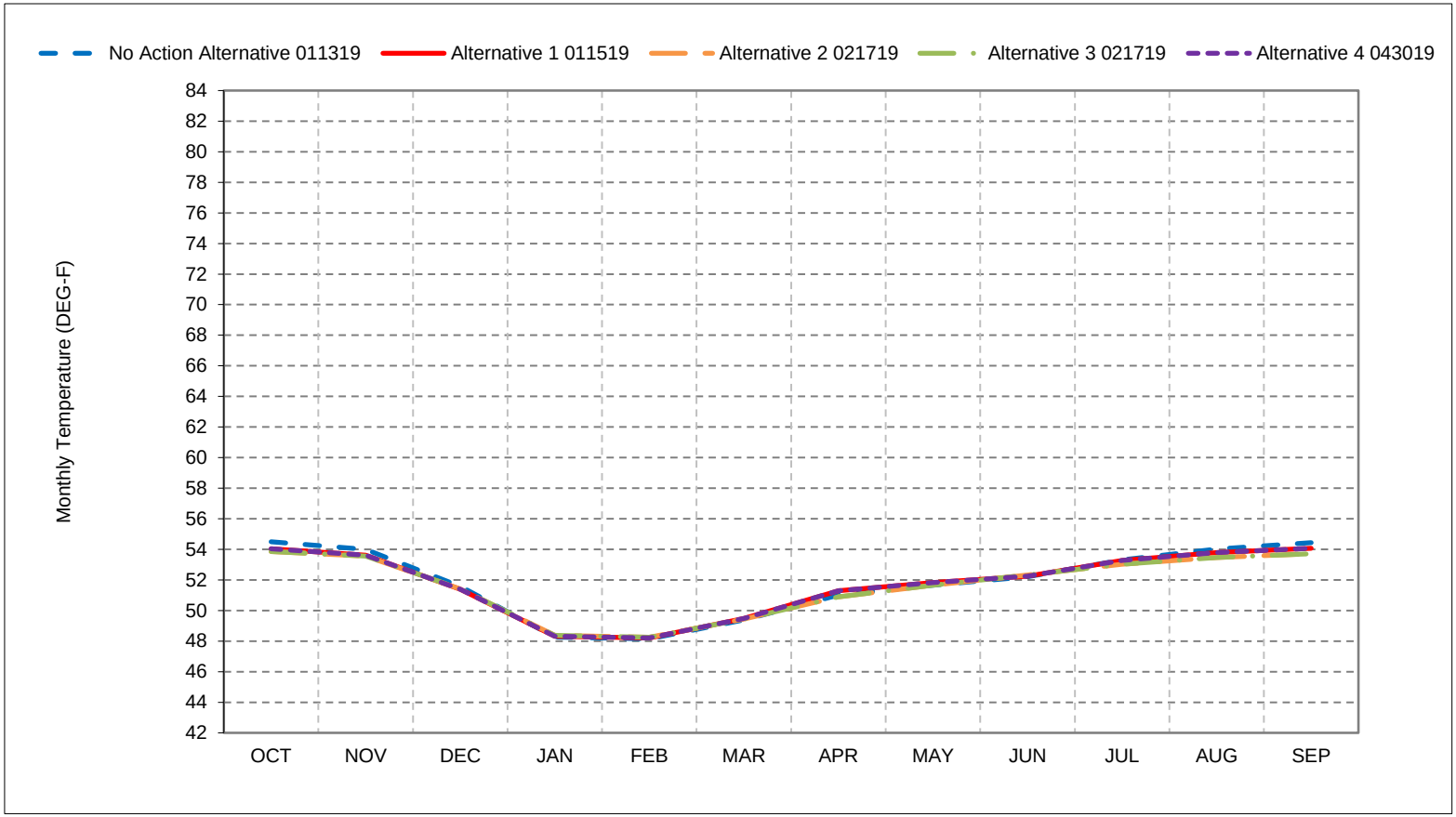

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 21-3. Stanislaus River below Tulloch Reservoir, Above Normal Year Average Temperature



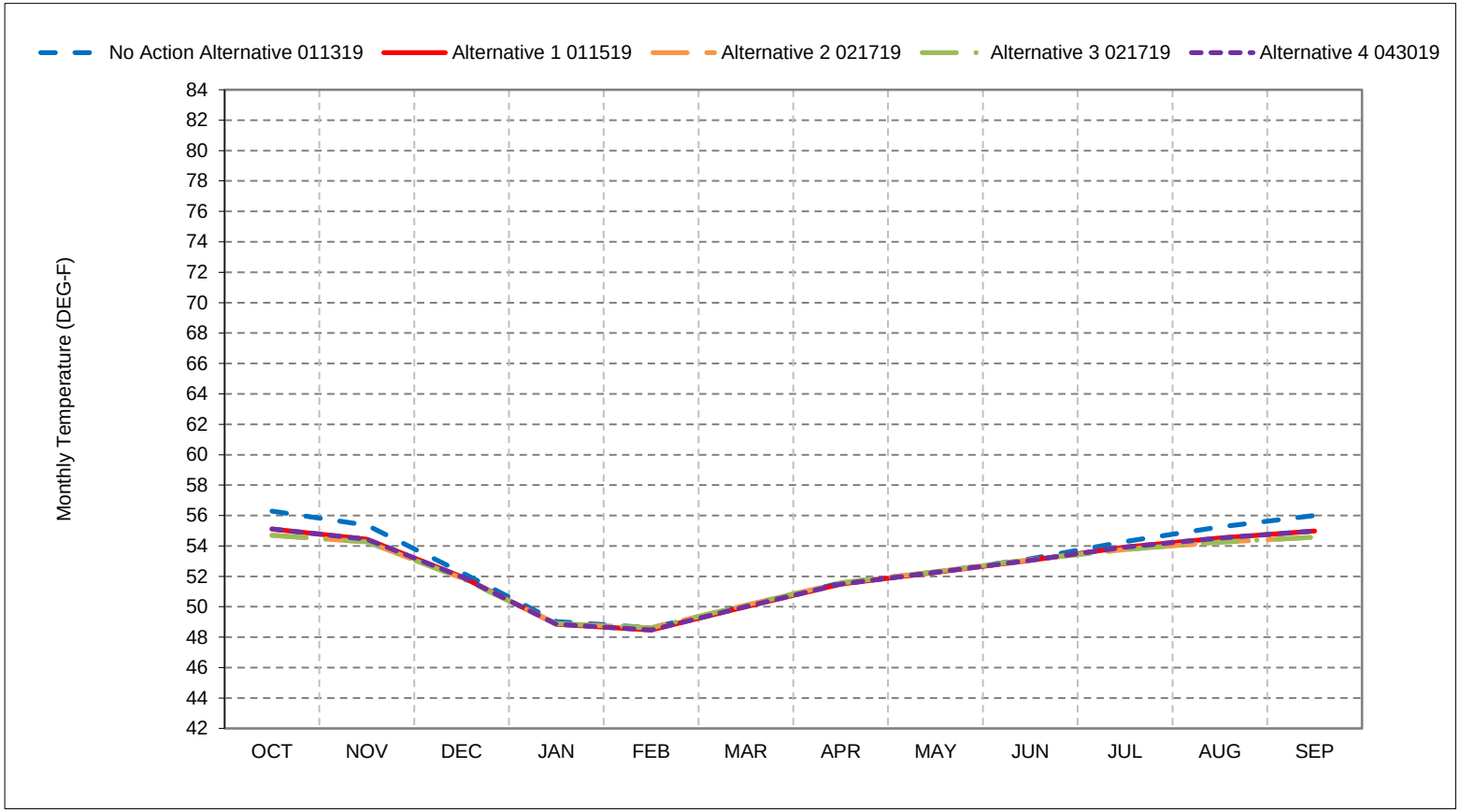

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 21-4. Stanislaus River below Tulloch Reservoir, Below Normal Year Average Temperature



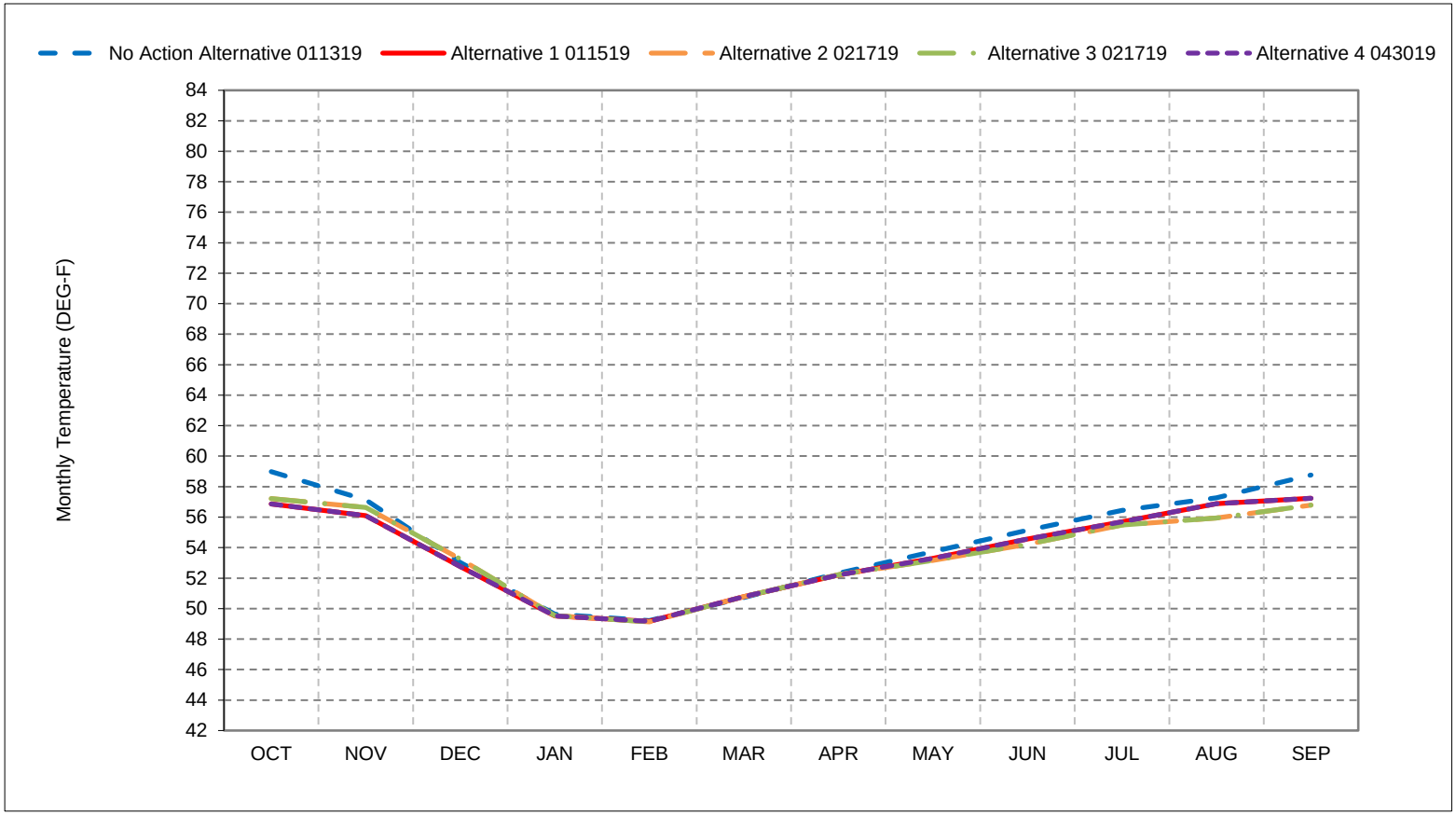

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 21-5. Stanislaus River below Tulloch Reservoir, Dry Year Average Temperature



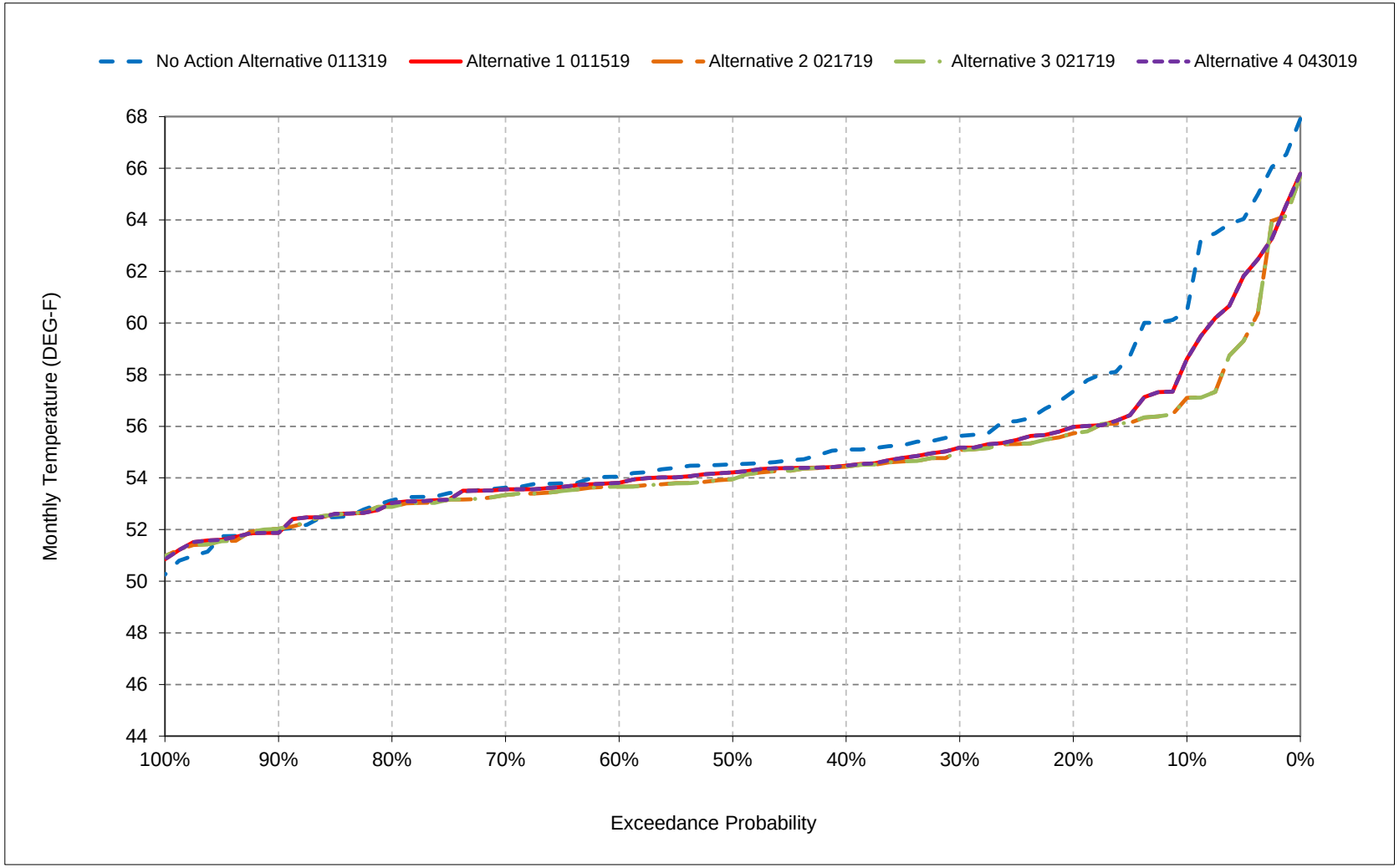

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 21-6. Stanislaus River below Tulloch Reservoir, Critical Year Average Temperature




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

**Figure 21-7. Stanislaus River below Tulloch Reservoir, October**

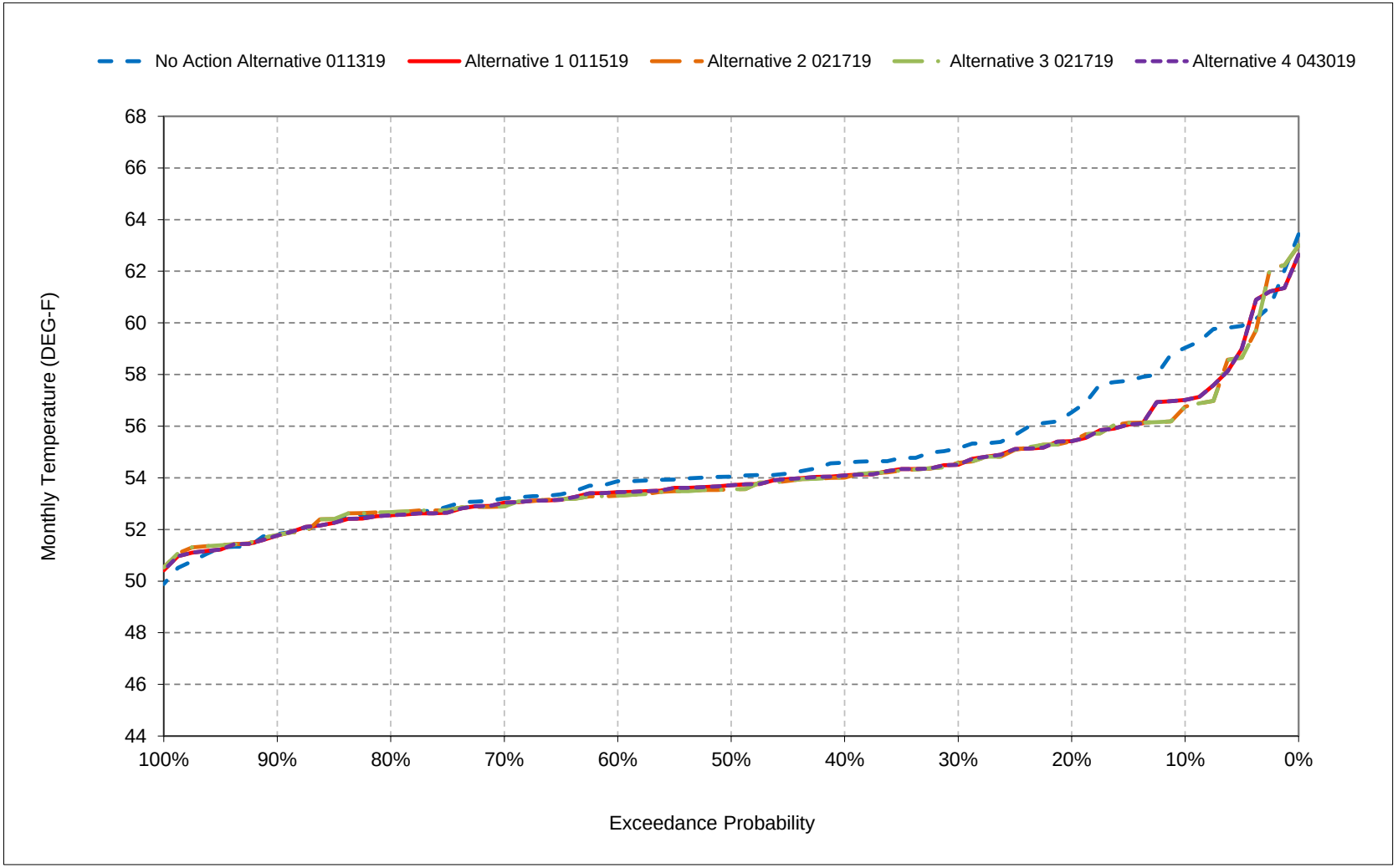



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 21-8. Stanislaus River below Tulloch Reservoir, November**

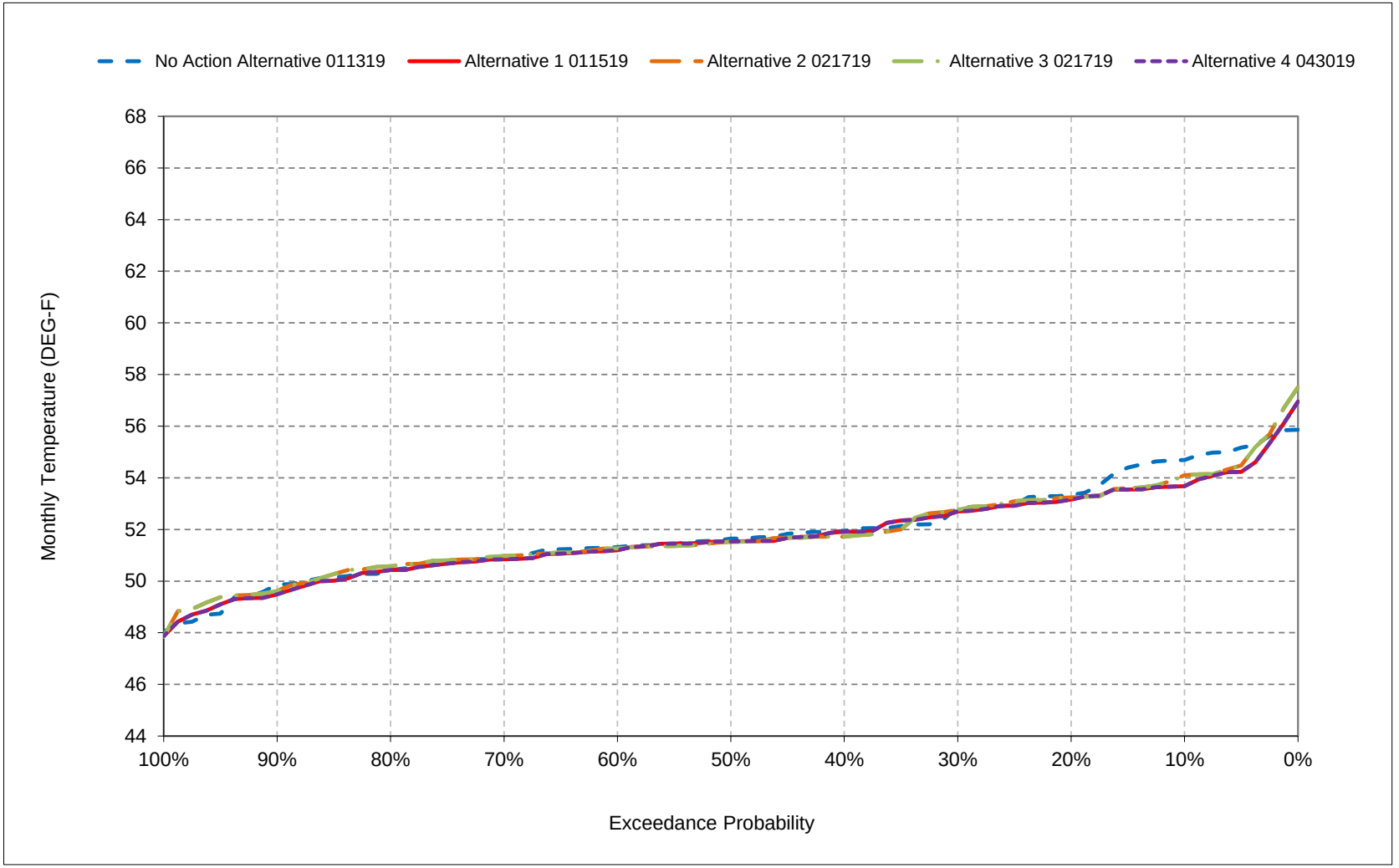



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 21-9. Stanislaus River below Tulloch Reservoir, December**

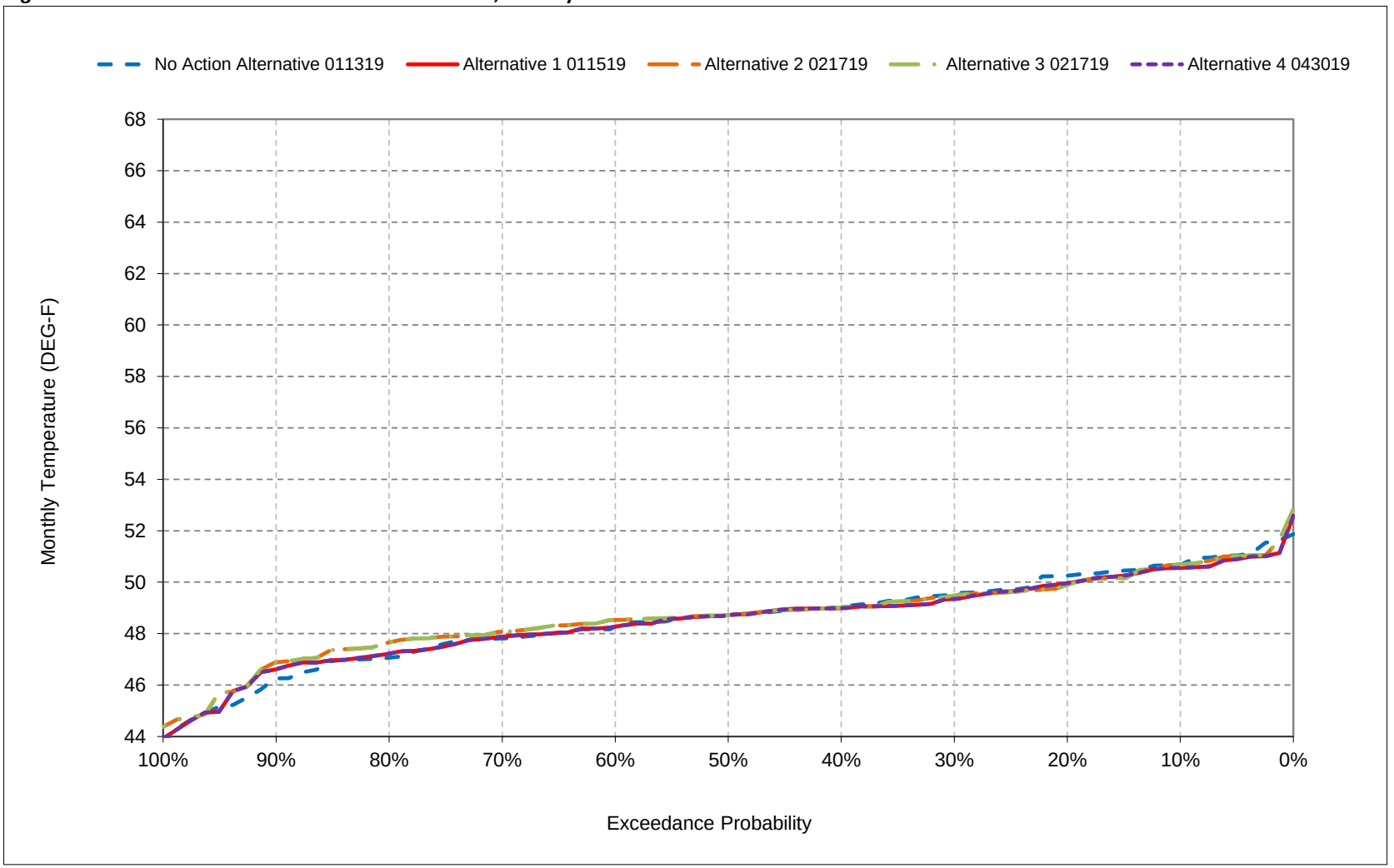



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 21-10. Stanislaus River below Tulloch Reservoir, January**

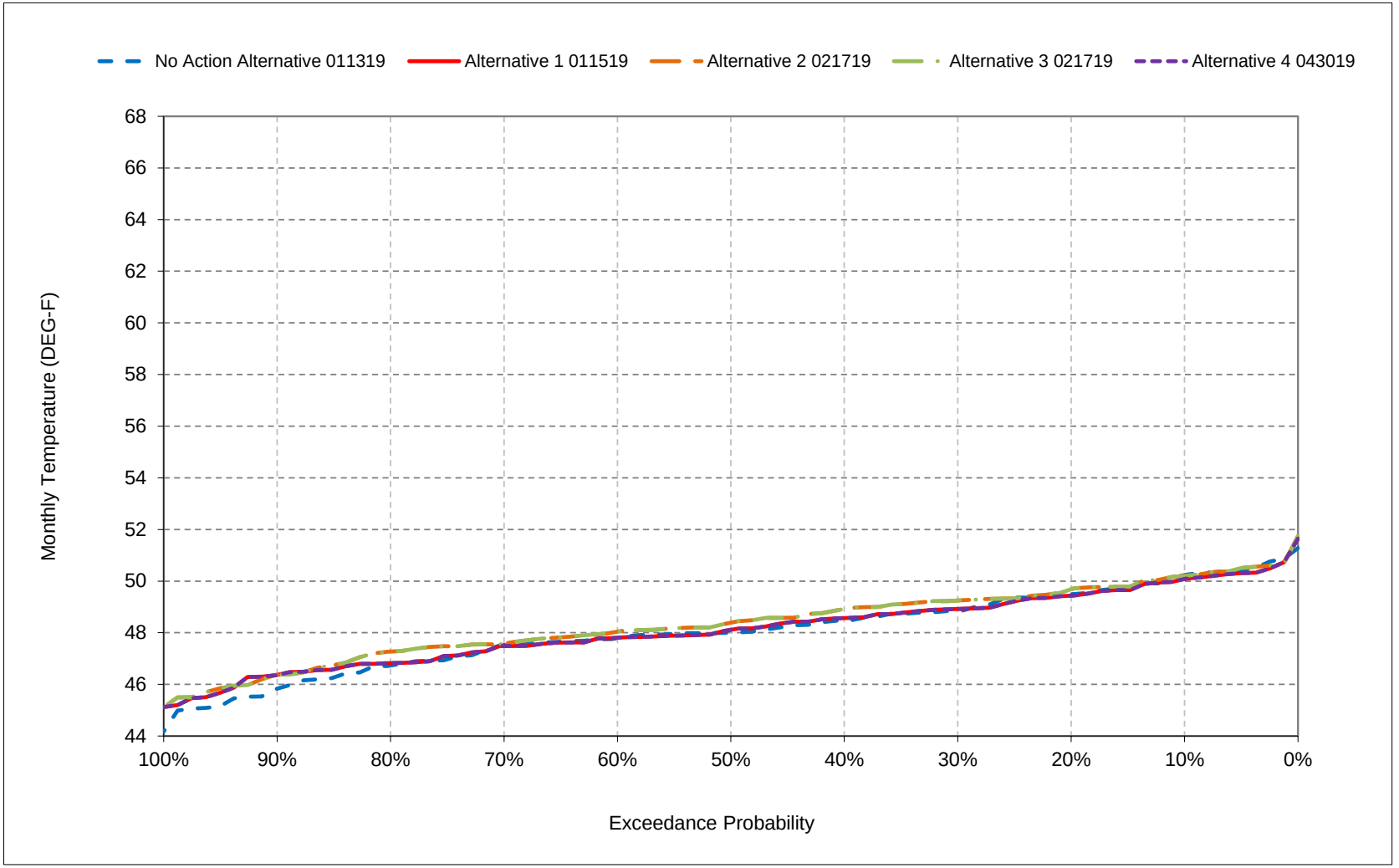



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 21-11. Stanislaus River below Tulloch Reservoir, February**

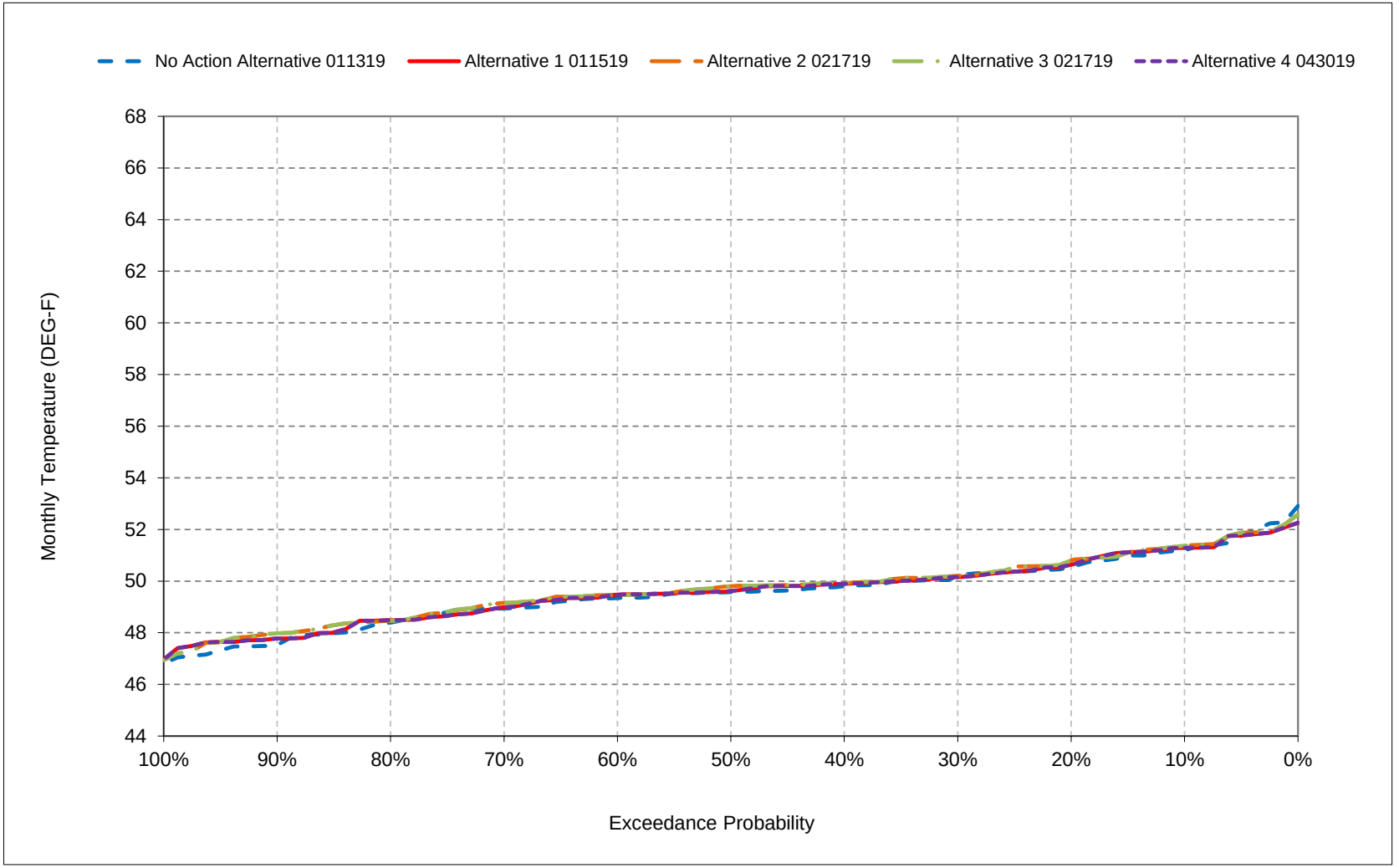



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 21-12. Stanislaus River below Tulloch Reservoir, March**

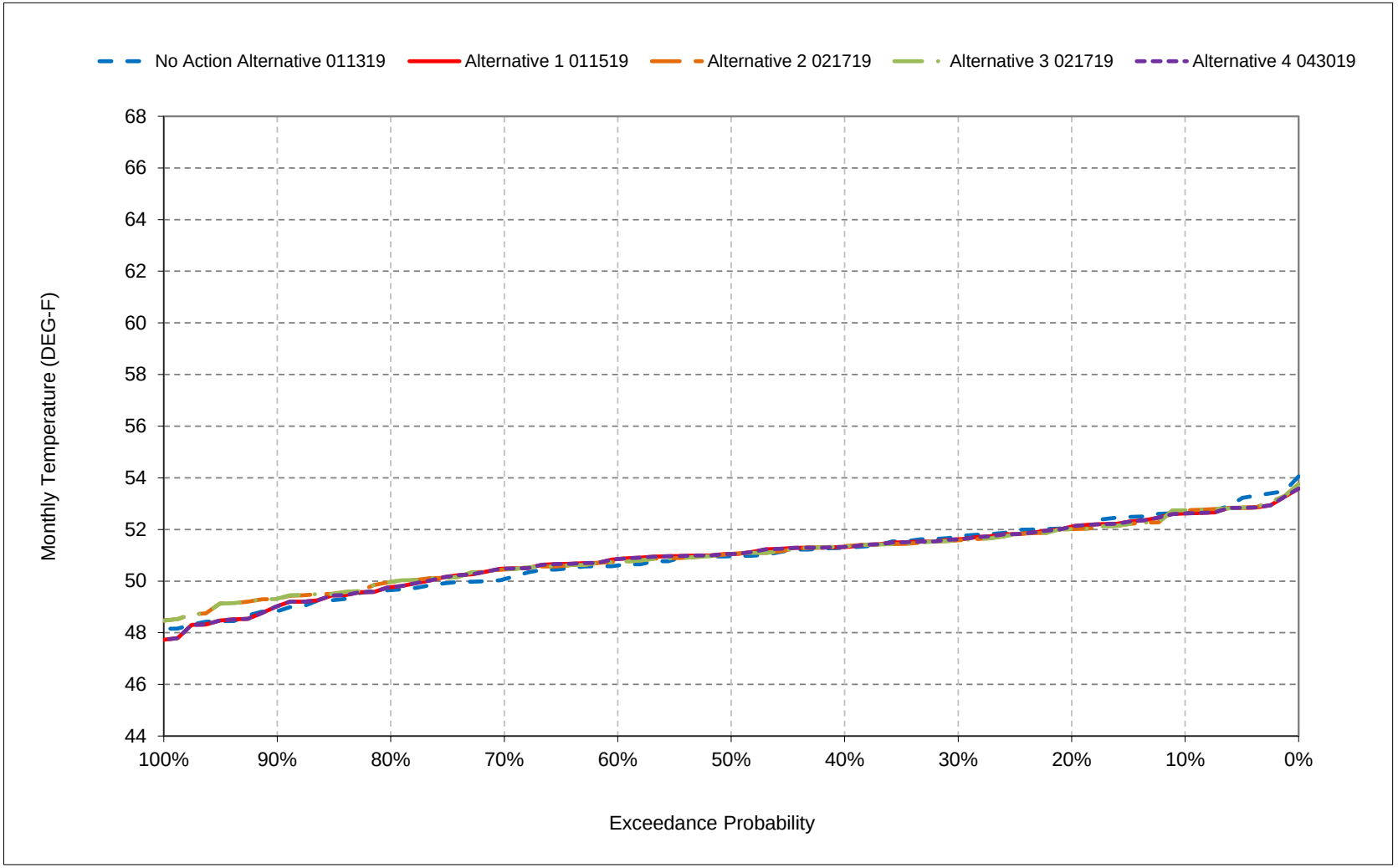



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 21-13. Stanislaus River below Tulloch Reservoir, April**

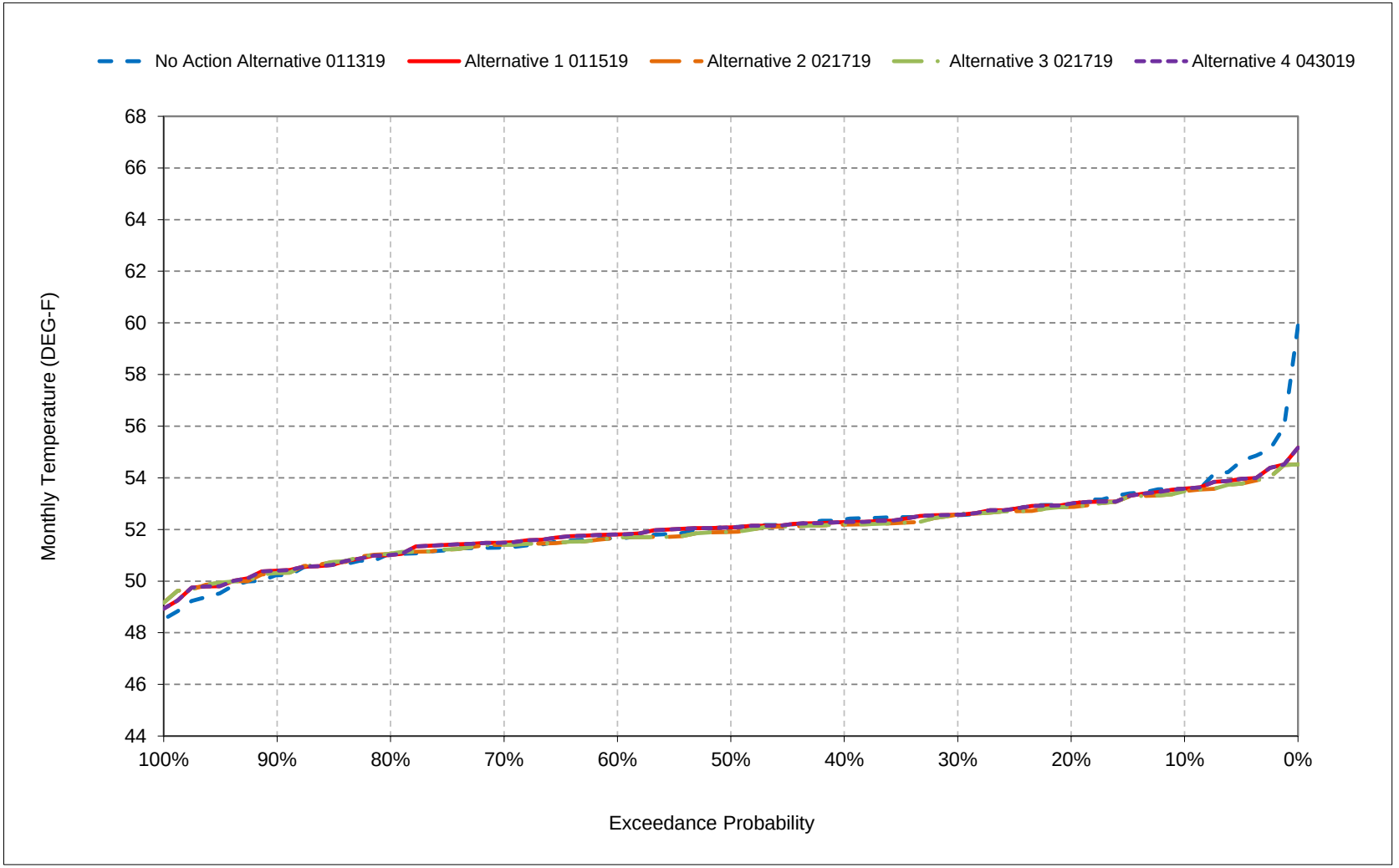



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 21-14. Stanislaus River below Tulloch Reservoir, May**

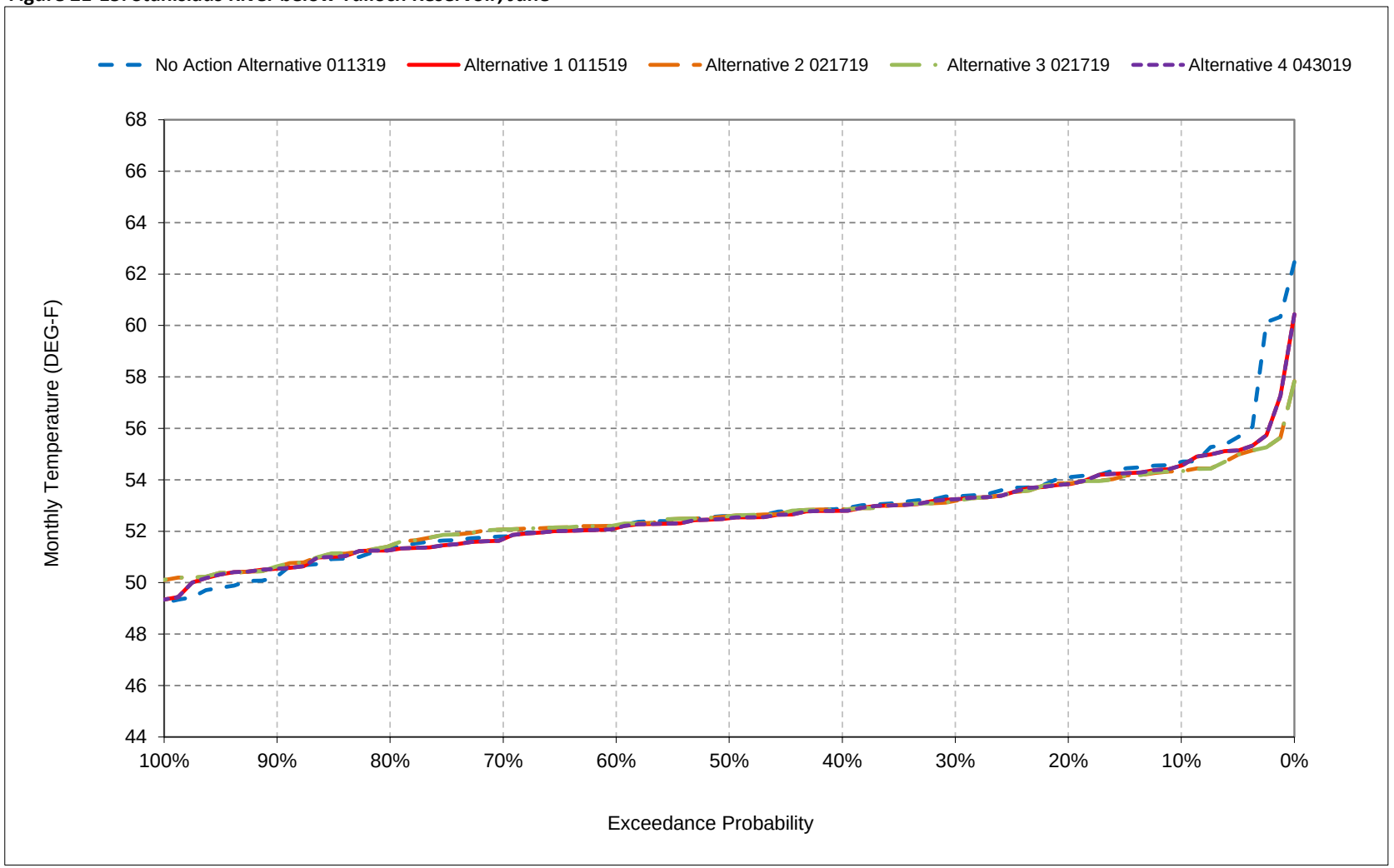



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 21-15. Stanislaus River below Tulloch Reservoir, June**

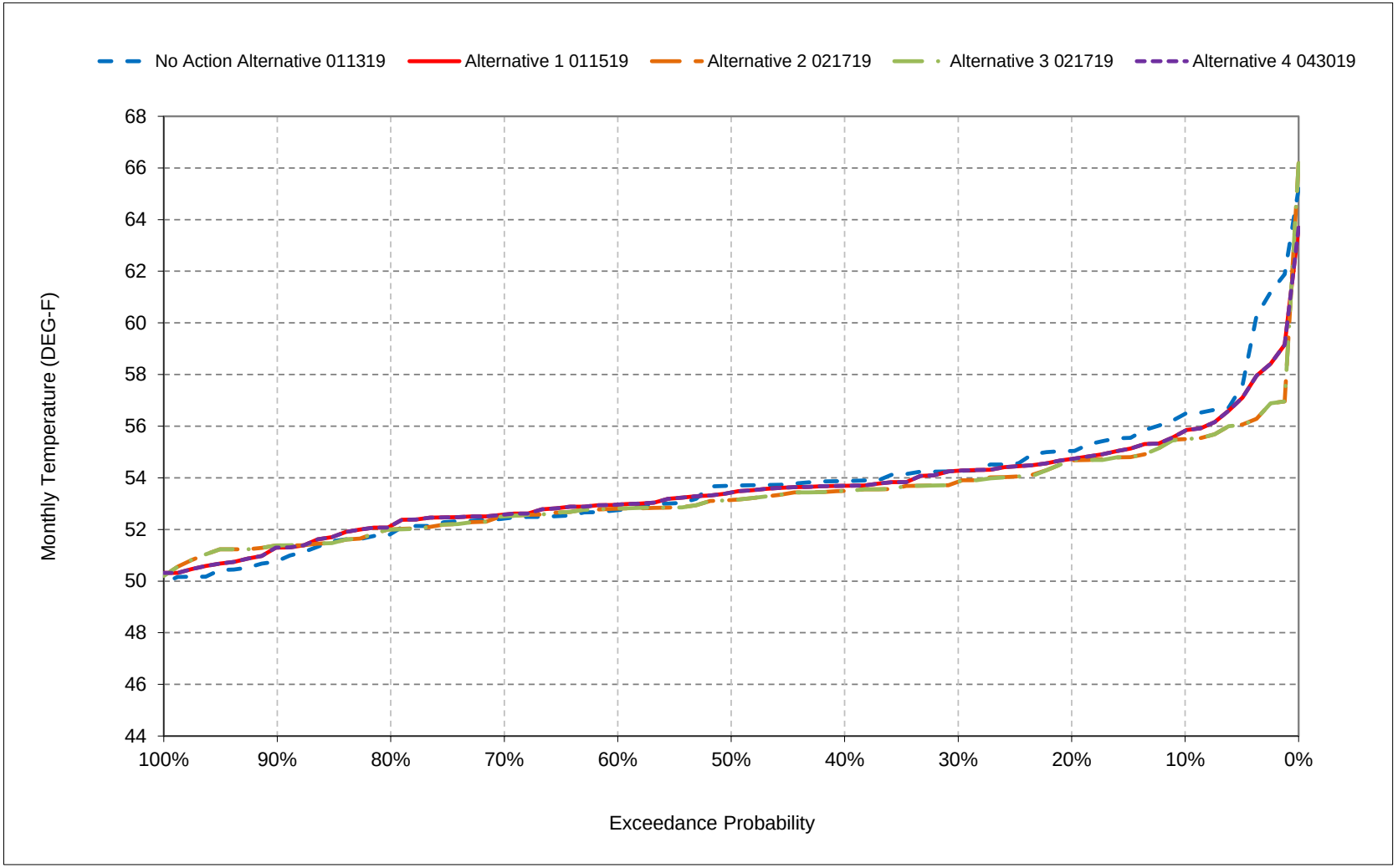



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 21-16. Stanislaus River below Tulloch Reservoir, July**

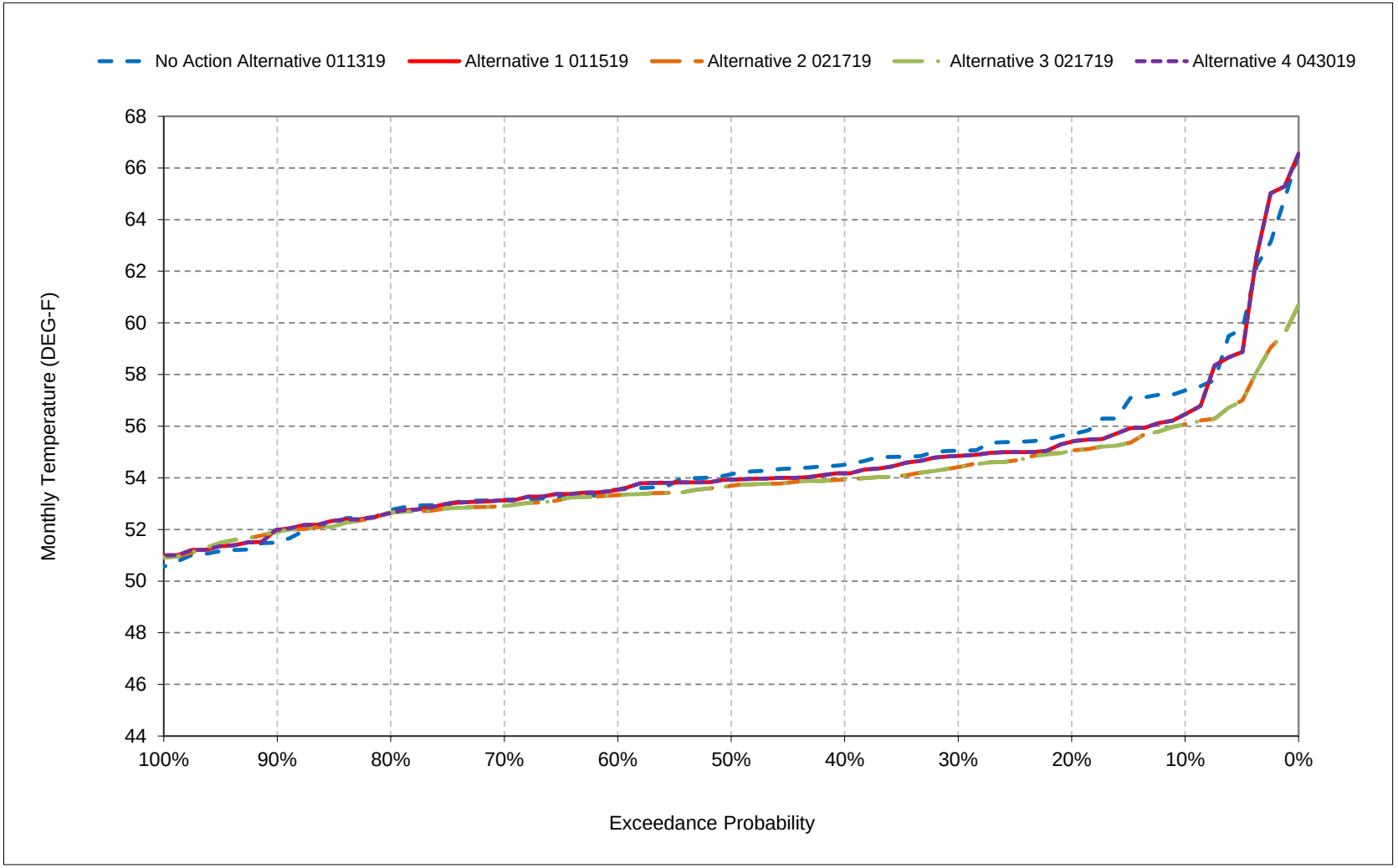



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 21-17. Stanislaus River below Tulloch Reservoir, August**

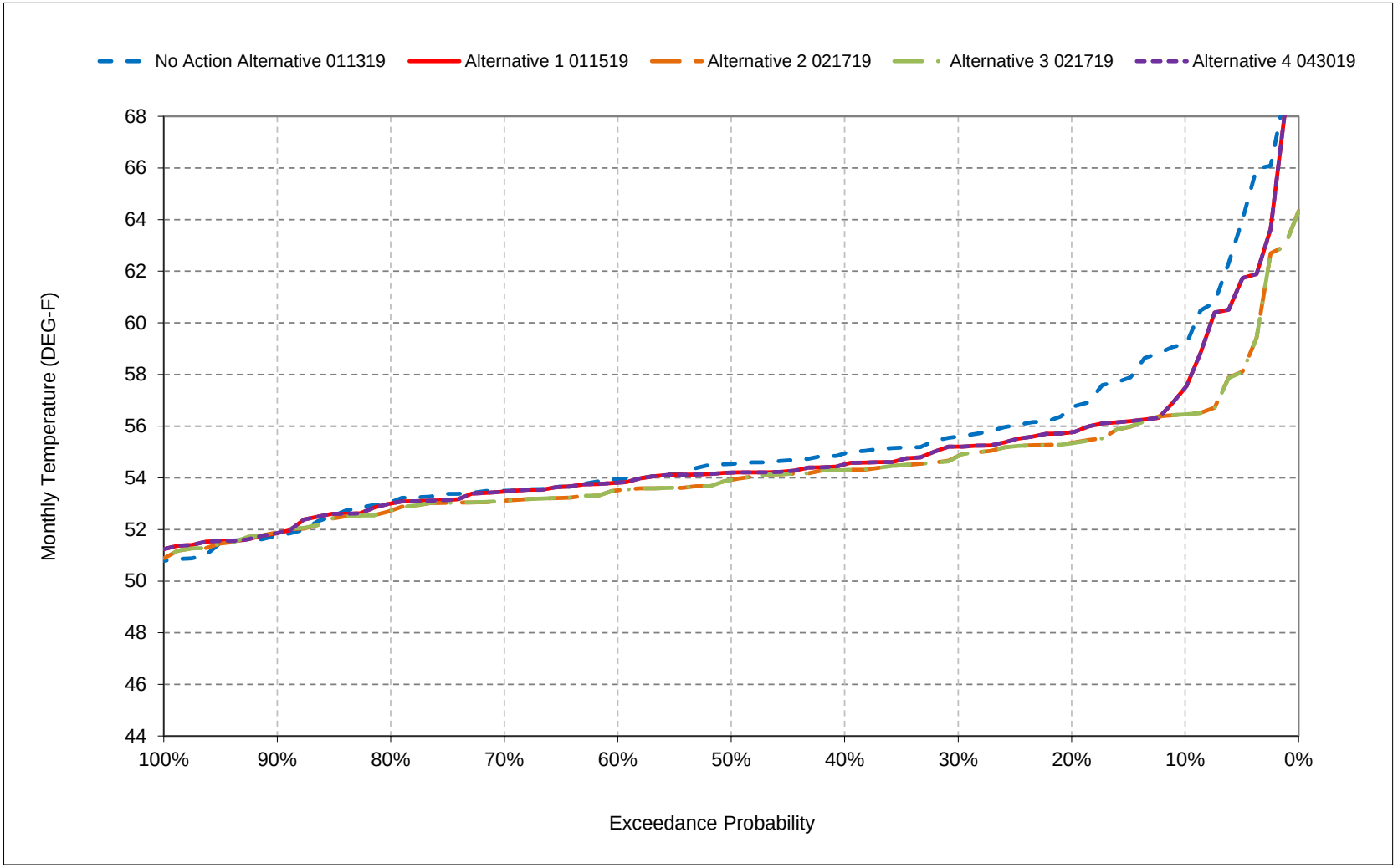



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 21-18. Stanislaus River below Tulloch Reservoir, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

## Table 22-1. Stanislaus River below Goodwin Dam, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.7 | 59.2 | 54.6 | 51.1 | 50.8 | 51.9 | 53.1 | 54.1 | 55.6 | 57.6 | 58.3 | 60.1 |
| 20% | 58.0 | 56.5 | 53.3 | 50.3 | 50.2 | 51.4 | 52.4 | 53.6 | 54.8 | 55.9 | 56.5 | 57.4 |
| 30% | 56.1 | 55.5 | 52.5 | 49.7 | 49.5 | 50.8 | 52.1 | 53.0 | 54.0 | 55.2 | 55.8 | 56.4 |
| 40% | 55.5 | 54.8 | 51.9 | 49.3 | 48.9 | 50.6 | 51.7 | 52.8 | 53.7 | 54.6 | 55.2 | 55.7 |
| 50% | 55.0 | 54.2 | 51.6 | 48.9 | 48.8 | 50.3 | 51.4 | 52.6 | 53.3 | 54.4 | 54.8 | 55.3 |
| 60% | 54.5 | 54.0 | 51.2 | 48.4 | 48.4 | 50.0 | 51.0 | 52.1 | 52.7 | 53.5 | 54.2 | 54.6 |
| 70% | 54.0 | 53.5 | 51.0 | 48.0 | 47.9 | 49.8 | 50.6 | 51.8 | 52.5 | 53.2 | 53.9 | 54.2 |
| 80% | 53.5 | 52.9 | 50.4 | 47.3 | 47.4 | 49.0 | 50.1 | 51.5 | 52.0 | 52.6 | 53.3 | 53.7 |
| 90% | 52.4 | 52.1 | 49.8 | 46.4 | 46.7 | 48.3 | 49.2 | 50.6 | 50.8 | 51.5 | 52.2 | 52.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.0 | 54.9 | 51.8 | 48.7 | 48.7 | 50.2 | 51.3 | 52.5 | 53.5 | 54.6 | 55.3 | 56.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 52.9 | 52.4 | 50.6 | 47.9 | 47.7 | 49.2 | 50.0 | 51.3 | 51.6 | 52.2 | 52.8 | 53.0 |
| Above Normal (24%) | 55.2 | 54.5 | 51.7 | 48.4 | 48.0 | 49.6 | 50.6 | 51.9 | 52.5 | 53.5 | 54.5 | 55.2 |
| Below Normal (10%) | 54.9 | 54.2 | 51.5 | 48.4 | 48.7 | 50.0 | 51.3 | 52.1 | 52.9 | 54.1 | 54.7 | 55.1 |
| Dry (16%) | 56.7 | 55.6 | 52.2 | 49.2 | 49.2 | 50.9 | 51.9 | 52.8 | 53.9 | 55.1 | 56.0 | 56.7 |
| Critical (27%) | 59.4 | 57.3 | 52.9 | 49.7 | 49.9 | 51.5 | 52.7 | 54.3 | 56.0 | 57.5 | 58.2 | 59.5 |

### Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.8 | 57.1 | 53.7 | 50.7 | 50.6 | 52.0 | 53.0 | 54.3 | 55.6 | 57.0 | 57.5 | 58.1 |
| 20% | 56.4 | 55.7 | 53.1 | 50.2 | 50.1 | 51.4 | 52.5 | 53.5 | 54.8 | 55.7 | 56.3 | 56.7 |
| 30% | 55.6 | 54.7 | 52.5 | 49.5 | 49.4 | 50.9 | 52.1 | 53.1 | 54.1 | 55.1 | 55.5 | 56.1 |
| 40% | 55.0 | 54.3 | 51.8 | 49.1 | 49.1 | 50.6 | 51.8 | 52.9 | 53.7 | 54.7 | 55.0 | 55.3 |
| 50% | 54.7 | 53.9 | 51.4 | 48.9 | 48.8 | 50.3 | 51.4 | 52.6 | 53.2 | 54.2 | 54.7 | 55.0 |
| 60% | 54.3 | 53.7 | 51.2 | 48.4 | 48.4 | 50.0 | 51.2 | 52.2 | 52.7 | 53.7 | 54.3 | 54.6 |
| 70% | 53.9 | 53.3 | 50.8 | 48.0 | 47.9 | 49.8 | 50.8 | 52.0 | 52.4 | 53.3 | 53.8 | 54.2 |
| 80% | 53.4 | 52.8 | 50.3 | 47.4 | 47.5 | 49.0 | 50.1 | 51.5 | 51.9 | 53.0 | 53.3 | 53.7 |
| 90% | 52.3 | 52.2 | 49.5 | 46.9 | 47.0 | 48.5 | 49.4 | 50.8 | 51.1 | 51.8 | 52.5 | 52.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.3 | 54.4 | 51.7 | 48.7 | 48.8 | 50.3 | 51.3 | 52.5 | 53.4 | 54.4 | 55.2 | 55.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 53.0 | 52.6 | 50.7 | 47.9 | 47.9 | 49.1 | 50.0 | 51.4 | 51.7 | 52.4 | 53.0 | 53.2 |
| Above Normal (24%) | 55.4 | 54.3 | 51.6 | 48.5 | 48.2 | 49.7 | 50.6 | 51.9 | 52.5 | 53.8 | 54.7 | 55.5 |
| Below Normal (10%) | 54.4 | 53.8 | 51.3 | 48.5 | 48.7 | 50.1 | 51.6 | 52.2 | 52.9 | 54.0 | 54.5 | 54.7 |
| Dry (16%) | 55.6 | 54.7 | 51.9 | 49.0 | 49.1 | 50.9 | 51.9 | 52.8 | 53.9 | 54.8 | 55.3 | 55.8 |
| Critical (27%) | 57.4 | 56.3 | 52.7 | 49.6 | 49.8 | 51.6 | 52.7 | 54.0 | 55.6 | 56.7 | 57.8 | 58.1 |

### Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -1.9 | -2.0 | -0.9 | -0.4 | -0.2 | **0.1** | -0.1 | **0.2** | **0.0** | -0.6 | -0.8 | -2.0 |
| 20% | -1.6 | -0.8 | -0.2 | 0.0 | -0.1 | **0.0** | **0.1** | -0.1 | -0.1 | -0.1 | -0.2 | -0.7 |
| 30% | -0.5 | -0.8 | **0.0** | -0.1 | -0.1 | **0.1** | 0.0 | **0.0** | **0.1** | 0.0 | -0.3 | -0.3 |
| 40% | -0.5 | -0.4 | -0.1 | -0.2 | **0.1** | **0.0** | **0.1** | **0.1** | **0.1** | **0.0** | -0.3 | -0.4 |
| 50% | -0.3 | -0.3 | -0.1 | **0.1** | -0.1 | **0.0** | **0.0** | **0.0** | -0.1 | -0.2 | -0.1 | -0.3 |
| 60% | -0.2 | -0.3 | -0.1 | **0.0** | 0.0 | 0.0 | **0.2** | **0.2** | 0.0 | **0.2** | **0.0** | 0.0 |
| 70% | -0.1 | -0.1 | -0.2 | **0.0** | -0.1 | **0.0** | **0.2** | **0.1** | -0.1 | **0.1** | 0.0 | 0.0 |
| 80% | -0.1 | -0.1 | 0.0 | **0.1** | **0.1** | -0.1 | -0.1 | 0.0 | -0.1 | **0.4** | -0.1 | 0.0 |
| 90% | -0.1 | **0.1** | -0.2 | **0.4** | **0.4** | **0.2** | **0.2** | **0.2** | **0.3** | **0.3** | **0.3** | 0.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.7 | -0.5 | -0.2 | 0.0 | **0.1** | **0.0** | **0.0** | 0.0 | -0.1 | -0.1 | -0.1 | -0.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **0.2** | **0.2** | **0.1** | 0.0 | **0.2** | -0.1 | **0.0** | **0.1** | **0.1** | **0.1** | **0.1** | **0.2** |
| Above Normal (24%) | **0.2** | -0.2 | -0.1 | **0.1** | **0.2** | **0.1** | **0.0** | **0.1** | 0.0 | **0.4** | **0.3** | **0.3** |
| Below Normal (10%) | -0.4 | -0.4 | -0.2 | **0.0** | 0.0 | **0.1** | **0.3** | **0.1** | **0.0** | -0.1 | -0.2 | -0.4 |
| Dry (16%) | -1.1 | -0.9 | -0.3 | -0.2 | -0.1 | **0.0** | 0.0 | **0.0** | 0.0 | -0.3 | -0.7 | -0.9 |
| Critical (27%) | -2.0 | -1.0 | -0.3 | -0.1 | 0.0 | **0.1** | 0.0 | -0.3 | -0.5 | -0.7 | -0.4 | -1.4 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 22-2. Stanislaus River below Goodwin Dam, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.7 | 59.2 | 54.6 | 51.1 | 50.8 | 51.9 | 53.1 | 54.1 | 55.6 | 57.6 | 58.3 | 60.1 |
| 20% | 58.0 | 56.5 | 53.3 | 50.3 | 50.2 | 51.4 | 52.4 | 53.6 | 54.8 | 55.9 | 56.5 | 57.4 |
| 30% | 56.1 | 55.5 | 52.5 | 49.7 | 49.5 | 50.8 | 52.1 | 53.0 | 54.0 | 55.2 | 55.8 | 56.4 |
| 40% | 55.5 | 54.8 | 51.9 | 49.3 | 48.9 | 50.6 | 51.7 | 52.8 | 53.7 | 54.6 | 55.2 | 55.7 |
| 50% | 55.0 | 54.2 | 51.6 | 48.9 | 48.8 | 50.3 | 51.4 | 52.6 | 53.3 | 54.4 | 54.8 | 55.3 |
| 60% | 54.5 | 54.0 | 51.2 | 48.4 | 48.4 | 50.0 | 51.0 | 52.1 | 52.7 | 53.5 | 54.2 | 54.6 |
| 70% | 54.0 | 53.5 | 51.0 | 48.0 | 47.9 | 49.8 | 50.6 | 51.8 | 52.5 | 53.2 | 53.9 | 54.2 |
| 80% | 53.5 | 52.9 | 50.4 | 47.3 | 47.4 | 49.0 | 50.1 | 51.5 | 52.0 | 52.6 | 53.3 | 53.7 |
| 90% | 52.4 | 52.1 | 49.8 | 46.4 | 46.7 | 48.3 | 49.2 | 50.6 | 50.8 | 51.5 | 52.2 | 52.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.0 | 54.9 | 51.8 | 48.7 | 48.7 | 50.2 | 51.3 | 52.5 | 53.5 | 54.6 | 55.3 | 56.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 52.9 | 52.4 | 50.6 | 47.9 | 47.7 | 49.2 | 50.0 | 51.3 | 51.6 | 52.2 | 52.8 | 53.0 |
| Above Normal (24%) | 55.2 | 54.5 | 51.7 | 48.4 | 48.0 | 49.6 | 50.6 | 51.9 | 52.5 | 53.5 | 54.5 | 55.2 |
| Below Normal (10%) | 54.9 | 54.2 | 51.5 | 48.4 | 48.7 | 50.0 | 51.3 | 52.1 | 52.9 | 54.1 | 54.7 | 55.1 |
| Dry (16%) | 56.7 | 55.6 | 52.2 | 49.2 | 49.2 | 50.9 | 51.9 | 52.8 | 53.9 | 55.1 | 56.0 | 56.7 |
| Critical (27%) | 59.4 | 57.3 | 52.9 | 49.7 | 49.9 | 51.5 | 52.7 | 54.3 | 56.0 | 57.5 | 58.2 | 59.5 |

### Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.0 | 56.7 | 53.8 | 50.9 | 50.7 | 52.2 | 53.2 | 54.0 | 55.2 | 56.4 | 57.0 | 57.3 |
| 20% | 56.7 | 55.7 | 53.2 | 50.0 | 50.2 | 51.5 | 52.5 | 53.4 | 54.6 | 55.4 | 55.8 | 56.1 |
| 30% | 56.0 | 54.7 | 52.6 | 49.7 | 49.5 | 51.0 | 52.1 | 53.1 | 53.9 | 54.6 | 55.1 | 55.6 |
| 40% | 55.3 | 54.2 | 51.7 | 49.1 | 49.2 | 50.7 | 51.8 | 52.7 | 53.6 | 54.2 | 54.6 | 54.9 |
| 50% | 54.9 | 53.8 | 51.4 | 49.0 | 49.0 | 50.5 | 51.5 | 52.5 | 53.2 | 53.8 | 54.4 | 54.7 |
| 60% | 54.6 | 53.6 | 51.2 | 48.6 | 48.6 | 50.2 | 51.3 | 52.1 | 52.9 | 53.6 | 54.0 | 54.2 |
| 70% | 54.1 | 53.1 | 50.9 | 48.2 | 48.2 | 50.0 | 50.9 | 51.9 | 52.7 | 53.2 | 53.6 | 53.8 |
| 80% | 53.5 | 52.8 | 50.5 | 47.9 | 47.8 | 49.2 | 50.5 | 51.6 | 52.1 | 52.8 | 53.2 | 53.4 |
| 90% | 52.5 | 52.0 | 49.7 | 46.9 | 47.1 | 48.7 | 49.8 | 50.8 | 51.3 | 52.0 | 52.6 | 52.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.4 | 54.4 | 51.8 | 48.8 | 48.9 | 50.5 | 51.5 | 52.5 | 53.3 | 54.1 | 54.6 | 55.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 53.1 | 52.5 | 50.8 | 48.0 | 48.3 | 49.4 | 50.3 | 51.5 | 51.9 | 52.6 | 52.9 | 52.9 |
| Above Normal (24%) | 54.8 | 53.8 | 51.4 | 48.8 | 48.5 | 50.0 | 50.9 | 51.8 | 52.6 | 53.1 | 53.8 | 54.3 |
| Below Normal (10%) | 54.7 | 53.8 | 51.4 | 48.5 | 48.7 | 50.2 | 51.4 | 52.2 | 53.0 | 53.8 | 54.2 | 54.4 |
| Dry (16%) | 55.5 | 54.5 | 51.8 | 49.0 | 49.2 | 51.0 | 52.0 | 52.8 | 53.8 | 54.5 | 54.9 | 55.3 |
| Critical (27%) | 58.0 | 56.8 | 53.2 | 49.6 | 49.9 | 51.6 | 52.7 | 53.8 | 55.1 | 56.4 | 56.7 | 57.5 |

### Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -2.7 | -2.5 | -0.8 | -0.2 | -0.1 | **0.2** | **0.1** | -0.1 | -0.4 | -1.1 | -1.4 | -2.9 |
| 20% | -1.3 | -0.8 | -0.1 | -0.3 | **0.0** | **0.1** | **0.1** | -0.2 | -0.2 | -0.5 | -0.7 | -1.3 |
| 30% | -0.1 | -0.8 | **0.1** | **0.0** | **0.1** | **0.1** | 0.0 | **0.1** | -0.1 | -0.5 | -0.7 | -0.8 |
| 40% | -0.2 | -0.6 | -0.2 | -0.2 | **0.3** | **0.1** | **0.1** | -0.1 | -0.1 | -0.4 | -0.6 | -0.8 |
| 50% | -0.1 | -0.4 | -0.1 | **0.1** | **0.2** | **0.2** | **0.1** | 0.0 | 0.0 | -0.6 | -0.4 | -0.6 |
| 60% | **0.1** | -0.4 | **0.0** | **0.2** | **0.2** | **0.2** | **0.3** | **0.0** | **0.1** | **0.1** | -0.2 | -0.4 |
| 70% | **0.0** | -0.4 | -0.1 | **0.2** | **0.3** | **0.2** | **0.4** | **0.1** | **0.2** | **0.0** | -0.2 | -0.4 |
| 80% | 0.0 | 0.0 | **0.2** | **0.5** | **0.4** | **0.2** | **0.4** | **0.1** | **0.1** | **0.2** | -0.1 | -0.3 |
| 90% | **0.1** | -0.1 | -0.1 | **0.5** | **0.4** | **0.3** | **0.6** | **0.2** | **0.5** | **0.5** | **0.4** | -0.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.6 | -0.5 | -0.1 | **0.1** | **0.2** | **0.2** | **0.2** | -0.1 | -0.2 | -0.4 | -0.7 | -1.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **0.2** | **0.1** | **0.1** | **0.1** | **0.6** | **0.2** | **0.4** | **0.2** | **0.3** | **0.3** | **0.1** | -0.1 |
| Above Normal (24%) | -0.4 | -0.7 | -0.3 | **0.5** | **0.4** | **0.4** | **0.3** | 0.0 | **0.0** | -0.3 | -0.6 | -0.9 |
| Below Normal (10%) | -0.2 | -0.4 | -0.2 | **0.1** | **0.0** | **0.1** | **0.0** | **0.1** | **0.2** | -0.3 | -0.5 | -0.7 |
| Dry (16%) | -1.2 | -1.1 | -0.4 | -0.1 | -0.1 | **0.1** | **0.1** | **0.1** | -0.1 | -0.6 | -1.0 | -1.4 |
| Critical (27%) | -1.4 | -0.5 | **0.2** | -0.1 | **0.0** | **0.1** | 0.0 | -0.5 | -1.0 | -1.1 | -1.5 | -2.0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 22-3. Stanislaus River below Goodwin Dam, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.7 | 59.2 | 54.6 | 51.1 | 50.8 | 51.9 | 53.1 | 54.1 | 55.6 | 57.6 | 58.3 | 60.1 |
| 20% | 58.0 | 56.5 | 53.3 | 50.3 | 50.2 | 51.4 | 52.4 | 53.6 | 54.8 | 55.9 | 56.5 | 57.4 |
| 30% | 56.1 | 55.5 | 52.5 | 49.7 | 49.5 | 50.8 | 52.1 | 53.0 | 54.0 | 55.2 | 55.8 | 56.4 |
| 40% | 55.5 | 54.8 | 51.9 | 49.3 | 48.9 | 50.6 | 51.7 | 52.8 | 53.7 | 54.6 | 55.2 | 55.7 |
| 50% | 55.0 | 54.2 | 51.6 | 48.9 | 48.8 | 50.3 | 51.4 | 52.6 | 53.3 | 54.4 | 54.8 | 55.3 |
| 60% | 54.5 | 54.0 | 51.2 | 48.4 | 48.4 | 50.0 | 51.0 | 52.1 | 52.7 | 53.5 | 54.2 | 54.6 |
| 70% | 54.0 | 53.5 | 51.0 | 48.0 | 47.9 | 49.8 | 50.6 | 51.8 | 52.5 | 53.2 | 53.9 | 54.2 |
| 80% | 53.5 | 52.9 | 50.4 | 47.3 | 47.4 | 49.0 | 50.1 | 51.5 | 52.0 | 52.6 | 53.3 | 53.7 |
| 90% | 52.4 | 52.1 | 49.8 | 46.4 | 46.7 | 48.3 | 49.2 | 50.6 | 50.8 | 51.5 | 52.2 | 52.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.0 | 54.9 | 51.8 | 48.7 | 48.7 | 50.2 | 51.3 | 52.5 | 53.5 | 54.6 | 55.3 | 56.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 52.9 | 52.4 | 50.6 | 47.9 | 47.7 | 49.2 | 50.0 | 51.3 | 51.6 | 52.2 | 52.8 | 53.0 |
| Above Normal (24%) | 55.2 | 54.5 | 51.7 | 48.4 | 48.0 | 49.6 | 50.6 | 51.9 | 52.5 | 53.5 | 54.5 | 55.2 |
| Below Normal (10%) | 54.9 | 54.2 | 51.5 | 48.4 | 48.7 | 50.0 | 51.3 | 52.1 | 52.9 | 54.1 | 54.7 | 55.1 |
| Dry (16%) | 56.7 | 55.6 | 52.2 | 49.2 | 49.2 | 50.9 | 51.9 | 52.8 | 53.9 | 55.1 | 56.0 | 56.7 |
| Critical (27%) | 59.4 | 57.3 | 52.9 | 49.7 | 49.9 | 51.5 | 52.7 | 54.3 | 56.0 | 57.5 | 58.2 | 59.5 |

### Alternative 3 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.0 | 56.7 | 53.8 | 50.9 | 50.7 | 52.2 | 53.2 | 54.0 | 55.2 | 56.4 | 56.9 | 57.3 |
| 20% | 56.7 | 55.7 | 53.2 | 50.0 | 50.2 | 51.5 | 52.5 | 53.4 | 54.6 | 55.4 | 55.8 | 56.1 |
| 30% | 56.0 | 54.7 | 52.6 | 49.7 | 49.5 | 51.0 | 52.1 | 53.1 | 53.9 | 54.6 | 55.1 | 55.6 |
| 40% | 55.3 | 54.2 | 51.7 | 49.1 | 49.2 | 50.7 | 51.8 | 52.7 | 53.6 | 54.2 | 54.6 | 54.9 |
| 50% | 54.9 | 53.8 | 51.4 | 49.0 | 49.0 | 50.5 | 51.5 | 52.5 | 53.2 | 53.8 | 54.4 | 54.7 |
| 60% | 54.6 | 53.6 | 51.2 | 48.6 | 48.6 | 50.2 | 51.3 | 52.1 | 52.9 | 53.6 | 54.0 | 54.2 |
| 70% | 54.1 | 53.1 | 50.9 | 48.2 | 48.2 | 49.9 | 50.9 | 51.9 | 52.7 | 53.2 | 53.6 | 53.8 |
| 80% | 53.5 | 52.9 | 50.5 | 47.9 | 47.8 | 49.2 | 50.5 | 51.6 | 52.1 | 52.8 | 53.2 | 53.4 |
| 90% | 52.5 | 52.0 | 49.7 | 46.9 | 47.1 | 48.7 | 49.8 | 50.8 | 51.3 | 52.0 | 52.6 | 52.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.4 | 54.4 | 51.8 | 48.8 | 48.9 | 50.5 | 51.5 | 52.5 | 53.3 | 54.1 | 54.6 | 55.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 53.1 | 52.5 | 50.8 | 48.0 | 48.3 | 49.4 | 50.4 | 51.5 | 51.9 | 52.6 | 52.9 | 52.9 |
| Above Normal (24%) | 54.8 | 53.8 | 51.4 | 48.8 | 48.5 | 50.0 | 50.9 | 51.8 | 52.6 | 53.1 | 53.8 | 54.3 |
| Below Normal (10%) | 54.7 | 53.8 | 51.4 | 48.5 | 48.7 | 50.2 | 51.4 | 52.2 | 53.0 | 53.8 | 54.2 | 54.4 |
| Dry (16%) | 55.5 | 54.5 | 51.8 | 49.0 | 49.2 | 51.0 | 52.0 | 52.8 | 53.8 | 54.5 | 54.9 | 55.3 |
| Critical (27%) | 58.0 | 56.8 | 53.2 | 49.6 | 49.9 | 51.6 | 52.7 | 53.8 | 55.1 | 56.4 | 56.7 | 57.5 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -2.7 | -2.5 | -0.8 | -0.2 | -0.1 | **0.2** | **0.1** | -0.1 | -0.4 | -1.1 | -1.4 | -2.9 |
| 20% | -1.3 | -0.8 | -0.1 | -0.3 | **0.0** | **0.1** | **0.1** | -0.2 | -0.2 | -0.5 | -0.7 | -1.3 |
| 30% | -0.1 | -0.8 | **0.1** | **0.0** | **0.1** | **0.1** | 0.0 | **0.1** | -0.1 | -0.5 | -0.7 | -0.8 |
| 40% | -0.2 | -0.6 | -0.2 | -0.2 | **0.3** | **0.1** | **0.1** | -0.1 | -0.1 | -0.4 | -0.6 | -0.8 |
| 50% | -0.1 | -0.4 | -0.1 | **0.1** | **0.2** | **0.2** | **0.1** | 0.0 | -0.1 | -0.6 | -0.4 | -0.6 |
| 60% | **0.1** | -0.4 | **0.0** | **0.2** | **0.2** | **0.2** | **0.3** | **0.0** | **0.1** | **0.1** | -0.2 | -0.4 |
| 70% | **0.1** | -0.4 | -0.1 | **0.2** | **0.3** | **0.2** | **0.4** | **0.1** | **0.2** | **0.0** | -0.2 | -0.4 |
| 80% | 0.0 | 0.0 | **0.2** | **0.5** | **0.4** | **0.2** | **0.4** | **0.1** | **0.1** | **0.2** | -0.1 | -0.3 |
| 90% | **0.1** | -0.1 | -0.1 | **0.5** | **0.4** | **0.3** | **0.6** | **0.2** | **0.5** | **0.5** | **0.4** | -0.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.6 | -0.5 | -0.1 | **0.1** | **0.2** | **0.2** | **0.2** | -0.1 | -0.2 | -0.4 | -0.7 | -1.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **0.2** | **0.1** | **0.1** | **0.1** | **0.6** | **0.2** | **0.4** | **0.2** | **0.4** | **0.3** | **0.1** | -0.1 |
| Above Normal (24%) | -0.4 | -0.7 | -0.3 | **0.5** | **0.4** | **0.4** | **0.3** | 0.0 | **0.0** | -0.4 | -0.6 | -0.9 |
| Below Normal (10%) | -0.2 | -0.4 | -0.2 | **0.1** | **0.0** | **0.1** | **0.0** | **0.1** | **0.2** | -0.3 | -0.5 | -0.7 |
| Dry (16%) | -1.2 | -1.1 | -0.4 | -0.1 | -0.1 | **0.1** | **0.1** | **0.1** | -0.1 | -0.6 | -1.0 | -1.4 |
| Critical (27%) | -1.4 | -0.5 | **0.2** | -0.1 | **0.0** | **0.1** | 0.0 | -0.5 | -1.0 | -1.1 | -1.5 | -2.0 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 22-4. Stanislaus River below Goodwin Dam, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.7 | 59.2 | 54.6 | 51.1 | 50.8 | 51.9 | 53.1 | 54.1 | 55.6 | 57.6 | 58.3 | 60.1 |
| 20% | 58.0 | 56.5 | 53.3 | 50.3 | 50.2 | 51.4 | 52.4 | 53.6 | 54.8 | 55.9 | 56.5 | 57.4 |
| 30% | 56.1 | 55.5 | 52.5 | 49.7 | 49.5 | 50.8 | 52.1 | 53.0 | 54.0 | 55.2 | 55.8 | 56.4 |
| 40% | 55.5 | 54.8 | 51.9 | 49.3 | 48.9 | 50.6 | 51.7 | 52.8 | 53.7 | 54.6 | 55.2 | 55.7 |
| 50% | 55.0 | 54.2 | 51.6 | 48.9 | 48.8 | 50.3 | 51.4 | 52.6 | 53.3 | 54.4 | 54.8 | 55.3 |
| 60% | 54.5 | 54.0 | 51.2 | 48.4 | 48.4 | 50.0 | 51.0 | 52.1 | 52.7 | 53.5 | 54.2 | 54.6 |
| 70% | 54.0 | 53.5 | 51.0 | 48.0 | 47.9 | 49.8 | 50.6 | 51.8 | 52.5 | 53.2 | 53.9 | 54.2 |
| 80% | 53.5 | 52.9 | 50.4 | 47.3 | 47.4 | 49.0 | 50.1 | 51.5 | 52.0 | 52.6 | 53.3 | 53.7 |
| 90% | 52.4 | 52.1 | 49.8 | 46.4 | 46.7 | 48.3 | 49.2 | 50.6 | 50.8 | 51.5 | 52.2 | 52.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.0 | 54.9 | 51.8 | 48.7 | 48.7 | 50.2 | 51.3 | 52.5 | 53.5 | 54.6 | 55.3 | 56.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 52.9 | 52.4 | 50.6 | 47.9 | 47.7 | 49.2 | 50.0 | 51.3 | 51.6 | 52.2 | 52.8 | 53.0 |
| Above Normal (24%) | 55.2 | 54.5 | 51.7 | 48.4 | 48.0 | 49.6 | 50.6 | 51.9 | 52.5 | 53.5 | 54.5 | 55.2 |
| Below Normal (10%) | 54.9 | 54.2 | 51.5 | 48.4 | 48.7 | 50.0 | 51.3 | 52.1 | 52.9 | 54.1 | 54.7 | 55.1 |
| Dry (16%) | 56.7 | 55.6 | 52.2 | 49.2 | 49.2 | 50.9 | 51.9 | 52.8 | 53.9 | 55.1 | 56.0 | 56.7 |
| Critical (27%) | 59.4 | 57.3 | 52.9 | 49.7 | 49.9 | 51.5 | 52.7 | 54.3 | 56.0 | 57.5 | 58.2 | 59.5 |

### Alternative 4 043019

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.8 | 57.1 | 53.7 | 50.7 | 50.6 | 52.0 | 53.0 | 54.3 | 55.6 | 57.0 | 57.5 | 58.1 |
| 20% | 56.4 | 55.7 | 53.1 | 50.2 | 50.1 | 51.4 | 52.5 | 53.5 | 54.8 | 55.7 | 56.3 | 56.7 |
| 30% | 55.6 | 54.7 | 52.5 | 49.5 | 49.4 | 50.9 | 52.1 | 53.1 | 54.1 | 55.1 | 55.5 | 56.1 |
| 40% | 55.0 | 54.3 | 51.8 | 49.1 | 49.1 | 50.6 | 51.8 | 52.9 | 53.7 | 54.7 | 55.0 | 55.3 |
| 50% | 54.7 | 53.9 | 51.4 | 48.9 | 48.8 | 50.3 | 51.4 | 52.6 | 53.2 | 54.2 | 54.7 | 55.0 |
| 60% | 54.3 | 53.7 | 51.2 | 48.4 | 48.4 | 50.0 | 51.2 | 52.2 | 52.7 | 53.7 | 54.3 | 54.6 |
| 70% | 53.9 | 53.3 | 50.8 | 48.0 | 47.9 | 49.8 | 50.8 | 52.0 | 52.4 | 53.3 | 53.8 | 54.2 |
| 80% | 53.4 | 52.8 | 50.3 | 47.4 | 47.5 | 49.0 | 50.1 | 51.5 | 51.9 | 53.0 | 53.3 | 53.7 |
| 90% | 52.3 | 52.2 | 49.5 | 46.9 | 47.0 | 48.5 | 49.4 | 50.8 | 51.1 | 51.8 | 52.5 | 52.5 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.3 | 54.4 | 51.7 | 48.7 | 48.8 | 50.3 | 51.3 | 52.5 | 53.4 | 54.4 | 55.2 | 55.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 53.0 | 52.6 | 50.7 | 47.9 | 47.9 | 49.1 | 50.0 | 51.4 | 51.7 | 52.4 | 53.0 | 53.2 |
| Above Normal (24%) | 55.4 | 54.3 | 51.6 | 48.5 | 48.2 | 49.7 | 50.6 | 51.9 | 52.5 | 53.8 | 54.7 | 55.5 |
| Below Normal (10%) | 54.4 | 53.8 | 51.3 | 48.5 | 48.7 | 50.1 | 51.6 | 52.2 | 52.9 | 54.0 | 54.5 | 54.7 |
| Dry (16%) | 55.6 | 54.7 | 51.9 | 49.0 | 49.1 | 50.9 | 51.9 | 52.8 | 53.9 | 54.8 | 55.3 | 55.8 |
| Critical (27%) | 57.4 | 56.3 | 52.7 | 49.6 | 49.8 | 51.6 | 52.7 | 54.0 | 55.6 | 56.7 | 57.8 | 58.1 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -1.9 | -2.0 | -0.9 | -0.4 | -0.2 | **0.1** | -0.1 | **0.2** | **0.0** | -0.6 | -0.8 | -2.0 |
| 20% | -1.6 | -0.8 | -0.2 | 0.0 | -0.1 | **0.0** | **0.1** | -0.1 | -0.1 | -0.1 | -0.2 | -0.7 |
| 30% | -0.5 | -0.8 | **0.0** | -0.1 | -0.1 | **0.1** | 0.0 | **0.0** | **0.1** | 0.0 | -0.3 | -0.3 |
| 40% | -0.5 | -0.4 | -0.1 | -0.2 | **0.1** | **0.0** | **0.1** | **0.1** | **0.1** | **0.0** | -0.3 | -0.4 |
| 50% | -0.3 | -0.3 | -0.1 | **0.1** | -0.1 | **0.0** | **0.0** | **0.0** | -0.1 | -0.2 | -0.1 | -0.3 |
| 60% | -0.2 | -0.3 | -0.1 | **0.0** | 0.0 | 0.0 | **0.2** | **0.2** | 0.0 | **0.2** | **0.0** | 0.0 |
| 70% | -0.1 | -0.1 | -0.2 | **0.0** | -0.1 | **0.0** | **0.2** | **0.1** | -0.1 | **0.1** | 0.0 | 0.0 |
| 80% | -0.1 | -0.1 | 0.0 | **0.1** | **0.1** | -0.1 | -0.1 | 0.0 | -0.1 | **0.4** | -0.1 | 0.0 |
| 90% | -0.1 | **0.1** | -0.2 | **0.4** | **0.4** | **0.2** | **0.2** | **0.2** | **0.3** | **0.3** | **0.3** | 0.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.7 | -0.5 | -0.2 | 0.0 | **0.1** | **0.0** | **0.0** | 0.0 | -0.1 | -0.1 | -0.1 | -0.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **0.2** | **0.2** | **0.1** | 0.0 | **0.2** | -0.1 | **0.0** | **0.1** | **0.1** | **0.1** | **0.1** | **0.2** |
| Above Normal (24%) | **0.2** | -0.2 | -0.1 | **0.1** | **0.2** | **0.1** | **0.0** | **0.1** | 0.0 | **0.4** | **0.3** | **0.3** |
| Below Normal (10%) | -0.4 | -0.4 | -0.2 | **0.0** | 0.0 | **0.1** | **0.3** | **0.1** | **0.0** | -0.1 | -0.2 | -0.4 |
| Dry (16%) | -1.1 | -0.9 | -0.3 | -0.2 | -0.1 | **0.0** | 0.0 | **0.0** | 0.0 | -0.3 | -0.7 | -0.9 |
| Critical (27%) | -2.0 | -1.0 | -0.3 | -0.1 | 0.0 | **0.1** | 0.0 | -0.3 | -0.5 | -0.7 | -0.4 | -1.4 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

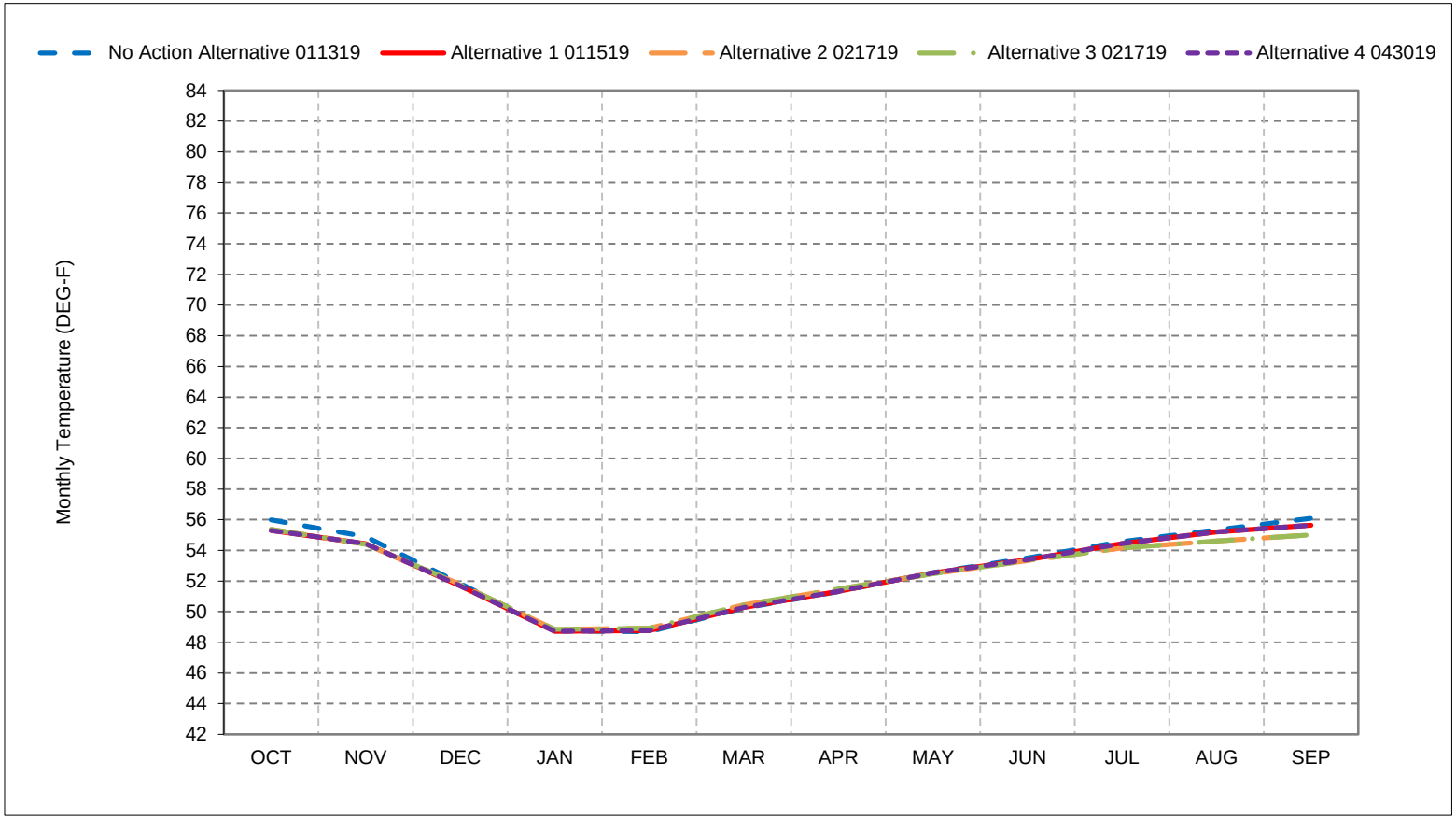
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

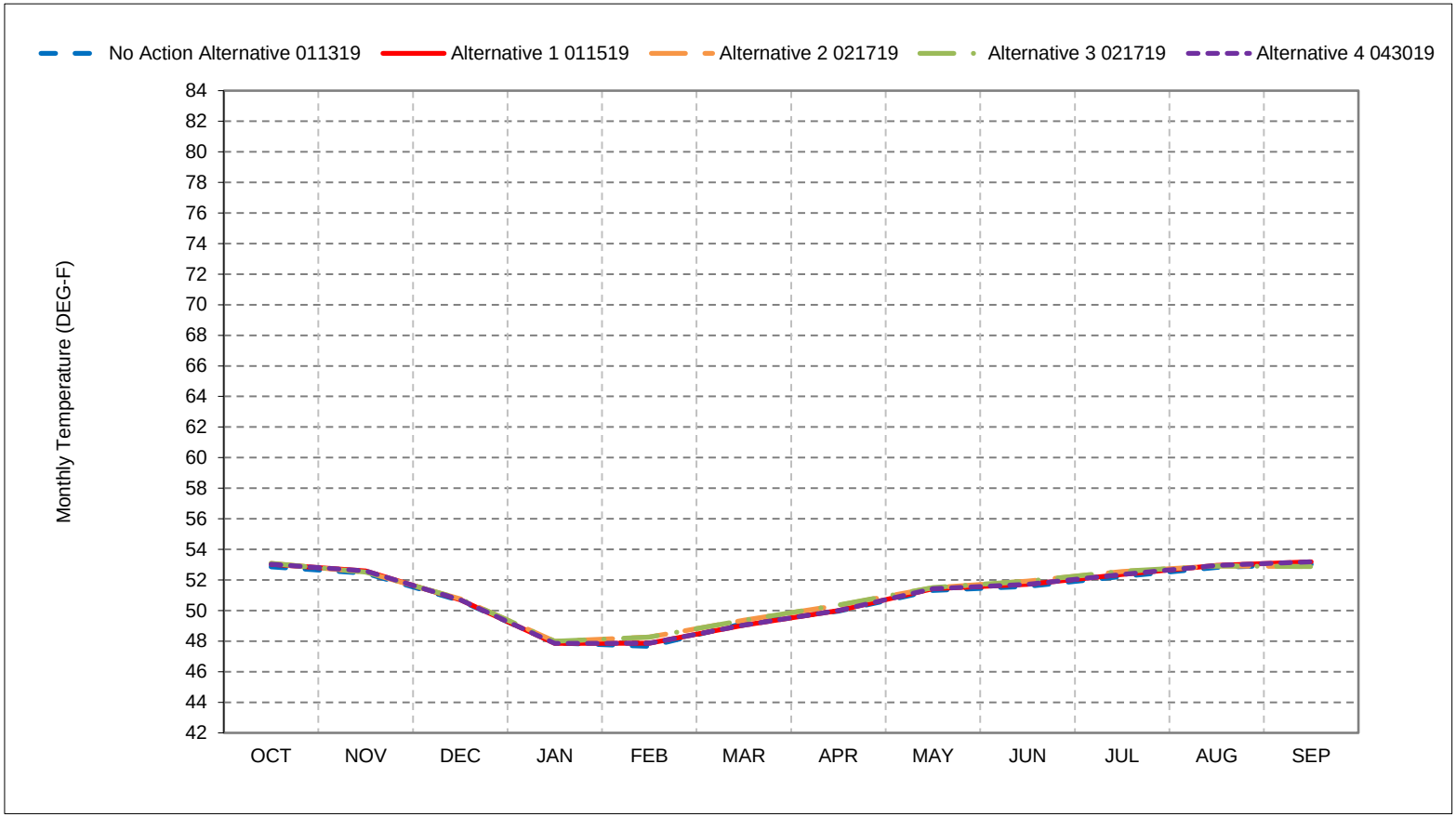
f New Melones forecasts are used as the basis of water operations.

## Figure 22-1. Stanislaus River below Goodwin Dam, Long-Term Average Temperature



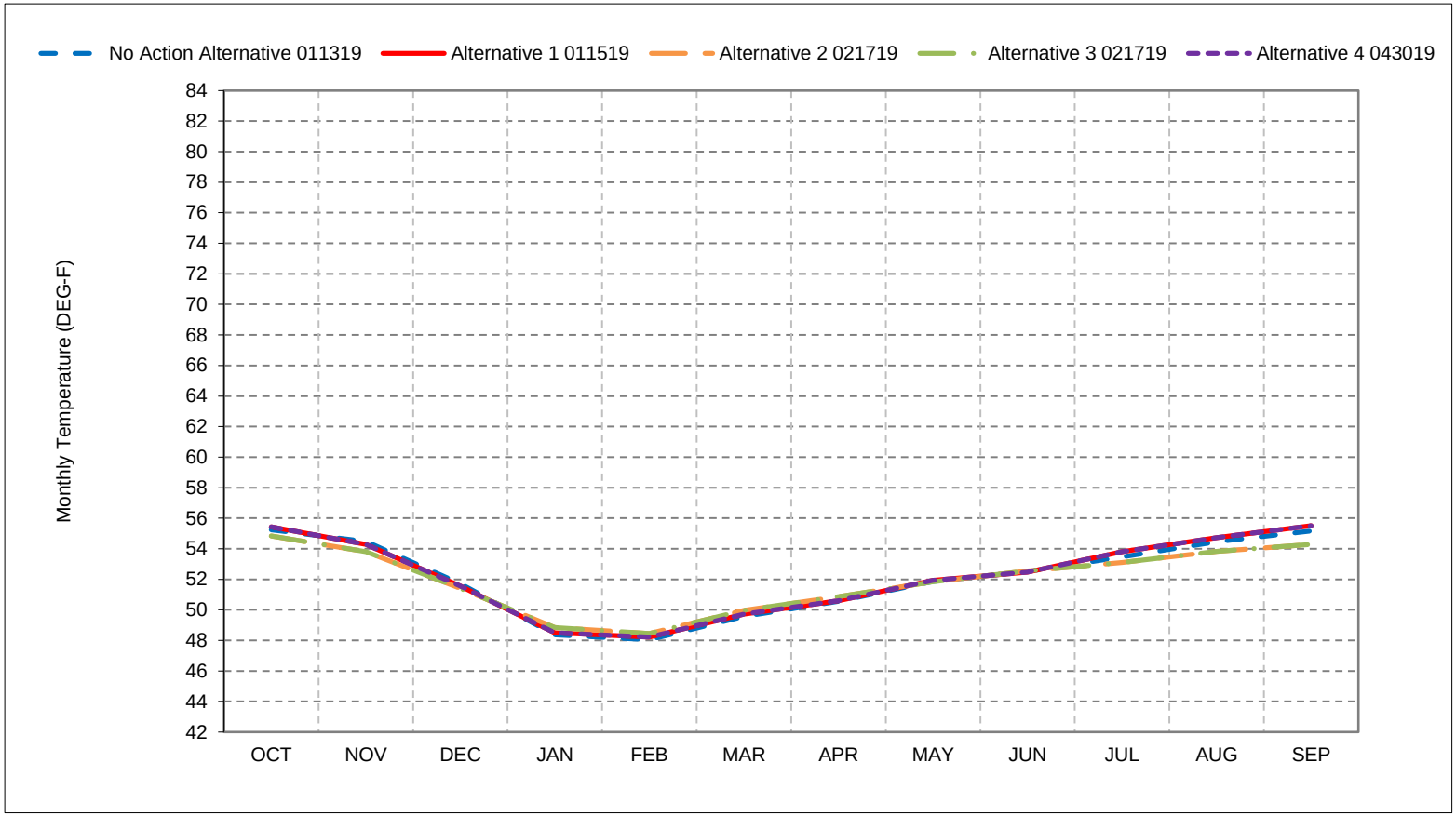

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 22-2. Stanislaus River below Goodwin Dam, Wet Year Average Temperature



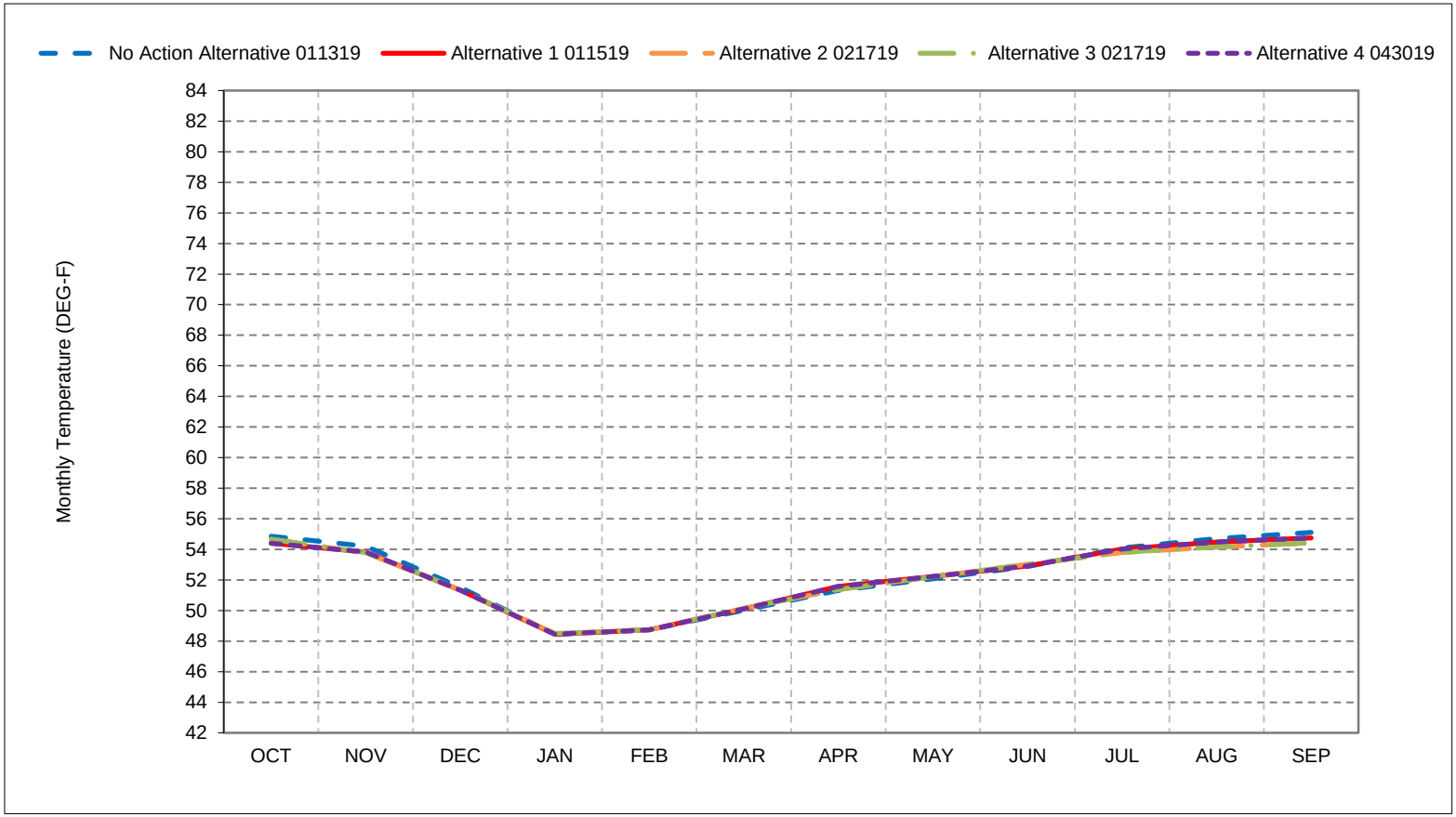

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 22-3. Stanislaus River below Goodwin Dam, Above Normal Year Average Temperature



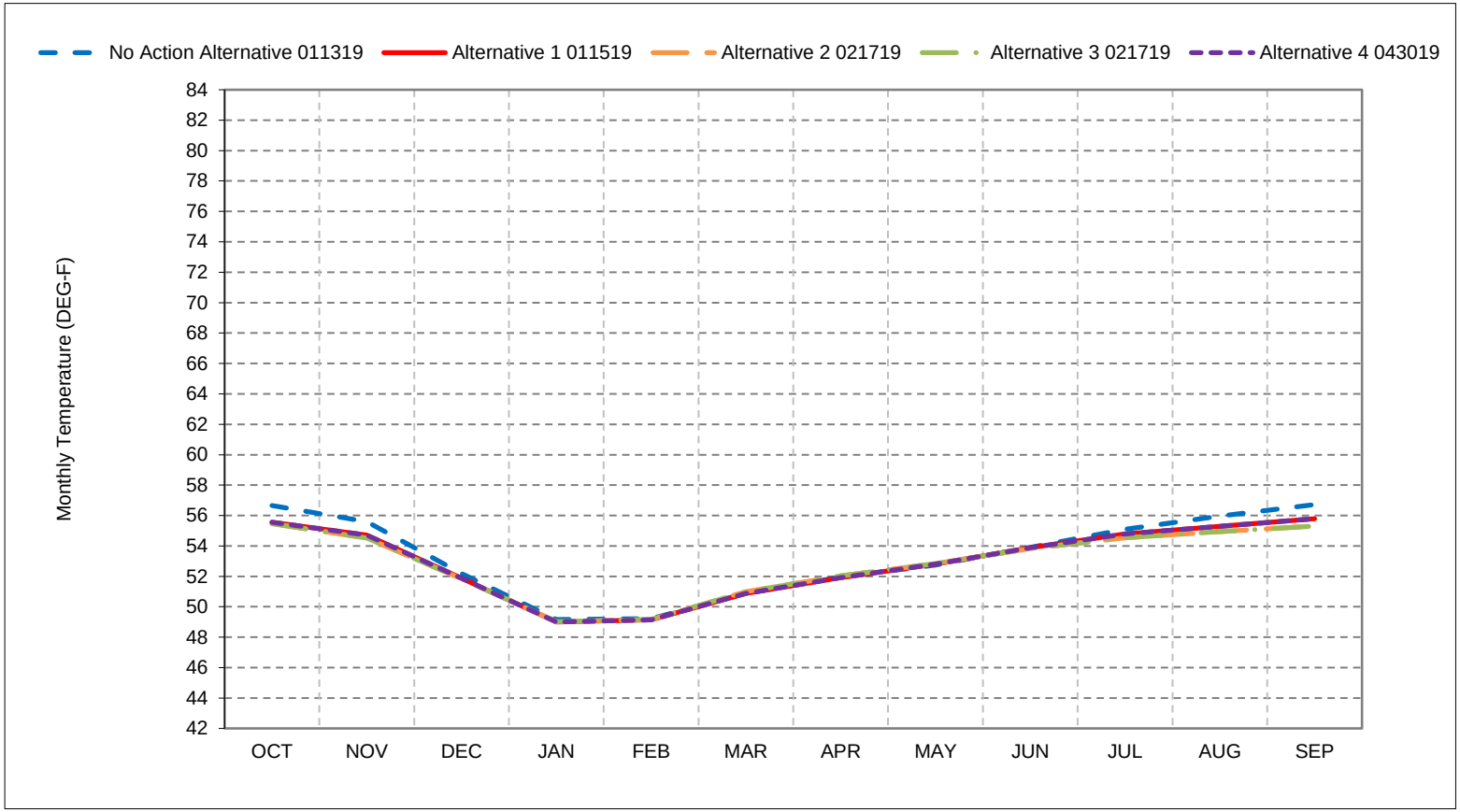

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 22-4. Stanislaus River below Goodwin Dam, Below Normal Year Average Temperature



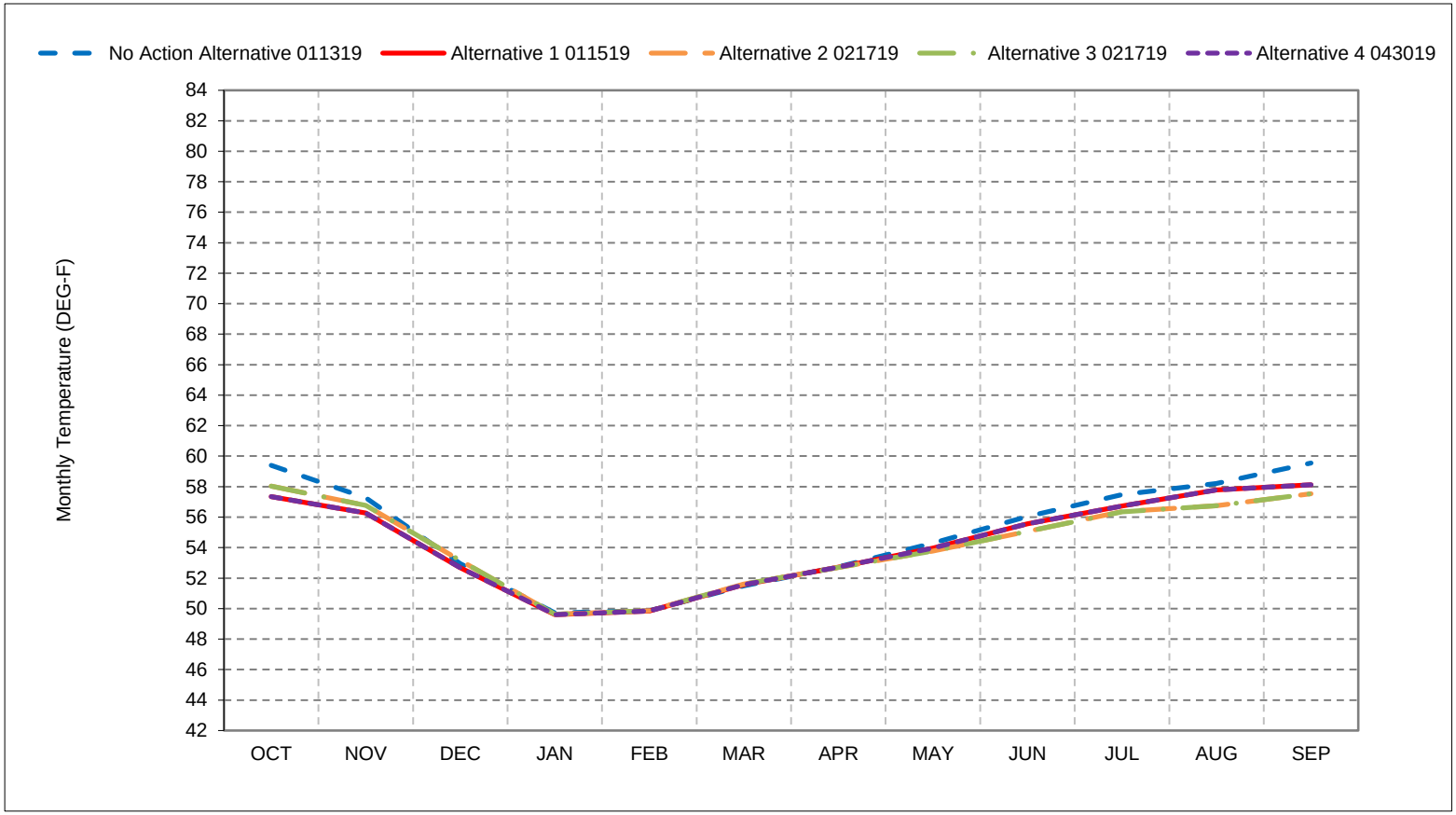

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 22-5. Stanislaus River below Goodwin Dam, Dry Year Average Temperature



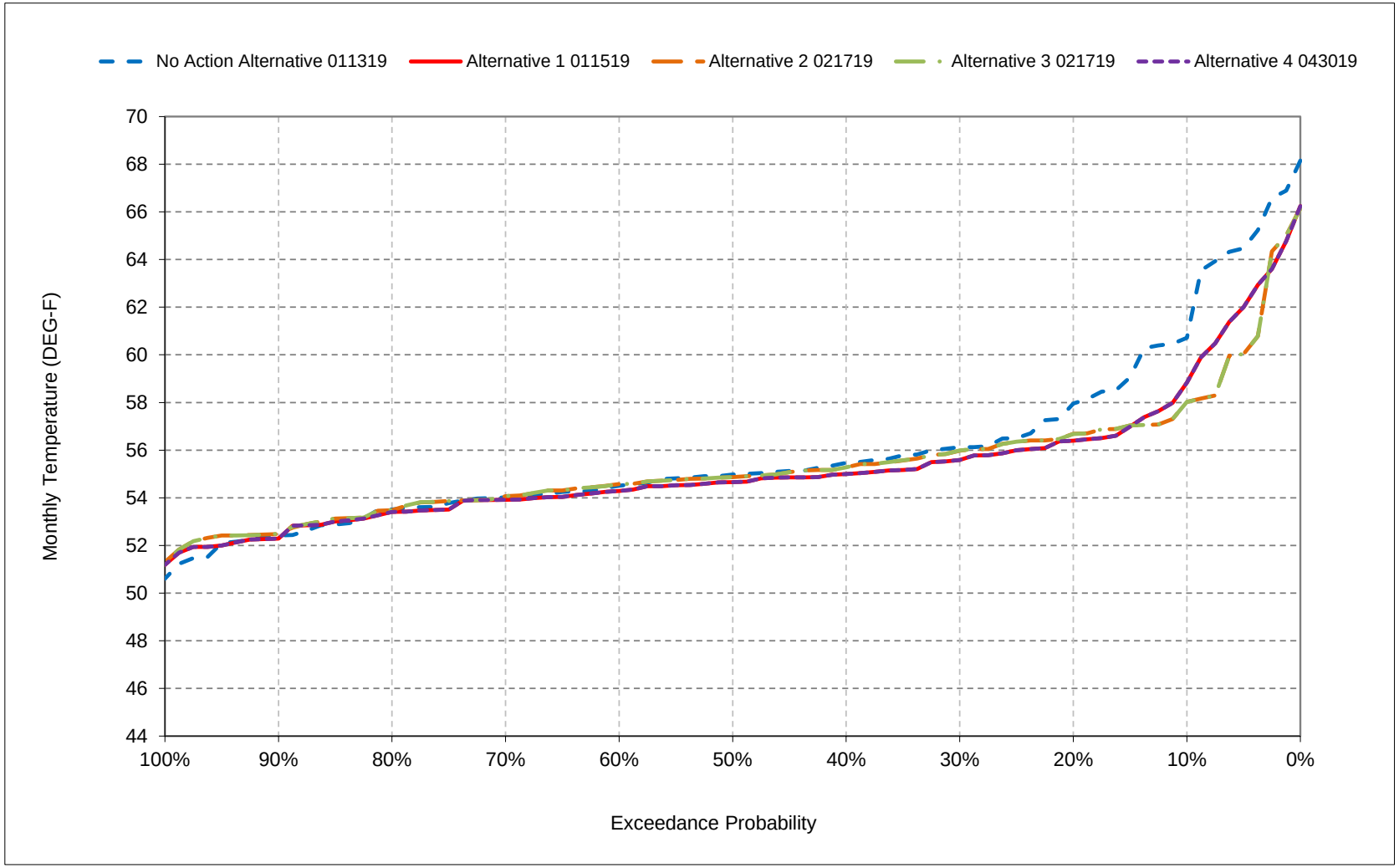

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 22-6. Stanislaus River below Goodwin Dam, Critical Year Average Temperature




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

**Figure 22-7. Stanislaus River below Goodwin Dam, October**

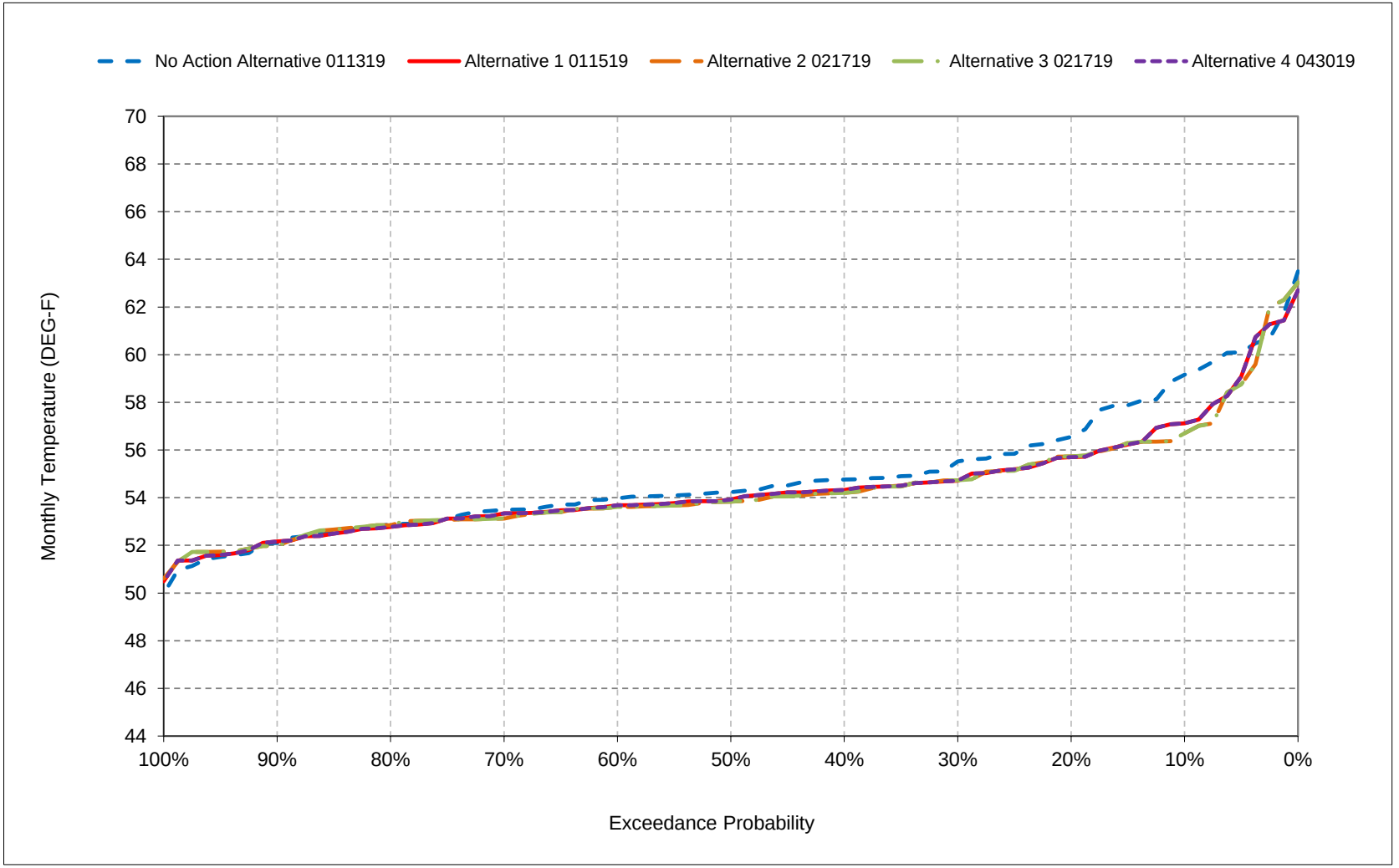



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 22-8. Stanislaus River below Goodwin Dam, November**

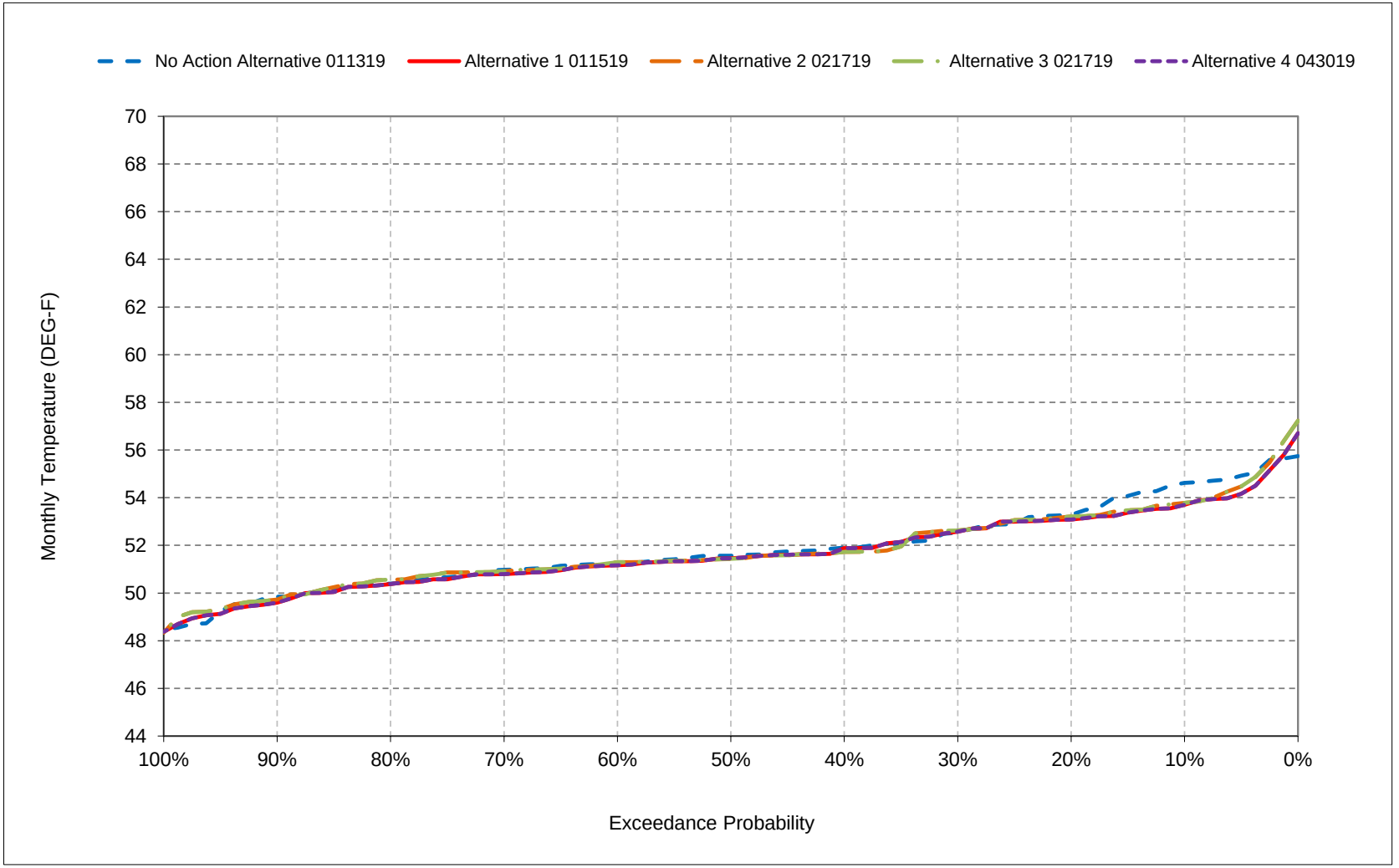



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 22-9. Stanislaus River below Goodwin Dam, December**

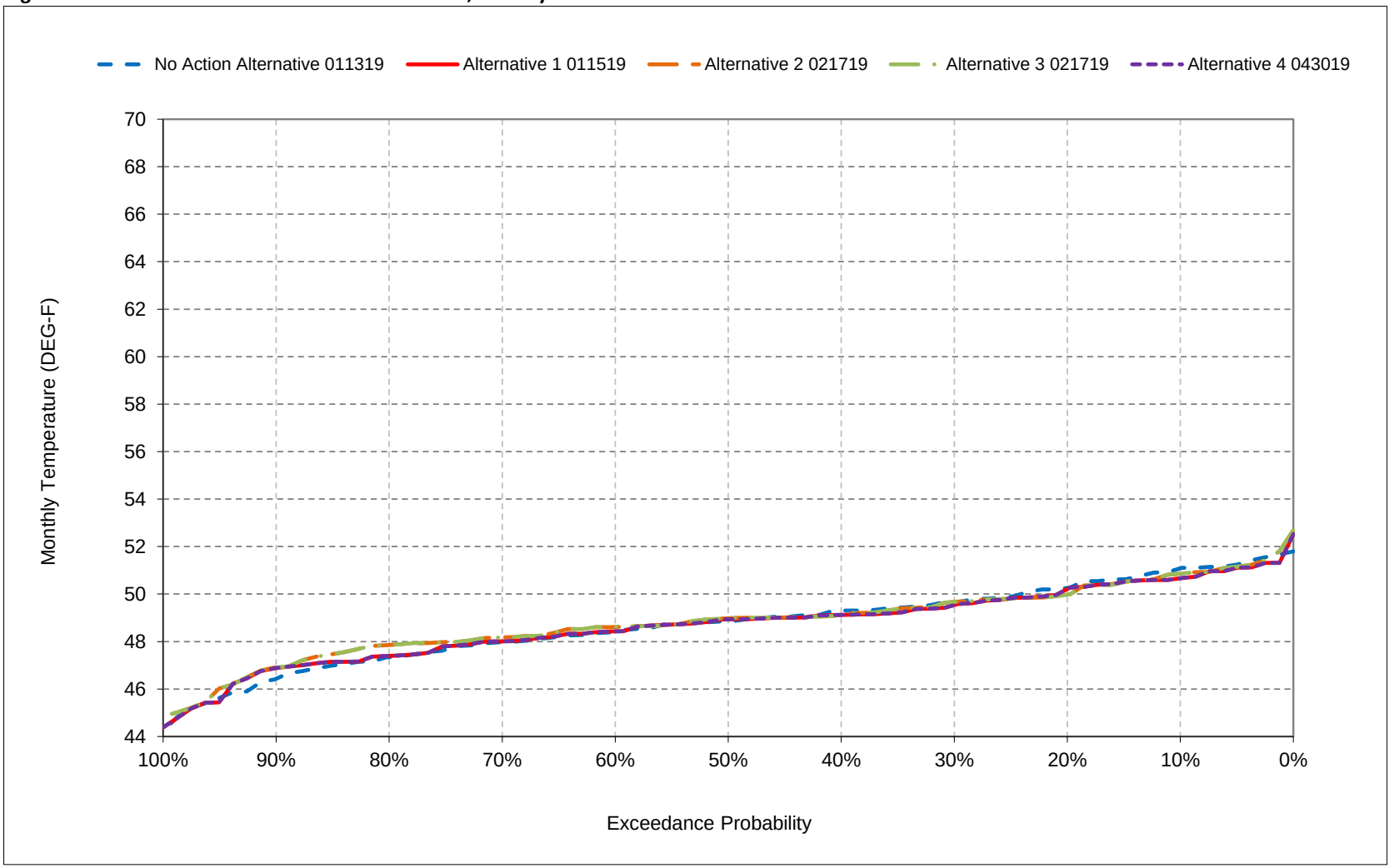



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 22-10. Stanislaus River below Goodwin Dam, January**

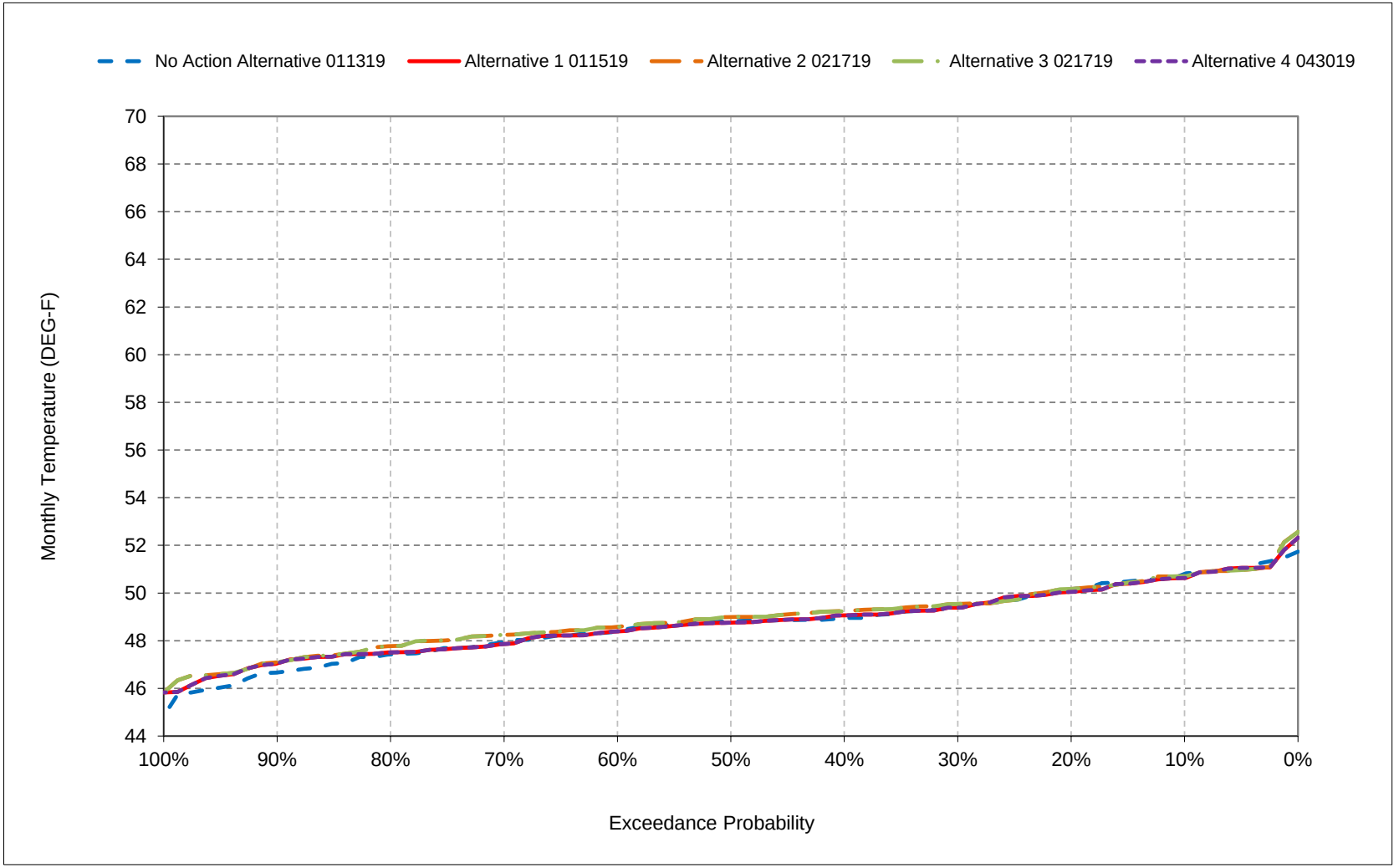



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 22-11. Stanislaus River below Goodwin Dam, February**

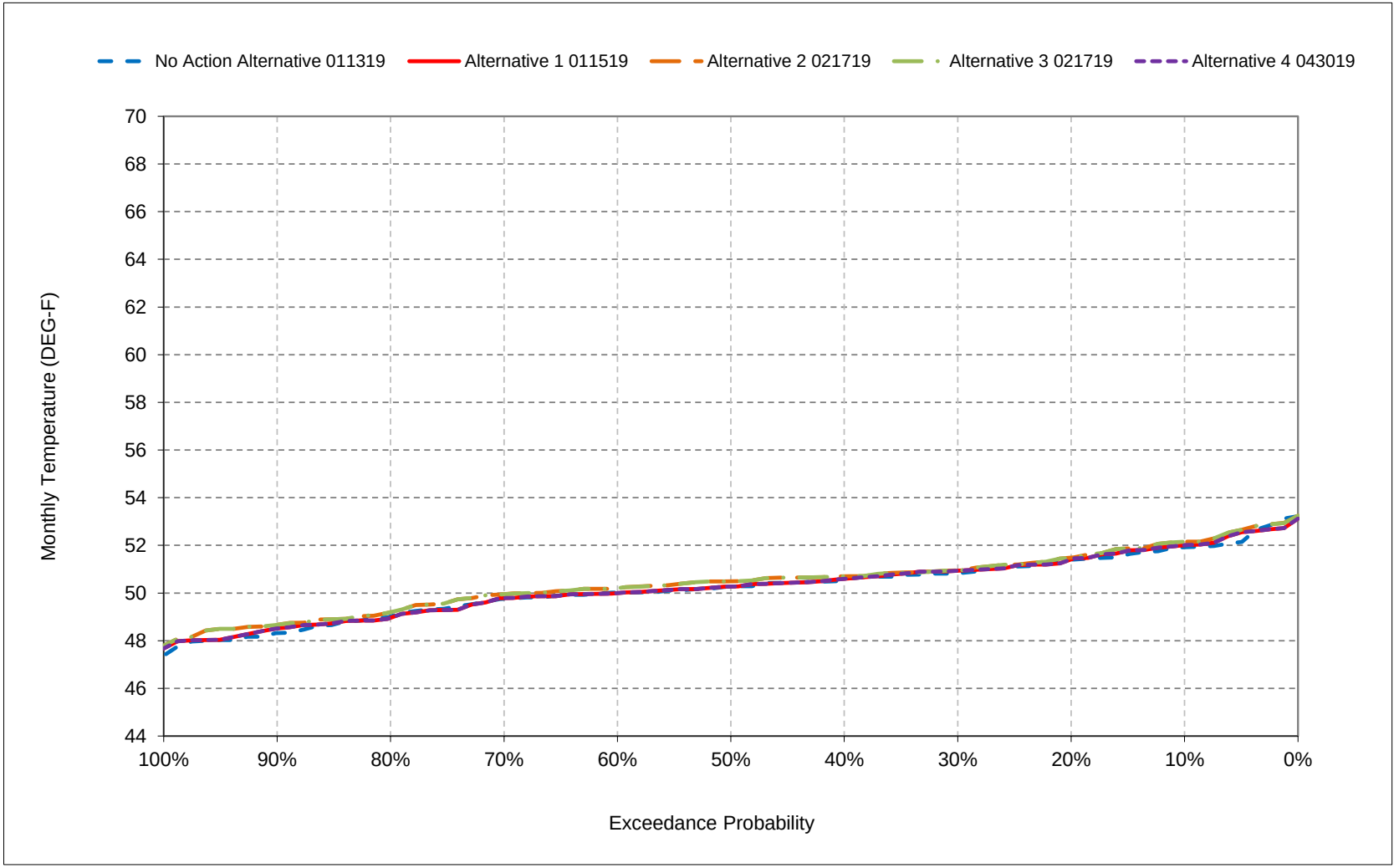



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 22-12. Stanislaus River below Goodwin Dam, March**

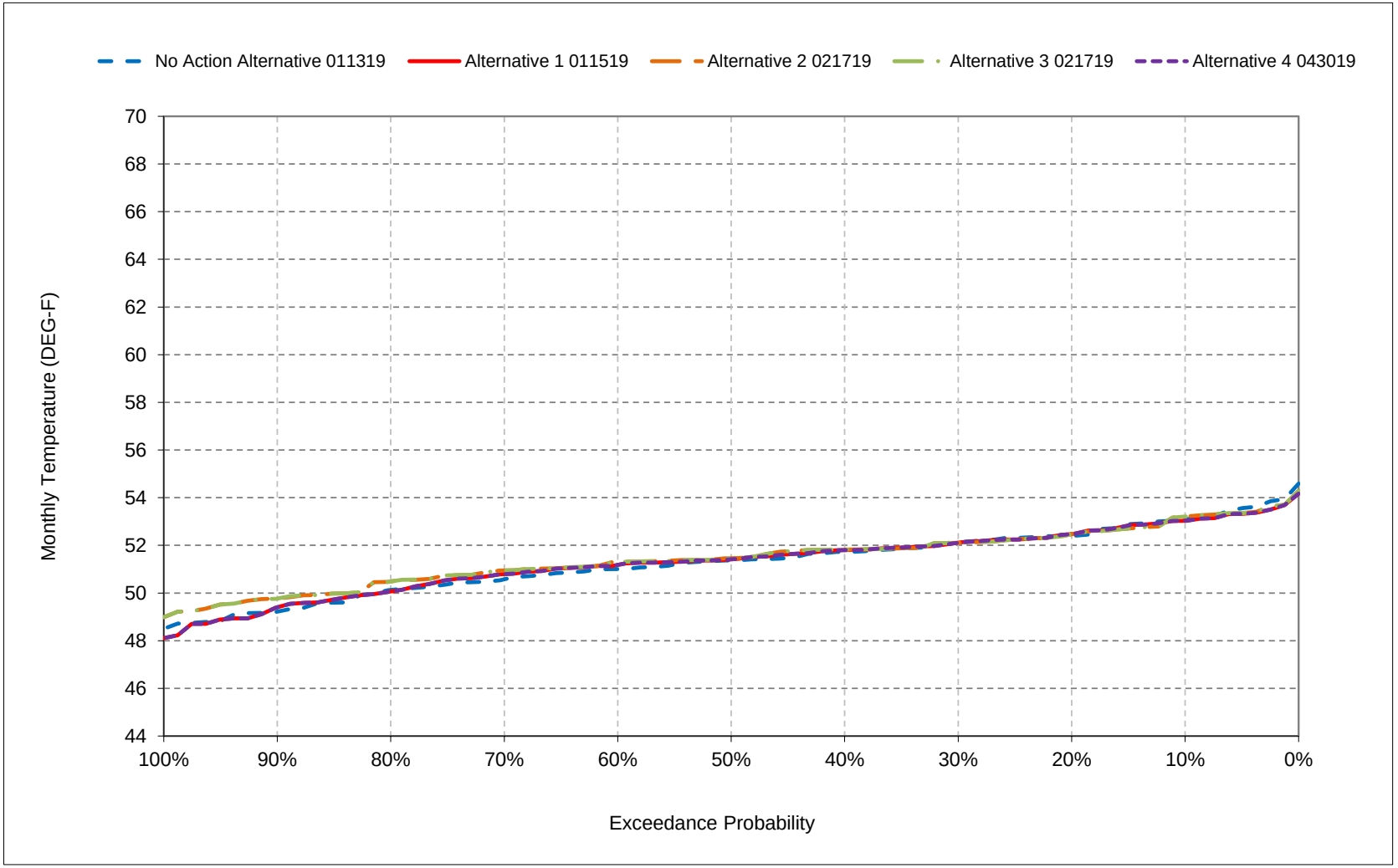



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 22-13. Stanislaus River below Goodwin Dam, April**

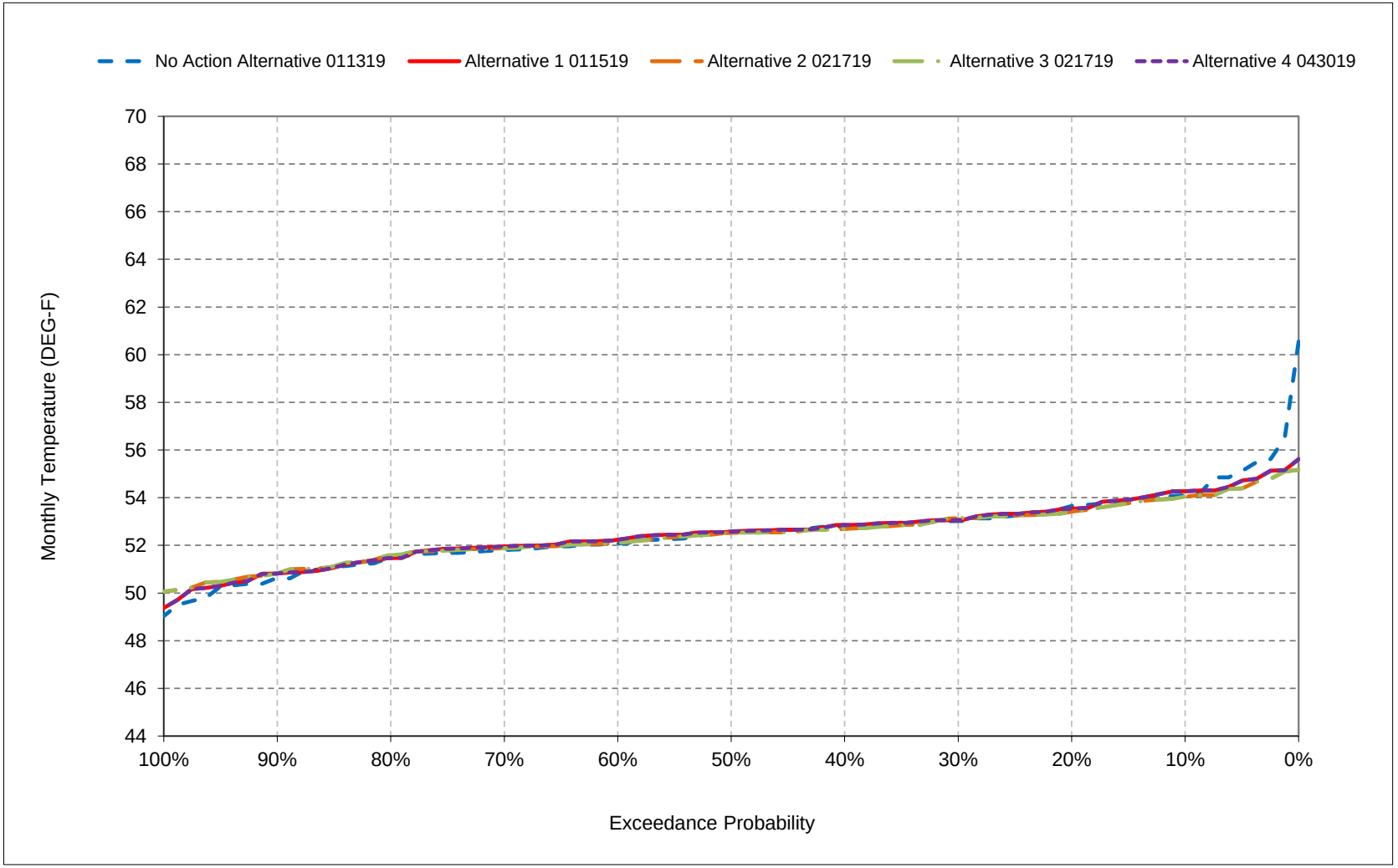



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 22-14. Stanislaus River below Goodwin Dam, May**

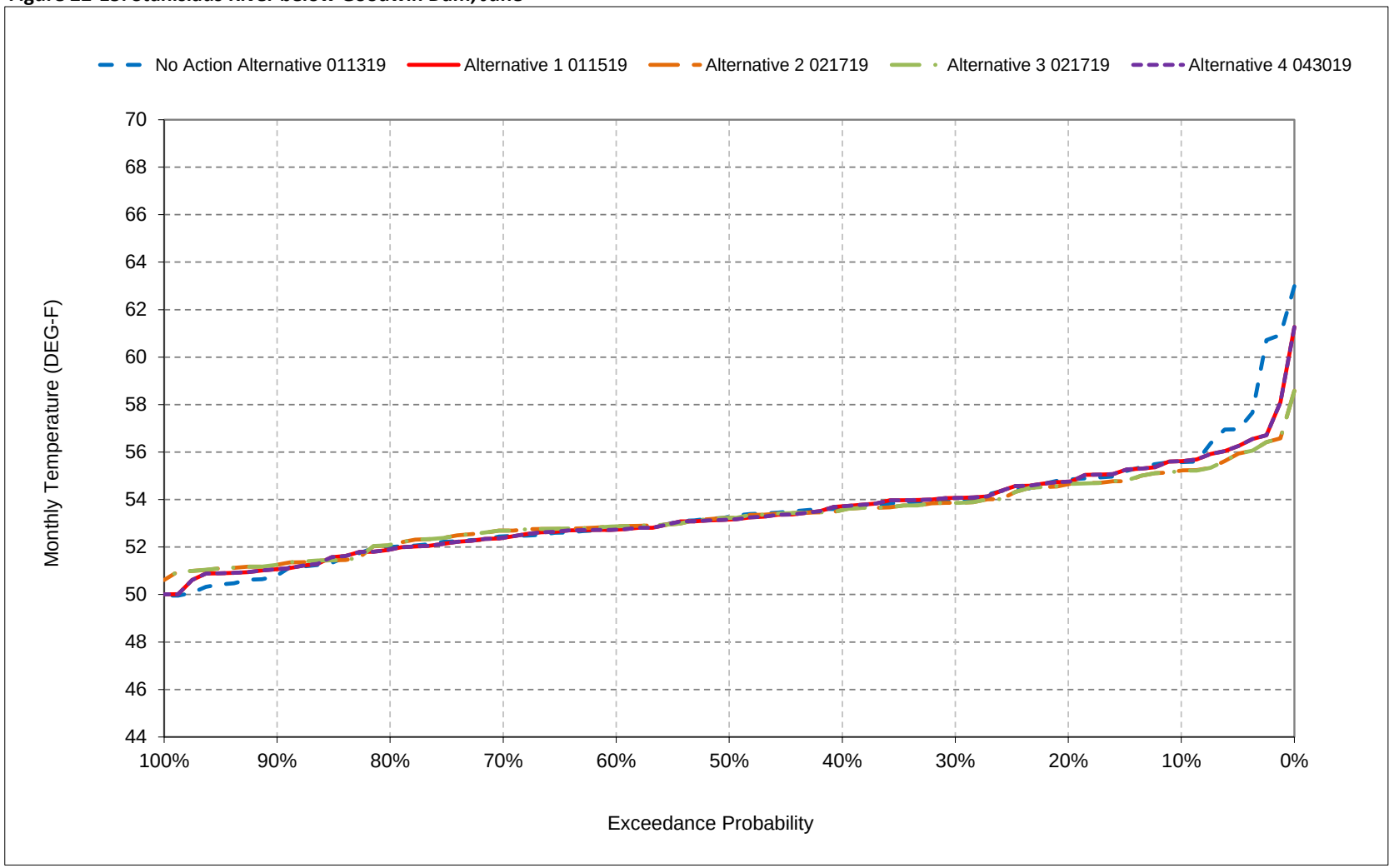



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 22-15. Stanislaus River below Goodwin Dam, June**

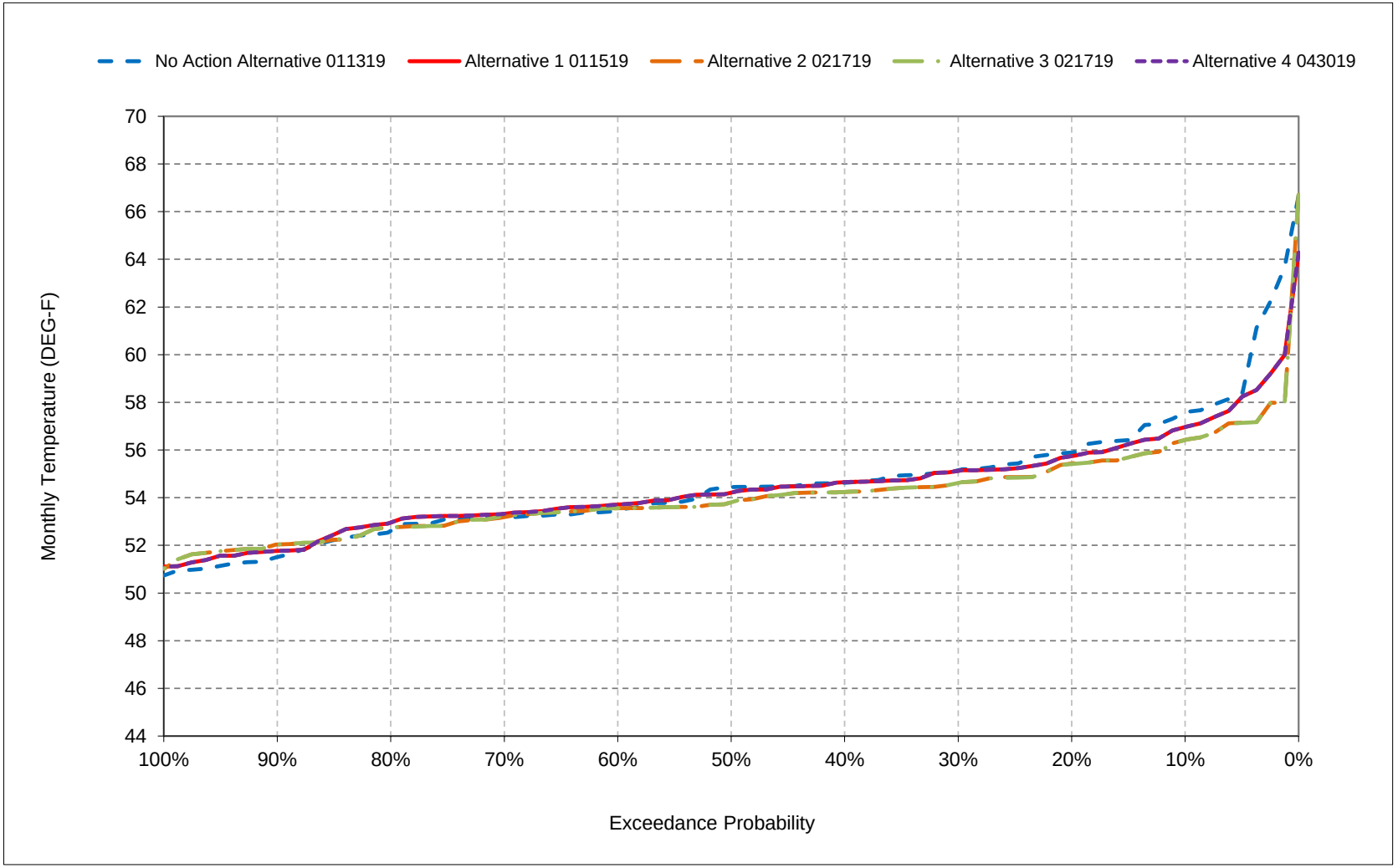



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 22-16. Stanislaus River below Goodwin Dam, July**

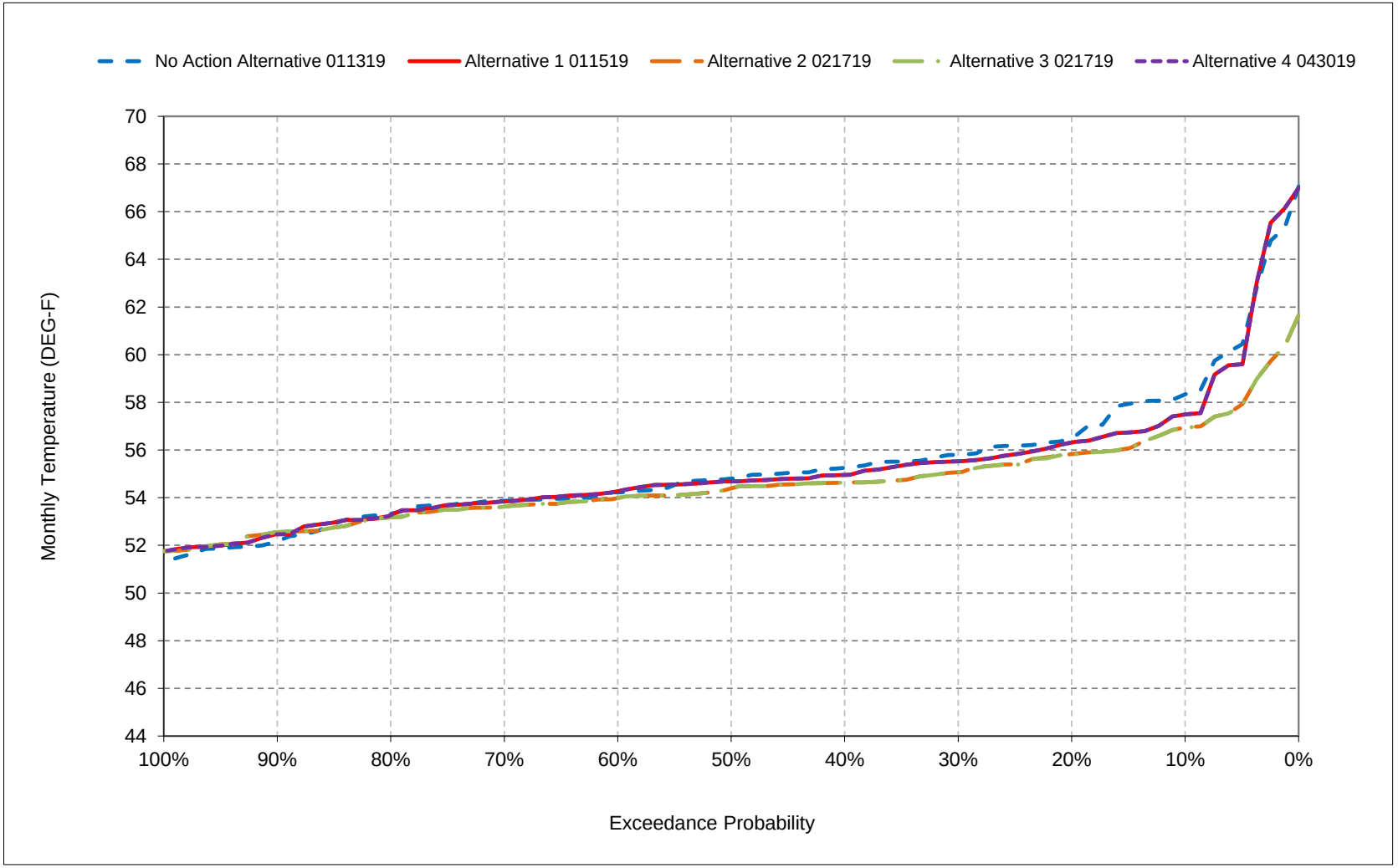



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 22-17. Stanislaus River below Goodwin Dam, August**

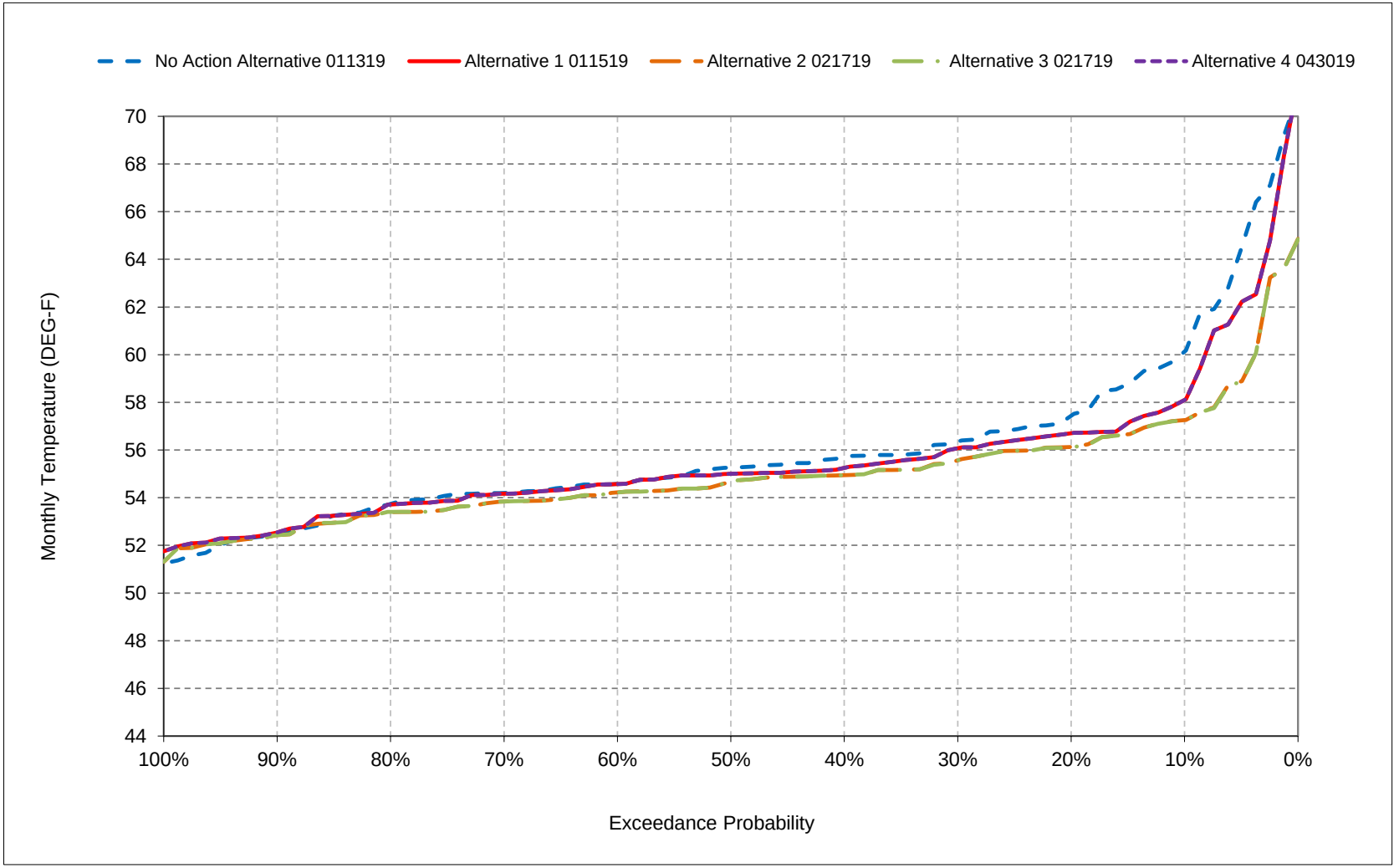



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 22-18. Stanislaus River below Goodwin Dam, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

## Table 23-1. Stanislaus River at Orange Blossom Bridge, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 61.6 | 58.7 | 53.4 | 51.3 | 52.5 | 55.8 | 55.2 | 57.7 | 63.7 | 65.5 | 65.4 | 64.5 |
| 20% | 59.3 | 56.9 | 52.6 | 50.8 | 51.7 | 55.1 | 54.8 | 56.8 | 62.4 | 64.6 | 64.2 | 63.3 |
| 30% | 57.5 | 56.2 | 52.2 | 50.1 | 51.2 | 54.6 | 54.1 | 55.9 | 61.6 | 64.1 | 63.4 | 62.0 |
| 40% | 56.8 | 55.0 | 51.5 | 49.6 | 50.7 | 54.0 | 53.7 | 55.3 | 60.6 | 63.7 | 62.9 | 61.7 |
| 50% | 56.4 | 54.9 | 51.0 | 49.1 | 50.4 | 53.8 | 53.1 | 55.0 | 59.3 | 63.2 | 62.5 | 61.2 |
| 60% | 55.8 | 54.5 | 50.7 | 48.8 | 50.1 | 53.2 | 52.7 | 54.4 | 56.6 | 62.6 | 62.2 | 60.7 |
| 70% | 55.2 | 54.1 | 50.5 | 48.3 | 49.6 | 52.1 | 52.2 | 53.9 | 55.9 | 62.1 | 61.9 | 60.4 |
| 80% | 54.9 | 53.7 | 50.1 | 47.9 | 49.2 | 51.0 | 51.9 | 53.6 | 55.3 | 61.5 | 61.5 | 59.9 |
| 90% | 54.0 | 52.7 | 49.7 | 47.1 | 48.4 | 49.6 | 50.8 | 52.6 | 54.4 | 58.6 | 59.8 | 58.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 57.2 | 55.3 | 51.4 | 49.2 | 50.4 | 53.2 | 53.2 | 55.1 | 59.0 | 62.9 | 62.7 | 61.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 54.3 | 53.4 | 50.5 | 48.7 | 49.3 | 50.2 | 51.3 | 53.2 | 55.2 | 59.5 | 59.4 | 57.8 |
| Above Normal (24%) | 56.6 | 54.9 | 51.2 | 49.0 | 49.9 | 52.7 | 52.4 | 54.6 | 56.3 | 61.9 | 62.2 | 61.1 |
| Below Normal (10%) | 56.0 | 54.7 | 51.0 | 48.9 | 50.3 | 53.4 | 52.9 | 54.2 | 58.8 | 63.3 | 62.4 | 61.0 |
| Dry (16%) | 57.8 | 56.0 | 51.6 | 49.5 | 50.9 | 54.5 | 54.0 | 55.4 | 61.2 | 64.1 | 63.5 | 62.4 |
| Critical (27%) | 60.5 | 57.2 | 52.2 | 49.8 | 51.6 | 55.2 | 55.2 | 57.4 | 63.4 | 65.9 | 65.5 | 64.6 |

### Alternative 1 011519

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 59.7 | 57.0 | 52.7 | 51.1 | 52.6 | 55.7 | 56.3 | 58.6 | 65.2 | 67.8 | 67.2 | 64.5 |
| 20% | 58.0 | 56.1 | 52.5 | 50.5 | 51.9 | 55.1 | 55.6 | 58.1 | 64.6 | 66.5 | 65.6 | 63.2 |
| 30% | 57.2 | 55.5 | 52.0 | 50.0 | 51.3 | 54.7 | 54.6 | 56.7 | 63.3 | 65.4 | 64.7 | 62.6 |
| 40% | 56.6 | 54.9 | 51.5 | 49.5 | 50.9 | 54.3 | 53.8 | 55.8 | 61.9 | 64.1 | 63.1 | 62.0 |
| 50% | 56.2 | 54.6 | 51.0 | 49.1 | 50.5 | 53.7 | 52.9 | 54.8 | 60.0 | 63.5 | 62.7 | 61.2 |
| 60% | 55.8 | 54.4 | 50.6 | 48.9 | 50.1 | 53.1 | 52.5 | 54.3 | 59.3 | 63.2 | 62.1 | 60.8 |
| 70% | 55.1 | 53.9 | 50.4 | 48.4 | 49.5 | 51.9 | 52.0 | 54.0 | 58.7 | 62.8 | 61.9 | 60.2 |
| 80% | 54.7 | 53.5 | 50.0 | 47.9 | 49.3 | 50.6 | 51.4 | 53.4 | 56.2 | 61.9 | 61.6 | 60.0 |
| 90% | 53.9 | 53.2 | 49.7 | 47.4 | 48.5 | 49.4 | 50.7 | 52.8 | 54.7 | 60.9 | 60.4 | 58.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.7 | 55.0 | 51.2 | 49.2 | 50.5 | 53.2 | 53.3 | 55.4 | 60.3 | 63.8 | 63.2 | 61.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 54.5 | 53.6 | 50.6 | 48.7 | 49.3 | 49.9 | 51.4 | 53.3 | 54.7 | 59.7 | 59.7 | 58.0 |
| Above Normal (24%) | 56.7 | 54.8 | 51.1 | 49.1 | 50.0 | 52.9 | 51.9 | 54.1 | 59.3 | 63.2 | 62.6 | 61.5 |
| Below Normal (10%) | 55.6 | 54.4 | 50.9 | 48.8 | 50.2 | 53.5 | 52.8 | 54.2 | 59.4 | 63.4 | 62.3 | 60.9 |
| Dry (16%) | 57.0 | 55.3 | 51.3 | 49.4 | 51.1 | 54.5 | 54.3 | 56.3 | 62.6 | 64.6 | 63.3 | 61.9 |
| Critical (27%) | 58.8 | 56.4 | 52.0 | 49.7 | 51.8 | 55.4 | 55.9 | 58.5 | 65.0 | 67.4 | 66.9 | 64.5 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -1.9 | -1.7 | -0.7 | -0.2 | **0.1** | -0.1 | **1.0** | **0.9** | **1.5** | **2.4** | **1.8** | -0.1 |
| 20% | -1.3 | -0.9 | -0.1 | -0.3 | **0.2** | **0.1** | **0.8** | **1.3** | **2.2** | **1.9** | **1.4** | -0.1 |
| 30% | -0.3 | -0.6 | -0.2 | -0.1 | **0.1** | **0.1** | **0.5** | **0.7** | **1.7** | **1.3** | **1.2** | **0.6** |
| 40% | -0.3 | -0.1 | 0.0 | -0.1 | **0.1** | **0.3** | **0.1** | **0.5** | **1.3** | **0.4** | **0.2** | **0.4** |
| 50% | -0.2 | -0.2 | -0.1 | **0.0** | **0.1** | 0.0 | -0.2 | -0.1 | **0.8** | **0.3** | **0.1** | **0.0** |
| 60% | -0.1 | -0.2 | -0.1 | **0.1** | **0.0** | -0.1 | -0.2 | -0.1 | **2.7** | **0.6** | -0.1 | **0.1** |
| 70% | -0.2 | -0.2 | 0.0 | **0.0** | -0.1 | -0.2 | -0.2 | **0.0** | **2.8** | **0.7** | **0.1** | -0.3 |
| 80% | -0.1 | -0.1 | -0.1 | **0.0** | **0.1** | -0.4 | -0.5 | -0.2 | **0.9** | **0.3** | **0.1** | **0.1** |
| 90% | -0.1 | **0.5** | -0.1 | **0.3** | **0.1** | -0.2 | -0.1 | **0.2** | **0.2** | **2.3** | **0.6** | **0.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.6 | -0.3 | -0.1 | 0.0 | **0.1** | **0.0** | **0.1** | **0.3** | **1.3** | **0.9** | **0.5** | **0.0** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **0.1** | **0.2** | **0.1** | 0.0 | 0.0 | -0.4 | **0.0** | **0.1** | -0.5 | **0.2** | **0.3** | **0.2** |
| Above Normal (24%) | **0.1** | -0.1 | -0.1 | **0.1** | **0.2** | **0.2** | -0.5 | -0.5 | **3.0** | **1.4** | **0.4** | **0.4** |
| Below Normal (10%) | -0.4 | -0.3 | -0.1 | -0.1 | -0.1 | **0.1** | -0.1 | 0.0 | **0.6** | **0.1** | -0.1 | -0.1 |
| Dry (16%) | -0.9 | -0.7 | -0.3 | -0.1 | **0.2** | **0.0** | **0.3** | **0.9** | **1.4** | **0.5** | -0.2 | -0.5 |
| Critical (27%) | -1.7 | -0.8 | -0.2 | -0.1 | **0.1** | **0.1** | **0.7** | **1.1** | **1.6** | **1.5** | **1.4** | -0.1 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 23-2. Stanislaus River at Orange Blossom Bridge, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 61.6 | 58.7 | 53.4 | 51.3 | 52.5 | 55.8 | 55.2 | 57.7 | 63.7 | 65.5 | 65.4 | 64.5 |
| 20% | 59.3 | 56.9 | 52.6 | 50.8 | 51.7 | 55.1 | 54.8 | 56.8 | 62.4 | 64.6 | 64.2 | 63.3 |
| 30% | 57.5 | 56.2 | 52.2 | 50.1 | 51.2 | 54.6 | 54.1 | 55.9 | 61.6 | 64.1 | 63.4 | 62.0 |
| 40% | 56.8 | 55.0 | 51.5 | 49.6 | 50.7 | 54.0 | 53.7 | 55.3 | 60.6 | 63.7 | 62.9 | 61.7 |
| 50% | 56.4 | 54.9 | 51.0 | 49.1 | 50.4 | 53.8 | 53.1 | 55.0 | 59.3 | 63.2 | 62.5 | 61.2 |
| 60% | 55.8 | 54.5 | 50.7 | 48.8 | 50.1 | 53.2 | 52.7 | 54.4 | 56.6 | 62.6 | 62.2 | 60.7 |
| 70% | 55.2 | 54.1 | 50.5 | 48.3 | 49.6 | 52.1 | 52.2 | 53.9 | 55.9 | 62.1 | 61.9 | 60.4 |
| 80% | 54.9 | 53.7 | 50.1 | 47.9 | 49.2 | 51.0 | 51.9 | 53.6 | 55.3 | 61.5 | 61.5 | 59.9 |
| 90% | 54.0 | 52.7 | 49.7 | 47.1 | 48.4 | 49.6 | 50.8 | 52.6 | 54.4 | 58.6 | 59.8 | 58.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 57.2 | 55.3 | 51.4 | 49.2 | 50.4 | 53.2 | 53.2 | 55.1 | 59.0 | 62.9 | 62.7 | 61.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 54.3 | 53.4 | 50.5 | 48.7 | 49.3 | 50.2 | 51.3 | 53.2 | 55.2 | 59.5 | 59.4 | 57.8 |
| Above Normal (24%) | 56.6 | 54.9 | 51.2 | 49.0 | 49.9 | 52.7 | 52.4 | 54.6 | 56.3 | 61.9 | 62.2 | 61.1 |
| Below Normal (10%) | 56.0 | 54.7 | 51.0 | 48.9 | 50.3 | 53.4 | 52.9 | 54.2 | 58.8 | 63.3 | 62.4 | 61.0 |
| Dry (16%) | 57.8 | 56.0 | 51.6 | 49.5 | 50.9 | 54.5 | 54.0 | 55.4 | 61.2 | 64.1 | 63.5 | 62.4 |
| Critical (27%) | 60.5 | 57.2 | 52.2 | 49.8 | 51.6 | 55.2 | 55.2 | 57.4 | 63.4 | 65.9 | 65.5 | 64.6 |

### Alternative 2 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 62.8 | 57.3 | 52.9 | 51.0 | 52.5 | 57.1 | 56.7 | 58.3 | 63.5 | 65.2 | 64.6 | 63.2 |
| 20% | 62.0 | 56.2 | 52.6 | 50.5 | 52.0 | 56.3 | 56.2 | 58.1 | 62.6 | 64.1 | 63.3 | 62.3 |
| 30% | 61.0 | 55.8 | 52.0 | 50.0 | 51.5 | 55.8 | 55.7 | 57.6 | 62.2 | 63.9 | 62.9 | 61.8 |
| 40% | 60.6 | 55.0 | 51.4 | 49.6 | 51.1 | 55.3 | 55.3 | 57.1 | 61.4 | 63.4 | 62.6 | 61.2 |
| 50% | 60.1 | 54.7 | 51.0 | 49.1 | 50.5 | 54.8 | 54.8 | 56.6 | 60.9 | 63.1 | 62.3 | 61.0 |
| 60% | 59.4 | 54.3 | 50.7 | 48.9 | 50.1 | 54.1 | 54.1 | 55.7 | 60.1 | 62.9 | 62.0 | 60.6 |
| 70% | 58.7 | 54.1 | 50.4 | 48.5 | 49.7 | 53.0 | 53.5 | 54.9 | 57.6 | 62.5 | 61.8 | 60.3 |
| 80% | 57.1 | 53.7 | 50.1 | 48.1 | 49.4 | 51.6 | 52.7 | 54.3 | 56.1 | 62.0 | 61.2 | 59.9 |
| 90% | 55.9 | 53.3 | 49.8 | 47.3 | 48.3 | 50.5 | 51.6 | 53.5 | 55.1 | 56.4 | 56.3 | 54.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 59.7 | 55.0 | 51.3 | 49.3 | 50.6 | 54.2 | 54.5 | 56.2 | 59.8 | 62.5 | 61.9 | 60.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 56.3 | 53.4 | 50.6 | 48.8 | 49.2 | 51.1 | 52.1 | 54.0 | 57.4 | 58.8 | 58.1 | 56.8 |
| Above Normal (24%) | 59.4 | 54.5 | 51.0 | 49.4 | 50.4 | 53.5 | 53.7 | 55.6 | 57.0 | 62.0 | 62.0 | 60.8 |
| Below Normal (10%) | 59.5 | 54.6 | 50.9 | 48.8 | 50.2 | 54.4 | 54.7 | 56.7 | 60.5 | 63.3 | 62.1 | 60.7 |
| Dry (16%) | 60.7 | 55.4 | 51.3 | 49.4 | 50.9 | 55.8 | 55.9 | 57.1 | 61.8 | 63.8 | 62.8 | 61.4 |
| Critical (27%) | 62.5 | 56.9 | 52.3 | 49.8 | 52.1 | 56.5 | 56.2 | 58.0 | 63.0 | 65.0 | 64.3 | 63.1 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **1.2** | -1.4 | -0.5 | -0.2 | 0.0 | **1.3** | **1.5** | **0.7** | -0.2 | -0.2 | -0.9 | -1.4 |
| 20% | **2.6** | -0.7 | -0.1 | -0.2 | **0.3** | **1.3** | **1.4** | **1.3** | **0.2** | -0.5 | -0.9 | -1.0 |
| 30% | **3.5** | -0.4 | -0.1 | -0.1 | **0.3** | **1.2** | **1.6** | **1.7** | **0.6** | -0.3 | -0.5 | -0.2 |
| 40% | **3.7** | 0.0 | 0.0 | **0.1** | **0.4** | **1.3** | **1.7** | **1.8** | **0.8** | -0.3 | -0.3 | -0.4 |
| 50% | **3.7** | -0.1 | -0.1 | **0.0** | **0.2** | **1.0** | **1.7** | **1.6** | **1.7** | 0.0 | -0.3 | -0.2 |
| 60% | **3.6** | -0.3 | 0.0 | **0.1** | **0.0** | **0.8** | **1.4** | **1.3** | **3.5** | **0.3** | -0.3 | -0.1 |
| 70% | **3.4** | **0.0** | 0.0 | **0.2** | **0.1** | **0.9** | **1.3** | **1.0** | **1.7** | **0.4** | -0.1 | -0.1 |
| 80% | **2.2** | **0.0** | 0.0 | **0.2** | **0.1** | **0.6** | **0.8** | **0.7** | **0.8** | **0.4** | -0.2 | -0.1 |
| 90% | **1.9** | **0.6** | **0.0** | **0.2** | 0.0 | **0.9** | **0.9** | **0.9** | **0.7** | -2.2 | -3.6 | -3.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **2.5** | -0.3 | -0.1 | **0.1** | **0.2** | **1.0** | **1.3** | **1.1** | **0.8** | -0.4 | -0.8 | -0.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **2.0** | 0.0 | **0.1** | **0.1** | -0.1 | **0.9** | **0.8** | **0.8** | **2.2** | -0.7 | -1.2 | -1.1 |
| Above Normal (24%) | **2.9** | -0.4 | -0.2 | **0.4** | **0.5** | **0.8** | **1.4** | **1.1** | **0.6** | **0.2** | -0.2 | -0.3 |
| Below Normal (10%) | **3.5** | -0.1 | -0.1 | 0.0 | -0.1 | **1.0** | **1.8** | **2.5** | **1.8** | **0.0** | -0.3 | -0.3 |
| Dry (16%) | **2.8** | -0.6 | -0.3 | -0.1 | 0.0 | **1.3** | **2.0** | **1.7** | **0.6** | -0.3 | -0.7 | -0.9 |
| Critical (27%) | **2.0** | -0.3 | **0.1** | 0.0 | **0.4** | **1.2** | **1.0** | **0.6** | -0.3 | -0.9 | -1.2 | -1.5 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 23-3. Stanislaus River at Orange Blossom Bridge, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 61.6 | 58.7 | 53.4 | 51.3 | 52.5 | 55.8 | 55.2 | 57.7 | 63.7 | 65.5 | 65.4 | 64.5 |
| 20% | 59.3 | 56.9 | 52.6 | 50.8 | 51.7 | 55.1 | 54.8 | 56.8 | 62.4 | 64.6 | 64.2 | 63.3 |
| 30% | 57.5 | 56.2 | 52.2 | 50.1 | 51.2 | 54.6 | 54.1 | 55.9 | 61.6 | 64.1 | 63.4 | 62.0 |
| 40% | 56.8 | 55.0 | 51.5 | 49.6 | 50.7 | 54.0 | 53.7 | 55.3 | 60.6 | 63.7 | 62.9 | 61.7 |
| 50% | 56.4 | 54.9 | 51.0 | 49.1 | 50.4 | 53.8 | 53.1 | 55.0 | 59.3 | 63.2 | 62.5 | 61.2 |
| 60% | 55.8 | 54.5 | 50.7 | 48.8 | 50.1 | 53.2 | 52.7 | 54.4 | 56.6 | 62.6 | 62.2 | 60.7 |
| 70% | 55.2 | 54.1 | 50.5 | 48.3 | 49.6 | 52.1 | 52.2 | 53.9 | 55.9 | 62.1 | 61.9 | 60.4 |
| 80% | 54.9 | 53.7 | 50.1 | 47.9 | 49.2 | 51.0 | 51.9 | 53.6 | 55.3 | 61.5 | 61.5 | 59.9 |
| 90% | 54.0 | 52.7 | 49.7 | 47.1 | 48.4 | 49.6 | 50.8 | 52.6 | 54.4 | 58.6 | 59.8 | 58.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 57.2 | 55.3 | 51.4 | 49.2 | 50.4 | 53.2 | 53.2 | 55.1 | 59.0 | 62.9 | 62.7 | 61.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 54.3 | 53.4 | 50.5 | 48.7 | 49.3 | 50.2 | 51.3 | 53.2 | 55.2 | 59.5 | 59.4 | 57.8 |
| Above Normal (24%) | 56.6 | 54.9 | 51.2 | 49.0 | 49.9 | 52.7 | 52.4 | 54.6 | 56.3 | 61.9 | 62.2 | 61.1 |
| Below Normal (10%) | 56.0 | 54.7 | 51.0 | 48.9 | 50.3 | 53.4 | 52.9 | 54.2 | 58.8 | 63.3 | 62.4 | 61.0 |
| Dry (16%) | 57.8 | 56.0 | 51.6 | 49.5 | 50.9 | 54.5 | 54.0 | 55.4 | 61.2 | 64.1 | 63.5 | 62.4 |
| Critical (27%) | 60.5 | 57.2 | 52.2 | 49.8 | 51.6 | 55.2 | 55.2 | 57.4 | 63.4 | 65.9 | 65.5 | 64.6 |

### Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 62.8 | 57.3 | 52.9 | 51.0 | 52.5 | 57.1 | 56.7 | 58.3 | 63.5 | 65.2 | 64.5 | 63.1 |
| 20% | 62.0 | 56.2 | 52.6 | 50.5 | 52.0 | 56.3 | 56.2 | 58.1 | 62.6 | 64.1 | 63.3 | 62.3 |
| 30% | 61.0 | 55.8 | 52.1 | 50.0 | 51.5 | 55.8 | 55.7 | 57.6 | 62.2 | 63.9 | 62.9 | 61.8 |
| 40% | 60.6 | 55.0 | 51.4 | 49.6 | 51.1 | 55.3 | 55.3 | 57.1 | 61.4 | 63.4 | 62.6 | 61.2 |
| 50% | 60.1 | 54.7 | 51.0 | 49.1 | 50.5 | 54.8 | 54.8 | 56.6 | 60.9 | 63.1 | 62.3 | 61.0 |
| 60% | 59.4 | 54.3 | 50.7 | 48.9 | 50.1 | 54.1 | 54.1 | 55.7 | 60.1 | 62.9 | 62.0 | 60.6 |
| 70% | 58.7 | 54.1 | 50.4 | 48.5 | 49.7 | 53.0 | 53.5 | 54.9 | 57.6 | 62.5 | 61.8 | 60.3 |
| 80% | 57.1 | 53.7 | 50.1 | 48.1 | 49.4 | 51.6 | 52.7 | 54.3 | 56.1 | 62.0 | 61.2 | 59.9 |
| 90% | 55.9 | 53.3 | 49.8 | 47.3 | 48.3 | 50.5 | 51.6 | 53.5 | 55.1 | 56.4 | 56.3 | 54.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 59.7 | 55.0 | 51.3 | 49.3 | 50.6 | 54.2 | 54.5 | 56.2 | 59.8 | 62.5 | 61.9 | 60.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 56.3 | 53.4 | 50.6 | 48.8 | 49.2 | 51.1 | 52.1 | 54.0 | 57.4 | 58.8 | 58.1 | 56.8 |
| Above Normal (24%) | 59.4 | 54.5 | 51.0 | 49.4 | 50.4 | 53.5 | 53.7 | 55.6 | 57.0 | 62.0 | 62.0 | 60.8 |
| Below Normal (10%) | 59.5 | 54.6 | 50.9 | 48.9 | 50.2 | 54.4 | 54.7 | 56.7 | 60.5 | 63.3 | 62.1 | 60.7 |
| Dry (16%) | 60.7 | 55.4 | 51.3 | 49.4 | 50.9 | 55.8 | 55.9 | 57.1 | 61.8 | 63.8 | 62.8 | 61.4 |
| Critical (27%) | 62.5 | 56.9 | 52.3 | 49.8 | 52.1 | 56.5 | 56.2 | 58.0 | 63.0 | 65.0 | 64.3 | 63.1 |

### Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **1.2** | -1.4 | -0.5 | -0.2 | 0.0 | **1.3** | **1.5** | **0.7** | -0.2 | -0.3 | -0.9 | -1.4 |
| 20% | **2.6** | -0.7 | -0.1 | -0.2 | **0.3** | **1.3** | **1.4** | **1.3** | **0.2** | -0.5 | -0.9 | -1.0 |
| 30% | **3.5** | -0.4 | -0.1 | -0.1 | **0.3** | **1.2** | **1.6** | **1.7** | **0.6** | -0.3 | -0.5 | -0.2 |
| 40% | **3.7** | 0.0 | 0.0 | **0.1** | **0.4** | **1.3** | **1.7** | **1.8** | **0.8** | -0.3 | -0.3 | -0.4 |
| 50% | **3.7** | -0.1 | -0.1 | **0.0** | **0.2** | **1.0** | **1.7** | **1.6** | **1.7** | 0.0 | -0.3 | -0.2 |
| 60% | **3.6** | -0.3 | 0.0 | **0.1** | **0.0** | **0.8** | **1.4** | **1.3** | **3.5** | **0.3** | -0.3 | -0.1 |
| 70% | **3.4** | **0.0** | 0.0 | **0.2** | **0.1** | **0.9** | **1.3** | **1.0** | **1.7** | **0.4** | -0.1 | -0.1 |
| 80% | **2.2** | **0.0** | 0.0 | **0.2** | **0.1** | **0.6** | **0.8** | **0.7** | **0.8** | **0.4** | -0.2 | -0.1 |
| 90% | **1.9** | **0.6** | **0.0** | **0.2** | 0.0 | **0.9** | **0.9** | **0.9** | **0.7** | -2.2 | -3.6 | -3.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **2.5** | -0.3 | -0.1 | **0.1** | **0.2** | **1.0** | **1.3** | **1.1** | **0.8** | -0.4 | -0.8 | -0.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **2.0** | 0.0 | **0.1** | **0.1** | -0.1 | **0.9** | **0.8** | **0.8** | **2.2** | -0.7 | -1.2 | -1.1 |
| Above Normal (24%) | **2.9** | -0.4 | -0.2 | **0.4** | **0.5** | **0.8** | **1.4** | **1.1** | **0.6** | **0.2** | -0.2 | -0.3 |
| Below Normal (10%) | **3.5** | -0.1 | -0.1 | 0.0 | -0.1 | **1.0** | **1.8** | **2.5** | **1.8** | **0.0** | -0.3 | -0.3 |
| Dry (16%) | **2.8** | -0.6 | -0.3 | -0.1 | 0.0 | **1.3** | **2.0** | **1.7** | **0.6** | -0.3 | -0.7 | -0.9 |
| Critical (27%) | **2.0** | -0.3 | **0.1** | 0.0 | **0.4** | **1.2** | **1.0** | **0.6** | -0.3 | -0.9 | -1.2 | -1.5 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 23-4. Stanislaus River at Orange Blossom Bridge, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 61.6 | 58.7 | 53.4 | 51.3 | 52.5 | 55.8 | 55.2 | 57.7 | 63.7 | 65.5 | 65.4 | 64.5 |
| 20% | 59.3 | 56.9 | 52.6 | 50.8 | 51.7 | 55.1 | 54.8 | 56.8 | 62.4 | 64.6 | 64.2 | 63.3 |
| 30% | 57.5 | 56.2 | 52.2 | 50.1 | 51.2 | 54.6 | 54.1 | 55.9 | 61.6 | 64.1 | 63.4 | 62.0 |
| 40% | 56.8 | 55.0 | 51.5 | 49.6 | 50.7 | 54.0 | 53.7 | 55.3 | 60.6 | 63.7 | 62.9 | 61.7 |
| 50% | 56.4 | 54.9 | 51.0 | 49.1 | 50.4 | 53.8 | 53.1 | 55.0 | 59.3 | 63.2 | 62.5 | 61.2 |
| 60% | 55.8 | 54.5 | 50.7 | 48.8 | 50.1 | 53.2 | 52.7 | 54.4 | 56.6 | 62.6 | 62.2 | 60.7 |
| 70% | 55.2 | 54.1 | 50.5 | 48.3 | 49.6 | 52.1 | 52.2 | 53.9 | 55.9 | 62.1 | 61.9 | 60.4 |
| 80% | 54.9 | 53.7 | 50.1 | 47.9 | 49.2 | 51.0 | 51.9 | 53.6 | 55.3 | 61.5 | 61.5 | 59.9 |
| 90% | 54.0 | 52.7 | 49.7 | 47.1 | 48.4 | 49.6 | 50.8 | 52.6 | 54.4 | 58.6 | 59.8 | 58.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 57.2 | 55.3 | 51.4 | 49.2 | 50.4 | 53.2 | 53.2 | 55.1 | 59.0 | 62.9 | 62.7 | 61.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 54.3 | 53.4 | 50.5 | 48.7 | 49.3 | 50.2 | 51.3 | 53.2 | 55.2 | 59.5 | 59.4 | 57.8 |
| Above Normal (24%) | 56.6 | 54.9 | 51.2 | 49.0 | 49.9 | 52.7 | 52.4 | 54.6 | 56.3 | 61.9 | 62.2 | 61.1 |
| Below Normal (10%) | 56.0 | 54.7 | 51.0 | 48.9 | 50.3 | 53.4 | 52.9 | 54.2 | 58.8 | 63.3 | 62.4 | 61.0 |
| Dry (16%) | 57.8 | 56.0 | 51.6 | 49.5 | 50.9 | 54.5 | 54.0 | 55.4 | 61.2 | 64.1 | 63.5 | 62.4 |
| Critical (27%) | 60.5 | 57.2 | 52.2 | 49.8 | 51.6 | 55.2 | 55.2 | 57.4 | 63.4 | 65.9 | 65.5 | 64.6 |

### Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 59.7 | 57.0 | 52.7 | 51.1 | 52.6 | 55.7 | 56.3 | 58.6 | 65.2 | 67.8 | 67.2 | 64.5 |
| 20% | 58.0 | 56.1 | 52.5 | 50.5 | 51.9 | 55.1 | 55.6 | 58.1 | 64.6 | 66.5 | 65.6 | 63.2 |
| 30% | 57.2 | 55.5 | 52.0 | 50.0 | 51.3 | 54.7 | 54.6 | 56.7 | 63.3 | 65.4 | 64.7 | 62.6 |
| 40% | 56.6 | 54.9 | 51.5 | 49.5 | 50.9 | 54.3 | 53.8 | 55.8 | 61.9 | 64.1 | 63.1 | 62.0 |
| 50% | 56.2 | 54.6 | 51.0 | 49.1 | 50.5 | 53.7 | 52.9 | 54.8 | 60.0 | 63.5 | 62.7 | 61.2 |
| 60% | 55.8 | 54.4 | 50.6 | 48.9 | 50.1 | 53.1 | 52.5 | 54.3 | 59.3 | 63.2 | 62.1 | 60.8 |
| 70% | 55.1 | 53.9 | 50.4 | 48.4 | 49.5 | 51.9 | 52.0 | 54.0 | 58.7 | 62.8 | 61.9 | 60.2 |
| 80% | 54.7 | 53.5 | 50.0 | 47.9 | 49.3 | 50.6 | 51.4 | 53.4 | 56.2 | 61.9 | 61.6 | 60.0 |
| 90% | 53.9 | 53.2 | 49.7 | 47.4 | 48.5 | 49.4 | 50.7 | 52.8 | 54.7 | 60.9 | 60.4 | 58.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.7 | 55.0 | 51.2 | 49.2 | 50.5 | 53.2 | 53.3 | 55.4 | 60.3 | 63.8 | 63.2 | 61.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 54.5 | 53.6 | 50.6 | 48.7 | 49.3 | 49.9 | 51.4 | 53.3 | 54.7 | 59.7 | 59.7 | 58.0 |
| Above Normal (24%) | 56.7 | 54.8 | 51.1 | 49.1 | 50.0 | 52.9 | 51.9 | 54.1 | 59.3 | 63.2 | 62.6 | 61.5 |
| Below Normal (10%) | 55.6 | 54.4 | 50.9 | 48.8 | 50.2 | 53.5 | 52.8 | 54.2 | 59.4 | 63.4 | 62.3 | 60.9 |
| Dry (16%) | 57.0 | 55.3 | 51.3 | 49.4 | 51.1 | 54.5 | 54.3 | 56.3 | 62.6 | 64.6 | 63.3 | 61.9 |
| Critical (27%) | 58.8 | 56.4 | 52.0 | 49.7 | 51.8 | 55.4 | 55.9 | 58.5 | 65.0 | 67.4 | 66.9 | 64.5 |

### Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -1.9 | -1.7 | -0.7 | -0.2 | **0.1** | -0.1 | **1.0** | **0.9** | **1.5** | **2.4** | **1.8** | -0.1 |
| 20% | -1.3 | -0.9 | -0.1 | -0.3 | **0.2** | **0.1** | **0.8** | **1.3** | **2.2** | **1.9** | **1.4** | -0.1 |
| 30% | -0.3 | -0.6 | -0.2 | -0.1 | **0.1** | **0.1** | **0.5** | **0.7** | **1.7** | **1.3** | **1.2** | **0.6** |
| 40% | -0.3 | -0.1 | 0.0 | -0.1 | **0.1** | **0.3** | **0.1** | **0.5** | **1.3** | **0.4** | **0.2** | **0.4** |
| 50% | -0.2 | -0.2 | -0.1 | **0.0** | **0.1** | 0.0 | -0.2 | -0.1 | **0.8** | **0.3** | **0.1** | **0.0** |
| 60% | -0.1 | -0.2 | -0.1 | **0.1** | **0.0** | -0.1 | -0.2 | -0.1 | **2.7** | **0.6** | -0.1 | **0.1** |
| 70% | -0.2 | -0.2 | 0.0 | **0.0** | -0.1 | -0.2 | -0.2 | **0.0** | **2.8** | **0.7** | **0.1** | -0.3 |
| 80% | -0.1 | -0.1 | -0.1 | **0.0** | **0.1** | -0.4 | -0.5 | -0.2 | **0.9** | **0.3** | **0.1** | **0.1** |
| 90% | -0.1 | **0.5** | -0.1 | **0.3** | **0.1** | -0.2 | -0.1 | **0.2** | **0.2** | **2.3** | **0.6** | **0.1** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.6 | -0.3 | -0.1 | 0.0 | **0.1** | **0.0** | **0.1** | **0.3** | **1.3** | **0.9** | **0.5** | **0.0** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **0.1** | **0.2** | **0.1** | 0.0 | 0.0 | -0.4 | **0.0** | **0.1** | -0.5 | **0.2** | **0.3** | **0.2** |
| Above Normal (24%) | **0.1** | -0.1 | -0.1 | **0.1** | **0.2** | **0.2** | -0.5 | -0.5 | **3.0** | **1.4** | **0.4** | **0.4** |
| Below Normal (10%) | -0.4 | -0.3 | -0.1 | -0.1 | -0.1 | **0.1** | -0.1 | 0.0 | **0.6** | **0.1** | -0.1 | -0.1 |
| Dry (16%) | -0.9 | -0.7 | -0.3 | -0.1 | **0.2** | **0.0** | **0.3** | **0.9** | **1.4** | **0.5** | -0.2 | -0.5 |
| Critical (27%) | -1.7 | -0.8 | -0.2 | -0.1 | **0.1** | **0.1** | **0.7** | **1.1** | **1.6** | **1.5** | **1.4** | -0.1 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

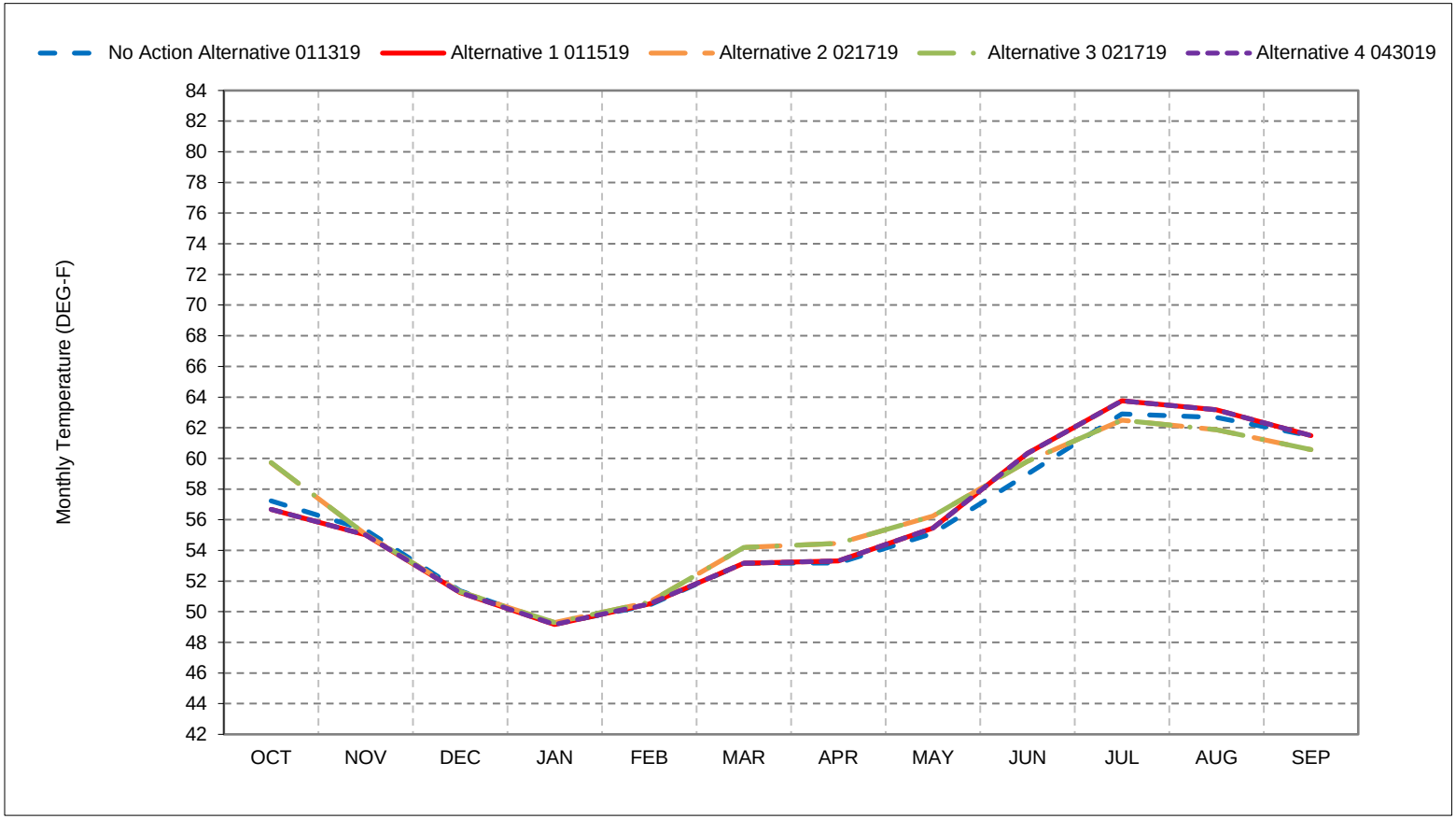
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

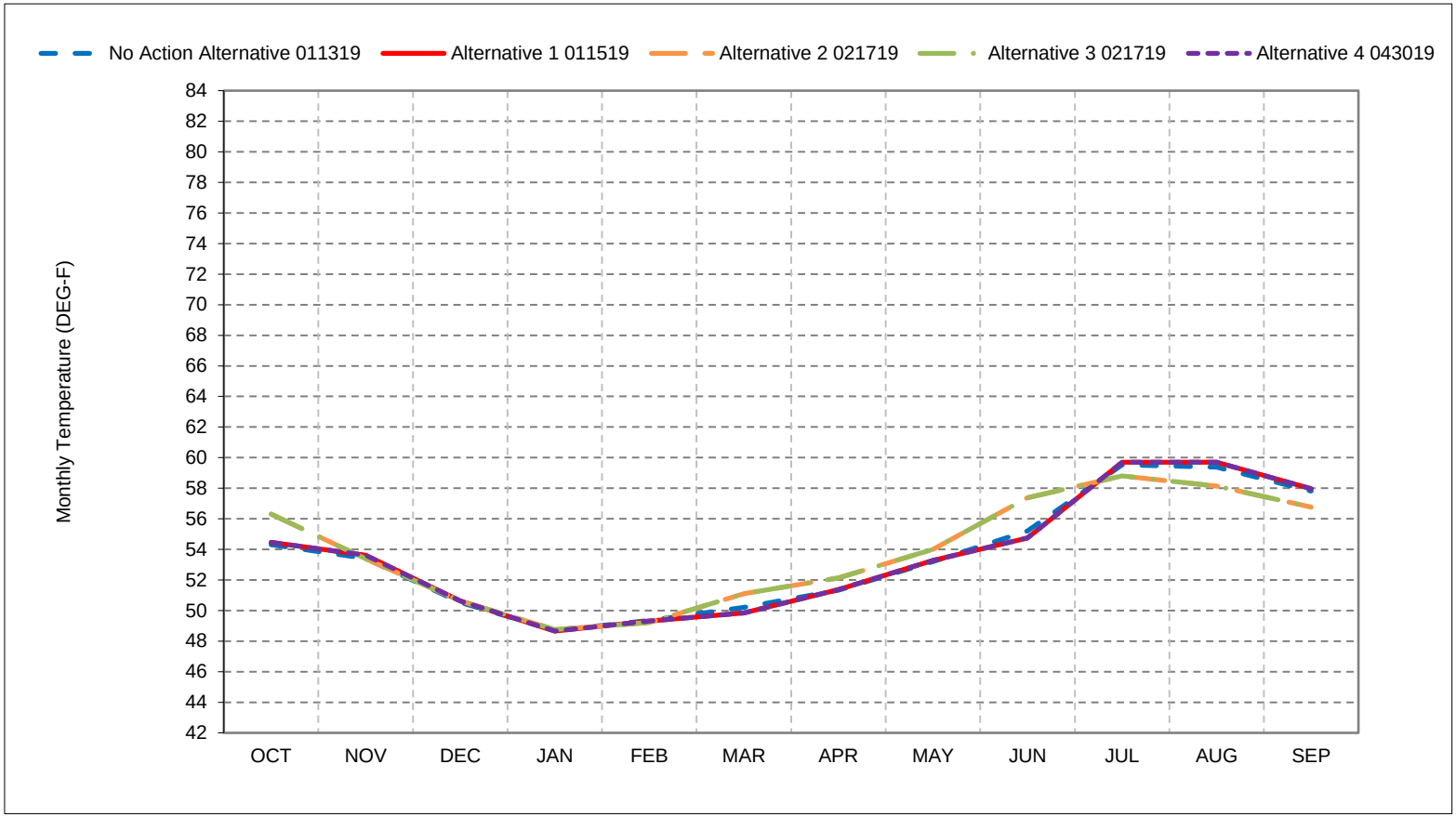
f New Melones forecasts are used as the basis of water operations.

## Figure 23-1. Stanislaus River at Orange Blossom Bridge, Long-Term Average Temperature



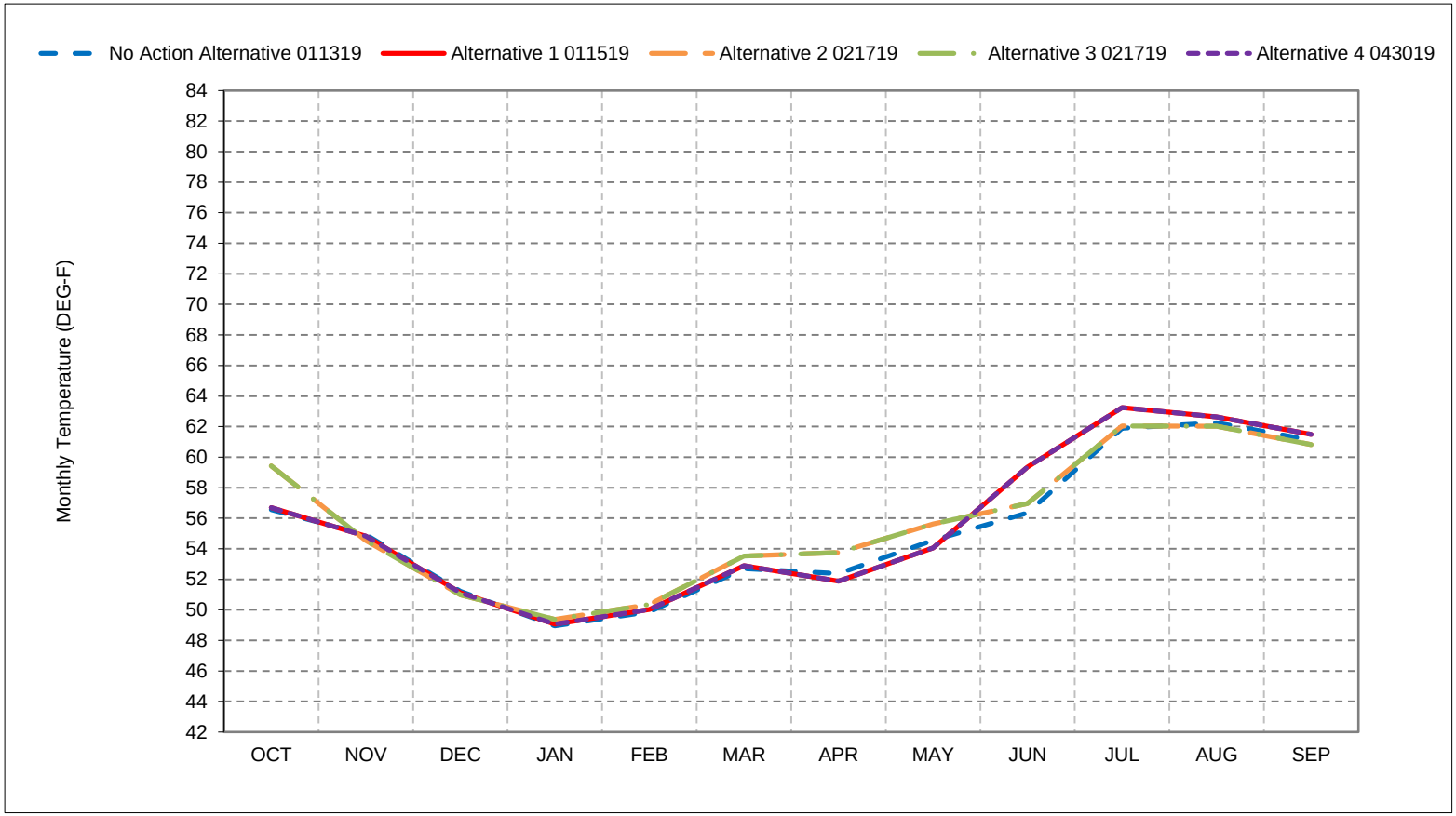

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 23-2. Stanislaus River at Orange Blossom Bridge, Wet Year Average Temperature



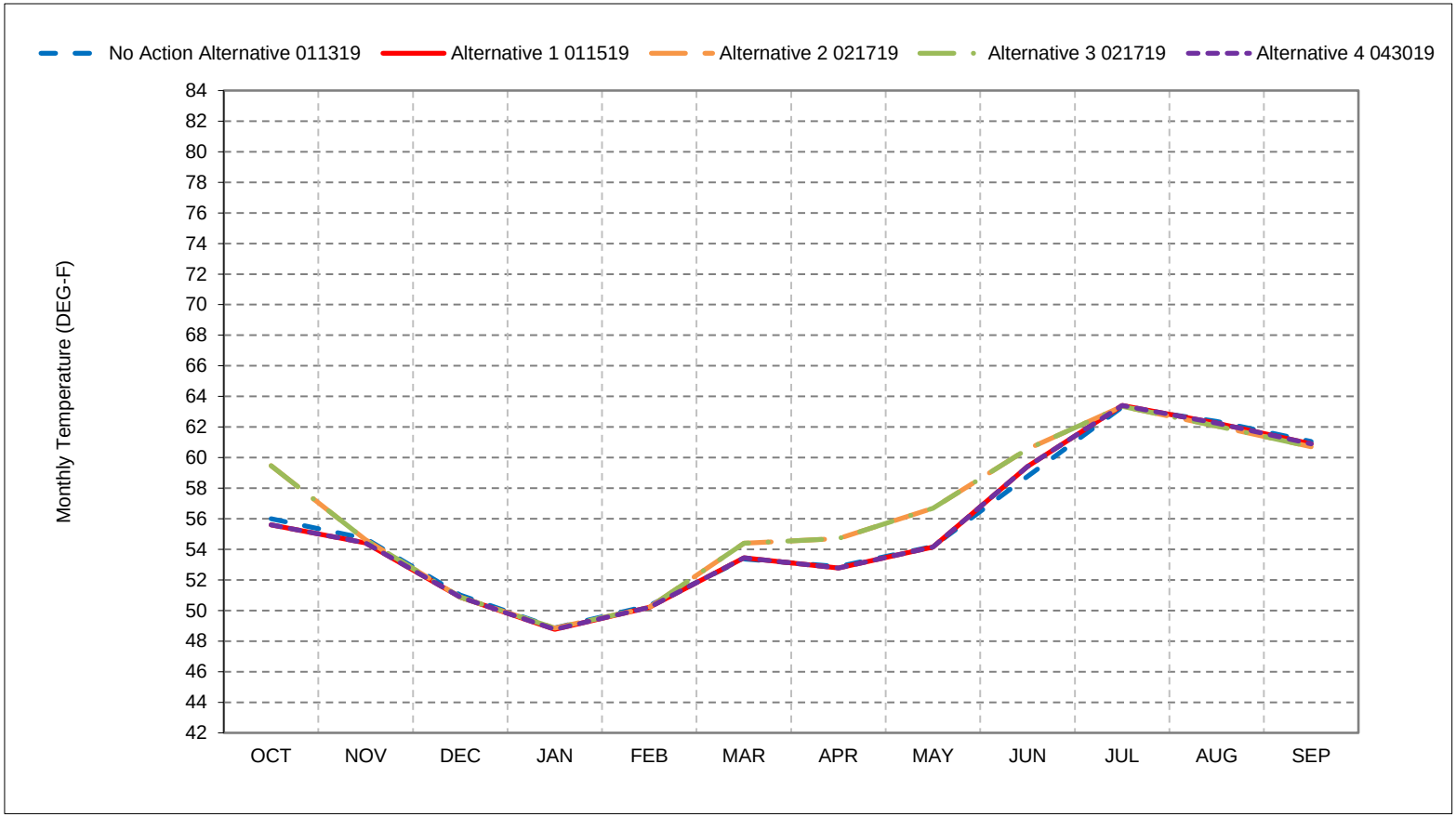

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 23-3. Stanislaus River at Orange Blossom Bridge, Above Normal Year Average Temperature



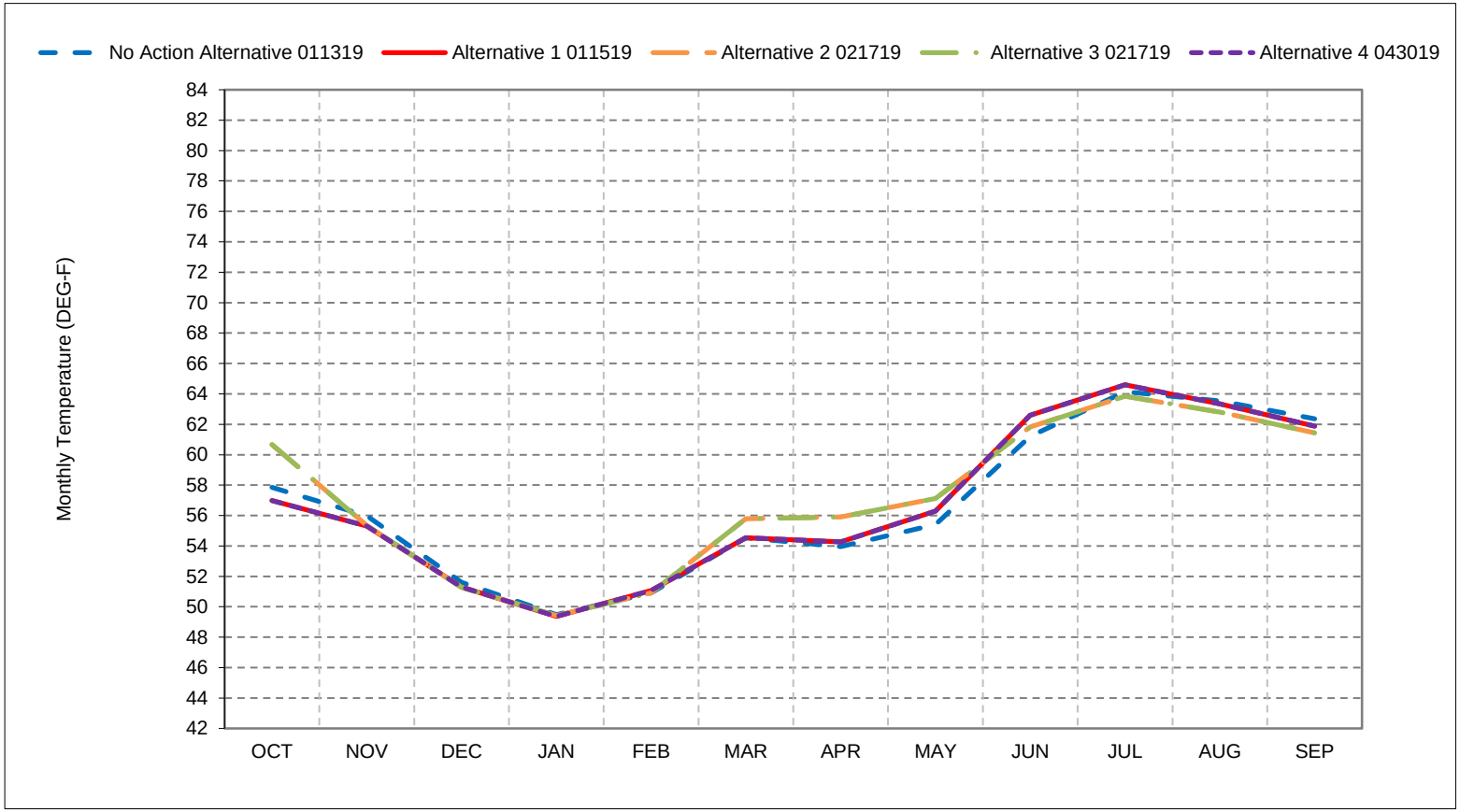

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 23-4. Stanislaus River at Orange Blossom Bridge, Below Normal Year Average Temperature



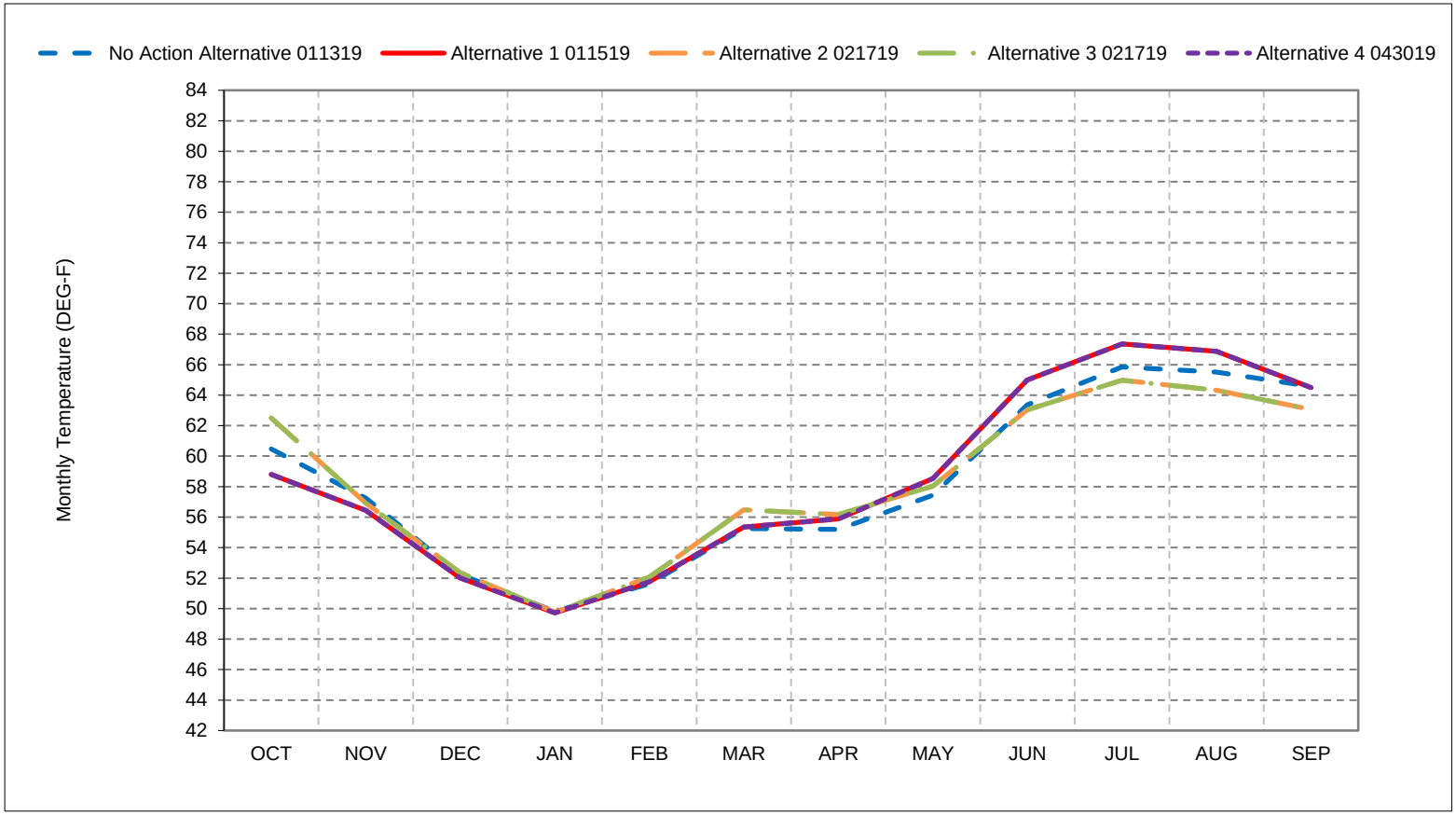

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 23-5. Stanislaus River at Orange Blossom Bridge, Dry Year Average Temperature




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 23-6. Stanislaus River at Orange Blossom Bridge, Critical Year Average Temperature




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

**Figure 23-7. Stanislaus River at Orange Blossom Bridge, October**

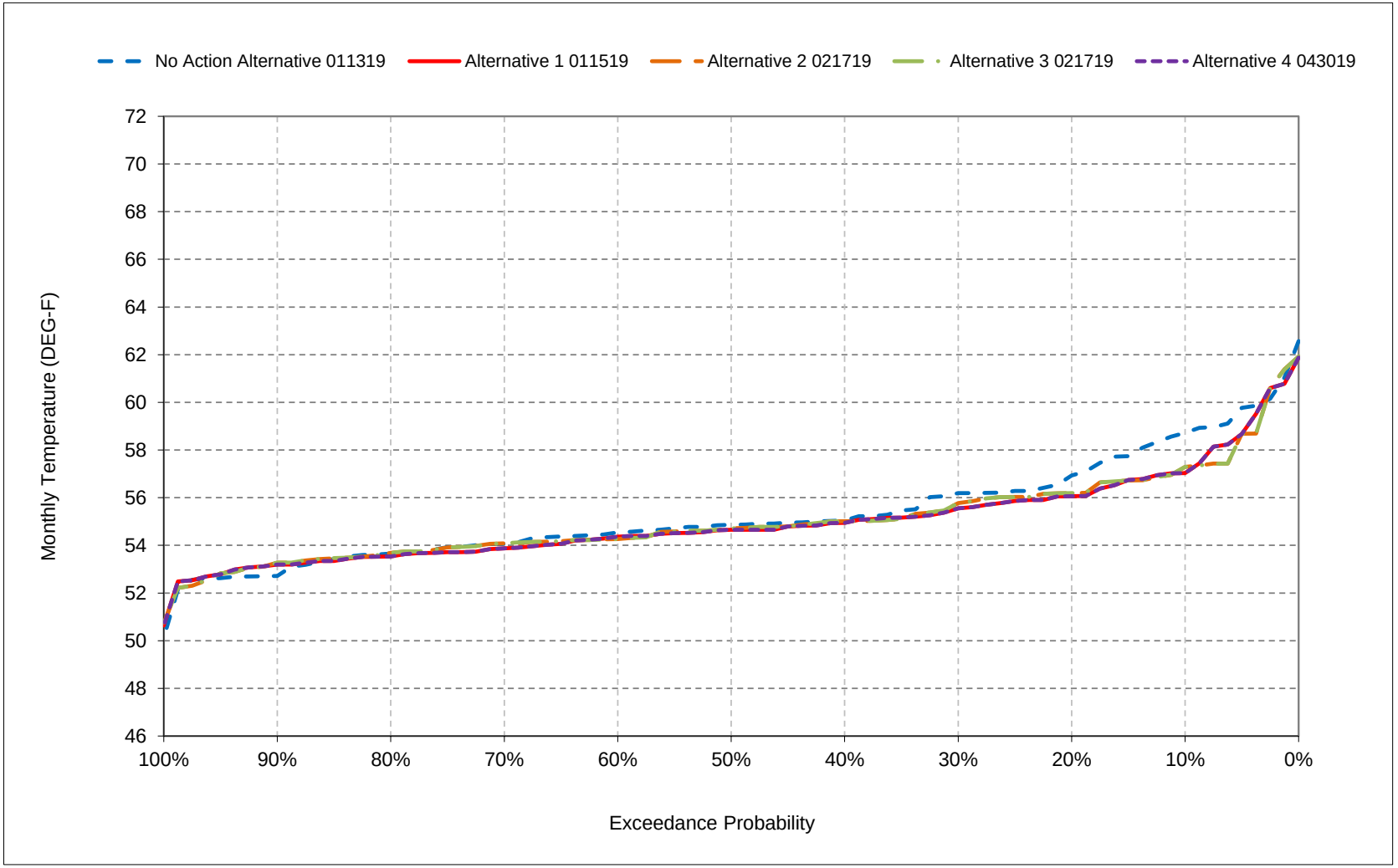



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 23-8. Stanislaus River at Orange Blossom Bridge, November**

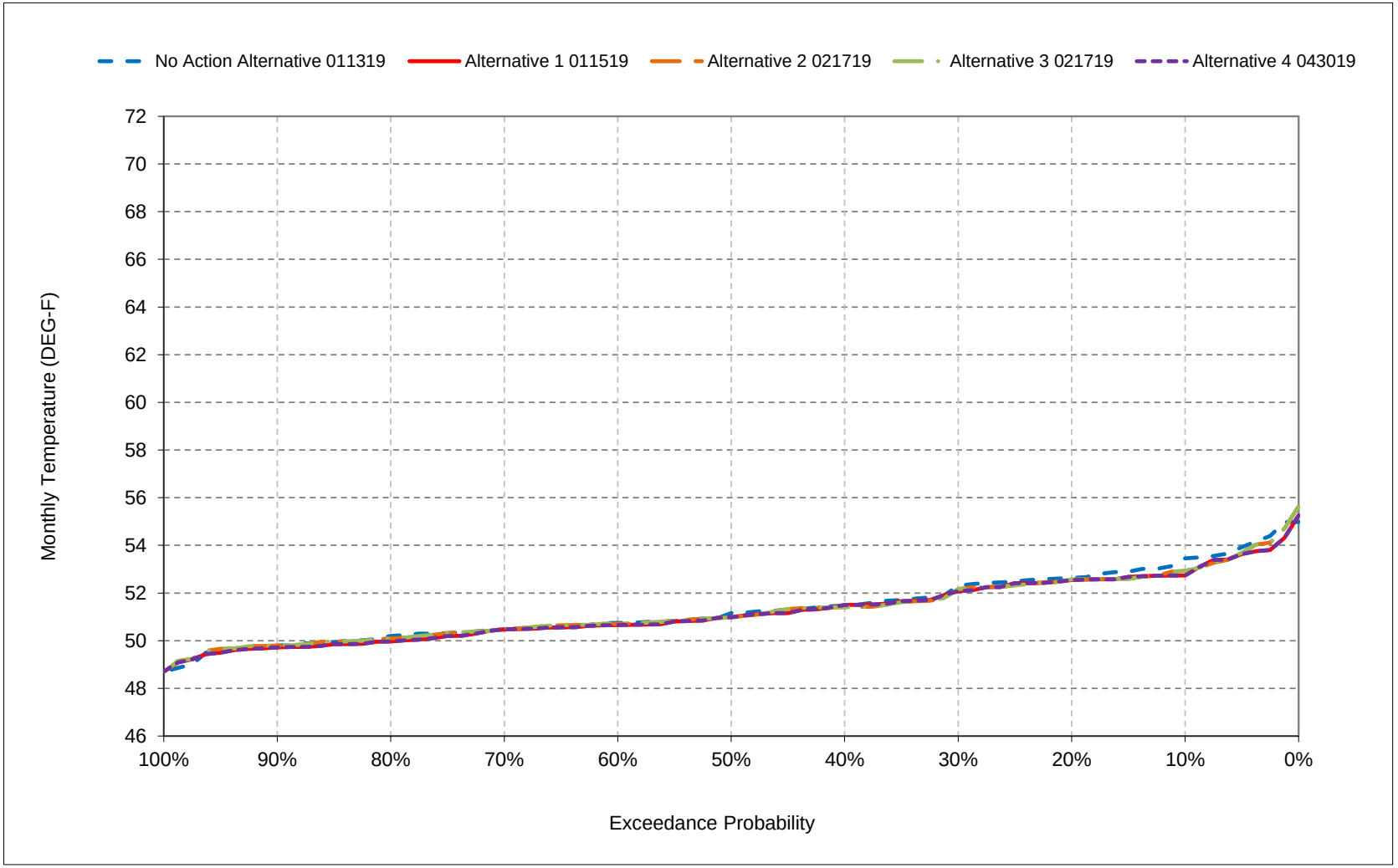



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 23-9. Stanislaus River at Orange Blossom Bridge, December**

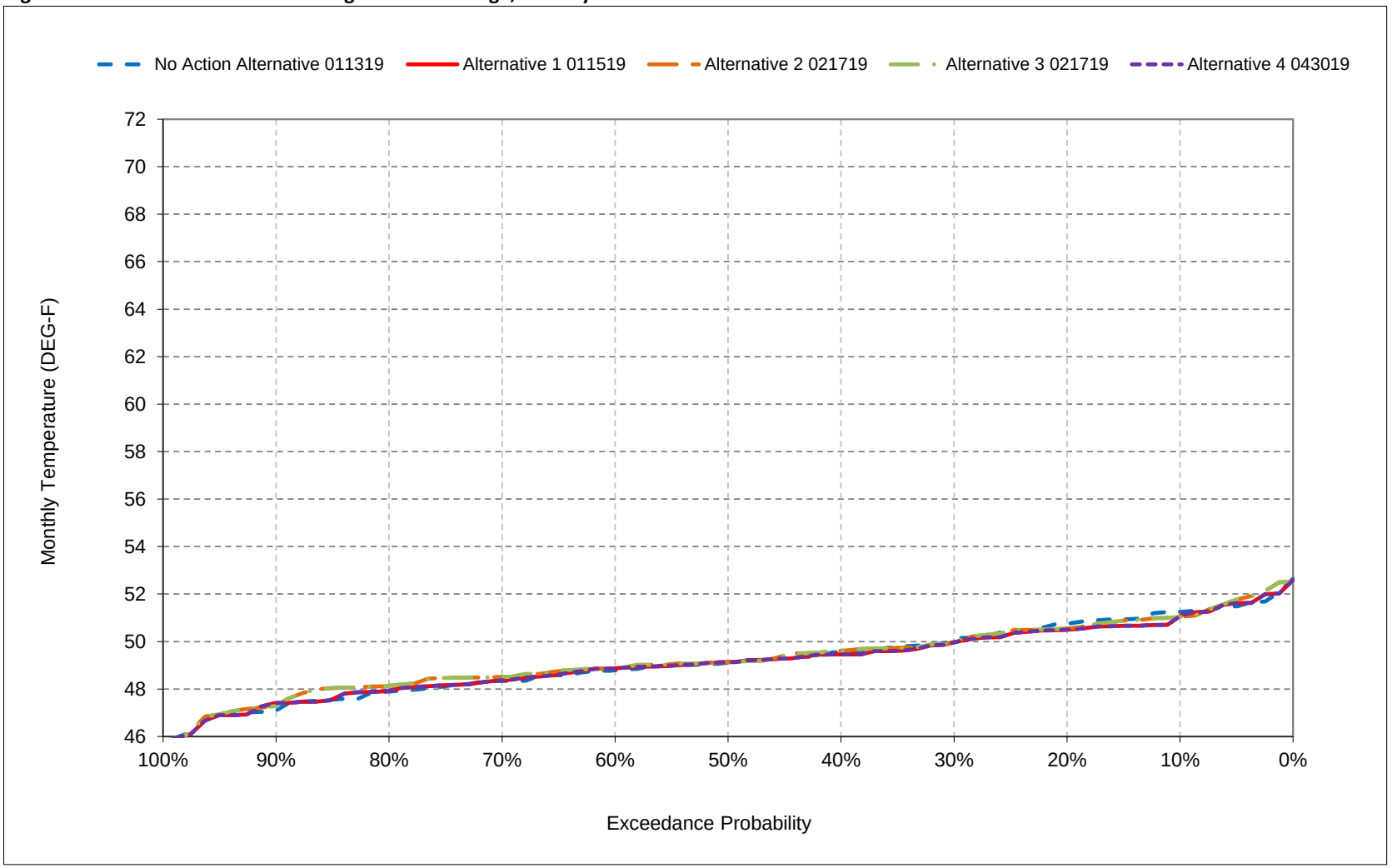



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 23-10. Stanislaus River at Orange Blossom Bridge, January**

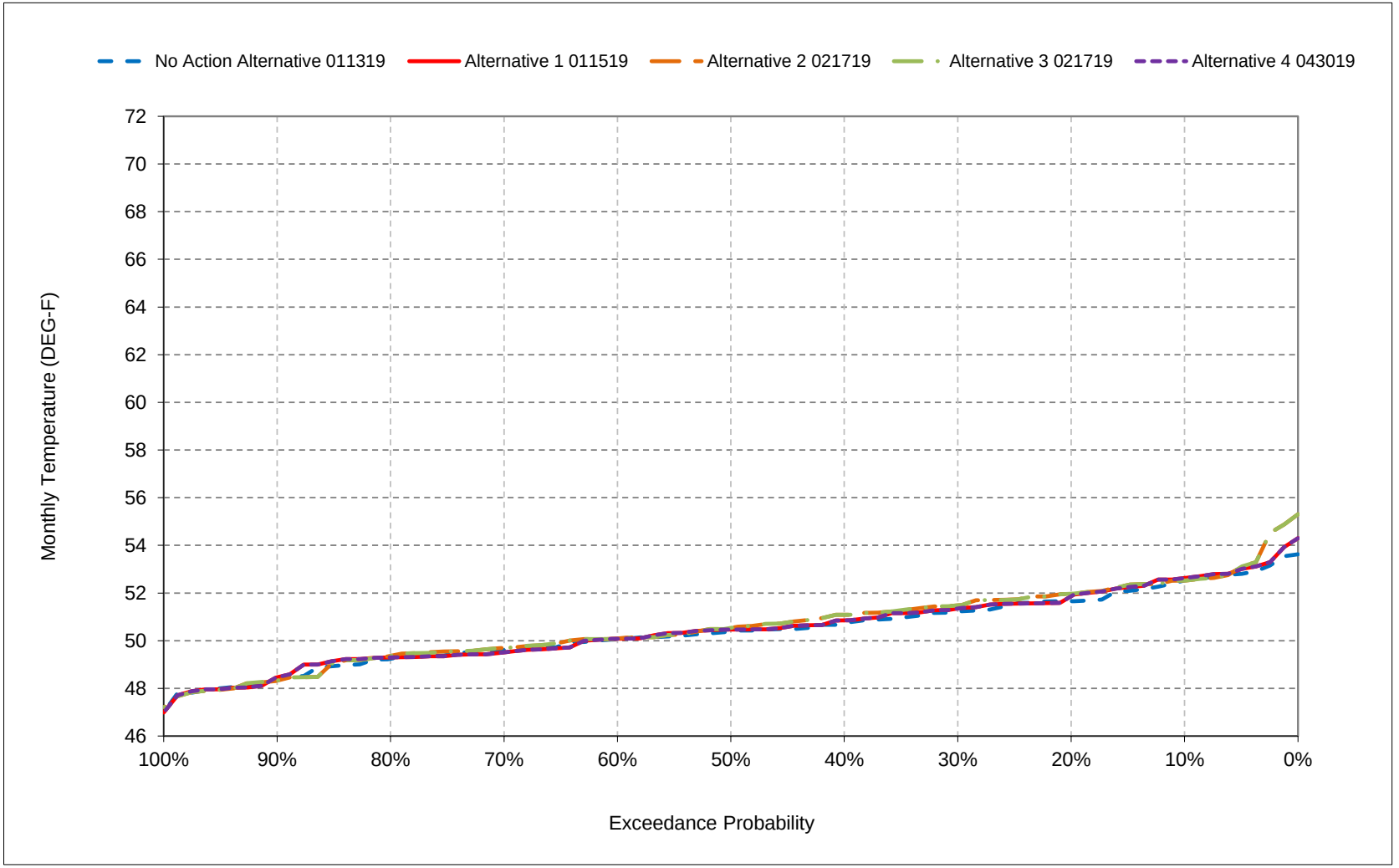



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 23-11. Stanislaus River at Orange Blossom Bridge, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 23-12. Stanislaus River at Orange Blossom Bridge, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 23-13. Stanislaus River at Orange Blossom Bridge, April**

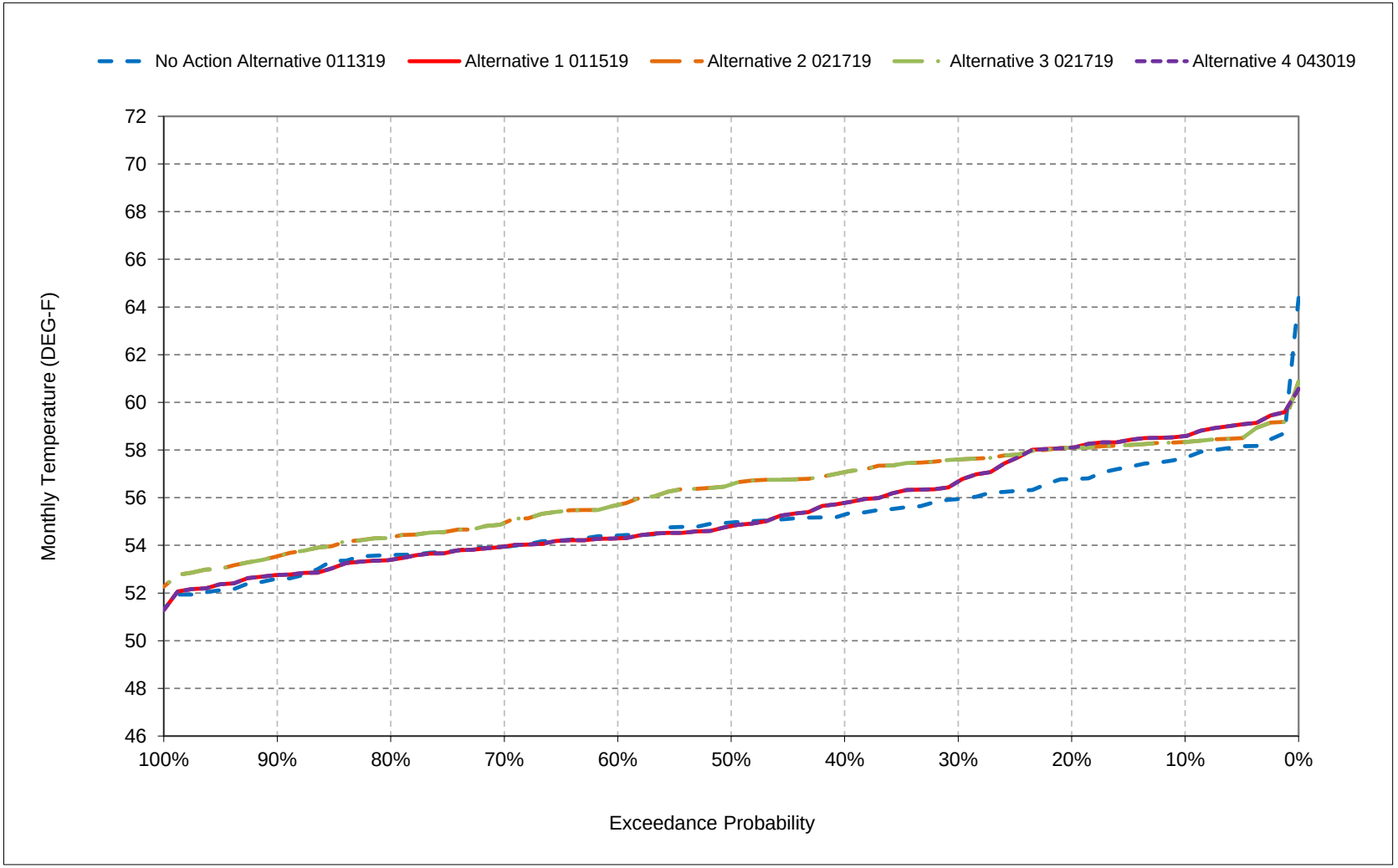



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 23-14. Stanislaus River at Orange Blossom Bridge, May**

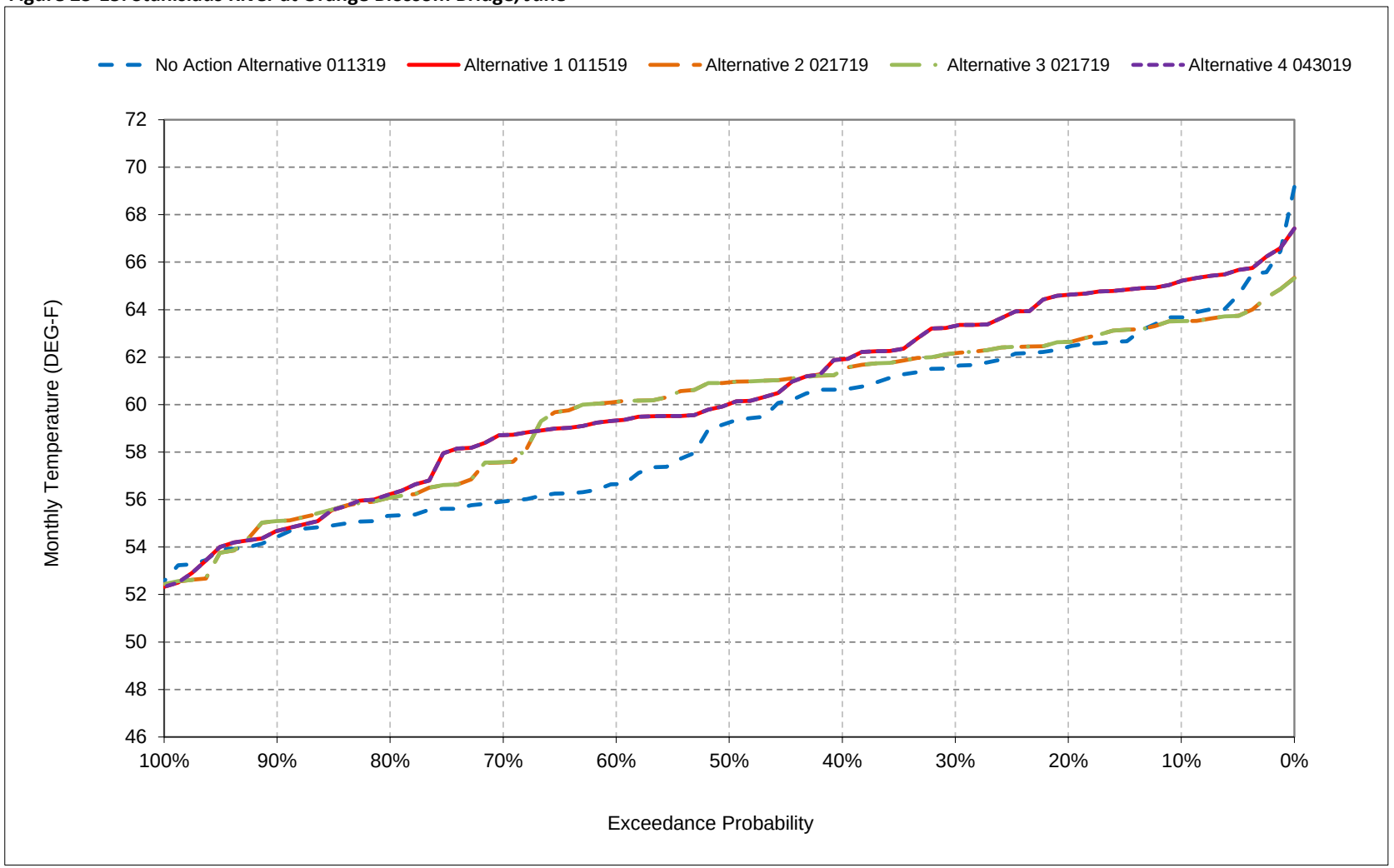



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 23-15. Stanislaus River at Orange Blossom Bridge, June**

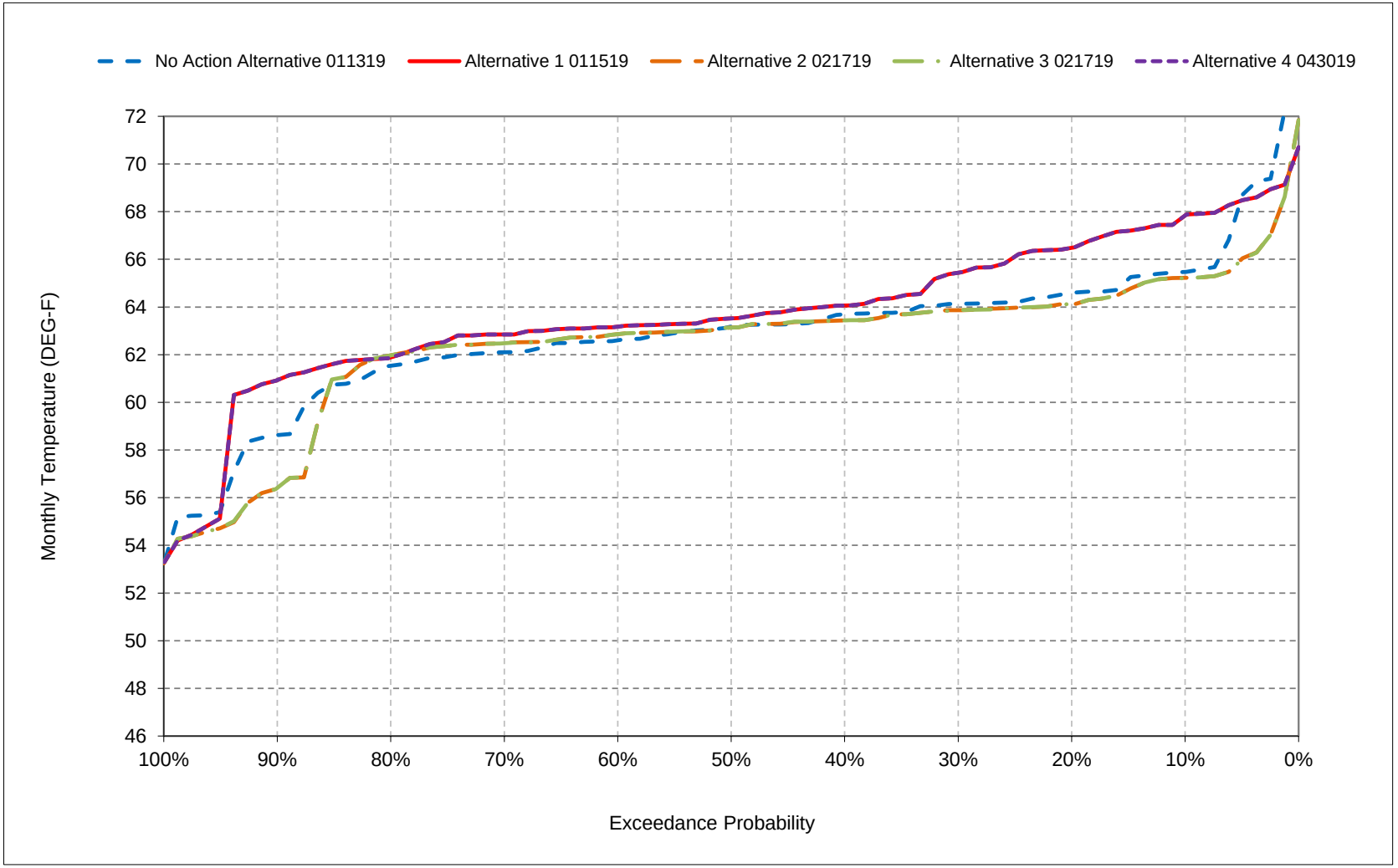



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 23-16. Stanislaus River at Orange Blossom Bridge, July**

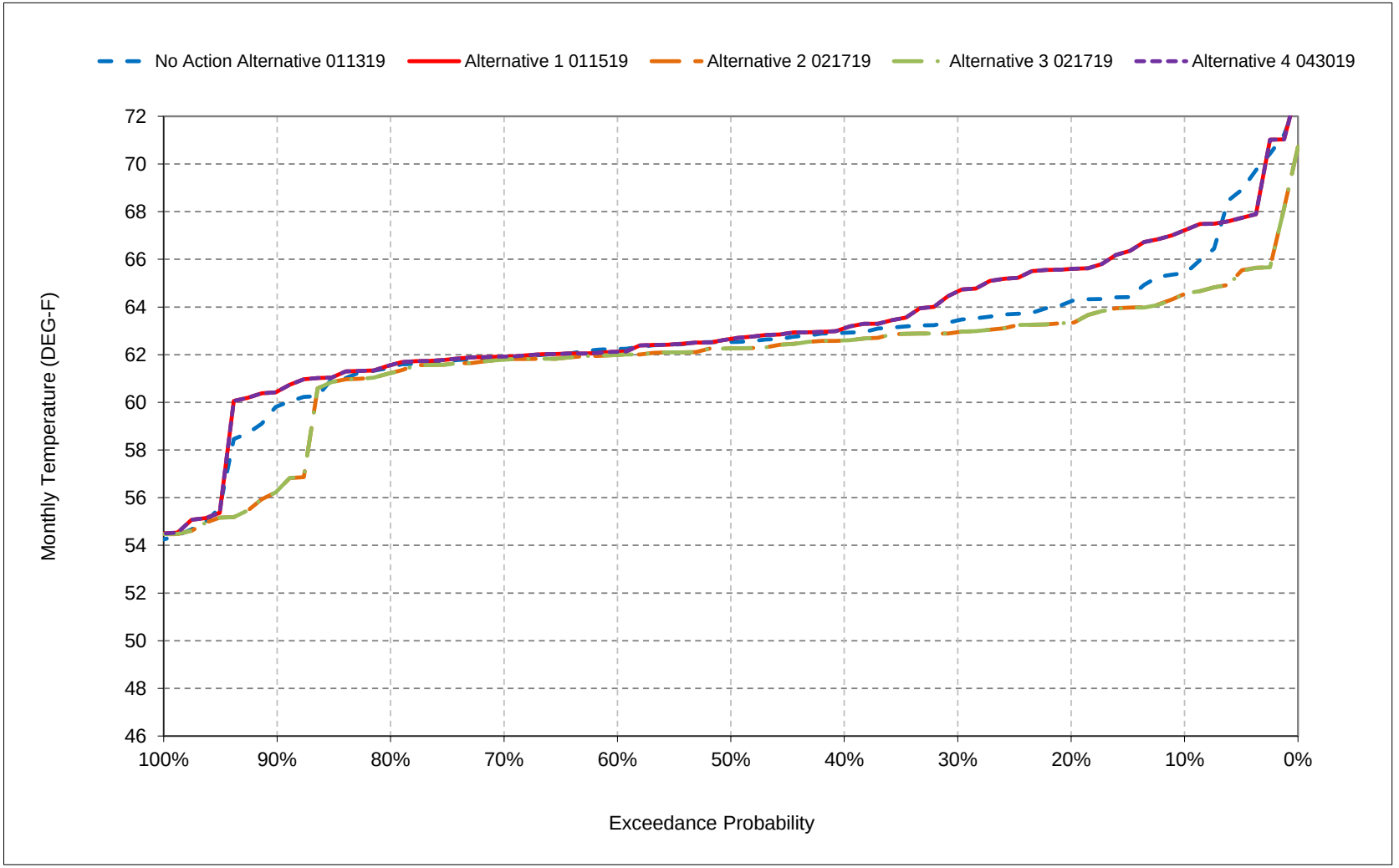



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 23-17. Stanislaus River at Orange Blossom Bridge, August**

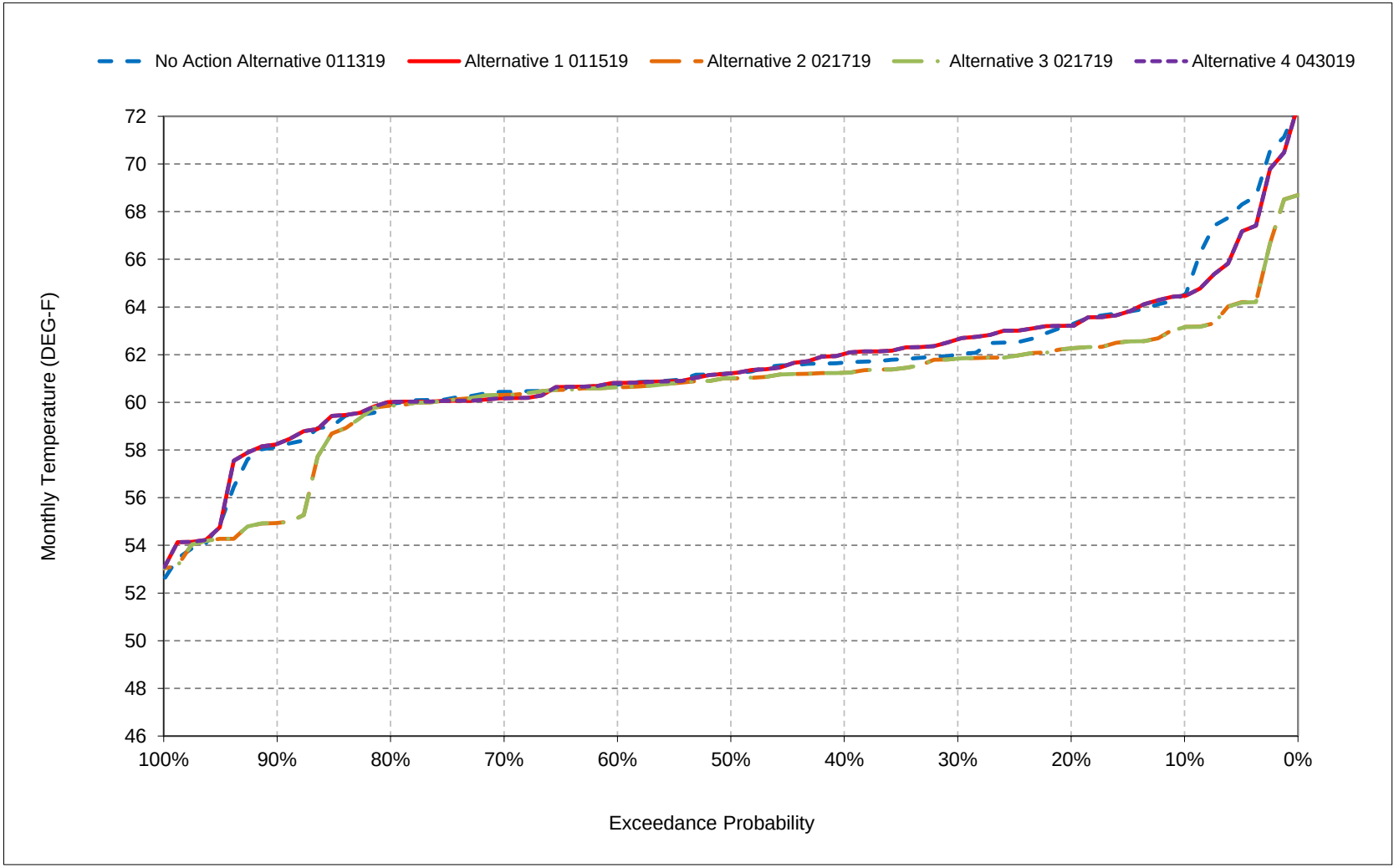



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 23-18. Stanislaus River at Orange Blossom Bridge, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

## Table 24-1. Stanislaus River at Mouth, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.3 | 58.6 | 51.9 | 51.4 | 55.1 | 60.5 | 62.1 | 65.5 | 72.3 | 76.5 | 75.2 | 71.8 |
| 20% | 63.0 | 57.4 | 51.6 | 50.8 | 54.4 | 59.7 | 61.1 | 64.6 | 71.7 | 75.4 | 74.4 | 70.7 |
| 30% | 61.7 | 56.8 | 51.0 | 50.2 | 53.9 | 59.1 | 60.3 | 63.6 | 70.8 | 74.8 | 73.8 | 70.4 |
| 40% | 60.6 | 56.5 | 50.7 | 49.7 | 53.2 | 58.7 | 58.8 | 62.1 | 70.2 | 74.3 | 73.4 | 69.8 |
| 50% | 60.1 | 55.7 | 50.3 | 49.4 | 52.9 | 58.0 | 57.9 | 61.0 | 67.8 | 73.8 | 73.0 | 69.5 |
| 60% | 59.6 | 55.2 | 49.9 | 49.0 | 52.6 | 57.0 | 57.1 | 60.7 | 65.3 | 73.1 | 72.6 | 69.0 |
| 70% | 59.0 | 55.0 | 49.7 | 48.8 | 52.1 | 55.7 | 56.2 | 59.8 | 63.8 | 72.9 | 72.4 | 68.6 |
| 80% | 58.6 | 54.7 | 49.3 | 48.5 | 51.5 | 53.6 | 55.7 | 58.7 | 62.7 | 71.7 | 71.9 | 68.1 |
| 90% | 58.2 | 54.2 | 48.9 | 47.9 | 50.6 | 52.1 | 54.8 | 58.0 | 61.7 | 69.3 | 70.7 | 66.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 60.8 | 56.0 | 50.4 | 49.6 | 52.9 | 57.1 | 58.3 | 61.6 | 67.3 | 73.1 | 72.6 | 69.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 58.4 | 55.0 | 50.3 | 49.6 | 51.8 | 53.0 | 55.4 | 58.9 | 63.1 | 69.6 | 69.6 | 65.7 |
| Above Normal (24%) | 60.3 | 55.7 | 50.1 | 49.5 | 52.5 | 56.8 | 57.2 | 61.3 | 64.3 | 72.1 | 72.6 | 69.2 |
| Below Normal (10%) | 59.3 | 55.6 | 50.0 | 49.3 | 52.5 | 57.3 | 57.4 | 59.9 | 67.6 | 73.9 | 72.6 | 69.0 |
| Dry (16%) | 61.2 | 56.5 | 50.5 | 49.7 | 53.3 | 58.6 | 59.6 | 62.1 | 70.3 | 75.0 | 73.4 | 70.0 |
| Critical (27%) | 63.4 | 57.2 | 50.8 | 49.6 | 54.2 | 59.9 | 61.3 | 64.7 | 72.0 | 75.7 | 74.6 | 71.1 |

### Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 63.5 | 57.9 | 52.2 | 51.4 | 55.4 | 60.7 | 63.0 | 67.3 | 73.5 | 77.2 | 76.0 | 72.1 |
| 20% | 62.1 | 57.2 | 51.4 | 50.7 | 54.5 | 59.7 | 62.2 | 66.2 | 73.1 | 76.6 | 75.2 | 71.2 |
| 30% | 61.2 | 56.8 | 51.0 | 50.1 | 54.0 | 59.2 | 60.8 | 64.2 | 72.0 | 75.7 | 74.4 | 70.7 |
| 40% | 60.7 | 56.3 | 50.6 | 49.7 | 53.3 | 58.7 | 58.9 | 62.8 | 71.1 | 75.1 | 73.8 | 70.0 |
| 50% | 60.3 | 55.5 | 50.2 | 49.3 | 52.8 | 58.1 | 57.2 | 60.8 | 69.4 | 74.3 | 73.4 | 69.6 |
| 60% | 59.5 | 55.2 | 49.9 | 49.0 | 52.5 | 56.9 | 56.4 | 60.3 | 68.1 | 73.9 | 72.8 | 69.3 |
| 70% | 58.9 | 55.0 | 49.6 | 48.7 | 52.1 | 54.9 | 56.0 | 59.8 | 67.2 | 73.5 | 72.4 | 68.8 |
| 80% | 58.6 | 54.6 | 49.3 | 48.5 | 51.4 | 53.5 | 55.5 | 59.0 | 64.3 | 72.9 | 72.1 | 68.2 |
| 90% | 58.2 | 54.1 | 48.9 | 47.9 | 50.5 | 52.2 | 54.9 | 58.7 | 62.6 | 71.6 | 71.4 | 67.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 60.5 | 55.9 | 50.4 | 49.5 | 52.9 | 57.1 | 58.5 | 62.2 | 68.8 | 73.9 | 73.0 | 69.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 58.5 | 55.1 | 50.4 | 49.6 | 51.5 | 52.5 | 55.4 | 58.9 | 62.3 | 69.4 | 69.8 | 65.8 |
| Above Normal (24%) | 60.4 | 55.6 | 50.1 | 49.6 | 52.6 | 57.0 | 56.0 | 60.2 | 68.6 | 74.0 | 73.0 | 69.4 |
| Below Normal (10%) | 59.1 | 55.4 | 50.0 | 49.1 | 52.2 | 57.5 | 56.8 | 59.6 | 68.4 | 74.1 | 72.6 | 69.0 |
| Dry (16%) | 60.9 | 56.2 | 50.3 | 49.6 | 53.6 | 58.7 | 60.5 | 63.8 | 71.7 | 75.5 | 73.4 | 69.9 |
| Critical (27%) | 62.7 | 56.8 | 50.7 | 49.5 | 54.3 | 60.0 | 62.7 | 66.9 | 73.2 | 76.8 | 75.7 | 71.7 |

### Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.8 | -0.7 | **0.3** | **0.0** | **0.4** | **0.3** | **0.9** | **1.8** | **1.2** | **0.7** | **0.8** | **0.3** |
| 20% | -0.8 | -0.2 | -0.1 | -0.1 | **0.1** | **0.0** | **1.1** | **1.6** | **1.4** | **1.2** | **0.8** | **0.5** |
| 30% | -0.5 | 0.0 | 0.0 | 0.0 | **0.1** | **0.1** | **0.6** | **0.7** | **1.2** | **1.0** | **0.6** | **0.3** |
| 40% | **0.1** | -0.2 | 0.0 | 0.0 | **0.1** | **0.0** | **0.1** | **0.7** | **0.9** | **0.8** | **0.4** | **0.2** |
| 50% | **0.2** | -0.2 | -0.1 | 0.0 | -0.1 | **0.1** | -0.7 | -0.1 | **1.6** | **0.5** | **0.4** | **0.1** |
| 60% | -0.1 | 0.0 | **0.1** | 0.0 | -0.1 | -0.1 | -0.7 | -0.4 | **2.8** | **0.7** | **0.2** | **0.2** |
| 70% | -0.1 | -0.1 | -0.1 | -0.1 | 0.0 | -0.8 | -0.3 | 0.0 | **3.3** | **0.6** | **0.1** | **0.1** |
| 80% | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | -0.2 | **0.3** | **1.6** | **1.2** | **0.1** | **0.1** |
| 90% | **0.0** | -0.1 | 0.0 | **0.0** | 0.0 | **0.2** | **0.1** | **0.7** | **0.8** | **2.2** | **0.8** | **0.2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.2 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | **0.2** | **0.6** | **1.5** | **0.8** | **0.5** | **0.2** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **0.1** | **0.2** | **0.1** | 0.0 | -0.3 | -0.6 | **0.0** | 0.0 | -0.8 | -0.3 | **0.3** | **0.1** |
| Above Normal (24%) | **0.0** | 0.0 | 0.0 | **0.1** | **0.1** | **0.2** | -1.2 | -1.1 | **4.3** | **1.8** | **0.4** | **0.2** |
| Below Normal (10%) | -0.3 | -0.1 | -0.1 | -0.1 | -0.3 | **0.2** | -0.6 | -0.3 | **0.8** | **0.2** | **0.0** | **0.0** |
| Dry (16%) | -0.3 | -0.3 | -0.2 | 0.0 | **0.3** | **0.1** | **0.8** | **1.7** | **1.4** | **0.5** | **0.1** | -0.1 |
| Critical (27%) | -0.7 | -0.4 | -0.1 | 0.0 | **0.2** | **0.1** | **1.4** | **2.2** | **1.2** | **1.1** | **1.1** | **0.6** |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 24-2. Stanislaus River at Mouth, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.3 | 58.6 | 51.9 | 51.4 | 55.1 | 60.5 | 62.1 | 65.5 | 72.3 | 76.5 | 75.2 | 71.8 |
| 20% | 63.0 | 57.4 | 51.6 | 50.8 | 54.4 | 59.7 | 61.1 | 64.6 | 71.7 | 75.4 | 74.4 | 70.7 |
| 30% | 61.7 | 56.8 | 51.0 | 50.2 | 53.9 | 59.1 | 60.3 | 63.6 | 70.8 | 74.8 | 73.8 | 70.4 |
| 40% | 60.6 | 56.5 | 50.7 | 49.7 | 53.2 | 58.7 | 58.8 | 62.1 | 70.2 | 74.3 | 73.4 | 69.8 |
| 50% | 60.1 | 55.7 | 50.3 | 49.4 | 52.9 | 58.0 | 57.9 | 61.0 | 67.8 | 73.8 | 73.0 | 69.5 |
| 60% | 59.6 | 55.2 | 49.9 | 49.0 | 52.6 | 57.0 | 57.1 | 60.7 | 65.3 | 73.1 | 72.6 | 69.0 |
| 70% | 59.0 | 55.0 | 49.7 | 48.8 | 52.1 | 55.7 | 56.2 | 59.8 | 63.8 | 72.9 | 72.4 | 68.6 |
| 80% | 58.6 | 54.7 | 49.3 | 48.5 | 51.5 | 53.6 | 55.7 | 58.7 | 62.7 | 71.7 | 71.9 | 68.1 |
| 90% | 58.2 | 54.2 | 48.9 | 47.9 | 50.6 | 52.1 | 54.8 | 58.0 | 61.7 | 69.3 | 70.7 | 66.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 60.8 | 56.0 | 50.4 | 49.6 | 52.9 | 57.1 | 58.3 | 61.6 | 67.3 | 73.1 | 72.6 | 69.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 58.4 | 55.0 | 50.3 | 49.6 | 51.8 | 53.0 | 55.4 | 58.9 | 63.1 | 69.6 | 69.6 | 65.7 |
| Above Normal (24%) | 60.3 | 55.7 | 50.1 | 49.5 | 52.5 | 56.8 | 57.2 | 61.3 | 64.3 | 72.1 | 72.6 | 69.2 |
| Below Normal (10%) | 59.3 | 55.6 | 50.0 | 49.3 | 52.5 | 57.3 | 57.4 | 59.9 | 67.6 | 73.9 | 72.6 | 69.0 |
| Dry (16%) | 61.2 | 56.5 | 50.5 | 49.7 | 53.3 | 58.6 | 59.6 | 62.1 | 70.3 | 75.0 | 73.4 | 70.0 |
| Critical (27%) | 63.4 | 57.2 | 50.8 | 49.6 | 54.2 | 59.9 | 61.3 | 64.7 | 72.0 | 75.7 | 74.6 | 71.1 |

### Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 66.9 | 58.4 | 51.9 | 51.4 | 55.1 | 61.0 | 64.2 | 67.1 | 72.9 | 76.3 | 75.0 | 71.6 |
| 20% | 66.1 | 57.9 | 51.4 | 50.7 | 54.5 | 60.3 | 63.3 | 66.7 | 72.4 | 75.4 | 74.1 | 70.5 |
| 30% | 65.1 | 57.4 | 50.9 | 50.2 | 54.0 | 59.6 | 62.9 | 66.3 | 71.6 | 75.0 | 73.5 | 70.1 |
| 40% | 64.8 | 56.8 | 50.7 | 49.7 | 53.3 | 59.2 | 62.2 | 65.7 | 71.0 | 74.6 | 73.2 | 69.8 |
| 50% | 64.2 | 56.4 | 50.2 | 49.2 | 52.9 | 58.4 | 61.2 | 64.7 | 70.2 | 74.2 | 72.9 | 69.4 |
| 60% | 63.6 | 55.7 | 49.9 | 49.1 | 52.2 | 57.5 | 60.2 | 63.7 | 68.4 | 73.6 | 72.5 | 69.0 |
| 70% | 63.1 | 55.4 | 49.6 | 48.8 | 51.5 | 56.7 | 58.8 | 62.2 | 67.3 | 73.2 | 72.3 | 68.6 |
| 80% | 62.2 | 55.0 | 49.3 | 48.5 | 50.6 | 54.8 | 57.1 | 60.6 | 64.3 | 72.3 | 71.9 | 68.1 |
| 90% | 60.9 | 54.6 | 48.8 | 47.9 | 50.2 | 53.3 | 56.3 | 59.8 | 61.8 | 65.5 | 63.7 | 60.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 63.9 | 56.4 | 50.4 | 49.5 | 52.6 | 57.7 | 60.6 | 64.0 | 68.4 | 72.9 | 71.9 | 68.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 61.0 | 55.2 | 50.3 | 49.5 | 50.7 | 54.3 | 56.9 | 60.5 | 64.8 | 68.1 | 67.2 | 63.6 |
| Above Normal (24%) | 64.0 | 56.1 | 50.1 | 49.6 | 52.4 | 57.1 | 59.5 | 63.6 | 65.2 | 72.5 | 72.7 | 69.3 |
| Below Normal (10%) | 63.3 | 56.3 | 50.0 | 49.2 | 52.1 | 57.9 | 61.4 | 64.5 | 69.6 | 74.2 | 72.5 | 69.0 |
| Dry (16%) | 64.7 | 56.9 | 50.3 | 49.6 | 53.1 | 59.1 | 63.3 | 65.3 | 71.1 | 75.0 | 73.2 | 69.7 |
| Critical (27%) | 65.9 | 57.5 | 50.8 | 49.5 | 54.4 | 60.5 | 63.1 | 66.4 | 72.3 | 75.6 | 74.2 | 70.6 |

### Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **2.6** | -0.2 | **0.0** | **0.0** | **0.0** | **0.5** | **2.1** | **1.6** | **0.6** | -0.2 | -0.2 | -0.3 |
| 20% | **3.2** | **0.5** | -0.1 | -0.1 | **0.1** | **0.6** | **2.2** | **2.1** | **0.6** | **0.0** | -0.3 | -0.2 |
| 30% | **3.4** | **0.6** | -0.1 | **0.0** | **0.1** | **0.5** | **2.6** | **2.7** | **0.8** | **0.2** | -0.3 | -0.3 |
| 40% | **4.2** | **0.3** | **0.1** | 0.0 | **0.1** | **0.5** | **3.5** | **3.5** | **0.8** | **0.3** | -0.2 | **0.0** |
| 50% | **4.1** | **0.7** | -0.1 | -0.2 | -0.1 | **0.4** | **3.3** | **3.7** | **2.4** | **0.4** | -0.1 | -0.1 |
| 60% | **4.0** | **0.5** | **0.1** | **0.0** | -0.4 | **0.5** | **3.1** | **3.0** | **3.0** | **0.5** | -0.1 | -0.1 |
| 70% | **4.0** | **0.4** | -0.1 | 0.0 | -0.6 | **1.0** | **2.5** | **2.4** | **3.5** | **0.3** | 0.0 | 0.0 |
| 80% | **3.6** | **0.4** | **0.0** | **0.0** | -0.9 | **1.2** | **1.4** | **1.9** | **1.6** | **0.6** | **0.0** | 0.0 |
| 90% | **2.7** | **0.4** | -0.1 | **0.0** | -0.3 | **1.2** | **1.5** | **1.8** | **0.1** | -3.9 | -7.0 | -6.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3.1** | **0.4** | 0.0 | 0.0 | -0.3 | **0.7** | **2.4** | **2.4** | **1.0** | -0.3 | -0.6 | -0.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **2.6** | **0.2** | **0.1** | -0.1 | -1.1 | **1.3** | **1.4** | **1.6** | **1.7** | -1.5 | -2.3 | -2.1 |
| Above Normal (24%) | **3.7** | **0.4** | -0.1 | **0.1** | -0.1 | **0.3** | **2.3** | **2.4** | **0.9** | **0.4** | **0.1** | **0.1** |
| Below Normal (10%) | **3.9** | **0.7** | -0.1 | -0.1 | -0.4 | **0.6** | **4.0** | **4.6** | **2.1** | **0.3** | 0.0 | 0.0 |
| Dry (16%) | **3.4** | **0.4** | -0.2 | -0.1 | -0.2 | **0.5** | **3.6** | **3.2** | **0.9** | **0.0** | -0.2 | -0.3 |
| Critical (27%) | **2.5** | **0.3** | **0.0** | -0.1 | **0.3** | **0.6** | **1.8** | **1.7** | **0.3** | -0.1 | -0.3 | -0.5 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 24-3. Stanislaus River at Mouth, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.3 | 58.6 | 51.9 | 51.4 | 55.1 | 60.5 | 62.1 | 65.5 | 72.3 | 76.5 | 75.2 | 71.8 |
| 20% | 63.0 | 57.4 | 51.6 | 50.8 | 54.4 | 59.7 | 61.1 | 64.6 | 71.7 | 75.4 | 74.4 | 70.7 |
| 30% | 61.7 | 56.8 | 51.0 | 50.2 | 53.9 | 59.1 | 60.3 | 63.6 | 70.8 | 74.8 | 73.8 | 70.4 |
| 40% | 60.6 | 56.5 | 50.7 | 49.7 | 53.2 | 58.7 | 58.8 | 62.1 | 70.2 | 74.3 | 73.4 | 69.8 |
| 50% | 60.1 | 55.7 | 50.3 | 49.4 | 52.9 | 58.0 | 57.9 | 61.0 | 67.8 | 73.8 | 73.0 | 69.5 |
| 60% | 59.6 | 55.2 | 49.9 | 49.0 | 52.6 | 57.0 | 57.1 | 60.7 | 65.3 | 73.1 | 72.6 | 69.0 |
| 70% | 59.0 | 55.0 | 49.7 | 48.8 | 52.1 | 55.7 | 56.2 | 59.8 | 63.8 | 72.9 | 72.4 | 68.6 |
| 80% | 58.6 | 54.7 | 49.3 | 48.5 | 51.5 | 53.6 | 55.7 | 58.7 | 62.7 | 71.7 | 71.9 | 68.1 |
| 90% | 58.2 | 54.2 | 48.9 | 47.9 | 50.6 | 52.1 | 54.8 | 58.0 | 61.7 | 69.3 | 70.7 | 66.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 60.8 | 56.0 | 50.4 | 49.6 | 52.9 | 57.1 | 58.3 | 61.6 | 67.3 | 73.1 | 72.6 | 69.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 58.4 | 55.0 | 50.3 | 49.6 | 51.8 | 53.0 | 55.4 | 58.9 | 63.1 | 69.6 | 69.6 | 65.7 |
| Above Normal (24%) | 60.3 | 55.7 | 50.1 | 49.5 | 52.5 | 56.8 | 57.2 | 61.3 | 64.3 | 72.1 | 72.6 | 69.2 |
| Below Normal (10%) | 59.3 | 55.6 | 50.0 | 49.3 | 52.5 | 57.3 | 57.4 | 59.9 | 67.6 | 73.9 | 72.6 | 69.0 |
| Dry (16%) | 61.2 | 56.5 | 50.5 | 49.7 | 53.3 | 58.6 | 59.6 | 62.1 | 70.3 | 75.0 | 73.4 | 70.0 |
| Critical (27%) | 63.4 | 57.2 | 50.8 | 49.6 | 54.2 | 59.9 | 61.3 | 64.7 | 72.0 | 75.7 | 74.6 | 71.1 |

### Alternative 3 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 66.9 | 58.4 | 51.9 | 51.4 | 55.1 | 61.0 | 64.2 | 67.1 | 72.9 | 76.3 | 75.0 | 71.6 |
| 20% | 66.1 | 57.9 | 51.4 | 50.7 | 54.5 | 60.3 | 63.3 | 66.7 | 72.4 | 75.4 | 74.1 | 70.5 |
| 30% | 65.1 | 57.4 | 50.9 | 50.2 | 54.0 | 59.6 | 62.9 | 66.3 | 71.6 | 75.0 | 73.5 | 70.1 |
| 40% | 64.8 | 56.8 | 50.7 | 49.7 | 53.3 | 59.2 | 62.2 | 65.7 | 71.0 | 74.6 | 73.2 | 69.8 |
| 50% | 64.2 | 56.4 | 50.2 | 49.2 | 52.9 | 58.4 | 61.2 | 64.7 | 70.2 | 74.2 | 72.9 | 69.4 |
| 60% | 63.6 | 55.7 | 49.9 | 49.1 | 52.2 | 57.5 | 60.2 | 63.7 | 68.4 | 73.6 | 72.5 | 69.0 |
| 70% | 63.1 | 55.4 | 49.6 | 48.8 | 51.5 | 56.7 | 58.8 | 62.2 | 67.3 | 73.2 | 72.3 | 68.6 |
| 80% | 62.2 | 55.0 | 49.3 | 48.5 | 50.6 | 54.8 | 57.1 | 60.6 | 64.3 | 72.3 | 71.9 | 68.1 |
| 90% | 60.9 | 54.6 | 48.8 | 47.9 | 50.2 | 53.3 | 56.3 | 59.8 | 61.8 | 65.5 | 63.7 | 60.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 63.9 | 56.4 | 50.4 | 49.5 | 52.6 | 57.7 | 60.6 | 64.0 | 68.4 | 72.9 | 71.9 | 68.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 61.0 | 55.2 | 50.3 | 49.5 | 50.7 | 54.3 | 56.9 | 60.5 | 64.8 | 68.1 | 67.2 | 63.6 |
| Above Normal (24%) | 64.0 | 56.1 | 50.1 | 49.6 | 52.4 | 57.1 | 59.5 | 63.6 | 65.2 | 72.5 | 72.7 | 69.3 |
| Below Normal (10%) | 63.3 | 56.3 | 50.0 | 49.2 | 52.1 | 57.9 | 61.4 | 64.5 | 69.6 | 74.2 | 72.5 | 69.0 |
| Dry (16%) | 64.7 | 56.9 | 50.3 | 49.6 | 53.1 | 59.1 | 63.3 | 65.3 | 71.1 | 75.0 | 73.2 | 69.7 |
| Critical (27%) | 65.9 | 57.5 | 50.8 | 49.5 | 54.4 | 60.5 | 63.1 | 66.4 | 72.3 | 75.6 | 74.2 | 70.6 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | **2.6** | -0.2 | **0.0** | **0.0** | **0.0** | **0.5** | **2.1** | **1.6** | **0.6** | -0.2 | -0.2 | -0.3 |
| 20% | **3.2** | **0.5** | -0.1 | -0.1 | **0.1** | **0.6** | **2.2** | **2.1** | **0.6** | **0.0** | -0.3 | -0.2 |
| 30% | **3.4** | **0.6** | -0.1 | **0.0** | **0.1** | **0.5** | **2.6** | **2.7** | **0.8** | **0.2** | -0.3 | -0.3 |
| 40% | **4.2** | **0.3** | **0.1** | 0.0 | **0.1** | **0.5** | **3.5** | **3.5** | **0.8** | **0.3** | -0.2 | **0.0** |
| 50% | **4.1** | **0.7** | -0.1 | -0.2 | -0.1 | **0.4** | **3.3** | **3.7** | **2.4** | **0.4** | -0.1 | -0.1 |
| 60% | **4.0** | **0.5** | **0.1** | **0.0** | -0.4 | **0.5** | **3.1** | **3.0** | **3.0** | **0.5** | -0.1 | -0.1 |
| 70% | **4.0** | **0.4** | -0.1 | 0.0 | -0.6 | **1.0** | **2.5** | **2.4** | **3.5** | **0.3** | 0.0 | 0.0 |
| 80% | **3.6** | **0.4** | **0.0** | **0.0** | -0.9 | **1.2** | **1.4** | **1.9** | **1.6** | **0.6** | **0.0** | -0.1 |
| 90% | **2.7** | **0.4** | -0.1 | **0.0** | -0.3 | **1.2** | **1.5** | **1.8** | **0.1** | -3.9 | -7.0 | -6.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3.1** | **0.4** | 0.0 | 0.0 | -0.3 | **0.7** | **2.4** | **2.4** | **1.0** | -0.3 | -0.6 | -0.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **2.6** | **0.2** | **0.1** | -0.1 | -1.1 | **1.3** | **1.4** | **1.6** | **1.7** | -1.5 | -2.3 | -2.1 |
| Above Normal (24%) | **3.7** | **0.4** | -0.1 | **0.1** | -0.1 | **0.3** | **2.3** | **2.4** | **0.9** | **0.4** | **0.1** | **0.1** |
| Below Normal (10%) | **3.9** | **0.7** | -0.1 | -0.1 | -0.4 | **0.6** | **4.0** | **4.6** | **2.1** | **0.3** | 0.0 | 0.0 |
| Dry (16%) | **3.4** | **0.4** | -0.2 | -0.1 | -0.2 | **0.5** | **3.6** | **3.2** | **0.9** | **0.0** | -0.2 | -0.3 |
| Critical (27%) | **2.5** | **0.3** | **0.0** | -0.1 | **0.3** | **0.6** | **1.8** | **1.7** | **0.3** | -0.1 | -0.3 | -0.5 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

## Table 24-4. Stanislaus River at Mouth, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.3 | 58.6 | 51.9 | 51.4 | 55.1 | 60.5 | 62.1 | 65.5 | 72.3 | 76.5 | 75.2 | 71.8 |
| 20% | 63.0 | 57.4 | 51.6 | 50.8 | 54.4 | 59.7 | 61.1 | 64.6 | 71.7 | 75.4 | 74.4 | 70.7 |
| 30% | 61.7 | 56.8 | 51.0 | 50.2 | 53.9 | 59.1 | 60.3 | 63.6 | 70.8 | 74.8 | 73.8 | 70.4 |
| 40% | 60.6 | 56.5 | 50.7 | 49.7 | 53.2 | 58.7 | 58.8 | 62.1 | 70.2 | 74.3 | 73.4 | 69.8 |
| 50% | 60.1 | 55.7 | 50.3 | 49.4 | 52.9 | 58.0 | 57.9 | 61.0 | 67.8 | 73.8 | 73.0 | 69.5 |
| 60% | 59.6 | 55.2 | 49.9 | 49.0 | 52.6 | 57.0 | 57.1 | 60.7 | 65.3 | 73.1 | 72.6 | 69.0 |
| 70% | 59.0 | 55.0 | 49.7 | 48.8 | 52.1 | 55.7 | 56.2 | 59.8 | 63.8 | 72.9 | 72.4 | 68.6 |
| 80% | 58.6 | 54.7 | 49.3 | 48.5 | 51.5 | 53.6 | 55.7 | 58.7 | 62.7 | 71.7 | 71.9 | 68.1 |
| 90% | 58.2 | 54.2 | 48.9 | 47.9 | 50.6 | 52.1 | 54.8 | 58.0 | 61.7 | 69.3 | 70.7 | 66.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 60.8 | 56.0 | 50.4 | 49.6 | 52.9 | 57.1 | 58.3 | 61.6 | 67.3 | 73.1 | 72.6 | 69.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 58.4 | 55.0 | 50.3 | 49.6 | 51.8 | 53.0 | 55.4 | 58.9 | 63.1 | 69.6 | 69.6 | 65.7 |
| Above Normal (24%) | 60.3 | 55.7 | 50.1 | 49.5 | 52.5 | 56.8 | 57.2 | 61.3 | 64.3 | 72.1 | 72.6 | 69.2 |
| Below Normal (10%) | 59.3 | 55.6 | 50.0 | 49.3 | 52.5 | 57.3 | 57.4 | 59.9 | 67.6 | 73.9 | 72.6 | 69.0 |
| Dry (16%) | 61.2 | 56.5 | 50.5 | 49.7 | 53.3 | 58.6 | 59.6 | 62.1 | 70.3 | 75.0 | 73.4 | 70.0 |
| Critical (27%) | 63.4 | 57.2 | 50.8 | 49.6 | 54.2 | 59.9 | 61.3 | 64.7 | 72.0 | 75.7 | 74.6 | 71.1 |

### Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 63.5 | 57.9 | 52.2 | 51.4 | 55.4 | 60.7 | 63.0 | 67.3 | 73.5 | 77.2 | 76.0 | 72.1 |
| 20% | 62.1 | 57.2 | 51.4 | 50.7 | 54.5 | 59.7 | 62.2 | 66.2 | 73.1 | 76.6 | 75.2 | 71.2 |
| 30% | 61.2 | 56.8 | 51.0 | 50.1 | 54.0 | 59.2 | 60.8 | 64.2 | 72.0 | 75.7 | 74.4 | 70.7 |
| 40% | 60.7 | 56.3 | 50.6 | 49.7 | 53.3 | 58.7 | 58.9 | 62.8 | 71.1 | 75.1 | 73.8 | 70.0 |
| 50% | 60.3 | 55.5 | 50.2 | 49.3 | 52.8 | 58.1 | 57.2 | 60.8 | 69.4 | 74.3 | 73.4 | 69.6 |
| 60% | 59.5 | 55.2 | 49.9 | 49.0 | 52.5 | 56.9 | 56.4 | 60.3 | 68.1 | 73.9 | 72.8 | 69.3 |
| 70% | 58.9 | 55.0 | 49.6 | 48.7 | 52.1 | 54.9 | 56.0 | 59.8 | 67.2 | 73.5 | 72.4 | 68.8 |
| 80% | 58.6 | 54.6 | 49.3 | 48.5 | 51.4 | 53.5 | 55.5 | 59.0 | 64.3 | 72.9 | 72.1 | 68.2 |
| 90% | 58.2 | 54.1 | 48.9 | 47.9 | 50.5 | 52.2 | 54.9 | 58.7 | 62.6 | 71.6 | 71.4 | 67.1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 60.5 | 55.9 | 50.4 | 49.5 | 52.9 | 57.1 | 58.5 | 62.2 | 68.8 | 73.9 | 73.0 | 69.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | 58.5 | 55.1 | 50.4 | 49.6 | 51.5 | 52.5 | 55.4 | 58.9 | 62.3 | 69.4 | 69.8 | 65.8 |
| Above Normal (24%) | 60.4 | 55.6 | 50.1 | 49.6 | 52.6 | 57.0 | 56.0 | 60.2 | 68.6 | 74.0 | 73.0 | 69.4 |
| Below Normal (10%) | 59.1 | 55.4 | 50.0 | 49.1 | 52.2 | 57.5 | 56.8 | 59.6 | 68.4 | 74.1 | 72.6 | 69.0 |
| Dry (16%) | 60.9 | 56.2 | 50.3 | 49.6 | 53.6 | 58.7 | 60.5 | 63.8 | 71.7 | 75.5 | 73.4 | 69.9 |
| Critical (27%) | 62.7 | 56.8 | 50.7 | 49.5 | 54.3 | 60.0 | 62.7 | 66.9 | 73.2 | 76.8 | 75.7 | 71.7 |

### Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.8 | -0.7 | **0.3** | **0.0** | **0.4** | **0.3** | **0.9** | **1.8** | **1.2** | **0.7** | **0.8** | **0.3** |
| 20% | -0.8 | -0.2 | -0.1 | -0.1 | **0.1** | **0.0** | **1.1** | **1.6** | **1.4** | **1.2** | **0.8** | **0.5** |
| 30% | -0.5 | 0.0 | 0.0 | 0.0 | **0.1** | **0.1** | **0.6** | **0.7** | **1.2** | **1.0** | **0.6** | **0.3** |
| 40% | **0.1** | -0.2 | 0.0 | 0.0 | **0.1** | **0.0** | **0.1** | **0.7** | **0.9** | **0.8** | **0.4** | **0.2** |
| 50% | **0.2** | -0.2 | -0.1 | 0.0 | -0.1 | **0.1** | -0.7 | -0.1 | **1.6** | **0.5** | **0.4** | **0.1** |
| 60% | -0.1 | 0.0 | **0.1** | 0.0 | -0.1 | -0.1 | -0.7 | -0.4 | **2.8** | **0.7** | **0.2** | **0.2** |
| 70% | -0.1 | -0.1 | -0.1 | -0.1 | 0.0 | -0.8 | -0.3 | 0.0 | **3.3** | **0.6** | **0.1** | **0.1** |
| 80% | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | -0.2 | **0.3** | **1.6** | **1.2** | **0.1** | **0.1** |
| 90% | **0.0** | -0.1 | 0.0 | **0.0** | 0.0 | **0.2** | **0.1** | **0.7** | **0.8** | **2.2** | **0.8** | **0.2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.2 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | **0.2** | **0.6** | **1.5** | **0.8** | **0.5** | **0.2** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (23%) | **0.1** | **0.2** | **0.1** | 0.0 | -0.3 | -0.6 | **0.0** | 0.0 | -0.8 | -0.3 | **0.3** | **0.1** |
| Above Normal (24%) | **0.0** | 0.0 | 0.0 | **0.1** | **0.1** | **0.2** | -1.2 | -1.1 | **4.3** | **1.8** | **0.4** | **0.2** |
| Below Normal (10%) | -0.3 | -0.1 | -0.1 | -0.1 | -0.3 | **0.2** | -0.6 | -0.3 | **0.8** | **0.2** | **0.0** | **0.0** |
| Dry (16%) | -0.3 | -0.3 | -0.2 | 0.0 | **0.3** | **0.1** | **0.8** | **1.7** | **1.4** | **0.5** | **0.1** | -0.1 |
| Critical (27%) | -0.7 | -0.4 | -0.1 | 0.0 | **0.2** | **0.1** | **1.4** | **2.2** | **1.2** | **1.1** | **1.1** | **0.6** |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

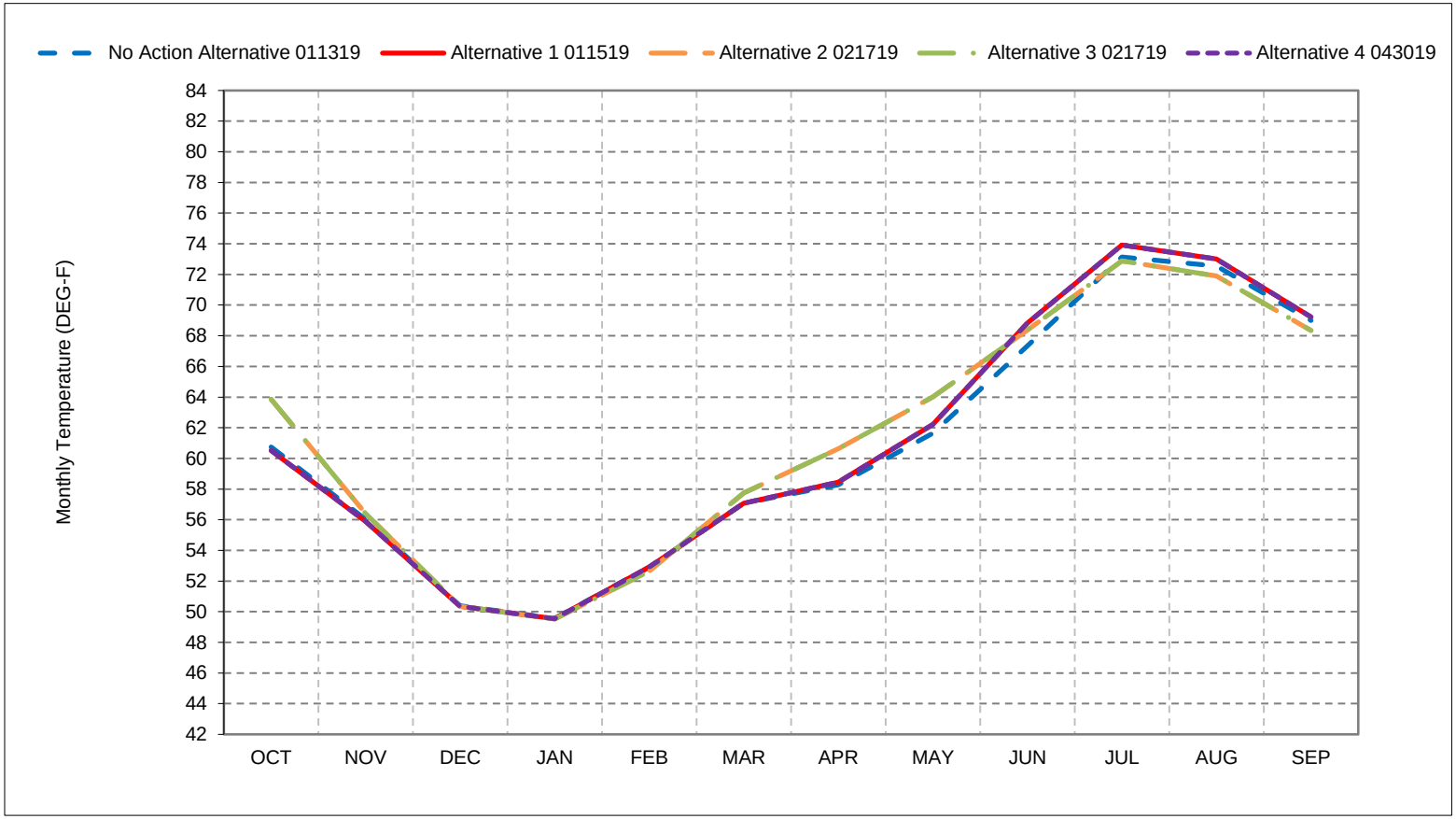
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

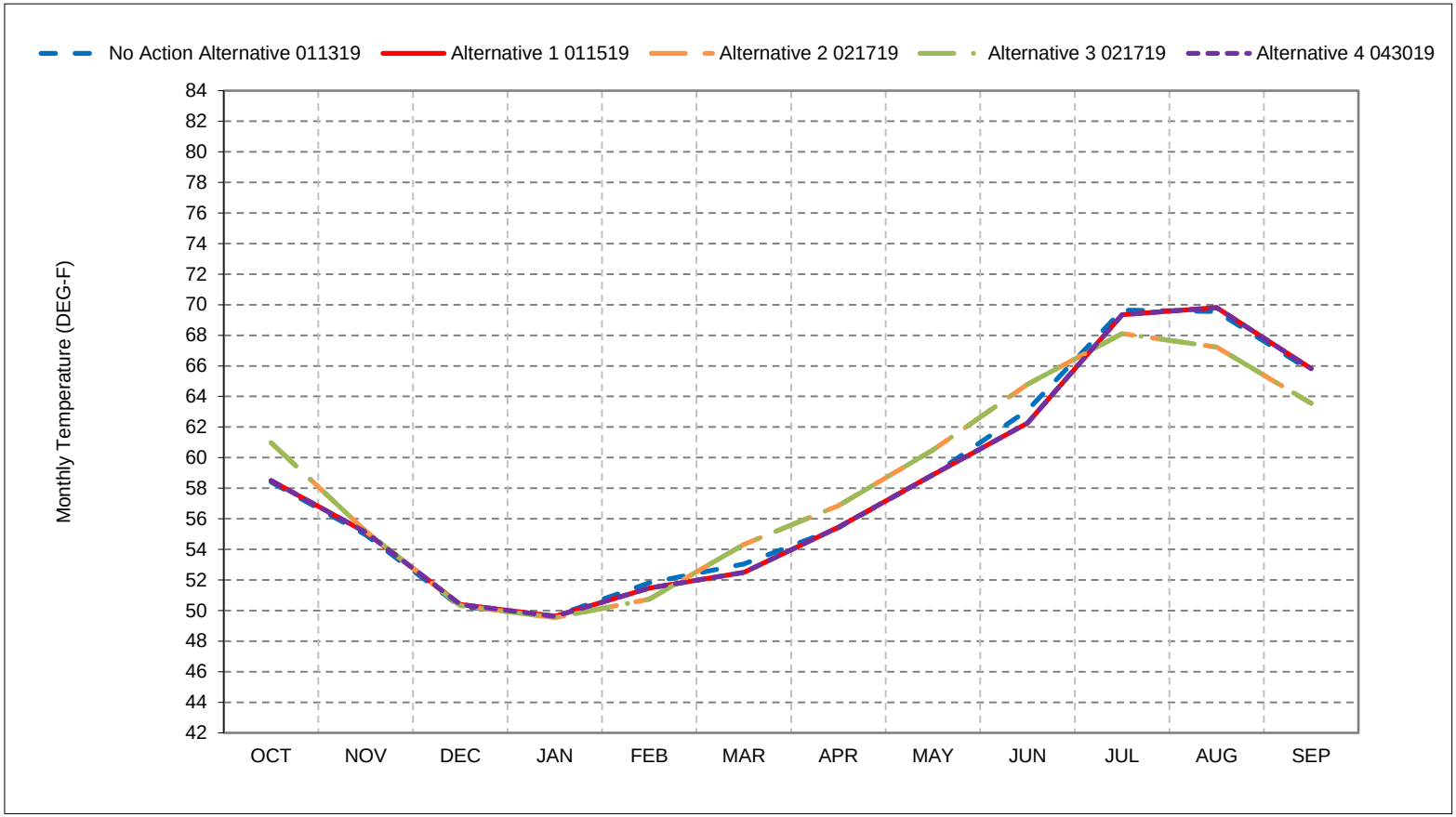
f New Melones forecasts are used as the basis of water operations.

## Figure 24-1. Stanislaus River at Mouth, Long-Term Average Temperature



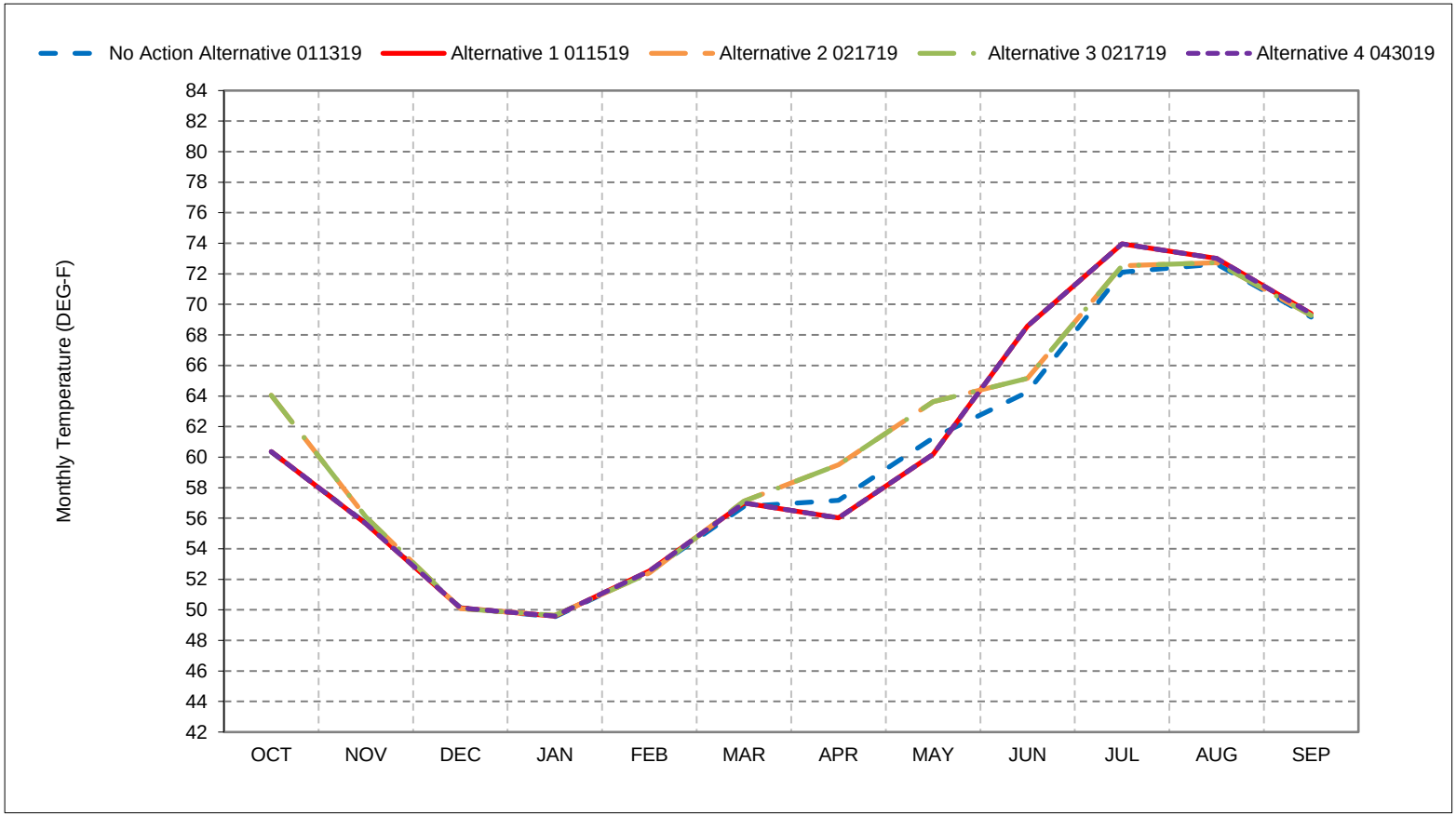

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 24-2. Stanislaus River at Mouth, Wet Year Average Temperature



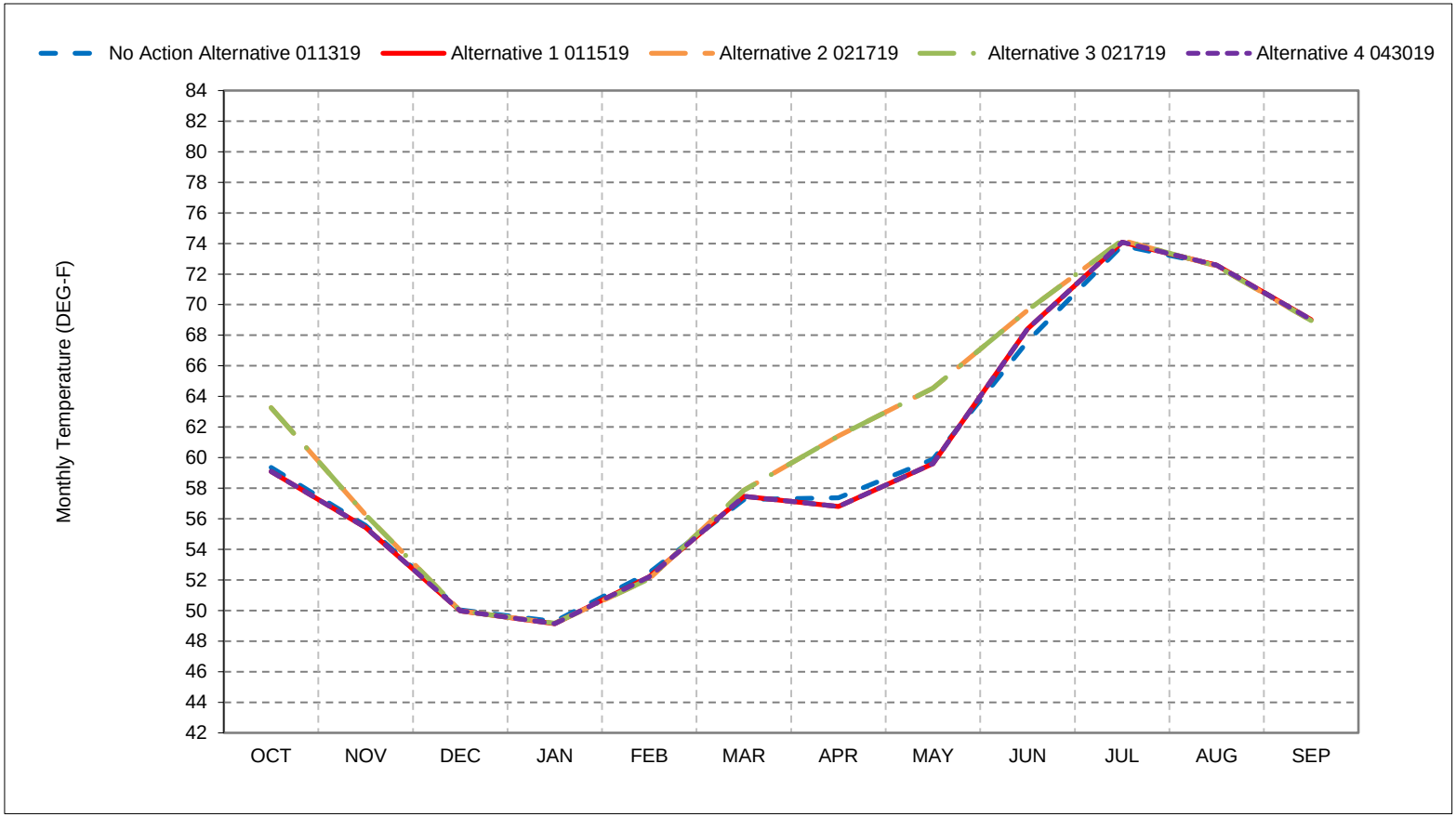

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 24-3. Stanislaus River at Mouth, Above Normal Year Average Temperature



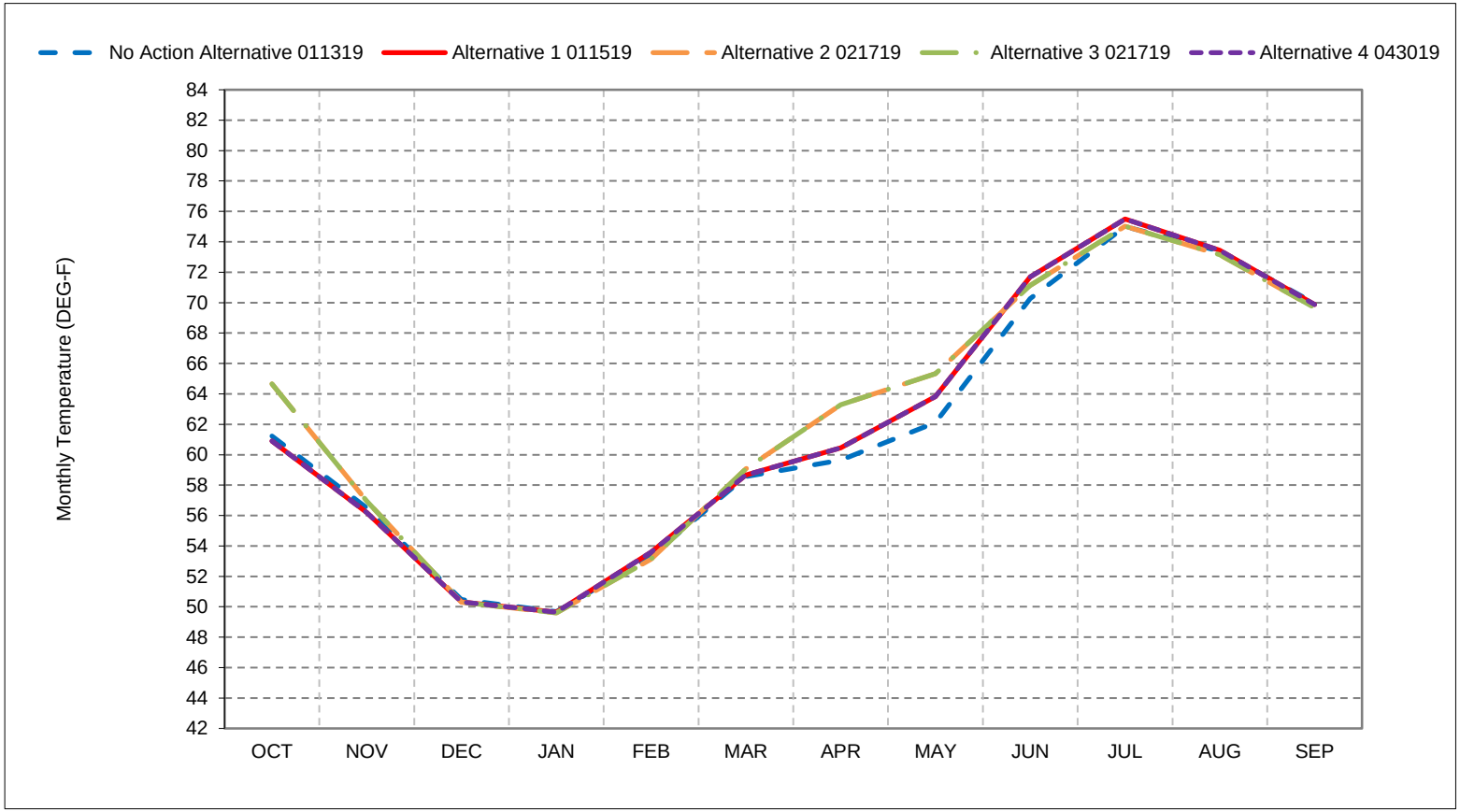

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 24-4. Stanislaus River at Mouth, Below Normal Year Average Temperature



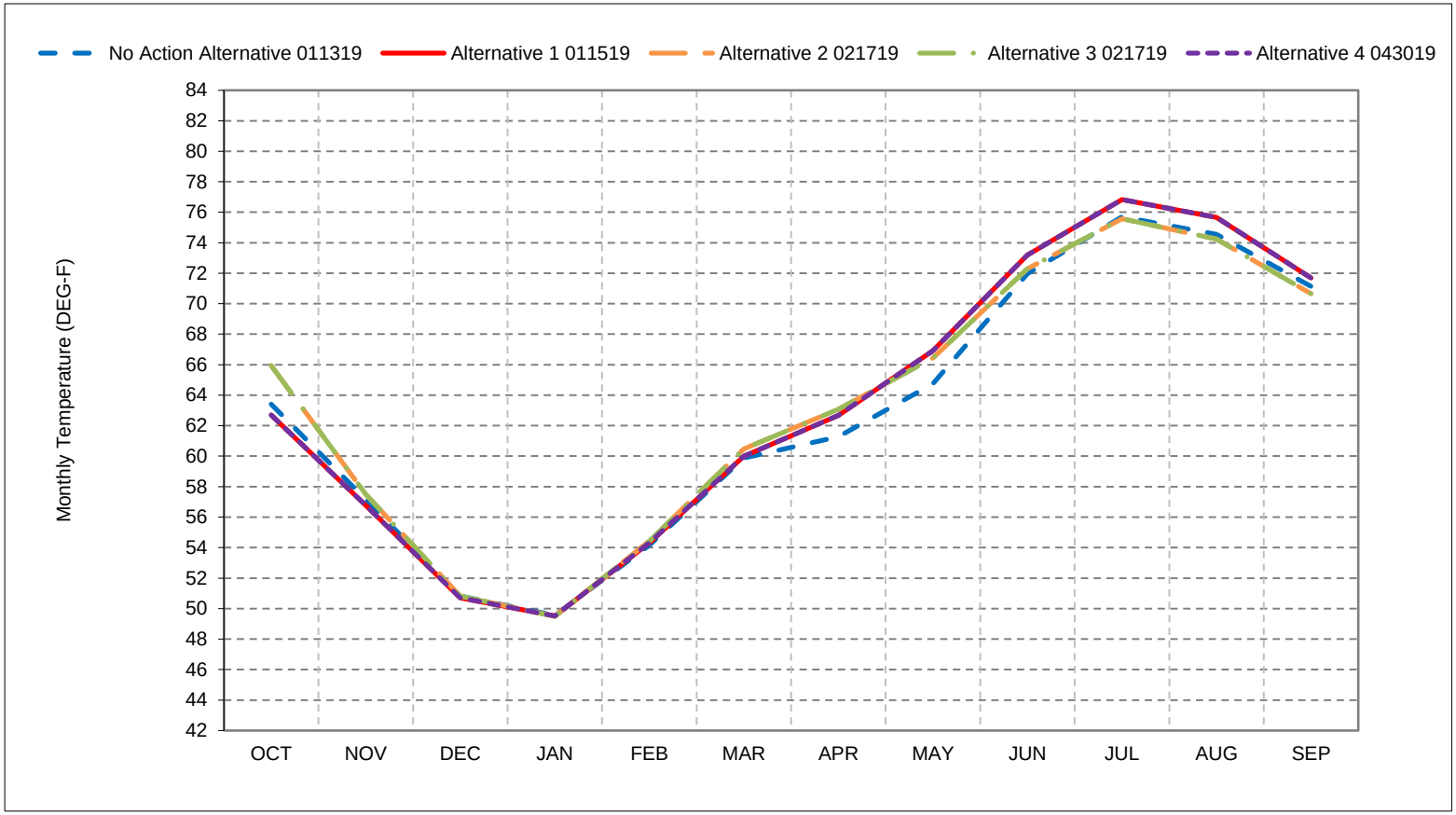

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 24-5. Stanislaus River at Mouth, Dry Year Average Temperature



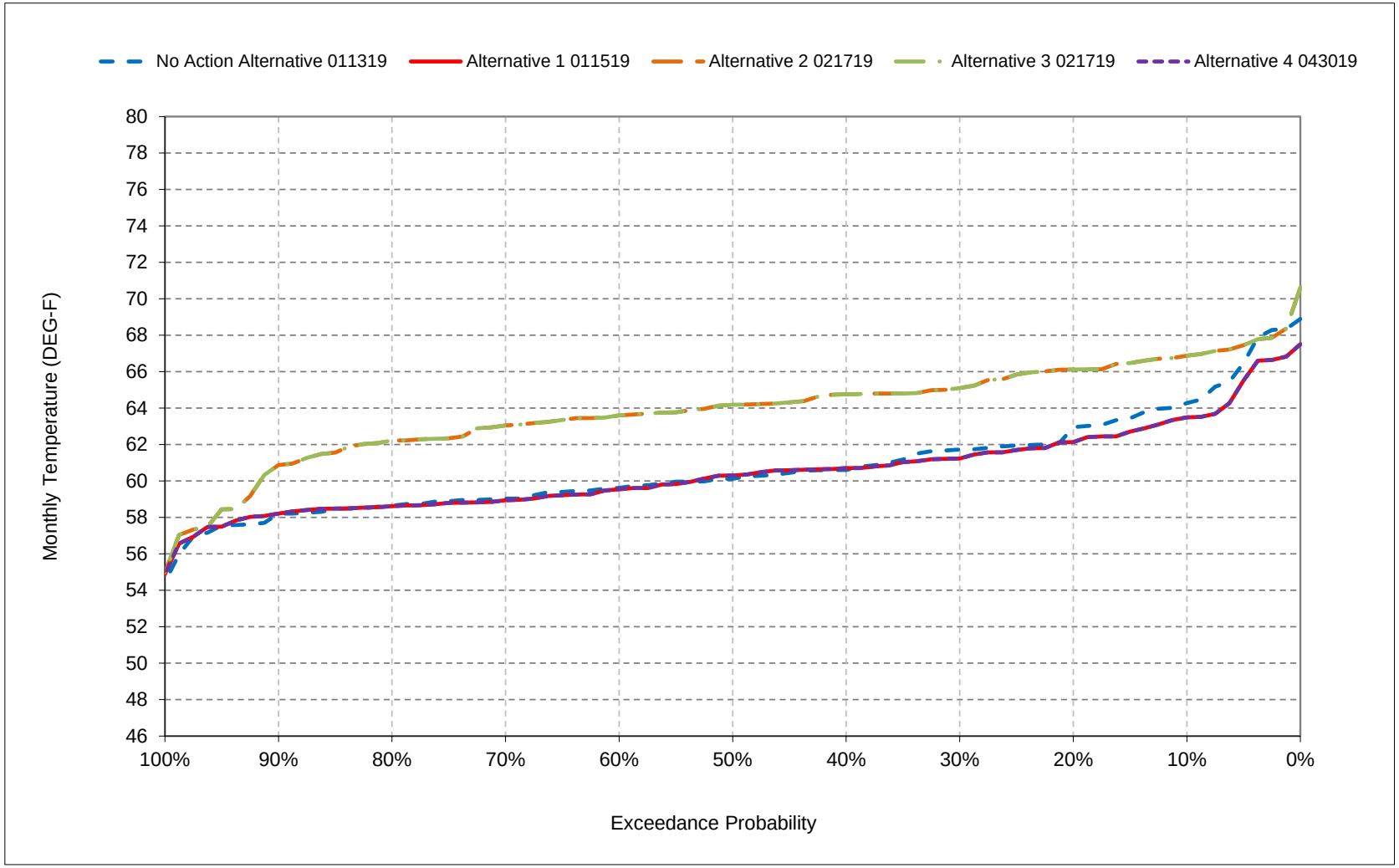

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

## Figure 24-6. Stanislaus River at Mouth, Critical Year Average Temperature




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

**Figure 24-7. Stanislaus River at Mouth, October**

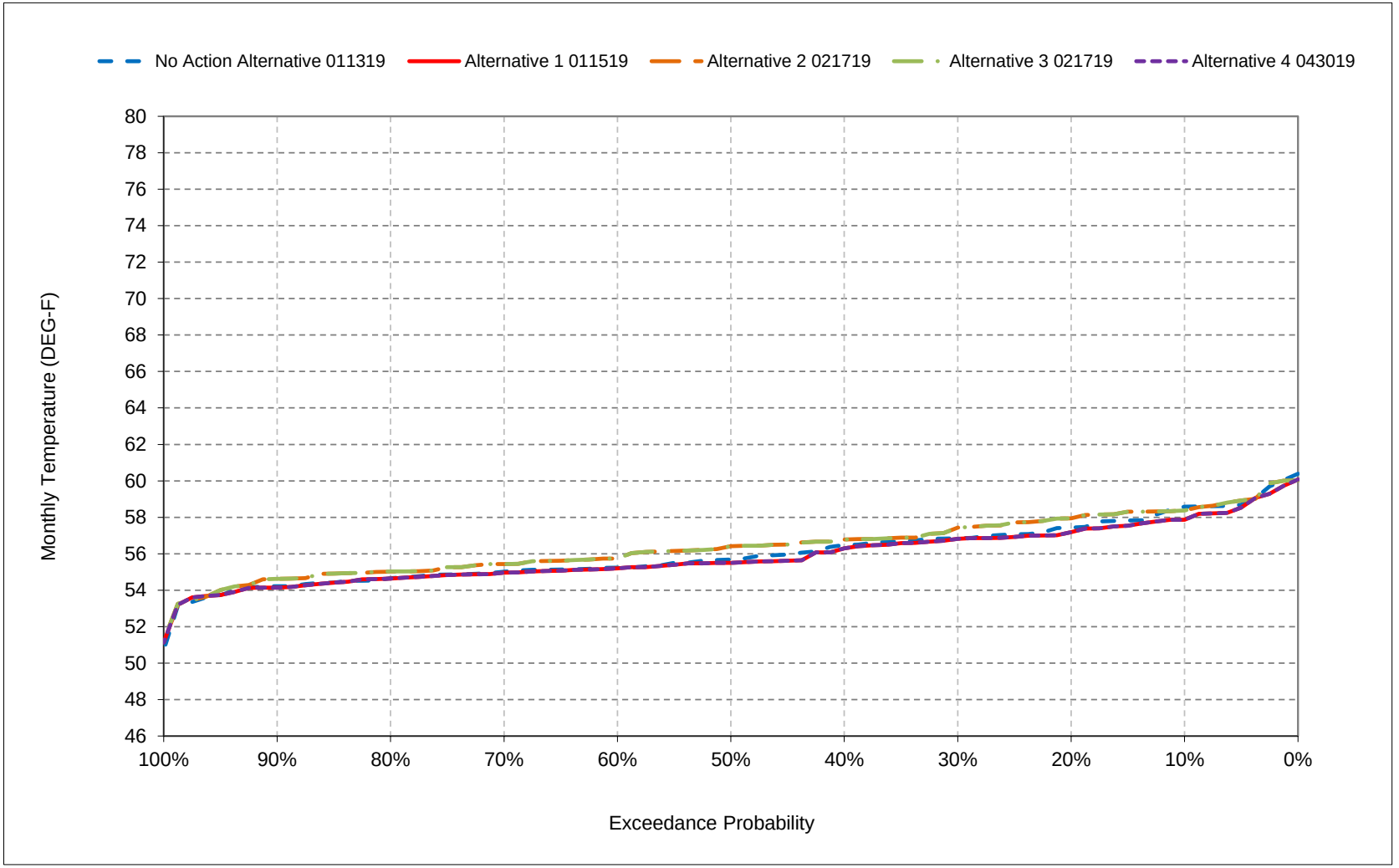



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 24-8. Stanislaus River at Mouth, November**

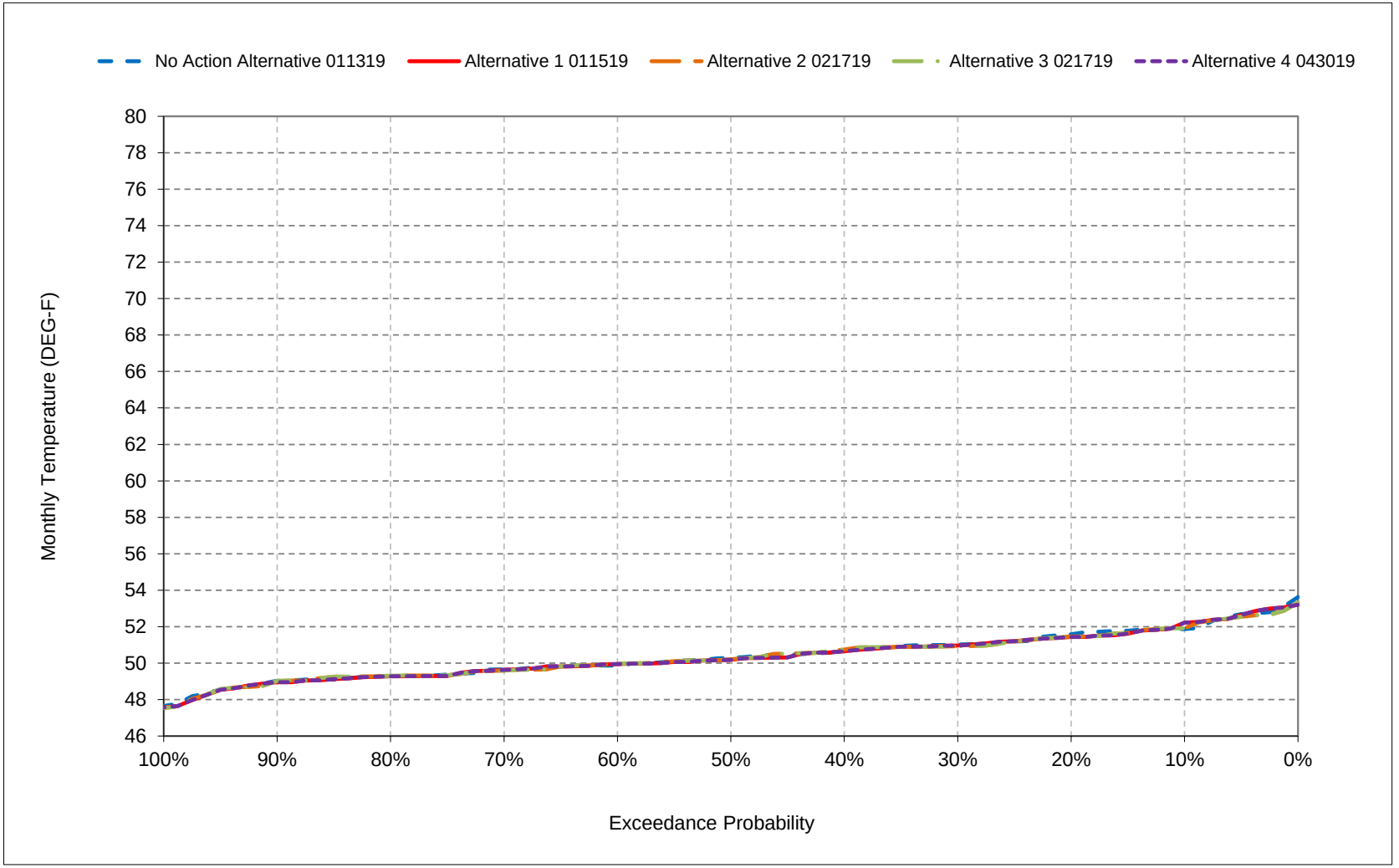



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 24-9. Stanislaus River at Mouth, December**

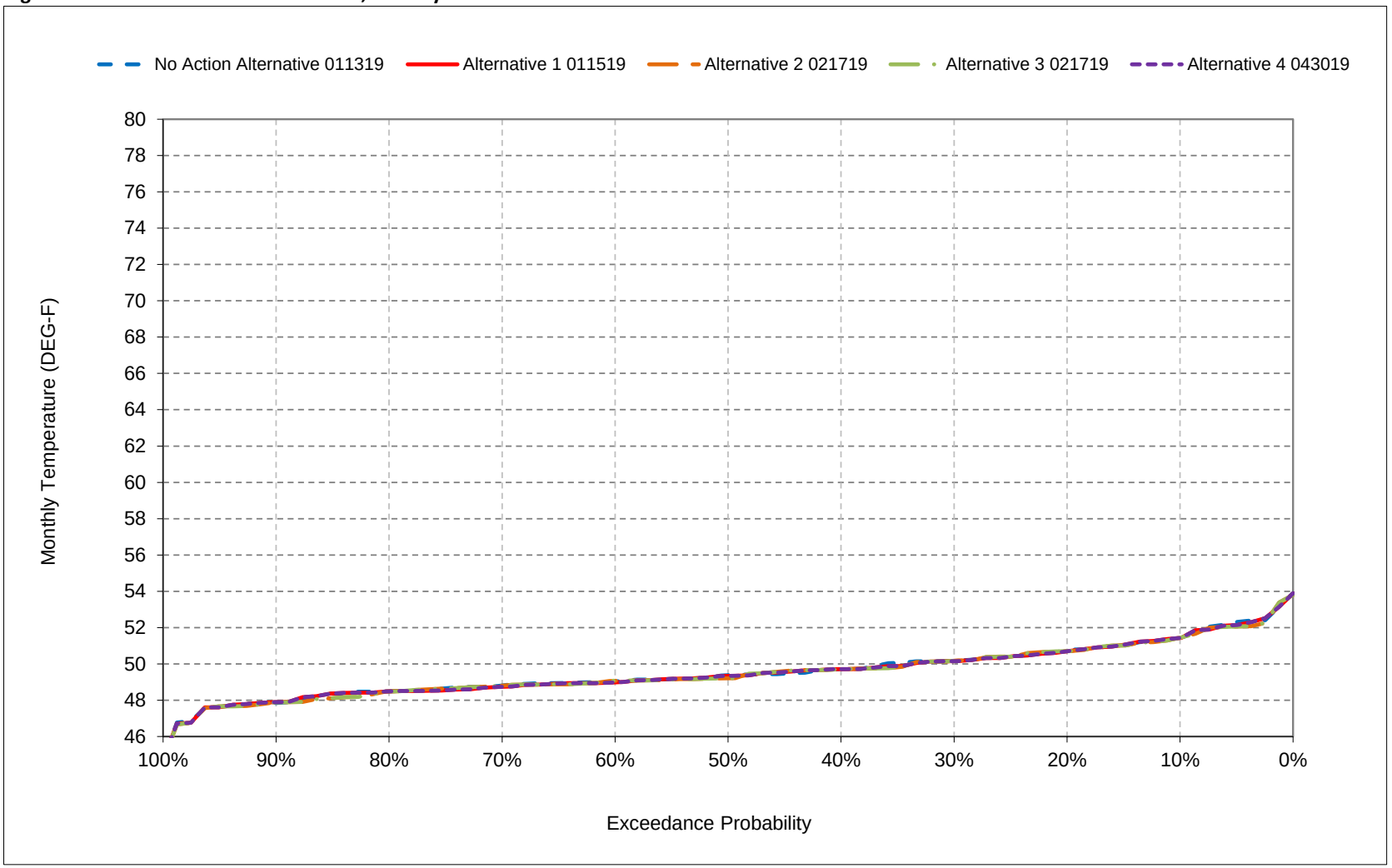



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 24-10. Stanislaus River at Mouth, January**

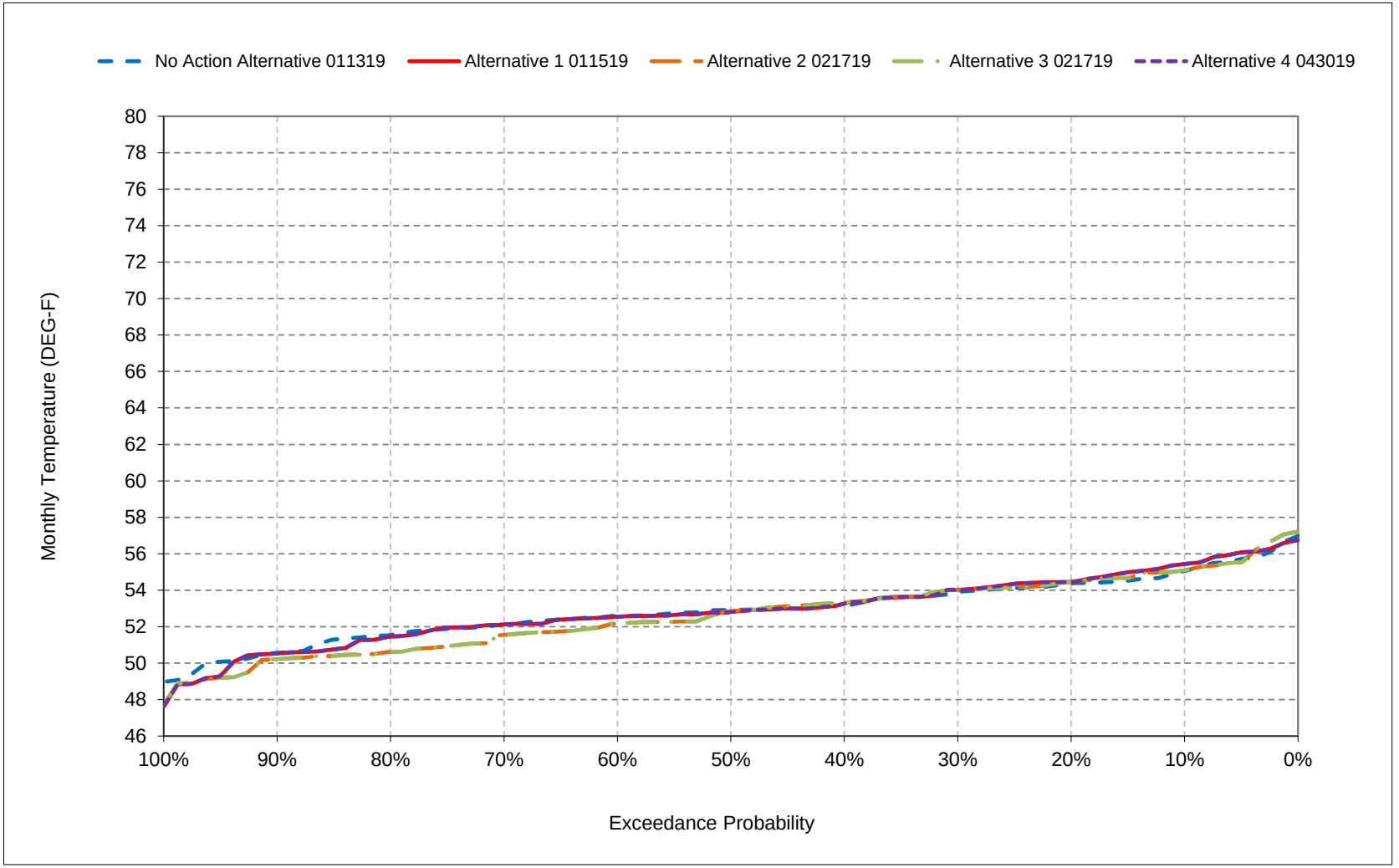



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 24-11. Stanislaus River at Mouth, February**

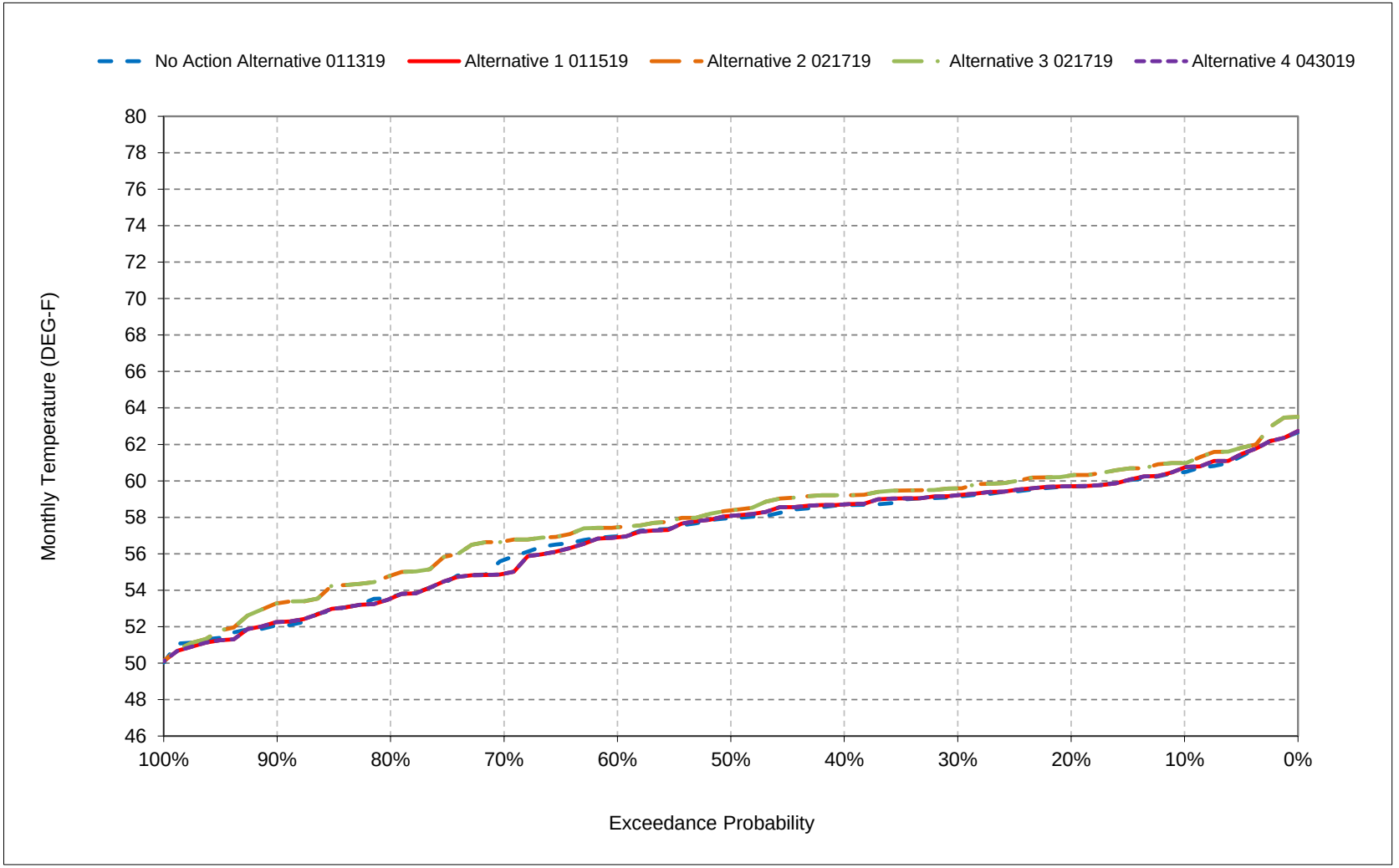



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 24-12. Stanislaus River at Mouth, March**

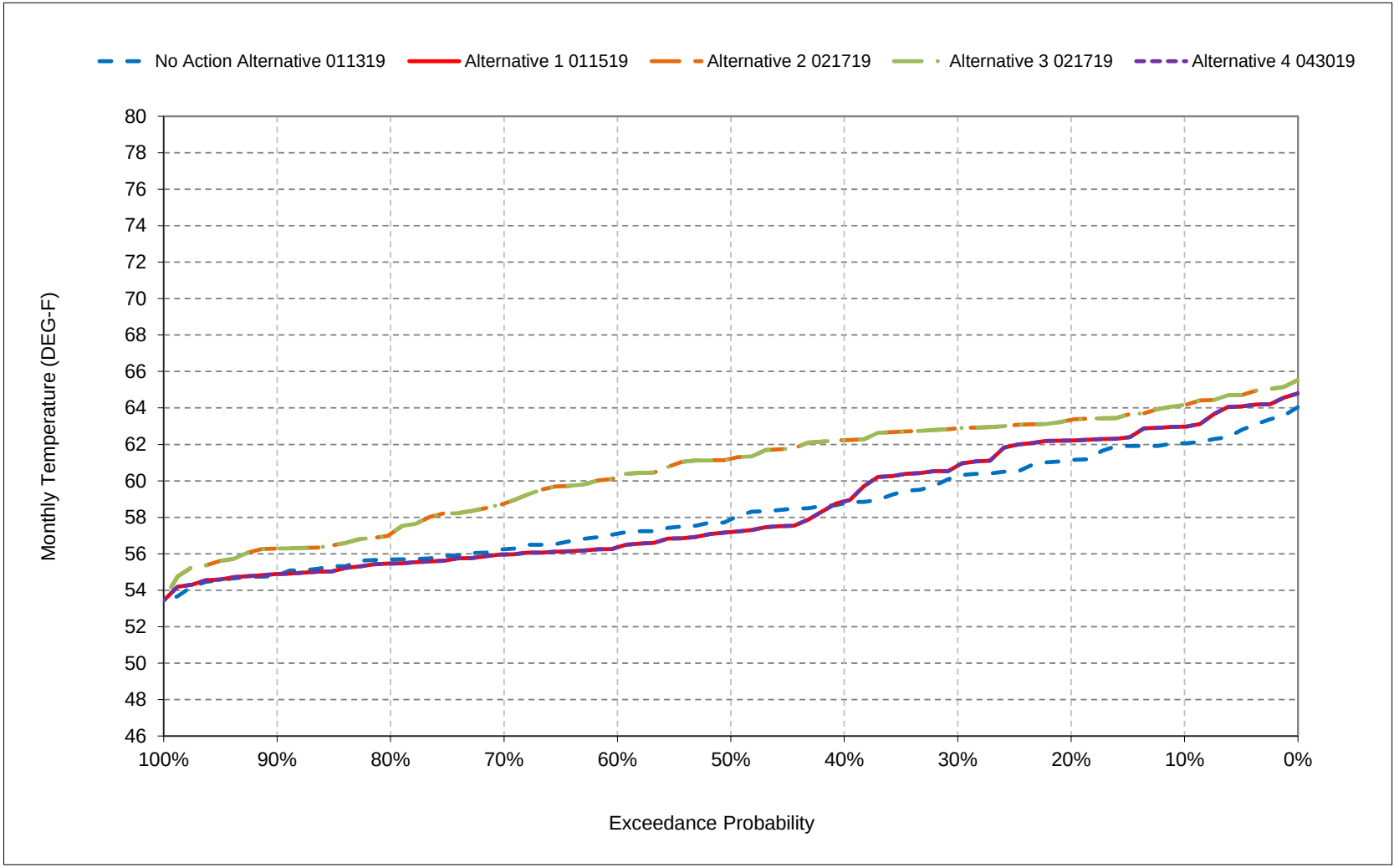



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 24-13. Stanislaus River at Mouth, April**

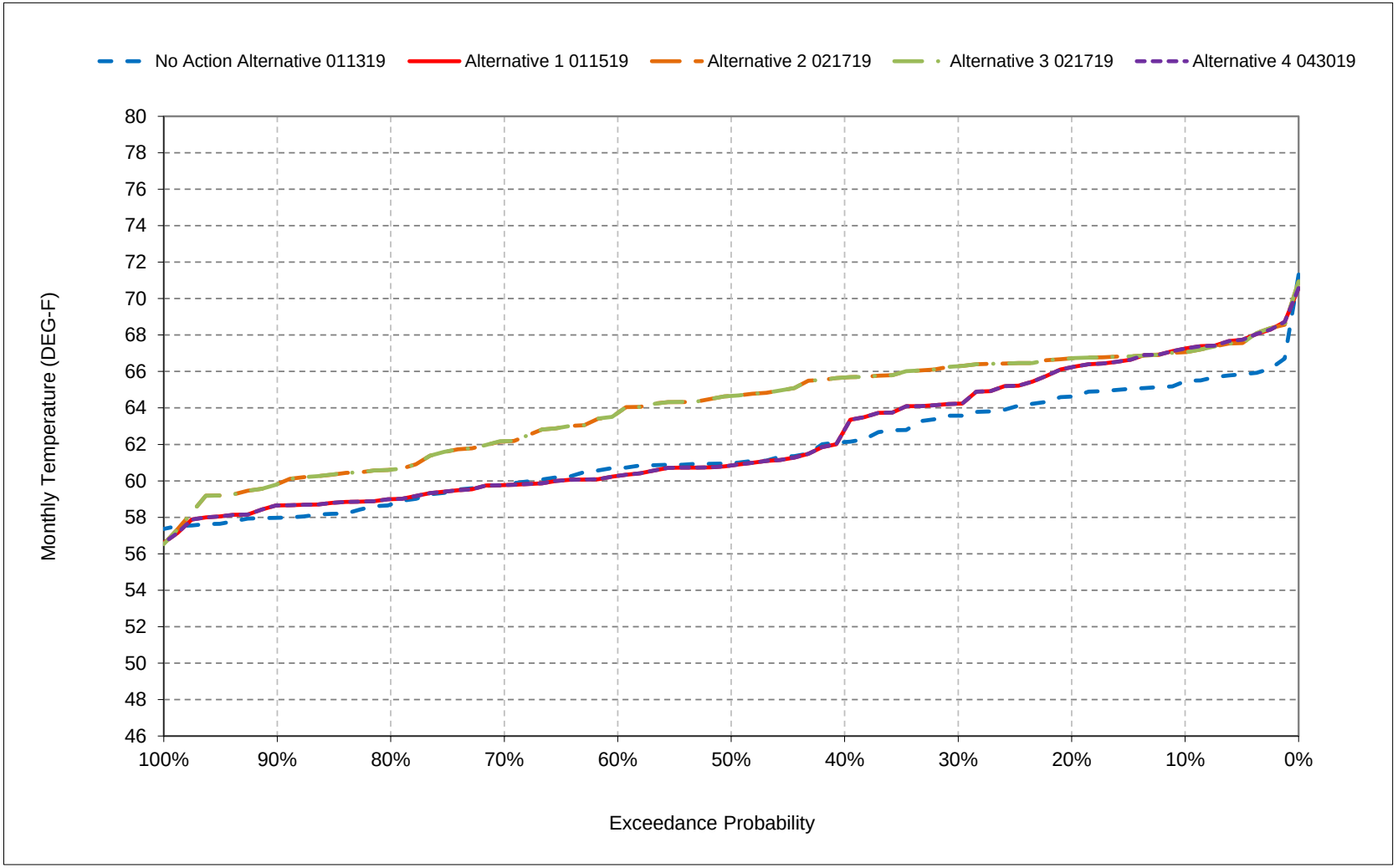



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 24-14. Stanislaus River at Mouth, May**

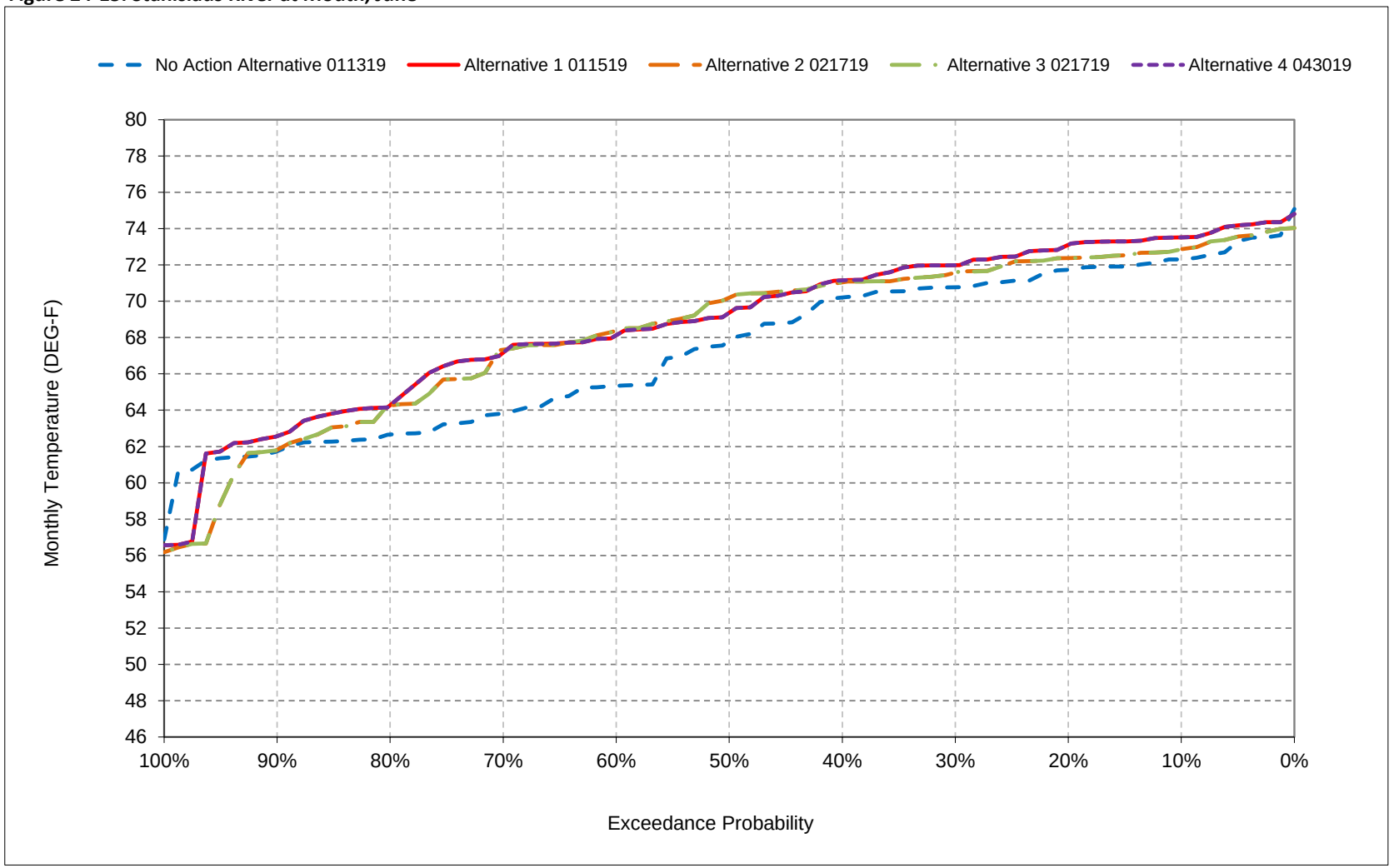



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 24-15. Stanislaus River at Mouth, June**

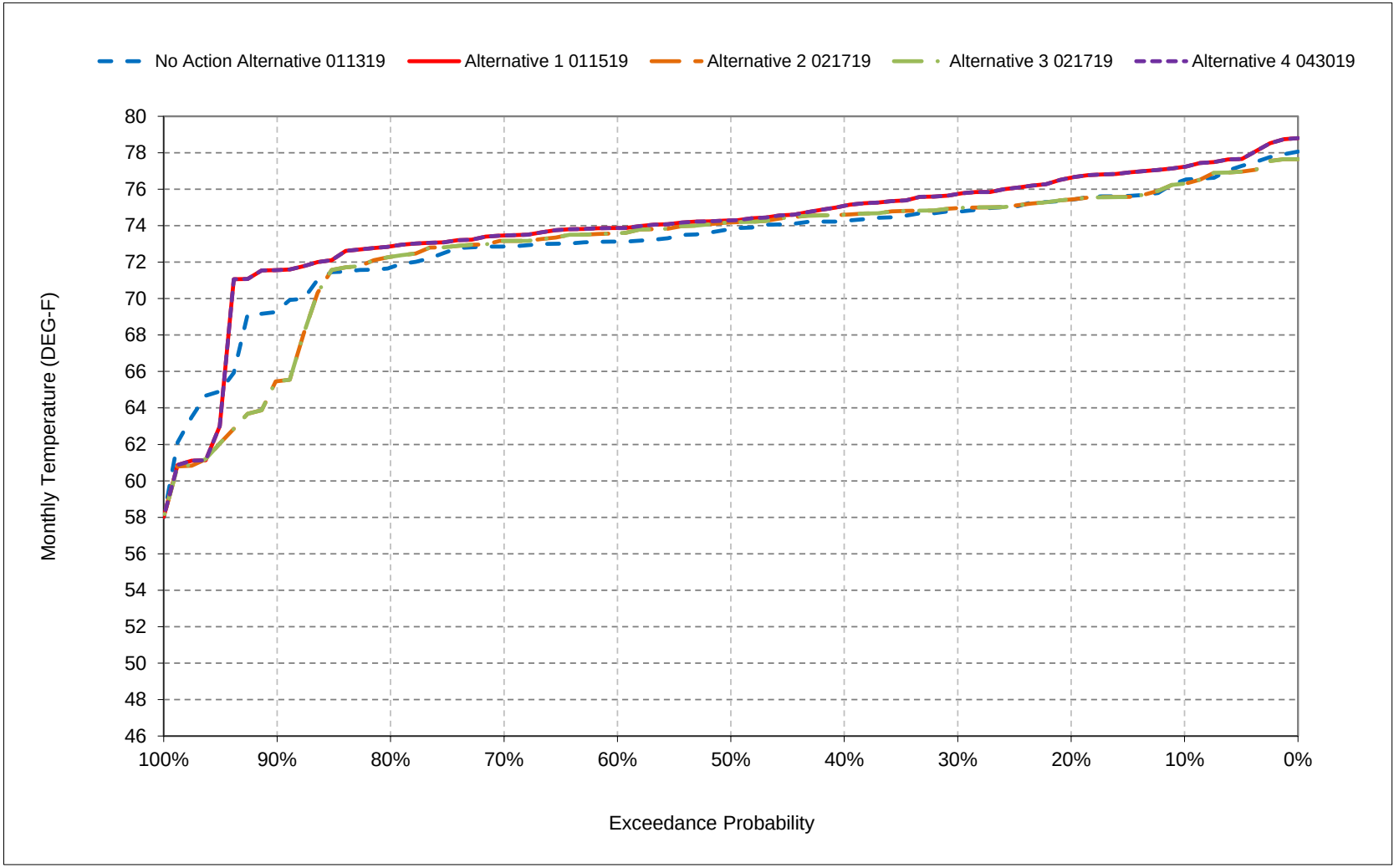



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 24-16. Stanislaus River at Mouth, July**

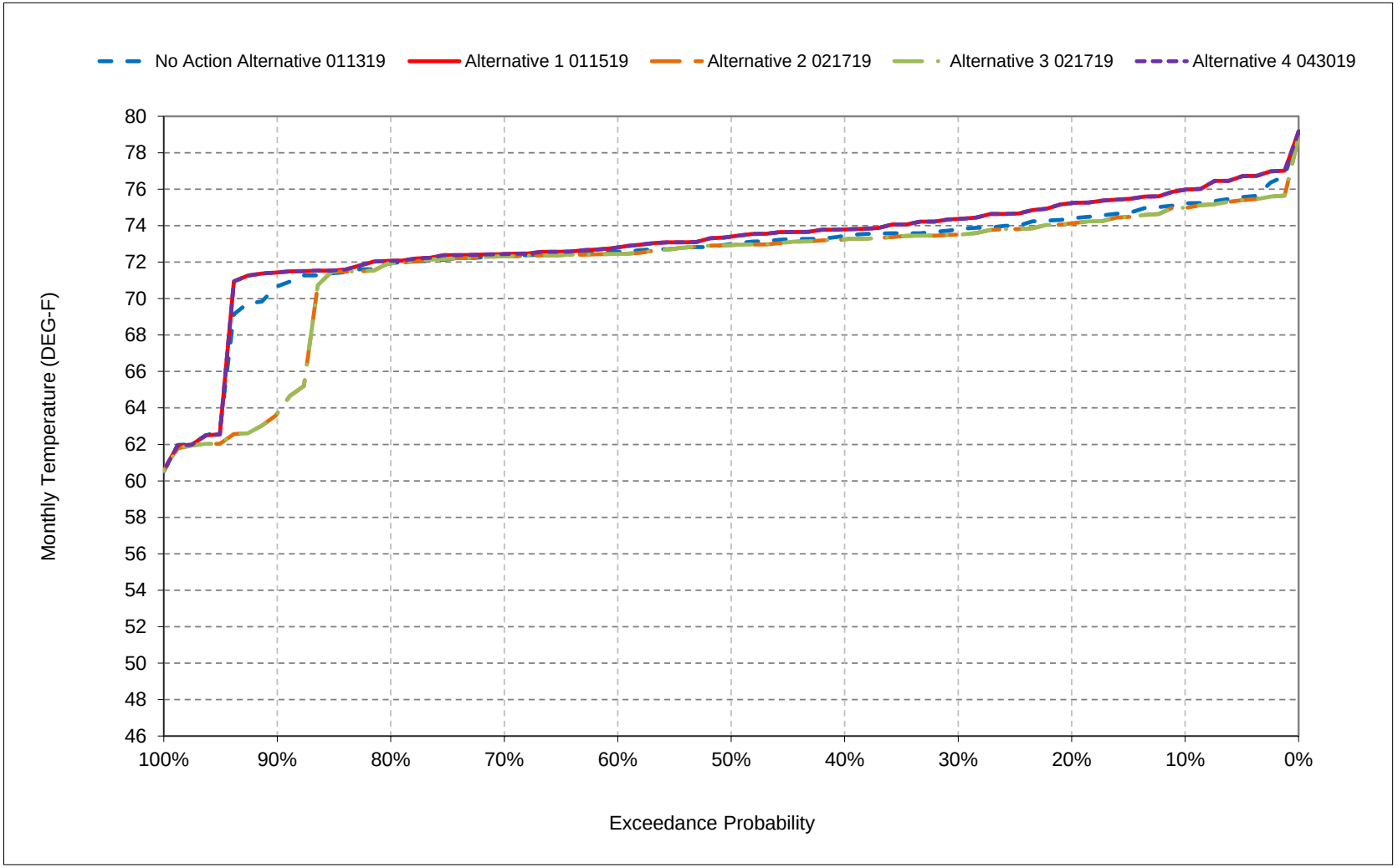



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 24-17. Stanislaus River at Mouth, August**

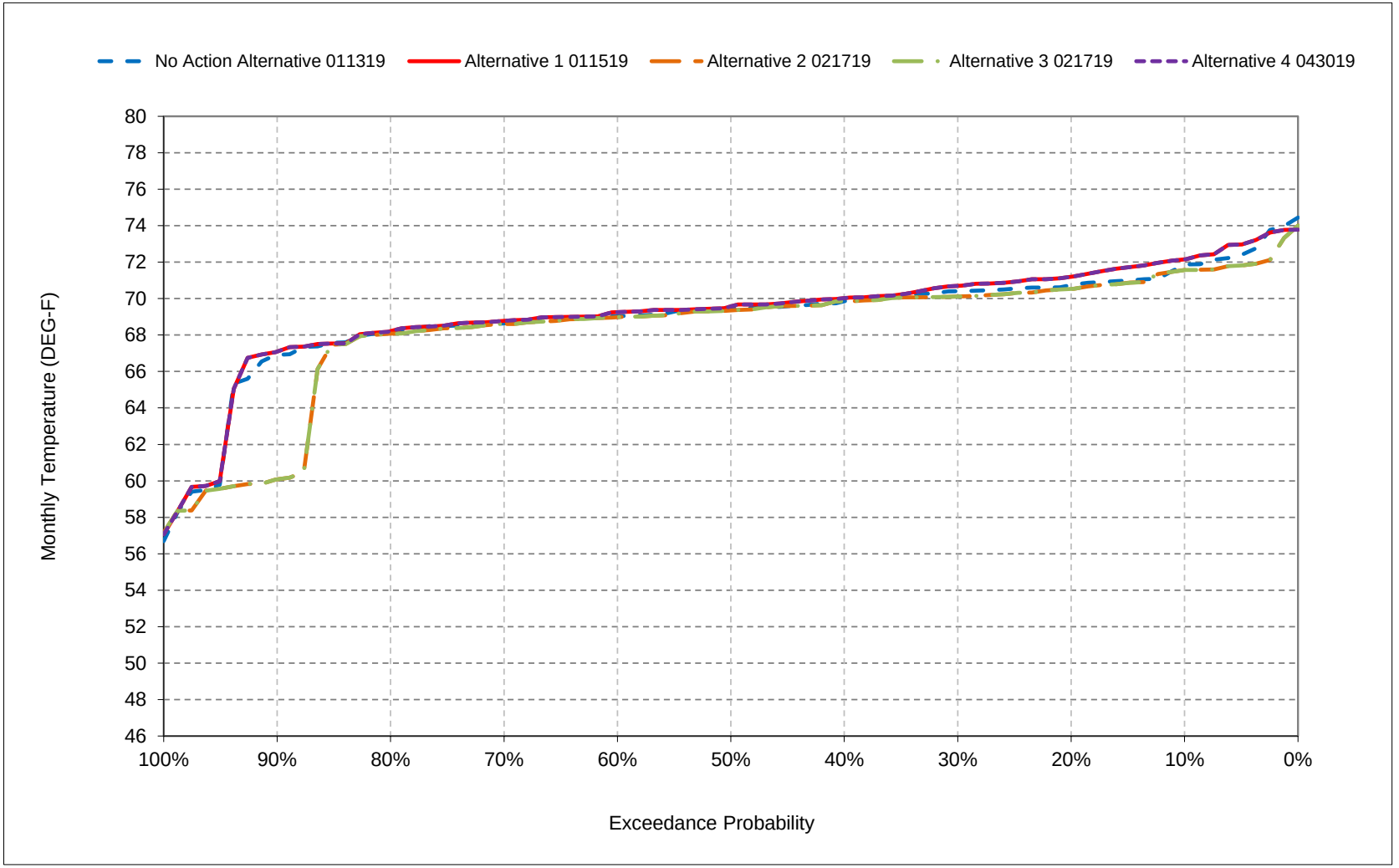



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

**Figure 24-18. Stanislaus River at Mouth, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

# Attachment 3-5 Temperature Results (Reclamation Temperature Model)

The following results of the Reclamation Temperature model are included for river temperature conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Feather River Low Flow Channel | FISH_DAM | to 1-4 | 1-1 to 1-18 |
| Feather River at Robinson Riffle | ABV_THERMALITO_AB | to 2-4 | 2-1 to 2-18 |
| Feather River at Gridley Bridge | GRIDLEY | 3-1 to 3-4 | 3-1 to 3-18 |
| Feather River at Mouth | FEATHER_AT_SACRIV | 4-1 to 4-4 | 4-1 to 4-18 |

## 1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

# Appendix F – Modeling

## Attachment 3-5 – Temperature Results (Reclamation Temperature Model)

The following results of the Reclamation Temperature model are included for river temperature conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Feather River Low Flow Channel | FISH_DAM | 1-1 to 1-4 | 1-1 to 1-18 |
| Feather River at Robinson Riffle | ABV_THERMALITO_AB | 2-1 to 2-4 | 2-1 to 2-18 |
| Feather River at Gridley Bridge | GRIDLEY | 3-1 to 3-4 | 3-1 to 3-18 |
| Feather River at Mouth | FEATHER_AT_SACRIV | 4-1 to 4-4 | 4-1 to 4-18 |

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

## Table 1-1. Feather River Low Flow Channel, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.3 | 58.2 | 54.4 | 51.4 | 51.8 | 53.6 | 53.5 | 56.9 | 58.8 | 62.3 | 62.5 | 58.3 |
| 20% | 54.9 | 56.2 | 53.6 | 50.5 | 51.0 | 52.5 | 53.0 | 56.6 | 58.5 | 62.0 | 62.0 | 57.0 |
| 30% | 54.3 | 55.5 | 52.8 | 49.9 | 50.5 | 51.9 | 52.5 | 56.2 | 58.4 | 61.4 | 61.4 | 56.7 |
| 40% | 53.9 | 54.9 | 52.4 | 49.5 | 49.9 | 51.3 | 52.2 | 56.0 | 58.2 | 61.3 | 61.1 | 56.2 |
| 50% | 53.6 | 54.3 | 51.9 | 49.1 | 49.5 | 50.8 | 52.0 | 55.9 | 58.0 | 61.2 | 60.6 | 55.3 |
| 60% | 53.4 | 53.4 | 51.4 | 48.8 | 49.2 | 50.1 | 51.8 | 55.5 | 57.9 | 61.1 | 60.3 | 54.8 |
| 70% | 53.3 | 52.9 | 51.1 | 48.1 | 49.0 | 49.8 | 51.4 | 55.2 | 57.6 | 61.0 | 60.1 | 54.7 |
| 80% | 53.1 | 52.5 | 50.5 | 47.5 | 48.3 | 49.3 | 50.6 | 54.8 | 57.5 | 60.9 | 59.9 | 54.5 |
| 90% | 52.9 | 52.1 | 49.1 | 47.0 | 47.3 | 48.4 | 50.2 | 54.5 | 57.2 | 60.8 | 59.8 | 54.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.9 | 54.6 | 52.0 | 49.2 | 49.6 | 50.9 | 52.0 | 55.8 | 58.0 | 61.4 | 61.1 | 56.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.3 | 54.2 | 52.9 | 48.9 | 48.9 | 49.5 | 51.0 | 55.1 | 57.8 | 61.4 | 60.5 | 54.6 |
| Above Normal (16%) | 53.3 | 53.2 | 51.4 | 49.3 | 49.5 | 50.1 | 51.9 | 56.3 | 58.4 | 61.0 | 59.9 | 54.5 |
| Below Normal (15%) | 54.1 | 54.1 | 51.8 | 49.9 | 50.3 | 51.6 | 52.7 | 55.8 | 58.2 | 61.1 | 60.5 | 56.4 |
| Dry (24%) | 54.6 | 54.7 | 52.0 | 49.0 | 49.9 | 52.1 | 52.7 | 56.0 | 57.8 | 61.4 | 61.7 | 56.8 |
| Critical (15%) | 61.1 | 57.5 | 50.9 | 49.2 | 50.4 | 52.4 | 52.3 | 56.2 | 58.1 | 62.3 | 63.4 | 62.3 |

### Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.3 | 57.4 | 53.5 | 51.6 | 51.7 | 53.6 | 53.5 | 56.8 | 58.5 | 62.3 | 62.4 | 59.0 |
| 20% | 55.0 | 55.9 | 52.7 | 50.5 | 51.2 | 52.9 | 53.0 | 56.4 | 58.3 | 62.0 | 61.9 | 57.5 |
| 30% | 54.2 | 54.6 | 52.2 | 50.1 | 50.6 | 51.9 | 52.5 | 56.0 | 58.1 | 61.6 | 61.4 | 57.1 |
| 40% | 53.8 | 53.7 | 51.8 | 49.6 | 50.0 | 51.3 | 52.4 | 55.9 | 57.9 | 61.3 | 61.1 | 56.8 |
| 50% | 53.6 | 52.9 | 51.4 | 49.1 | 49.6 | 50.7 | 52.0 | 55.6 | 57.8 | 61.1 | 60.5 | 56.3 |
| 60% | 53.4 | 52.6 | 51.0 | 48.7 | 49.3 | 50.2 | 51.8 | 55.3 | 57.6 | 61.1 | 60.3 | 55.6 |
| 70% | 53.4 | 52.4 | 50.6 | 48.2 | 48.8 | 49.7 | 51.4 | 55.1 | 57.4 | 61.0 | 60.1 | 55.3 |
| 80% | 53.2 | 52.2 | 49.8 | 47.4 | 48.1 | 49.3 | 50.6 | 54.7 | 57.3 | 60.9 | 59.9 | 55.1 |
| 90% | 53.0 | 52.1 | 48.7 | 47.0 | 47.0 | 48.5 | 50.3 | 54.5 | 57.1 | 60.8 | 59.8 | 54.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.8 | 54.0 | 51.4 | 49.1 | 49.7 | 51.0 | 52.0 | 55.6 | 57.8 | 61.4 | 61.1 | 57.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.3 | 52.5 | 51.1 | 48.9 | 49.0 | 49.6 | 51.0 | 55.0 | 57.7 | 61.4 | 60.5 | 56.1 |
| Above Normal (16%) | 53.3 | 53.0 | 51.0 | 49.3 | 49.5 | 50.2 | 52.0 | 56.1 | 58.2 | 60.9 | 59.9 | 54.8 |
| Below Normal (15%) | 54.0 | 53.8 | 51.7 | 49.8 | 50.1 | 51.6 | 52.7 | 55.7 | 57.9 | 61.0 | 60.2 | 56.4 |
| Dry (24%) | 54.5 | 54.7 | 52.0 | 49.0 | 49.9 | 52.0 | 52.7 | 55.8 | 57.5 | 61.5 | 61.6 | 56.9 |
| Critical (15%) | 60.9 | 57.5 | 50.7 | 49.1 | 50.4 | 52.4 | 52.4 | 56.1 | 58.0 | 62.2 | 63.5 | 62.7 |

### Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -2.0 | -0.8 | -0.9 | **0.2** | -0.1 | 0.0 | **0.0** | -0.1 | -0.3 | 0.0 | -0.1 | **0.7** |
| 20% | **0.1** | -0.3 | -0.9 | 0.0 | **0.2** | **0.4** | 0.0 | -0.2 | -0.2 | 0.0 | -0.1 | **0.5** |
| 30% | -0.1 | -0.9 | -0.6 | **0.2** | **0.1** | **0.0** | 0.0 | -0.2 | -0.3 | **0.2** | 0.0 | **0.4** |
| 40% | -0.1 | -1.2 | -0.6 | **0.1** | **0.1** | **0.0** | **0.2** | -0.1 | -0.3 | 0.0 | 0.0 | **0.6** |
| 50% | 0.0 | -1.4 | -0.5 | 0.0 | **0.1** | 0.0 | 0.0 | -0.2 | -0.2 | -0.1 | -0.1 | **1.0** |
| 60% | 0.0 | -0.8 | -0.4 | -0.1 | **0.1** | **0.1** | 0.0 | -0.2 | -0.3 | 0.0 | **0.0** | **0.8** |
| 70% | **0.1** | -0.5 | -0.5 | **0.0** | -0.2 | -0.1 | -0.1 | -0.1 | -0.2 | 0.0 | 0.0 | **0.6** |
| 80% | **0.1** | -0.3 | -0.7 | -0.1 | -0.2 | 0.0 | 0.0 | -0.1 | -0.2 | 0.0 | 0.0 | **0.6** |
| 90% | **0.1** | 0.0 | -0.4 | 0.0 | -0.3 | **0.1** | **0.1** | 0.0 | -0.1 | 0.0 | 0.0 | **0.5** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | -0.6 | -0.7 | 0.0 | **0.0** | **0.0** | **0.0** | -0.1 | -0.2 | 0.0 | 0.0 | **0.6** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0.0 | -1.7 | -1.8 | **0.1** | **0.1** | **0.1** | **0.0** | -0.1 | -0.1 | **0.0** | **0.1** | **1.5** |
| Above Normal (16%) | 0.0 | -0.2 | -0.4 | **0.0** | 0.0 | **0.1** | **0.1** | -0.1 | -0.2 | 0.0 | 0.0 | **0.3** |
| Below Normal (15%) | -0.1 | -0.3 | -0.1 | -0.1 | -0.1 | **0.0** | **0.0** | -0.1 | -0.3 | -0.1 | -0.3 | **0.0** |
| Dry (24%) | -0.1 | 0.0 | **0.0** | 0.0 | **0.0** | 0.0 | **0.1** | -0.1 | -0.3 | **0.1** | -0.1 | **0.0** |
| Critical (15%) | -0.2 | **0.1** | -0.1 | -0.1 | **0.0** | **0.0** | **0.0** | -0.1 | -0.1 | -0.1 | **0.1** | **0.4** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 1-2. Feather River Low Flow Channel, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.3 | 58.2 | 54.4 | 51.4 | 51.8 | 53.6 | 53.5 | 56.9 | 58.8 | 62.3 | 62.5 | 58.3 |
| 20% | 54.9 | 56.2 | 53.6 | 50.5 | 51.0 | 52.5 | 53.0 | 56.6 | 58.5 | 62.0 | 62.0 | 57.0 |
| 30% | 54.3 | 55.5 | 52.8 | 49.9 | 50.5 | 51.9 | 52.5 | 56.2 | 58.4 | 61.4 | 61.4 | 56.7 |
| 40% | 53.9 | 54.9 | 52.4 | 49.5 | 49.9 | 51.3 | 52.2 | 56.0 | 58.2 | 61.3 | 61.1 | 56.2 |
| 50% | 53.6 | 54.3 | 51.9 | 49.1 | 49.5 | 50.8 | 52.0 | 55.9 | 58.0 | 61.2 | 60.6 | 55.3 |
| 60% | 53.4 | 53.4 | 51.4 | 48.8 | 49.2 | 50.1 | 51.8 | 55.5 | 57.9 | 61.1 | 60.3 | 54.8 |
| 70% | 53.3 | 52.9 | 51.1 | 48.1 | 49.0 | 49.8 | 51.4 | 55.2 | 57.6 | 61.0 | 60.1 | 54.7 |
| 80% | 53.1 | 52.5 | 50.5 | 47.5 | 48.3 | 49.3 | 50.6 | 54.8 | 57.5 | 60.9 | 59.9 | 54.5 |
| 90% | 52.9 | 52.1 | 49.1 | 47.0 | 47.3 | 48.4 | 50.2 | 54.5 | 57.2 | 60.8 | 59.8 | 54.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.9 | 54.6 | 52.0 | 49.2 | 49.6 | 50.9 | 52.0 | 55.8 | 58.0 | 61.4 | 61.1 | 56.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.3 | 54.2 | 52.9 | 48.9 | 48.9 | 49.5 | 51.0 | 55.1 | 57.8 | 61.4 | 60.5 | 54.6 |
| Above Normal (16%) | 53.3 | 53.2 | 51.4 | 49.3 | 49.5 | 50.1 | 51.9 | 56.3 | 58.4 | 61.0 | 59.9 | 54.5 |
| Below Normal (15%) | 54.1 | 54.1 | 51.8 | 49.9 | 50.3 | 51.6 | 52.7 | 55.8 | 58.2 | 61.1 | 60.5 | 56.4 |
| Dry (24%) | 54.6 | 54.7 | 52.0 | 49.0 | 49.9 | 52.1 | 52.7 | 56.0 | 57.8 | 61.4 | 61.7 | 56.8 |
| Critical (15%) | 61.1 | 57.5 | 50.9 | 49.2 | 50.4 | 52.4 | 52.3 | 56.2 | 58.1 | 62.3 | 63.4 | 62.3 |

### Alternative 2 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 59.0 | 57.8 | 53.5 | 51.7 | 51.7 | 53.3 | 53.5 | 56.7 | 58.2 | 62.3 | 62.5 | 58.3 |
| 20% | 55.1 | 56.0 | 52.9 | 50.7 | 51.2 | 52.6 | 53.0 | 56.4 | 57.9 | 61.9 | 62.3 | 57.5 |
| 30% | 54.2 | 54.9 | 52.2 | 50.1 | 50.6 | 51.9 | 52.5 | 56.0 | 57.9 | 61.7 | 61.4 | 57.0 |
| 40% | 53.8 | 53.5 | 52.0 | 49.6 | 50.1 | 51.3 | 52.3 | 55.8 | 57.7 | 61.5 | 61.3 | 56.8 |
| 50% | 53.6 | 53.0 | 51.6 | 49.1 | 49.6 | 50.7 | 52.0 | 55.5 | 57.5 | 61.4 | 61.0 | 56.3 |
| 60% | 53.4 | 52.6 | 51.1 | 48.8 | 49.3 | 50.2 | 51.8 | 55.3 | 57.3 | 61.2 | 60.7 | 56.0 |
| 70% | 53.3 | 52.5 | 50.6 | 48.2 | 48.8 | 49.8 | 51.4 | 55.1 | 57.2 | 61.1 | 60.3 | 55.5 |
| 80% | 53.1 | 52.2 | 49.5 | 47.5 | 48.1 | 49.4 | 50.6 | 54.7 | 57.0 | 61.0 | 60.0 | 55.2 |
| 90% | 53.0 | 52.1 | 49.0 | 47.0 | 47.1 | 48.4 | 50.4 | 54.5 | 56.9 | 60.8 | 59.9 | 54.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.8 | 54.1 | 51.4 | 49.2 | 49.7 | 51.0 | 52.0 | 55.6 | 57.6 | 61.5 | 61.3 | 57.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.2 | 52.5 | 51.3 | 48.9 | 49.0 | 49.6 | 51.1 | 55.0 | 57.5 | 61.4 | 60.9 | 56.1 |
| Above Normal (16%) | 53.3 | 53.0 | 51.0 | 49.4 | 49.5 | 50.2 | 52.0 | 56.1 | 57.7 | 61.0 | 60.1 | 55.0 |
| Below Normal (15%) | 54.1 | 54.0 | 52.0 | 49.8 | 50.1 | 51.6 | 52.7 | 55.5 | 57.3 | 61.2 | 61.0 | 56.6 |
| Dry (24%) | 54.7 | 55.0 | 52.1 | 49.0 | 50.0 | 52.0 | 52.7 | 55.8 | 57.4 | 61.7 | 61.7 | 56.8 |
| Critical (15%) | 60.7 | 57.2 | 50.8 | 49.2 | 50.5 | 52.4 | 52.4 | 56.0 | 58.0 | 62.2 | 63.2 | 62.1 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -1.3 | -0.4 | -0.9 | **0.3** | -0.1 | -0.3 | **0.0** | -0.2 | -0.6 | 0.0 | **0.0** | 0.0 |
| 20% | **0.2** | -0.2 | -0.7 | **0.2** | **0.2** | **0.1** | 0.0 | -0.2 | -0.6 | -0.1 | **0.3** | **0.5** |
| 30% | -0.1 | -0.6 | -0.6 | **0.2** | **0.1** | **0.0** | 0.0 | -0.2 | -0.5 | **0.3** | 0.0 | **0.3** |
| 40% | -0.1 | -1.4 | -0.4 | **0.1** | **0.2** | **0.0** | **0.1** | -0.2 | -0.5 | **0.2** | **0.2** | **0.6** |
| 50% | 0.0 | -1.3 | -0.3 | -0.1 | **0.1** | 0.0 | 0.0 | -0.4 | -0.5 | **0.1** | **0.4** | **1.0** |
| 60% | 0.0 | -0.8 | -0.3 | 0.0 | **0.1** | **0.1** | 0.0 | -0.2 | -0.6 | **0.1** | **0.4** | **1.2** |
| 70% | 0.0 | -0.4 | -0.5 | **0.1** | -0.2 | 0.0 | 0.0 | -0.1 | -0.4 | **0.1** | **0.2** | **0.8** |
| 80% | 0.0 | -0.3 | -1.0 | 0.0 | -0.2 | **0.1** | 0.0 | -0.1 | -0.5 | **0.1** | **0.1** | **0.7** |
| 90% | **0.1** | 0.0 | -0.1 | 0.0 | -0.2 | 0.0 | **0.2** | 0.0 | -0.3 | 0.0 | **0.1** | **0.5** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | -0.5 | -0.6 | **0.0** | **0.0** | **0.0** | **0.1** | -0.2 | -0.4 | **0.1** | **0.2** | **0.5** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.1 | -1.7 | -1.6 | **0.1** | **0.1** | **0.1** | **0.1** | -0.1 | -0.3 | **0.1** | **0.4** | **1.6** |
| Above Normal (16%) | 0.0 | -0.2 | -0.5 | **0.1** | **0.0** | **0.1** | **0.1** | -0.2 | -0.7 | 0.0 | **0.2** | **0.4** |
| Below Normal (15%) | 0.0 | 0.0 | **0.2** | 0.0 | -0.2 | 0.0 | **0.0** | -0.3 | -0.9 | **0.1** | **0.5** | **0.2** |
| Dry (24%) | **0.0** | **0.3** | **0.0** | **0.0** | **0.1** | -0.1 | **0.1** | -0.2 | -0.4 | **0.2** | -0.1 | -0.1 |
| Critical (15%) | -0.3 | -0.2 | -0.1 | **0.0** | **0.1** | 0.0 | **0.1** | -0.2 | -0.1 | -0.1 | -0.2 | -0.2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 1-3. Feather River Low Flow Channel, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.3 | 58.2 | 54.4 | 51.4 | 51.8 | 53.6 | 53.5 | 56.9 | 58.8 | 62.3 | 62.5 | 58.3 |
| 20% | 54.9 | 56.2 | 53.6 | 50.5 | 51.0 | 52.5 | 53.0 | 56.6 | 58.5 | 62.0 | 62.0 | 57.0 |
| 30% | 54.3 | 55.5 | 52.8 | 49.9 | 50.5 | 51.9 | 52.5 | 56.2 | 58.4 | 61.4 | 61.4 | 56.7 |
| 40% | 53.9 | 54.9 | 52.4 | 49.5 | 49.9 | 51.3 | 52.2 | 56.0 | 58.2 | 61.3 | 61.1 | 56.2 |
| 50% | 53.6 | 54.3 | 51.9 | 49.1 | 49.5 | 50.8 | 52.0 | 55.9 | 58.0 | 61.2 | 60.6 | 55.3 |
| 60% | 53.4 | 53.4 | 51.4 | 48.8 | 49.2 | 50.1 | 51.8 | 55.5 | 57.9 | 61.1 | 60.3 | 54.8 |
| 70% | 53.3 | 52.9 | 51.1 | 48.1 | 49.0 | 49.8 | 51.4 | 55.2 | 57.6 | 61.0 | 60.1 | 54.7 |
| 80% | 53.1 | 52.5 | 50.5 | 47.5 | 48.3 | 49.3 | 50.6 | 54.8 | 57.5 | 60.9 | 59.9 | 54.5 |
| 90% | 52.9 | 52.1 | 49.1 | 47.0 | 47.3 | 48.4 | 50.2 | 54.5 | 57.2 | 60.8 | 59.8 | 54.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.9 | 54.6 | 52.0 | 49.2 | 49.6 | 50.9 | 52.0 | 55.8 | 58.0 | 61.4 | 61.1 | 56.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.3 | 54.2 | 52.9 | 48.9 | 48.9 | 49.5 | 51.0 | 55.1 | 57.8 | 61.4 | 60.5 | 54.6 |
| Above Normal (16%) | 53.3 | 53.2 | 51.4 | 49.3 | 49.5 | 50.1 | 51.9 | 56.3 | 58.4 | 61.0 | 59.9 | 54.5 |
| Below Normal (15%) | 54.1 | 54.1 | 51.8 | 49.9 | 50.3 | 51.6 | 52.7 | 55.8 | 58.2 | 61.1 | 60.5 | 56.4 |
| Dry (24%) | 54.6 | 54.7 | 52.0 | 49.0 | 49.9 | 52.1 | 52.7 | 56.0 | 57.8 | 61.4 | 61.7 | 56.8 |
| Critical (15%) | 61.1 | 57.5 | 50.9 | 49.2 | 50.4 | 52.4 | 52.3 | 56.2 | 58.1 | 62.3 | 63.4 | 62.3 |

### Alternative 3 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 57.9 | 57.6 | 53.8 | 51.6 | 51.8 | 53.2 | 53.6 | 56.8 | 58.4 | 62.3 | 62.5 | 58.2 |
| 20% | 55.3 | 56.1 | 52.8 | 50.7 | 51.2 | 52.7 | 53.0 | 56.4 | 58.0 | 62.0 | 62.2 | 57.5 |
| 30% | 54.1 | 54.9 | 52.1 | 50.1 | 50.6 | 51.9 | 52.5 | 56.0 | 57.9 | 61.7 | 61.6 | 57.0 |
| 40% | 53.8 | 53.4 | 51.9 | 49.7 | 50.1 | 51.3 | 52.3 | 55.8 | 57.6 | 61.5 | 61.3 | 56.8 |
| 50% | 53.6 | 52.9 | 51.6 | 49.1 | 49.6 | 50.7 | 52.0 | 55.5 | 57.5 | 61.4 | 61.1 | 56.3 |
| 60% | 53.4 | 52.7 | 51.0 | 48.8 | 49.3 | 50.2 | 51.8 | 55.3 | 57.4 | 61.2 | 60.7 | 56.0 |
| 70% | 53.3 | 52.5 | 50.6 | 48.2 | 48.8 | 49.8 | 51.5 | 55.1 | 57.3 | 61.1 | 60.4 | 55.5 |
| 80% | 53.1 | 52.2 | 49.7 | 47.5 | 48.1 | 49.4 | 50.6 | 54.7 | 57.1 | 61.0 | 60.1 | 55.3 |
| 90% | 53.0 | 52.1 | 48.9 | 47.0 | 47.2 | 48.4 | 50.4 | 54.5 | 56.9 | 60.8 | 59.9 | 54.8 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.8 | 54.1 | 51.4 | 49.2 | 49.7 | 51.0 | 52.0 | 55.6 | 57.6 | 61.5 | 61.3 | 57.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.2 | 52.5 | 51.2 | 48.9 | 49.0 | 49.6 | 51.1 | 55.1 | 57.5 | 61.4 | 61.0 | 56.1 |
| Above Normal (16%) | 53.2 | 53.0 | 51.1 | 49.4 | 49.5 | 50.2 | 52.1 | 56.1 | 57.8 | 61.0 | 60.1 | 55.1 |
| Below Normal (15%) | 54.0 | 54.1 | 51.9 | 49.9 | 50.1 | 51.6 | 52.7 | 55.5 | 57.3 | 61.2 | 61.0 | 56.7 |
| Dry (24%) | 54.7 | 55.0 | 52.1 | 49.0 | 49.9 | 52.0 | 52.7 | 55.7 | 57.4 | 61.7 | 61.7 | 56.8 |
| Critical (15%) | 60.6 | 57.1 | 50.8 | 49.3 | 50.5 | 52.4 | 52.4 | 56.0 | 58.0 | 62.2 | 63.1 | 62.1 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -2.4 | -0.6 | -0.6 | **0.2** | 0.0 | -0.4 | **0.1** | -0.1 | -0.4 | 0.0 | **0.0** | -0.1 |
| 20% | **0.4** | -0.1 | -0.8 | **0.2** | **0.2** | **0.2** | **0.0** | -0.2 | -0.5 | 0.0 | **0.2** | **0.5** |
| 30% | -0.2 | -0.6 | -0.7 | **0.2** | **0.1** | 0.0 | 0.0 | -0.2 | -0.5 | **0.3** | **0.2** | **0.3** |
| 40% | -0.1 | -1.5 | -0.5 | **0.2** | **0.2** | **0.0** | **0.1** | -0.2 | -0.6 | **0.2** | **0.2** | **0.6** |
| 50% | 0.0 | -1.4 | -0.3 | 0.0 | **0.1** | 0.0 | 0.0 | -0.3 | -0.5 | **0.2** | **0.4** | **1.0** |
| 60% | 0.0 | -0.7 | -0.5 | 0.0 | **0.1** | **0.2** | 0.0 | -0.2 | -0.5 | **0.1** | **0.4** | **1.2** |
| 70% | 0.0 | -0.4 | -0.4 | **0.0** | -0.2 | 0.0 | **0.1** | -0.1 | -0.3 | **0.1** | **0.3** | **0.8** |
| 80% | 0.0 | -0.3 | -0.8 | 0.0 | -0.2 | **0.1** | 0.0 | -0.1 | -0.4 | **0.1** | **0.2** | **0.8** |
| 90% | **0.1** | 0.0 | -0.2 | 0.0 | -0.1 | 0.0 | **0.2** | 0.0 | -0.3 | 0.0 | **0.1** | **0.5** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | -0.6 | -0.6 | **0.0** | **0.1** | **0.0** | **0.1** | -0.2 | -0.4 | **0.1** | **0.2** | **0.6** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.1 | -1.7 | -1.7 | **0.1** | **0.1** | **0.1** | **0.1** | 0.0 | -0.3 | **0.1** | **0.5** | **1.5** |
| Above Normal (16%) | -0.1 | -0.2 | -0.4 | **0.1** | **0.0** | **0.1** | **0.1** | -0.2 | -0.6 | **0.0** | **0.2** | **0.5** |
| Below Normal (15%) | -0.1 | 0.0 | **0.1** | 0.0 | -0.1 | **0.0** | **0.0** | -0.3 | -0.9 | **0.1** | **0.5** | **0.3** |
| Dry (24%) | **0.1** | **0.3** | **0.0** | 0.0 | **0.0** | -0.1 | **0.1** | -0.3 | -0.4 | **0.3** | -0.1 | 0.0 |
| Critical (15%) | -0.4 | -0.4 | -0.1 | **0.1** | **0.1** | **0.0** | **0.1** | -0.2 | -0.1 | -0.1 | -0.3 | -0.2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 1-4. Feather River Low Flow Channel, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.3 | 58.2 | 54.4 | 51.4 | 51.8 | 53.6 | 53.5 | 56.9 | 58.8 | 62.3 | 62.5 | 58.3 |
| 20% | 54.9 | 56.2 | 53.6 | 50.5 | 51.0 | 52.5 | 53.0 | 56.6 | 58.5 | 62.0 | 62.0 | 57.0 |
| 30% | 54.3 | 55.5 | 52.8 | 49.9 | 50.5 | 51.9 | 52.5 | 56.2 | 58.4 | 61.4 | 61.4 | 56.7 |
| 40% | 53.9 | 54.9 | 52.4 | 49.5 | 49.9 | 51.3 | 52.2 | 56.0 | 58.2 | 61.3 | 61.1 | 56.2 |
| 50% | 53.6 | 54.3 | 51.9 | 49.1 | 49.5 | 50.8 | 52.0 | 55.9 | 58.0 | 61.2 | 60.6 | 55.3 |
| 60% | 53.4 | 53.4 | 51.4 | 48.8 | 49.2 | 50.1 | 51.8 | 55.5 | 57.9 | 61.1 | 60.3 | 54.8 |
| 70% | 53.3 | 52.9 | 51.1 | 48.1 | 49.0 | 49.8 | 51.4 | 55.2 | 57.6 | 61.0 | 60.1 | 54.7 |
| 80% | 53.1 | 52.5 | 50.5 | 47.5 | 48.3 | 49.3 | 50.6 | 54.8 | 57.5 | 60.9 | 59.9 | 54.5 |
| 90% | 52.9 | 52.1 | 49.1 | 47.0 | 47.3 | 48.4 | 50.2 | 54.5 | 57.2 | 60.8 | 59.8 | 54.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 54.9 | 54.6 | 52.0 | 49.2 | 49.6 | 50.9 | 52.0 | 55.8 | 58.0 | 61.4 | 61.1 | 56.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.3 | 54.2 | 52.9 | 48.9 | 48.9 | 49.5 | 51.0 | 55.1 | 57.8 | 61.4 | 60.5 | 54.6 |
| Above Normal (16%) | 53.3 | 53.2 | 51.4 | 49.3 | 49.5 | 50.1 | 51.9 | 56.3 | 58.4 | 61.0 | 59.9 | 54.5 |
| Below Normal (15%) | 54.1 | 54.1 | 51.8 | 49.9 | 50.3 | 51.6 | 52.7 | 55.8 | 58.2 | 61.1 | 60.5 | 56.4 |
| Dry (24%) | 54.6 | 54.7 | 52.0 | 49.0 | 49.9 | 52.1 | 52.7 | 56.0 | 57.8 | 61.4 | 61.7 | 56.8 |
| Critical (15%) | 61.1 | 57.5 | 50.9 | 49.2 | 50.4 | 52.4 | 52.3 | 56.2 | 58.1 | 62.3 | 63.4 | 62.3 |

### Alternative 4 043019

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 58.7 | 58.9 | 53.8 | 51.6 | 51.9 | 53.5 | 53.3 | 56.5 | 58.5 | 62.3 | 62.5 | 58.4 |
| 20% | 55.4 | 56.8 | 53.3 | 50.7 | 51.2 | 52.7 | 52.6 | 56.1 | 58.4 | 61.9 | 62.1 | 57.6 |
| 30% | 54.7 | 55.7 | 52.7 | 50.0 | 50.7 | 51.8 | 52.1 | 55.8 | 58.1 | 61.7 | 61.7 | 57.2 |
| 40% | 54.2 | 54.4 | 52.0 | 49.5 | 49.8 | 50.9 | 51.8 | 55.7 | 58.0 | 61.4 | 61.5 | 56.9 |
| 50% | 53.8 | 53.4 | 51.8 | 49.3 | 49.6 | 50.3 | 51.4 | 55.5 | 57.9 | 61.3 | 61.0 | 56.7 |
| 60% | 53.6 | 52.8 | 51.3 | 48.8 | 49.3 | 49.9 | 51.0 | 55.2 | 57.7 | 61.2 | 60.5 | 56.1 |
| 70% | 53.4 | 52.5 | 50.9 | 48.2 | 48.9 | 49.6 | 50.7 | 54.9 | 57.6 | 61.1 | 60.2 | 55.8 |
| 80% | 53.2 | 52.4 | 50.1 | 47.6 | 48.3 | 49.2 | 50.4 | 54.7 | 57.4 | 61.0 | 60.0 | 55.4 |
| 90% | 53.0 | 52.1 | 49.2 | 47.0 | 47.1 | 48.4 | 50.1 | 54.4 | 57.2 | 60.8 | 59.7 | 54.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 55.0 | 54.6 | 51.7 | 49.2 | 49.7 | 50.8 | 51.6 | 55.5 | 57.9 | 61.5 | 61.3 | 57.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 53.3 | 52.6 | 51.4 | 48.9 | 49.0 | 49.5 | 50.7 | 54.8 | 57.8 | 61.4 | 60.6 | 56.1 |
| Above Normal (16%) | 53.5 | 53.3 | 51.7 | 49.4 | 49.6 | 50.0 | 51.1 | 55.4 | 58.2 | 61.0 | 59.9 | 55.0 |
| Below Normal (15%) | 54.4 | 55.4 | 52.6 | 50.1 | 50.1 | 50.8 | 51.9 | 55.6 | 57.9 | 61.1 | 61.4 | 57.1 |
| Dry (24%) | 54.9 | 55.4 | 52.2 | 49.1 | 49.9 | 51.8 | 52.5 | 55.9 | 57.7 | 61.6 | 61.8 | 57.0 |
| Critical (15%) | 61.0 | 57.9 | 50.9 | 49.3 | 50.5 | 52.4 | 52.4 | 56.2 | 58.0 | 62.2 | 63.5 | 62.3 |

### Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -1.6 | **0.7** | -0.6 | **0.2** | **0.1** | -0.1 | -0.2 | -0.4 | -0.3 | 0.0 | **0.0** | **0.1** |
| 20% | **0.5** | **0.6** | -0.3 | **0.2** | **0.2** | **0.2** | -0.4 | -0.5 | -0.1 | -0.1 | **0.1** | **0.6** |
| 30% | **0.4** | **0.2** | -0.1 | **0.1** | **0.2** | -0.1 | -0.4 | -0.4 | -0.3 | **0.3** | **0.3** | **0.5** |
| 40% | **0.3** | -0.5 | -0.4 | 0.0 | -0.1 | -0.4 | -0.4 | -0.3 | -0.2 | **0.1** | **0.4** | **0.7** |
| 50% | **0.2** | -0.9 | -0.1 | **0.1** | **0.1** | -0.5 | -0.6 | -0.4 | -0.1 | **0.0** | **0.4** | **1.4** |
| 60% | **0.2** | -0.6 | -0.1 | 0.0 | **0.1** | -0.2 | -0.8 | -0.3 | -0.2 | **0.1** | **0.2** | **1.3** |
| 70% | **0.1** | -0.4 | -0.1 | **0.0** | -0.1 | -0.2 | -0.7 | -0.3 | 0.0 | **0.1** | **0.1** | **1.1** |
| 80% | **0.1** | -0.1 | -0.4 | **0.1** | 0.0 | -0.1 | -0.2 | -0.1 | -0.1 | **0.1** | **0.1** | **0.9** |
| 90% | **0.1** | 0.0 | **0.1** | **0.0** | -0.3 | 0.0 | -0.1 | -0.1 | 0.0 | **0.0** | -0.1 | **0.6** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | -0.1 | -0.3 | **0.1** | **0.1** | -0.2 | -0.4 | -0.3 | -0.1 | **0.0** | **0.2** | **0.7** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.0** | -1.6 | -1.5 | **0.0** | **0.2** | **0.0** | -0.3 | -0.3 | **0.0** | 0.0 | **0.1** | **1.5** |
| Above Normal (16%) | **0.2** | **0.1** | **0.3** | **0.1** | **0.1** | -0.1 | -0.8 | -0.9 | -0.2 | **0.1** | **0.0** | **0.5** |
| Below Normal (15%) | **0.3** | **1.3** | **0.7** | **0.2** | -0.1 | -0.8 | -0.8 | -0.3 | -0.3 | **0.0** | **0.9** | **0.8** |
| Dry (24%) | **0.3** | **0.8** | **0.1** | **0.1** | 0.0 | -0.2 | -0.2 | -0.1 | -0.1 | **0.2** | **0.0** | **0.2** |
| Critical (15%) | -0.1 | **0.4** | **0.1** | **0.1** | **0.1** | 0.0 | **0.1** | 0.0 | -0.1 | -0.1 | **0.1** | **0.0** |

a Based on the 82-year simulation period.

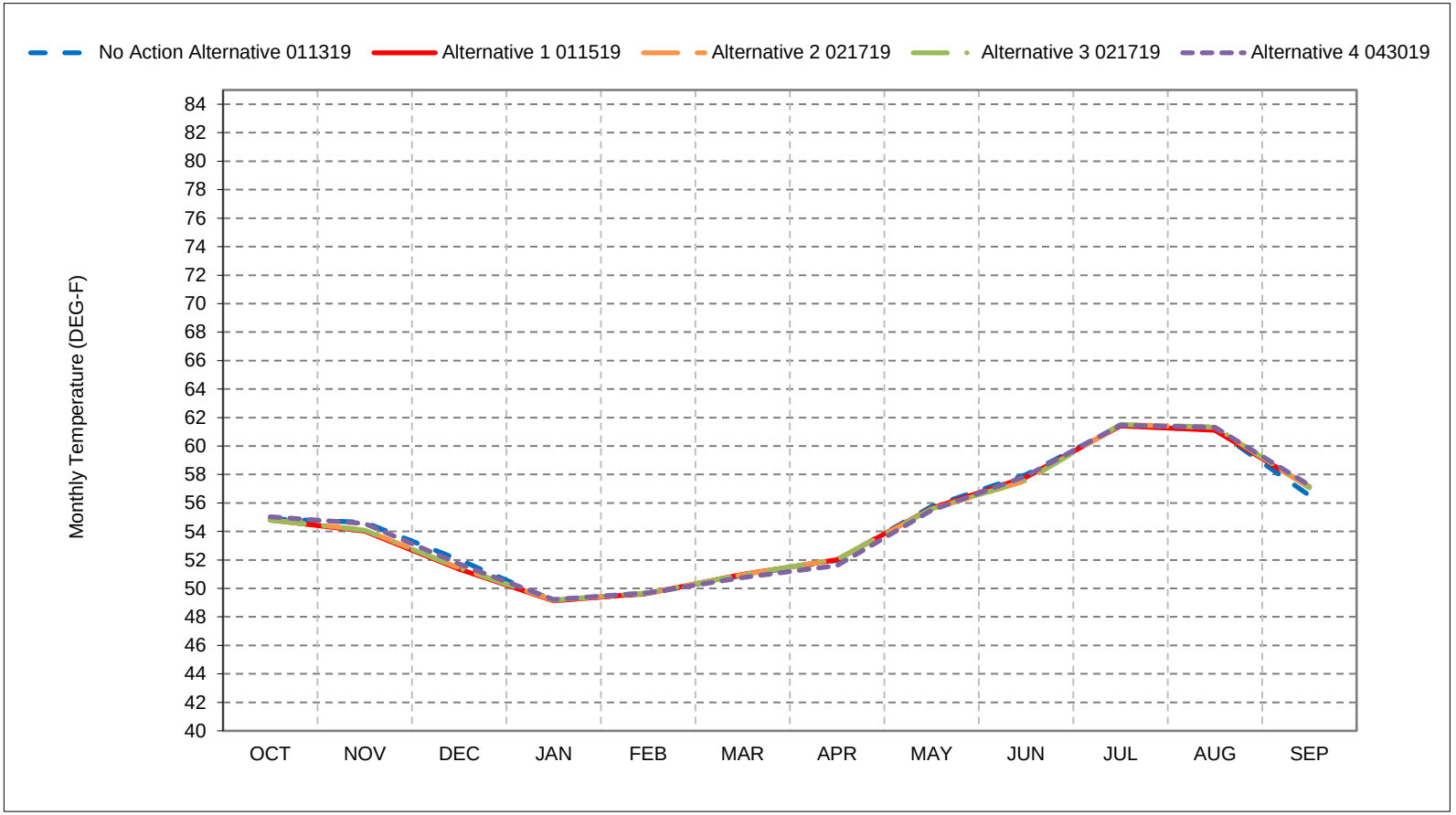
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

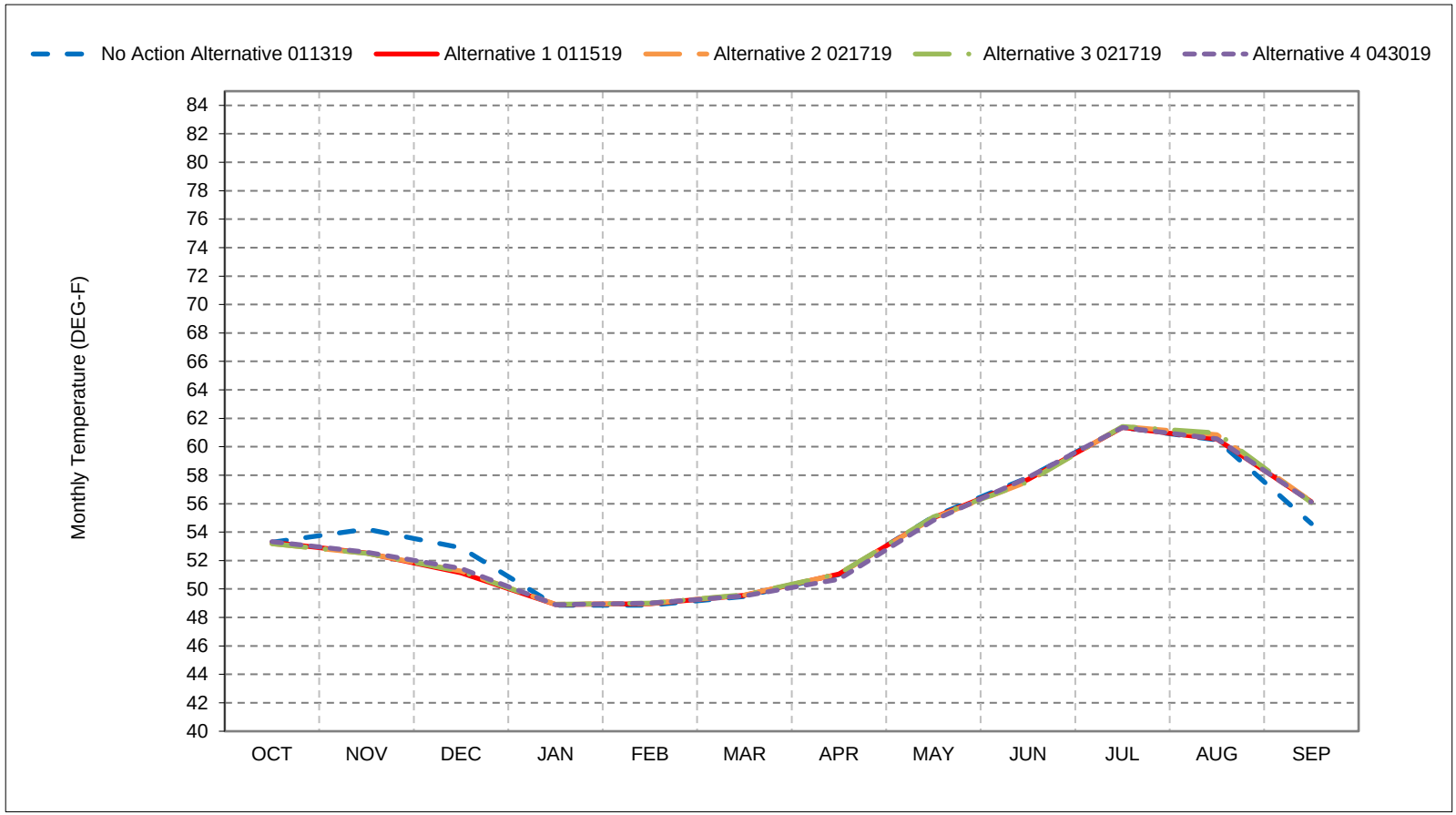
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-1. Feather River Low Flow Channel, Long-Term Average Temperature



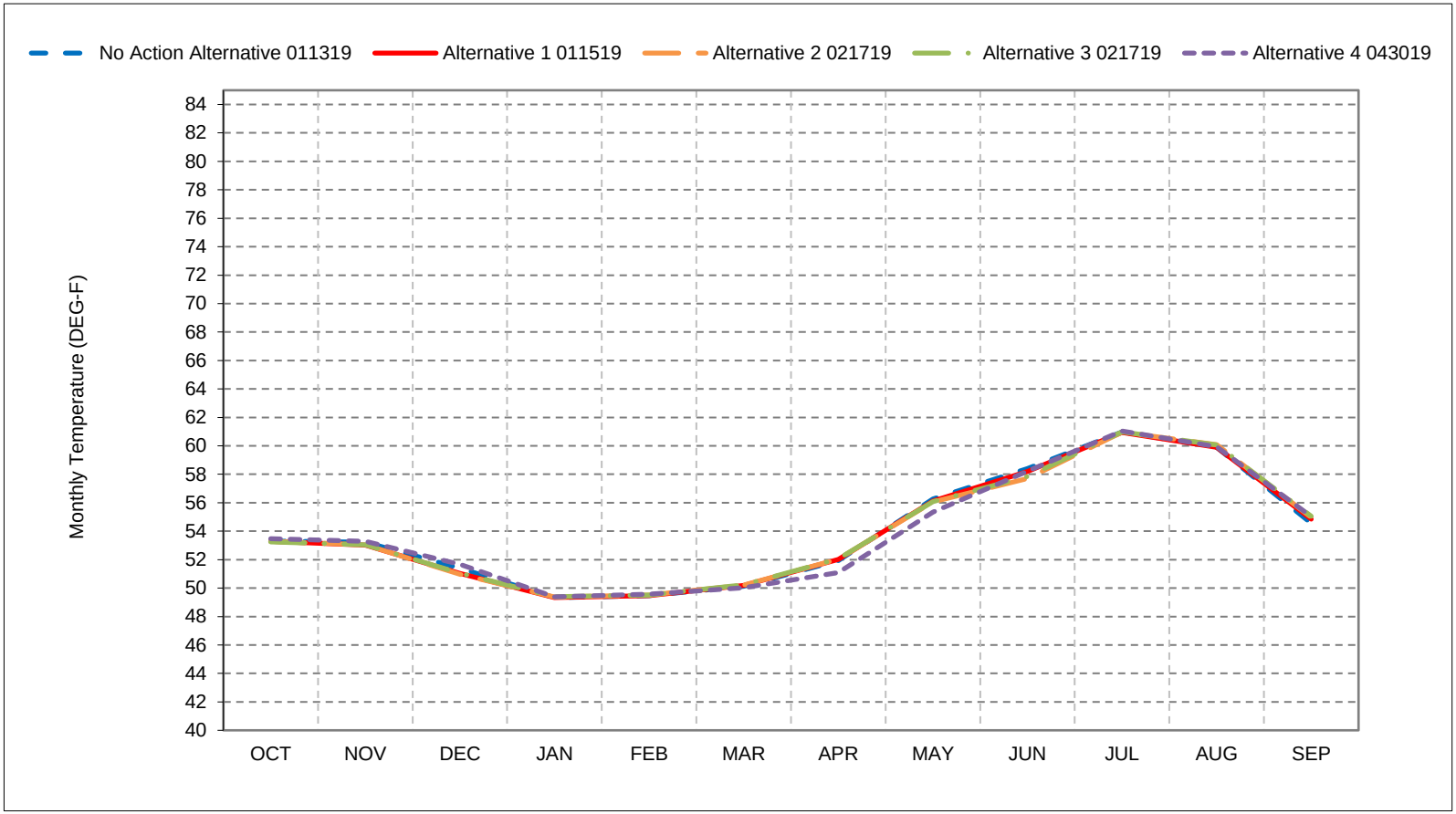

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-2. Feather River Low Flow Channel, Wet Year Average Temperature



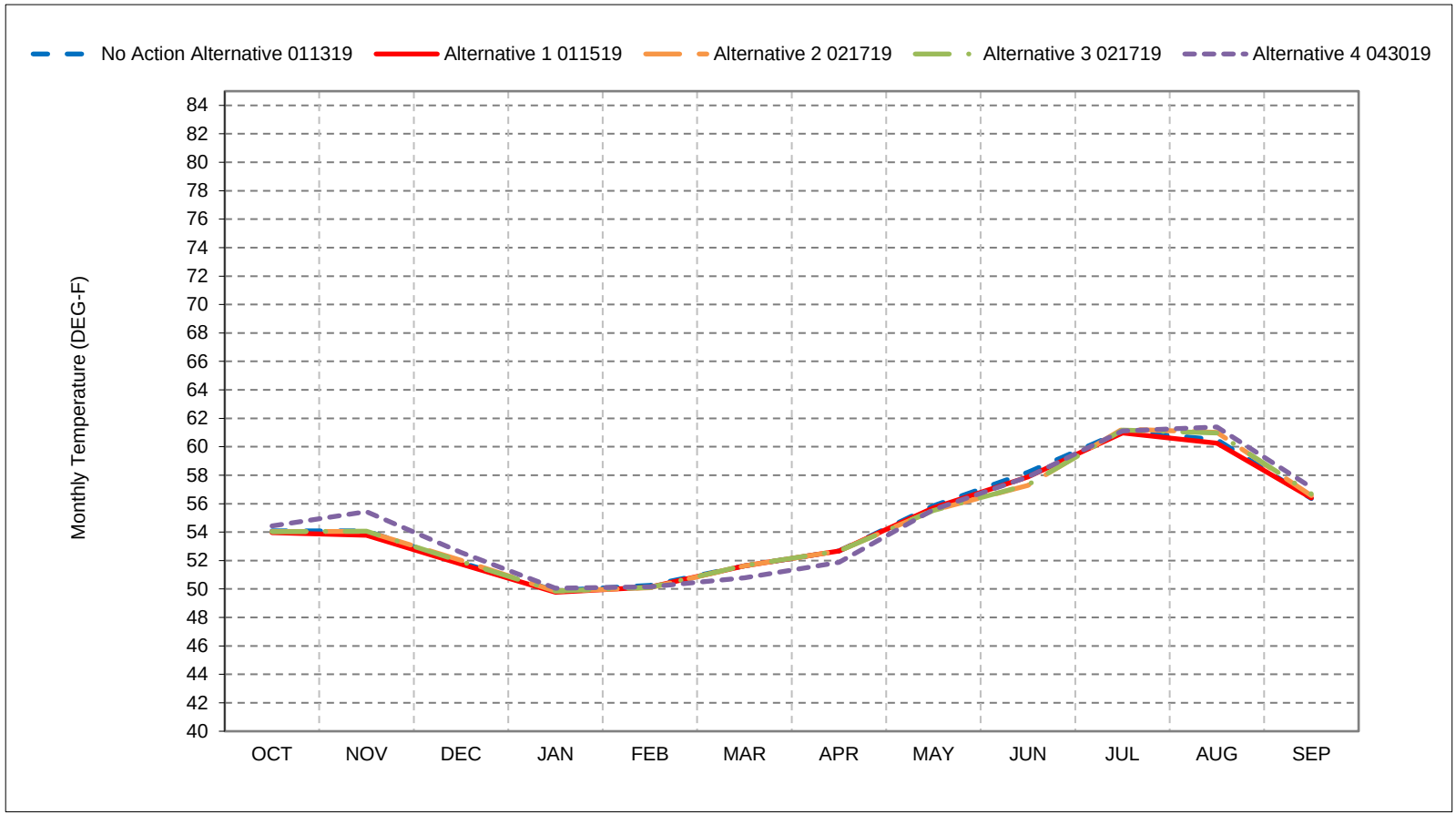

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-3. Feather River Low Flow Channel, Above Normal Year Average Temperature



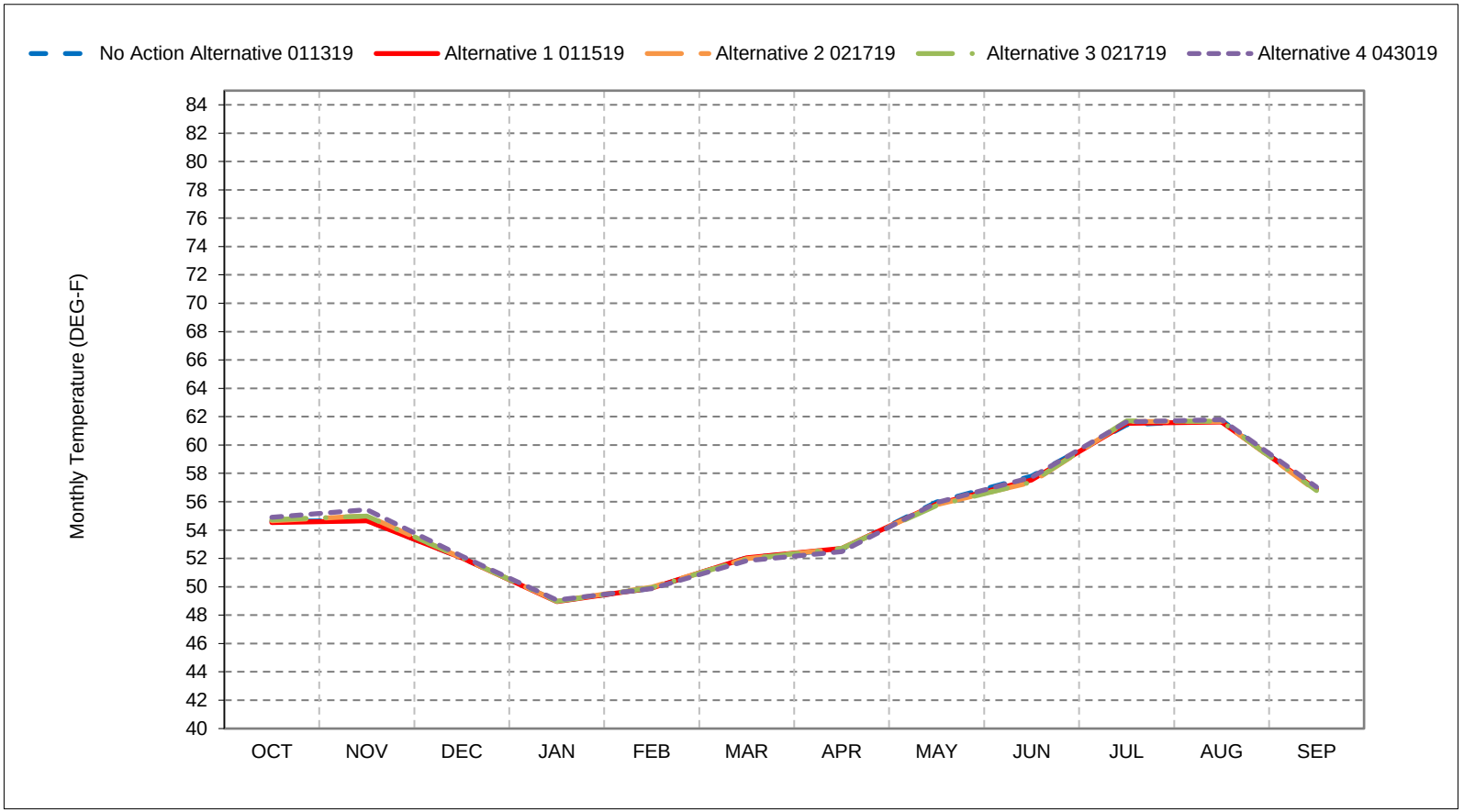

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-4. Feather River Low Flow Channel, Below Normal Year Average Temperature



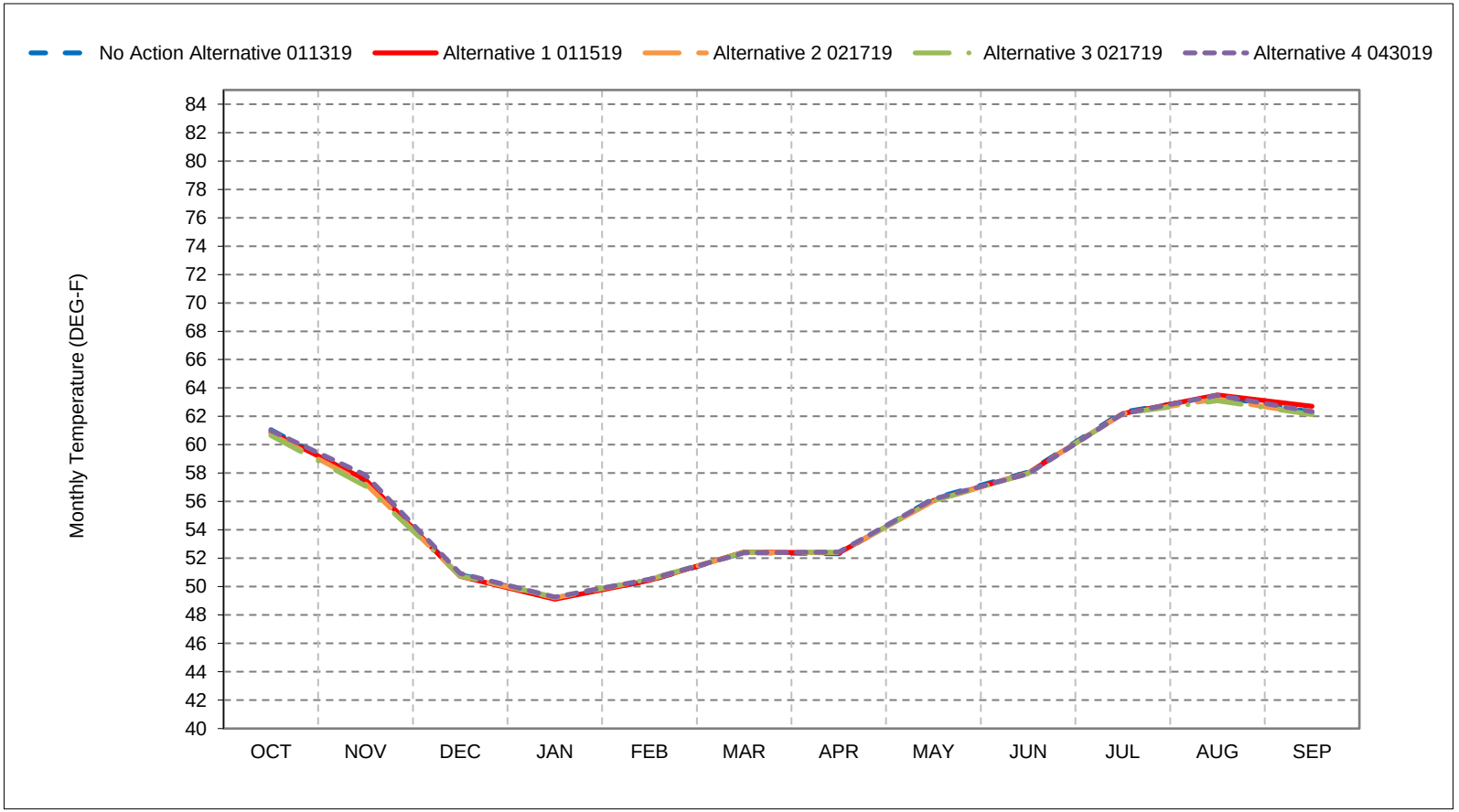

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-5. Feather River Low Flow Channel, Dry Year Average Temperature



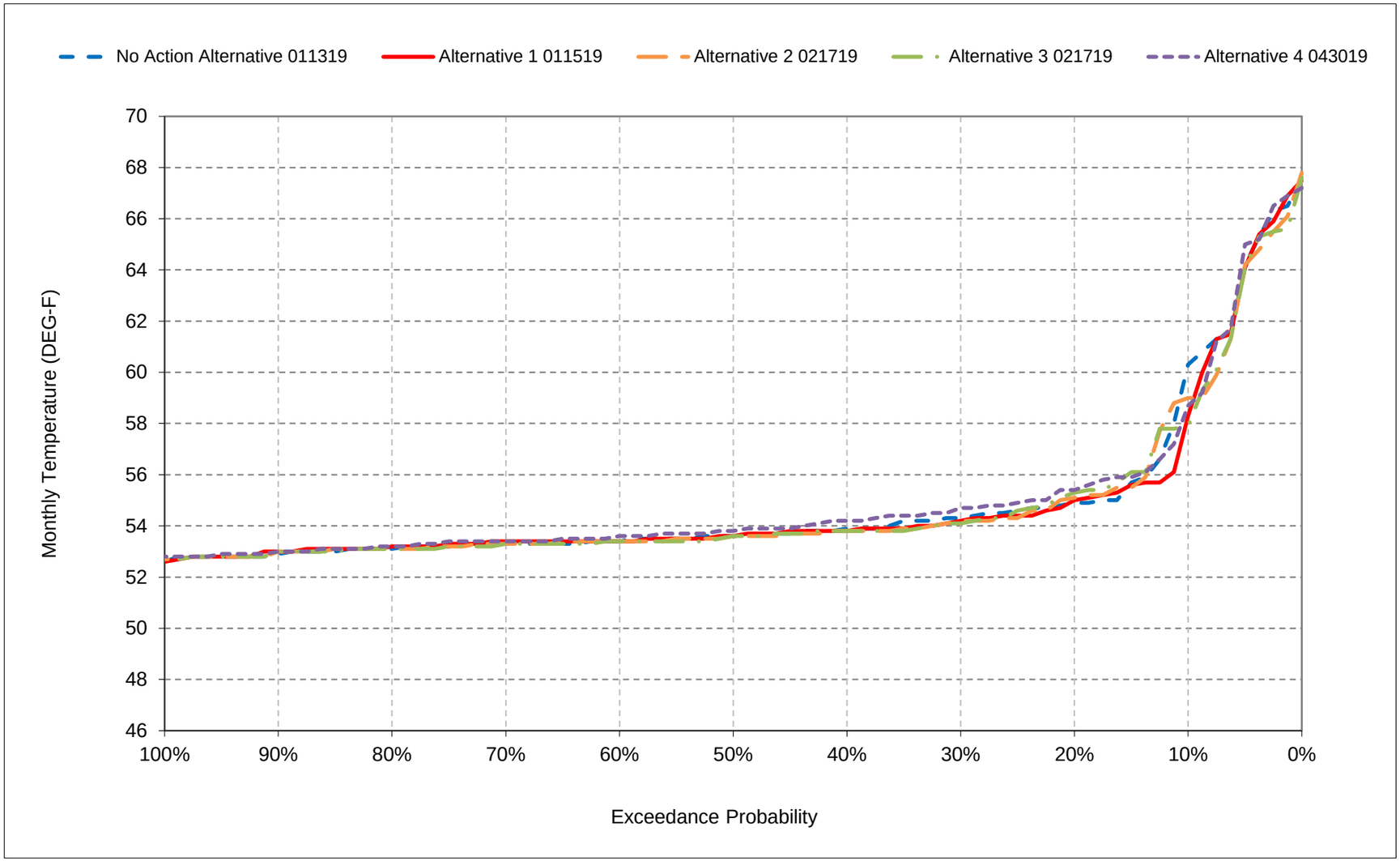

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 1-6. Feather River Low Flow Channel, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

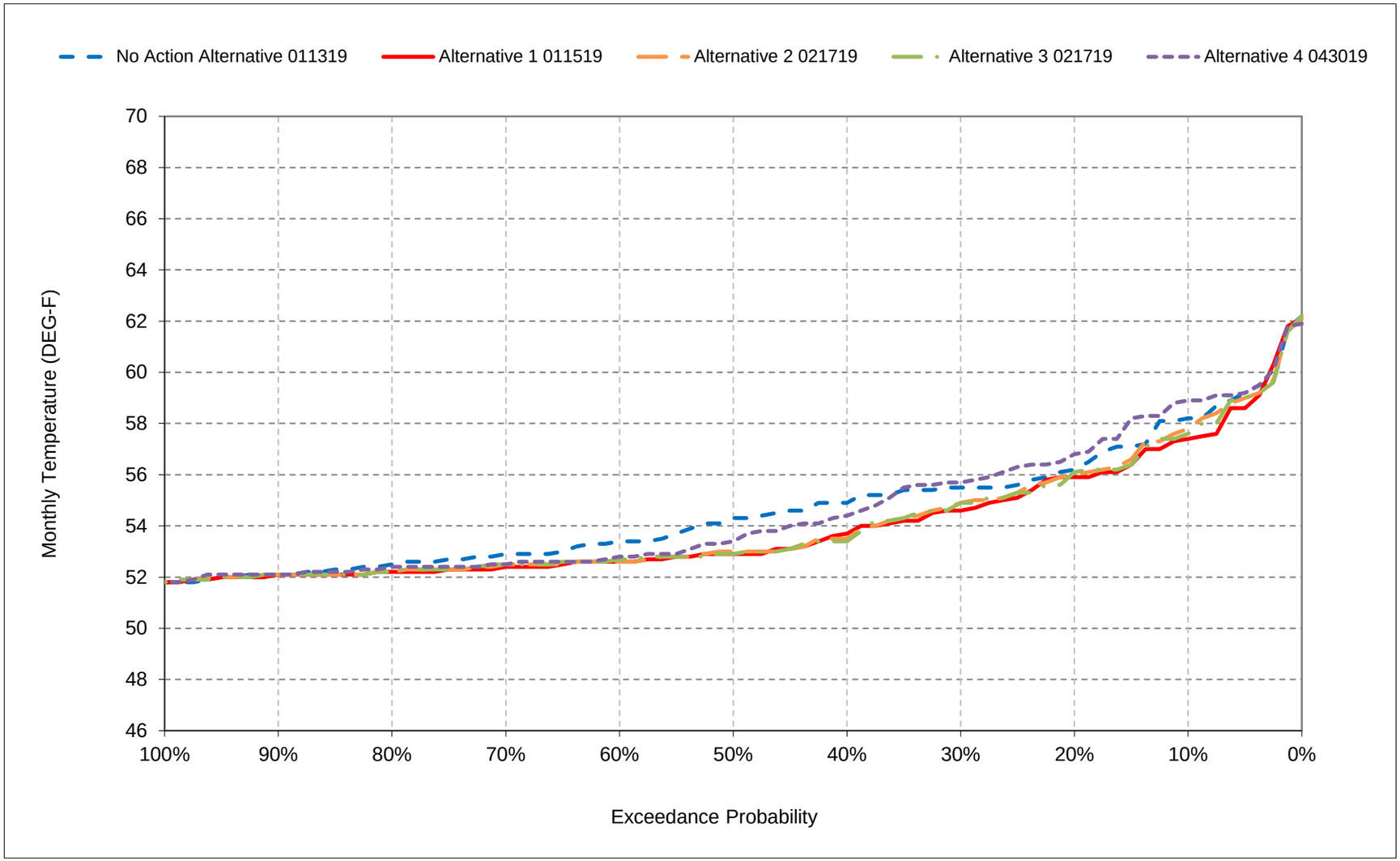
**Figure 1-7. Feather River Low Flow Channel, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

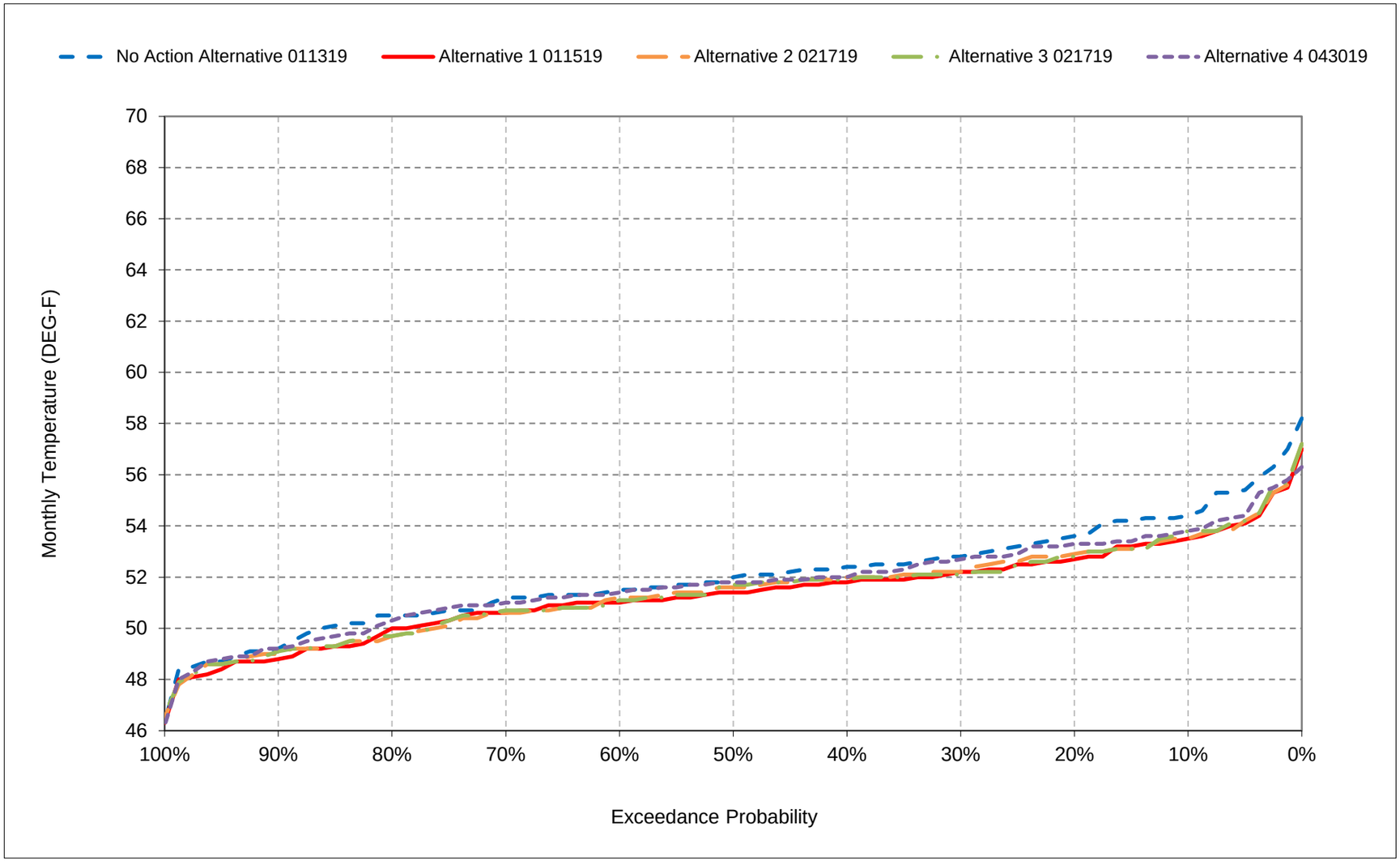
**Figure 1-8. Feather River Low Flow Channel, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

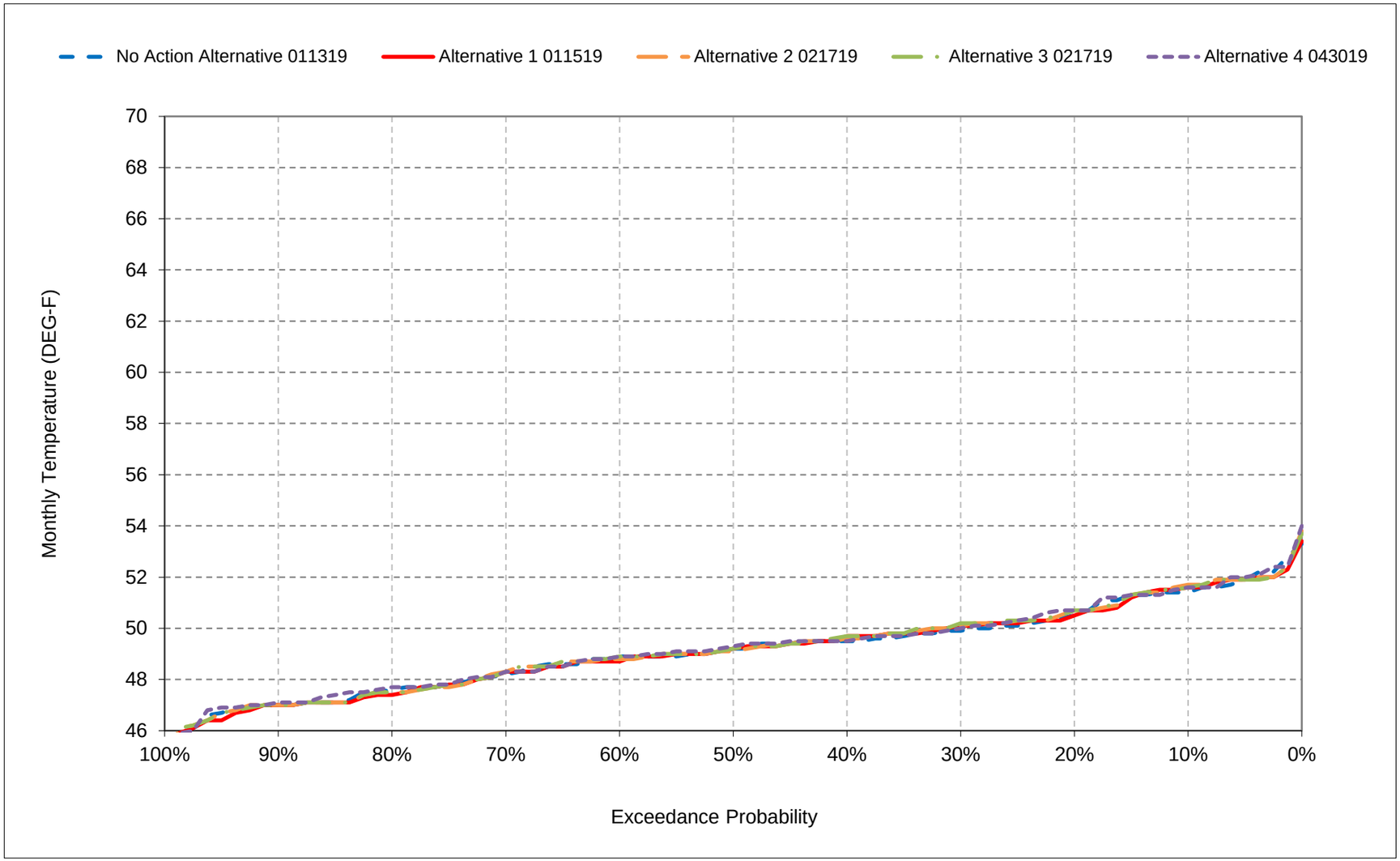
**Figure 1-9. Feather River Low Flow Channel, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

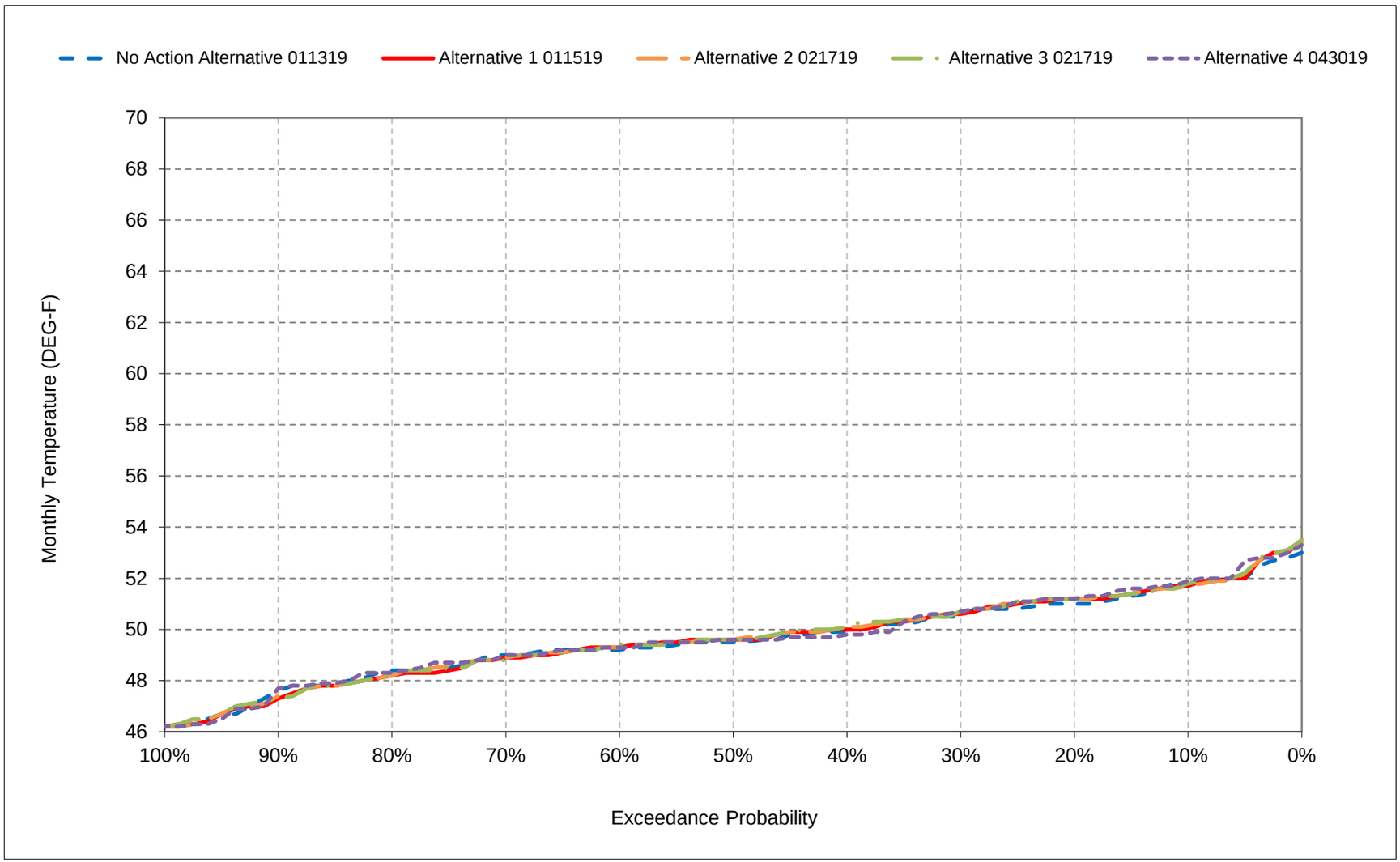
**Figure 1-10. Feather River Low Flow Channel, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

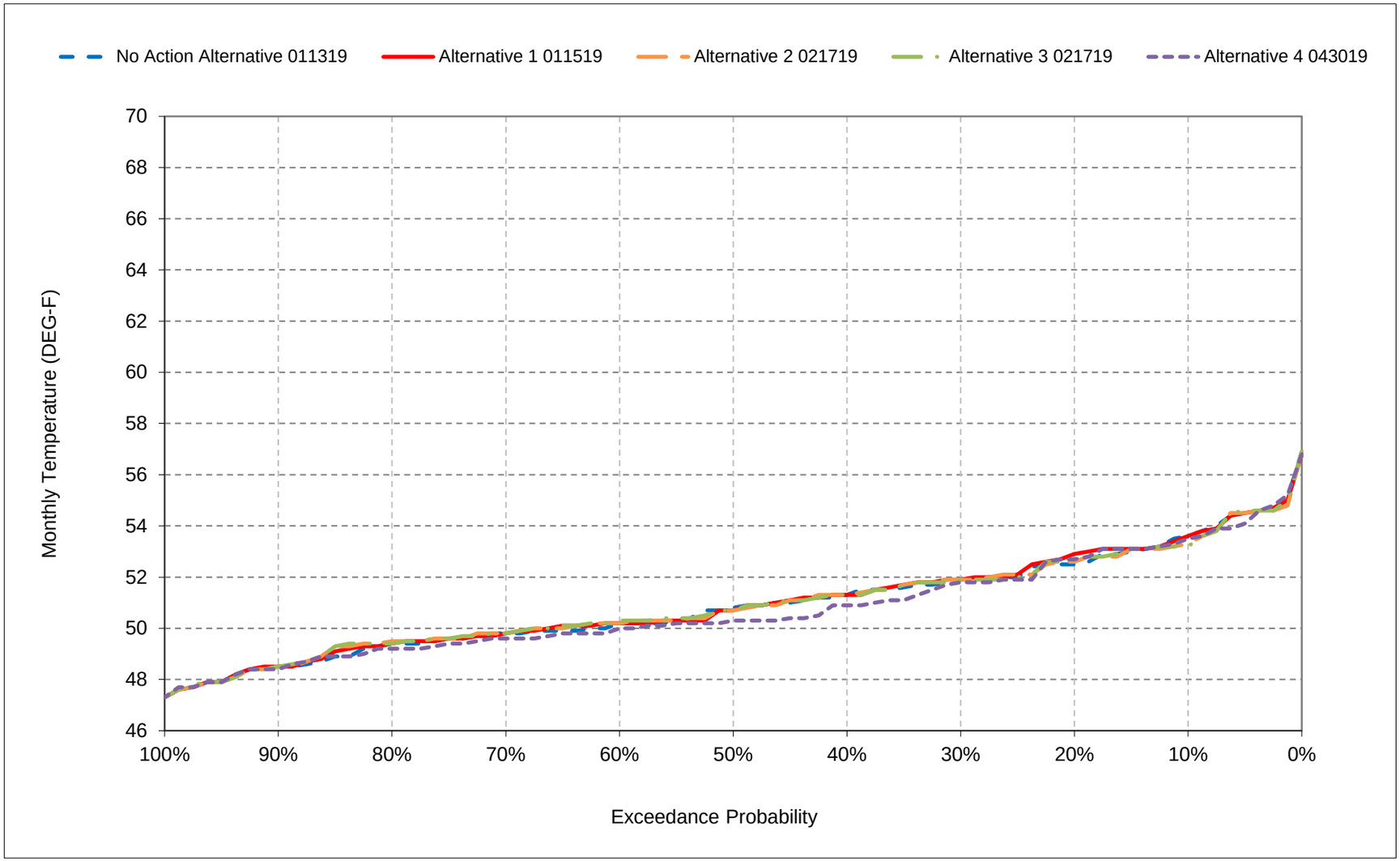
**Figure 1-11. Feather River Low Flow Channel, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

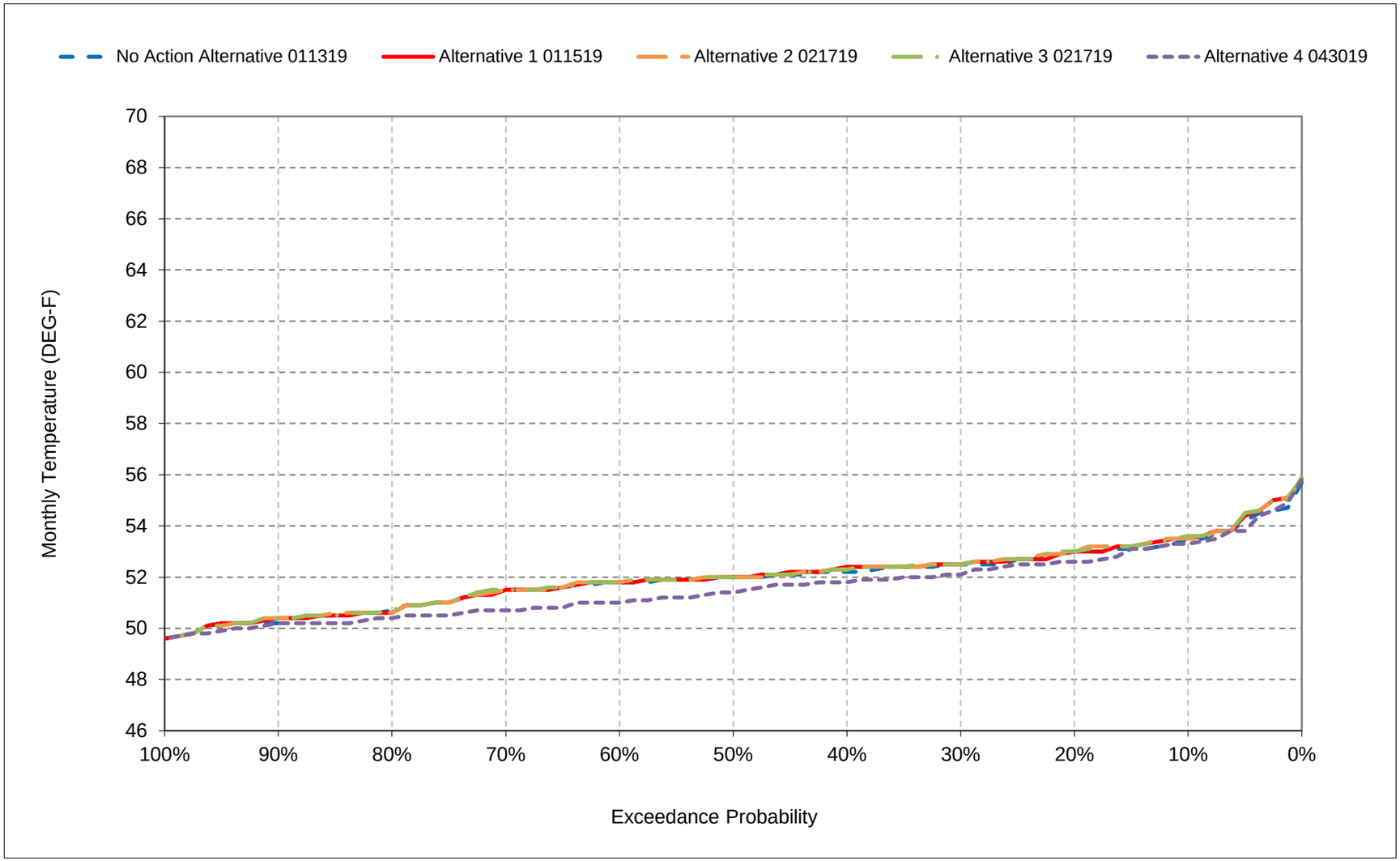
**Figure 1-12. Feather River Low Flow Channel, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

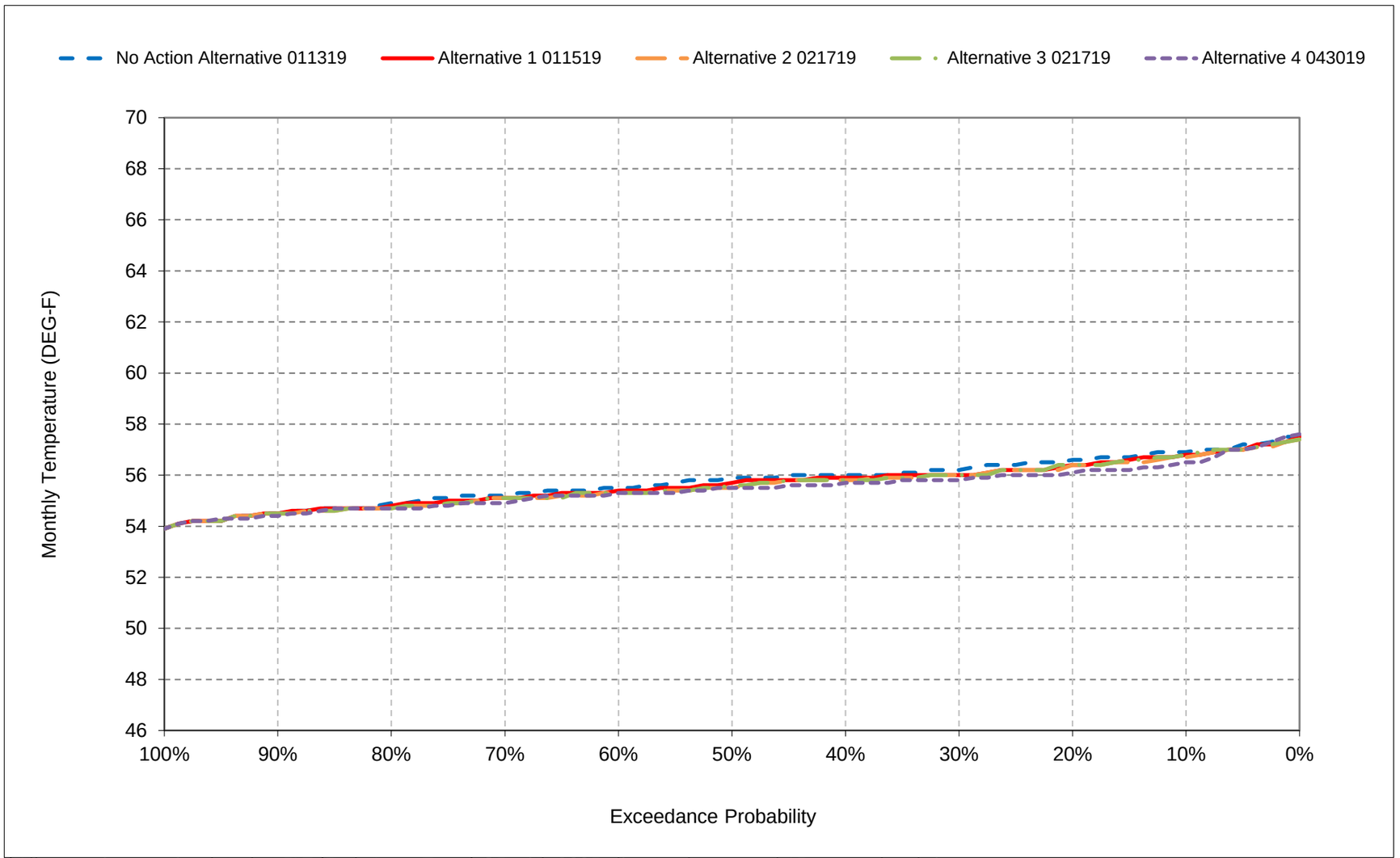
**Figure 1-13. Feather River Low Flow Channel, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

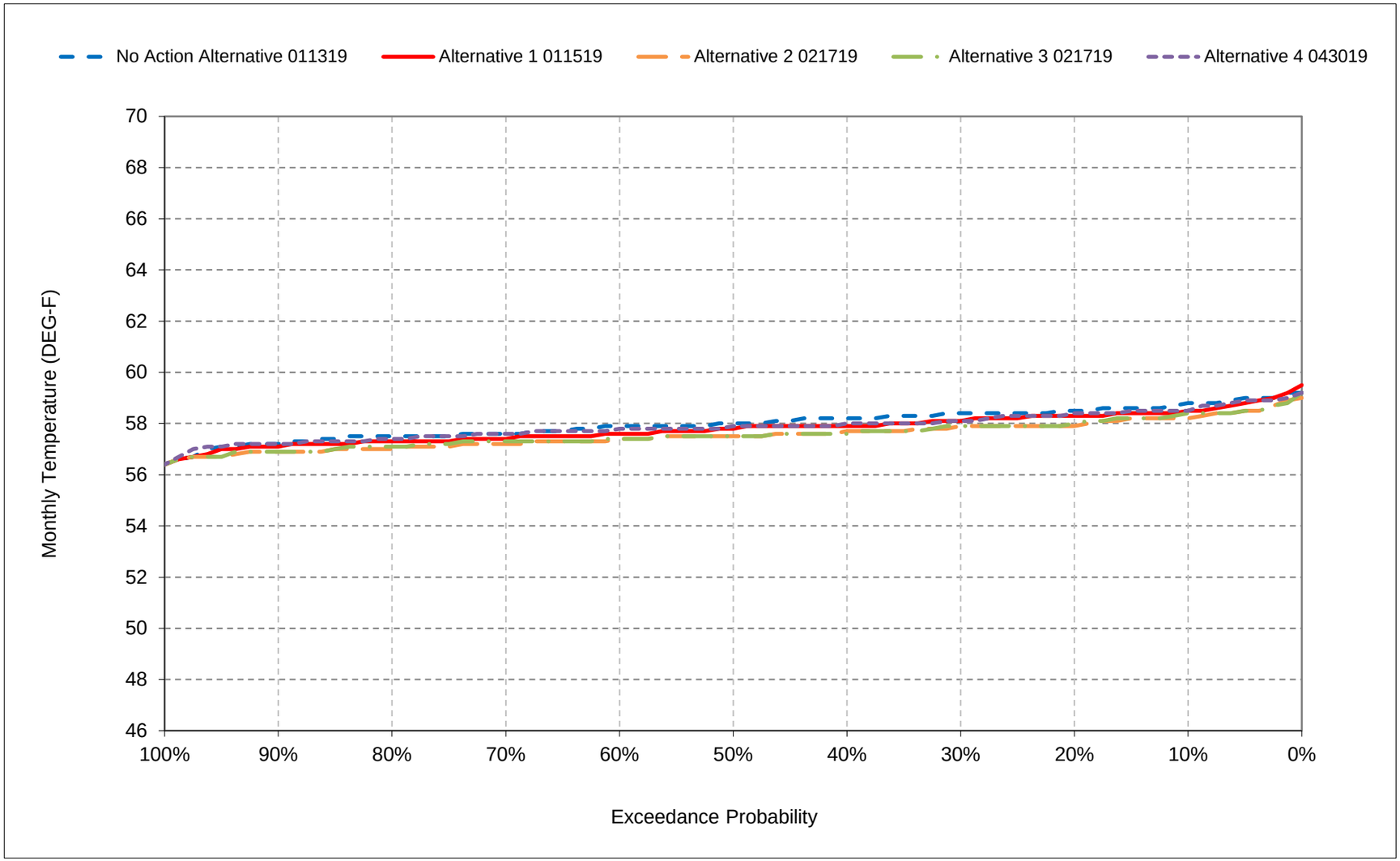
**Figure 1-14. Feather River Low Flow Channel, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

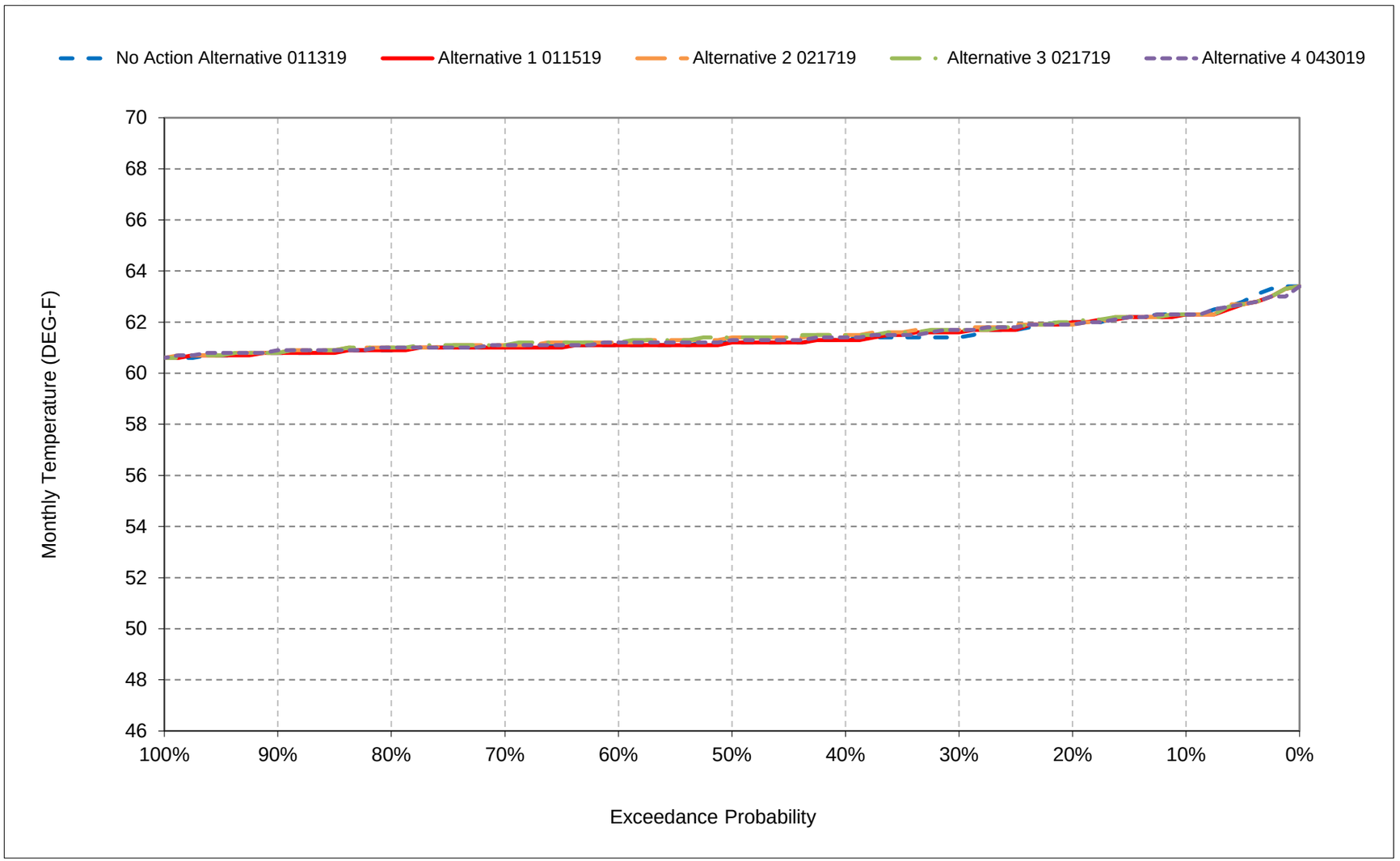
**Figure 1-15. Feather River Low Flow Channel, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

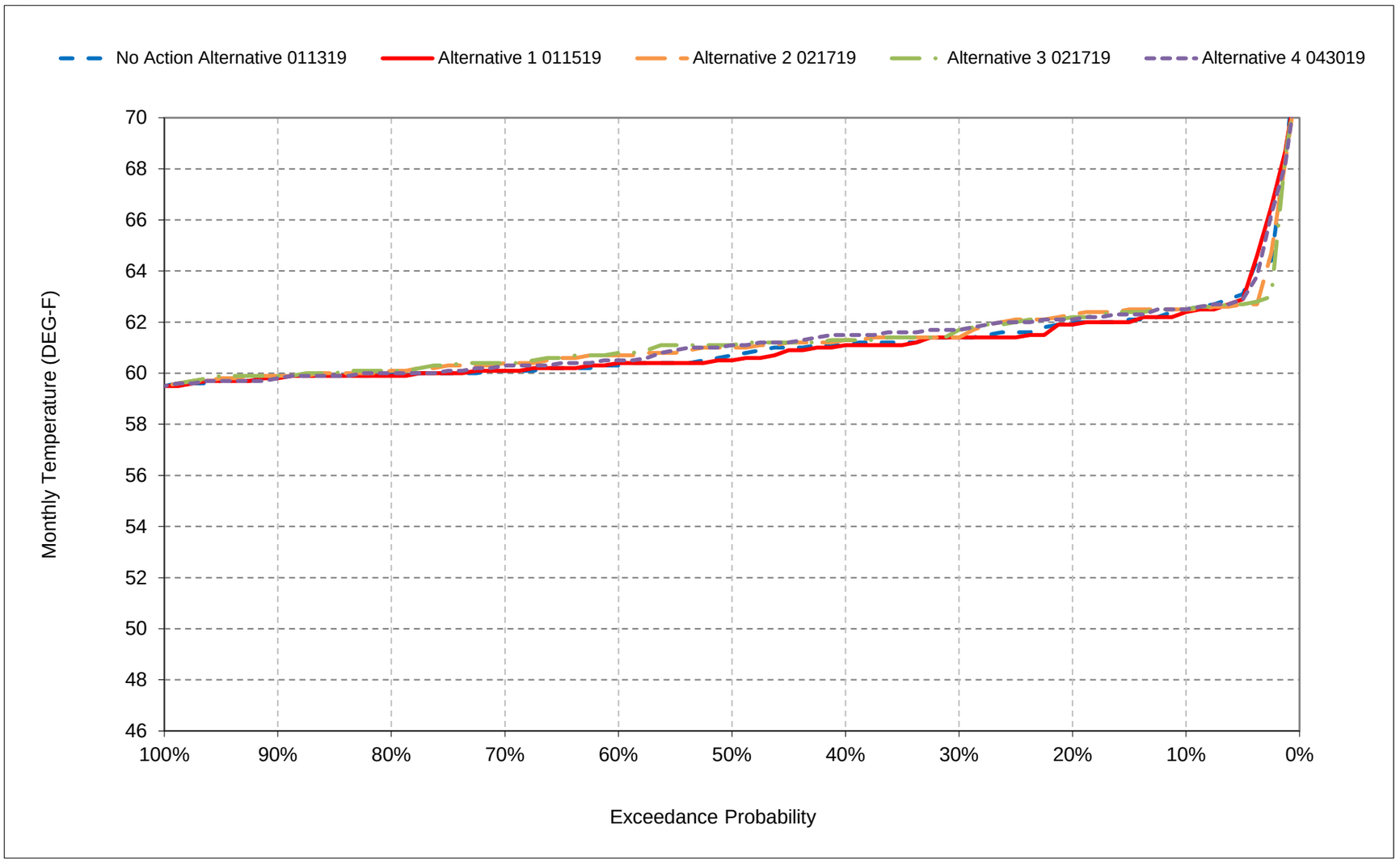
**Figure 1-16. Feather River Low Flow Channel, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

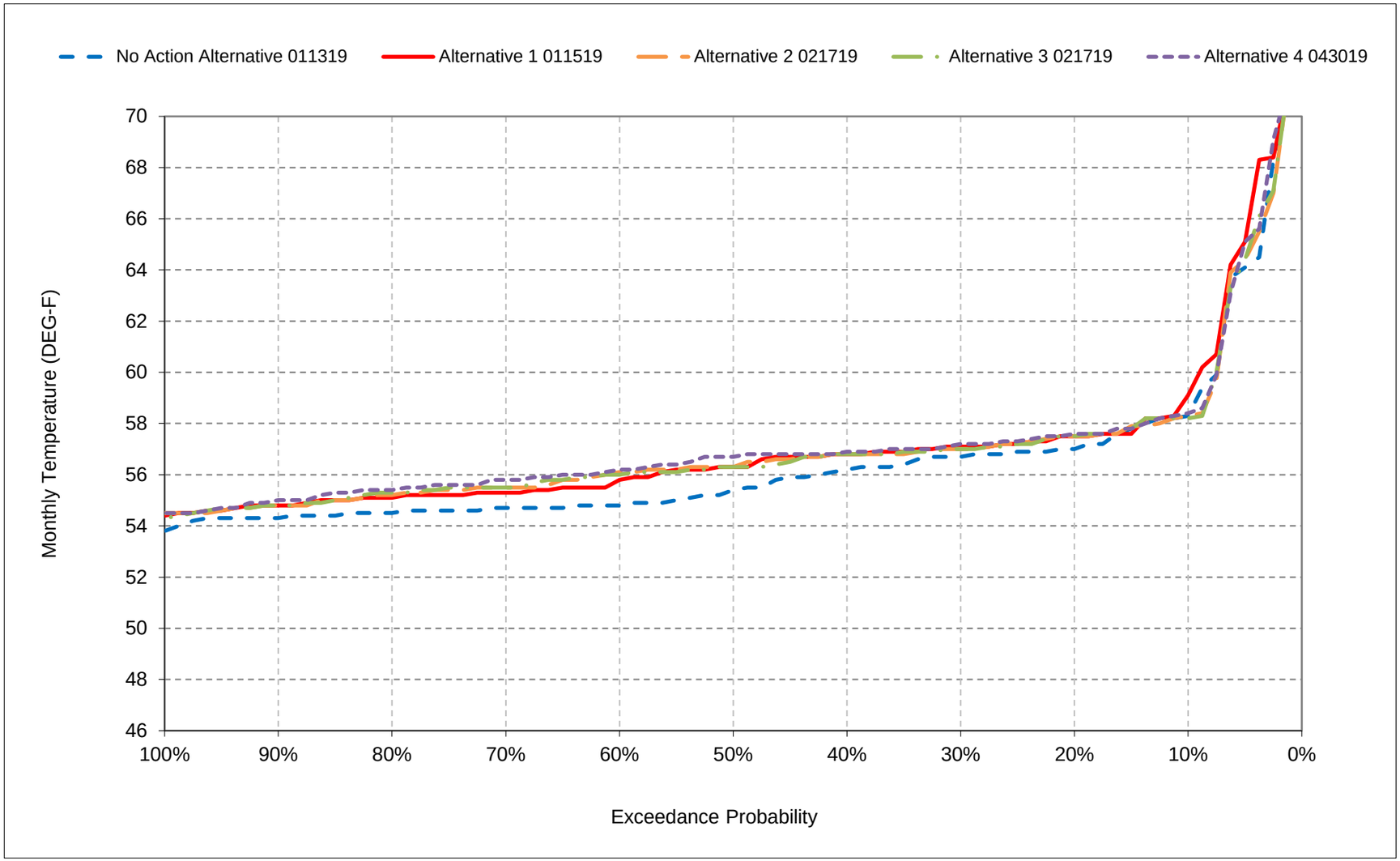
**Figure 1-17. Feather River Low Flow Channel, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 1-18. Feather River Low Flow Channel, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 2-1. Feather River at Robinson Riffle, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.8 | 57.7 | 53.2 | 50.6 | 52.5 | 55.0 | 57.4 | 62.1 | 66.1 | 69.5 | 68.7 | 62.7 |
| 20% | 57.2 | 56.1 | 52.6 | 50.0 | 51.5 | 54.0 | 56.5 | 61.6 | 65.8 | 69.1 | 68.1 | 61.7 |
| 30% | 56.6 | 55.3 | 51.9 | 49.7 | 51.0 | 53.5 | 55.9 | 61.2 | 65.3 | 68.8 | 67.6 | 61.3 |
| 40% | 56.4 | 55.0 | 51.4 | 49.1 | 50.6 | 52.9 | 55.5 | 60.8 | 65.0 | 68.5 | 67.1 | 60.9 |
| 50% | 56.2 | 54.2 | 51.0 | 48.8 | 50.3 | 52.3 | 55.0 | 60.6 | 64.6 | 68.3 | 66.5 | 60.4 |
| 60% | 55.8 | 53.7 | 50.6 | 48.4 | 50.0 | 51.8 | 54.7 | 60.2 | 64.0 | 68.1 | 66.3 | 60.1 |
| 70% | 55.6 | 53.4 | 50.3 | 47.8 | 49.7 | 51.3 | 54.4 | 59.9 | 63.7 | 67.7 | 66.1 | 59.7 |
| 80% | 55.1 | 53.0 | 49.5 | 47.0 | 48.9 | 50.9 | 53.9 | 59.8 | 63.4 | 67.3 | 65.9 | 59.4 |
| 90% | 54.8 | 52.3 | 48.8 | 46.4 | 48.2 | 50.1 | 53.3 | 59.0 | 62.7 | 66.9 | 65.3 | 58.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.9 | 54.6 | 51.1 | 48.7 | 50.3 | 52.5 | 55.3 | 60.7 | 64.5 | 68.3 | 67.0 | 61.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.5 | 54.3 | 51.9 | 48.6 | 49.7 | 51.3 | 54.1 | 60.2 | 64.0 | 68.4 | 66.7 | 59.8 |
| Above Normal (16%) | 55.5 | 53.2 | 50.5 | 49.0 | 50.3 | 52.0 | 55.4 | 61.2 | 65.0 | 67.9 | 66.0 | 59.4 |
| Below Normal (15%) | 56.3 | 54.3 | 50.8 | 49.3 | 50.7 | 53.0 | 56.2 | 60.5 | 65.0 | 68.3 | 66.7 | 61.0 |
| Dry (24%) | 56.7 | 54.8 | 51.3 | 48.3 | 50.4 | 53.4 | 55.9 | 60.9 | 64.8 | 68.1 | 67.3 | 61.1 |
| Critical (15%) | 62.0 | 57.0 | 49.9 | 48.6 | 51.1 | 53.8 | 55.8 | 60.8 | 64.3 | 69.0 | 68.5 | 65.1 |

### Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 59.7 | 57.3 | 52.4 | 50.8 | 52.4 | 55.1 | 57.5 | 61.9 | 66.0 | 69.6 | 68.6 | 63.4 |
| 20% | 57.3 | 55.5 | 51.7 | 50.0 | 51.7 | 54.1 | 56.4 | 61.6 | 65.5 | 69.1 | 68.0 | 62.3 |
| 30% | 56.7 | 54.5 | 51.3 | 49.7 | 51.1 | 53.6 | 56.0 | 61.1 | 65.2 | 68.8 | 67.5 | 61.8 |
| 40% | 56.3 | 53.8 | 50.9 | 49.1 | 50.7 | 52.9 | 55.5 | 60.8 | 64.9 | 68.5 | 67.1 | 61.3 |
| 50% | 56.0 | 53.6 | 50.6 | 48.7 | 50.4 | 52.3 | 55.1 | 60.6 | 64.5 | 68.3 | 66.6 | 60.9 |
| 60% | 55.7 | 53.1 | 50.3 | 48.4 | 49.9 | 51.8 | 54.8 | 60.2 | 63.9 | 68.1 | 66.3 | 60.5 |
| 70% | 55.4 | 52.8 | 49.9 | 47.8 | 49.6 | 51.4 | 54.4 | 59.9 | 63.6 | 67.7 | 66.1 | 60.0 |
| 80% | 55.2 | 52.6 | 49.3 | 47.0 | 48.9 | 50.9 | 53.9 | 59.7 | 63.3 | 67.3 | 65.7 | 59.6 |
| 90% | 54.8 | 52.2 | 48.4 | 46.2 | 48.1 | 50.1 | 53.2 | 59.0 | 62.6 | 67.0 | 65.3 | 59.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.8 | 54.1 | 50.5 | 48.7 | 50.3 | 52.6 | 55.3 | 60.6 | 64.4 | 68.3 | 67.0 | 61.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.5 | 52.9 | 50.4 | 48.6 | 49.8 | 51.3 | 54.1 | 60.1 | 63.9 | 68.4 | 66.8 | 60.9 |
| Above Normal (16%) | 55.5 | 53.1 | 50.2 | 49.0 | 50.2 | 52.0 | 55.5 | 61.1 | 64.9 | 67.9 | 66.0 | 59.6 |
| Below Normal (15%) | 56.2 | 54.0 | 50.7 | 49.2 | 50.6 | 53.1 | 56.3 | 60.4 | 64.8 | 68.2 | 66.6 | 61.1 |
| Dry (24%) | 56.7 | 54.7 | 51.3 | 48.3 | 50.5 | 53.4 | 56.0 | 60.8 | 64.6 | 68.2 | 67.2 | 61.2 |
| Critical (15%) | 61.8 | 57.0 | 49.8 | 48.6 | 51.1 | 53.9 | 55.8 | 60.7 | 64.2 | 68.9 | 68.6 | 65.4 |

### Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -1.1 | -0.4 | -0.8 | **0.2** | -0.1 | **0.1** | **0.1** | -0.2 | -0.1 | **0.1** | -0.1 | **0.7** |
| 20% | **0.1** | -0.6 | -0.9 | 0.0 | **0.2** | **0.1** | -0.1 | 0.0 | -0.3 | 0.0 | -0.1 | **0.6** |
| 30% | **0.1** | -0.8 | -0.6 | 0.0 | **0.1** | **0.1** | **0.1** | -0.1 | -0.1 | 0.0 | -0.1 | **0.5** |
| 40% | -0.1 | -1.2 | -0.5 | 0.0 | **0.1** | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | **0.4** |
| 50% | -0.2 | -0.6 | -0.4 | -0.1 | **0.1** | 0.0 | **0.1** | 0.0 | -0.1 | 0.0 | **0.0** | **0.5** |
| 60% | -0.1 | -0.6 | -0.3 | 0.0 | -0.1 | **0.0** | **0.1** | 0.0 | -0.1 | 0.0 | 0.0 | **0.4** |
| 70% | -0.2 | -0.6 | -0.4 | 0.0 | -0.1 | **0.1** | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | **0.3** |
| 80% | **0.1** | -0.4 | -0.2 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | **0.0** | -0.2 | **0.2** |
| 90% | 0.0 | -0.1 | -0.4 | -0.2 | -0.1 | **0.0** | -0.1 | 0.0 | -0.1 | **0.1** | 0.0 | **0.4** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | -0.5 | -0.6 | 0.0 | **0.0** | **0.0** | **0.0** | -0.1 | -0.1 | 0.0 | 0.0 | **0.4** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 0.0 | -1.4 | -1.5 | **0.0** | **0.1** | **0.1** | **0.0** | -0.1 | -0.1 | **0.0** | **0.0** | **1.1** |
| Above Normal (16%) | 0.0 | -0.2 | -0.3 | 0.0 | 0.0 | **0.0** | **0.1** | -0.1 | -0.2 | 0.0 | **0.0** | **0.2** |
| Below Normal (15%) | -0.1 | -0.3 | -0.1 | -0.1 | -0.1 | **0.0** | **0.0** | -0.1 | -0.2 | -0.1 | -0.2 | **0.0** |
| Dry (24%) | -0.1 | 0.0 | 0.0 | 0.0 | **0.0** | **0.0** | **0.0** | -0.1 | -0.2 | **0.1** | -0.1 | **0.0** |
| Critical (15%) | -0.2 | **0.1** | -0.1 | -0.1 | 0.0 | **0.0** | **0.0** | -0.1 | -0.1 | 0.0 | **0.0** | **0.3** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 2-2. Feather River at Robinson Riffle, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.8 | 57.7 | 53.2 | 50.6 | 52.5 | 55.0 | 57.4 | 62.1 | 66.1 | 69.5 | 68.7 | 62.7 |
| 20% | 57.2 | 56.1 | 52.6 | 50.0 | 51.5 | 54.0 | 56.5 | 61.6 | 65.8 | 69.1 | 68.1 | 61.7 |
| 30% | 56.6 | 55.3 | 51.9 | 49.7 | 51.0 | 53.5 | 55.9 | 61.2 | 65.3 | 68.8 | 67.6 | 61.3 |
| 40% | 56.4 | 55.0 | 51.4 | 49.1 | 50.6 | 52.9 | 55.5 | 60.8 | 65.0 | 68.5 | 67.1 | 60.9 |
| 50% | 56.2 | 54.2 | 51.0 | 48.8 | 50.3 | 52.3 | 55.0 | 60.6 | 64.6 | 68.3 | 66.5 | 60.4 |
| 60% | 55.8 | 53.7 | 50.6 | 48.4 | 50.0 | 51.8 | 54.7 | 60.2 | 64.0 | 68.1 | 66.3 | 60.1 |
| 70% | 55.6 | 53.4 | 50.3 | 47.8 | 49.7 | 51.3 | 54.4 | 59.9 | 63.7 | 67.7 | 66.1 | 59.7 |
| 80% | 55.1 | 53.0 | 49.5 | 47.0 | 48.9 | 50.9 | 53.9 | 59.8 | 63.4 | 67.3 | 65.9 | 59.4 |
| 90% | 54.8 | 52.3 | 48.8 | 46.4 | 48.2 | 50.1 | 53.3 | 59.0 | 62.7 | 66.9 | 65.3 | 58.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.9 | 54.6 | 51.1 | 48.7 | 50.3 | 52.5 | 55.3 | 60.7 | 64.5 | 68.3 | 67.0 | 61.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.5 | 54.3 | 51.9 | 48.6 | 49.7 | 51.3 | 54.1 | 60.2 | 64.0 | 68.4 | 66.7 | 59.8 |
| Above Normal (16%) | 55.5 | 53.2 | 50.5 | 49.0 | 50.3 | 52.0 | 55.4 | 61.2 | 65.0 | 67.9 | 66.0 | 59.4 |
| Below Normal (15%) | 56.3 | 54.3 | 50.8 | 49.3 | 50.7 | 53.0 | 56.2 | 60.5 | 65.0 | 68.3 | 66.7 | 61.0 |
| Dry (24%) | 56.7 | 54.8 | 51.3 | 48.3 | 50.4 | 53.4 | 55.9 | 60.9 | 64.8 | 68.1 | 67.3 | 61.1 |
| Critical (15%) | 62.0 | 57.0 | 49.9 | 48.6 | 51.1 | 53.8 | 55.8 | 60.8 | 64.3 | 69.0 | 68.5 | 65.1 |

### Alternative 2 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.1 | 57.8 | 52.6 | 50.8 | 52.4 | 54.8 | 57.5 | 62.0 | 65.7 | 69.7 | 68.8 | 63.3 |
| 20% | 57.6 | 55.8 | 51.8 | 50.0 | 51.7 | 54.1 | 56.4 | 61.5 | 65.3 | 69.1 | 68.2 | 62.3 |
| 30% | 56.6 | 54.6 | 51.5 | 49.8 | 51.2 | 53.5 | 56.0 | 61.0 | 65.0 | 68.9 | 67.7 | 61.7 |
| 40% | 56.3 | 53.9 | 51.1 | 49.0 | 50.8 | 52.8 | 55.5 | 60.7 | 64.7 | 68.6 | 67.2 | 61.4 |
| 50% | 56.0 | 53.6 | 50.6 | 48.8 | 50.4 | 52.3 | 55.1 | 60.5 | 64.3 | 68.3 | 66.6 | 61.0 |
| 60% | 55.8 | 53.2 | 50.4 | 48.4 | 50.0 | 51.8 | 54.8 | 60.2 | 63.9 | 68.1 | 66.5 | 60.4 |
| 70% | 55.4 | 52.8 | 49.7 | 47.8 | 49.6 | 51.4 | 54.4 | 59.9 | 63.5 | 67.7 | 66.2 | 60.0 |
| 80% | 55.1 | 52.6 | 49.2 | 47.0 | 48.9 | 50.9 | 53.9 | 59.7 | 63.3 | 67.4 | 66.0 | 59.6 |
| 90% | 54.7 | 52.2 | 48.4 | 46.4 | 48.1 | 50.1 | 53.2 | 58.9 | 62.4 | 67.0 | 65.6 | 59.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.8 | 54.2 | 50.6 | 48.7 | 50.3 | 52.5 | 55.3 | 60.5 | 64.2 | 68.4 | 67.1 | 61.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.4 | 52.9 | 50.6 | 48.6 | 49.8 | 51.3 | 54.1 | 60.1 | 63.8 | 68.5 | 67.0 | 60.9 |
| Above Normal (16%) | 55.5 | 53.1 | 50.1 | 49.1 | 50.3 | 52.0 | 55.5 | 61.0 | 64.6 | 67.9 | 66.1 | 59.7 |
| Below Normal (15%) | 56.3 | 54.2 | 50.9 | 49.3 | 50.6 | 53.0 | 56.3 | 60.3 | 64.4 | 68.4 | 67.1 | 61.2 |
| Dry (24%) | 56.8 | 55.0 | 51.3 | 48.3 | 50.5 | 53.4 | 56.0 | 60.8 | 64.5 | 68.3 | 67.2 | 61.1 |
| Critical (15%) | 61.7 | 56.8 | 49.8 | 48.6 | 51.1 | 53.8 | 55.8 | 60.7 | 64.2 | 68.9 | 68.4 | 65.0 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.7 | **0.1** | -0.6 | **0.2** | -0.1 | -0.2 | **0.1** | -0.1 | -0.4 | **0.2** | **0.1** | **0.7** |
| 20% | **0.4** | -0.3 | -0.8 | **0.0** | **0.2** | **0.1** | -0.1 | -0.1 | -0.5 | 0.0 | **0.1** | **0.6** |
| 30% | 0.0 | -0.7 | -0.4 | **0.1** | **0.2** | 0.0 | **0.1** | -0.2 | -0.3 | **0.1** | **0.1** | **0.4** |
| 40% | -0.1 | -1.1 | -0.3 | -0.1 | **0.2** | -0.1 | 0.0 | -0.1 | -0.3 | **0.1** | **0.1** | **0.5** |
| 50% | -0.2 | -0.6 | -0.3 | 0.0 | **0.2** | 0.0 | **0.1** | -0.1 | -0.3 | 0.0 | **0.1** | **0.6** |
| 60% | 0.0 | -0.5 | -0.2 | **0.0** | 0.0 | **0.0** | **0.1** | 0.0 | -0.1 | 0.0 | **0.2** | **0.3** |
| 70% | -0.2 | -0.6 | -0.6 | 0.0 | -0.1 | **0.1** | 0.0 | 0.0 | -0.2 | 0.0 | **0.1** | **0.3** |
| 80% | 0.0 | -0.4 | -0.4 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | **0.1** | **0.1** | **0.2** |
| 90% | -0.1 | -0.1 | -0.4 | 0.0 | -0.1 | **0.0** | -0.1 | -0.1 | -0.3 | **0.1** | **0.3** | **0.4** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | -0.4 | -0.5 | **0.0** | **0.0** | **0.0** | **0.0** | -0.1 | -0.3 | **0.1** | **0.1** | **0.4** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.1 | -1.4 | -1.4 | **0.1** | **0.1** | **0.1** | **0.0** | -0.1 | -0.2 | **0.1** | **0.3** | **1.1** |
| Above Normal (16%) | 0.0 | -0.2 | -0.4 | **0.0** | **0.0** | **0.1** | **0.1** | -0.1 | -0.5 | **0.0** | **0.1** | **0.3** |
| Below Normal (15%) | 0.0 | 0.0 | **0.2** | 0.0 | -0.1 | **0.0** | **0.0** | -0.2 | -0.6 | **0.1** | **0.3** | **0.2** |
| Dry (24%) | **0.0** | **0.3** | **0.0** | **0.0** | **0.1** | -0.1 | **0.0** | -0.1 | -0.3 | **0.1** | -0.1 | -0.1 |
| Critical (15%) | -0.3 | -0.2 | -0.1 | **0.0** | **0.0** | 0.0 | **0.0** | -0.1 | 0.0 | -0.1 | -0.1 | -0.1 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 2-3. Feather River at Robinson Riffle, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.8 | 57.7 | 53.2 | 50.6 | 52.5 | 55.0 | 57.4 | 62.1 | 66.1 | 69.5 | 68.7 | 62.7 |
| 20% | 57.2 | 56.1 | 52.6 | 50.0 | 51.5 | 54.0 | 56.5 | 61.6 | 65.8 | 69.1 | 68.1 | 61.7 |
| 30% | 56.6 | 55.3 | 51.9 | 49.7 | 51.0 | 53.5 | 55.9 | 61.2 | 65.3 | 68.8 | 67.6 | 61.3 |
| 40% | 56.4 | 55.0 | 51.4 | 49.1 | 50.6 | 52.9 | 55.5 | 60.8 | 65.0 | 68.5 | 67.1 | 60.9 |
| 50% | 56.2 | 54.2 | 51.0 | 48.8 | 50.3 | 52.3 | 55.0 | 60.6 | 64.6 | 68.3 | 66.5 | 60.4 |
| 60% | 55.8 | 53.7 | 50.6 | 48.4 | 50.0 | 51.8 | 54.7 | 60.2 | 64.0 | 68.1 | 66.3 | 60.1 |
| 70% | 55.6 | 53.4 | 50.3 | 47.8 | 49.7 | 51.3 | 54.4 | 59.9 | 63.7 | 67.7 | 66.1 | 59.7 |
| 80% | 55.1 | 53.0 | 49.5 | 47.0 | 48.9 | 50.9 | 53.9 | 59.8 | 63.4 | 67.3 | 65.9 | 59.4 |
| 90% | 54.8 | 52.3 | 48.8 | 46.4 | 48.2 | 50.1 | 53.3 | 59.0 | 62.7 | 66.9 | 65.3 | 58.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.9 | 54.6 | 51.1 | 48.7 | 50.3 | 52.5 | 55.3 | 60.7 | 64.5 | 68.3 | 67.0 | 61.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.5 | 54.3 | 51.9 | 48.6 | 49.7 | 51.3 | 54.1 | 60.2 | 64.0 | 68.4 | 66.7 | 59.8 |
| Above Normal (16%) | 55.5 | 53.2 | 50.5 | 49.0 | 50.3 | 52.0 | 55.4 | 61.2 | 65.0 | 67.9 | 66.0 | 59.4 |
| Below Normal (15%) | 56.3 | 54.3 | 50.8 | 49.3 | 50.7 | 53.0 | 56.2 | 60.5 | 65.0 | 68.3 | 66.7 | 61.0 |
| Dry (24%) | 56.7 | 54.8 | 51.3 | 48.3 | 50.4 | 53.4 | 55.9 | 60.9 | 64.8 | 68.1 | 67.3 | 61.1 |
| Critical (15%) | 62.0 | 57.0 | 49.9 | 48.6 | 51.1 | 53.8 | 55.8 | 60.8 | 64.3 | 69.0 | 68.5 | 65.1 |

### Alternative 3 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 59.5 | 57.6 | 52.7 | 50.8 | 52.4 | 54.9 | 57.5 | 61.9 | 65.8 | 69.7 | 68.6 | 63.3 |
| 20% | 57.6 | 55.5 | 51.8 | 50.0 | 51.7 | 54.1 | 56.4 | 61.5 | 65.2 | 69.1 | 68.1 | 62.3 |
| 30% | 56.7 | 54.7 | 51.3 | 49.8 | 51.2 | 53.5 | 56.0 | 61.0 | 65.0 | 68.8 | 67.7 | 61.6 |
| 40% | 56.3 | 53.9 | 51.1 | 49.1 | 50.8 | 52.9 | 55.5 | 60.7 | 64.7 | 68.6 | 67.2 | 61.4 |
| 50% | 56.1 | 53.6 | 50.7 | 48.8 | 50.4 | 52.4 | 55.1 | 60.5 | 64.2 | 68.3 | 66.8 | 61.1 |
| 60% | 55.8 | 53.1 | 50.3 | 48.4 | 49.9 | 51.9 | 54.8 | 60.2 | 63.8 | 68.1 | 66.5 | 60.4 |
| 70% | 55.4 | 52.8 | 49.7 | 47.8 | 49.5 | 51.4 | 54.4 | 59.9 | 63.6 | 67.8 | 66.3 | 60.1 |
| 80% | 55.1 | 52.6 | 49.2 | 46.9 | 48.9 | 50.9 | 53.9 | 59.7 | 63.3 | 67.4 | 66.1 | 59.7 |
| 90% | 54.7 | 52.2 | 48.4 | 46.6 | 48.2 | 50.1 | 53.2 | 59.0 | 62.4 | 67.0 | 65.6 | 59.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.8 | 54.2 | 50.6 | 48.7 | 50.4 | 52.6 | 55.3 | 60.5 | 64.3 | 68.4 | 67.2 | 61.4 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.4 | 52.9 | 50.5 | 48.6 | 49.8 | 51.4 | 54.1 | 60.2 | 63.8 | 68.5 | 67.1 | 60.9 |
| Above Normal (16%) | 55.5 | 53.1 | 50.2 | 49.1 | 50.3 | 52.0 | 55.5 | 61.0 | 64.7 | 67.9 | 66.1 | 59.8 |
| Below Normal (15%) | 56.3 | 54.2 | 50.8 | 49.3 | 50.6 | 53.1 | 56.2 | 60.3 | 64.4 | 68.4 | 67.0 | 61.3 |
| Dry (24%) | 56.9 | 55.0 | 51.3 | 48.3 | 50.5 | 53.4 | 55.9 | 60.8 | 64.5 | 68.3 | 67.2 | 61.1 |
| Critical (15%) | 61.6 | 56.7 | 49.8 | 48.7 | 51.1 | 53.9 | 55.9 | 60.7 | 64.2 | 69.0 | 68.3 | 65.0 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -1.3 | -0.1 | -0.5 | **0.2** | -0.1 | -0.1 | **0.1** | -0.2 | -0.3 | **0.2** | -0.1 | **0.7** |
| 20% | **0.4** | -0.6 | -0.8 | **0.0** | **0.2** | **0.1** | -0.1 | -0.1 | -0.6 | 0.0 | 0.0 | **0.6** |
| 30% | **0.1** | -0.6 | -0.6 | **0.1** | **0.2** | 0.0 | **0.1** | -0.2 | -0.3 | 0.0 | **0.1** | **0.3** |
| 40% | -0.1 | -1.1 | -0.3 | **0.1** | **0.2** | 0.0 | 0.0 | -0.1 | -0.3 | **0.1** | **0.1** | **0.5** |
| 50% | -0.1 | -0.6 | -0.3 | 0.0 | **0.1** | **0.1** | **0.0** | -0.1 | -0.4 | 0.0 | **0.2** | **0.7** |
| 60% | 0.0 | -0.6 | -0.3 | **0.0** | -0.1 | **0.1** | **0.1** | 0.0 | -0.2 | 0.0 | **0.2** | **0.3** |
| 70% | -0.2 | -0.6 | -0.6 | 0.0 | -0.2 | **0.1** | 0.0 | 0.0 | -0.1 | **0.1** | **0.2** | **0.4** |
| 80% | 0.0 | -0.4 | -0.4 | -0.1 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | **0.1** | **0.2** | **0.3** |
| 90% | -0.1 | -0.1 | -0.4 | **0.2** | 0.0 | **0.0** | -0.1 | 0.0 | -0.3 | **0.1** | **0.3** | **0.5** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -0.1 | -0.5 | -0.5 | **0.0** | **0.1** | **0.0** | **0.0** | -0.1 | -0.3 | **0.1** | **0.1** | **0.4** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | -0.1 | -1.4 | -1.4 | **0.1** | **0.1** | **0.1** | **0.0** | 0.0 | -0.2 | **0.1** | **0.3** | **1.1** |
| Above Normal (16%) | 0.0 | -0.2 | -0.3 | **0.0** | **0.0** | **0.1** | **0.1** | -0.1 | -0.4 | **0.0** | **0.1** | **0.4** |
| Below Normal (15%) | -0.1 | 0.0 | **0.1** | 0.0 | -0.1 | **0.0** | **0.0** | -0.2 | -0.5 | **0.0** | **0.3** | **0.2** |
| Dry (24%) | **0.1** | **0.3** | **0.0** | **0.0** | **0.0** | -0.1 | **0.0** | -0.2 | -0.3 | **0.2** | -0.1 | 0.0 |
| Critical (15%) | -0.4 | -0.3 | -0.1 | **0.1** | **0.1** | **0.0** | **0.1** | -0.1 | -0.1 | 0.0 | -0.2 | -0.2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 2-4. Feather River at Robinson Riffle, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 60.8 | 57.7 | 53.2 | 50.6 | 52.5 | 55.0 | 57.4 | 62.1 | 66.1 | 69.5 | 68.7 | 62.7 |
| 20% | 57.2 | 56.1 | 52.6 | 50.0 | 51.5 | 54.0 | 56.5 | 61.6 | 65.8 | 69.1 | 68.1 | 61.7 |
| 30% | 56.6 | 55.3 | 51.9 | 49.7 | 51.0 | 53.5 | 55.9 | 61.2 | 65.3 | 68.8 | 67.6 | 61.3 |
| 40% | 56.4 | 55.0 | 51.4 | 49.1 | 50.6 | 52.9 | 55.5 | 60.8 | 65.0 | 68.5 | 67.1 | 60.9 |
| 50% | 56.2 | 54.2 | 51.0 | 48.8 | 50.3 | 52.3 | 55.0 | 60.6 | 64.6 | 68.3 | 66.5 | 60.4 |
| 60% | 55.8 | 53.7 | 50.6 | 48.4 | 50.0 | 51.8 | 54.7 | 60.2 | 64.0 | 68.1 | 66.3 | 60.1 |
| 70% | 55.6 | 53.4 | 50.3 | 47.8 | 49.7 | 51.3 | 54.4 | 59.9 | 63.7 | 67.7 | 66.1 | 59.7 |
| 80% | 55.1 | 53.0 | 49.5 | 47.0 | 48.9 | 50.9 | 53.9 | 59.8 | 63.4 | 67.3 | 65.9 | 59.4 |
| 90% | 54.8 | 52.3 | 48.8 | 46.4 | 48.2 | 50.1 | 53.3 | 59.0 | 62.7 | 66.9 | 65.3 | 58.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 56.9 | 54.6 | 51.1 | 48.7 | 50.3 | 52.5 | 55.3 | 60.7 | 64.5 | 68.3 | 67.0 | 61.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.5 | 54.3 | 51.9 | 48.6 | 49.7 | 51.3 | 54.1 | 60.2 | 64.0 | 68.4 | 66.7 | 59.8 |
| Above Normal (16%) | 55.5 | 53.2 | 50.5 | 49.0 | 50.3 | 52.0 | 55.4 | 61.2 | 65.0 | 67.9 | 66.0 | 59.4 |
| Below Normal (15%) | 56.3 | 54.3 | 50.8 | 49.3 | 50.7 | 53.0 | 56.2 | 60.5 | 65.0 | 68.3 | 66.7 | 61.0 |
| Dry (24%) | 56.7 | 54.8 | 51.3 | 48.3 | 50.4 | 53.4 | 55.9 | 60.9 | 64.8 | 68.1 | 67.3 | 61.1 |
| Critical (15%) | 62.0 | 57.0 | 49.9 | 48.6 | 51.1 | 53.8 | 55.8 | 60.8 | 64.3 | 69.0 | 68.5 | 65.1 |

### Alternative 4 043019

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 59.4 | 58.3 | 52.7 | 50.8 | 52.8 | 54.8 | 57.1 | 62.0 | 66.1 | 69.7 | 69.3 | 63.3 |
| 20% | 57.6 | 56.6 | 52.3 | 50.2 | 51.6 | 54.1 | 56.3 | 61.3 | 65.6 | 69.1 | 68.1 | 62.3 |
| 30% | 56.8 | 55.5 | 51.7 | 49.7 | 51.1 | 53.1 | 55.7 | 60.8 | 65.2 | 68.8 | 67.6 | 61.8 |
| 40% | 56.6 | 54.4 | 51.3 | 49.1 | 50.5 | 52.6 | 55.2 | 60.7 | 64.9 | 68.5 | 67.3 | 61.4 |
| 50% | 56.3 | 53.8 | 51.0 | 48.8 | 50.2 | 52.1 | 54.8 | 60.5 | 64.5 | 68.3 | 66.8 | 61.1 |
| 60% | 55.9 | 53.3 | 50.5 | 48.4 | 50.0 | 51.7 | 54.4 | 60.0 | 64.0 | 68.1 | 66.4 | 60.7 |
| 70% | 55.6 | 53.0 | 50.2 | 47.9 | 49.6 | 51.3 | 54.1 | 59.8 | 63.6 | 67.7 | 66.2 | 60.3 |
| 80% | 55.2 | 52.5 | 49.5 | 47.2 | 49.1 | 50.9 | 53.7 | 59.7 | 63.4 | 67.3 | 65.9 | 59.8 |
| 90% | 54.7 | 52.3 | 48.7 | 46.6 | 48.2 | 50.1 | 53.0 | 58.8 | 62.6 | 67.0 | 65.4 | 59.4 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 57.0 | 54.6 | 50.8 | 48.7 | 50.3 | 52.4 | 55.0 | 60.5 | 64.4 | 68.4 | 67.1 | 61.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 55.6 | 52.9 | 50.7 | 48.6 | 49.8 | 51.3 | 53.8 | 60.0 | 64.0 | 68.4 | 66.8 | 60.9 |
| Above Normal (16%) | 55.7 | 53.3 | 50.7 | 49.1 | 50.3 | 51.9 | 54.8 | 60.6 | 64.9 | 67.9 | 66.1 | 59.8 |
| Below Normal (15%) | 56.6 | 55.4 | 51.4 | 49.5 | 50.6 | 52.4 | 55.7 | 60.3 | 64.8 | 68.3 | 67.3 | 61.6 |
| Dry (24%) | 57.0 | 55.4 | 51.4 | 48.3 | 50.4 | 53.2 | 55.8 | 60.9 | 64.7 | 68.3 | 67.3 | 61.3 |
| Critical (15%) | 61.9 | 57.3 | 50.0 | 48.7 | 51.1 | 53.8 | 55.9 | 60.8 | 64.2 | 68.9 | 68.6 | 65.1 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -1.4 | **0.6** | -0.5 | **0.2** | **0.3** | -0.2 | -0.3 | -0.1 | 0.0 | **0.2** | **0.6** | **0.7** |
| 20% | **0.4** | **0.5** | -0.3 | **0.2** | **0.1** | **0.1** | -0.2 | -0.3 | -0.2 | 0.0 | 0.0 | **0.6** |
| 30% | **0.2** | **0.2** | -0.2 | **0.0** | **0.1** | -0.4 | -0.2 | -0.4 | -0.1 | 0.0 | **0.0** | **0.5** |
| 40% | **0.2** | -0.6 | -0.1 | 0.0 | -0.1 | -0.3 | -0.3 | -0.1 | -0.1 | 0.0 | **0.2** | **0.5** |
| 50% | **0.1** | -0.4 | 0.0 | 0.0 | 0.0 | -0.2 | -0.3 | -0.1 | 0.0 | 0.0 | **0.2** | **0.7** |
| 60% | **0.1** | -0.4 | -0.1 | 0.0 | 0.0 | -0.1 | -0.3 | -0.2 | 0.0 | 0.0 | **0.1** | **0.6** |
| 70% | 0.0 | -0.4 | -0.1 | **0.1** | -0.1 | 0.0 | -0.3 | -0.1 | -0.1 | 0.0 | **0.1** | **0.6** |
| 80% | **0.1** | -0.5 | 0.0 | **0.1** | **0.2** | 0.0 | -0.2 | -0.1 | 0.0 | **0.0** | **0.0** | **0.4** |
| 90% | -0.1 | 0.0 | -0.1 | **0.2** | 0.0 | 0.0 | -0.3 | -0.2 | -0.1 | **0.1** | **0.1** | **0.5** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | -0.1 | -0.2 | **0.1** | **0.0** | -0.1 | -0.3 | -0.2 | -0.1 | **0.0** | **0.1** | **0.5** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.0** | -1.3 | -1.2 | **0.0** | **0.1** | **0.0** | -0.2 | -0.2 | **0.0** | **0.0** | **0.1** | **1.1** |
| Above Normal (16%) | **0.1** | **0.1** | **0.2** | **0.0** | **0.1** | -0.1 | -0.6 | -0.6 | -0.1 | **0.0** | **0.0** | **0.4** |
| Below Normal (15%) | **0.2** | **1.1** | **0.6** | **0.2** | -0.1 | -0.6 | -0.6 | -0.2 | -0.2 | 0.0 | **0.6** | **0.6** |
| Dry (24%) | **0.2** | **0.6** | **0.1** | **0.1** | 0.0 | -0.2 | -0.1 | 0.0 | -0.1 | **0.1** | **0.0** | **0.1** |
| Critical (15%) | -0.1 | **0.3** | **0.1** | **0.1** | **0.1** | 0.0 | **0.1** | 0.0 | -0.1 | -0.1 | **0.0** | **0.0** |

a Based on the 82-year simulation period.

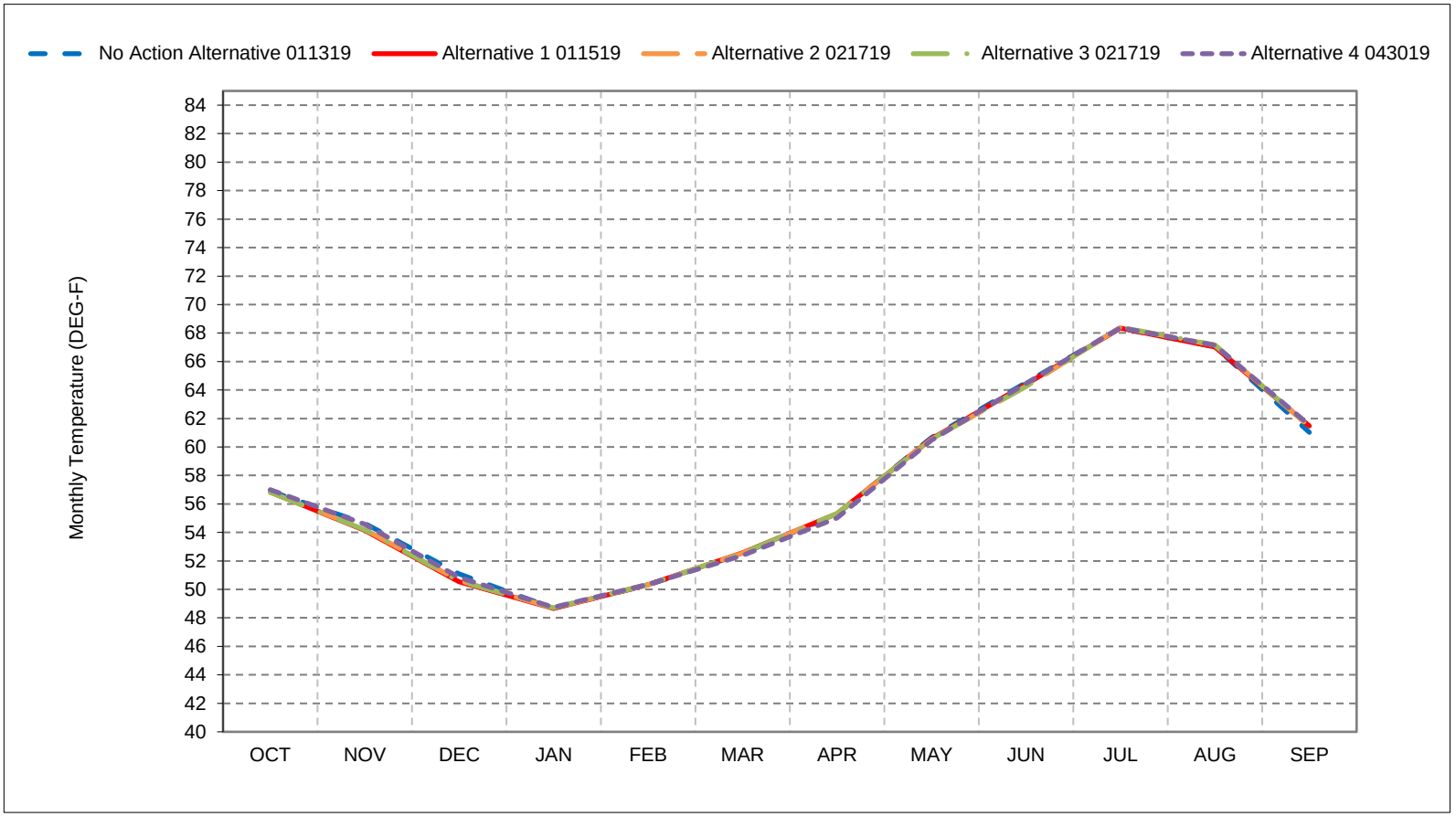
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

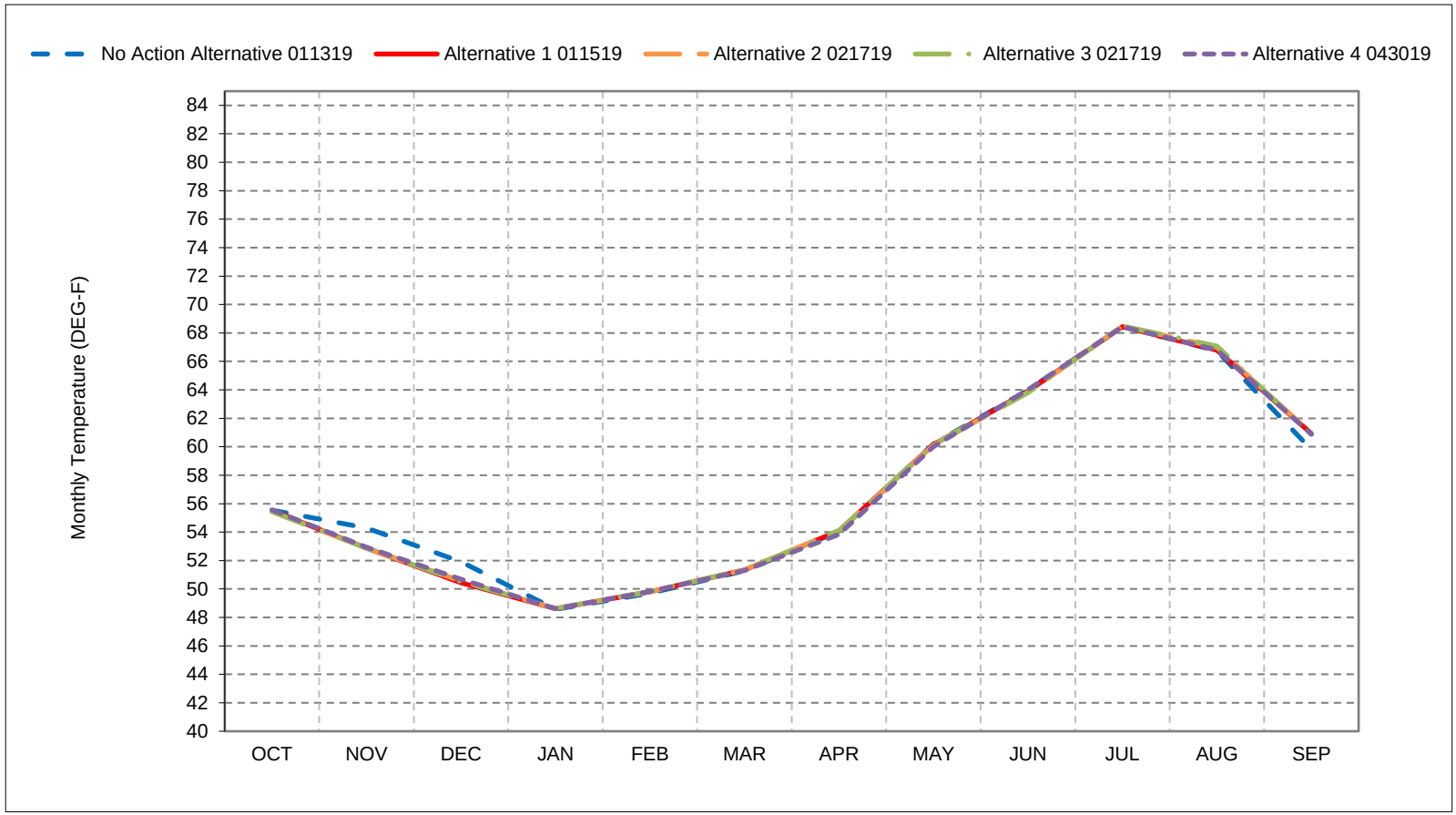
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 2-1. Feather River at Robinson Riffle, Long-Term Average Temperature



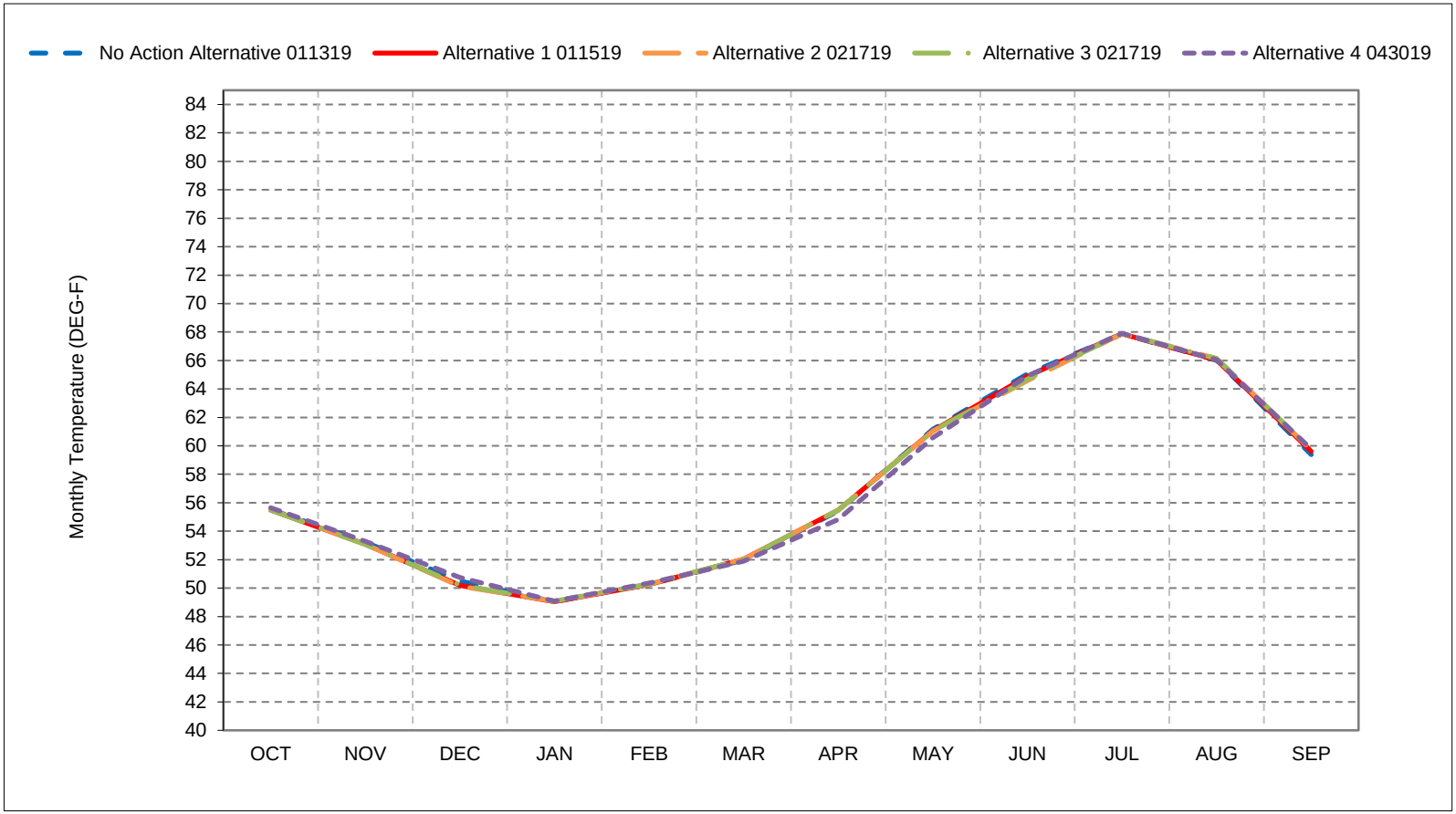

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 2-2. Feather River at Robinson Riffle, Wet Year Average Temperature



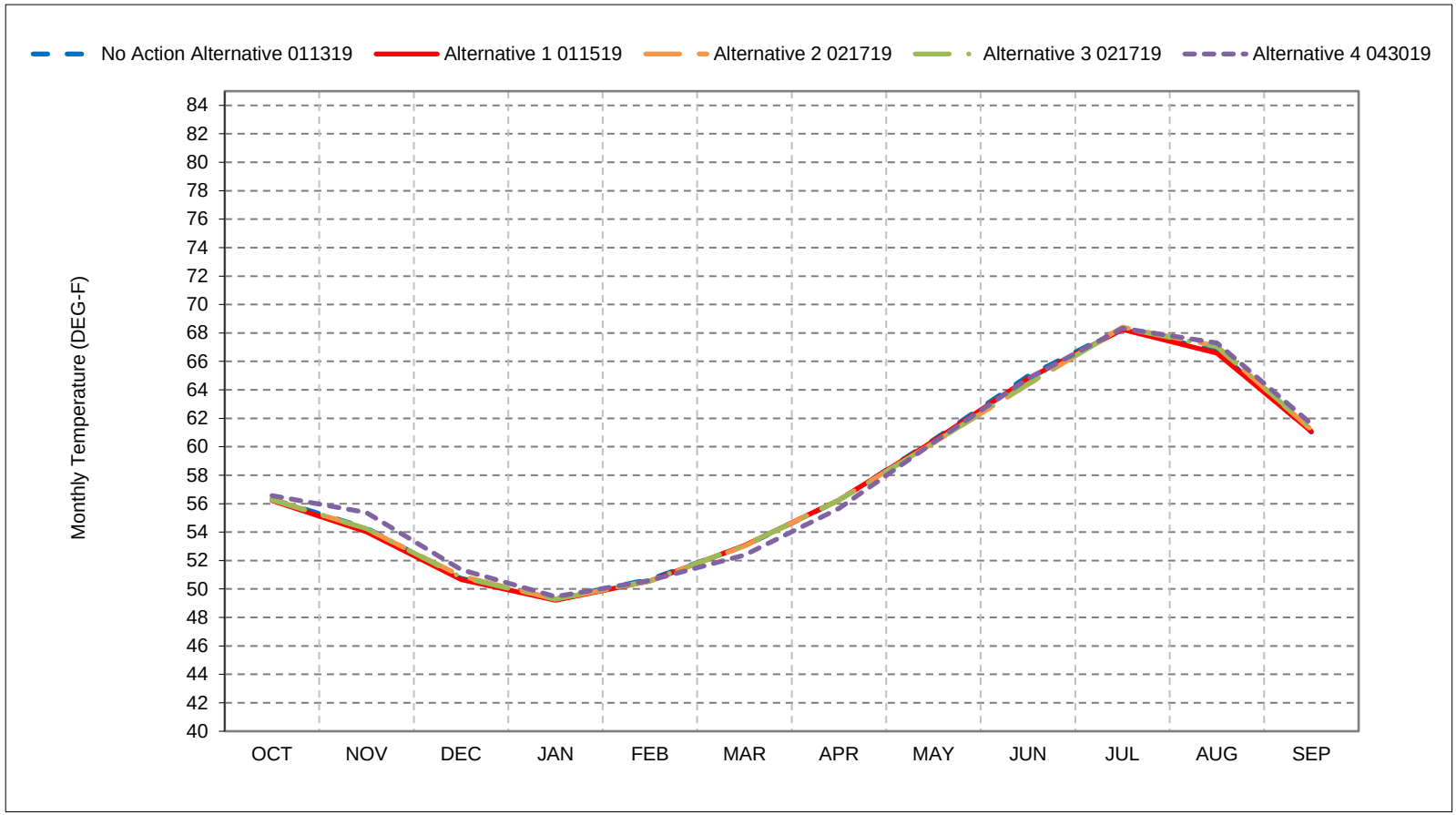

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 2-3. Feather River at Robinson Riffle, Above Normal Year Average Temperature



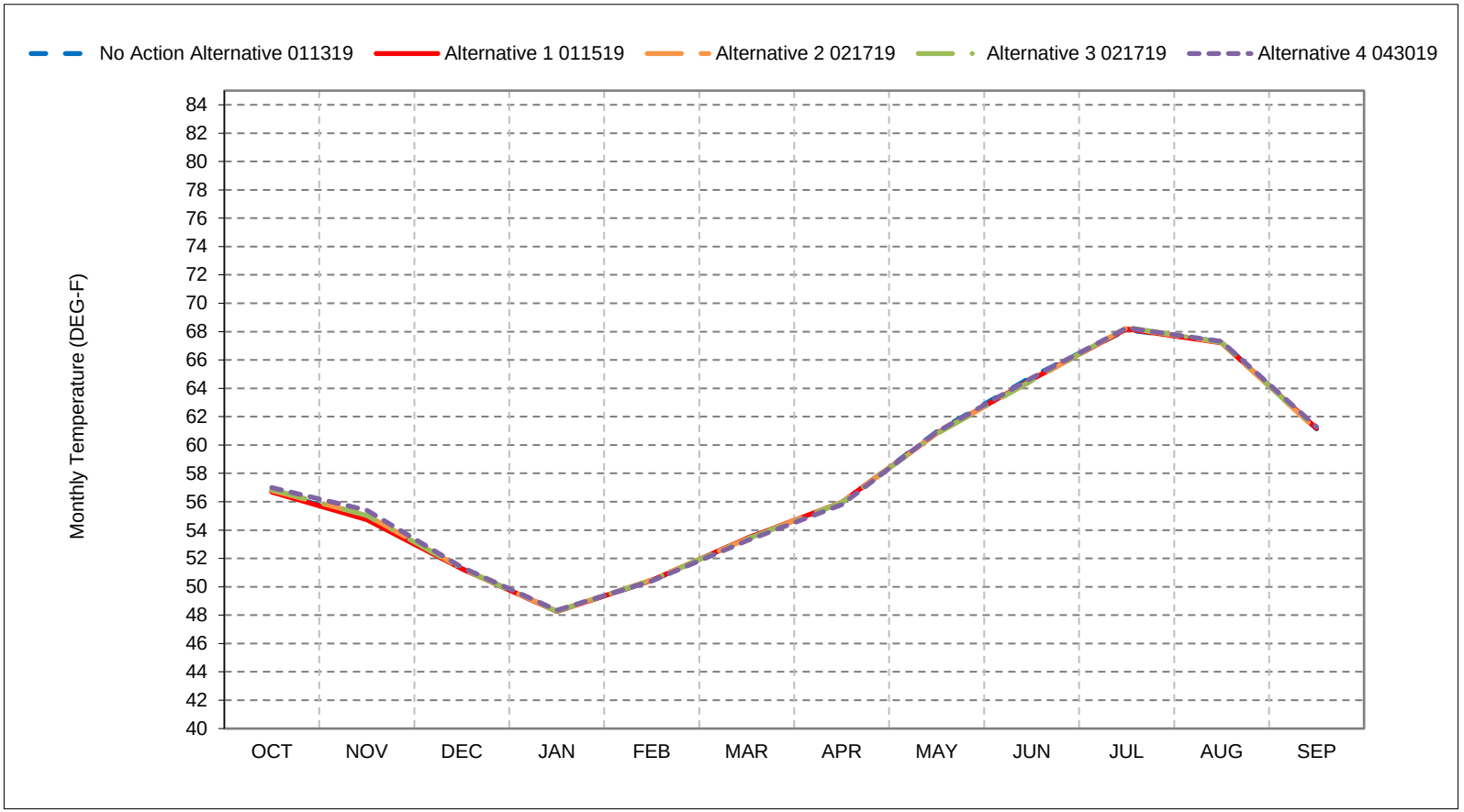

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 2-4. Feather River at Robinson Riffle, Below Normal Year Average Temperature



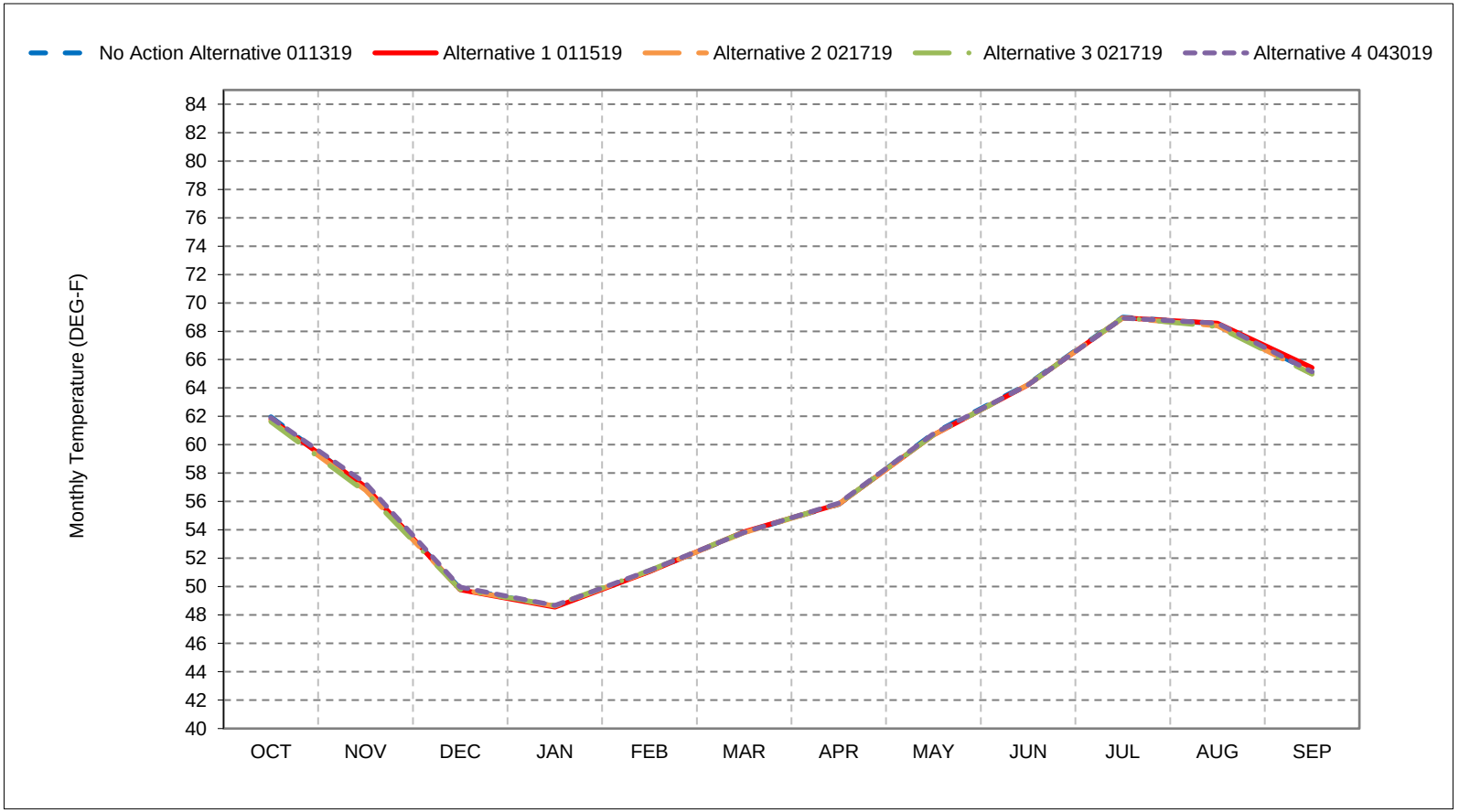

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 2-5. Feather River at Robinson Riffle, Dry Year Average Temperature



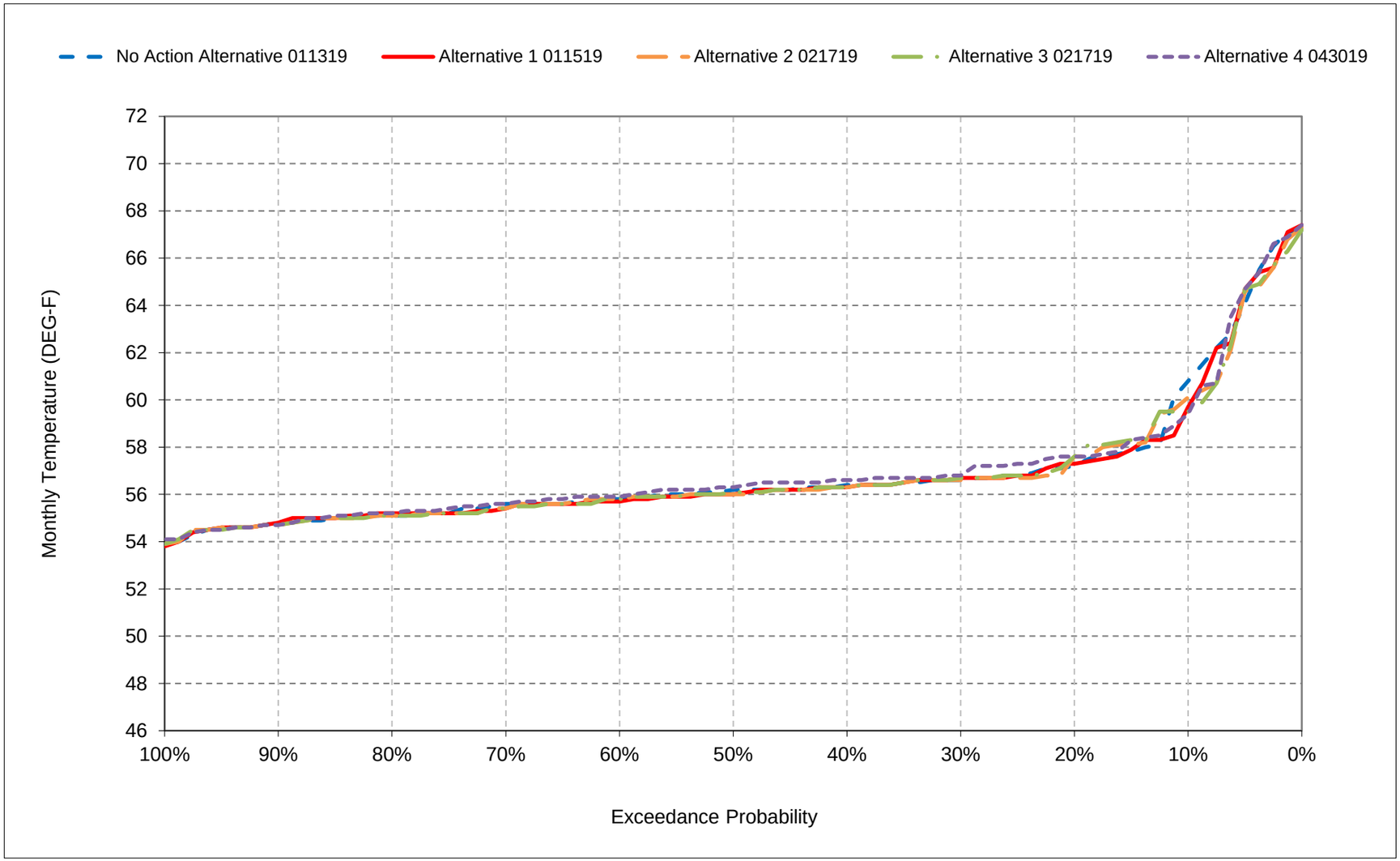

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 2-6. Feather River at Robinson Riffle, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

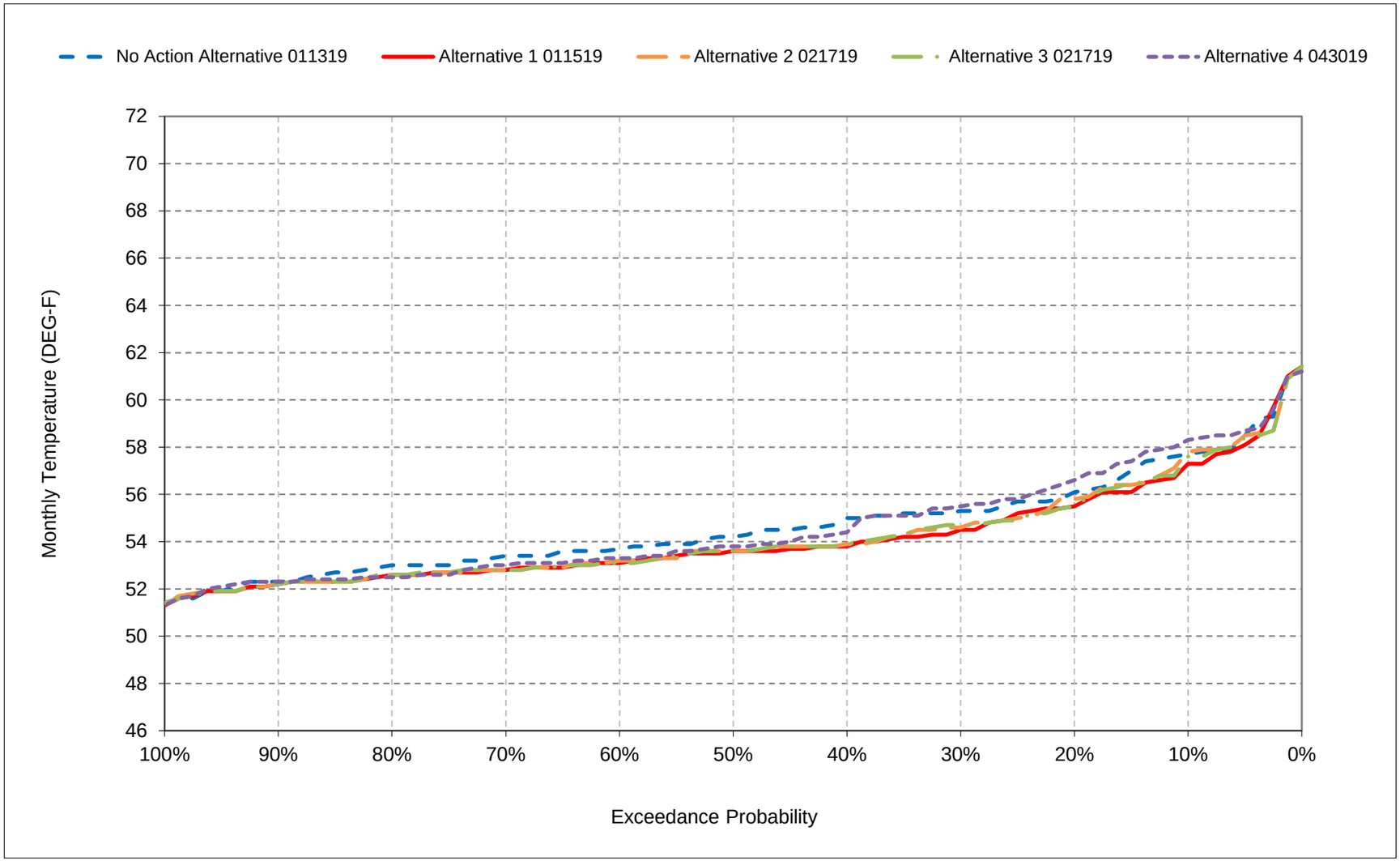
**Figure 2-7. Feather River at Robinson Riffle, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

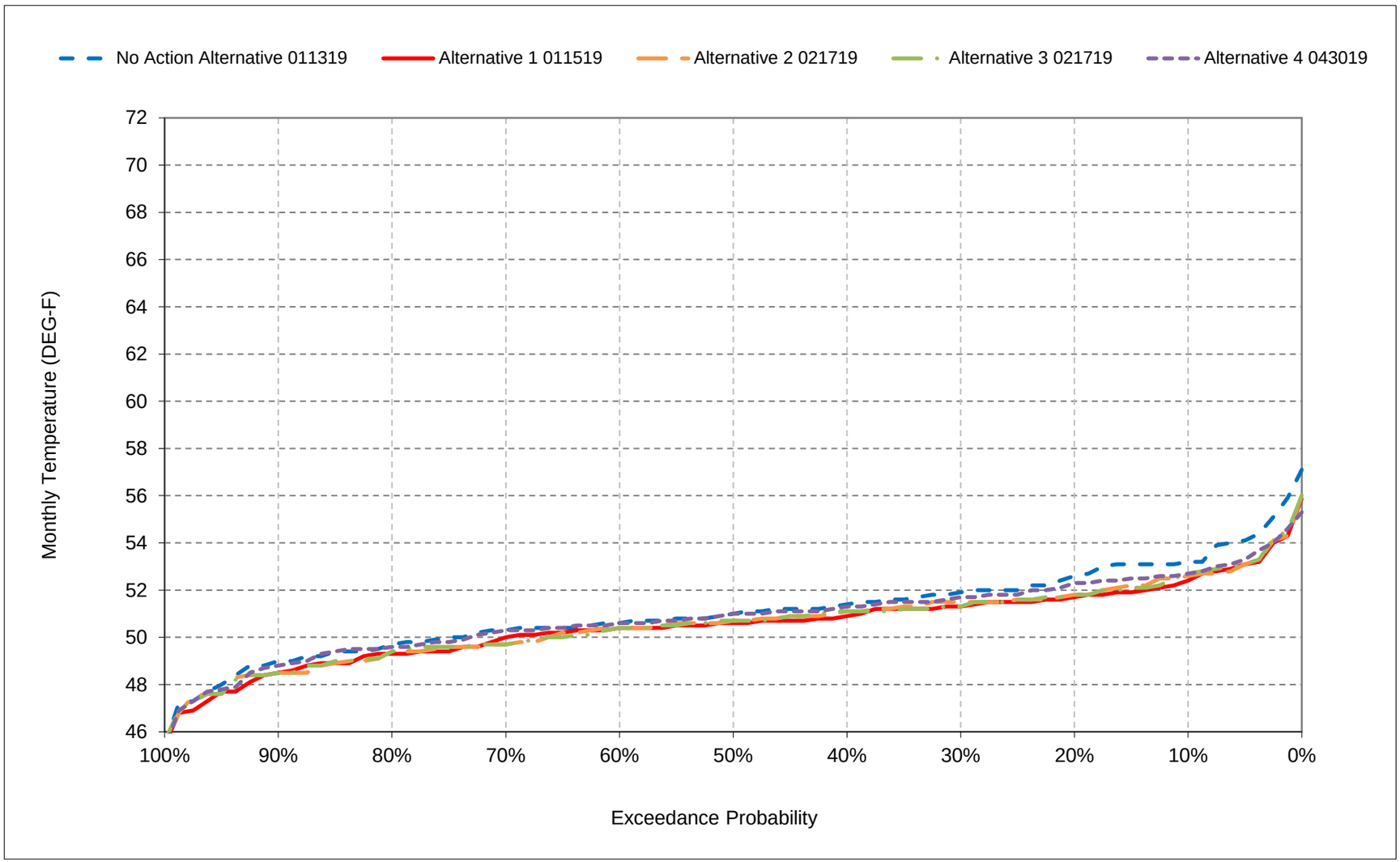
**Figure 2-8. Feather River at Robinson Riffle, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

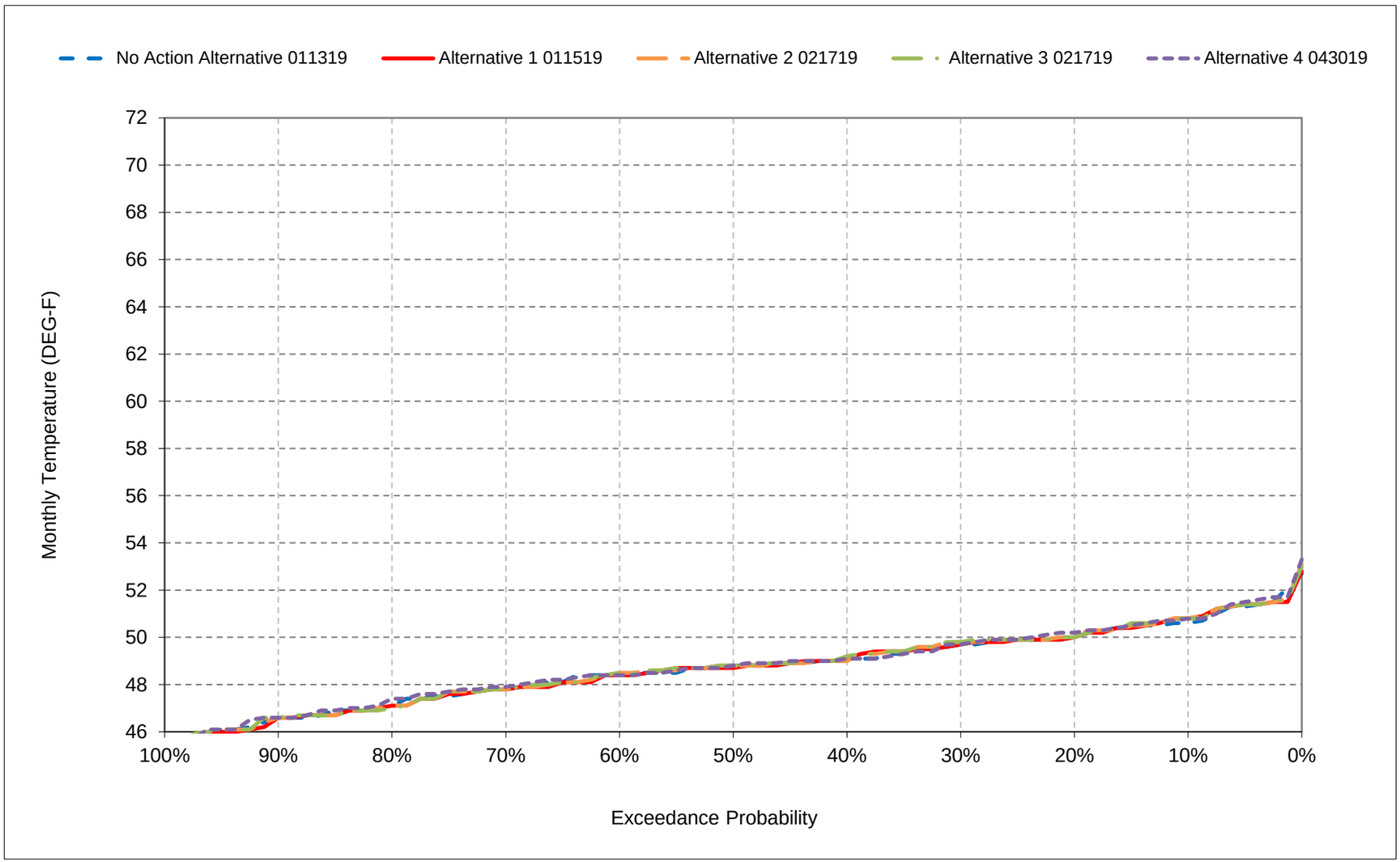
**Figure 2-9. Feather River at Robinson Riffle, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

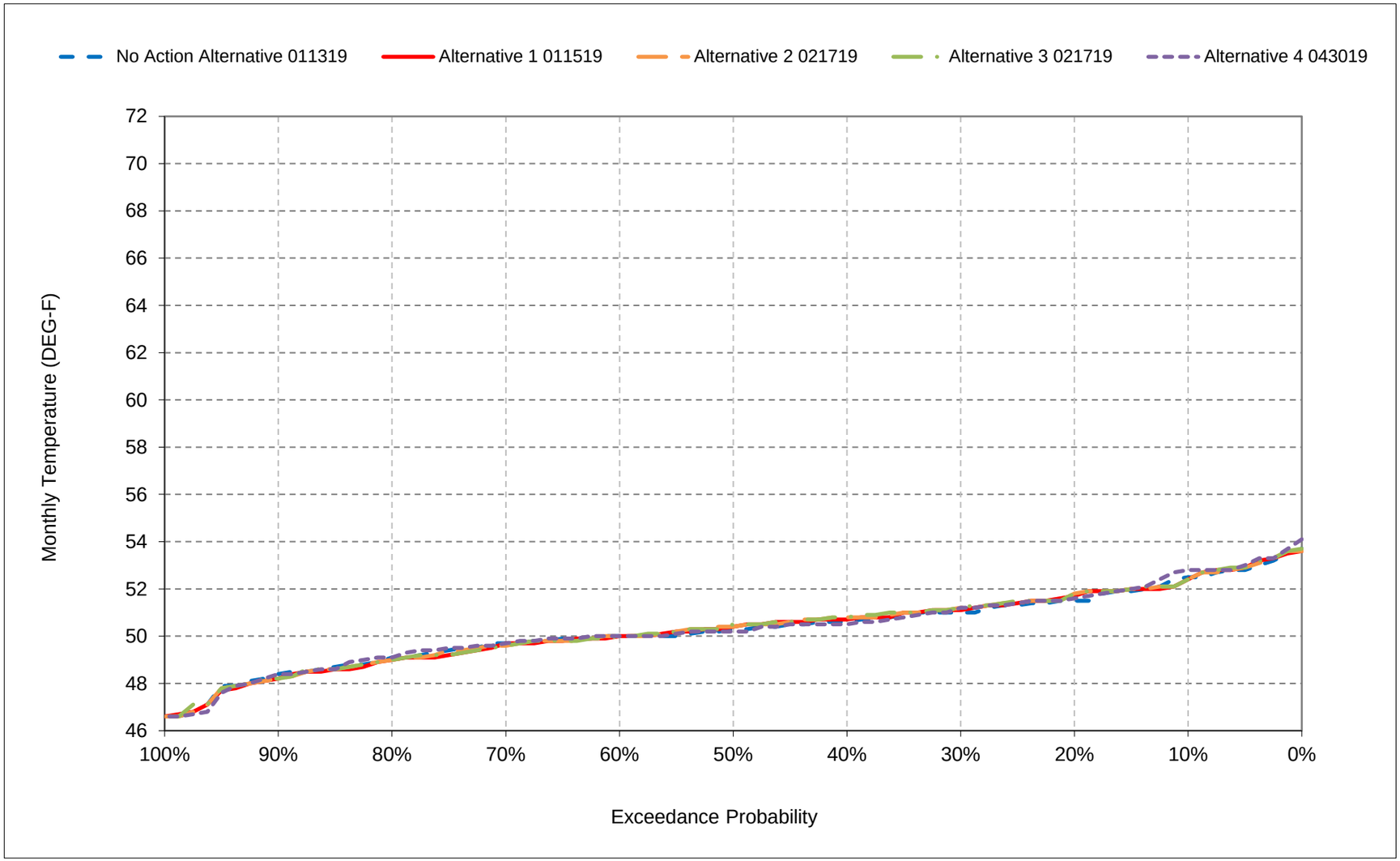
**Figure 2-10. Feather River at Robinson Riffle, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

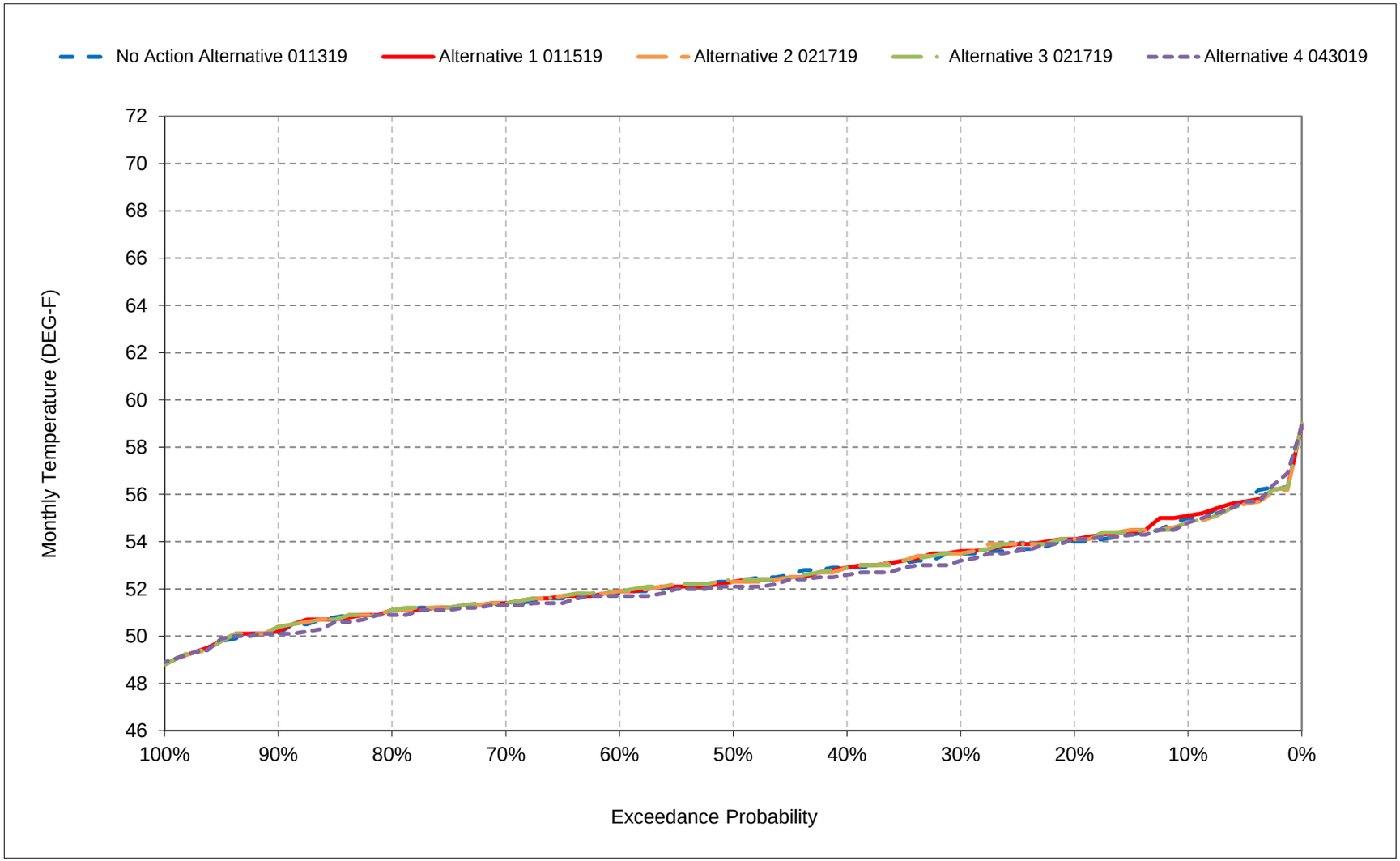
**Figure 2-11. Feather River at Robinson Riffle, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

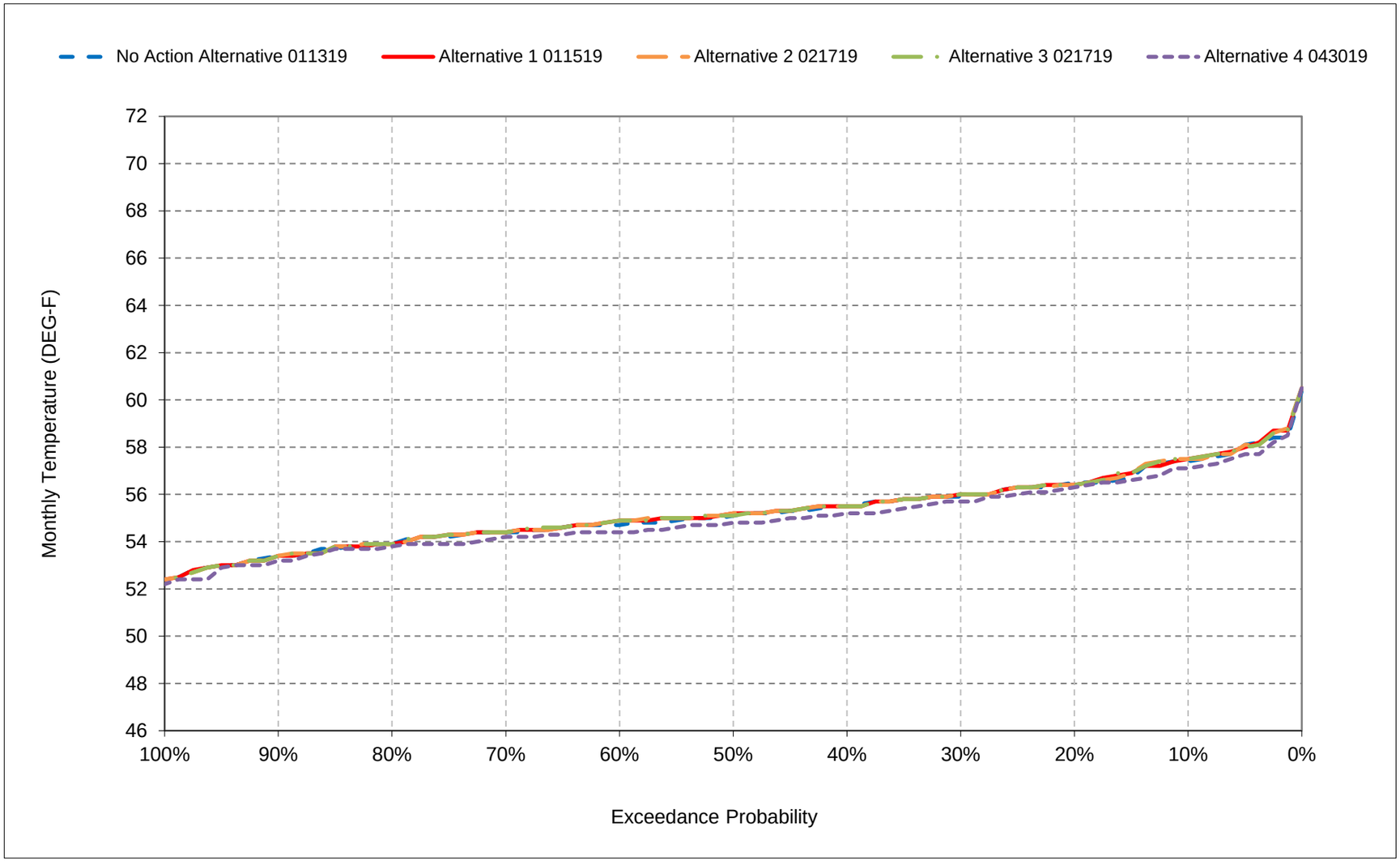
**Figure 2-12. Feather River at Robinson Riffle, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

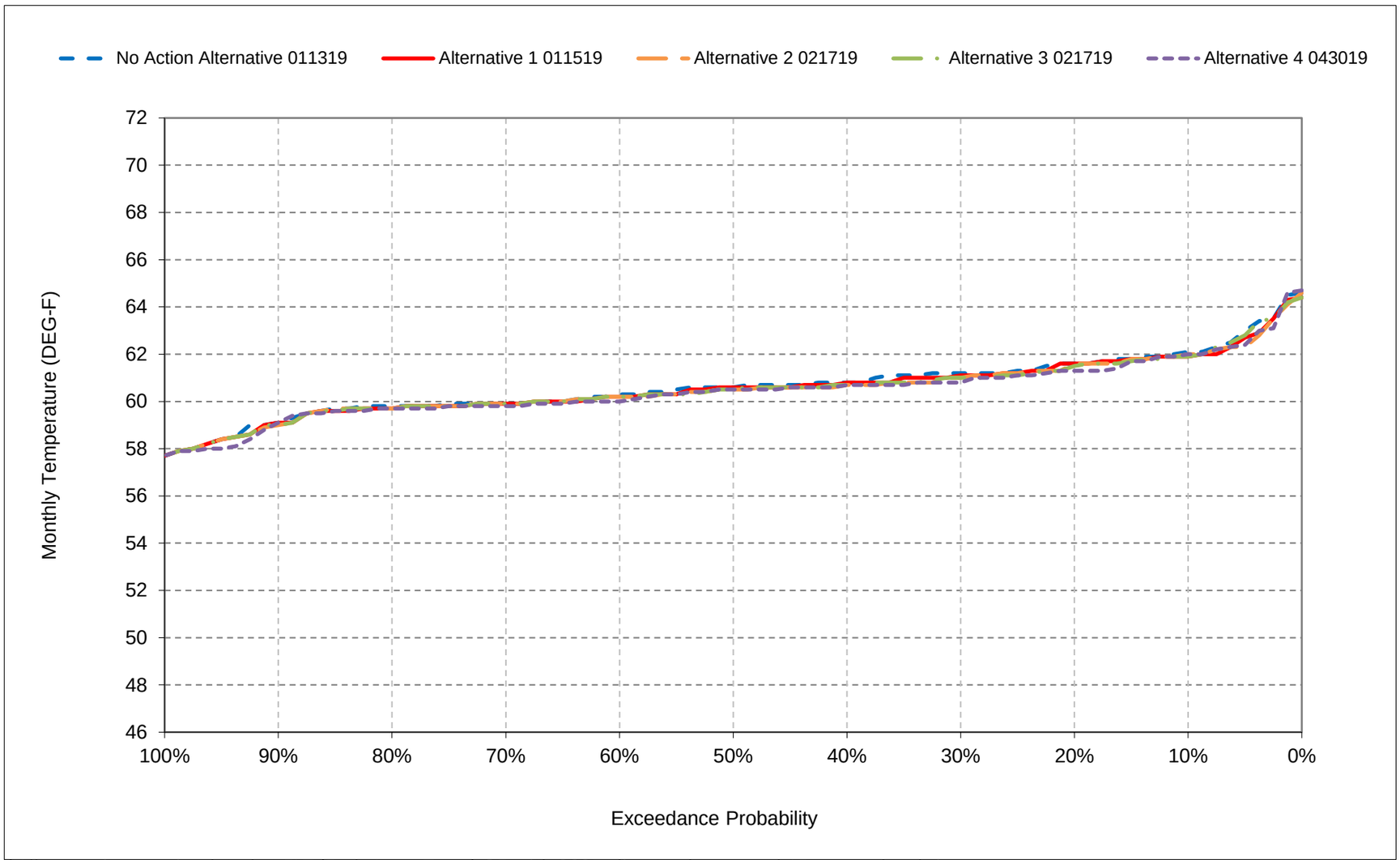
**Figure 2-13. Feather River at Robinson Riffle, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

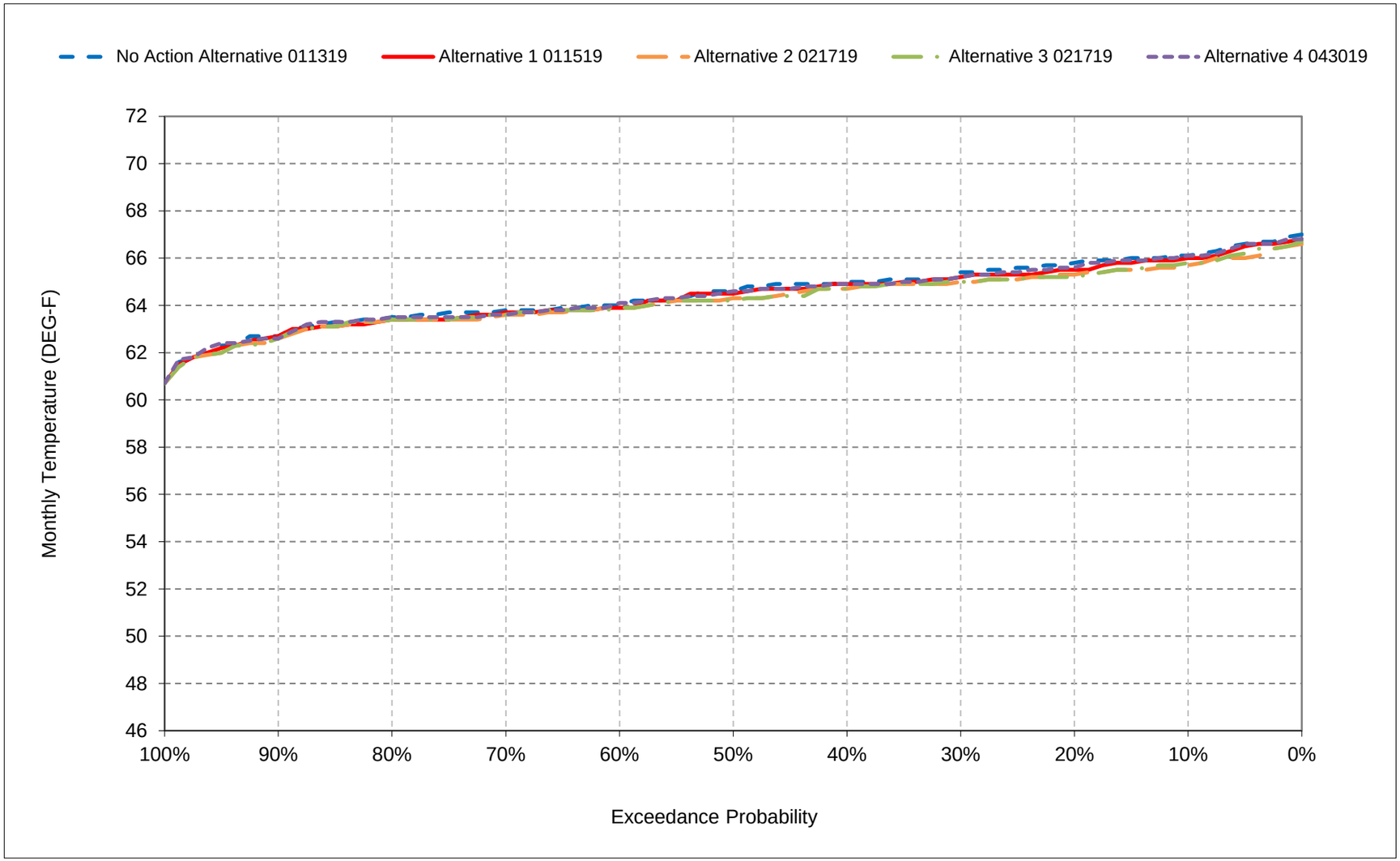
**Figure 2-14. Feather River at Robinson Riffle, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

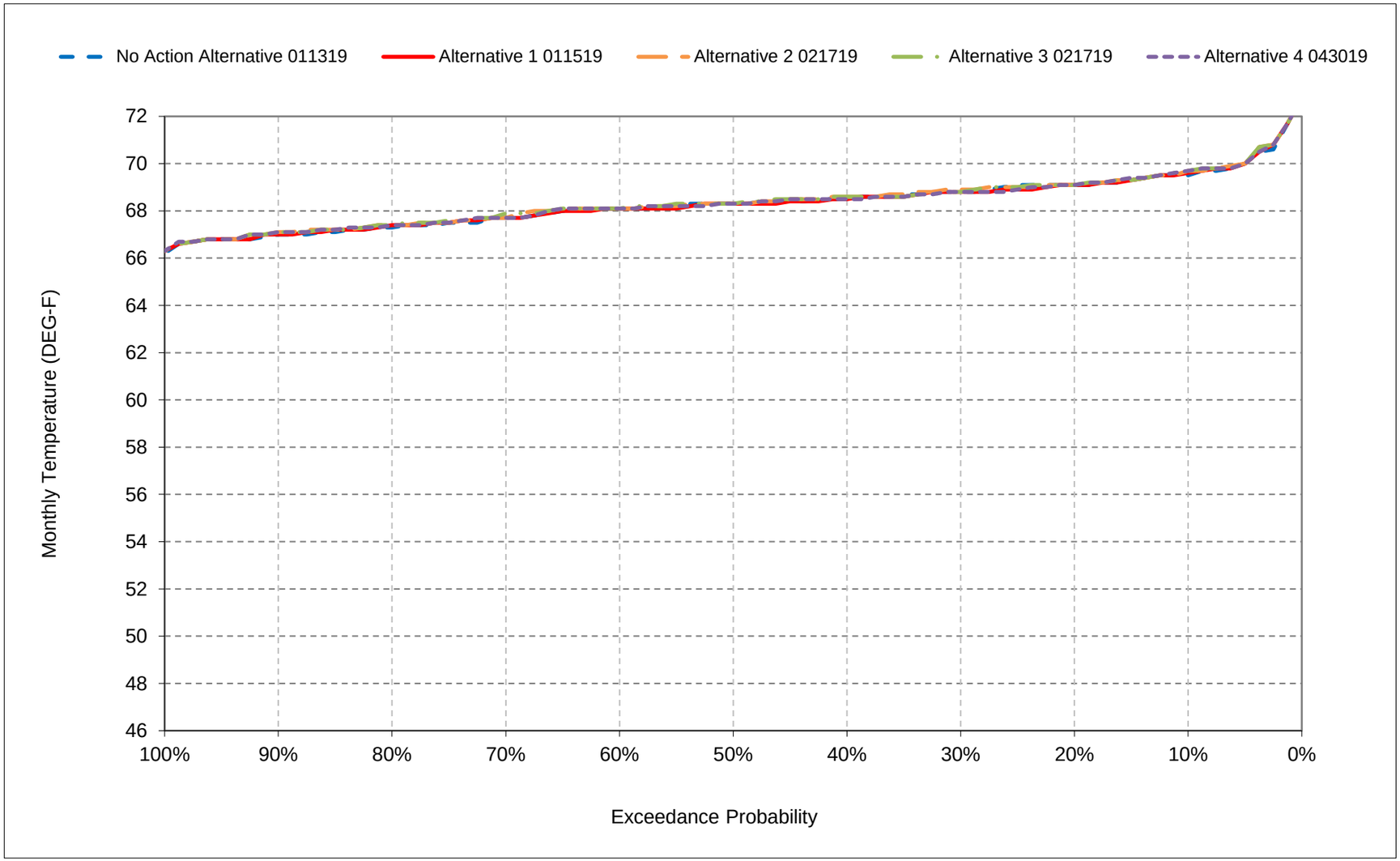
**Figure 2-15. Feather River at Robinson Riffle, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

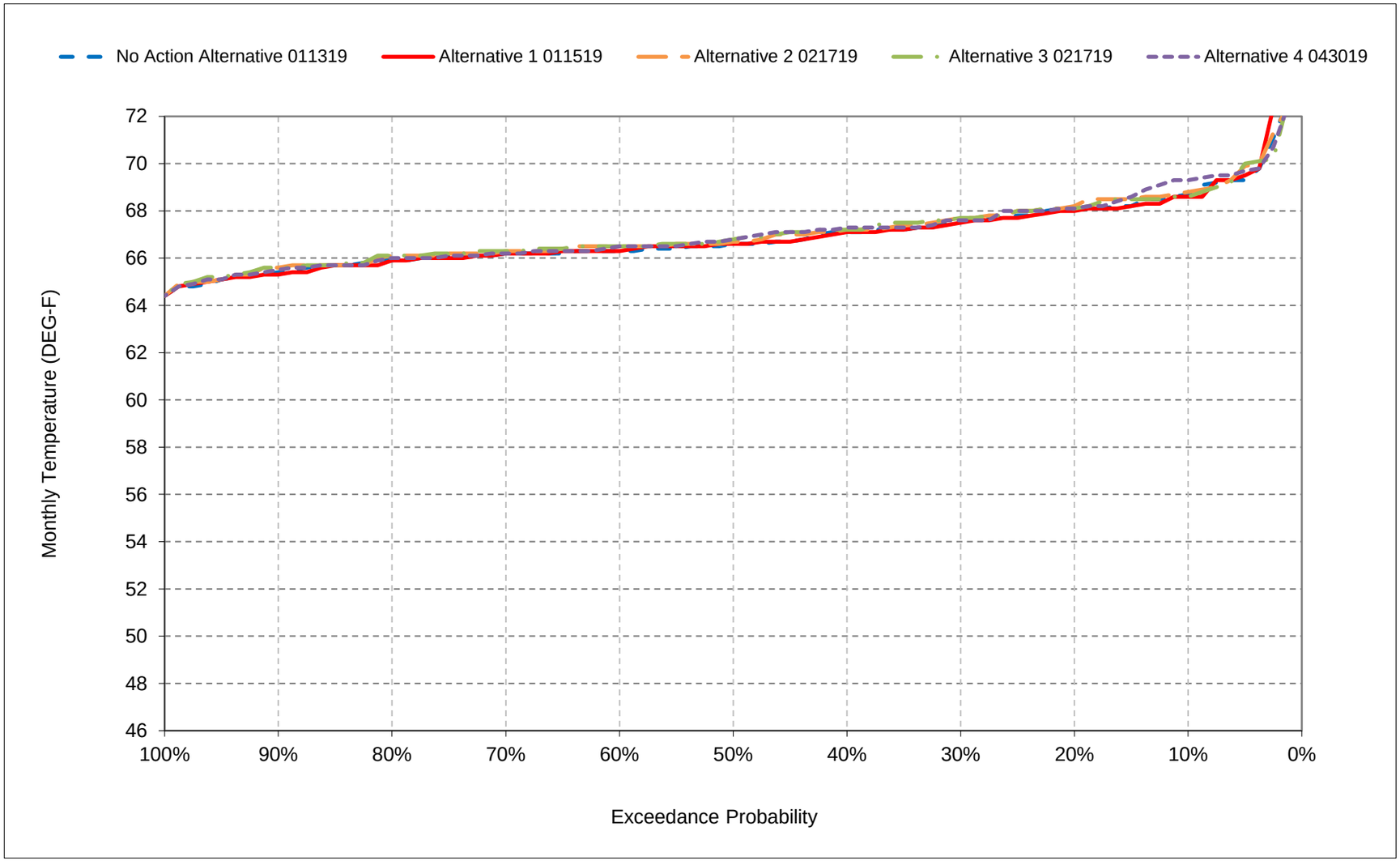
**Figure 2-16. Feather River at Robinson Riffle, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

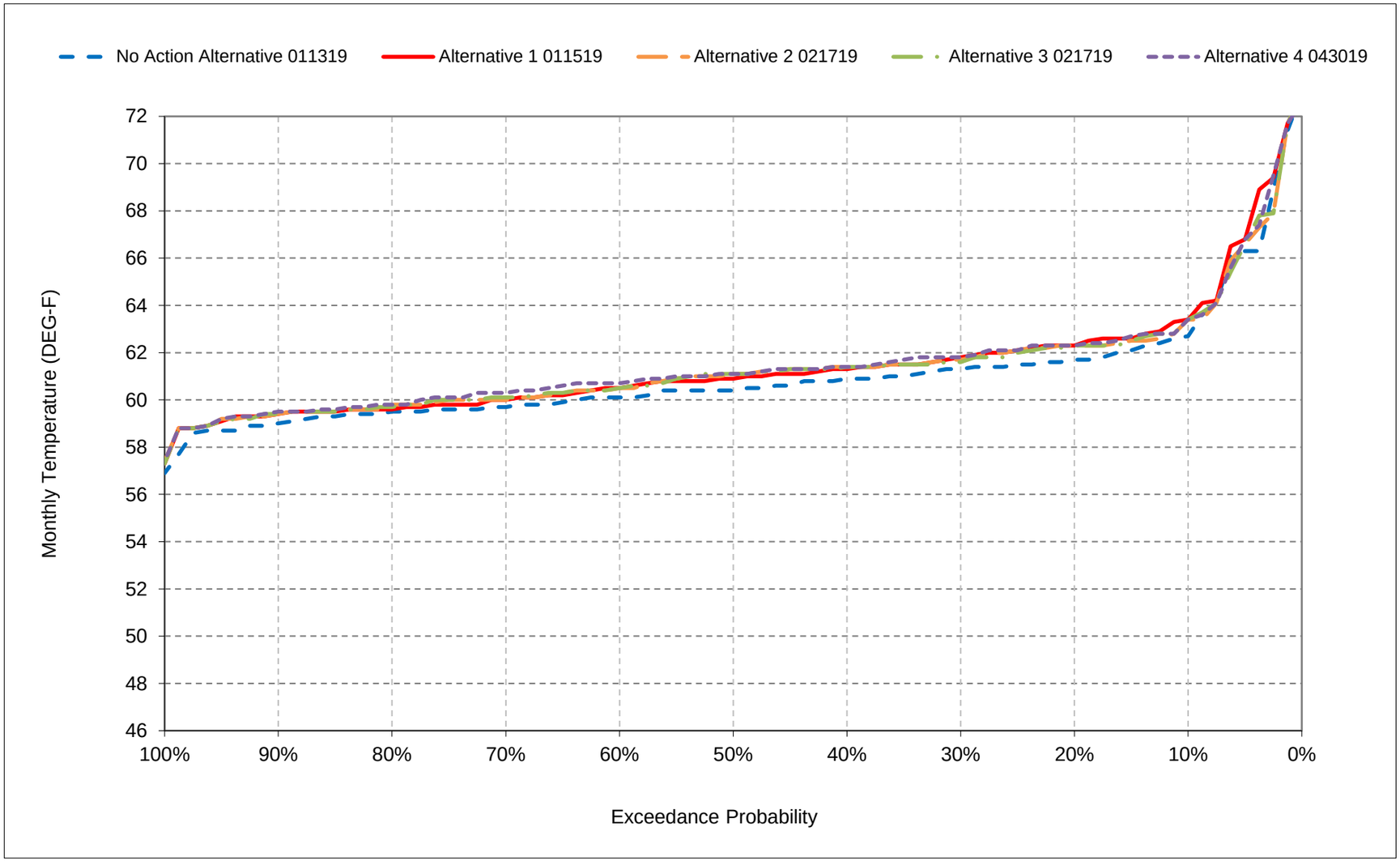
**Figure 2-17. Feather River at Robinson Riffle, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 2-18. Feather River at Robinson Riffle, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 3-1. Feather River at Gridley Bridge, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 62.9 | 56.6 | 51.5 | 50.0 | 53.4 | 57.1 | 61.3 | 67.6 | 72.5 | 75.5 | 74.9 | 68.2 |
| 20% | 60.6 | 56.2 | 50.8 | 49.5 | 52.7 | 56.3 | 60.2 | 66.3 | 71.9 | 73.8 | 73.6 | 67.0 |
| 30% | 60.3 | 55.6 | 50.5 | 48.9 | 52.2 | 55.8 | 59.1 | 65.8 | 70.9 | 71.9 | 72.9 | 65.8 |
| 40% | 59.8 | 55.1 | 50.2 | 48.4 | 51.6 | 55.2 | 58.9 | 65.2 | 70.4 | 71.3 | 71.6 | 65.4 |
| 50% | 59.4 | 54.5 | 49.6 | 48.1 | 51.0 | 54.4 | 58.4 | 64.6 | 69.7 | 70.8 | 71.0 | 63.9 |
| 60% | 58.9 | 53.8 | 49.2 | 47.4 | 50.4 | 53.7 | 58.1 | 64.4 | 69.0 | 70.4 | 70.4 | 62.9 |
| 70% | 58.5 | 53.5 | 48.4 | 47.0 | 49.9 | 52.6 | 57.3 | 63.5 | 68.7 | 70.1 | 69.6 | 62.6 |
| 80% | 57.8 | 53.2 | 48.1 | 46.0 | 49.6 | 51.8 | 56.4 | 62.1 | 68.0 | 69.4 | 68.8 | 62.0 |
| 90% | 57.1 | 52.5 | 46.6 | 45.2 | 48.9 | 50.5 | 55.0 | 61.1 | 66.5 | 68.5 | 67.8 | 61.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 59.7 | 54.6 | 49.4 | 47.8 | 51.1 | 54.3 | 58.3 | 64.6 | 69.7 | 71.5 | 71.3 | 64.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 58.5 | 54.4 | 50.2 | 48.1 | 50.1 | 52.3 | 56.2 | 62.6 | 68.5 | 71.1 | 70.5 | 62.2 |
| Above Normal (16%) | 58.8 | 53.2 | 48.6 | 48.5 | 51.4 | 54.1 | 59.0 | 65.5 | 70.6 | 69.7 | 68.5 | 62.4 |
| Below Normal (15%) | 59.9 | 54.5 | 48.6 | 48.0 | 51.7 | 55.5 | 59.8 | 65.0 | 70.8 | 70.3 | 70.6 | 66.2 |
| Dry (24%) | 59.8 | 54.8 | 50.1 | 46.9 | 51.4 | 55.3 | 59.3 | 65.7 | 69.9 | 71.7 | 72.9 | 65.6 |
| Critical (15%) | 62.9 | 56.3 | 48.3 | 47.6 | 52.1 | 55.8 | 59.2 | 65.5 | 70.2 | 75.0 | 74.1 | 68.3 |

### Alternative 1 011519

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 62.0 | 56.7 | 51.1 | 49.9 | 53.0 | 56.8 | 61.4 | 67.2 | 72.0 | 74.9 | 74.8 | 68.2 |
| 20% | 61.1 | 55.8 | 50.5 | 49.5 | 52.8 | 56.4 | 60.1 | 66.3 | 71.1 | 73.6 | 73.3 | 67.8 |
| 30% | 60.3 | 55.2 | 50.2 | 49.0 | 52.2 | 55.4 | 59.1 | 65.8 | 70.5 | 72.4 | 72.7 | 67.0 |
| 40% | 59.9 | 54.5 | 49.9 | 48.5 | 51.5 | 55.2 | 59.0 | 65.1 | 69.9 | 71.3 | 71.7 | 66.4 |
| 50% | 59.4 | 53.9 | 49.4 | 48.1 | 50.9 | 54.4 | 58.4 | 64.6 | 69.4 | 70.7 | 71.1 | 65.9 |
| 60% | 59.1 | 53.3 | 48.7 | 47.4 | 50.4 | 53.5 | 58.1 | 64.3 | 68.5 | 70.3 | 70.7 | 65.6 |
| 70% | 58.6 | 53.2 | 48.3 | 47.0 | 49.9 | 52.4 | 57.4 | 63.4 | 68.0 | 70.0 | 69.6 | 64.8 |
| 80% | 58.0 | 52.8 | 47.6 | 45.9 | 49.5 | 51.8 | 56.4 | 62.1 | 67.4 | 69.4 | 68.5 | 63.9 |
| 90% | 57.2 | 52.3 | 46.4 | 45.2 | 48.9 | 50.5 | 55.0 | 61.1 | 66.4 | 68.5 | 67.8 | 62.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 59.8 | 54.3 | 49.1 | 47.8 | 51.1 | 54.2 | 58.4 | 64.5 | 69.2 | 71.5 | 71.3 | 66.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 58.8 | 53.5 | 49.3 | 48.1 | 50.1 | 52.3 | 56.3 | 62.7 | 68.4 | 71.0 | 70.6 | 65.9 |
| Above Normal (16%) | 58.8 | 53.1 | 48.5 | 48.5 | 51.2 | 53.7 | 59.0 | 65.5 | 70.4 | 69.5 | 68.5 | 64.0 |
| Below Normal (15%) | 59.9 | 54.4 | 48.5 | 48.0 | 51.4 | 55.5 | 59.8 | 64.7 | 70.0 | 69.8 | 69.9 | 66.4 |
| Dry (24%) | 59.8 | 54.8 | 50.1 | 46.9 | 51.4 | 55.4 | 59.3 | 65.6 | 68.9 | 72.1 | 72.9 | 65.5 |
| Critical (15%) | 62.8 | 56.4 | 48.3 | 47.6 | 52.1 | 55.8 | 59.3 | 65.5 | 69.7 | 75.0 | 74.2 | 68.5 |

### Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.9 | **0.1** | -0.4 | -0.1 | -0.4 | -0.3 | **0.1** | -0.5 | -0.5 | -0.6 | -0.1 | **0.0** |
| 20% | **0.5** | -0.4 | -0.3 | **0.0** | **0.1** | **0.1** | 0.0 | 0.0 | -0.8 | -0.2 | -0.3 | **0.8** |
| 30% | 0.0 | -0.4 | -0.3 | **0.1** | 0.0 | -0.4 | 0.0 | -0.1 | -0.4 | **0.5** | -0.2 | **1.2** |
| 40% | **0.1** | -0.6 | -0.3 | **0.1** | 0.0 | 0.0 | **0.1** | -0.1 | -0.5 | 0.0 | **0.1** | **1.0** |
| 50% | 0.0 | -0.6 | -0.2 | -0.1 | -0.1 | 0.0 | **0.1** | 0.0 | -0.3 | -0.1 | **0.1** | **2.0** |
| 60% | **0.2** | -0.5 | -0.5 | 0.0 | -0.1 | -0.2 | 0.0 | -0.1 | -0.5 | -0.1 | **0.3** | **2.7** |
| 70% | **0.1** | -0.3 | -0.1 | 0.0 | **0.0** | -0.2 | **0.1** | -0.1 | -0.7 | -0.1 | 0.0 | **2.2** |
| 80% | **0.2** | -0.4 | -0.5 | 0.0 | -0.1 | **0.0** | **0.0** | **0.0** | -0.6 | 0.0 | -0.3 | **1.9** |
| 90% | **0.1** | -0.2 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | **1.7** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | -0.3 | -0.3 | **0.0** | -0.1 | 0.0 | **0.0** | -0.1 | -0.5 | 0.0 | 0.0 | **1.5** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.3** | -0.9 | -0.9 | **0.1** | **0.0** | 0.0 | **0.0** | **0.0** | -0.1 | 0.0 | **0.2** | **3.7** |
| Above Normal (16%) | -0.1 | -0.1 | -0.1 | **0.0** | -0.2 | -0.4 | 0.0 | 0.0 | -0.2 | -0.2 | **0.0** | **1.6** |
| Below Normal (15%) | **0.0** | -0.2 | -0.1 | 0.0 | -0.2 | 0.0 | 0.0 | -0.3 | -0.8 | -0.5 | -0.6 | **0.2** |
| Dry (24%) | 0.0 | 0.0 | 0.0 | **0.0** | 0.0 | **0.0** | **0.0** | -0.1 | -1.0 | **0.3** | **0.0** | -0.1 |
| Critical (15%) | -0.1 | **0.1** | -0.1 | -0.1 | 0.0 | **0.0** | **0.0** | -0.1 | -0.5 | **0.0** | **0.1** | **0.2** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 3-2. Feather River at Gridley Bridge, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 62.9 | 56.6 | 51.5 | 50.0 | 53.4 | 57.1 | 61.3 | 67.6 | 72.5 | 75.5 | 74.9 | 68.2 |
| 20% | 60.6 | 56.2 | 50.8 | 49.5 | 52.7 | 56.3 | 60.2 | 66.3 | 71.9 | 73.8 | 73.6 | 67.0 |
| 30% | 60.3 | 55.6 | 50.5 | 48.9 | 52.2 | 55.8 | 59.1 | 65.8 | 70.9 | 71.9 | 72.9 | 65.8 |
| 40% | 59.8 | 55.1 | 50.2 | 48.4 | 51.6 | 55.2 | 58.9 | 65.2 | 70.4 | 71.3 | 71.6 | 65.4 |
| 50% | 59.4 | 54.5 | 49.6 | 48.1 | 51.0 | 54.4 | 58.4 | 64.6 | 69.7 | 70.8 | 71.0 | 63.9 |
| 60% | 58.9 | 53.8 | 49.2 | 47.4 | 50.4 | 53.7 | 58.1 | 64.4 | 69.0 | 70.4 | 70.4 | 62.9 |
| 70% | 58.5 | 53.5 | 48.4 | 47.0 | 49.9 | 52.6 | 57.3 | 63.5 | 68.7 | 70.1 | 69.6 | 62.6 |
| 80% | 57.8 | 53.2 | 48.1 | 46.0 | 49.6 | 51.8 | 56.4 | 62.1 | 68.0 | 69.4 | 68.8 | 62.0 |
| 90% | 57.1 | 52.5 | 46.6 | 45.2 | 48.9 | 50.5 | 55.0 | 61.1 | 66.5 | 68.5 | 67.8 | 61.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 59.7 | 54.6 | 49.4 | 47.8 | 51.1 | 54.3 | 58.3 | 64.6 | 69.7 | 71.5 | 71.3 | 64.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 58.5 | 54.4 | 50.2 | 48.1 | 50.1 | 52.3 | 56.2 | 62.6 | 68.5 | 71.1 | 70.5 | 62.2 |
| Above Normal (16%) | 58.8 | 53.2 | 48.6 | 48.5 | 51.4 | 54.1 | 59.0 | 65.5 | 70.6 | 69.7 | 68.5 | 62.4 |
| Below Normal (15%) | 59.9 | 54.5 | 48.6 | 48.0 | 51.7 | 55.5 | 59.8 | 65.0 | 70.8 | 70.3 | 70.6 | 66.2 |
| Dry (24%) | 59.8 | 54.8 | 50.1 | 46.9 | 51.4 | 55.3 | 59.3 | 65.7 | 69.9 | 71.7 | 72.9 | 65.6 |
| Critical (15%) | 62.9 | 56.3 | 48.3 | 47.6 | 52.1 | 55.8 | 59.2 | 65.5 | 70.2 | 75.0 | 74.1 | 68.3 |

### Alternative 2 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 62.1 | 57.3 | 51.2 | 49.9 | 53.0 | 56.8 | 61.3 | 67.0 | 71.0 | 75.2 | 75.5 | 68.5 |
| 20% | 61.0 | 55.7 | 50.4 | 49.5 | 52.9 | 56.3 | 60.1 | 66.0 | 70.1 | 73.9 | 74.0 | 67.7 |
| 30% | 60.4 | 55.3 | 50.2 | 49.1 | 52.2 | 55.4 | 59.1 | 65.6 | 69.4 | 72.9 | 73.1 | 67.1 |
| 40% | 60.1 | 54.6 | 49.9 | 48.5 | 51.6 | 55.2 | 59.0 | 65.1 | 68.8 | 72.2 | 72.1 | 66.5 |
| 50% | 59.4 | 54.0 | 49.5 | 48.1 | 51.1 | 54.2 | 58.4 | 64.6 | 68.4 | 71.6 | 71.8 | 65.8 |
| 60% | 59.1 | 53.6 | 48.8 | 47.5 | 50.3 | 53.6 | 58.1 | 64.0 | 67.6 | 70.9 | 71.2 | 65.7 |
| 70% | 58.6 | 53.2 | 48.3 | 47.0 | 50.0 | 52.5 | 57.4 | 63.1 | 67.0 | 70.5 | 70.5 | 64.7 |
| 80% | 57.9 | 52.8 | 47.6 | 45.9 | 49.5 | 51.8 | 56.4 | 62.1 | 66.5 | 70.0 | 69.7 | 63.8 |
| 90% | 57.1 | 52.3 | 46.6 | 45.2 | 48.9 | 50.6 | 55.0 | 61.1 | 65.3 | 68.9 | 68.4 | 62.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 59.7 | 54.4 | 49.2 | 47.8 | 51.1 | 54.2 | 58.4 | 64.4 | 68.3 | 72.0 | 71.9 | 66.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 58.6 | 53.5 | 49.4 | 48.2 | 50.2 | 52.3 | 56.3 | 62.7 | 67.9 | 71.3 | 71.4 | 65.9 |
| Above Normal (16%) | 58.9 | 53.1 | 48.4 | 48.5 | 51.2 | 53.7 | 59.0 | 65.4 | 69.0 | 69.7 | 69.2 | 64.4 |
| Below Normal (15%) | 59.8 | 54.5 | 48.8 | 48.0 | 51.4 | 55.4 | 59.8 | 64.4 | 67.0 | 71.1 | 71.8 | 66.7 |
| Dry (24%) | 59.9 | 55.0 | 50.1 | 46.9 | 51.5 | 55.4 | 59.3 | 65.5 | 68.1 | 72.8 | 72.8 | 65.5 |
| Critical (15%) | 62.8 | 56.2 | 48.3 | 47.7 | 52.2 | 55.8 | 59.3 | 65.3 | 69.6 | 75.0 | 74.1 | 68.2 |

### Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.8 | **0.7** | -0.3 | -0.1 | -0.4 | -0.3 | **0.0** | -0.6 | -1.5 | -0.3 | **0.6** | **0.3** |
| 20% | **0.4** | -0.5 | -0.4 | **0.0** | **0.2** | 0.0 | 0.0 | -0.3 | -1.8 | **0.1** | **0.5** | **0.7** |
| 30% | **0.1** | -0.3 | -0.3 | **0.2** | 0.0 | -0.3 | 0.0 | -0.2 | -1.4 | **1.0** | **0.3** | **1.3** |
| 40% | **0.3** | -0.5 | -0.3 | **0.1** | 0.0 | 0.0 | **0.1** | -0.1 | -1.6 | **0.9** | **0.5** | **1.1** |
| 50% | 0.0 | -0.5 | -0.1 | 0.0 | **0.1** | -0.1 | **0.1** | 0.0 | -1.3 | **0.8** | **0.8** | **1.9** |
| 60% | **0.2** | -0.2 | -0.4 | **0.1** | -0.1 | -0.1 | 0.0 | -0.4 | -1.4 | **0.5** | **0.8** | **2.8** |
| 70% | **0.1** | -0.3 | -0.1 | 0.0 | **0.1** | -0.1 | **0.1** | -0.4 | -1.7 | **0.4** | **0.8** | **2.1** |
| 80% | **0.1** | -0.4 | -0.5 | 0.0 | -0.1 | **0.0** | 0.0 | 0.0 | -1.5 | **0.6** | **0.9** | **1.8** |
| 90% | 0.0 | -0.2 | **0.0** | 0.0 | 0.0 | **0.1** | 0.0 | 0.0 | -1.2 | **0.4** | **0.6** | **1.9** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.0** | -0.3 | -0.3 | **0.0** | 0.0 | 0.0 | **0.0** | -0.2 | -1.4 | **0.4** | **0.5** | **1.5** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.1** | -0.9 | -0.8 | **0.1** | **0.1** | **0.0** | **0.0** | **0.0** | -0.6 | **0.3** | **0.9** | **3.7** |
| Above Normal (16%) | **0.0** | -0.1 | -0.2 | **0.0** | -0.1 | -0.4 | 0.0 | -0.1 | -1.7 | 0.0 | **0.7** | **2.1** |
| Below Normal (15%) | 0.0 | 0.0 | **0.1** | 0.0 | -0.3 | 0.0 | 0.0 | -0.6 | -3.8 | **0.8** | **1.3** | **0.5** |
| Dry (24%) | **0.1** | **0.2** | 0.0 | **0.0** | **0.0** | **0.1** | **0.0** | -0.2 | -1.7 | **1.0** | -0.1 | -0.2 |
| Critical (15%) | -0.1 | -0.1 | -0.1 | **0.0** | **0.0** | **0.0** | **0.1** | -0.2 | -0.5 | 0.0 | 0.0 | -0.1 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 3-3. Feather River at Gridley Bridge, Monthly Temperature

### No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 62.9 | 56.6 | 51.5 | 50.0 | 53.4 | 57.1 | 61.3 | 67.6 | 72.5 | 75.5 | 74.9 | 68.2 |
| 20% | 60.6 | 56.2 | 50.8 | 49.5 | 52.7 | 56.3 | 60.2 | 66.3 | 71.9 | 73.8 | 73.6 | 67.0 |
| 30% | 60.3 | 55.6 | 50.5 | 48.9 | 52.2 | 55.8 | 59.1 | 65.8 | 70.9 | 71.9 | 72.9 | 65.8 |
| 40% | 59.8 | 55.1 | 50.2 | 48.4 | 51.6 | 55.2 | 58.9 | 65.2 | 70.4 | 71.3 | 71.6 | 65.4 |
| 50% | 59.4 | 54.5 | 49.6 | 48.1 | 51.0 | 54.4 | 58.4 | 64.6 | 69.7 | 70.8 | 71.0 | 63.9 |
| 60% | 58.9 | 53.8 | 49.2 | 47.4 | 50.4 | 53.7 | 58.1 | 64.4 | 69.0 | 70.4 | 70.4 | 62.9 |
| 70% | 58.5 | 53.5 | 48.4 | 47.0 | 49.9 | 52.6 | 57.3 | 63.5 | 68.7 | 70.1 | 69.6 | 62.6 |
| 80% | 57.8 | 53.2 | 48.1 | 46.0 | 49.6 | 51.8 | 56.4 | 62.1 | 68.0 | 69.4 | 68.8 | 62.0 |
| 90% | 57.1 | 52.5 | 46.6 | 45.2 | 48.9 | 50.5 | 55.0 | 61.1 | 66.5 | 68.5 | 67.8 | 61.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 59.7 | 54.6 | 49.4 | 47.8 | 51.1 | 54.3 | 58.3 | 64.6 | 69.7 | 71.5 | 71.3 | 64.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 58.5 | 54.4 | 50.2 | 48.1 | 50.1 | 52.3 | 56.2 | 62.6 | 68.5 | 71.1 | 70.5 | 62.2 |
| Above Normal (16%) | 58.8 | 53.2 | 48.6 | 48.5 | 51.4 | 54.1 | 59.0 | 65.5 | 70.6 | 69.7 | 68.5 | 62.4 |
| Below Normal (15%) | 59.9 | 54.5 | 48.6 | 48.0 | 51.7 | 55.5 | 59.8 | 65.0 | 70.8 | 70.3 | 70.6 | 66.2 |
| Dry (24%) | 59.8 | 54.8 | 50.1 | 46.9 | 51.4 | 55.3 | 59.3 | 65.7 | 69.9 | 71.7 | 72.9 | 65.6 |
| Critical (15%) | 62.9 | 56.3 | 48.3 | 47.6 | 52.1 | 55.8 | 59.2 | 65.5 | 70.2 | 75.0 | 74.1 | 68.3 |

### Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 62.0 | 57.2 | 51.3 | 49.9 | 53.0 | 56.8 | 61.3 | 67.1 | 71.0 | 75.2 | 75.4 | 68.3 |
| 20% | 61.0 | 55.7 | 50.4 | 49.6 | 52.9 | 56.3 | 60.1 | 66.0 | 70.0 | 74.0 | 74.1 | 67.7 |
| 30% | 60.3 | 55.2 | 50.3 | 49.1 | 52.2 | 55.4 | 59.2 | 65.7 | 69.3 | 72.7 | 73.2 | 67.1 |
| 40% | 59.9 | 54.5 | 49.9 | 48.5 | 51.6 | 55.2 | 59.0 | 65.1 | 68.7 | 72.3 | 72.4 | 66.6 |
| 50% | 59.3 | 54.0 | 49.5 | 48.2 | 50.9 | 54.2 | 58.4 | 64.6 | 68.4 | 71.7 | 71.9 | 66.0 |
| 60% | 59.1 | 53.6 | 48.7 | 47.5 | 50.3 | 53.6 | 58.1 | 64.0 | 67.7 | 71.2 | 71.3 | 65.7 |
| 70% | 58.4 | 53.2 | 48.3 | 47.0 | 50.0 | 52.5 | 57.4 | 63.2 | 67.4 | 70.6 | 70.8 | 64.8 |
| 80% | 58.0 | 52.8 | 47.8 | 46.0 | 49.5 | 51.8 | 56.4 | 62.1 | 66.9 | 70.0 | 69.6 | 63.9 |
| 90% | 57.2 | 52.3 | 46.6 | 45.2 | 49.0 | 50.6 | 55.0 | 61.1 | 65.5 | 68.8 | 68.5 | 62.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 59.7 | 54.3 | 49.2 | 47.8 | 51.1 | 54.2 | 58.4 | 64.4 | 68.3 | 72.0 | 72.0 | 66.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 58.6 | 53.5 | 49.4 | 48.2 | 50.2 | 52.3 | 56.3 | 62.7 | 67.8 | 71.3 | 71.8 | 65.9 |
| Above Normal (16%) | 58.8 | 53.1 | 48.5 | 48.5 | 51.2 | 53.7 | 59.0 | 65.4 | 69.4 | 69.6 | 69.2 | 64.5 |
| Below Normal (15%) | 59.8 | 54.5 | 48.6 | 48.0 | 51.4 | 55.4 | 59.8 | 64.5 | 67.2 | 70.9 | 71.8 | 66.6 |
| Dry (24%) | 60.0 | 55.0 | 50.1 | 46.9 | 51.4 | 55.4 | 59.3 | 65.4 | 68.2 | 72.9 | 72.8 | 65.6 |
| Critical (15%) | 62.7 | 56.1 | 48.2 | 47.7 | 52.1 | 55.8 | 59.4 | 65.4 | 69.8 | 75.0 | 74.1 | 68.2 |

### Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.9 | **0.6** | -0.2 | -0.1 | -0.4 | -0.3 | **0.0** | -0.5 | -1.5 | -0.3 | **0.5** | **0.1** |
| 20% | **0.4** | -0.5 | -0.4 | **0.1** | **0.2** | 0.0 | 0.0 | -0.3 | -1.9 | **0.2** | **0.6** | **0.7** |
| 30% | 0.0 | -0.4 | -0.2 | **0.2** | 0.0 | -0.3 | **0.1** | -0.1 | -1.6 | **0.8** | **0.3** | **1.3** |
| 40% | **0.1** | -0.6 | -0.3 | **0.1** | 0.0 | 0.0 | **0.1** | -0.1 | -1.7 | **1.0** | **0.8** | **1.2** |
| 50% | -0.1 | -0.5 | -0.1 | **0.1** | -0.1 | -0.1 | **0.1** | 0.0 | -1.3 | **0.9** | **0.9** | **2.1** |
| 60% | **0.2** | -0.2 | -0.5 | **0.1** | -0.1 | -0.1 | **0.0** | -0.4 | -1.3 | **0.8** | **1.0** | **2.8** |
| 70% | -0.1 | -0.3 | -0.1 | 0.0 | **0.1** | -0.1 | **0.1** | -0.3 | -1.3 | **0.5** | **1.2** | **2.2** |
| 80% | **0.2** | -0.4 | -0.3 | **0.0** | -0.1 | **0.0** | 0.0 | 0.0 | -1.1 | **0.6** | **0.8** | **1.9** |
| 90% | **0.1** | -0.2 | **0.0** | 0.0 | **0.1** | **0.1** | 0.0 | 0.0 | -1.0 | **0.3** | **0.7** | **1.7** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.0** | -0.3 | -0.3 | **0.0** | 0.0 | 0.0 | **0.0** | -0.2 | -1.4 | **0.5** | **0.7** | **1.5** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.0** | -0.9 | -0.8 | **0.1** | **0.1** | 0.0 | **0.0** | **0.0** | -0.7 | **0.3** | **1.3** | **3.7** |
| Above Normal (16%) | -0.1 | -0.1 | -0.1 | **0.0** | -0.2 | -0.4 | 0.0 | -0.1 | -1.2 | 0.0 | **0.7** | **2.1** |
| Below Normal (15%) | -0.1 | 0.0 | 0.0 | 0.0 | -0.3 | 0.0 | 0.0 | -0.5 | -3.5 | **0.6** | **1.3** | **0.4** |
| Dry (24%) | **0.2** | **0.2** | 0.0 | **0.0** | **0.0** | **0.1** | **0.0** | -0.3 | -1.7 | **1.2** | 0.0 | -0.1 |
| Critical (15%) | -0.2 | -0.3 | -0.1 | **0.0** | **0.0** | **0.0** | **0.1** | -0.2 | -0.4 | 0.0 | 0.0 | -0.1 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 3-4. Feather River at Gridley Bridge, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 62.9 | 56.6 | 51.5 | 50.0 | 53.4 | 57.1 | 61.3 | 67.6 | 72.5 | 75.5 | 74.9 | 68.2 |
| 20% | 60.6 | 56.2 | 50.8 | 49.5 | 52.7 | 56.3 | 60.2 | 66.3 | 71.9 | 73.8 | 73.6 | 67.0 |
| 30% | 60.3 | 55.6 | 50.5 | 48.9 | 52.2 | 55.8 | 59.1 | 65.8 | 70.9 | 71.9 | 72.9 | 65.8 |
| 40% | 59.8 | 55.1 | 50.2 | 48.4 | 51.6 | 55.2 | 58.9 | 65.2 | 70.4 | 71.3 | 71.6 | 65.4 |
| 50% | 59.4 | 54.5 | 49.6 | 48.1 | 51.0 | 54.4 | 58.4 | 64.6 | 69.7 | 70.8 | 71.0 | 63.9 |
| 60% | 58.9 | 53.8 | 49.2 | 47.4 | 50.4 | 53.7 | 58.1 | 64.4 | 69.0 | 70.4 | 70.4 | 62.9 |
| 70% | 58.5 | 53.5 | 48.4 | 47.0 | 49.9 | 52.6 | 57.3 | 63.5 | 68.7 | 70.1 | 69.6 | 62.6 |
| 80% | 57.8 | 53.2 | 48.1 | 46.0 | 49.6 | 51.8 | 56.4 | 62.1 | 68.0 | 69.4 | 68.8 | 62.0 |
| 90% | 57.1 | 52.5 | 46.6 | 45.2 | 48.9 | 50.5 | 55.0 | 61.1 | 66.5 | 68.5 | 67.8 | 61.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 59.7 | 54.6 | 49.4 | 47.8 | 51.1 | 54.3 | 58.3 | 64.6 | 69.7 | 71.5 | 71.3 | 64.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 58.5 | 54.4 | 50.2 | 48.1 | 50.1 | 52.3 | 56.2 | 62.6 | 68.5 | 71.1 | 70.5 | 62.2 |
| Above Normal (16%) | 58.8 | 53.2 | 48.6 | 48.5 | 51.4 | 54.1 | 59.0 | 65.5 | 70.6 | 69.7 | 68.5 | 62.4 |
| Below Normal (15%) | 59.9 | 54.5 | 48.6 | 48.0 | 51.7 | 55.5 | 59.8 | 65.0 | 70.8 | 70.3 | 70.6 | 66.2 |
| Dry (24%) | 59.8 | 54.8 | 50.1 | 46.9 | 51.4 | 55.3 | 59.3 | 65.7 | 69.9 | 71.7 | 72.9 | 65.6 |
| Critical (15%) | 62.9 | 56.3 | 48.3 | 47.6 | 52.1 | 55.8 | 59.2 | 65.5 | 70.2 | 75.0 | 74.1 | 68.3 |

### Alternative 4 043019

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 62.0 | 57.5 | 51.2 | 49.9 | 53.6 | 56.8 | 60.8 | 67.6 | 72.2 | 75.6 | 75.1 | 68.3 |
| 20% | 61.0 | 56.4 | 50.6 | 49.5 | 52.7 | 56.3 | 59.5 | 66.5 | 71.2 | 73.6 | 74.3 | 67.7 |
| 30% | 60.4 | 55.6 | 50.4 | 48.9 | 52.2 | 55.4 | 59.0 | 65.7 | 70.7 | 72.5 | 73.2 | 67.2 |
| 40% | 60.3 | 55.1 | 50.2 | 48.4 | 51.5 | 55.2 | 58.5 | 65.1 | 70.1 | 71.8 | 72.7 | 66.7 |
| 50% | 59.8 | 54.2 | 49.7 | 48.1 | 51.0 | 54.4 | 58.0 | 64.7 | 69.8 | 71.3 | 71.3 | 66.0 |
| 60% | 59.3 | 53.6 | 49.0 | 47.5 | 50.4 | 53.6 | 57.1 | 63.9 | 68.9 | 70.8 | 70.6 | 65.7 |
| 70% | 58.7 | 53.2 | 48.6 | 47.0 | 50.0 | 52.6 | 56.5 | 62.9 | 68.3 | 70.5 | 70.3 | 65.2 |
| 80% | 58.1 | 52.8 | 48.1 | 46.1 | 49.5 | 52.0 | 55.7 | 62.0 | 68.0 | 69.8 | 68.9 | 64.4 |
| 90% | 57.2 | 52.3 | 46.4 | 45.2 | 48.9 | 50.8 | 54.2 | 60.7 | 66.8 | 68.9 | 67.8 | 63.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 59.9 | 54.6 | 49.3 | 47.8 | 51.1 | 54.2 | 57.8 | 64.5 | 69.6 | 71.8 | 71.7 | 66.1 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 59.0 | 53.5 | 49.4 | 48.1 | 50.3 | 52.3 | 55.5 | 62.5 | 68.7 | 71.2 | 70.6 | 66.2 |
| Above Normal (16%) | 59.2 | 53.2 | 48.8 | 48.5 | 51.4 | 54.1 | 57.8 | 65.2 | 70.6 | 70.0 | 68.7 | 64.7 |
| Below Normal (15%) | 59.8 | 55.3 | 49.0 | 48.1 | 51.4 | 54.9 | 59.1 | 65.1 | 70.1 | 70.4 | 72.7 | 66.2 |
| Dry (24%) | 60.0 | 55.3 | 50.1 | 46.9 | 51.4 | 55.3 | 59.1 | 65.7 | 69.6 | 72.5 | 72.8 | 65.6 |
| Critical (15%) | 62.8 | 56.6 | 48.4 | 47.6 | 52.1 | 55.7 | 59.2 | 65.5 | 69.8 | 75.0 | 74.2 | 68.3 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.9 | **0.9** | -0.3 | -0.1 | **0.1** | -0.3 | -0.5 | -0.1 | -0.3 | **0.1** | **0.2** | **0.1** |
| 20% | **0.4** | **0.2** | -0.2 | **0.0** | 0.0 | 0.0 | -0.7 | **0.2** | -0.7 | -0.2 | **0.7** | **0.7** |
| 30% | **0.1** | 0.0 | -0.1 | 0.0 | 0.0 | -0.3 | -0.1 | -0.1 | -0.2 | **0.6** | **0.3** | **1.4** |
| 40% | **0.5** | 0.0 | **0.0** | 0.0 | -0.1 | 0.0 | -0.4 | -0.1 | -0.3 | **0.5** | **1.1** | **1.3** |
| 50% | **0.4** | -0.3 | **0.1** | -0.1 | 0.0 | **0.1** | -0.4 | **0.0** | **0.1** | **0.5** | **0.3** | **2.1** |
| 60% | **0.4** | -0.2 | -0.2 | **0.1** | 0.0 | -0.1 | -1.0 | -0.5 | -0.1 | **0.4** | **0.3** | **2.8** |
| 70% | **0.2** | -0.3 | **0.2** | 0.0 | **0.1** | 0.0 | -0.9 | -0.6 | -0.4 | **0.4** | **0.7** | **2.6** |
| 80% | **0.3** | -0.4 | **0.0** | **0.2** | -0.1 | **0.2** | -0.7 | -0.1 | 0.0 | **0.4** | **0.1** | **2.4** |
| 90% | **0.1** | -0.2 | -0.1 | 0.0 | 0.0 | **0.3** | -0.8 | -0.4 | **0.3** | **0.4** | 0.0 | **2.0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.2** | 0.0 | -0.2 | **0.0** | **0.0** | -0.1 | -0.6 | -0.1 | -0.1 | **0.3** | **0.4** | **1.6** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.4** | -0.9 | -0.8 | **0.1** | **0.1** | 0.0 | -0.7 | -0.2 | **0.2** | **0.2** | **0.2** | **4.0** |
| Above Normal (16%) | **0.4** | **0.0** | **0.2** | 0.0 | **0.1** | **0.0** | -1.2 | -0.3 | 0.0 | **0.3** | **0.2** | **2.3** |
| Below Normal (15%) | 0.0 | **0.7** | **0.4** | **0.1** | -0.2 | -0.6 | -0.8 | **0.1** | -0.7 | **0.1** | **2.2** | 0.0 |
| Dry (24%) | **0.2** | **0.4** | **0.0** | **0.0** | 0.0 | 0.0 | -0.2 | **0.0** | -0.3 | **0.8** | -0.1 | 0.0 |
| Critical (15%) | -0.1 | **0.2** | **0.0** | -0.1 | 0.0 | 0.0 | **0.0** | 0.0 | -0.4 | **0.0** | **0.0** | **0.0** |

a Based on the 82-year simulation period.

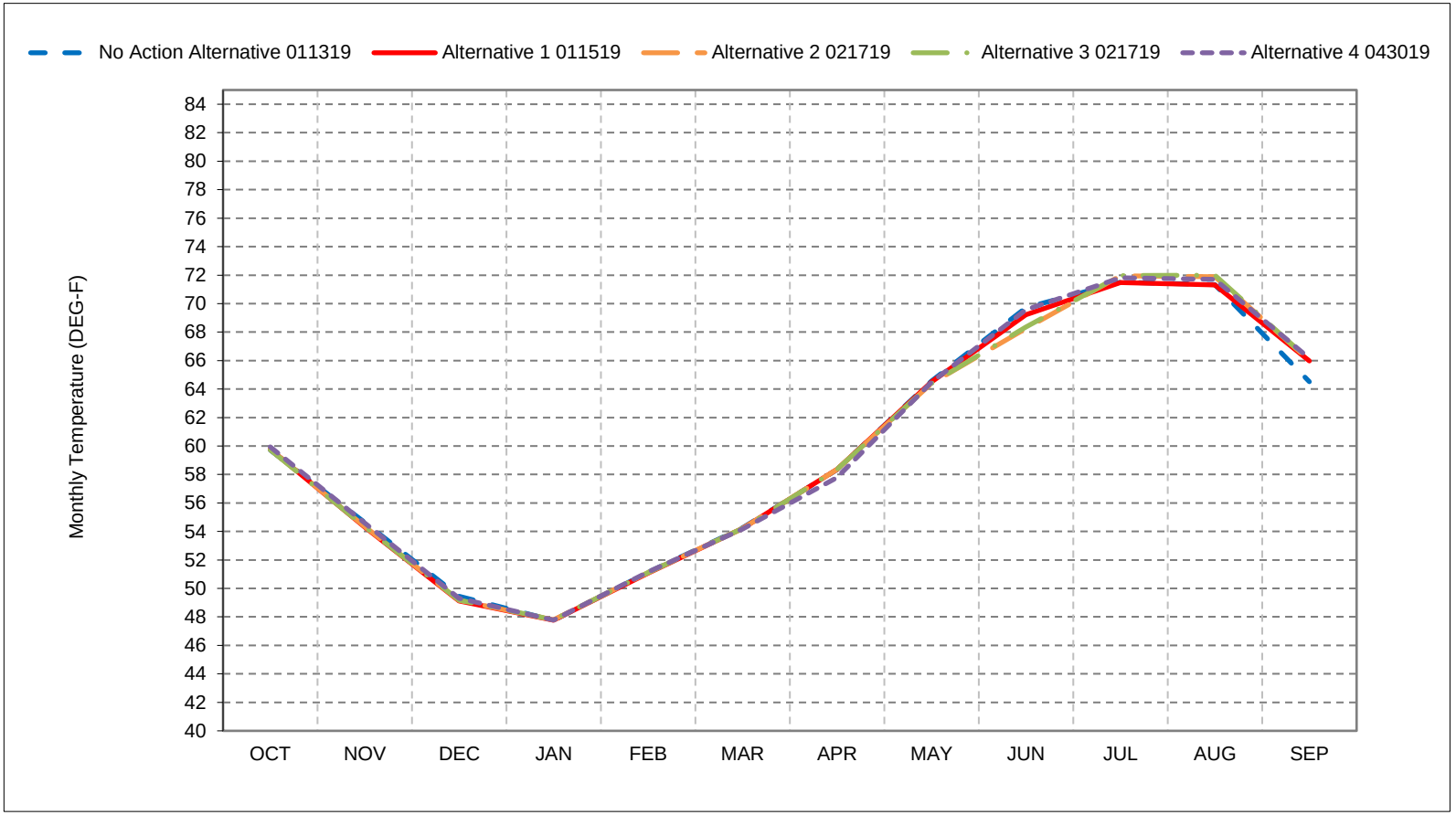
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

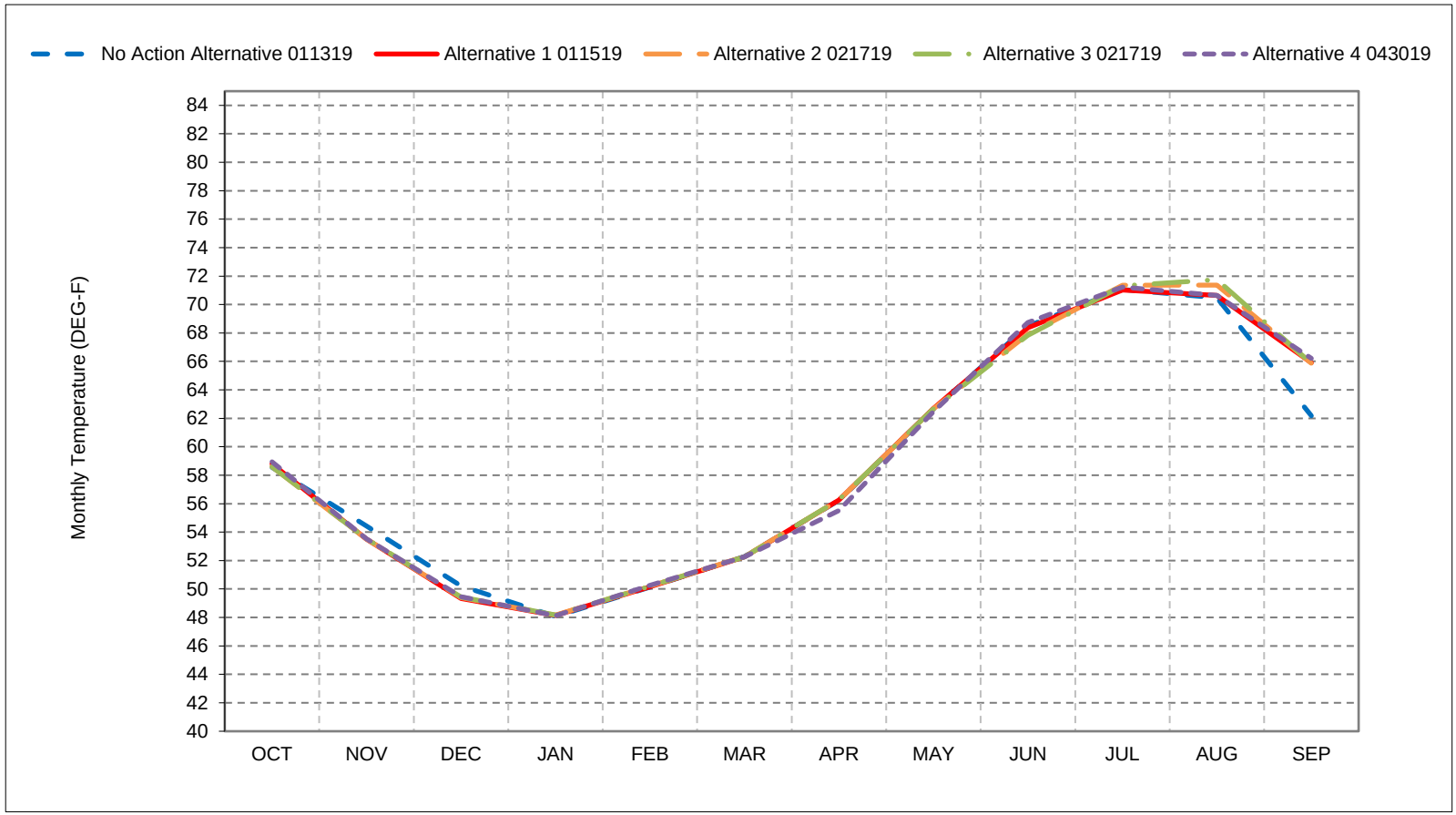
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-1. Feather River at Gridley Bridge, Long-Term Average Temperature



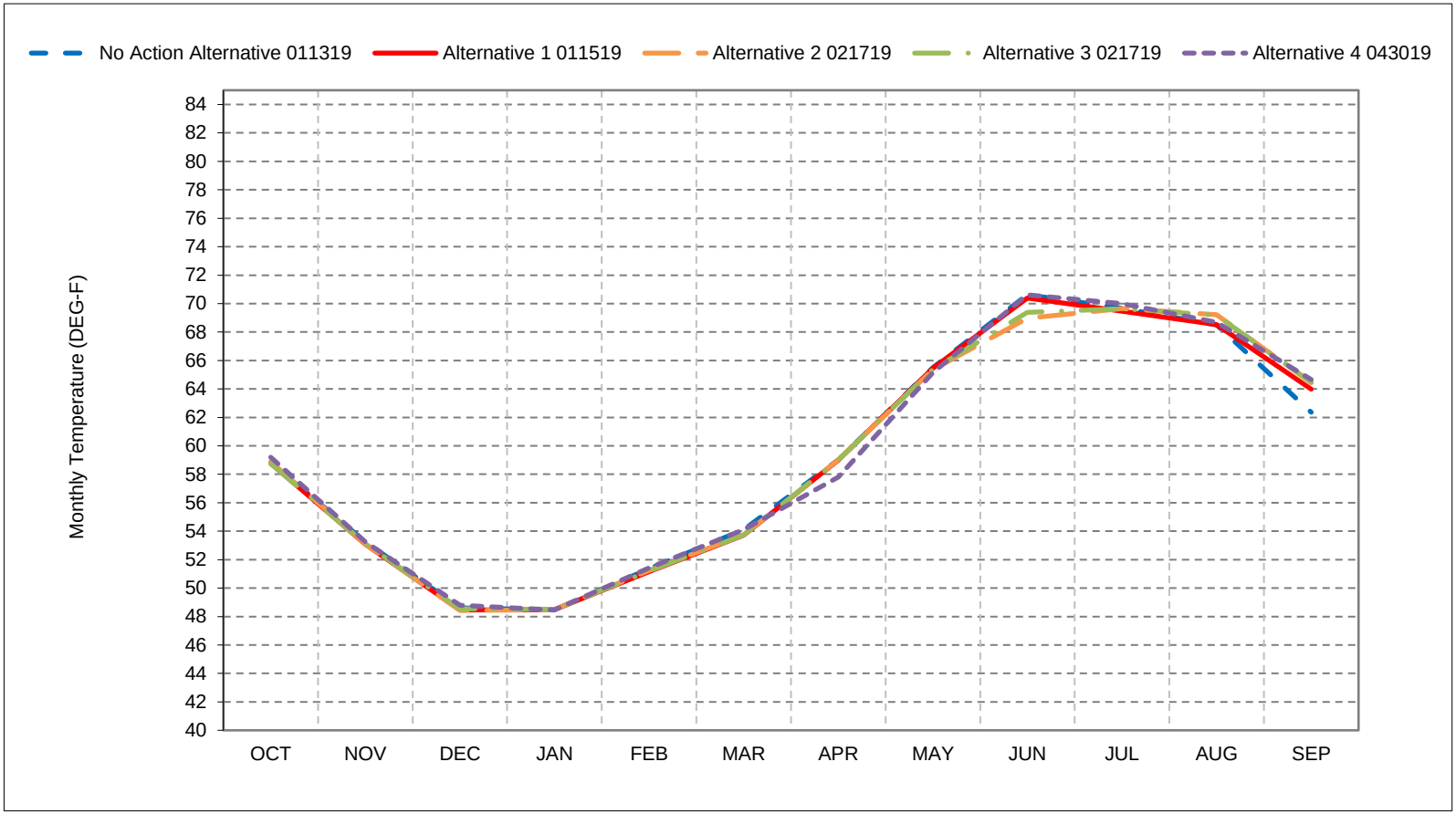

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-2. Feather River at Gridley Bridge, Wet Year Average Temperature



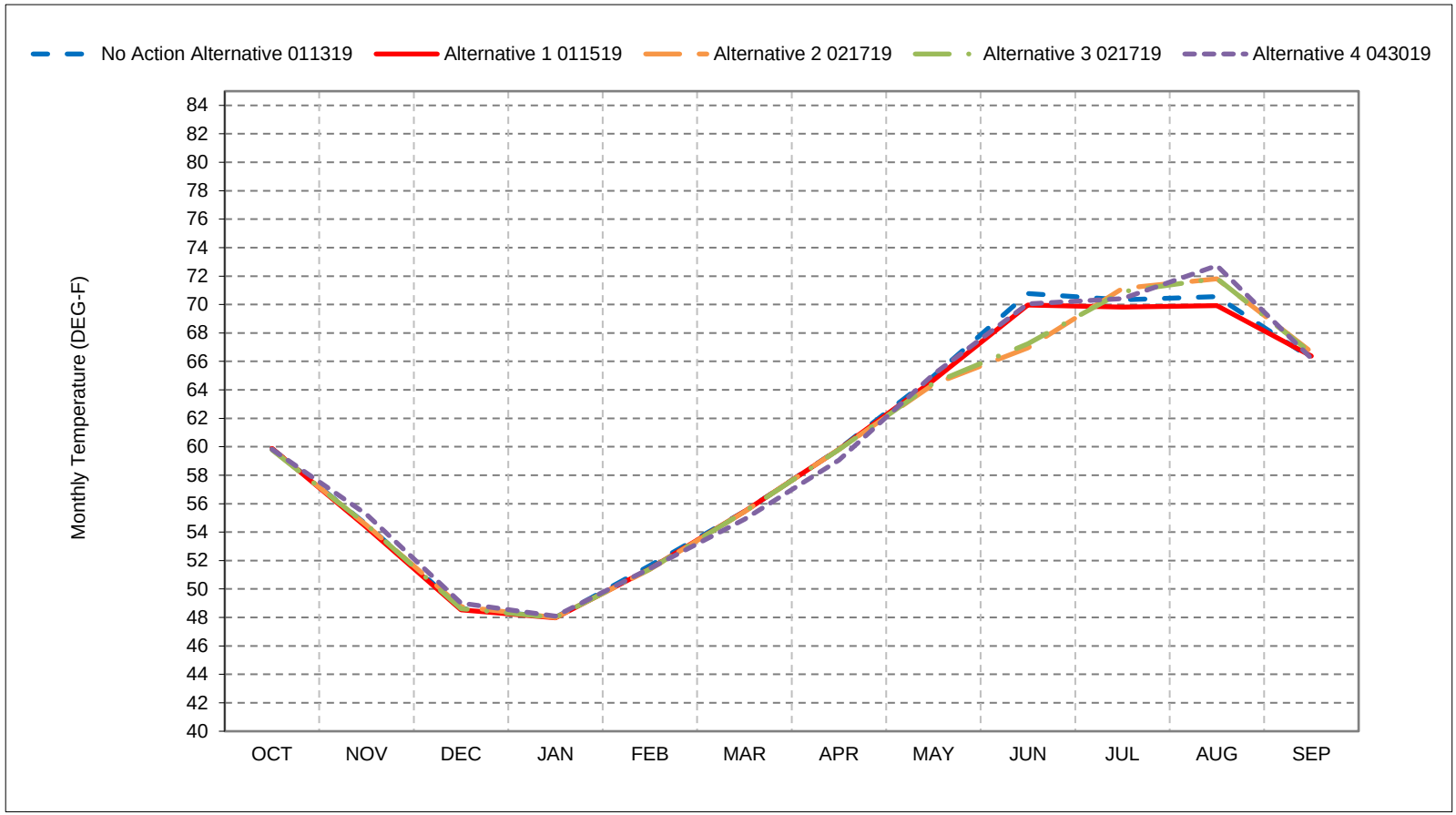

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-3. Feather River at Gridley Bridge, Above Normal Year Average Temperature



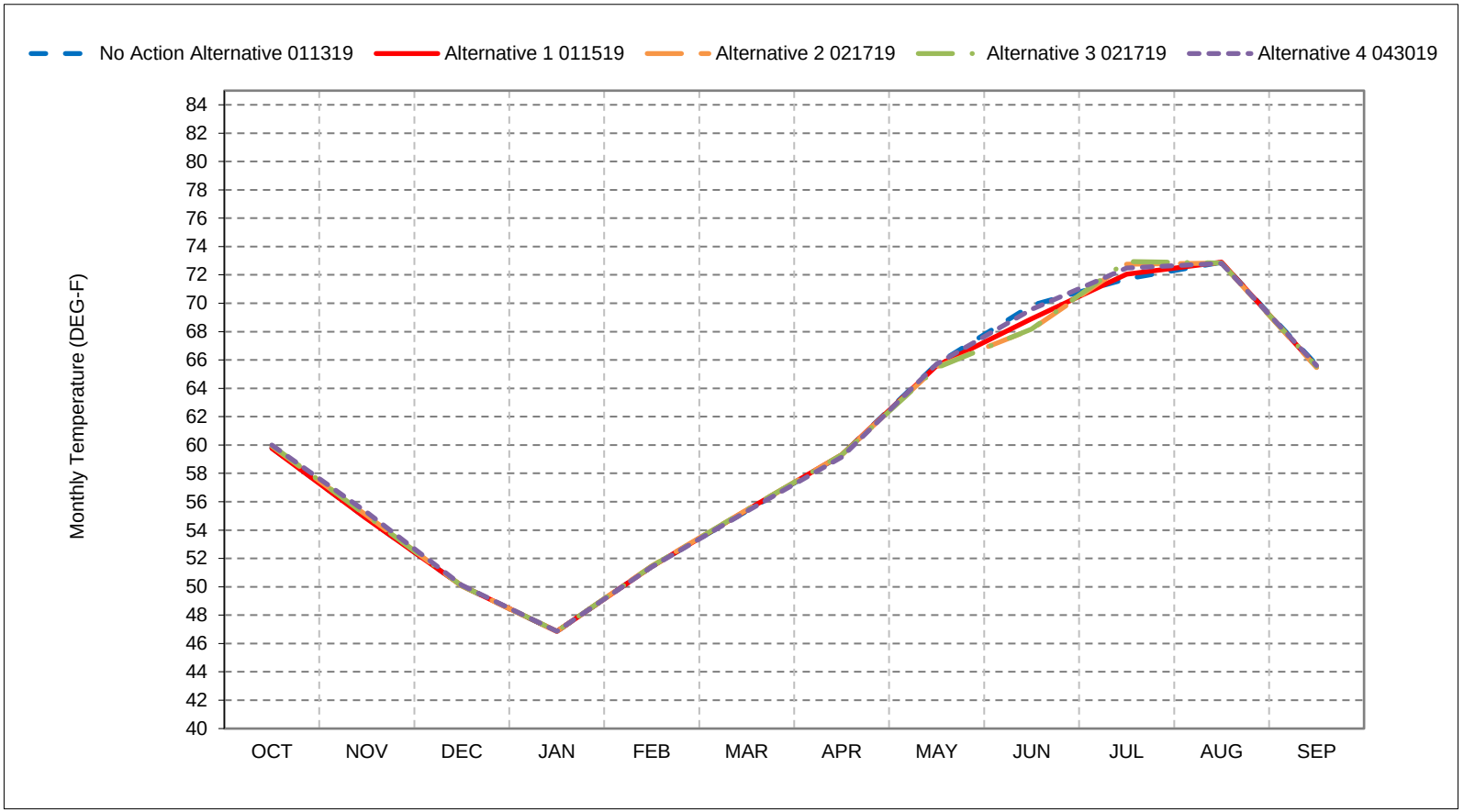

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-4. Feather River at Gridley Bridge, Below Normal Year Average Temperature



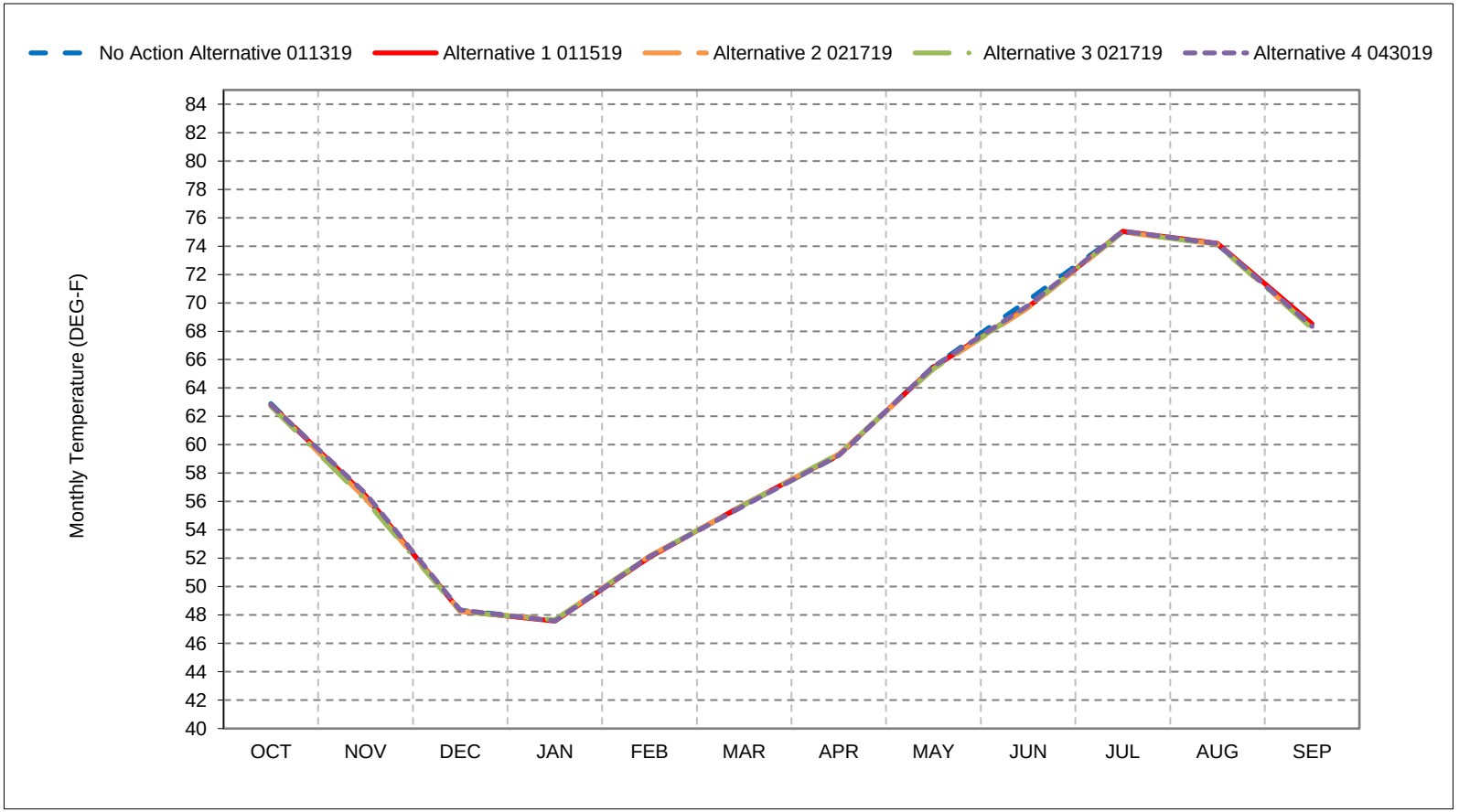

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-5. Feather River at Gridley Bridge, Dry Year Average Temperature



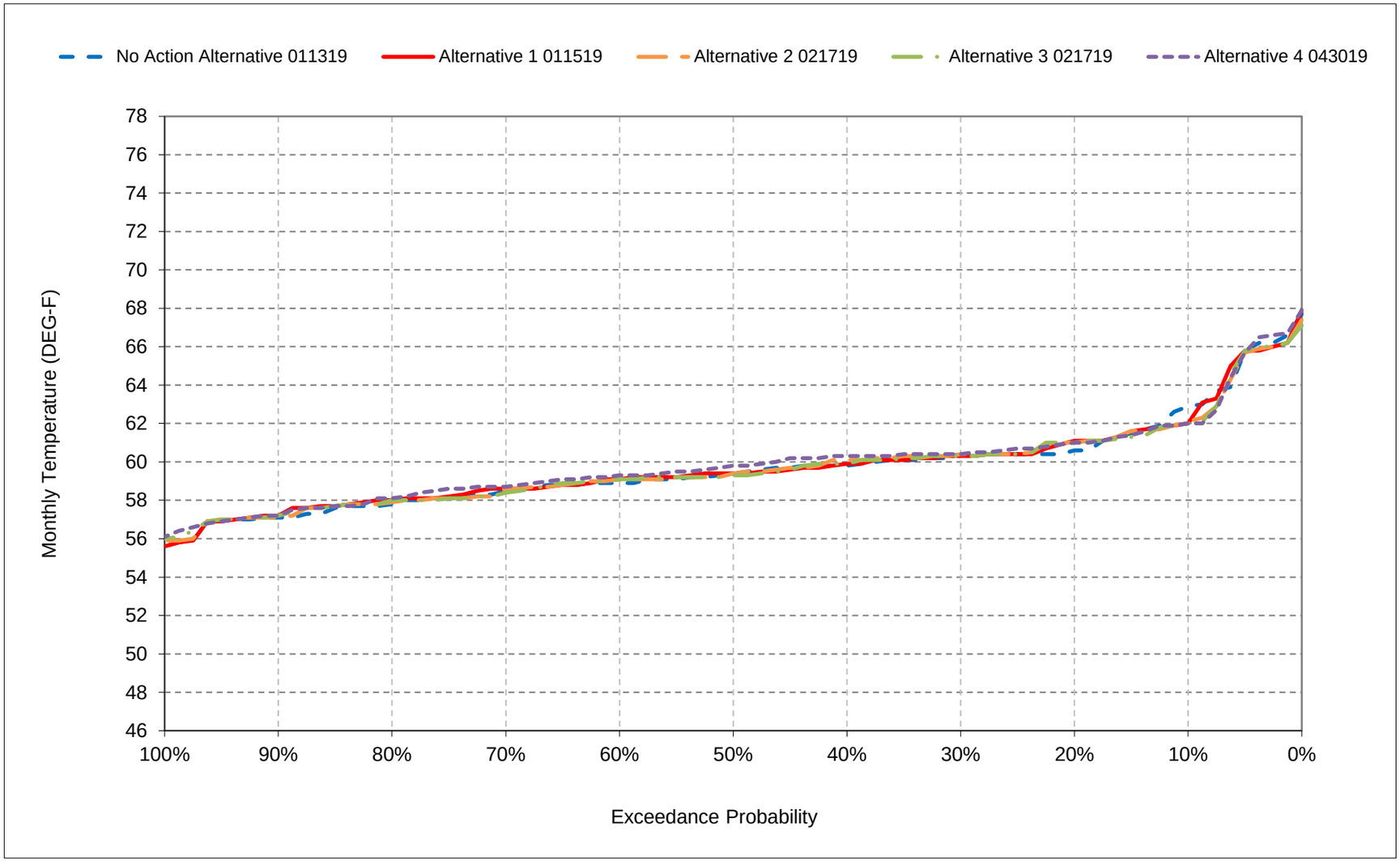

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 3-6. Feather River at Gridley Bridge, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

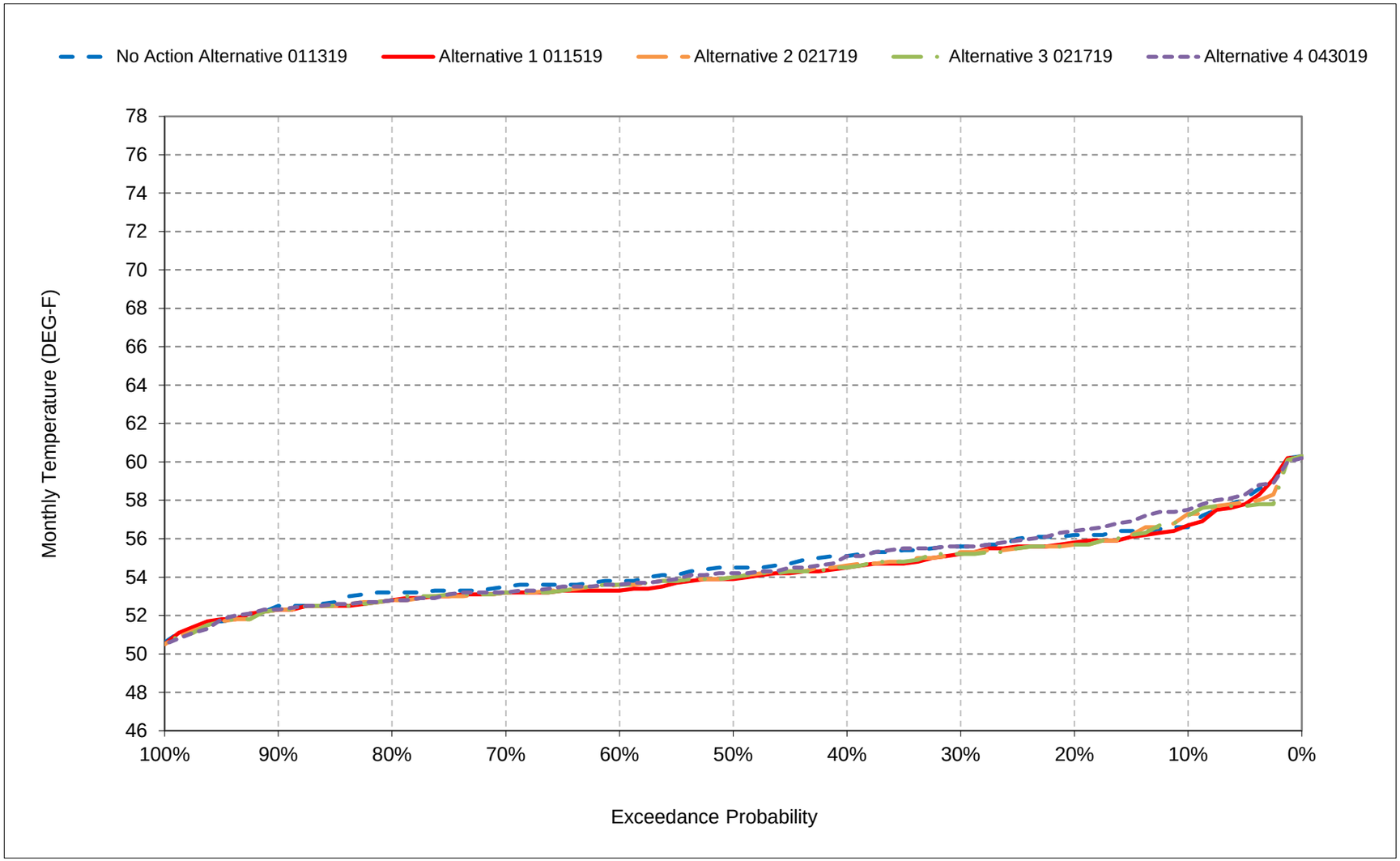
**Figure 3-7. Feather River at Gridley Bridge, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

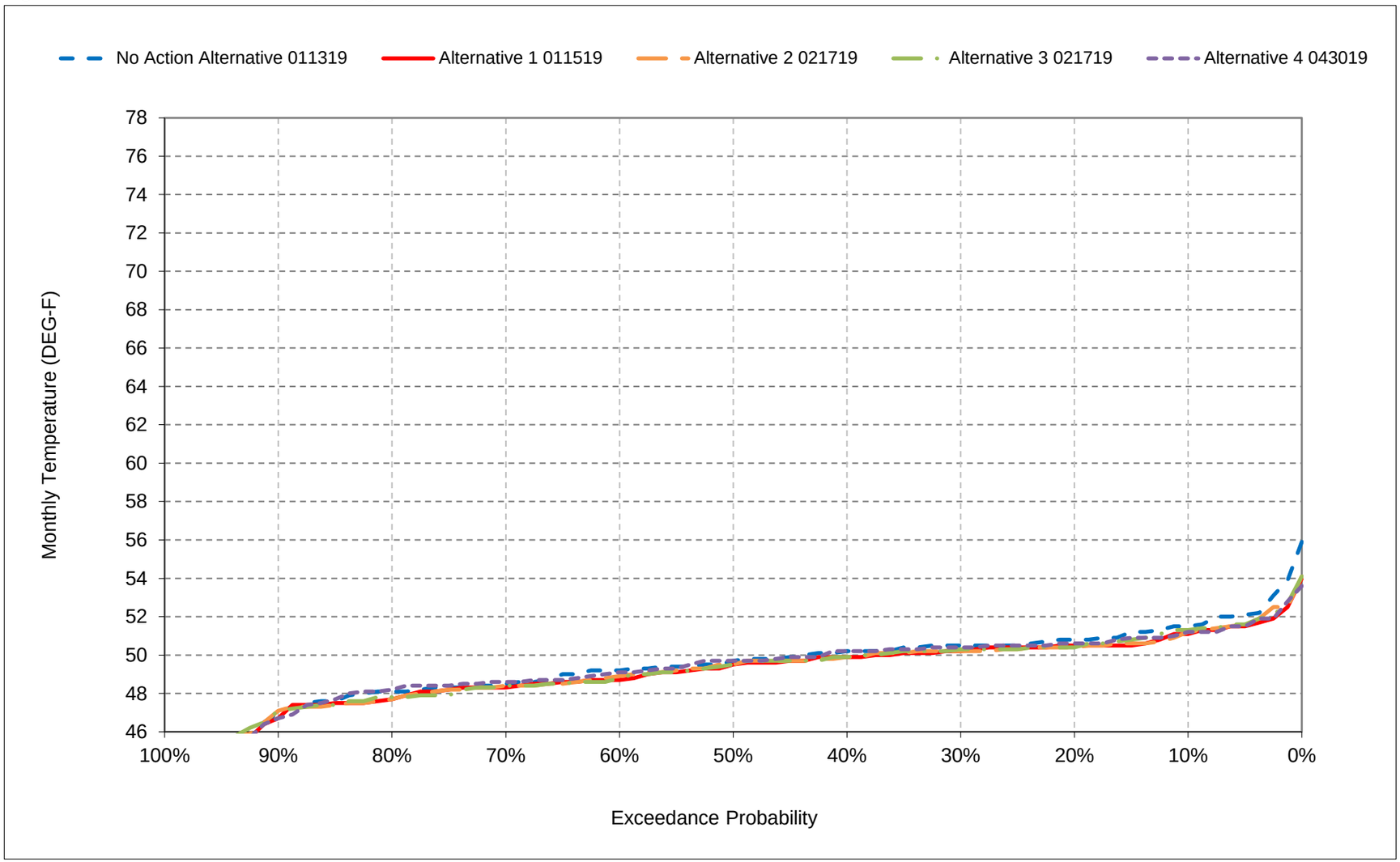
**Figure 3-8. Feather River at Gridley Bridge, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

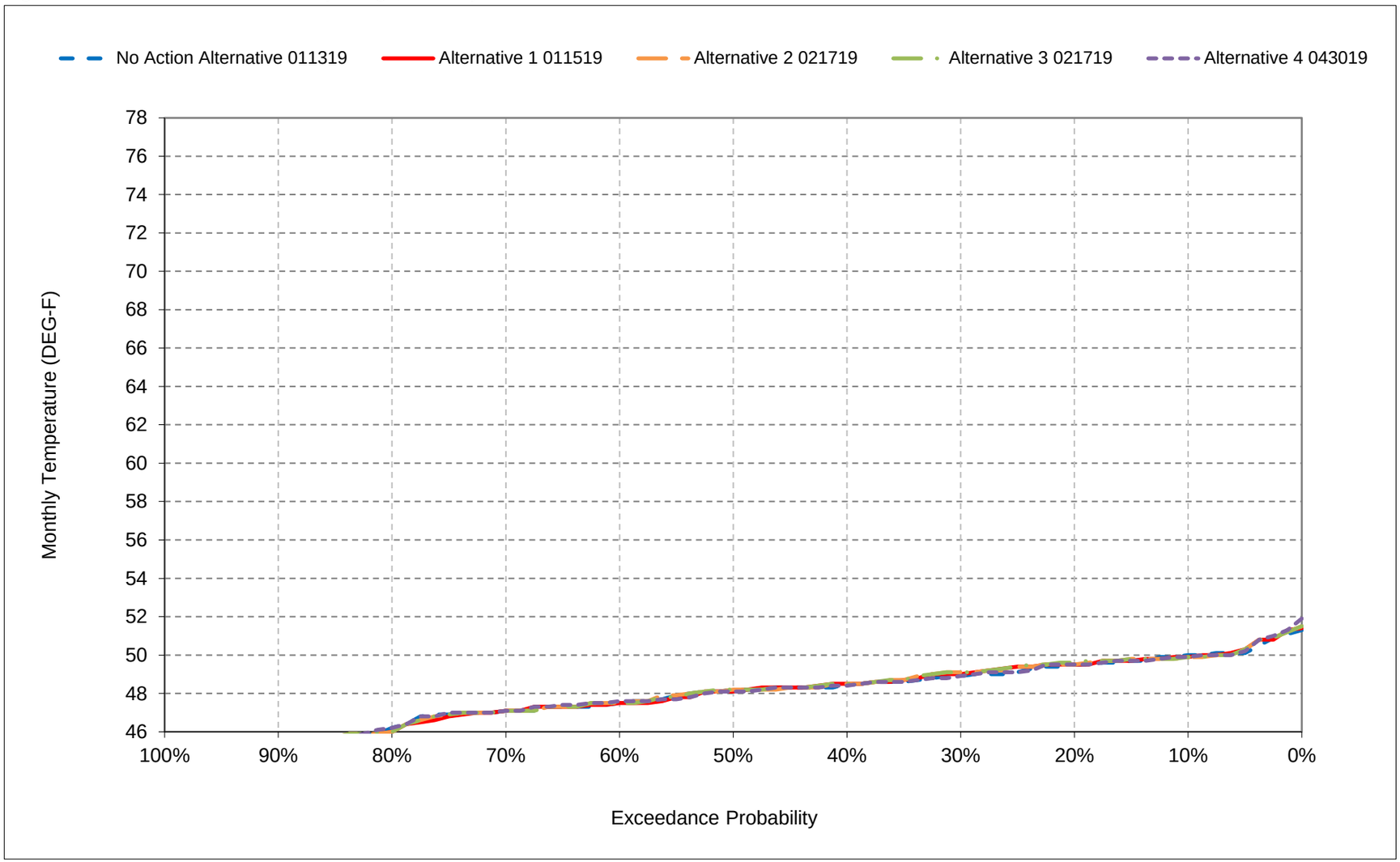
**Figure 3-9. Feather River at Gridley Bridge, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

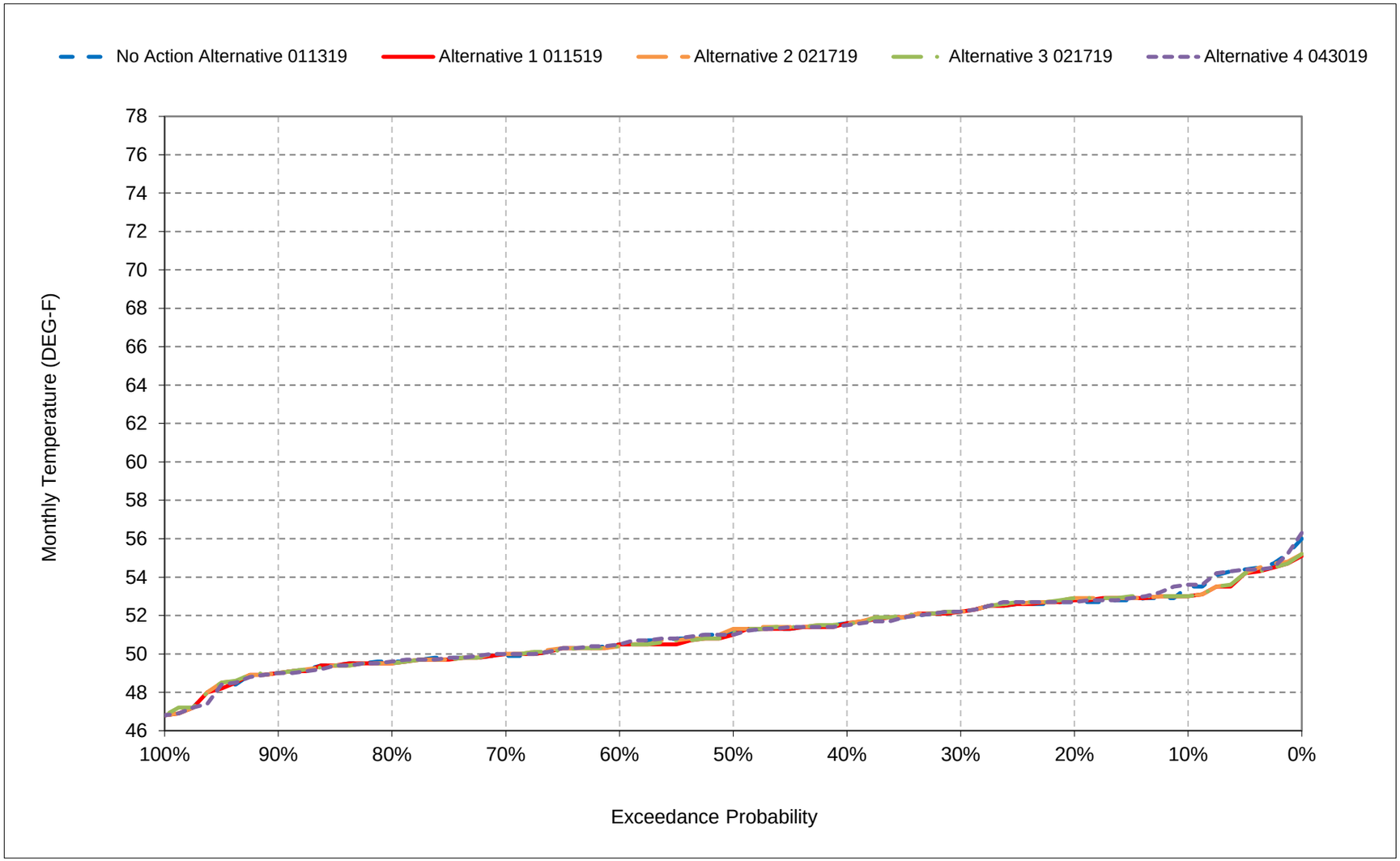
**Figure 3-10. Feather River at Gridley Bridge, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

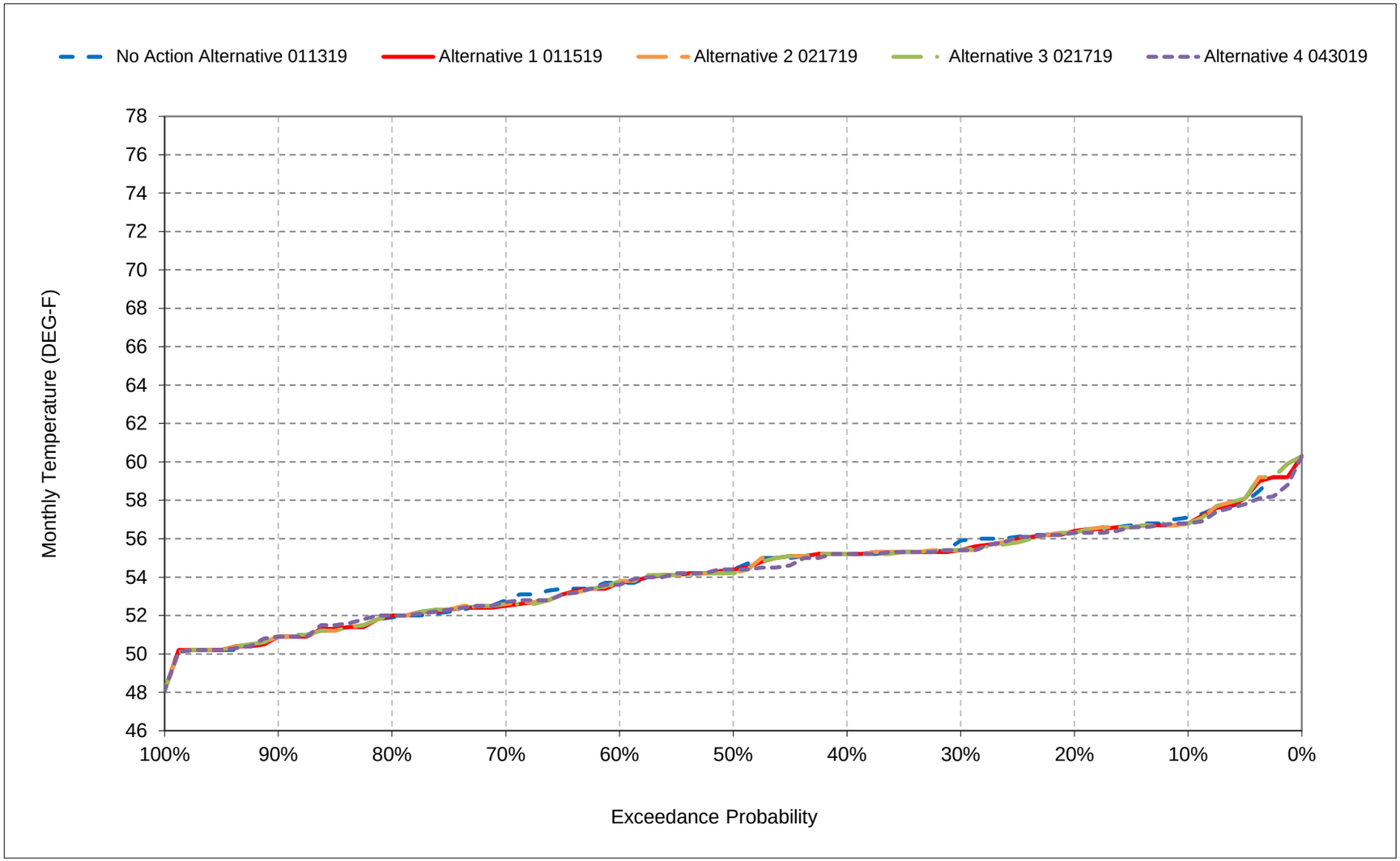
**Figure 3-11. Feather River at Gridley Bridge, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

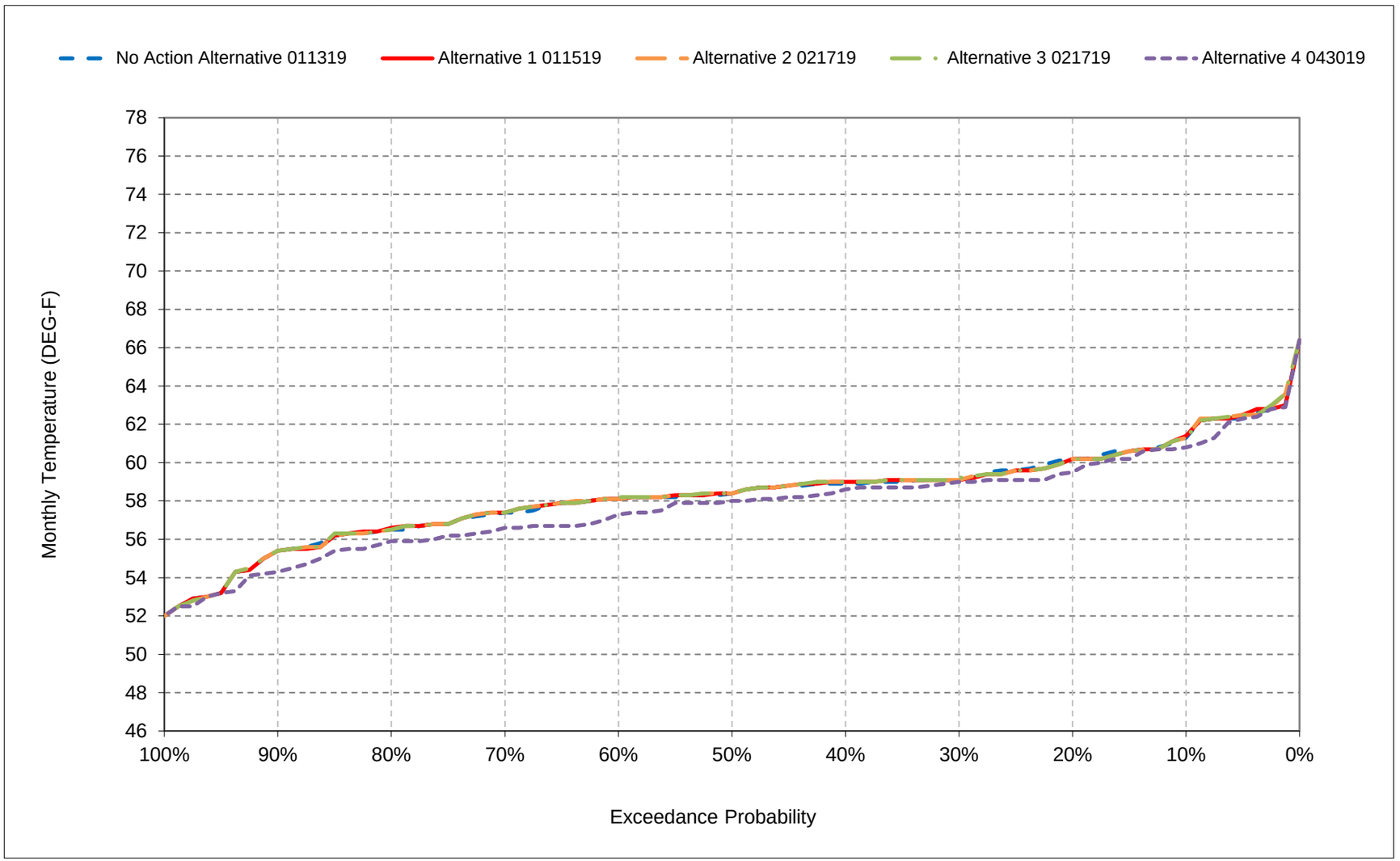
**Figure 3-12. Feather River at Gridley Bridge, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

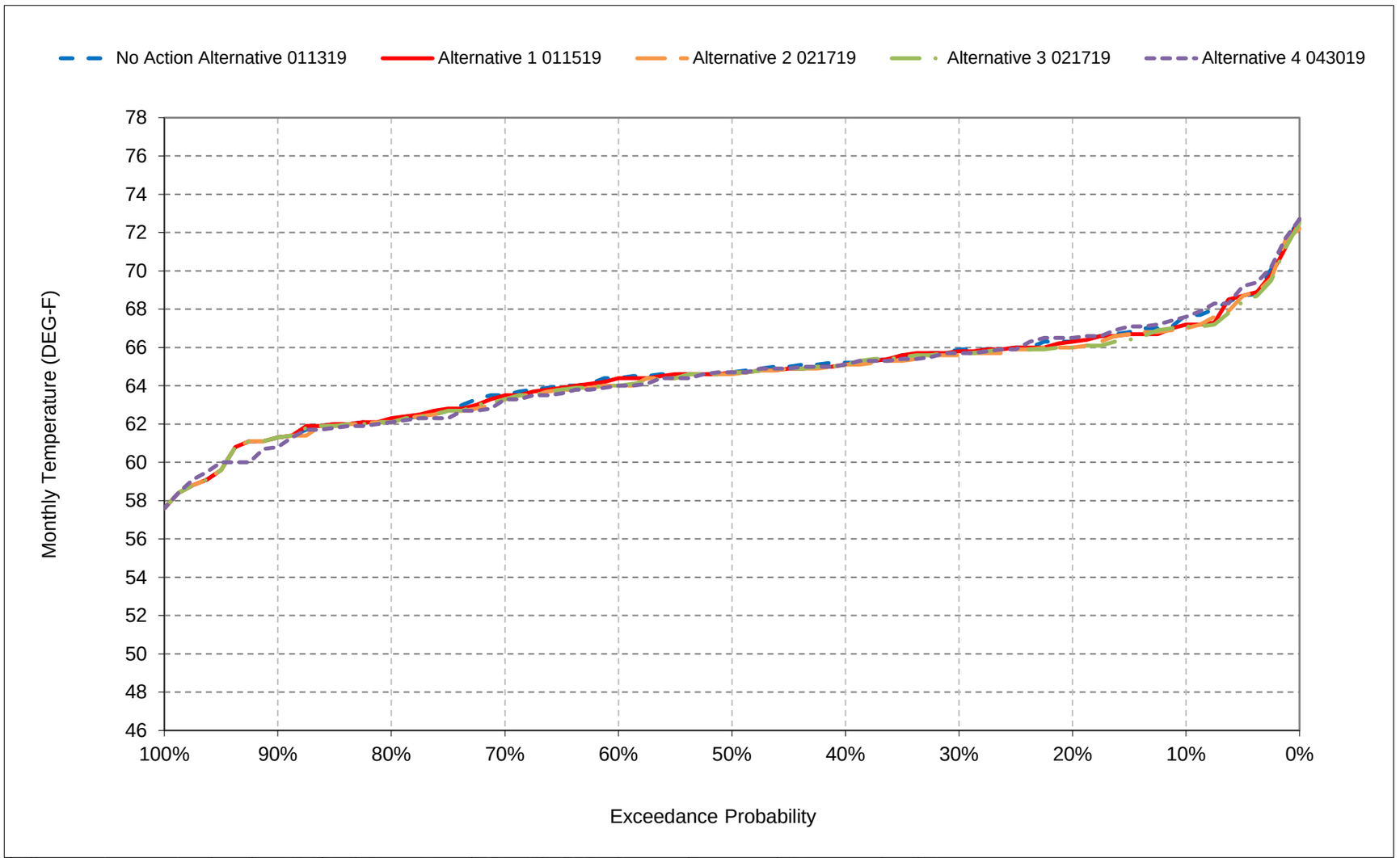
**Figure 3-13. Feather River at Gridley Bridge, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

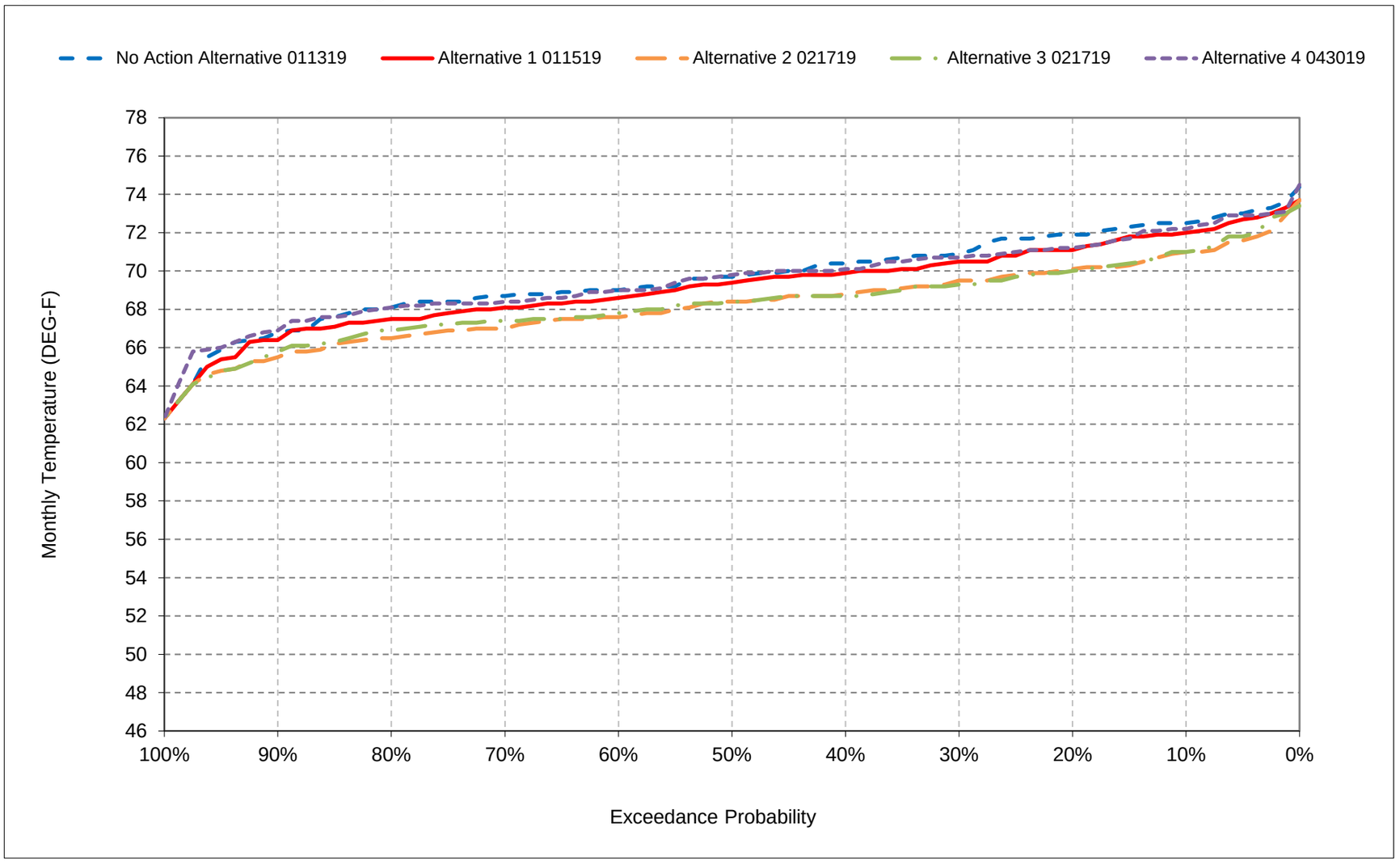
**Figure 3-14. Feather River at Gridley Bridge, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

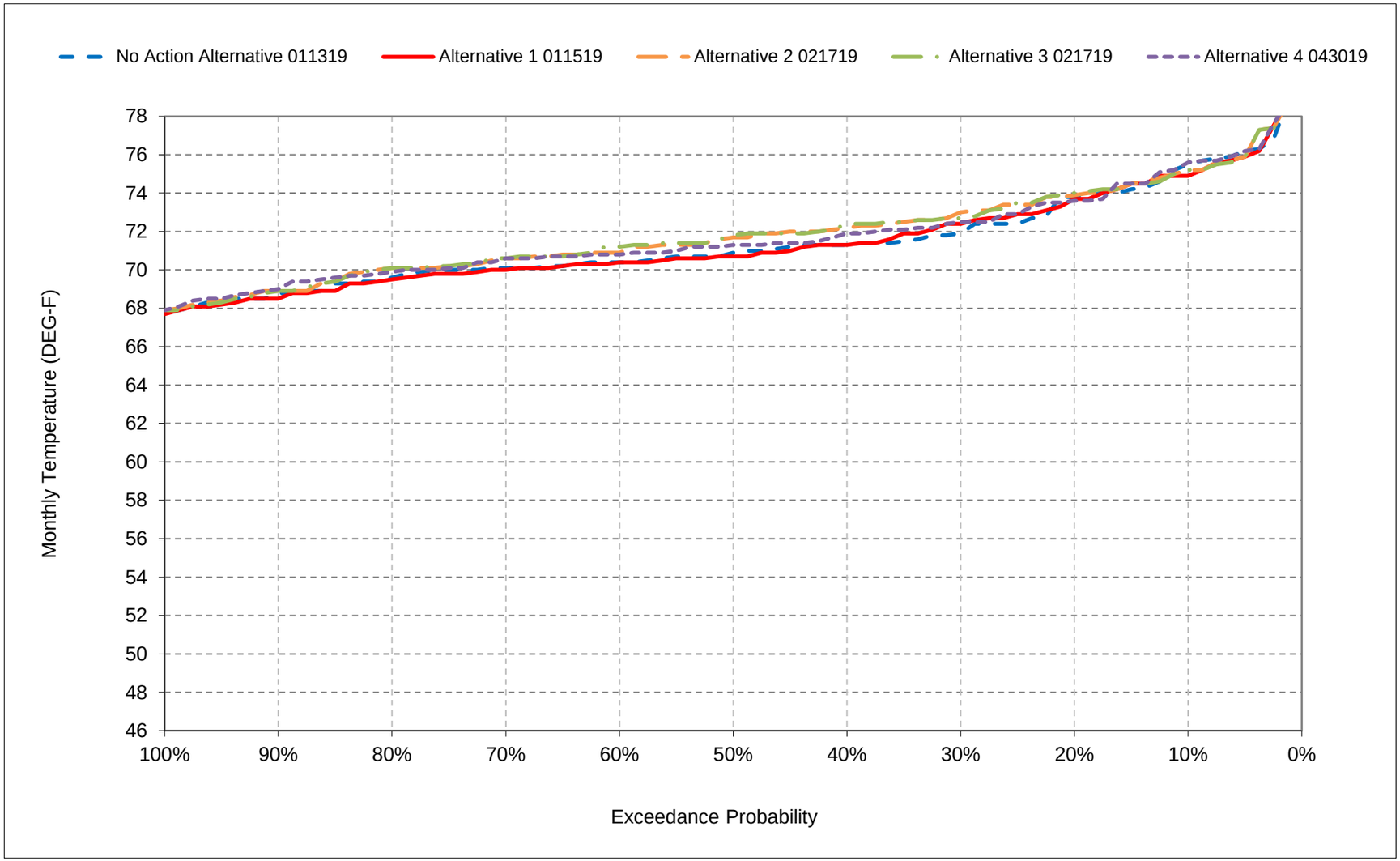
**Figure 3-15. Feather River at Gridley Bridge, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

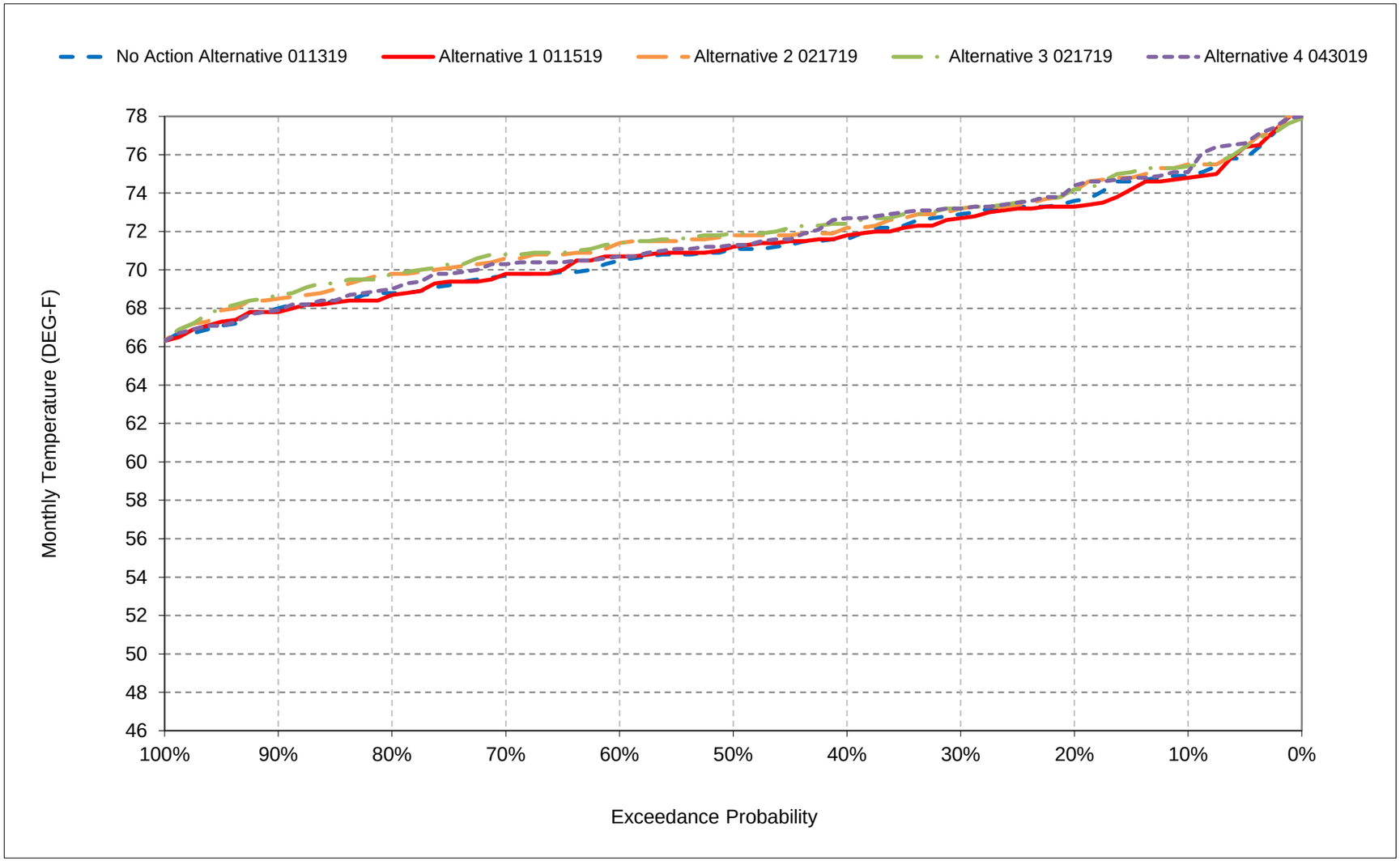
**Figure 3-16. Feather River at Gridley Bridge, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

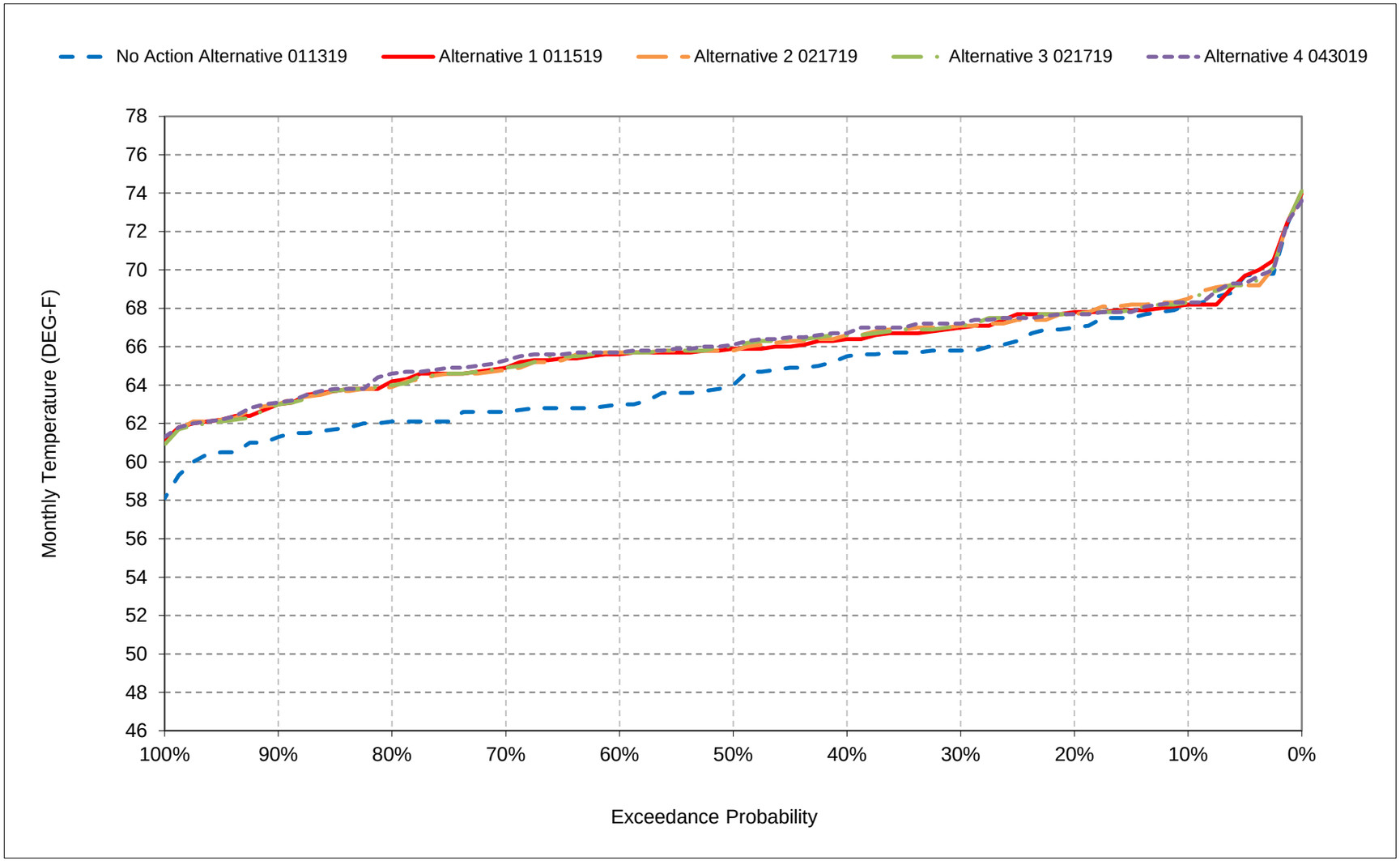
**Figure 3-17. Feather River at Gridley Bridge, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 3-18. Feather River at Gridley Bridge, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

## Table 4-1. Feather River at Mouth, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.7 | 55.7 | 49.5 | 48.7 | 53.1 | 57.7 | 65.6 | 71.1 | 76.6 | 78.2 | 78.1 | 73.6 |
| 20% | 63.7 | 55.0 | 48.9 | 48.1 | 52.3 | 56.9 | 63.4 | 69.7 | 75.7 | 77.2 | 77.3 | 72.9 |
| 30% | 63.1 | 54.4 | 48.5 | 48.0 | 51.8 | 56.2 | 62.8 | 69.1 | 74.6 | 76.3 | 76.0 | 71.7 |
| 40% | 62.6 | 54.1 | 48.1 | 47.5 | 51.3 | 55.6 | 61.9 | 68.6 | 74.2 | 75.7 | 75.5 | 70.7 |
| 50% | 62.1 | 53.5 | 47.5 | 46.7 | 51.0 | 55.3 | 61.4 | 67.9 | 73.5 | 75.3 | 74.4 | 69.9 |
| 60% | 61.7 | 53.1 | 47.1 | 46.4 | 50.6 | 54.7 | 60.8 | 67.5 | 72.6 | 74.9 | 73.8 | 68.8 |
| 70% | 61.3 | 52.9 | 46.7 | 45.9 | 50.2 | 54.2 | 59.7 | 66.1 | 71.9 | 74.0 | 72.9 | 67.9 |
| 80% | 60.2 | 52.3 | 46.3 | 45.1 | 49.9 | 53.6 | 58.4 | 65.1 | 71.1 | 73.7 | 72.1 | 67.2 |
| 90% | 59.8 | 51.6 | 44.5 | 44.3 | 49.0 | 52.5 | 57.5 | 64.1 | 69.8 | 72.9 | 71.2 | 66.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.3 | 53.6 | 47.5 | 46.7 | 51.1 | 55.2 | 61.4 | 67.8 | 73.3 | 75.6 | 74.7 | 70.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.2 | 53.8 | 48.2 | 47.2 | 50.8 | 53.9 | 59.3 | 65.8 | 71.7 | 75.3 | 74.1 | 67.9 |
| Above Normal (16%) | 61.1 | 52.5 | 46.9 | 47.3 | 51.1 | 55.1 | 61.3 | 68.0 | 73.7 | 73.9 | 72.0 | 67.4 |
| Below Normal (15%) | 62.7 | 53.4 | 46.5 | 46.7 | 50.7 | 55.6 | 62.5 | 68.1 | 74.3 | 74.7 | 73.8 | 71.2 |
| Dry (24%) | 62.9 | 53.8 | 47.9 | 45.7 | 51.1 | 56.0 | 62.2 | 69.3 | 74.3 | 75.7 | 76.0 | 72.1 |
| Critical (15%) | 64.3 | 53.9 | 46.6 | 46.2 | 51.9 | 56.6 | 64.0 | 69.2 | 73.9 | 78.6 | 77.2 | 72.5 |

### Alternative 1 011519

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.7 | 55.4 | 49.4 | 48.7 | 53.1 | 57.7 | 65.6 | 70.8 | 76.0 | 78.0 | 78.1 | 74.4 |
| 20% | 63.9 | 54.9 | 48.8 | 48.2 | 52.3 | 56.9 | 63.4 | 69.5 | 75.1 | 77.4 | 77.5 | 73.5 |
| 30% | 63.4 | 54.1 | 48.3 | 48.0 | 51.8 | 56.1 | 62.8 | 68.8 | 74.2 | 76.4 | 76.3 | 72.8 |
| 40% | 62.7 | 53.8 | 48.1 | 47.5 | 51.3 | 55.6 | 61.9 | 68.3 | 73.5 | 75.7 | 75.4 | 72.2 |
| 50% | 62.1 | 53.3 | 47.4 | 46.7 | 51.0 | 55.3 | 61.4 | 67.9 | 72.9 | 75.1 | 74.4 | 71.3 |
| 60% | 61.5 | 53.0 | 47.0 | 46.4 | 50.6 | 54.7 | 60.8 | 67.1 | 72.3 | 74.7 | 73.9 | 70.7 |
| 70% | 61.3 | 52.8 | 46.6 | 45.9 | 50.2 | 54.2 | 59.7 | 66.0 | 71.8 | 74.2 | 72.9 | 70.1 |
| 80% | 61.0 | 52.1 | 46.3 | 45.1 | 49.9 | 53.5 | 58.4 | 65.1 | 71.0 | 73.5 | 72.1 | 69.3 |
| 90% | 60.0 | 51.6 | 44.7 | 44.3 | 49.0 | 52.5 | 57.5 | 64.1 | 69.6 | 72.7 | 71.6 | 68.6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.4 | 53.4 | 47.4 | 46.7 | 51.1 | 55.2 | 61.4 | 67.7 | 72.9 | 75.5 | 74.7 | 71.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.6 | 53.4 | 47.9 | 47.3 | 50.8 | 53.9 | 59.3 | 65.8 | 71.5 | 75.2 | 74.3 | 72.0 |
| Above Normal (16%) | 61.1 | 52.5 | 46.8 | 47.3 | 51.0 | 55.1 | 61.2 | 67.9 | 73.5 | 73.7 | 72.1 | 68.7 |
| Below Normal (15%) | 62.7 | 53.4 | 46.5 | 46.7 | 50.8 | 55.5 | 62.6 | 67.8 | 73.7 | 74.3 | 73.4 | 71.2 |
| Dry (24%) | 62.9 | 53.8 | 47.9 | 45.7 | 51.1 | 56.0 | 62.2 | 69.1 | 73.6 | 75.9 | 76.1 | 72.0 |
| Critical (15%) | 64.3 | 53.9 | 46.5 | 46.2 | 51.8 | 56.6 | 64.0 | 69.2 | 73.5 | 78.6 | 77.3 | 72.5 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | 0.0 | -0.3 | -0.1 | 0.0 | 0.0 | **0.0** | 0.0 | -0.3 | -0.6 | -0.2 | **0.0** | **0.8** |
| 20% | **0.2** | -0.1 | -0.1 | **0.1** | **0.0** | 0.0 | 0.0 | -0.2 | -0.6 | **0.2** | **0.2** | **0.6** |
| 30% | **0.3** | -0.3 | -0.2 | 0.0 | 0.0 | -0.1 | 0.0 | -0.2 | -0.4 | **0.1** | **0.3** | **1.1** |
| 40% | **0.1** | -0.3 | **0.0** | 0.0 | 0.0 | 0.0 | 0.0 | -0.3 | -0.7 | 0.0 | -0.1 | **1.5** |
| 50% | 0.0 | -0.2 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.6 | -0.1 | 0.0 | **1.3** |
| 60% | -0.2 | -0.1 | -0.1 | **0.0** | 0.0 | 0.0 | **0.0** | -0.4 | -0.3 | -0.1 | **0.1** | **1.9** |
| 70% | 0.0 | -0.1 | -0.1 | **0.0** | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | **0.2** | 0.0 | **2.2** |
| 80% | **0.8** | -0.2 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | -0.1 | -0.2 | 0.0 | **2.1** |
| 90% | **0.2** | 0.0 | **0.1** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.2 | -0.2 | **0.4** | **1.9** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.1** | -0.1 | -0.1 | **0.0** | **0.0** | 0.0 | 0.0 | -0.1 | -0.4 | 0.0 | **0.0** | **1.5** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.4** | -0.4 | -0.3 | **0.1** | **0.0** | 0.0 | **0.0** | 0.0 | -0.1 | 0.0 | **0.1** | **4.1** |
| Above Normal (16%) | 0.0 | -0.1 | -0.1 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | -0.2 | -0.2 | **0.0** | **1.4** |
| Below Normal (15%) | **0.0** | -0.1 | 0.0 | 0.0 | **0.1** | 0.0 | **0.0** | -0.3 | -0.5 | -0.4 | -0.4 | **0.0** |
| Dry (24%) | 0.0 | 0.0 | 0.0 | **0.0** | **0.0** | 0.0 | 0.0 | -0.2 | -0.7 | **0.3** | **0.1** | 0.0 |
| Critical (15%) | **0.0** | 0.0 | 0.0 | **0.0** | 0.0 | 0.0 | 0.0 | -0.1 | -0.4 | **0.0** | **0.1** | **0.0** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 4-2. Feather River at Mouth, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.7 | 55.7 | 49.5 | 48.7 | 53.1 | 57.7 | 65.6 | 71.1 | 76.6 | 78.2 | 78.1 | 73.6 |
| 20% | 63.7 | 55.0 | 48.9 | 48.1 | 52.3 | 56.9 | 63.4 | 69.7 | 75.7 | 77.2 | 77.3 | 72.9 |
| 30% | 63.1 | 54.4 | 48.5 | 48.0 | 51.8 | 56.2 | 62.8 | 69.1 | 74.6 | 76.3 | 76.0 | 71.7 |
| 40% | 62.6 | 54.1 | 48.1 | 47.5 | 51.3 | 55.6 | 61.9 | 68.6 | 74.2 | 75.7 | 75.5 | 70.7 |
| 50% | 62.1 | 53.5 | 47.5 | 46.7 | 51.0 | 55.3 | 61.4 | 67.9 | 73.5 | 75.3 | 74.4 | 69.9 |
| 60% | 61.7 | 53.1 | 47.1 | 46.4 | 50.6 | 54.7 | 60.8 | 67.5 | 72.6 | 74.9 | 73.8 | 68.8 |
| 70% | 61.3 | 52.9 | 46.7 | 45.9 | 50.2 | 54.2 | 59.7 | 66.1 | 71.9 | 74.0 | 72.9 | 67.9 |
| 80% | 60.2 | 52.3 | 46.3 | 45.1 | 49.9 | 53.6 | 58.4 | 65.1 | 71.1 | 73.7 | 72.1 | 67.2 |
| 90% | 59.8 | 51.6 | 44.5 | 44.3 | 49.0 | 52.5 | 57.5 | 64.1 | 69.8 | 72.9 | 71.2 | 66.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.3 | 53.6 | 47.5 | 46.7 | 51.1 | 55.2 | 61.4 | 67.8 | 73.3 | 75.6 | 74.7 | 70.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.2 | 53.8 | 48.2 | 47.2 | 50.8 | 53.9 | 59.3 | 65.8 | 71.7 | 75.3 | 74.1 | 67.9 |
| Above Normal (16%) | 61.1 | 52.5 | 46.9 | 47.3 | 51.1 | 55.1 | 61.3 | 68.0 | 73.7 | 73.9 | 72.0 | 67.4 |
| Below Normal (15%) | 62.7 | 53.4 | 46.5 | 46.7 | 50.7 | 55.6 | 62.5 | 68.1 | 74.3 | 74.7 | 73.8 | 71.2 |
| Dry (24%) | 62.9 | 53.8 | 47.9 | 45.7 | 51.1 | 56.0 | 62.2 | 69.3 | 74.3 | 75.7 | 76.0 | 72.1 |
| Critical (15%) | 64.3 | 53.9 | 46.6 | 46.2 | 51.9 | 56.6 | 64.0 | 69.2 | 73.9 | 78.6 | 77.2 | 72.5 |

### Alternative 2 021719

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.7 | 55.5 | 49.4 | 48.7 | 53.1 | 57.7 | 65.6 | 70.5 | 75.1 | 78.6 | 78.1 | 73.8 |
| 20% | 63.8 | 55.0 | 48.7 | 48.2 | 52.3 | 56.9 | 63.4 | 69.5 | 74.4 | 77.7 | 77.5 | 73.5 |
| 30% | 63.1 | 54.1 | 48.3 | 48.0 | 51.9 | 56.2 | 62.8 | 68.7 | 73.3 | 76.7 | 76.5 | 73.0 |
| 40% | 62.7 | 53.8 | 48.0 | 47.5 | 51.4 | 55.6 | 61.9 | 68.1 | 72.5 | 76.2 | 75.9 | 72.4 |
| 50% | 62.1 | 53.4 | 47.5 | 46.7 | 51.0 | 55.3 | 61.4 | 67.8 | 72.3 | 75.8 | 74.9 | 72.0 |
| 60% | 61.5 | 53.0 | 47.1 | 46.4 | 50.6 | 54.8 | 60.8 | 66.9 | 71.7 | 75.3 | 74.0 | 70.7 |
| 70% | 61.2 | 52.8 | 46.6 | 46.0 | 50.2 | 54.2 | 59.7 | 66.0 | 71.2 | 74.6 | 73.6 | 70.1 |
| 80% | 60.6 | 52.2 | 46.2 | 45.1 | 49.9 | 53.5 | 58.4 | 65.1 | 70.6 | 73.7 | 72.8 | 69.3 |
| 90% | 60.0 | 51.6 | 44.9 | 44.3 | 49.0 | 52.5 | 57.5 | 64.1 | 69.4 | 72.8 | 72.0 | 68.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.3 | 53.5 | 47.4 | 46.7 | 51.1 | 55.2 | 61.4 | 67.6 | 72.2 | 75.9 | 75.0 | 71.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.3 | 53.4 | 47.9 | 47.3 | 50.8 | 53.9 | 59.3 | 65.7 | 71.3 | 75.4 | 74.6 | 72.0 |
| Above Normal (16%) | 61.2 | 52.5 | 46.8 | 47.3 | 51.1 | 55.1 | 61.2 | 67.9 | 72.6 | 73.9 | 72.5 | 69.1 |
| Below Normal (15%) | 62.6 | 53.4 | 46.5 | 46.7 | 50.8 | 55.6 | 62.5 | 67.5 | 71.4 | 75.3 | 74.7 | 71.5 |
| Dry (24%) | 62.9 | 53.9 | 47.9 | 45.7 | 51.1 | 56.0 | 62.2 | 69.1 | 73.0 | 76.5 | 75.9 | 72.0 |
| Critical (15%) | 64.3 | 53.9 | 46.5 | 46.2 | 51.9 | 56.7 | 64.0 | 69.1 | 73.4 | 78.5 | 77.1 | 72.4 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | 0.0 | -0.2 | -0.1 | 0.0 | 0.0 | **0.0** | 0.0 | -0.6 | -1.5 | **0.4** | 0.0 | **0.2** |
| 20% | **0.1** | 0.0 | -0.2 | **0.1** | **0.0** | 0.0 | 0.0 | -0.2 | -1.4 | **0.5** | **0.2** | **0.6** |
| 30% | 0.0 | -0.3 | -0.2 | 0.0 | **0.1** | 0.0 | 0.0 | -0.3 | -1.3 | **0.4** | **0.5** | **1.3** |
| 40% | **0.1** | -0.3 | -0.1 | 0.0 | **0.1** | 0.0 | 0.0 | -0.5 | -1.7 | **0.5** | **0.4** | **1.7** |
| 50% | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.2 | -1.1 | **0.6** | **0.5** | **2.0** |
| 60% | -0.2 | -0.1 | 0.0 | 0.0 | 0.0 | **0.1** | **0.0** | -0.6 | -0.9 | **0.5** | **0.3** | **1.9** |
| 70% | -0.1 | -0.1 | -0.1 | **0.1** | 0.0 | 0.0 | 0.0 | -0.1 | -0.7 | **0.6** | **0.7** | **2.2** |
| 80% | **0.4** | -0.1 | -0.1 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | -0.5 | 0.0 | **0.7** | **2.0** |
| 90% | **0.2** | 0.0 | **0.4** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.4 | -0.1 | **0.8** | **2.0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.0** | -0.1 | -0.1 | **0.0** | **0.0** | 0.0 | 0.0 | -0.2 | -1.1 | **0.3** | **0.3** | **1.6** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.1** | -0.4 | -0.3 | **0.1** | **0.0** | 0.0 | **0.0** | -0.1 | -0.4 | **0.2** | **0.5** | **4.2** |
| Above Normal (16%) | **0.1** | 0.0 | -0.1 | **0.0** | **0.0** | -0.1 | 0.0 | -0.1 | -1.1 | 0.0 | **0.5** | **1.7** |
| Below Normal (15%) | -0.1 | **0.0** | 0.0 | **0.0** | **0.1** | 0.0 | 0.0 | -0.6 | -2.8 | **0.6** | **0.9** | **0.3** |
| Dry (24%) | 0.0 | **0.0** | 0.0 | 0.0 | **0.0** | **0.0** | 0.0 | -0.2 | -1.3 | **0.8** | -0.1 | -0.1 |
| Critical (15%) | 0.0 | **0.0** | 0.0 | **0.0** | **0.0** | **0.0** | **0.0** | -0.1 | -0.5 | -0.1 | -0.1 | -0.1 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 4-3. Feather River at Mouth, Monthly Temperature

No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.7 | 55.7 | 49.5 | 48.7 | 53.1 | 57.7 | 65.6 | 71.1 | 76.6 | 78.2 | 78.1 | 73.6 |
| 20% | 63.7 | 55.0 | 48.9 | 48.1 | 52.3 | 56.9 | 63.4 | 69.7 | 75.7 | 77.2 | 77.3 | 72.9 |
| 30% | 63.1 | 54.4 | 48.5 | 48.0 | 51.8 | 56.2 | 62.8 | 69.1 | 74.6 | 76.3 | 76.0 | 71.7 |
| 40% | 62.6 | 54.1 | 48.1 | 47.5 | 51.3 | 55.6 | 61.9 | 68.6 | 74.2 | 75.7 | 75.5 | 70.7 |
| 50% | 62.1 | 53.5 | 47.5 | 46.7 | 51.0 | 55.3 | 61.4 | 67.9 | 73.5 | 75.3 | 74.4 | 69.9 |
| 60% | 61.7 | 53.1 | 47.1 | 46.4 | 50.6 | 54.7 | 60.8 | 67.5 | 72.6 | 74.9 | 73.8 | 68.8 |
| 70% | 61.3 | 52.9 | 46.7 | 45.9 | 50.2 | 54.2 | 59.7 | 66.1 | 71.9 | 74.0 | 72.9 | 67.9 |
| 80% | 60.2 | 52.3 | 46.3 | 45.1 | 49.9 | 53.6 | 58.4 | 65.1 | 71.1 | 73.7 | 72.1 | 67.2 |
| 90% | 59.8 | 51.6 | 44.5 | 44.3 | 49.0 | 52.5 | 57.5 | 64.1 | 69.8 | 72.9 | 71.2 | 66.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.3 | 53.6 | 47.5 | 46.7 | 51.1 | 55.2 | 61.4 | 67.8 | 73.3 | 75.6 | 74.7 | 70.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.2 | 53.8 | 48.2 | 47.2 | 50.8 | 53.9 | 59.3 | 65.8 | 71.7 | 75.3 | 74.1 | 67.9 |
| Above Normal (16%) | 61.1 | 52.5 | 46.9 | 47.3 | 51.1 | 55.1 | 61.3 | 68.0 | 73.7 | 73.9 | 72.0 | 67.4 |
| Below Normal (15%) | 62.7 | 53.4 | 46.5 | 46.7 | 50.7 | 55.6 | 62.5 | 68.1 | 74.3 | 74.7 | 73.8 | 71.2 |
| Dry (24%) | 62.9 | 53.8 | 47.9 | 45.7 | 51.1 | 56.0 | 62.2 | 69.3 | 74.3 | 75.7 | 76.0 | 72.1 |
| Critical (15%) | 64.3 | 53.9 | 46.6 | 46.2 | 51.9 | 56.6 | 64.0 | 69.2 | 73.9 | 78.6 | 77.2 | 72.5 |

Alternative 3 021719

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.7 | 55.5 | 49.5 | 48.7 | 53.1 | 57.7 | 65.6 | 70.5 | 75.1 | 78.3 | 78.1 | 73.8 |
| 20% | 63.8 | 55.0 | 48.7 | 48.2 | 52.3 | 56.9 | 63.4 | 69.5 | 73.9 | 77.4 | 77.5 | 73.5 |
| 30% | 63.0 | 54.1 | 48.3 | 48.0 | 51.9 | 56.2 | 62.8 | 68.8 | 73.3 | 77.0 | 76.8 | 73.0 |
| 40% | 62.6 | 53.8 | 48.0 | 47.5 | 51.4 | 55.6 | 61.9 | 68.2 | 72.7 | 76.3 | 76.0 | 72.4 |
| 50% | 62.1 | 53.4 | 47.5 | 46.7 | 51.0 | 55.3 | 61.4 | 67.8 | 72.3 | 75.8 | 75.2 | 71.9 |
| 60% | 61.5 | 53.0 | 47.1 | 46.4 | 50.6 | 54.7 | 60.7 | 67.2 | 71.8 | 75.4 | 74.2 | 70.7 |
| 70% | 61.0 | 52.8 | 46.7 | 45.9 | 50.2 | 54.2 | 59.7 | 66.0 | 71.3 | 74.7 | 73.6 | 70.1 |
| 80% | 60.5 | 52.2 | 46.2 | 45.1 | 49.9 | 53.4 | 58.4 | 65.1 | 70.8 | 73.8 | 72.8 | 69.5 |
| 90% | 60.0 | 51.6 | 45.1 | 44.4 | 49.0 | 52.5 | 57.5 | 64.1 | 69.5 | 72.9 | 72.0 | 68.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.3 | 53.5 | 47.4 | 46.7 | 51.1 | 55.2 | 61.4 | 67.6 | 72.3 | 75.9 | 75.1 | 71.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.3 | 53.4 | 48.0 | 47.3 | 50.8 | 53.9 | 59.3 | 65.8 | 71.2 | 75.4 | 74.9 | 72.0 |
| Above Normal (16%) | 61.0 | 52.5 | 46.9 | 47.3 | 51.1 | 55.1 | 61.2 | 67.9 | 72.8 | 73.8 | 72.5 | 69.1 |
| Below Normal (15%) | 62.5 | 53.4 | 46.5 | 46.7 | 50.8 | 55.6 | 62.5 | 67.6 | 71.7 | 75.2 | 74.7 | 71.6 |
| Dry (24%) | 62.9 | 53.9 | 47.9 | 45.7 | 51.1 | 56.0 | 62.2 | 69.0 | 73.0 | 76.6 | 75.9 | 72.0 |
| Critical (15%) | 64.3 | 53.9 | 46.5 | 46.3 | 51.9 | 56.7 | 64.0 | 69.1 | 73.6 | 78.6 | 77.1 | 72.4 |

Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | 0.0 | -0.2 | **0.0** | 0.0 | 0.0 | **0.0** | 0.0 | -0.6 | -1.5 | **0.1** | 0.0 | **0.2** |
| 20% | **0.1** | 0.0 | -0.2 | **0.1** | **0.0** | 0.0 | 0.0 | -0.2 | -1.8 | **0.2** | **0.2** | **0.6** |
| 30% | -0.1 | -0.3 | -0.2 | 0.0 | **0.1** | **0.1** | 0.0 | -0.2 | -1.3 | **0.7** | **0.8** | **1.3** |
| 40% | 0.0 | -0.3 | -0.1 | 0.0 | **0.1** | 0.0 | 0.0 | -0.4 | -1.5 | **0.6** | **0.5** | **1.7** |
| 50% | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.2 | -1.1 | **0.6** | **0.8** | **2.0** |
| 60% | -0.2 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | -0.3 | -0.8 | **0.5** | **0.4** | **1.9** |
| 70% | -0.3 | -0.1 | 0.0 | **0.1** | 0.0 | 0.0 | 0.0 | -0.1 | -0.6 | **0.7** | **0.8** | **2.2** |
| 80% | **0.3** | -0.1 | -0.1 | 0.0 | 0.0 | -0.2 | 0.0 | 0.0 | -0.3 | **0.1** | **0.7** | **2.3** |
| 90% | **0.2** | 0.0 | **0.6** | **0.1** | 0.0 | 0.0 | 0.0 | 0.0 | -0.3 | 0.0 | **0.8** | **2.0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0.0 | -0.1 | -0.1 | **0.0** | **0.0** | 0.0 | 0.0 | -0.2 | -1.0 | **0.3** | **0.4** | **1.6** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.1** | -0.4 | -0.2 | **0.1** | **0.0** | 0.0 | **0.0** | 0.0 | -0.5 | **0.2** | **0.8** | **4.1** |
| Above Normal (16%) | -0.1 | -0.1 | 0.0 | **0.0** | **0.0** | -0.1 | 0.0 | -0.1 | -0.9 | -0.1 | **0.4** | **1.8** |
| Below Normal (15%) | -0.2 | **0.0** | 0.0 | **0.0** | **0.1** | 0.0 | 0.0 | -0.5 | -2.6 | **0.5** | **0.9** | **0.4** |
| Dry (24%) | 0.0 | **0.0** | 0.0 | **0.0** | **0.0** | **0.0** | 0.0 | -0.3 | -1.2 | **0.9** | -0.1 | -0.1 |
| Critical (15%) | 0.0 | 0.0 | 0.0 | **0.0** | 0.0 | **0.0** | **0.0** | -0.1 | -0.3 | -0.1 | -0.1 | -0.2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 4-4. Feather River at Mouth, Monthly Temperature

### No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.7 | 55.7 | 49.5 | 48.7 | 53.1 | 57.7 | 65.6 | 71.1 | 76.6 | 78.2 | 78.1 | 73.6 |
| 20% | 63.7 | 55.0 | 48.9 | 48.1 | 52.3 | 56.9 | 63.4 | 69.7 | 75.7 | 77.2 | 77.3 | 72.9 |
| 30% | 63.1 | 54.4 | 48.5 | 48.0 | 51.8 | 56.2 | 62.8 | 69.1 | 74.6 | 76.3 | 76.0 | 71.7 |
| 40% | 62.6 | 54.1 | 48.1 | 47.5 | 51.3 | 55.6 | 61.9 | 68.6 | 74.2 | 75.7 | 75.5 | 70.7 |
| 50% | 62.1 | 53.5 | 47.5 | 46.7 | 51.0 | 55.3 | 61.4 | 67.9 | 73.5 | 75.3 | 74.4 | 69.9 |
| 60% | 61.7 | 53.1 | 47.1 | 46.4 | 50.6 | 54.7 | 60.8 | 67.5 | 72.6 | 74.9 | 73.8 | 68.8 |
| 70% | 61.3 | 52.9 | 46.7 | 45.9 | 50.2 | 54.2 | 59.7 | 66.1 | 71.9 | 74.0 | 72.9 | 67.9 |
| 80% | 60.2 | 52.3 | 46.3 | 45.1 | 49.9 | 53.6 | 58.4 | 65.1 | 71.1 | 73.7 | 72.1 | 67.2 |
| 90% | 59.8 | 51.6 | 44.5 | 44.3 | 49.0 | 52.5 | 57.5 | 64.1 | 69.8 | 72.9 | 71.2 | 66.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.3 | 53.6 | 47.5 | 46.7 | 51.1 | 55.2 | 61.4 | 67.8 | 73.3 | 75.6 | 74.7 | 70.0 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.2 | 53.8 | 48.2 | 47.2 | 50.8 | 53.9 | 59.3 | 65.8 | 71.7 | 75.3 | 74.1 | 67.9 |
| Above Normal (16%) | 61.1 | 52.5 | 46.9 | 47.3 | 51.1 | 55.1 | 61.3 | 68.0 | 73.7 | 73.9 | 72.0 | 67.4 |
| Below Normal (15%) | 62.7 | 53.4 | 46.5 | 46.7 | 50.7 | 55.6 | 62.5 | 68.1 | 74.3 | 74.7 | 73.8 | 71.2 |
| Dry (24%) | 62.9 | 53.8 | 47.9 | 45.7 | 51.1 | 56.0 | 62.2 | 69.3 | 74.3 | 75.7 | 76.0 | 72.1 |
| Critical (15%) | 64.3 | 53.9 | 46.6 | 46.2 | 51.9 | 56.6 | 64.0 | 69.2 | 73.9 | 78.6 | 77.2 | 72.5 |

### Alternative 4 043019

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 64.6 | 55.4 | 49.3 | 48.8 | 53.1 | 57.5 | 65.6 | 71.1 | 76.8 | 78.7 | 78.5 | 74.3 |
| 20% | 63.8 | 55.1 | 48.7 | 48.1 | 52.3 | 56.9 | 63.2 | 69.7 | 75.5 | 77.6 | 78.0 | 73.8 |
| 30% | 63.3 | 54.4 | 48.3 | 48.0 | 51.9 | 56.2 | 62.3 | 68.9 | 74.4 | 76.6 | 77.4 | 73.3 |
| 40% | 62.9 | 53.9 | 48.1 | 47.4 | 51.3 | 55.5 | 61.6 | 68.3 | 73.8 | 76.2 | 76.2 | 72.5 |
| 50% | 62.5 | 53.6 | 47.5 | 46.8 | 51.1 | 55.1 | 61.0 | 67.7 | 73.0 | 75.5 | 75.3 | 71.9 |
| 60% | 61.9 | 53.0 | 47.1 | 46.5 | 50.6 | 54.6 | 60.3 | 67.1 | 72.5 | 75.1 | 74.4 | 71.3 |
| 70% | 61.4 | 52.8 | 46.7 | 46.1 | 50.2 | 54.2 | 59.4 | 66.0 | 72.0 | 74.9 | 73.8 | 70.5 |
| 80% | 61.0 | 52.1 | 46.3 | 45.2 | 49.9 | 53.4 | 58.2 | 64.9 | 71.0 | 74.1 | 72.4 | 69.8 |
| 90% | 60.0 | 51.6 | 44.5 | 44.4 | 49.0 | 52.5 | 57.4 | 63.8 | 69.9 | 73.1 | 71.4 | 68.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 62.5 | 53.5 | 47.4 | 46.7 | 51.1 | 55.2 | 61.1 | 67.7 | 73.2 | 76.0 | 75.3 | 71.8 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 61.7 | 53.5 | 47.9 | 47.3 | 50.8 | 53.9 | 58.8 | 65.6 | 71.8 | 75.4 | 74.6 | 72.1 |
| Above Normal (16%) | 61.6 | 52.5 | 46.9 | 47.3 | 51.1 | 55.1 | 60.6 | 67.6 | 73.9 | 74.2 | 72.3 | 69.2 |
| Below Normal (15%) | 62.6 | 53.6 | 46.7 | 46.9 | 50.8 | 55.4 | 62.1 | 68.0 | 73.8 | 74.9 | 75.4 | 72.0 |
| Dry (24%) | 62.9 | 54.0 | 47.9 | 45.8 | 51.2 | 55.9 | 62.1 | 69.3 | 74.1 | 76.5 | 76.7 | 72.4 |
| Critical (15%) | 64.3 | 53.9 | 46.5 | 46.2 | 51.8 | 56.5 | 64.0 | 69.2 | 73.6 | 78.8 | 77.6 | 72.7 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Temperature (DEG-F) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance[a] | | | | | | | | | | | | |
| 10% | -0.1 | -0.3 | -0.2 | **0.1** | 0.0 | -0.2 | 0.0 | 0.0 | **0.2** | **0.5** | **0.4** | **0.7** |
| 20% | **0.1** | **0.1** | -0.2 | 0.0 | **0.0** | 0.0 | -0.2 | 0.0 | -0.2 | **0.4** | **0.7** | **0.9** |
| 30% | **0.2** | 0.0 | -0.2 | **0.0** | **0.1** | 0.0 | -0.5 | -0.2 | -0.2 | **0.3** | **1.4** | **1.6** |
| 40% | **0.3** | -0.2 | 0.0 | -0.1 | 0.0 | -0.1 | -0.3 | -0.3 | -0.4 | **0.5** | **0.7** | **1.8** |
| 50% | **0.4** | **0.1** | **0.0** | **0.1** | **0.1** | -0.2 | -0.5 | -0.2 | -0.5 | **0.2** | **0.9** | **2.0** |
| 60% | **0.2** | -0.1 | 0.0 | **0.1** | **0.0** | -0.1 | -0.5 | -0.4 | -0.1 | **0.3** | **0.7** | **2.4** |
| 70% | **0.1** | -0.1 | 0.0 | **0.2** | 0.0 | **0.0** | -0.3 | -0.1 | **0.1** | **0.9** | **1.0** | **2.6** |
| 80% | **0.8** | -0.2 | 0.0 | **0.1** | 0.0 | -0.2 | -0.2 | -0.2 | 0.0 | **0.4** | **0.3** | **2.6** |
| 90% | **0.2** | 0.0 | 0.0 | **0.1** | **0.0** | 0.0 | -0.1 | -0.3 | **0.1** | **0.2** | **0.1** | **2.2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0.2** | 0.0 | -0.1 | **0.1** | **0.0** | -0.1 | -0.3 | -0.1 | -0.1 | **0.4** | **0.6** | **1.9** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | **0.5** | -0.3 | -0.3 | **0.1** | **0.0** | **0.0** | -0.4 | -0.2 | **0.1** | **0.2** | **0.5** | **4.2** |
| Above Normal (16%) | **0.4** | 0.0 | **0.0** | 0.0 | **0.0** | 0.0 | -0.7 | -0.4 | **0.2** | **0.3** | **0.3** | **1.9** |
| Below Normal (15%) | -0.1 | **0.2** | **0.1** | **0.2** | **0.1** | -0.1 | -0.4 | -0.1 | -0.5 | **0.2** | **1.6** | **0.8** |
| Dry (24%) | **0.0** | **0.1** | 0.0 | **0.0** | **0.0** | -0.1 | -0.1 | **0.0** | -0.2 | **0.8** | **0.7** | **0.4** |
| Critical (15%) | 0.0 | **0.0** | 0.0 | **0.0** | -0.1 | -0.1 | **0.0** | **0.0** | -0.3 | **0.2** | **0.3** | **0.1** |

a Based on the 82-year simulation period.

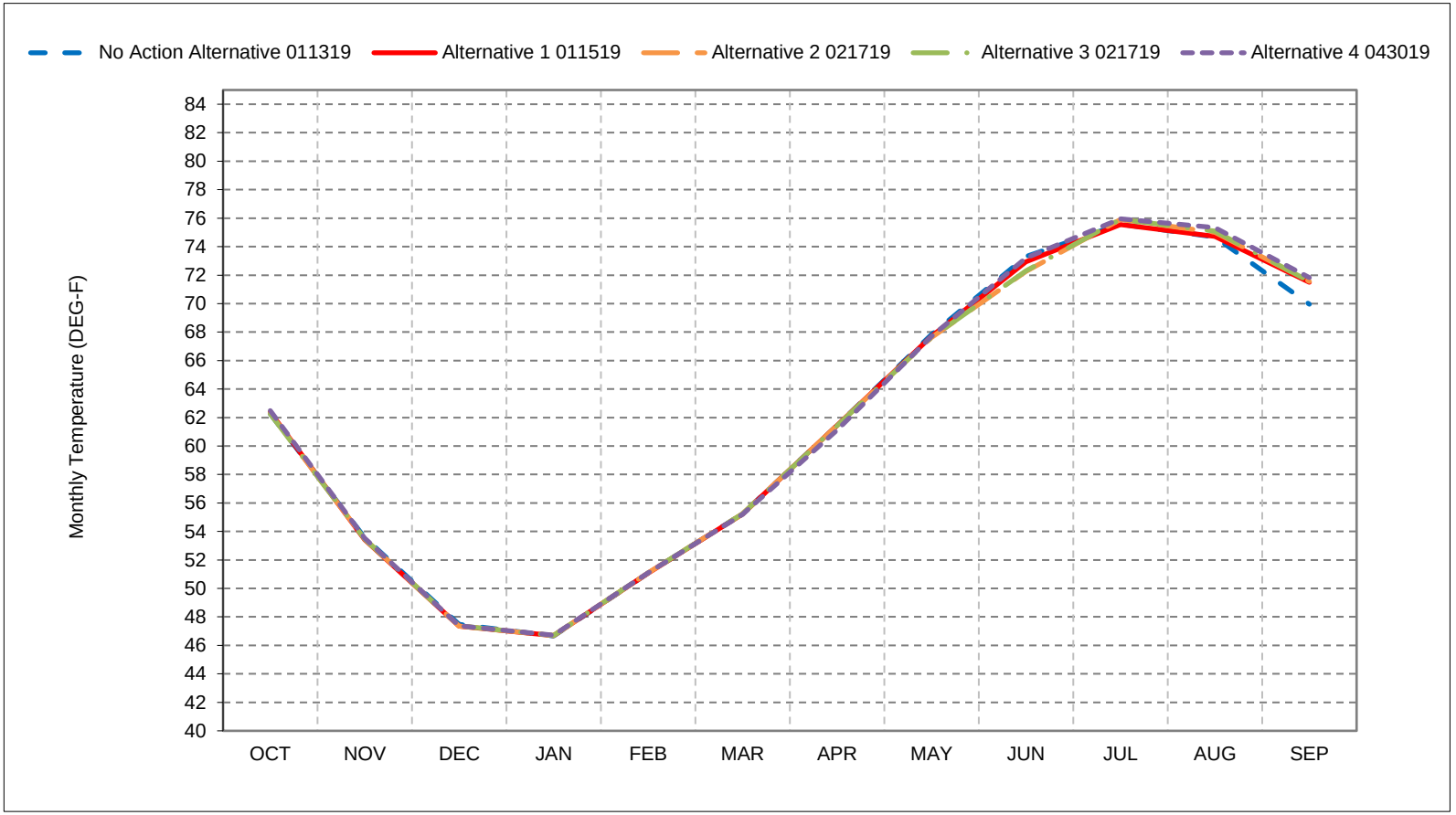
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

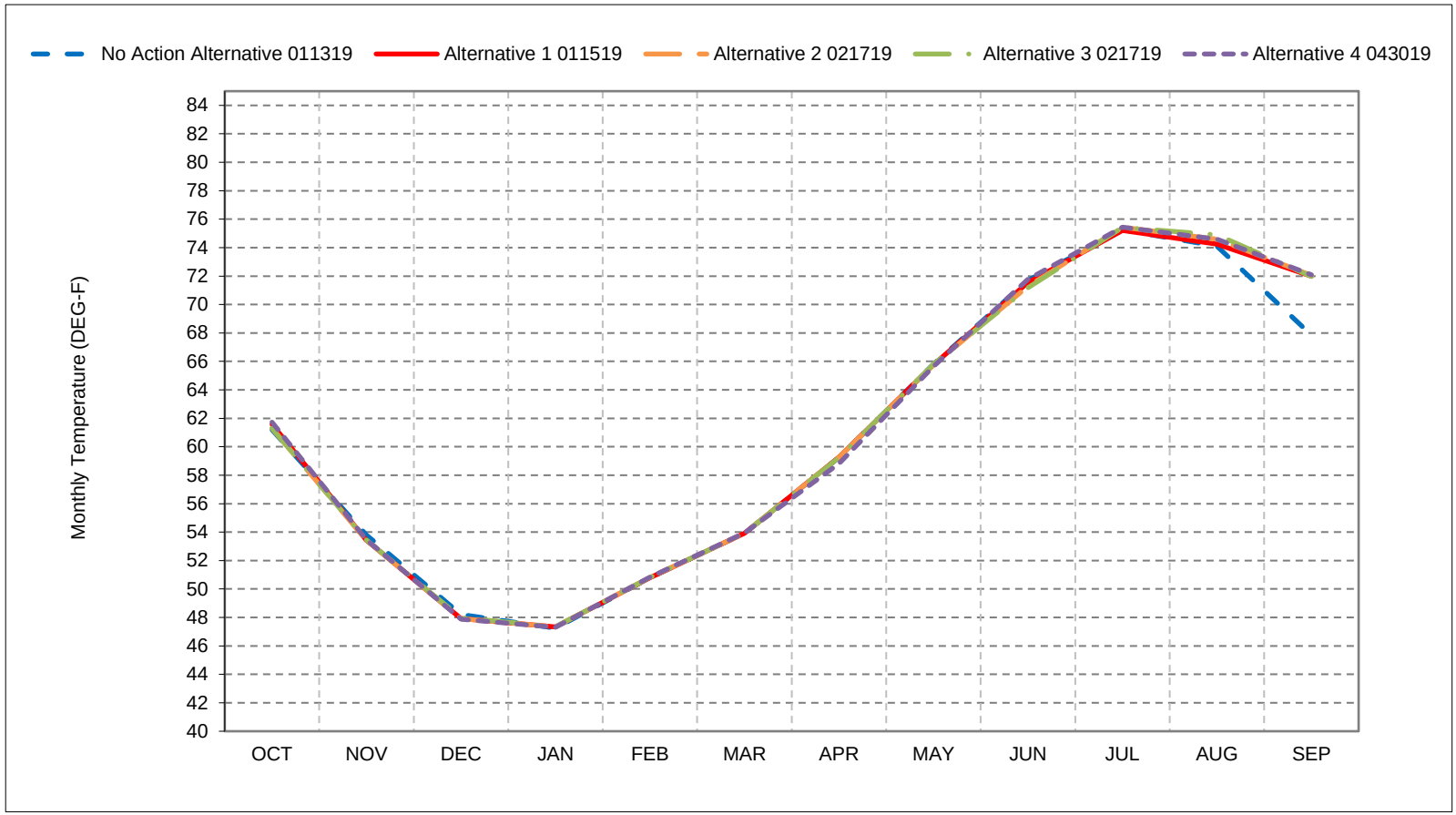
e These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-1. Feather River at Mouth, Long-Term Average Temperature



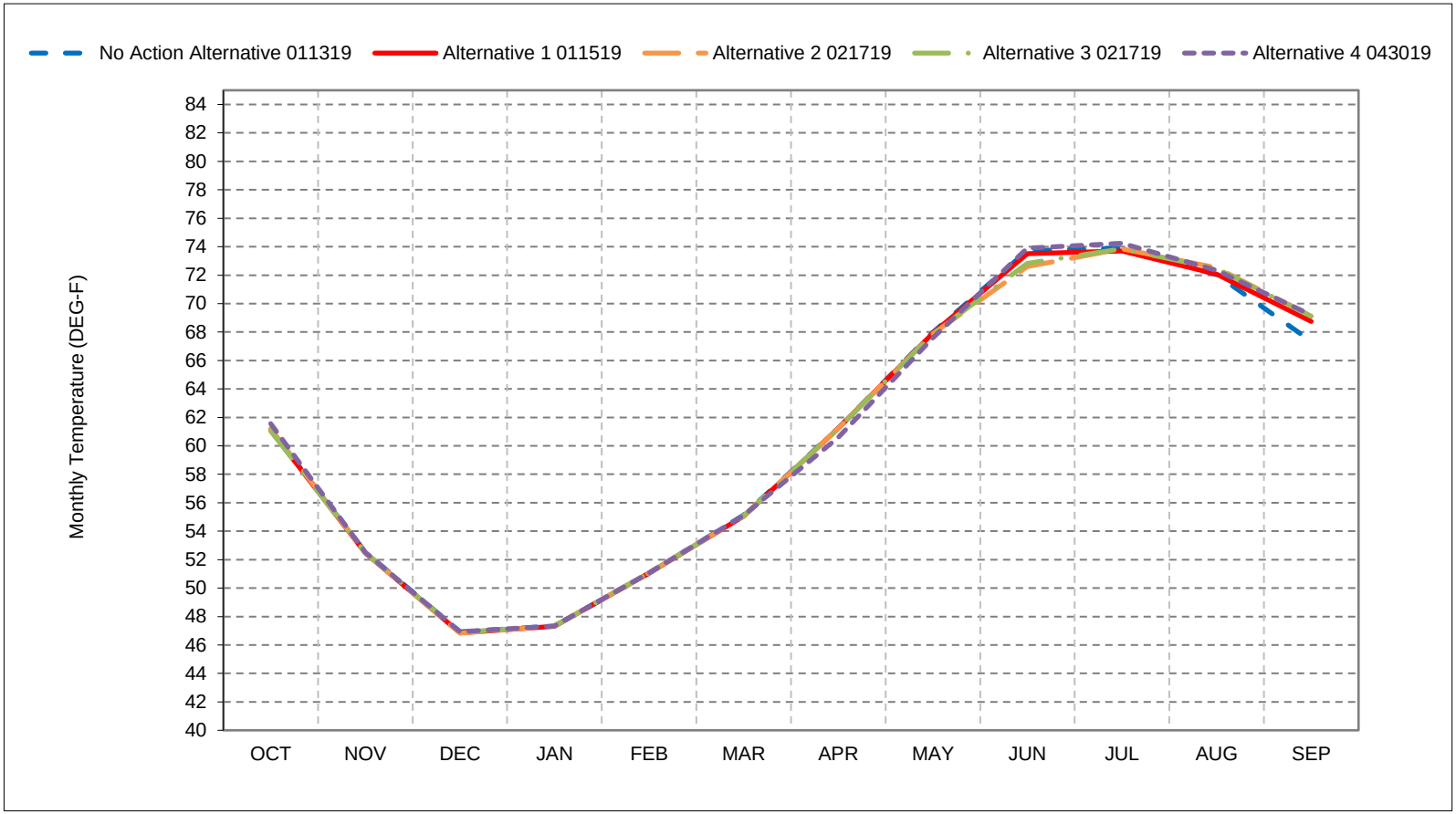

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-2. Feather River at Mouth, Wet Year Average Temperature



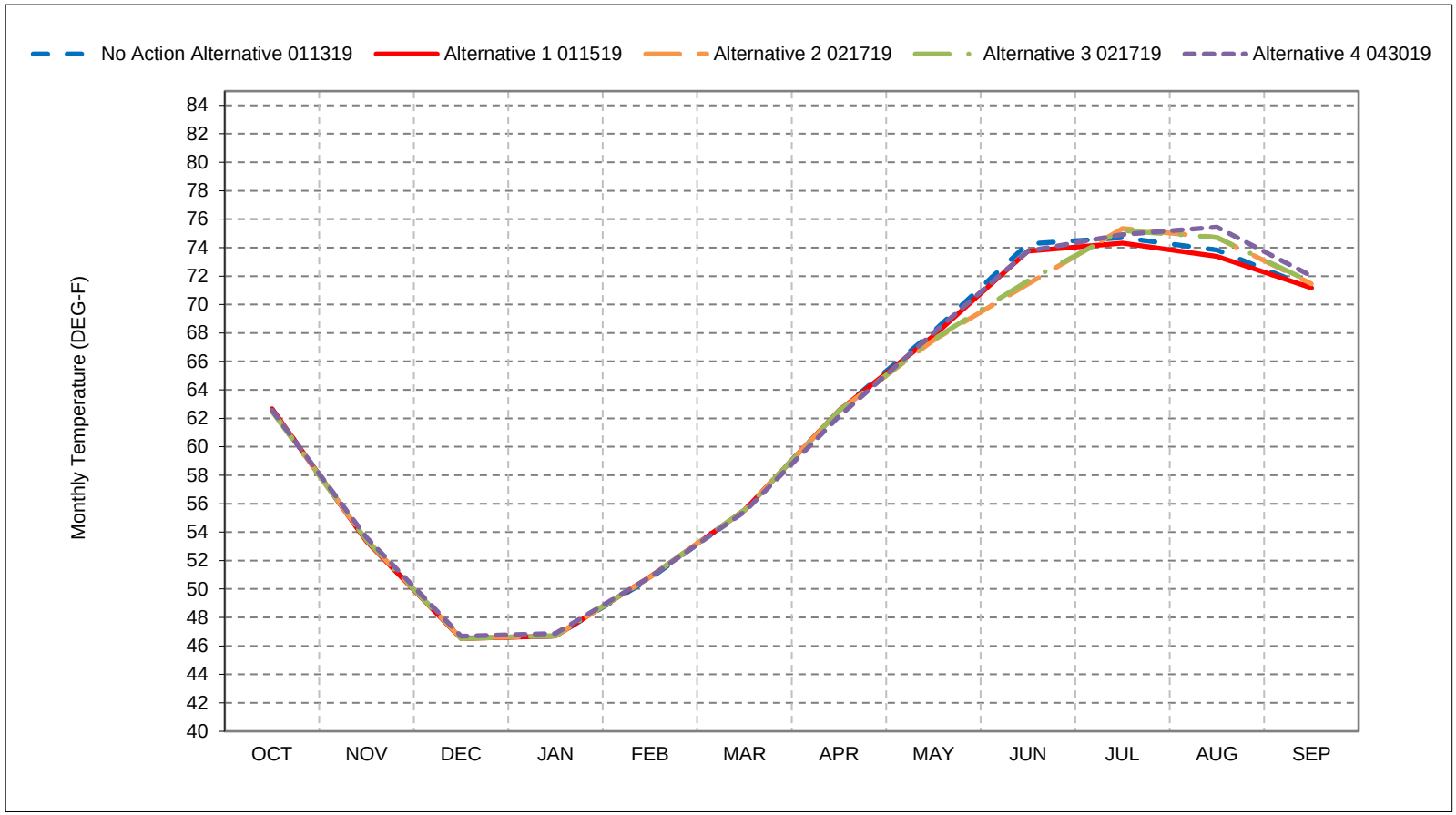

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-3. Feather River at Mouth, Above Normal Year Average Temperature



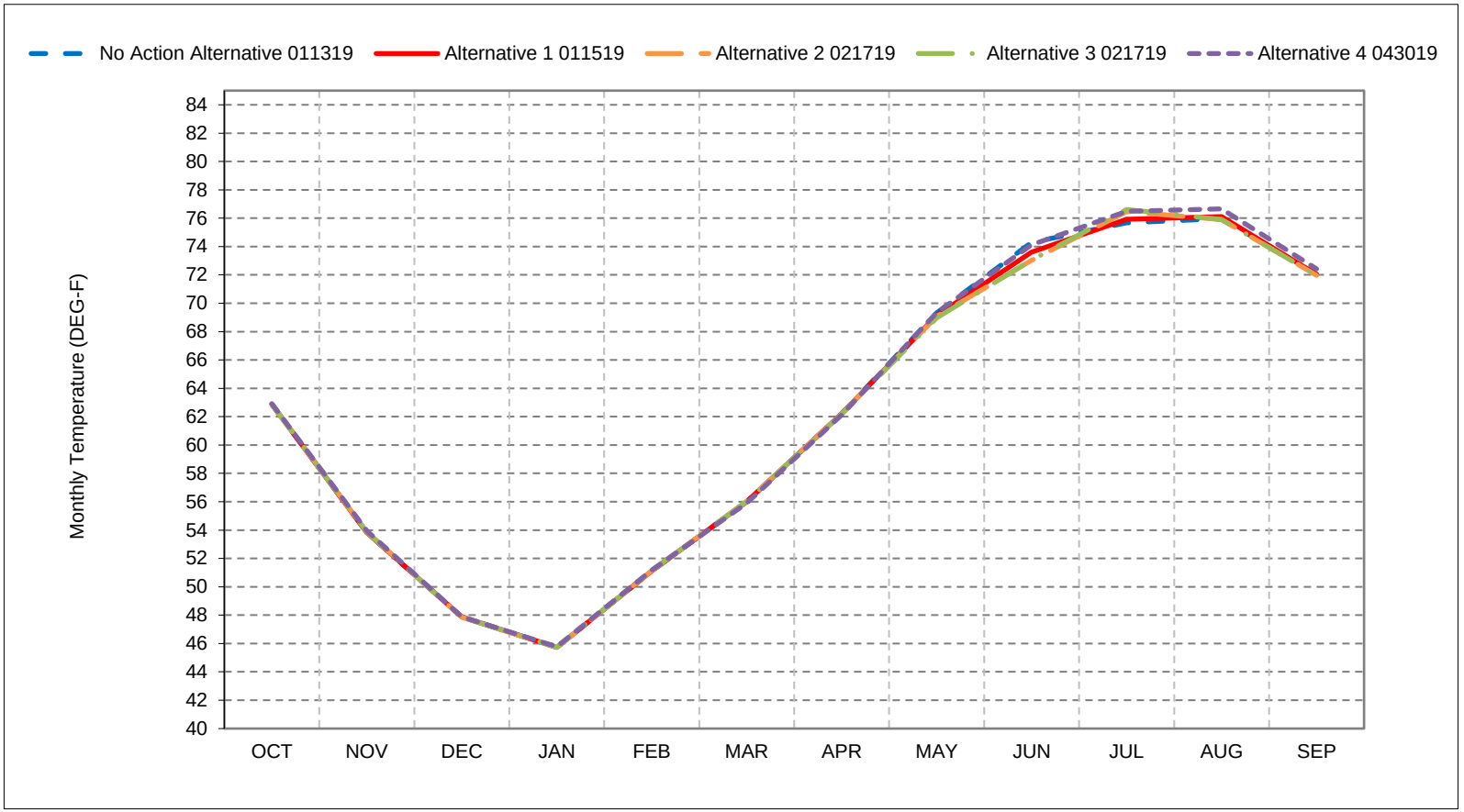

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-4. Feather River at Mouth, Below Normal Year Average Temperature



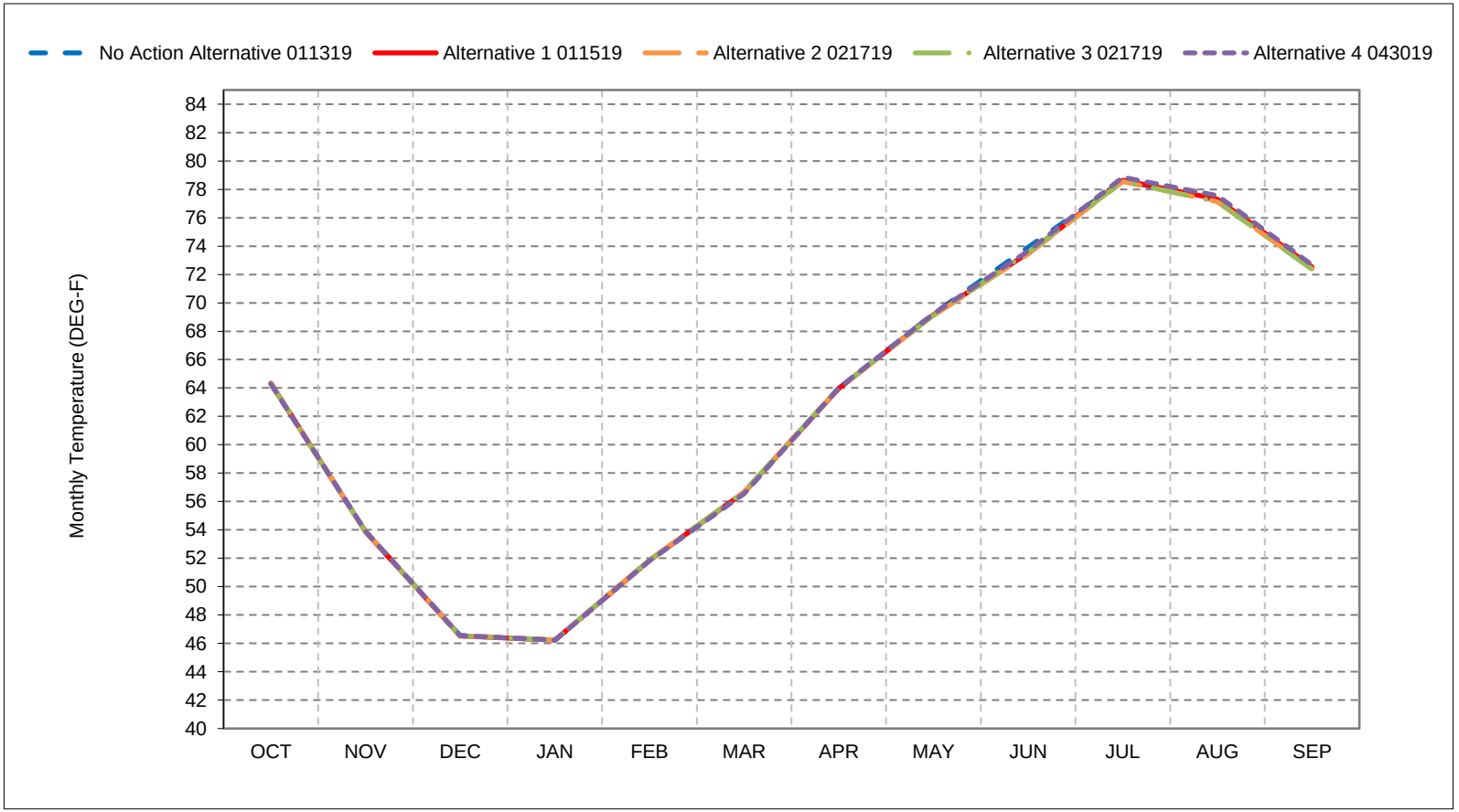

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-5. Feather River at Mouth, Dry Year Average Temperature



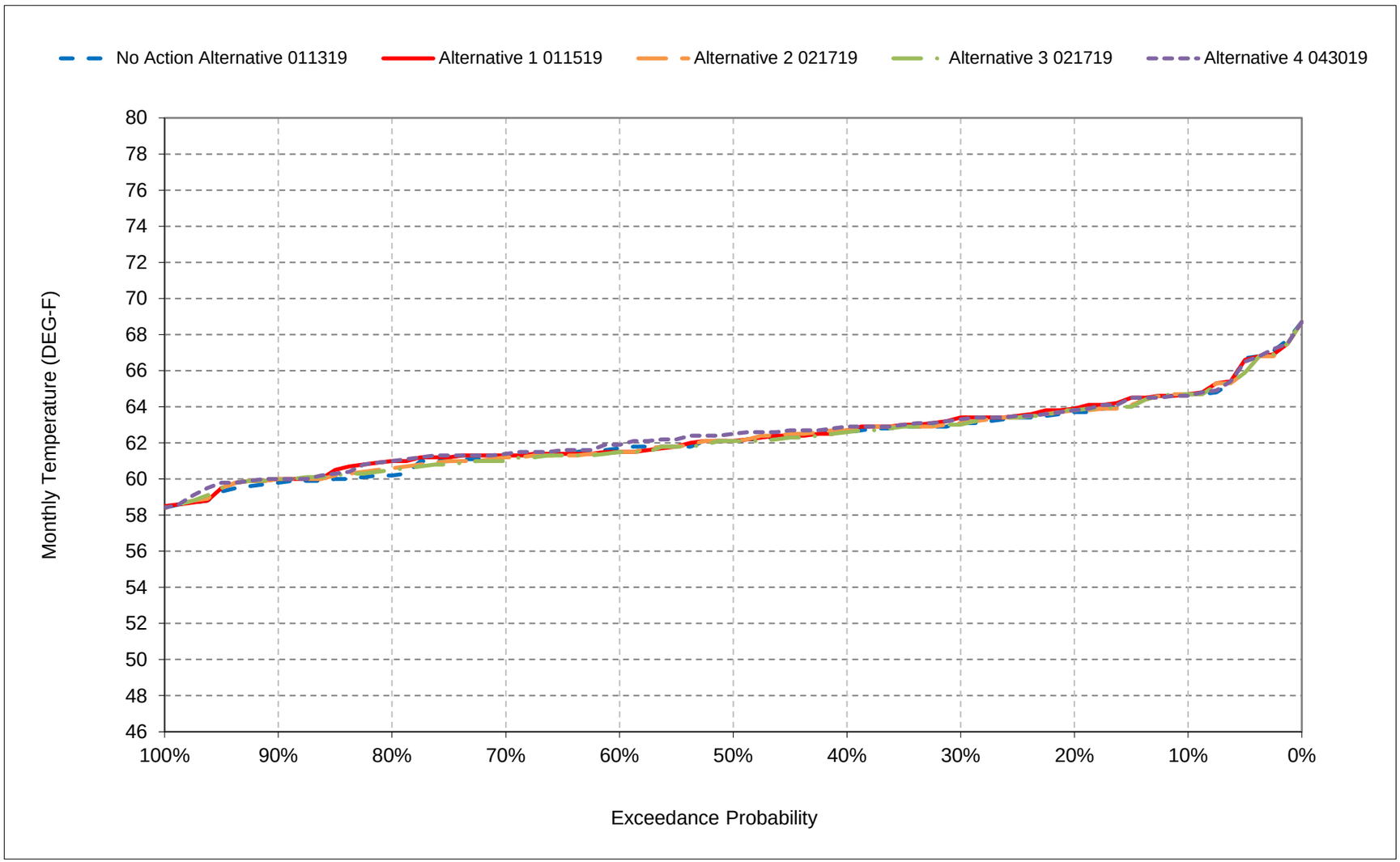

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-6. Feather River at Mouth, Critical Year Average Temperature




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

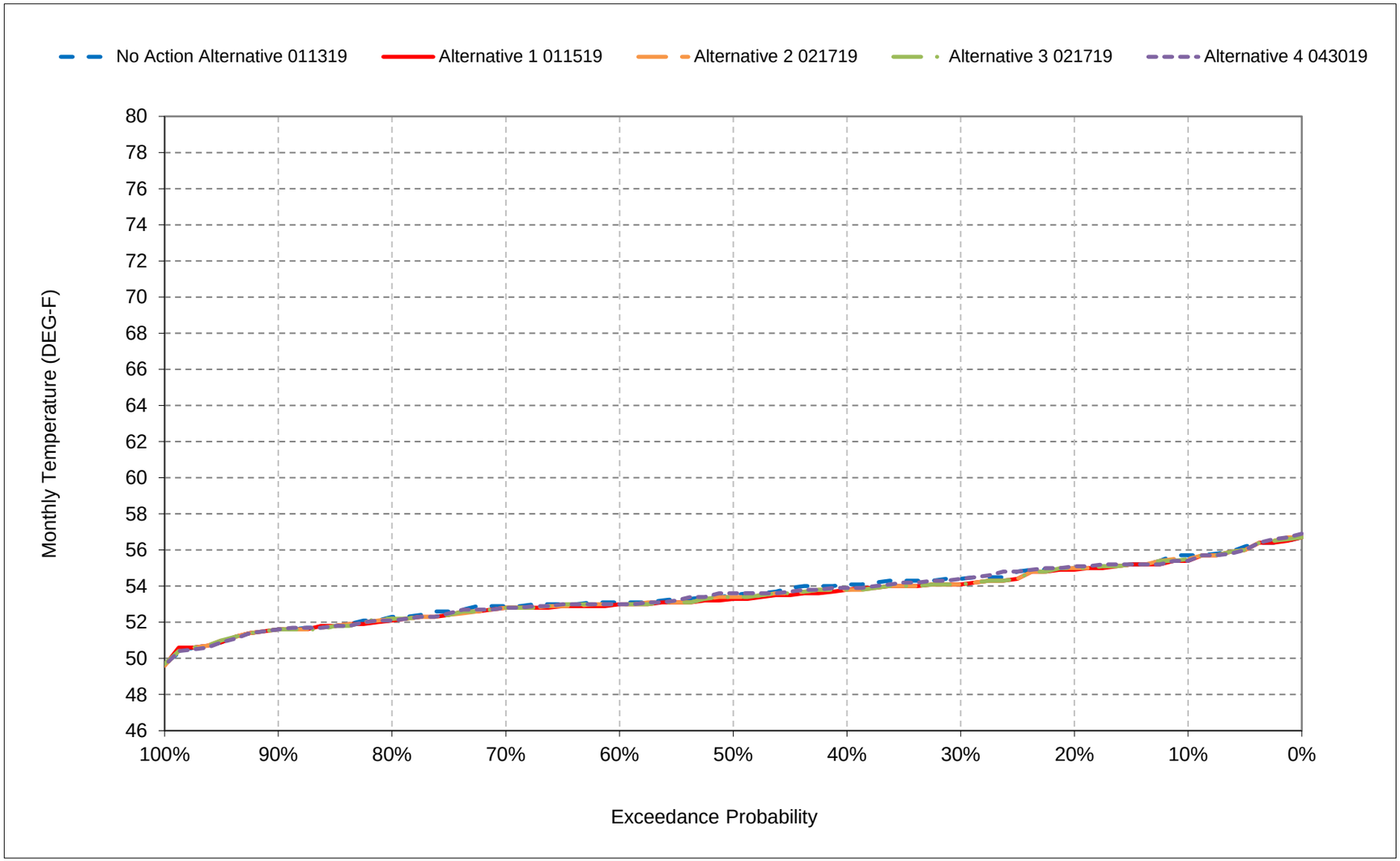
**Figure 4-7. Feather River at Mouth, October**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

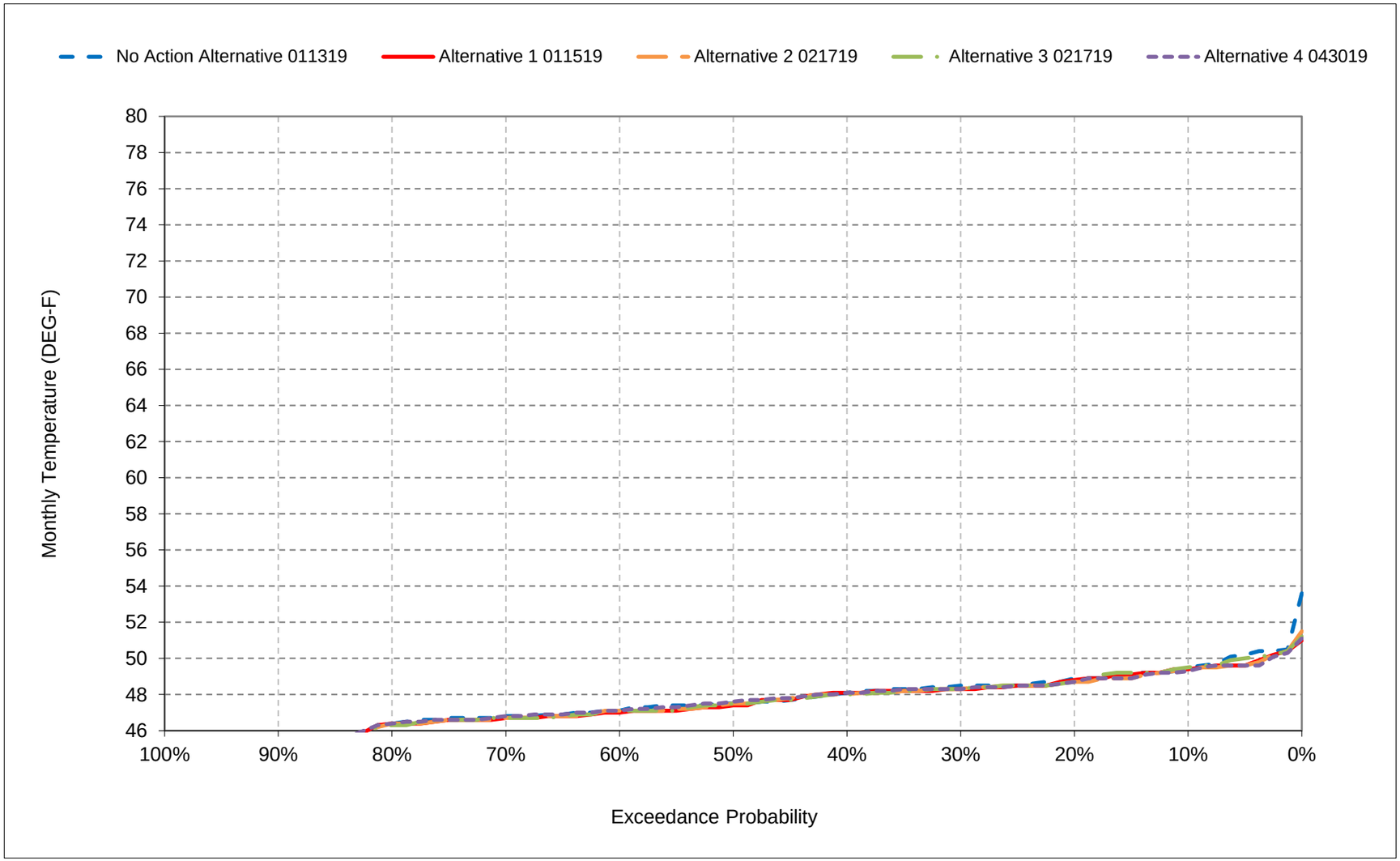
**Figure 4-8. Feather River at Mouth, November**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

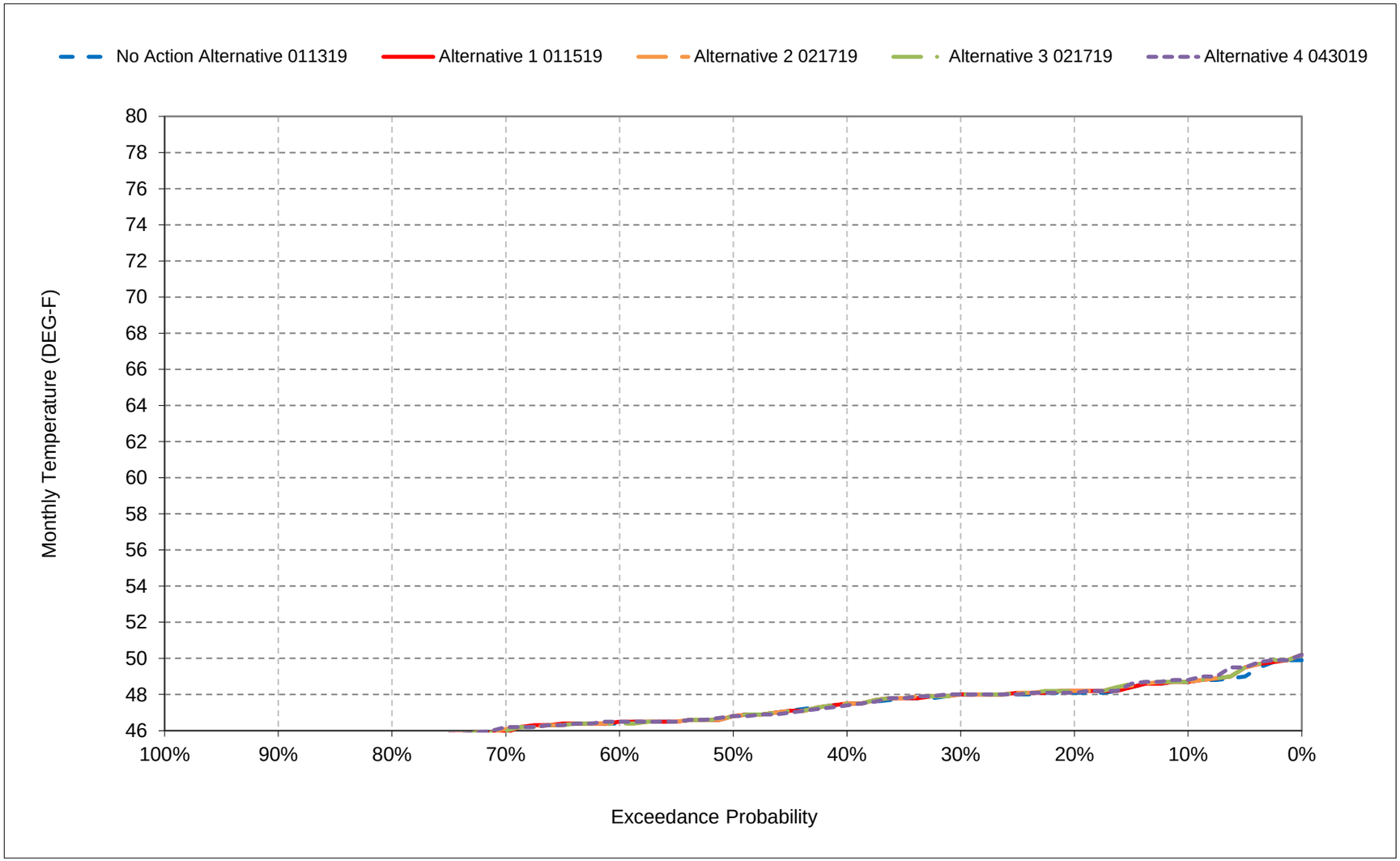
**Figure 4-9. Feather River at Mouth, December**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

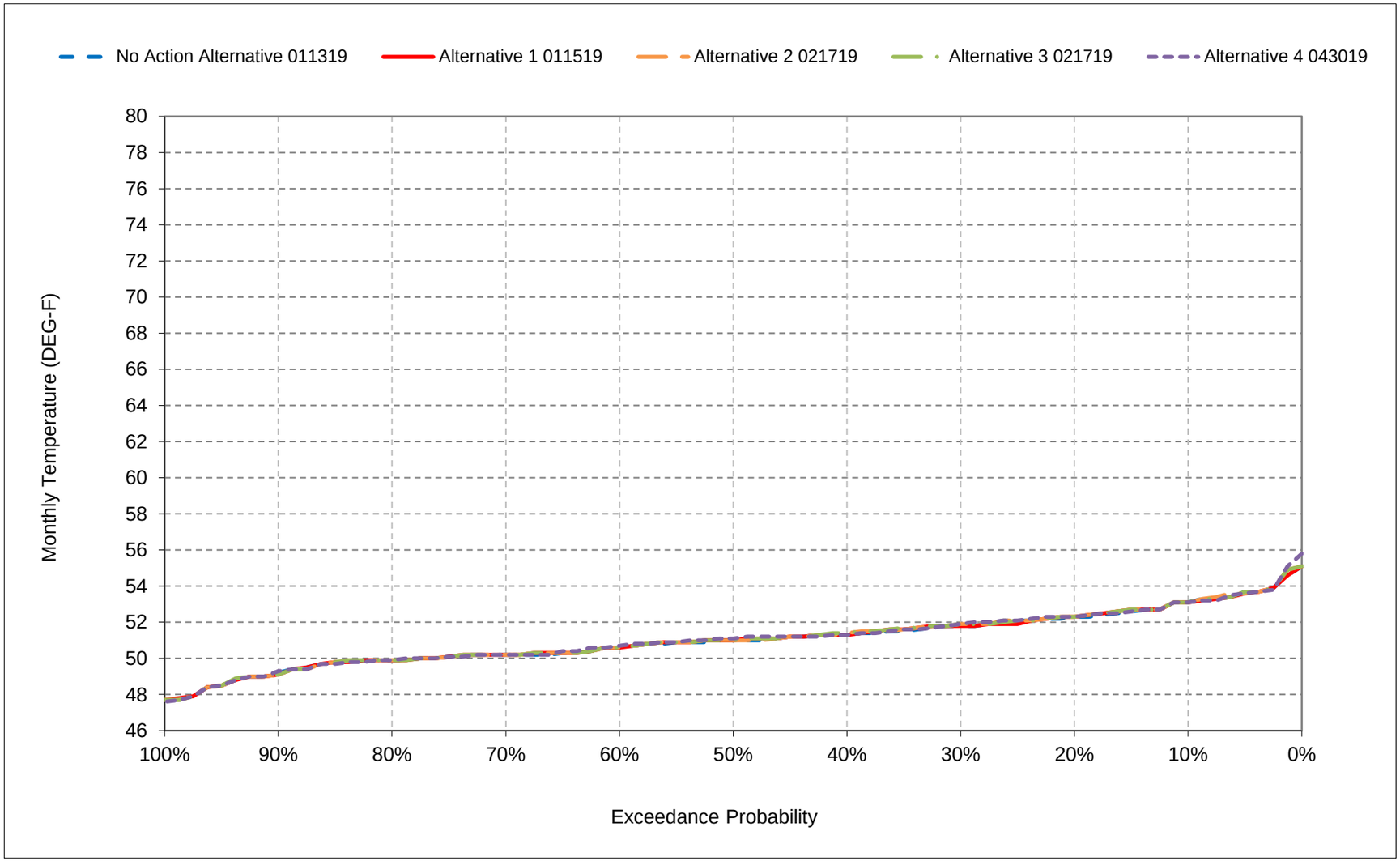
**Figure 4-10. Feather River at Mouth, January**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

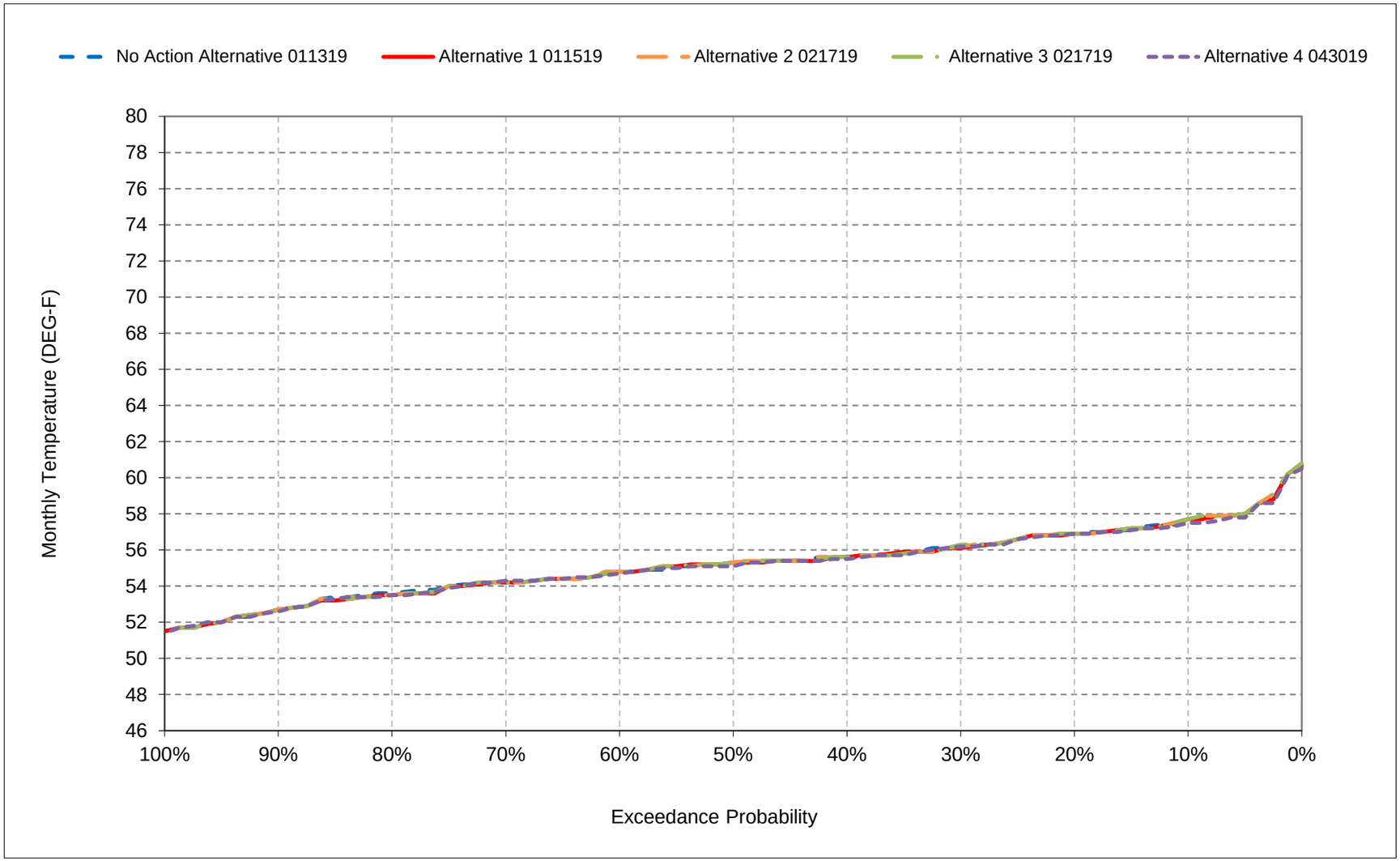
**Figure 4-11. Feather River at Mouth, February**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

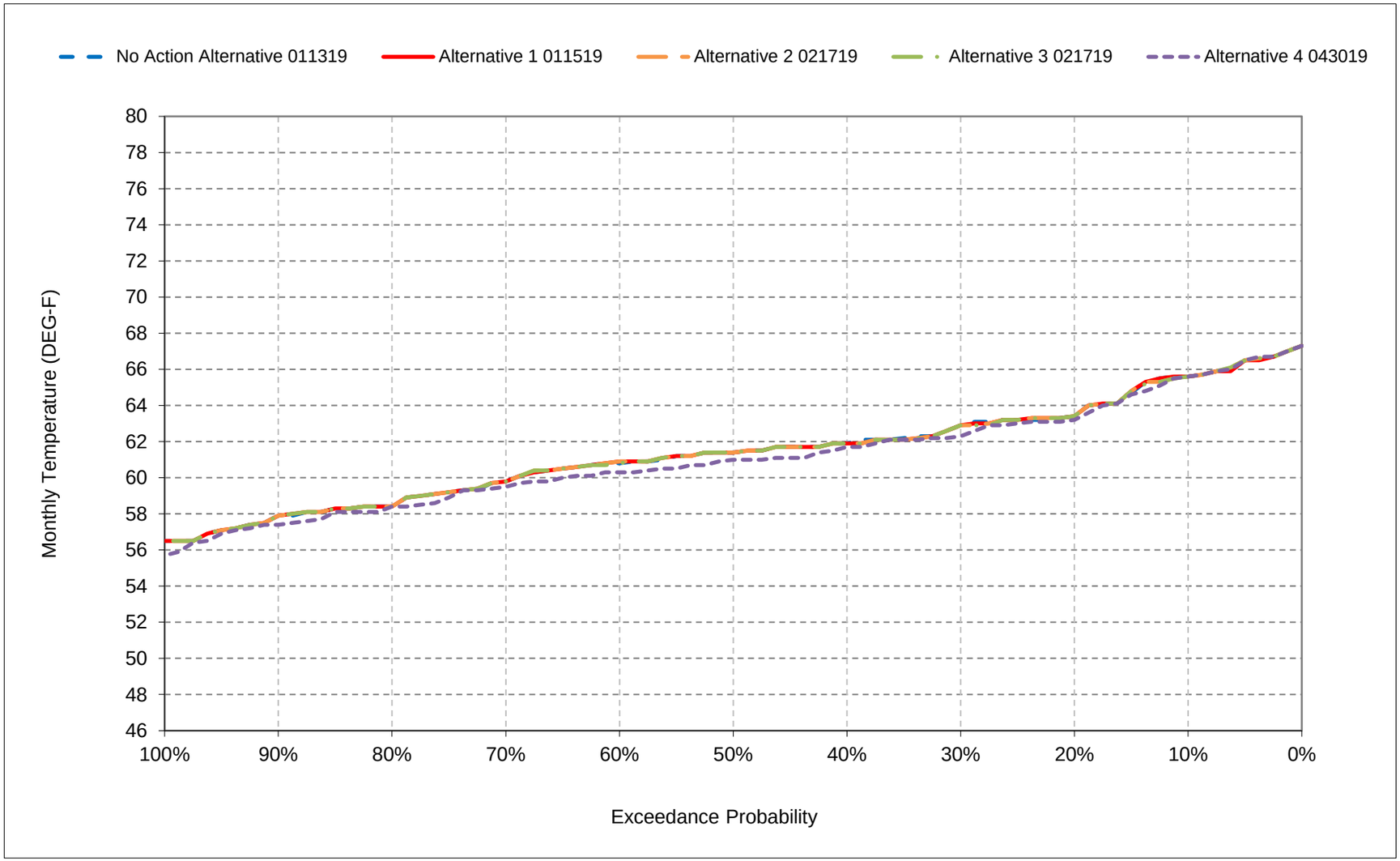
**Figure 4-12. Feather River at Mouth, March**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

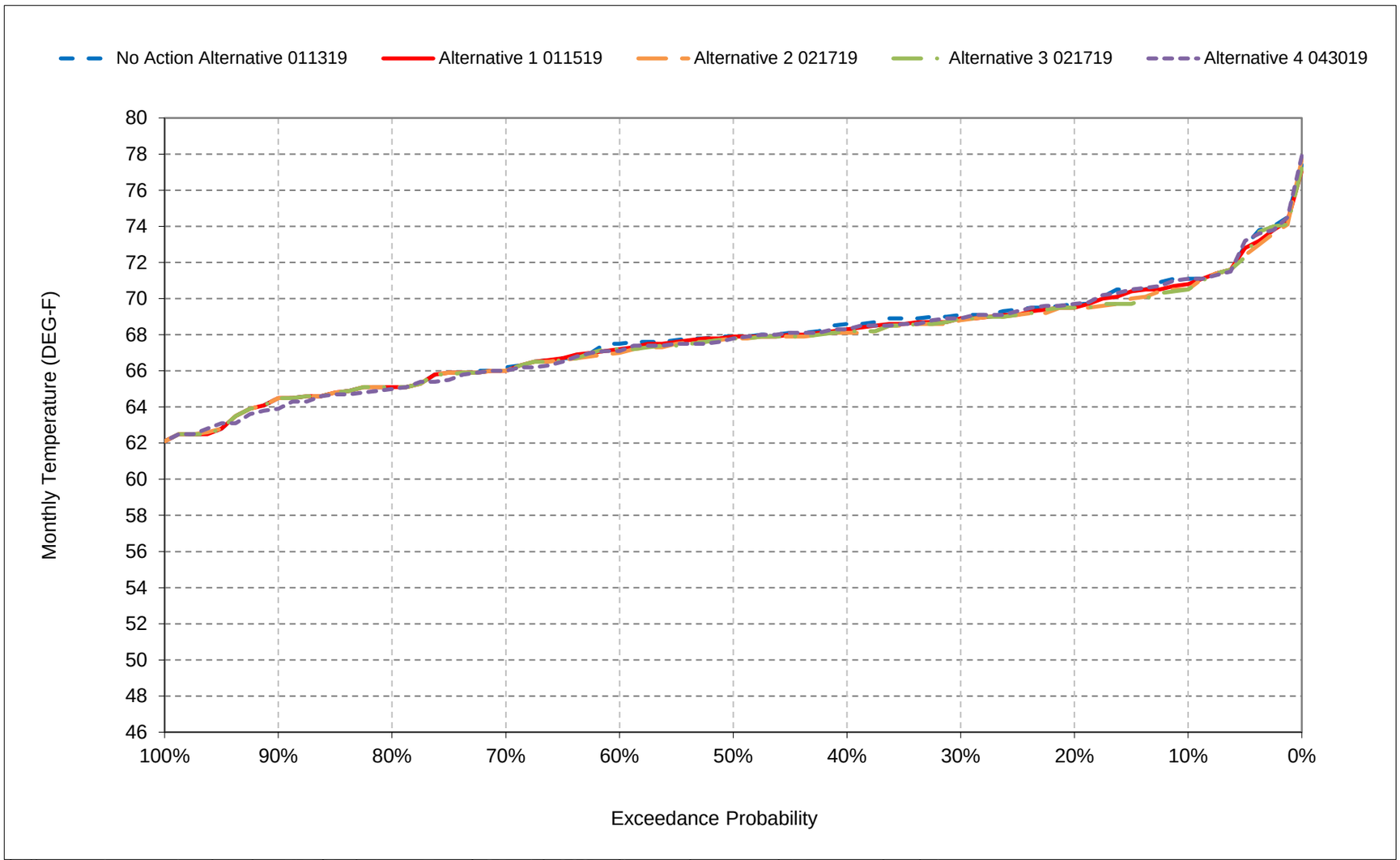
**Figure 4-13. Feather River at Mouth, April**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

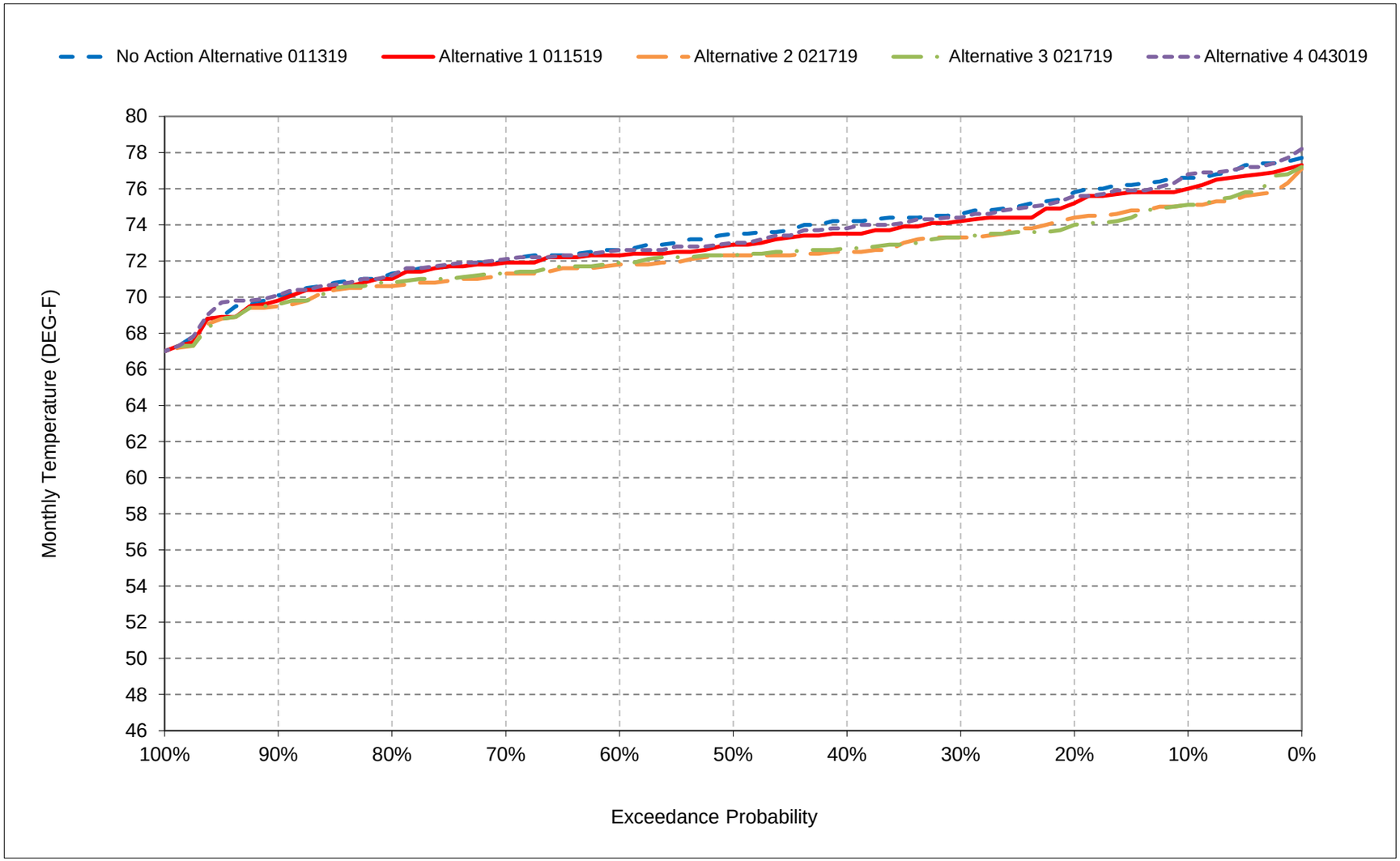
**Figure 4-14. Feather River at Mouth, May**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

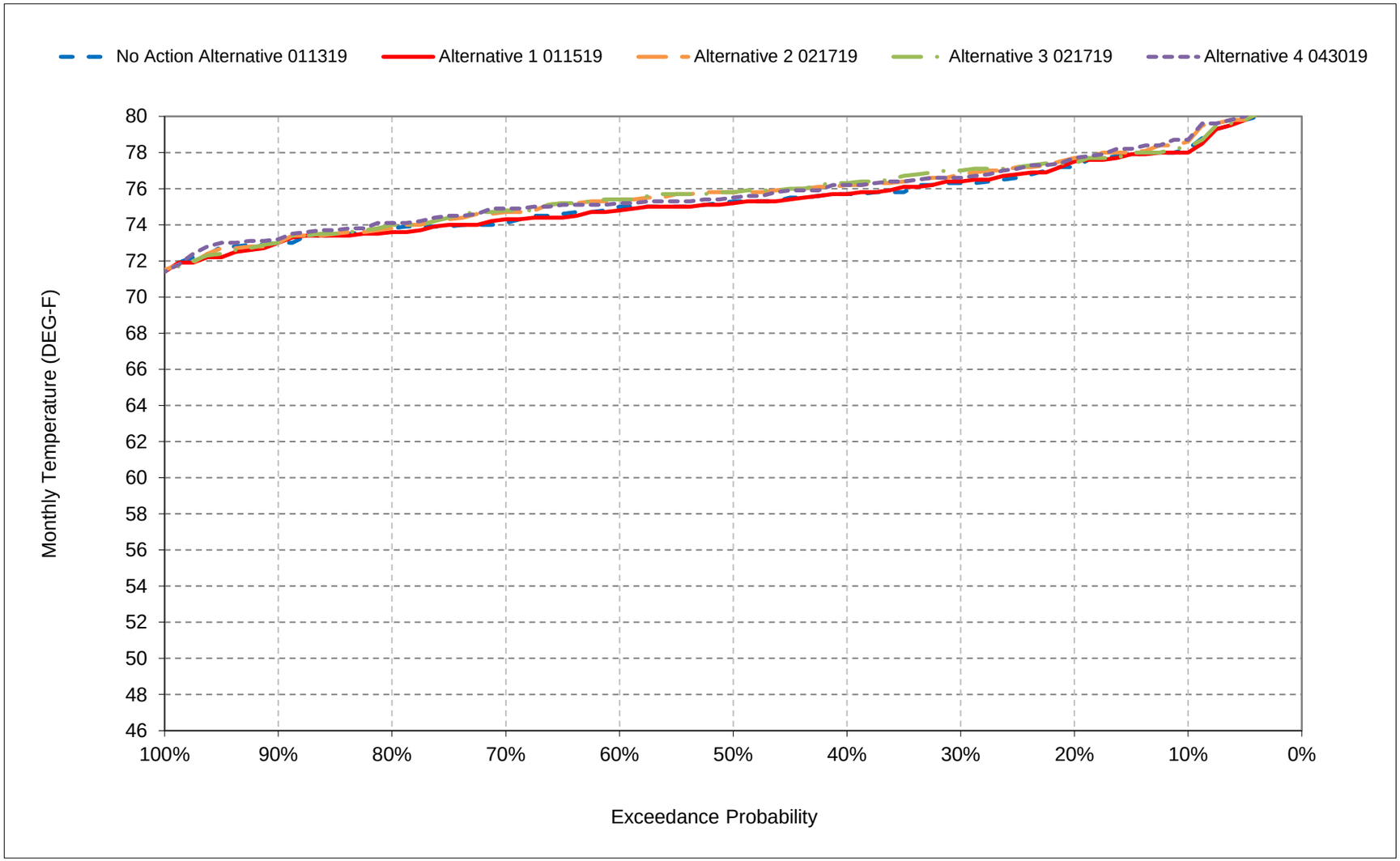
**Figure 4-15. Feather River at Mouth, June**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

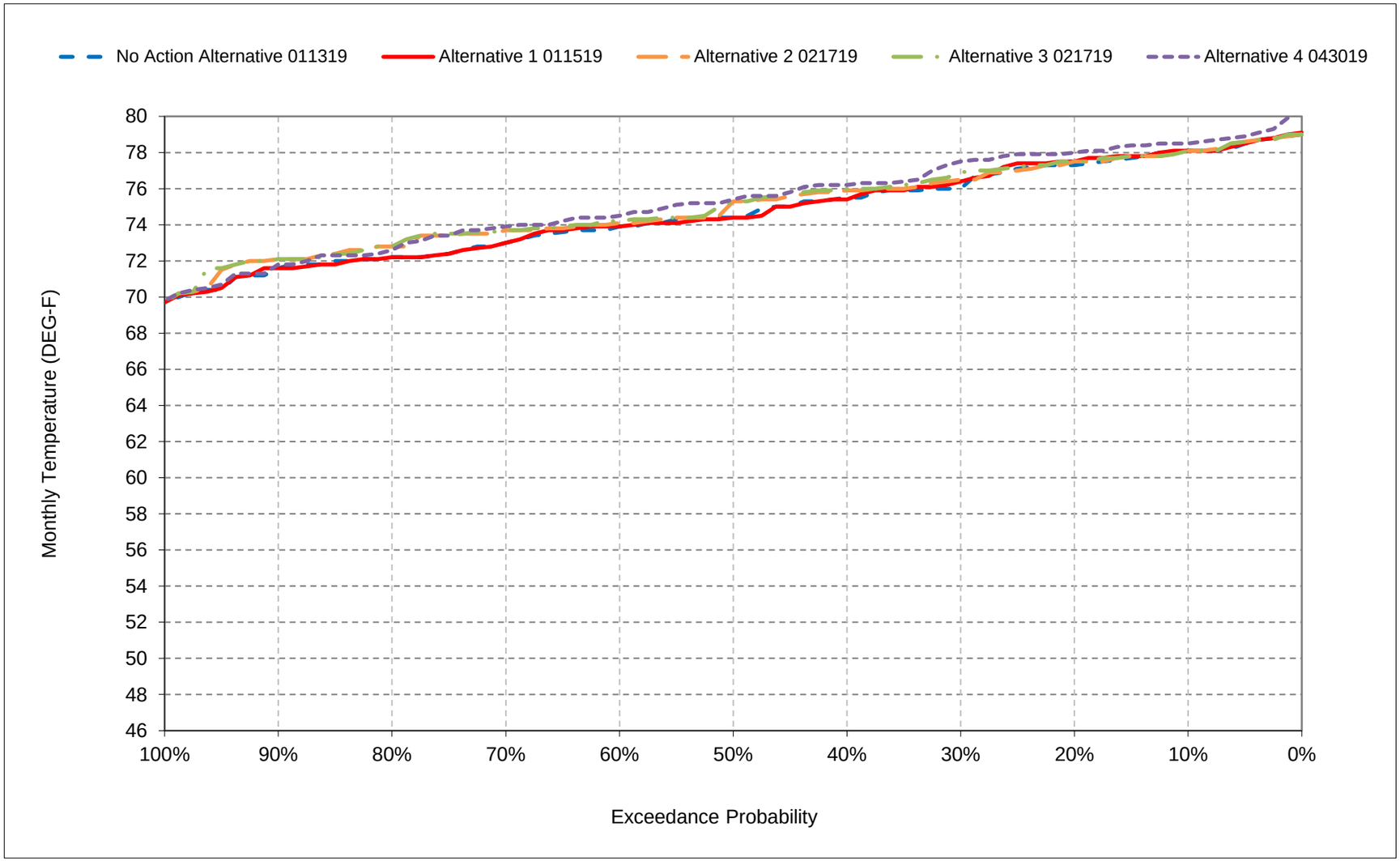
**Figure 4-16. Feather River at Mouth, July**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

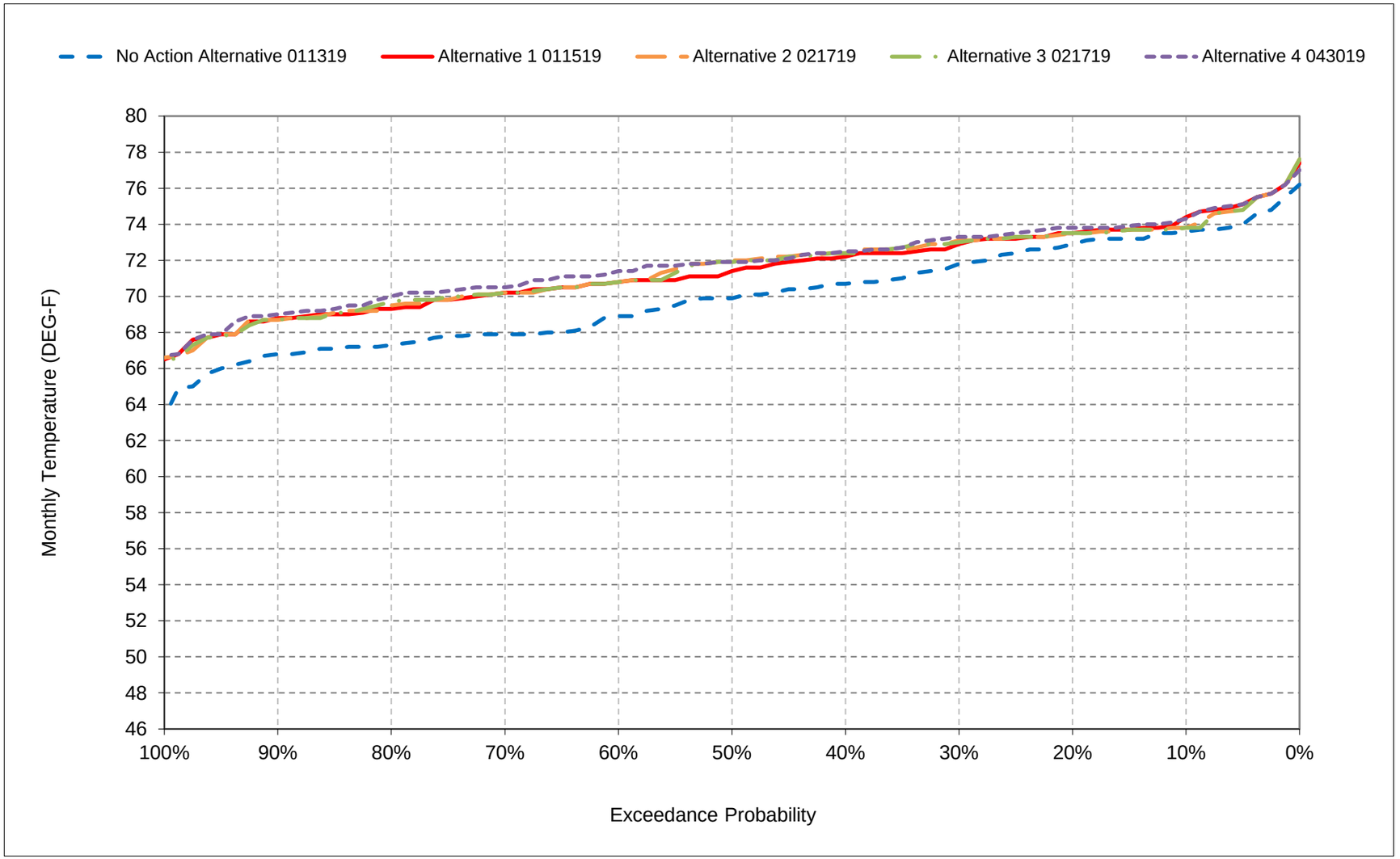
**Figure 4-17. Feather River at Mouth, August**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 4-18. Feather River at Mouth, September**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

# Attachment 3-6 Salinity Results (DSM2-QUAL)

The following results of the DSM2-QUAL model are included for Delta salinity conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Sacramento River downstream of Steamboat Slough Salinity | SAC_DS_STMBTSL | 1-1 to 1-4 | None |
| Cache Slough at Ryer Island Salinity | CACHE_RYER | 2-1 to 2-4 | None |
| Sacramento River downstream of Georgiana Slough Salinity | RSAC123 | 3-1 to 3-4 | None |
| Sacramento River at Emmaton Salinity | RSAC092 | 4-1 to 4-4 | 4-1 to 4-18 |
| Sacramento River at Rio Vista Salinity | RSAC101 | 5-1 to 5-4 | 5-1 to 5-18 |
| San Joaquin River at Vernalis Salinity (40-30-30) | RSAN112 | 6-1 to 6-4 | 6-1 to 6-18 |
| San Joaquin River at Vernalis Salinity (60-20-20) | RSAN112 | 6b-1 to 6b-4 | 6b-1 to 6b-18 |
| San Joaquin River at Jersey Point Salinity | RSAN018 | 7-1 to 7-4 | 7-1 to 7-18 |
| Old River at Rock Slough Salinity | ROLD024 | 8-1 to 8-4 | 8-1 to 8-18 |
| San Joaquin River at Antioch Salinity | RSAN007 | 9-1 to 9-4 | 9-1 to 9-18 |
| Sacramento River at Mallard Slough Salinity | RSAC075 | 10-1 to 10-4 | 10-1 to 10-18 |
| Sacramento River at Collinsville Salinity | RSAC081 | 11-1 to 11-4 | 11-1 to 11-18 |
| Chipps Island North Channel Salinity | CHIPS_N_437 | 12-1 to 12-4 | 12-1 to 12-18 |
| Chipps Island South Channel Salinity | CHIPS_S_442 | 13-1 to 13-4 | 13-1 to 13-18 |
| Sacramento River at Port Chicago Salinity | RSAC064 | 14-1 to 14-4 | 14-1 to 14-18 |

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Jones Pumping Plant South Delta Exports Salinity | CHDMC006 | 15-1 to 15-4 | 15-1 to 15-18 |
| Banks Pumping Plant South Delta Exports Salinity | CLIFTON_COURT | 16-1 to 16-4 | 16-1 to 16-18 |
| Old River at Highway 4 | ROLD034 | 17-1 to 17-4 | 17-1 to 17-18 |
| Victoria Canal | CHVCT000 | 18-1 to 18-4 | 18-1 to 18-18 |

# 1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

# Appendix F – Modeling

## Attachment 3-6 – Salinity Results (DSM2-QUAL)

The following results of the DSM2-QUAL model are included for Delta salinity conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Sacramento River downstream of Steamboat Slough Salinity | SAC_DS_STMBTSL | 1-1 to 1-4 | None |
| Cache Slough at Ryer Island Salinity | CACHE_RYER | 2-1 to 2-4 | None |
| Sacramento River downstream of Georgiana Slough Salinity | RSAC123 | 3-1 to 3-4 | None |
| Sacramento River at Emmaton Salinity | RSAC092 | 4-1 to 4-4 | 4-1 to 4-18 |
| Sacramento River at Rio Vista Salinity | RSAC101 | 5-1 to 5-4 | 5-1 to 5-18 |
| San Joaquin River at Vernalis Salinity (40-30-30) | RSAN112 | 6-1 to 6-4 | 6-1 to 6-18 |
| San Joaquin River at Vernalis Salinity (60-20-20) | RSAN112 | 6b-1 to 6b-4 | 6b-1 to 6b-18 |
| San Joaquin River at Jersey Point Salinity | RSAN018 | 7-1 to 7-4 | 7-1 to 7-18 |
| Old River at Rock Slough Salinity | ROLD024 | 8-1 to 8-4 | 8-1 to 8-18 |
| San Joaquin River at Antioch Salinity | RSAN007 | 9-1 to 9-4 | 9-1 to 9-18 |
| Sacramento River at Mallard Slough Salinity | RSAC075 | 10-1 to 10-4 | 10-1 to 10-18 |
| Sacramento River at Collinsville Salinity | RSAC081 | 11-1 to 11-4 | 11-1 to 11-18 |
| Chipps Island North Channel Salinity | CHIPS_N_437 | 12-1 to 12-4 | 12-1 to 12-18 |
| Chipps Island South Channel Salinity | CHIPS_S_442 | 13-1 to 13-4 | 13-1 to 13-18 |
| Sacramento River at Port Chicago Salinity | RSAC064 | 14-1 to 14-4 | 14-1 to 14-18 |
| Jones Pumping Plant South Delta Exports Salinity | CHDMC006 | 15-1 to 15-4 | 15-1 to 15-18 |
| Banks Pumping Plant South Delta Exports Salinity | CLIFTON_COURT | 16-1 to 16-4 | 16-1 to 16-18 |
| Old River at Highway 4 | ROLD034 | 17-1 to 17-4 | 17-1 to 17-18 |
| Victoria Canal | CHVCT000 | 18-1 to 18-4 | 18-1 to 18-18 |

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

## Table 1-1. Sacramento River downstream of Steamboat Slough Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 178 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 177 | 180 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 176 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| 70% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 176 | 176 | 175 | 176 | 175 |
| 80% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 175 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 175 | 175 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 175 | 176 | 176 | 178 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 175 |
| Above Normal (16%) | 175 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 175 | 175 |
| Below Normal (13%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

### Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 178 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 177 | 180 | 178 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 176 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 70% | 176 | 176 | 176 | 177 | 176 | 176 | 175 | 176 | 176 | 175 | 176 | 176 |
| 80% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 175 | 176 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 175 | 175 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 175 | 176 | 176 | 178 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 176 |
| Above Normal (16%) | 175 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 175 | 176 |
| Below Normal (13%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **0** | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | **0** | 0 | **0** |
| 20% | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | 0 | 0 |
| 30% | 0 | **0** | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** | 0 | **0** |
| 40% | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | **0** | 0 |
| 50% | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | 0 | **0** |
| 60% | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | **0** |
| 70% | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | 0 | **0** |
| 80% | **0** | **0** | **0** | 0 | **0** | 0 | 0 | **0** | 0 | **0** | 0 | **0** |
| 90% | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | **0** | **0** | 0 | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | **0** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | 0 | **0** |
| Above Normal (16%) | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** |
| Below Normal (13%) | 0 | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 |
| Critical (15%) | **0** | 0 | **0** | **0** | 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 1-2. Sacramento River downstream of Steamboat Slough Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 178 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 177 | 180 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 176 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| 70% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 176 | 176 | 175 | 176 | 175 |
| 80% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 175 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 175 | 175 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 175 | 176 | 176 | 178 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 175 |
| Above Normal (16%) | 175 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 175 | 175 |
| Below Normal (13%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 178 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 177 | 180 | 178 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 176 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 70% | 175 | 176 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 176 |
| 80% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 175 | 175 | 175 | 176 | 176 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 175 | 175 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 175 | 176 | 176 | 178 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 176 |
| Above Normal (16%) | 175 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Below Normal (13%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | **0** | 0 | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 |
| 30% | 0 | **0** | **0** | **0** | 0 | **0** | 0 | 0 | 0 | **0** | 0 | 0 |
| 40% | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | **0** | 0 |
| 50% | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | **0** | **0** |
| 60% | 0 | **0** | 0 | **0** | **0** | **0** | **0** | 0 | 0 | **0** | **0** | **0** |
| 70% | **0** | **0** | **0** | 0 | 0 | **0** | **0** | 0 | 0 | **0** | **0** | **0** |
| 80% | **0** | **0** | 0 | 0 | **0** | **0** | **0** | **0** | 0 | **0** | **0** | **0** |
| 90% | **0** | **0** | **0** | 0 | **0** | 0 | **0** | 0 | 0 | **0** | 0 | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | **0** | **0** |
| Above Normal (16%) | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** |
| Below Normal (13%) | 0 | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 |
| Dry (24%) | 0 | 0 | **0** | **0** | **0** | **0** | 0 | 0 | 0 | **0** | **0** | 0 |
| Critical (15%) | 0 | **0** | 0 | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 1-3. Sacramento River downstream of Steamboat Slough Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 178 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 177 | 180 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 176 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| 70% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 176 | 176 | 175 | 176 | 175 |
| 80% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 175 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 175 | 175 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 175 | 176 | 176 | 178 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 175 |
| Above Normal (16%) | 175 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 175 | 175 |
| Below Normal (13%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 178 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 177 | 180 | 178 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 70% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 176 |
| 80% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 175 | 175 | 175 | 176 | 176 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 175 | 175 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 175 | 176 | 176 | 178 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 176 |
| Above Normal (16%) | 175 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Below Normal (13%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | **0** | 0 | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 |
| 30% | 0 | **0** | **0** | **0** | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 |
| 40% | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | **0** | **0** | 0 |
| 50% | 0 | **0** | 0 | **0** | 0 | **0** | 0 | 0 | 0 | **0** | **0** | **0** |
| 60% | 0 | **0** | 0 | **0** | **0** | **0** | **0** | 0 | 0 | **0** | **0** | **0** |
| 70% | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | **0** | **0** | **0** |
| 80% | 0 | **0** | 0 | 0 | **0** | **0** | **0** | **0** | 0 | **0** | **0** | **0** |
| 90% | **0** | **0** | 0 | 0 | **0** | 0 | **0** | 0 | 0 | **0** | 0 | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| Above Normal (16%) | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** |
| Below Normal (13%) | 0 | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 |
| Dry (24%) | 0 | **0** | **0** | **0** | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 |
| Critical (15%) | 0 | 0 | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 1-4. Sacramento River downstream of Steamboat Slough Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 178 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 177 | 180 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 176 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| 70% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 176 | 176 | 175 | 176 | 175 |
| 80% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 175 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 175 | 175 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 175 | 176 | 176 | 178 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 175 |
| Above Normal (16%) | 175 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 175 | 175 |
| Below Normal (13%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

### Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 178 | 181 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 177 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 176 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 70% | 176 | 176 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 176 |
| 80% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 176 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 175 | 176 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 175 | 176 | 176 | 178 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 176 |
| Above Normal (16%) | 176 | 176 | 177 | 178 | 177 | 176 | 175 | 175 | 176 | 175 | 176 | 176 |
| Below Normal (13%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 177 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **0** | **0** | 0 | 0 | 0 | 0 | **0** | **0** | 0 | **0** | **0** | **0** |
| 20% | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| 30% | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | **0** |
| 40% | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| 50% | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| 60% | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| 70% | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| 80% | **0** | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| 90% | **0** | **0** | **0** | 0 | 0 | 0 | 0 | **0** | **0** | **0** | **0** | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| Above Normal (16%) | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| Below Normal (13%) | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| Dry (24%) | 0 | **0** | 0 | 0 | 0 | 0 | **0** | **0** | 0 | **0** | **0** | **0** |
| Critical (15%) | **0** | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 2-1. Cache Slough at Ryer Island Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 197 | 200 | 191 | 201 | 199 | 194 | 187 | 184 | 185 | 185 | 190 | 190 |
| 20% | 187 | 187 | 188 | 196 | 195 | 191 | 186 | 183 | 184 | 182 | 186 | 185 |
| 30% | 186 | 185 | 187 | 193 | 191 | 189 | 185 | 183 | 183 | 181 | 184 | 183 |
| 40% | 185 | 184 | 186 | 191 | 189 | 186 | 184 | 182 | 183 | 181 | 181 | 182 |
| 50% | 181 | 181 | 183 | 190 | 187 | 185 | 183 | 182 | 182 | 180 | 180 | 180 |
| 60% | 180 | 180 | 182 | 188 | 186 | 184 | 183 | 182 | 182 | 180 | 180 | 179 |
| 70% | 180 | 180 | 181 | 187 | 185 | 183 | 182 | 181 | 182 | 180 | 180 | 178 |
| 80% | 179 | 179 | 180 | 186 | 183 | 182 | 181 | 180 | 181 | 179 | 179 | 178 |
| 90% | 179 | 179 | 179 | 182 | 180 | 181 | 180 | 178 | 179 | 179 | 179 | 178 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 184 | 185 | 185 | 191 | 189 | 186 | 184 | 182 | 183 | 181 | 183 | 182 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 179 | 180 | 183 | 189 | 184 | 183 | 182 | 180 | 181 | 180 | 180 | 178 |
| Above Normal (16%) | 180 | 180 | 183 | 190 | 188 | 184 | 182 | 181 | 182 | 180 | 179 | 179 |
| Below Normal (13%) | 184 | 185 | 185 | 191 | 189 | 188 | 185 | 182 | 182 | 180 | 180 | 181 |
| Dry (24%) | 186 | 184 | 185 | 193 | 193 | 188 | 184 | 182 | 183 | 181 | 185 | 184 |
| Critical (15%) | 198 | 203 | 192 | 193 | 195 | 192 | 186 | 184 | 189 | 189 | 191 | 191 |

### Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 197 | 200 | 192 | 201 | 199 | 193 | 187 | 184 | 184 | 185 | 190 | 188 |
| 20% | 187 | 188 | 189 | 196 | 196 | 191 | 186 | 183 | 182 | 182 | 186 | 185 |
| 30% | 185 | 186 | 187 | 193 | 191 | 189 | 185 | 182 | 182 | 181 | 184 | 183 |
| 40% | 184 | 185 | 186 | 191 | 188 | 186 | 184 | 182 | 182 | 181 | 181 | 182 |
| 50% | 182 | 183 | 184 | 189 | 187 | 185 | 183 | 182 | 182 | 180 | 180 | 180 |
| 60% | 181 | 183 | 183 | 188 | 185 | 184 | 183 | 181 | 181 | 180 | 180 | 180 |
| 70% | 181 | 182 | 182 | 187 | 184 | 182 | 182 | 180 | 181 | 180 | 180 | 180 |
| 80% | 180 | 181 | 180 | 185 | 183 | 181 | 181 | 180 | 181 | 179 | 179 | 180 |
| 90% | 180 | 180 | 179 | 182 | 180 | 180 | 180 | 179 | 179 | 179 | 179 | 180 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 185 | 186 | 185 | 191 | 189 | 186 | 184 | 181 | 182 | 182 | 183 | 183 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 181 | 182 | 183 | 189 | 184 | 183 | 182 | 180 | 180 | 180 | 180 | 180 |
| Above Normal (16%) | 181 | 182 | 184 | 190 | 187 | 183 | 182 | 181 | 181 | 180 | 179 | 180 |
| Below Normal (13%) | 184 | 185 | 185 | 190 | 188 | 188 | 184 | 181 | 181 | 180 | 180 | 181 |
| Dry (24%) | 186 | 184 | 185 | 193 | 193 | 188 | 185 | 182 | 182 | 181 | 185 | 184 |
| Critical (15%) | 199 | 203 | 193 | 193 | 195 | 191 | 186 | 184 | 187 | 189 | 192 | 191 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **0** | **0** | **1** | **0** | 0 | 0 | 0 | **0** | -1 | **0** | **0** | -2 |
| 20% | **0** | **0** | **1** | **0** | **1** | **0** | 0 | 0 | -1 | **1** | **0** | **0** |
| 30% | 0 | **1** | 0 | **0** | 0 | 0 | **0** | 0 | -1 | **0** | **0** | 0 |
| 40% | 0 | **1** | 0 | 0 | -1 | 0 | **0** | 0 | -1 | **0** | 0 | 0 |
| 50% | **1** | **2** | **1** | -1 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **1** |
| 60% | **1** | **3** | **1** | 0 | 0 | **0** | **0** | 0 | -1 | 0 | 0 | **1** |
| 70% | **1** | **2** | **1** | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 0 | **2** |
| 80% | **1** | **1** | **0** | -1 | **0** | 0 | 0 | **0** | 0 | 0 | **0** | **2** |
| 90% | **1** | **1** | 0 | **0** | 0 | 0 | **0** | **0** | **0** | **0** | **0** | **2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | **1** | **0** | 0 | 0 | 0 | 0 | 0 | -1 | **0** | **0** | **1** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1** | **2** | **0** | -1 | 0 | 0 | **0** | 0 | 0 | **0** | **0** | **2** |
| Above Normal (16%) | **1** | **2** | **1** | 0 | -1 | 0 | **0** | 0 | 0 | 0 | 0 | **1** |
| Below Normal (13%) | 0 | **1** | **0** | 0 | -1 | -1 | 0 | 0 | -1 | 0 | 0 | 0 |
| Dry (24%) | 0 | **0** | 0 | **0** | 0 | 0 | **0** | 0 | -1 | **0** | 0 | **0** |
| Critical (15%) | **0** | **0** | **0** | **0** | **0** | 0 | 0 | 0 | -2 | **0** | **1** | **0** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 2-2. Cache Slough at Ryer Island Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 197 | 200 | 191 | 201 | 199 | 194 | 187 | 184 | 185 | 185 | 190 | 190 |
| 20% | 187 | 187 | 188 | 196 | 195 | 191 | 186 | 183 | 184 | 182 | 186 | 185 |
| 30% | 186 | 185 | 187 | 193 | 191 | 189 | 185 | 183 | 183 | 181 | 184 | 183 |
| 40% | 185 | 184 | 186 | 191 | 189 | 186 | 184 | 182 | 183 | 181 | 181 | 182 |
| 50% | 181 | 181 | 183 | 190 | 187 | 185 | 183 | 182 | 182 | 180 | 180 | 180 |
| 60% | 180 | 180 | 182 | 188 | 186 | 184 | 183 | 182 | 182 | 180 | 180 | 179 |
| 70% | 180 | 180 | 181 | 187 | 185 | 183 | 182 | 181 | 182 | 180 | 180 | 178 |
| 80% | 179 | 179 | 180 | 186 | 183 | 182 | 181 | 180 | 181 | 179 | 179 | 178 |
| 90% | 179 | 179 | 179 | 182 | 180 | 181 | 180 | 178 | 179 | 179 | 179 | 178 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 184 | 185 | 185 | 191 | 189 | 186 | 184 | 182 | 183 | 181 | 183 | 182 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 179 | 180 | 183 | 189 | 184 | 183 | 182 | 180 | 181 | 180 | 180 | 178 |
| Above Normal (16%) | 180 | 180 | 183 | 190 | 188 | 184 | 182 | 181 | 182 | 180 | 179 | 179 |
| Below Normal (13%) | 184 | 185 | 185 | 191 | 189 | 188 | 185 | 182 | 182 | 180 | 180 | 181 |
| Dry (24%) | 186 | 184 | 185 | 193 | 193 | 188 | 184 | 182 | 183 | 181 | 185 | 184 |
| Critical (15%) | 198 | 203 | 192 | 193 | 195 | 192 | 186 | 184 | 189 | 189 | 191 | 191 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 193 | 197 | 193 | 203 | 200 | 193 | 187 | 184 | 183 | 185 | 189 | 187 |
| 20% | 186 | 188 | 190 | 197 | 196 | 191 | 186 | 183 | 182 | 183 | 187 | 184 |
| 30% | 185 | 186 | 188 | 194 | 191 | 189 | 185 | 182 | 181 | 181 | 184 | 183 |
| 40% | 184 | 185 | 186 | 193 | 188 | 186 | 184 | 182 | 181 | 181 | 182 | 182 |
| 50% | 182 | 184 | 185 | 190 | 187 | 185 | 183 | 181 | 181 | 180 | 181 | 181 |
| 60% | 182 | 183 | 184 | 189 | 186 | 184 | 183 | 181 | 180 | 180 | 180 | 180 |
| 70% | 181 | 182 | 182 | 187 | 184 | 182 | 182 | 180 | 180 | 180 | 180 | 180 |
| 80% | 181 | 181 | 181 | 186 | 183 | 181 | 181 | 179 | 180 | 179 | 180 | 180 |
| 90% | 180 | 180 | 180 | 182 | 180 | 180 | 180 | 179 | 179 | 179 | 179 | 180 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 185 | 186 | 186 | 192 | 189 | 186 | 184 | 181 | 181 | 181 | 183 | 182 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 181 | 182 | 183 | 189 | 184 | 183 | 182 | 180 | 180 | 180 | 180 | 180 |
| Above Normal (16%) | 181 | 183 | 185 | 190 | 187 | 184 | 182 | 181 | 181 | 179 | 180 | 180 |
| Below Normal (13%) | 184 | 185 | 186 | 191 | 189 | 188 | 184 | 181 | 180 | 180 | 181 | 181 |
| Dry (24%) | 185 | 184 | 185 | 194 | 193 | 188 | 185 | 182 | 181 | 182 | 185 | 184 |
| Critical (15%) | 196 | 202 | 194 | 195 | 195 | 191 | 186 | 184 | 187 | 188 | 190 | 189 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -4 | -3 | **2** | **2** | **0** | 0 | 0 | **0** | -2 | 0 | -1 | -3 |
| 20% | -1 | **0** | **2** | **1** | **1** | **0** | **0** | -1 | -1 | **1** | **1** | -1 |
| 30% | -1 | **1** | **1** | **1** | **0** | 0 | **0** | -1 | -2 | **0** | 0 | 0 |
| 40% | -1 | **1** | 0 | **2** | -1 | 0 | 0 | -1 | -2 | 0 | **1** | 0 |
| 50% | **1** | **2** | **1** | **1** | 0 | 0 | 0 | 0 | -1 | 0 | **0** | **1** |
| 60% | **1** | **3** | **2** | **1** | 0 | **0** | **0** | -1 | -1 | 0 | **0** | **2** |
| 70% | **1** | **2** | **2** | **0** | -1 | 0 | **0** | 0 | -1 | 0 | **0** | **2** |
| 80% | **1** | **2** | **1** | 0 | 0 | 0 | 0 | 0 | -1 | 0 | **0** | **2** |
| 90% | **1** | **2** | **0** | 0 | 0 | 0 | **0** | **0** | **0** | **0** | **0** | **2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | **1** | **1** | **1** | 0 | 0 | 0 | 0 | -1 | 0 | **0** | **1** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1** | **2** | **1** | 0 | 0 | 0 | **0** | 0 | -1 | **0** | **0** | **2** |
| Above Normal (16%) | **1** | **4** | **2** | 0 | -1 | 0 | **0** | 0 | -1 | 0 | **0** | **1** |
| Below Normal (13%) | 0 | **1** | **1** | **1** | 0 | 0 | 0 | -1 | -2 | 0 | **1** | 0 |
| Dry (24%) | -1 | 0 | **0** | **1** | **0** | **0** | **0** | 0 | -1 | **0** | **0** | 0 |
| Critical (15%) | -2 | -1 | **2** | **2** | **0** | 0 | 0 | -1 | -2 | -1 | 0 | -1 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 2-3. Cache Slough at Ryer Island Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 197 | 200 | 191 | 201 | 199 | 194 | 187 | 184 | 185 | 185 | 190 | 190 |
| 20% | 187 | 187 | 188 | 196 | 195 | 191 | 186 | 183 | 184 | 182 | 186 | 185 |
| 30% | 186 | 185 | 187 | 193 | 191 | 189 | 185 | 183 | 183 | 181 | 184 | 183 |
| 40% | 185 | 184 | 186 | 191 | 189 | 186 | 184 | 182 | 183 | 181 | 181 | 182 |
| 50% | 181 | 181 | 183 | 190 | 187 | 185 | 183 | 182 | 182 | 180 | 180 | 180 |
| 60% | 180 | 180 | 182 | 188 | 186 | 184 | 183 | 182 | 182 | 180 | 180 | 179 |
| 70% | 180 | 180 | 181 | 187 | 185 | 183 | 182 | 181 | 182 | 180 | 180 | 178 |
| 80% | 179 | 179 | 180 | 186 | 183 | 182 | 181 | 180 | 181 | 179 | 179 | 178 |
| 90% | 179 | 179 | 179 | 182 | 180 | 181 | 180 | 178 | 179 | 179 | 179 | 178 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 184 | 185 | 185 | 191 | 189 | 186 | 184 | 182 | 183 | 181 | 183 | 182 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 179 | 180 | 183 | 189 | 184 | 183 | 182 | 180 | 181 | 180 | 180 | 178 |
| Above Normal (16%) | 180 | 180 | 183 | 190 | 188 | 184 | 182 | 181 | 182 | 180 | 179 | 179 |
| Below Normal (13%) | 184 | 185 | 185 | 191 | 189 | 188 | 185 | 182 | 182 | 180 | 180 | 181 |
| Dry (24%) | 186 | 184 | 185 | 193 | 193 | 188 | 184 | 182 | 183 | 181 | 185 | 184 |
| Critical (15%) | 198 | 203 | 192 | 193 | 195 | 192 | 186 | 184 | 189 | 189 | 191 | 191 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 191 | 196 | 198 | 203 | 200 | 194 | 188 | 186 | 185 | 187 | 190 | 188 |
| 20% | 186 | 189 | 192 | 197 | 197 | 192 | 187 | 184 | 183 | 183 | 187 | 184 |
| 30% | 184 | 186 | 189 | 195 | 192 | 190 | 186 | 183 | 182 | 182 | 183 | 183 |
| 40% | 183 | 185 | 187 | 193 | 189 | 187 | 185 | 183 | 182 | 181 | 182 | 182 |
| 50% | 182 | 184 | 186 | 191 | 188 | 186 | 184 | 182 | 181 | 180 | 181 | 181 |
| 60% | 181 | 183 | 184 | 189 | 186 | 184 | 183 | 182 | 181 | 180 | 180 | 181 |
| 70% | 181 | 182 | 183 | 187 | 185 | 183 | 182 | 181 | 180 | 180 | 180 | 180 |
| 80% | 181 | 182 | 181 | 185 | 183 | 182 | 181 | 180 | 180 | 179 | 180 | 180 |
| 90% | 180 | 180 | 180 | 182 | 181 | 180 | 180 | 179 | 180 | 179 | 180 | 180 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 184 | 187 | 187 | 192 | 189 | 187 | 184 | 182 | 182 | 182 | 183 | 183 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 181 | 183 | 184 | 189 | 184 | 183 | 182 | 180 | 180 | 180 | 180 | 181 |
| Above Normal (16%) | 181 | 183 | 185 | 190 | 187 | 184 | 182 | 181 | 181 | 180 | 180 | 180 |
| Below Normal (13%) | 183 | 186 | 187 | 191 | 189 | 189 | 185 | 182 | 181 | 180 | 181 | 181 |
| Dry (24%) | 184 | 185 | 187 | 195 | 194 | 189 | 186 | 183 | 182 | 182 | 185 | 184 |
| Critical (15%) | 194 | 202 | 197 | 196 | 196 | 192 | 188 | 186 | 189 | 190 | 191 | 189 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -6 | -4 | **7** | **1** | **1** | 0 | **1** | **2** | 0 | **2** | **0** | -2 |
| 20% | -1 | **1** | **4** | **1** | **1** | **1** | **1** | **1** | -1 | **1** | **1** | -1 |
| 30% | -2 | **1** | **2** | **2** | **1** | **1** | **1** | **1** | -1 | **1** | -1 | -1 |
| 40% | -1 | **1** | **1** | **2** | **0** | **1** | **0** | **1** | -1 | **0** | **1** | **0** |
| 50% | **1** | **3** | **2** | **1** | **0** | **1** | **1** | **1** | -1 | **0** | **0** | **1** |
| 60% | **1** | **3** | **2** | **1** | **0** | **1** | **1** | **0** | -1 | **0** | **0** | **2** |
| 70% | **1** | **3** | **2** | **0** | 0 | **0** | **0** | **0** | -1 | **0** | **0** | **2** |
| 80% | **2** | **2** | **1** | 0 | 0 | 0 | **0** | **0** | -1 | 0 | **0** | **2** |
| 90% | **1** | **2** | **0** | 0 | **0** | 0 | **0** | **0** | **1** | **0** | **0** | **2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | **2** | **2** | **1** | **0** | **0** | **1** | **1** | -1 | **0** | **0** | **1** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **2** | **3** | **1** | 0 | 0 | **0** | **0** | **0** | -1 | **0** | **0** | **3** |
| Above Normal (16%) | **1** | **4** | **2** | 0 | -1 | 0 | **0** | **0** | -1 | 0 | **0** | **2** |
| Below Normal (13%) | -1 | **1** | **2** | **1** | **0** | **0** | **1** | **0** | -2 | **0** | **1** | 0 |
| Dry (24%) | -1 | **1** | **2** | **2** | **1** | **1** | **1** | **1** | -1 | **1** | **0** | 0 |
| Critical (15%) | -4 | -1 | **5** | **3** | **1** | **1** | **2** | **2** | **0** | **1** | **0** | -2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 2-4. Cache Slough at Ryer Island Salinity, Monthly EC

### No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 197 | 200 | 191 | 201 | 199 | 194 | 187 | 184 | 185 | 185 | 190 | 190 |
| 20% | 187 | 187 | 188 | 196 | 195 | 191 | 186 | 183 | 184 | 182 | 186 | 185 |
| 30% | 186 | 185 | 187 | 193 | 191 | 189 | 185 | 183 | 183 | 181 | 184 | 183 |
| 40% | 185 | 184 | 186 | 191 | 189 | 186 | 184 | 182 | 183 | 181 | 181 | 182 |
| 50% | 181 | 181 | 183 | 190 | 187 | 185 | 183 | 182 | 182 | 180 | 180 | 180 |
| 60% | 180 | 180 | 182 | 188 | 186 | 184 | 183 | 182 | 182 | 180 | 180 | 179 |
| 70% | 180 | 180 | 181 | 187 | 185 | 183 | 182 | 181 | 182 | 180 | 180 | 178 |
| 80% | 179 | 179 | 180 | 186 | 183 | 182 | 181 | 180 | 181 | 179 | 179 | 178 |
| 90% | 179 | 179 | 179 | 182 | 180 | 181 | 180 | 178 | 179 | 179 | 179 | 178 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 184 | 185 | 185 | 191 | 189 | 186 | 184 | 182 | 183 | 181 | 183 | 182 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 179 | 180 | 183 | 189 | 184 | 183 | 182 | 180 | 181 | 180 | 180 | 178 |
| Above Normal (16%) | 180 | 180 | 183 | 190 | 188 | 184 | 182 | 181 | 182 | 180 | 179 | 179 |
| Below Normal (13%) | 184 | 185 | 185 | 191 | 189 | 188 | 185 | 182 | 182 | 180 | 180 | 181 |
| Dry (24%) | 186 | 184 | 185 | 193 | 193 | 188 | 184 | 182 | 183 | 181 | 185 | 184 |
| Critical (15%) | 198 | 203 | 192 | 193 | 195 | 192 | 186 | 184 | 189 | 189 | 191 | 191 |

### Alternative 4 043019

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 197 | 200 | 193 | 200 | 198 | 193 | 187 | 184 | 184 | 187 | 192 | 190 |
| 20% | 187 | 189 | 189 | 196 | 195 | 191 | 186 | 183 | 183 | 183 | 187 | 185 |
| 30% | 186 | 186 | 186 | 193 | 191 | 188 | 185 | 182 | 182 | 181 | 185 | 184 |
| 40% | 184 | 185 | 185 | 191 | 188 | 186 | 184 | 182 | 182 | 181 | 183 | 183 |
| 50% | 183 | 184 | 185 | 189 | 186 | 184 | 183 | 181 | 182 | 180 | 181 | 181 |
| 60% | 182 | 183 | 183 | 188 | 185 | 183 | 182 | 181 | 181 | 180 | 180 | 180 |
| 70% | 181 | 182 | 182 | 186 | 185 | 182 | 181 | 180 | 181 | 180 | 180 | 180 |
| 80% | 180 | 181 | 180 | 185 | 183 | 181 | 180 | 179 | 181 | 180 | 180 | 180 |
| 90% | 180 | 180 | 179 | 182 | 180 | 180 | 179 | 179 | 180 | 179 | 179 | 180 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 185 | 186 | 185 | 190 | 188 | 186 | 183 | 181 | 182 | 182 | 183 | 183 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 181 | 183 | 183 | 188 | 184 | 183 | 181 | 180 | 181 | 180 | 180 | 180 |
| Above Normal (16%) | 182 | 182 | 184 | 190 | 187 | 183 | 181 | 180 | 182 | 180 | 180 | 180 |
| Below Normal (13%) | 184 | 185 | 185 | 189 | 188 | 187 | 183 | 181 | 182 | 180 | 182 | 183 |
| Dry (24%) | 185 | 184 | 185 | 193 | 192 | 188 | 184 | 182 | 182 | 182 | 186 | 184 |
| Critical (15%) | 199 | 204 | 193 | 193 | 194 | 191 | 186 | 184 | 187 | 190 | 193 | 192 |

### Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **0** | **0** | **2** | -1 | -2 | -1 | 0 | **0** | -1 | **2** | **2** | **0** |
| 20% | 0 | **1** | **1** | 0 | 0 | 0 | 0 | 0 | -1 | **1** | **1** | **0** |
| 30% | **0** | **1** | -1 | 0 | **0** | -1 | 0 | 0 | -1 | **0** | **1** | **1** |
| 40% | 0 | **1** | -1 | -1 | -1 | 0 | -1 | 0 | -1 | 0 | **2** | **1** |
| 50% | **2** | **3** | **1** | -1 | -1 | 0 | 0 | 0 | 0 | 0 | **1** | **2** |
| 60% | **2** | **3** | **1** | 0 | 0 | 0 | -1 | -1 | 0 | **0** | **0** | **2** |
| 70% | **1** | **2** | **1** | -1 | 0 | 0 | -1 | -1 | 0 | **0** | **0** | **2** |
| 80% | **1** | **1** | **0** | -1 | 0 | -1 | -1 | 0 | 0 | **0** | **0** | **2** |
| 90% | **1** | **1** | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** | **0** | **2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **1** | **1** | **0** | -1 | -1 | 0 | 0 | 0 | -1 | **0** | **1** | **1** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1** | **2** | **1** | -1 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **2** |
| Above Normal (16%) | **2** | **3** | **1** | -1 | -1 | -1 | -1 | -1 | 0 | **0** | **0** | **1** |
| Below Normal (13%) | **0** | **0** | 0 | -1 | -1 | -1 | -1 | 0 | -1 | 0 | **2** | **1** |
| Dry (24%) | 0 | **0** | 0 | 0 | -1 | 0 | 0 | 0 | -1 | **0** | **1** | **0** |
| Critical (15%) | **0** | **0** | **1** | 0 | 0 | -1 | 0 | 0 | -2 | **1** | **2** | **1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 3-1. Sacramento River downstream of Georgiana Slough Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 179 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 178 | 180 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| 70% | 176 | 175 | 176 | 178 | 176 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| 80% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 175 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 176 | 175 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 175 | 176 | 176 | 178 | 177 | 176 | 176 | 175 | 176 | 175 | 176 | 175 |
| Above Normal (16%) | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| Below Normal (13%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

### Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 178 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 177 | 180 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 70% | 176 | 176 | 176 | 178 | 176 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 80% | 175 | 176 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 176 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 176 | 176 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 175 | 176 | 176 | 176 | 176 |
| Above Normal (16%) | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Below Normal (13%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 |
| 20% | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 |
| 30% | 0 | **0** | 0 | **0** | 0 | 0 | **0** | 0 | 0 | **0** | 0 | **0** |
| 40% | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | **0** | 0 |
| 50% | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | 0 | **0** |
| 60% | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | **0** |
| 70% | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | 0 | **0** |
| 80% | **0** | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | **0** | 0 | **0** |
| 90% | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | **0** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | 0 | **0** |
| Above Normal (16%) | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** |
| Below Normal (13%) | 0 | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | 0 | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 |
| Critical (15%) | **0** | 0 | **0** | **0** | 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 3-2. Sacramento River downstream of Georgiana Slough Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 179 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 178 | 180 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| 70% | 176 | 175 | 176 | 178 | 176 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| 80% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 175 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 176 | 175 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 175 | 176 | 176 | 178 | 177 | 176 | 176 | 175 | 176 | 175 | 176 | 175 |
| Above Normal (16%) | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| Below Normal (13%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 178 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 177 | 180 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 70% | 176 | 176 | 176 | 178 | 176 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 80% | 175 | 176 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 176 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 176 | 176 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 175 | 176 | 176 | 176 | 176 |
| Above Normal (16%) | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Below Normal (13%) | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | 0 | **0** | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 |
| 20% | 0 | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 |
| 30% | 0 | **0** | **0** | **0** | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 |
| 40% | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | **0** | 0 |
| 50% | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | **0** | **0** |
| 60% | 0 | **0** | 0 | **0** | **0** | 0 | **0** | 0 | 0 | **0** | **0** | **0** |
| 70% | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | **0** | **0** |
| 80% | **0** | **0** | 0 | 0 | 0 | **0** | 0 | **0** | 0 | **0** | **0** | **0** |
| 90% | **0** | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | **0** | **0** |
| Above Normal (16%) | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** |
| Below Normal (13%) | 0 | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 |
| Dry (24%) | 0 | 0 | **0** | **0** | **0** | **0** | 0 | 0 | 0 | **0** | **0** | 0 |
| Critical (15%) | 0 | **0** | 0 | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 3-3. Sacramento River downstream of Georgiana Slough Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 179 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 178 | 180 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| 70% | 176 | 175 | 176 | 178 | 176 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| 80% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 175 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 176 | 175 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 175 | 176 | 176 | 178 | 177 | 176 | 176 | 175 | 176 | 175 | 176 | 175 |
| Above Normal (16%) | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| Below Normal (13%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 178 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 177 | 180 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 70% | 176 | 176 | 176 | 178 | 176 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 80% | 175 | 176 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 176 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 176 | 176 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 175 | 176 | 176 | 176 | 176 |
| Above Normal (16%) | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Below Normal (13%) | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | **0** | 0 | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 |
| 20% | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 |
| 30% | 0 | **0** | **0** | **0** | **0** | 0 | **0** | 0 | 0 | **0** | 0 | 0 |
| 40% | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | **0** | **0** | 0 |
| 50% | 0 | **0** | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| 60% | 0 | 0 | 0 | **0** | **0** | 0 | **0** | 0 | 0 | **0** | **0** | **0** |
| 70% | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | **0** | **0** |
| 80% | 0 | **0** | 0 | 0 | 0 | **0** | **0** | **0** | 0 | **0** | 0 | **0** |
| 90% | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | 0 | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | **0** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | **0** |
| Above Normal (16%) | 0 | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** |
| Below Normal (13%) | 0 | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 |
| Dry (24%) | 0 | 0 | 0 | **0** | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 |
| Critical (15%) | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 3-4. Sacramento River downstream of Georgiana Slough Salinity, Monthly EC

No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 179 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 178 | 180 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| 70% | 176 | 175 | 176 | 178 | 176 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| 80% | 175 | 175 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 175 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 175 | 175 | 176 | 175 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 175 | 176 | 176 | 178 | 177 | 176 | 176 | 175 | 176 | 175 | 176 | 175 |
| Above Normal (16%) | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 175 |
| Below Normal (13%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 176 | 177 | 178 | 181 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 20% | 176 | 176 | 177 | 180 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |
| 30% | 176 | 176 | 177 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 40% | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 50% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| 60% | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| 70% | 176 | 176 | 176 | 178 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 176 |
| 80% | 176 | 176 | 176 | 177 | 176 | 176 | 175 | 175 | 176 | 175 | 176 | 176 |
| 90% | 175 | 175 | 175 | 177 | 176 | 175 | 175 | 175 | 176 | 175 | 176 | 176 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 176 | 176 | 176 | 178 | 177 | 176 | 175 | 175 | 176 | 176 | 176 | 176 |
| Above Normal (16%) | 176 | 176 | 177 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Below Normal (13%) | 176 | 176 | 176 | 178 | 177 | 176 | 176 | 176 | 176 | 175 | 176 | 176 |
| Dry (24%) | 176 | 176 | 176 | 179 | 177 | 176 | 176 | 176 | 176 | 176 | 176 | 176 |
| Critical (15%) | 176 | 176 | 178 | 179 | 178 | 177 | 176 | 176 | 176 | 176 | 176 | 176 |

Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **0** | **0** | 0 | 0 | 0 | 0 | **0** | **0** | 0 | **0** | **0** | **0** |
| 20% | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| 30% | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | **0** |
| 40% | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| 50% | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| 60% | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| 70% | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| 80% | **0** | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| 90% | **0** | **0** | **0** | 0 | 0 | 0 | 0 | **0** | **0** | **0** | **0** | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| Above Normal (16%) | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| Below Normal (13%) | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| Dry (24%) | 0 | **0** | 0 | 0 | 0 | 0 | **0** | **0** | 0 | **0** | **0** | **0** |
| Critical (15%) | **0** | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 4-1. Sacramento River at Emmaton Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,263 | 4,349 | 2,795 | 1,037 | 329 | 309 | 364 | 585 | 884 | 1,642 | 2,755 | 3,560 |
| 20% | 3,477 | 2,922 | 1,767 | 770 | 258 | 233 | 245 | 429 | 703 | 1,046 | 2,289 | 3,013 |
| 30% | 3,295 | 2,748 | 996 | 542 | 229 | 199 | 219 | 363 | 652 | 901 | 2,153 | 2,931 |
| 40% | 3,153 | 1,983 | 792 | 387 | 206 | 194 | 204 | 245 | 559 | 631 | 1,326 | 2,531 |
| 50% | 1,697 | 520 | 582 | 309 | 196 | 190 | 197 | 215 | 465 | 480 | 1,051 | 1,863 |
| 60% | 654 | 459 | 503 | 222 | 190 | 188 | 190 | 207 | 376 | 363 | 984 | 541 |
| 70% | 310 | 257 | 268 | 195 | 185 | 183 | 188 | 196 | 301 | 334 | 905 | 347 |
| 80% | 282 | 239 | 208 | 188 | 183 | 181 | 184 | 185 | 235 | 313 | 797 | 328 |
| 90% | 270 | 227 | 182 | 182 | 182 | 181 | 181 | 180 | 188 | 283 | 736 | 310 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,993 | 1,566 | 992 | 492 | 257 | 223 | 241 | 341 | 596 | 772 | 1,502 | 1,731 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 279 | 235 | 397 | 216 | 184 | 183 | 186 | 192 | 278 | 305 | 841 | 315 |
| Above Normal (16%) | 621 | 470 | 633 | 285 | 195 | 184 | 191 | 208 | 397 | 353 | 841 | 545 |
| Below Normal (13%) | 2,766 | 2,052 | 1,347 | 497 | 249 | 224 | 238 | 292 | 546 | 522 | 1,122 | 2,270 |
| Dry (24%) | 3,252 | 2,165 | 1,255 | 647 | 297 | 224 | 235 | 336 | 611 | 996 | 2,125 | 2,905 |
| Critical (15%) | 4,387 | 4,192 | 1,909 | 1,053 | 421 | 346 | 426 | 857 | 1,522 | 2,093 | 2,962 | 3,636 |

### Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,290 | 4,353 | 2,806 | 1,158 | 369 | 325 | 411 | 600 | 846 | 1,602 | 2,886 | 3,580 |
| 20% | 3,508 | 3,092 | 2,410 | 820 | 261 | 240 | 282 | 443 | 669 | 1,123 | 2,330 | 3,062 |
| 30% | 3,295 | 2,815 | 1,635 | 557 | 232 | 199 | 229 | 369 | 630 | 1,039 | 2,146 | 2,962 |
| 40% | 3,101 | 2,589 | 1,093 | 355 | 206 | 193 | 206 | 266 | 517 | 582 | 1,203 | 2,520 |
| 50% | 2,595 | 2,349 | 897 | 298 | 195 | 189 | 195 | 240 | 444 | 485 | 1,028 | 1,856 |
| 60% | 2,365 | 2,045 | 663 | 222 | 188 | 186 | 188 | 214 | 372 | 368 | 954 | 1,711 |
| 70% | 2,063 | 1,243 | 301 | 193 | 184 | 183 | 185 | 194 | 290 | 345 | 900 | 1,618 |
| 80% | 1,720 | 901 | 236 | 187 | 183 | 181 | 182 | 181 | 235 | 306 | 822 | 1,562 |
| 90% | 915 | 443 | 185 | 182 | 182 | 181 | 180 | 179 | 187 | 283 | 737 | 1,340 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,603 | 2,179 | 1,196 | 512 | 263 | 228 | 249 | 358 | 579 | 791 | 1,507 | 2,232 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 1,474 | 1,327 | 804 | 206 | 184 | 183 | 186 | 198 | 271 | 308 | 822 | 1,381 |
| Above Normal (16%) | 2,070 | 1,924 | 1,096 | 307 | 193 | 184 | 191 | 212 | 372 | 353 | 851 | 1,623 |
| Below Normal (13%) | 2,661 | 2,143 | 1,336 | 540 | 262 | 234 | 245 | 323 | 537 | 515 | 1,056 | 2,135 |
| Dry (24%) | 3,307 | 2,249 | 1,262 | 706 | 307 | 227 | 247 | 350 | 584 | 1,025 | 2,151 | 2,933 |
| Critical (15%) | 4,400 | 4,219 | 1,913 | 1,048 | 440 | 371 | 456 | 909 | 1,504 | 2,176 | 3,038 | 3,660 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **26** | **4** | **12** | **121** | **40** | **16** | **48** | **15** | -38 | -41 | **132** | **20** |
| 20% | **30** | **171** | **643** | **50** | **3** | **7** | **37** | **14** | -34 | **76** | **41** | **49** |
| 30% | **0** | **67** | **639** | **15** | **3** | -1 | **10** | **6** | -23 | **138** | -7 | **31** |
| 40% | -52 | **605** | **301** | -32 | **0** | -1 | **2** | **21** | -42 | -49 | -124 | -10 |
| 50% | **898** | **1,829** | **315** | -12 | -1 | -1 | -2 | **25** | -21 | **5** | -23 | -7 |
| 60% | **1,710** | **1,586** | **159** | -1 | -2 | -2 | -3 | **7** | -4 | **5** | -30 | **1,170** |
| 70% | **1,753** | **986** | **33** | -1 | 0 | 0 | -3 | -2 | -11 | **11** | -5 | **1,271** |
| 80% | **1,438** | **662** | **28** | -1 | 0 | 0 | -2 | -4 | **0** | -6 | **25** | **1,234** |
| 90% | **645** | **216** | **3** | 0 | **0** | 0 | -1 | -1 | -1 | 0 | **1** | **1,030** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **610** | **613** | **203** | **20** | **7** | **6** | **8** | **18** | -17 | **19** | **4** | **501** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1,195** | **1,092** | **407** | -9 | -1 | 0 | 0 | **6** | -7 | **3** | -19 | **1,065** |
| Above Normal (16%) | **1,449** | **1,454** | **463** | **22** | -2 | 0 | -1 | **4** | -25 | -1 | **9** | **1,078** |
| Below Normal (13%) | -105 | **91** | -11 | **43** | **14** | **10** | **7** | **31** | -8 | -7 | -66 | -134 |
| Dry (24%) | **55** | **84** | **7** | **59** | **10** | **3** | **12** | **14** | -28 | **29** | **26** | **28** |
| Critical (15%) | **13** | **27** | **4** | -5 | **19** | **25** | **30** | **52** | -17 | **82** | **76** | **23** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 4-2. Sacramento River at Emmaton Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,263 | 4,349 | 2,795 | 1,037 | 329 | 309 | 364 | 585 | 884 | 1,642 | 2,755 | 3,560 |
| 20% | 3,477 | 2,922 | 1,767 | 770 | 258 | 233 | 245 | 429 | 703 | 1,046 | 2,289 | 3,013 |
| 30% | 3,295 | 2,748 | 996 | 542 | 229 | 199 | 219 | 363 | 652 | 901 | 2,153 | 2,931 |
| 40% | 3,153 | 1,983 | 792 | 387 | 206 | 194 | 204 | 245 | 559 | 631 | 1,326 | 2,531 |
| 50% | 1,697 | 520 | 582 | 309 | 196 | 190 | 197 | 215 | 465 | 480 | 1,051 | 1,863 |
| 60% | 654 | 459 | 503 | 222 | 190 | 188 | 190 | 207 | 376 | 363 | 984 | 541 |
| 70% | 310 | 257 | 268 | 195 | 185 | 183 | 188 | 196 | 301 | 334 | 905 | 347 |
| 80% | 282 | 239 | 208 | 188 | 183 | 181 | 184 | 185 | 235 | 313 | 797 | 328 |
| 90% | 270 | 227 | 182 | 182 | 182 | 181 | 181 | 180 | 188 | 283 | 736 | 310 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,993 | 1,566 | 992 | 492 | 257 | 223 | 241 | 341 | 596 | 772 | 1,502 | 1,731 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 279 | 235 | 397 | 216 | 184 | 183 | 186 | 192 | 278 | 305 | 841 | 315 |
| Above Normal (16%) | 621 | 470 | 633 | 285 | 195 | 184 | 191 | 208 | 397 | 353 | 841 | 545 |
| Below Normal (13%) | 2,766 | 2,052 | 1,347 | 497 | 249 | 224 | 238 | 292 | 546 | 522 | 1,122 | 2,270 |
| Dry (24%) | 3,252 | 2,165 | 1,255 | 647 | 297 | 224 | 235 | 336 | 611 | 996 | 2,125 | 2,905 |
| Critical (15%) | 4,387 | 4,192 | 1,909 | 1,053 | 421 | 346 | 426 | 857 | 1,522 | 2,093 | 2,962 | 3,636 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,061 | 4,139 | 2,760 | 1,457 | 525 | 400 | 412 | 584 | 833 | 1,575 | 2,771 | 3,483 |
| 20% | 3,293 | 2,900 | 2,482 | 1,266 | 334 | 254 | 286 | 413 | 586 | 1,173 | 2,287 | 2,970 |
| 30% | 3,042 | 2,656 | 2,137 | 866 | 265 | 204 | 241 | 347 | 464 | 930 | 2,112 | 2,822 |
| 40% | 2,760 | 2,546 | 1,783 | 519 | 219 | 199 | 212 | 284 | 359 | 612 | 1,599 | 2,522 |
| 50% | 2,602 | 2,310 | 1,286 | 416 | 199 | 190 | 196 | 238 | 309 | 489 | 1,125 | 1,919 |
| 60% | 2,375 | 2,055 | 740 | 260 | 189 | 188 | 188 | 221 | 281 | 387 | 1,009 | 1,776 |
| 70% | 2,140 | 1,935 | 387 | 202 | 185 | 183 | 184 | 195 | 263 | 344 | 948 | 1,680 |
| 80% | 1,896 | 1,518 | 270 | 188 | 183 | 181 | 181 | 180 | 240 | 312 | 888 | 1,621 |
| 90% | 1,625 | 505 | 191 | 182 | 182 | 181 | 180 | 178 | 187 | 281 | 797 | 1,450 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,600 | 2,278 | 1,418 | 676 | 288 | 235 | 251 | 351 | 501 | 776 | 1,542 | 2,229 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 1,765 | 1,636 | 1,011 | 243 | 184 | 183 | 186 | 198 | 242 | 319 | 867 | 1,465 |
| Above Normal (16%) | 2,243 | 2,342 | 1,376 | 374 | 201 | 184 | 192 | 221 | 276 | 344 | 911 | 1,707 |
| Below Normal (13%) | 2,619 | 2,222 | 1,468 | 873 | 323 | 236 | 250 | 301 | 320 | 529 | 1,259 | 2,133 |
| Dry (24%) | 3,001 | 2,025 | 1,327 | 923 | 327 | 238 | 252 | 329 | 520 | 1,034 | 2,154 | 2,824 |
| Critical (15%) | 4,106 | 4,073 | 2,451 | 1,350 | 513 | 397 | 458 | 905 | 1,438 | 2,032 | 2,926 | 3,549 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -202 | -209 | -35 | **420** | **196** | **92** | **49** | -1 | -51 | -68 | **17** | -77 |
| 20% | -184 | -22 | **715** | **495** | **76** | **21** | **41** | -15 | -116 | **127** | -3 | -43 |
| 30% | -254 | -92 | **1,141** | **324** | **36** | **5** | **22** | -15 | -188 | **29** | -41 | -109 |
| 40% | -394 | **563** | **991** | **133** | **13** | **5** | **8** | **39** | -199 | -19 | **272** | -9 |
| 50% | **906** | **1,791** | **704** | **107** | **4** | **0** | -1 | **22** | -156 | **9** | **74** | **56** |
| 60% | **1,721** | **1,596** | **236** | **38** | -1 | 0 | -2 | **14** | -95 | **24** | **24** | **1,234** |
| 70% | **1,830** | **1,678** | **120** | **7** | **0** | 0 | -3 | -1 | -38 | **10** | **43** | **1,333** |
| 80% | **1,614** | **1,279** | **62** | **0** | 0 | 0 | -3 | -4 | **5** | -1 | **91** | **1,293** |
| 90% | **1,355** | **278** | **9** | **0** | **0** | 0 | -1 | -1 | -1 | -2 | **61** | **1,140** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **607** | **712** | **426** | **184** | **32** | **12** | **10** | **10** | -96 | **4** | **39** | **498** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1,486** | **1,401** | **614** | **27** | 0 | 0 | 0 | **5** | -36 | **14** | **26** | **1,150** |
| Above Normal (16%) | **1,623** | **1,872** | **744** | **90** | **7** | **0** | **0** | **12** | -121 | -10 | **70** | **1,162** |
| Below Normal (13%) | -146 | **170** | **121** | **376** | **75** | **12** | **12** | **9** | -226 | **7** | **137** | -137 |
| Dry (24%) | -251 | -140 | **73** | **276** | **30** | **14** | **16** | -7 | -92 | **38** | **29** | -81 |
| Critical (15%) | -281 | -119 | **542** | **297** | **92** | **51** | **32** | **48** | -83 | -62 | -36 | -88 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 4-3. Sacramento River at Emmaton Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,263 | 4,349 | 2,795 | 1,037 | 329 | 309 | 364 | 585 | 884 | 1,642 | 2,755 | 3,560 |
| 20% | 3,477 | 2,922 | 1,767 | 770 | 258 | 233 | 245 | 429 | 703 | 1,046 | 2,289 | 3,013 |
| 30% | 3,295 | 2,748 | 996 | 542 | 229 | 199 | 219 | 363 | 652 | 901 | 2,153 | 2,931 |
| 40% | 3,153 | 1,983 | 792 | 387 | 206 | 194 | 204 | 245 | 559 | 631 | 1,326 | 2,531 |
| 50% | 1,697 | 520 | 582 | 309 | 196 | 190 | 197 | 215 | 465 | 480 | 1,051 | 1,863 |
| 60% | 654 | 459 | 503 | 222 | 190 | 188 | 190 | 207 | 376 | 363 | 984 | 541 |
| 70% | 310 | 257 | 268 | 195 | 185 | 183 | 188 | 196 | 301 | 334 | 905 | 347 |
| 80% | 282 | 239 | 208 | 188 | 183 | 181 | 184 | 185 | 235 | 313 | 797 | 328 |
| 90% | 270 | 227 | 182 | 182 | 182 | 181 | 181 | 180 | 188 | 283 | 736 | 310 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,993 | 1,566 | 992 | 492 | 257 | 223 | 241 | 341 | 596 | 772 | 1,502 | 1,731 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 279 | 235 | 397 | 216 | 184 | 183 | 186 | 192 | 278 | 305 | 841 | 315 |
| Above Normal (16%) | 621 | 470 | 633 | 285 | 195 | 184 | 191 | 208 | 397 | 353 | 841 | 545 |
| Below Normal (13%) | 2,766 | 2,052 | 1,347 | 497 | 249 | 224 | 238 | 292 | 546 | 522 | 1,122 | 2,270 |
| Dry (24%) | 3,252 | 2,165 | 1,255 | 647 | 297 | 224 | 235 | 336 | 611 | 996 | 2,125 | 2,905 |
| Critical (15%) | 4,387 | 4,192 | 1,909 | 1,053 | 421 | 346 | 426 | 857 | 1,522 | 2,093 | 2,962 | 3,636 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 3,241 | 3,235 | 2,628 | 1,375 | 486 | 361 | 381 | 598 | 831 | 1,569 | 2,669 | 3,228 |
| 20% | 2,815 | 2,482 | 2,275 | 1,136 | 310 | 252 | 282 | 420 | 576 | 1,111 | 2,077 | 2,669 |
| 30% | 2,429 | 2,368 | 1,756 | 795 | 259 | 203 | 237 | 355 | 445 | 888 | 1,889 | 2,471 |
| 40% | 2,236 | 2,000 | 1,484 | 518 | 215 | 196 | 209 | 294 | 371 | 557 | 1,400 | 2,250 |
| 50% | 1,998 | 1,935 | 1,203 | 367 | 196 | 190 | 195 | 251 | 328 | 446 | 1,011 | 1,796 |
| 60% | 1,816 | 1,801 | 662 | 243 | 188 | 188 | 189 | 218 | 300 | 362 | 904 | 1,581 |
| 70% | 1,567 | 1,660 | 378 | 197 | 184 | 183 | 185 | 195 | 276 | 323 | 853 | 1,435 |
| 80% | 1,455 | 1,107 | 259 | 187 | 183 | 181 | 181 | 181 | 236 | 298 | 818 | 1,356 |
| 90% | 1,175 | 490 | 189 | 181 | 181 | 180 | 180 | 179 | 187 | 277 | 710 | 1,112 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,104 | 1,936 | 1,280 | 623 | 281 | 232 | 248 | 353 | 506 | 752 | 1,408 | 1,982 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 1,432 | 1,402 | 857 | 235 | 184 | 183 | 184 | 210 | 247 | 304 | 796 | 1,282 |
| Above Normal (16%) | 1,784 | 1,917 | 1,201 | 334 | 196 | 184 | 191 | 221 | 295 | 320 | 783 | 1,389 |
| Below Normal (13%) | 2,088 | 1,860 | 1,348 | 823 | 303 | 230 | 243 | 299 | 328 | 490 | 1,127 | 1,915 |
| Dry (24%) | 2,347 | 1,776 | 1,251 | 856 | 318 | 233 | 248 | 321 | 502 | 990 | 1,956 | 2,538 |
| Critical (15%) | 3,518 | 3,448 | 2,266 | 1,207 | 504 | 390 | 452 | 906 | 1,469 | 2,035 | 2,754 | 3,272 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -1,022 | -1,114 | -167 | **338** | **157** | **52** | **18** | **13** | -53 | -73 | -86 | -332 |
| 20% | -663 | -439 | **508** | **366** | **52** | **19** | **37** | -8 | -126 | **64** | -213 | -344 |
| 30% | -867 | -380 | **760** | **253** | **30** | **3** | **19** | -7 | -207 | -13 | -264 | -460 |
| 40% | -918 | **17** | **692** | **132** | **10** | **2** | **4** | **49** | -188 | -74 | **74** | -281 |
| 50% | **301** | **1,416** | **621** | **58** | **0** | 0 | -2 | **35** | -137 | -34 | -40 | -67 |
| 60% | **1,162** | **1,342** | **159** | **21** | -2 | 0 | -2 | **11** | -76 | -2 | -80 | **1,040** |
| 70% | **1,257** | **1,403** | **110** | **2** | -1 | 0 | -3 | -2 | -25 | -11 | -52 | **1,088** |
| 80% | **1,173** | **868** | **51** | -1 | -1 | 0 | -3 | -4 | **1** | -15 | **21** | **1,028** |
| 90% | **904** | **263** | **7** | 0 | 0 | 0 | -1 | -1 | -1 | -6 | -26 | **802** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **111** | **370** | **287** | **131** | **24** | **9** | **7** | **12** | -90 | -20 | -94 | **250** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1,153** | **1,166** | **460** | **19** | -1 | 0 | -2 | **18** | -31 | -1 | -44 | **967** |
| Above Normal (16%) | **1,164** | **1,447** | **568** | **49** | **1** | 0 | **0** | **12** | -102 | -33 | -58 | **844** |
| Below Normal (13%) | -677 | -192 | **1** | **326** | **54** | **6** | **5** | **7** | -218 | -32 | **5** | -354 |
| Dry (24%) | -905 | -390 | -4 | **209** | **21** | **9** | **12** | -16 | -110 | -6 | -169 | -367 |
| Critical (15%) | -869 | -744 | **357** | **155** | **83** | **44** | **26** | **49** | -53 | -59 | -209 | -364 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 4-4. Sacramento River at Emmaton Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,263 | 4,349 | 2,795 | 1,037 | 329 | 309 | 364 | 585 | 884 | 1,642 | 2,755 | 3,560 |
| 20% | 3,477 | 2,922 | 1,767 | 770 | 258 | 233 | 245 | 429 | 703 | 1,046 | 2,289 | 3,013 |
| 30% | 3,295 | 2,748 | 996 | 542 | 229 | 199 | 219 | 363 | 652 | 901 | 2,153 | 2,931 |
| 40% | 3,153 | 1,983 | 792 | 387 | 206 | 194 | 204 | 245 | 559 | 631 | 1,326 | 2,531 |
| 50% | 1,697 | 520 | 582 | 309 | 196 | 190 | 197 | 215 | 465 | 480 | 1,051 | 1,863 |
| 60% | 654 | 459 | 503 | 222 | 190 | 188 | 190 | 207 | 376 | 363 | 984 | 541 |
| 70% | 310 | 257 | 268 | 195 | 185 | 183 | 188 | 196 | 301 | 334 | 905 | 347 |
| 80% | 282 | 239 | 208 | 188 | 183 | 181 | 184 | 185 | 235 | 313 | 797 | 328 |
| 90% | 270 | 227 | 182 | 182 | 182 | 181 | 181 | 180 | 188 | 283 | 736 | 310 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,993 | 1,566 | 992 | 492 | 257 | 223 | 241 | 341 | 596 | 772 | 1,502 | 1,731 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 279 | 235 | 397 | 216 | 184 | 183 | 186 | 192 | 278 | 305 | 841 | 315 |
| Above Normal (16%) | 621 | 470 | 633 | 285 | 195 | 184 | 191 | 208 | 397 | 353 | 841 | 545 |
| Below Normal (13%) | 2,766 | 2,052 | 1,347 | 497 | 249 | 224 | 238 | 292 | 546 | 522 | 1,122 | 2,270 |
| Dry (24%) | 3,252 | 2,165 | 1,255 | 647 | 297 | 224 | 235 | 336 | 611 | 996 | 2,125 | 2,905 |
| Critical (15%) | 4,387 | 4,192 | 1,909 | 1,053 | 421 | 346 | 426 | 857 | 1,522 | 2,093 | 2,962 | 3,636 |

### Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 4,232 | 4,332 | 2,798 | 1,139 | 331 | 263 | 344 | 592 | 838 | 1,645 | 2,956 | 3,573 |
| 20% | 3,492 | 3,012 | 2,448 | 783 | 245 | 216 | 247 | 446 | 691 | 1,202 | 2,383 | 3,070 |
| 30% | 3,236 | 2,790 | 1,667 | 507 | 221 | 198 | 221 | 312 | 598 | 988 | 2,260 | 3,018 |
| 40% | 3,185 | 2,603 | 1,197 | 337 | 203 | 194 | 201 | 239 | 552 | 650 | 1,624 | 2,813 |
| 50% | 2,915 | 2,466 | 903 | 294 | 193 | 190 | 196 | 208 | 474 | 514 | 1,227 | 2,248 |
| 60% | 2,471 | 2,182 | 658 | 216 | 188 | 188 | 189 | 198 | 361 | 375 | 997 | 1,825 |
| 70% | 2,189 | 1,407 | 283 | 192 | 184 | 184 | 186 | 190 | 281 | 357 | 916 | 1,713 |
| 80% | 1,790 | 788 | 214 | 187 | 183 | 182 | 184 | 184 | 221 | 328 | 835 | 1,621 |
| 90% | 1,247 | 486 | 185 | 182 | 182 | 181 | 181 | 179 | 187 | 294 | 760 | 1,485 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,720 | 2,231 | 1,214 | 493 | 256 | 218 | 235 | 335 | 568 | 815 | 1,581 | 2,358 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 1,641 | 1,518 | 883 | 205 | 184 | 184 | 185 | 188 | 269 | 317 | 845 | 1,481 |
| Above Normal (16%) | 2,277 | 1,999 | 1,083 | 303 | 192 | 185 | 190 | 197 | 392 | 365 | 858 | 1,676 |
| Below Normal (13%) | 2,851 | 2,019 | 1,347 | 489 | 251 | 211 | 225 | 279 | 517 | 556 | 1,350 | 2,531 |
| Dry (24%) | 3,339 | 2,226 | 1,246 | 687 | 294 | 209 | 234 | 346 | 581 | 1,067 | 2,250 | 3,052 |
| Critical (15%) | 4,389 | 4,228 | 1,898 | 1,006 | 421 | 346 | 401 | 837 | 1,431 | 2,196 | 3,052 | 3,679 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -31 | -17 | **3** | **103** | **2** | -45 | -20 | **7** | -46 | **3** | **202** | **13** |
| 20% | **14** | **91** | **681** | **12** | -13 | -17 | **2** | **17** | -12 | **156** | **93** | **57** |
| 30% | -59 | **42** | **671** | -35 | -8 | -2 | **3** | -51 | -54 | **87** | **107** | **86** |
| 40% | **32** | **619** | **405** | -49 | -3 | **0** | -3 | -7 | -7 | **19** | **298** | **282** |
| 50% | **1,218** | **1,946** | **321** | -15 | -3 | **0** | -2 | -7 | **9** | **34** | **175** | **385** |
| 60% | **1,816** | **1,724** | **155** | -7 | -2 | 0 | -1 | -9 | -15 | **12** | **13** | **1,284** |
| 70% | **1,879** | **1,150** | **15** | -3 | 0 | **1** | -2 | -6 | -20 | **24** | **11** | **1,366** |
| 80% | **1,508** | **550** | **6** | -1 | 0 | **1** | **0** | -1 | -14 | **15** | **38** | **1,293** |
| 90% | **977** | **258** | **3** | 0 | **0** | **0** | **0** | 0 | -1 | **11** | **24** | **1,175** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **727** | **665** | **222** | **1** | -1 | -5 | -6 | -5 | -28 | **43** | **78** | **626** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1,362** | **1,283** | **486** | -11 | -1 | **1** | -1 | -4 | -10 | **12** | **5** | **1,166** |
| Above Normal (16%) | **1,656** | **1,529** | **450** | **18** | -3 | **1** | -1 | -11 | -5 | **12** | **17** | **1,131** |
| Below Normal (13%) | **85** | -33 | **0** | -8 | **2** | -13 | -13 | -13 | -28 | **34** | **227** | **261** |
| Dry (24%) | **87** | **61** | -8 | **40** | -3 | -15 | -2 | **9** | -31 | **71** | **125** | **148** |
| Critical (15%) | **2** | **36** | -11 | -46 | **0** | 0 | -25 | -20 | -91 | **103** | **90** | **43** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

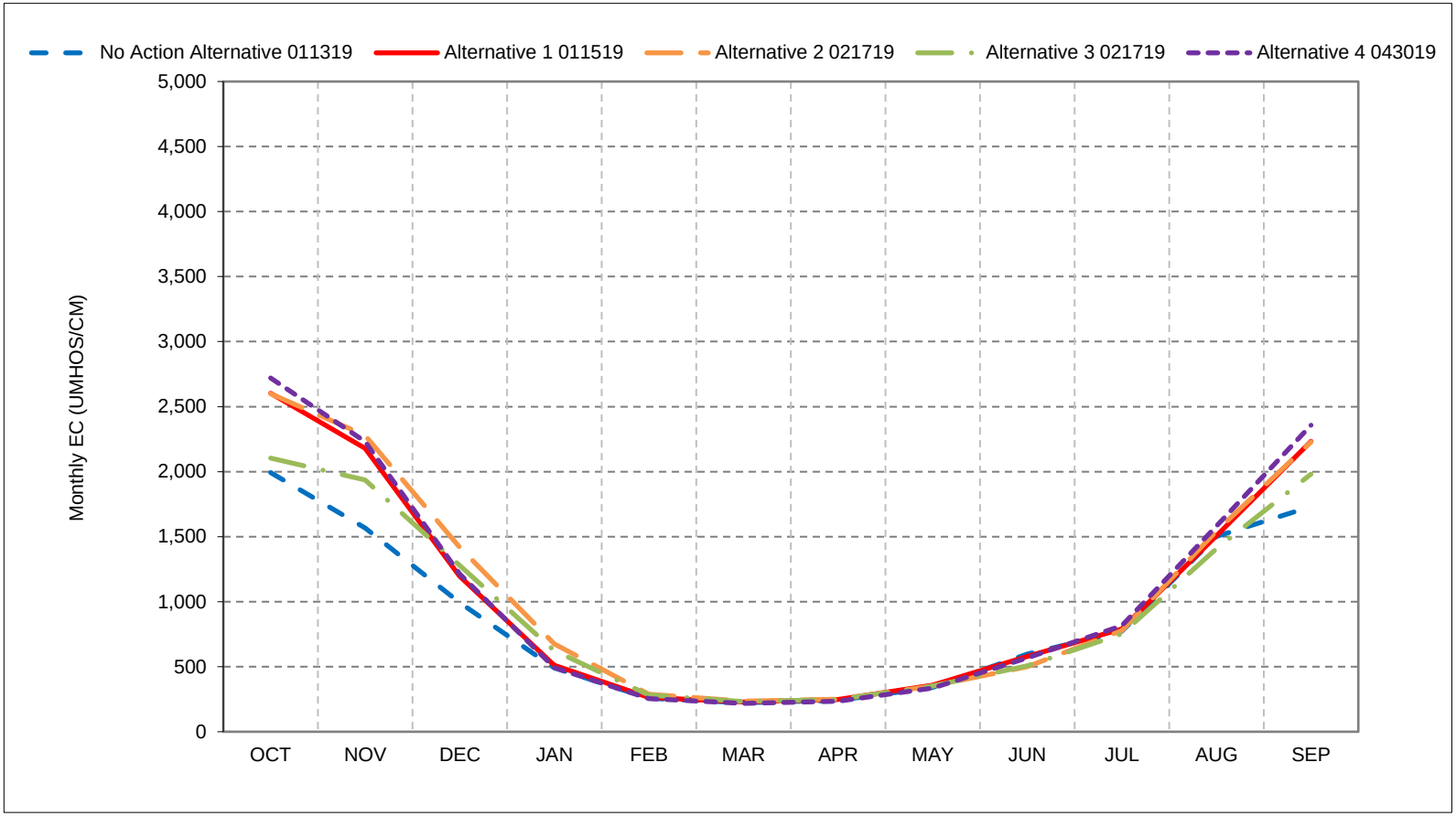
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

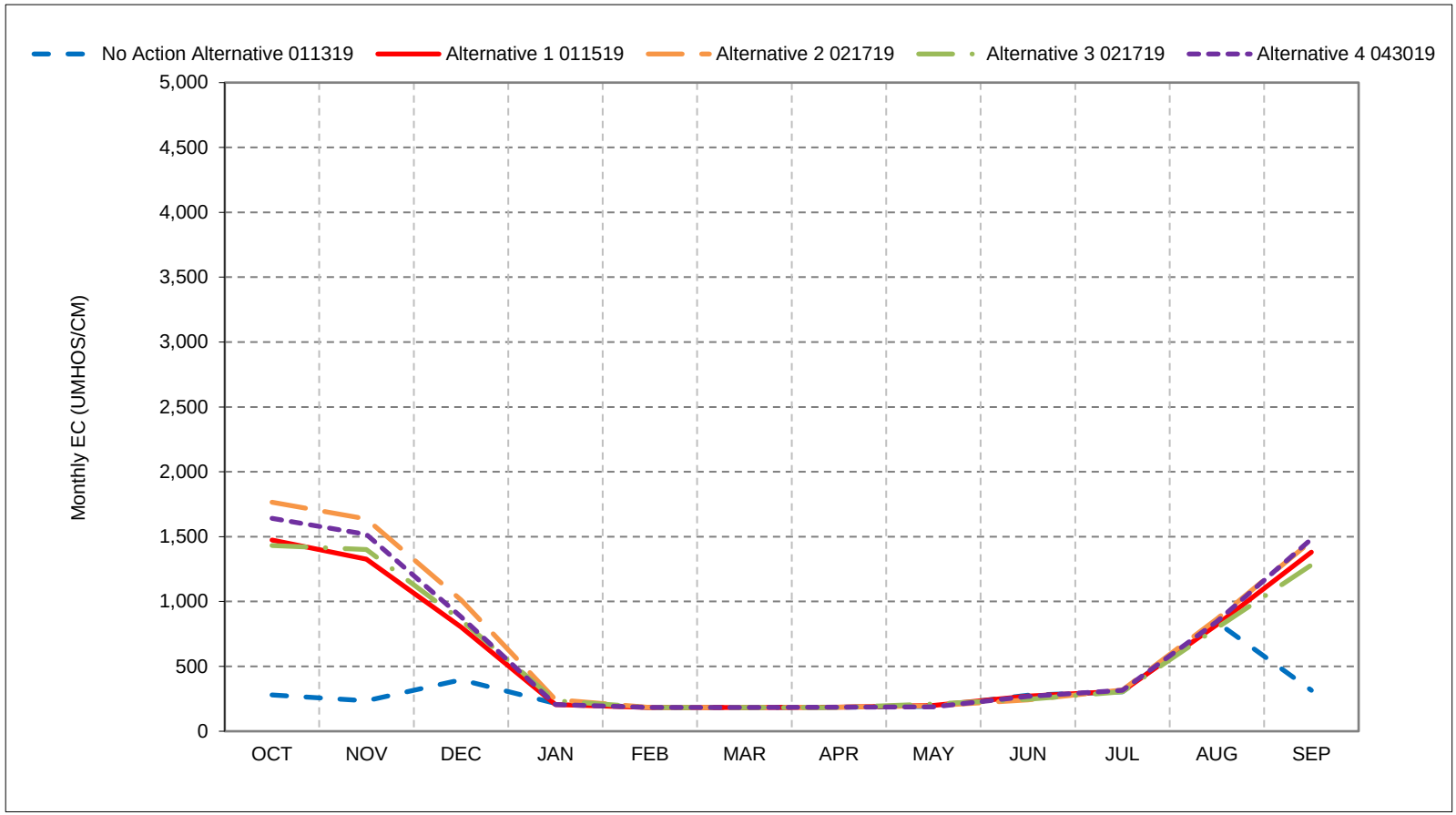
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-1. Sacramento River at Emmaton Salinity, Long-Term Average EC



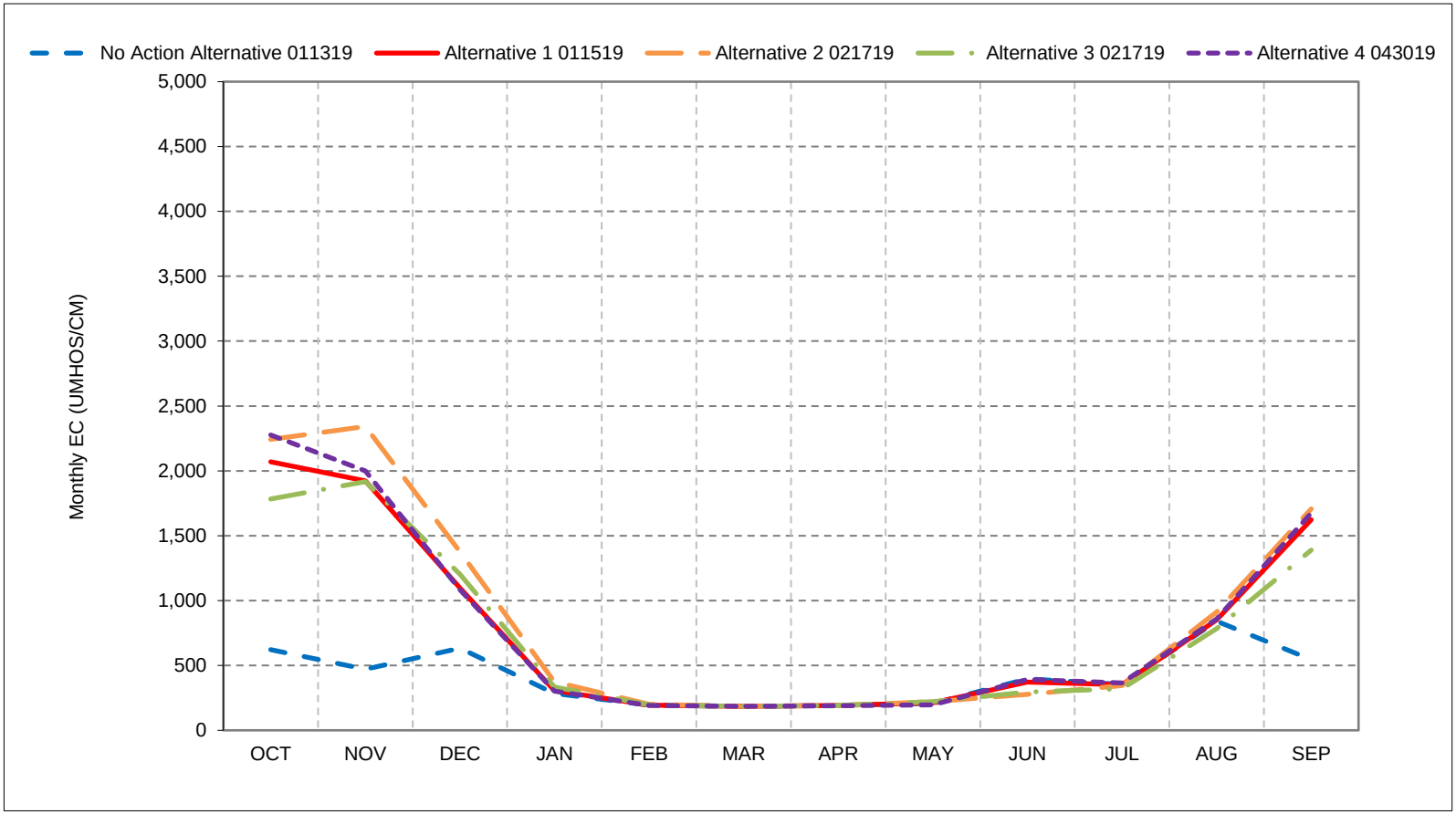

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-2. Sacramento River at Emmaton Salinity, Wet Year Average EC



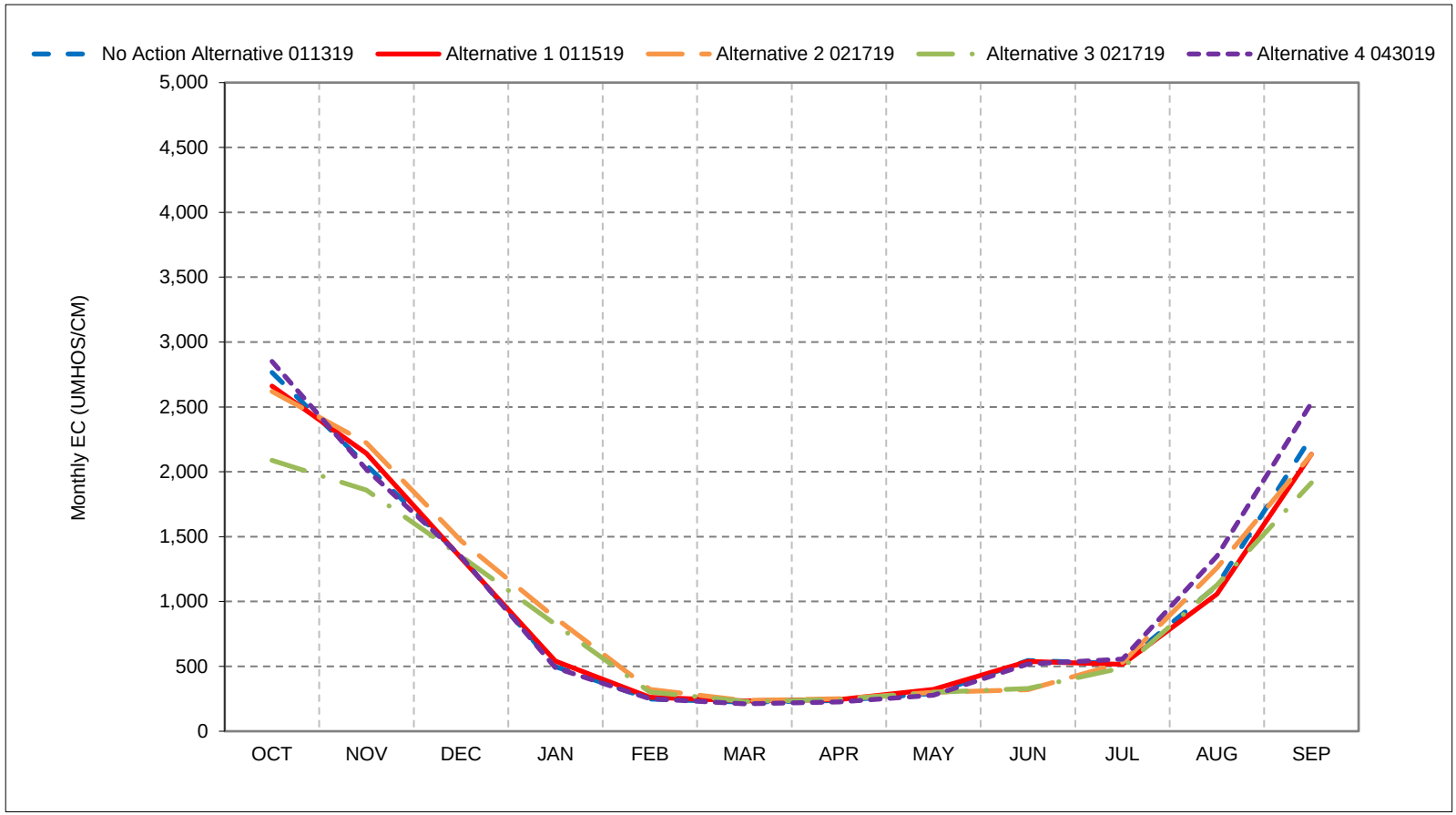

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-3. Sacramento River at Emmaton Salinity, Above Normal Year Average EC



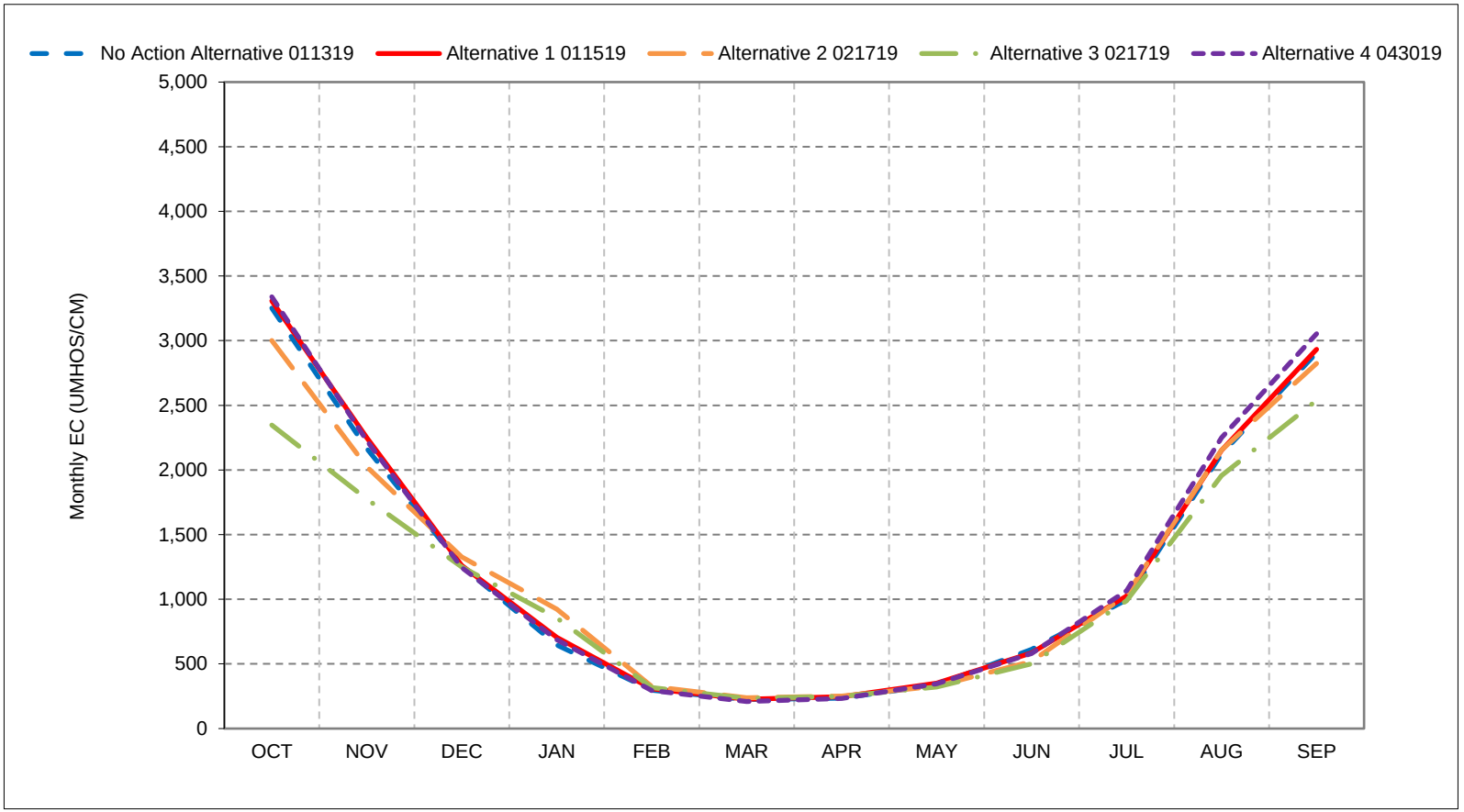

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-4. Sacramento River at Emmaton Salinity, Below Normal Year Average EC



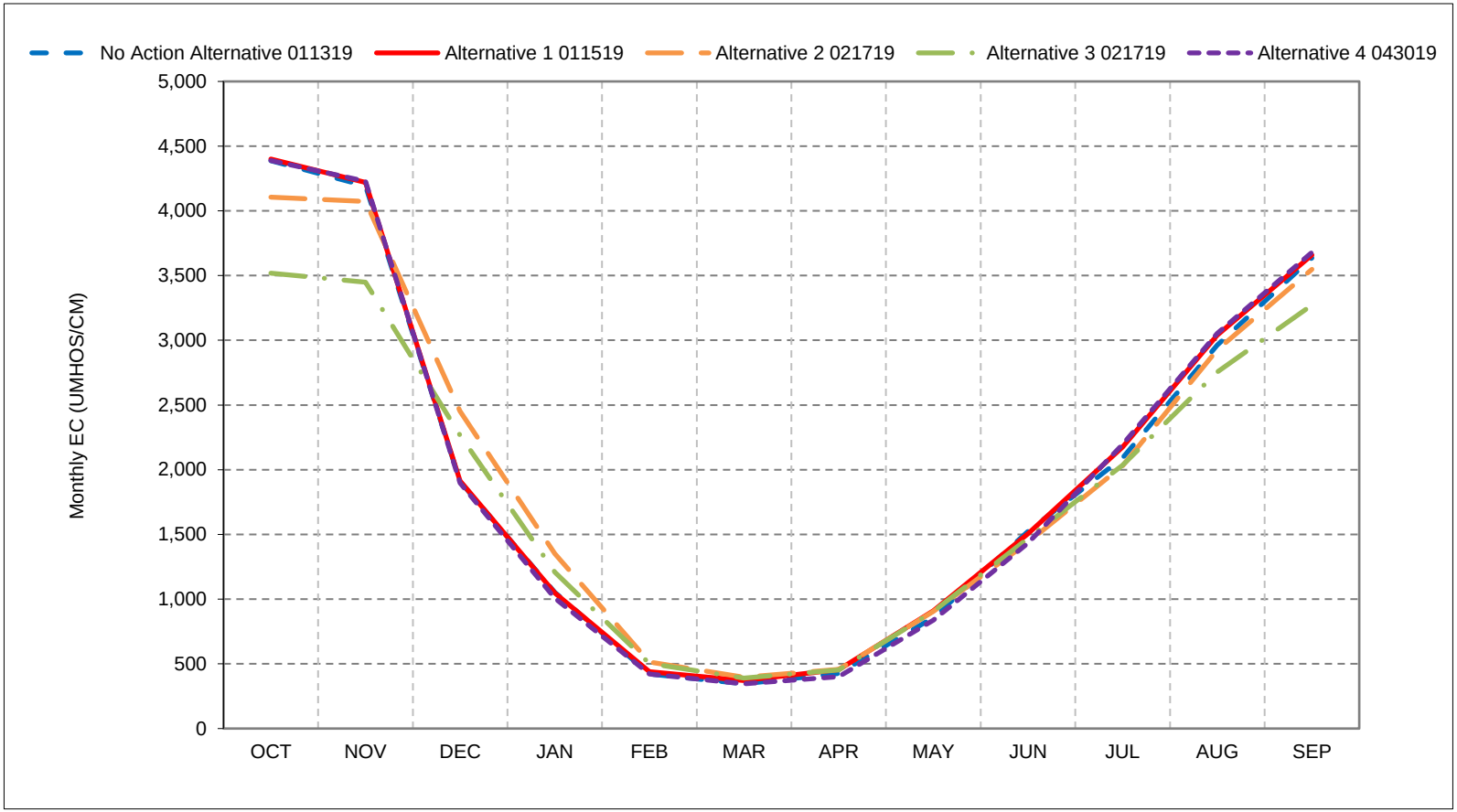

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-5. Sacramento River at Emmaton Salinity, Dry Year Average EC



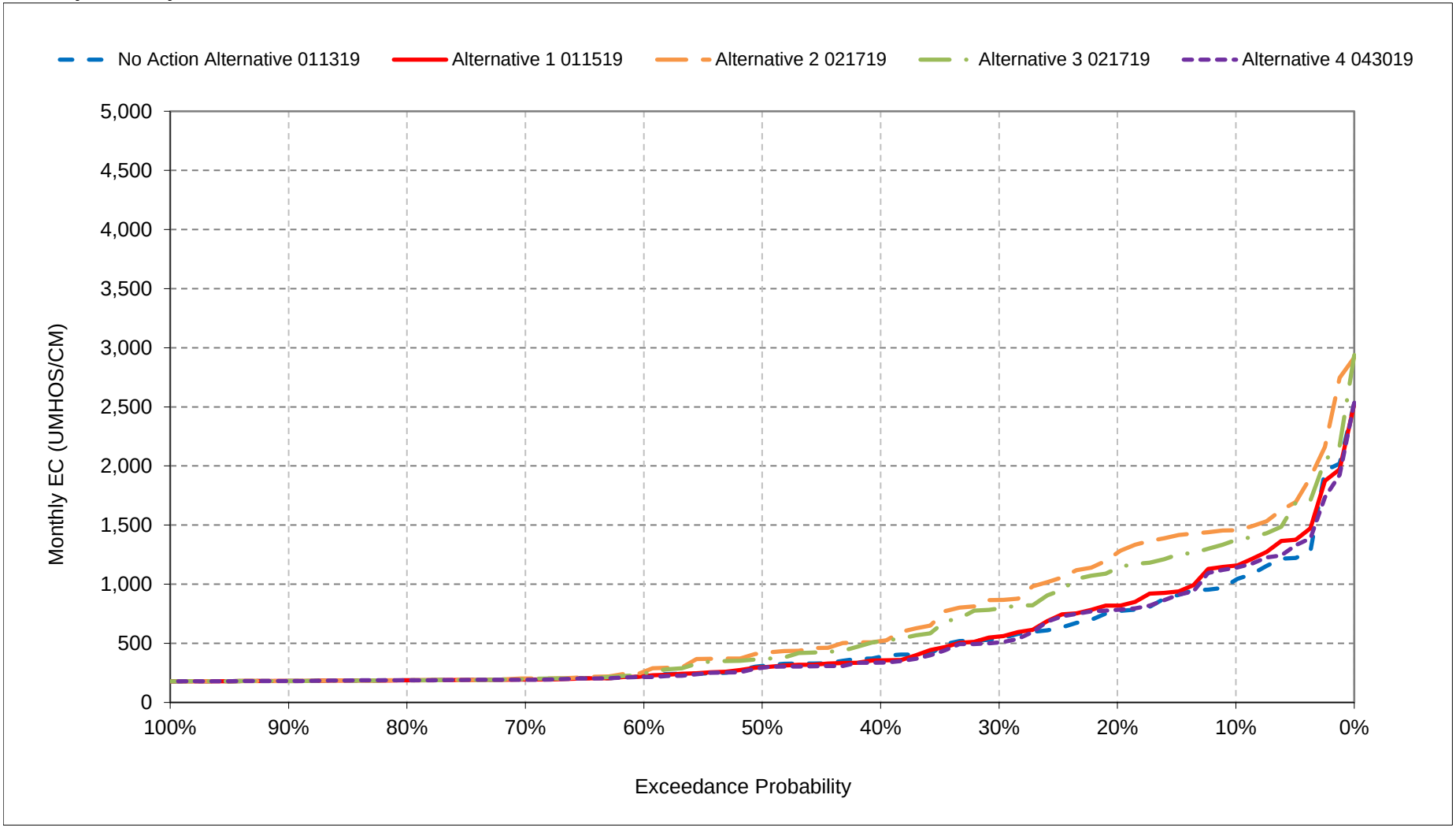

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 4-6. Sacramento River at Emmaton Salinity, Critical Year Average EC



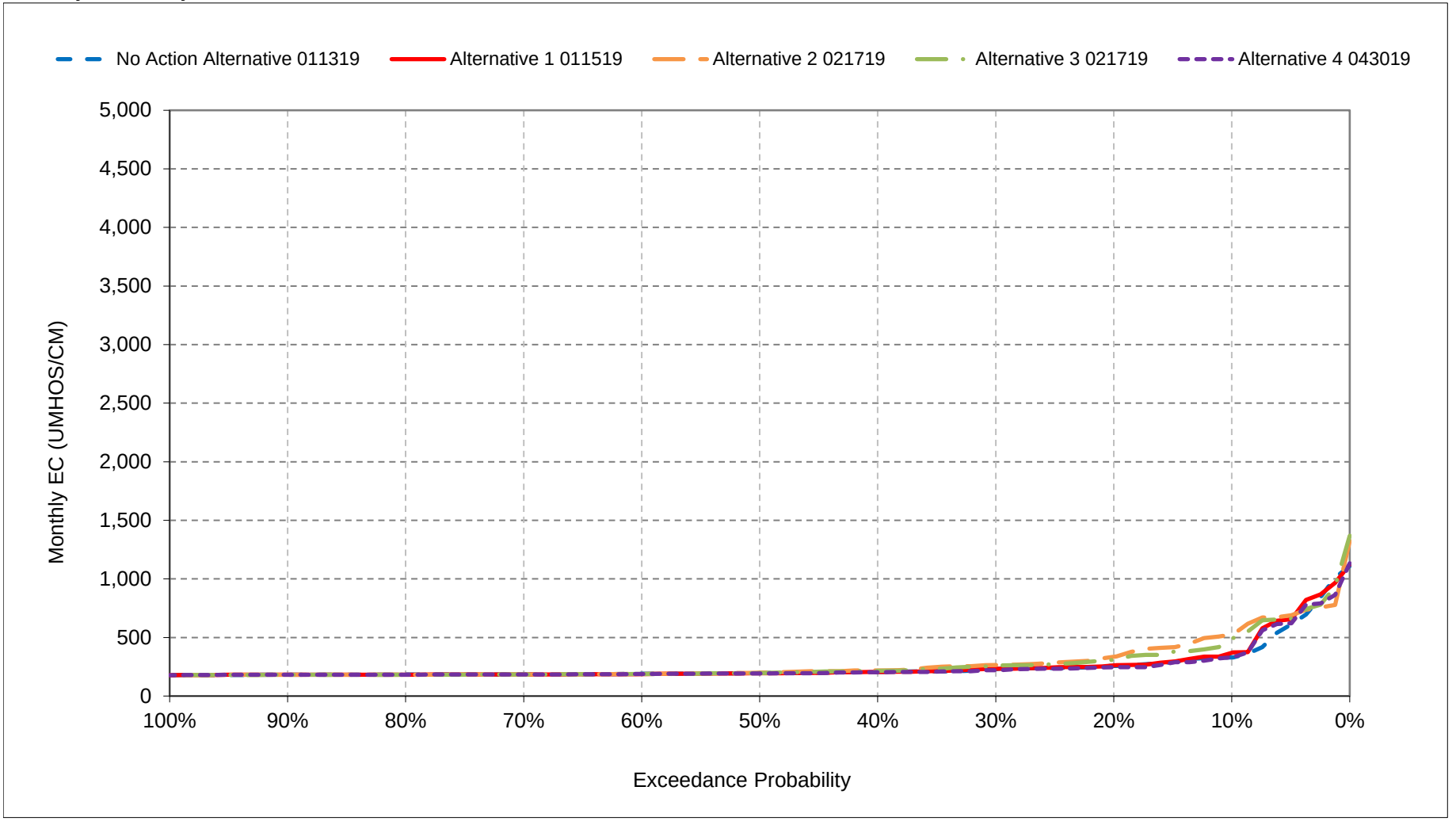

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 4-7. Sacramento River at Emmaton**
**Salinity, January EC**



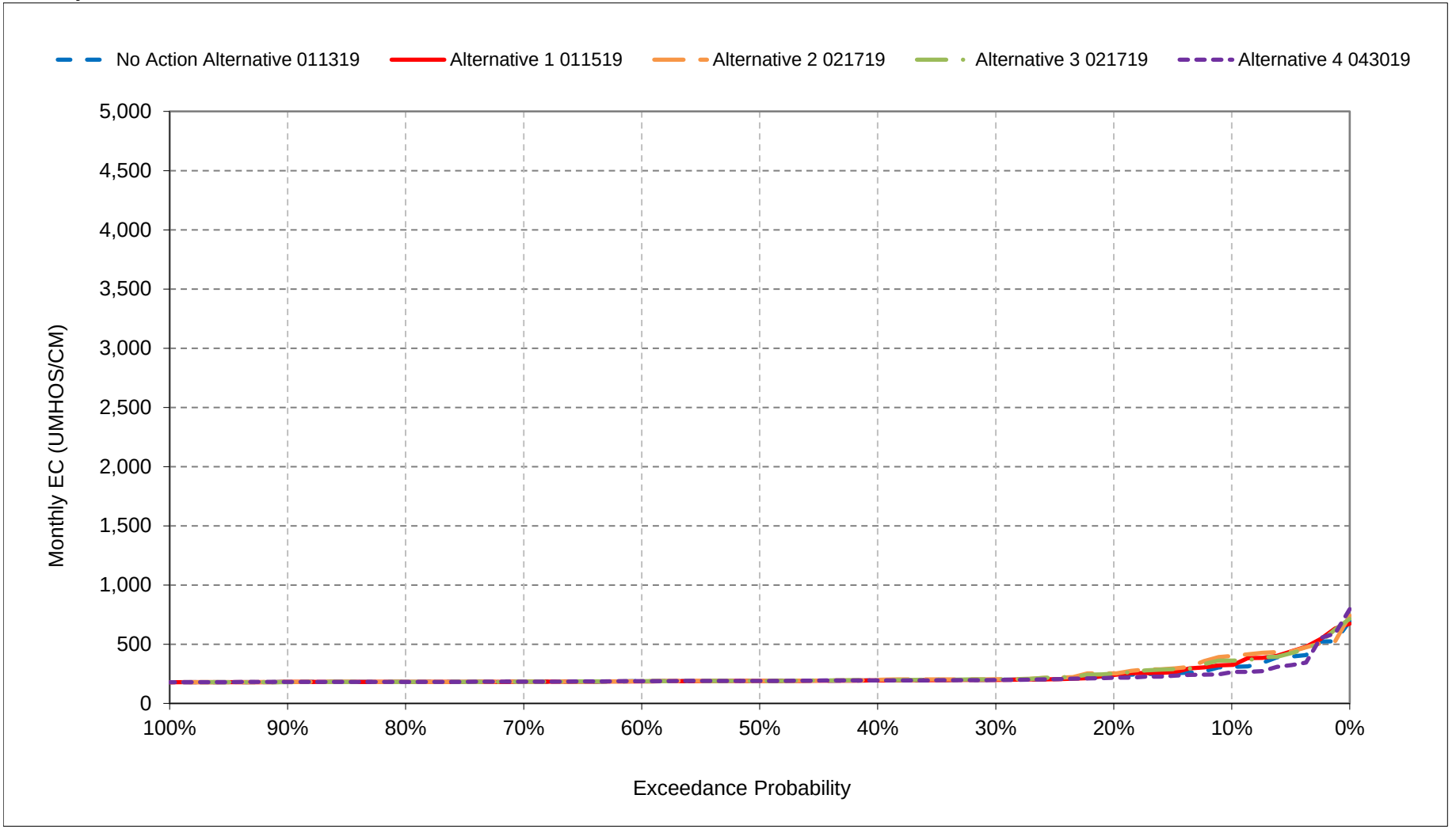

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 4-8. Sacramento River at Emmaton**
**Salinity, February EC**



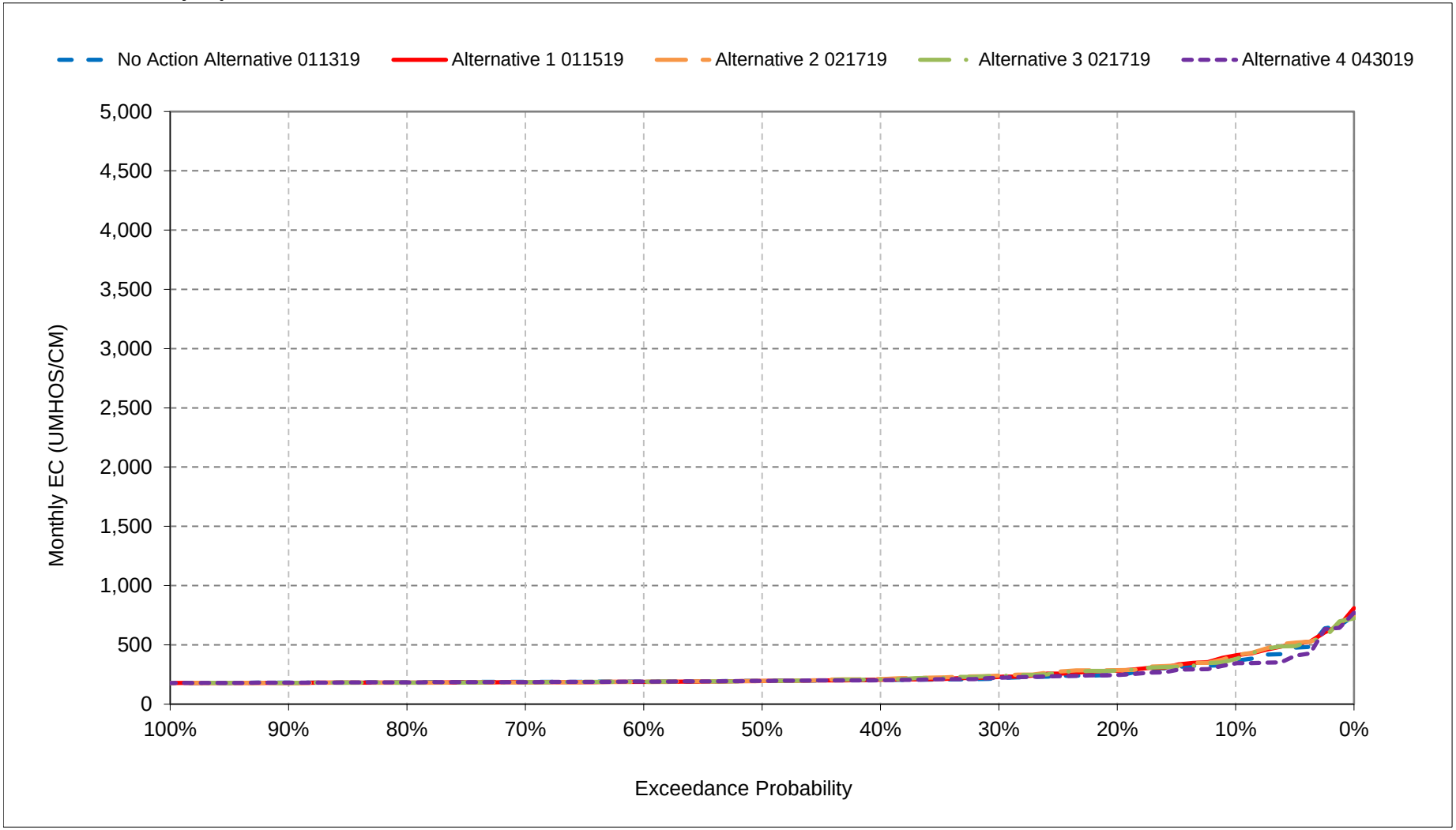

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 4-9. Sacramento River at Emmaton**
**Salinity, March EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

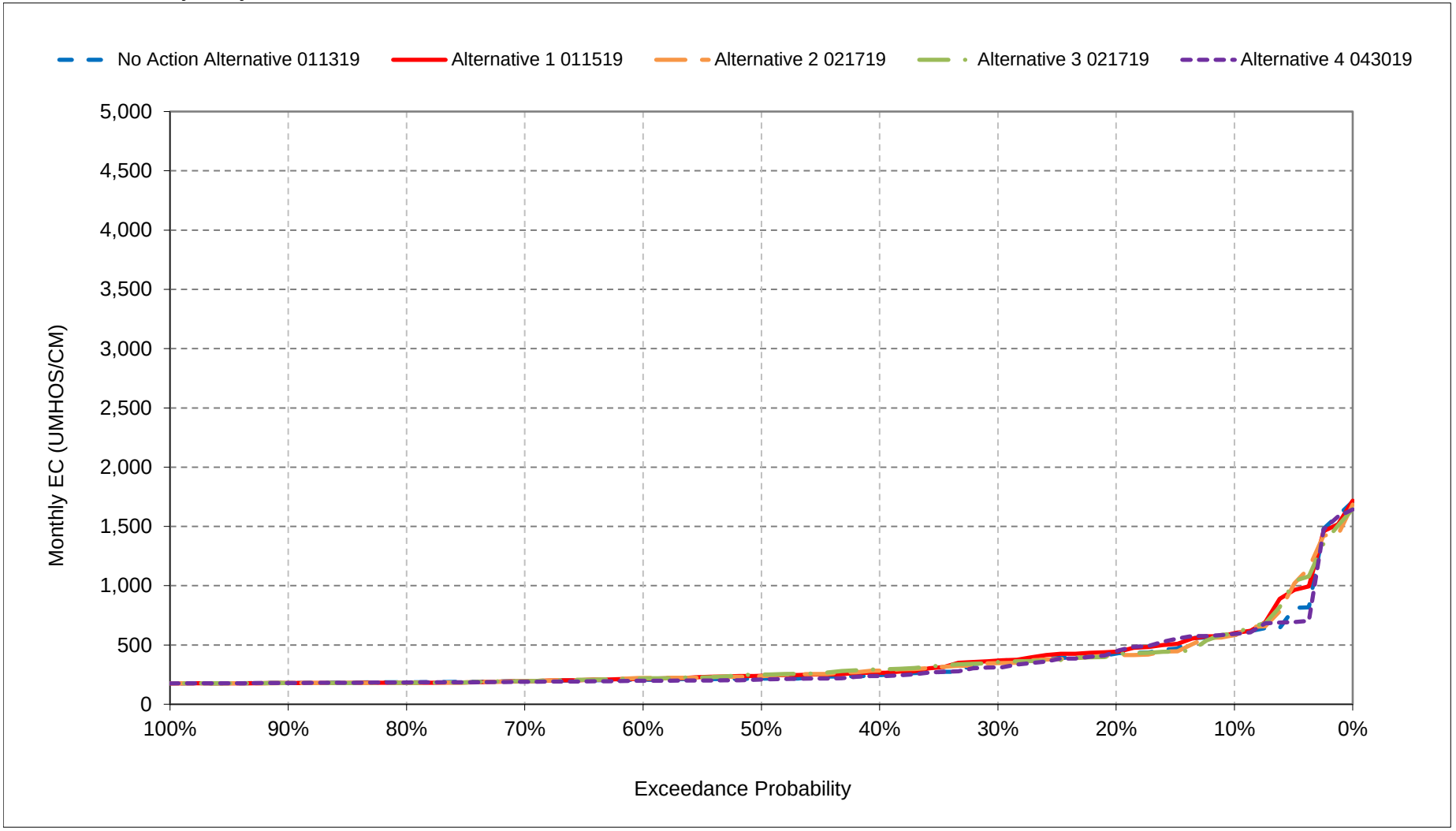
**Figure 4-10. Sacramento River at Emmaton Salinity, April EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

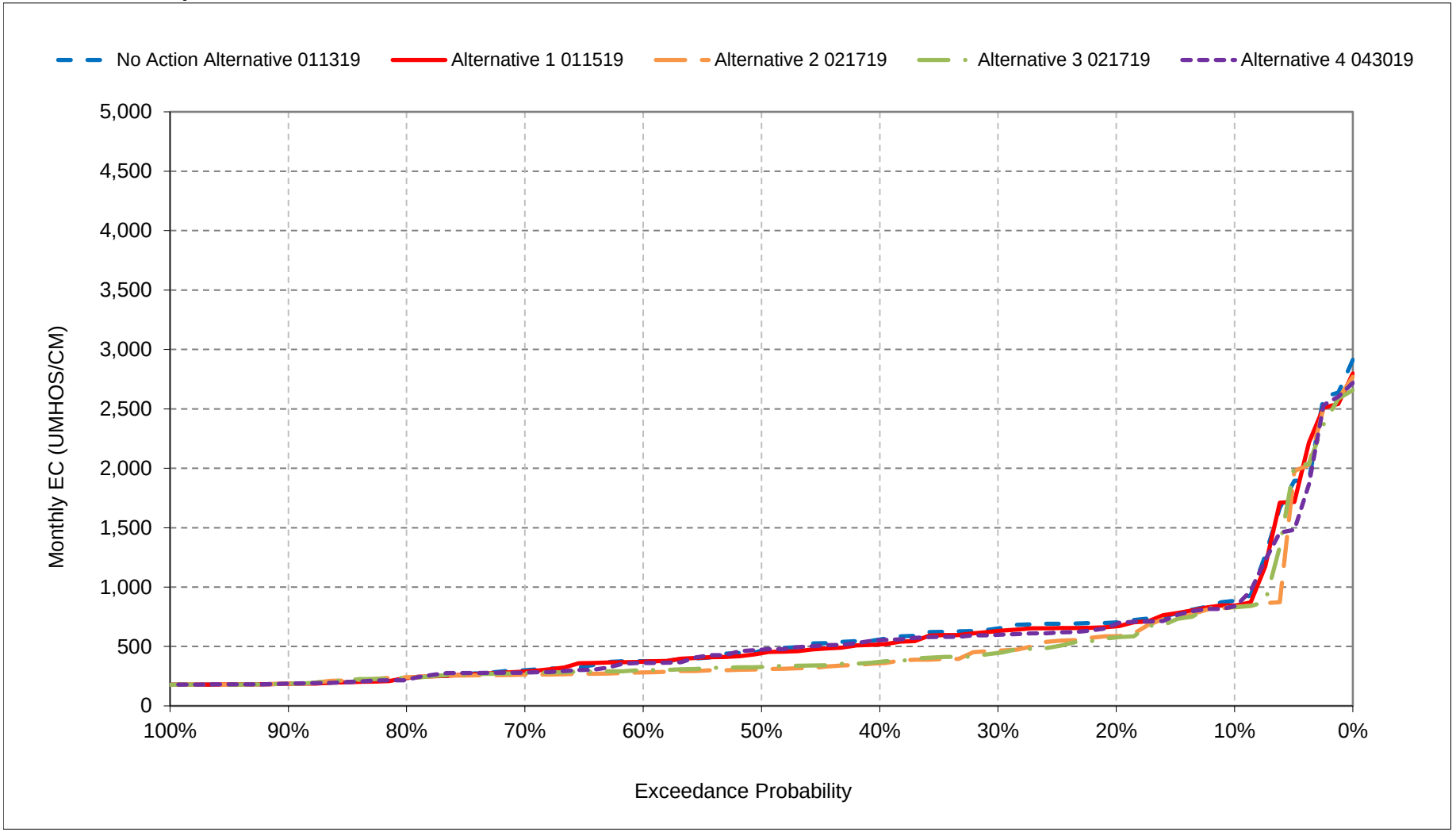
**Figure 4-11. Sacramento River at Emmaton Salinity, May EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

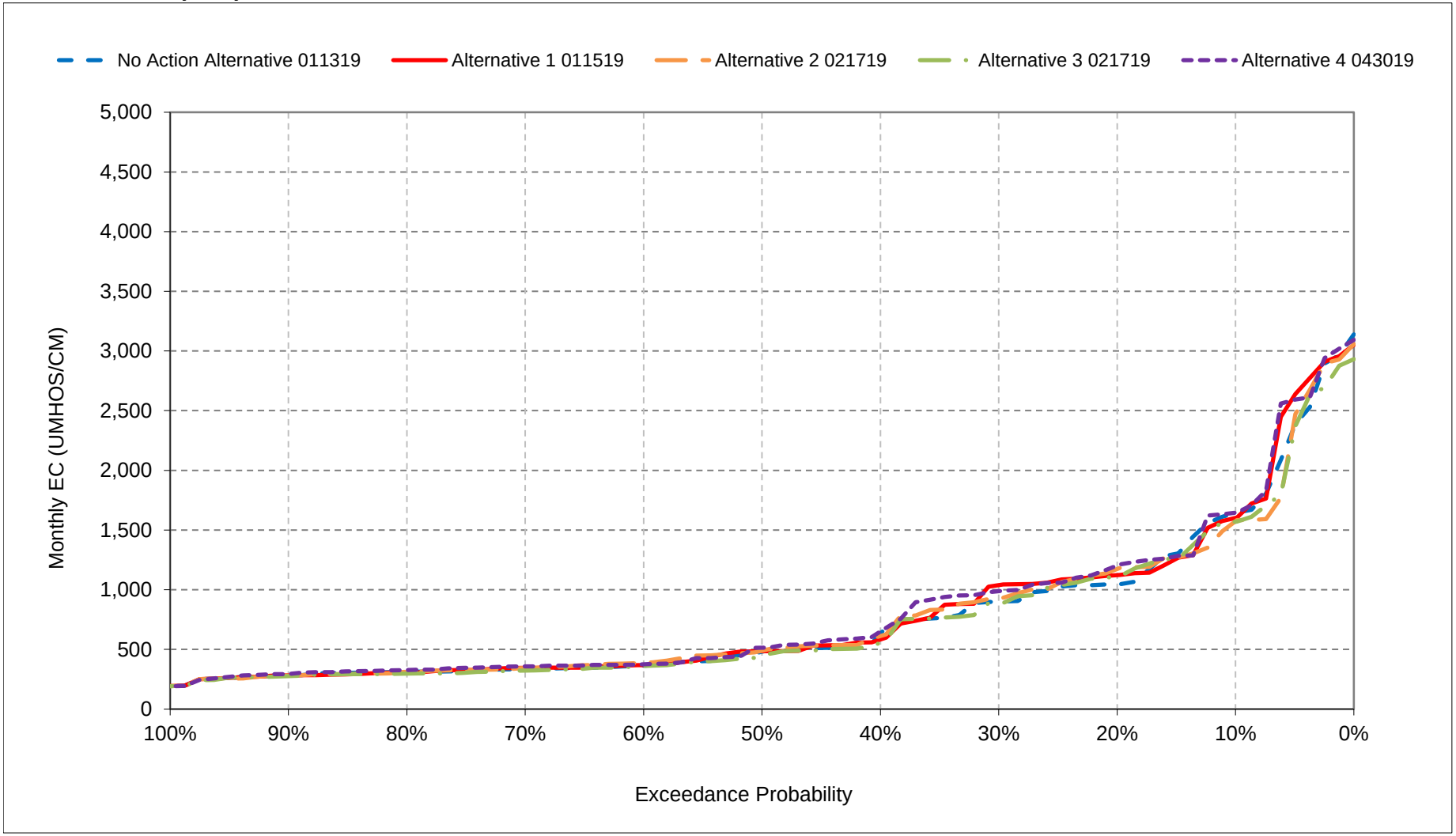
**Figure 4-12. Sacramento River at Emmaton Salinity, June EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

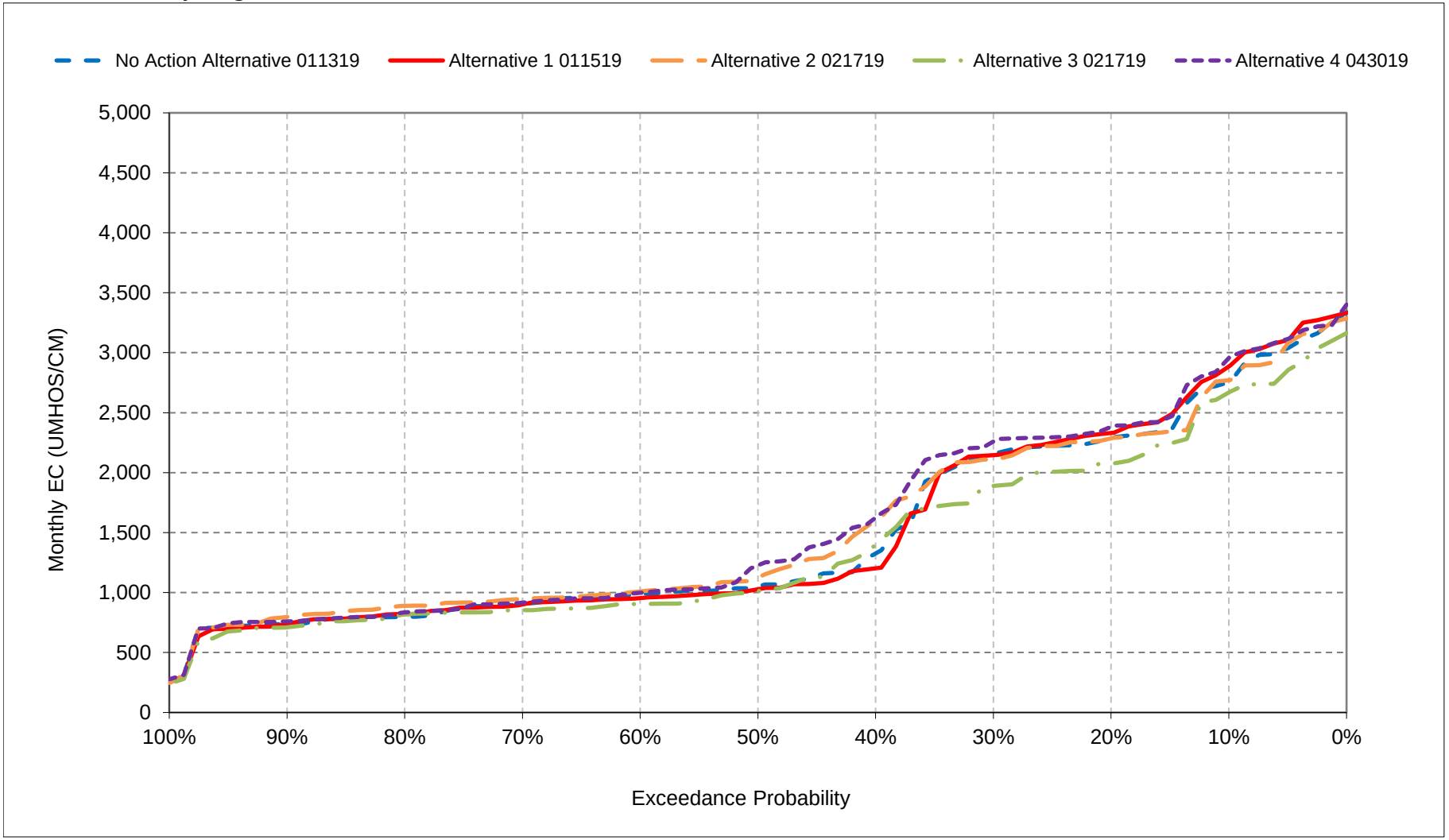
**Figure 4-13. Sacramento River at Emmaton Salinity, July EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

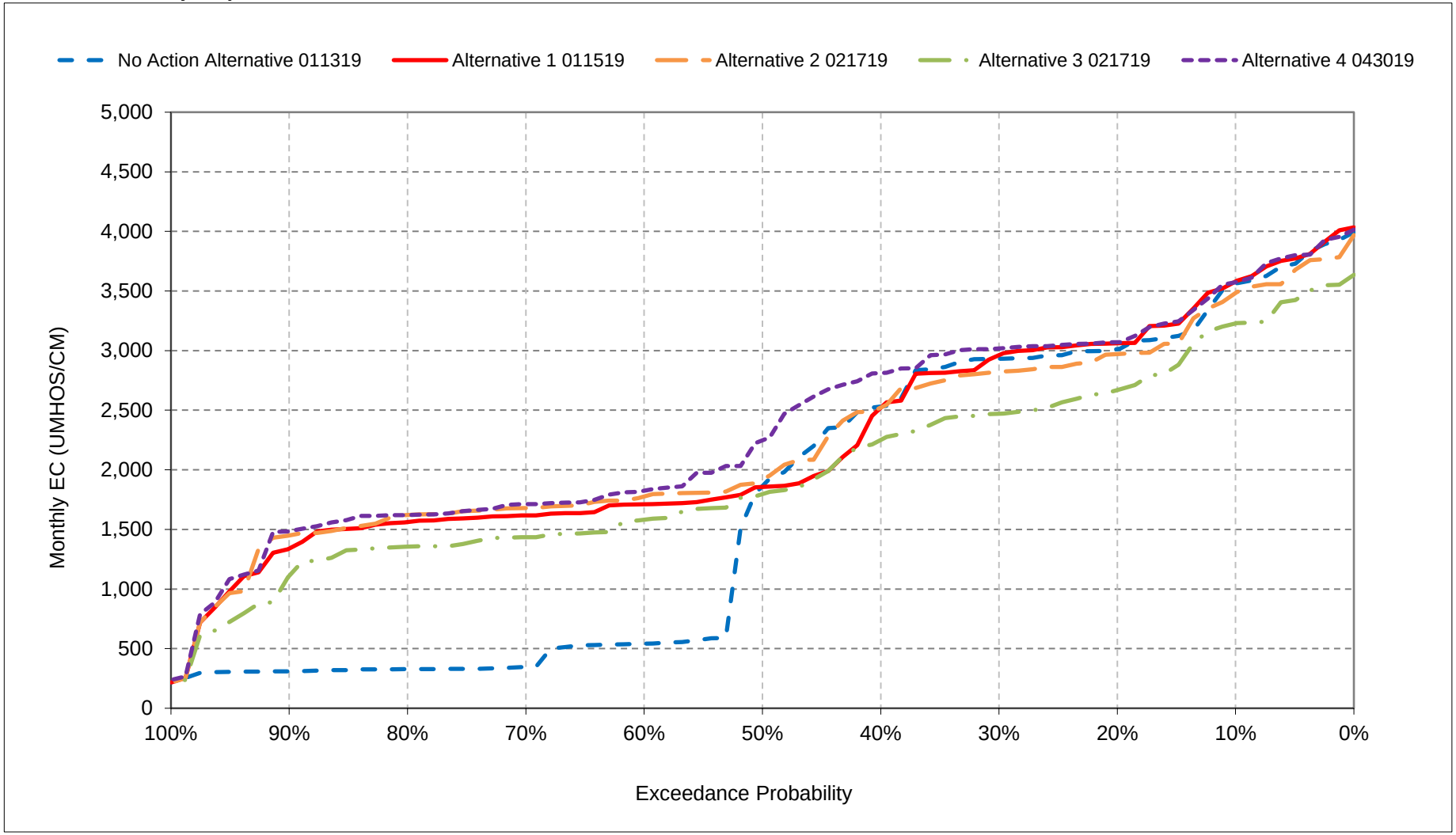
**Figure 4-14. Sacramento River at Emmaton Salinity, August EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

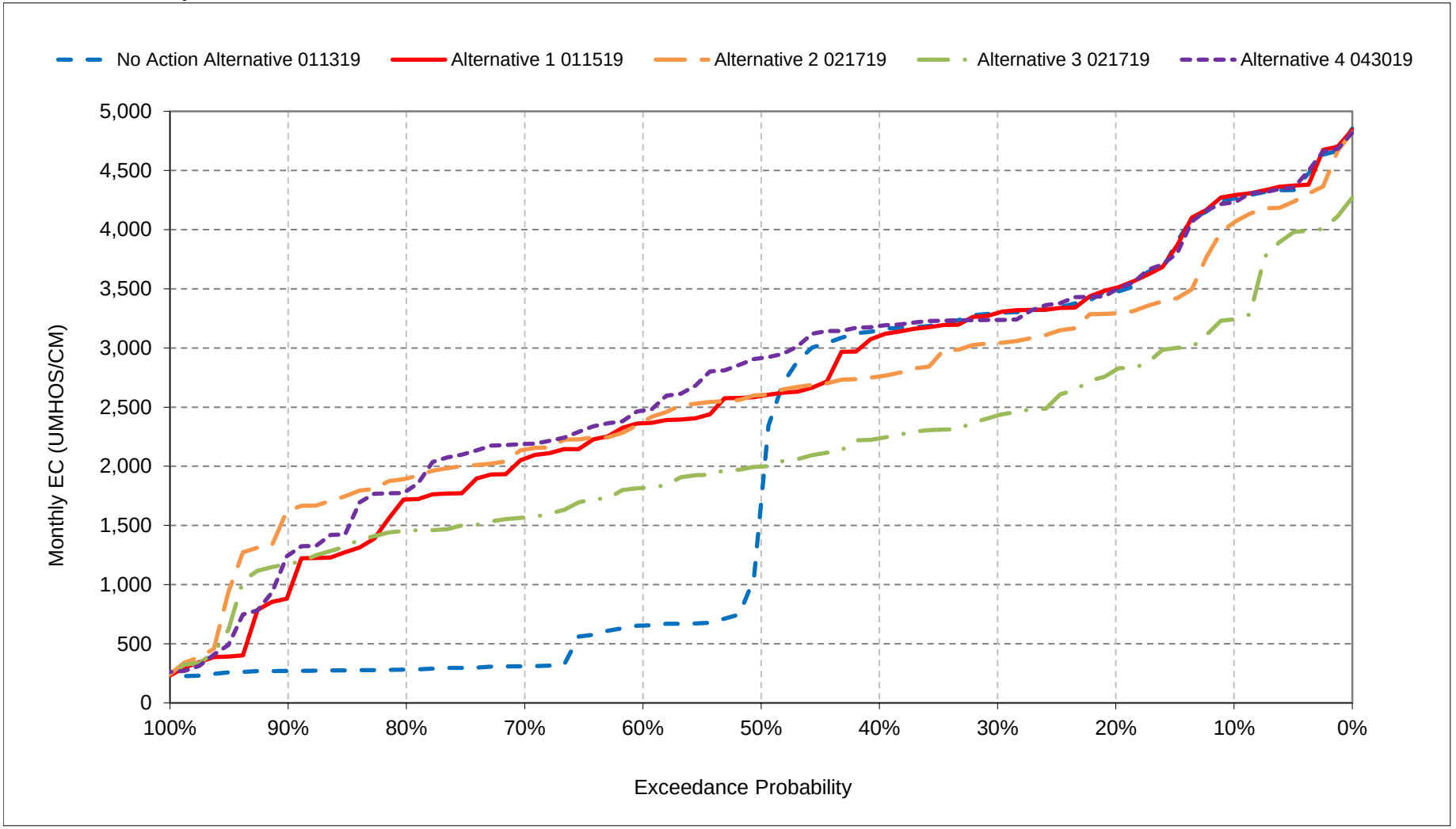
**Figure 4-15. Sacramento River at Emmaton Salinity, September EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

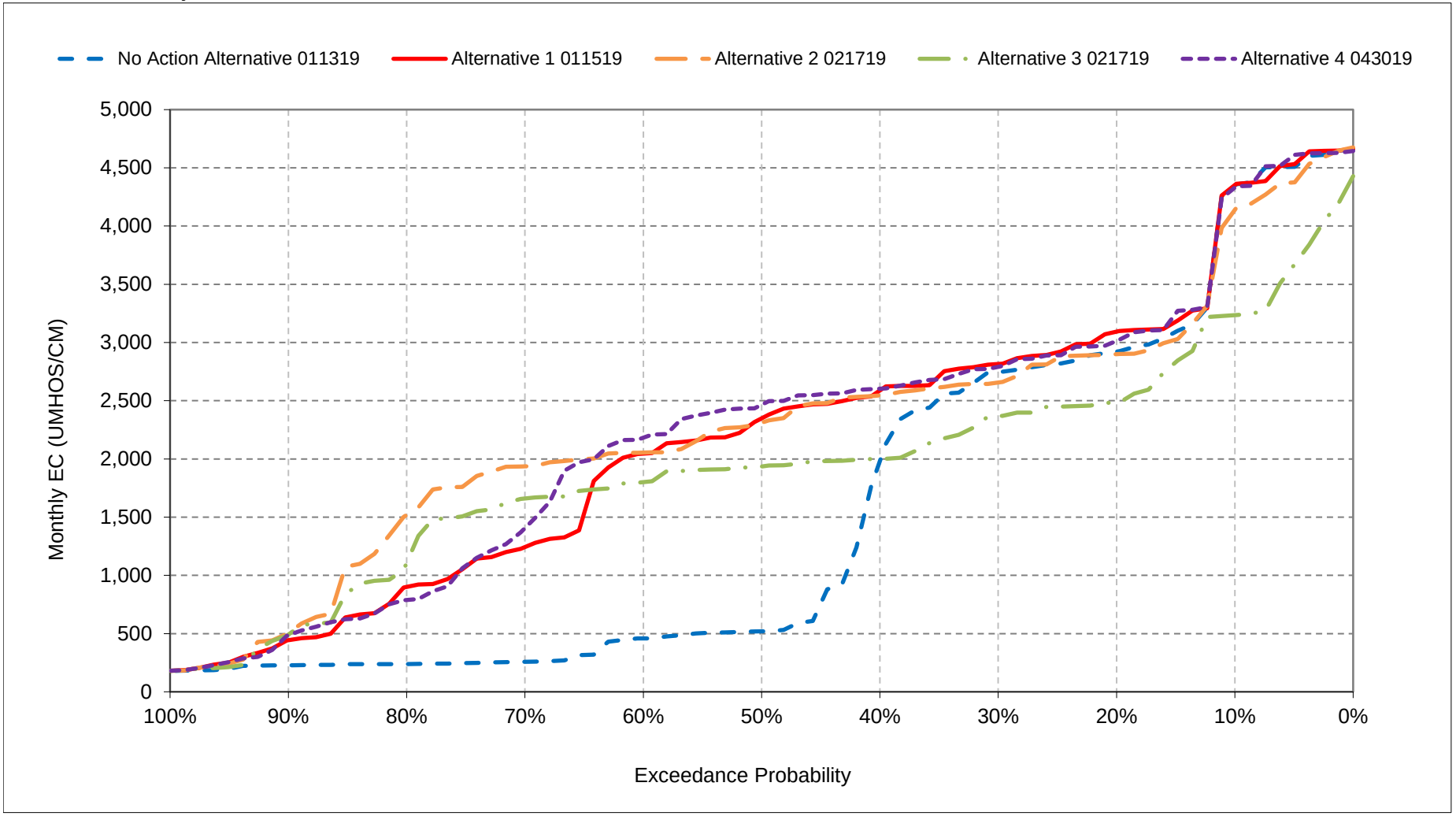
**Figure 4-16. Sacramento River at Emmaton Salinity, October EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

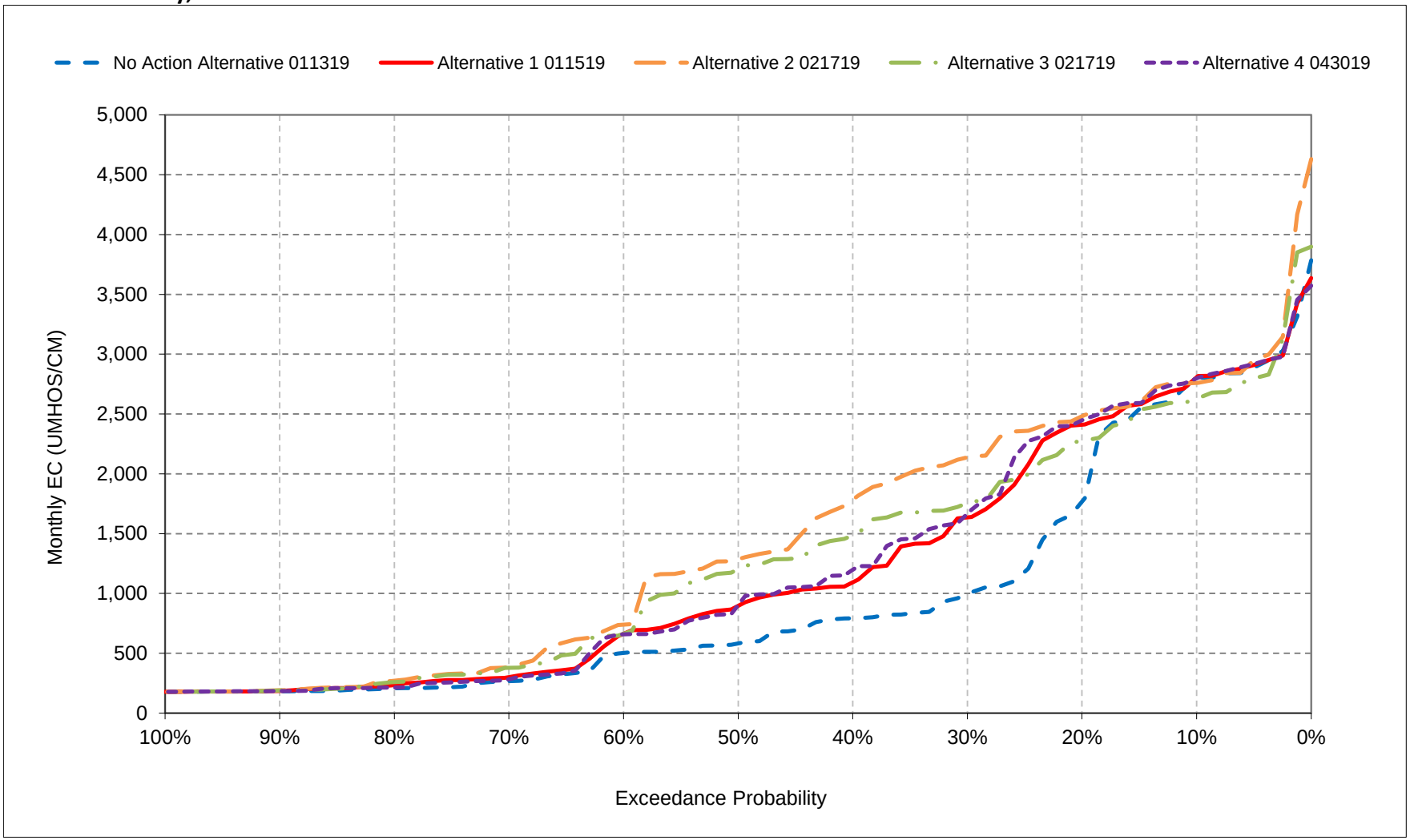
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 4-17. Sacramento River at Emmaton Salinity, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 4-18. Sacramento River at Emmaton Salinity, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 5-1. Sacramento River at Rio Vista Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 640 | 663 | 426 | 249 | 201 | 195 | 192 | 203 | 224 | 293 | 438 | 509 |
| 20% | 500 | 419 | 318 | 228 | 196 | 189 | 189 | 192 | 209 | 239 | 370 | 433 |
| 30% | 464 | 384 | 240 | 215 | 193 | 187 | 187 | 189 | 204 | 220 | 347 | 411 |
| 40% | 434 | 315 | 223 | 203 | 190 | 184 | 186 | 188 | 200 | 203 | 265 | 382 |
| 50% | 297 | 199 | 205 | 198 | 186 | 183 | 184 | 186 | 194 | 194 | 238 | 317 |
| 60% | 200 | 191 | 198 | 196 | 184 | 182 | 182 | 184 | 190 | 187 | 232 | 200 |
| 70% | 187 | 182 | 188 | 189 | 183 | 180 | 180 | 182 | 187 | 185 | 226 | 187 |
| 80% | 185 | 181 | 183 | 185 | 181 | 180 | 179 | 179 | 183 | 184 | 219 | 182 |
| 90% | 184 | 180 | 179 | 180 | 180 | 179 | 178 | 177 | 180 | 183 | 215 | 181 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 354 | 310 | 253 | 210 | 190 | 185 | 185 | 190 | 210 | 223 | 290 | 318 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 184 | 181 | 194 | 188 | 182 | 181 | 180 | 180 | 185 | 184 | 220 | 182 |
| Above Normal (16%) | 199 | 193 | 213 | 194 | 185 | 181 | 182 | 183 | 192 | 186 | 222 | 200 |
| Below Normal (13%) | 407 | 330 | 283 | 209 | 190 | 188 | 187 | 188 | 199 | 197 | 245 | 357 |
| Dry (24%) | 458 | 346 | 282 | 223 | 195 | 186 | 186 | 189 | 203 | 232 | 350 | 417 |
| Critical (15%) | 665 | 641 | 347 | 256 | 206 | 197 | 196 | 226 | 306 | 354 | 458 | 536 |

### Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 643 | 645 | 422 | 264 | 201 | 195 | 192 | 201 | 218 | 292 | 459 | 510 |
| 20% | 499 | 427 | 387 | 233 | 196 | 189 | 189 | 192 | 204 | 244 | 379 | 440 |
| 30% | 456 | 407 | 301 | 220 | 193 | 187 | 186 | 188 | 201 | 231 | 345 | 417 |
| 40% | 437 | 387 | 259 | 203 | 189 | 184 | 185 | 184 | 195 | 202 | 254 | 385 |
| 50% | 382 | 352 | 237 | 198 | 185 | 183 | 183 | 183 | 191 | 197 | 236 | 313 |
| 60% | 351 | 336 | 219 | 192 | 183 | 182 | 181 | 182 | 187 | 187 | 230 | 297 |
| 70% | 326 | 256 | 189 | 188 | 183 | 180 | 180 | 180 | 185 | 186 | 224 | 291 |
| 80% | 291 | 222 | 184 | 184 | 181 | 180 | 179 | 178 | 182 | 185 | 220 | 286 |
| 90% | 225 | 192 | 179 | 180 | 180 | 179 | 178 | 177 | 179 | 183 | 216 | 262 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 405 | 365 | 272 | 212 | 190 | 185 | 185 | 190 | 206 | 225 | 291 | 360 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 278 | 273 | 233 | 188 | 182 | 181 | 180 | 179 | 183 | 185 | 219 | 269 |
| Above Normal (16%) | 331 | 322 | 260 | 195 | 185 | 181 | 181 | 181 | 188 | 186 | 223 | 294 |
| Below Normal (13%) | 397 | 344 | 280 | 212 | 190 | 187 | 185 | 186 | 196 | 198 | 241 | 347 |
| Dry (24%) | 464 | 357 | 281 | 229 | 196 | 186 | 185 | 188 | 199 | 234 | 350 | 423 |
| Critical (15%) | 669 | 645 | 349 | 256 | 206 | 197 | 197 | 228 | 295 | 366 | 470 | 540 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **3** | -18 | -4 | **15** | 0 | **0** | **0** | -1 | -6 | -1 | **21** | **1** |
| 20% | -1 | **8** | **69** | **6** | **0** | **0** | 0 | -1 | -6 | **5** | **9** | **7** |
| 30% | -8 | **23** | **61** | **5** | **0** | **0** | -1 | -1 | -4 | **11** | -2 | **6** |
| 40% | **3** | **72** | **35** | -1 | -1 | **0** | -1 | -3 | -6 | -2 | -11 | **3** |
| 50% | **85** | **153** | **32** | -1 | 0 | 0 | 0 | -3 | -3 | **3** | -2 | -4 |
| 60% | **151** | **146** | **21** | -3 | 0 | **0** | -1 | -2 | -3 | 0 | -2 | **96** |
| 70% | **140** | **74** | **2** | -1 | 0 | 0 | **0** | -2 | -2 | **1** | -2 | **104** |
| 80% | **106** | **42** | **1** | -1 | **0** | 0 | 0 | 0 | -1 | **1** | **1** | **104** |
| 90% | **41** | **12** | 0 | **0** | 0 | 0 | **0** | **0** | 0 | 0 | **2** | **82** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **51** | **55** | **20** | **2** | **0** | 0 | 0 | -1 | -4 | **2** | **1** | **43** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **93** | **92** | **40** | -1 | 0 | 0 | 0 | -1 | -2 | **0** | -1 | **87** |
| Above Normal (16%) | **132** | **129** | **47** | **1** | -1 | 0 | -1 | -2 | -4 | 0 | **1** | **94** |
| Below Normal (13%) | -10 | **13** | -3 | **4** | **0** | 0 | -2 | -2 | -3 | **1** | -4 | -10 |
| Dry (24%) | **6** | **11** | -1 | **6** | **0** | **0** | 0 | -1 | -4 | **2** | 0 | **6** |
| Critical (15%) | **4** | **4** | **2** | -1 | 0 | **0** | **1** | **2** | -11 | **12** | **12** | **3** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 5-2. Sacramento River at Rio Vista Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 640 | 663 | 426 | 249 | 201 | 195 | 192 | 203 | 224 | 293 | 438 | 509 |
| 20% | 500 | 419 | 318 | 228 | 196 | 189 | 189 | 192 | 209 | 239 | 370 | 433 |
| 30% | 464 | 384 | 240 | 215 | 193 | 187 | 187 | 189 | 204 | 220 | 347 | 411 |
| 40% | 434 | 315 | 223 | 203 | 190 | 184 | 186 | 188 | 200 | 203 | 265 | 382 |
| 50% | 297 | 199 | 205 | 198 | 186 | 183 | 184 | 186 | 194 | 194 | 238 | 317 |
| 60% | 200 | 191 | 198 | 196 | 184 | 182 | 182 | 184 | 190 | 187 | 232 | 200 |
| 70% | 187 | 182 | 188 | 189 | 183 | 180 | 180 | 182 | 187 | 185 | 226 | 187 |
| 80% | 185 | 181 | 183 | 185 | 181 | 180 | 179 | 179 | 183 | 184 | 219 | 182 |
| 90% | 184 | 180 | 179 | 180 | 180 | 179 | 178 | 177 | 180 | 183 | 215 | 181 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 354 | 310 | 253 | 210 | 190 | 185 | 185 | 190 | 210 | 223 | 290 | 318 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 184 | 181 | 194 | 188 | 182 | 181 | 180 | 180 | 185 | 184 | 220 | 182 |
| Above Normal (16%) | 199 | 193 | 213 | 194 | 185 | 181 | 182 | 183 | 192 | 186 | 222 | 200 |
| Below Normal (13%) | 407 | 330 | 283 | 209 | 190 | 188 | 187 | 188 | 199 | 197 | 245 | 357 |
| Dry (24%) | 458 | 346 | 282 | 223 | 195 | 186 | 186 | 189 | 203 | 232 | 350 | 417 |
| Critical (15%) | 665 | 641 | 347 | 256 | 206 | 197 | 196 | 226 | 306 | 354 | 458 | 536 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 587 | 607 | 428 | 292 | 211 | 198 | 193 | 200 | 218 | 284 | 435 | 499 |
| 20% | 455 | 421 | 387 | 276 | 201 | 192 | 188 | 190 | 199 | 247 | 365 | 420 |
| 30% | 436 | 395 | 358 | 240 | 195 | 188 | 186 | 187 | 192 | 228 | 343 | 398 |
| 40% | 398 | 374 | 307 | 218 | 191 | 185 | 184 | 184 | 187 | 203 | 291 | 387 |
| 50% | 382 | 352 | 269 | 206 | 186 | 183 | 183 | 183 | 185 | 198 | 245 | 321 |
| 60% | 357 | 330 | 232 | 197 | 184 | 182 | 181 | 181 | 183 | 188 | 233 | 304 |
| 70% | 336 | 311 | 197 | 189 | 183 | 180 | 180 | 180 | 182 | 186 | 228 | 294 |
| 80% | 314 | 264 | 186 | 184 | 181 | 180 | 179 | 178 | 181 | 185 | 223 | 290 |
| 90% | 283 | 199 | 179 | 180 | 180 | 179 | 178 | 177 | 179 | 184 | 218 | 266 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 398 | 368 | 294 | 228 | 192 | 186 | 185 | 189 | 201 | 223 | 292 | 356 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 302 | 295 | 253 | 191 | 182 | 181 | 180 | 179 | 181 | 185 | 221 | 275 |
| Above Normal (16%) | 349 | 364 | 284 | 200 | 185 | 181 | 181 | 181 | 183 | 186 | 228 | 302 |
| Below Normal (13%) | 391 | 347 | 296 | 244 | 196 | 188 | 185 | 185 | 184 | 199 | 259 | 342 |
| Dry (24%) | 428 | 326 | 284 | 248 | 197 | 187 | 185 | 186 | 195 | 235 | 348 | 406 |
| Critical (15%) | 619 | 622 | 408 | 292 | 212 | 200 | 197 | 228 | 291 | 348 | 454 | 519 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -52 | -56 | **2** | **42** | **10** | **3** | **1** | -3 | -6 | -9 | -4 | -10 |
| 20% | -45 | **2** | **69** | **48** | **6** | **3** | -1 | -2 | -10 | **8** | -5 | -13 |
| 30% | -28 | **11** | **118** | **25** | **2** | **1** | 0 | -2 | -12 | **8** | -4 | -12 |
| 40% | -36 | **59** | **83** | **15** | **1** | **1** | -1 | -3 | -14 | 0 | **26** | **5** |
| 50% | **85** | **153** | **64** | **8** | **0** | **0** | 0 | -3 | -9 | **4** | **7** | **5** |
| 60% | **156** | **139** | **34** | **1** | 0 | 0 | -1 | -2 | -7 | **1** | **1** | **104** |
| 70% | **149** | **129** | **9** | -1 | 0 | **0** | 0 | -2 | -5 | **1** | **3** | **107** |
| 80% | **129** | **84** | **3** | -1 | 0 | 0 | 0 | -1 | -2 | **1** | **4** | **108** |
| 90% | **100** | **19** | -1 | **0** | 0 | **0** | **0** | **0** | 0 | **0** | **4** | **86** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **45** | **58** | **41** | **18** | **2** | **1** | 0 | -1 | -9 | **0** | **2** | **38** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **117** | **114** | **59** | **2** | 0 | 0 | 0 | -1 | -4 | **1** | **2** | **93** |
| Above Normal (16%) | **150** | **171** | **70** | **6** | 0 | 0 | -1 | -2 | -9 | **0** | **6** | **102** |
| Below Normal (13%) | -16 | **16** | **12** | **35** | **7** | **1** | -2 | -3 | -15 | **2** | **14** | -15 |
| Dry (24%) | -30 | -20 | **2** | **25** | **1** | **1** | 0 | -3 | -8 | **3** | -2 | -11 |
| Critical (15%) | -46 | -19 | **61** | **35** | **6** | **3** | **1** | **2** | -15 | -6 | -4 | -18 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 5-3. Sacramento River at Rio Vista Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 640 | 663 | 426 | 249 | 201 | 195 | 192 | 203 | 224 | 293 | 438 | 509 |
| 20% | 500 | 419 | 318 | 228 | 196 | 189 | 189 | 192 | 209 | 239 | 370 | 433 |
| 30% | 464 | 384 | 240 | 215 | 193 | 187 | 187 | 189 | 204 | 220 | 347 | 411 |
| 40% | 434 | 315 | 223 | 203 | 190 | 184 | 186 | 188 | 200 | 203 | 265 | 382 |
| 50% | 297 | 199 | 205 | 198 | 186 | 183 | 184 | 186 | 194 | 194 | 238 | 317 |
| 60% | 200 | 191 | 198 | 196 | 184 | 182 | 182 | 184 | 190 | 187 | 232 | 200 |
| 70% | 187 | 182 | 188 | 189 | 183 | 180 | 180 | 182 | 187 | 185 | 226 | 187 |
| 80% | 185 | 181 | 183 | 185 | 181 | 180 | 179 | 179 | 183 | 184 | 219 | 182 |
| 90% | 184 | 180 | 179 | 180 | 180 | 179 | 178 | 177 | 180 | 183 | 215 | 181 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 354 | 310 | 253 | 210 | 190 | 185 | 185 | 190 | 210 | 223 | 290 | 318 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 184 | 181 | 194 | 188 | 182 | 181 | 180 | 180 | 185 | 184 | 220 | 182 |
| Above Normal (16%) | 199 | 193 | 213 | 194 | 185 | 181 | 182 | 183 | 192 | 186 | 222 | 200 |
| Below Normal (13%) | 407 | 330 | 283 | 209 | 190 | 188 | 187 | 188 | 199 | 197 | 245 | 357 |
| Dry (24%) | 458 | 346 | 282 | 223 | 195 | 186 | 186 | 189 | 203 | 232 | 350 | 417 |
| Critical (15%) | 665 | 641 | 347 | 256 | 206 | 197 | 196 | 226 | 306 | 354 | 458 | 536 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 501 | 507 | 416 | 272 | 206 | 196 | 194 | 204 | 221 | 295 | 429 | 466 |
| 20% | 406 | 383 | 362 | 253 | 198 | 192 | 189 | 190 | 198 | 238 | 342 | 387 |
| 30% | 367 | 360 | 298 | 228 | 195 | 188 | 186 | 188 | 191 | 221 | 308 | 363 |
| 40% | 343 | 322 | 275 | 208 | 192 | 186 | 185 | 186 | 187 | 196 | 265 | 336 |
| 50% | 315 | 310 | 249 | 202 | 186 | 184 | 183 | 183 | 185 | 190 | 227 | 294 |
| 60% | 292 | 295 | 216 | 197 | 184 | 182 | 181 | 182 | 184 | 185 | 218 | 272 |
| 70% | 276 | 278 | 192 | 188 | 183 | 181 | 181 | 180 | 182 | 184 | 214 | 259 |
| 80% | 261 | 238 | 186 | 184 | 182 | 180 | 179 | 179 | 182 | 183 | 211 | 255 |
| 90% | 237 | 196 | 179 | 181 | 180 | 179 | 178 | 177 | 180 | 182 | 205 | 232 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 344 | 331 | 274 | 220 | 191 | 186 | 185 | 190 | 203 | 221 | 277 | 324 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 264 | 267 | 231 | 189 | 182 | 181 | 180 | 180 | 182 | 183 | 211 | 251 |
| Above Normal (16%) | 293 | 314 | 258 | 195 | 185 | 181 | 181 | 181 | 183 | 183 | 211 | 259 |
| Below Normal (13%) | 334 | 312 | 279 | 232 | 194 | 188 | 185 | 185 | 184 | 193 | 240 | 309 |
| Dry (24%) | 363 | 308 | 273 | 236 | 196 | 188 | 186 | 186 | 195 | 229 | 328 | 372 |
| Critical (15%) | 548 | 546 | 381 | 274 | 209 | 199 | 198 | 232 | 299 | 352 | 443 | 488 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -139 | -157 | -10 | **23** | **5** | **1** | **2** | **1** | -2 | **2** | -9 | -43 |
| 20% | -94 | -35 | **44** | **26** | **2** | **3** | **0** | -2 | -12 | -1 | -27 | -46 |
| 30% | -97 | -24 | **58** | **13** | **1** | **1** | 0 | -1 | -13 | **1** | -39 | -48 |
| 40% | -91 | **7** | **52** | **5** | **2** | **1** | -1 | -2 | -14 | -8 | 0 | -46 |
| 50% | **18** | **111** | **45** | **4** | **0** | **1** | 0 | -2 | -9 | -3 | -11 | -23 |
| 60% | **92** | **104** | **19** | **1** | **0** | **0** | -1 | -2 | -6 | -2 | -13 | **72** |
| 70% | **89** | **96** | **4** | -1 | **0** | **1** | **0** | -2 | -4 | -1 | -12 | **71** |
| 80% | **76** | **57** | **3** | 0 | **1** | **0** | **0** | 0 | -2 | -1 | -8 | **73** |
| 90% | **53** | **16** | 0 | **1** | **0** | **0** | **1** | **0** | 0 | -1 | -9 | **51** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -10 | **21** | **21** | **9** | **1** | **1** | 0 | 0 | -7 | -2 | -13 | **7** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **80** | **86** | **37** | **1** | **0** | **0** | 0 | **0** | -4 | -1 | -8 | **69** |
| Above Normal (16%) | **94** | **121** | **44** | **1** | 0 | **0** | -1 | -2 | -8 | -3 | -12 | **59** |
| Below Normal (13%) | -73 | -19 | -4 | **23** | **4** | **1** | -1 | -3 | -15 | -5 | -5 | -48 |
| Dry (24%) | -94 | -37 | -9 | **13** | **0** | **1** | **0** | -3 | -8 | -3 | -21 | -45 |
| Critical (15%) | -117 | -94 | **34** | **18** | **3** | **2** | **2** | **6** | -7 | -1 | -15 | -48 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 5-4. Sacramento River at Rio Vista Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 640 | 663 | 426 | 249 | 201 | 195 | 192 | 203 | 224 | 293 | 438 | 509 |
| 20% | 500 | 419 | 318 | 228 | 196 | 189 | 189 | 192 | 209 | 239 | 370 | 433 |
| 30% | 464 | 384 | 240 | 215 | 193 | 187 | 187 | 189 | 204 | 220 | 347 | 411 |
| 40% | 434 | 315 | 223 | 203 | 190 | 184 | 186 | 188 | 200 | 203 | 265 | 382 |
| 50% | 297 | 199 | 205 | 198 | 186 | 183 | 184 | 186 | 194 | 194 | 238 | 317 |
| 60% | 200 | 191 | 198 | 196 | 184 | 182 | 182 | 184 | 190 | 187 | 232 | 200 |
| 70% | 187 | 182 | 188 | 189 | 183 | 180 | 180 | 182 | 187 | 185 | 226 | 187 |
| 80% | 185 | 181 | 183 | 185 | 181 | 180 | 179 | 179 | 183 | 184 | 219 | 182 |
| 90% | 184 | 180 | 179 | 180 | 180 | 179 | 178 | 177 | 180 | 183 | 215 | 181 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 354 | 310 | 253 | 210 | 190 | 185 | 185 | 190 | 210 | 223 | 290 | 318 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 184 | 181 | 194 | 188 | 182 | 181 | 180 | 180 | 185 | 184 | 220 | 182 |
| Above Normal (16%) | 199 | 193 | 213 | 194 | 185 | 181 | 182 | 183 | 192 | 186 | 222 | 200 |
| Below Normal (13%) | 407 | 330 | 283 | 209 | 190 | 188 | 187 | 188 | 199 | 197 | 245 | 357 |
| Dry (24%) | 458 | 346 | 282 | 223 | 195 | 186 | 186 | 189 | 203 | 232 | 350 | 417 |
| Critical (15%) | 665 | 641 | 347 | 256 | 206 | 197 | 196 | 226 | 306 | 354 | 458 | 536 |

### Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 640 | 661 | 428 | 263 | 199 | 194 | 194 | 204 | 219 | 301 | 456 | 514 |
| 20% | 500 | 426 | 383 | 229 | 194 | 189 | 191 | 193 | 206 | 248 | 387 | 438 |
| 30% | 455 | 405 | 313 | 217 | 192 | 187 | 188 | 189 | 200 | 233 | 358 | 421 |
| 40% | 435 | 384 | 262 | 201 | 188 | 184 | 185 | 186 | 198 | 206 | 284 | 399 |
| 50% | 420 | 365 | 238 | 196 | 185 | 183 | 183 | 184 | 194 | 197 | 246 | 344 |
| 60% | 366 | 346 | 216 | 192 | 183 | 181 | 181 | 182 | 189 | 188 | 232 | 309 |
| 70% | 339 | 267 | 186 | 187 | 183 | 180 | 179 | 180 | 186 | 186 | 225 | 296 |
| 80% | 300 | 220 | 183 | 184 | 181 | 179 | 179 | 178 | 184 | 185 | 219 | 292 |
| 90% | 252 | 195 | 179 | 180 | 180 | 179 | 178 | 177 | 180 | 184 | 216 | 279 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 414 | 369 | 274 | 210 | 190 | 185 | 185 | 190 | 206 | 227 | 298 | 371 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 292 | 292 | 240 | 187 | 182 | 181 | 180 | 179 | 184 | 185 | 220 | 277 |
| Above Normal (16%) | 353 | 326 | 257 | 195 | 184 | 181 | 181 | 181 | 191 | 187 | 223 | 297 |
| Below Normal (13%) | 412 | 328 | 284 | 206 | 189 | 186 | 187 | 187 | 196 | 200 | 264 | 377 |
| Dry (24%) | 463 | 353 | 279 | 227 | 195 | 186 | 187 | 191 | 200 | 237 | 362 | 433 |
| Critical (15%) | 665 | 646 | 348 | 252 | 205 | 197 | 196 | 225 | 288 | 372 | 475 | 544 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **1** | -3 | **2** | **13** | -2 | -1 | **2** | **1** | -5 | **8** | **18** | **5** |
| 20% | 0 | **7** | **65** | **2** | -2 | **0** | **1** | **1** | -4 | **9** | **17** | **5** |
| 30% | -9 | **21** | **73** | **2** | -2 | **0** | **1** | 0 | -4 | **13** | **11** | **10** |
| 40% | **1** | **69** | **39** | -2 | -2 | -1 | -1 | -2 | -3 | **2** | **19** | **17** |
| 50% | **123** | **166** | **33** | -2 | -1 | 0 | 0 | -2 | 0 | **3** | **8** | **27** |
| 60% | **166** | **155** | **18** | -4 | -1 | 0 | -1 | -1 | -1 | **1** | 0 | **109** |
| 70% | **152** | **85** | -1 | -3 | 0 | 0 | -1 | -2 | -1 | **1** | -1 | **109** |
| 80% | **115** | **39** | **0** | 0 | 0 | 0 | -1 | 0 | **1** | **1** | **0** | **110** |
| 90% | **68** | **15** | 0 | 0 | 0 | 0 | 0 | **0** | 0 | **1** | **1** | **98** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **61** | **59** | **21** | 0 | -1 | 0 | 0 | 0 | -4 | **5** | **8** | **53** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **108** | **111** | **46** | -1 | 0 | **0** | -1 | -1 | -1 | **1** | 0 | **95** |
| Above Normal (16%) | **154** | **133** | **44** | **1** | -1 | 0 | -1 | -2 | 0 | **1** | **0** | **97** |
| Below Normal (13%) | **5** | -3 | **0** | -2 | -1 | -1 | 0 | -1 | -3 | **3** | **19** | **20** |
| Dry (24%) | **5** | **8** | -3 | **4** | -1 | -1 | **1** | **2** | -3 | **5** | **12** | **16** |
| Critical (15%) | 0 | **6** | **1** | -4 | -1 | **0** | **0** | -1 | -18 | **19** | **18** | **8** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

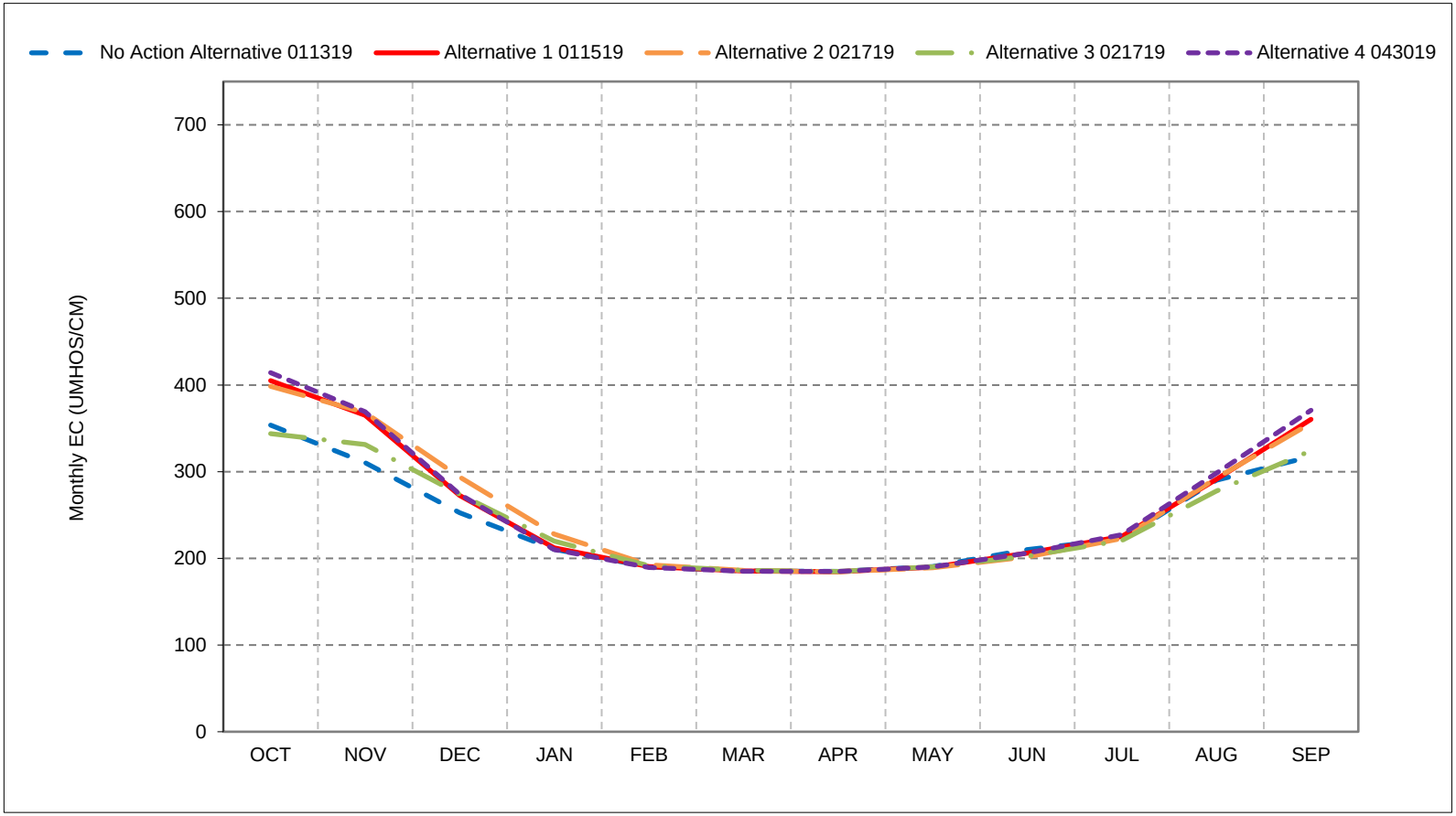
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

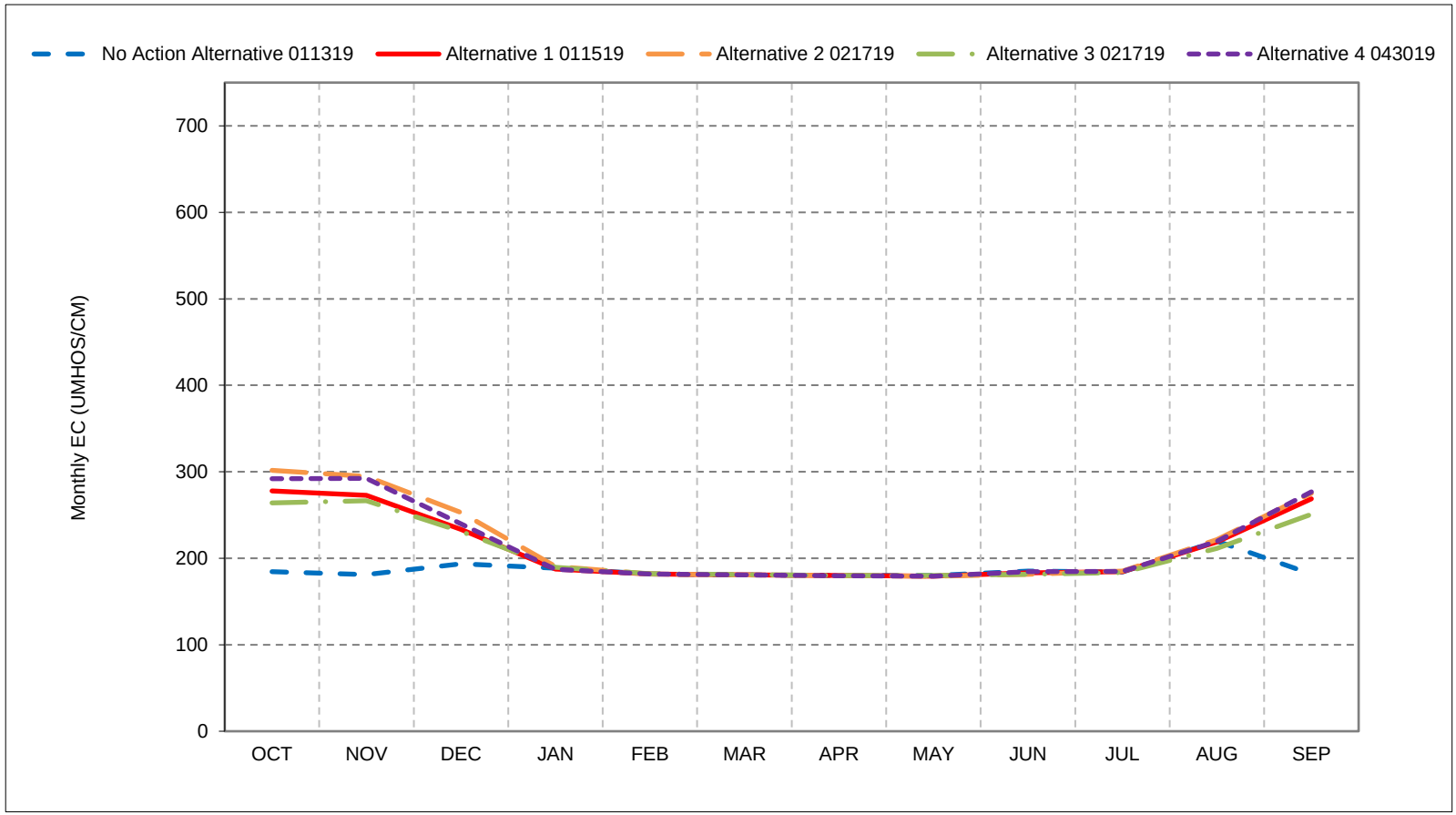
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-1. Sacramento River at Rio Vista Salinity, Long-Term Average EC



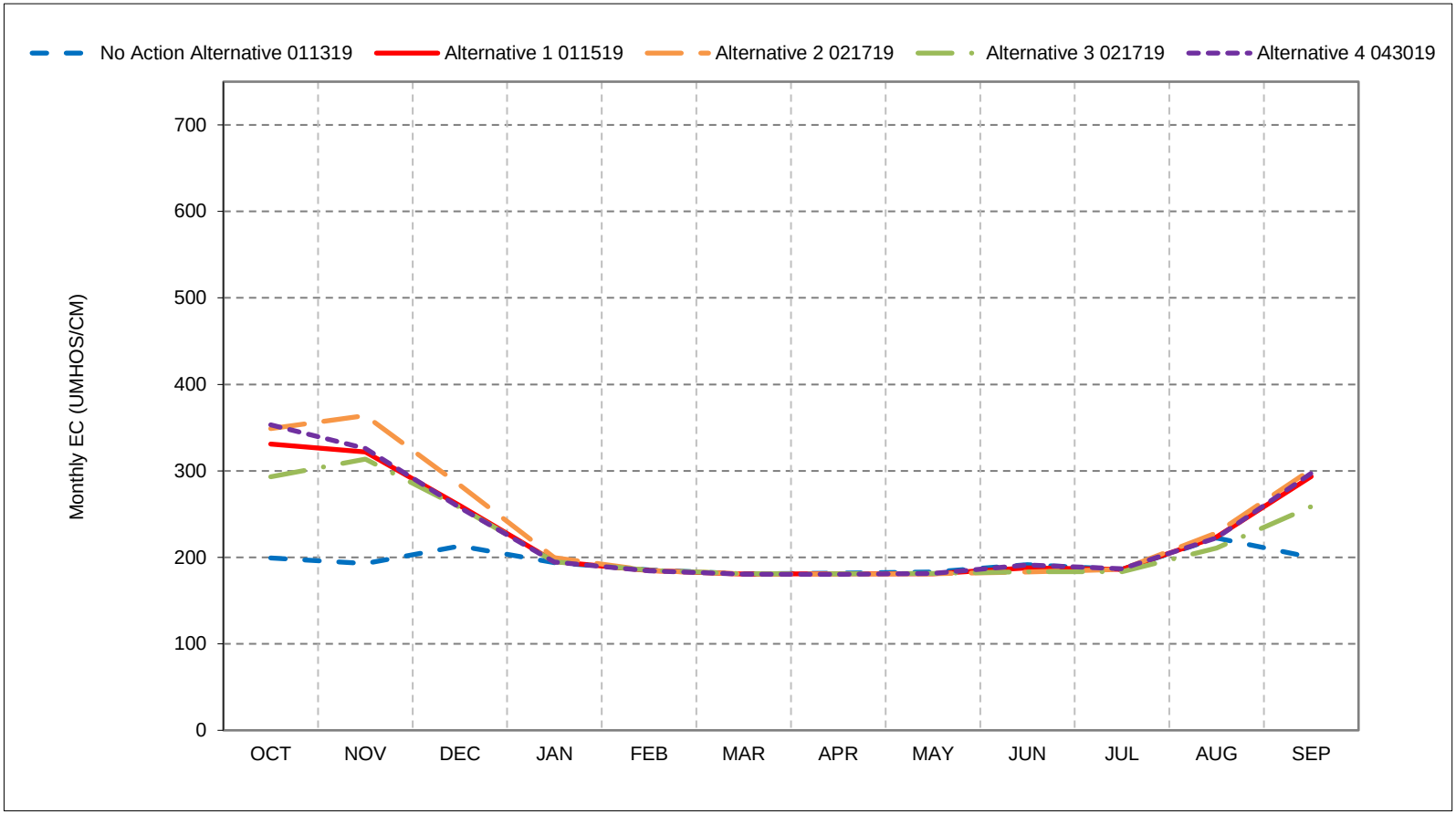

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-2. Sacramento River at Rio Vista Salinity, Wet Year Average EC



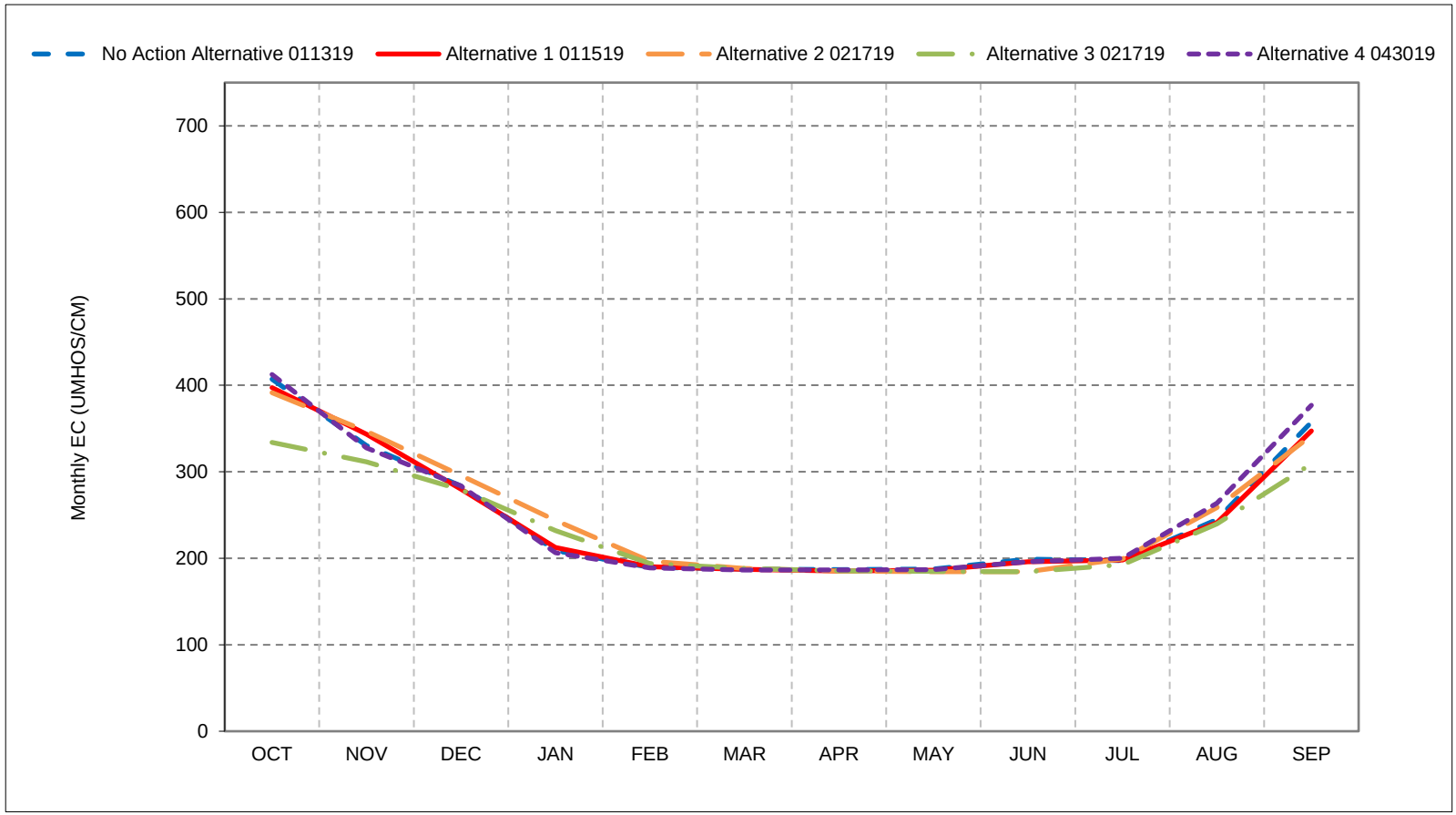

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-3. Sacramento River at Rio Vista Salinity, Above Normal Year Average EC



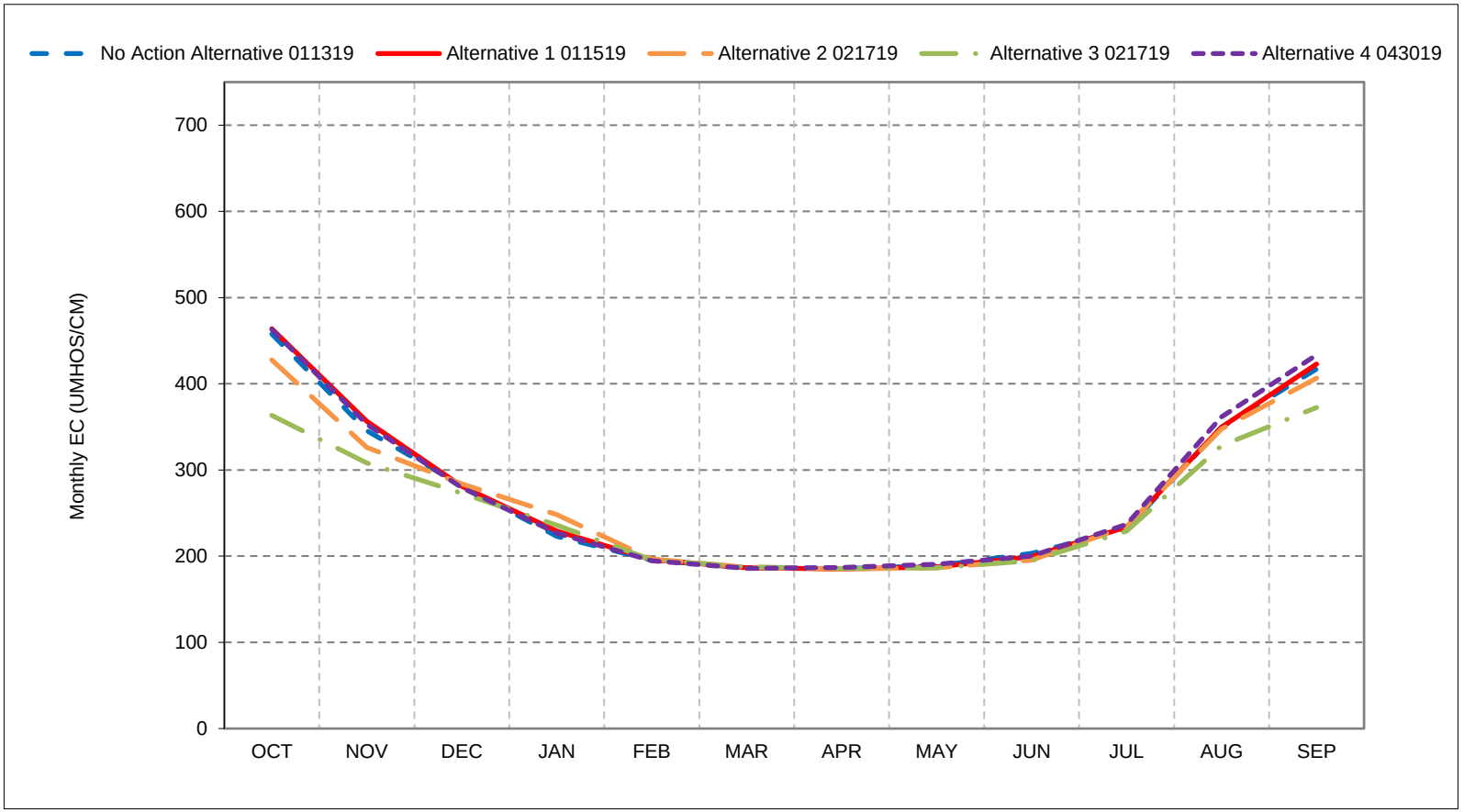

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-4. Sacramento River at Rio Vista Salinity, Below Normal Year Average EC



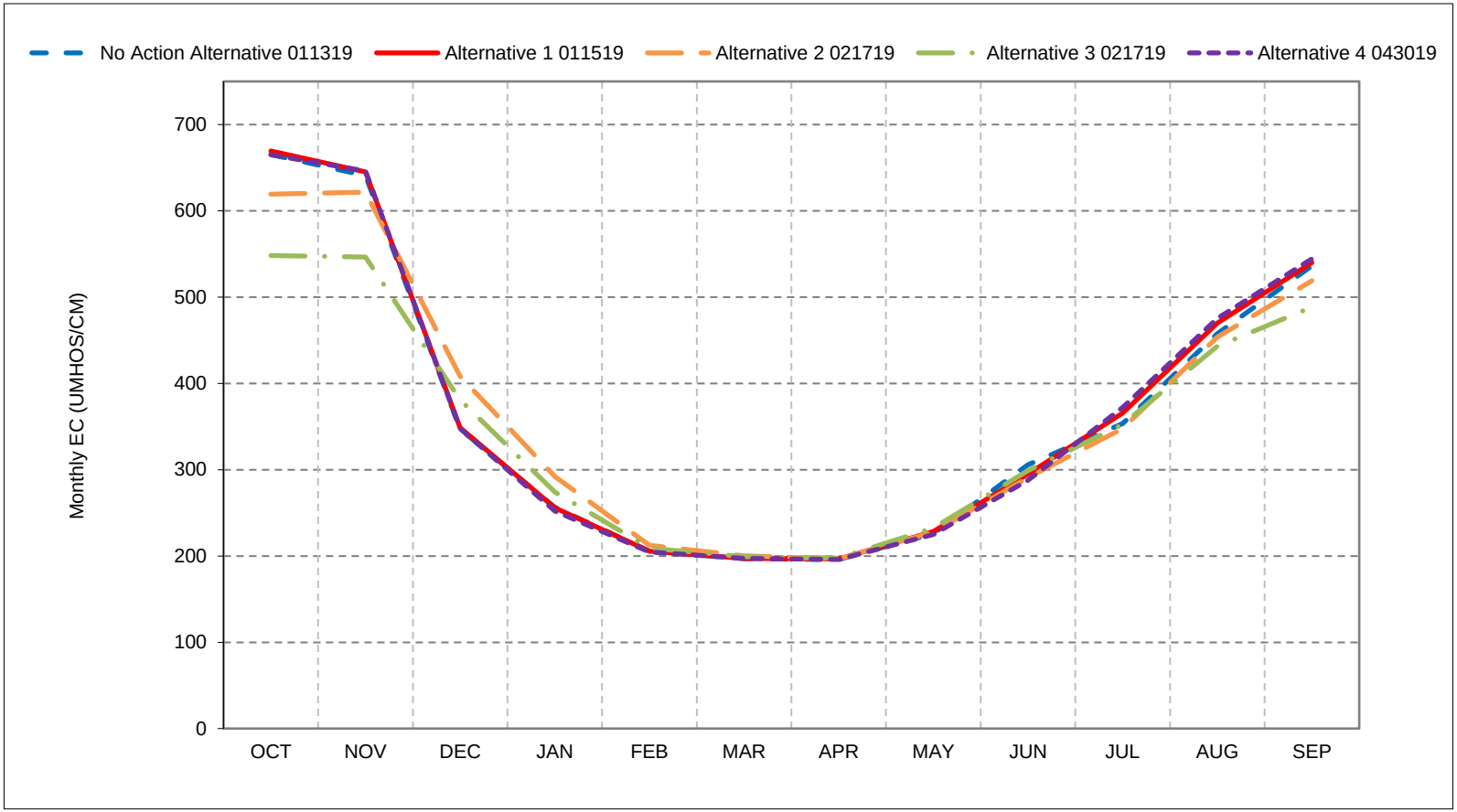

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-5. Sacramento River at Rio Vista Salinity, Dry Year Average EC



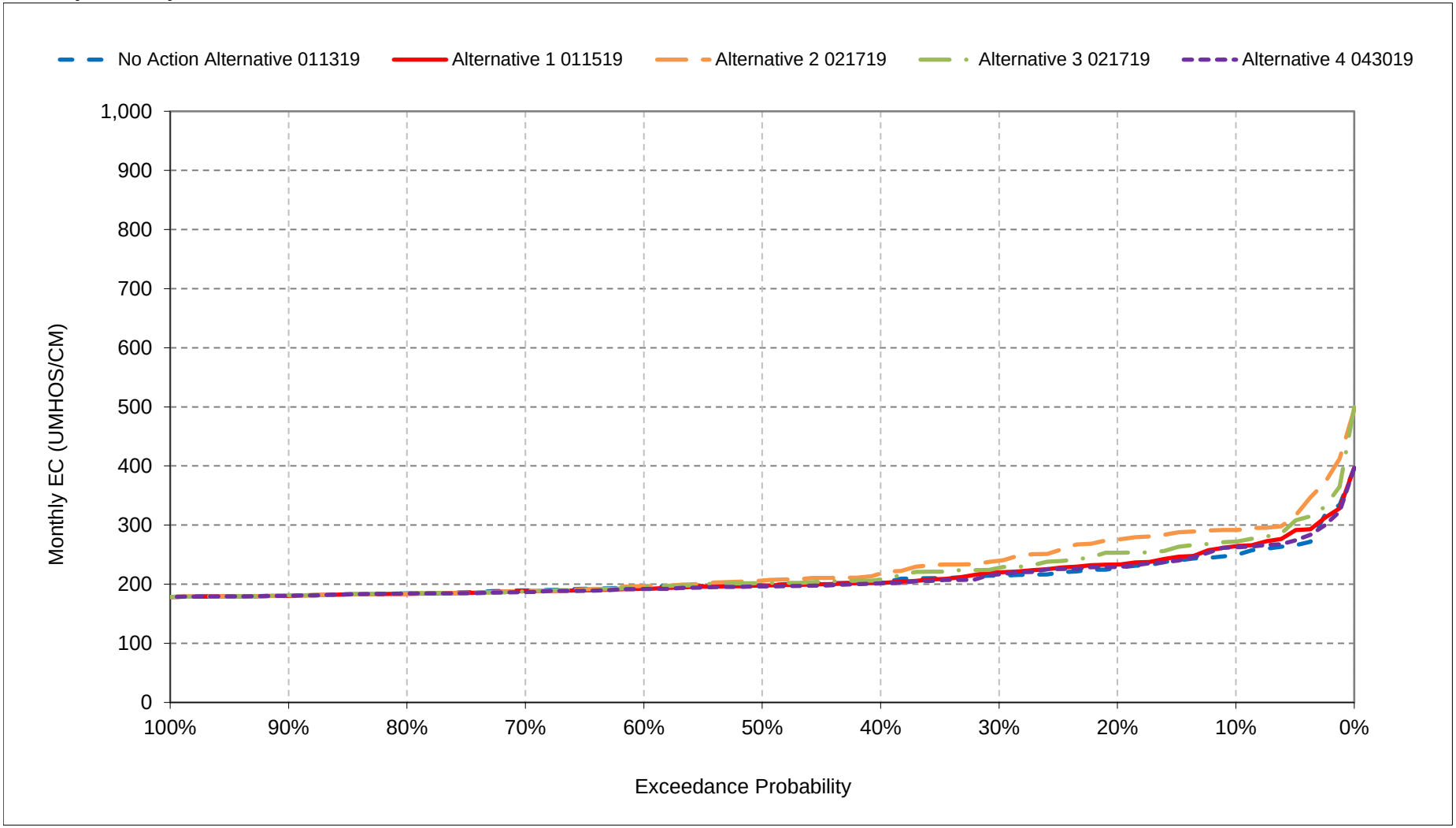

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 5-6. Sacramento River at Rio Vista Salinity, Critical Year Average EC



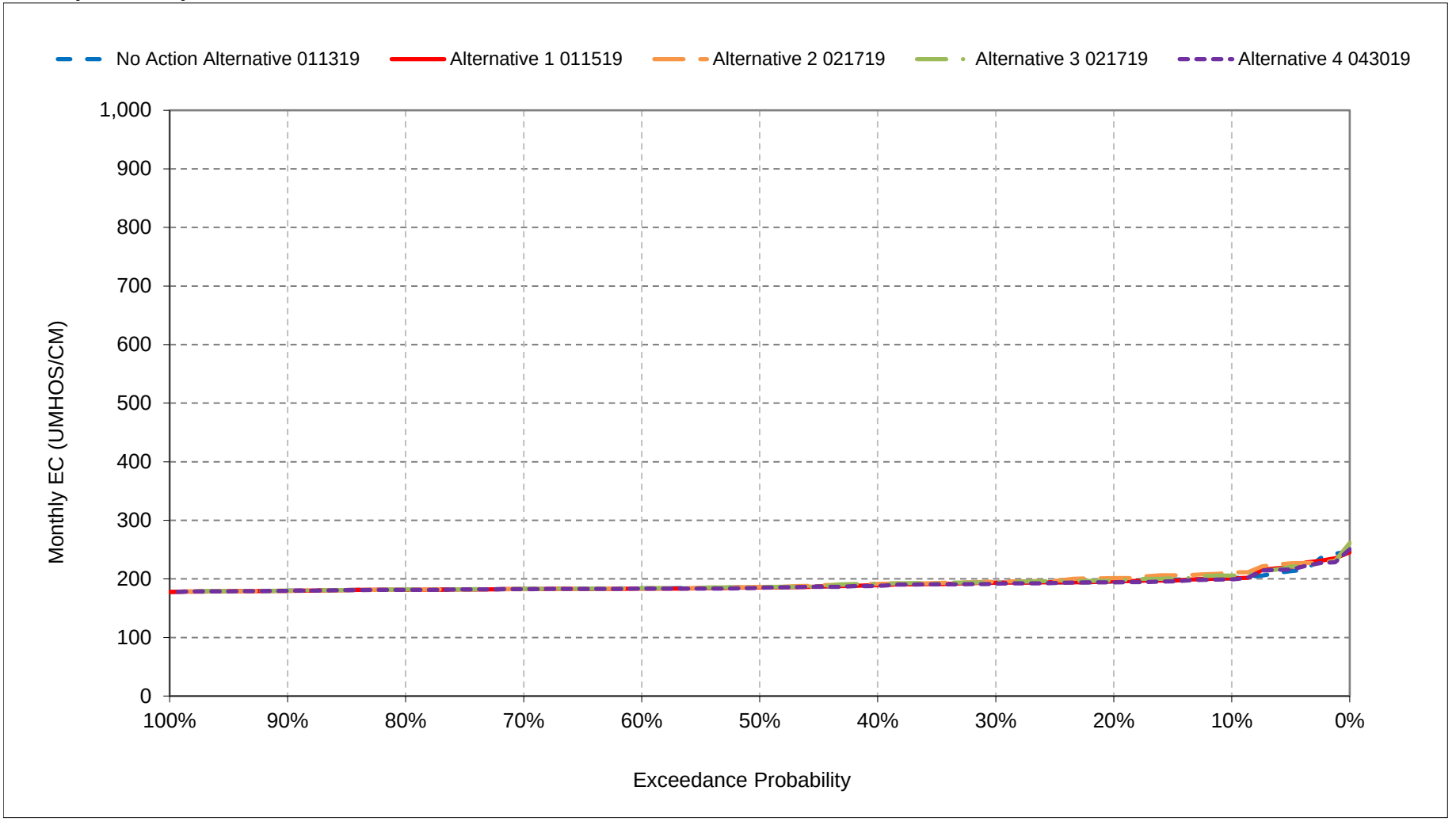

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 5-7. Sacramento River at Rio Vista**
**Salinity, January EC**



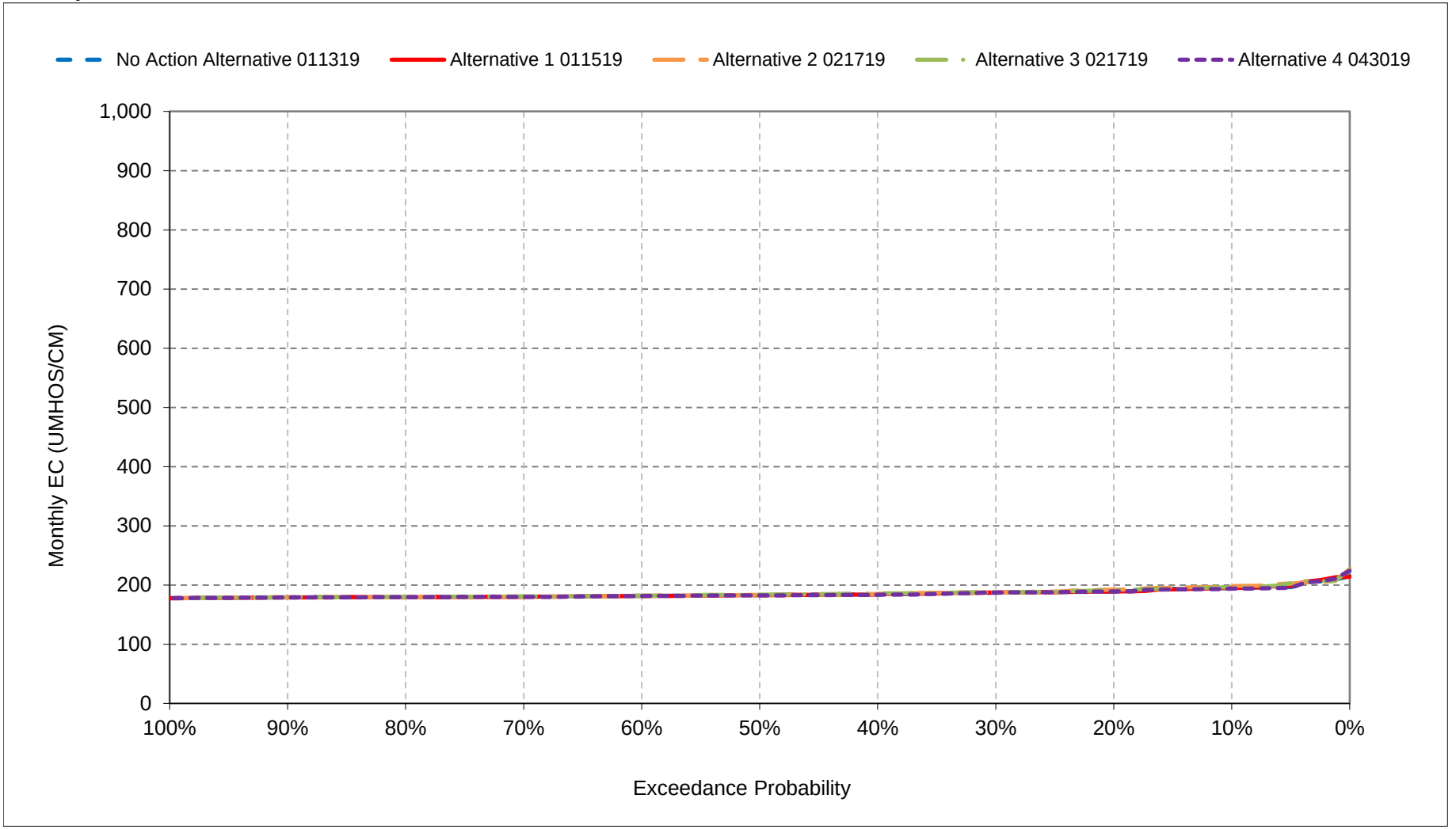

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 5-8. Sacramento River at Rio Vista**
**Salinity, February EC**



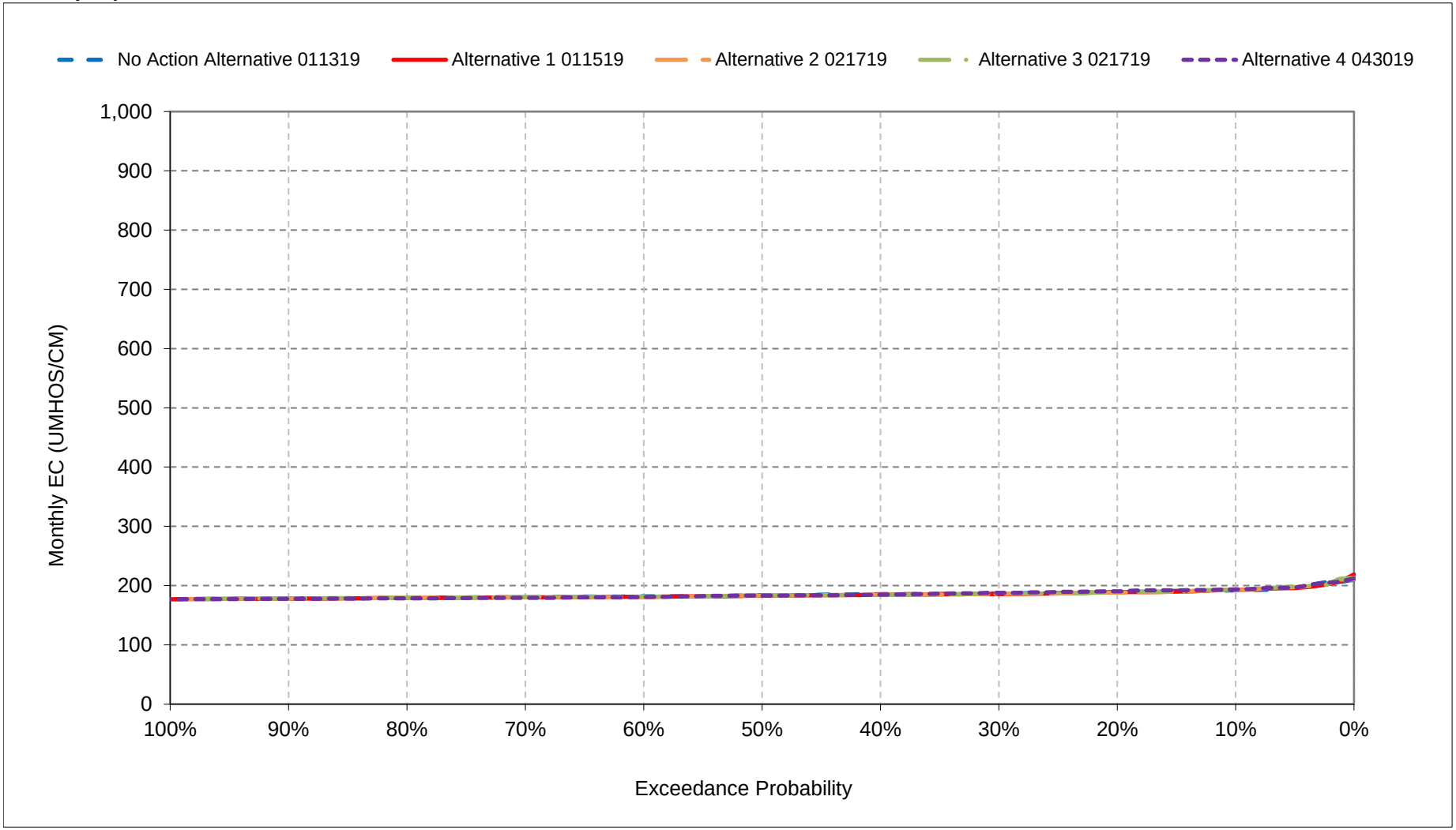

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 5-9. Sacramento River at Rio Vista**
**Salinity, March EC**



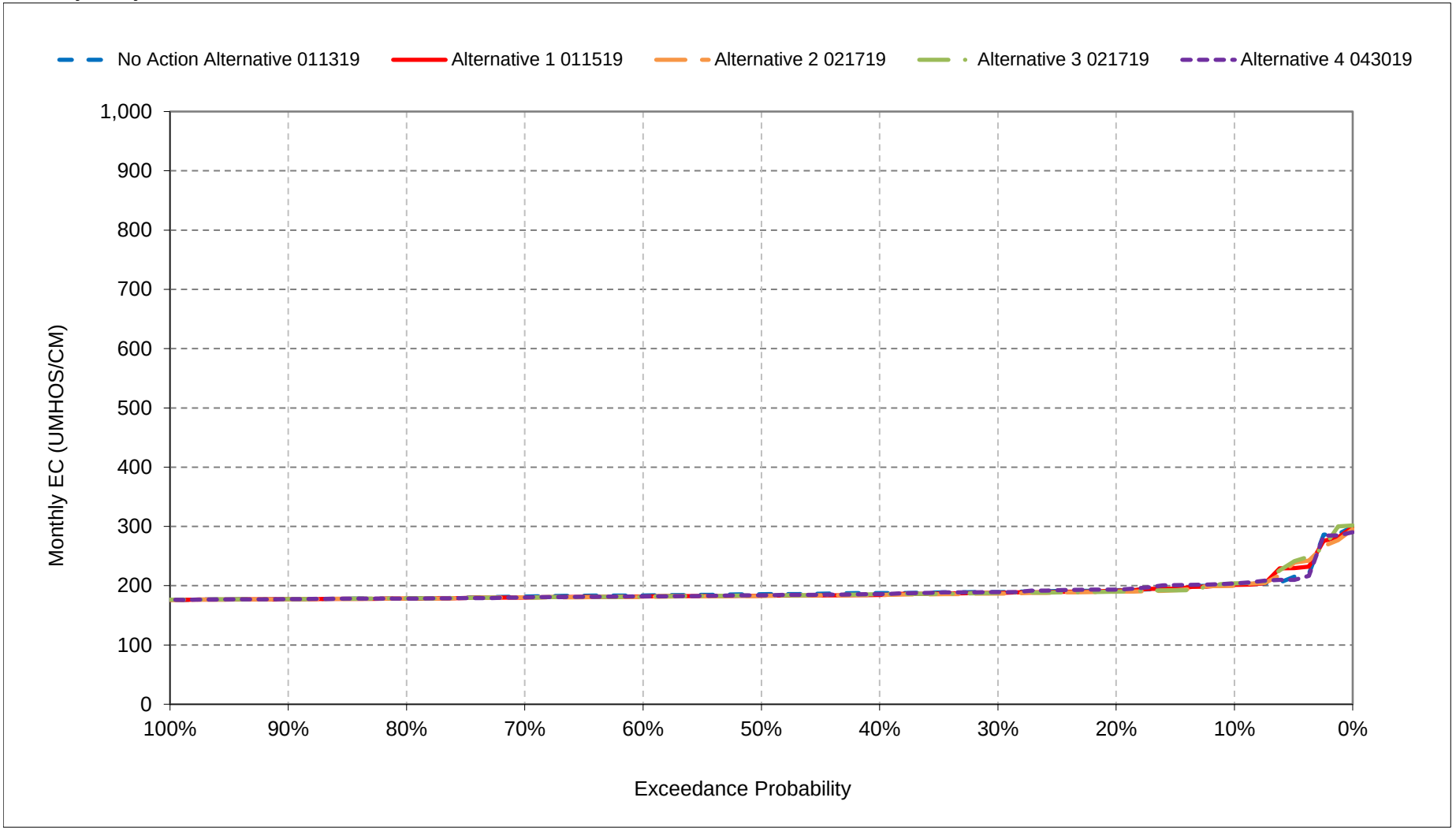

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 5-10. Sacramento River at Rio Vista**
**Salinity, April EC**



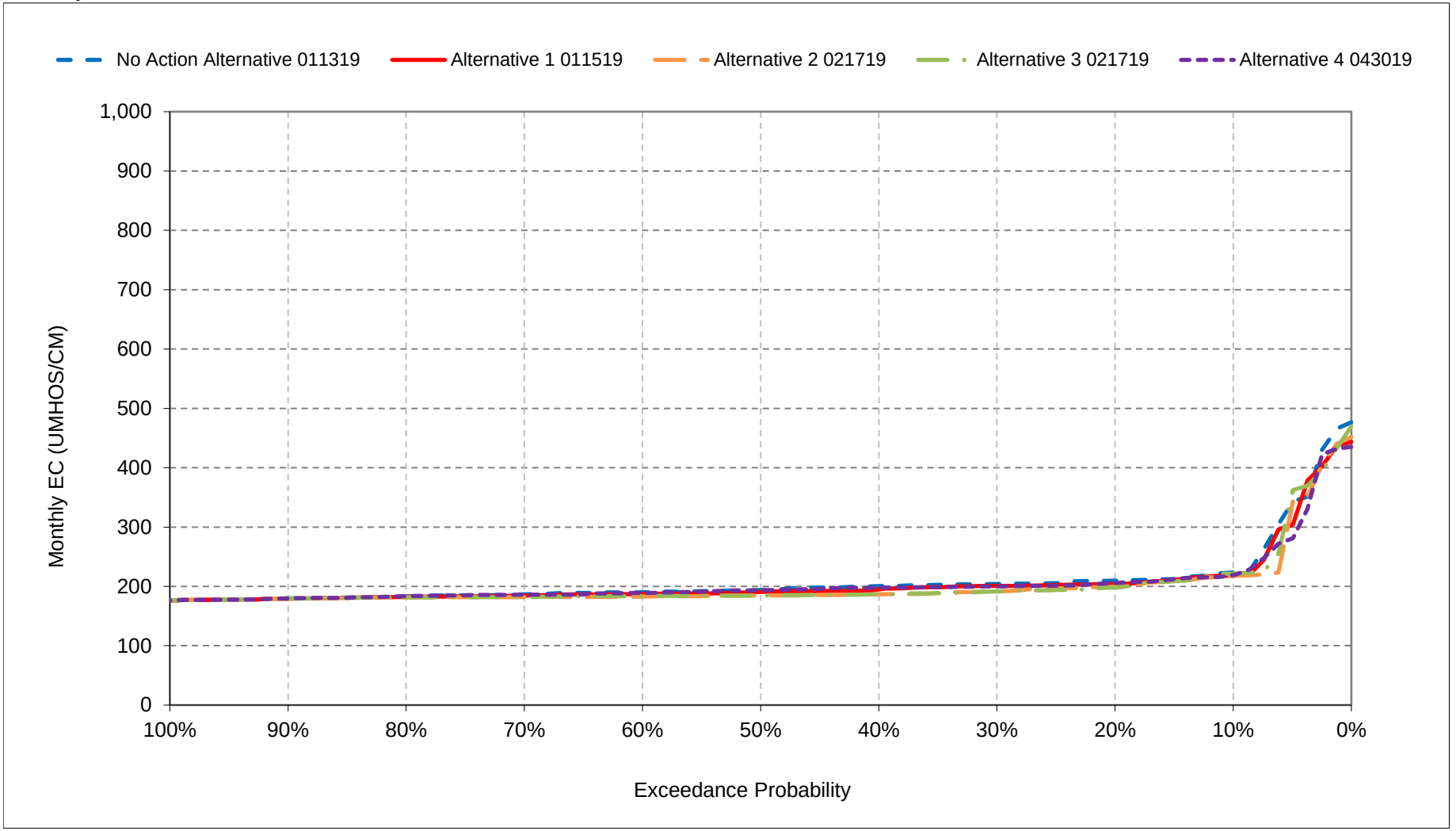

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 5-11. Sacramento River at Rio Vista**
**Salinity, May EC**



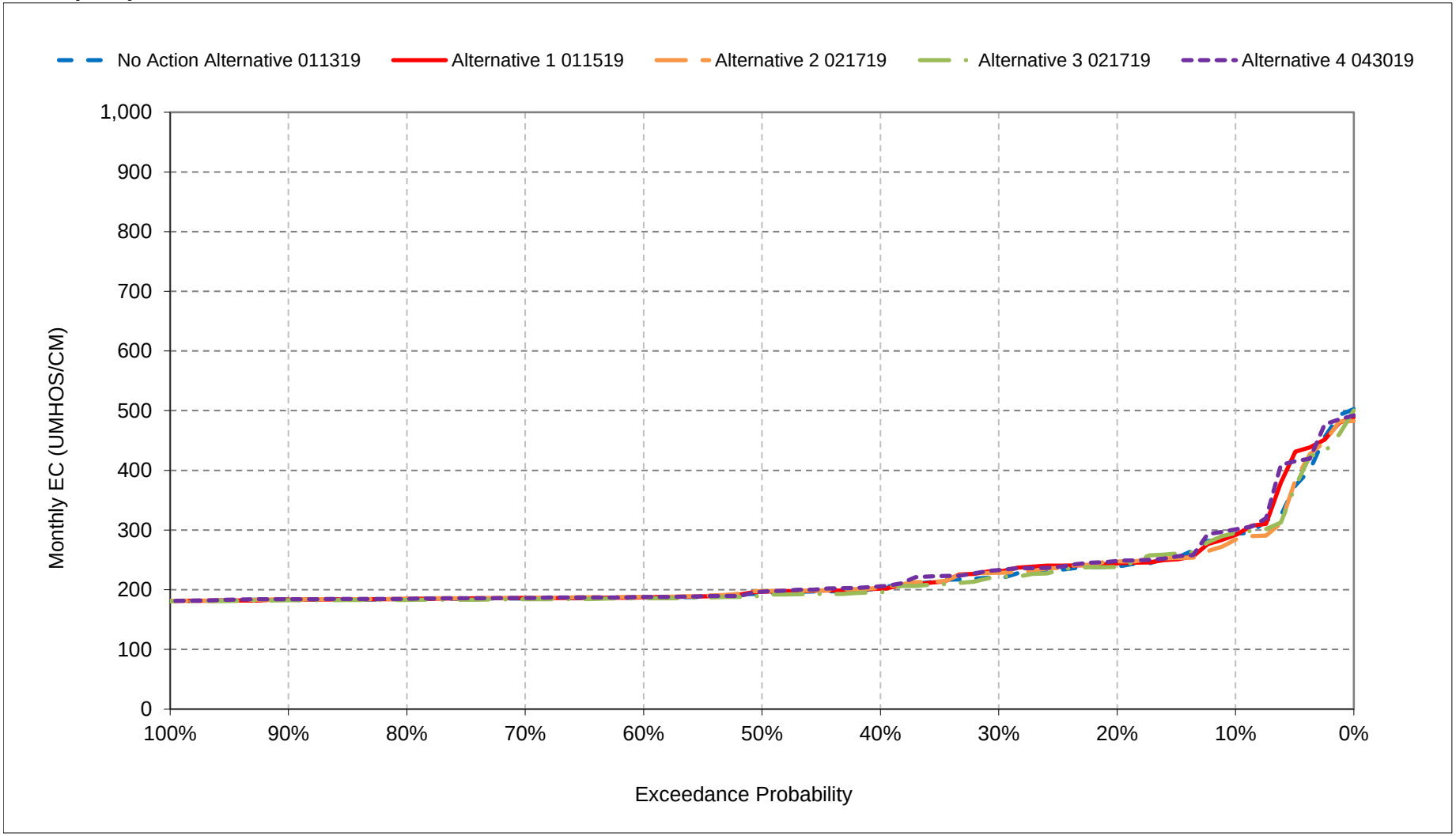

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 5-12. Sacramento River at Rio Vista**
**Salinity, June EC**



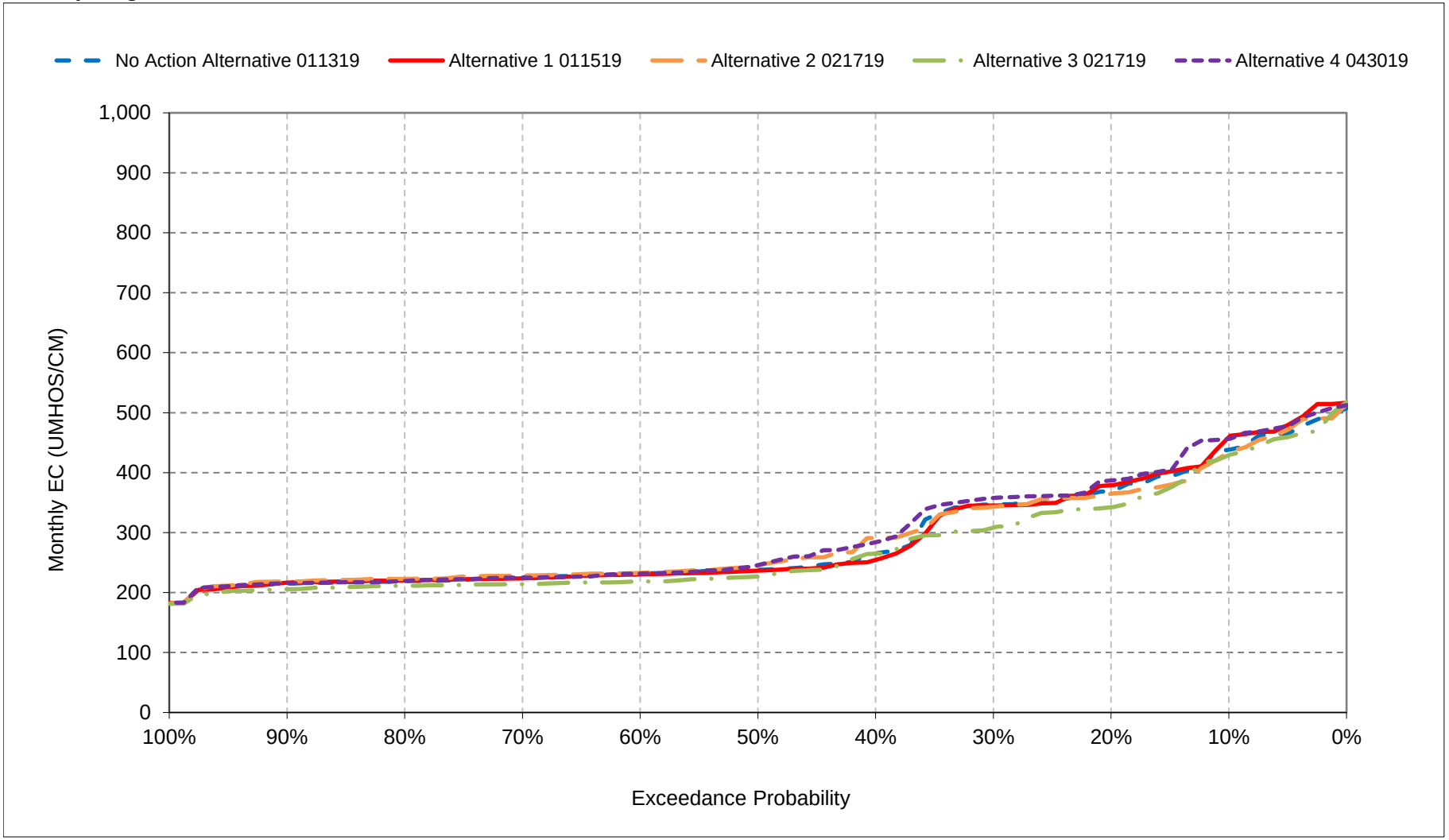

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 5-13. Sacramento River at Rio Vista**
**Salinity, July EC**



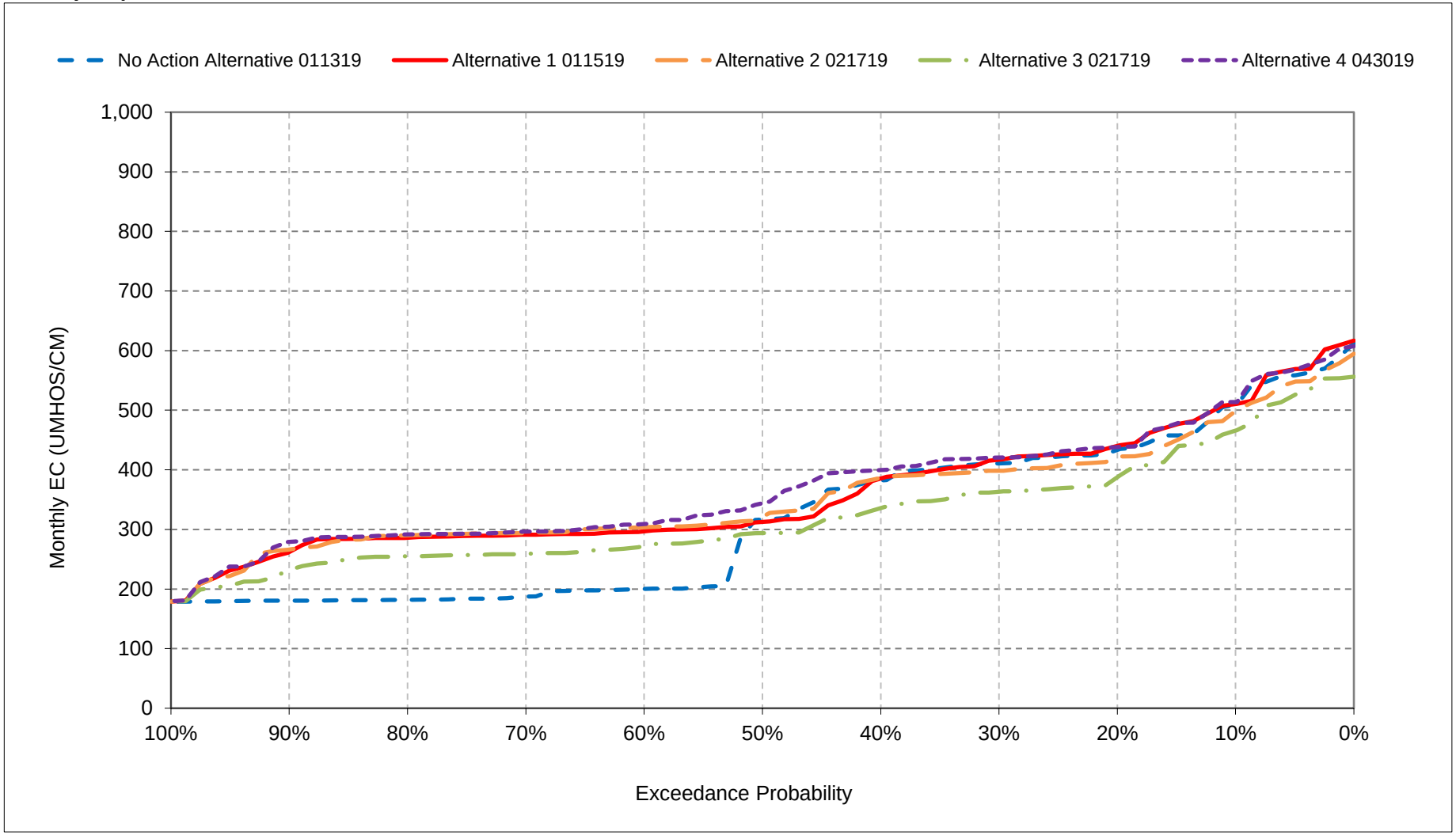

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 5-14. Sacramento River at Rio Vista**
**Salinity, August EC**



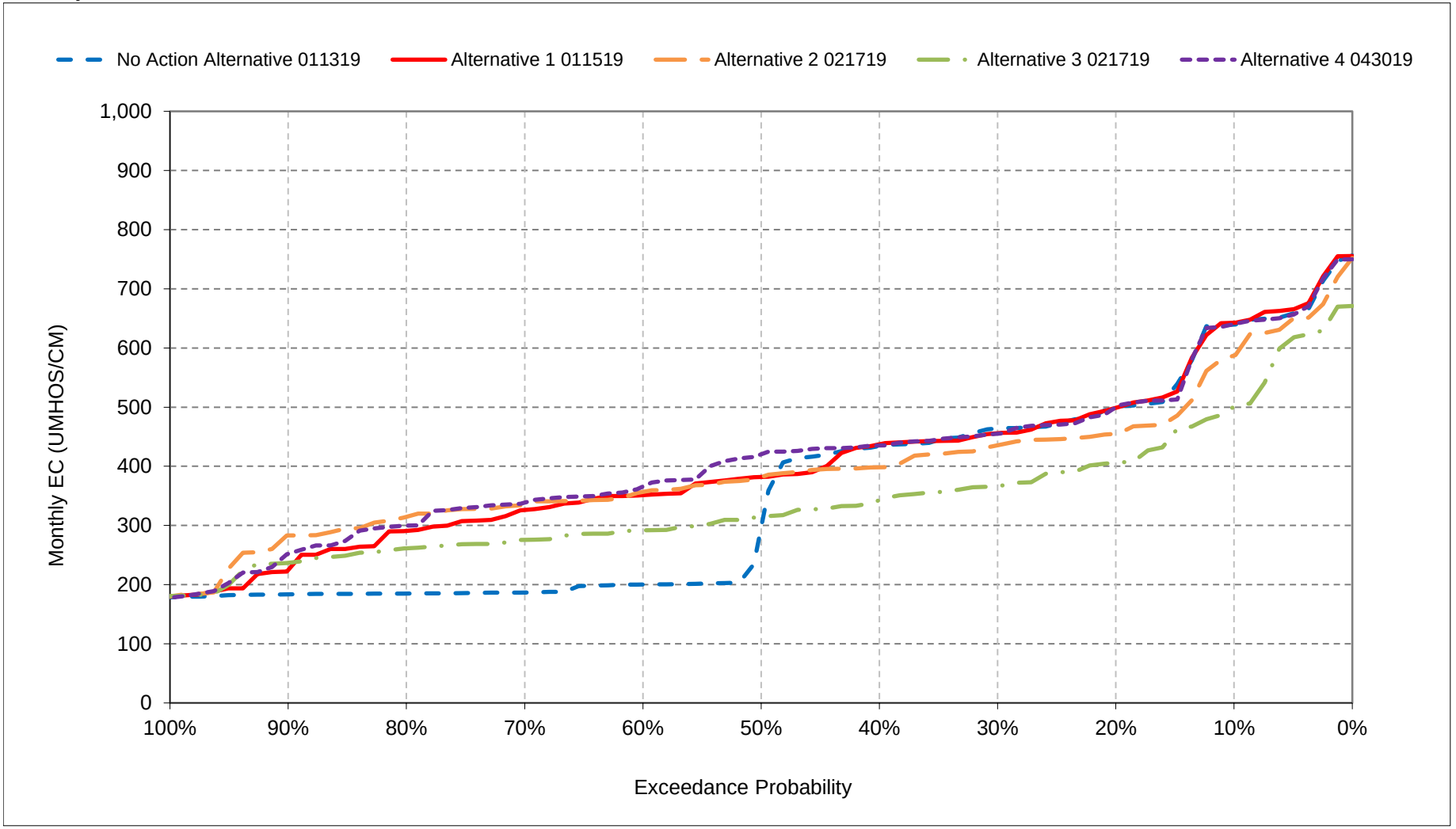

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 5-15. Sacramento River at Rio Vista**
**Salinity, September EC**



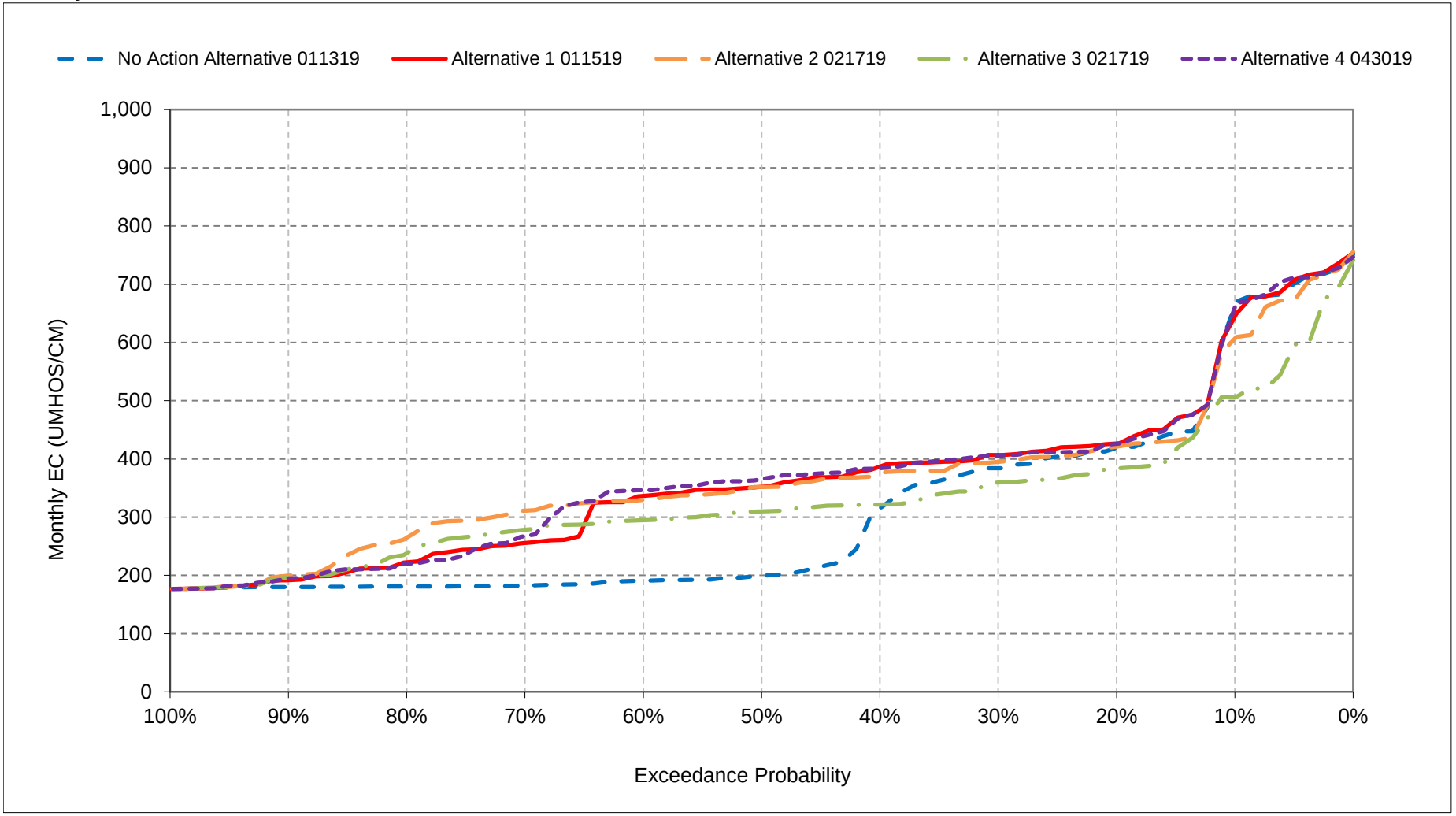

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 5-16. Sacramento River at Rio Vista**
**Salinity, October EC**



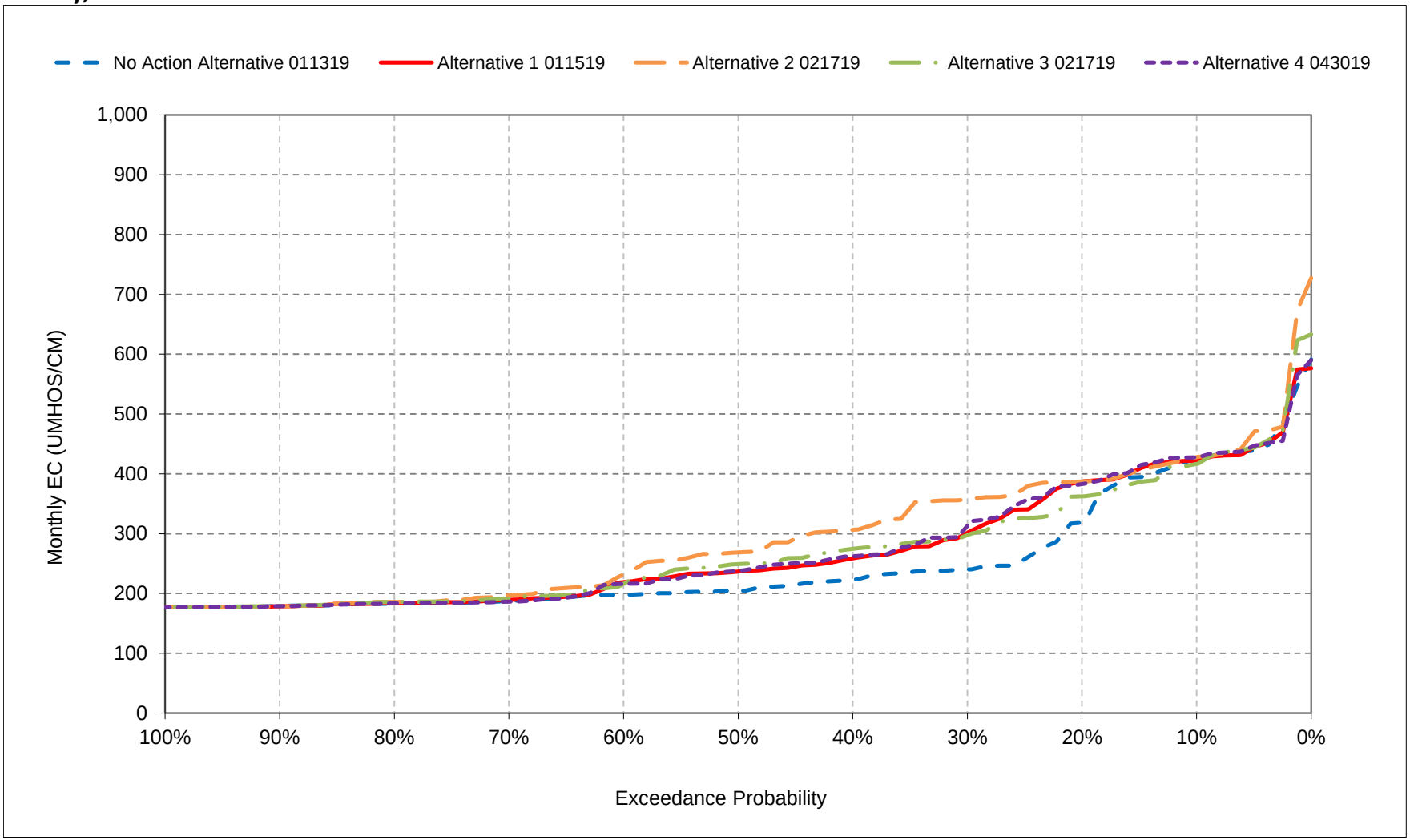

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 5-17. Sacramento River at Rio Vista**
**Salinity, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 5-18. Sacramento River at Rio Vista**
**Salinity, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 6-1. San Joaquin River at Vernalis Salinity (40-30-30), Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 575 | 639 | 800 | 774 | 941 | 847 | 561 | 571 | 646 | 648 | 644 | 608 |
| 20% | 560 | 608 | 784 | 758 | 898 | 803 | 499 | 548 | 639 | 648 | 610 | 586 |
| 30% | 540 | 587 | 772 | 746 | 855 | 737 | 408 | 489 | 616 | 646 | 581 | 568 |
| 40% | 519 | 579 | 766 | 737 | 802 | 696 | 368 | 435 | 588 | 637 | 573 | 552 |
| 50% | 503 | 565 | 761 | 726 | 697 | 623 | 323 | 378 | 555 | 625 | 558 | 538 |
| 60% | 488 | 552 | 755 | 709 | 635 | 460 | 298 | 360 | 499 | 614 | 544 | 521 |
| 70% | 474 | 538 | 736 | 651 | 475 | 333 | 284 | 342 | 454 | 602 | 524 | 489 |
| 80% | 456 | 509 | 710 | 585 | 329 | 296 | 261 | 293 | 419 | 581 | 455 | 476 |
| 90% | 430 | 481 | 629 | 392 | 285 | 263 | 205 | 190 | 361 | 491 | 431 | 441 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 503 | 554 | 721 | 660 | 647 | 564 | 360 | 402 | 521 | 599 | 540 | 526 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 439 | 483 | 664 | 536 | 397 | 333 | 241 | 270 | 407 | 520 | 444 | 447 |
| Above Normal (16%) | 493 | 541 | 735 | 656 | 610 | 502 | 312 | 356 | 514 | 621 | 539 | 520 |
| Below Normal (13%) | 507 | 572 | 741 | 709 | 700 | 595 | 349 | 418 | 557 | 622 | 554 | 534 |
| Dry (24%) | 544 | 592 | 731 | 727 | 814 | 716 | 433 | 482 | 591 | 633 | 586 | 569 |
| Critical (15%) | 578 | 641 | 797 | 776 | 901 | 853 | 556 | 587 | 628 | 669 | 656 | 626 |

### Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 584 | 639 | 800 | 776 | 945 | 847 | 612 | 662 | 685 | 707 | 671 | 620 |
| 20% | 571 | 608 | 784 | 760 | 899 | 804 | 525 | 619 | 665 | 698 | 646 | 599 |
| 30% | 551 | 588 | 772 | 748 | 856 | 737 | 445 | 543 | 632 | 675 | 593 | 569 |
| 40% | 520 | 579 | 766 | 738 | 802 | 697 | 366 | 452 | 610 | 640 | 574 | 553 |
| 50% | 502 | 565 | 761 | 728 | 697 | 623 | 309 | 372 | 563 | 629 | 560 | 540 |
| 60% | 486 | 553 | 755 | 712 | 636 | 464 | 293 | 356 | 501 | 616 | 548 | 525 |
| 70% | 472 | 544 | 741 | 648 | 475 | 339 | 284 | 344 | 460 | 603 | 532 | 491 |
| 80% | 457 | 508 | 710 | 585 | 321 | 297 | 261 | 293 | 420 | 583 | 455 | 479 |
| 90% | 434 | 480 | 609 | 391 | 277 | 253 | 205 | 191 | 361 | 497 | 441 | 440 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 504 | 555 | 721 | 660 | 650 | 569 | 373 | 427 | 537 | 617 | 550 | 530 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 440 | 486 | 663 | 532 | 392 | 335 | 240 | 273 | 414 | 525 | 447 | 449 |
| Above Normal (16%) | 488 | 541 | 735 | 654 | 607 | 497 | 302 | 350 | 510 | 643 | 540 | 520 |
| Below Normal (13%) | 515 | 573 | 741 | 712 | 703 | 603 | 375 | 465 | 578 | 630 | 558 | 537 |
| Dry (24%) | 549 | 592 | 731 | 731 | 820 | 716 | 461 | 527 | 613 | 662 | 608 | 579 |
| Critical (15%) | 577 | 641 | 797 | 776 | 926 | 879 | 590 | 644 | 669 | 704 | 677 | 631 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **9** | **0** | 0 | **2** | **5** | **0** | **51** | **91** | **39** | **59** | **27** | **12** |
| 20% | **11** | -1 | 0 | **2** | **1** | **0** | **26** | **72** | **25** | **50** | **36** | **12** |
| 30% | **11** | **1** | **0** | **1** | **2** | **0** | **37** | **54** | **16** | **29** | **12** | **0** |
| 40% | **1** | **0** | **0** | **1** | **0** | **1** | -1 | **17** | **21** | **3** | **1** | **1** |
| 50% | -1 | **0** | 0 | **2** | **1** | **0** | -15 | -6 | **8** | **4** | **2** | **2** |
| 60% | -3 | **1** | 0 | **3** | **1** | **4** | -5 | -4 | **2** | **2** | **3** | **4** |
| 70% | -1 | **7** | **4** | -3 | **0** | **6** | **0** | **2** | **6** | **1** | **8** | **2** |
| 80% | **1** | 0 | **0** | -1 | -8 | **1** | **0** | **0** | **1** | **2** | **0** | **3** |
| 90% | **4** | -1 | -20 | -1 | -9 | -10 | **0** | **1** | **0** | **6** | **9** | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **2** | **1** | 0 | 0 | **4** | **5** | **13** | **26** | **16** | **18** | **10** | **4** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1** | **3** | -1 | -4 | -5 | **3** | -1 | **4** | **7** | **5** | **3** | **2** |
| Above Normal (16%) | -5 | 0 | **0** | -2 | -3 | -5 | -10 | -6 | -3 | **22** | **1** | **0** |
| Below Normal (13%) | **9** | **0** | 0 | **3** | **3** | **8** | **26** | **47** | **22** | **8** | **4** | **3** |
| Dry (24%) | **5** | **0** | 0 | **4** | **6** | **0** | **28** | **45** | **22** | **29** | **22** | **9** |
| Critical (15%) | -1 | 0 | **0** | **0** | **25** | **26** | **34** | **57** | **41** | **35** | **22** | **5** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 6-2. San Joaquin River at Vernalis Salinity (40-30-30), Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 575 | 639 | 800 | 774 | 941 | 847 | 561 | 571 | 646 | 648 | 644 | 608 |
| 20% | 560 | 608 | 784 | 758 | 898 | 803 | 499 | 548 | 639 | 648 | 610 | 586 |
| 30% | 540 | 587 | 772 | 746 | 855 | 737 | 408 | 489 | 616 | 646 | 581 | 568 |
| 40% | 519 | 579 | 766 | 737 | 802 | 696 | 368 | 435 | 588 | 637 | 573 | 552 |
| 50% | 503 | 565 | 761 | 726 | 697 | 623 | 323 | 378 | 555 | 625 | 558 | 538 |
| 60% | 488 | 552 | 755 | 709 | 635 | 460 | 298 | 360 | 499 | 614 | 544 | 521 |
| 70% | 474 | 538 | 736 | 651 | 475 | 333 | 284 | 342 | 454 | 602 | 524 | 489 |
| 80% | 456 | 509 | 710 | 585 | 329 | 296 | 261 | 293 | 419 | 581 | 455 | 476 |
| 90% | 430 | 481 | 629 | 392 | 285 | 263 | 205 | 190 | 361 | 491 | 431 | 441 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 503 | 554 | 721 | 660 | 647 | 564 | 360 | 402 | 521 | 599 | 540 | 526 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 439 | 483 | 664 | 536 | 397 | 333 | 241 | 270 | 407 | 520 | 444 | 447 |
| Above Normal (16%) | 493 | 541 | 735 | 656 | 610 | 502 | 312 | 356 | 514 | 621 | 539 | 520 |
| Below Normal (13%) | 507 | 572 | 741 | 709 | 700 | 595 | 349 | 418 | 557 | 622 | 554 | 534 |
| Dry (24%) | 544 | 592 | 731 | 727 | 814 | 716 | 433 | 482 | 591 | 633 | 586 | 569 |
| Critical (15%) | 578 | 641 | 797 | 776 | 901 | 853 | 556 | 587 | 628 | 669 | 656 | 626 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 742 | 646 | 800 | 811 | 943 | 872 | 602 | 601 | 646 | 649 | 632 | 603 |
| 20% | 714 | 613 | 778 | 792 | 933 | 824 | 538 | 580 | 643 | 648 | 610 | 584 |
| 30% | 686 | 593 | 770 | 774 | 855 | 751 | 479 | 564 | 637 | 648 | 583 | 568 |
| 40% | 655 | 583 | 763 | 753 | 787 | 710 | 399 | 513 | 611 | 638 | 574 | 552 |
| 50% | 627 | 566 | 756 | 726 | 689 | 633 | 347 | 425 | 577 | 629 | 559 | 540 |
| 60% | 595 | 549 | 744 | 701 | 638 | 502 | 317 | 388 | 511 | 619 | 548 | 522 |
| 70% | 566 | 535 | 728 | 629 | 456 | 356 | 305 | 370 | 476 | 605 | 534 | 495 |
| 80% | 536 | 508 | 703 | 545 | 321 | 306 | 270 | 303 | 426 | 585 | 455 | 477 |
| 90% | 480 | 473 | 543 | 389 | 250 | 253 | 207 | 193 | 361 | 466 | 357 | 357 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 620 | 555 | 714 | 666 | 641 | 578 | 390 | 436 | 533 | 599 | 533 | 519 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 507 | 477 | 643 | 524 | 381 | 344 | 251 | 288 | 419 | 514 | 428 | 427 |
| Above Normal (16%) | 600 | 542 | 730 | 660 | 594 | 507 | 337 | 390 | 523 | 630 | 541 | 520 |
| Below Normal (13%) | 636 | 576 | 739 | 712 | 663 | 612 | 408 | 491 | 582 | 625 | 556 | 536 |
| Dry (24%) | 691 | 597 | 731 | 743 | 827 | 733 | 476 | 520 | 597 | 633 | 587 | 570 |
| Critical (15%) | 754 | 647 | 797 | 810 | 924 | 874 | 586 | 614 | 642 | 666 | 643 | 615 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **166** | **7** | **0** | **37** | **2** | **25** | **41** | **30** | **0** | **0** | -12 | -5 |
| 20% | **154** | **5** | -6 | **34** | **35** | **21** | **39** | **32** | **3** | **0** | 0 | -2 |
| 30% | **147** | **6** | -2 | **28** | 0 | **14** | **71** | **75** | **21** | **1** | **2** | **0** |
| 40% | **135** | **4** | -3 | **15** | -15 | **13** | **31** | **78** | **23** | **1** | **1** | **0** |
| 50% | **124** | **1** | -6 | 0 | -7 | **10** | **24** | **47** | **22** | **4** | **1** | **2** |
| 60% | **107** | -3 | -12 | -9 | **3** | **43** | **19** | **28** | **12** | **6** | **4** | **1** |
| 70% | **93** | -3 | -9 | -22 | -18 | **23** | **22** | **28** | **22** | **3** | **10** | **6** |
| 80% | **80** | -1 | -7 | -40 | -8 | **10** | **9** | **10** | **7** | **4** | **1** | **1** |
| 90% | **50** | -8 | -86 | -2 | -36 | -10 | **3** | **3** | 0 | -25 | -74 | -84 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **117** | **1** | -8 | **6** | -6 | **14** | **30** | **34** | **12** | -1 | -6 | -7 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **68** | -6 | -21 | -12 | -16 | **11** | **10** | **18** | **12** | -6 | -16 | -20 |
| Above Normal (16%) | **107** | **0** | -5 | **4** | -16 | **5** | **25** | **34** | **9** | **9** | **2** | **0** |
| Below Normal (13%) | **129** | **3** | -3 | **3** | -37 | **17** | **58** | **74** | **25** | **3** | **2** | **1** |
| Dry (24%) | **147** | **5** | **0** | **16** | **13** | **17** | **43** | **38** | **6** | **1** | **1** | **0** |
| Critical (15%) | **175** | **6** | **0** | **34** | **23** | **21** | **30** | **27** | **13** | -3 | -13 | -11 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 6-3. San Joaquin River at Vernalis Salinity (40-30-30), Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 575 | 639 | 800 | 774 | 941 | 847 | 561 | 571 | 646 | 648 | 644 | 608 |
| 20% | 560 | 608 | 784 | 758 | 898 | 803 | 499 | 548 | 639 | 648 | 610 | 586 |
| 30% | 540 | 587 | 772 | 746 | 855 | 737 | 408 | 489 | 616 | 646 | 581 | 568 |
| 40% | 519 | 579 | 766 | 737 | 802 | 696 | 368 | 435 | 588 | 637 | 573 | 552 |
| 50% | 503 | 565 | 761 | 726 | 697 | 623 | 323 | 378 | 555 | 625 | 558 | 538 |
| 60% | 488 | 552 | 755 | 709 | 635 | 460 | 298 | 360 | 499 | 614 | 544 | 521 |
| 70% | 474 | 538 | 736 | 651 | 475 | 333 | 284 | 342 | 454 | 602 | 524 | 489 |
| 80% | 456 | 509 | 710 | 585 | 329 | 296 | 261 | 293 | 419 | 581 | 455 | 476 |
| 90% | 430 | 481 | 629 | 392 | 285 | 263 | 205 | 190 | 361 | 491 | 431 | 441 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 503 | 554 | 721 | 660 | 647 | 564 | 360 | 402 | 521 | 599 | 540 | 526 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 439 | 483 | 664 | 536 | 397 | 333 | 241 | 270 | 407 | 520 | 444 | 447 |
| Above Normal (16%) | 493 | 541 | 735 | 656 | 610 | 502 | 312 | 356 | 514 | 621 | 539 | 520 |
| Below Normal (13%) | 507 | 572 | 741 | 709 | 700 | 595 | 349 | 418 | 557 | 622 | 554 | 534 |
| Dry (24%) | 544 | 592 | 731 | 727 | 814 | 716 | 433 | 482 | 591 | 633 | 586 | 569 |
| Critical (15%) | 578 | 641 | 797 | 776 | 901 | 853 | 556 | 587 | 628 | 669 | 656 | 626 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 742 | 646 | 800 | 811 | 943 | 871 | 602 | 601 | 646 | 649 | 632 | 603 |
| 20% | 714 | 613 | 778 | 792 | 933 | 824 | 538 | 580 | 643 | 648 | 610 | 584 |
| 30% | 686 | 593 | 770 | 774 | 855 | 751 | 479 | 564 | 637 | 648 | 583 | 568 |
| 40% | 655 | 583 | 763 | 753 | 787 | 710 | 398 | 513 | 610 | 638 | 574 | 552 |
| 50% | 627 | 566 | 756 | 726 | 689 | 633 | 347 | 425 | 577 | 629 | 560 | 540 |
| 60% | 595 | 549 | 744 | 701 | 638 | 502 | 317 | 388 | 511 | 619 | 548 | 522 |
| 70% | 566 | 535 | 728 | 629 | 456 | 356 | 305 | 370 | 476 | 605 | 534 | 495 |
| 80% | 536 | 508 | 703 | 545 | 321 | 306 | 270 | 303 | 426 | 585 | 455 | 477 |
| 90% | 480 | 473 | 543 | 389 | 250 | 253 | 207 | 193 | 361 | 466 | 357 | 357 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 620 | 555 | 714 | 666 | 641 | 578 | 390 | 436 | 533 | 599 | 533 | 519 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 507 | 477 | 643 | 524 | 381 | 344 | 251 | 288 | 419 | 514 | 428 | 427 |
| Above Normal (16%) | 600 | 542 | 730 | 660 | 594 | 507 | 337 | 390 | 523 | 630 | 541 | 520 |
| Below Normal (13%) | 636 | 576 | 739 | 712 | 663 | 612 | 408 | 491 | 582 | 625 | 555 | 536 |
| Dry (24%) | 691 | 597 | 731 | 743 | 827 | 733 | 476 | 519 | 597 | 633 | 587 | 570 |
| Critical (15%) | 754 | 647 | 797 | 810 | 924 | 873 | 586 | 614 | 642 | 666 | 643 | 615 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **166** | **7** | **0** | **37** | **2** | **24** | **41** | **30** | **0** | **0** | -12 | -5 |
| 20% | **154** | **5** | -6 | **34** | **35** | **21** | **39** | **32** | **3** | **0** | 0 | -2 |
| 30% | **147** | **6** | -2 | **28** | 0 | **14** | **71** | **75** | **21** | **1** | **2** | **0** |
| 40% | **135** | **4** | -3 | **15** | -15 | **13** | **31** | **78** | **22** | **1** | **1** | **0** |
| 50% | **124** | **1** | -6 | 0 | -7 | **10** | **24** | **47** | **22** | **4** | **1** | **2** |
| 60% | **107** | -3 | -12 | -9 | **3** | **43** | **19** | **28** | **12** | **5** | **4** | **1** |
| 70% | **93** | -3 | -9 | -22 | -18 | **23** | **22** | **28** | **22** | **3** | **10** | **6** |
| 80% | **80** | -1 | -7 | -40 | -8 | **10** | **9** | **10** | **7** | **4** | **1** | **1** |
| 90% | **50** | -8 | -86 | -2 | -36 | -10 | **3** | **3** | 0 | -25 | -74 | -84 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **117** | **1** | -8 | **6** | -6 | **14** | **30** | **34** | **12** | -1 | -6 | -7 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **68** | -6 | -21 | -12 | -16 | **11** | **10** | **18** | **12** | -6 | -16 | -20 |
| Above Normal (16%) | **107** | **0** | -5 | **4** | -16 | **5** | **25** | **34** | **9** | **9** | **2** | **0** |
| Below Normal (13%) | **129** | **3** | -3 | **3** | -37 | **17** | **58** | **74** | **25** | **3** | **2** | **1** |
| Dry (24%) | **147** | **5** | **0** | **16** | **13** | **17** | **43** | **38** | **6** | **1** | **1** | **0** |
| Critical (15%) | **175** | **6** | **0** | **34** | **23** | **21** | **30** | **27** | **13** | -3 | -13 | -11 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 6-4. San Joaquin River at Vernalis Salinity (40-30-30), Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 575 | 639 | 800 | 774 | 941 | 847 | 561 | 571 | 646 | 648 | 644 | 608 |
| 20% | 560 | 608 | 784 | 758 | 898 | 803 | 499 | 548 | 639 | 648 | 610 | 586 |
| 30% | 540 | 587 | 772 | 746 | 855 | 737 | 408 | 489 | 616 | 646 | 581 | 568 |
| 40% | 519 | 579 | 766 | 737 | 802 | 696 | 368 | 435 | 588 | 637 | 573 | 552 |
| 50% | 503 | 565 | 761 | 726 | 697 | 623 | 323 | 378 | 555 | 625 | 558 | 538 |
| 60% | 488 | 552 | 755 | 709 | 635 | 460 | 298 | 360 | 499 | 614 | 544 | 521 |
| 70% | 474 | 538 | 736 | 651 | 475 | 333 | 284 | 342 | 454 | 602 | 524 | 489 |
| 80% | 456 | 509 | 710 | 585 | 329 | 296 | 261 | 293 | 419 | 581 | 455 | 476 |
| 90% | 430 | 481 | 629 | 392 | 285 | 263 | 205 | 190 | 361 | 491 | 431 | 441 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 503 | 554 | 721 | 660 | 647 | 564 | 360 | 402 | 521 | 599 | 540 | 526 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 439 | 483 | 664 | 536 | 397 | 333 | 241 | 270 | 407 | 520 | 444 | 447 |
| Above Normal (16%) | 493 | 541 | 735 | 656 | 610 | 502 | 312 | 356 | 514 | 621 | 539 | 520 |
| Below Normal (13%) | 507 | 572 | 741 | 709 | 700 | 595 | 349 | 418 | 557 | 622 | 554 | 534 |
| Dry (24%) | 544 | 592 | 731 | 727 | 814 | 716 | 433 | 482 | 591 | 633 | 586 | 569 |
| Critical (15%) | 578 | 641 | 797 | 776 | 901 | 853 | 556 | 587 | 628 | 669 | 656 | 626 |

### Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 583 | 639 | 799 | 776 | 945 | 847 | 605 | 659 | 685 | 707 | 661 | 620 |
| 20% | 571 | 608 | 784 | 760 | 899 | 803 | 524 | 616 | 664 | 691 | 641 | 598 |
| 30% | 551 | 588 | 772 | 748 | 856 | 737 | 445 | 542 | 630 | 675 | 593 | 568 |
| 40% | 520 | 579 | 766 | 738 | 802 | 697 | 366 | 450 | 609 | 640 | 574 | 552 |
| 50% | 502 | 565 | 761 | 728 | 697 | 623 | 309 | 372 | 562 | 628 | 557 | 540 |
| 60% | 486 | 553 | 755 | 712 | 636 | 464 | 293 | 356 | 500 | 613 | 547 | 524 |
| 70% | 472 | 544 | 741 | 648 | 475 | 339 | 283 | 343 | 460 | 603 | 532 | 490 |
| 80% | 457 | 508 | 710 | 584 | 321 | 297 | 261 | 293 | 418 | 582 | 455 | 479 |
| 90% | 434 | 480 | 609 | 391 | 277 | 253 | 205 | 191 | 361 | 497 | 440 | 440 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 504 | 555 | 721 | 660 | 650 | 569 | 372 | 426 | 536 | 616 | 548 | 529 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 440 | 486 | 663 | 532 | 392 | 335 | 240 | 273 | 414 | 525 | 447 | 449 |
| Above Normal (16%) | 488 | 541 | 735 | 654 | 607 | 497 | 302 | 350 | 510 | 643 | 540 | 520 |
| Below Normal (13%) | 515 | 573 | 741 | 712 | 703 | 603 | 375 | 463 | 575 | 628 | 556 | 536 |
| Dry (24%) | 549 | 592 | 731 | 731 | 820 | 716 | 461 | 527 | 613 | 661 | 608 | 579 |
| Critical (15%) | 577 | 641 | 797 | 776 | 926 | 878 | 585 | 639 | 663 | 697 | 668 | 627 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **8** | **0** | 0 | **2** | **5** | **0** | **44** | **88** | **39** | **58** | **17** | **12** |
| 20% | **10** | -1 | **0** | **2** | **1** | 0 | **25** | **68** | **25** | **43** | **31** | **11** |
| 30% | **11** | **1** | **0** | **1** | **2** | **0** | **37** | **53** | **14** | **29** | **12** | **0** |
| 40% | **0** | **0** | **0** | **1** | **0** | **0** | -2 | **15** | **21** | **3** | **0** | **1** |
| 50% | -1 | **0** | 0 | **2** | **0** | **0** | -15 | -6 | **7** | **4** | -1 | **2** |
| 60% | -3 | **1** | **0** | **3** | **0** | **4** | -5 | -4 | **1** | -1 | **3** | **3** |
| 70% | -1 | **7** | **4** | -3 | 0 | **6** | 0 | **1** | **6** | **1** | **8** | **1** |
| 80% | **1** | -1 | **0** | -1 | -8 | **1** | **0** | **0** | -1 | **1** | **0** | **3** |
| 90% | **4** | -1 | -20 | -1 | -9 | -10 | **0** | **1** | **0** | **6** | **9** | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **2** | **1** | 0 | 0 | **3** | **5** | **12** | **25** | **14** | **17** | **9** | **3** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1** | **3** | -1 | -4 | -5 | **3** | -1 | **3** | **6** | **5** | **3** | **2** |
| Above Normal (16%) | -5 | 0 | **0** | -2 | -3 | -5 | -11 | -7 | -4 | **21** | **1** | **0** |
| Below Normal (13%) | **8** | **0** | 0 | **3** | **3** | **8** | **25** | **46** | **19** | **6** | **3** | **2** |
| Dry (24%) | **5** | **0** | 0 | **4** | **6** | **0** | **28** | **45** | **22** | **28** | **22** | **9** |
| Critical (15%) | -2 | 0 | 0 | **0** | **25** | **25** | **28** | **52** | **34** | **28** | **13** | **1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

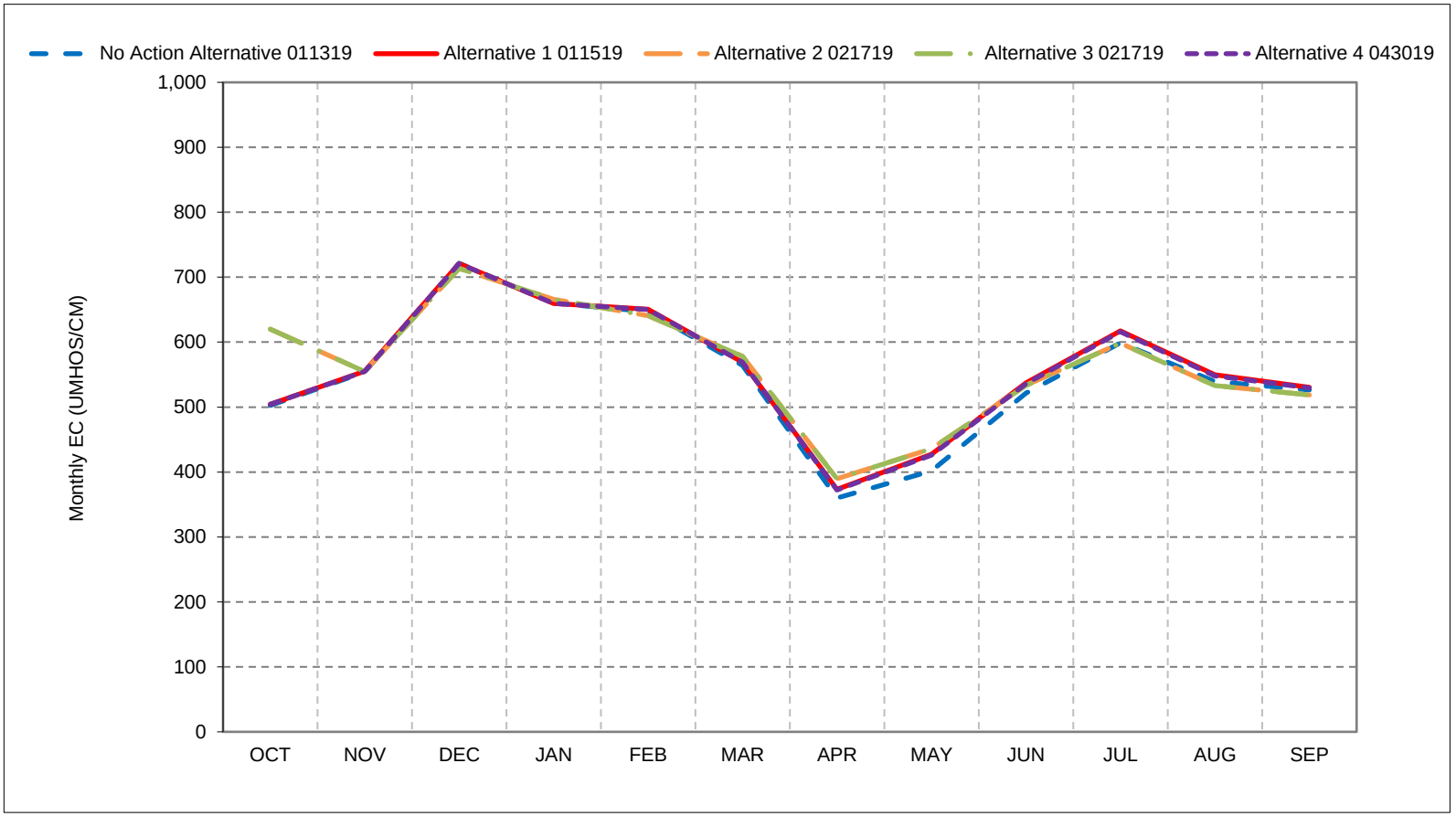
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

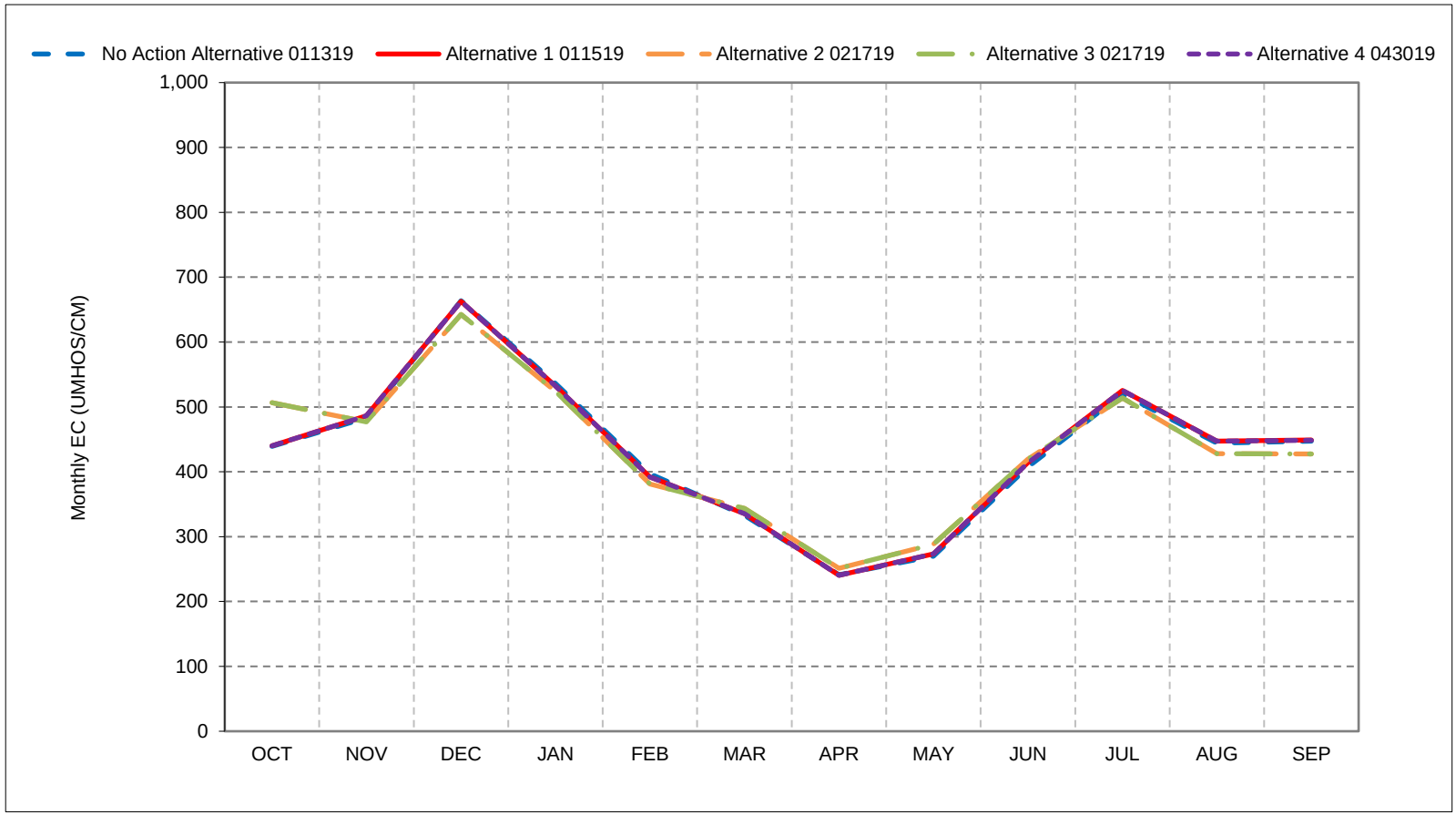
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-1. San Joaquin River at Vernalis Salinity (40-30-30), Long-Term Average EC



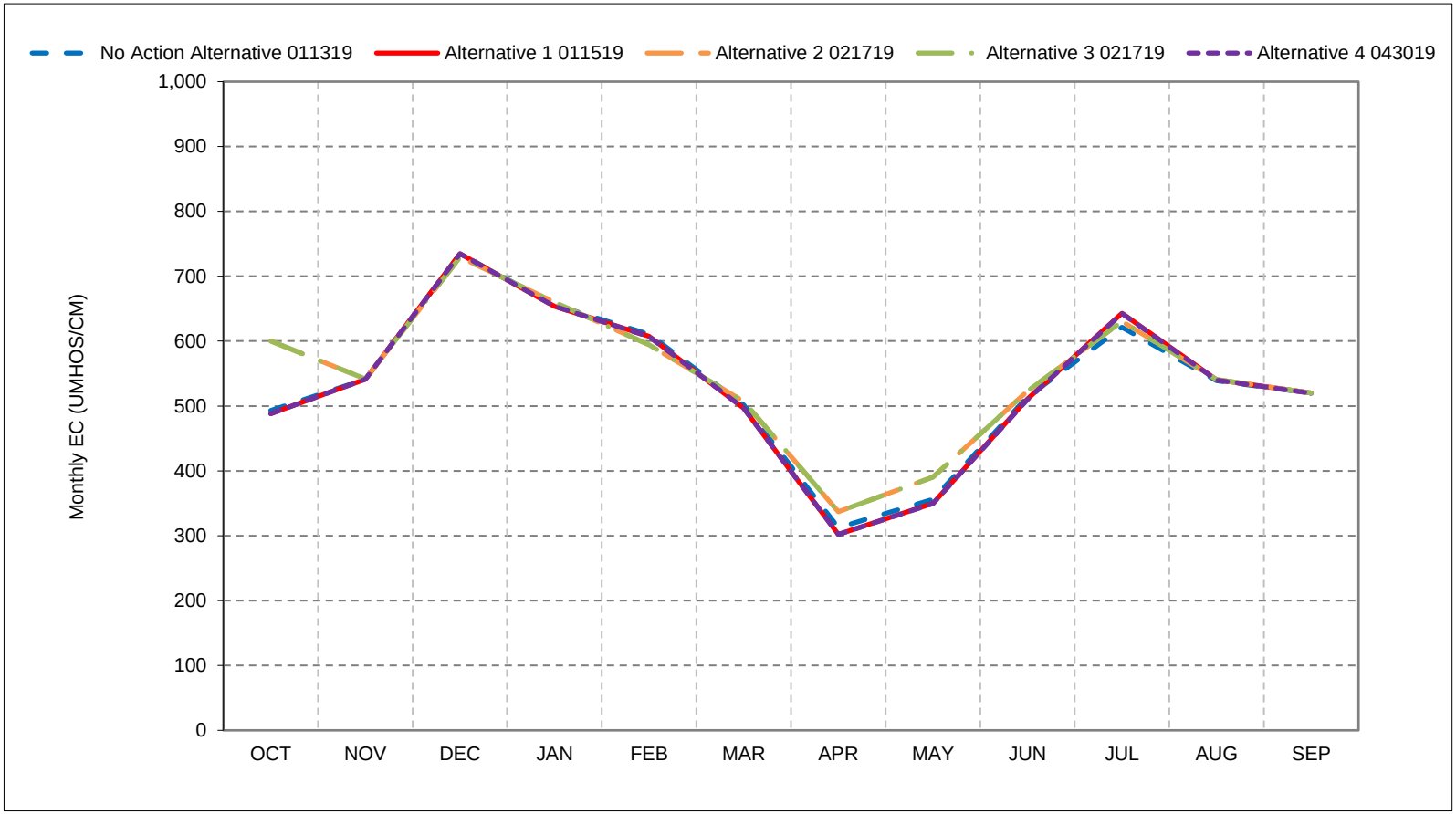

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-2. San Joaquin River at Vernalis Salinity (40-30-30), Wet Year Average EC



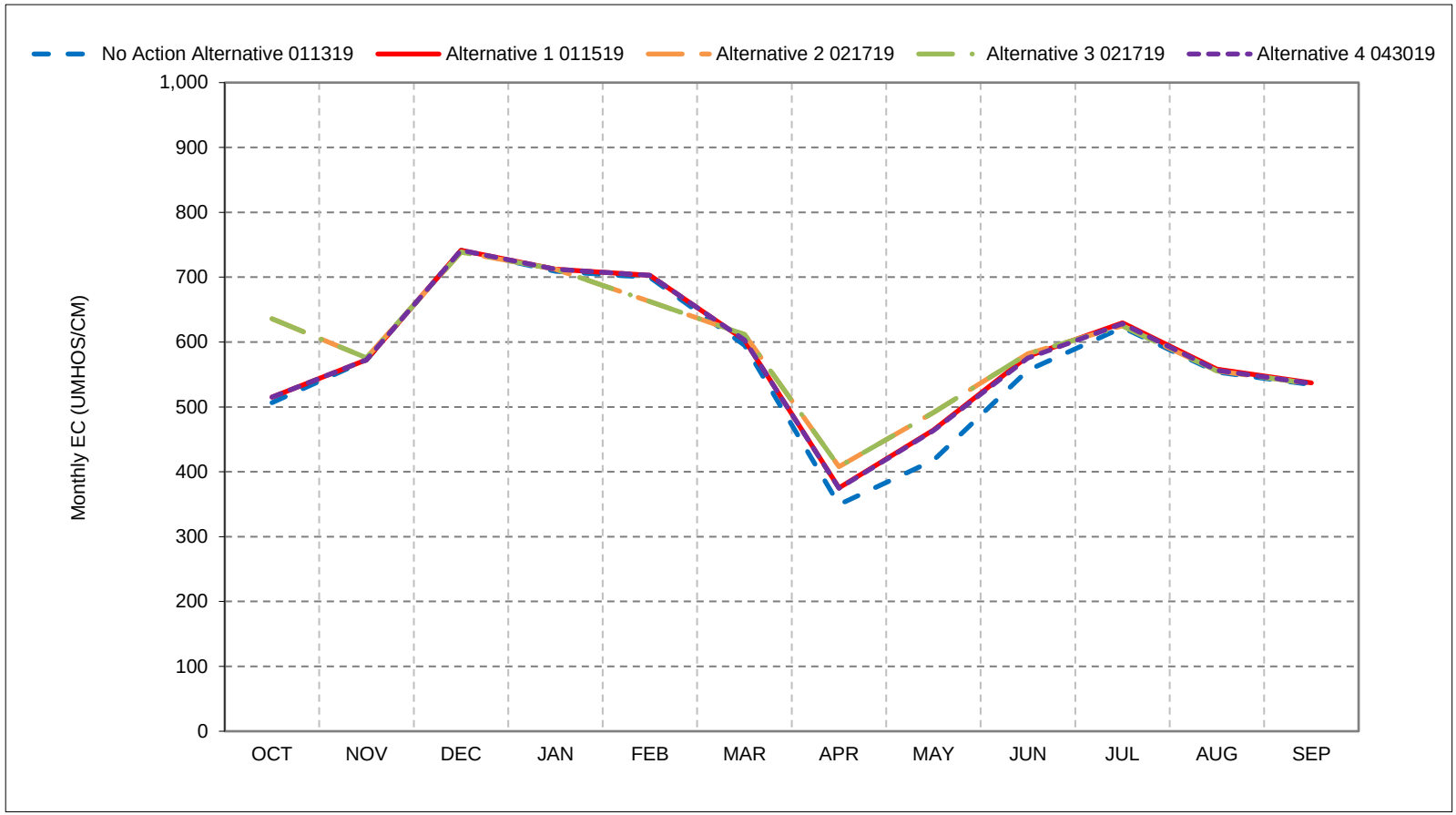

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-3. San Joaquin River at Vernalis Salinity (40-30-30), Above Normal Year Average EC



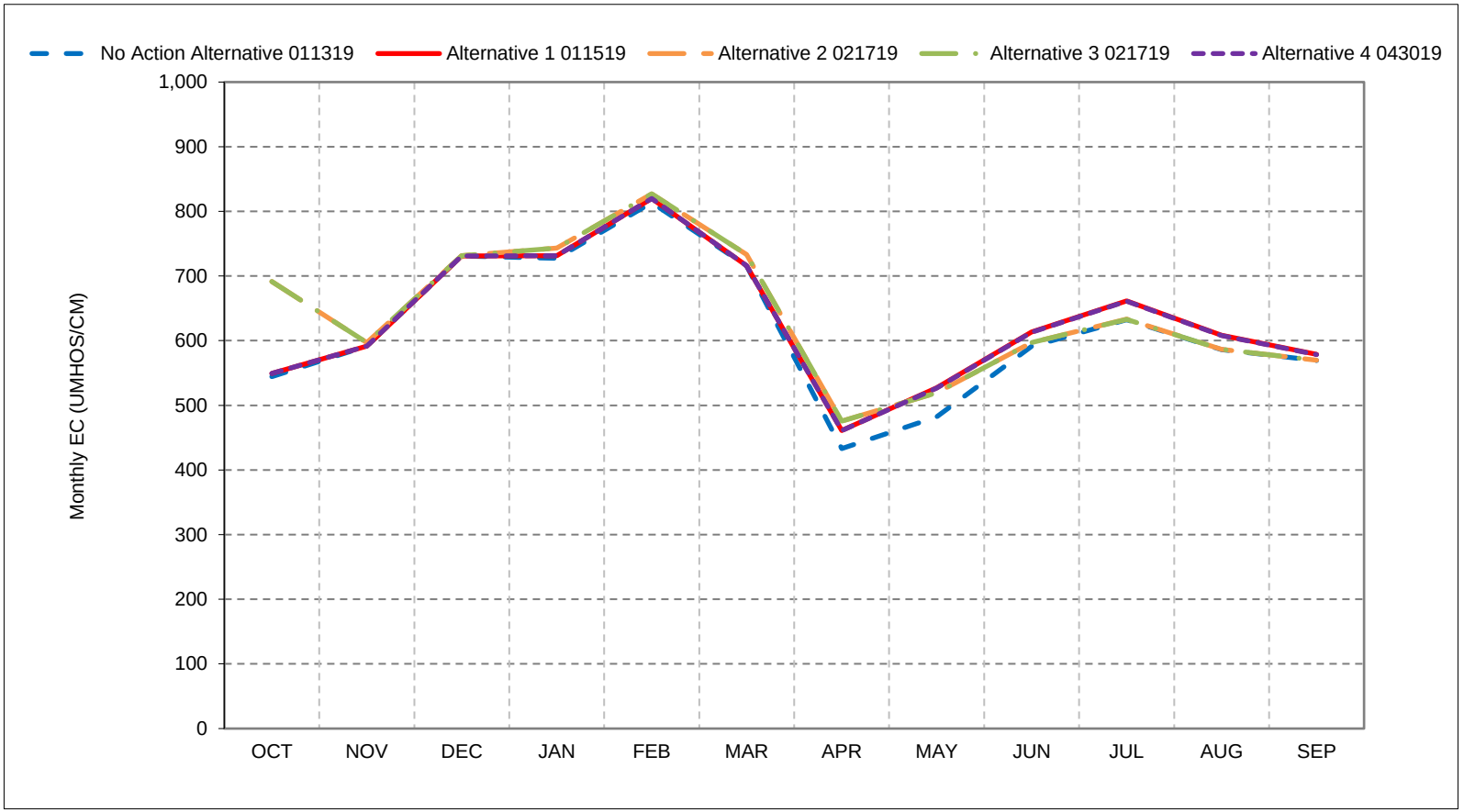

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-4. San Joaquin River at Vernalis Salinity (40-30-30), Below Normal Year Average EC



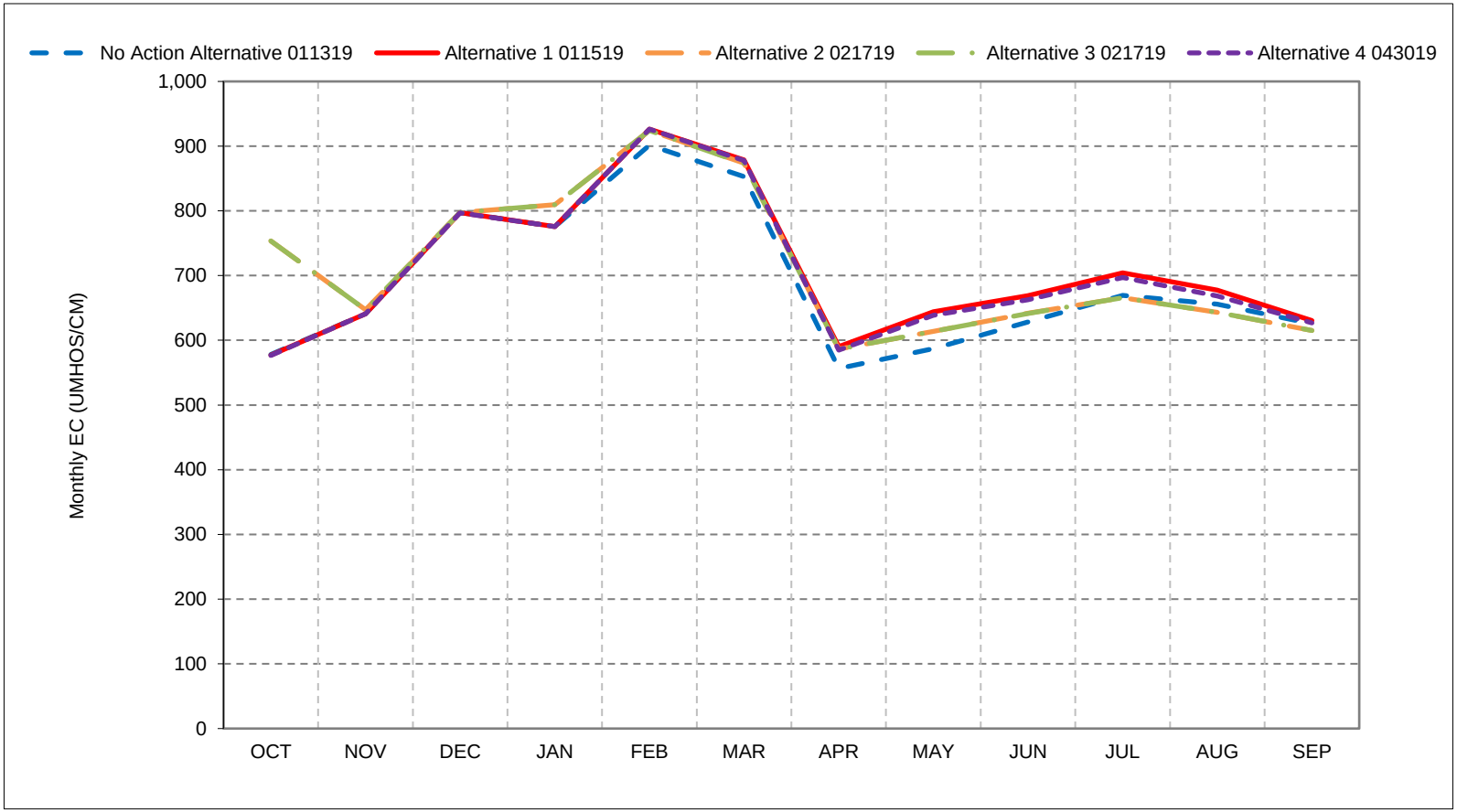

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-5. San Joaquin River at Vernalis Salinity (40-30-30), Dry Year Average EC



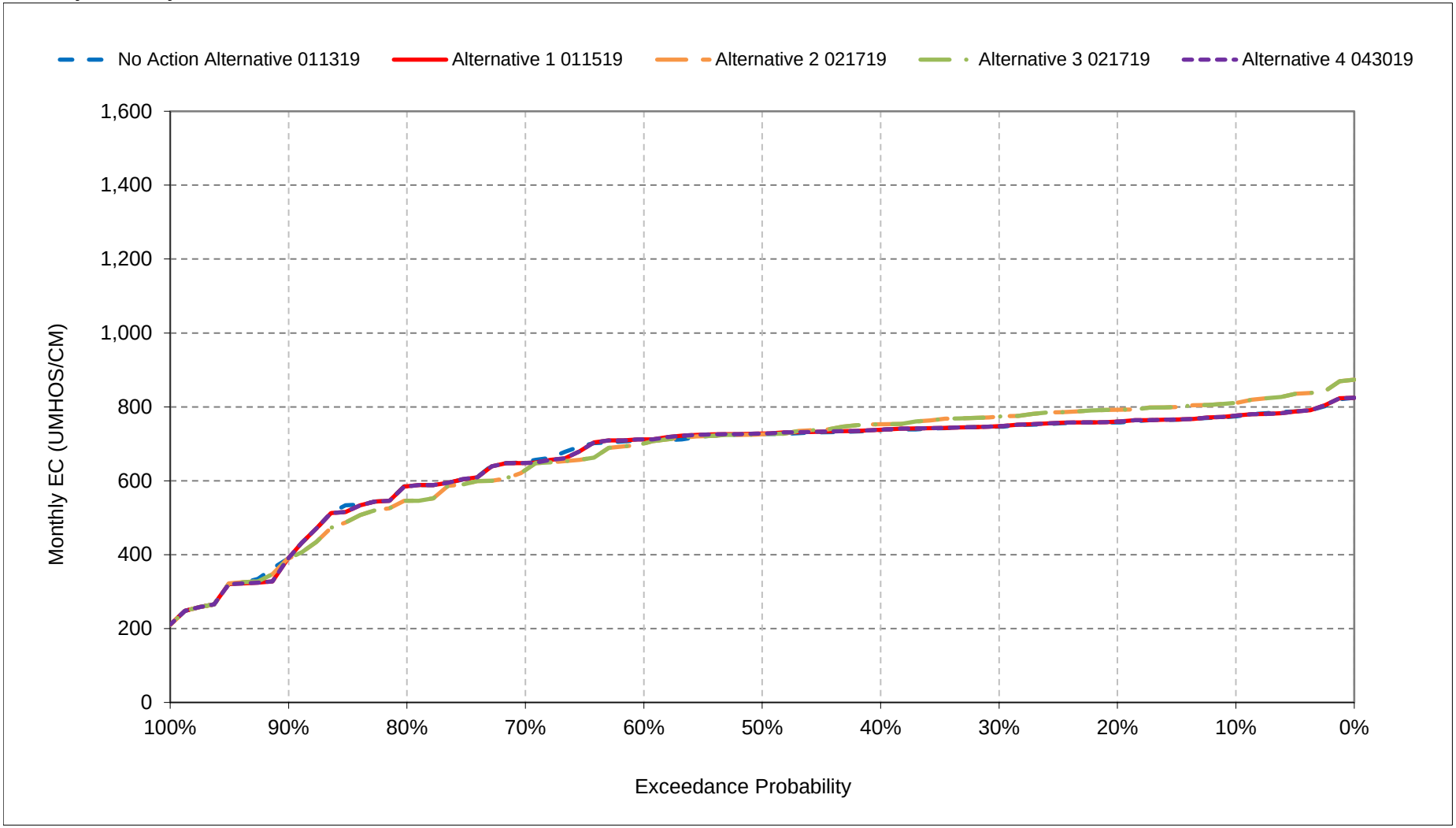

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6-6. San Joaquin River at Vernalis Salinity (40-30-30), Critical Year Average EC



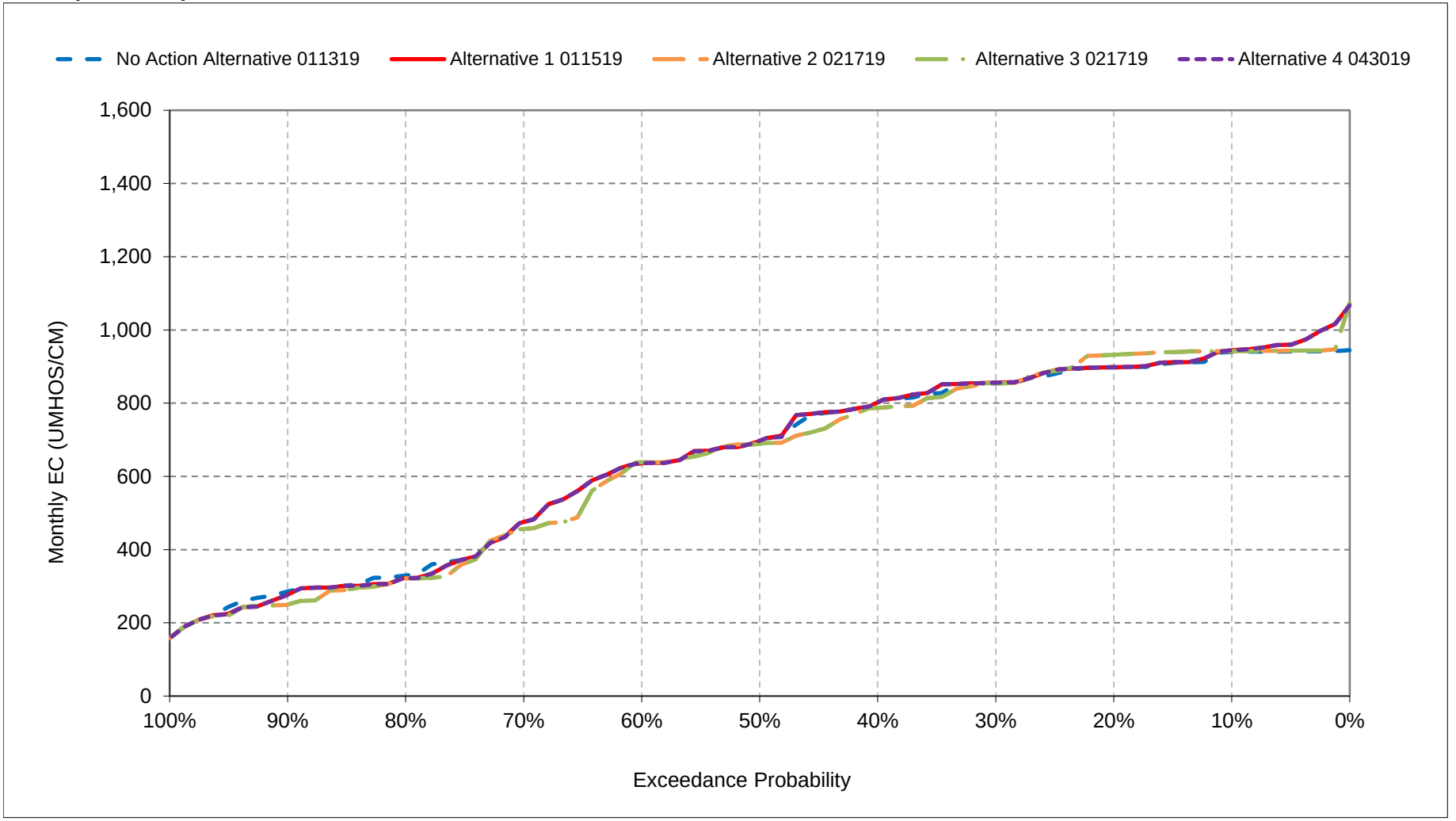

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6-7. San Joaquin River at Vernalis**
**Salinity, January EC**



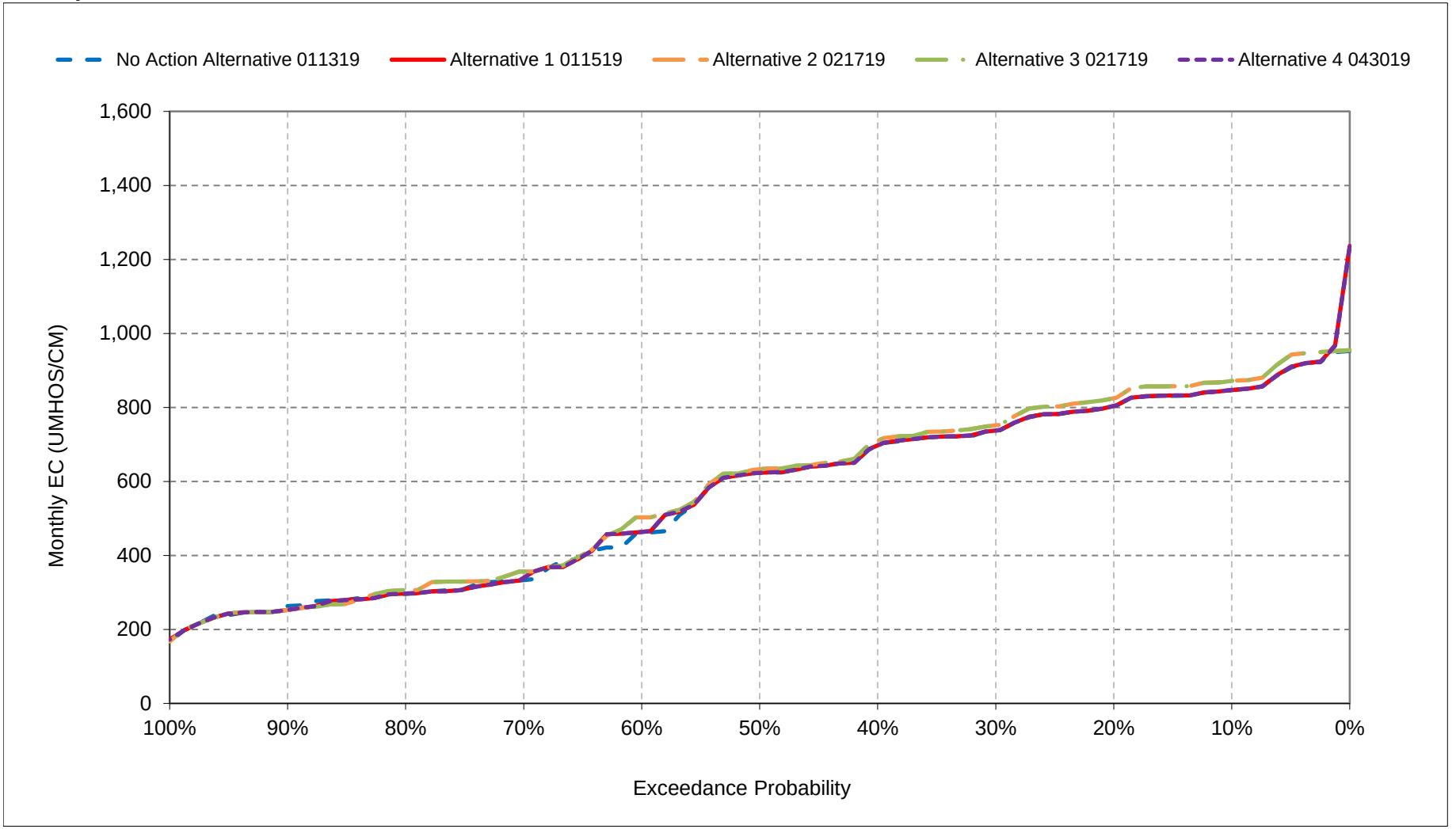

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6-8. San Joaquin River at Vernalis**
**Salinity, February EC**



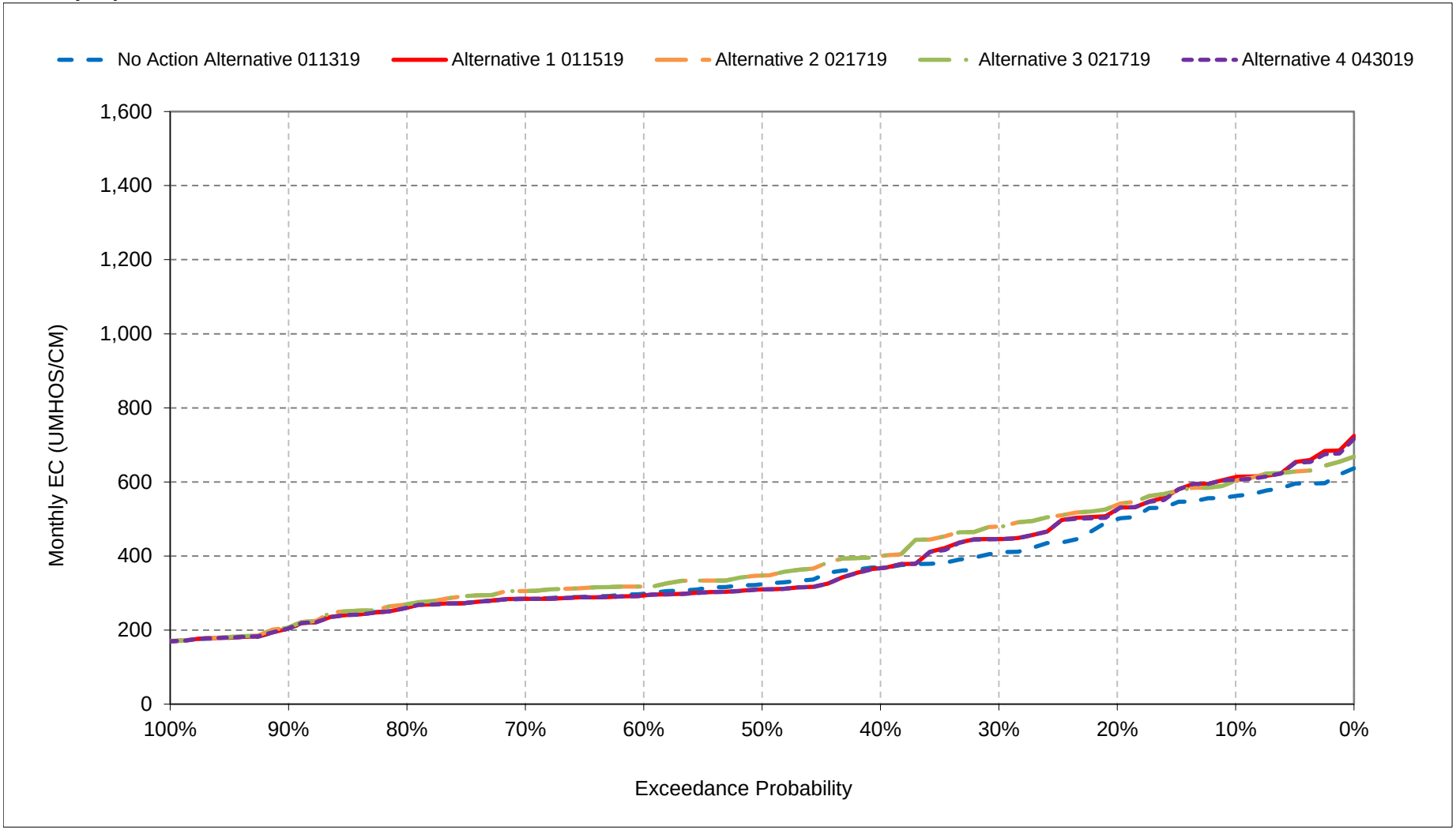

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6-9. San Joaquin River at Vernalis**
**Salinity, March EC**



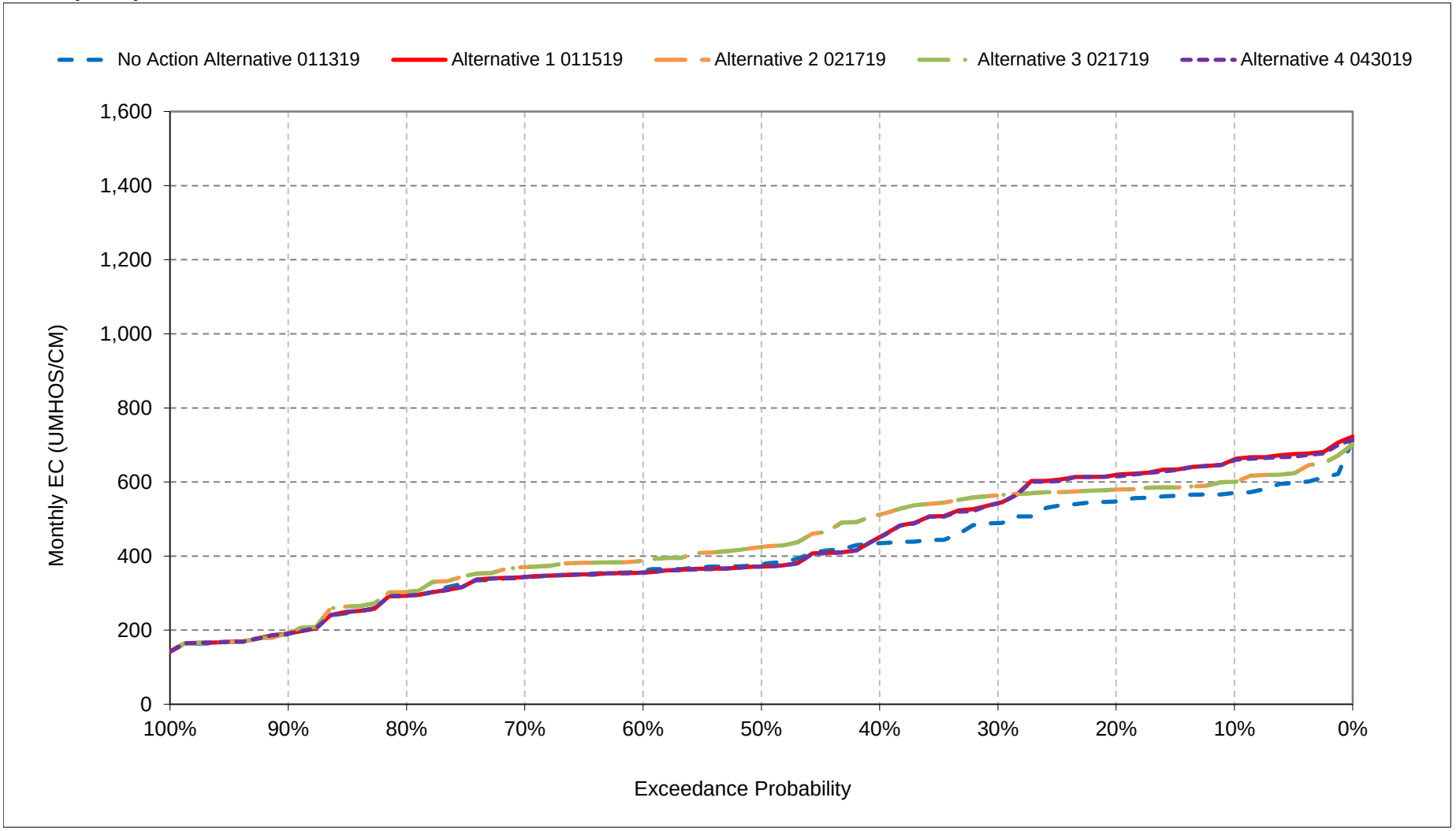

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6-10. San Joaquin River at Vernalis**
**Salinity, April EC**



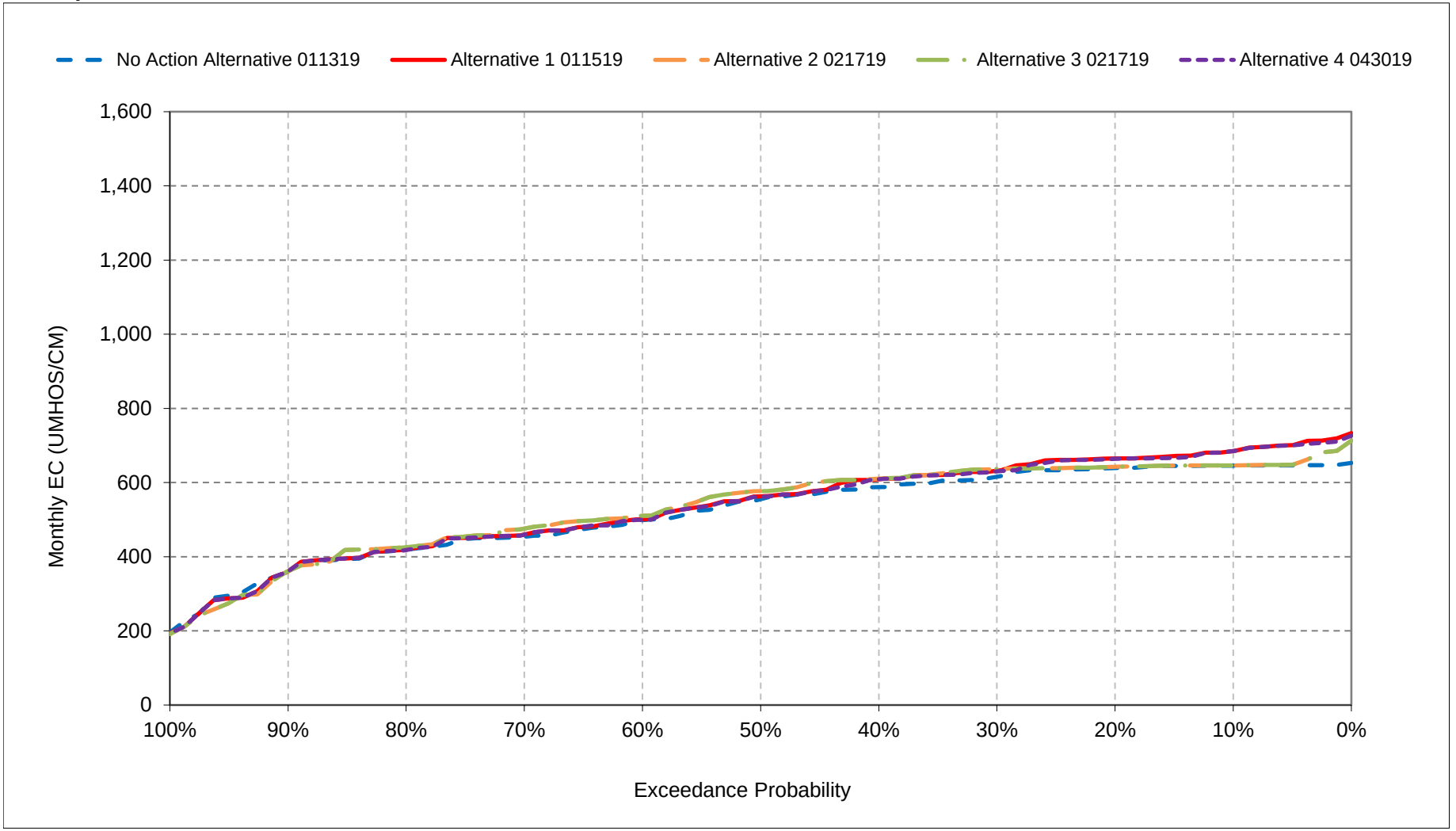

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6-11. San Joaquin River at Vernalis**
**Salinity, May EC**



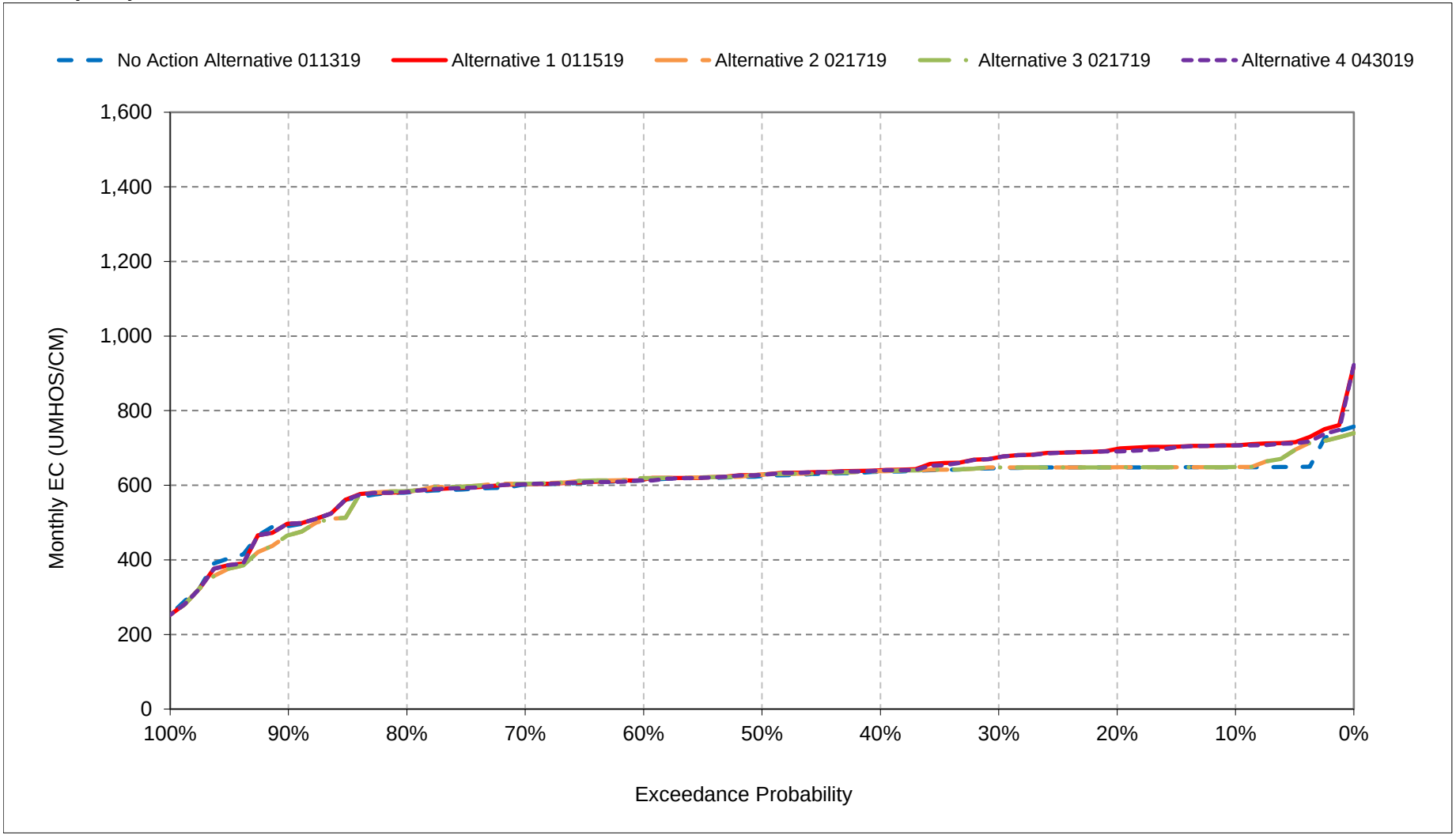

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6-12. San Joaquin River at Vernalis**
**Salinity, June EC**



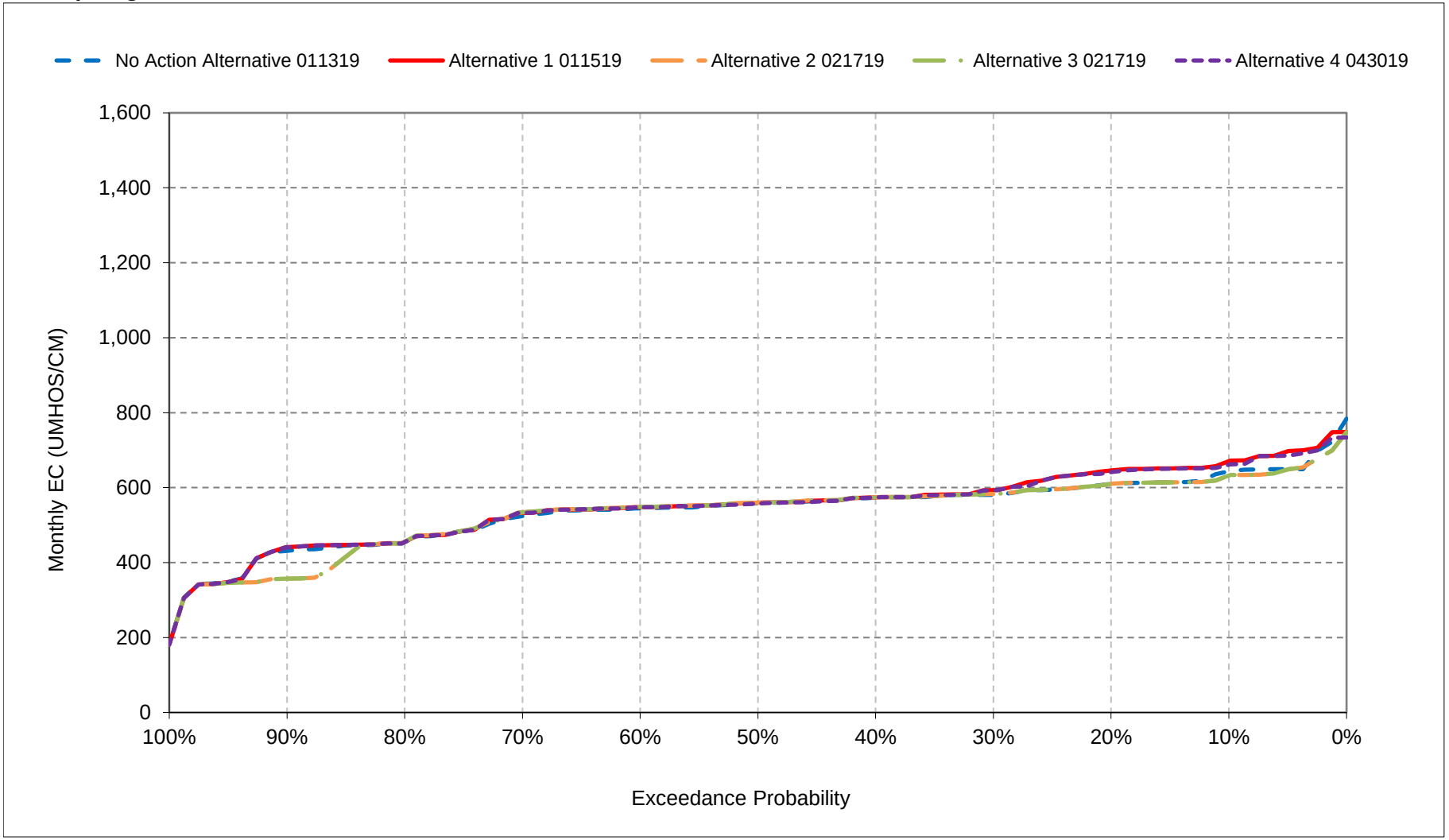

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6-13. San Joaquin River at Vernalis**
**Salinity, July EC**



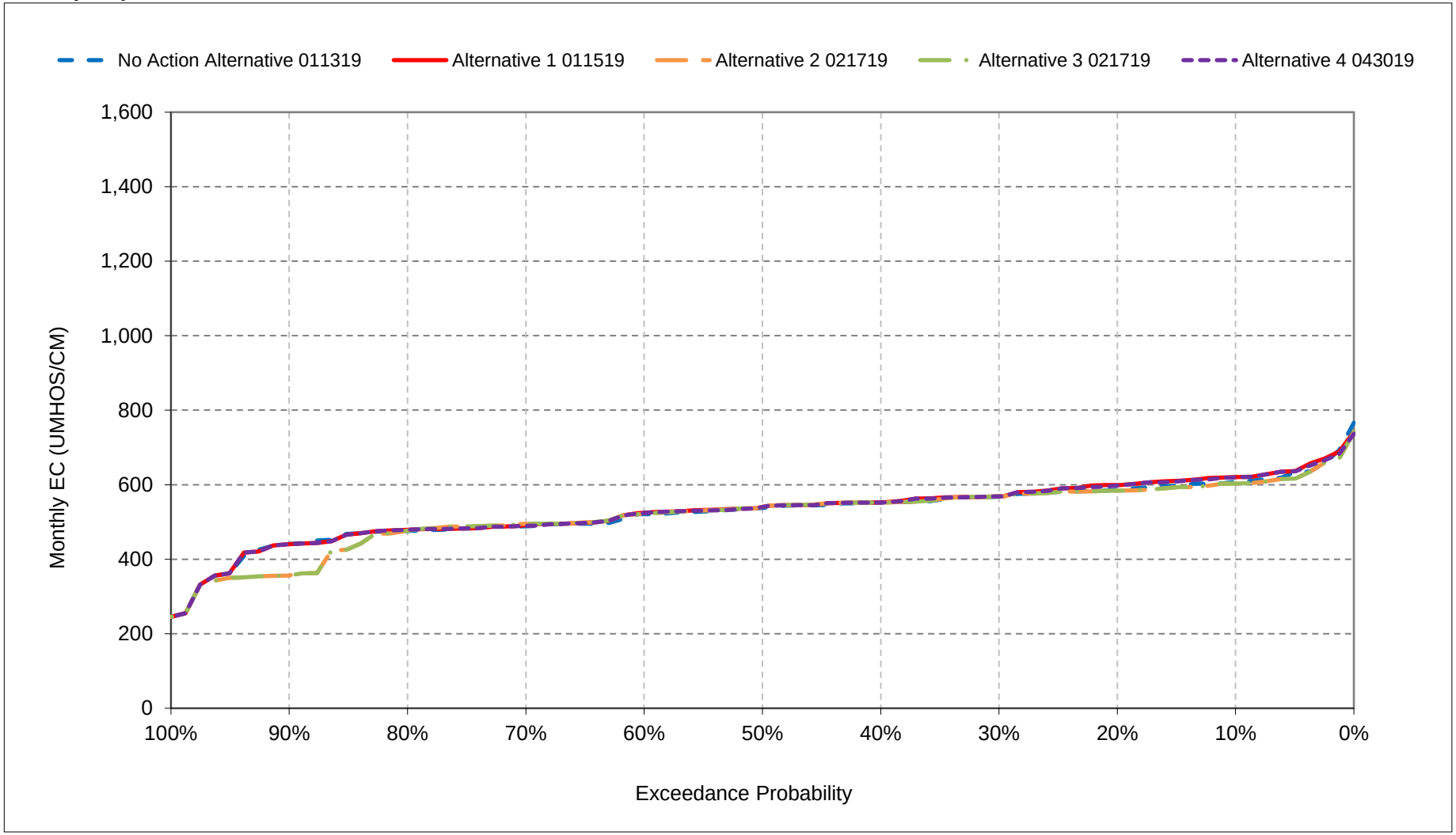

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6-14. San Joaquin River at Vernalis**
**Salinity, August EC**



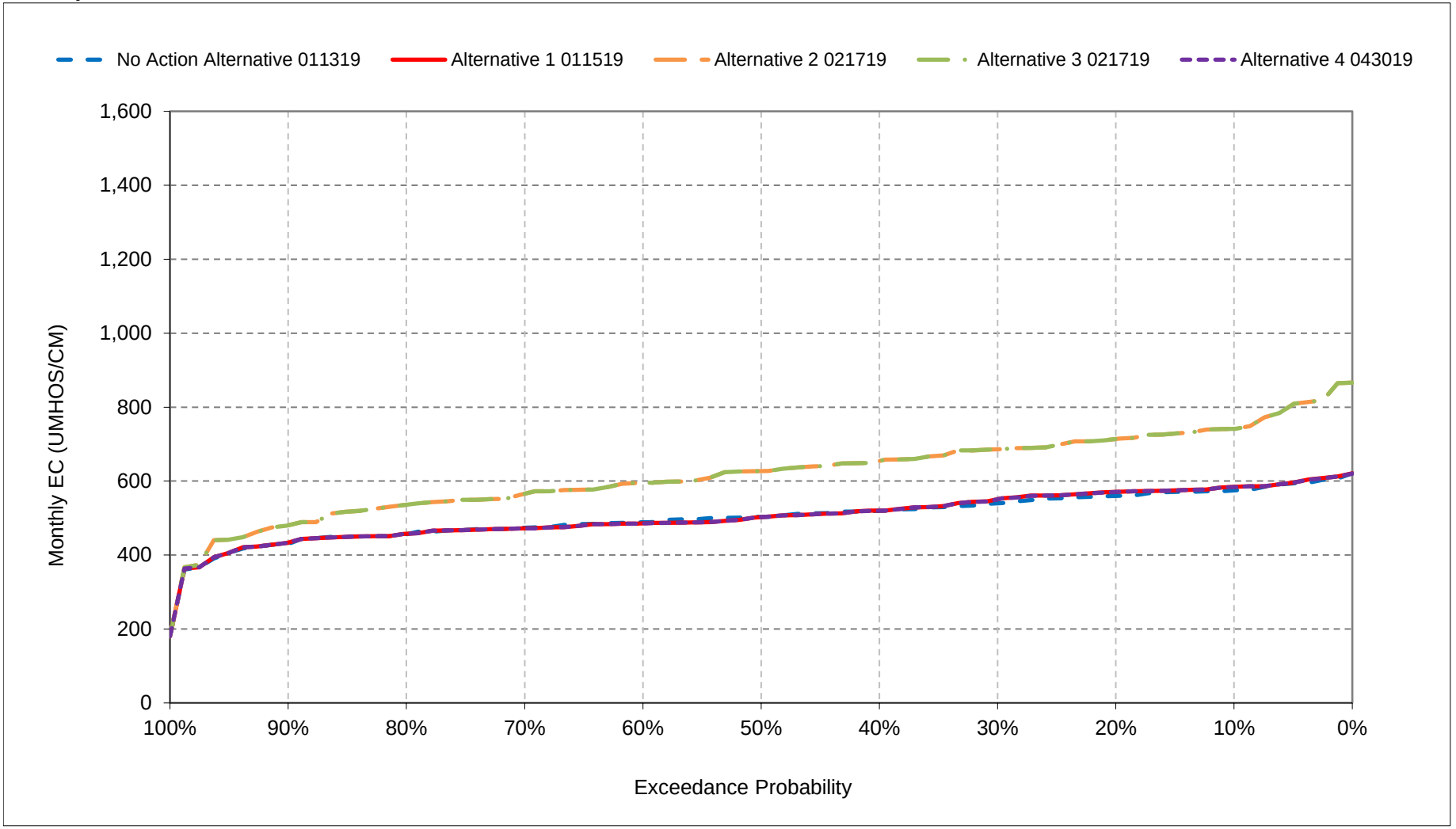

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6-15. San Joaquin River at Vernalis**
**Salinity, September EC**



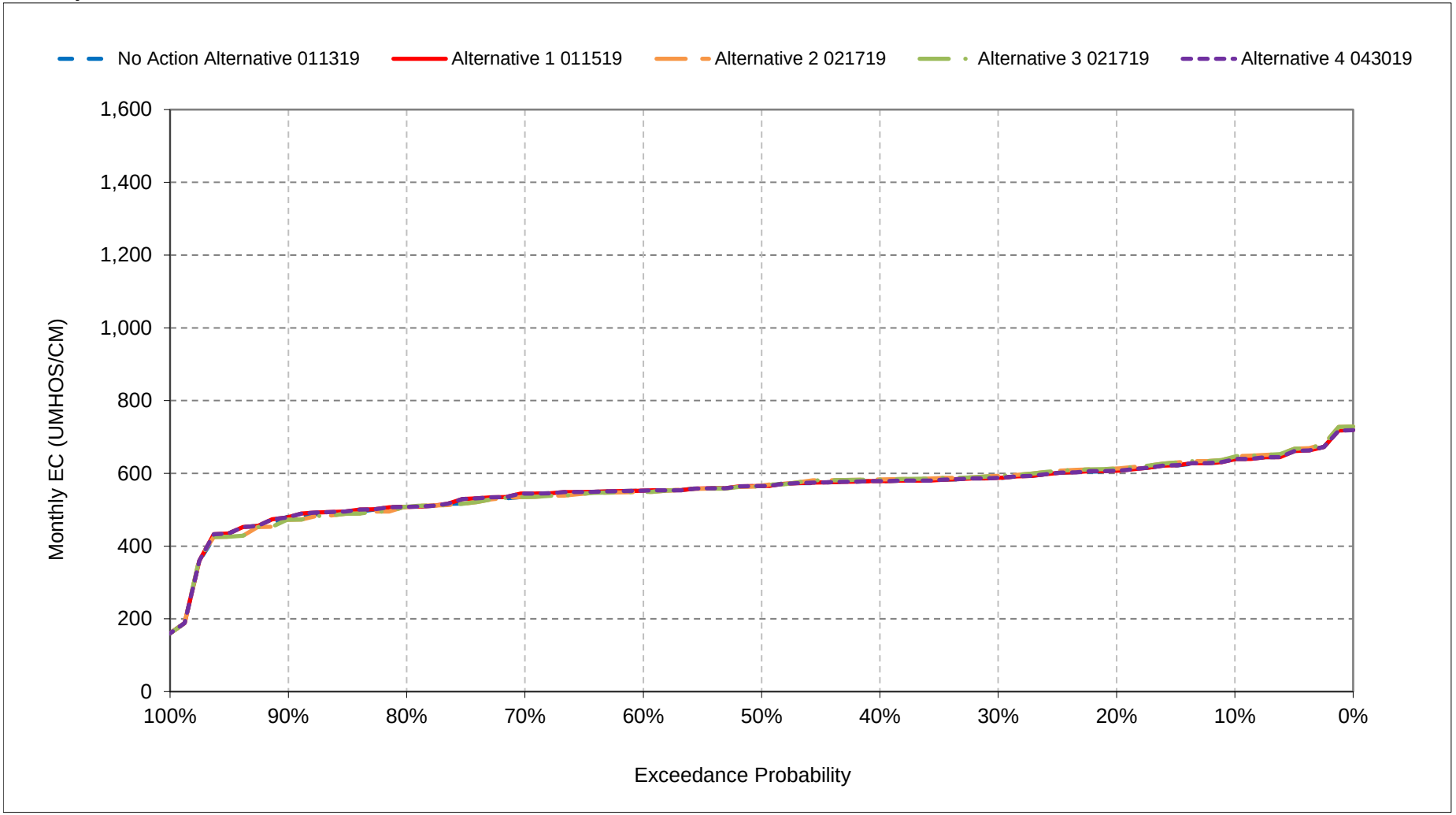

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6-16. San Joaquin River at Vernalis**
**Salinity, October EC**



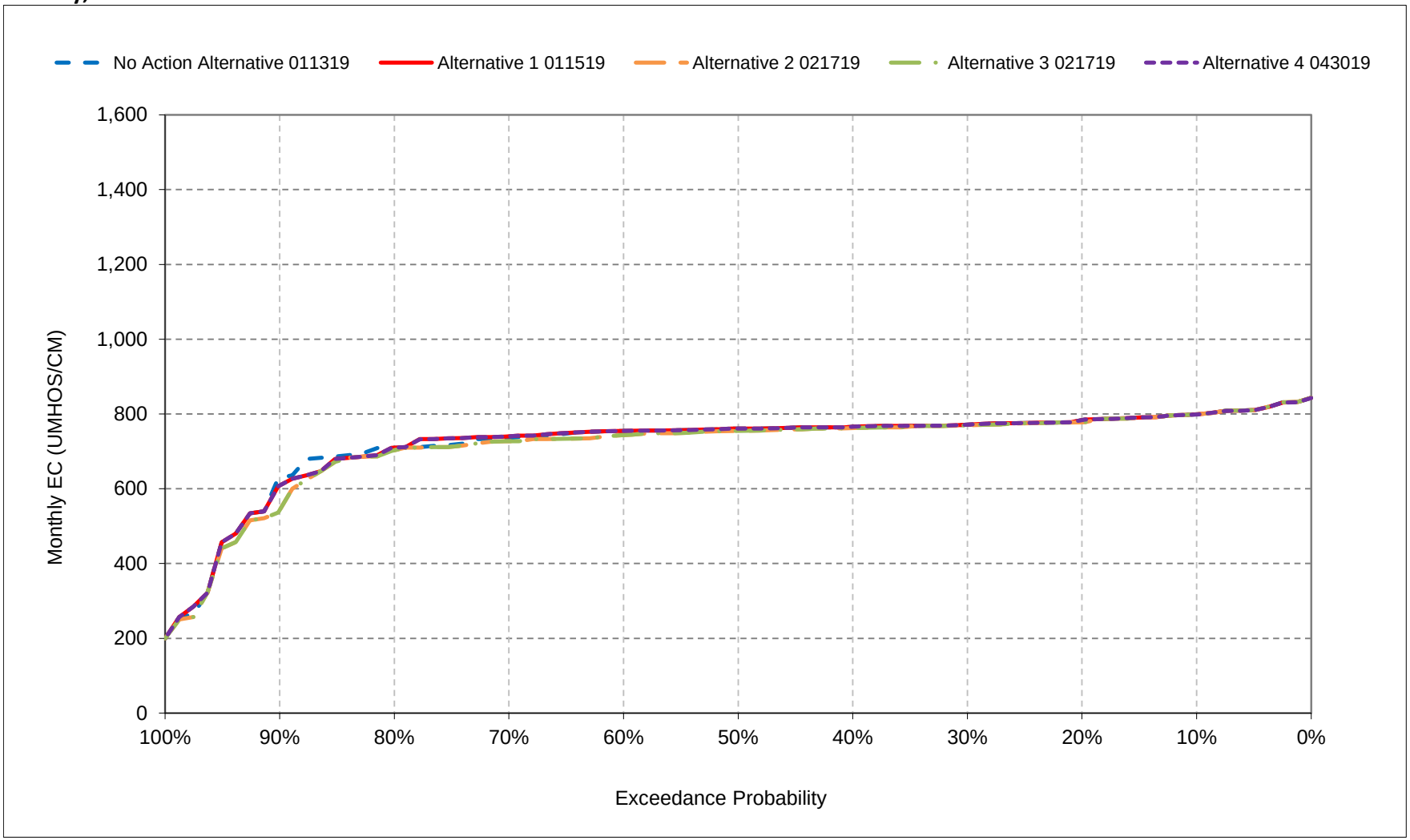

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6-17. San Joaquin River at Vernalis**
**Salinity, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 6-18. San Joaquin River at Vernalis**
**Salinity, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 6b-1. San Joaquin River at Vernalis Salinity (60-20-20), Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 575 | 639 | 800 | 774 | 941 | 847 | 561 | 571 | 646 | 648 | 644 | 608 |
| 20% | 560 | 608 | 784 | 758 | 898 | 803 | 499 | 548 | 639 | 648 | 610 | 586 |
| 30% | 540 | 587 | 772 | 746 | 855 | 737 | 408 | 489 | 616 | 646 | 581 | 568 |
| 40% | 519 | 579 | 766 | 737 | 802 | 696 | 368 | 435 | 588 | 637 | 573 | 552 |
| 50% | 503 | 565 | 761 | 726 | 697 | 623 | 323 | 378 | 555 | 625 | 558 | 538 |
| 60% | 488 | 552 | 755 | 709 | 635 | 460 | 298 | 360 | 499 | 614 | 544 | 521 |
| 70% | 474 | 538 | 736 | 651 | 475 | 333 | 284 | 342 | 454 | 602 | 524 | 489 |
| 80% | 456 | 509 | 710 | 585 | 329 | 296 | 261 | 293 | 419 | 581 | 455 | 476 |
| 90% | 430 | 481 | 629 | 392 | 285 | 263 | 205 | 190 | 361 | 491 | 431 | 441 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 503 | 554 | 721 | 660 | 647 | 564 | 360 | 402 | 521 | 599 | 540 | 526 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (23%) | 427 | 465 | 633 | 527 | 369 | 296 | 222 | 227 | 371 | 490 | 416 | 420 |
| Above Normal (24%) | 479 | 530 | 716 | 626 | 490 | 416 | 300 | 360 | 493 | 613 | 517 | 507 |
| Below Normal (10%) | 509 | 583 | 764 | 679 | 702 | 606 | 308 | 362 | 537 | 608 | 563 | 552 |
| Dry (16%) | 533 | 585 | 726 | 727 | 829 | 697 | 394 | 468 | 581 | 632 | 583 | 561 |
| Critical (27%) | 571 | 627 | 784 | 758 | 902 | 836 | 531 | 565 | 636 | 658 | 632 | 606 |

### Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 584 | 639 | 800 | 776 | 945 | 847 | 612 | 662 | 685 | 707 | 671 | 620 |
| 20% | 571 | 608 | 784 | 760 | 899 | 804 | 525 | 619 | 665 | 698 | 646 | 599 |
| 30% | 551 | 588 | 772 | 748 | 856 | 737 | 445 | 543 | 632 | 675 | 593 | 569 |
| 40% | 520 | 579 | 766 | 738 | 802 | 697 | 366 | 452 | 610 | 640 | 574 | 553 |
| 50% | 502 | 565 | 761 | 728 | 697 | 623 | 309 | 372 | 563 | 629 | 560 | 540 |
| 60% | 486 | 553 | 755 | 712 | 636 | 464 | 293 | 356 | 501 | 616 | 548 | 525 |
| 70% | 472 | 544 | 741 | 648 | 475 | 339 | 284 | 344 | 460 | 603 | 532 | 491 |
| 80% | 457 | 508 | 710 | 585 | 321 | 297 | 261 | 293 | 420 | 583 | 455 | 479 |
| 90% | 434 | 480 | 609 | 391 | 277 | 253 | 205 | 191 | 361 | 497 | 441 | 440 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 504 | 555 | 721 | 660 | 650 | 569 | 373 | 427 | 537 | 617 | 550 | 530 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (23%) | 427 | 468 | 634 | 528 | 364 | 293 | 223 | 228 | 367 | 488 | 418 | 420 |
| Above Normal (24%) | 473 | 530 | 714 | 622 | 487 | 420 | 289 | 353 | 502 | 636 | 520 | 509 |
| Below Normal (10%) | 506 | 583 | 764 | 677 | 701 | 616 | 302 | 358 | 546 | 610 | 564 | 554 |
| Dry (16%) | 543 | 585 | 726 | 730 | 833 | 698 | 413 | 510 | 596 | 644 | 587 | 562 |
| Critical (27%) | 580 | 627 | 784 | 760 | 919 | 851 | 583 | 643 | 679 | 700 | 664 | 618 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **9** | **0** | 0 | **2** | **5** | **0** | **51** | **91** | **39** | **59** | **27** | **12** |
| 20% | **11** | -1 | 0 | **2** | **1** | **0** | **26** | **72** | **25** | **50** | **36** | **12** |
| 30% | **11** | **1** | **0** | **1** | **2** | **0** | **37** | **54** | **16** | **29** | **12** | **0** |
| 40% | **1** | **0** | **0** | **1** | **0** | **1** | -1 | **17** | **21** | **3** | **1** | **1** |
| 50% | -1 | **0** | 0 | **2** | **1** | **0** | -15 | -6 | **8** | **4** | **2** | **2** |
| 60% | -3 | **1** | 0 | **3** | **1** | **4** | -5 | -4 | **2** | **2** | **3** | **4** |
| 70% | -1 | **7** | **4** | -3 | **0** | **6** | **0** | **2** | **6** | **1** | **8** | **2** |
| 80% | **1** | 0 | **0** | -1 | -8 | **1** | **0** | **0** | **1** | **2** | **0** | **3** |
| 90% | **4** | -1 | -20 | -1 | -9 | -10 | **0** | **1** | **0** | **6** | **9** | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **2** | **1** | 0 | 0 | **4** | **5** | **13** | **26** | **16** | **18** | **10** | **4** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (23%) | 0 | **3** | **1** | **0** | -5 | -4 | **0** | **1** | -5 | -2 | **2** | **0** |
| Above Normal (24%) | -6 | **0** | -2 | -4 | -2 | **4** | -12 | -7 | **9** | **23** | **4** | **2** |
| Below Normal (10%) | -4 | 0 | **0** | -3 | -1 | **10** | -6 | -4 | **10** | **2** | **1** | **2** |
| Dry (16%) | **10** | **0** | 0 | **3** | **4** | **0** | **18** | **42** | **16** | **11** | **4** | **2** |
| Critical (27%) | **9** | **0** | **0** | **2** | **17** | **14** | **51** | **79** | **42** | **42** | **31** | **11** |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 6b-2. San Joaquin River at Vernalis Salinity (60-20-20), Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 575 | 639 | 800 | 774 | 941 | 847 | 561 | 571 | 646 | 648 | 644 | 608 |
| 20% | 560 | 608 | 784 | 758 | 898 | 803 | 499 | 548 | 639 | 648 | 610 | 586 |
| 30% | 540 | 587 | 772 | 746 | 855 | 737 | 408 | 489 | 616 | 646 | 581 | 568 |
| 40% | 519 | 579 | 766 | 737 | 802 | 696 | 368 | 435 | 588 | 637 | 573 | 552 |
| 50% | 503 | 565 | 761 | 726 | 697 | 623 | 323 | 378 | 555 | 625 | 558 | 538 |
| 60% | 488 | 552 | 755 | 709 | 635 | 460 | 298 | 360 | 499 | 614 | 544 | 521 |
| 70% | 474 | 538 | 736 | 651 | 475 | 333 | 284 | 342 | 454 | 602 | 524 | 489 |
| 80% | 456 | 509 | 710 | 585 | 329 | 296 | 261 | 293 | 419 | 581 | 455 | 476 |
| 90% | 430 | 481 | 629 | 392 | 285 | 263 | 205 | 190 | 361 | 491 | 431 | 441 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 503 | 554 | 721 | 660 | 647 | 564 | 360 | 402 | 521 | 599 | 540 | 526 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (23%) | 427 | 465 | 633 | 527 | 369 | 296 | 222 | 227 | 371 | 490 | 416 | 420 |
| Above Normal (24%) | 479 | 530 | 716 | 626 | 490 | 416 | 300 | 360 | 493 | 613 | 517 | 507 |
| Below Normal (10%) | 509 | 583 | 764 | 679 | 702 | 606 | 308 | 362 | 537 | 608 | 563 | 552 |
| Dry (16%) | 533 | 585 | 726 | 727 | 829 | 697 | 394 | 468 | 581 | 632 | 583 | 561 |
| Critical (27%) | 571 | 627 | 784 | 758 | 902 | 836 | 531 | 565 | 636 | 658 | 632 | 606 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 742 | 646 | 800 | 811 | 943 | 872 | 602 | 601 | 646 | 649 | 632 | 603 |
| 20% | 714 | 613 | 778 | 792 | 933 | 824 | 538 | 580 | 643 | 648 | 610 | 584 |
| 30% | 686 | 593 | 770 | 774 | 855 | 751 | 479 | 564 | 637 | 648 | 583 | 568 |
| 40% | 655 | 583 | 763 | 753 | 787 | 710 | 399 | 513 | 611 | 638 | 574 | 552 |
| 50% | 627 | 566 | 756 | 726 | 689 | 633 | 347 | 425 | 577 | 629 | 559 | 540 |
| 60% | 595 | 549 | 744 | 701 | 638 | 502 | 317 | 388 | 511 | 619 | 548 | 522 |
| 70% | 566 | 535 | 728 | 629 | 456 | 356 | 305 | 370 | 476 | 605 | 534 | 495 |
| 80% | 536 | 508 | 703 | 545 | 321 | 306 | 270 | 303 | 426 | 585 | 455 | 477 |
| 90% | 480 | 473 | 543 | 389 | 250 | 253 | 207 | 193 | 361 | 466 | 357 | 357 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 620 | 555 | 714 | 666 | 641 | 578 | 390 | 436 | 533 | 599 | 533 | 519 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (23%) | 482 | 457 | 610 | 522 | 354 | 306 | 228 | 236 | 375 | 477 | 392 | 389 |
| Above Normal (24%) | 570 | 529 | 707 | 621 | 478 | 422 | 314 | 383 | 504 | 622 | 520 | 510 |
| Below Normal (10%) | 647 | 587 | 762 | 687 | 686 | 625 | 349 | 431 | 569 | 611 | 565 | 555 |
| Dry (16%) | 676 | 590 | 726 | 729 | 804 | 711 | 449 | 526 | 593 | 634 | 582 | 560 |
| Critical (27%) | 746 | 633 | 785 | 786 | 924 | 859 | 578 | 604 | 648 | 657 | 627 | 602 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **166** | **7** | **0** | **37** | **2** | **25** | **41** | **30** | **0** | **0** | -12 | -5 |
| 20% | **154** | **5** | -6 | **34** | **35** | **21** | **39** | **32** | **3** | **0** | 0 | -2 |
| 30% | **147** | **6** | -2 | **28** | 0 | **14** | **71** | **75** | **21** | **1** | **2** | **0** |
| 40% | **135** | **4** | -3 | **15** | -15 | **13** | **31** | **78** | **23** | **1** | **1** | **0** |
| 50% | **124** | **1** | -6 | 0 | -7 | **10** | **24** | **47** | **22** | **4** | **1** | **2** |
| 60% | **107** | -3 | -12 | -9 | **3** | **43** | **19** | **28** | **12** | **6** | **4** | **1** |
| 70% | **93** | -3 | -9 | -22 | -18 | **23** | **22** | **28** | **22** | **3** | **10** | **6** |
| 80% | **80** | -1 | -7 | -40 | -8 | **10** | **9** | **10** | **7** | **4** | **1** | **1** |
| 90% | **50** | -8 | -86 | -2 | -36 | -10 | **3** | **3** | 0 | -25 | -74 | -84 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **117** | **1** | -8 | **6** | -6 | **14** | **30** | **34** | **12** | -1 | -6 | -7 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (23%) | **55** | -8 | -23 | -6 | -15 | **10** | **5** | **9** | **4** | -13 | -24 | -31 |
| Above Normal (24%) | **91** | -1 | -10 | -5 | -12 | **6** | **14** | **23** | **12** | **9** | **3** | **3** |
| Below Normal (10%) | **138** | **4** | -1 | **8** | -16 | **19** | **41** | **69** | **32** | **4** | **2** | **2** |
| Dry (16%) | **143** | **5** | **0** | **2** | -25 | **14** | **55** | **58** | **12** | **1** | -2 | -1 |
| Critical (27%) | **175** | **6** | **0** | **28** | **22** | **22** | **46** | **40** | **12** | -1 | -5 | -5 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

# Table 6b-3. San Joaquin River at Vernalis Salinity (60-20-20), Monthly EC

## No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 575 | 639 | 800 | 774 | 941 | 847 | 561 | 571 | 646 | 648 | 644 | 608 |
| 20% | 560 | 608 | 784 | 758 | 898 | 803 | 499 | 548 | 639 | 648 | 610 | 586 |
| 30% | 540 | 587 | 772 | 746 | 855 | 737 | 408 | 489 | 616 | 646 | 581 | 568 |
| 40% | 519 | 579 | 766 | 737 | 802 | 696 | 368 | 435 | 588 | 637 | 573 | 552 |
| 50% | 503 | 565 | 761 | 726 | 697 | 623 | 323 | 378 | 555 | 625 | 558 | 538 |
| 60% | 488 | 552 | 755 | 709 | 635 | 460 | 298 | 360 | 499 | 614 | 544 | 521 |
| 70% | 474 | 538 | 736 | 651 | 475 | 333 | 284 | 342 | 454 | 602 | 524 | 489 |
| 80% | 456 | 509 | 710 | 585 | 329 | 296 | 261 | 293 | 419 | 581 | 455 | 476 |
| 90% | 430 | 481 | 629 | 392 | 285 | 263 | 205 | 190 | 361 | 491 | 431 | 441 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 503 | 554 | 721 | 660 | 647 | 564 | 360 | 402 | 521 | 599 | 540 | 526 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (23%) | 427 | 465 | 633 | 527 | 369 | 296 | 222 | 227 | 371 | 490 | 416 | 420 |
| Above Normal (24%) | 479 | 530 | 716 | 626 | 490 | 416 | 300 | 360 | 493 | 613 | 517 | 507 |
| Below Normal (10%) | 509 | 583 | 764 | 679 | 702 | 606 | 308 | 362 | 537 | 608 | 563 | 552 |
| Dry (16%) | 533 | 585 | 726 | 727 | 829 | 697 | 394 | 468 | 581 | 632 | 583 | 561 |
| Critical (27%) | 571 | 627 | 784 | 758 | 902 | 836 | 531 | 565 | 636 | 658 | 632 | 606 |

## Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 742 | 646 | 800 | 811 | 943 | 871 | 602 | 601 | 646 | 649 | 632 | 603 |
| 20% | 714 | 613 | 778 | 792 | 933 | 824 | 538 | 580 | 643 | 648 | 610 | 584 |
| 30% | 686 | 593 | 770 | 774 | 855 | 751 | 479 | 564 | 637 | 648 | 583 | 568 |
| 40% | 655 | 583 | 763 | 753 | 787 | 710 | 398 | 513 | 610 | 638 | 574 | 552 |
| 50% | 627 | 566 | 756 | 726 | 689 | 633 | 347 | 425 | 577 | 629 | 560 | 540 |
| 60% | 595 | 549 | 744 | 701 | 638 | 502 | 317 | 388 | 511 | 619 | 548 | 522 |
| 70% | 566 | 535 | 728 | 629 | 456 | 356 | 305 | 370 | 476 | 605 | 534 | 495 |
| 80% | 536 | 508 | 703 | 545 | 321 | 306 | 270 | 303 | 426 | 585 | 455 | 477 |
| 90% | 480 | 473 | 543 | 389 | 250 | 253 | 207 | 193 | 361 | 466 | 357 | 357 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 620 | 555 | 714 | 666 | 641 | 578 | 390 | 436 | 533 | 599 | 533 | 519 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (23%) | 482 | 457 | 610 | 522 | 354 | 306 | 228 | 236 | 375 | 477 | 392 | 389 |
| Above Normal (24%) | 570 | 529 | 707 | 621 | 478 | 422 | 314 | 383 | 504 | 622 | 520 | 510 |
| Below Normal (10%) | 647 | 587 | 762 | 687 | 686 | 625 | 349 | 431 | 568 | 611 | 565 | 555 |
| Dry (16%) | 676 | 590 | 726 | 729 | 804 | 711 | 449 | 526 | 593 | 634 | 582 | 560 |
| Critical (27%) | 746 | 633 | 785 | 786 | 924 | 859 | 578 | 604 | 648 | 657 | 627 | 602 |

## Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **166** | **7** | **0** | **37** | **2** | **24** | **41** | **30** | **0** | **0** | -12 | -5 |
| 20% | **154** | **5** | -6 | **34** | **35** | **21** | **39** | **32** | **3** | **0** | 0 | -2 |
| 30% | **147** | **6** | -2 | **28** | 0 | **14** | **71** | **75** | **21** | **1** | **2** | **0** |
| 40% | **135** | **4** | -3 | **15** | -15 | **13** | **31** | **78** | **22** | **1** | **1** | **0** |
| 50% | **124** | **1** | -6 | 0 | -7 | **10** | **24** | **47** | **22** | **4** | **1** | **2** |
| 60% | **107** | -3 | -12 | -9 | **3** | **43** | **19** | **28** | **12** | **5** | **4** | **1** |
| 70% | **93** | -3 | -9 | -22 | -18 | **23** | **22** | **28** | **22** | **3** | **10** | **6** |
| 80% | **80** | -1 | -7 | -40 | -8 | **10** | **9** | **10** | **7** | **4** | **1** | **1** |
| 90% | **50** | -8 | -86 | -2 | -36 | -10 | **3** | **3** | 0 | -25 | -74 | -84 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **117** | **1** | -8 | **6** | -6 | **14** | **30** | **34** | **12** | -1 | -6 | -7 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (23%) | **55** | -8 | -23 | -6 | -15 | **10** | **5** | **9** | **4** | -13 | -24 | -31 |
| Above Normal (24%) | **91** | -1 | -10 | -5 | -12 | **6** | **14** | **23** | **12** | **9** | **3** | **3** |
| Below Normal (10%) | **138** | **4** | -1 | **8** | -16 | **19** | **41** | **69** | **32** | **4** | **2** | **2** |
| Dry (16%) | **143** | **5** | **0** | **2** | -25 | **14** | **54** | **58** | **12** | **1** | -2 | -1 |
| Critical (27%) | **175** | **6** | **0** | **28** | **22** | **22** | **46** | **39** | **12** | -2 | -5 | -5 |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 6b-4. San Joaquin River at Vernalis Salinity (60-20-20), Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 575 | 639 | 800 | 774 | 941 | 847 | 561 | 571 | 646 | 648 | 644 | 608 |
| 20% | 560 | 608 | 784 | 758 | 898 | 803 | 499 | 548 | 639 | 648 | 610 | 586 |
| 30% | 540 | 587 | 772 | 746 | 855 | 737 | 408 | 489 | 616 | 646 | 581 | 568 |
| 40% | 519 | 579 | 766 | 737 | 802 | 696 | 368 | 435 | 588 | 637 | 573 | 552 |
| 50% | 503 | 565 | 761 | 726 | 697 | 623 | 323 | 378 | 555 | 625 | 558 | 538 |
| 60% | 488 | 552 | 755 | 709 | 635 | 460 | 298 | 360 | 499 | 614 | 544 | 521 |
| 70% | 474 | 538 | 736 | 651 | 475 | 333 | 284 | 342 | 454 | 602 | 524 | 489 |
| 80% | 456 | 509 | 710 | 585 | 329 | 296 | 261 | 293 | 419 | 581 | 455 | 476 |
| 90% | 430 | 481 | 629 | 392 | 285 | 263 | 205 | 190 | 361 | 491 | 431 | 441 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 503 | 554 | 721 | 660 | 647 | 564 | 360 | 402 | 521 | 599 | 540 | 526 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (23%) | 427 | 465 | 633 | 527 | 369 | 296 | 222 | 227 | 371 | 490 | 416 | 420 |
| Above Normal (24%) | 479 | 530 | 716 | 626 | 490 | 416 | 300 | 360 | 493 | 613 | 517 | 507 |
| Below Normal (10%) | 509 | 583 | 764 | 679 | 702 | 606 | 308 | 362 | 537 | 608 | 563 | 552 |
| Dry (16%) | 533 | 585 | 726 | 727 | 829 | 697 | 394 | 468 | 581 | 632 | 583 | 561 |
| Critical (27%) | 571 | 627 | 784 | 758 | 902 | 836 | 531 | 565 | 636 | 658 | 632 | 606 |

### Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 583 | 639 | 799 | 776 | 945 | 847 | 605 | 659 | 685 | 707 | 661 | 620 |
| 20% | 571 | 608 | 784 | 760 | 899 | 803 | 524 | 616 | 664 | 691 | 641 | 598 |
| 30% | 551 | 588 | 772 | 748 | 856 | 737 | 445 | 542 | 630 | 675 | 593 | 568 |
| 40% | 520 | 579 | 766 | 738 | 802 | 697 | 366 | 450 | 609 | 640 | 574 | 552 |
| 50% | 502 | 565 | 761 | 728 | 697 | 623 | 309 | 372 | 562 | 628 | 557 | 540 |
| 60% | 486 | 553 | 755 | 712 | 636 | 464 | 293 | 356 | 500 | 613 | 547 | 524 |
| 70% | 472 | 544 | 741 | 648 | 475 | 339 | 283 | 343 | 460 | 603 | 532 | 490 |
| 80% | 457 | 508 | 710 | 584 | 321 | 297 | 261 | 293 | 418 | 582 | 455 | 479 |
| 90% | 434 | 480 | 609 | 391 | 277 | 253 | 205 | 191 | 361 | 497 | 440 | 440 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 504 | 555 | 721 | 660 | 650 | 569 | 372 | 426 | 536 | 616 | 548 | 529 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (23%) | 427 | 468 | 634 | 527 | 364 | 293 | 223 | 228 | 367 | 488 | 418 | 420 |
| Above Normal (24%) | 473 | 530 | 714 | 622 | 487 | 420 | 289 | 353 | 501 | 635 | 520 | 508 |
| Below Normal (10%) | 505 | 583 | 764 | 677 | 701 | 616 | 302 | 358 | 545 | 609 | 563 | 554 |
| Dry (16%) | 543 | 585 | 726 | 730 | 833 | 697 | 412 | 508 | 593 | 641 | 584 | 561 |
| Critical (27%) | 580 | 627 | 784 | 760 | 919 | 850 | 580 | 641 | 675 | 696 | 659 | 616 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **8** | **0** | 0 | **2** | **5** | **0** | **44** | **88** | **39** | **58** | **17** | **12** |
| 20% | **10** | -1 | **0** | **2** | **1** | 0 | **25** | **68** | **25** | **43** | **31** | **11** |
| 30% | **11** | **1** | **0** | **1** | **2** | **0** | **37** | **53** | **14** | **29** | **12** | **0** |
| 40% | **0** | **0** | **0** | **1** | **0** | **0** | -2 | **15** | **21** | **3** | **0** | **1** |
| 50% | -1 | **0** | 0 | **2** | **0** | **0** | -15 | -6 | **7** | **4** | -1 | **2** |
| 60% | -3 | **1** | **0** | **3** | **0** | **4** | -5 | -4 | **1** | -1 | **3** | **3** |
| 70% | -1 | **7** | **4** | -3 | 0 | **6** | 0 | **1** | **6** | **1** | **8** | **1** |
| 80% | **1** | -1 | **0** | -1 | -8 | **1** | **0** | **0** | -1 | **1** | **0** | **3** |
| 90% | **4** | -1 | -20 | -1 | -9 | -10 | **0** | **1** | **0** | **6** | **9** | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **2** | **1** | 0 | 0 | **3** | **5** | **12** | **25** | **14** | **17** | **9** | **3** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (23%) | 0 | **3** | **1** | **0** | -5 | -4 | **0** | **1** | -5 | -2 | **2** | **0** |
| Above Normal (24%) | -6 | **0** | -2 | -4 | -2 | **4** | -12 | -7 | **9** | **23** | **3** | **2** |
| Below Normal (10%) | -4 | 0 | 0 | -3 | -1 | **10** | -6 | -5 | **9** | **1** | **1** | **1** |
| Dry (16%) | **10** | **0** | 0 | **3** | **4** | **0** | **17** | **40** | **13** | **9** | **1** | **1** |
| Critical (27%) | **8** | **0** | 0 | **2** | **17** | **14** | **48** | **76** | **39** | **38** | **27** | **9** |

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

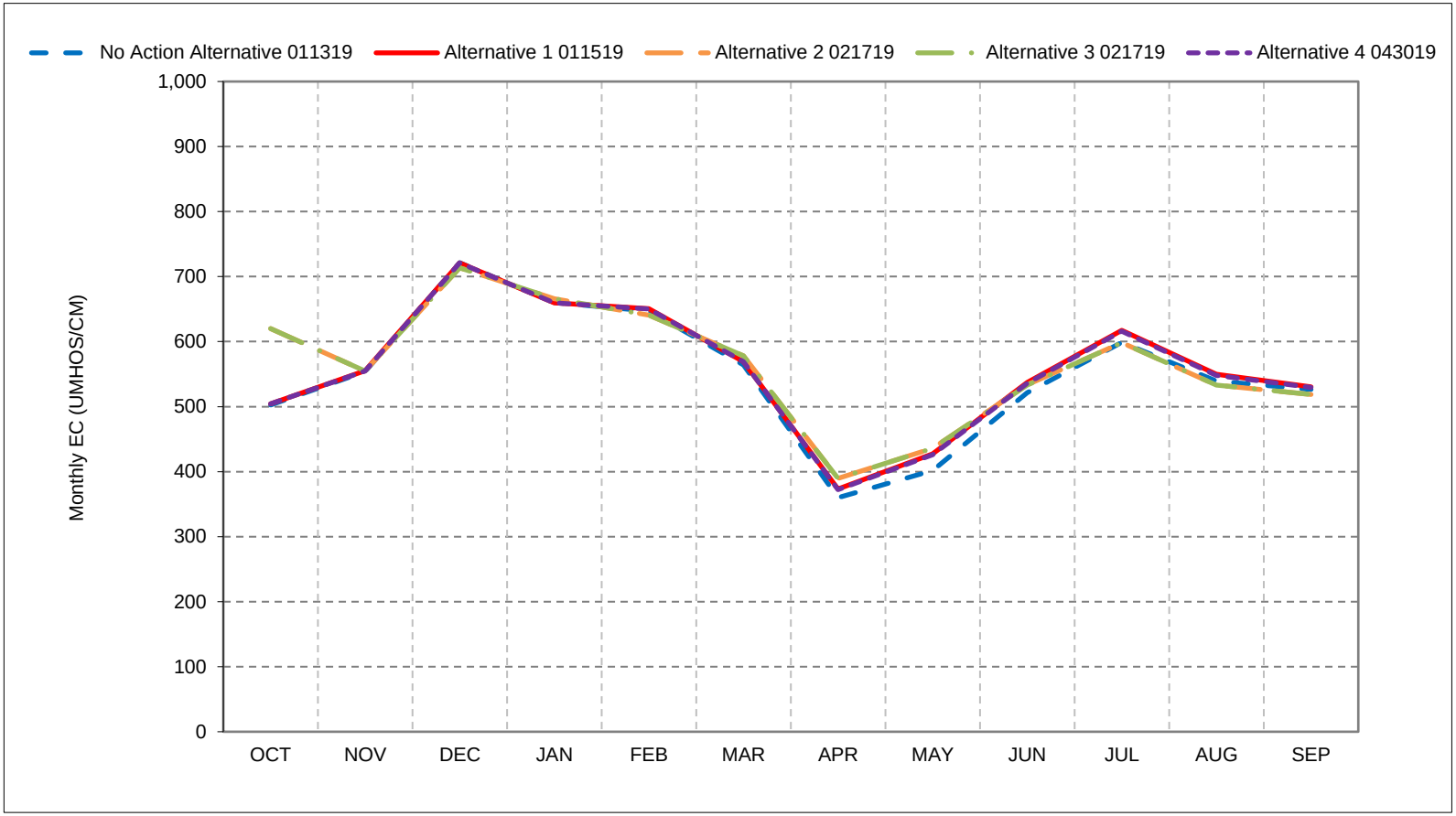
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

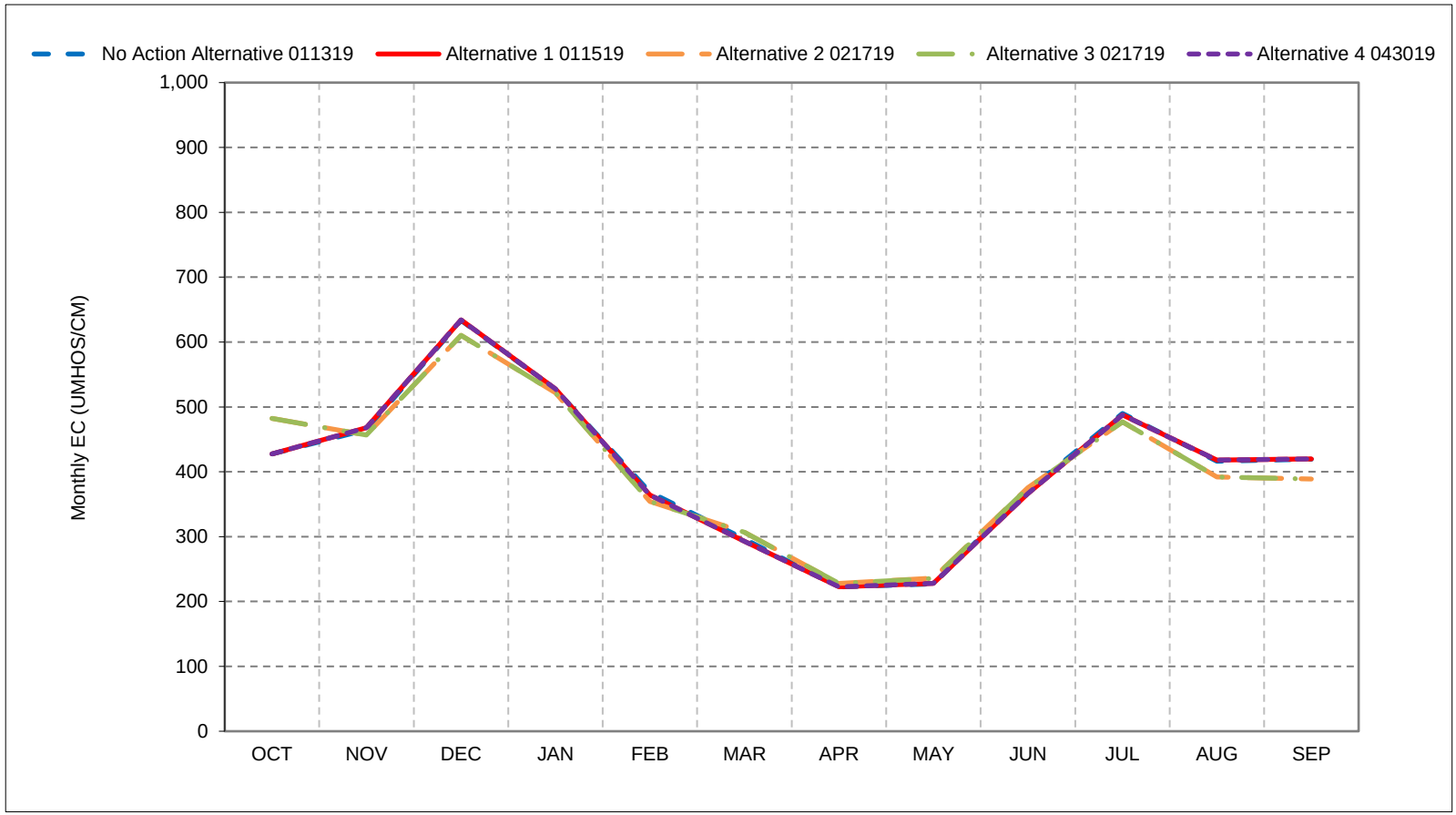
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-1. San Joaquin River at Vernalis Salinity (60-20-20), Long-Term Average EC



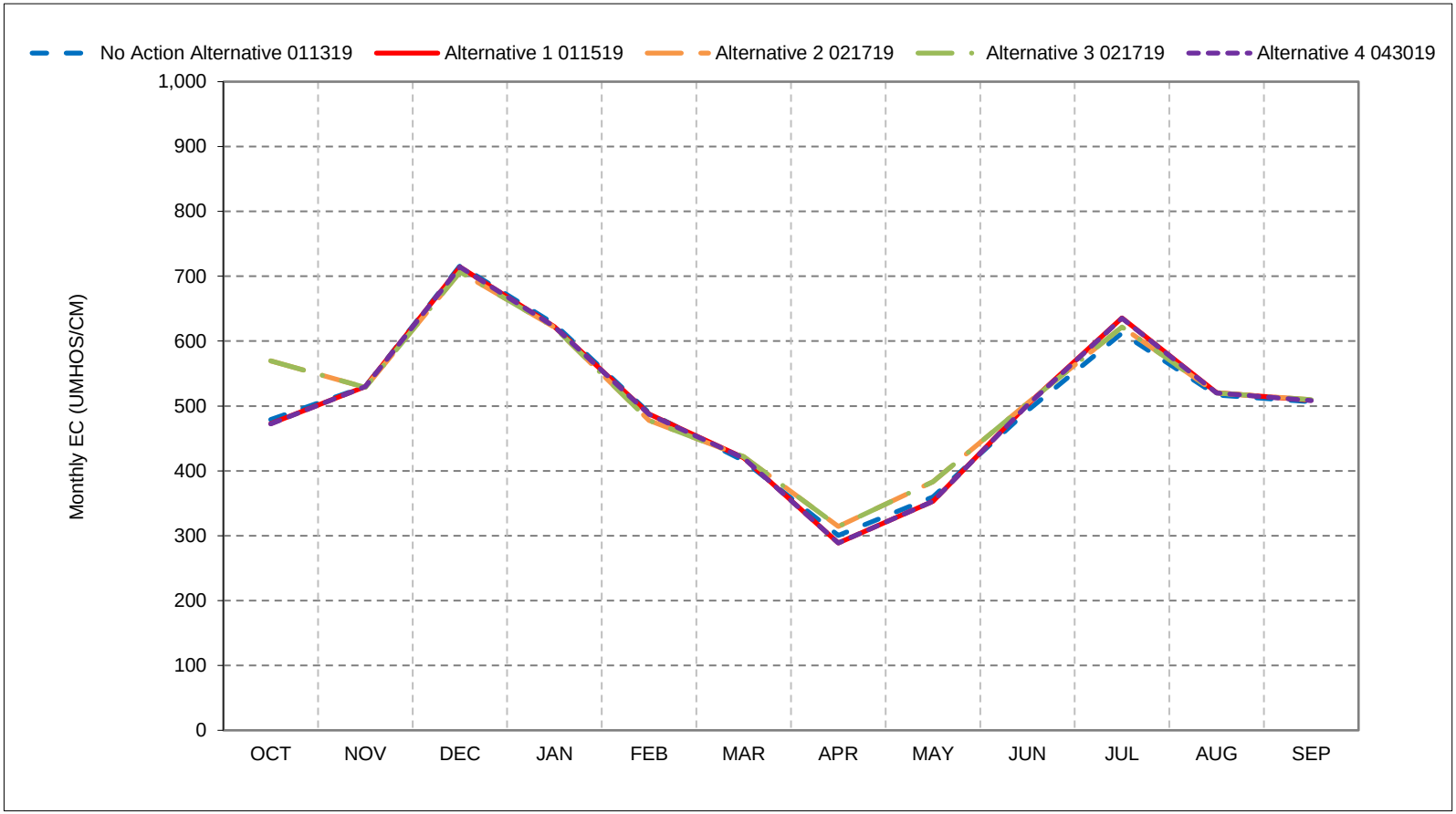

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-2. San Joaquin River at Vernalis Salinity (60-20-20), Wet Year Average EC



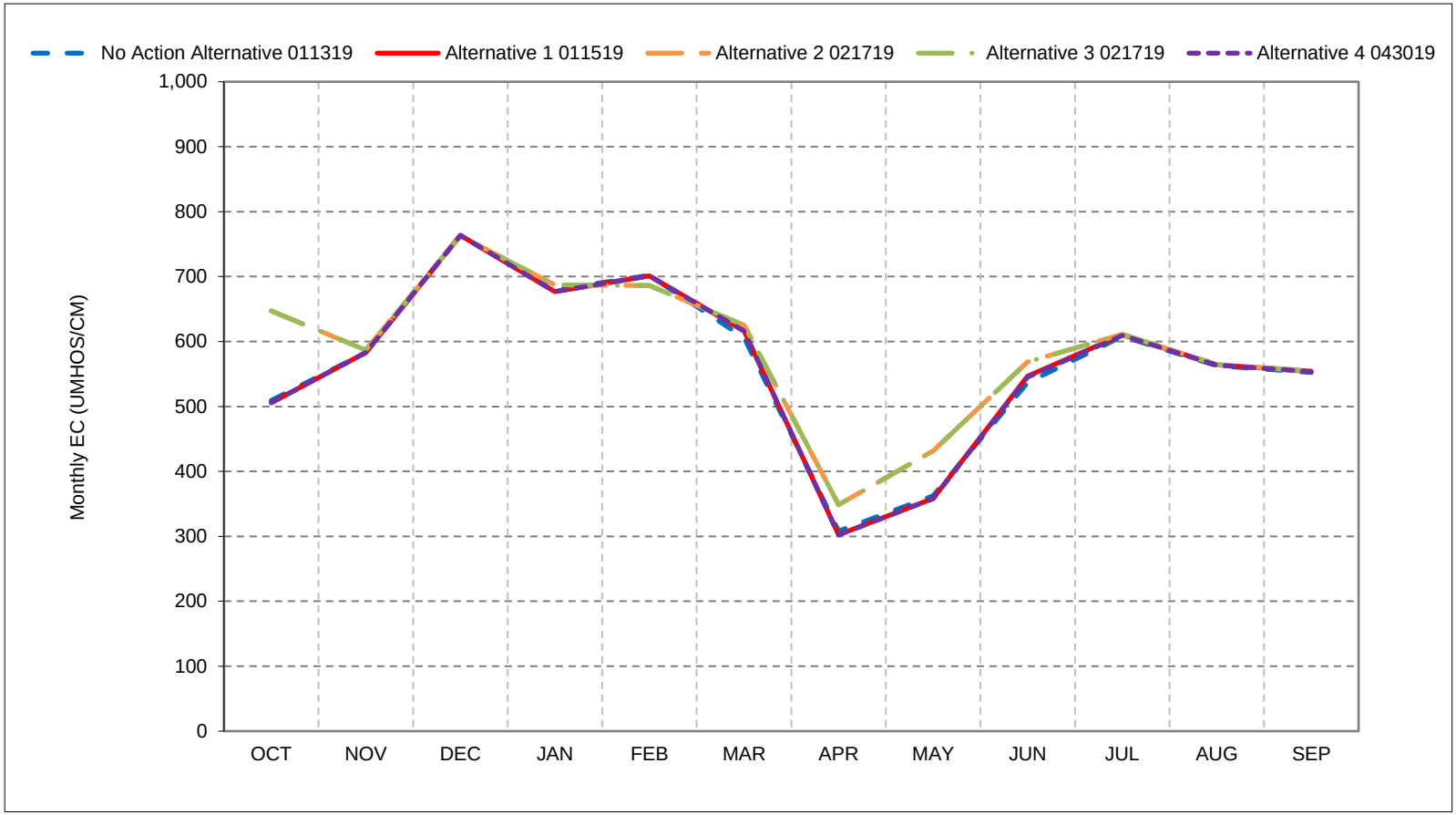

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-3. San Joaquin River at Vernalis Salinity (60-20-20), Above Normal Year Average EC



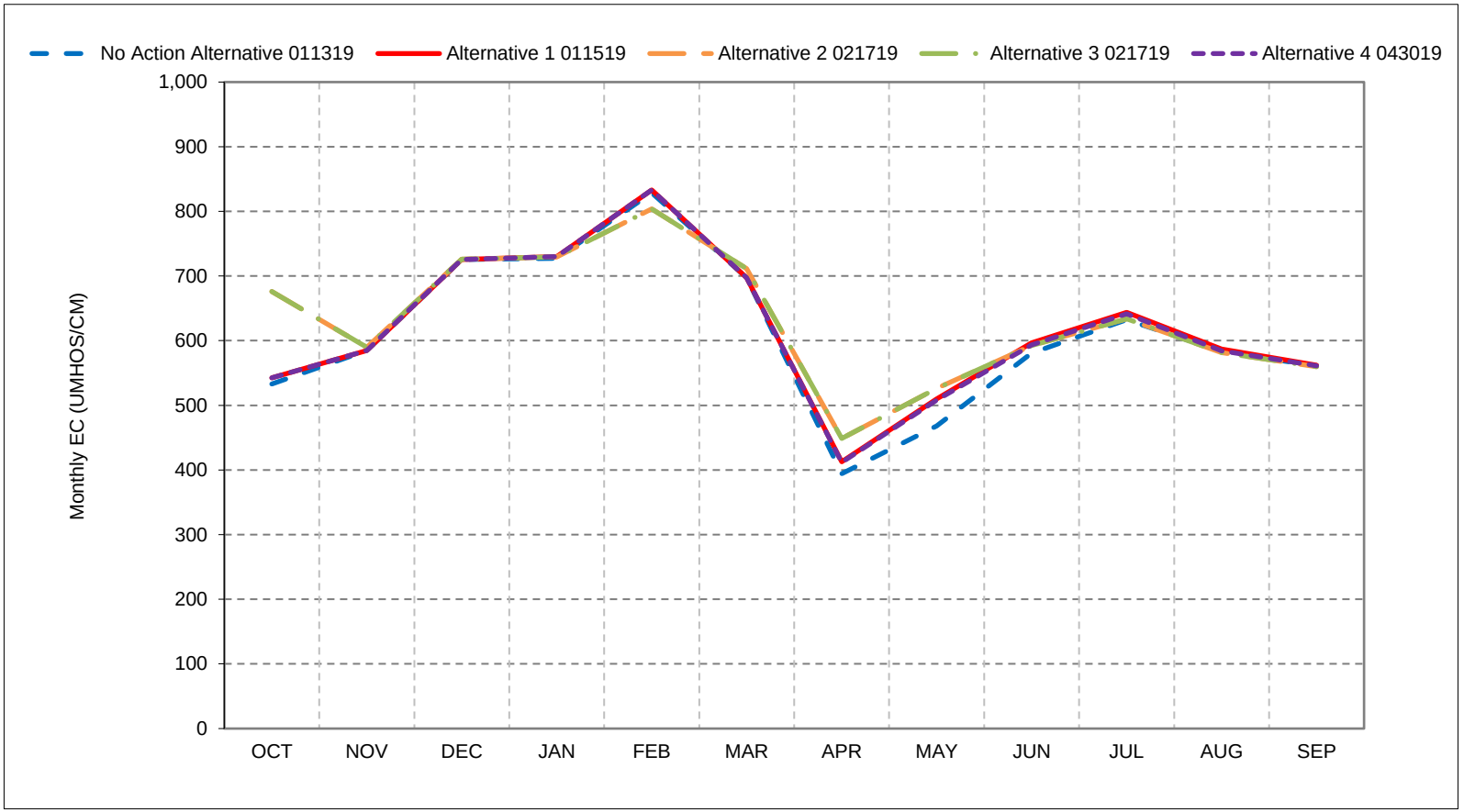

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-4. San Joaquin River at Vernalis Salinity (60-20-20), Below Normal Year Average EC



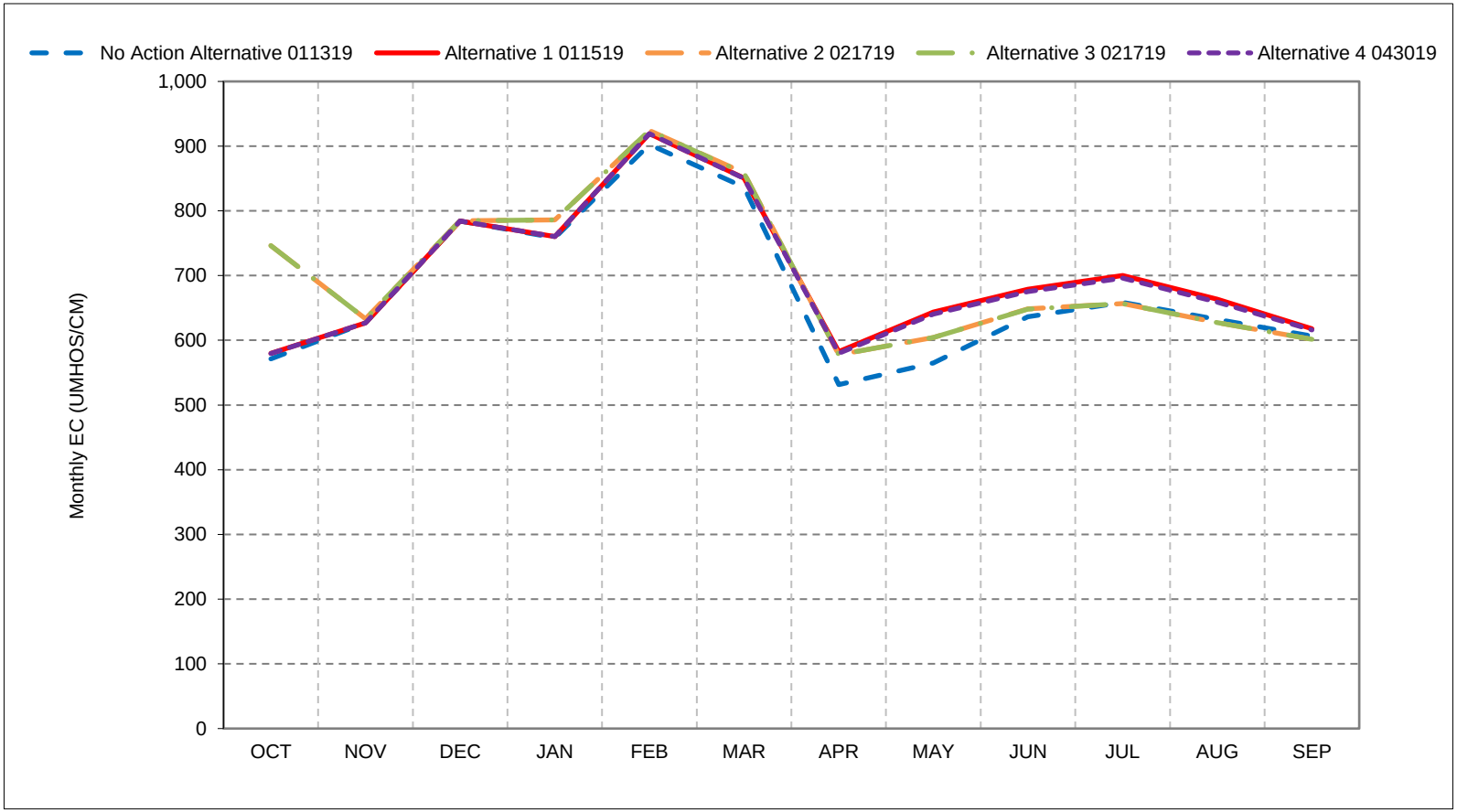

*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-5. San Joaquin River at Vernalis Salinity (60-20-20), Dry Year Average EC




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 6b-6. San Joaquin River at Vernalis Salinity (60-20-20), Critical Year Average EC




*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 7-1. San Joaquin River at Jersey Point Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,783 | 3,051 | 2,489 | 1,380 | 547 | 303 | 295 | 424 | 518 | 1,397 | 1,786 | 2,642 |
| 20% | 2,589 | 2,678 | 2,235 | 1,127 | 383 | 277 | 261 | 324 | 471 | 1,094 | 1,660 | 2,487 |
| 30% | 2,458 | 2,474 | 1,606 | 898 | 308 | 252 | 251 | 284 | 428 | 909 | 1,504 | 2,428 |
| 40% | 2,353 | 2,130 | 1,313 | 703 | 290 | 241 | 239 | 249 | 374 | 829 | 1,377 | 2,296 |
| 50% | 1,702 | 1,054 | 845 | 536 | 274 | 229 | 231 | 242 | 320 | 647 | 1,336 | 2,143 |
| 60% | 522 | 597 | 744 | 346 | 251 | 223 | 228 | 237 | 290 | 476 | 1,282 | 1,081 |
| 70% | 348 | 343 | 508 | 257 | 235 | 218 | 225 | 227 | 252 | 411 | 1,148 | 1,055 |
| 80% | 301 | 289 | 264 | 233 | 218 | 209 | 219 | 224 | 219 | 367 | 1,087 | 1,007 |
| 90% | 278 | 252 | 215 | 219 | 212 | 201 | 213 | 198 | 204 | 292 | 979 | 954 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,495 | 1,445 | 1,162 | 695 | 339 | 248 | 249 | 291 | 398 | 759 | 1,352 | 1,740 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 292 | 282 | 519 | 287 | 236 | 219 | 221 | 213 | 239 | 346 | 1,073 | 905 |
| Above Normal (16%) | 530 | 679 | 909 | 463 | 254 | 218 | 231 | 237 | 308 | 445 | 1,144 | 1,057 |
| Below Normal (13%) | 2,304 | 2,043 | 1,544 | 723 | 334 | 246 | 247 | 271 | 369 | 774 | 1,355 | 2,403 |
| Dry (24%) | 2,403 | 2,168 | 1,397 | 987 | 408 | 262 | 243 | 287 | 406 | 1,100 | 1,553 | 2,445 |
| Critical (15%) | 2,894 | 3,041 | 2,090 | 1,321 | 546 | 324 | 343 | 545 | 857 | 1,413 | 1,848 | 2,505 |

### Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,846 | 3,091 | 2,581 | 1,651 | 642 | 345 | 361 | 466 | 590 | 1,477 | 1,844 | 2,640 |
| 20% | 2,772 | 2,887 | 2,351 | 1,197 | 410 | 277 | 251 | 395 | 554 | 1,003 | 1,705 | 2,574 |
| 30% | 2,619 | 2,760 | 2,189 | 1,013 | 329 | 249 | 234 | 331 | 501 | 910 | 1,555 | 2,483 |
| 40% | 2,585 | 2,534 | 1,809 | 775 | 284 | 237 | 220 | 257 | 408 | 851 | 1,466 | 2,413 |
| 50% | 2,508 | 2,386 | 1,617 | 471 | 271 | 230 | 219 | 230 | 322 | 585 | 1,370 | 2,321 |
| 60% | 2,430 | 2,217 | 1,208 | 344 | 254 | 220 | 211 | 218 | 276 | 493 | 1,253 | 2,252 |
| 70% | 2,350 | 1,775 | 803 | 258 | 234 | 216 | 209 | 209 | 240 | 436 | 1,140 | 2,230 |
| 80% | 2,125 | 1,436 | 563 | 238 | 219 | 209 | 208 | 198 | 209 | 374 | 1,073 | 2,201 |
| 90% | 1,278 | 994 | 295 | 220 | 213 | 204 | 201 | 192 | 197 | 289 | 1,026 | 1,925 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,330 | 2,189 | 1,493 | 748 | 367 | 262 | 247 | 308 | 440 | 759 | 1,373 | 2,265 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 1,857 | 1,777 | 1,271 | 283 | 233 | 220 | 210 | 203 | 232 | 348 | 1,045 | 1,866 |
| Above Normal (16%) | 2,403 | 2,212 | 1,499 | 557 | 263 | 218 | 212 | 216 | 286 | 452 | 1,160 | 2,279 |
| Below Normal (13%) | 2,295 | 2,104 | 1,537 | 848 | 372 | 259 | 241 | 304 | 443 | 814 | 1,442 | 2,432 |
| Dry (24%) | 2,570 | 2,221 | 1,408 | 1,095 | 458 | 272 | 244 | 320 | 480 | 1,051 | 1,603 | 2,516 |
| Critical (15%) | 2,911 | 3,082 | 2,067 | 1,292 | 617 | 386 | 373 | 614 | 986 | 1,443 | 1,868 | 2,543 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **62** | **40** | **92** | **271** | **95** | **41** | **66** | **42** | **72** | **80** | **58** | -1 |
| 20% | **183** | **209** | **115** | **70** | **27** | **0** | -10 | **71** | **83** | -91 | **44** | **87** |
| 30% | **161** | **286** | **582** | **115** | **20** | -3 | -17 | **47** | **73** | **1** | **50** | **55** |
| 40% | **232** | **404** | **495** | **72** | -5 | -4 | -18 | **9** | **34** | **23** | **89** | **117** |
| 50% | **806** | **1,332** | **772** | -64 | -3 | **1** | -13 | -12 | **2** | -62 | **33** | **178** |
| 60% | **1,907** | **1,620** | **464** | -2 | **2** | -3 | -16 | -19 | -15 | **17** | -29 | **1,171** |
| 70% | **2,002** | **1,432** | **296** | **1** | -1 | -2 | -16 | -19 | -12 | **24** | -8 | **1,176** |
| 80% | **1,825** | **1,147** | **299** | **5** | **1** | -1 | -11 | -25 | -10 | **7** | -14 | **1,194** |
| 90% | **1,000** | **743** | **80** | **1** | **1** | **2** | -12 | -6 | -6 | -3 | **46** | **970** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **835** | **744** | **330** | **53** | **28** | **13** | -3 | **16** | **41** | 0 | **20** | **525** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1,564** | **1,495** | **752** | -4 | -3 | **0** | -12 | -9 | -7 | **2** | -28 | **960** |
| Above Normal (16%) | **1,872** | **1,533** | **590** | **94** | **10** | **0** | -20 | -20 | -22 | **7** | **16** | **1,222** |
| Below Normal (13%) | -9 | **61** | -7 | **124** | **37** | **13** | -6 | **33** | **74** | **40** | **86** | **30** |
| Dry (24%) | **167** | **53** | **12** | **108** | **49** | **10** | **1** | **33** | **73** | -49 | **50** | **71** |
| Critical (15%) | **17** | **41** | -23 | -29 | **71** | **62** | **30** | **69** | **129** | **31** | **20** | **38** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 7-2. San Joaquin River at Jersey Point Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,783 | 3,051 | 2,489 | 1,380 | 547 | 303 | 295 | 424 | 518 | 1,397 | 1,786 | 2,642 |
| 20% | 2,589 | 2,678 | 2,235 | 1,127 | 383 | 277 | 261 | 324 | 471 | 1,094 | 1,660 | 2,487 |
| 30% | 2,458 | 2,474 | 1,606 | 898 | 308 | 252 | 251 | 284 | 428 | 909 | 1,504 | 2,428 |
| 40% | 2,353 | 2,130 | 1,313 | 703 | 290 | 241 | 239 | 249 | 374 | 829 | 1,377 | 2,296 |
| 50% | 1,702 | 1,054 | 845 | 536 | 274 | 229 | 231 | 242 | 320 | 647 | 1,336 | 2,143 |
| 60% | 522 | 597 | 744 | 346 | 251 | 223 | 228 | 237 | 290 | 476 | 1,282 | 1,081 |
| 70% | 348 | 343 | 508 | 257 | 235 | 218 | 225 | 227 | 252 | 411 | 1,148 | 1,055 |
| 80% | 301 | 289 | 264 | 233 | 218 | 209 | 219 | 224 | 219 | 367 | 1,087 | 1,007 |
| 90% | 278 | 252 | 215 | 219 | 212 | 201 | 213 | 198 | 204 | 292 | 979 | 954 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,495 | 1,445 | 1,162 | 695 | 339 | 248 | 249 | 291 | 398 | 759 | 1,352 | 1,740 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 292 | 282 | 519 | 287 | 236 | 219 | 221 | 213 | 239 | 346 | 1,073 | 905 |
| Above Normal (16%) | 530 | 679 | 909 | 463 | 254 | 218 | 231 | 237 | 308 | 445 | 1,144 | 1,057 |
| Below Normal (13%) | 2,304 | 2,043 | 1,544 | 723 | 334 | 246 | 247 | 271 | 369 | 774 | 1,355 | 2,403 |
| Dry (24%) | 2,403 | 2,168 | 1,397 | 987 | 408 | 262 | 243 | 287 | 406 | 1,100 | 1,553 | 2,445 |
| Critical (15%) | 2,894 | 3,041 | 2,090 | 1,321 | 546 | 324 | 343 | 545 | 857 | 1,413 | 1,848 | 2,505 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,837 | 3,095 | 2,998 | 1,939 | 1,057 | 421 | 383 | 530 | 604 | 1,302 | 1,798 | 2,640 |
| 20% | 2,740 | 2,844 | 2,724 | 1,619 | 692 | 341 | 271 | 387 | 498 | 1,001 | 1,662 | 2,549 |
| 30% | 2,673 | 2,649 | 2,554 | 1,431 | 486 | 273 | 237 | 335 | 441 | 863 | 1,498 | 2,455 |
| 40% | 2,549 | 2,605 | 2,304 | 1,165 | 372 | 246 | 225 | 270 | 355 | 778 | 1,392 | 2,401 |
| 50% | 2,437 | 2,451 | 2,155 | 883 | 291 | 232 | 218 | 239 | 291 | 634 | 1,336 | 2,369 |
| 60% | 2,376 | 2,298 | 1,528 | 555 | 265 | 225 | 212 | 219 | 277 | 488 | 1,263 | 2,308 |
| 70% | 2,188 | 2,136 | 1,030 | 281 | 231 | 215 | 206 | 206 | 250 | 437 | 1,161 | 2,253 |
| 80% | 2,047 | 1,800 | 724 | 241 | 218 | 207 | 204 | 194 | 220 | 387 | 1,098 | 2,128 |
| 90% | 1,696 | 939 | 326 | 219 | 208 | 201 | 197 | 188 | 197 | 287 | 1,046 | 1,822 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,334 | 2,255 | 1,811 | 965 | 462 | 279 | 251 | 315 | 413 | 739 | 1,364 | 2,263 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 2,105 | 2,067 | 1,531 | 346 | 236 | 217 | 208 | 203 | 230 | 353 | 1,045 | 1,849 |
| Above Normal (16%) | 2,725 | 2,515 | 2,007 | 761 | 322 | 217 | 207 | 223 | 269 | 459 | 1,217 | 2,360 |
| Below Normal (13%) | 2,320 | 2,190 | 1,693 | 1,389 | 554 | 279 | 247 | 308 | 359 | 773 | 1,460 | 2,382 |
| Dry (24%) | 2,184 | 1,963 | 1,555 | 1,332 | 576 | 301 | 252 | 321 | 457 | 987 | 1,522 | 2,510 |
| Critical (15%) | 2,674 | 2,926 | 2,743 | 1,528 | 831 | 444 | 391 | 654 | 943 | 1,437 | 1,863 | 2,533 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **54** | **45** | **509** | **559** | **510** | **118** | **89** | **106** | **86** | -95 | **13** | -2 |
| 20% | **151** | **166** | **489** | **492** | **309** | **65** | **10** | **63** | **27** | -93 | **1** | **62** |
| 30% | **215** | **175** | **947** | **533** | **178** | **22** | -14 | **51** | **13** | -45 | -7 | **26** |
| 40% | **196** | **475** | **991** | **462** | **82** | **5** | -14 | **21** | -20 | -51 | **15** | **105** |
| 50% | **735** | **1,397** | **1,310** | **348** | **17** | **3** | -13 | -3 | -29 | -13 | 0 | **226** |
| 60% | **1,854** | **1,701** | **784** | **208** | **14** | **2** | -15 | -18 | -13 | **12** | -19 | **1,227** |
| 70% | **1,840** | **1,793** | **523** | **24** | -4 | -3 | -19 | -21 | -2 | **25** | **14** | **1,198** |
| 80% | **1,746** | **1,511** | **460** | **8** | 0 | -3 | -15 | -30 | **1** | **20** | **12** | **1,121** |
| 90% | **1,418** | **688** | **111** | **0** | -4 | -1 | -16 | -10 | -7 | -4 | **66** | **867** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **839** | **810** | **649** | **270** | **123** | **31** | **1** | **24** | **15** | -20 | **12** | **523** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1,812** | **1,785** | **1,012** | **59** | **0** | -2 | -13 | -10 | -9 | **8** | -28 | **944** |
| Above Normal (16%) | **2,195** | **1,836** | **1,098** | **298** | **68** | -1 | -25 | -14 | -39 | **14** | **74** | **1,304** |
| Below Normal (13%) | **16** | **147** | **149** | **665** | **220** | **33** | **0** | **36** | -10 | 0 | **105** | -20 |
| Dry (24%) | -219 | -205 | **158** | **345** | **168** | **39** | **9** | **34** | **51** | -113 | -30 | **65** |
| Critical (15%) | -220 | -115 | **653** | **207** | **285** | **120** | **48** | **110** | **86** | **24** | **15** | **29** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 7-3. San Joaquin River at Jersey Point Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,783 | 3,051 | 2,489 | 1,380 | 547 | 303 | 295 | 424 | 518 | 1,397 | 1,786 | 2,642 |
| 20% | 2,589 | 2,678 | 2,235 | 1,127 | 383 | 277 | 261 | 324 | 471 | 1,094 | 1,660 | 2,487 |
| 30% | 2,458 | 2,474 | 1,606 | 898 | 308 | 252 | 251 | 284 | 428 | 909 | 1,504 | 2,428 |
| 40% | 2,353 | 2,130 | 1,313 | 703 | 290 | 241 | 239 | 249 | 374 | 829 | 1,377 | 2,296 |
| 50% | 1,702 | 1,054 | 845 | 536 | 274 | 229 | 231 | 242 | 320 | 647 | 1,336 | 2,143 |
| 60% | 522 | 597 | 744 | 346 | 251 | 223 | 228 | 237 | 290 | 476 | 1,282 | 1,081 |
| 70% | 348 | 343 | 508 | 257 | 235 | 218 | 225 | 227 | 252 | 411 | 1,148 | 1,055 |
| 80% | 301 | 289 | 264 | 233 | 218 | 209 | 219 | 224 | 219 | 367 | 1,087 | 1,007 |
| 90% | 278 | 252 | 215 | 219 | 212 | 201 | 213 | 198 | 204 | 292 | 979 | 954 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,495 | 1,445 | 1,162 | 695 | 339 | 248 | 249 | 291 | 398 | 759 | 1,352 | 1,740 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 292 | 282 | 519 | 287 | 236 | 219 | 221 | 213 | 239 | 346 | 1,073 | 905 |
| Above Normal (16%) | 530 | 679 | 909 | 463 | 254 | 218 | 231 | 237 | 308 | 445 | 1,144 | 1,057 |
| Below Normal (13%) | 2,304 | 2,043 | 1,544 | 723 | 334 | 246 | 247 | 271 | 369 | 774 | 1,355 | 2,403 |
| Dry (24%) | 2,403 | 2,168 | 1,397 | 987 | 408 | 262 | 243 | 287 | 406 | 1,100 | 1,553 | 2,445 |
| Critical (15%) | 2,894 | 3,041 | 2,090 | 1,321 | 546 | 324 | 343 | 545 | 857 | 1,413 | 1,848 | 2,505 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,681 | 2,815 | 2,701 | 1,843 | 867 | 413 | 354 | 470 | 585 | 1,261 | 1,781 | 2,680 |
| 20% | 2,622 | 2,572 | 2,494 | 1,558 | 711 | 320 | 274 | 358 | 495 | 952 | 1,613 | 2,579 |
| 30% | 2,525 | 2,449 | 2,360 | 1,307 | 455 | 278 | 241 | 321 | 434 | 844 | 1,481 | 2,463 |
| 40% | 2,402 | 2,309 | 2,245 | 1,133 | 364 | 251 | 232 | 265 | 362 | 733 | 1,390 | 2,387 |
| 50% | 2,223 | 2,169 | 1,980 | 836 | 281 | 236 | 222 | 234 | 303 | 652 | 1,295 | 2,313 |
| 60% | 2,146 | 2,025 | 1,334 | 497 | 259 | 225 | 216 | 223 | 278 | 452 | 1,199 | 2,273 |
| 70% | 1,965 | 1,829 | 898 | 272 | 237 | 218 | 211 | 207 | 255 | 403 | 1,122 | 2,212 |
| 80% | 1,776 | 1,534 | 626 | 237 | 216 | 208 | 208 | 199 | 222 | 378 | 1,057 | 2,110 |
| 90% | 1,482 | 1,020 | 309 | 219 | 208 | 203 | 198 | 190 | 198 | 282 | 972 | 1,780 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,148 | 2,010 | 1,668 | 904 | 434 | 278 | 250 | 300 | 410 | 716 | 1,315 | 2,242 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 1,984 | 1,923 | 1,364 | 333 | 234 | 218 | 210 | 208 | 237 | 351 | 997 | 1,832 |
| Above Normal (16%) | 2,433 | 2,297 | 1,829 | 669 | 295 | 218 | 211 | 221 | 275 | 418 | 1,126 | 2,185 |
| Below Normal (13%) | 2,205 | 1,954 | 1,567 | 1,321 | 510 | 279 | 248 | 290 | 358 | 721 | 1,412 | 2,421 |
| Dry (24%) | 1,990 | 1,740 | 1,482 | 1,266 | 545 | 298 | 253 | 301 | 439 | 940 | 1,494 | 2,545 |
| Critical (15%) | 2,408 | 2,390 | 2,557 | 1,413 | 759 | 435 | 376 | 590 | 934 | 1,455 | 1,822 | 2,521 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -102 | -235 | **212** | **462** | **320** | **110** | **59** | **45** | **67** | -136 | -4 | **39** |
| 20% | **33** | -105 | **259** | **431** | **328** | **43** | **13** | **34** | **24** | -142 | -47 | **92** |
| 30% | **67** | -25 | **753** | **409** | **147** | **27** | -10 | **37** | **6** | -65 | -23 | **34** |
| 40% | **49** | **178** | **932** | **430** | **74** | **10** | -7 | **17** | -13 | -96 | **13** | **91** |
| 50% | **521** | **1,115** | **1,135** | **300** | **7** | **7** | -9 | -8 | -17 | **5** | -41 | **170** |
| 60% | **1,624** | **1,428** | **590** | **150** | **8** | **2** | -12 | -14 | -12 | -24 | -83 | **1,192** |
| 70% | **1,617** | **1,487** | **390** | **15** | **2** | **1** | -14 | -20 | **3** | -8 | -25 | **1,157** |
| 80% | **1,475** | **1,245** | **362** | **4** | -2 | -1 | -11 | -25 | **3** | **11** | -30 | **1,103** |
| 90% | **1,203** | **769** | **94** | **0** | -4 | **2** | -14 | -7 | -5 | -10 | -7 | **826** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **653** | **565** | **506** | **209** | **94** | **29** | **1** | **9** | **12** | -43 | -37 | **502** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1,692** | **1,641** | **845** | **47** | -2 | -1 | -11 | -5 | -2 | **5** | -76 | **927** |
| Above Normal (16%) | **1,902** | **1,618** | **920** | **206** | **41** | 0 | -21 | -15 | -33 | -27 | -17 | **1,129** |
| Below Normal (13%) | -99 | -89 | **22** | **598** | **176** | **34** | **1** | **19** | -10 | -53 | **57** | **19** |
| Dry (24%) | -413 | -428 | **85** | **279** | **137** | **36** | **10** | **13** | **32** | -160 | -59 | **99** |
| Critical (15%) | -485 | -651 | **467** | **92** | **213** | **111** | **33** | **46** | **77** | **43** | -26 | **16** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 7-4. San Joaquin River at Jersey Point Salinity, Monthly EC

No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,783 | 3,051 | 2,489 | 1,380 | 547 | 303 | 295 | 424 | 518 | 1,397 | 1,786 | 2,642 |
| 20% | 2,589 | 2,678 | 2,235 | 1,127 | 383 | 277 | 261 | 324 | 471 | 1,094 | 1,660 | 2,487 |
| 30% | 2,458 | 2,474 | 1,606 | 898 | 308 | 252 | 251 | 284 | 428 | 909 | 1,504 | 2,428 |
| 40% | 2,353 | 2,130 | 1,313 | 703 | 290 | 241 | 239 | 249 | 374 | 829 | 1,377 | 2,296 |
| 50% | 1,702 | 1,054 | 845 | 536 | 274 | 229 | 231 | 242 | 320 | 647 | 1,336 | 2,143 |
| 60% | 522 | 597 | 744 | 346 | 251 | 223 | 228 | 237 | 290 | 476 | 1,282 | 1,081 |
| 70% | 348 | 343 | 508 | 257 | 235 | 218 | 225 | 227 | 252 | 411 | 1,148 | 1,055 |
| 80% | 301 | 289 | 264 | 233 | 218 | 209 | 219 | 224 | 219 | 367 | 1,087 | 1,007 |
| 90% | 278 | 252 | 215 | 219 | 212 | 201 | 213 | 198 | 204 | 292 | 979 | 954 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,495 | 1,445 | 1,162 | 695 | 339 | 248 | 249 | 291 | 398 | 759 | 1,352 | 1,740 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 292 | 282 | 519 | 287 | 236 | 219 | 221 | 213 | 239 | 346 | 1,073 | 905 |
| Above Normal (16%) | 530 | 679 | 909 | 463 | 254 | 218 | 231 | 237 | 308 | 445 | 1,144 | 1,057 |
| Below Normal (13%) | 2,304 | 2,043 | 1,544 | 723 | 334 | 246 | 247 | 271 | 369 | 774 | 1,355 | 2,403 |
| Dry (24%) | 2,403 | 2,168 | 1,397 | 987 | 408 | 262 | 243 | 287 | 406 | 1,100 | 1,553 | 2,445 |
| Critical (15%) | 2,894 | 3,041 | 2,090 | 1,321 | 546 | 324 | 343 | 545 | 857 | 1,413 | 1,848 | 2,505 |

Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,856 | 3,094 | 2,577 | 1,649 | 655 | 305 | 294 | 417 | 590 | 1,295 | 1,712 | 2,580 |
| 20% | 2,744 | 2,838 | 2,343 | 1,195 | 410 | 266 | 281 | 345 | 508 | 1,015 | 1,554 | 2,487 |
| 30% | 2,638 | 2,701 | 2,114 | 970 | 314 | 257 | 267 | 282 | 480 | 911 | 1,484 | 2,404 |
| 40% | 2,556 | 2,510 | 1,833 | 710 | 282 | 247 | 263 | 249 | 404 | 851 | 1,412 | 2,353 |
| 50% | 2,510 | 2,405 | 1,593 | 463 | 267 | 241 | 251 | 237 | 332 | 574 | 1,231 | 2,320 |
| 60% | 2,424 | 2,254 | 1,201 | 338 | 255 | 238 | 243 | 231 | 291 | 470 | 1,140 | 2,281 |
| 70% | 2,352 | 1,869 | 692 | 259 | 234 | 232 | 235 | 224 | 245 | 422 | 1,089 | 2,223 |
| 80% | 2,200 | 1,437 | 518 | 237 | 219 | 223 | 228 | 219 | 217 | 374 | 1,026 | 2,162 |
| 90% | 1,935 | 996 | 279 | 219 | 212 | 216 | 214 | 198 | 202 | 292 | 922 | 1,931 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 2,381 | 2,186 | 1,470 | 723 | 355 | 258 | 261 | 291 | 423 | 739 | 1,290 | 2,233 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 2,037 | 1,867 | 1,253 | 280 | 233 | 231 | 226 | 209 | 235 | 349 | 1,022 | 1,921 |
| Above Normal (16%) | 2,448 | 2,228 | 1,450 | 537 | 261 | 237 | 245 | 230 | 309 | 445 | 1,089 | 2,261 |
| Below Normal (13%) | 2,261 | 1,918 | 1,519 | 766 | 348 | 256 | 269 | 269 | 418 | 798 | 1,162 | 2,233 |
| Dry (24%) | 2,549 | 2,193 | 1,393 | 1,076 | 440 | 260 | 265 | 299 | 464 | 1,036 | 1,539 | 2,471 |
| Critical (15%) | 2,885 | 3,064 | 2,044 | 1,256 | 590 | 334 | 340 | 539 | 891 | 1,355 | 1,792 | 2,481 |

Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **73** | **44** | **88** | **269** | **108** | **1** | -1 | -7 | **72** | -102 | -73 | -62 |
| 20% | **155** | **160** | **107** | **68** | **27** | -11 | **20** | **21** | **36** | -79 | -106 | 0 |
| 30% | **181** | **227** | **508** | **72** | **6** | **5** | **16** | -3 | **52** | **2** | -21 | -24 |
| 40% | **203** | **379** | **519** | **7** | -8 | **6** | **25** | **0** | **29** | **22** | **35** | **56** |
| 50% | **808** | **1,352** | **748** | -72 | -7 | **12** | **20** | -5 | **12** | -73 | -106 | **177** |
| 60% | **1,902** | **1,657** | **457** | -8 | **4** | **15** | **16** | -6 | **1** | -6 | -142 | **1,200** |
| 70% | **2,004** | **1,526** | **184** | **2** | -1 | **14** | **10** | -3 | -7 | **10** | -59 | **1,168** |
| 80% | **1,899** | **1,148** | **254** | **4** | **1** | **14** | **10** | -5 | -2 | **7** | -61 | **1,155** |
| 90% | **1,657** | **744** | **64** | **0** | 0 | **15** | **1** | **0** | -2 | **0** | -58 | **976** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **886** | **741** | **308** | **27** | **16** | **9** | **12** | -1 | **25** | -20 | -62 | **493** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1,744** | **1,585** | **734** | -7 | -3 | **12** | **5** | -4 | -3 | **3** | -51 | **1,016** |
| Above Normal (16%) | **1,918** | **1,548** | **541** | **74** | **7** | **19** | **14** | -6 | **1** | **0** | -54 | **1,204** |
| Below Normal (13%) | -43 | -125 | -26 | **43** | **13** | **11** | **23** | -2 | **49** | **24** | -193 | -169 |
| Dry (24%) | **146** | **25** | -3 | **89** | **32** | -3 | **22** | **11** | **58** | -64 | -13 | **25** |
| Critical (15%) | -9 | **22** | -46 | -65 | **44** | **10** | -3 | -5 | **34** | -57 | -56 | -24 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

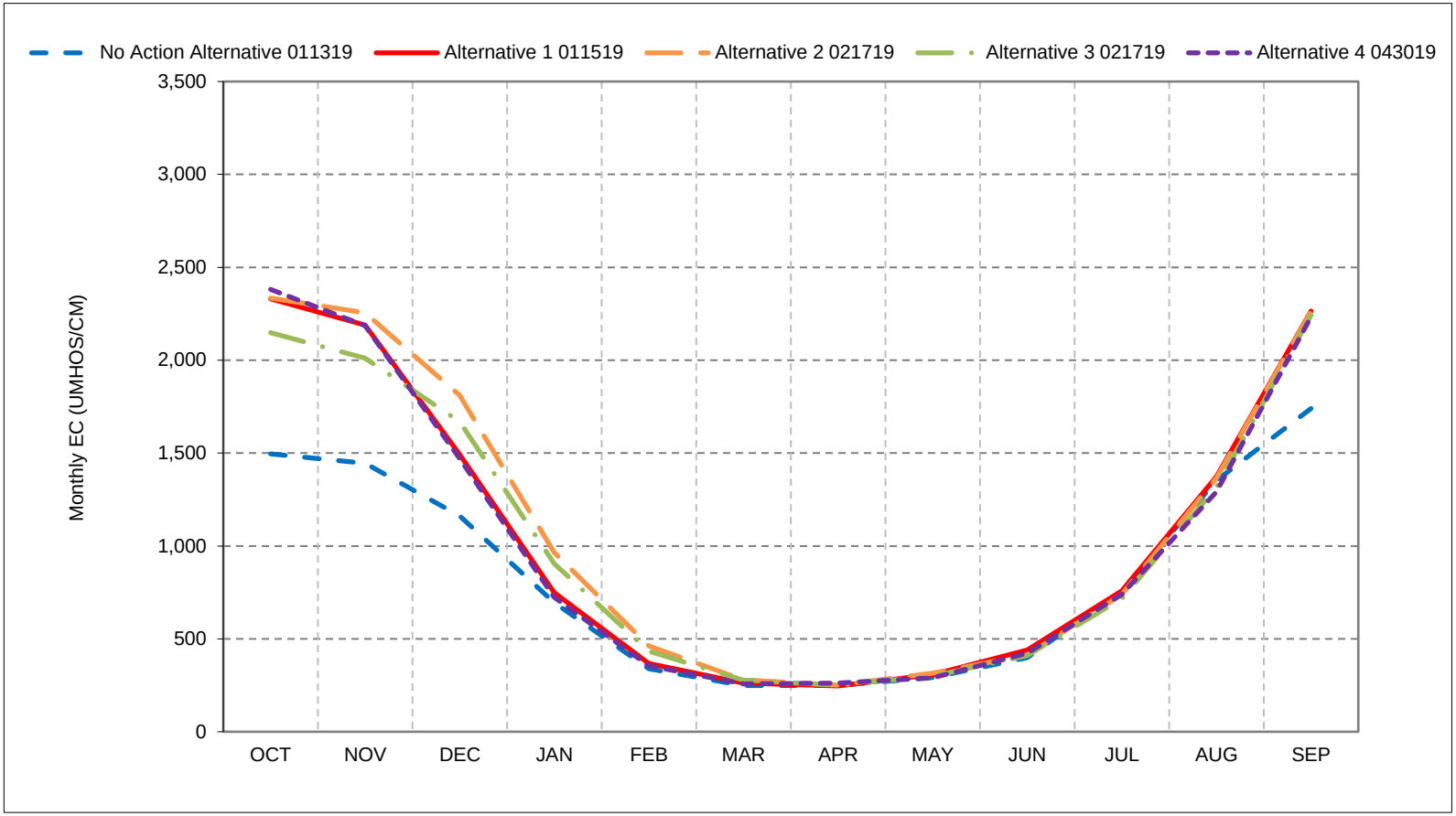
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

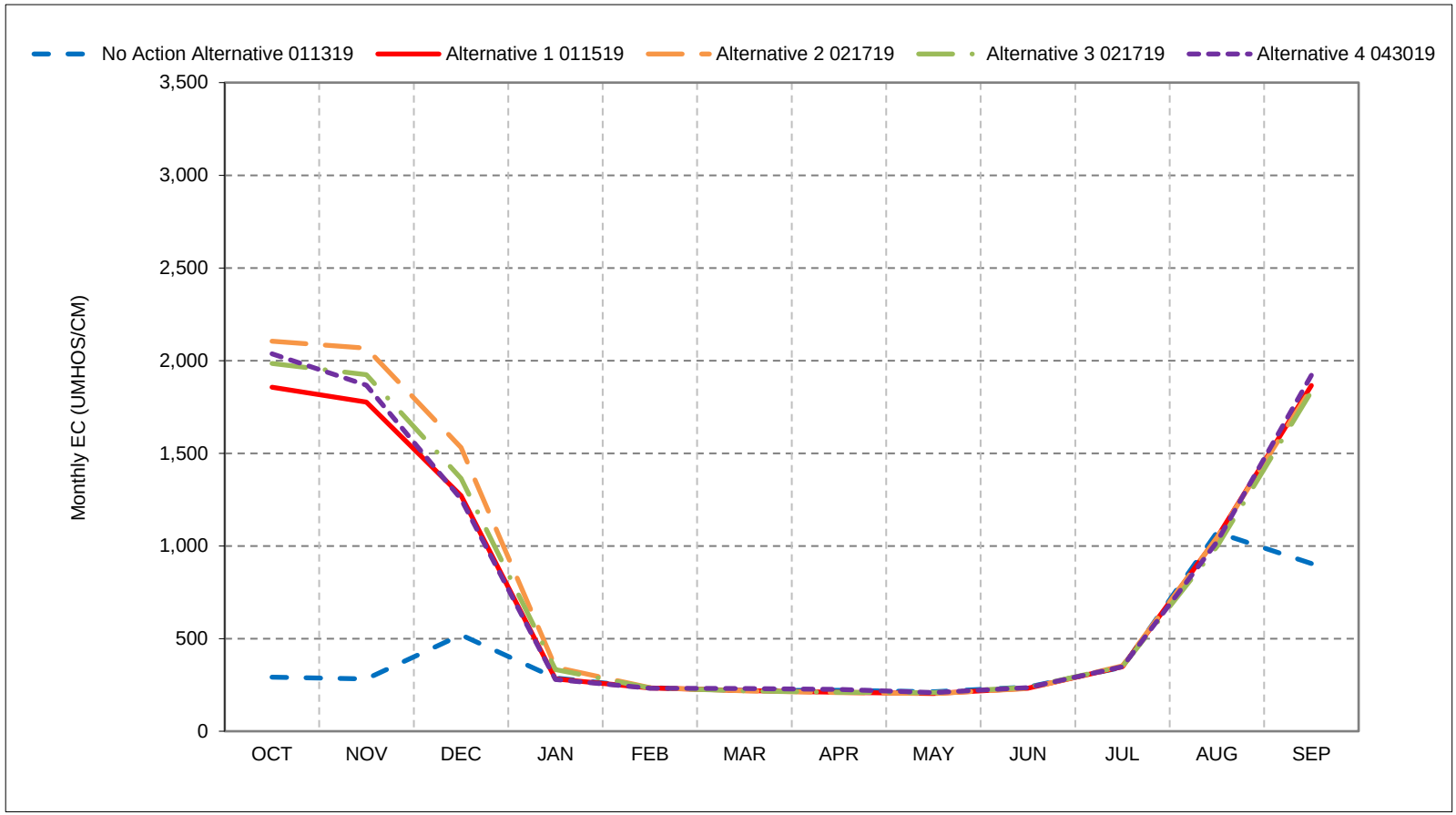
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-1. San Joaquin River at Jersey Point Salinity, Long-Term Average EC



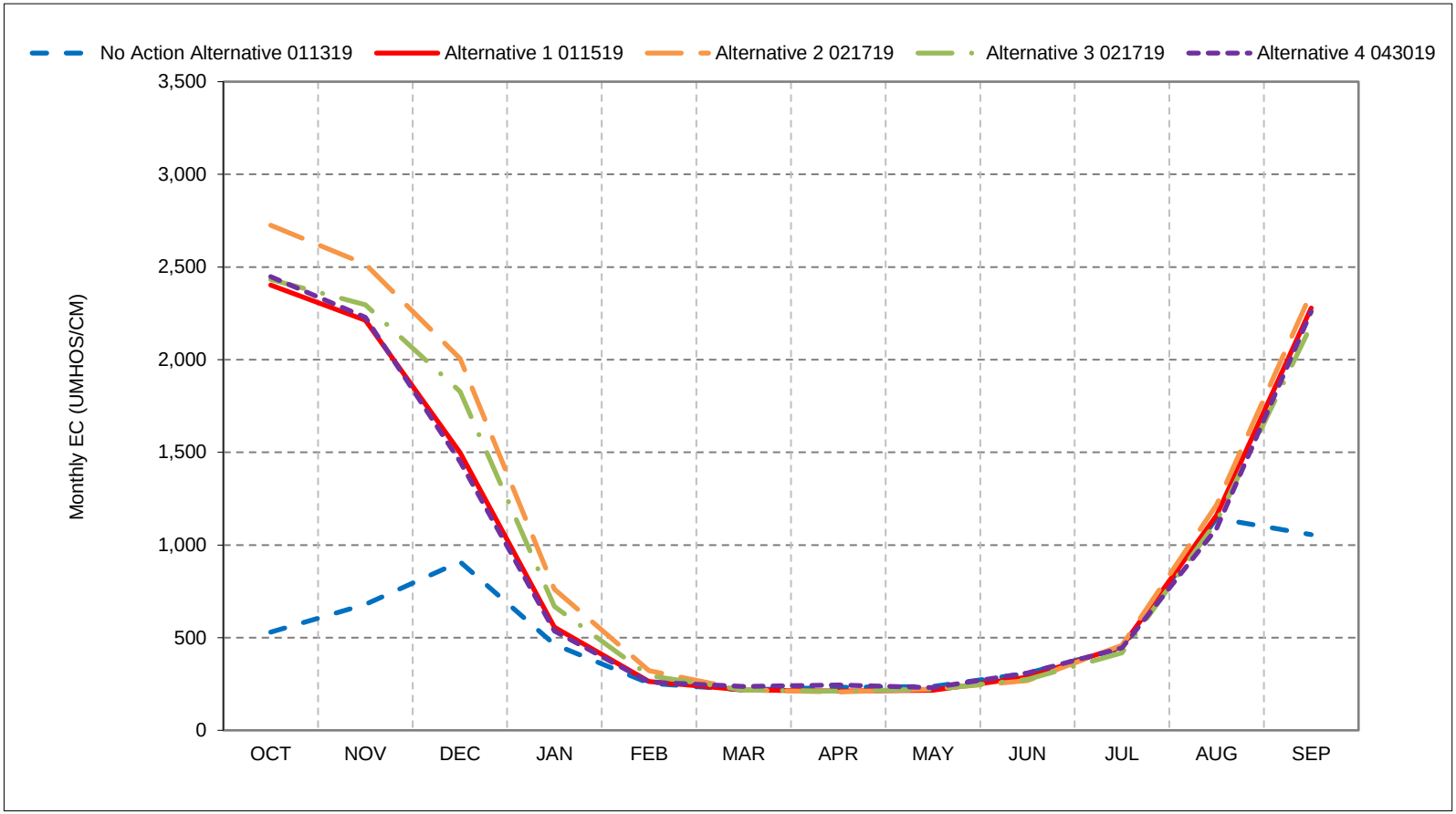

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-2. San Joaquin River at Jersey Point Salinity, Wet Year Average EC



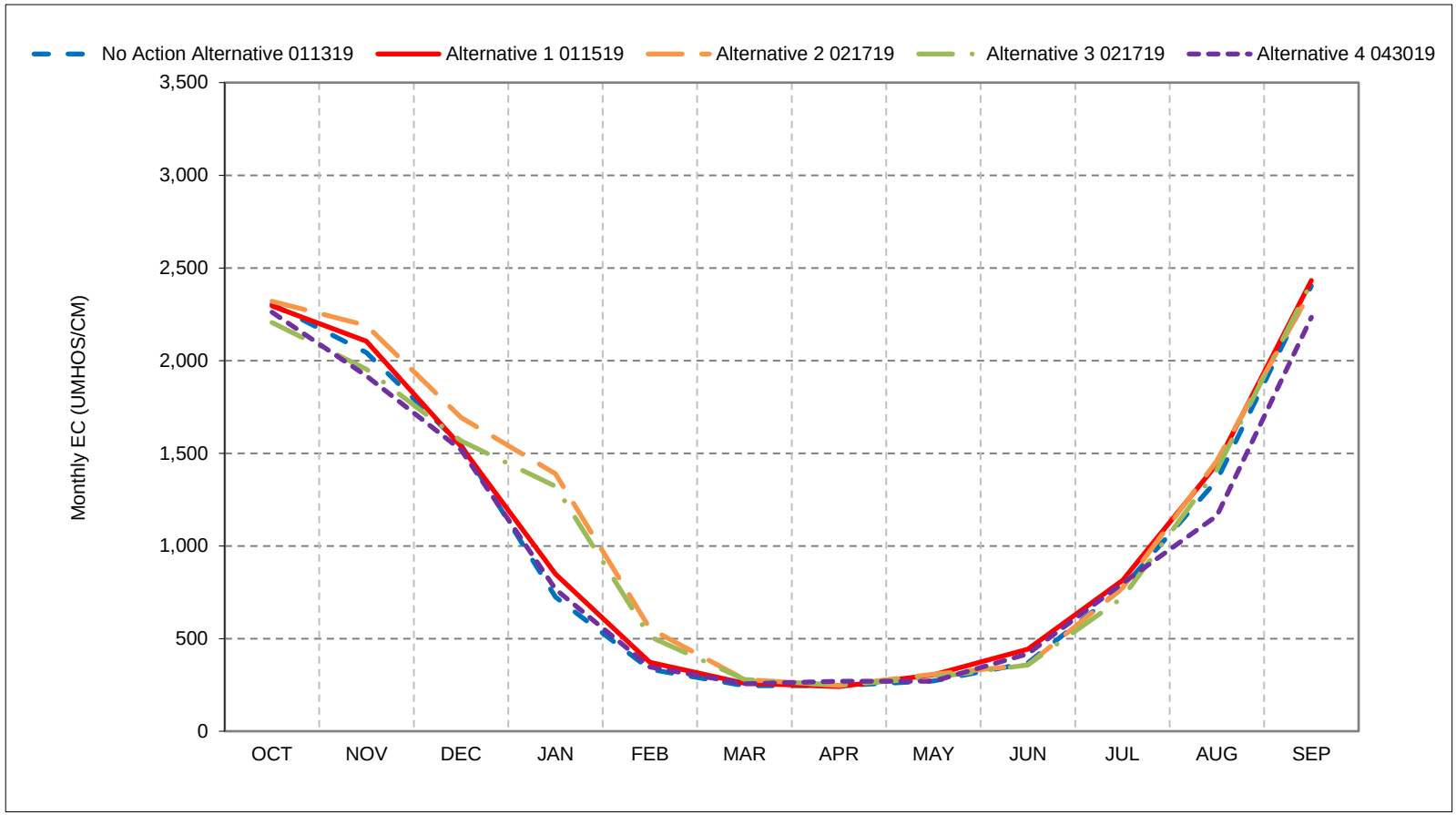

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-3. San Joaquin River at Jersey Point Salinity, Above Normal Year Average EC



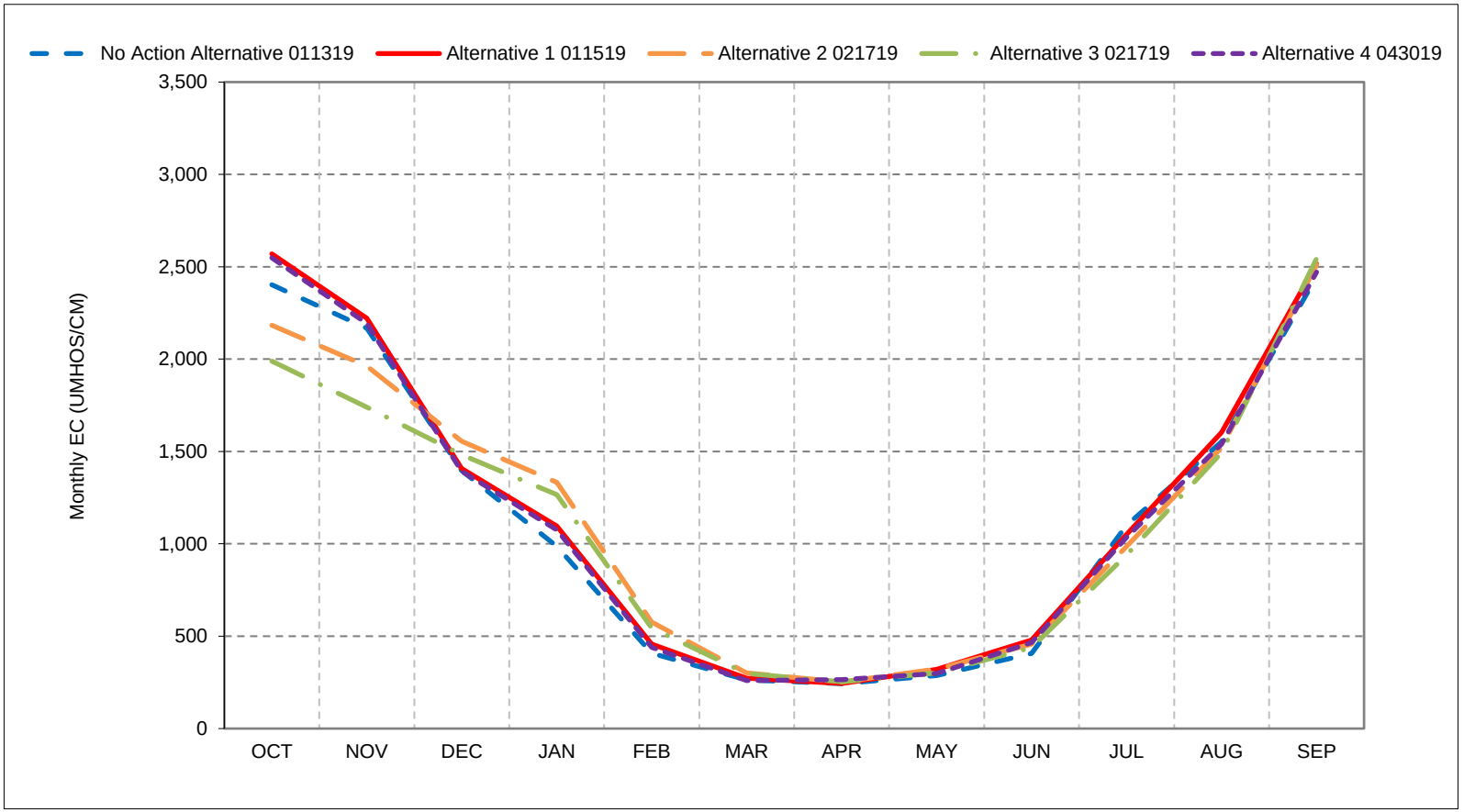

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-4. San Joaquin River at Jersey Point Salinity, Below Normal Year Average EC



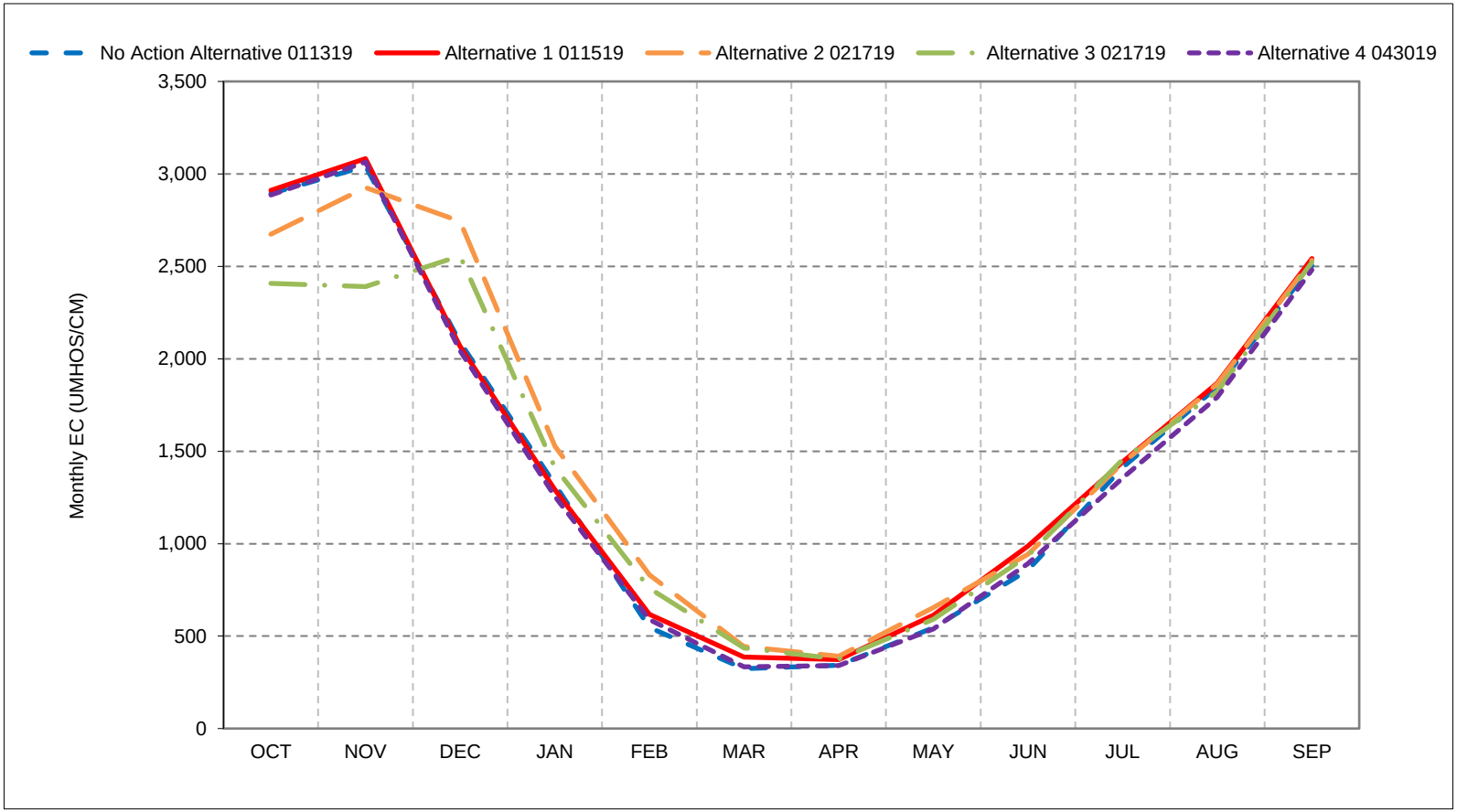

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-5. San Joaquin River at Jersey Point Salinity, Dry Year Average EC



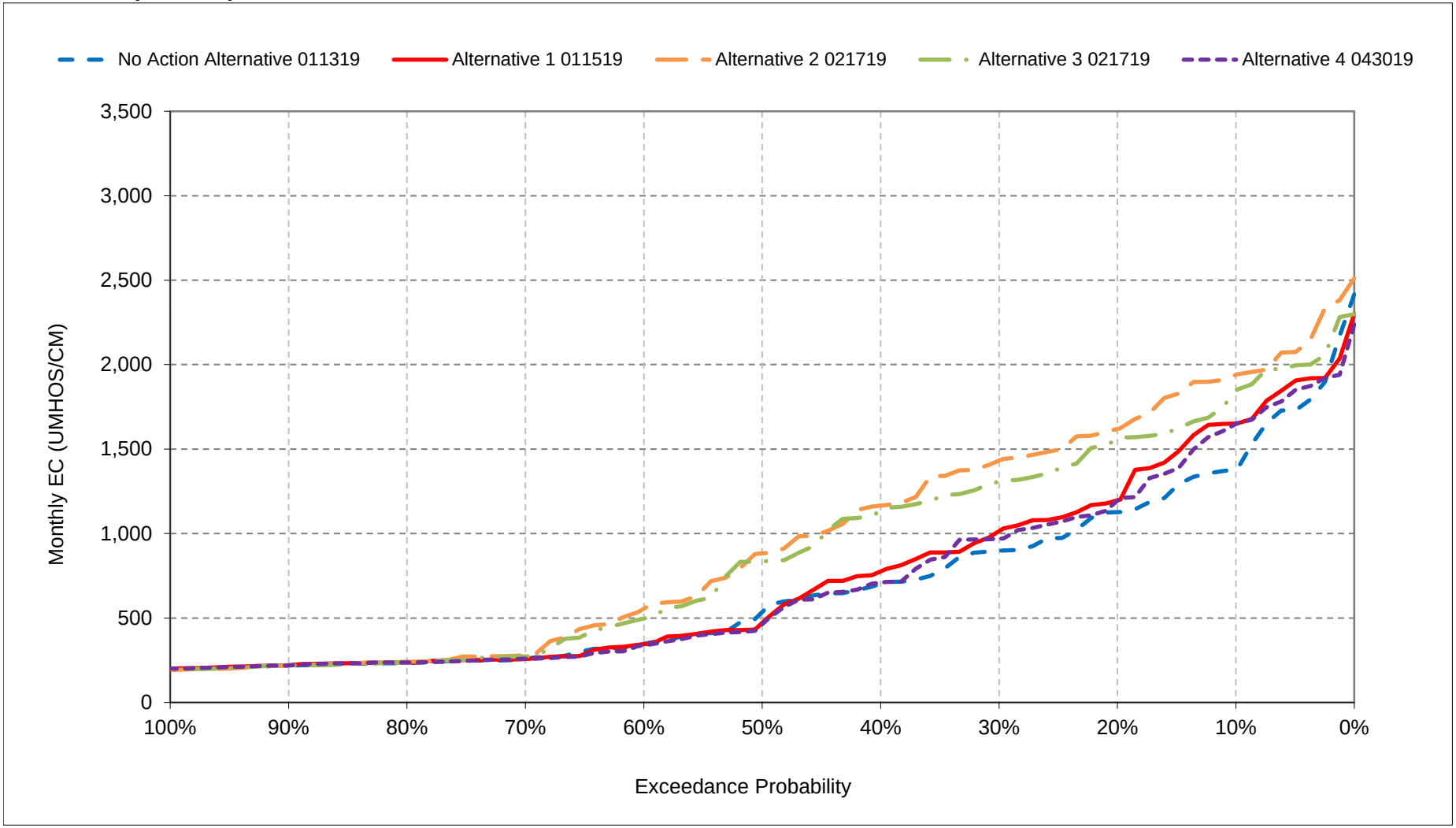

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 7-6. San Joaquin River at Jersey Point Salinity, Critical Year Average EC




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

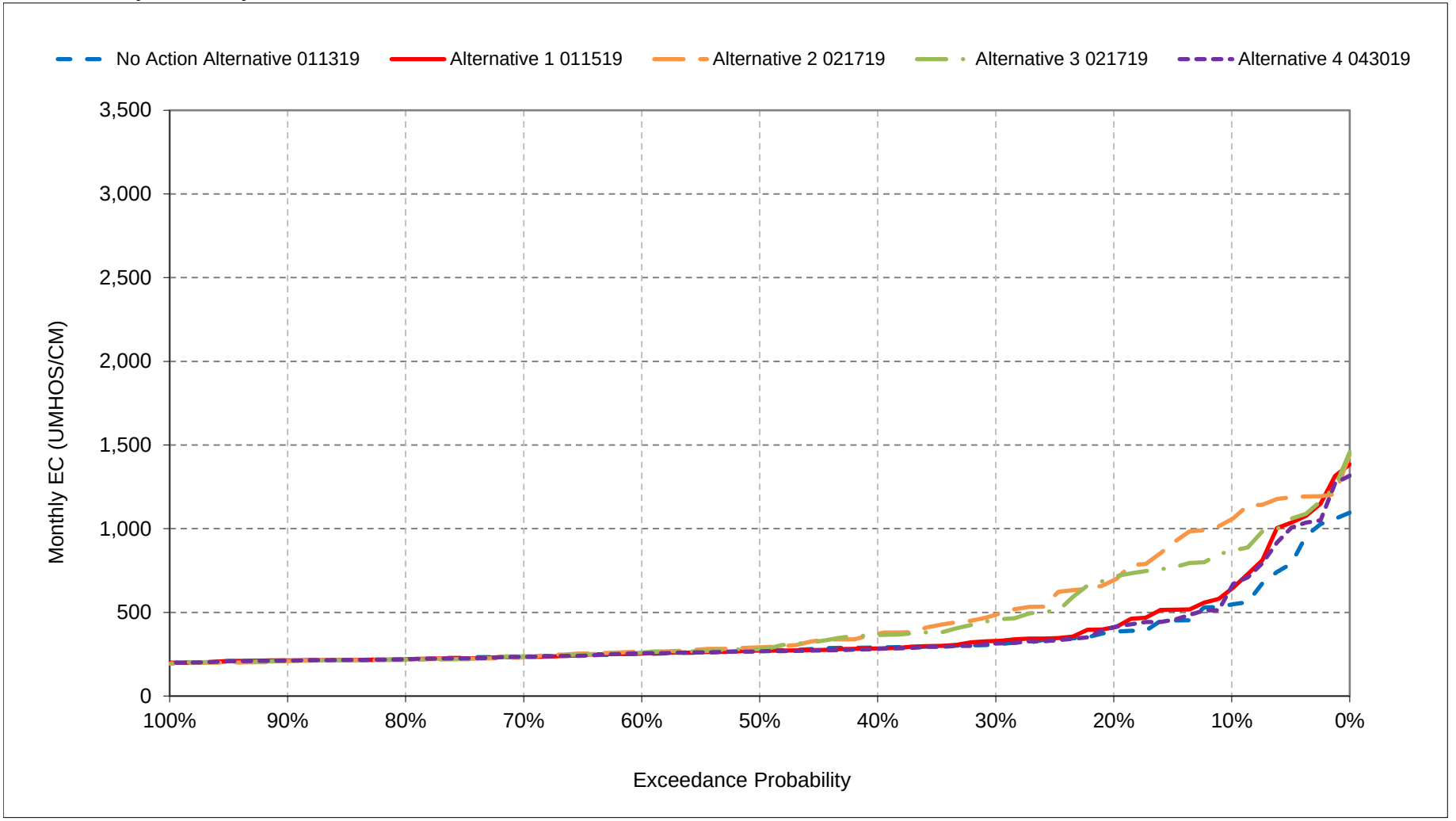
**Figure 7-7. San Joaquin River at Jersey Point Salinity, January EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

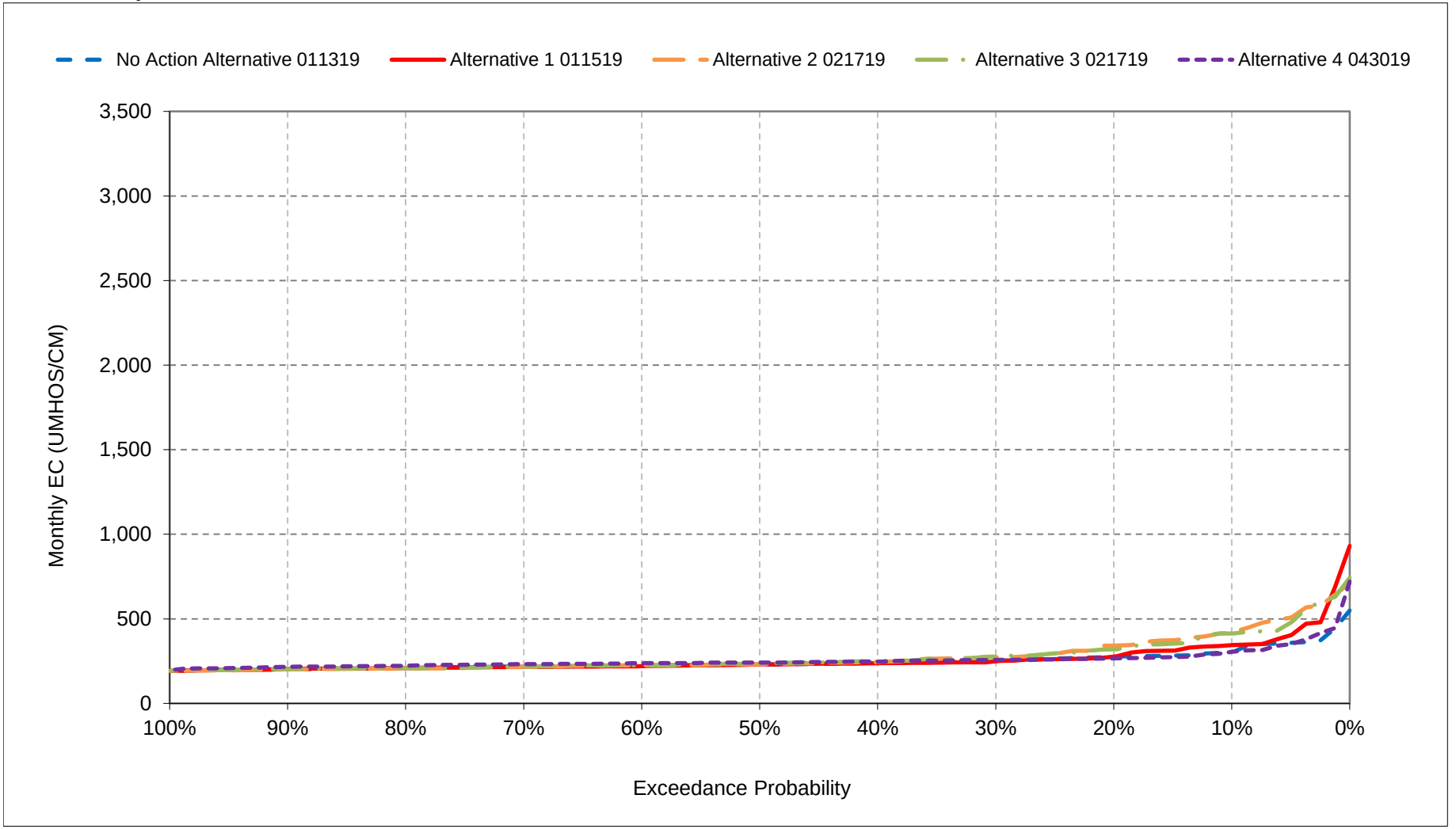
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 7-8. San Joaquin River at Jersey Point Salinity, February EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

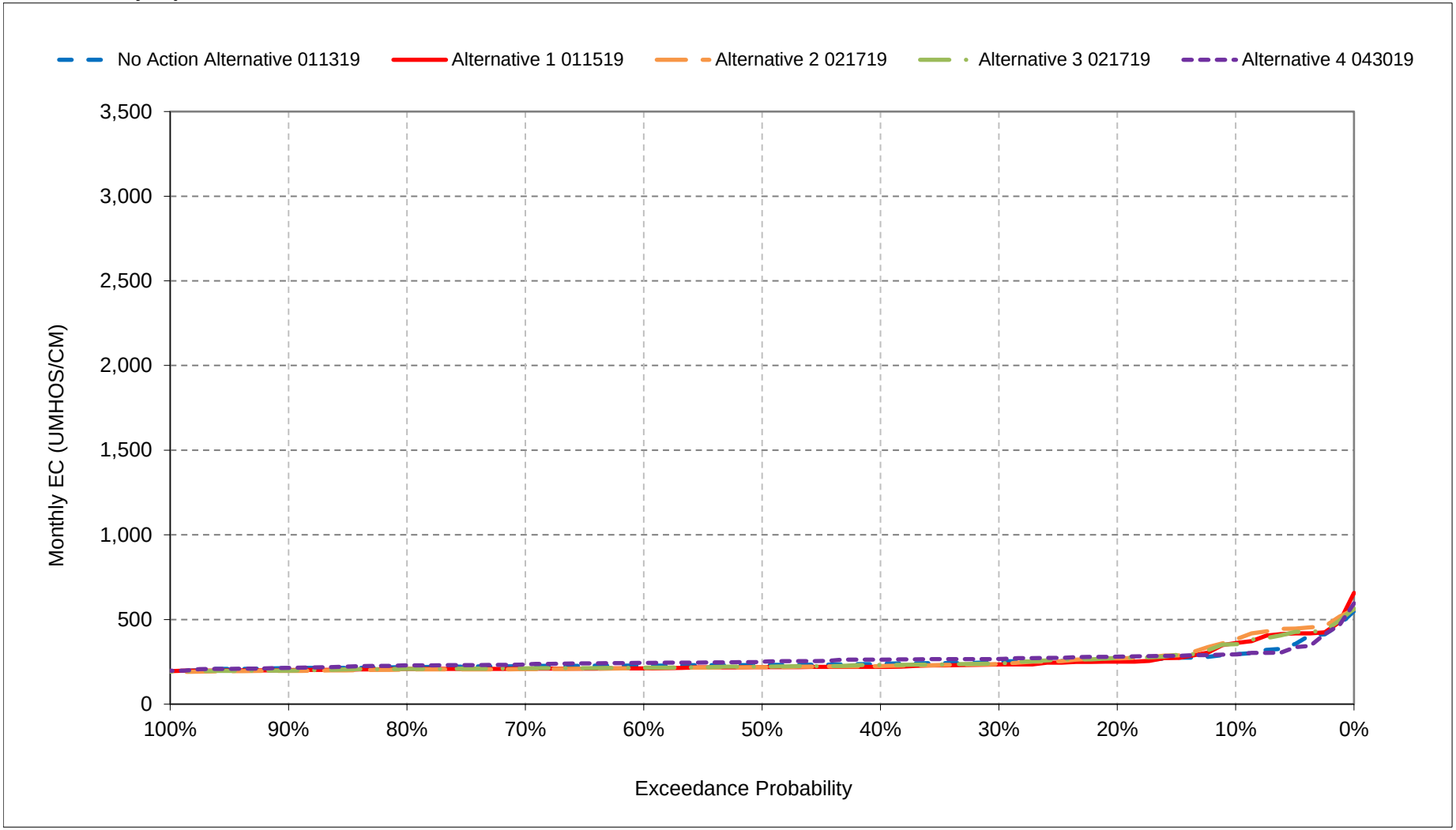
**Figure 7-9. San Joaquin River at Jersey Point Salinity, March EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

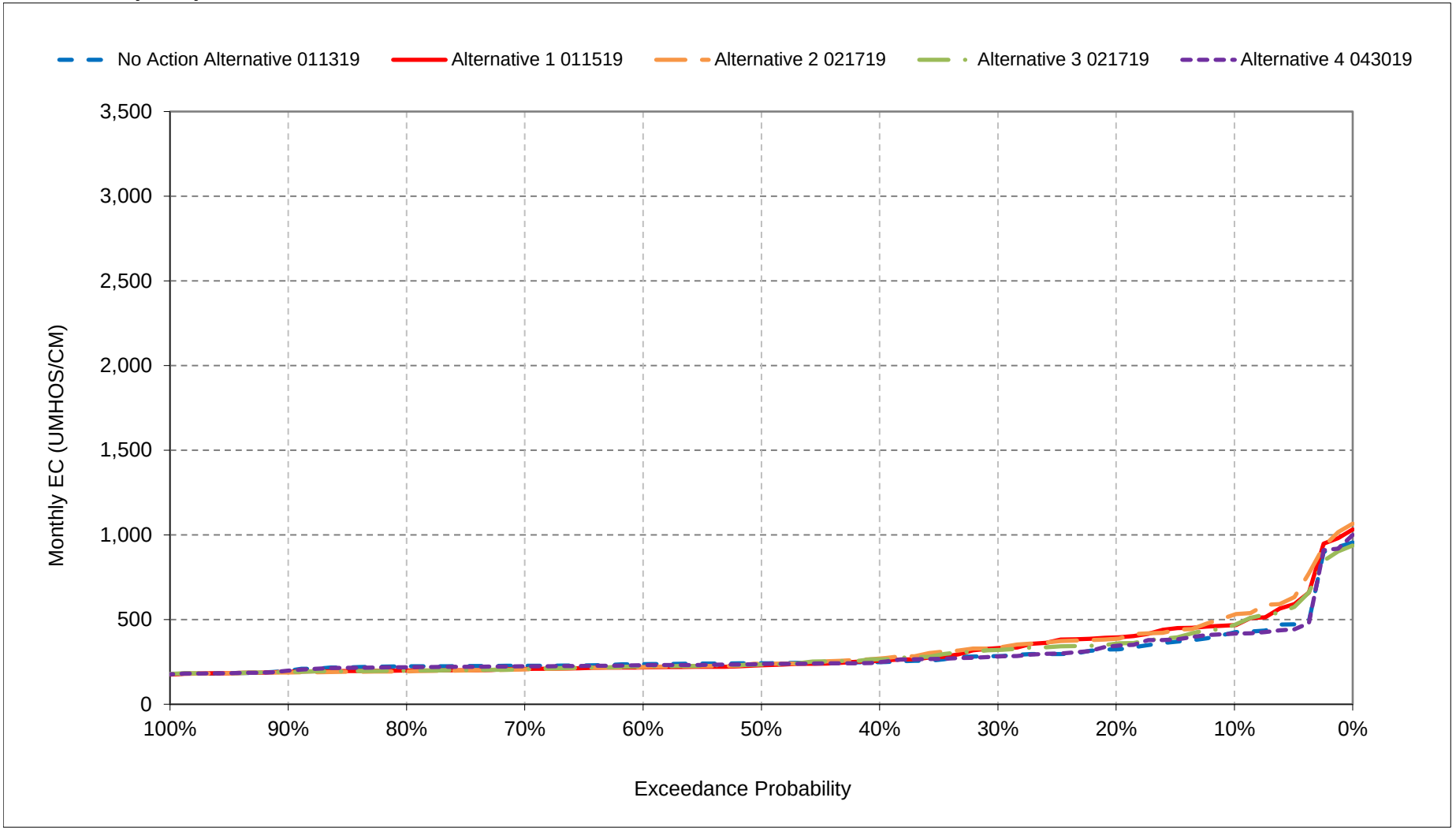
**Figure 7-10. San Joaquin River at Jersey Point Salinity, April EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

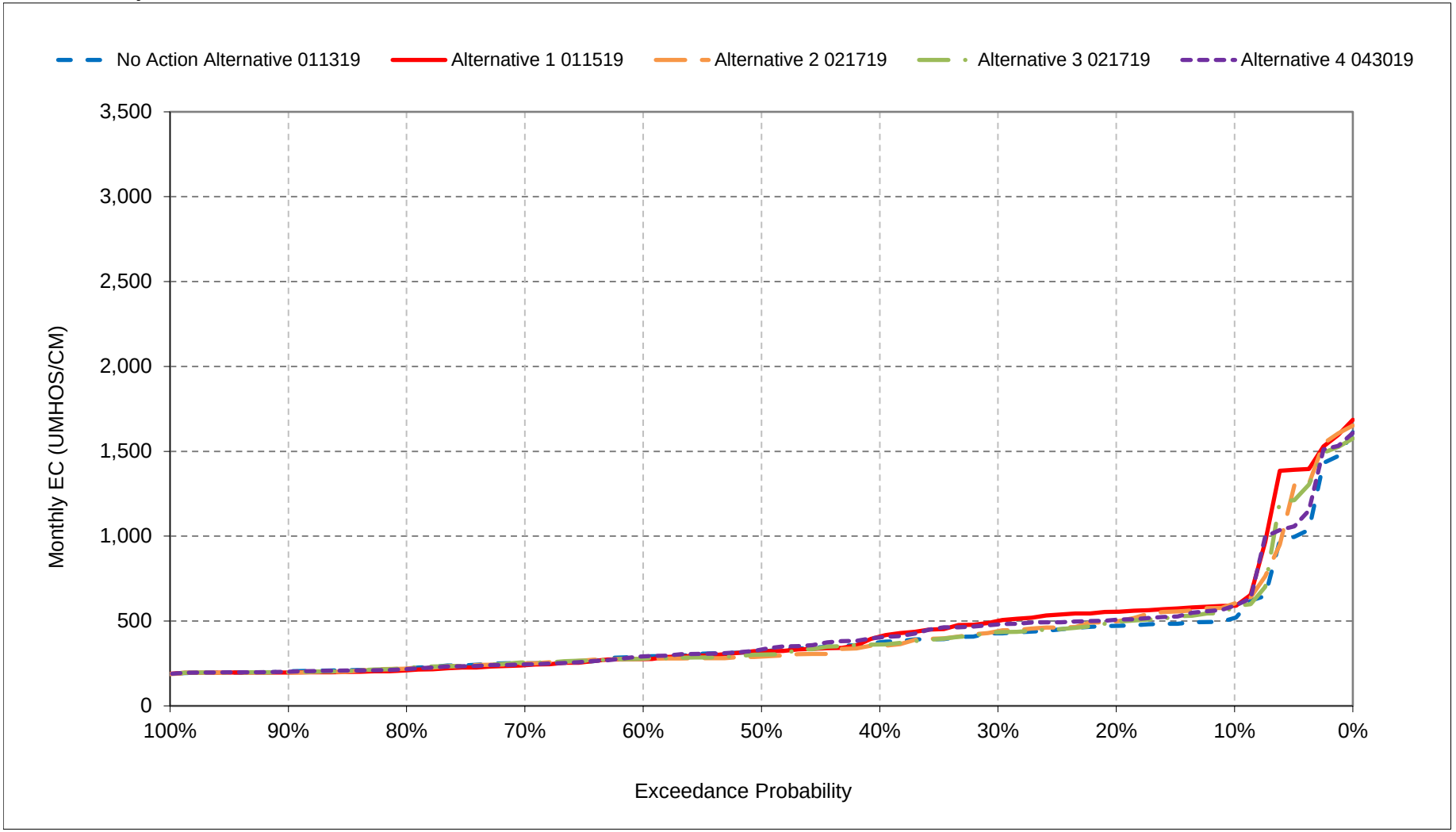
**Figure 7-11. San Joaquin River at Jersey Point Salinity, May EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

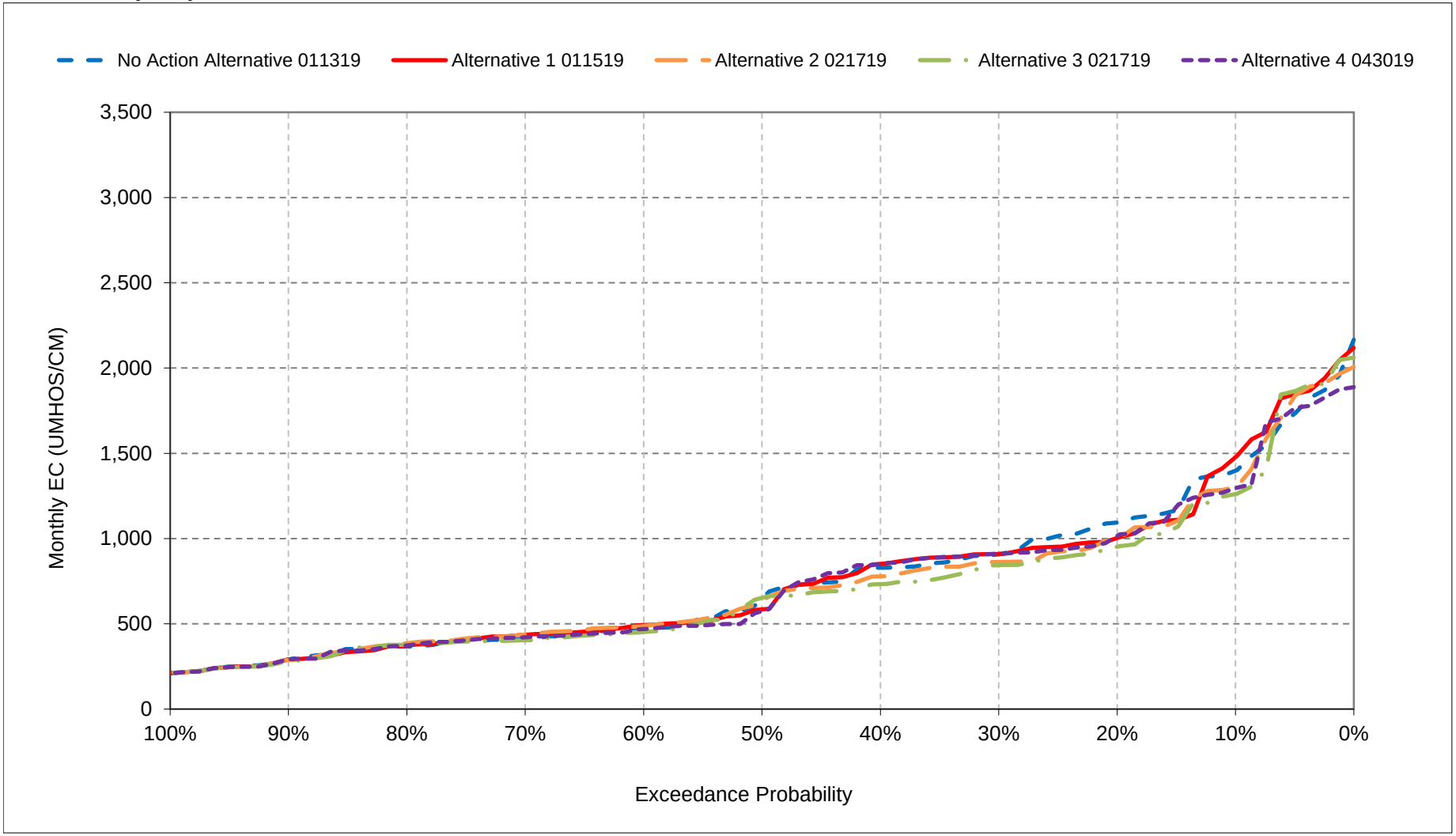
**Figure 7-12. San Joaquin River at Jersey Point Salinity, June EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

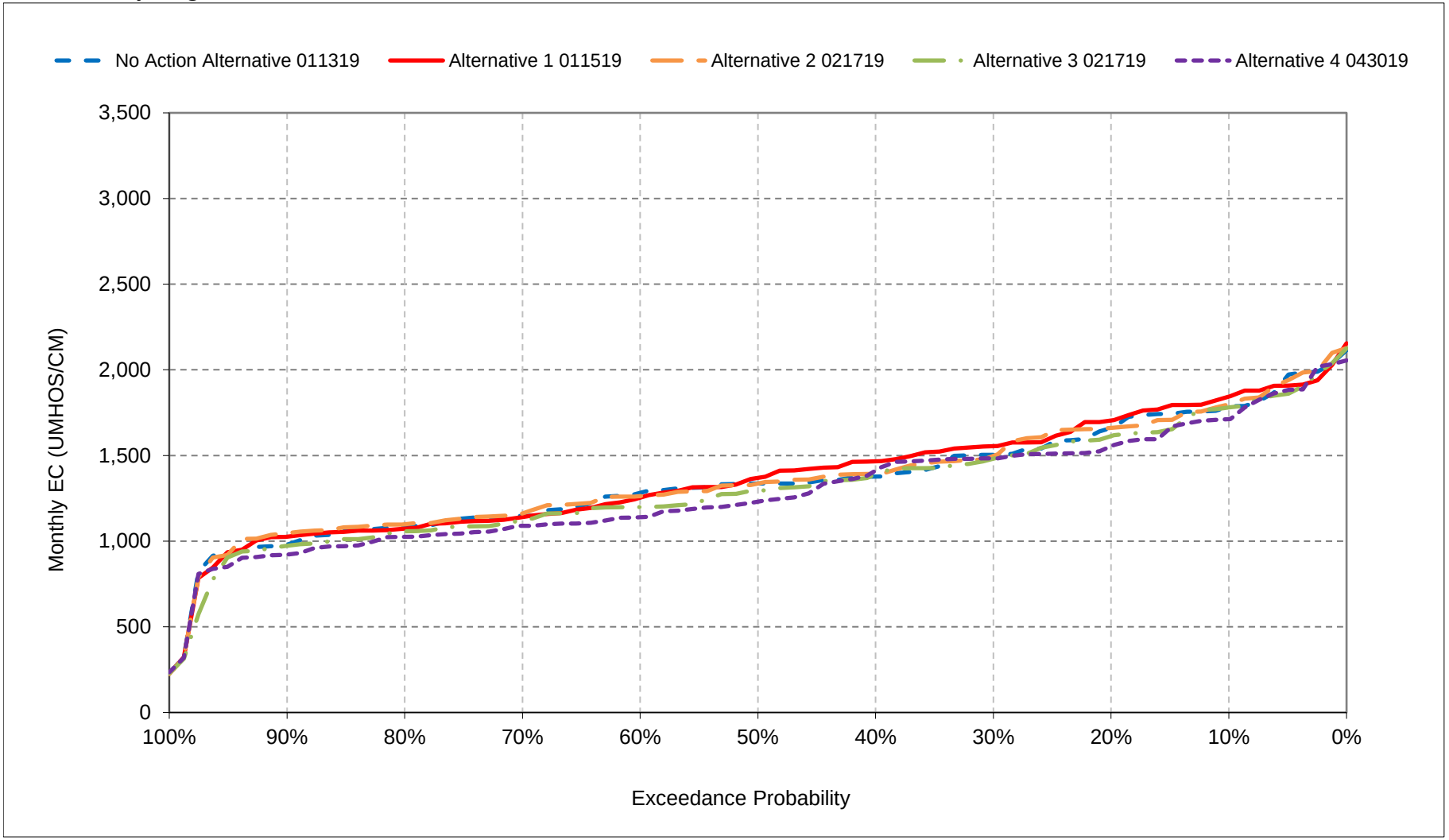
**Figure 7-13. San Joaquin River at Jersey Point Salinity, July EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

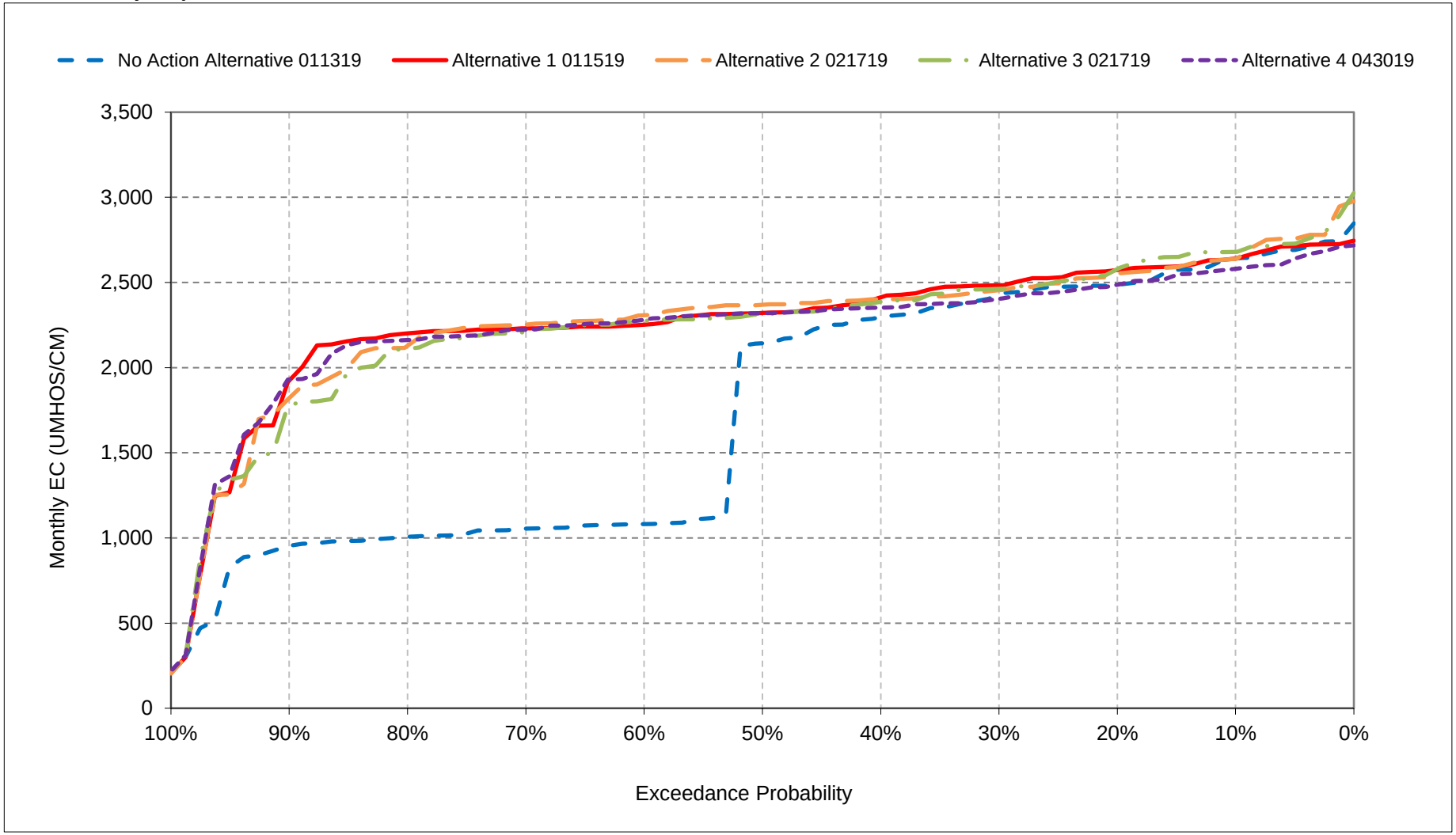
**Figure 7-14. San Joaquin River at Jersey Point Salinity, August EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

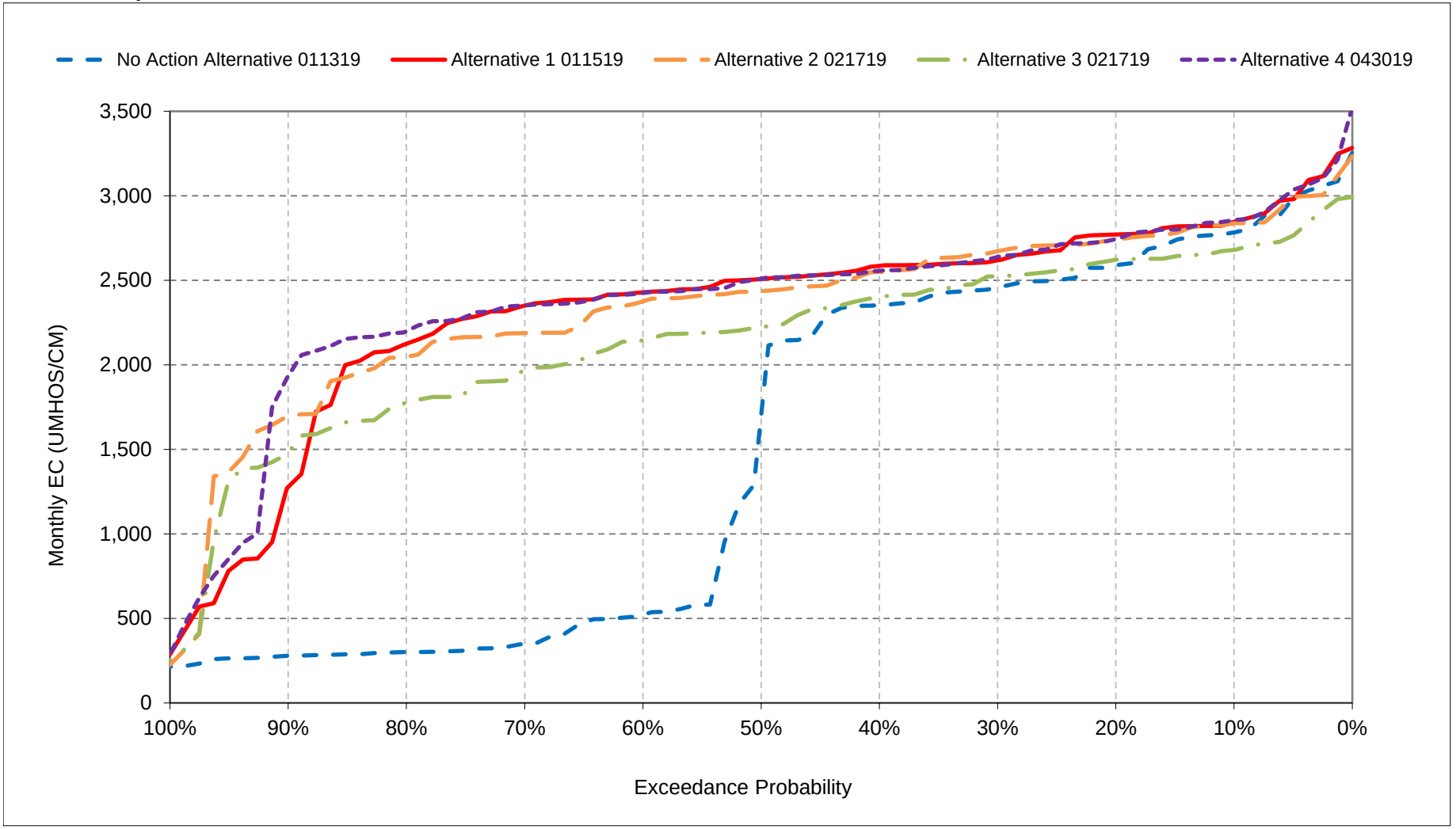
**Figure 7-15. San Joaquin River at Jersey Point Salinity, September EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

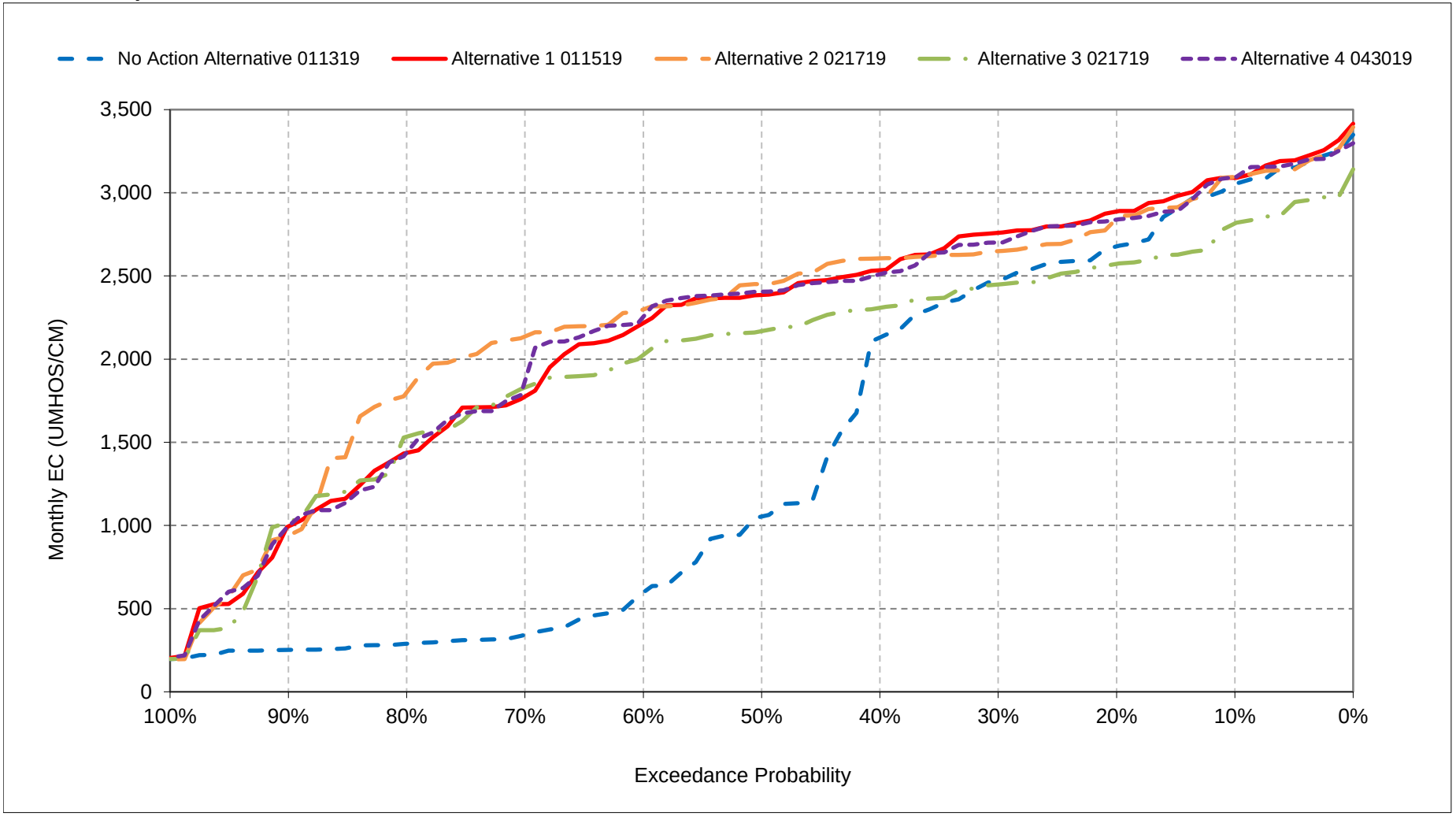
**Figure 7-16. San Joaquin River at Jersey Point Salinity, October EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

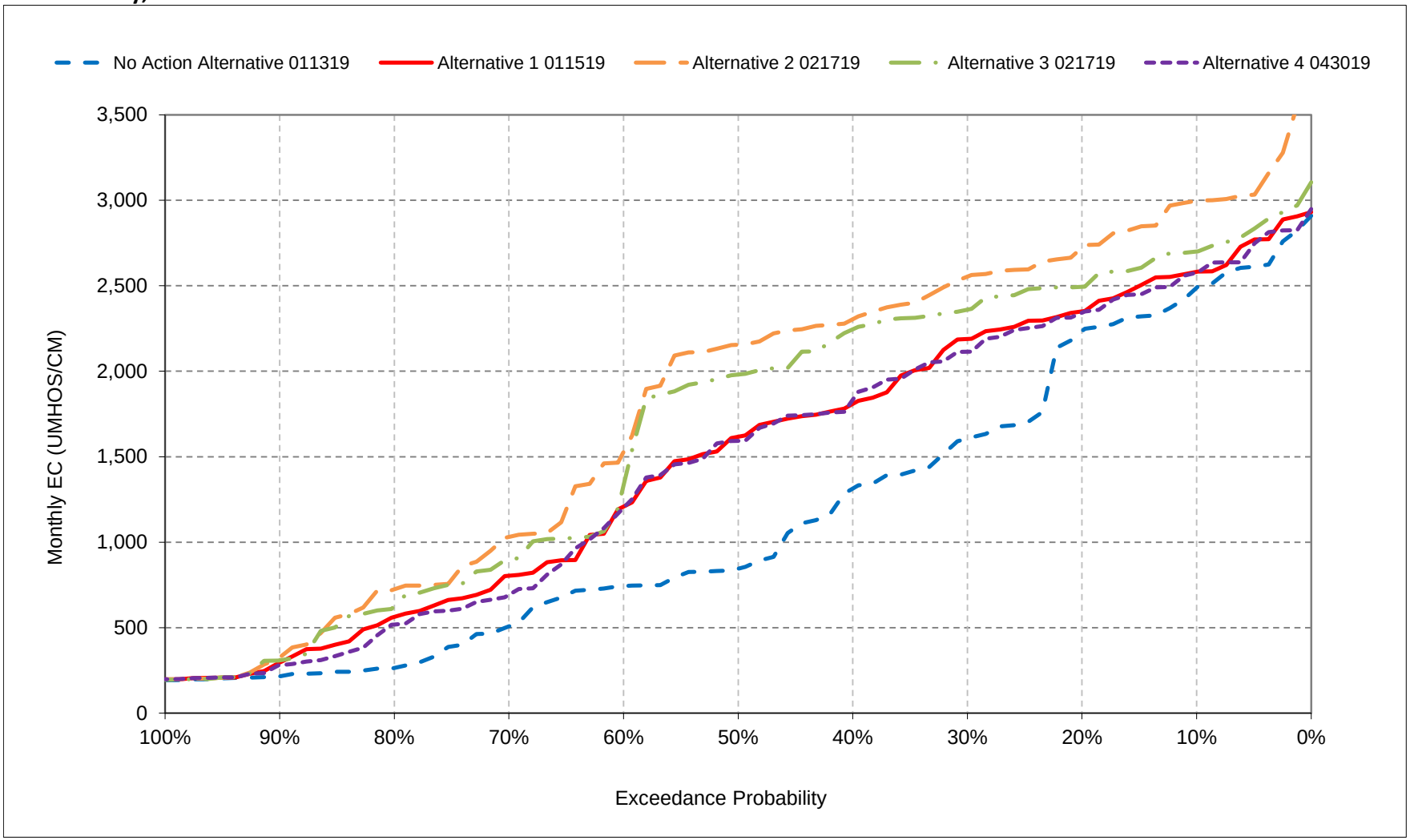
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 7-17. San Joaquin River at Jersey Point Salinity, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 7-18. San Joaquin River at Jersey Point Salinity, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 8-1. Old River at Rock Slough Salinity, Monthly EC

### No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,022 | 1,070 | 1,061 | 900 | 552 | 383 | 389 | 380 | 310 | 464 | 664 | 842 |
| 20% | 945 | 945 | 986 | 749 | 470 | 330 | 362 | 358 | 286 | 352 | 544 | 811 |
| 30% | 901 | 844 | 897 | 620 | 417 | 313 | 339 | 349 | 272 | 336 | 490 | 772 |
| 40% | 872 | 776 | 648 | 536 | 382 | 299 | 332 | 337 | 267 | 306 | 460 | 727 |
| 50% | 786 | 594 | 410 | 487 | 354 | 288 | 320 | 327 | 260 | 270 | 432 | 649 |
| 60% | 292 | 284 | 333 | 445 | 335 | 278 | 311 | 315 | 254 | 254 | 404 | 611 |
| 70% | 283 | 249 | 299 | 344 | 299 | 262 | 297 | 300 | 247 | 244 | 363 | 569 |
| 80% | 276 | 234 | 274 | 312 | 284 | 244 | 274 | 272 | 240 | 234 | 340 | 510 |
| 90% | 269 | 222 | 240 | 280 | 261 | 231 | 253 | 211 | 232 | 226 | 316 | 472 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 619 | 590 | 583 | 531 | 385 | 298 | 319 | 315 | 274 | 315 | 453 | 655 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 268 | 232 | 269 | 353 | 324 | 275 | 280 | 279 | 243 | 236 | 342 | 534 |
| Above Normal (16%) | 288 | 322 | 402 | 462 | 354 | 277 | 341 | 348 | 255 | 246 | 365 | 489 |
| Below Normal (13%) | 879 | 759 | 743 | 542 | 367 | 286 | 348 | 352 | 269 | 313 | 449 | 776 |
| Dry (24%) | 899 | 813 | 733 | 664 | 409 | 302 | 317 | 306 | 266 | 366 | 552 | 750 |
| Critical (15%) | 1,032 | 1,129 | 1,062 | 757 | 527 | 375 | 357 | 340 | 377 | 477 | 627 | 828 |

### Alternative 1 011519

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,043 | 1,137 | 1,084 | 972 | 544 | 361 | 332 | 289 | 296 | 479 | 672 | 866 |
| 20% | 986 | 1,053 | 1,016 | 875 | 442 | 313 | 291 | 264 | 275 | 359 | 547 | 828 |
| 30% | 946 | 986 | 974 | 790 | 401 | 294 | 282 | 259 | 256 | 338 | 494 | 805 |
| 40% | 918 | 933 | 903 | 552 | 382 | 284 | 272 | 248 | 243 | 305 | 472 | 785 |
| 50% | 897 | 878 | 841 | 499 | 348 | 272 | 262 | 243 | 235 | 265 | 445 | 769 |
| 60% | 886 | 837 | 757 | 426 | 314 | 261 | 256 | 238 | 230 | 250 | 398 | 758 |
| 70% | 845 | 798 | 633 | 347 | 296 | 252 | 248 | 233 | 227 | 243 | 366 | 743 |
| 80% | 789 | 713 | 482 | 320 | 279 | 241 | 243 | 229 | 222 | 234 | 347 | 705 |
| 90% | 615 | 394 | 321 | 276 | 265 | 227 | 235 | 222 | 216 | 228 | 320 | 607 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 865 | 853 | 772 | 578 | 377 | 287 | 272 | 250 | 260 | 319 | 454 | 748 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 699 | 749 | 669 | 363 | 318 | 284 | 259 | 225 | 227 | 235 | 338 | 641 |
| Above Normal (16%) | 875 | 816 | 779 | 536 | 349 | 273 | 266 | 240 | 228 | 243 | 372 | 770 |
| Below Normal (13%) | 891 | 799 | 743 | 618 | 371 | 275 | 272 | 252 | 246 | 329 | 481 | 813 |
| Dry (24%) | 949 | 866 | 737 | 757 | 409 | 277 | 269 | 251 | 253 | 362 | 535 | 779 |
| Critical (15%) | 1,048 | 1,150 | 1,073 | 752 | 485 | 332 | 312 | 309 | 391 | 502 | 632 | 843 |

### Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **21** | **66** | **23** | **71** | -8 | -22 | -57 | -91 | -14 | **15** | **7** | **23** |
| 20% | **40** | **108** | **30** | **126** | -28 | -17 | -71 | -94 | -11 | **7** | **3** | **16** |
| 30% | **45** | **142** | **78** | **170** | -16 | -19 | -58 | -90 | -16 | **2** | **4** | **33** |
| 40% | **46** | **157** | **256** | **17** | 0 | -15 | -61 | -89 | -24 | -1 | **12** | **58** |
| 50% | **110** | **284** | **431** | **12** | -6 | -16 | -58 | -84 | -25 | -5 | **12** | **120** |
| 60% | **595** | **553** | **424** | -19 | -21 | -17 | -54 | -78 | -24 | -4 | -5 | **147** |
| 70% | **562** | **549** | **335** | **2** | -4 | -10 | -49 | -67 | -20 | -1 | **2** | **175** |
| 80% | **513** | **479** | **207** | **8** | -5 | -4 | -31 | -42 | -19 | -1 | **6** | **196** |
| 90% | **346** | **172** | **81** | -4 | **4** | -4 | -18 | **10** | -15 | **2** | **3** | **135** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **246** | **264** | **189** | **47** | -8 | -12 | -47 | -66 | -14 | **4** | **1** | **93** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **431** | **517** | **400** | **10** | -6 | **9** | -21 | -55 | -16 | -1 | -4 | **108** |
| Above Normal (16%) | **587** | **494** | **376** | **74** | -5 | -3 | -75 | -108 | -27 | -3 | **7** | **280** |
| Below Normal (13%) | **13** | **40** | **0** | **76** | **4** | -11 | -76 | -100 | -24 | **16** | **32** | **37** |
| Dry (24%) | **50** | **53** | **5** | **93** | **0** | -25 | -48 | -54 | -13 | -4 | -17 | **29** |
| Critical (15%) | **16** | **21** | **11** | -5 | -42 | -43 | -45 | -32 | **14** | **24** | **5** | **15** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 8-2. Old River at Rock Slough Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,022 | 1,070 | 1,061 | 900 | 552 | 383 | 389 | 380 | 310 | 464 | 664 | 842 |
| 20% | 945 | 945 | 986 | 749 | 470 | 330 | 362 | 358 | 286 | 352 | 544 | 811 |
| 30% | 901 | 844 | 897 | 620 | 417 | 313 | 339 | 349 | 272 | 336 | 490 | 772 |
| 40% | 872 | 776 | 648 | 536 | 382 | 299 | 332 | 337 | 267 | 306 | 460 | 727 |
| 50% | 786 | 594 | 410 | 487 | 354 | 288 | 320 | 327 | 260 | 270 | 432 | 649 |
| 60% | 292 | 284 | 333 | 445 | 335 | 278 | 311 | 315 | 254 | 254 | 404 | 611 |
| 70% | 283 | 249 | 299 | 344 | 299 | 262 | 297 | 300 | 247 | 244 | 363 | 569 |
| 80% | 276 | 234 | 274 | 312 | 284 | 244 | 274 | 272 | 240 | 234 | 340 | 510 |
| 90% | 269 | 222 | 240 | 280 | 261 | 231 | 253 | 211 | 232 | 226 | 316 | 472 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 619 | 590 | 583 | 531 | 385 | 298 | 319 | 315 | 274 | 315 | 453 | 655 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 268 | 232 | 269 | 353 | 324 | 275 | 280 | 279 | 243 | 236 | 342 | 534 |
| Above Normal (16%) | 288 | 322 | 402 | 462 | 354 | 277 | 341 | 348 | 255 | 246 | 365 | 489 |
| Below Normal (13%) | 879 | 759 | 743 | 542 | 367 | 286 | 348 | 352 | 269 | 313 | 449 | 776 |
| Dry (24%) | 899 | 813 | 733 | 664 | 409 | 302 | 317 | 306 | 266 | 366 | 552 | 750 |
| Critical (15%) | 1,032 | 1,129 | 1,062 | 757 | 527 | 375 | 357 | 340 | 377 | 477 | 627 | 828 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 997 | 1,097 | 1,143 | 1,049 | 696 | 401 | 321 | 293 | 308 | 435 | 653 | 875 |
| 20% | 972 | 987 | 1,074 | 910 | 543 | 338 | 292 | 266 | 269 | 342 | 532 | 823 |
| 30% | 946 | 906 | 1,004 | 834 | 430 | 313 | 270 | 254 | 251 | 320 | 493 | 806 |
| 40% | 913 | 852 | 933 | 758 | 379 | 281 | 257 | 245 | 239 | 292 | 455 | 781 |
| 50% | 893 | 821 | 887 | 669 | 354 | 273 | 247 | 238 | 229 | 264 | 436 | 762 |
| 60% | 874 | 779 | 818 | 472 | 314 | 256 | 242 | 228 | 221 | 250 | 410 | 742 |
| 70% | 851 | 744 | 678 | 340 | 292 | 241 | 234 | 224 | 215 | 243 | 369 | 710 |
| 80% | 796 | 658 | 505 | 309 | 275 | 232 | 227 | 220 | 212 | 235 | 348 | 661 |
| 90% | 651 | 485 | 303 | 262 | 236 | 219 | 221 | 209 | 207 | 226 | 321 | 586 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 856 | 804 | 811 | 626 | 407 | 290 | 262 | 245 | 253 | 310 | 453 | 734 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 712 | 740 | 743 | 358 | 298 | 268 | 252 | 220 | 219 | 235 | 336 | 625 |
| Above Normal (16%) | 942 | 902 | 882 | 570 | 332 | 252 | 247 | 227 | 216 | 242 | 391 | 789 |
| Below Normal (13%) | 888 | 768 | 755 | 769 | 506 | 293 | 258 | 244 | 231 | 306 | 500 | 769 |
| Dry (24%) | 884 | 693 | 696 | 801 | 445 | 284 | 255 | 249 | 250 | 345 | 510 | 761 |
| Critical (15%) | 998 | 1,054 | 1,126 | 844 | 568 | 383 | 314 | 313 | 394 | 491 | 639 | 833 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -26 | **26** | **82** | **149** | **144** | **19** | -68 | -86 | -2 | -29 | -11 | **32** |
| 20% | **26** | **41** | **88** | **161** | **73** | **8** | -69 | -92 | -17 | -11 | -13 | **12** |
| 30% | **45** | **62** | **107** | **214** | **13** | **1** | -70 | -95 | -21 | -16 | **2** | **33** |
| 40% | **41** | **76** | **285** | **222** | -4 | -18 | -75 | -92 | -28 | -14 | -5 | **55** |
| 50% | **107** | **227** | **477** | **182** | -1 | -15 | -73 | -89 | -31 | -5 | **4** | **113** |
| 60% | **582** | **495** | **485** | **27** | -21 | -22 | -69 | -87 | -33 | -4 | **6** | **131** |
| 70% | **568** | **495** | **379** | -4 | -7 | -21 | -63 | -75 | -32 | 0 | **5** | **141** |
| 80% | **521** | **423** | **230** | -3 | -8 | -13 | -47 | -52 | -28 | **1** | **8** | **151** |
| 90% | **383** | **263** | **64** | -18 | -25 | -13 | -32 | -2 | -24 | 0 | **5** | **114** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **237** | **215** | **228** | **95** | **22** | -9 | -57 | -70 | -21 | -5 | **1** | **79** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **444** | **509** | **474** | **5** | -26 | -7 | -29 | -59 | -25 | -1 | -6 | **91** |
| Above Normal (16%) | **654** | **580** | **479** | **109** | -22 | -25 | -93 | -121 | -39 | -4 | **27** | **300** |
| Below Normal (13%) | **9** | **9** | **12** | **227** | **139** | **7** | -91 | -109 | -39 | -7 | **51** | -7 |
| Dry (24%) | -15 | -119 | -37 | **137** | **36** | -18 | -62 | -57 | -16 | -21 | -42 | **11** |
| Critical (15%) | -34 | -74 | **64** | **87** | **41** | **8** | -43 | -28 | **17** | **14** | **12** | **4** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 8-3. Old River at Rock Slough Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,022 | 1,070 | 1,061 | 900 | 552 | 383 | 389 | 380 | 310 | 464 | 664 | 842 |
| 20% | 945 | 945 | 986 | 749 | 470 | 330 | 362 | 358 | 286 | 352 | 544 | 811 |
| 30% | 901 | 844 | 897 | 620 | 417 | 313 | 339 | 349 | 272 | 336 | 490 | 772 |
| 40% | 872 | 776 | 648 | 536 | 382 | 299 | 332 | 337 | 267 | 306 | 460 | 727 |
| 50% | 786 | 594 | 410 | 487 | 354 | 288 | 320 | 327 | 260 | 270 | 432 | 649 |
| 60% | 292 | 284 | 333 | 445 | 335 | 278 | 311 | 315 | 254 | 254 | 404 | 611 |
| 70% | 283 | 249 | 299 | 344 | 299 | 262 | 297 | 300 | 247 | 244 | 363 | 569 |
| 80% | 276 | 234 | 274 | 312 | 284 | 244 | 274 | 272 | 240 | 234 | 340 | 510 |
| 90% | 269 | 222 | 240 | 280 | 261 | 231 | 253 | 211 | 232 | 226 | 316 | 472 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 619 | 590 | 583 | 531 | 385 | 298 | 319 | 315 | 274 | 315 | 453 | 655 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 268 | 232 | 269 | 353 | 324 | 275 | 280 | 279 | 243 | 236 | 342 | 534 |
| Above Normal (16%) | 288 | 322 | 402 | 462 | 354 | 277 | 341 | 348 | 255 | 246 | 365 | 489 |
| Below Normal (13%) | 879 | 759 | 743 | 542 | 367 | 286 | 348 | 352 | 269 | 313 | 449 | 776 |
| Dry (24%) | 899 | 813 | 733 | 664 | 409 | 302 | 317 | 306 | 266 | 366 | 552 | 750 |
| Critical (15%) | 1,032 | 1,129 | 1,062 | 757 | 527 | 375 | 357 | 340 | 377 | 477 | 627 | 828 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,005 | 1,032 | 1,059 | 965 | 598 | 400 | 318 | 290 | 306 | 434 | 648 | 880 |
| 20% | 968 | 970 | 1,016 | 880 | 533 | 342 | 292 | 265 | 267 | 337 | 527 | 852 |
| 30% | 940 | 911 | 962 | 795 | 412 | 308 | 273 | 254 | 253 | 315 | 495 | 810 |
| 40% | 916 | 852 | 910 | 753 | 377 | 290 | 263 | 248 | 244 | 299 | 466 | 787 |
| 50% | 897 | 810 | 849 | 615 | 351 | 278 | 255 | 239 | 232 | 268 | 427 | 759 |
| 60% | 877 | 715 | 729 | 458 | 310 | 259 | 246 | 233 | 227 | 249 | 394 | 730 |
| 70% | 840 | 666 | 610 | 323 | 290 | 243 | 239 | 229 | 220 | 241 | 367 | 709 |
| 80% | 817 | 576 | 500 | 299 | 272 | 235 | 230 | 221 | 216 | 236 | 333 | 661 |
| 90% | 661 | 459 | 327 | 256 | 237 | 219 | 222 | 211 | 209 | 228 | 314 | 599 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 857 | 765 | 762 | 602 | 397 | 293 | 267 | 246 | 254 | 310 | 449 | 738 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 729 | 739 | 693 | 350 | 299 | 271 | 258 | 223 | 222 | 237 | 333 | 632 |
| Above Normal (16%) | 905 | 870 | 840 | 509 | 315 | 254 | 251 | 230 | 220 | 241 | 373 | 765 |
| Below Normal (13%) | 912 | 745 | 713 | 747 | 506 | 301 | 263 | 244 | 235 | 302 | 489 | 801 |
| Dry (24%) | 893 | 652 | 670 | 775 | 432 | 290 | 261 | 250 | 250 | 340 | 510 | 773 |
| Critical (15%) | 971 | 916 | 1,024 | 831 | 536 | 377 | 317 | 308 | 384 | 501 | 644 | 822 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -18 | -39 | -2 | **64** | **46** | **17** | -70 | -90 | -5 | -30 | -17 | **37** |
| 20% | **22** | **25** | **30** | **131** | **63** | **12** | -70 | -93 | -19 | -15 | -17 | **41** |
| 30% | **40** | **67** | **65** | **175** | -5 | -5 | -67 | -95 | -19 | -21 | **5** | **38** |
| 40% | **44** | **76** | **262** | **217** | -6 | -9 | -69 | -89 | -24 | -7 | **6** | **60** |
| 50% | **110** | **216** | **439** | **128** | -4 | -10 | -65 | -89 | -28 | -1 | -5 | **110** |
| 60% | **585** | **431** | **396** | **13** | -25 | -19 | -65 | -82 | -27 | -5 | -9 | **118** |
| 70% | **557** | **417** | **312** | -21 | -9 | -19 | -58 | -71 | -27 | -2 | **4** | **141** |
| 80% | **541** | **341** | **226** | -13 | -11 | -10 | -44 | -51 | -24 | **2** | -7 | **152** |
| 90% | **393** | **237** | **87** | -24 | -24 | -12 | -31 | 0 | -23 | **2** | -2 | **127** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **238** | **175** | **179** | **72** | **11** | -6 | -52 | -69 | -20 | -5 | -4 | **83** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **461** | **507** | **424** | -3 | -25 | -4 | -23 | -56 | -22 | **2** | -9 | **98** |
| Above Normal (16%) | **617** | **548** | **438** | **48** | -39 | -23 | -90 | -118 | -35 | -6 | **8** | **276** |
| Below Normal (13%) | **33** | -14 | -30 | **204** | **139** | **15** | -86 | -108 | -34 | -11 | **40** | **25** |
| Dry (24%) | -6 | -161 | -62 | **111** | **23** | -12 | -56 | -56 | -15 | -25 | -42 | **23** |
| Critical (15%) | -61 | -212 | -38 | **74** | **9** | **2** | -40 | -32 | **7** | **24** | **17** | -6 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 8-4. Old River at Rock Slough Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,022 | 1,070 | 1,061 | 900 | 552 | 383 | 389 | 380 | 310 | 464 | 664 | 842 |
| 20% | 945 | 945 | 986 | 749 | 470 | 330 | 362 | 358 | 286 | 352 | 544 | 811 |
| 30% | 901 | 844 | 897 | 620 | 417 | 313 | 339 | 349 | 272 | 336 | 490 | 772 |
| 40% | 872 | 776 | 648 | 536 | 382 | 299 | 332 | 337 | 267 | 306 | 460 | 727 |
| 50% | 786 | 594 | 410 | 487 | 354 | 288 | 320 | 327 | 260 | 270 | 432 | 649 |
| 60% | 292 | 284 | 333 | 445 | 335 | 278 | 311 | 315 | 254 | 254 | 404 | 611 |
| 70% | 283 | 249 | 299 | 344 | 299 | 262 | 297 | 300 | 247 | 244 | 363 | 569 |
| 80% | 276 | 234 | 274 | 312 | 284 | 244 | 274 | 272 | 240 | 234 | 340 | 510 |
| 90% | 269 | 222 | 240 | 280 | 261 | 231 | 253 | 211 | 232 | 226 | 316 | 472 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 619 | 590 | 583 | 531 | 385 | 298 | 319 | 315 | 274 | 315 | 453 | 655 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 268 | 232 | 269 | 353 | 324 | 275 | 280 | 279 | 243 | 236 | 342 | 534 |
| Above Normal (16%) | 288 | 322 | 402 | 462 | 354 | 277 | 341 | 348 | 255 | 246 | 365 | 489 |
| Below Normal (13%) | 879 | 759 | 743 | 542 | 367 | 286 | 348 | 352 | 269 | 313 | 449 | 776 |
| Dry (24%) | 899 | 813 | 733 | 664 | 409 | 302 | 317 | 306 | 266 | 366 | 552 | 750 |
| Critical (15%) | 1,032 | 1,129 | 1,062 | 757 | 527 | 375 | 357 | 340 | 377 | 477 | 627 | 828 |

### Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,046 | 1,104 | 1,057 | 966 | 541 | 522 | 515 | 414 | 317 | 415 | 599 | 826 |
| 20% | 964 | 1,058 | 1,012 | 865 | 431 | 456 | 483 | 397 | 279 | 359 | 504 | 796 |
| 30% | 919 | 968 | 970 | 763 | 386 | 421 | 460 | 382 | 268 | 329 | 470 | 765 |
| 40% | 906 | 923 | 915 | 557 | 372 | 411 | 444 | 371 | 263 | 308 | 440 | 751 |
| 50% | 892 | 855 | 852 | 472 | 343 | 384 | 412 | 349 | 257 | 270 | 391 | 742 |
| 60% | 873 | 813 | 726 | 426 | 306 | 375 | 392 | 341 | 249 | 254 | 361 | 732 |
| 70% | 843 | 786 | 640 | 341 | 291 | 354 | 375 | 331 | 245 | 245 | 348 | 712 |
| 80% | 814 | 713 | 416 | 311 | 276 | 321 | 352 | 320 | 240 | 234 | 323 | 668 |
| 90% | 663 | 598 | 305 | 274 | 263 | 304 | 293 | 280 | 235 | 228 | 307 | 566 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 861 | 847 | 755 | 561 | 369 | 397 | 414 | 348 | 271 | 314 | 428 | 715 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 734 | 780 | 656 | 361 | 316 | 361 | 352 | 301 | 241 | 237 | 329 | 640 |
| Above Normal (16%) | 881 | 821 | 757 | 514 | 339 | 413 | 452 | 374 | 251 | 247 | 347 | 742 |
| Below Normal (13%) | 835 | 733 | 708 | 566 | 352 | 413 | 471 | 385 | 258 | 323 | 405 | 671 |
| Dry (24%) | 927 | 846 | 726 | 746 | 401 | 409 | 444 | 367 | 269 | 356 | 515 | 755 |
| Critical (15%) | 1,027 | 1,131 | 1,060 | 732 | 476 | 423 | 402 | 357 | 376 | 471 | 606 | 821 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **24** | **33** | -4 | **66** | -11 | **140** | **126** | **34** | **6** | -50 | -65 | -16 |
| 20% | **18** | **113** | **26** | **116** | -39 | **126** | **122** | **39** | -7 | **6** | -40 | -15 |
| 30% | **18** | **124** | **73** | **143** | -31 | **108** | **120** | **33** | -4 | -6 | -20 | -7 |
| 40% | **34** | **148** | **267** | **22** | -10 | **112** | **112** | **34** | -4 | **2** | -19 | **24** |
| 50% | **105** | **261** | **442** | -15 | -12 | **96** | **92** | **22** | -3 | **1** | -41 | **92** |
| 60% | **581** | **529** | **393** | -19 | -29 | **97** | **82** | **26** | -6 | 0 | -42 | **120** |
| 70% | **561** | **537** | **342** | -4 | -8 | **92** | **78** | **31** | -2 | **2** | -15 | **143** |
| 80% | **539** | **479** | **142** | -1 | -7 | **76** | **79** | **49** | 0 | 0 | -18 | **158** |
| 90% | **394** | **376** | **66** | -6 | **1** | **73** | **40** | **69** | **3** | **2** | -9 | **94** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **242** | **258** | **172** | **31** | -16 | **98** | **95** | **33** | -2 | -1 | -25 | **60** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **466** | **548** | **387** | **8** | -8 | **85** | **72** | **22** | -2 | **1** | -13 | **106** |
| Above Normal (16%) | **593** | **499** | **355** | **53** | -14 | **136** | **111** | **26** | -4 | **1** | -18 | **252** |
| Below Normal (13%) | -43 | -26 | -34 | **24** | -15 | **127** | **122** | **32** | -11 | **10** | -44 | -105 |
| Dry (24%) | **28** | **33** | -7 | **82** | -8 | **106** | **128** | **62** | **3** | -10 | -37 | **5** |
| Critical (15%) | -5 | **3** | -3 | -24 | -51 | **48** | **45** | **17** | -1 | -6 | -20 | -7 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

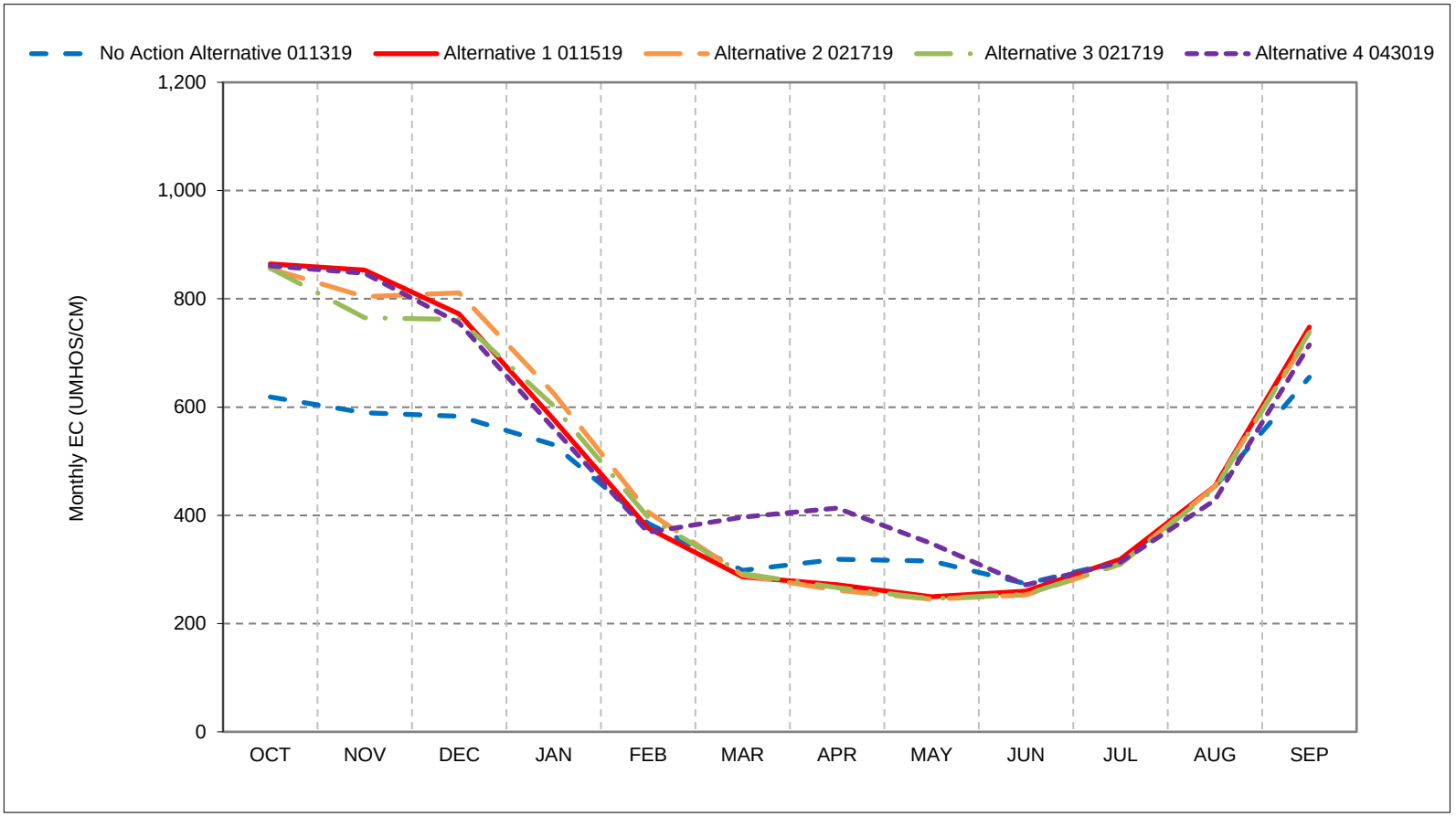
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

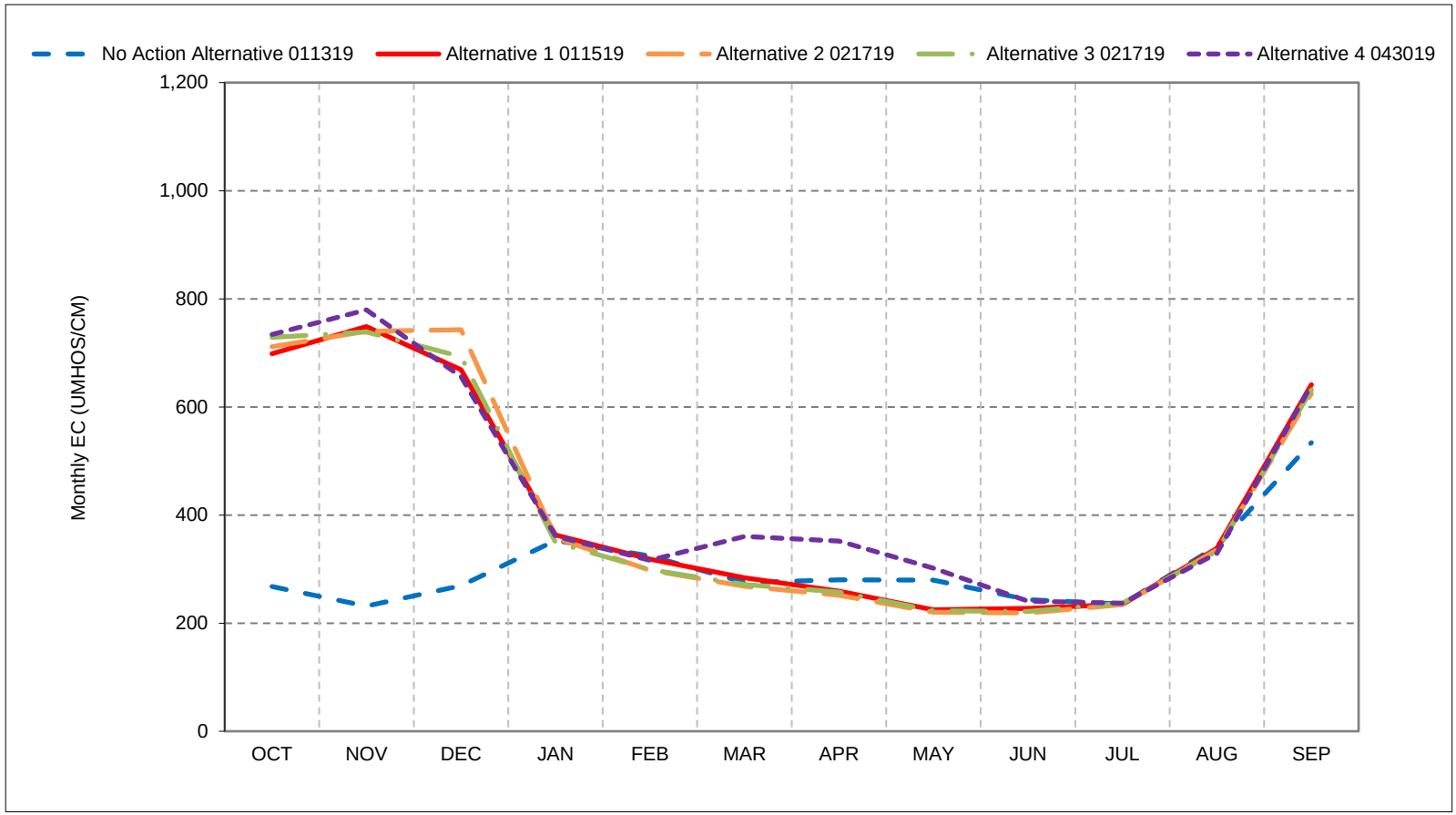
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-1. Old River at Rock Slough Salinity, Long-Term Average EC



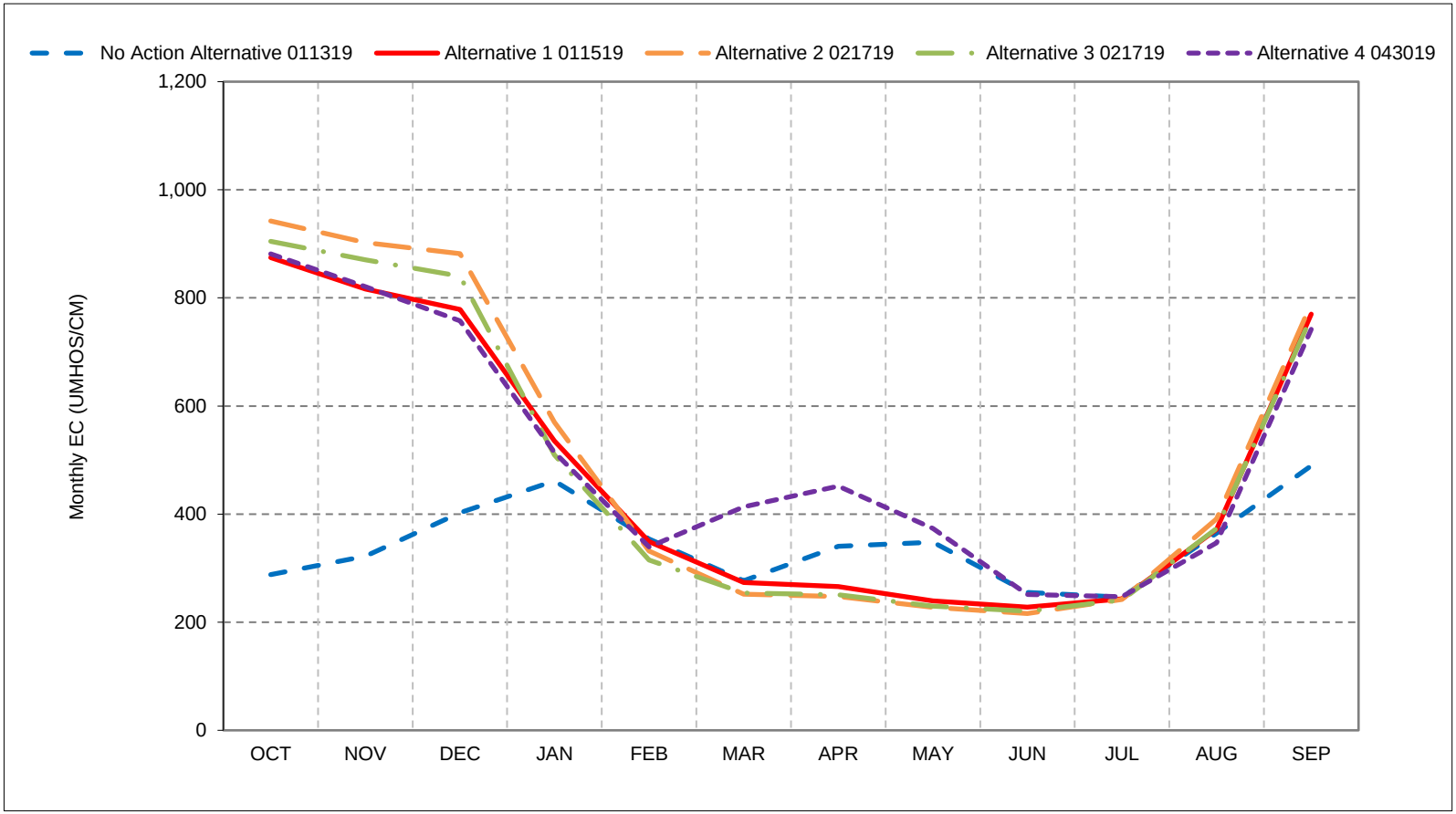

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-2. Old River at Rock Slough Salinity, Wet Year Average EC



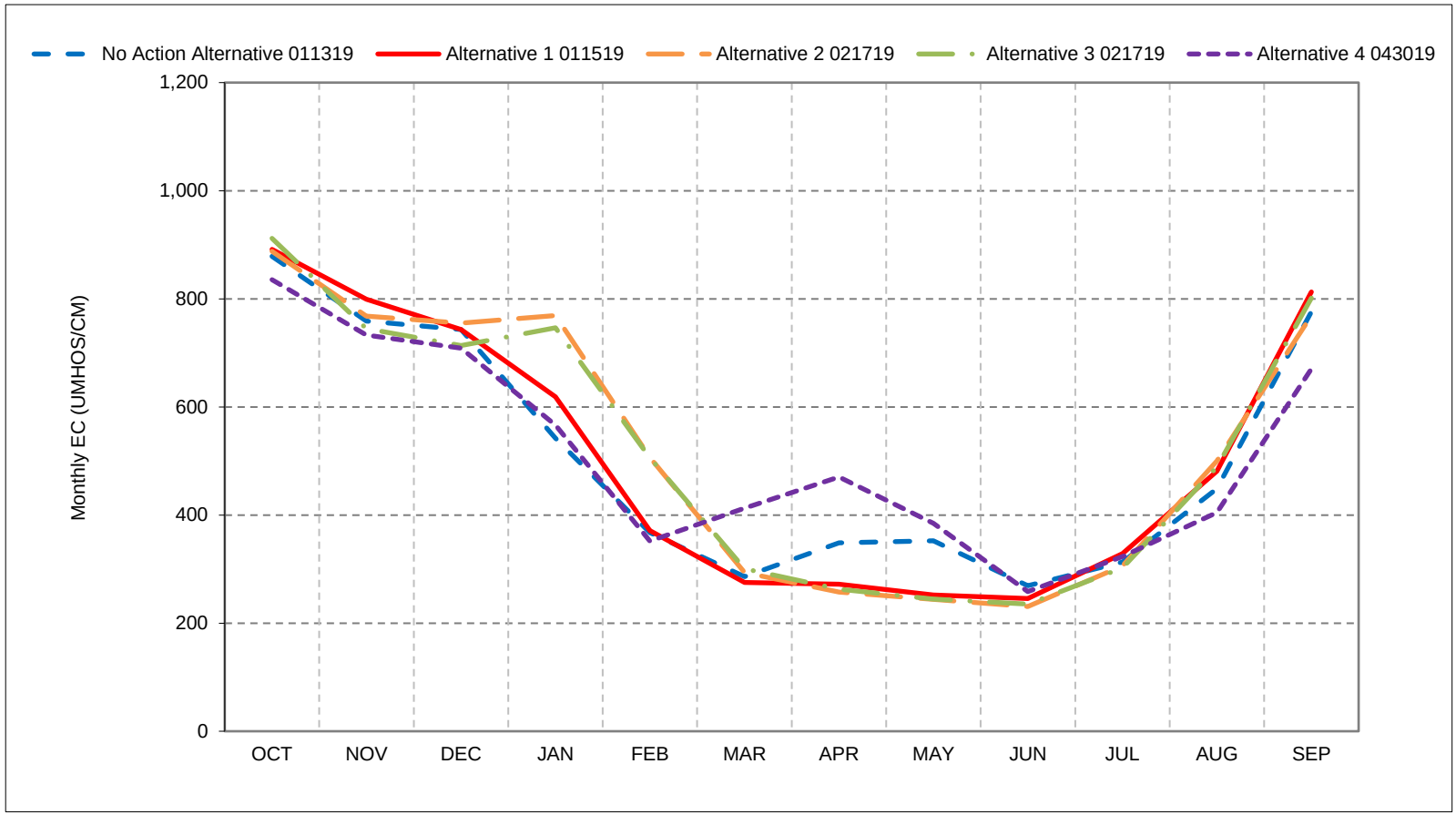

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-3. Old River at Rock Slough Salinity, Above Normal Year Average EC



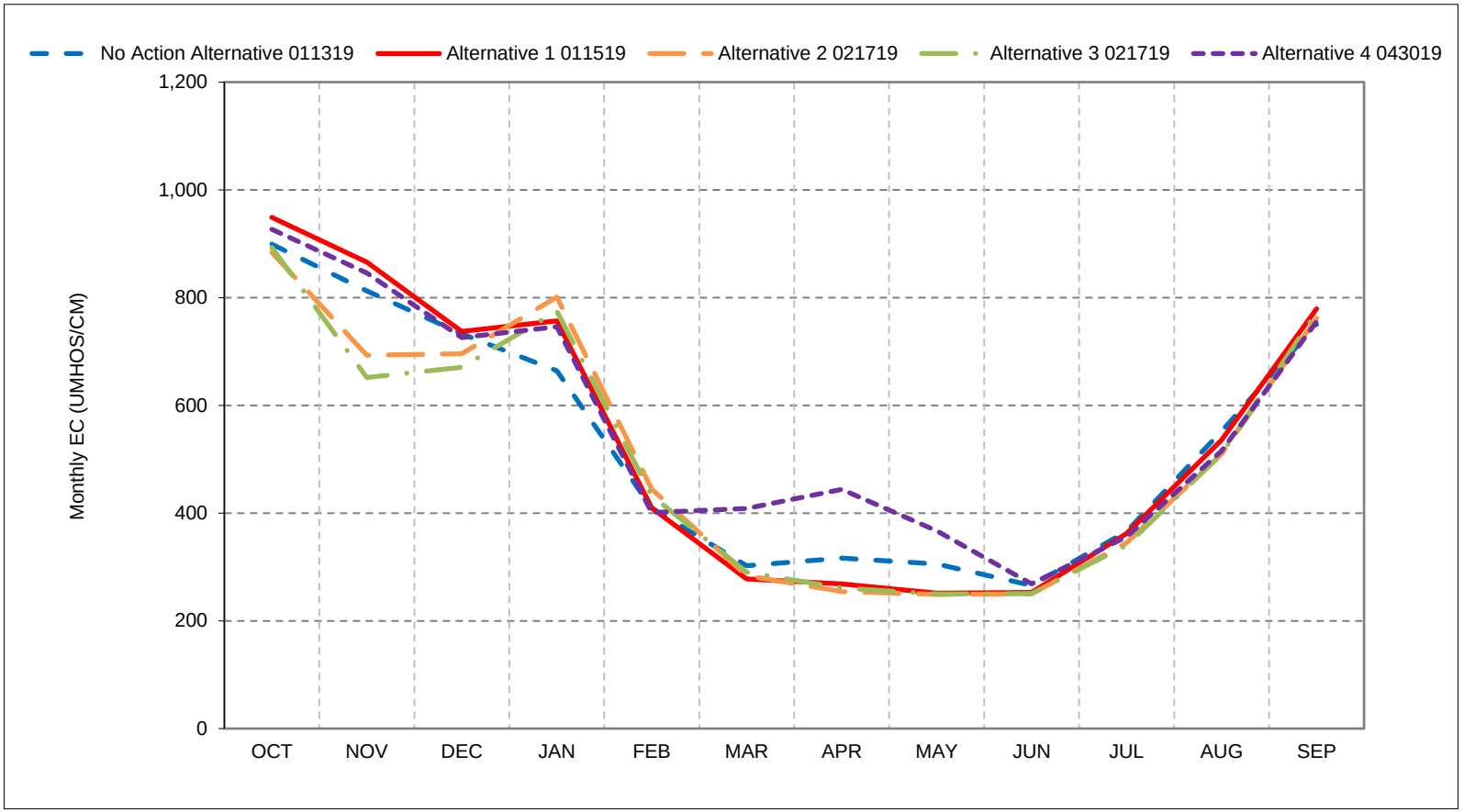

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-4. Old River at Rock Slough Salinity, Below Normal Year Average EC



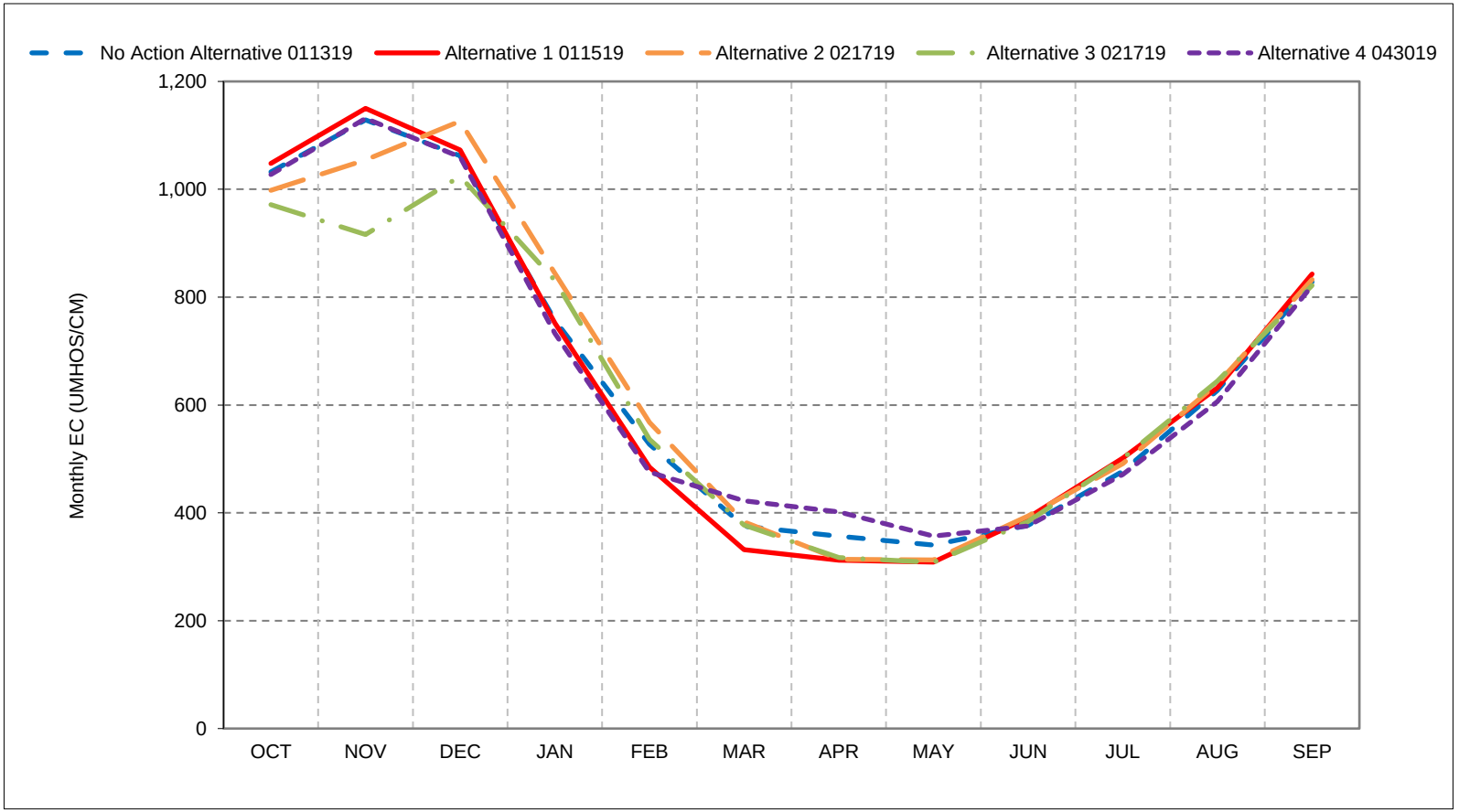

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-5. Old River at Rock Slough Salinity, Dry Year Average EC



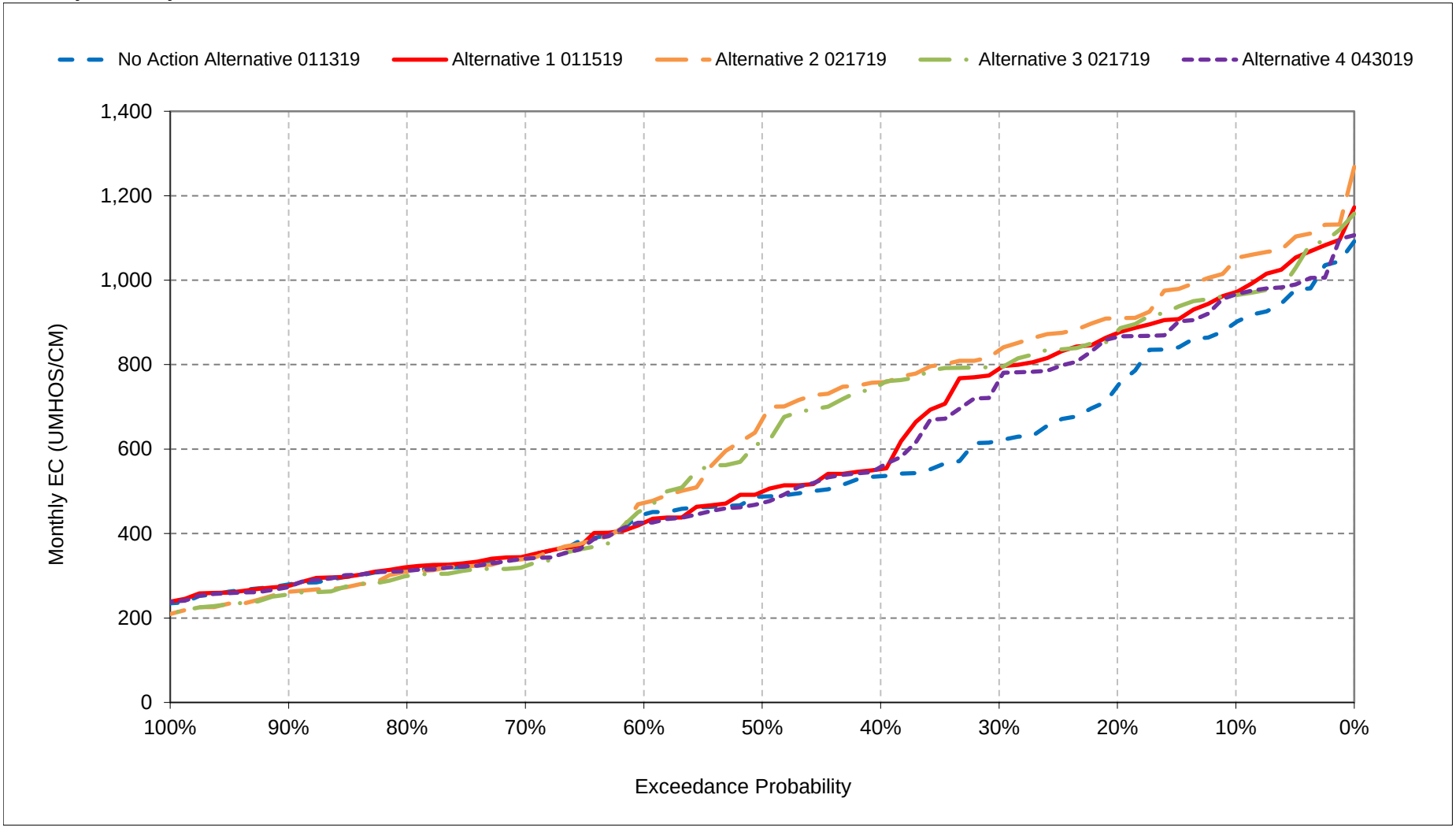

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 8-6. Old River at Rock Slough Salinity, Critical Year Average EC



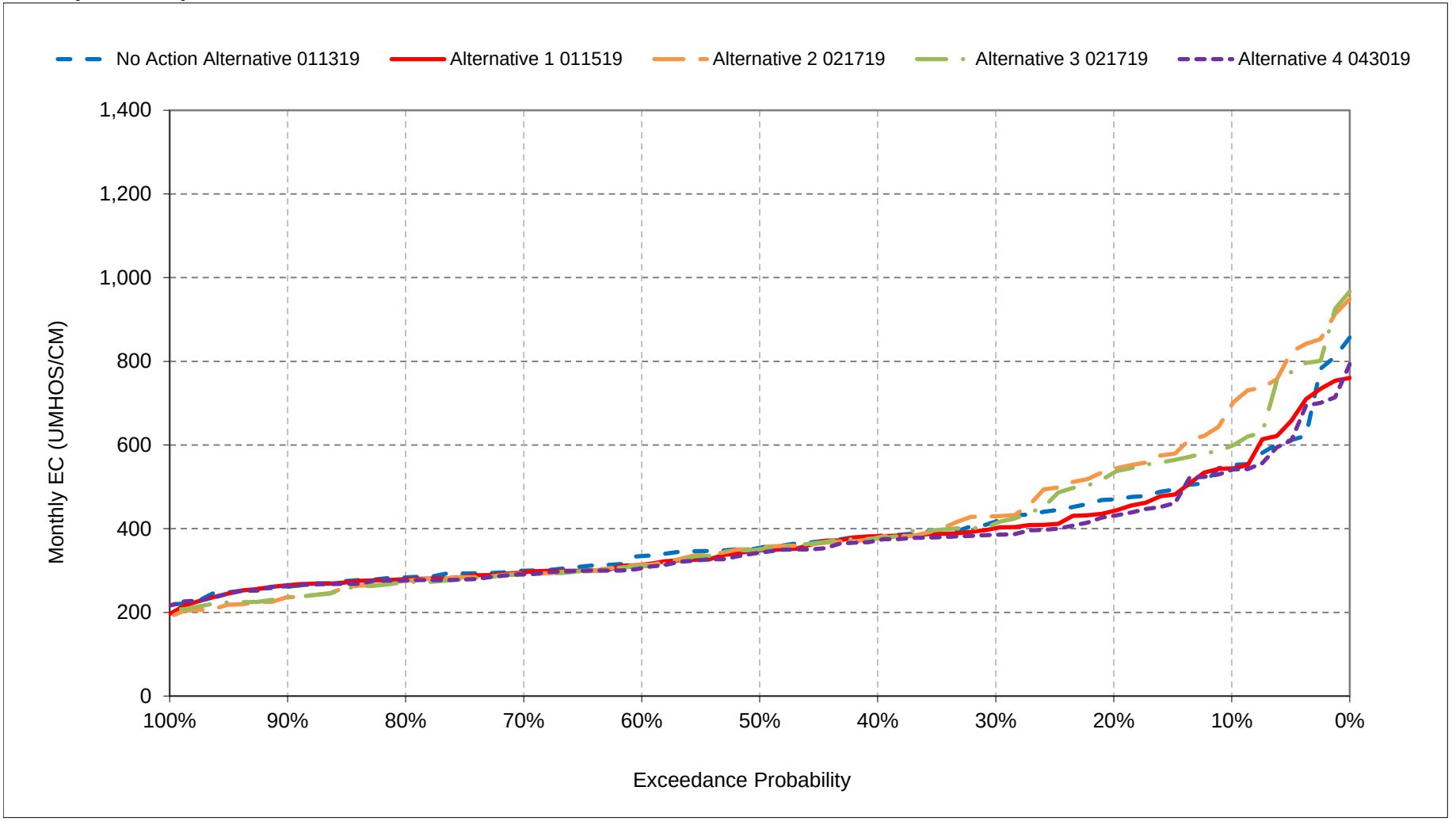

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8-7. Old River at Rock Slough**
**Salinity, January EC**



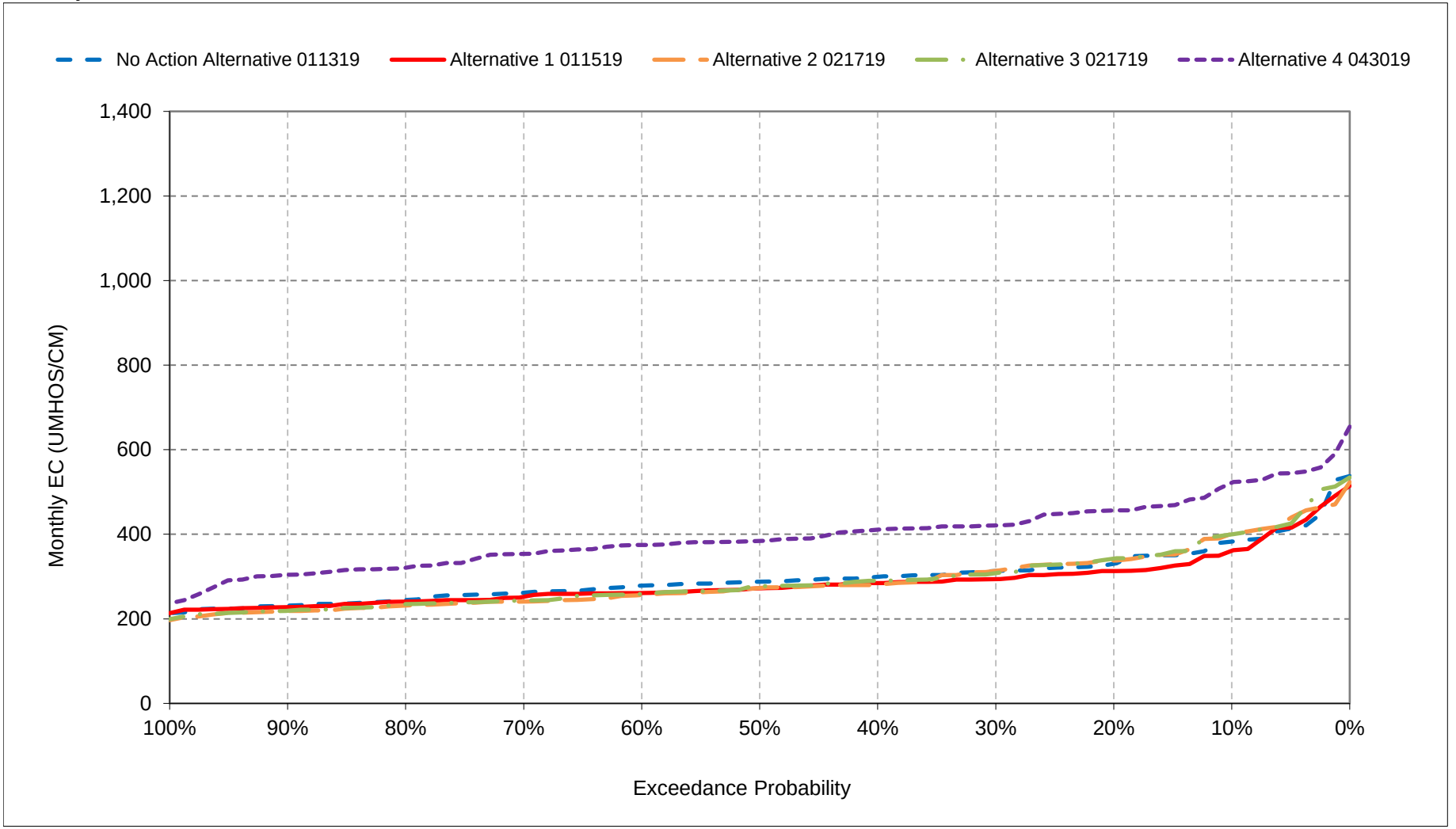

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8-8. Old River at Rock Slough**
**Salinity, February EC**



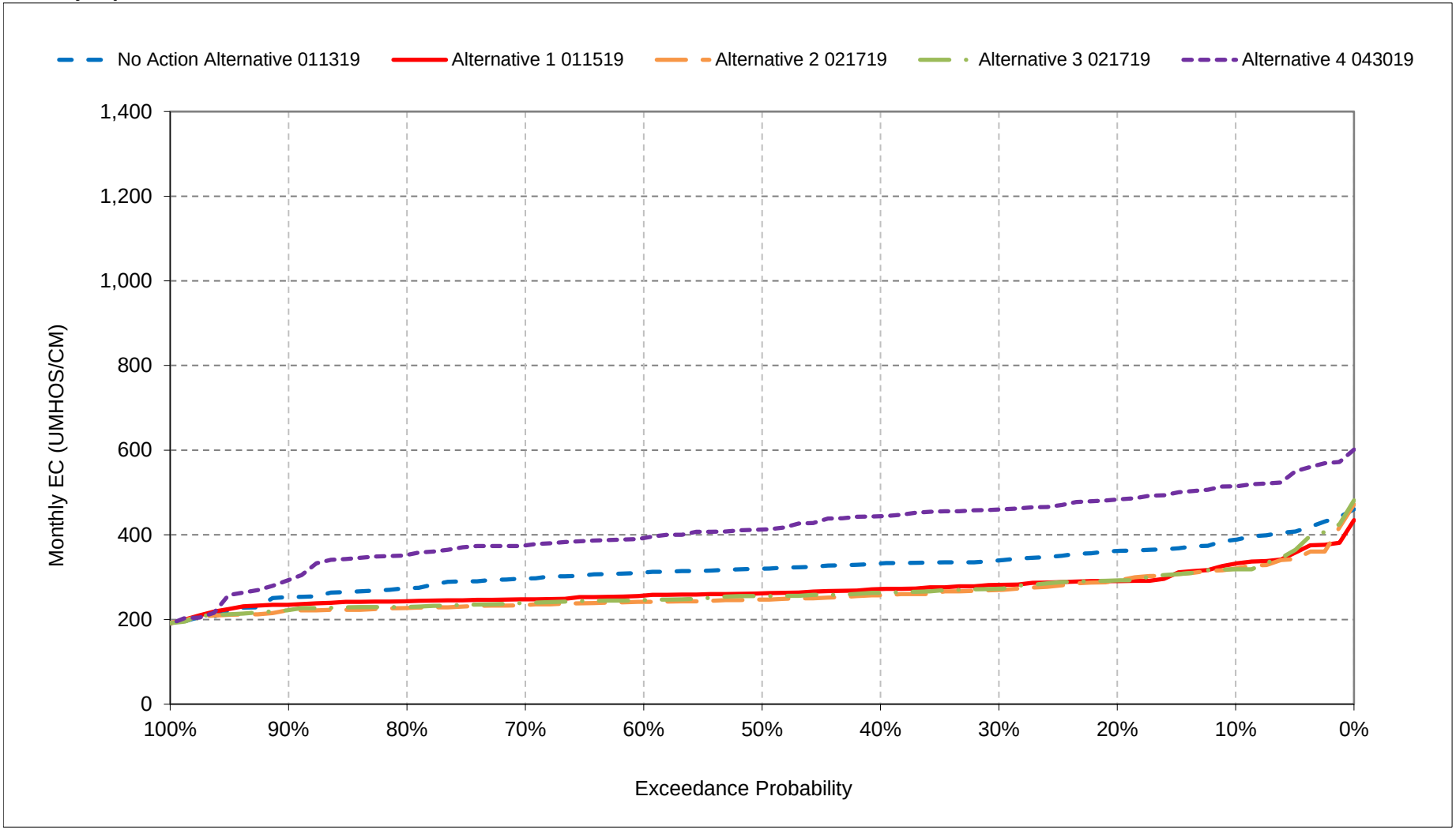

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8-9. Old River at Rock Slough**
**Salinity, March EC**



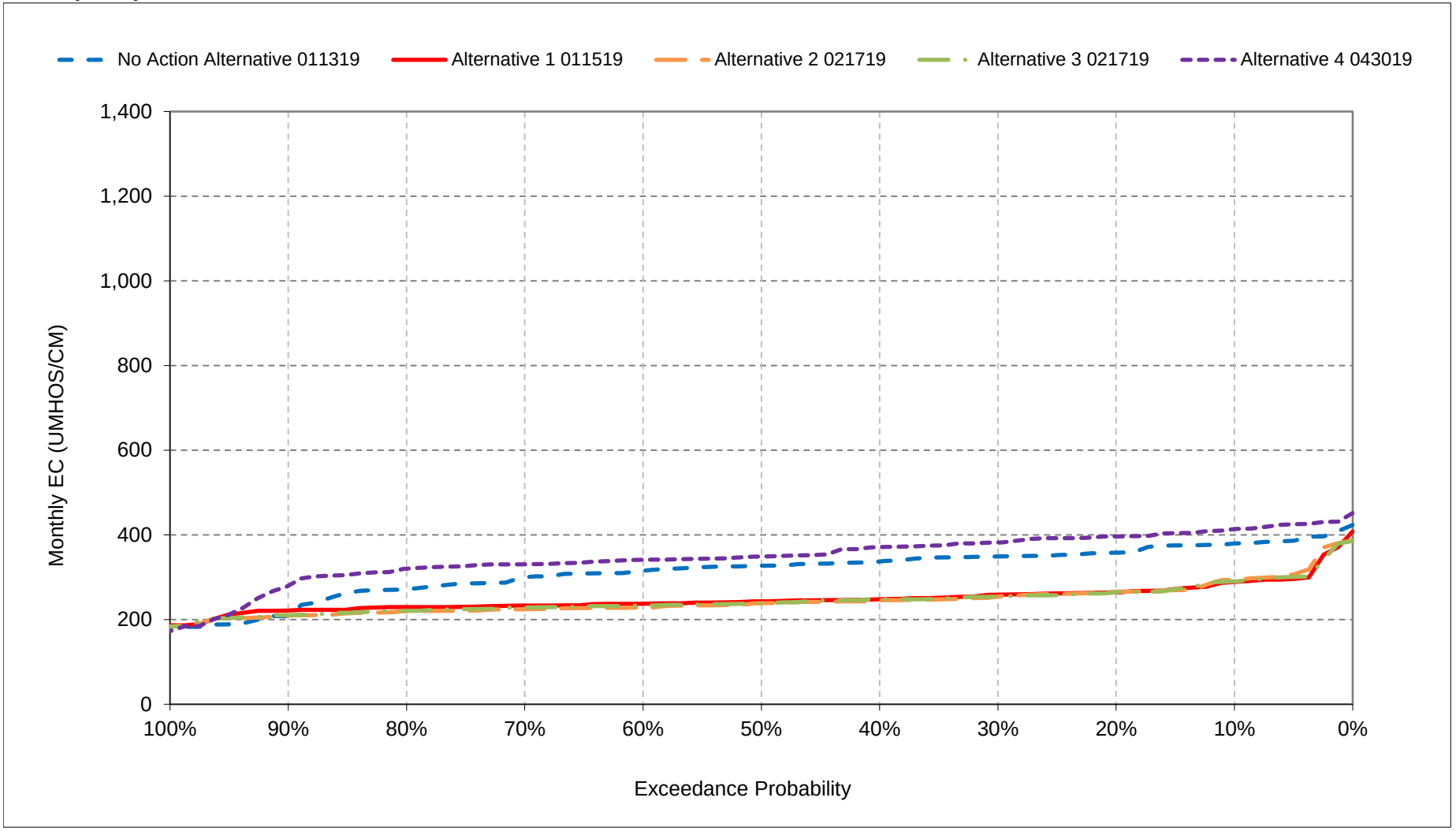

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8-10. Old River at Rock Slough**
**Salinity, April EC**



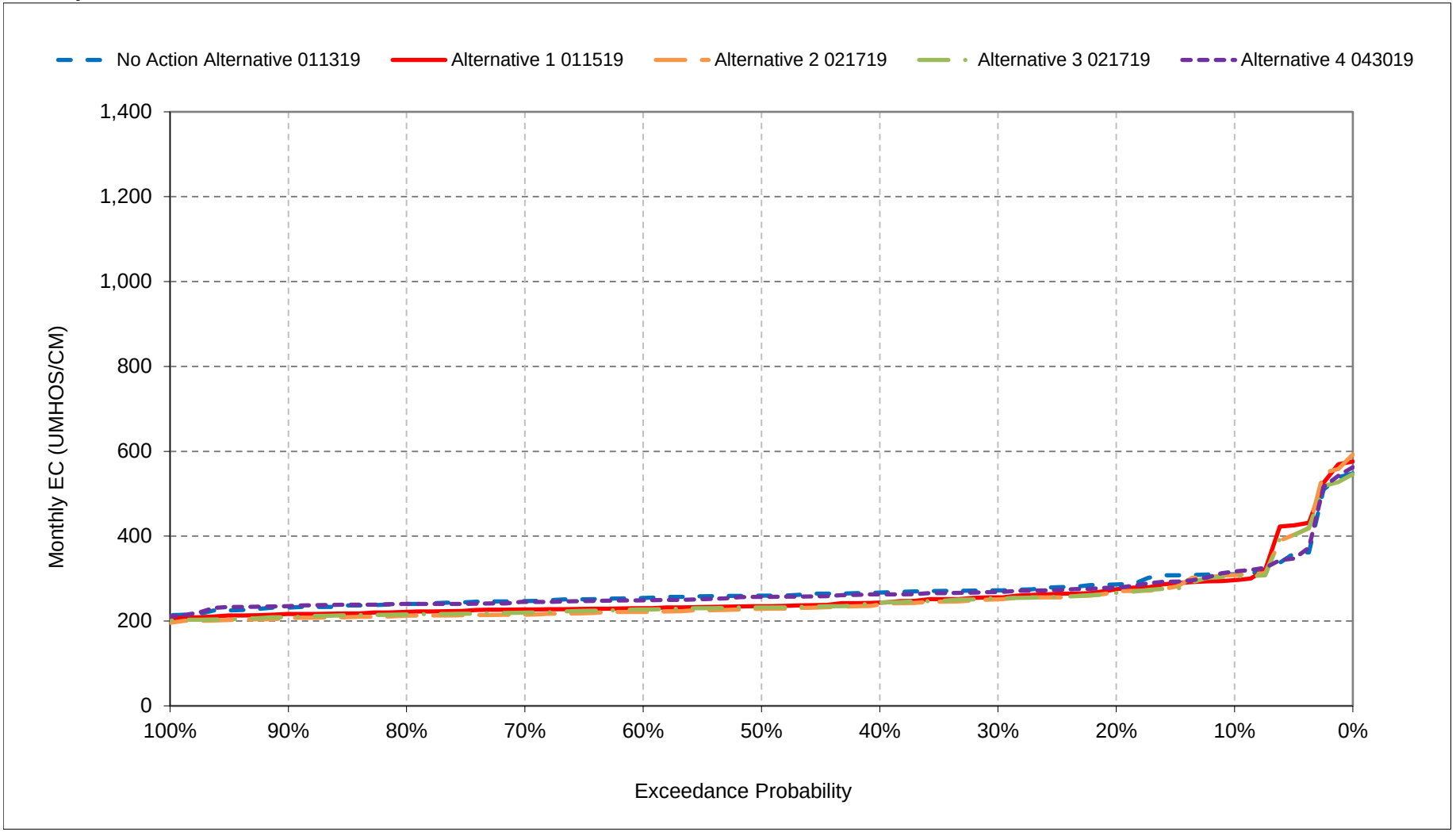

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8-11. Old River at Rock Slough**
**Salinity, May EC**



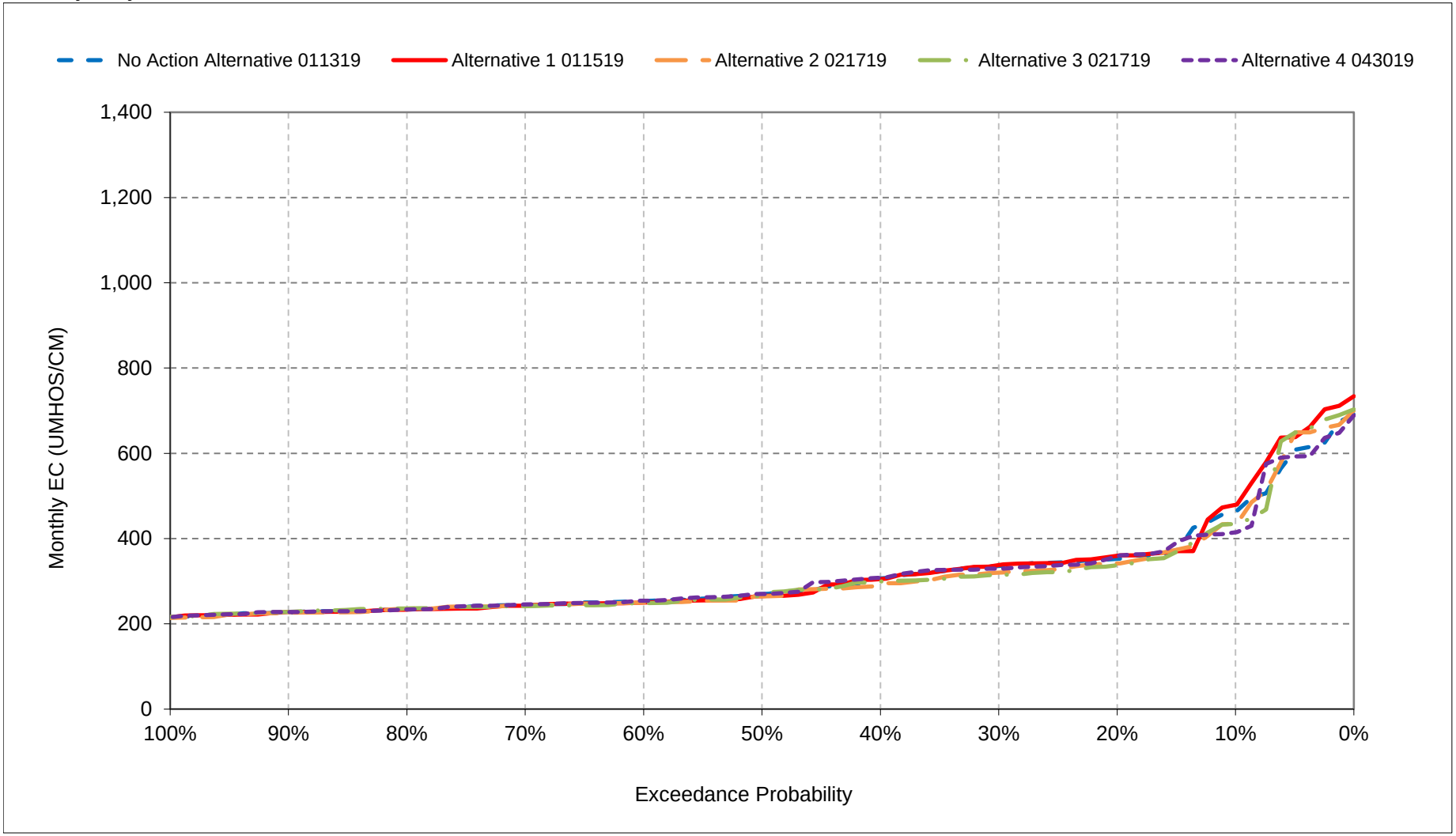

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8-12. Old River at Rock Slough**
**Salinity, June EC**



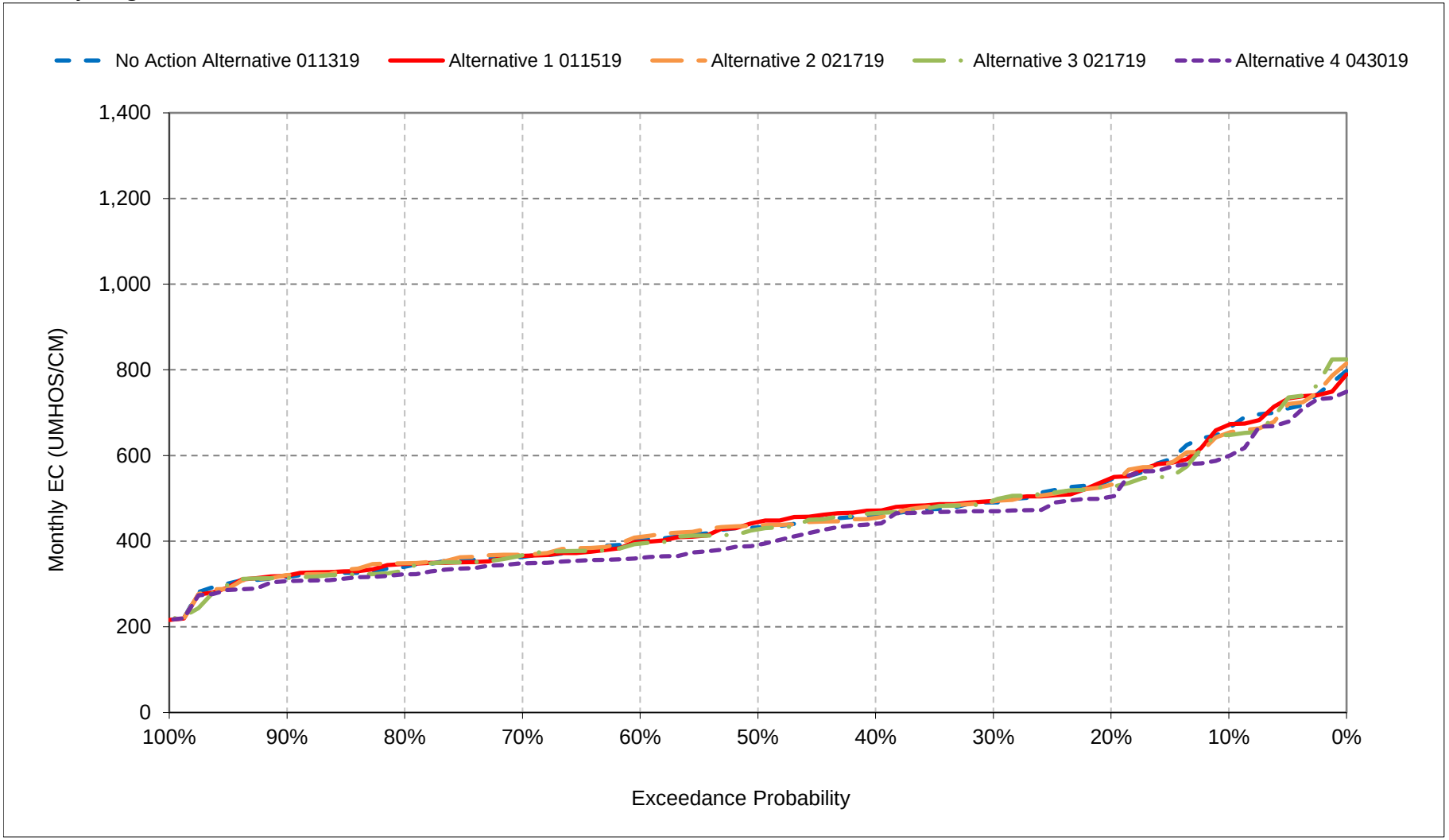

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8-13. Old River at Rock Slough**
**Salinity, July EC**



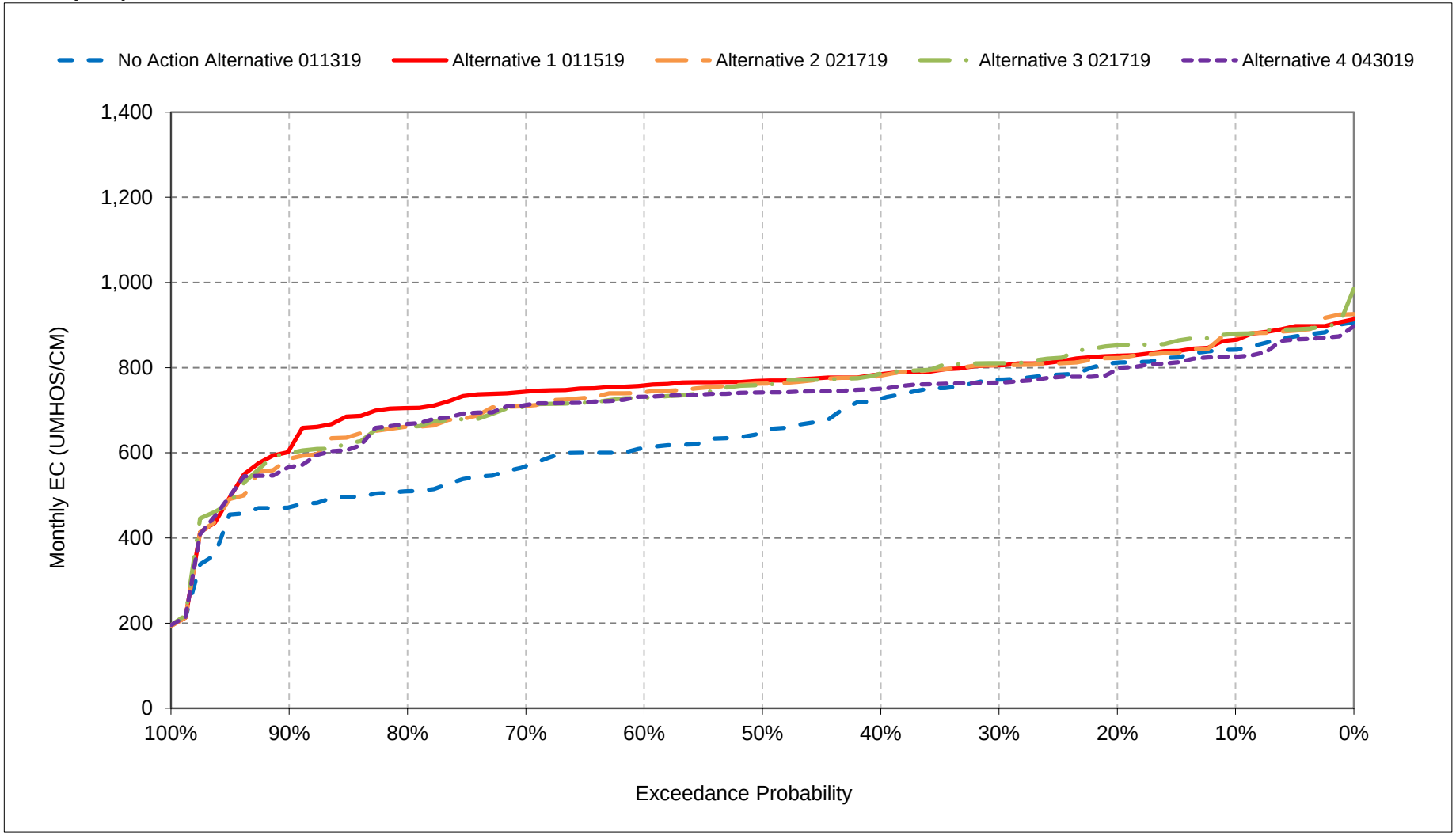

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8-14. Old River at Rock Slough**
**Salinity, August EC**



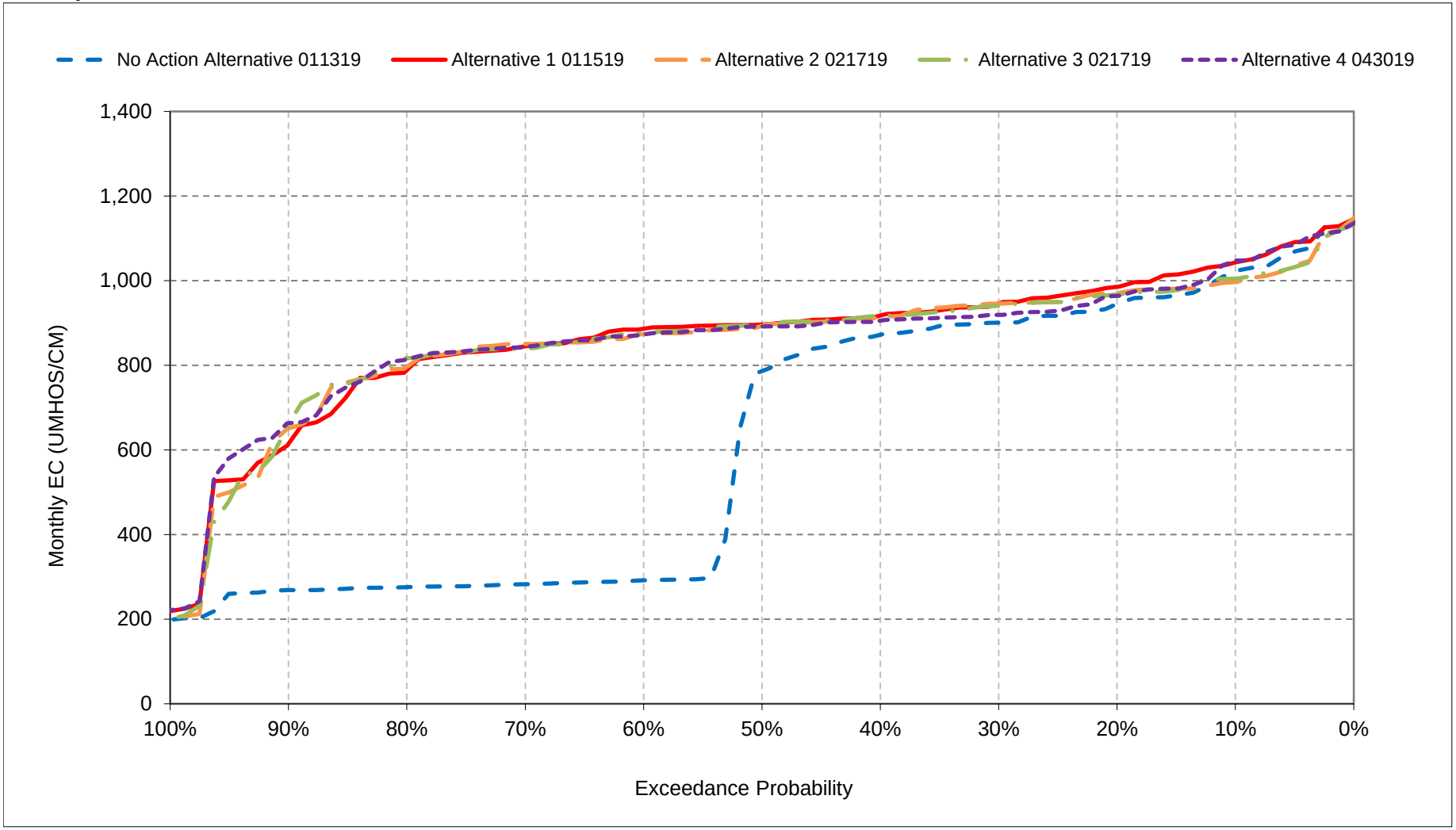

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8-15. Old River at Rock Slough**
**Salinity, September EC**



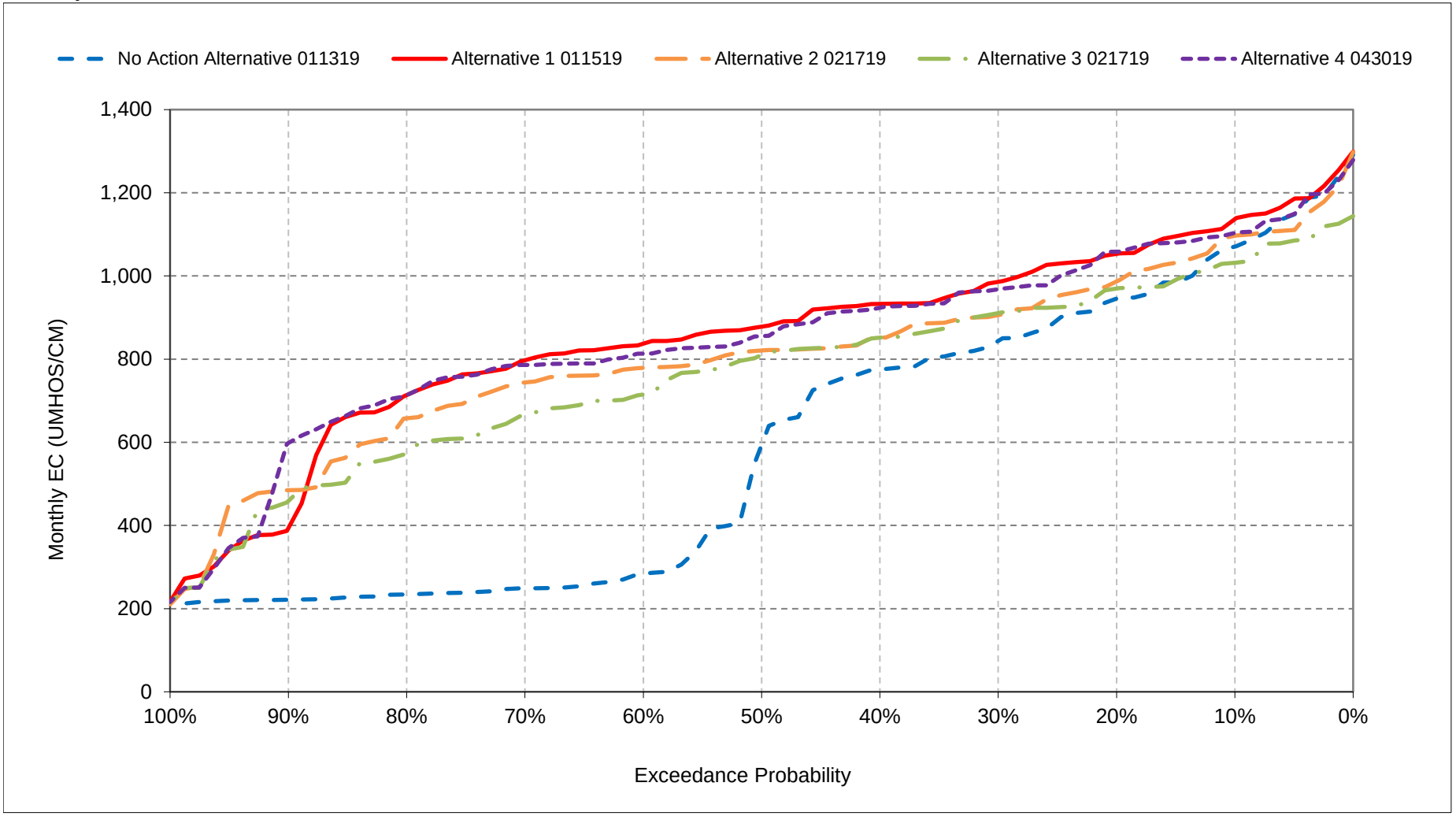

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8-16. Old River at Rock Slough**
**Salinity, October EC**



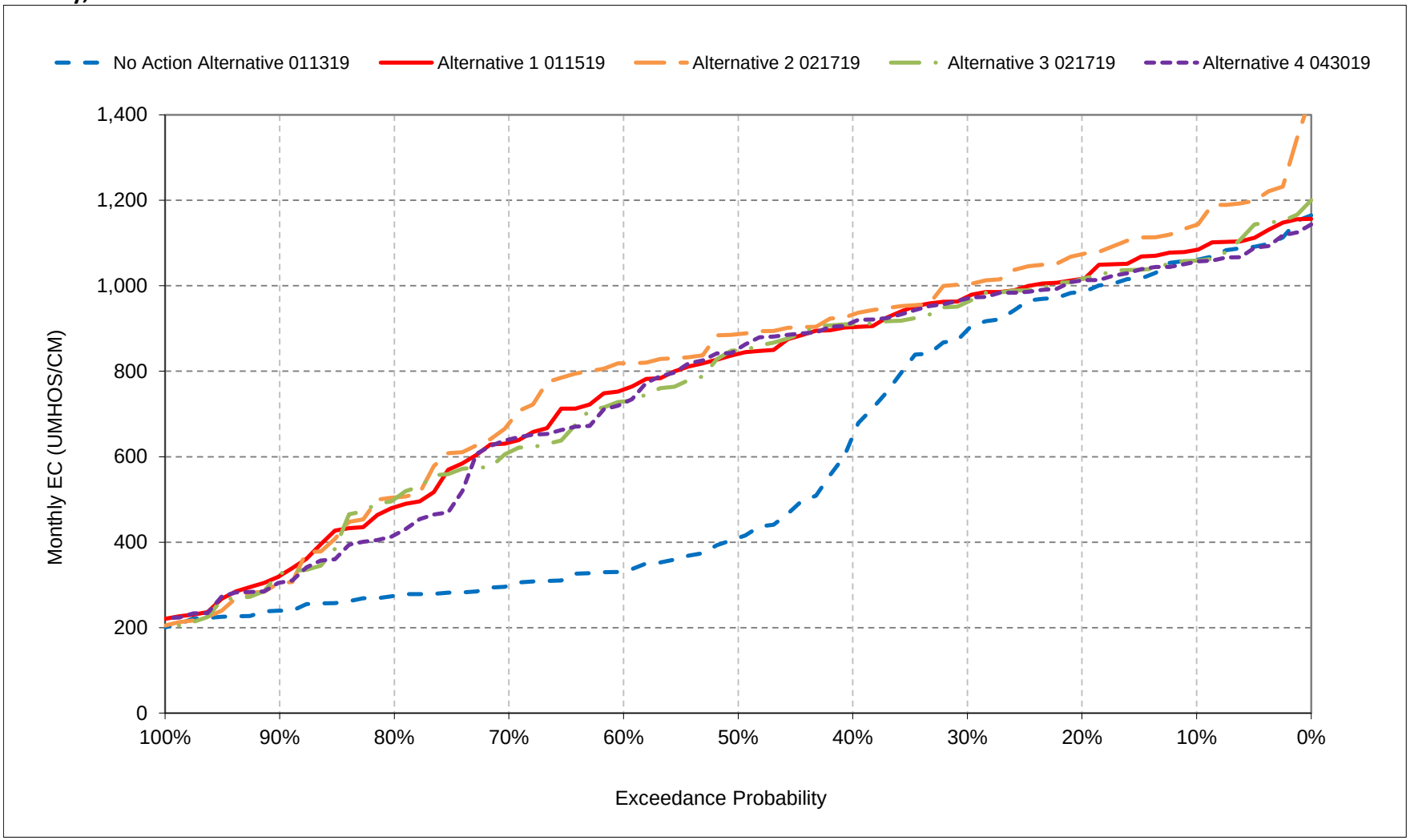

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8-17. Old River at Rock Slough**
**Salinity, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 8-18. Old River at Rock Slough**
**Salinity, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 9-1. San Joaquin River at Antioch Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 8,127 | 8,487 | 6,741 | 3,539 | 1,136 | 751 | 904 | 1,646 | 2,184 | 3,988 | 5,814 | 7,103 |
| 20% | 7,445 | 7,093 | 5,483 | 2,802 | 737 | 507 | 465 | 1,218 | 1,976 | 3,370 | 5,051 | 6,809 |
| 30% | 7,222 | 6,847 | 3,321 | 2,051 | 452 | 307 | 353 | 894 | 1,748 | 3,015 | 4,873 | 6,602 |
| 40% | 6,958 | 6,130 | 2,936 | 1,337 | 355 | 267 | 277 | 463 | 1,497 | 2,204 | 4,010 | 6,214 |
| 50% | 4,638 | 2,042 | 2,186 | 1,077 | 286 | 244 | 246 | 341 | 1,188 | 1,876 | 3,436 | 5,390 |
| 60% | 1,915 | 1,828 | 1,811 | 447 | 261 | 235 | 229 | 275 | 974 | 1,287 | 3,265 | 2,242 |
| 70% | 800 | 752 | 839 | 263 | 241 | 222 | 222 | 239 | 678 | 1,125 | 3,039 | 1,417 |
| 80% | 728 | 675 | 382 | 234 | 228 | 214 | 218 | 219 | 416 | 1,048 | 2,734 | 1,317 |
| 90% | 671 | 607 | 230 | 214 | 211 | 199 | 212 | 199 | 207 | 816 | 2,549 | 1,212 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 4,317 | 3,821 | 2,791 | 1,493 | 575 | 383 | 433 | 715 | 1,394 | 2,210 | 3,877 | 4,208 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 699 | 634 | 1,225 | 382 | 242 | 221 | 220 | 241 | 549 | 919 | 2,790 | 1,231 |
| Above Normal (16%) | 1,875 | 1,787 | 2,096 | 769 | 285 | 224 | 231 | 295 | 997 | 1,226 | 2,852 | 2,252 |
| Below Normal (13%) | 6,360 | 5,458 | 3,652 | 1,662 | 593 | 399 | 416 | 642 | 1,429 | 1,981 | 3,514 | 5,822 |
| Dry (24%) | 7,087 | 5,637 | 3,322 | 2,244 | 778 | 419 | 437 | 816 | 1,616 | 3,153 | 4,879 | 6,638 |
| Critical (15%) | 8,308 | 8,404 | 5,262 | 3,276 | 1,258 | 830 | 1,123 | 2,100 | 3,253 | 4,715 | 6,003 | 7,244 |

### Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 8,199 | 8,519 | 6,809 | 4,072 | 1,248 | 1,026 | 1,307 | 1,755 | 2,341 | 3,909 | 5,953 | 7,194 |
| 20% | 7,479 | 7,245 | 6,395 | 2,970 | 808 | 556 | 655 | 1,393 | 2,087 | 3,385 | 5,162 | 6,938 |
| 30% | 7,237 | 6,893 | 5,224 | 2,007 | 523 | 320 | 422 | 1,131 | 1,933 | 3,042 | 4,988 | 6,687 |
| 40% | 6,938 | 6,709 | 4,116 | 1,327 | 366 | 266 | 329 | 693 | 1,570 | 2,152 | 3,906 | 6,216 |
| 50% | 6,572 | 6,473 | 3,377 | 978 | 281 | 240 | 265 | 501 | 1,248 | 1,896 | 3,389 | 5,340 |
| 60% | 6,156 | 5,871 | 2,375 | 454 | 262 | 233 | 226 | 393 | 1,037 | 1,322 | 3,241 | 5,170 |
| 70% | 5,914 | 4,281 | 1,193 | 264 | 240 | 220 | 213 | 267 | 736 | 1,205 | 2,931 | 4,959 |
| 80% | 5,511 | 3,177 | 816 | 238 | 223 | 215 | 208 | 199 | 421 | 1,028 | 2,824 | 4,875 |
| 90% | 3,094 | 1,716 | 404 | 219 | 213 | 201 | 203 | 191 | 201 | 837 | 2,616 | 4,390 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,170 | 5,538 | 3,437 | 1,565 | 634 | 427 | 487 | 846 | 1,477 | 2,224 | 3,902 | 5,617 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 4,461 | 4,053 | 2,608 | 350 | 236 | 221 | 224 | 290 | 559 | 929 | 2,735 | 4,279 |
| Above Normal (16%) | 5,793 | 5,418 | 3,360 | 866 | 292 | 227 | 242 | 375 | 977 | 1,237 | 2,885 | 4,988 |
| Below Normal (13%) | 6,237 | 5,574 | 3,662 | 1,837 | 673 | 457 | 498 | 875 | 1,606 | 1,986 | 3,489 | 5,675 |
| Dry (24%) | 7,306 | 5,775 | 3,355 | 2,430 | 861 | 449 | 513 | 976 | 1,732 | 3,130 | 4,995 | 6,719 |
| Critical (15%) | 8,330 | 8,460 | 5,246 | 3,262 | 1,452 | 1,028 | 1,270 | 2,321 | 3,462 | 4,806 | 6,086 | 7,305 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **72** | **32** | **67** | **533** | **113** | **275** | **403** | **109** | **156** | -79 | **139** | **91** |
| 20% | **35** | **152** | **912** | **168** | **71** | **49** | **190** | **175** | **111** | **16** | **111** | **129** |
| 30% | **15** | **46** | **1,903** | -44 | **71** | **12** | **69** | **237** | **185** | **27** | **116** | **85** |
| 40% | -20 | **579** | **1,180** | -10 | **11** | -1 | **52** | **230** | **73** | -52 | -104 | **1** |
| 50% | **1,935** | **4,431** | **1,191** | -99 | -5 | -4 | **19** | **160** | **61** | **19** | -46 | -50 |
| 60% | **4,242** | **4,043** | **564** | **7** | **1** | -2 | -3 | **118** | **62** | **36** | -24 | **2,928** |
| 70% | **5,114** | **3,528** | **354** | **1** | -1 | -2 | -9 | **29** | **58** | **80** | -108 | **3,542** |
| 80% | **4,782** | **2,501** | **434** | **4** | -5 | **2** | -10 | -20 | **4** | -20 | **90** | **3,558** |
| 90% | **2,423** | **1,110** | **174** | **4** | **2** | **2** | -9 | -9 | -6 | **20** | **67** | **3,178** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **1,854** | **1,717** | **646** | **72** | **59** | **45** | **54** | **131** | **83** | **14** | **25** | **1,409** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **3,762** | **3,418** | **1,383** | -31 | -6 | **0** | **4** | **50** | **10** | **10** | -55 | **3,048** |
| Above Normal (16%) | **3,918** | **3,631** | **1,264** | **98** | **7** | **3** | **11** | **80** | -20 | **11** | **34** | **2,736** |
| Below Normal (13%) | -122 | **116** | **10** | **175** | **81** | **58** | **82** | **233** | **177** | **6** | -25 | -148 |
| Dry (24%) | **219** | **138** | **34** | **186** | **83** | **30** | **76** | **160** | **116** | -22 | **116** | **81** |
| Critical (15%) | **21** | **56** | -15 | -13 | **194** | **198** | **147** | **221** | **210** | **91** | **83** | **61** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 9-2. San Joaquin River at Antioch Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 8,127 | 8,487 | 6,741 | 3,539 | 1,136 | 751 | 904 | 1,646 | 2,184 | 3,988 | 5,814 | 7,103 |
| 20% | 7,445 | 7,093 | 5,483 | 2,802 | 737 | 507 | 465 | 1,218 | 1,976 | 3,370 | 5,051 | 6,809 |
| 30% | 7,222 | 6,847 | 3,321 | 2,051 | 452 | 307 | 353 | 894 | 1,748 | 3,015 | 4,873 | 6,602 |
| 40% | 6,958 | 6,130 | 2,936 | 1,337 | 355 | 267 | 277 | 463 | 1,497 | 2,204 | 4,010 | 6,214 |
| 50% | 4,638 | 2,042 | 2,186 | 1,077 | 286 | 244 | 246 | 341 | 1,188 | 1,876 | 3,436 | 5,390 |
| 60% | 1,915 | 1,828 | 1,811 | 447 | 261 | 235 | 229 | 275 | 974 | 1,287 | 3,265 | 2,242 |
| 70% | 800 | 752 | 839 | 263 | 241 | 222 | 222 | 239 | 678 | 1,125 | 3,039 | 1,417 |
| 80% | 728 | 675 | 382 | 234 | 228 | 214 | 218 | 219 | 416 | 1,048 | 2,734 | 1,317 |
| 90% | 671 | 607 | 230 | 214 | 211 | 199 | 212 | 199 | 207 | 816 | 2,549 | 1,212 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 4,317 | 3,821 | 2,791 | 1,493 | 575 | 383 | 433 | 715 | 1,394 | 2,210 | 3,877 | 4,208 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 699 | 634 | 1,225 | 382 | 242 | 221 | 220 | 241 | 549 | 919 | 2,790 | 1,231 |
| Above Normal (16%) | 1,875 | 1,787 | 2,096 | 769 | 285 | 224 | 231 | 295 | 997 | 1,226 | 2,852 | 2,252 |
| Below Normal (13%) | 6,360 | 5,458 | 3,652 | 1,662 | 593 | 399 | 416 | 642 | 1,429 | 1,981 | 3,514 | 5,822 |
| Dry (24%) | 7,087 | 5,637 | 3,322 | 2,244 | 778 | 419 | 437 | 816 | 1,616 | 3,153 | 4,879 | 6,638 |
| Critical (15%) | 8,308 | 8,404 | 5,262 | 3,276 | 1,258 | 830 | 1,123 | 2,100 | 3,253 | 4,715 | 6,003 | 7,244 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 7,784 | 8,172 | 6,885 | 4,828 | 2,148 | 1,220 | 1,325 | 1,801 | 2,285 | 3,952 | 5,652 | 7,142 |
| 20% | 7,180 | 7,041 | 6,663 | 4,207 | 1,284 | 638 | 735 | 1,283 | 1,906 | 3,232 | 5,069 | 6,799 |
| 30% | 6,869 | 6,729 | 6,350 | 3,308 | 793 | 396 | 524 | 1,079 | 1,512 | 2,988 | 4,873 | 6,612 |
| 40% | 6,592 | 6,588 | 5,758 | 2,233 | 553 | 296 | 393 | 783 | 1,101 | 2,150 | 4,129 | 6,277 |
| 50% | 6,464 | 6,327 | 4,663 | 1,614 | 361 | 262 | 283 | 559 | 940 | 1,824 | 3,653 | 5,558 |
| 60% | 6,254 | 6,143 | 2,924 | 866 | 269 | 237 | 236 | 434 | 794 | 1,380 | 3,276 | 5,328 |
| 70% | 6,063 | 5,836 | 1,509 | 306 | 243 | 224 | 214 | 292 | 738 | 1,167 | 3,108 | 5,089 |
| 80% | 5,760 | 5,206 | 1,081 | 238 | 221 | 212 | 207 | 199 | 548 | 1,028 | 2,900 | 4,894 |
| 90% | 4,871 | 2,028 | 487 | 215 | 213 | 198 | 201 | 189 | 205 | 800 | 2,699 | 4,467 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,241 | 5,838 | 4,086 | 2,065 | 788 | 461 | 514 | 854 | 1,291 | 2,185 | 3,959 | 5,647 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 5,140 | 4,904 | 3,172 | 519 | 253 | 223 | 228 | 291 | 510 | 961 | 2,817 | 4,387 |
| Above Normal (16%) | 6,330 | 6,224 | 4,323 | 1,227 | 357 | 229 | 254 | 436 | 744 | 1,199 | 3,038 | 5,160 |
| Below Normal (13%) | 6,229 | 5,874 | 4,026 | 2,884 | 960 | 470 | 549 | 853 | 1,029 | 1,955 | 3,786 | 5,677 |
| Dry (24%) | 6,634 | 5,367 | 3,675 | 3,069 | 1,050 | 520 | 557 | 943 | 1,589 | 3,063 | 4,925 | 6,639 |
| Critical (15%) | 7,885 | 8,195 | 6,549 | 3,898 | 1,823 | 1,125 | 1,313 | 2,381 | 3,320 | 4,655 | 5,981 | 7,223 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -344 | -316 | **144** | **1,290** | **1,012** | **469** | **422** | **155** | **100** | -36 | -162 | **39** |
| 20% | -265 | -52 | **1,180** | **1,405** | **547** | **131** | **270** | **65** | -70 | -138 | **19** | -10 |
| 30% | -352 | -119 | **3,029** | **1,257** | **341** | **89** | **171** | **185** | -236 | -27 | **0** | **9** |
| 40% | -366 | **458** | **2,822** | **896** | **198** | **30** | **116** | **320** | -397 | -54 | **119** | **62** |
| 50% | **1,827** | **4,285** | **2,477** | **537** | **74** | **18** | **37** | **217** | -248 | -53 | **218** | **167** |
| 60% | **4,339** | **4,315** | **1,112** | **419** | **8** | **2** | **8** | **159** | -180 | **93** | **11** | **3,086** |
| 70% | **5,263** | **5,084** | **670** | **43** | **2** | **1** | -7 | **53** | **60** | **42** | **69** | **3,671** |
| 80% | **5,032** | **4,531** | **699** | **4** | -7 | -2 | -11 | -20 | **131** | -20 | **167** | **3,577** |
| 90% | **4,200** | **1,422** | **257** | **0** | **2** | -1 | -11 | -11 | -3 | -17 | **149** | **3,255** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **1,924** | **2,016** | **1,295** | **572** | **213** | **79** | **81** | **139** | -103 | -25 | **83** | **1,439** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **4,440** | **4,269** | **1,947** | **137** | **11** | **1** | **8** | **51** | -39 | **42** | **27** | **3,156** |
| Above Normal (16%) | **4,455** | **4,437** | **2,227** | **458** | **72** | **5** | **23** | **141** | -253 | -27 | **187** | **2,909** |
| Below Normal (13%) | -130 | **416** | **374** | **1,222** | **367** | **71** | **133** | **211** | -400 | -26 | **272** | -145 |
| Dry (24%) | -453 | -270 | **353** | **825** | **272** | **101** | **120** | **127** | -28 | -90 | **46** | **1** |
| Critical (15%) | -423 | -209 | **1,288** | **622** | **565** | **295** | **189** | **281** | **67** | -60 | -22 | -21 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 9-3. San Joaquin River at Antioch Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 8,127 | 8,487 | 6,741 | 3,539 | 1,136 | 751 | 904 | 1,646 | 2,184 | 3,988 | 5,814 | 7,103 |
| 20% | 7,445 | 7,093 | 5,483 | 2,802 | 737 | 507 | 465 | 1,218 | 1,976 | 3,370 | 5,051 | 6,809 |
| 30% | 7,222 | 6,847 | 3,321 | 2,051 | 452 | 307 | 353 | 894 | 1,748 | 3,015 | 4,873 | 6,602 |
| 40% | 6,958 | 6,130 | 2,936 | 1,337 | 355 | 267 | 277 | 463 | 1,497 | 2,204 | 4,010 | 6,214 |
| 50% | 4,638 | 2,042 | 2,186 | 1,077 | 286 | 244 | 246 | 341 | 1,188 | 1,876 | 3,436 | 5,390 |
| 60% | 1,915 | 1,828 | 1,811 | 447 | 261 | 235 | 229 | 275 | 974 | 1,287 | 3,265 | 2,242 |
| 70% | 800 | 752 | 839 | 263 | 241 | 222 | 222 | 239 | 678 | 1,125 | 3,039 | 1,417 |
| 80% | 728 | 675 | 382 | 234 | 228 | 214 | 218 | 219 | 416 | 1,048 | 2,734 | 1,317 |
| 90% | 671 | 607 | 230 | 214 | 211 | 199 | 212 | 199 | 207 | 816 | 2,549 | 1,212 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 4,317 | 3,821 | 2,791 | 1,493 | 575 | 383 | 433 | 715 | 1,394 | 2,210 | 3,877 | 4,208 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 699 | 634 | 1,225 | 382 | 242 | 221 | 220 | 241 | 549 | 919 | 2,790 | 1,231 |
| Above Normal (16%) | 1,875 | 1,787 | 2,096 | 769 | 285 | 224 | 231 | 295 | 997 | 1,226 | 2,852 | 2,252 |
| Below Normal (13%) | 6,360 | 5,458 | 3,652 | 1,662 | 593 | 399 | 416 | 642 | 1,429 | 1,981 | 3,514 | 5,822 |
| Dry (24%) | 7,087 | 5,637 | 3,322 | 2,244 | 778 | 419 | 437 | 816 | 1,616 | 3,153 | 4,879 | 6,638 |
| Critical (15%) | 8,308 | 8,404 | 5,262 | 3,276 | 1,258 | 830 | 1,123 | 2,100 | 3,253 | 4,715 | 6,003 | 7,244 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 7,111 | 6,966 | 6,512 | 4,347 | 1,878 | 1,122 | 1,192 | 1,662 | 2,232 | 3,948 | 5,667 | 7,059 |
| 20% | 6,574 | 6,335 | 6,103 | 3,934 | 1,209 | 622 | 685 | 1,221 | 1,787 | 3,164 | 4,966 | 6,605 |
| 30% | 6,229 | 6,160 | 5,784 | 2,981 | 741 | 372 | 476 | 1,051 | 1,425 | 2,820 | 4,700 | 6,474 |
| 40% | 5,964 | 5,993 | 5,188 | 2,140 | 548 | 281 | 363 | 762 | 1,103 | 2,044 | 3,999 | 6,116 |
| 50% | 5,673 | 5,692 | 4,344 | 1,515 | 349 | 261 | 269 | 551 | 996 | 1,672 | 3,484 | 5,408 |
| 60% | 5,488 | 5,502 | 2,584 | 809 | 274 | 243 | 232 | 410 | 816 | 1,279 | 3,130 | 5,167 |
| 70% | 5,190 | 5,260 | 1,441 | 295 | 247 | 227 | 221 | 279 | 737 | 1,067 | 2,922 | 4,776 |
| 80% | 4,737 | 4,165 | 1,077 | 246 | 222 | 216 | 212 | 203 | 508 | 968 | 2,754 | 4,608 |
| 90% | 4,014 | 2,065 | 454 | 221 | 216 | 203 | 204 | 192 | 206 | 819 | 2,574 | 4,085 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 5,593 | 5,222 | 3,804 | 1,964 | 772 | 455 | 489 | 815 | 1,281 | 2,122 | 3,819 | 5,440 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 4,635 | 4,453 | 2,856 | 502 | 253 | 224 | 222 | 320 | 518 | 914 | 2,696 | 4,192 |
| Above Normal (16%) | 5,558 | 5,550 | 3,929 | 1,124 | 354 | 231 | 251 | 410 | 778 | 1,091 | 2,808 | 4,676 |
| Below Normal (13%) | 5,642 | 5,198 | 3,785 | 2,813 | 893 | 439 | 507 | 793 | 1,026 | 1,836 | 3,626 | 5,553 |
| Dry (24%) | 5,830 | 4,817 | 3,540 | 2,964 | 1,044 | 506 | 524 | 861 | 1,494 | 2,950 | 4,785 | 6,482 |
| Critical (15%) | 7,265 | 7,233 | 6,176 | 3,600 | 1,785 | 1,125 | 1,249 | 2,270 | 3,360 | 4,740 | 5,917 | 7,131 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -1,016 | -1,521 | -229 | **808** | **742** | **371** | **289** | **16** | **48** | -40 | -147 | -44 |
| 20% | -871 | -758 | **620** | **1,132** | **472** | **115** | **220** | **3** | -189 | -205 | -85 | -204 |
| 30% | -993 | -688 | **2,463** | **930** | **289** | **65** | **123** | **156** | -323 | -195 | -172 | -129 |
| 40% | -994 | -137 | **2,251** | **802** | **193** | **14** | **86** | **300** | -394 | -160 | -11 | -98 |
| 50% | **1,036** | **3,650** | **2,159** | **438** | **63** | **17** | **23** | **210** | -191 | -205 | **48** | **18** |
| 60% | **3,573** | **3,674** | **773** | **362** | **13** | **8** | **3** | **135** | -158 | -8 | -135 | **2,925** |
| 70% | **4,390** | **4,507** | **602** | **33** | **6** | **5** | -1 | **41** | **59** | -58 | -117 | **3,359** |
| 80% | **4,009** | **3,490** | **695** | **12** | -6 | **2** | -6 | -16 | **91** | -81 | **21** | **3,291** |
| 90% | **3,343** | **1,458** | **224** | **7** | **4** | **4** | -8 | -7 | -2 | **2** | **25** | **2,873** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **1,276** | **1,401** | **1,013** | **472** | **197** | **72** | **55** | **100** | -113 | -88 | -57 | **1,232** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **3,935** | **3,819** | **1,631** | **120** | **11** | **3** | **1** | **79** | -31 | -5 | -94 | **2,960** |
| Above Normal (16%) | **3,683** | **3,764** | **1,833** | **356** | **69** | **7** | **21** | **115** | -219 | -135 | -44 | **2,424** |
| Below Normal (13%) | -718 | -261 | **134** | **1,151** | **301** | **40** | **91** | **150** | -403 | -145 | **112** | -269 |
| Dry (24%) | -1,257 | -820 | **219** | **720** | **265** | **87** | **87** | **45** | -122 | -203 | -94 | -156 |
| Critical (15%) | -1,043 | -1,171 | **914** | **324** | **527** | **295** | **126** | **170** | **107** | **25** | -86 | -113 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 9-4. San Joaquin River at Antioch Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 8,127 | 8,487 | 6,741 | 3,539 | 1,136 | 751 | 904 | 1,646 | 2,184 | 3,988 | 5,814 | 7,103 |
| 20% | 7,445 | 7,093 | 5,483 | 2,802 | 737 | 507 | 465 | 1,218 | 1,976 | 3,370 | 5,051 | 6,809 |
| 30% | 7,222 | 6,847 | 3,321 | 2,051 | 452 | 307 | 353 | 894 | 1,748 | 3,015 | 4,873 | 6,602 |
| 40% | 6,958 | 6,130 | 2,936 | 1,337 | 355 | 267 | 277 | 463 | 1,497 | 2,204 | 4,010 | 6,214 |
| 50% | 4,638 | 2,042 | 2,186 | 1,077 | 286 | 244 | 246 | 341 | 1,188 | 1,876 | 3,436 | 5,390 |
| 60% | 1,915 | 1,828 | 1,811 | 447 | 261 | 235 | 229 | 275 | 974 | 1,287 | 3,265 | 2,242 |
| 70% | 800 | 752 | 839 | 263 | 241 | 222 | 222 | 239 | 678 | 1,125 | 3,039 | 1,417 |
| 80% | 728 | 675 | 382 | 234 | 228 | 214 | 218 | 219 | 416 | 1,048 | 2,734 | 1,317 |
| 90% | 671 | 607 | 230 | 214 | 211 | 199 | 212 | 199 | 207 | 816 | 2,549 | 1,212 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 4,317 | 3,821 | 2,791 | 1,493 | 575 | 383 | 433 | 715 | 1,394 | 2,210 | 3,877 | 4,208 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 699 | 634 | 1,225 | 382 | 242 | 221 | 220 | 241 | 549 | 919 | 2,790 | 1,231 |
| Above Normal (16%) | 1,875 | 1,787 | 2,096 | 769 | 285 | 224 | 231 | 295 | 997 | 1,226 | 2,852 | 2,252 |
| Below Normal (13%) | 6,360 | 5,458 | 3,652 | 1,662 | 593 | 399 | 416 | 642 | 1,429 | 1,981 | 3,514 | 5,822 |
| Dry (24%) | 7,087 | 5,637 | 3,322 | 2,244 | 778 | 419 | 437 | 816 | 1,616 | 3,153 | 4,879 | 6,638 |
| Critical (15%) | 8,308 | 8,404 | 5,262 | 3,276 | 1,258 | 830 | 1,123 | 2,100 | 3,253 | 4,715 | 6,003 | 7,244 |

### Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 8,100 | 8,472 | 6,804 | 3,935 | 1,136 | 588 | 774 | 1,628 | 2,208 | 3,975 | 5,787 | 7,151 |
| 20% | 7,613 | 7,226 | 6,499 | 2,886 | 670 | 375 | 450 | 1,247 | 2,004 | 3,380 | 5,136 | 6,926 |
| 30% | 7,254 | 6,891 | 5,184 | 1,935 | 488 | 270 | 339 | 750 | 1,804 | 3,078 | 4,969 | 6,728 |
| 40% | 7,026 | 6,732 | 4,206 | 1,259 | 355 | 252 | 266 | 435 | 1,543 | 2,248 | 3,838 | 6,377 |
| 50% | 6,839 | 6,612 | 3,394 | 977 | 278 | 239 | 255 | 298 | 1,219 | 2,028 | 3,491 | 5,760 |
| 60% | 6,310 | 6,183 | 2,347 | 398 | 260 | 233 | 237 | 253 | 934 | 1,316 | 3,259 | 5,298 |
| 70% | 6,118 | 4,703 | 1,117 | 258 | 238 | 228 | 228 | 227 | 645 | 1,208 | 2,941 | 5,188 |
| 80% | 5,919 | 3,012 | 758 | 236 | 223 | 221 | 221 | 214 | 397 | 1,115 | 2,805 | 4,967 |
| 90% | 4,263 | 1,754 | 299 | 218 | 213 | 208 | 215 | 200 | 206 | 854 | 2,608 | 4,628 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,376 | 5,619 | 3,444 | 1,510 | 598 | 349 | 401 | 690 | 1,405 | 2,245 | 3,910 | 5,747 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 4,860 | 4,378 | 2,730 | 340 | 235 | 228 | 225 | 230 | 524 | 955 | 2,760 | 4,468 |
| Above Normal (16%) | 6,058 | 5,562 | 3,296 | 852 | 283 | 232 | 237 | 259 | 978 | 1,266 | 2,842 | 5,051 |
| Below Normal (13%) | 6,462 | 5,303 | 3,630 | 1,679 | 613 | 314 | 350 | 592 | 1,489 | 2,075 | 3,589 | 6,012 |
| Dry (24%) | 7,349 | 5,741 | 3,316 | 2,380 | 811 | 332 | 395 | 810 | 1,676 | 3,181 | 5,024 | 6,812 |
| Critical (15%) | 8,306 | 8,453 | 5,196 | 3,154 | 1,355 | 797 | 1,021 | 2,045 | 3,246 | 4,696 | 5,997 | 7,252 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -28 | -15 | **63** | **396** | **1** | -163 | -130 | -18 | **24** | -12 | -27 | **47** |
| 20% | **168** | **133** | **1,017** | **84** | -67 | -132 | -16 | **29** | **28** | **10** | **85** | **117** |
| 30% | **32** | **43** | **1,863** | -116 | **35** | -38 | -14 | -144 | **56** | **63** | **97** | **126** |
| 40% | **68** | **602** | **1,270** | -79 | **0** | -14 | -11 | -28 | **46** | **44** | -172 | **162** |
| 50% | **2,201** | **4,570** | **1,209** | -100 | -8 | -4 | **9** | -43 | **32** | **152** | **55** | **369** |
| 60% | **4,396** | **4,354** | **536** | -49 | -1 | -2 | **8** | -22 | -40 | **29** | -6 | **3,056** |
| 70% | **5,318** | **3,951** | **278** | -5 | -2 | **6** | **6** | -12 | -33 | **83** | -98 | **3,771** |
| 80% | **5,191** | **2,336** | **376** | **2** | -5 | **7** | **3** | -5 | -19 | **67** | **72** | **3,650** |
| 90% | **3,591** | **1,147** | **69** | **4** | **2** | **9** | **3** | **1** | -1 | **38** | **59** | **3,416** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **2,060** | **1,797** | **653** | **17** | **23** | -34 | -32 | -25 | **10** | **35** | **33** | **1,539** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **4,161** | **3,743** | **1,505** | -42 | -7 | **7** | **4** | -11 | -25 | **36** | -29 | **3,237** |
| Above Normal (16%) | **4,182** | **3,775** | **1,200** | **83** | -1 | **8** | **6** | -36 | -19 | **40** | -10 | **2,799** |
| Below Normal (13%) | **102** | -155 | -22 | **17** | **21** | -85 | -66 | -51 | **60** | **94** | **75** | **190** |
| Dry (24%) | **262** | **104** | -6 | **136** | **33** | -87 | -42 | -5 | **59** | **29** | **145** | **174** |
| Critical (15%) | -2 | **49** | -66 | -122 | **97** | -33 | -103 | -55 | -7 | -19 | -7 | **8** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

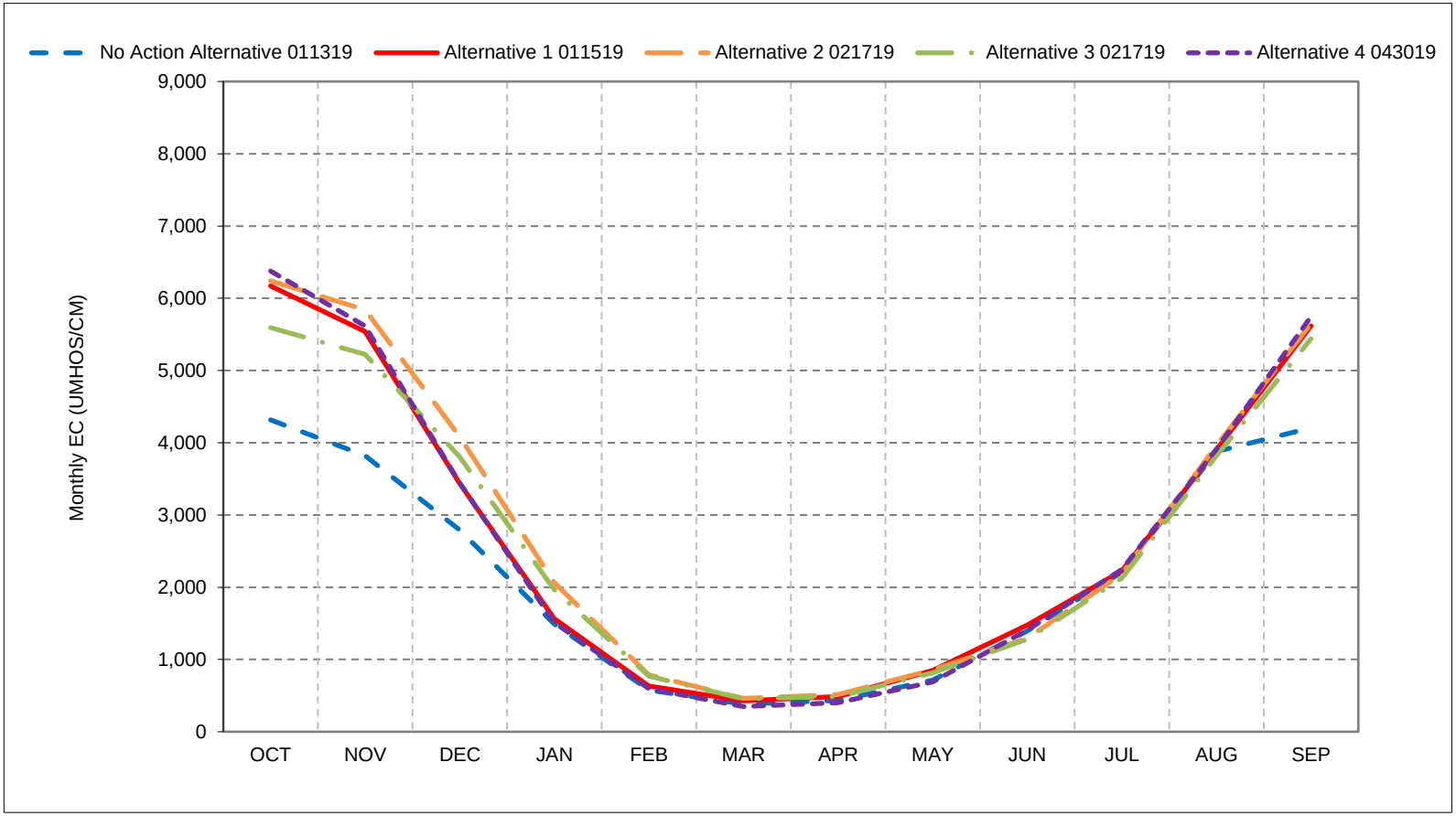
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

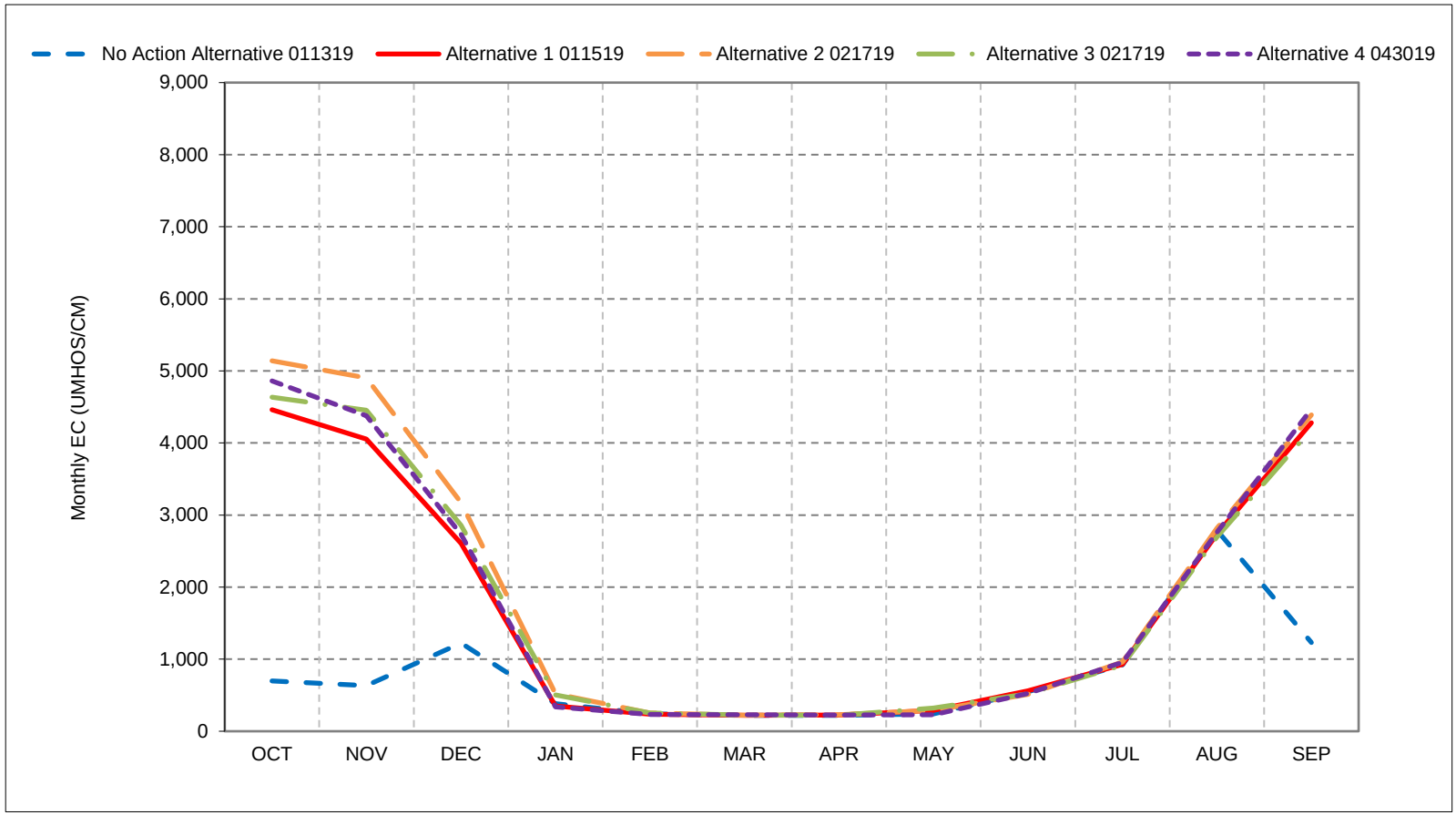
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 9-1. San Joaquin River at Antioch Salinity, Long-Term Average EC



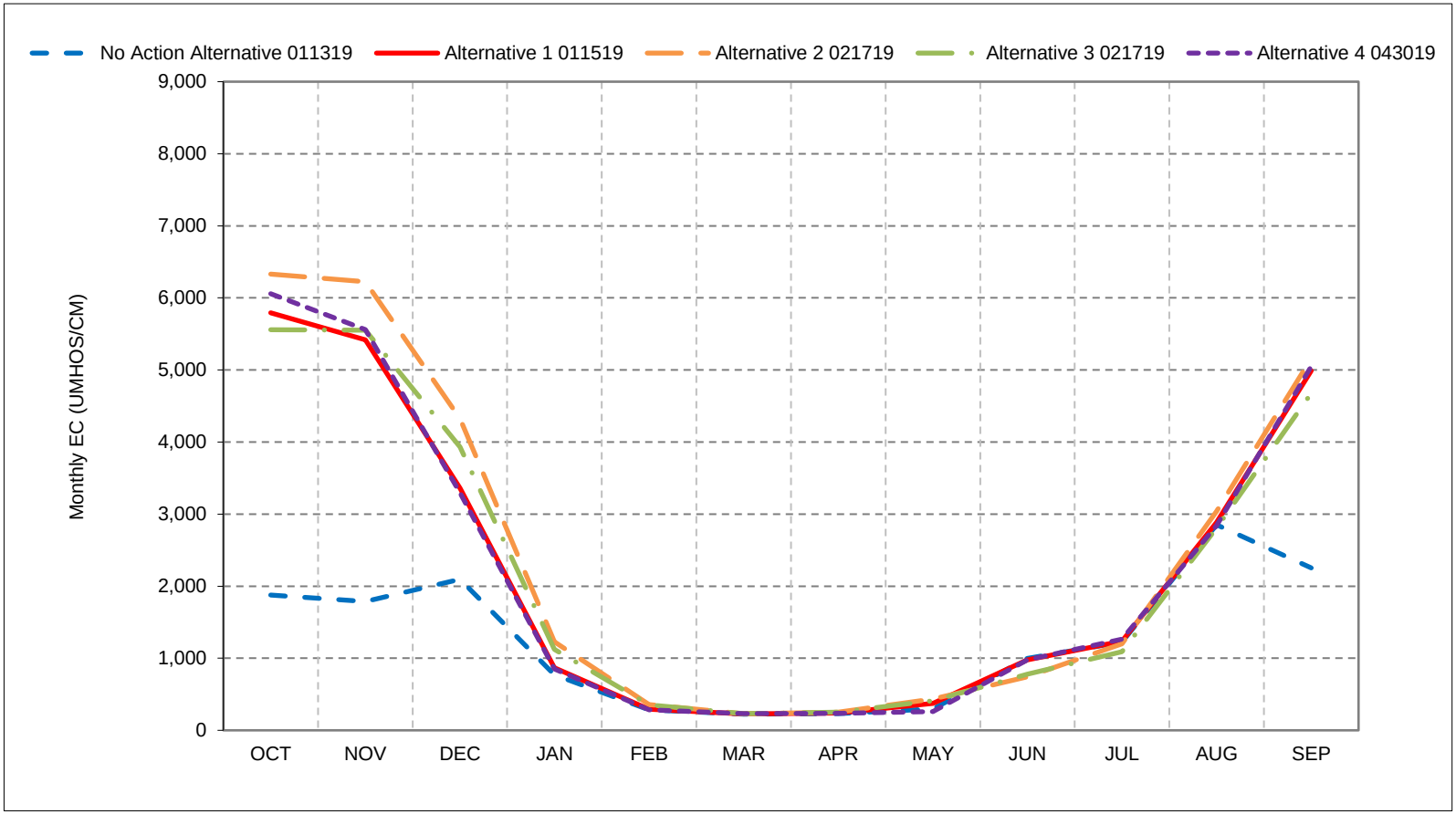

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 9-2. San Joaquin River at Antioch Salinity, Wet Year Average EC



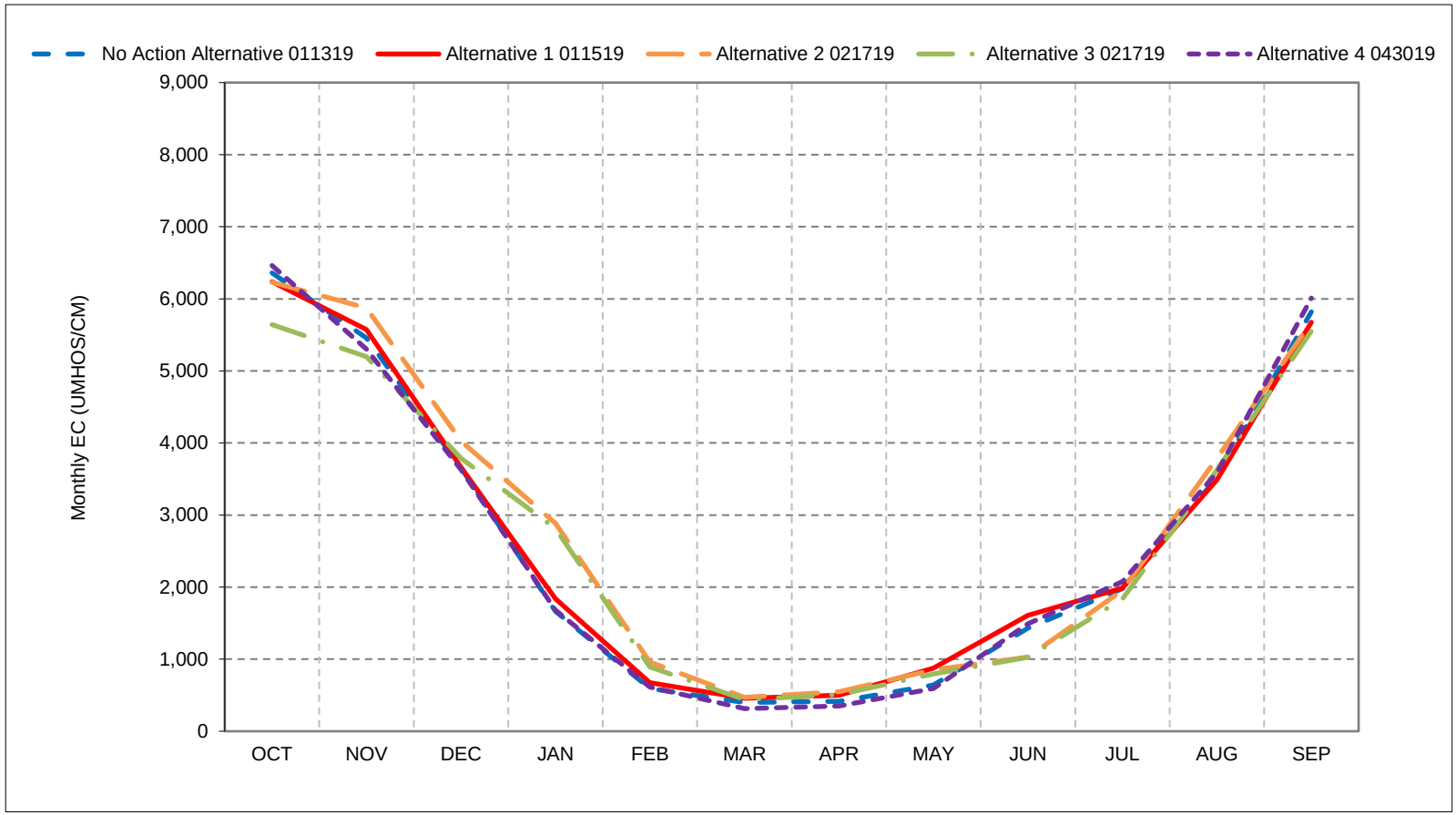

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 9-3. San Joaquin River at Antioch Salinity, Above Normal Year Average EC



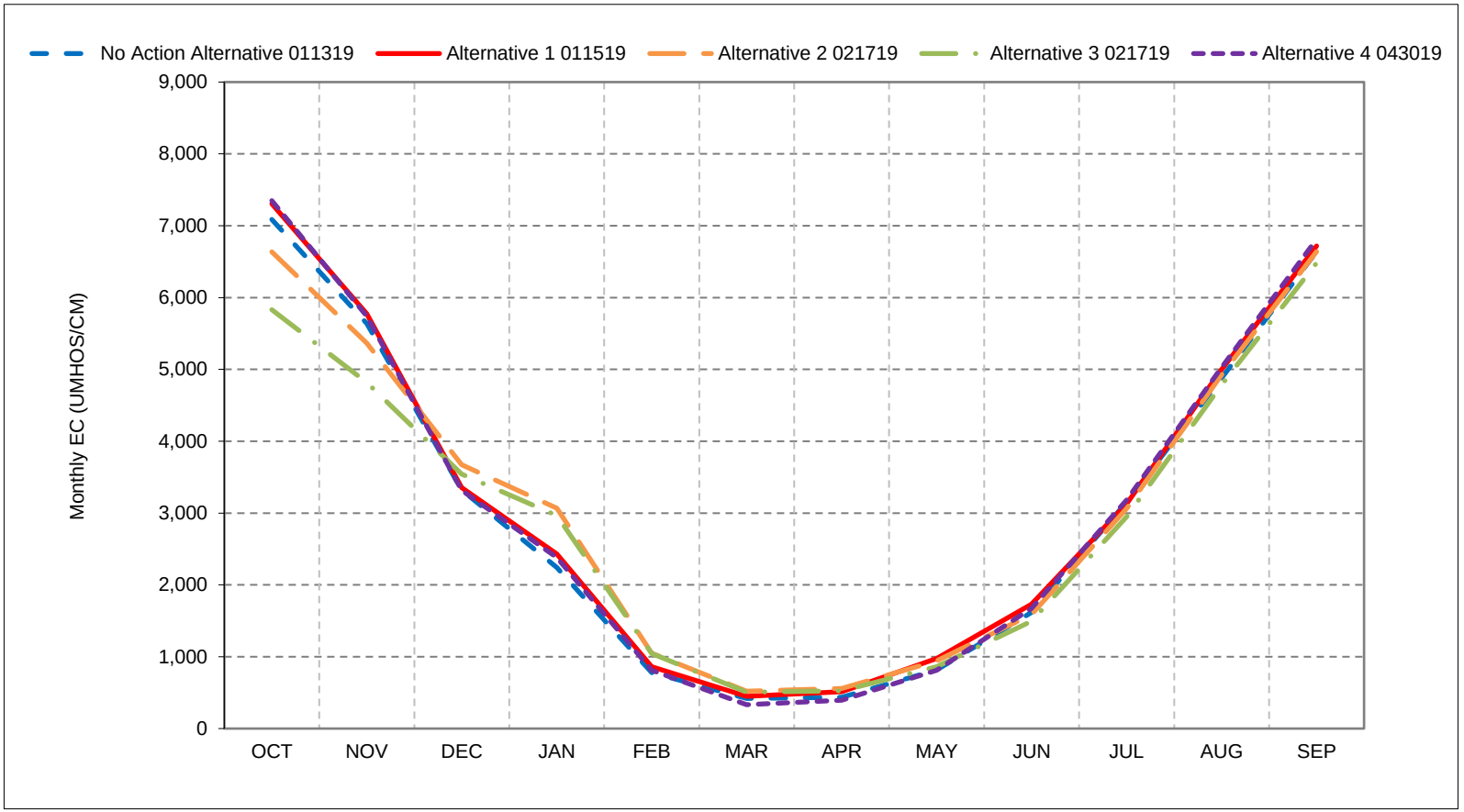

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 9-4. San Joaquin River at Antioch Salinity, Below Normal Year Average EC



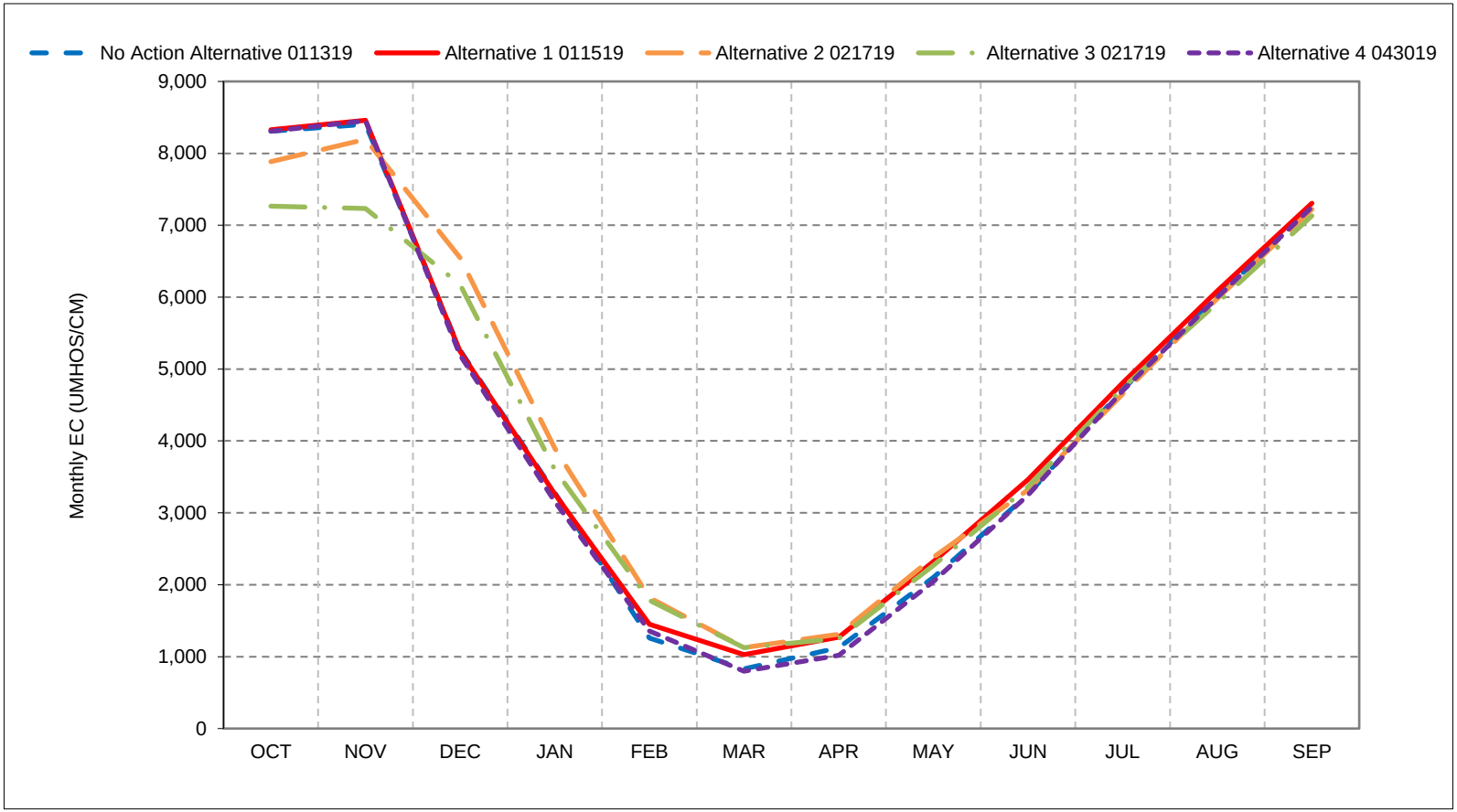

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 9-5. San Joaquin River at Antioch Salinity, Dry Year Average EC



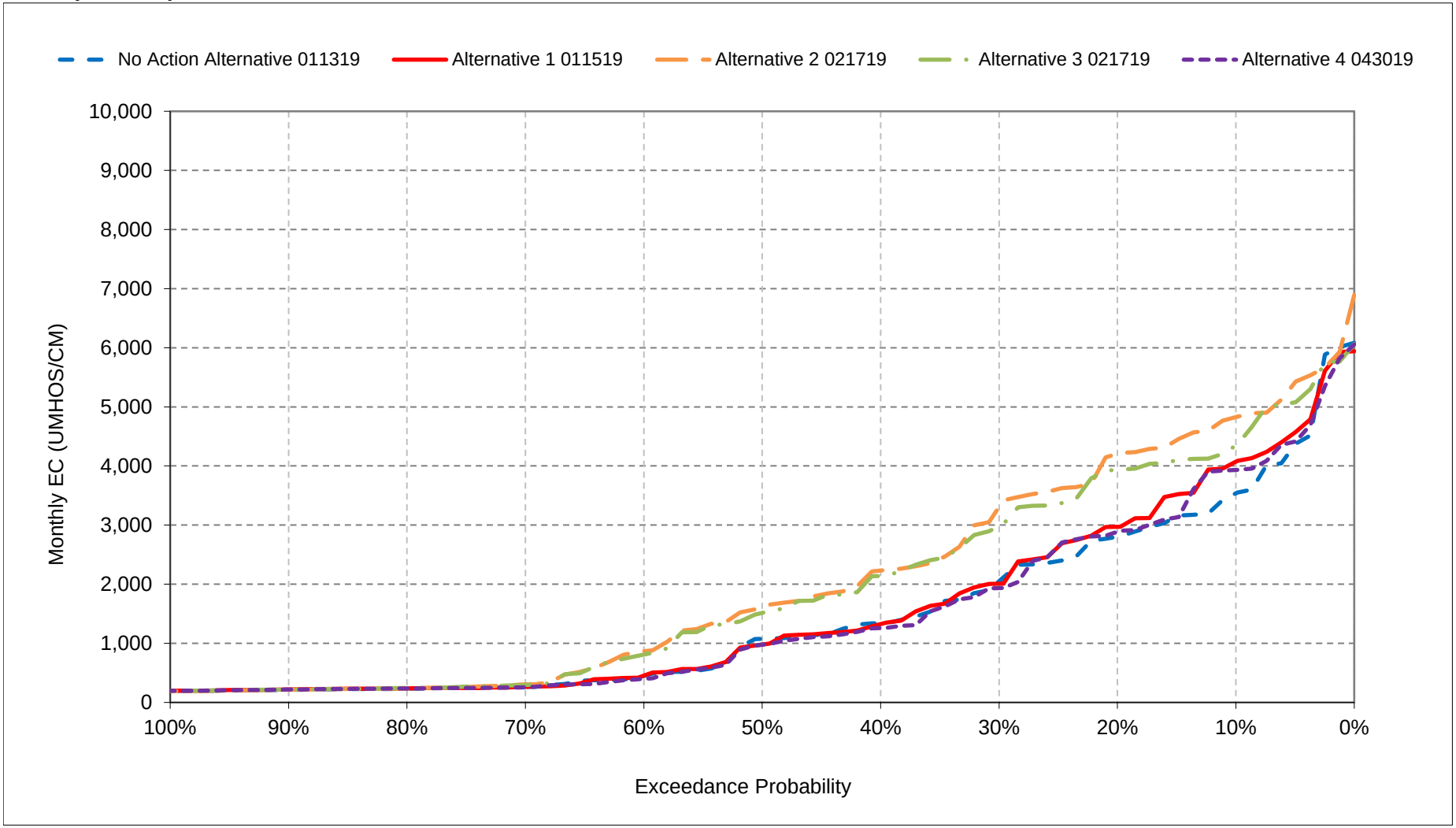

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 9-6. San Joaquin River at Antioch Salinity, Critical Year Average EC



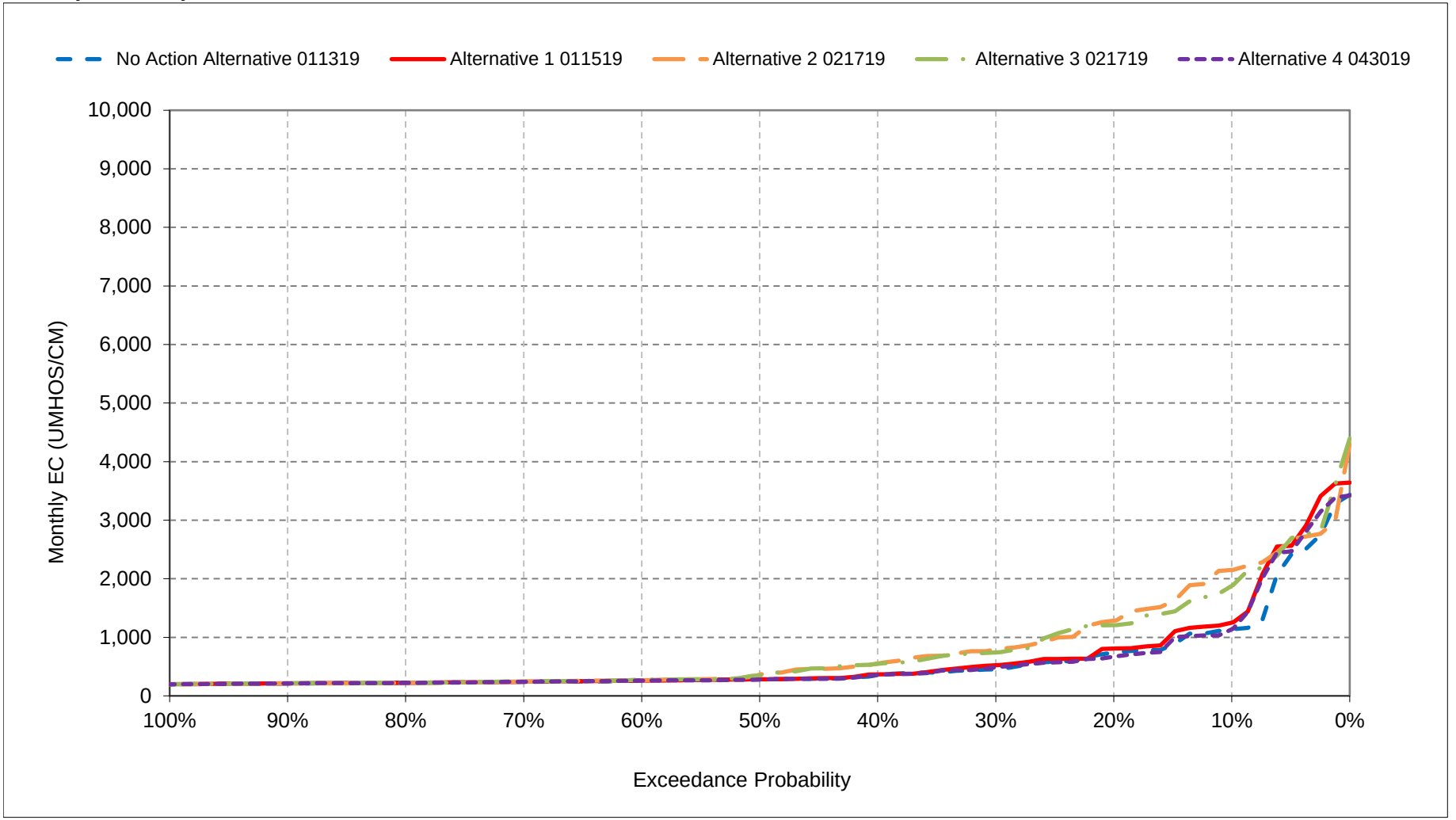

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 9-7. San Joaquin River at Antioch**
**Salinity, January EC**



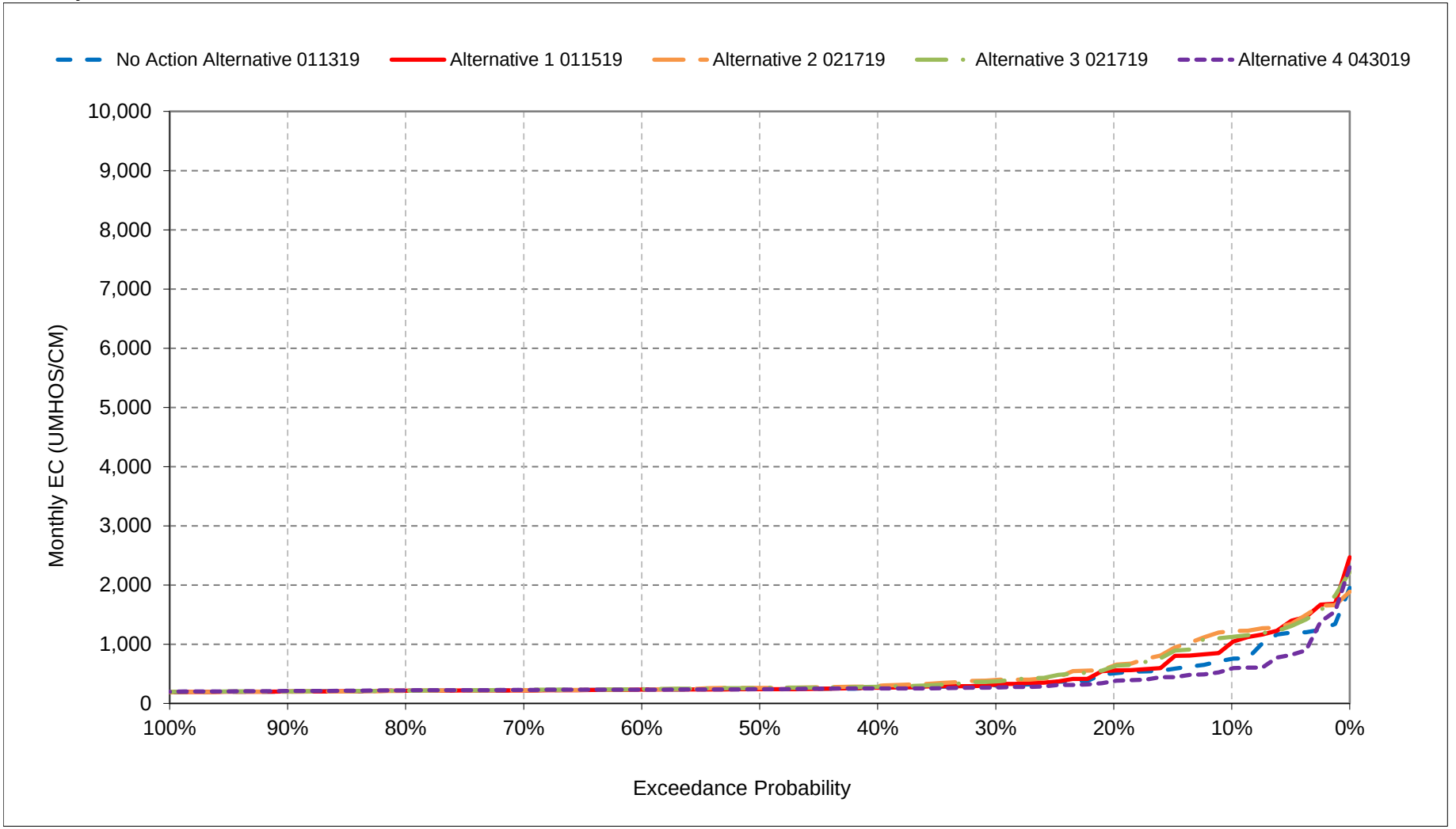

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 9-8. San Joaquin River at Antioch**
**Salinity, February EC**



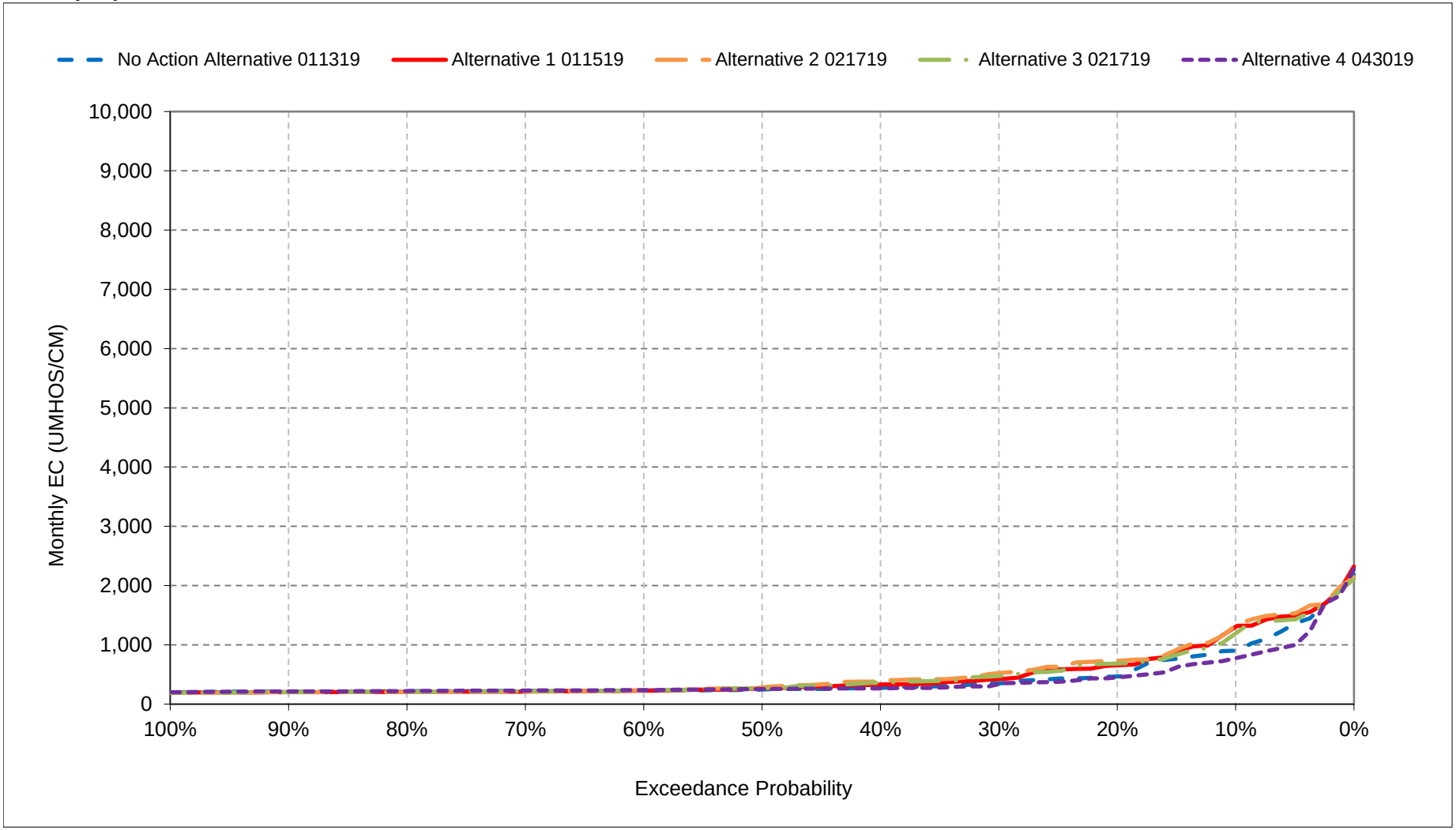

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 9-9. San Joaquin River at Antioch**
**Salinity, March EC**



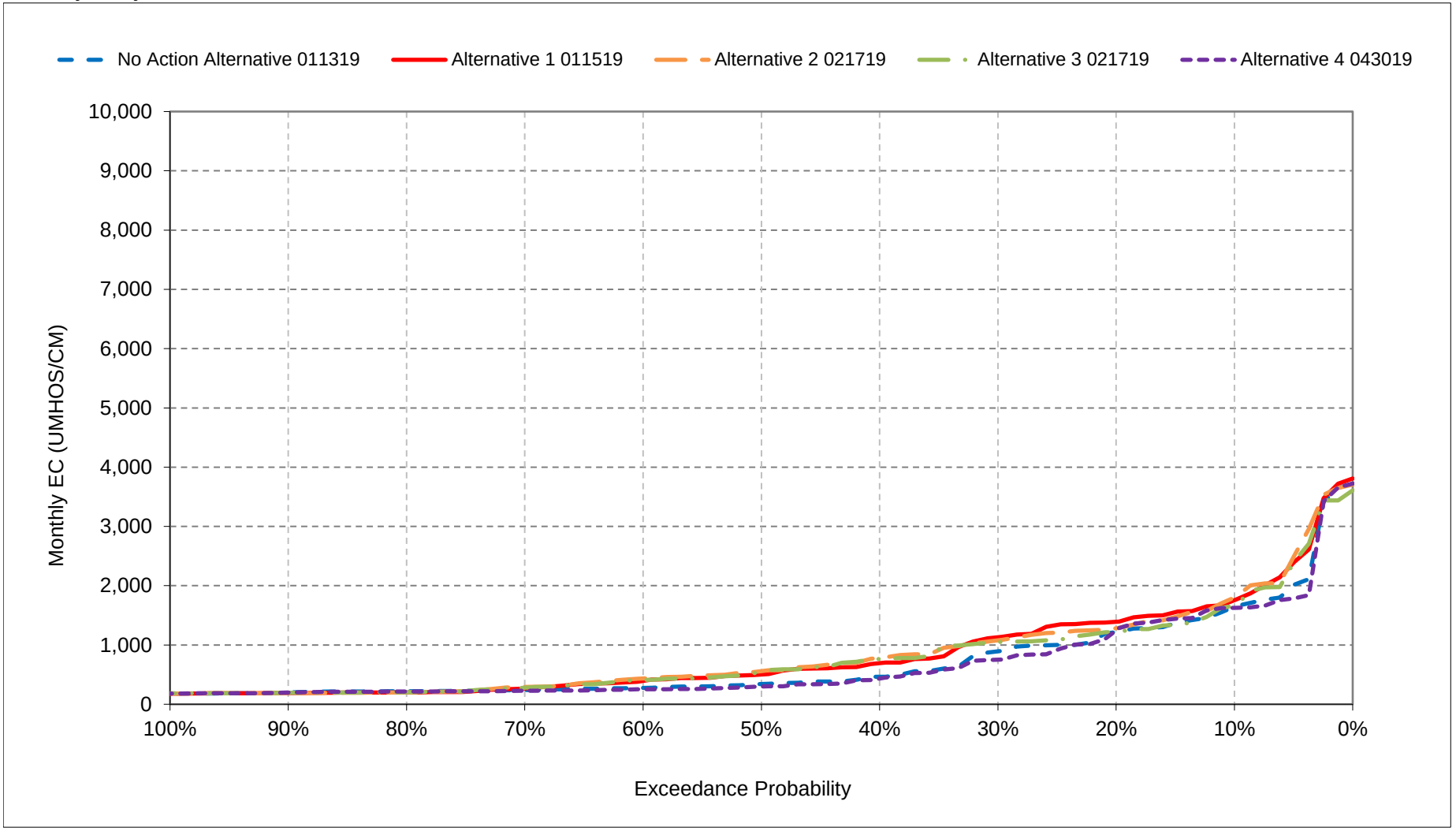

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 9-10. San Joaquin River at Antioch**
**Salinity, April EC**



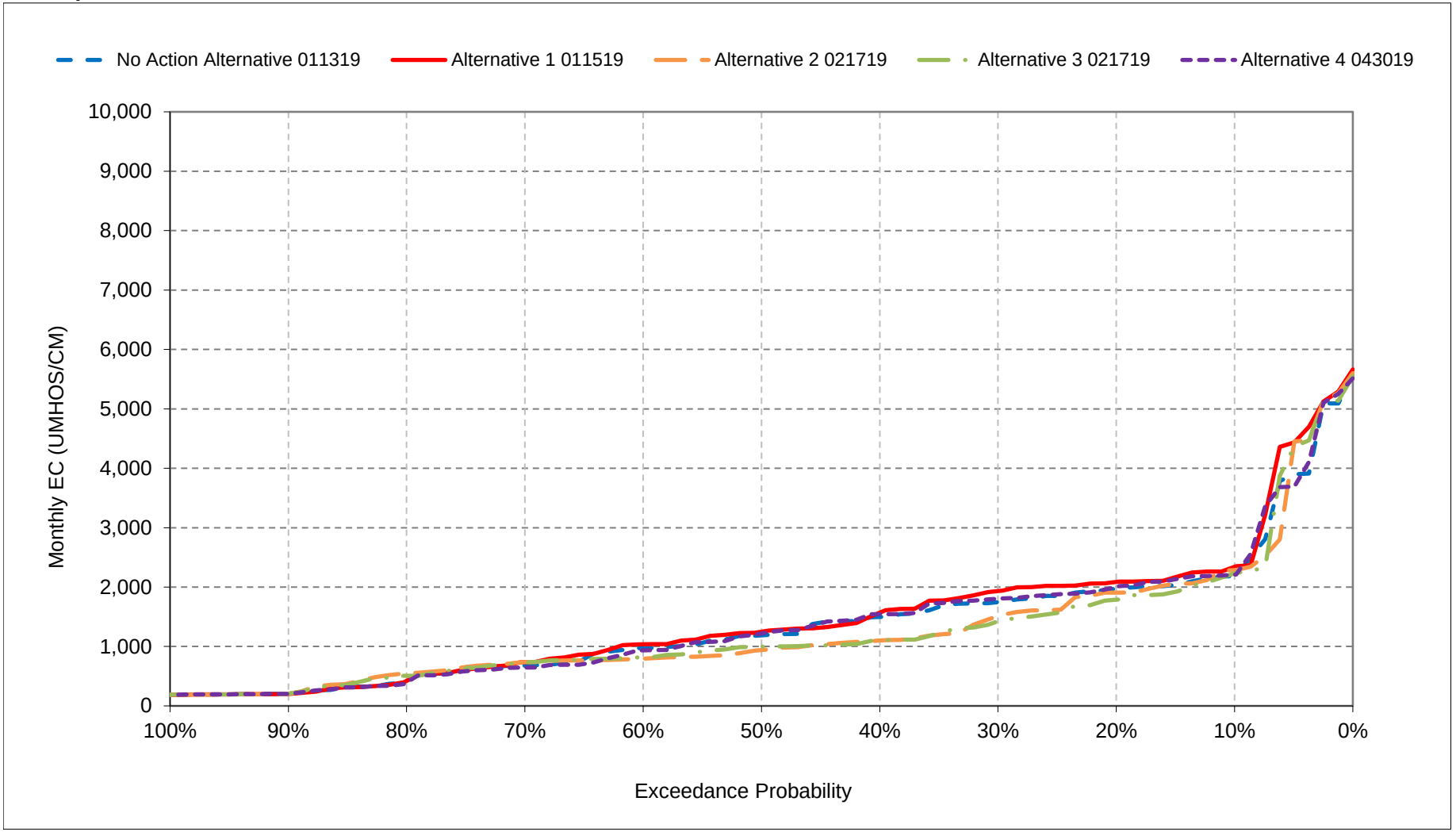

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 9-11. San Joaquin River at Antioch**
**Salinity, May EC**



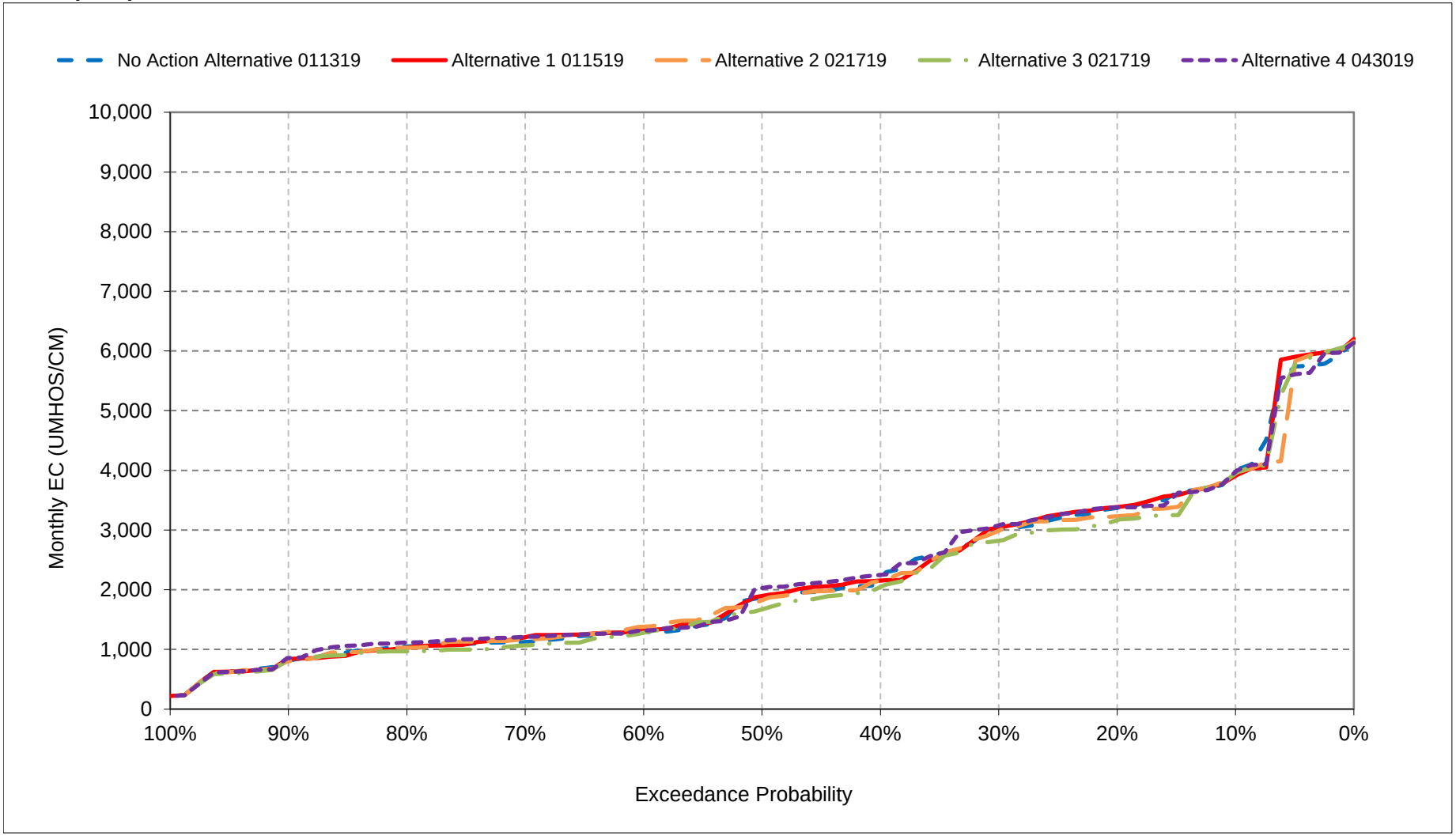

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 9-12. San Joaquin River at Antioch**
**Salinity, June EC**



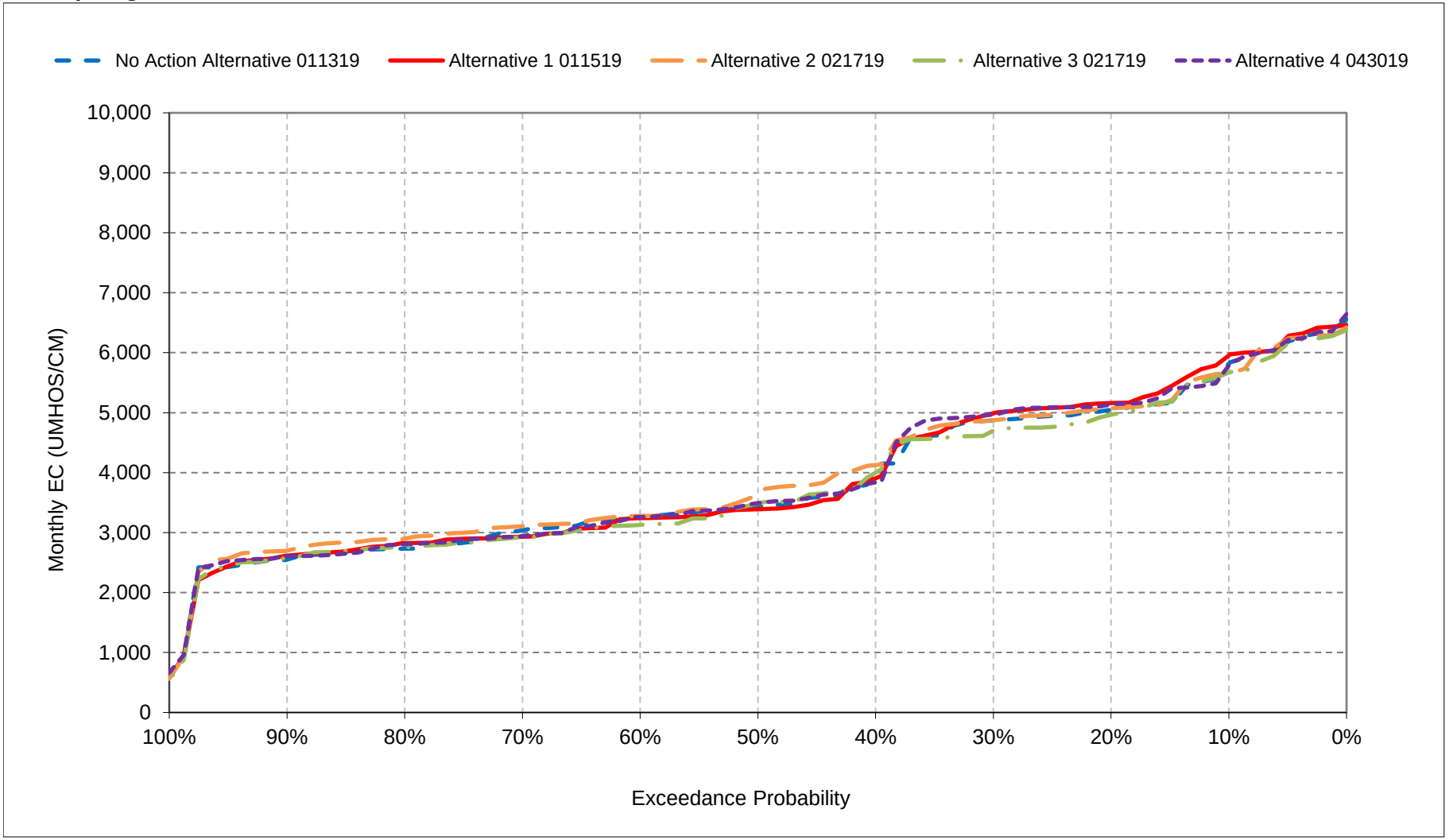

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 9-13. San Joaquin River at Antioch**
**Salinity, July EC**



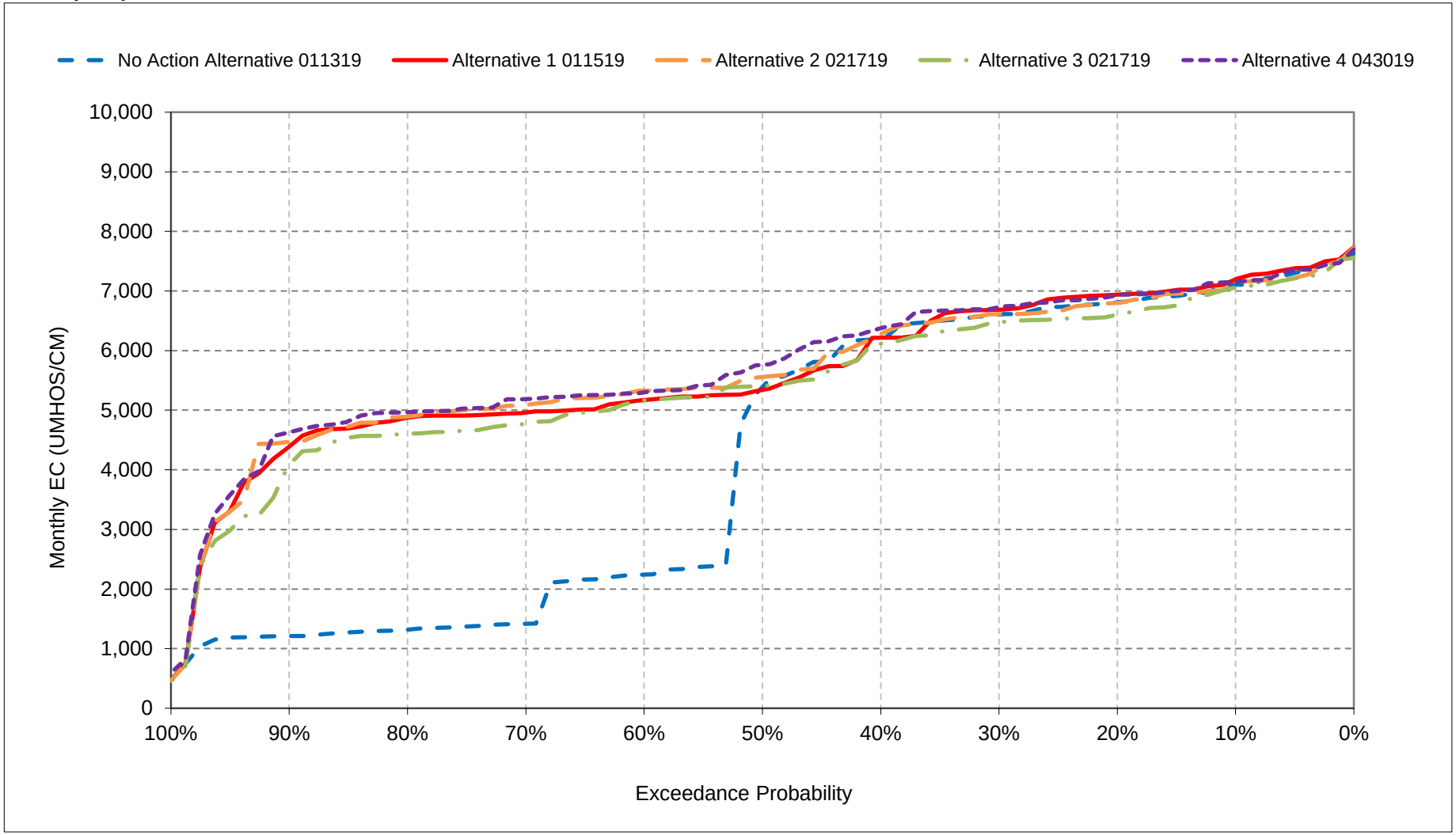

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 9-14. San Joaquin River at Antioch**
**Salinity, August EC**



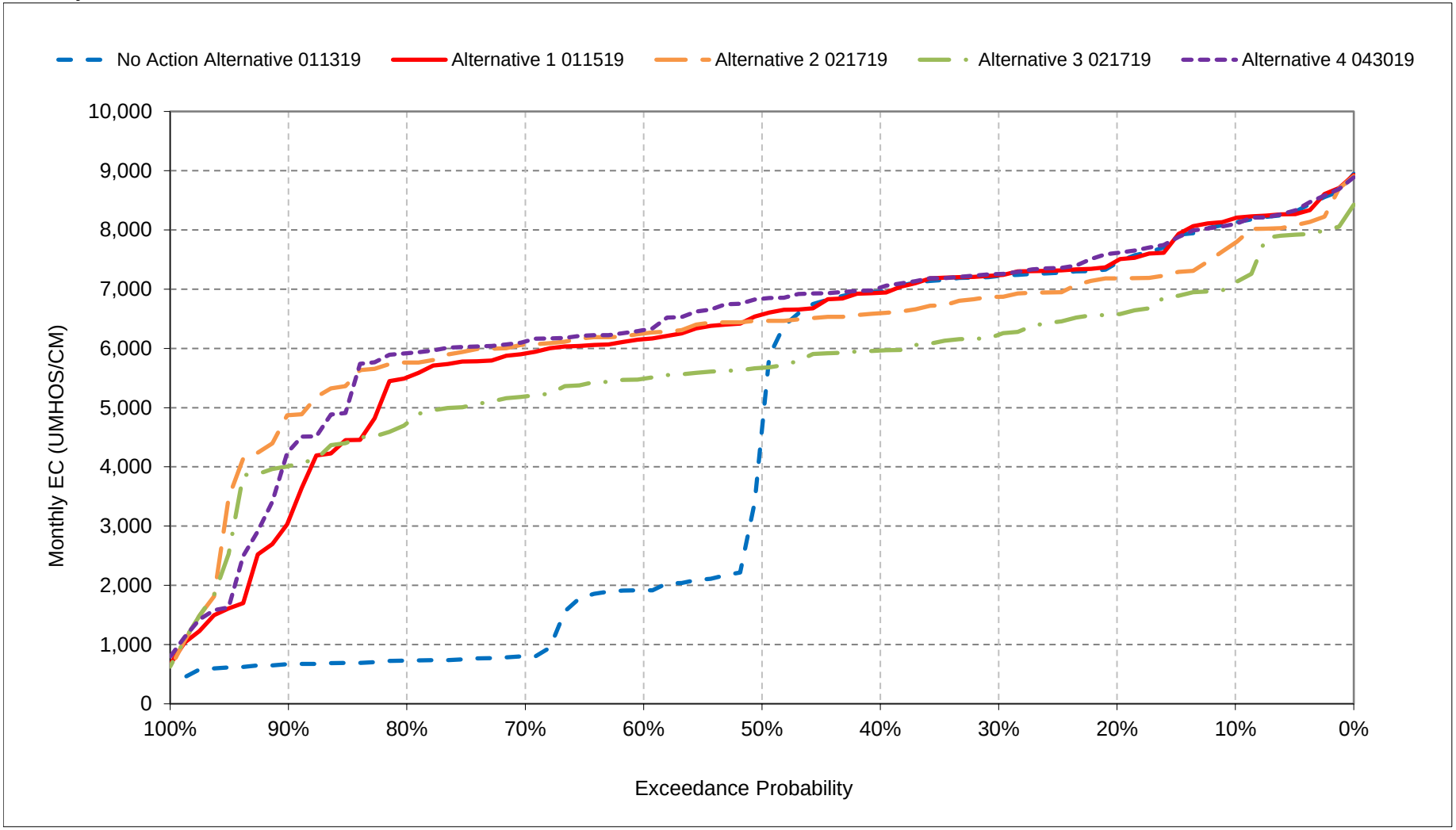

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 9-15. San Joaquin River at Antioch**
**Salinity, September EC**



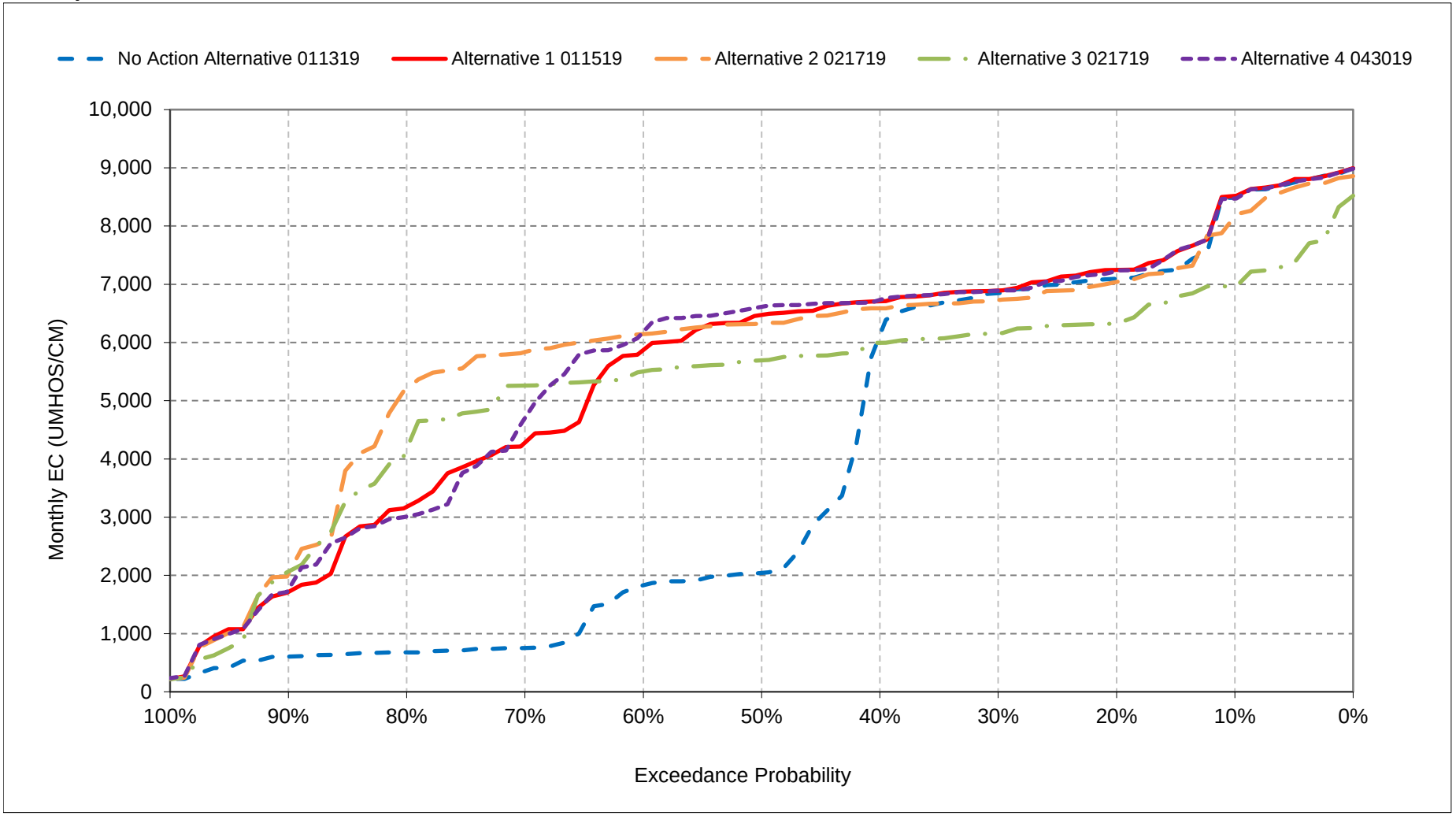

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 9-16. San Joaquin River at Antioch**
**Salinity, October EC**



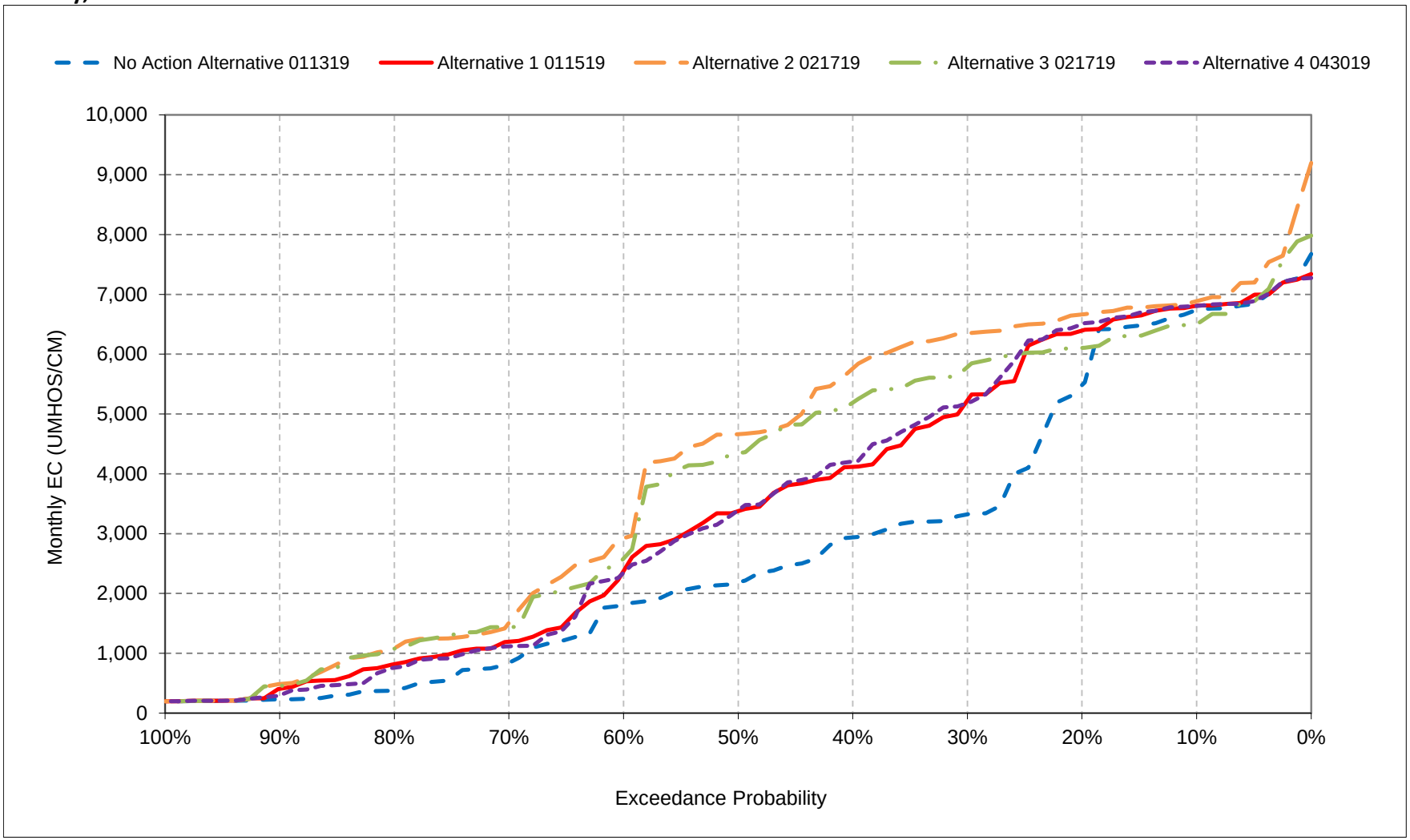

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 9-17. San Joaquin River at Antioch**
**Salinity, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 9-18. San Joaquin River at Antioch**
**Salinity, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 10-1. Sacramento River at Mallard Slough Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15,173 | 15,607 | 13,402 | 8,674 | 3,845 | 3,203 | 4,090 | 5,729 | 7,301 | 9,811 | 12,233 | 13,569 |
| 20% | 14,118 | 13,796 | 11,717 | 7,375 | 2,503 | 2,299 | 2,316 | 4,804 | 6,486 | 8,500 | 11,031 | 12,899 |
| 30% | 13,976 | 13,602 | 8,362 | 5,953 | 1,301 | 1,041 | 1,682 | 3,949 | 6,007 | 7,871 | 10,812 | 12,806 |
| 40% | 13,642 | 12,455 | 7,403 | 3,581 | 731 | 820 | 998 | 2,263 | 5,353 | 6,414 | 9,291 | 12,033 |
| 50% | 10,566 | 6,114 | 6,175 | 2,517 | 470 | 475 | 687 | 1,670 | 4,449 | 5,727 | 8,256 | 10,945 |
| 60% | 6,270 | 5,817 | 5,551 | 1,306 | 277 | 295 | 399 | 1,057 | 3,993 | 4,537 | 7,973 | 5,885 |
| 70% | 3,157 | 3,125 | 2,438 | 323 | 217 | 213 | 288 | 740 | 3,079 | 4,153 | 7,585 | 3,228 |
| 80% | 3,056 | 2,808 | 840 | 216 | 201 | 198 | 212 | 319 | 1,900 | 3,875 | 7,177 | 2,999 |
| 90% | 2,900 | 2,690 | 317 | 194 | 192 | 192 | 195 | 195 | 527 | 3,235 | 6,787 | 2,933 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 9,158 | 8,217 | 6,363 | 3,679 | 1,491 | 1,148 | 1,458 | 2,470 | 4,542 | 6,134 | 9,004 | 8,537 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 2,982 | 2,667 | 3,581 | 770 | 244 | 274 | 315 | 590 | 2,028 | 3,444 | 7,118 | 2,974 |
| Above Normal (16%) | 6,039 | 5,530 | 5,449 | 1,722 | 510 | 345 | 450 | 1,079 | 3,801 | 4,349 | 7,277 | 5,880 |
| Below Normal (13%) | 12,324 | 11,196 | 7,654 | 4,537 | 1,742 | 1,536 | 1,737 | 2,725 | 5,084 | 5,988 | 8,499 | 11,498 |
| Dry (24%) | 13,795 | 11,226 | 6,904 | 5,807 | 2,193 | 1,331 | 1,749 | 3,284 | 5,560 | 8,128 | 10,770 | 12,738 |
| Critical (15%) | 15,289 | 15,405 | 11,295 | 7,767 | 3,854 | 3,250 | 4,282 | 6,459 | 8,600 | 10,709 | 12,480 | 13,749 |

### Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15,214 | 15,650 | 13,410 | 9,793 | 4,500 | 4,018 | 4,806 | 5,816 | 7,264 | 9,491 | 12,378 | 13,687 |
| 20% | 14,191 | 13,902 | 12,830 | 7,953 | 2,542 | 2,425 | 3,067 | 5,084 | 6,582 | 8,613 | 11,208 | 13,050 |
| 30% | 13,998 | 13,644 | 11,186 | 5,930 | 1,549 | 1,084 | 2,089 | 4,500 | 6,156 | 8,126 | 10,909 | 12,916 |
| 40% | 13,487 | 13,107 | 9,493 | 3,588 | 849 | 834 | 1,553 | 3,031 | 5,463 | 6,411 | 9,078 | 11,901 |
| 50% | 12,696 | 12,825 | 8,320 | 2,402 | 437 | 478 | 936 | 2,382 | 4,846 | 5,730 | 8,241 | 10,892 |
| 60% | 12,309 | 11,877 | 6,188 | 1,265 | 239 | 282 | 563 | 1,802 | 4,310 | 4,632 | 7,888 | 10,477 |
| 70% | 11,926 | 10,011 | 2,757 | 311 | 214 | 208 | 322 | 1,086 | 3,224 | 4,277 | 7,516 | 10,311 |
| 80% | 11,404 | 8,156 | 1,358 | 212 | 200 | 198 | 209 | 376 | 1,987 | 3,886 | 7,255 | 10,145 |
| 90% | 8,281 | 4,304 | 468 | 196 | 192 | 192 | 191 | 199 | 520 | 3,213 | 6,987 | 9,560 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 12,217 | 11,079 | 7,324 | 3,761 | 1,599 | 1,252 | 1,704 | 2,916 | 4,697 | 6,174 | 9,030 | 11,219 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 9,728 | 8,763 | 5,664 | 694 | 234 | 270 | 430 | 888 | 2,123 | 3,487 | 7,058 | 9,216 |
| Above Normal (16%) | 11,573 | 10,860 | 7,287 | 1,725 | 467 | 351 | 645 | 1,605 | 3,896 | 4,405 | 7,352 | 10,335 |
| Below Normal (13%) | 12,186 | 11,432 | 7,619 | 4,690 | 1,870 | 1,628 | 2,069 | 3,418 | 5,394 | 5,972 | 8,415 | 11,281 |
| Dry (24%) | 14,029 | 11,409 | 6,935 | 6,106 | 2,337 | 1,429 | 2,065 | 3,746 | 5,701 | 8,127 | 10,881 | 12,810 |
| Critical (15%) | 15,314 | 15,457 | 11,336 | 7,850 | 4,303 | 3,717 | 4,676 | 6,884 | 8,829 | 10,843 | 12,598 | 13,811 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **42** | **43** | **8** | **1,118** | **655** | **815** | **716** | **87** | -37 | -321 | **145** | **117** |
| 20% | **72** | **107** | **1,114** | **577** | **39** | **126** | **752** | **280** | **96** | **113** | **177** | **151** |
| 30% | **22** | **42** | **2,824** | -23 | **248** | **43** | **407** | **551** | **149** | **255** | **98** | **110** |
| 40% | -155 | **652** | **2,090** | **8** | **118** | **14** | **554** | **768** | **110** | -3 | -214 | -132 |
| 50% | **2,130** | **6,712** | **2,145** | -116 | -32 | **2** | **250** | **713** | **397** | **3** | -15 | -52 |
| 60% | **6,039** | **6,060** | **637** | -40 | -37 | -13 | **164** | **745** | **317** | **95** | -85 | **4,592** |
| 70% | **8,769** | **6,886** | **319** | -12 | -3 | -4 | **34** | **345** | **145** | **124** | -69 | **7,083** |
| 80% | **8,348** | **5,348** | **518** | -3 | 0 | **0** | -2 | **57** | **88** | **11** | **78** | **7,147** |
| 90% | **5,382** | **1,614** | **151** | **2** | **1** | **0** | -4 | **4** | -7 | -23 | **200** | **6,627** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3,058** | **2,862** | **961** | **82** | **108** | **104** | **247** | **446** | **155** | **40** | **26** | **2,683** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **6,746** | **6,096** | **2,083** | -76 | -10 | -4 | **114** | **298** | **95** | **43** | -60 | **6,242** |
| Above Normal (16%) | **5,534** | **5,330** | **1,838** | **3** | -43 | **6** | **196** | **527** | **96** | **56** | **76** | **4,455** |
| Below Normal (13%) | -138 | **235** | -35 | **152** | **128** | **91** | **332** | **693** | **310** | -16 | -84 | -217 |
| Dry (24%) | **234** | **184** | **31** | **298** | **144** | **98** | **316** | **462** | **141** | 0 | **111** | **72** |
| Critical (15%) | **24** | **52** | **41** | **83** | **449** | **467** | **394** | **426** | **229** | **134** | **118** | **62** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 10-2. Sacramento River at Mallard Slough Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15,173 | 15,607 | 13,402 | 8,674 | 3,845 | 3,203 | 4,090 | 5,729 | 7,301 | 9,811 | 12,233 | 13,569 |
| 20% | 14,118 | 13,796 | 11,717 | 7,375 | 2,503 | 2,299 | 2,316 | 4,804 | 6,486 | 8,500 | 11,031 | 12,899 |
| 30% | 13,976 | 13,602 | 8,362 | 5,953 | 1,301 | 1,041 | 1,682 | 3,949 | 6,007 | 7,871 | 10,812 | 12,806 |
| 40% | 13,642 | 12,455 | 7,403 | 3,581 | 731 | 820 | 998 | 2,263 | 5,353 | 6,414 | 9,291 | 12,033 |
| 50% | 10,566 | 6,114 | 6,175 | 2,517 | 470 | 475 | 687 | 1,670 | 4,449 | 5,727 | 8,256 | 10,945 |
| 60% | 6,270 | 5,817 | 5,551 | 1,306 | 277 | 295 | 399 | 1,057 | 3,993 | 4,537 | 7,973 | 5,885 |
| 70% | 3,157 | 3,125 | 2,438 | 323 | 217 | 213 | 288 | 740 | 3,079 | 4,153 | 7,585 | 3,228 |
| 80% | 3,056 | 2,808 | 840 | 216 | 201 | 198 | 212 | 319 | 1,900 | 3,875 | 7,177 | 2,999 |
| 90% | 2,900 | 2,690 | 317 | 194 | 192 | 192 | 195 | 195 | 527 | 3,235 | 6,787 | 2,933 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 9,158 | 8,217 | 6,363 | 3,679 | 1,491 | 1,148 | 1,458 | 2,470 | 4,542 | 6,134 | 9,004 | 8,537 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 2,982 | 2,667 | 3,581 | 770 | 244 | 274 | 315 | 590 | 2,028 | 3,444 | 7,118 | 2,974 |
| Above Normal (16%) | 6,039 | 5,530 | 5,449 | 1,722 | 510 | 345 | 450 | 1,079 | 3,801 | 4,349 | 7,277 | 5,880 |
| Below Normal (13%) | 12,324 | 11,196 | 7,654 | 4,537 | 1,742 | 1,536 | 1,737 | 2,725 | 5,084 | 5,988 | 8,499 | 11,498 |
| Dry (24%) | 13,795 | 11,226 | 6,904 | 5,807 | 2,193 | 1,331 | 1,749 | 3,284 | 5,560 | 8,128 | 10,770 | 12,738 |
| Critical (15%) | 15,289 | 15,405 | 11,295 | 7,767 | 3,854 | 3,250 | 4,282 | 6,459 | 8,600 | 10,709 | 12,480 | 13,749 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 14,809 | 15,163 | 13,438 | 10,532 | 5,910 | 4,501 | 4,902 | 5,828 | 7,102 | 9,476 | 12,049 | 13,558 |
| 20% | 13,946 | 13,728 | 13,119 | 9,732 | 3,781 | 2,597 | 3,309 | 4,806 | 6,124 | 8,517 | 11,048 | 12,886 |
| 30% | 13,441 | 13,256 | 12,535 | 8,391 | 2,522 | 1,425 | 2,499 | 4,228 | 5,249 | 7,910 | 10,762 | 12,711 |
| 40% | 13,111 | 13,016 | 12,027 | 5,728 | 1,007 | 1,132 | 1,848 | 3,497 | 4,372 | 6,481 | 9,451 | 12,160 |
| 50% | 12,864 | 12,822 | 10,291 | 4,129 | 722 | 645 | 1,087 | 2,606 | 3,850 | 5,667 | 8,578 | 11,114 |
| 60% | 12,496 | 12,376 | 7,353 | 1,841 | 347 | 300 | 686 | 1,981 | 3,417 | 4,747 | 8,025 | 10,675 |
| 70% | 12,180 | 12,037 | 4,449 | 437 | 218 | 216 | 348 | 1,304 | 3,182 | 4,281 | 7,729 | 10,490 |
| 80% | 11,825 | 11,339 | 1,813 | 234 | 203 | 199 | 218 | 480 | 2,544 | 3,879 | 7,527 | 10,272 |
| 90% | 10,767 | 5,031 | 540 | 195 | 192 | 191 | 192 | 199 | 589 | 3,237 | 7,059 | 9,791 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 12,451 | 11,605 | 8,344 | 4,803 | 1,993 | 1,393 | 1,825 | 2,949 | 4,267 | 6,127 | 9,151 | 11,266 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 10,714 | 10,045 | 6,570 | 1,127 | 272 | 300 | 463 | 901 | 2,002 | 3,590 | 7,213 | 9,375 |
| Above Normal (16%) | 12,394 | 12,028 | 8,782 | 2,518 | 660 | 387 | 751 | 1,841 | 3,224 | 4,313 | 7,609 | 10,562 |
| Below Normal (13%) | 12,222 | 11,946 | 8,461 | 6,490 | 2,404 | 1,734 | 2,301 | 3,385 | 4,020 | 5,915 | 8,908 | 11,315 |
| Dry (24%) | 13,408 | 11,031 | 7,584 | 7,515 | 2,935 | 1,725 | 2,257 | 3,678 | 5,410 | 8,043 | 10,842 | 12,705 |
| Critical (15%) | 14,896 | 15,168 | 12,871 | 9,180 | 5,222 | 3,989 | 4,784 | 6,968 | 8,625 | 10,592 | 12,426 | 13,681 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -363 | -444 | **35** | **1,858** | **2,064** | **1,298** | **811** | **100** | -200 | -335 | -184 | -12 |
| 20% | -172 | -67 | **1,402** | **2,357** | **1,278** | **298** | **993** | **2** | -362 | **17** | **16** | -13 |
| 30% | -534 | -346 | **4,174** | **2,438** | **1,221** | **384** | **817** | **279** | -757 | **39** | -49 | -94 |
| 40% | -531 | **561** | **4,624** | **2,148** | **277** | **312** | **850** | **1,234** | -981 | **68** | **160** | **128** |
| 50% | **2,298** | **6,709** | **4,116** | **1,611** | **252** | **170** | **400** | **937** | -599 | -60 | **322** | **169** |
| 60% | **6,226** | **6,559** | **1,802** | **536** | **70** | **5** | **287** | **924** | -576 | **210** | **52** | **4,790** |
| 70% | **9,023** | **8,913** | **2,011** | **114** | **1** | **4** | **60** | **563** | **103** | **128** | **145** | **7,262** |
| 80% | **8,769** | **8,531** | **973** | **18** | **2** | **1** | **7** | **161** | **645** | **4** | **350** | **7,273** |
| 90% | **7,867** | **2,341** | **223** | **1** | **1** | -1 | -3 | **4** | **62** | **2** | **272** | **6,858** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3,293** | **3,388** | **1,981** | **1,124** | **503** | **245** | **367** | **479** | -275 | -7 | **147** | **2,729** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **7,731** | **7,378** | **2,989** | **357** | **28** | **25** | **147** | **311** | -26 | **145** | **95** | **6,401** |
| Above Normal (16%) | **6,355** | **6,498** | **3,333** | **796** | **149** | **42** | **301** | **762** | -576 | -36 | **332** | **4,682** |
| Below Normal (13%) | -102 | **750** | **807** | **1,952** | **662** | **197** | **565** | **660** | -1,064 | -73 | **409** | -183 |
| Dry (24%) | -387 | -195 | **680** | **1,707** | **743** | **393** | **507** | **394** | -150 | -84 | **72** | -33 |
| Critical (15%) | -393 | -237 | **1,576** | **1,413** | **1,368** | **739** | **502** | **509** | **25** | -118 | -54 | -68 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 10-3. Sacramento River at Mallard Slough Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15,173 | 15,607 | 13,402 | 8,674 | 3,845 | 3,203 | 4,090 | 5,729 | 7,301 | 9,811 | 12,233 | 13,569 |
| 20% | 14,118 | 13,796 | 11,717 | 7,375 | 2,503 | 2,299 | 2,316 | 4,804 | 6,486 | 8,500 | 11,031 | 12,899 |
| 30% | 13,976 | 13,602 | 8,362 | 5,953 | 1,301 | 1,041 | 1,682 | 3,949 | 6,007 | 7,871 | 10,812 | 12,806 |
| 40% | 13,642 | 12,455 | 7,403 | 3,581 | 731 | 820 | 998 | 2,263 | 5,353 | 6,414 | 9,291 | 12,033 |
| 50% | 10,566 | 6,114 | 6,175 | 2,517 | 470 | 475 | 687 | 1,670 | 4,449 | 5,727 | 8,256 | 10,945 |
| 60% | 6,270 | 5,817 | 5,551 | 1,306 | 277 | 295 | 399 | 1,057 | 3,993 | 4,537 | 7,973 | 5,885 |
| 70% | 3,157 | 3,125 | 2,438 | 323 | 217 | 213 | 288 | 740 | 3,079 | 4,153 | 7,585 | 3,228 |
| 80% | 3,056 | 2,808 | 840 | 216 | 201 | 198 | 212 | 319 | 1,900 | 3,875 | 7,177 | 2,999 |
| 90% | 2,900 | 2,690 | 317 | 194 | 192 | 192 | 195 | 195 | 527 | 3,235 | 6,787 | 2,933 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 9,158 | 8,217 | 6,363 | 3,679 | 1,491 | 1,148 | 1,458 | 2,470 | 4,542 | 6,134 | 9,004 | 8,537 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 2,982 | 2,667 | 3,581 | 770 | 244 | 274 | 315 | 590 | 2,028 | 3,444 | 7,118 | 2,974 |
| Above Normal (16%) | 6,039 | 5,530 | 5,449 | 1,722 | 510 | 345 | 450 | 1,079 | 3,801 | 4,349 | 7,277 | 5,880 |
| Below Normal (13%) | 12,324 | 11,196 | 7,654 | 4,537 | 1,742 | 1,536 | 1,737 | 2,725 | 5,084 | 5,988 | 8,499 | 11,498 |
| Dry (24%) | 13,795 | 11,226 | 6,904 | 5,807 | 2,193 | 1,331 | 1,749 | 3,284 | 5,560 | 8,128 | 10,770 | 12,738 |
| Critical (15%) | 15,289 | 15,405 | 11,295 | 7,767 | 3,854 | 3,250 | 4,282 | 6,459 | 8,600 | 10,709 | 12,480 | 13,749 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 14,109 | 14,099 | 13,261 | 10,559 | 5,973 | 4,388 | 4,762 | 5,911 | 7,114 | 9,639 | 12,087 | 13,494 |
| 20% | 13,366 | 13,074 | 12,780 | 9,731 | 4,078 | 2,647 | 3,356 | 4,842 | 6,077 | 8,452 | 10,935 | 12,688 |
| 30% | 12,891 | 12,793 | 12,242 | 8,163 | 2,564 | 1,427 | 2,474 | 4,355 | 5,307 | 7,936 | 10,607 | 12,367 |
| 40% | 12,497 | 12,567 | 11,260 | 5,986 | 1,065 | 1,035 | 1,827 | 3,516 | 4,467 | 6,493 | 9,387 | 11,994 |
| 50% | 12,226 | 12,087 | 10,141 | 4,279 | 707 | 673 | 1,053 | 2,712 | 4,128 | 5,654 | 8,473 | 10,948 |
| 60% | 11,765 | 11,785 | 7,158 | 1,907 | 361 | 307 | 643 | 2,000 | 3,813 | 4,779 | 7,898 | 10,616 |
| 70% | 11,399 | 11,397 | 4,780 | 471 | 220 | 219 | 356 | 1,378 | 3,467 | 4,336 | 7,640 | 10,219 |
| 80% | 10,899 | 9,962 | 1,926 | 238 | 204 | 200 | 222 | 494 | 2,558 | 4,068 | 7,399 | 10,062 |
| 90% | 9,796 | 5,323 | 554 | 197 | 193 | 192 | 194 | 201 | 599 | 3,330 | 7,123 | 9,168 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 11,835 | 11,094 | 8,201 | 4,825 | 2,064 | 1,412 | 1,807 | 2,991 | 4,403 | 6,185 | 9,059 | 11,038 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 10,314 | 9,710 | 6,371 | 1,140 | 279 | 304 | 416 | 1,025 | 2,111 | 3,640 | 7,192 | 9,201 |
| Above Normal (16%) | 11,702 | 11,446 | 8,482 | 2,504 | 664 | 393 | 754 | 1,862 | 3,505 | 4,321 | 7,431 | 10,020 |
| Below Normal (13%) | 11,655 | 11,341 | 8,382 | 6,641 | 2,308 | 1,677 | 2,261 | 3,411 | 4,249 | 5,976 | 8,852 | 11,241 |
| Dry (24%) | 12,482 | 10,544 | 7,601 | 7,645 | 3,130 | 1,748 | 2,242 | 3,654 | 5,403 | 8,052 | 10,686 | 12,496 |
| Critical (15%) | 14,359 | 14,397 | 12,697 | 8,961 | 5,443 | 4,115 | 4,820 | 6,983 | 8,819 | 10,799 | 12,343 | 13,503 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -1,063 | -1,508 | -141 | **1,885** | **2,127** | **1,185** | **671** | **182** | -188 | -172 | -146 | -75 |
| 20% | -752 | -722 | **1,064** | **2,356** | **1,575** | **348** | **1,040** | **38** | -409 | -48 | -96 | -212 |
| 30% | -1,084 | -809 | **3,881** | **2,210** | **1,263** | **386** | **792** | **407** | -700 | **65** | -205 | -439 |
| 40% | -1,145 | **113** | **3,857** | **2,405** | **334** | **215** | **829** | **1,253** | -886 | **79** | **95** | -39 |
| 50% | **1,661** | **5,973** | **3,967** | **1,762** | **237** | **197** | **367** | **1,043** | -321 | -73 | **217** | **3** |
| 60% | **5,495** | **5,968** | **1,607** | **601** | **84** | **12** | **244** | **942** | -180 | **242** | -75 | **4,731** |
| 70% | **8,242** | **8,272** | **2,343** | **147** | **3** | **6** | **68** | **637** | **388** | **184** | **55** | **6,991** |
| 80% | **7,843** | **7,155** | **1,087** | **22** | **3** | **2** | **10** | **175** | **658** | **193** | **221** | **7,063** |
| 90% | **6,897** | **2,633** | **237** | **3** | **1** | **0** | -1 | **6** | **72** | **95** | **336** | **6,235** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **2,676** | **2,877** | **1,838** | **1,146** | **573** | **264** | **350** | **521** | -139 | **51** | **55** | **2,501** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **7,332** | **7,043** | **2,790** | **370** | **35** | **30** | **101** | **435** | **83** | **196** | **74** | **6,227** |
| Above Normal (16%) | **5,663** | **5,916** | **3,033** | **782** | **153** | **47** | **305** | **784** | -296 | -28 | **154** | **4,140** |
| Below Normal (13%) | -669 | **145** | **728** | **2,104** | **567** | **141** | **525** | **687** | -835 | -12 | **353** | -257 |
| Dry (24%) | -1,313 | -681 | **697** | **1,838** | **938** | **417** | **493** | **370** | -157 | -76 | -84 | -242 |
| Critical (15%) | -930 | -1,008 | **1,402** | **1,194** | **1,589** | **865** | **538** | **524** | **220** | **90** | -137 | -246 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 10-4. Sacramento River at Mallard Slough Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15,173 | 15,607 | 13,402 | 8,674 | 3,845 | 3,203 | 4,090 | 5,729 | 7,301 | 9,811 | 12,233 | 13,569 |
| 20% | 14,118 | 13,796 | 11,717 | 7,375 | 2,503 | 2,299 | 2,316 | 4,804 | 6,486 | 8,500 | 11,031 | 12,899 |
| 30% | 13,976 | 13,602 | 8,362 | 5,953 | 1,301 | 1,041 | 1,682 | 3,949 | 6,007 | 7,871 | 10,812 | 12,806 |
| 40% | 13,642 | 12,455 | 7,403 | 3,581 | 731 | 820 | 998 | 2,263 | 5,353 | 6,414 | 9,291 | 12,033 |
| 50% | 10,566 | 6,114 | 6,175 | 2,517 | 470 | 475 | 687 | 1,670 | 4,449 | 5,727 | 8,256 | 10,945 |
| 60% | 6,270 | 5,817 | 5,551 | 1,306 | 277 | 295 | 399 | 1,057 | 3,993 | 4,537 | 7,973 | 5,885 |
| 70% | 3,157 | 3,125 | 2,438 | 323 | 217 | 213 | 288 | 740 | 3,079 | 4,153 | 7,585 | 3,228 |
| 80% | 3,056 | 2,808 | 840 | 216 | 201 | 198 | 212 | 319 | 1,900 | 3,875 | 7,177 | 2,999 |
| 90% | 2,900 | 2,690 | 317 | 194 | 192 | 192 | 195 | 195 | 527 | 3,235 | 6,787 | 2,933 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 9,158 | 8,217 | 6,363 | 3,679 | 1,491 | 1,148 | 1,458 | 2,470 | 4,542 | 6,134 | 9,004 | 8,537 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 2,982 | 2,667 | 3,581 | 770 | 244 | 274 | 315 | 590 | 2,028 | 3,444 | 7,118 | 2,974 |
| Above Normal (16%) | 6,039 | 5,530 | 5,449 | 1,722 | 510 | 345 | 450 | 1,079 | 3,801 | 4,349 | 7,277 | 5,880 |
| Below Normal (13%) | 12,324 | 11,196 | 7,654 | 4,537 | 1,742 | 1,536 | 1,737 | 2,725 | 5,084 | 5,988 | 8,499 | 11,498 |
| Dry (24%) | 13,795 | 11,226 | 6,904 | 5,807 | 2,193 | 1,331 | 1,749 | 3,284 | 5,560 | 8,128 | 10,770 | 12,738 |
| Critical (15%) | 15,289 | 15,405 | 11,295 | 7,767 | 3,854 | 3,250 | 4,282 | 6,459 | 8,600 | 10,709 | 12,480 | 13,749 |

### Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15,147 | 15,589 | 13,418 | 9,488 | 4,137 | 2,825 | 3,561 | 5,744 | 7,193 | 9,483 | 12,288 | 13,603 |
| 20% | 14,201 | 13,849 | 13,051 | 7,717 | 2,436 | 1,319 | 2,020 | 4,824 | 6,501 | 8,605 | 11,205 | 13,068 |
| 30% | 14,023 | 13,586 | 11,254 | 5,586 | 1,423 | 619 | 1,329 | 3,408 | 5,956 | 8,124 | 10,998 | 12,934 |
| 40% | 13,753 | 13,234 | 9,907 | 3,349 | 789 | 462 | 741 | 2,028 | 5,361 | 6,695 | 9,292 | 12,301 |
| 50% | 13,330 | 12,941 | 8,321 | 2,315 | 418 | 328 | 460 | 1,322 | 4,322 | 6,012 | 8,473 | 11,499 |
| 60% | 12,536 | 12,221 | 6,224 | 1,129 | 231 | 230 | 291 | 853 | 3,823 | 4,650 | 7,919 | 10,777 |
| 70% | 12,180 | 10,623 | 2,629 | 314 | 213 | 207 | 237 | 544 | 2,952 | 4,315 | 7,526 | 10,505 |
| 80% | 11,838 | 7,840 | 1,274 | 210 | 201 | 200 | 208 | 263 | 1,840 | 4,162 | 7,296 | 10,342 |
| 90% | 9,681 | 4,943 | 407 | 196 | 192 | 195 | 195 | 196 | 551 | 3,282 | 6,898 | 9,955 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 12,525 | 11,199 | 7,324 | 3,634 | 1,493 | 907 | 1,238 | 2,324 | 4,464 | 6,247 | 9,116 | 11,435 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 10,265 | 9,181 | 5,848 | 646 | 223 | 236 | 292 | 527 | 1,943 | 3,558 | 7,125 | 9,493 |
| Above Normal (16%) | 12,096 | 11,136 | 7,155 | 1,700 | 423 | 254 | 341 | 831 | 3,678 | 4,475 | 7,307 | 10,426 |
| Below Normal (13%) | 12,473 | 11,019 | 7,601 | 4,344 | 1,698 | 945 | 1,200 | 2,486 | 5,046 | 6,177 | 8,816 | 11,864 |
| Dry (24%) | 14,107 | 11,405 | 6,843 | 5,991 | 2,190 | 918 | 1,452 | 3,165 | 5,526 | 8,236 | 10,988 | 12,967 |
| Critical (15%) | 15,296 | 15,461 | 11,257 | 7,626 | 4,056 | 3,017 | 3,933 | 6,288 | 8,476 | 10,744 | 12,541 | 13,786 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -25 | -18 | **16** | **814** | **291** | -378 | -529 | **15** | -109 | -328 | **55** | **34** |
| 20% | **83** | **53** | **1,334** | **342** | -67 | -980 | -295 | **20** | **15** | **105** | **173** | **169** |
| 30% | **48** | -16 | **2,892** | -367 | **122** | -422 | -353 | -541 | -51 | **253** | **186** | **129** |
| 40% | **112** | **780** | **2,504** | -231 | **58** | -358 | -258 | -235 | **8** | **281** | **1** | **268** |
| 50% | **2,765** | **6,828** | **2,147** | -202 | -52 | -148 | -227 | -347 | -127 | **286** | **217** | **555** |
| 60% | **6,266** | **6,403** | **673** | -176 | -45 | -65 | -108 | -204 | -170 | **113** | -54 | **4,892** |
| 70% | **9,023** | **7,498** | **192** | -10 | -4 | -5 | -50 | -196 | -127 | **162** | -59 | **7,276** |
| 80% | **8,782** | **5,032** | **434** | -6 | **0** | **1** | -3 | -57 | -59 | **287** | **119** | **7,344** |
| 90% | **6,782** | **2,253** | **90** | **2** | **0** | **3** | **0** | **0** | **24** | **47** | **111** | **7,022** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3,367** | **2,983** | **962** | -44 | **2** | -241 | -220 | -145 | -78 | **113** | **112** | **2,898** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **7,283** | **6,514** | **2,267** | -124 | -21 | -38 | -23 | -64 | -85 | **114** | **7** | **6,519** |
| Above Normal (16%) | **6,057** | **5,606** | **1,706** | -22 | -88 | -91 | -108 | -247 | -122 | **126** | **31** | **4,546** |
| Below Normal (13%) | **150** | -177 | -53 | -193 | -44 | -592 | -537 | -238 | -39 | **189** | **317** | **366** |
| Dry (24%) | **312** | **180** | -62 | **183** | -3 | -413 | -297 | -119 | -34 | **108** | **218** | **229** |
| Critical (15%) | **7** | **56** | -38 | -141 | **202** | -233 | -348 | -171 | -124 | **35** | **61** | **36** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

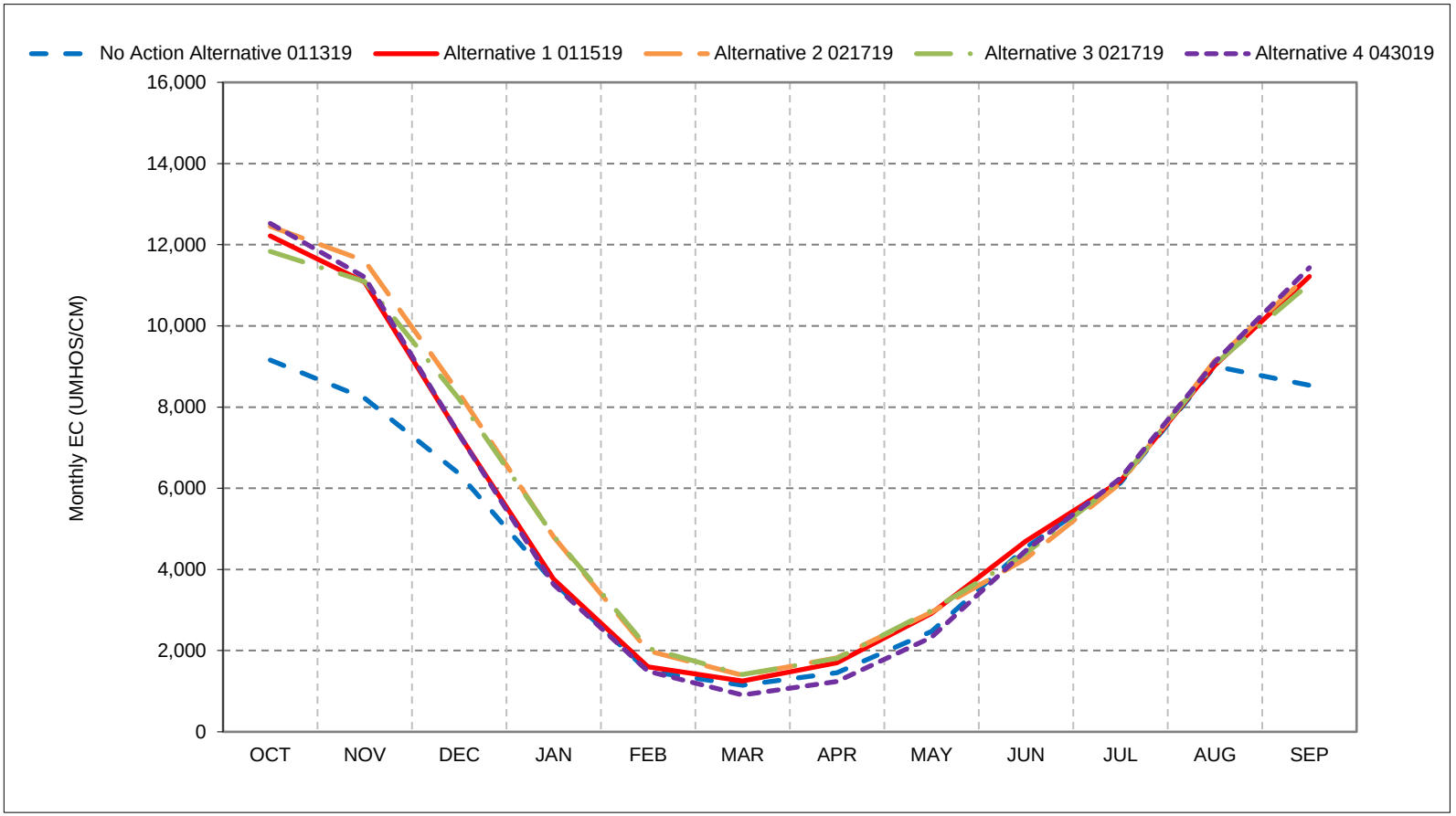
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

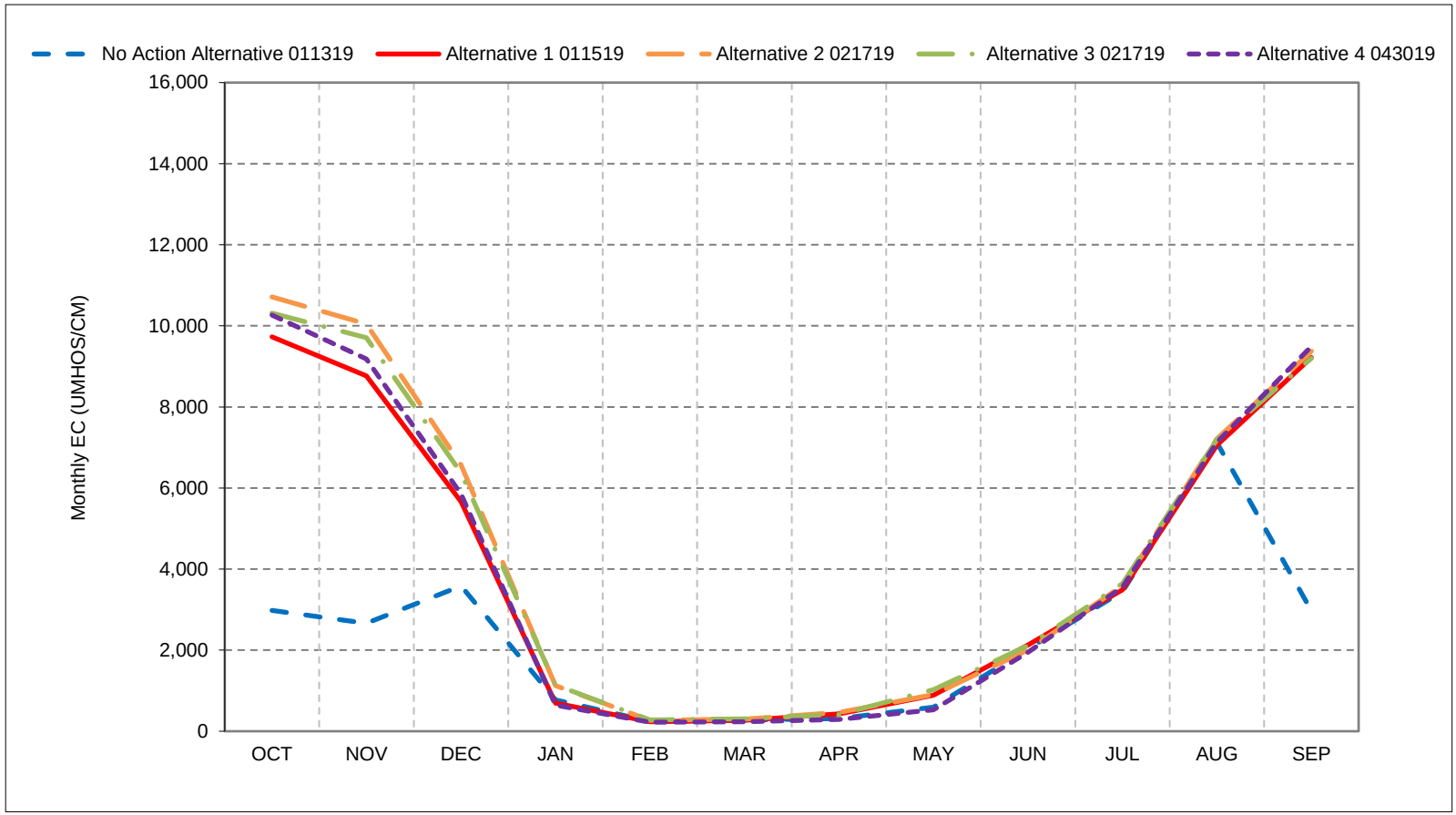
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 10-1. Sacramento River at Mallard Slough Salinity, Long-Term Average EC



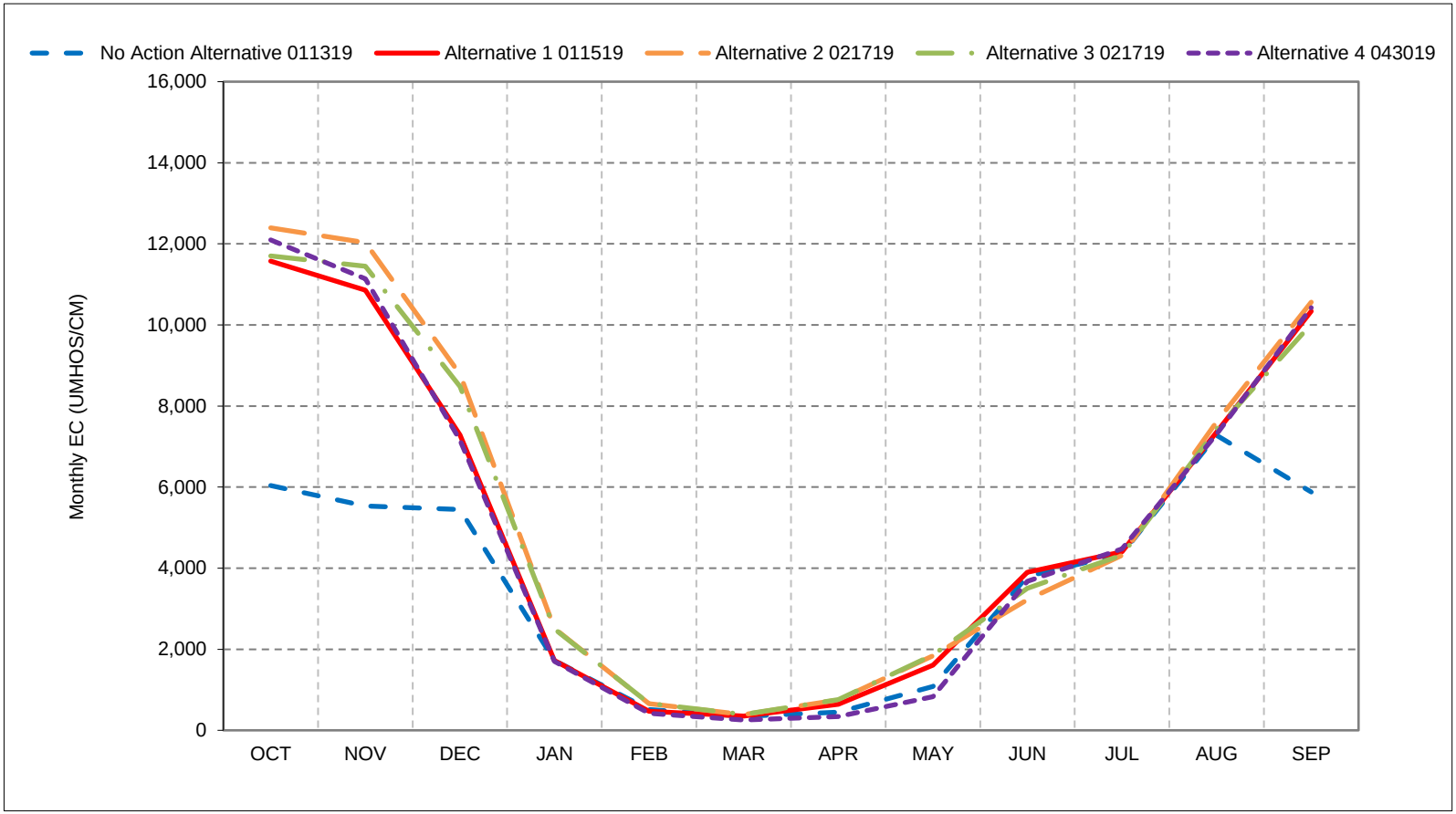

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 10-2. Sacramento River at Mallard Slough Salinity, Wet Year Average EC



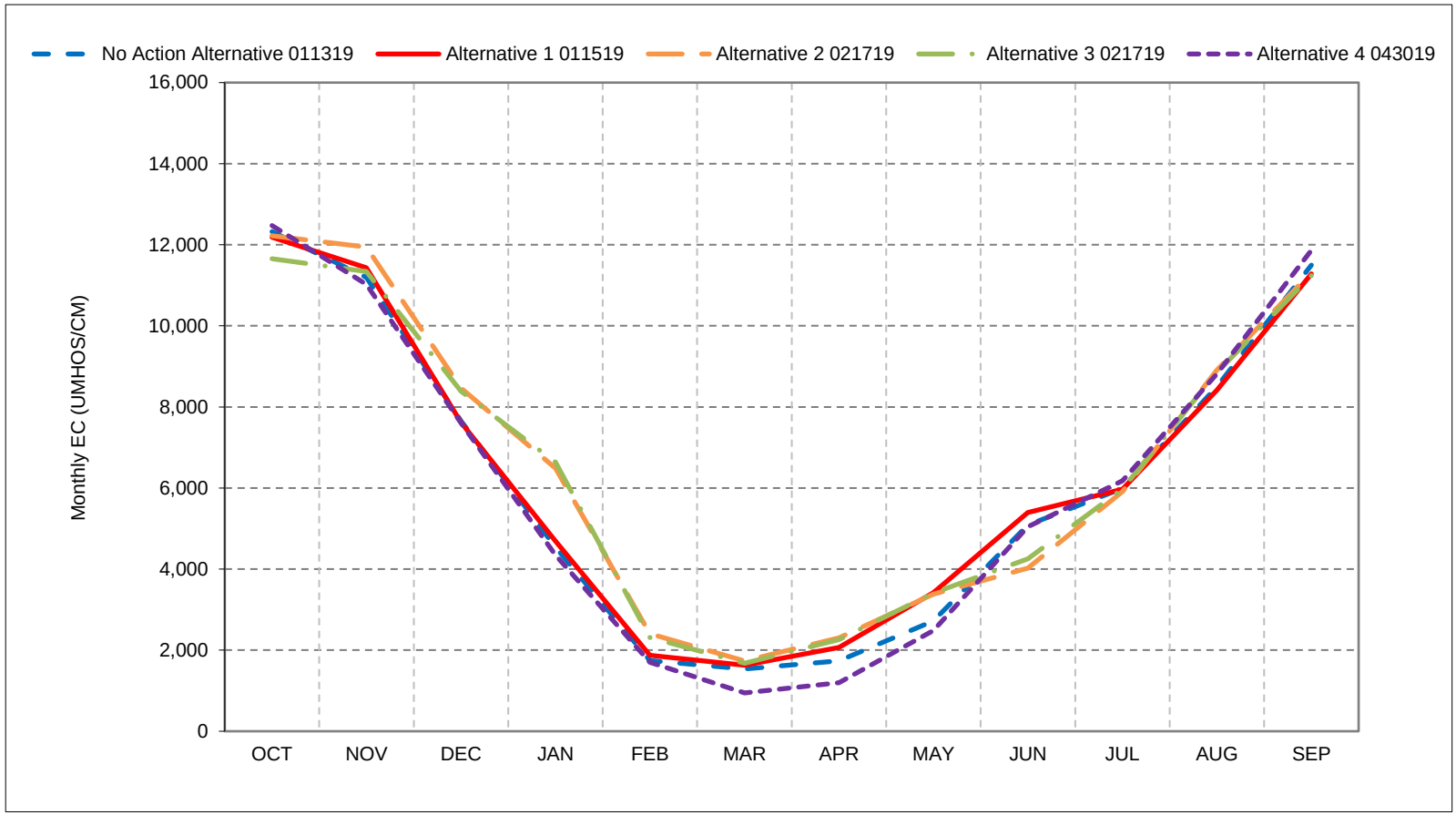

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 10-3. Sacramento River at Mallard Slough Salinity, Above Normal Year Average EC



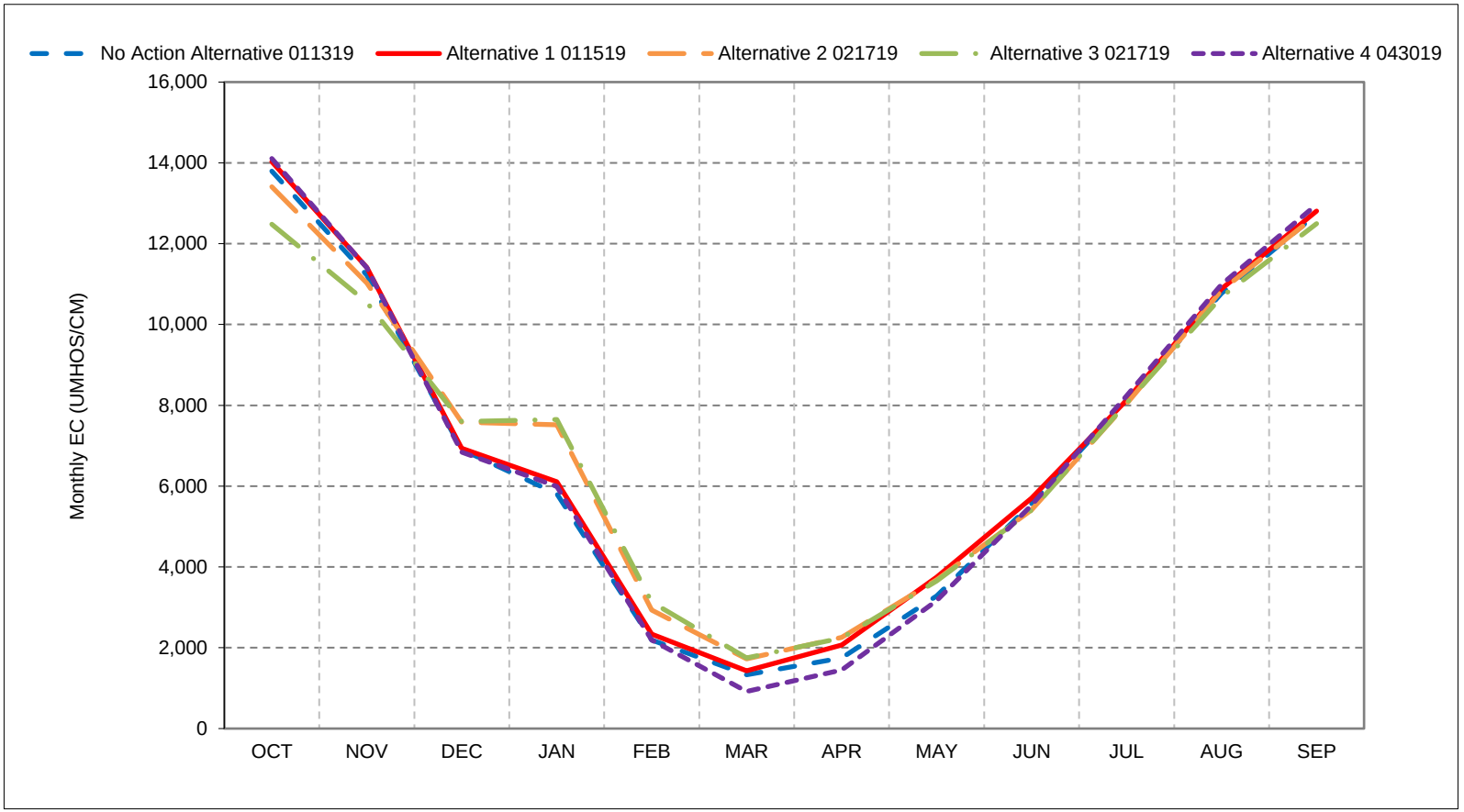

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 10-4. Sacramento River at Mallard Slough Salinity, Below Normal Year Average EC



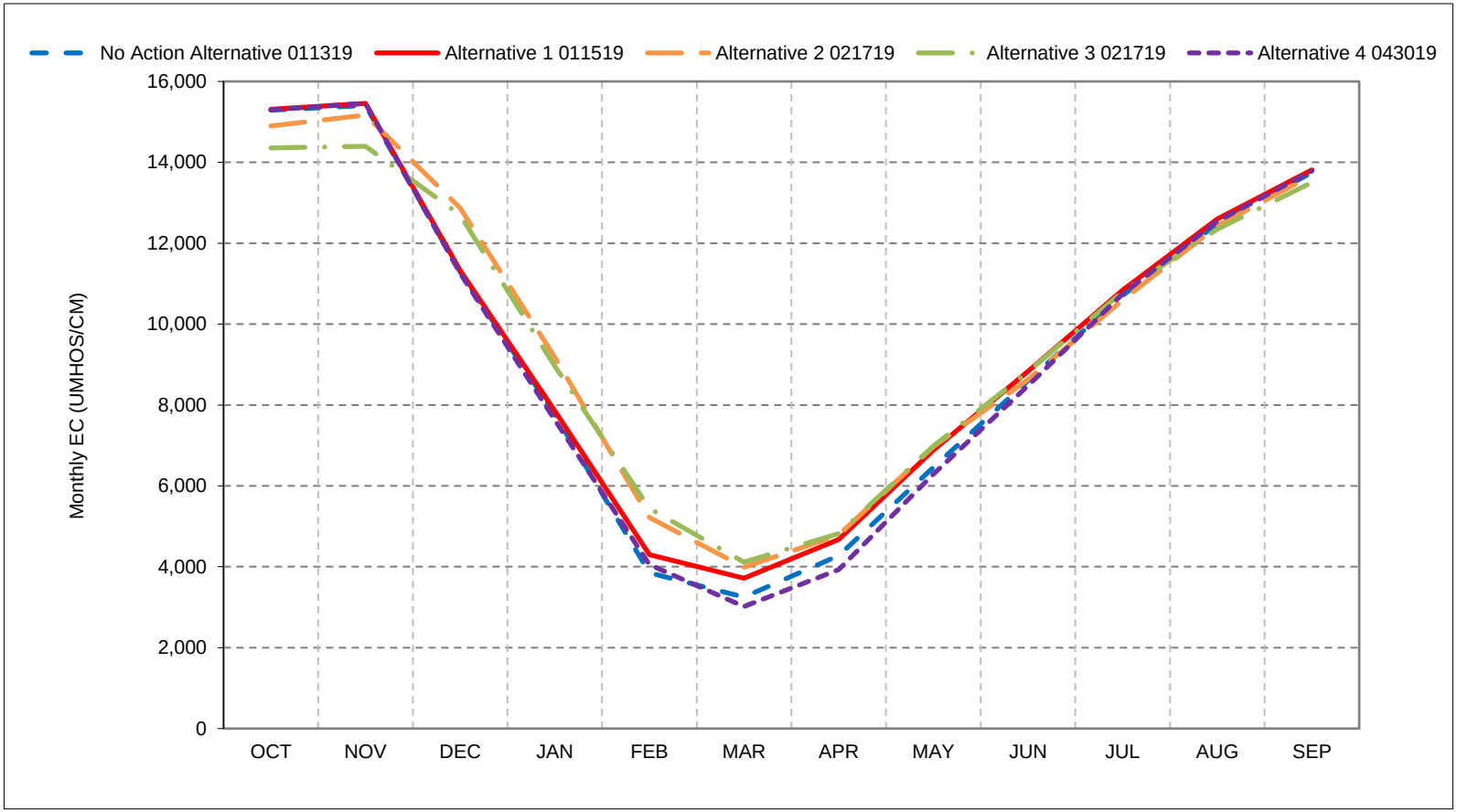

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 10-5. Sacramento River at Mallard Slough Salinity, Dry Year Average EC



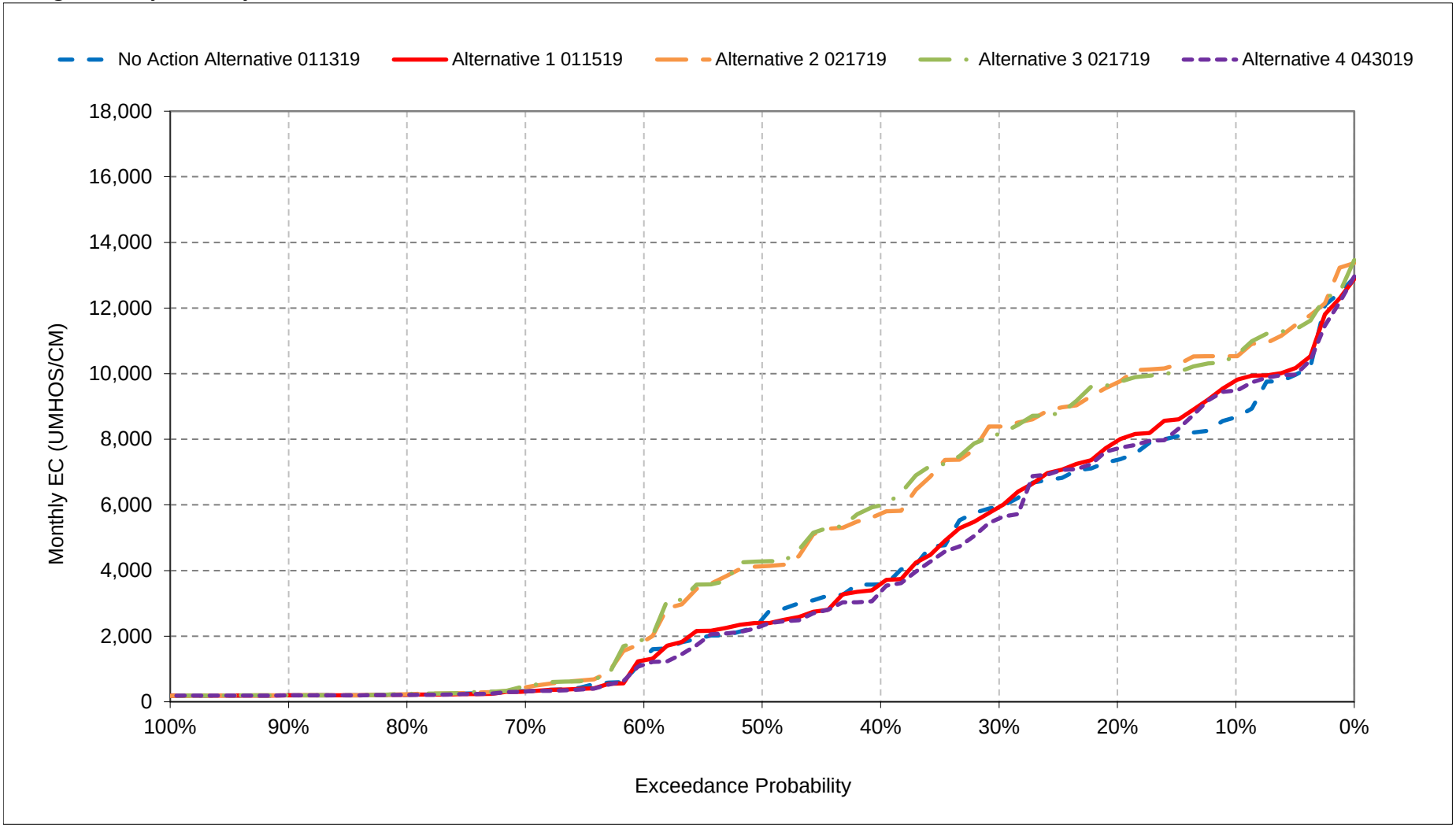

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 10-6. Sacramento River at Mallard Slough Salinity, Critical Year Average EC




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

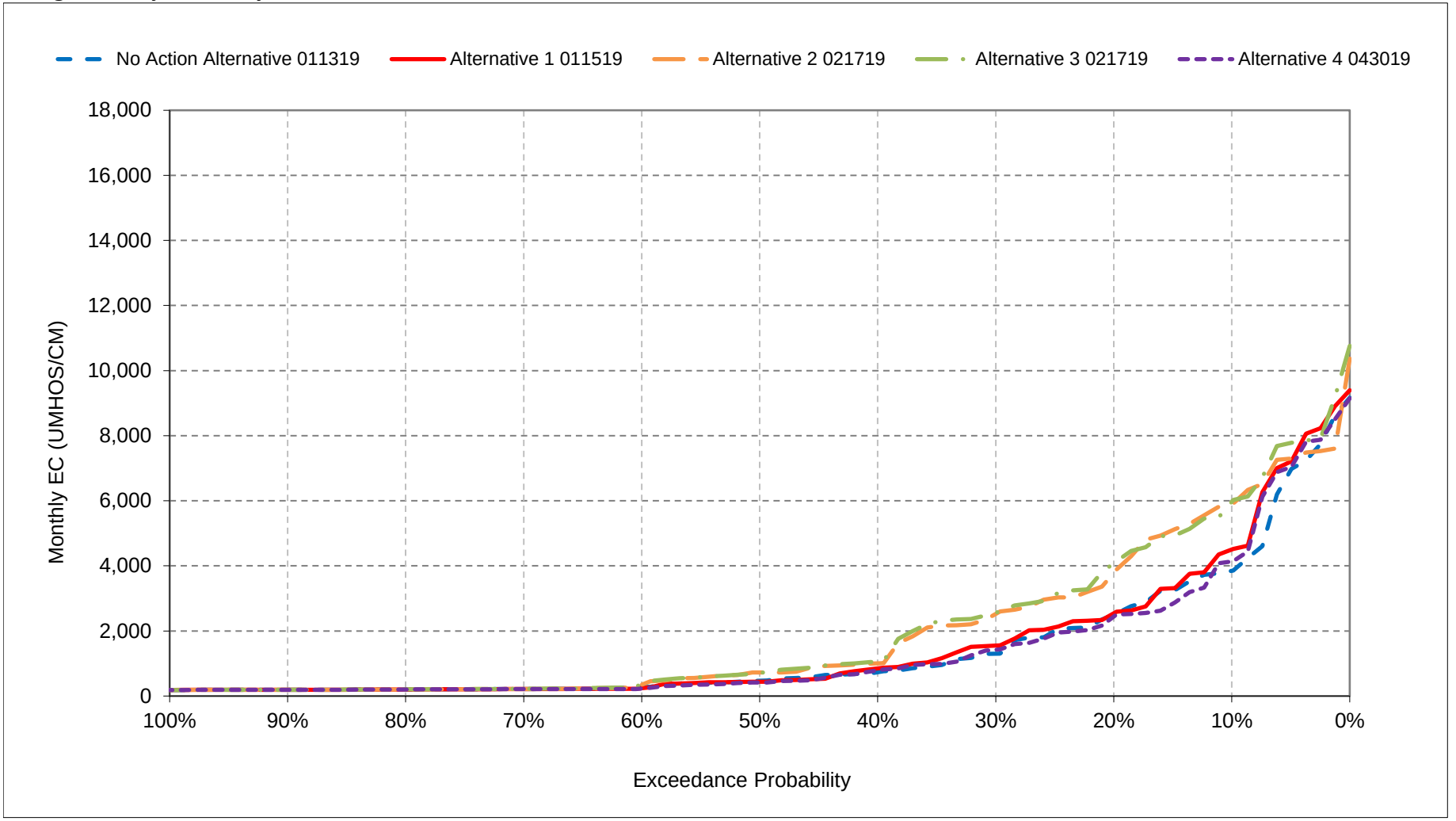
**Figure 10-7. Sacramento River at Mallard Slough Salinity, January EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

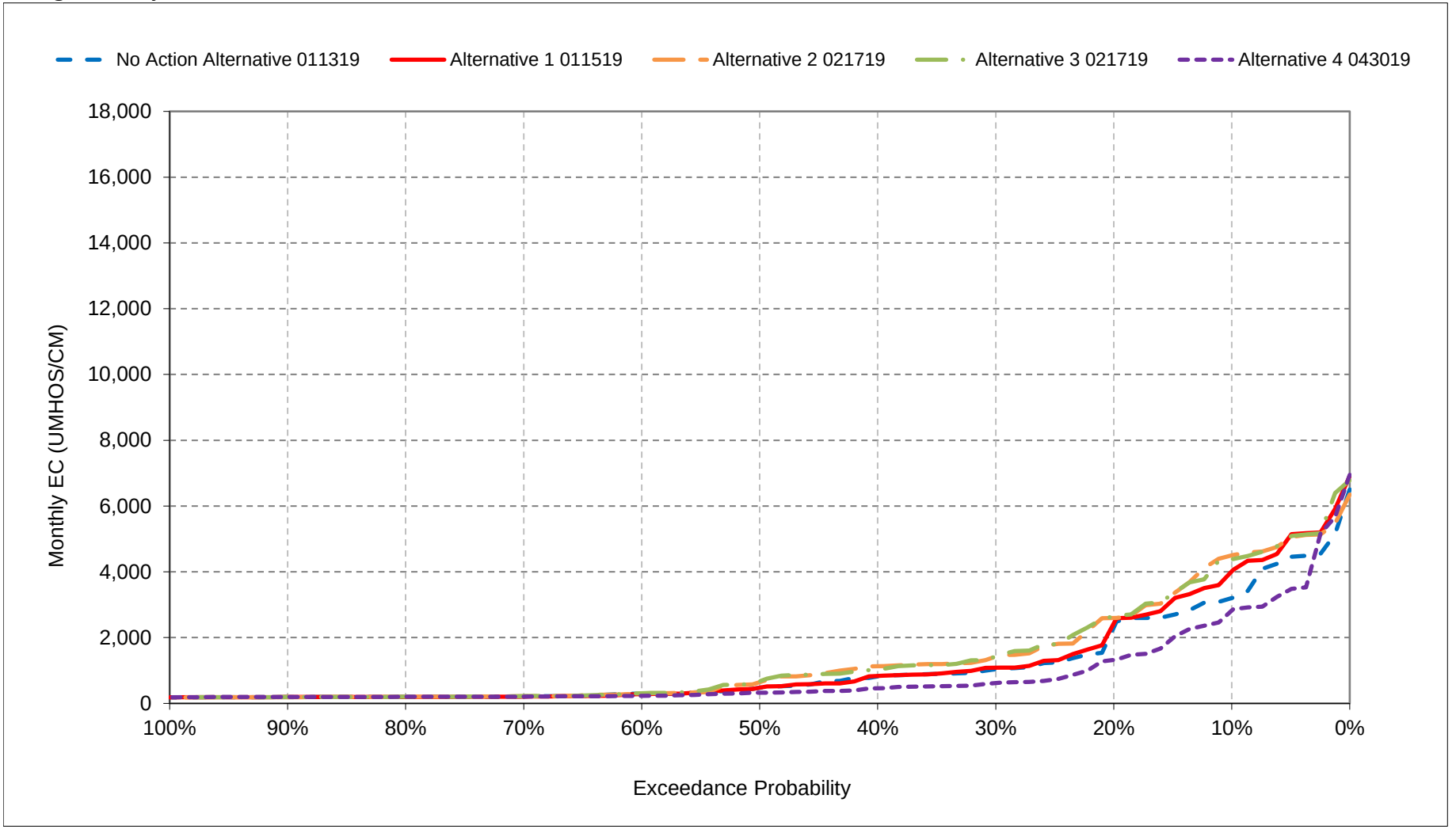
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 10-8. Sacramento River at Mallard Slough Salinity, February EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

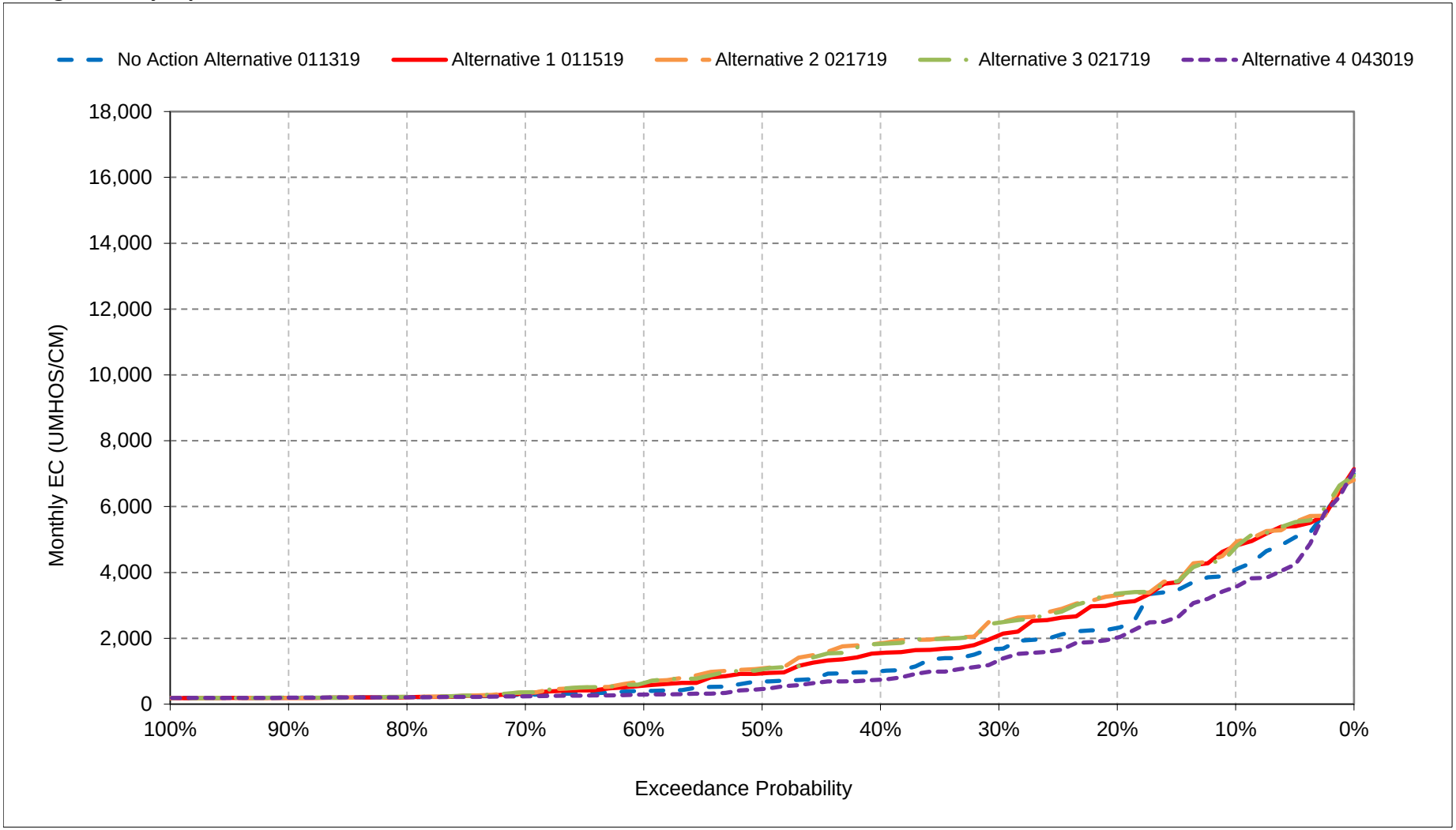
**Figure 10-9. Sacramento River at Mallard Slough Salinity, March EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

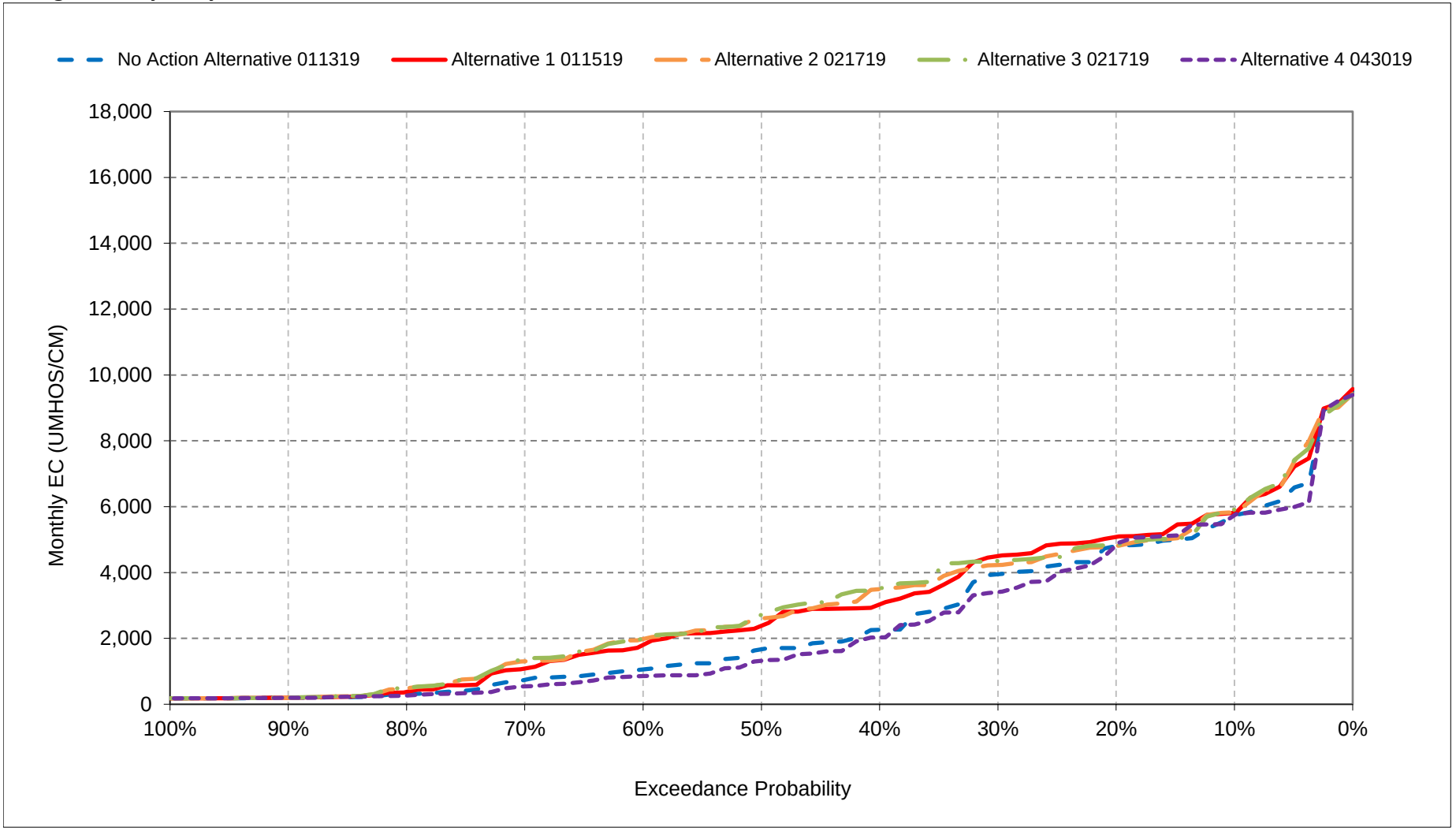
**Figure 10-10. Sacramento River at Mallard Slough Salinity, April EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

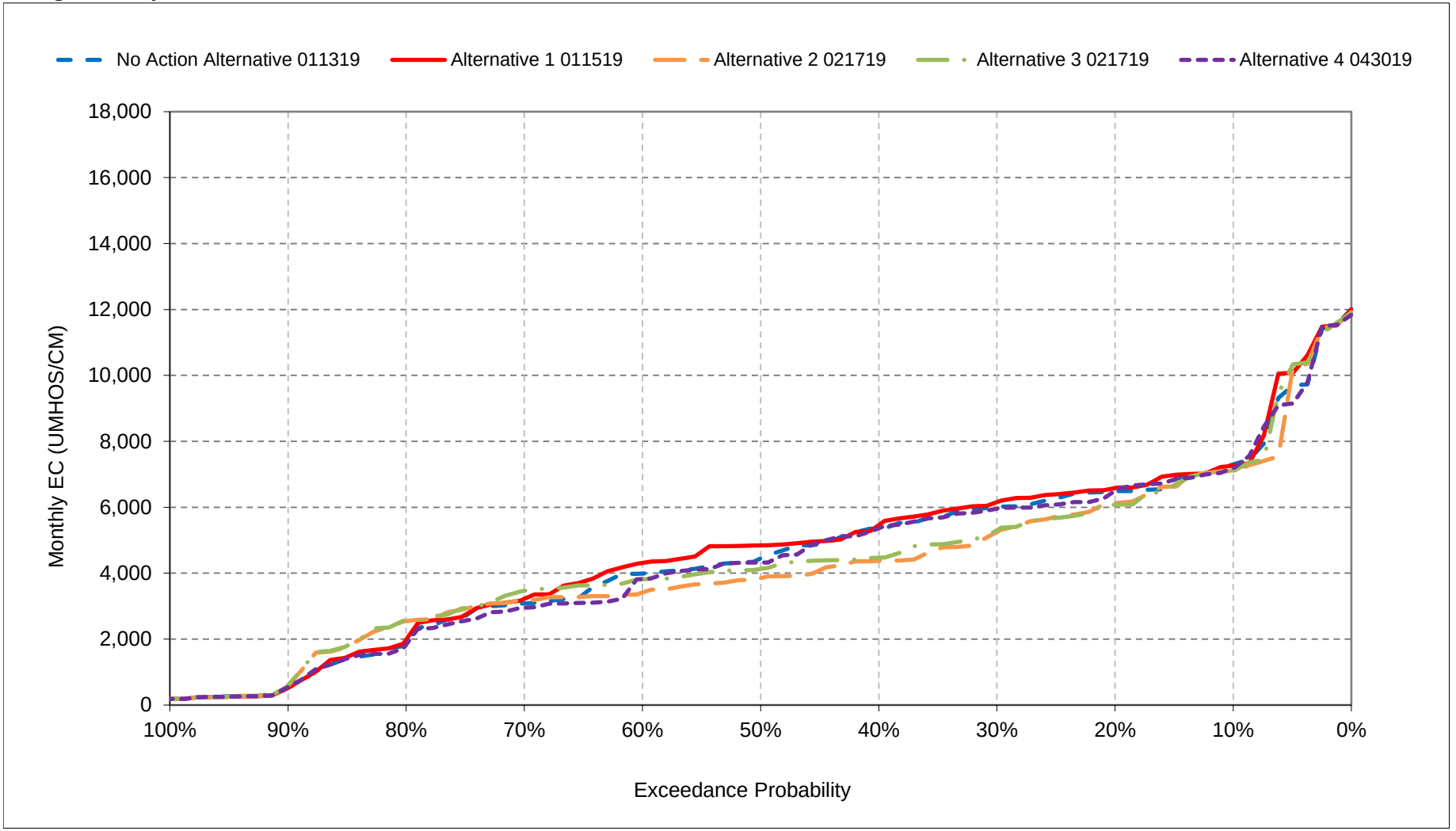
**Figure 10-11. Sacramento River at Mallard Slough Salinity, May EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

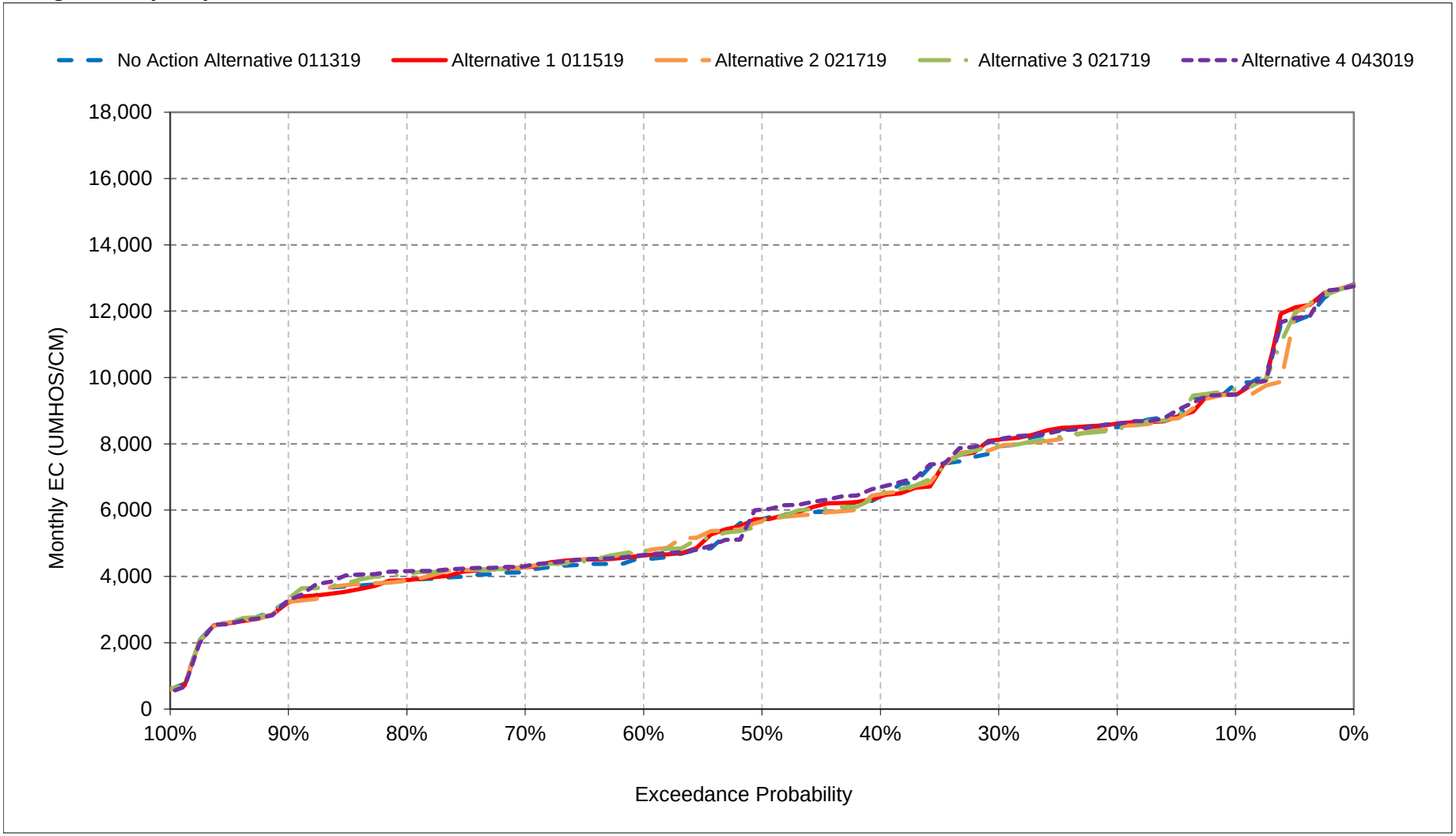
**Figure 10-12. Sacramento River at Mallard Slough Salinity, June EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

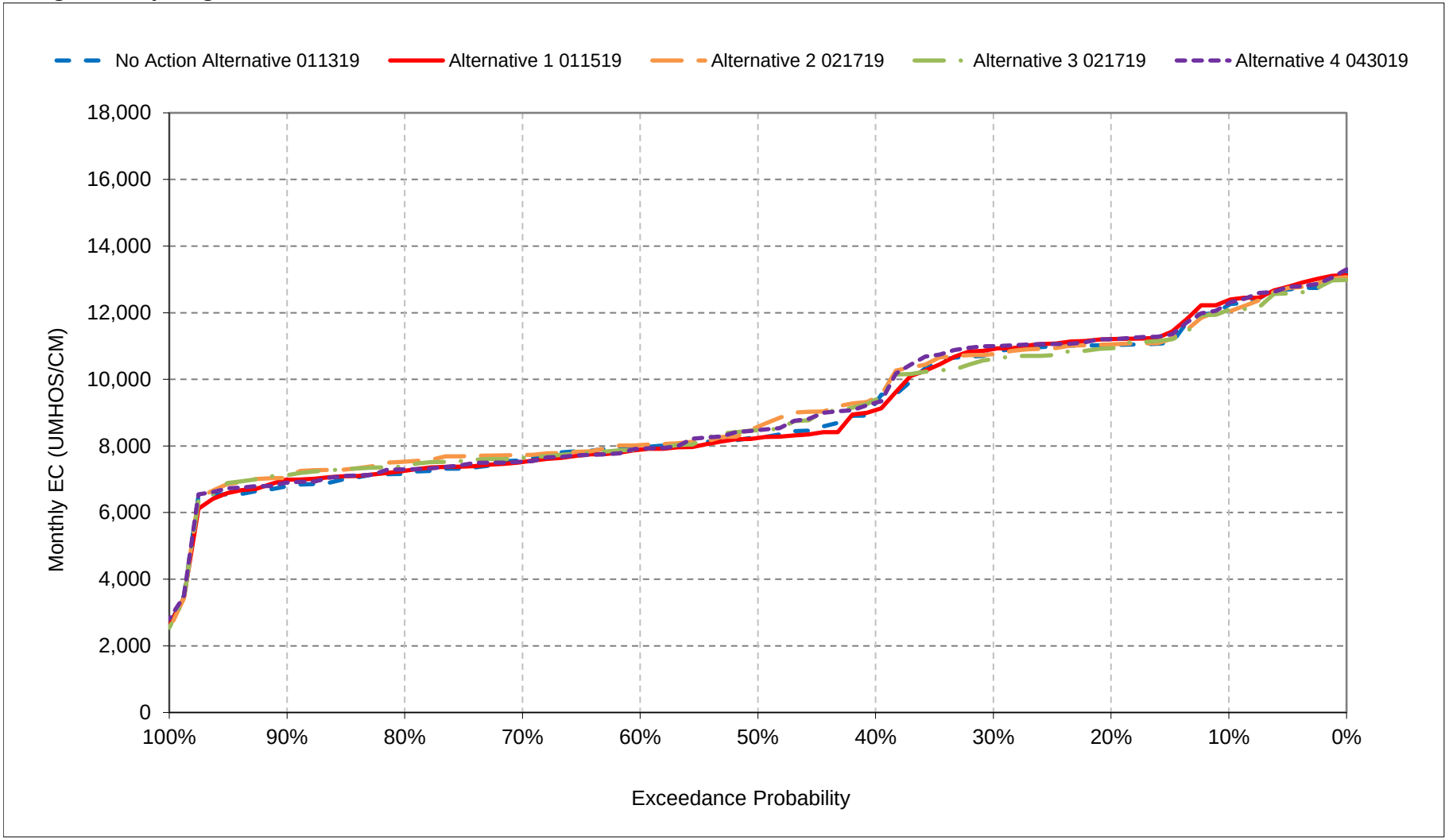
**Figure 10-13. Sacramento River at Mallard Slough Salinity, July EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

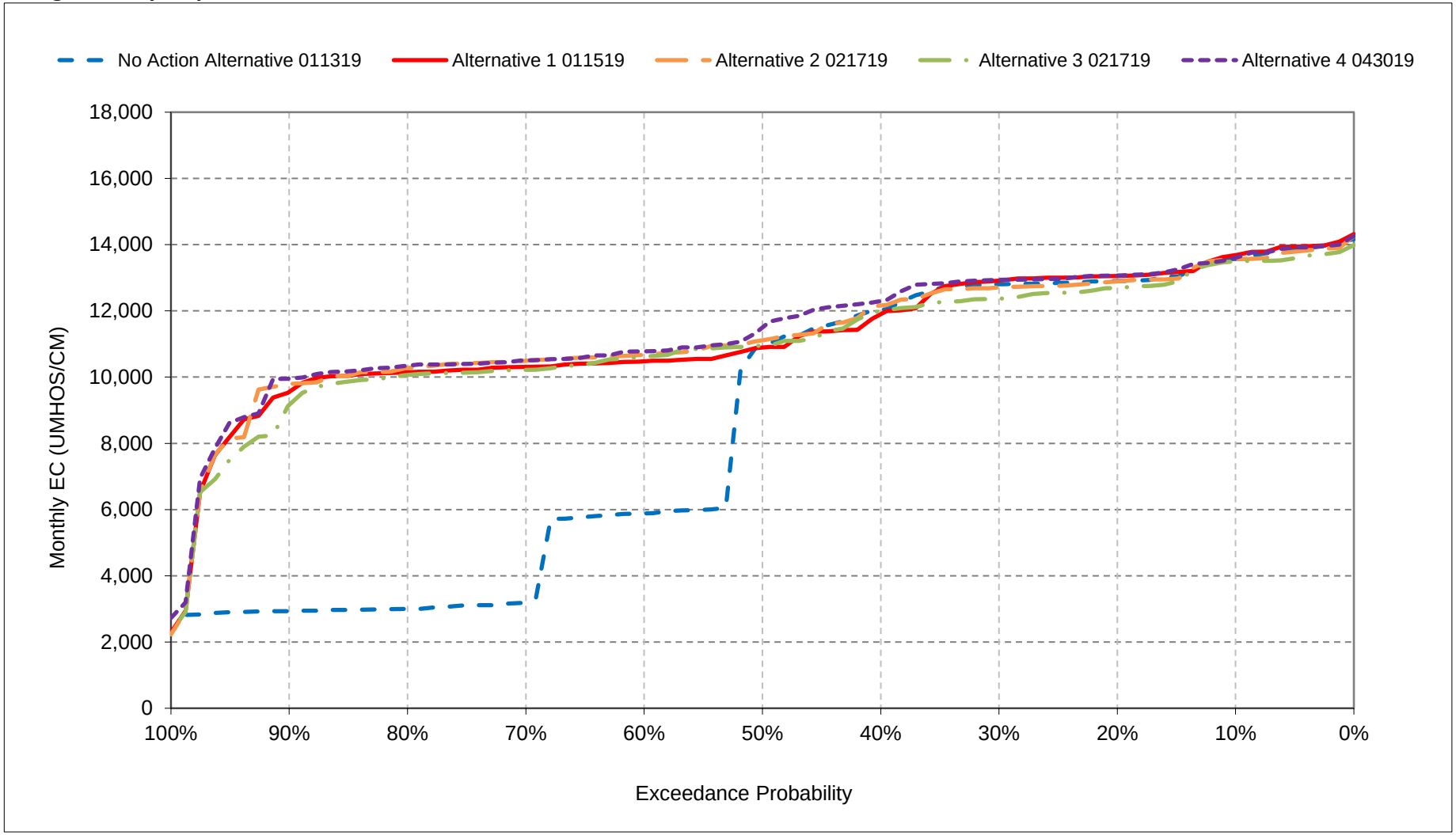
**Figure 10-14. Sacramento River at Mallard Slough Salinity, August EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

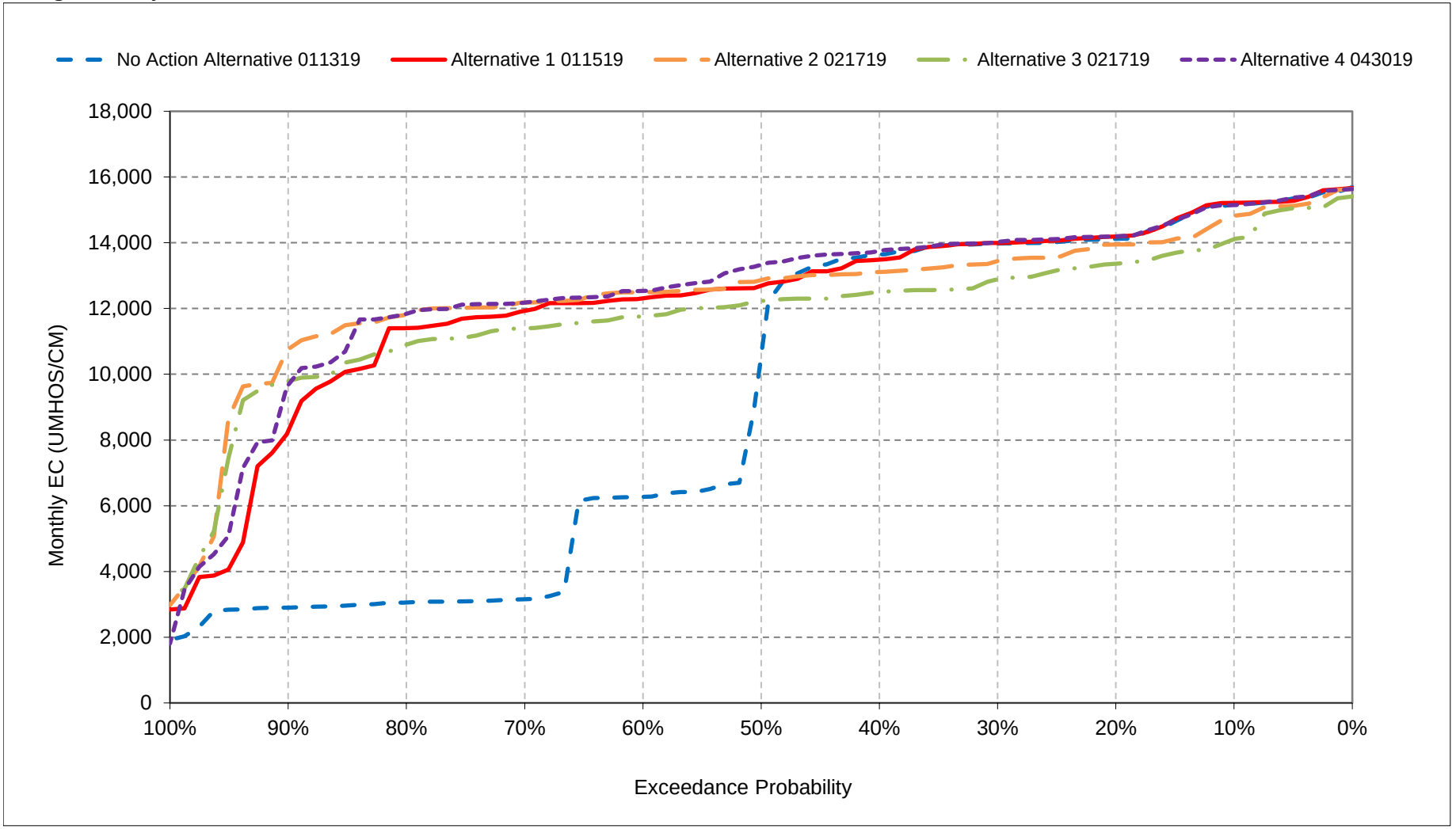
**Figure 10-15. Sacramento River at Mallard Slough Salinity, September EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

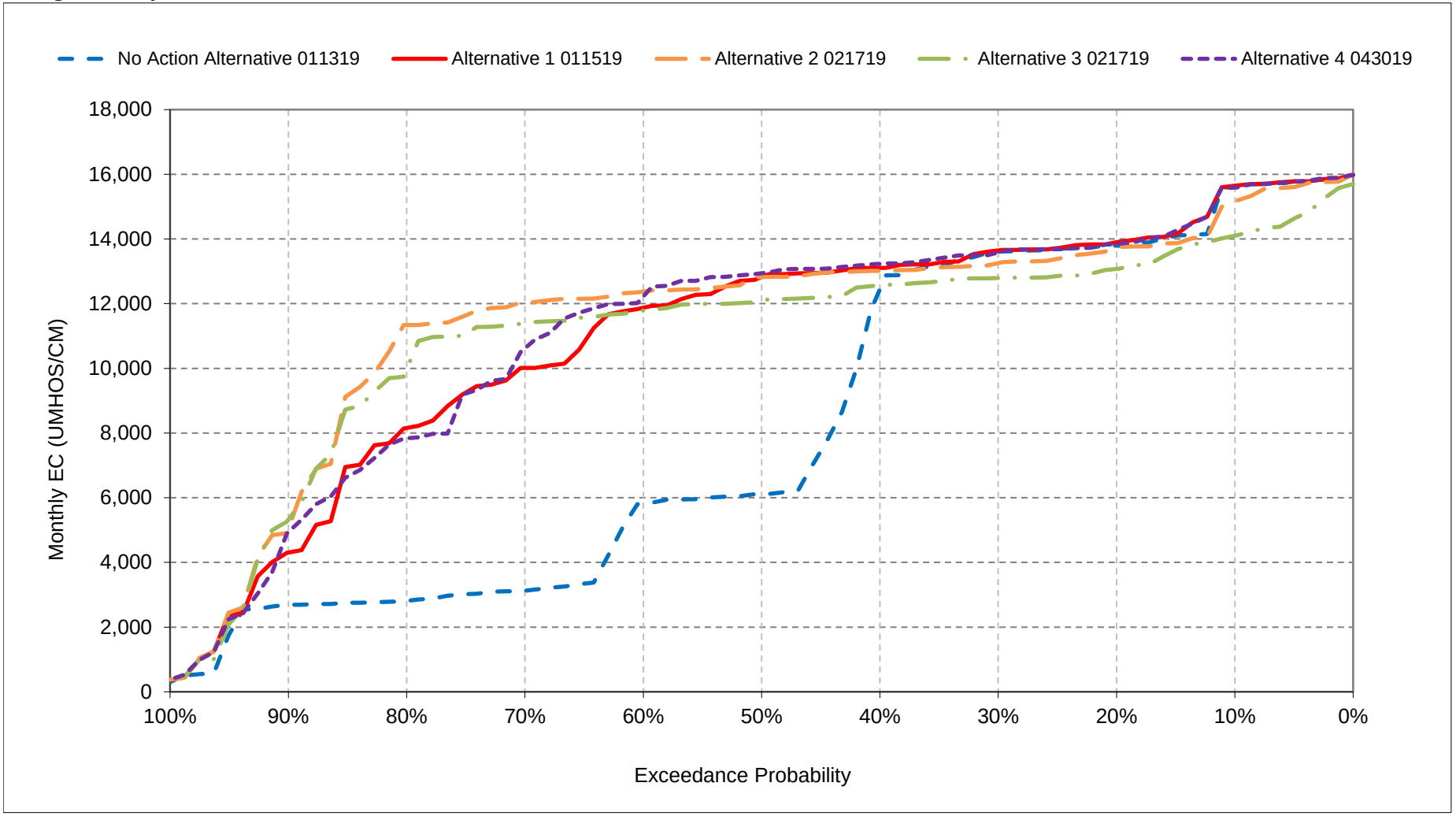
**Figure 10-16. Sacramento River at Mallard Slough Salinity, October EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

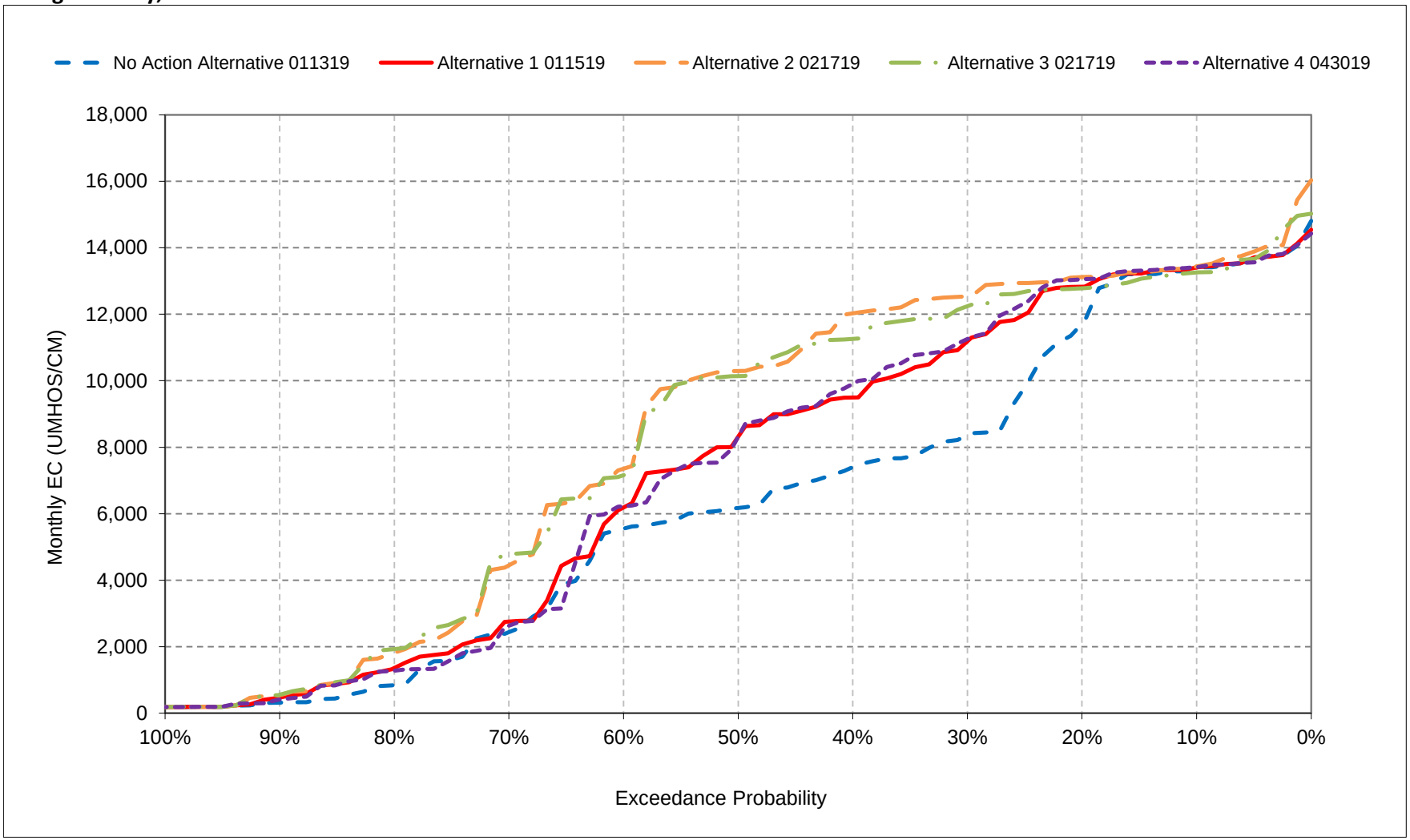
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 10-17. Sacramento River at Mallard Slough Salinity, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 10-18. Sacramento River at Mallard Slough Salinity, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 11-1. Sacramento River at Collinsville Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 11,503 | 11,926 | 9,552 | 5,279 | 1,765 | 1,435 | 1,927 | 3,135 | 4,215 | 6,367 | 8,537 | 9,877 |
| 20% | 10,414 | 10,042 | 7,723 | 4,178 | 1,059 | 939 | 961 | 2,417 | 3,638 | 5,111 | 7,507 | 9,221 |
| 30% | 10,219 | 9,690 | 5,019 | 3,126 | 641 | 425 | 661 | 1,909 | 3,339 | 4,606 | 7,315 | 9,119 |
| 40% | 9,939 | 8,433 | 4,160 | 1,781 | 372 | 350 | 423 | 953 | 2,896 | 3,531 | 5,754 | 8,396 |
| 50% | 6,904 | 3,217 | 3,418 | 1,284 | 285 | 248 | 297 | 668 | 2,351 | 2,939 | 4,953 | 7,270 |
| 60% | 3,495 | 2,954 | 2,995 | 545 | 215 | 210 | 232 | 435 | 1,977 | 2,180 | 4,770 | 3,060 |
| 70% | 1,468 | 1,391 | 1,107 | 225 | 199 | 194 | 211 | 326 | 1,415 | 1,972 | 4,476 | 1,559 |
| 80% | 1,393 | 1,208 | 458 | 202 | 191 | 189 | 197 | 210 | 849 | 1,800 | 4,152 | 1,387 |
| 90% | 1,292 | 1,110 | 222 | 188 | 186 | 187 | 189 | 188 | 251 | 1,451 | 3,878 | 1,315 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,298 | 5,462 | 4,004 | 2,107 | 786 | 573 | 723 | 1,289 | 2,546 | 3,507 | 5,744 | 5,653 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 1,351 | 1,135 | 1,951 | 449 | 203 | 206 | 219 | 318 | 1,023 | 1,629 | 4,169 | 1,360 |
| Above Normal (16%) | 3,332 | 2,894 | 3,155 | 940 | 298 | 227 | 255 | 475 | 1,939 | 2,086 | 4,245 | 3,064 |
| Below Normal (13%) | 8,853 | 7,678 | 5,064 | 2,453 | 854 | 678 | 775 | 1,280 | 2,741 | 3,133 | 5,164 | 7,857 |
| Dry (24%) | 10,051 | 7,803 | 4,573 | 3,254 | 1,116 | 625 | 789 | 1,603 | 3,049 | 4,853 | 7,235 | 9,058 |
| Critical (15%) | 11,632 | 11,684 | 7,452 | 4,733 | 1,963 | 1,558 | 2,162 | 3,761 | 5,488 | 7,214 | 8,826 | 10,067 |

### Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 11,514 | 11,954 | 9,610 | 5,997 | 2,115 | 1,860 | 2,367 | 3,154 | 4,190 | 6,101 | 8,659 | 10,004 |
| 20% | 10,491 | 10,111 | 8,974 | 4,632 | 1,070 | 992 | 1,369 | 2,581 | 3,660 | 5,193 | 7,653 | 9,387 |
| 30% | 10,203 | 9,752 | 7,210 | 3,115 | 721 | 449 | 875 | 2,193 | 3,412 | 4,839 | 7,326 | 9,232 |
| 40% | 9,784 | 9,269 | 5,741 | 1,613 | 361 | 346 | 627 | 1,371 | 2,931 | 3,458 | 5,566 | 8,296 |
| 50% | 8,999 | 8,922 | 4,808 | 1,120 | 267 | 240 | 391 | 1,026 | 2,504 | 2,922 | 4,936 | 7,167 |
| 60% | 8,587 | 8,113 | 3,436 | 549 | 213 | 206 | 258 | 735 | 2,106 | 2,254 | 4,689 | 6,875 |
| 70% | 8,134 | 6,214 | 1,189 | 222 | 196 | 194 | 213 | 443 | 1,519 | 2,064 | 4,436 | 6,670 |
| 80% | 7,543 | 4,843 | 745 | 198 | 190 | 188 | 194 | 212 | 884 | 1,761 | 4,208 | 6,532 |
| 90% | 4,820 | 2,182 | 299 | 188 | 187 | 187 | 185 | 184 | 247 | 1,506 | 4,018 | 5,942 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 8,623 | 7,683 | 4,736 | 2,173 | 847 | 631 | 838 | 1,515 | 2,615 | 3,541 | 5,762 | 7,638 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 6,290 | 5,636 | 3,502 | 396 | 198 | 205 | 256 | 445 | 1,056 | 1,656 | 4,112 | 5,830 |
| Above Normal (16%) | 7,923 | 7,437 | 4,614 | 979 | 279 | 232 | 324 | 696 | 1,946 | 2,111 | 4,292 | 6,691 |
| Below Normal (13%) | 8,687 | 7,869 | 5,045 | 2,597 | 939 | 751 | 930 | 1,653 | 2,903 | 3,110 | 5,058 | 7,624 |
| Dry (24%) | 10,256 | 7,969 | 4,606 | 3,471 | 1,191 | 665 | 943 | 1,842 | 3,103 | 4,876 | 7,340 | 9,120 |
| Critical (15%) | 11,653 | 11,736 | 7,473 | 4,764 | 2,211 | 1,821 | 2,394 | 4,048 | 5,637 | 7,343 | 8,946 | 10,124 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **11** | **28** | **58** | **719** | **350** | **425** | **440** | **19** | -25 | -266 | **122** | **127** |
| 20% | **76** | **69** | **1,251** | **454** | **10** | **53** | **408** | **164** | **23** | **81** | **146** | **166** |
| 30% | -16 | **61** | **2,191** | -11 | **81** | **24** | **214** | **284** | **74** | **233** | **11** | **113** |
| 40% | -155 | **836** | **1,581** | -167 | -11 | -5 | **205** | **418** | **35** | -73 | -188 | -100 |
| 50% | **2,095** | **5,705** | **1,390** | -165 | -18 | -8 | **94** | **359** | **152** | -16 | -16 | -103 |
| 60% | **5,092** | **5,159** | **441** | **4** | -3 | -4 | **26** | **299** | **129** | **74** | -81 | **3,815** |
| 70% | **6,666** | **4,823** | **82** | -4 | -3 | 0 | **1** | **116** | **104** | **92** | -39 | **5,111** |
| 80% | **6,150** | **3,635** | **287** | -4 | -1 | 0 | -3 | **2** | **35** | -39 | **57** | **5,145** |
| 90% | **3,528** | **1,072** | **78** | 0 | **1** | 0 | -4 | -4 | -4 | **56** | **140** | **4,626** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **2,325** | **2,221** | **732** | **66** | **62** | **59** | **115** | **226** | **68** | **34** | **18** | **1,985** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **4,939** | **4,501** | **1,551** | -53 | -5 | -1 | **37** | **127** | **33** | **27** | -57 | **4,470** |
| Above Normal (16%) | **4,591** | **4,542** | **1,460** | **39** | -18 | **5** | **68** | **221** | **7** | **26** | **47** | **3,627** |
| Below Normal (13%) | -166 | **191** | -19 | **144** | **86** | **73** | **156** | **373** | **163** | -23 | -106 | -232 |
| Dry (24%) | **205** | **165** | **33** | **217** | **75** | **41** | **154** | **239** | **54** | **23** | **104** | **62** |
| Critical (15%) | **21** | **52** | **21** | **32** | **248** | **263** | **232** | **287** | **150** | **129** | **120** | **57** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 11-2. Sacramento River at Collinsville Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 11,503 | 11,926 | 9,552 | 5,279 | 1,765 | 1,435 | 1,927 | 3,135 | 4,215 | 6,367 | 8,537 | 9,877 |
| 20% | 10,414 | 10,042 | 7,723 | 4,178 | 1,059 | 939 | 961 | 2,417 | 3,638 | 5,111 | 7,507 | 9,221 |
| 30% | 10,219 | 9,690 | 5,019 | 3,126 | 641 | 425 | 661 | 1,909 | 3,339 | 4,606 | 7,315 | 9,119 |
| 40% | 9,939 | 8,433 | 4,160 | 1,781 | 372 | 350 | 423 | 953 | 2,896 | 3,531 | 5,754 | 8,396 |
| 50% | 6,904 | 3,217 | 3,418 | 1,284 | 285 | 248 | 297 | 668 | 2,351 | 2,939 | 4,953 | 7,270 |
| 60% | 3,495 | 2,954 | 2,995 | 545 | 215 | 210 | 232 | 435 | 1,977 | 2,180 | 4,770 | 3,060 |
| 70% | 1,468 | 1,391 | 1,107 | 225 | 199 | 194 | 211 | 326 | 1,415 | 1,972 | 4,476 | 1,559 |
| 80% | 1,393 | 1,208 | 458 | 202 | 191 | 189 | 197 | 210 | 849 | 1,800 | 4,152 | 1,387 |
| 90% | 1,292 | 1,110 | 222 | 188 | 186 | 187 | 189 | 188 | 251 | 1,451 | 3,878 | 1,315 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,298 | 5,462 | 4,004 | 2,107 | 786 | 573 | 723 | 1,289 | 2,546 | 3,507 | 5,744 | 5,653 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 1,351 | 1,135 | 1,951 | 449 | 203 | 206 | 219 | 318 | 1,023 | 1,629 | 4,169 | 1,360 |
| Above Normal (16%) | 3,332 | 2,894 | 3,155 | 940 | 298 | 227 | 255 | 475 | 1,939 | 2,086 | 4,245 | 3,064 |
| Below Normal (13%) | 8,853 | 7,678 | 5,064 | 2,453 | 854 | 678 | 775 | 1,280 | 2,741 | 3,133 | 5,164 | 7,857 |
| Dry (24%) | 10,051 | 7,803 | 4,573 | 3,254 | 1,116 | 625 | 789 | 1,603 | 3,049 | 4,853 | 7,235 | 9,058 |
| Critical (15%) | 11,632 | 11,684 | 7,452 | 4,733 | 1,963 | 1,558 | 2,162 | 3,761 | 5,488 | 7,214 | 8,826 | 10,067 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 11,104 | 11,507 | 9,640 | 6,823 | 2,963 | 2,178 | 2,435 | 3,135 | 4,116 | 6,081 | 8,420 | 9,862 |
| 20% | 10,181 | 9,838 | 9,199 | 5,960 | 1,713 | 1,087 | 1,476 | 2,402 | 3,349 | 5,198 | 7,535 | 9,204 |
| 30% | 9,664 | 9,490 | 8,516 | 4,789 | 1,084 | 555 | 1,069 | 2,025 | 2,732 | 4,697 | 7,288 | 9,001 |
| 40% | 9,321 | 9,224 | 8,027 | 2,969 | 583 | 438 | 766 | 1,591 | 2,111 | 3,518 | 6,090 | 8,524 |
| 50% | 9,121 | 8,926 | 6,434 | 2,053 | 367 | 287 | 443 | 1,095 | 1,776 | 2,946 | 5,231 | 7,414 |
| 60% | 8,661 | 8,475 | 4,026 | 858 | 223 | 208 | 293 | 860 | 1,539 | 2,356 | 4,798 | 7,000 |
| 70% | 8,406 | 8,161 | 2,112 | 244 | 197 | 195 | 231 | 518 | 1,443 | 2,049 | 4,597 | 6,860 |
| 80% | 7,901 | 7,354 | 937 | 202 | 190 | 188 | 193 | 233 | 1,105 | 1,796 | 4,435 | 6,650 |
| 90% | 7,082 | 2,727 | 343 | 188 | 187 | 185 | 185 | 184 | 267 | 1,386 | 4,077 | 6,263 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 8,776 | 8,112 | 5,530 | 2,877 | 1,041 | 687 | 889 | 1,515 | 2,285 | 3,509 | 5,864 | 7,677 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 7,155 | 6,715 | 4,204 | 647 | 211 | 213 | 268 | 446 | 949 | 1,720 | 4,242 | 5,996 |
| Above Normal (16%) | 8,570 | 8,485 | 5,756 | 1,414 | 356 | 240 | 362 | 809 | 1,465 | 2,057 | 4,492 | 6,898 |
| Below Normal (13%) | 8,672 | 8,272 | 5,583 | 3,929 | 1,253 | 777 | 1,030 | 1,595 | 1,893 | 3,128 | 5,508 | 7,648 |
| Dry (24%) | 9,623 | 7,585 | 5,047 | 4,431 | 1,439 | 783 | 1,024 | 1,772 | 2,871 | 4,835 | 7,315 | 8,998 |
| Critical (15%) | 11,200 | 11,464 | 8,912 | 5,736 | 2,723 | 1,956 | 2,448 | 4,094 | 5,450 | 7,095 | 8,773 | 9,988 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -398 | -419 | **87** | **1,544** | **1,198** | **743** | **509** | 0 | -99 | -286 | -117 | -15 |
| 20% | -234 | -204 | **1,477** | **1,782** | **653** | **149** | **515** | -15 | -288 | **87** | **29** | -17 |
| 30% | -556 | -200 | **3,497** | **1,663** | **443** | **130** | **408** | **116** | -607 | **92** | -26 | -118 |
| 40% | -618 | **791** | **3,867** | **1,188** | **211** | **88** | **344** | **637** | -785 | -13 | **336** | **128** |
| 50% | **2,217** | **5,710** | **3,016** | **769** | **82** | **40** | **146** | **427** | -575 | **7** | **278** | **144** |
| 60% | **5,167** | **5,521** | **1,031** | **314** | **8** | -3 | **61** | **424** | -437 | **176** | **28** | **3,939** |
| 70% | **6,938** | **6,771** | **1,005** | **18** | -2 | **1** | **20** | **192** | **28** | **77** | **121** | **5,301** |
| 80% | **6,508** | **6,146** | **479** | 0 | -1 | 0 | -3 | **23** | **256** | -4 | **283** | **5,263** |
| 90% | **5,790** | **1,617** | **121** | -1 | **1** | -1 | -4 | -3 | **16** | -65 | **199** | **4,948** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **2,478** | **2,650** | **1,526** | **770** | **255** | **115** | **166** | **226** | -261 | **2** | **120** | **2,024** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **5,803** | **5,580** | **2,253** | **198** | **8** | **7** | **49** | **128** | -74 | **91** | **73** | **4,636** |
| Above Normal (16%) | **5,238** | **5,591** | **2,601** | **474** | **58** | **13** | **107** | **334** | -474 | -28 | **247** | **3,834** |
| Below Normal (13%) | -181 | **594** | **519** | **1,476** | **399** | **99** | **255** | **315** | -848 | -5 | **344** | -209 |
| Dry (24%) | -428 | -219 | **474** | **1,177** | **324** | **159** | **236** | **169** | -178 | -19 | **80** | -60 |
| Critical (15%) | -433 | -220 | **1,459** | **1,003** | **759** | **398** | **286** | **333** | -38 | -119 | -53 | -79 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 11-3. Sacramento River at Collinsville Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 11,503 | 11,926 | 9,552 | 5,279 | 1,765 | 1,435 | 1,927 | 3,135 | 4,215 | 6,367 | 8,537 | 9,877 |
| 20% | 10,414 | 10,042 | 7,723 | 4,178 | 1,059 | 939 | 961 | 2,417 | 3,638 | 5,111 | 7,507 | 9,221 |
| 30% | 10,219 | 9,690 | 5,019 | 3,126 | 641 | 425 | 661 | 1,909 | 3,339 | 4,606 | 7,315 | 9,119 |
| 40% | 9,939 | 8,433 | 4,160 | 1,781 | 372 | 350 | 423 | 953 | 2,896 | 3,531 | 5,754 | 8,396 |
| 50% | 6,904 | 3,217 | 3,418 | 1,284 | 285 | 248 | 297 | 668 | 2,351 | 2,939 | 4,953 | 7,270 |
| 60% | 3,495 | 2,954 | 2,995 | 545 | 215 | 210 | 232 | 435 | 1,977 | 2,180 | 4,770 | 3,060 |
| 70% | 1,468 | 1,391 | 1,107 | 225 | 199 | 194 | 211 | 326 | 1,415 | 1,972 | 4,476 | 1,559 |
| 80% | 1,393 | 1,208 | 458 | 202 | 191 | 189 | 197 | 210 | 849 | 1,800 | 4,152 | 1,387 |
| 90% | 1,292 | 1,110 | 222 | 188 | 186 | 187 | 189 | 188 | 251 | 1,451 | 3,878 | 1,315 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,298 | 5,462 | 4,004 | 2,107 | 786 | 573 | 723 | 1,289 | 2,546 | 3,507 | 5,744 | 5,653 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 1,351 | 1,135 | 1,951 | 449 | 203 | 206 | 219 | 318 | 1,023 | 1,629 | 4,169 | 1,360 |
| Above Normal (16%) | 3,332 | 2,894 | 3,155 | 940 | 298 | 227 | 255 | 475 | 1,939 | 2,086 | 4,245 | 3,064 |
| Below Normal (13%) | 8,853 | 7,678 | 5,064 | 2,453 | 854 | 678 | 775 | 1,280 | 2,741 | 3,133 | 5,164 | 7,857 |
| Dry (24%) | 10,051 | 7,803 | 4,573 | 3,254 | 1,116 | 625 | 789 | 1,603 | 3,049 | 4,853 | 7,235 | 9,058 |
| Critical (15%) | 11,632 | 11,684 | 7,452 | 4,733 | 1,963 | 1,558 | 2,162 | 3,761 | 5,488 | 7,214 | 8,826 | 10,067 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 10,278 | 10,225 | 9,417 | 6,527 | 2,944 | 2,069 | 2,342 | 3,207 | 4,092 | 6,230 | 8,458 | 9,741 |
| 20% | 9,468 | 9,216 | 8,899 | 5,994 | 1,869 | 1,112 | 1,518 | 2,480 | 3,297 | 5,180 | 7,379 | 8,957 |
| 30% | 8,971 | 8,899 | 7,964 | 4,570 | 1,117 | 570 | 1,050 | 2,148 | 2,742 | 4,724 | 7,084 | 8,599 |
| 40% | 8,493 | 8,496 | 7,258 | 3,158 | 599 | 430 | 767 | 1,638 | 2,211 | 3,489 | 5,937 | 8,309 |
| 50% | 8,268 | 8,172 | 6,272 | 2,076 | 355 | 296 | 435 | 1,214 | 1,945 | 2,928 | 5,092 | 7,255 |
| 60% | 7,821 | 7,889 | 3,969 | 860 | 225 | 211 | 288 | 863 | 1,801 | 2,330 | 4,666 | 6,911 |
| 70% | 7,376 | 7,597 | 2,298 | 246 | 197 | 195 | 233 | 533 | 1,553 | 2,058 | 4,546 | 6,548 |
| 80% | 6,995 | 6,068 | 1,056 | 202 | 190 | 189 | 194 | 238 | 1,128 | 1,865 | 4,377 | 6,376 |
| 90% | 6,009 | 2,827 | 337 | 189 | 188 | 186 | 188 | 186 | 270 | 1,587 | 4,052 | 5,584 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 8,034 | 7,545 | 5,340 | 2,839 | 1,070 | 695 | 881 | 1,548 | 2,377 | 3,540 | 5,754 | 7,411 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 6,646 | 6,330 | 3,960 | 648 | 212 | 214 | 247 | 528 | 1,013 | 1,737 | 4,205 | 5,781 |
| Above Normal (16%) | 7,796 | 7,822 | 5,442 | 1,362 | 353 | 242 | 363 | 823 | 1,642 | 2,039 | 4,326 | 6,367 |
| Below Normal (13%) | 7,941 | 7,616 | 5,445 | 3,982 | 1,186 | 747 | 1,006 | 1,616 | 2,035 | 3,144 | 5,420 | 7,507 |
| Dry (24%) | 8,565 | 7,092 | 5,010 | 4,441 | 1,526 | 789 | 1,017 | 1,762 | 2,864 | 4,837 | 7,136 | 8,739 |
| Critical (15%) | 10,499 | 10,567 | 8,675 | 5,469 | 2,838 | 2,027 | 2,475 | 4,122 | 5,625 | 7,271 | 8,659 | 9,770 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -1,225 | -1,701 | -135 | **1,249** | **1,178** | **633** | **415** | **73** | -123 | -138 | -79 | -136 |
| 20% | -947 | -826 | **1,176** | **1,816** | **809** | **174** | **557** | **62** | -341 | **69** | -128 | -265 |
| 30% | -1,248 | -791 | **2,946** | **1,444** | **476** | **146** | **389** | **238** | -596 | **118** | -231 | -520 |
| 40% | -1,447 | **63** | **3,098** | **1,377** | **227** | **80** | **345** | **684** | -685 | -41 | **182** | -87 |
| 50% | **1,364** | **4,956** | **2,854** | **791** | **70** | **48** | **139** | **547** | -406 | -10 | **139** | -14 |
| 60% | **4,327** | **4,935** | **974** | **316** | **10** | **0** | **56** | **427** | -176 | **150** | -103 | **3,851** |
| 70% | **5,908** | **6,206** | **1,191** | **20** | -1 | **1** | **22** | **207** | **139** | **87** | **70** | **4,989** |
| 80% | **5,602** | **4,861** | **598** | **0** | -1 | **0** | -2 | **28** | **279** | **65** | **226** | **4,990** |
| 90% | **4,717** | **1,717** | **116** | **1** | **1** | 0 | -1 | -2 | **19** | **136** | **174** | **4,268** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **1,736** | **2,083** | **1,336** | **732** | **284** | **123** | **159** | **259** | -170 | **33** | **10** | **1,757** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **5,294** | **5,195** | **2,009** | **199** | **9** | **8** | **28** | **210** | -10 | **107** | **36** | **4,421** |
| Above Normal (16%) | **4,464** | **4,928** | **2,287** | **422** | **55** | **15** | **108** | **348** | -297 | -46 | **81** | **3,303** |
| Below Normal (13%) | -912 | -61 | **381** | **1,529** | **332** | **70** | **231** | **336** | -706 | **11** | **256** | -349 |
| Dry (24%) | -1,486 | -711 | **437** | **1,187** | **411** | **164** | **228** | **159** | -185 | -16 | -99 | -319 |
| Critical (15%) | -1,133 | -1,117 | **1,222** | **736** | **874** | **469** | **313** | **361** | **138** | **58** | -167 | -298 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 11-4. Sacramento River at Collinsville Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 11,503 | 11,926 | 9,552 | 5,279 | 1,765 | 1,435 | 1,927 | 3,135 | 4,215 | 6,367 | 8,537 | 9,877 |
| 20% | 10,414 | 10,042 | 7,723 | 4,178 | 1,059 | 939 | 961 | 2,417 | 3,638 | 5,111 | 7,507 | 9,221 |
| 30% | 10,219 | 9,690 | 5,019 | 3,126 | 641 | 425 | 661 | 1,909 | 3,339 | 4,606 | 7,315 | 9,119 |
| 40% | 9,939 | 8,433 | 4,160 | 1,781 | 372 | 350 | 423 | 953 | 2,896 | 3,531 | 5,754 | 8,396 |
| 50% | 6,904 | 3,217 | 3,418 | 1,284 | 285 | 248 | 297 | 668 | 2,351 | 2,939 | 4,953 | 7,270 |
| 60% | 3,495 | 2,954 | 2,995 | 545 | 215 | 210 | 232 | 435 | 1,977 | 2,180 | 4,770 | 3,060 |
| 70% | 1,468 | 1,391 | 1,107 | 225 | 199 | 194 | 211 | 326 | 1,415 | 1,972 | 4,476 | 1,559 |
| 80% | 1,393 | 1,208 | 458 | 202 | 191 | 189 | 197 | 210 | 849 | 1,800 | 4,152 | 1,387 |
| 90% | 1,292 | 1,110 | 222 | 188 | 186 | 187 | 189 | 188 | 251 | 1,451 | 3,878 | 1,315 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 6,298 | 5,462 | 4,004 | 2,107 | 786 | 573 | 723 | 1,289 | 2,546 | 3,507 | 5,744 | 5,653 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 1,351 | 1,135 | 1,951 | 449 | 203 | 206 | 219 | 318 | 1,023 | 1,629 | 4,169 | 1,360 |
| Above Normal (16%) | 3,332 | 2,894 | 3,155 | 940 | 298 | 227 | 255 | 475 | 1,939 | 2,086 | 4,245 | 3,064 |
| Below Normal (13%) | 8,853 | 7,678 | 5,064 | 2,453 | 854 | 678 | 775 | 1,280 | 2,741 | 3,133 | 5,164 | 7,857 |
| Dry (24%) | 10,051 | 7,803 | 4,573 | 3,254 | 1,116 | 625 | 789 | 1,603 | 3,049 | 4,853 | 7,235 | 9,058 |
| Critical (15%) | 11,632 | 11,684 | 7,452 | 4,733 | 1,963 | 1,558 | 2,162 | 3,761 | 5,488 | 7,214 | 8,826 | 10,067 |

### Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 11,501 | 11,899 | 9,650 | 5,801 | 1,867 | 1,212 | 1,631 | 3,113 | 4,114 | 6,114 | 8,676 | 9,892 |
| 20% | 10,483 | 10,046 | 9,163 | 4,392 | 1,026 | 564 | 876 | 2,498 | 3,634 | 5,330 | 7,658 | 9,408 |
| 30% | 10,253 | 9,750 | 7,210 | 2,891 | 611 | 303 | 577 | 1,567 | 3,260 | 4,798 | 7,469 | 9,268 |
| 40% | 9,962 | 9,387 | 6,082 | 1,565 | 350 | 248 | 335 | 867 | 2,867 | 3,733 | 5,959 | 8,740 |
| 50% | 9,614 | 9,106 | 4,794 | 1,156 | 253 | 219 | 259 | 525 | 2,295 | 3,129 | 5,257 | 7,864 |
| 60% | 8,786 | 8,436 | 3,483 | 462 | 206 | 205 | 210 | 360 | 1,888 | 2,273 | 4,711 | 7,106 |
| 70% | 8,463 | 6,738 | 1,148 | 221 | 196 | 196 | 204 | 259 | 1,371 | 2,080 | 4,445 | 6,883 |
| 80% | 7,891 | 4,475 | 633 | 198 | 190 | 190 | 197 | 202 | 791 | 1,959 | 4,256 | 6,692 |
| 90% | 6,103 | 2,607 | 232 | 187 | 187 | 189 | 191 | 187 | 257 | 1,575 | 3,966 | 6,358 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 8,903 | 7,798 | 4,758 | 2,091 | 791 | 477 | 629 | 1,225 | 2,494 | 3,603 | 5,862 | 7,859 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 6,765 | 6,053 | 3,687 | 374 | 196 | 198 | 215 | 290 | 973 | 1,705 | 4,172 | 6,080 |
| Above Normal (16%) | 8,360 | 7,650 | 4,532 | 968 | 262 | 204 | 228 | 370 | 1,881 | 2,168 | 4,274 | 6,793 |
| Below Normal (13%) | 9,020 | 7,527 | 5,051 | 2,369 | 849 | 445 | 556 | 1,161 | 2,713 | 3,279 | 5,507 | 8,257 |
| Dry (24%) | 10,331 | 7,943 | 4,543 | 3,395 | 1,114 | 445 | 669 | 1,571 | 3,020 | 4,976 | 7,462 | 9,294 |
| Critical (15%) | 11,637 | 11,744 | 7,410 | 4,600 | 2,067 | 1,458 | 1,962 | 3,658 | 5,376 | 7,282 | 8,905 | 10,109 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -2 | -26 | **97** | **522** | **102** | -223 | -295 | -21 | -101 | -254 | **139** | **15** |
| 20% | **69** | **5** | **1,440** | **214** | -33 | -374 | -85 | **81** | -3 | **218** | **151** | **187** |
| 30% | **34** | **60** | **2,191** | -235 | -29 | -121 | -84 | -342 | -78 | **192** | **154** | **149** |
| 40% | **23** | **954** | **1,922** | -216 | -23 | -103 | -88 | -86 | -29 | **202** | **205** | **344** |
| 50% | **2,710** | **5,889** | **1,377** | -128 | -32 | -29 | -38 | -142 | -56 | **191** | **304** | **594** |
| 60% | **5,292** | **5,482** | **488** | -83 | -9 | -5 | -22 | -76 | -89 | **93** | -59 | **4,046** |
| 70% | **6,995** | **5,347** | **41** | -4 | -3 | **2** | -7 | -67 | -44 | **108** | -31 | **5,324** |
| 80% | **6,499** | **3,267** | **175** | -4 | -1 | **2** | **1** | -8 | -58 | **159** | **104** | **5,306** |
| 90% | **4,811** | **1,497** | **11** | -1 | **1** | **2** | **2** | 0 | **6** | **125** | **88** | **5,043** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **2,605** | **2,336** | **753** | -16 | **6** | -96 | -93 | -64 | -53 | **96** | **118** | **2,205** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **5,414** | **4,918** | **1,736** | -75 | -8 | -8 | -4 | -28 | -51 | **75** | **2** | **4,720** |
| Above Normal (16%) | **5,028** | **4,756** | **1,377** | **28** | -36 | -23 | -27 | -104 | -58 | **82** | **29** | **3,729** |
| Below Normal (13%) | **168** | -150 | -12 | -84 | -5 | -233 | -219 | -119 | -28 | **146** | **344** | **401** |
| Dry (24%) | **280** | **140** | -30 | **140** | -2 | -180 | -120 | -32 | -29 | **122** | **226** | **237** |
| Critical (15%) | **5** | **60** | -43 | -133 | **103** | -101 | -200 | -103 | -112 | **68** | **79** | **42** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

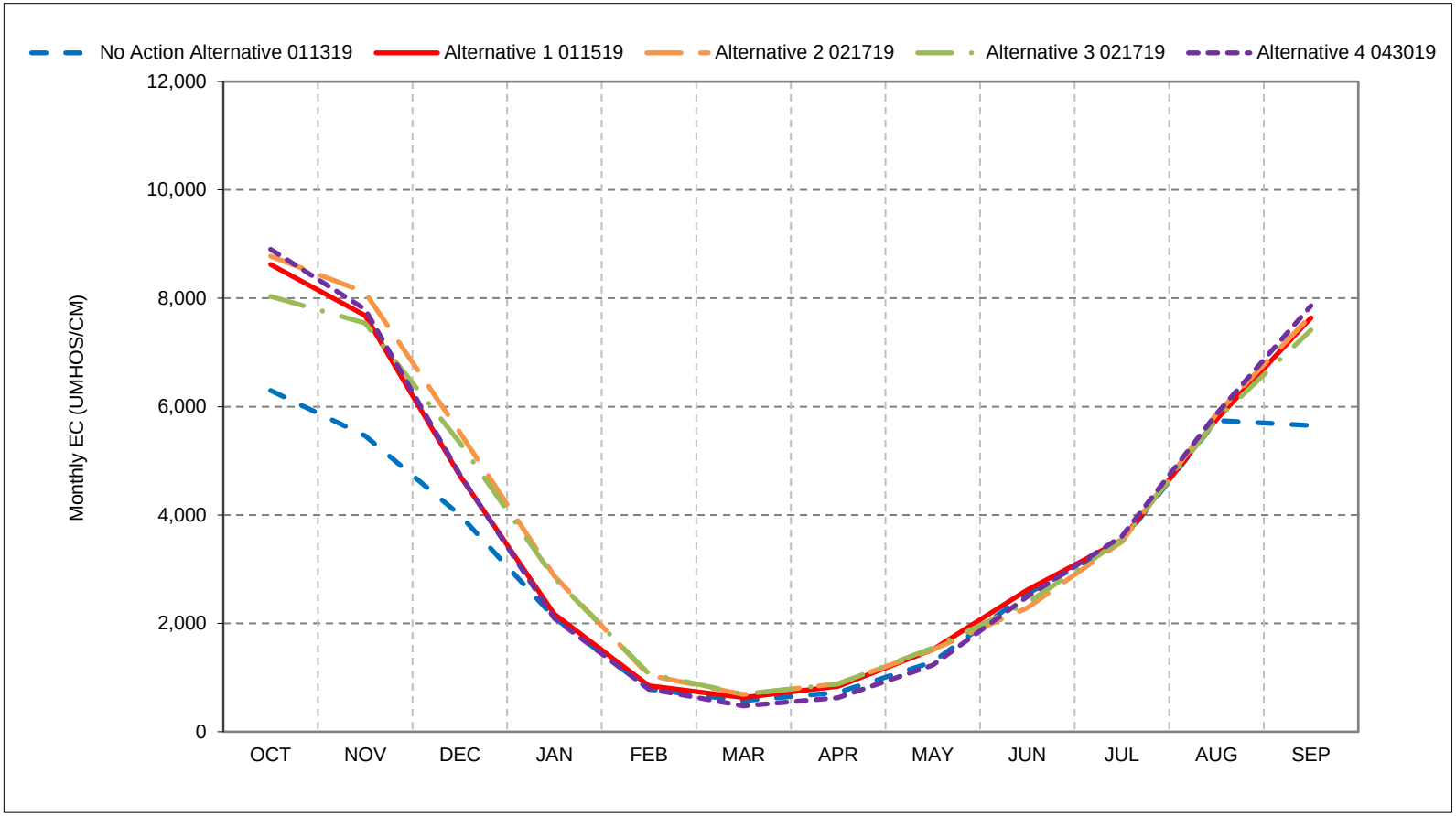
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

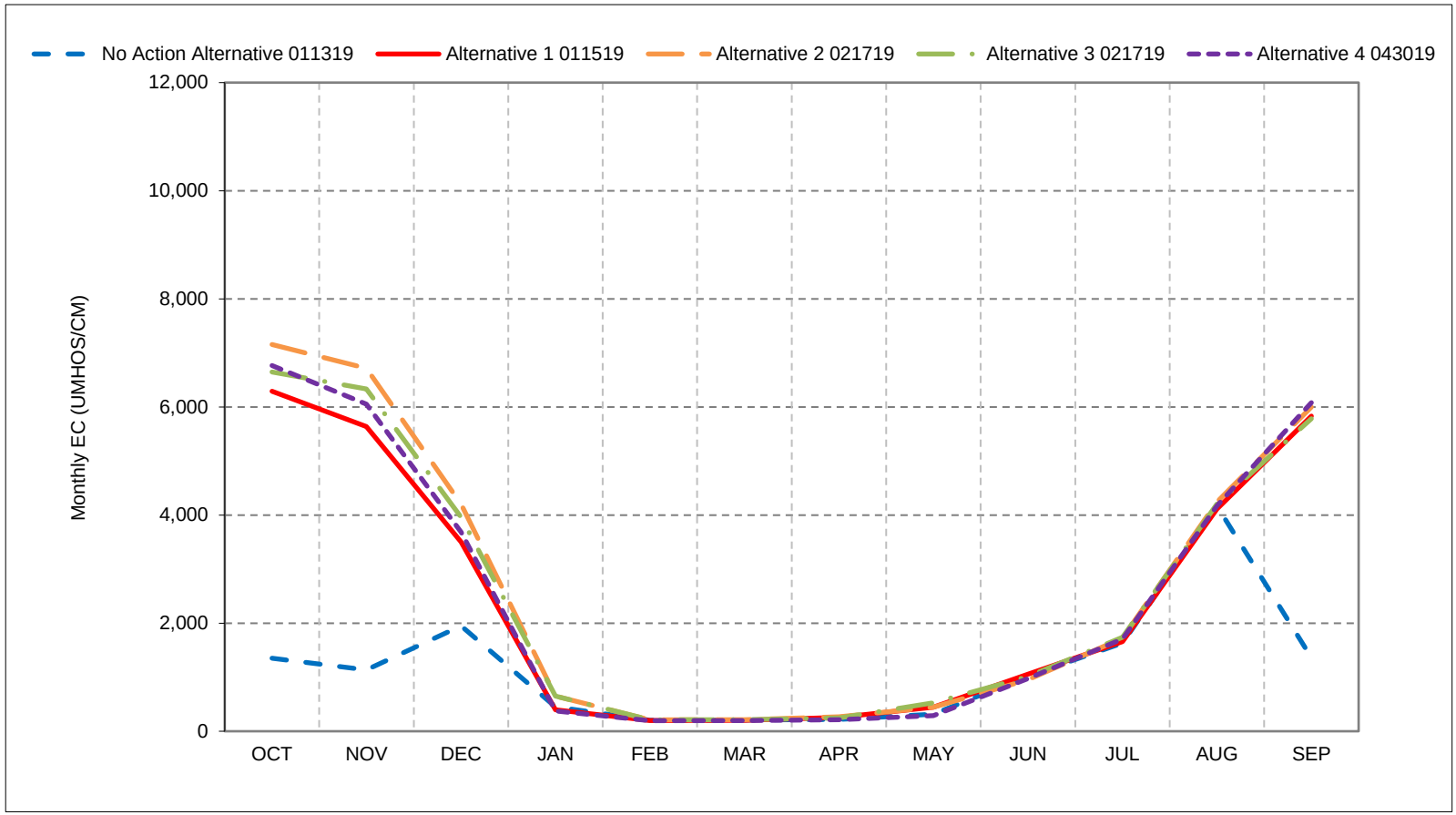
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 11-1. Sacramento River at Collinsville Salinity, Long-Term Average EC



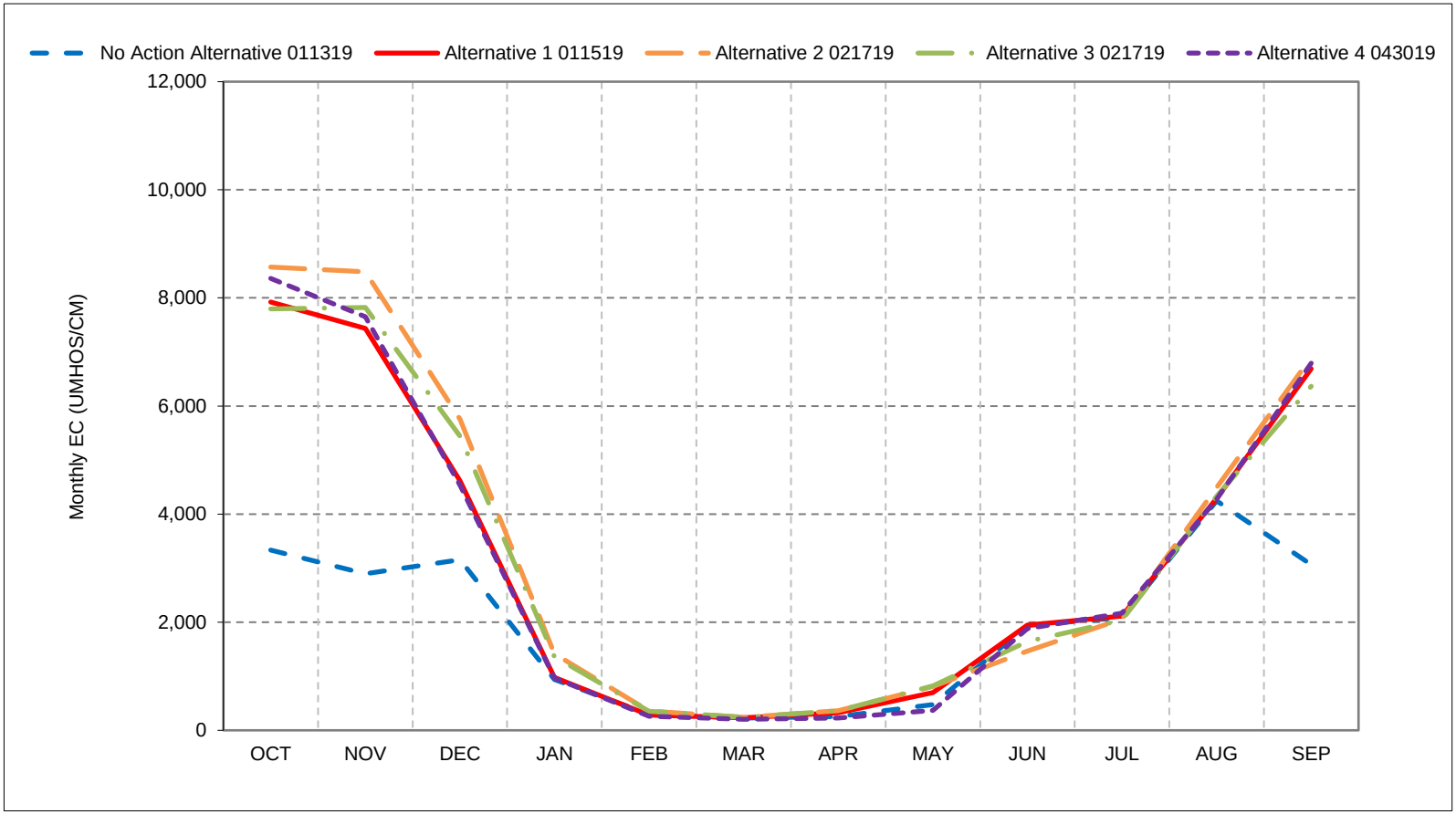

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 11-2. Sacramento River at Collinsville Salinity, Wet Year Average EC



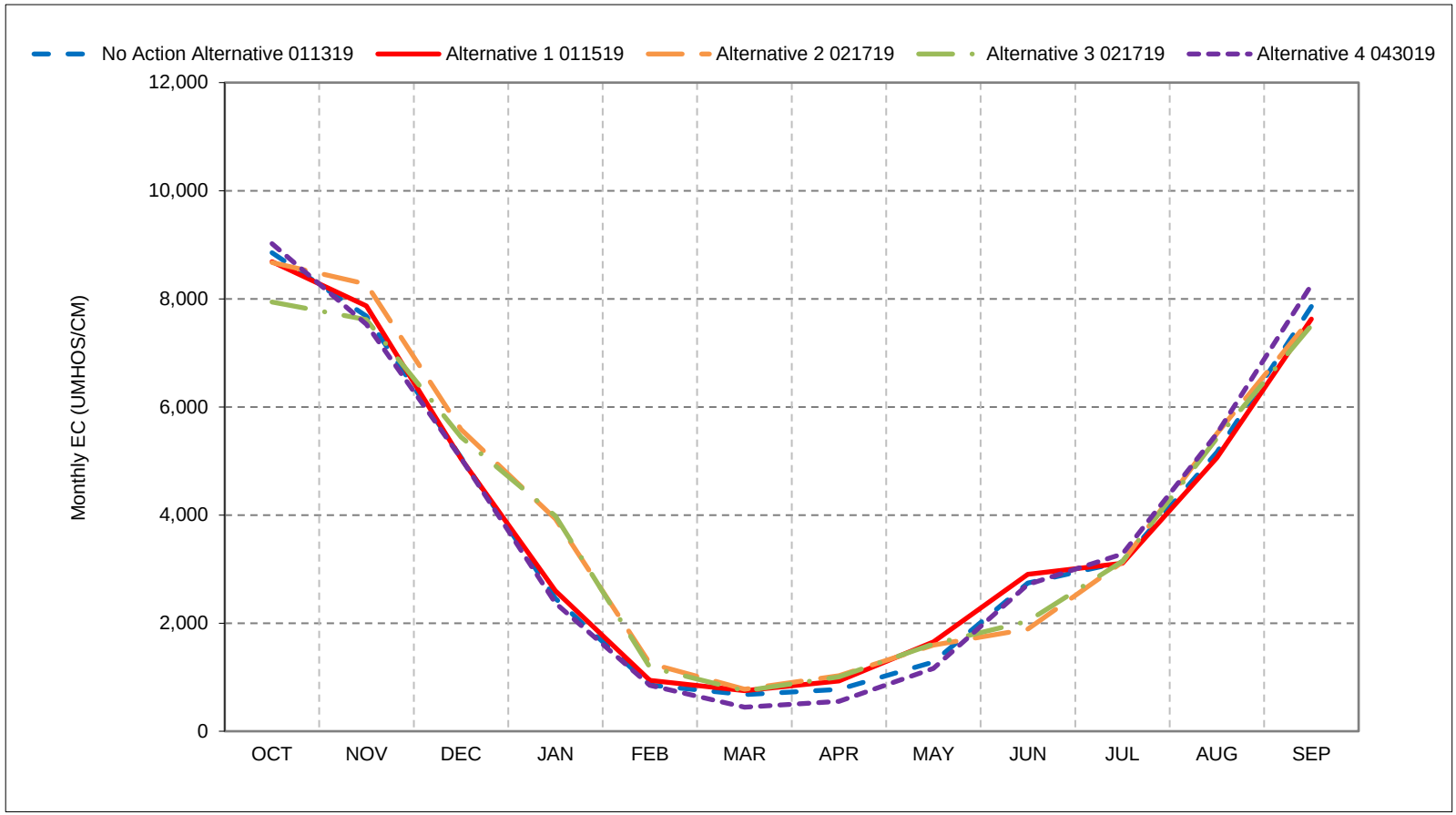

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 11-3. Sacramento River at Collinsville Salinity, Above Normal Year Average EC



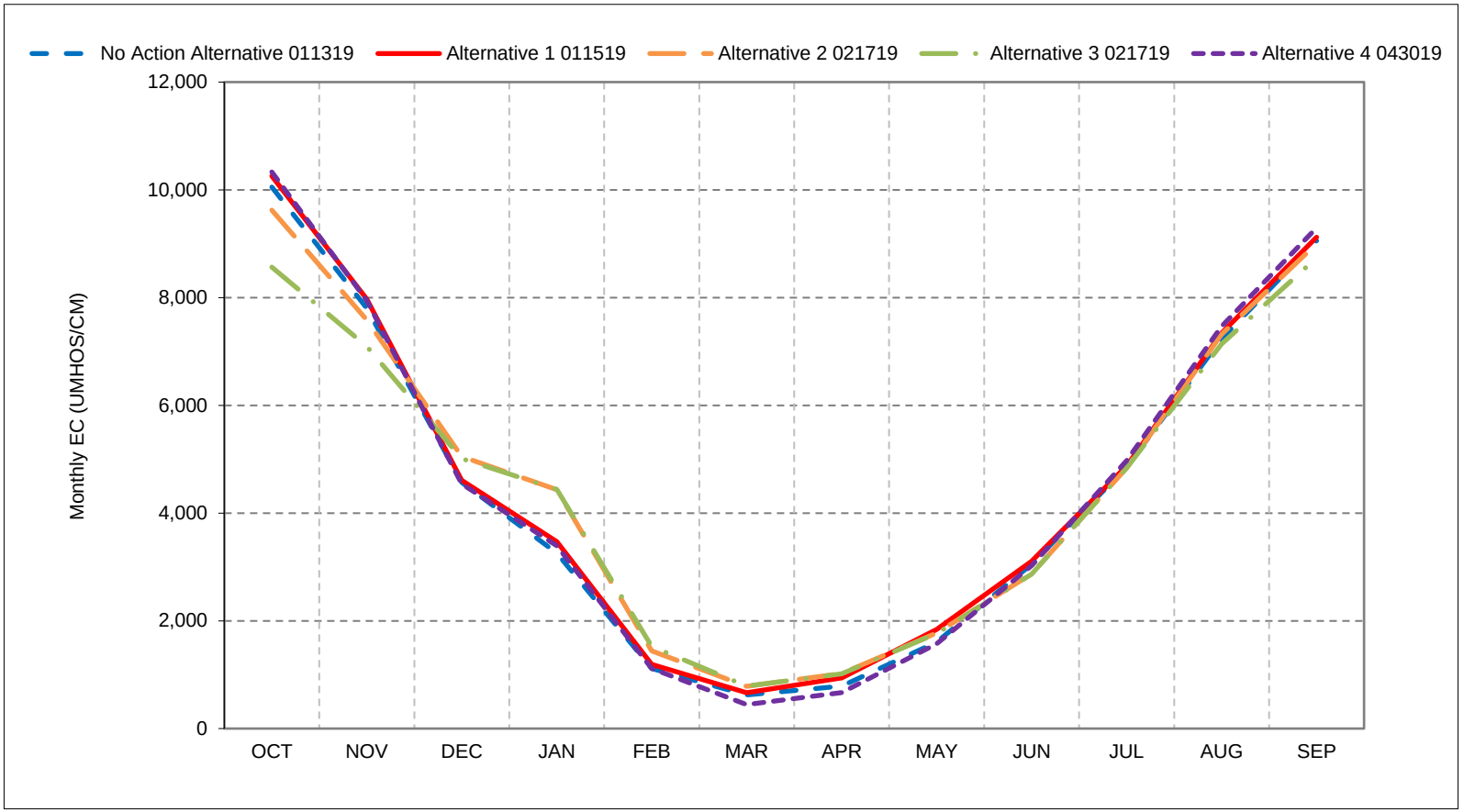

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 11-4. Sacramento River at Collinsville Salinity, Below Normal Year Average EC



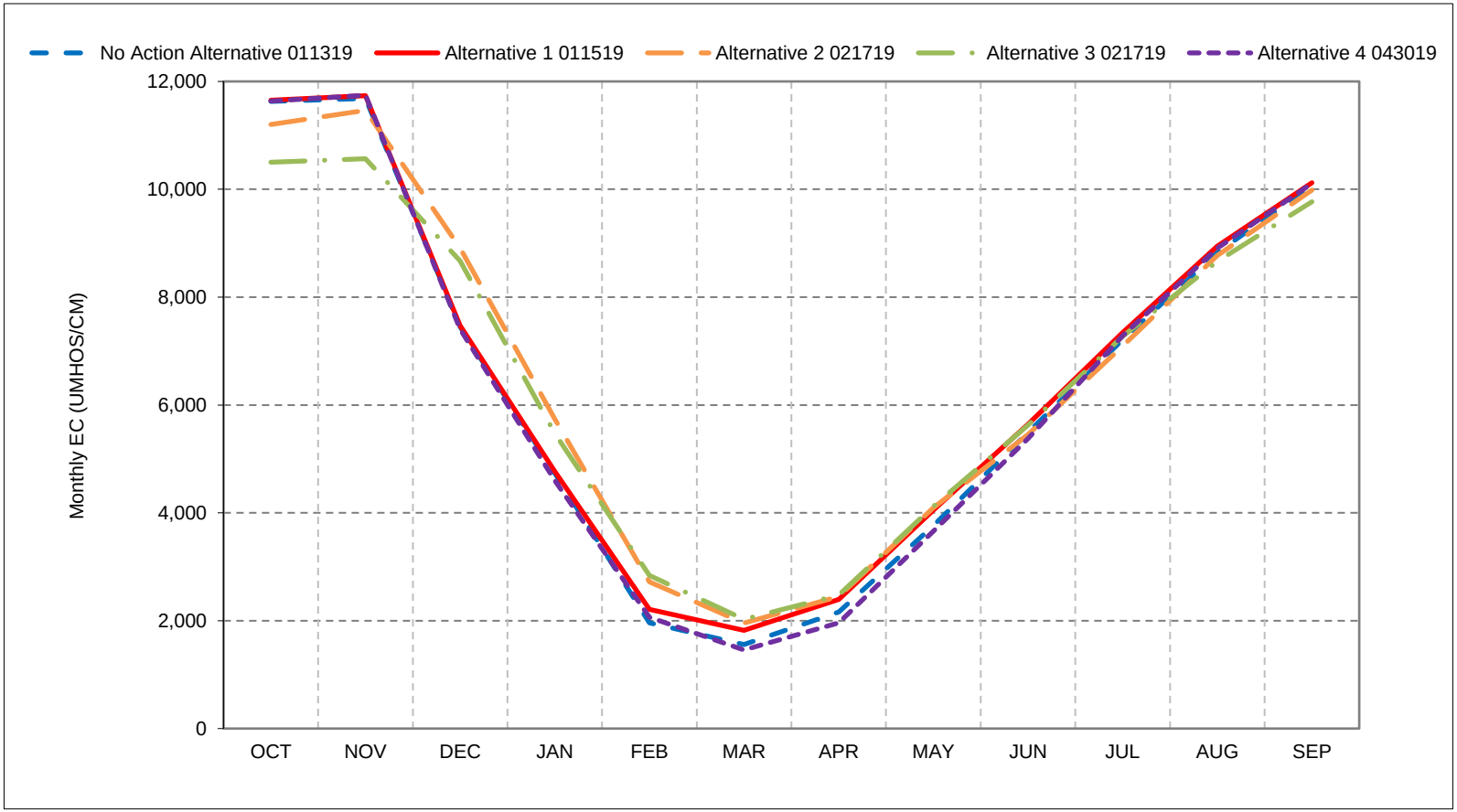

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 11-5. Sacramento River at Collinsville Salinity, Dry Year Average EC



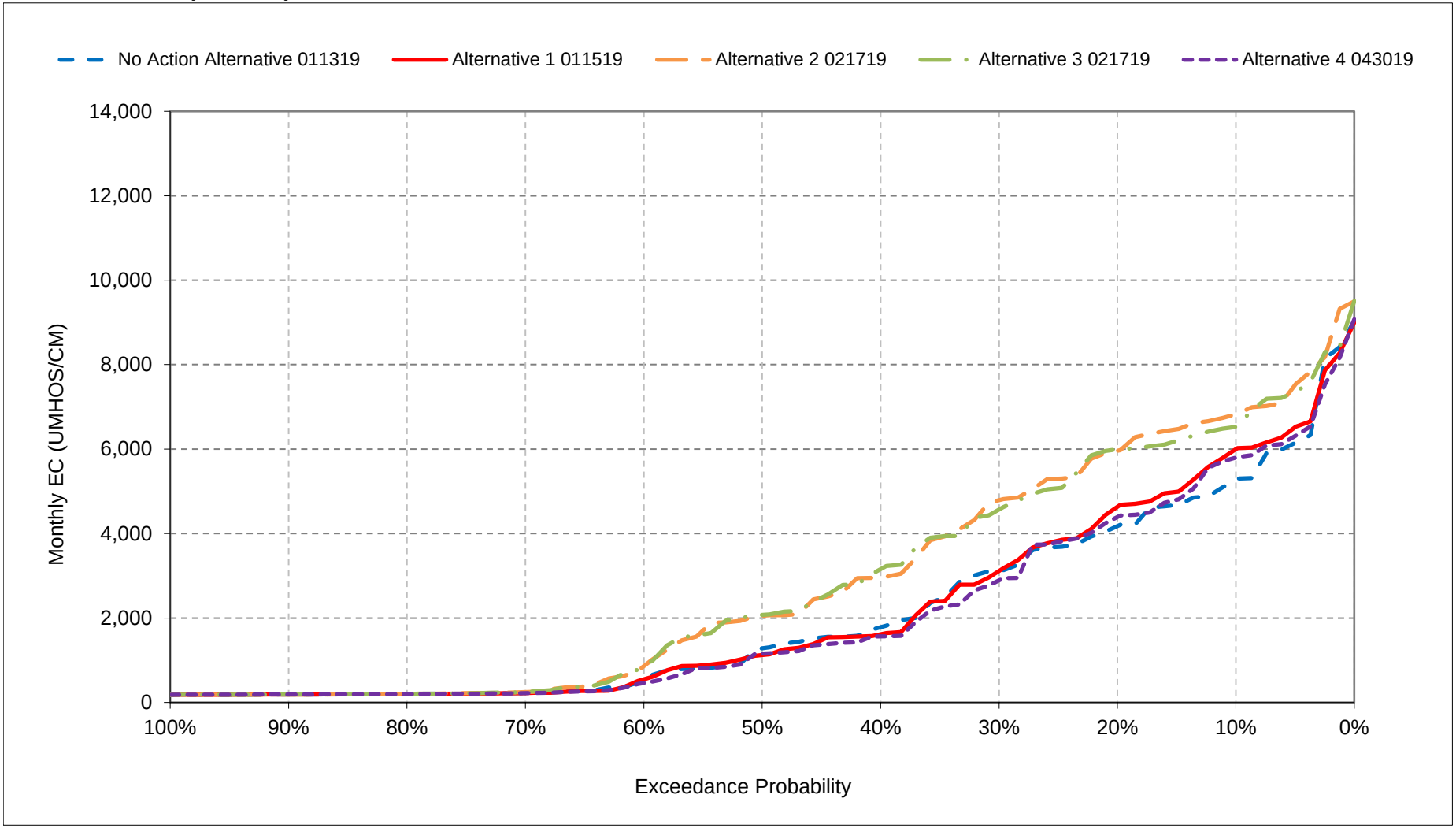

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 11-6. Sacramento River at Collinsville Salinity, Critical Year Average EC




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

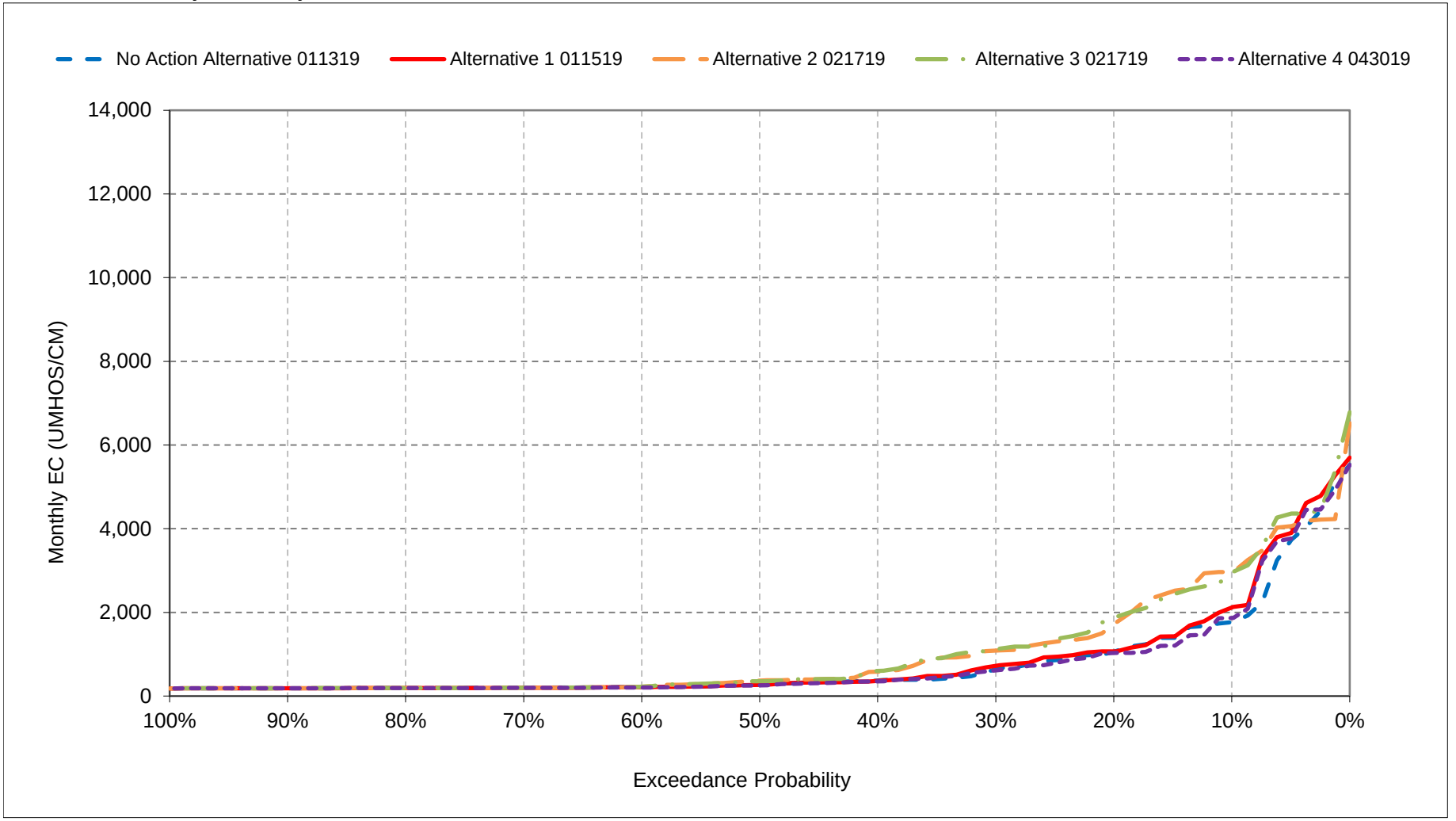
**Figure 11-7. Sacramento River at Collinsville Salinity, January EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

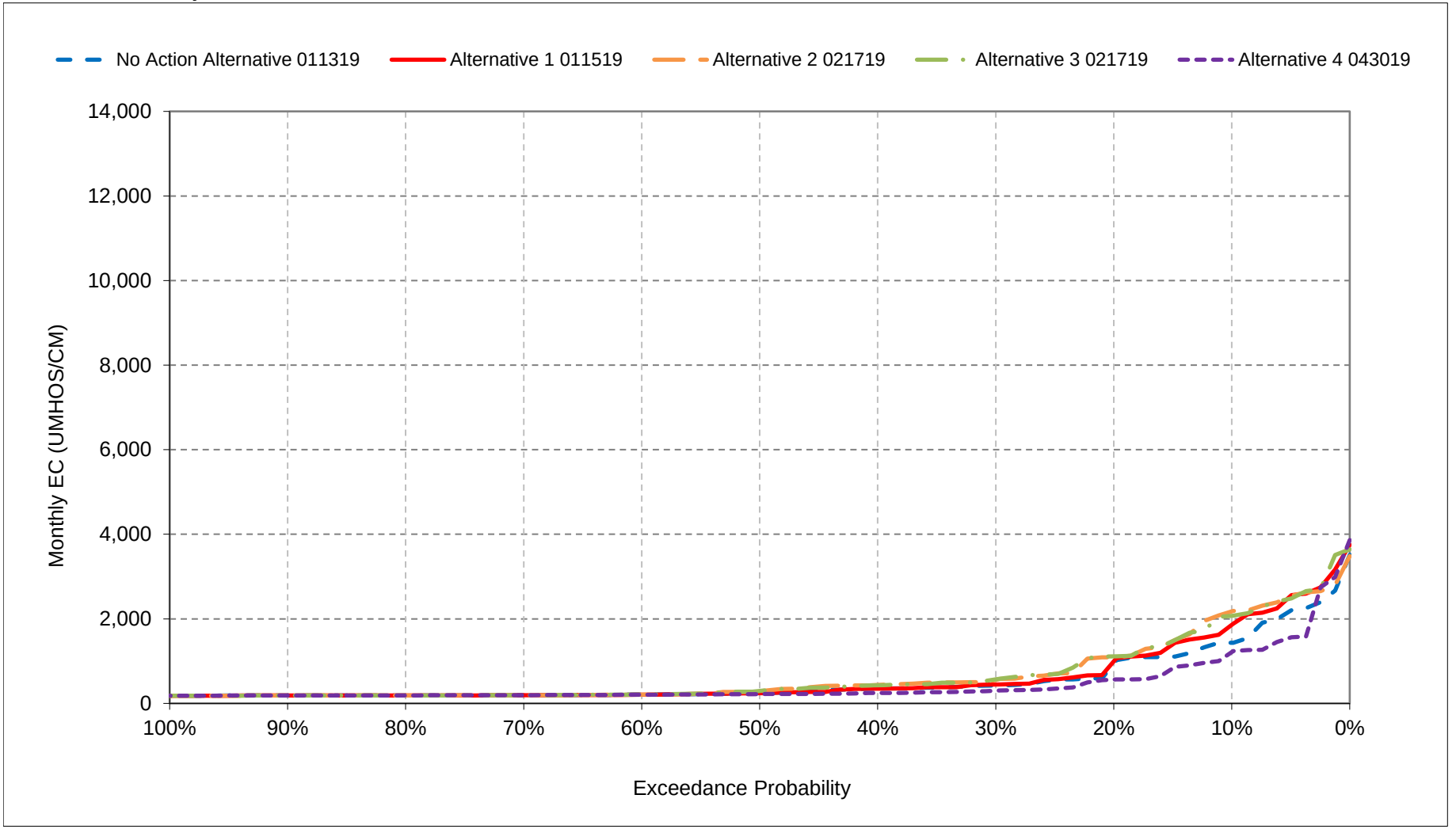
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 11-8. Sacramento River at Collinsville Salinity, February EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

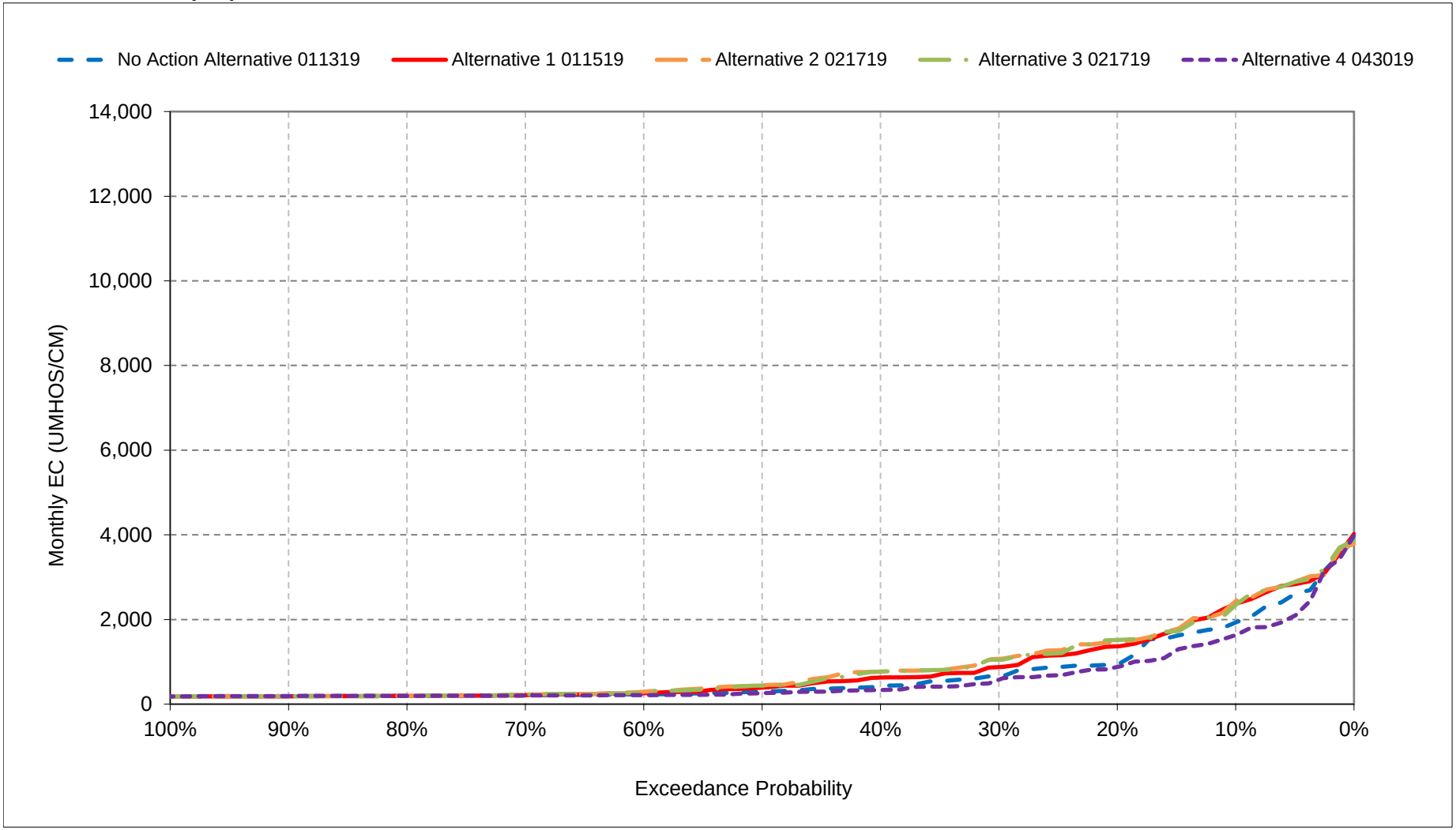
**Figure 11-9. Sacramento River at Collinsville Salinity, March EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

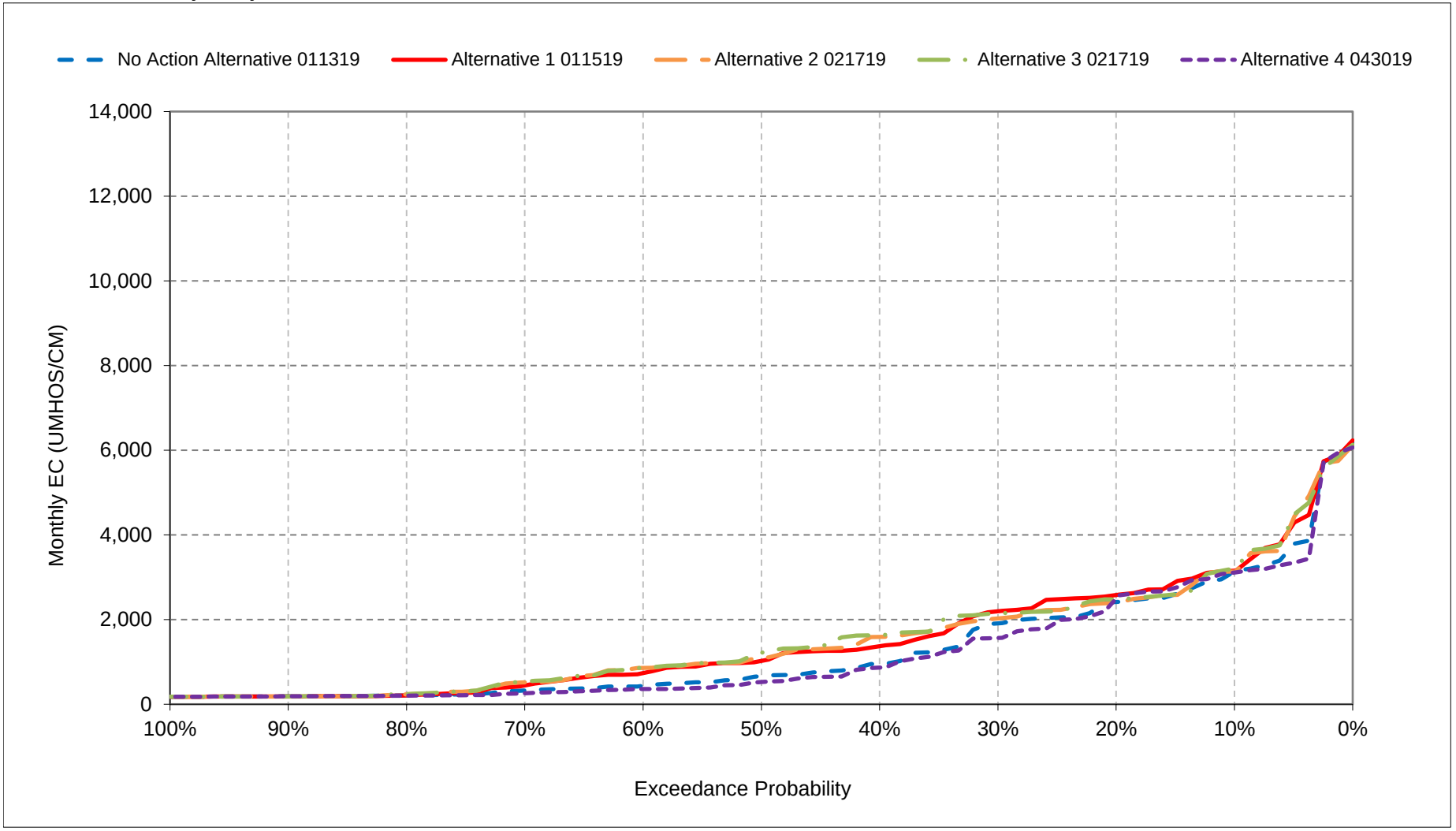
**Figure 11-10. Sacramento River at Collinsville Salinity, April EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

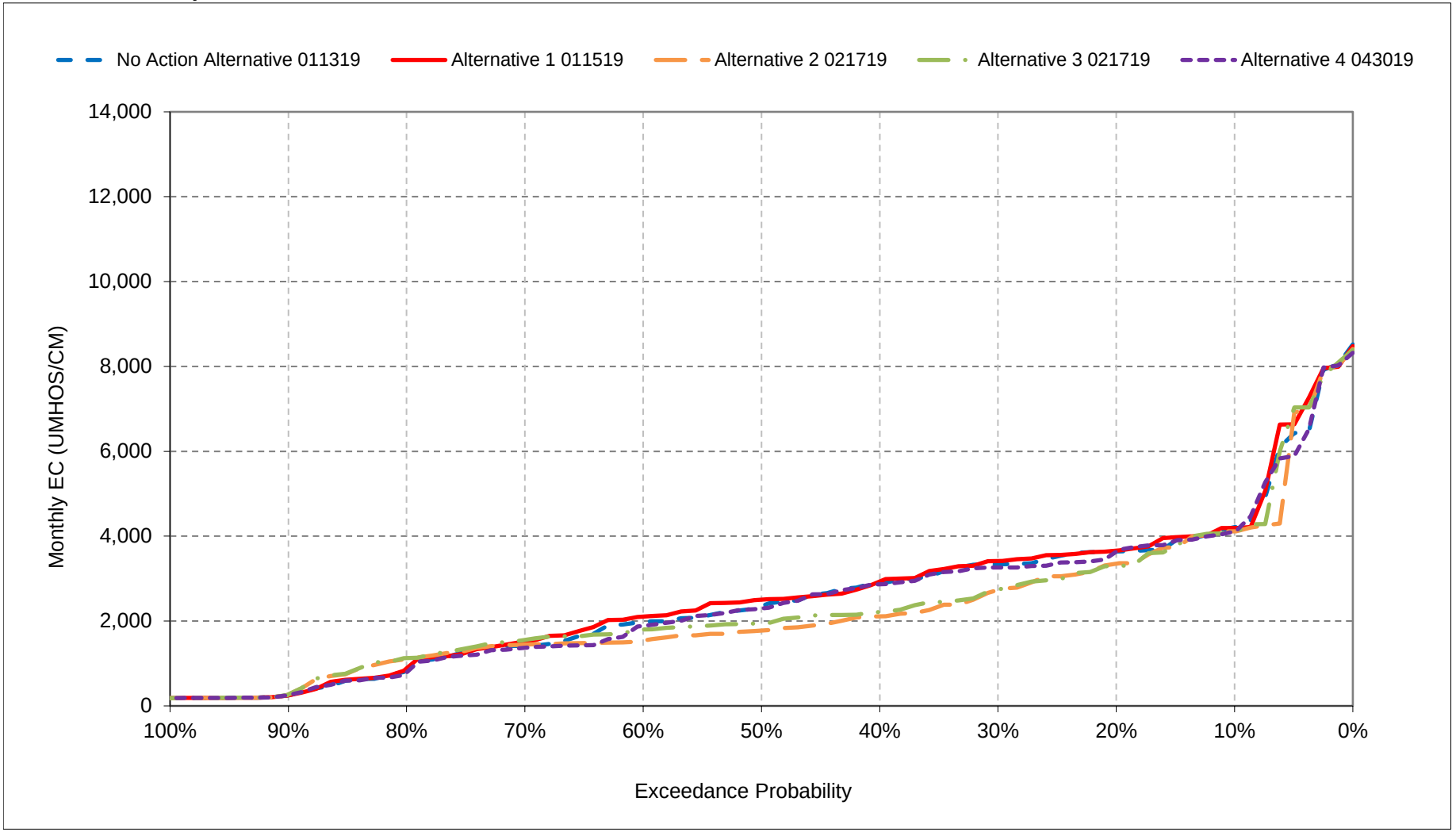
**Figure 11-11. Sacramento River at Collinsville Salinity, May EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

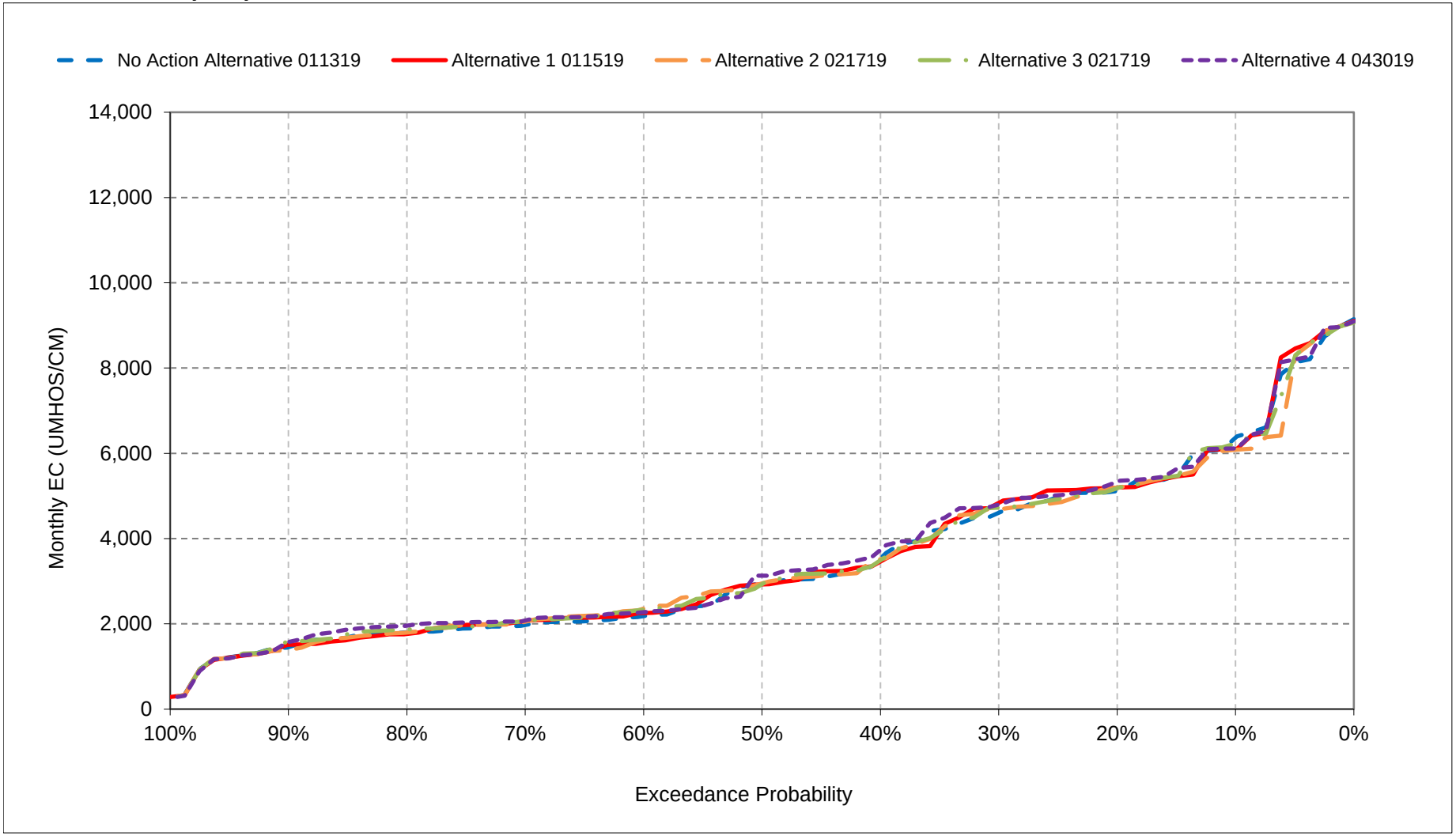
**Figure 11-12. Sacramento River at Collinsville Salinity, June EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

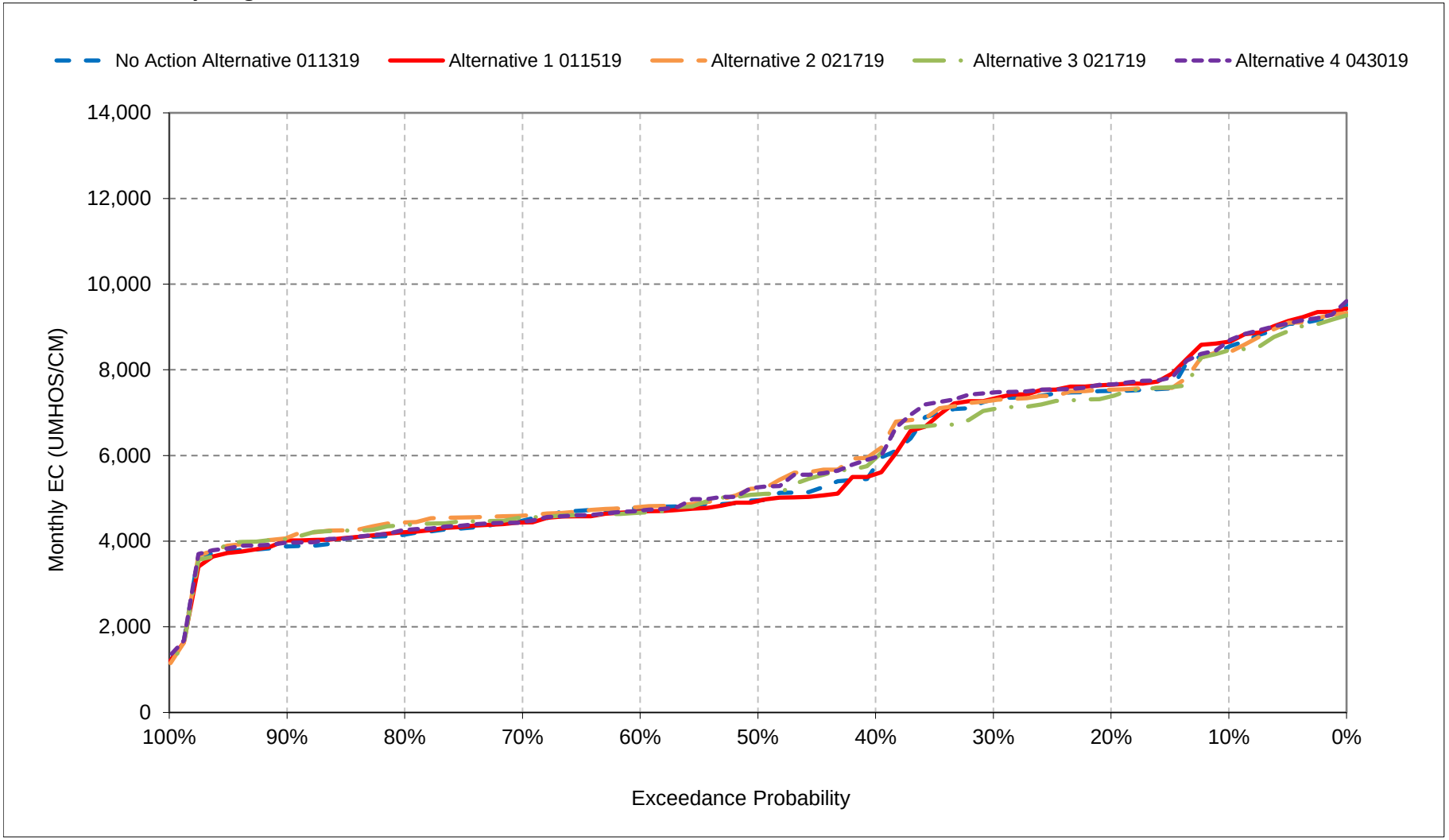
**Figure 11-13. Sacramento River at Collinsville Salinity, July EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

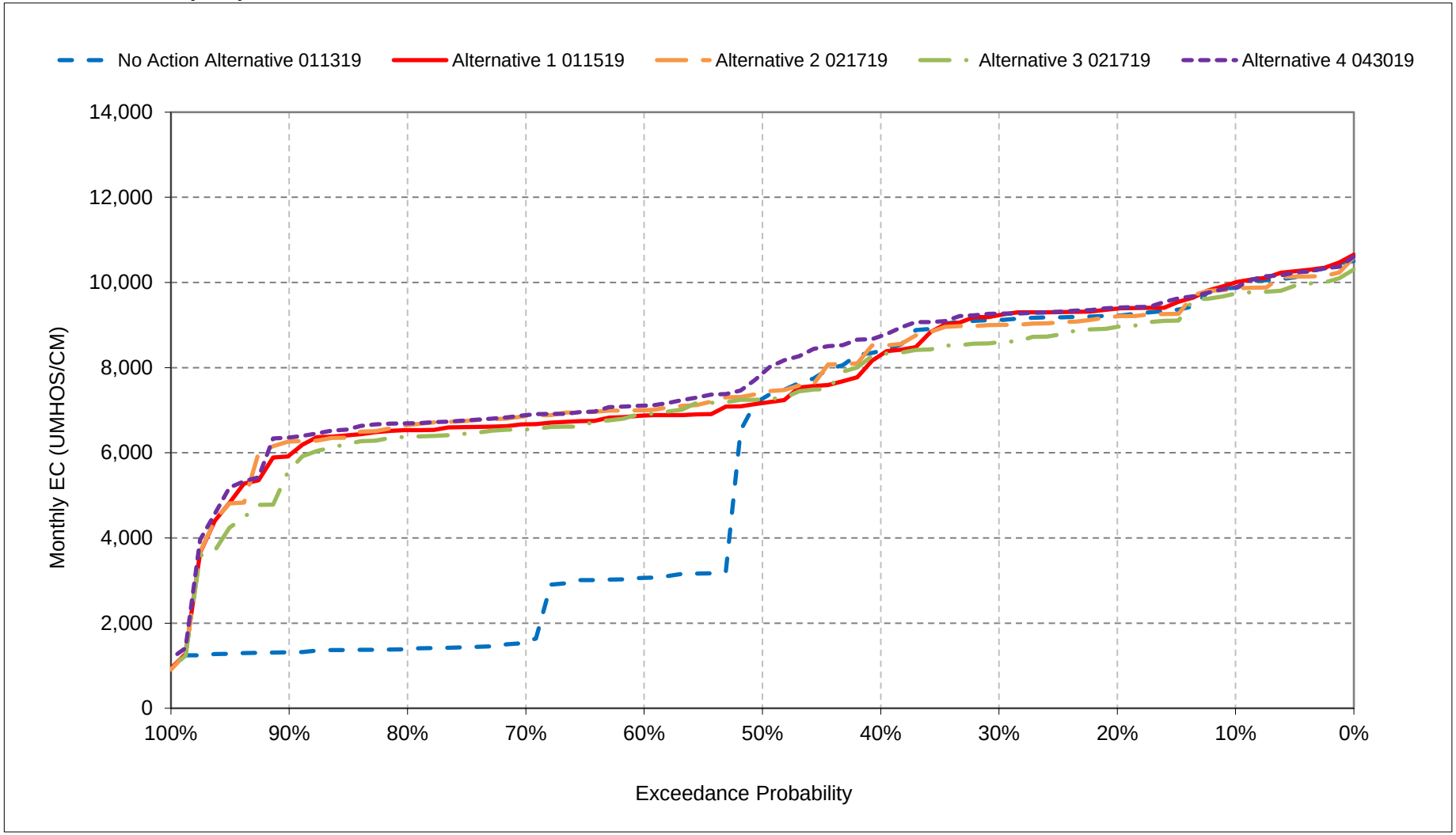
**Figure 11-14. Sacramento River at Collinsville Salinity, August EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

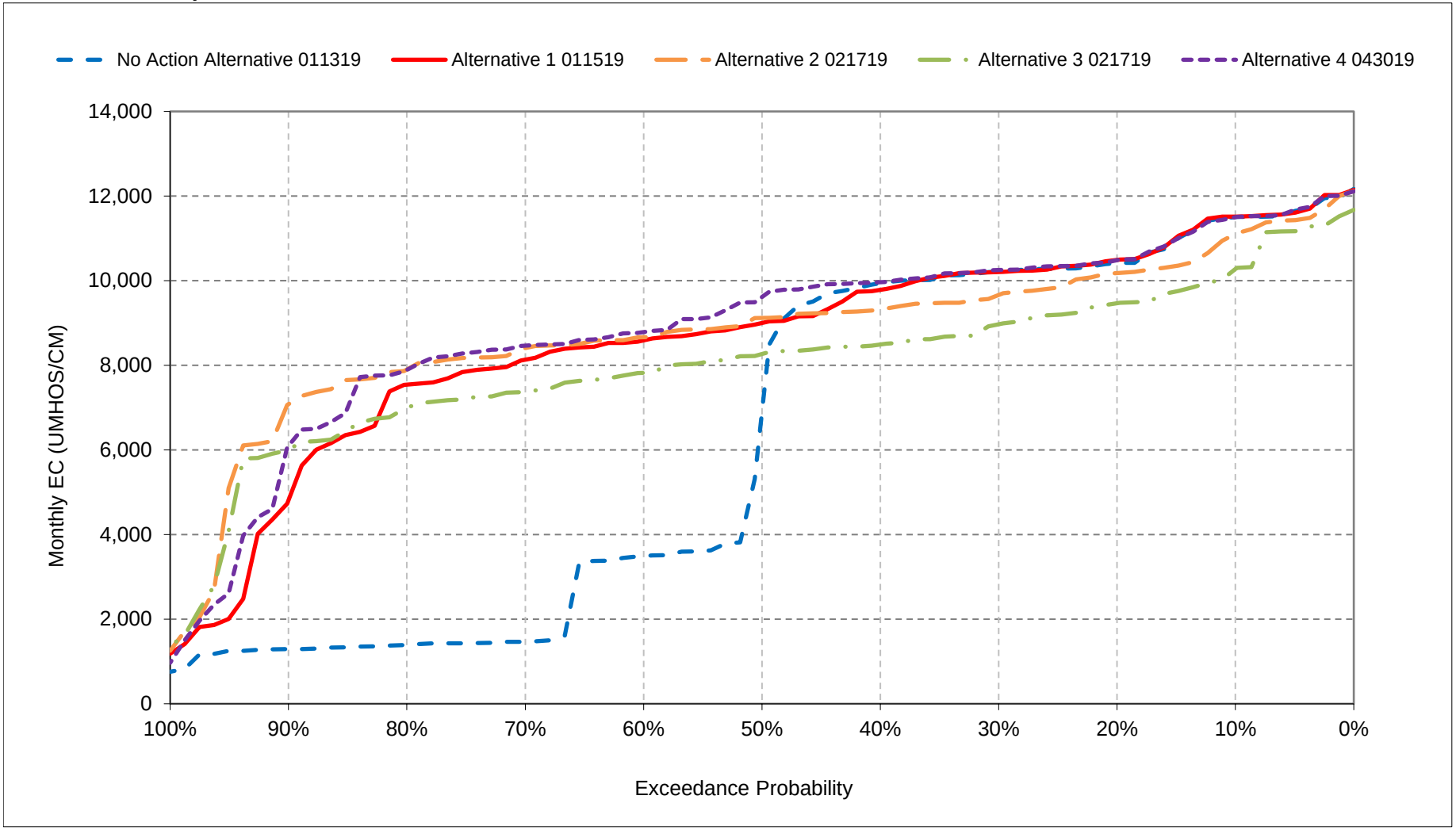
**Figure 11-15. Sacramento River at Collinsville Salinity, September EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

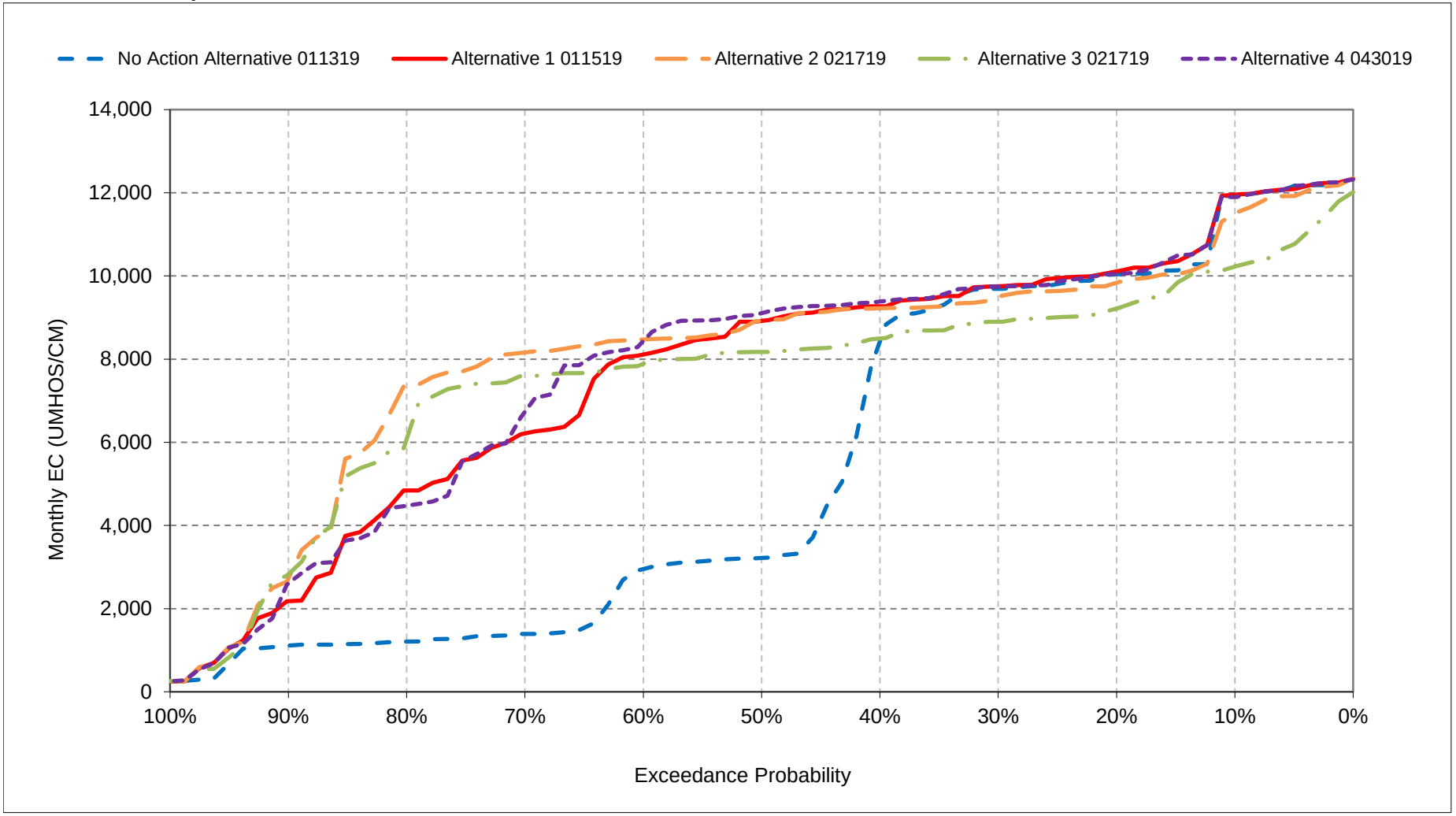
**Figure 11-16. Sacramento River at Collinsville Salinity, October EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

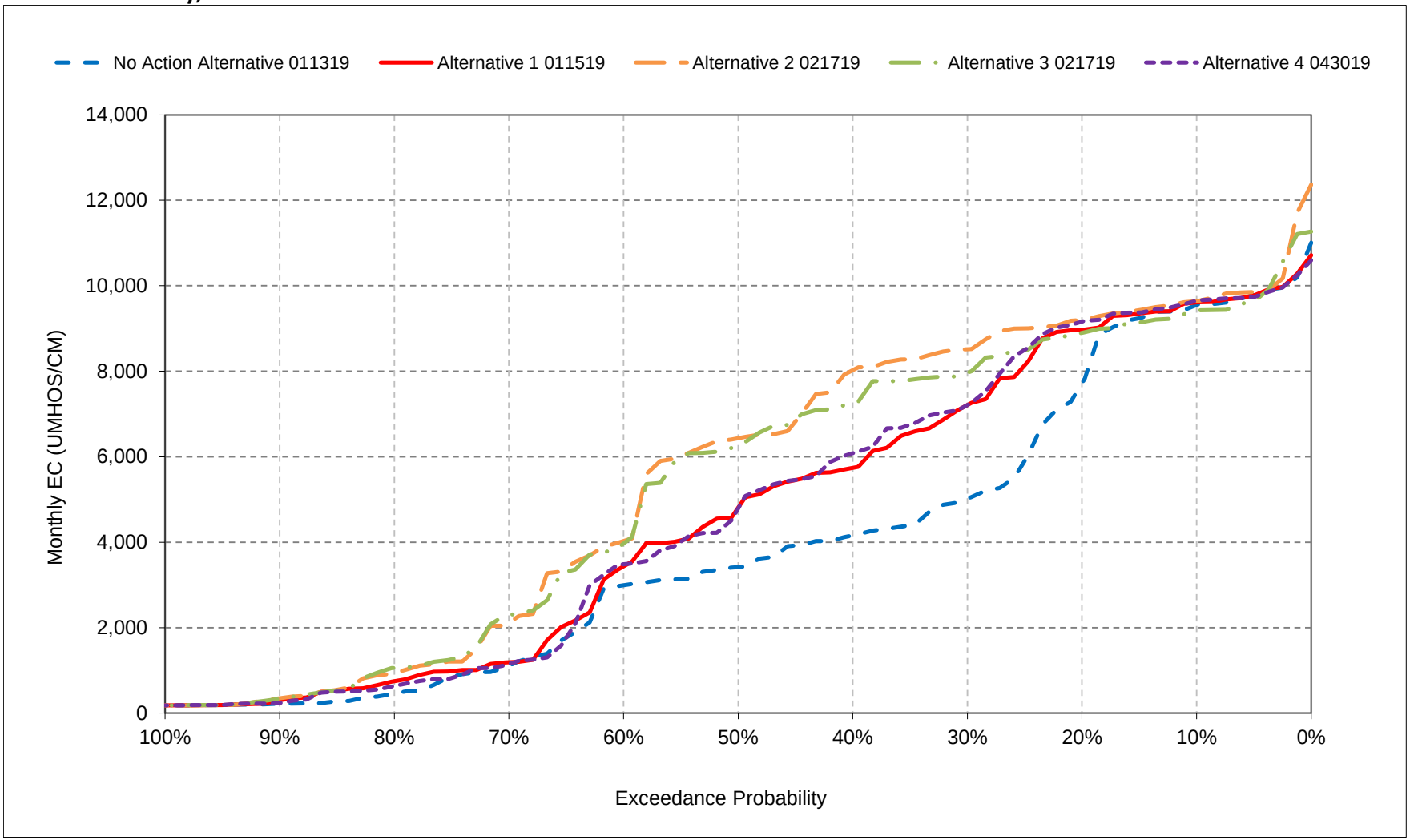
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 11-17. Sacramento River at Collinsville Salinity, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 11-18. Sacramento River at Collinsville Salinity, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 12-1. Chipps Island North Channel Salinity, Monthly EC

### No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 16,047 | 16,468 | 14,342 | 9,586 | 4,567 | 3,838 | 4,822 | 6,482 | 8,206 | 10,723 | 13,180 | 14,552 |
| 20% | 15,023 | 14,703 | 12,712 | 8,291 | 3,037 | 2,816 | 2,827 | 5,524 | 7,337 | 9,436 | 11,971 | 13,854 |
| 30% | 14,888 | 14,526 | 9,201 | 6,815 | 1,618 | 1,297 | 2,090 | 4,639 | 6,817 | 8,804 | 11,754 | 13,756 |
| 40% | 14,555 | 13,409 | 8,375 | 4,265 | 910 | 1,049 | 1,249 | 2,717 | 6,076 | 7,268 | 10,253 | 12,989 |
| 50% | 11,551 | 6,975 | 6,958 | 2,925 | 555 | 592 | 862 | 2,066 | 5,113 | 6,602 | 9,204 | 11,927 |
| 60% | 7,097 | 6,680 | 6,292 | 1,601 | 317 | 345 | 494 | 1,329 | 4,660 | 5,296 | 8,863 | 6,797 |
| 70% | 3,730 | 3,736 | 2,963 | 389 | 218 | 222 | 331 | 932 | 3,654 | 4,872 | 8,480 | 3,843 |
| 80% | 3,615 | 3,398 | 1,015 | 223 | 204 | 200 | 225 | 387 | 2,272 | 4,606 | 8,044 | 3,611 |
| 90% | 3,461 | 3,214 | 368 | 196 | 192 | 192 | 195 | 200 | 660 | 3,804 | 7,616 | 3,551 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 9,932 | 8,973 | 7,014 | 4,159 | 1,740 | 1,368 | 1,728 | 2,867 | 5,156 | 6,921 | 9,906 | 9,375 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 3,545 | 3,212 | 4,067 | 883 | 262 | 307 | 363 | 704 | 2,367 | 4,049 | 7,960 | 3,582 |
| Above Normal (16%) | 6,840 | 6,321 | 6,095 | 1,990 | 599 | 402 | 543 | 1,326 | 4,396 | 5,095 | 8,140 | 6,786 |
| Below Normal (13%) | 13,193 | 12,087 | 8,351 | 5,194 | 2,061 | 1,875 | 2,110 | 3,228 | 5,805 | 6,858 | 9,432 | 12,461 |
| Dry (24%) | 14,717 | 12,092 | 7,534 | 6,579 | 2,575 | 1,612 | 2,114 | 3,848 | 6,326 | 9,046 | 11,723 | 13,696 |
| Critical (15%) | 16,158 | 16,276 | 12,300 | 8,625 | 4,490 | 3,840 | 4,977 | 7,259 | 9,478 | 11,642 | 13,438 | 14,700 |

### Alternative 1 011519

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 16,081 | 16,512 | 14,339 | 10,827 | 5,309 | 4,770 | 5,597 | 6,628 | 8,174 | 10,422 | 13,360 | 14,654 |
| 20% | 15,103 | 14,804 | 13,776 | 8,858 | 3,064 | 2,969 | 3,655 | 5,823 | 7,441 | 9,550 | 12,154 | 14,002 |
| 30% | 14,921 | 14,569 | 12,236 | 6,770 | 1,939 | 1,348 | 2,537 | 5,242 | 6,978 | 9,046 | 11,850 | 13,875 |
| 40% | 14,393 | 14,072 | 10,516 | 4,275 | 1,084 | 1,065 | 1,918 | 3,620 | 6,241 | 7,261 | 10,047 | 12,838 |
| 50% | 13,624 | 13,734 | 9,305 | 2,901 | 548 | 596 | 1,195 | 2,868 | 5,583 | 6,591 | 9,173 | 11,867 |
| 60% | 13,234 | 12,793 | 7,013 | 1,573 | 262 | 332 | 723 | 2,218 | 5,009 | 5,401 | 8,783 | 11,457 |
| 70% | 12,876 | 11,004 | 3,346 | 370 | 217 | 213 | 384 | 1,364 | 3,783 | 5,019 | 8,403 | 11,304 |
| 80% | 12,402 | 9,065 | 1,576 | 217 | 203 | 200 | 225 | 466 | 2,378 | 4,597 | 8,125 | 11,131 |
| 90% | 9,282 | 5,012 | 527 | 197 | 192 | 192 | 193 | 212 | 655 | 3,769 | 7,841 | 10,561 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 13,122 | 11,935 | 8,022 | 4,243 | 1,859 | 1,484 | 2,016 | 3,376 | 5,337 | 6,962 | 9,933 | 12,177 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 10,642 | 9,590 | 6,261 | 803 | 251 | 302 | 506 | 1,058 | 2,485 | 4,094 | 7,903 | 10,159 |
| Above Normal (16%) | 12,495 | 11,714 | 8,013 | 1,980 | 549 | 406 | 782 | 1,948 | 4,526 | 5,155 | 8,224 | 11,318 |
| Below Normal (13%) | 13,066 | 12,327 | 8,315 | 5,340 | 2,195 | 1,963 | 2,495 | 4,005 | 6,156 | 6,844 | 9,353 | 12,252 |
| Dry (24%) | 14,949 | 12,277 | 7,561 | 6,896 | 2,741 | 1,729 | 2,477 | 4,370 | 6,492 | 9,041 | 11,830 | 13,769 |
| Critical (15%) | 16,183 | 16,327 | 12,346 | 8,723 | 4,986 | 4,362 | 5,414 | 7,715 | 9,724 | 11,776 | 13,554 | 14,761 |

### Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **33** | **44** | -3 | **1,241** | **742** | **933** | **774** | **146** | -33 | -301 | **180** | **101** |
| 20% | **80** | **101** | **1,063** | **567** | **27** | **154** | **828** | **299** | **104** | **114** | **183** | **147** |
| 30% | **33** | **43** | **3,035** | -45 | **322** | **50** | **447** | **603** | **161** | **242** | **96** | **119** |
| 40% | -162 | **663** | **2,141** | **10** | **173** | **16** | **669** | **903** | **166** | -8 | -206 | -150 |
| 50% | **2,072** | **6,760** | **2,348** | -24 | -6 | **5** | **333** | **802** | **470** | -12 | -31 | -61 |
| 60% | **6,137** | **6,113** | **722** | -27 | -56 | -13 | **229** | **889** | **349** | **105** | -81 | **4,660** |
| 70% | **9,146** | **7,267** | **384** | -19 | -1 | -9 | **53** | **432** | **129** | **148** | -77 | **7,462** |
| 80% | **8,787** | **5,667** | **561** | -6 | -1 | 0 | -1 | **79** | **106** | -9 | **80** | **7,520** |
| 90% | **5,821** | **1,798** | **159** | **1** | **0** | **0** | -2 | **12** | -6 | -35 | **225** | **7,010** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3,190** | **2,962** | **1,008** | **84** | **119** | **116** | **287** | **509** | **182** | **41** | **27** | **2,803** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **7,097** | **6,377** | **2,194** | -80 | -11 | -5 | **142** | **354** | **118** | **45** | -58 | **6,576** |
| Above Normal (16%) | **5,655** | **5,393** | **1,917** | -11 | -50 | **4** | **239** | **622** | **130** | **61** | **84** | **4,532** |
| Below Normal (13%) | -127 | **241** | -37 | **146** | **134** | **88** | **386** | **778** | **351** | -13 | -79 | -209 |
| Dry (24%) | **232** | **185** | **28** | **317** | **166** | **117** | **364** | **521** | **166** | -4 | **107** | **73** |
| Critical (15%) | **25** | **51** | **46** | **98** | **496** | **522** | **436** | **456** | **245** | **134** | **115** | **62** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 12-2. Chipps Island North Channel Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 16,047 | 16,468 | 14,342 | 9,586 | 4,567 | 3,838 | 4,822 | 6,482 | 8,206 | 10,723 | 13,180 | 14,552 |
| 20% | 15,023 | 14,703 | 12,712 | 8,291 | 3,037 | 2,816 | 2,827 | 5,524 | 7,337 | 9,436 | 11,971 | 13,854 |
| 30% | 14,888 | 14,526 | 9,201 | 6,815 | 1,618 | 1,297 | 2,090 | 4,639 | 6,817 | 8,804 | 11,754 | 13,756 |
| 40% | 14,555 | 13,409 | 8,375 | 4,265 | 910 | 1,049 | 1,249 | 2,717 | 6,076 | 7,268 | 10,253 | 12,989 |
| 50% | 11,551 | 6,975 | 6,958 | 2,925 | 555 | 592 | 862 | 2,066 | 5,113 | 6,602 | 9,204 | 11,927 |
| 60% | 7,097 | 6,680 | 6,292 | 1,601 | 317 | 345 | 494 | 1,329 | 4,660 | 5,296 | 8,863 | 6,797 |
| 70% | 3,730 | 3,736 | 2,963 | 389 | 218 | 222 | 331 | 932 | 3,654 | 4,872 | 8,480 | 3,843 |
| 80% | 3,615 | 3,398 | 1,015 | 223 | 204 | 200 | 225 | 387 | 2,272 | 4,606 | 8,044 | 3,611 |
| 90% | 3,461 | 3,214 | 368 | 196 | 192 | 192 | 195 | 200 | 660 | 3,804 | 7,616 | 3,551 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 9,932 | 8,973 | 7,014 | 4,159 | 1,740 | 1,368 | 1,728 | 2,867 | 5,156 | 6,921 | 9,906 | 9,375 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 3,545 | 3,212 | 4,067 | 883 | 262 | 307 | 363 | 704 | 2,367 | 4,049 | 7,960 | 3,582 |
| Above Normal (16%) | 6,840 | 6,321 | 6,095 | 1,990 | 599 | 402 | 543 | 1,326 | 4,396 | 5,095 | 8,140 | 6,786 |
| Below Normal (13%) | 13,193 | 12,087 | 8,351 | 5,194 | 2,061 | 1,875 | 2,110 | 3,228 | 5,805 | 6,858 | 9,432 | 12,461 |
| Dry (24%) | 14,717 | 12,092 | 7,534 | 6,579 | 2,575 | 1,612 | 2,114 | 3,848 | 6,326 | 9,046 | 11,723 | 13,696 |
| Critical (15%) | 16,158 | 16,276 | 12,300 | 8,625 | 4,490 | 3,840 | 4,977 | 7,259 | 9,478 | 11,642 | 13,438 | 14,700 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15,695 | 16,011 | 14,357 | 11,562 | 6,820 | 5,288 | 5,715 | 6,643 | 7,963 | 10,408 | 13,017 | 14,515 |
| 20% | 14,865 | 14,642 | 14,043 | 10,704 | 4,492 | 3,169 | 3,952 | 5,596 | 6,954 | 9,435 | 11,986 | 13,845 |
| 30% | 14,349 | 14,150 | 13,545 | 9,431 | 3,069 | 1,790 | 3,020 | 4,955 | 6,017 | 8,808 | 11,709 | 13,670 |
| 40% | 14,052 | 13,919 | 12,992 | 6,584 | 1,208 | 1,422 | 2,277 | 4,151 | 5,104 | 7,358 | 10,366 | 13,115 |
| 50% | 13,818 | 13,743 | 11,311 | 4,823 | 862 | 827 | 1,379 | 3,163 | 4,531 | 6,482 | 9,511 | 12,099 |
| 60% | 13,445 | 13,293 | 8,351 | 2,246 | 407 | 359 | 881 | 2,402 | 4,044 | 5,511 | 8,923 | 11,649 |
| 70% | 13,111 | 12,974 | 5,211 | 545 | 220 | 230 | 414 | 1,612 | 3,773 | 5,007 | 8,618 | 11,464 |
| 80% | 12,819 | 12,286 | 2,106 | 251 | 205 | 201 | 239 | 604 | 3,003 | 4,576 | 8,411 | 11,257 |
| 90% | 11,717 | 5,828 | 662 | 198 | 193 | 191 | 193 | 212 | 741 | 3,844 | 7,921 | 10,758 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 13,372 | 12,471 | 9,078 | 5,362 | 2,316 | 1,656 | 2,159 | 3,422 | 4,894 | 6,907 | 10,058 | 12,224 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 11,631 | 10,892 | 7,207 | 1,282 | 299 | 340 | 546 | 1,077 | 2,366 | 4,204 | 8,062 | 10,313 |
| Above Normal (16%) | 13,337 | 12,887 | 9,565 | 2,875 | 781 | 455 | 912 | 2,220 | 3,824 | 5,046 | 8,491 | 11,545 |
| Below Normal (13%) | 13,116 | 12,855 | 9,231 | 7,224 | 2,794 | 2,101 | 2,770 | 3,987 | 4,722 | 6,750 | 9,852 | 12,289 |
| Dry (24%) | 14,350 | 11,903 | 8,246 | 8,400 | 3,456 | 2,089 | 2,705 | 4,309 | 6,193 | 8,947 | 11,789 | 13,668 |
| Critical (15%) | 15,784 | 16,036 | 13,848 | 10,126 | 6,014 | 4,681 | 5,537 | 7,808 | 9,524 | 11,527 | 13,385 | 14,634 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -352 | -456 | **16** | **1,976** | **2,253** | **1,451** | **893** | **162** | -243 | -315 | -164 | -37 |
| 20% | -158 | -60 | **1,330** | **2,413** | **1,455** | **353** | **1,125** | **72** | -383 | -1 | **14** | -9 |
| 30% | -538 | -376 | **4,344** | **2,617** | **1,452** | **493** | **930** | **316** | -800 | **3** | -45 | -86 |
| 40% | -503 | **510** | **4,617** | **2,319** | **297** | **373** | **1,028** | **1,434** | -971 | **90** | **114** | **126** |
| 50% | **2,266** | **6,768** | **4,353** | **1,898** | **307** | **236** | **517** | **1,096** | -581 | -120 | **307** | **171** |
| 60% | **6,347** | **6,613** | **2,059** | **646** | **90** | **14** | **386** | **1,073** | -616 | **215** | **59** | **4,852** |
| 70% | **9,382** | **9,238** | **2,248** | **155** | **2** | **8** | **83** | **680** | **119** | **136** | **138** | **7,622** |
| 80% | **9,204** | **8,887** | **1,091** | **27** | **1** | **1** | **14** | **217** | **730** | -30 | **366** | **7,645** |
| 90% | **8,256** | **2,614** | **294** | **2** | **1** | -1 | -2 | **12** | **81** | **40** | **305** | **7,207** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3,439** | **3,497** | **2,064** | **1,203** | **577** | **289** | **431** | **555** | -262 | -14 | **153** | **2,849** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **8,086** | **7,679** | **3,140** | **399** | **37** | **33** | **183** | **373** | -1 | **156** | **102** | **6,731** |
| Above Normal (16%) | **6,497** | **6,566** | **3,469** | **885** | **182** | **53** | **369** | **894** | -572 | -49 | **351** | **4,759** |
| Below Normal (13%) | -76 | **768** | **880** | **2,030** | **733** | **227** | **660** | **760** | -1,083 | -108 | **420** | -172 |
| Dry (24%) | -367 | -190 | **712** | **1,821** | **882** | **478** | **591** | **461** | -133 | -99 | **66** | -28 |
| Critical (15%) | -374 | -240 | **1,548** | **1,501** | **1,523** | **841** | **560** | **549** | **45** | -115 | -53 | -65 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 12-3. Chipps Island North Channel Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 16,047 | 16,468 | 14,342 | 9,586 | 4,567 | 3,838 | 4,822 | 6,482 | 8,206 | 10,723 | 13,180 | 14,552 |
| 20% | 15,023 | 14,703 | 12,712 | 8,291 | 3,037 | 2,816 | 2,827 | 5,524 | 7,337 | 9,436 | 11,971 | 13,854 |
| 30% | 14,888 | 14,526 | 9,201 | 6,815 | 1,618 | 1,297 | 2,090 | 4,639 | 6,817 | 8,804 | 11,754 | 13,756 |
| 40% | 14,555 | 13,409 | 8,375 | 4,265 | 910 | 1,049 | 1,249 | 2,717 | 6,076 | 7,268 | 10,253 | 12,989 |
| 50% | 11,551 | 6,975 | 6,958 | 2,925 | 555 | 592 | 862 | 2,066 | 5,113 | 6,602 | 9,204 | 11,927 |
| 60% | 7,097 | 6,680 | 6,292 | 1,601 | 317 | 345 | 494 | 1,329 | 4,660 | 5,296 | 8,863 | 6,797 |
| 70% | 3,730 | 3,736 | 2,963 | 389 | 218 | 222 | 331 | 932 | 3,654 | 4,872 | 8,480 | 3,843 |
| 80% | 3,615 | 3,398 | 1,015 | 223 | 204 | 200 | 225 | 387 | 2,272 | 4,606 | 8,044 | 3,611 |
| 90% | 3,461 | 3,214 | 368 | 196 | 192 | 192 | 195 | 200 | 660 | 3,804 | 7,616 | 3,551 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 9,932 | 8,973 | 7,014 | 4,159 | 1,740 | 1,368 | 1,728 | 2,867 | 5,156 | 6,921 | 9,906 | 9,375 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 3,545 | 3,212 | 4,067 | 883 | 262 | 307 | 363 | 704 | 2,367 | 4,049 | 7,960 | 3,582 |
| Above Normal (16%) | 6,840 | 6,321 | 6,095 | 1,990 | 599 | 402 | 543 | 1,326 | 4,396 | 5,095 | 8,140 | 6,786 |
| Below Normal (13%) | 13,193 | 12,087 | 8,351 | 5,194 | 2,061 | 1,875 | 2,110 | 3,228 | 5,805 | 6,858 | 9,432 | 12,461 |
| Dry (24%) | 14,717 | 12,092 | 7,534 | 6,579 | 2,575 | 1,612 | 2,114 | 3,848 | 6,326 | 9,046 | 11,723 | 13,696 |
| Critical (15%) | 16,158 | 16,276 | 12,300 | 8,625 | 4,490 | 3,840 | 4,977 | 7,259 | 9,478 | 11,642 | 13,438 | 14,700 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 15,015 | 14,973 | 14,183 | 11,605 | 6,890 | 5,167 | 5,552 | 6,723 | 8,008 | 10,555 | 13,028 | 14,432 |
| 20% | 14,310 | 14,001 | 13,698 | 10,659 | 4,804 | 3,214 | 3,994 | 5,597 | 6,887 | 9,353 | 11,872 | 13,632 |
| 30% | 13,821 | 13,711 | 13,212 | 9,181 | 3,137 | 1,787 | 2,984 | 5,090 | 6,074 | 8,829 | 11,546 | 13,314 |
| 40% | 13,462 | 13,534 | 12,237 | 6,823 | 1,260 | 1,316 | 2,239 | 4,156 | 5,187 | 7,314 | 10,303 | 12,914 |
| 50% | 13,174 | 13,025 | 11,184 | 5,023 | 881 | 862 | 1,321 | 3,228 | 4,858 | 6,457 | 9,415 | 11,920 |
| 60% | 12,732 | 12,719 | 8,159 | 2,317 | 438 | 371 | 817 | 2,415 | 4,438 | 5,544 | 8,802 | 11,572 |
| 70% | 12,378 | 12,311 | 5,553 | 589 | 223 | 234 | 425 | 1,690 | 4,114 | 5,026 | 8,494 | 11,209 |
| 80% | 11,855 | 10,982 | 2,279 | 258 | 206 | 202 | 243 | 632 | 3,015 | 4,787 | 8,243 | 11,022 |
| 90% | 10,801 | 6,156 | 672 | 199 | 193 | 192 | 195 | 214 | 755 | 3,897 | 7,975 | 10,142 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 12,770 | 11,964 | 8,934 | 5,389 | 2,392 | 1,675 | 2,136 | 3,463 | 5,033 | 6,960 | 9,950 | 11,982 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 11,236 | 10,557 | 7,009 | 1,293 | 309 | 346 | 492 | 1,207 | 2,484 | 4,254 | 8,028 | 10,127 |
| Above Normal (16%) | 12,646 | 12,313 | 9,262 | 2,867 | 786 | 461 | 917 | 2,241 | 4,116 | 5,055 | 8,287 | 10,982 |
| Below Normal (13%) | 12,575 | 12,255 | 9,152 | 7,380 | 2,688 | 2,033 | 2,723 | 4,010 | 4,962 | 6,813 | 9,779 | 12,203 |
| Dry (24%) | 13,454 | 11,410 | 8,260 | 8,543 | 3,671 | 2,115 | 2,686 | 4,277 | 6,175 | 8,941 | 11,621 | 13,446 |
| Critical (15%) | 15,270 | 15,289 | 13,674 | 9,912 | 6,240 | 4,812 | 5,566 | 7,816 | 9,709 | 11,722 | 13,289 | 14,442 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -1,032 | -1,495 | -159 | **2,019** | **2,323** | **1,329** | **730** | **241** | -199 | -168 | -152 | -120 |
| 20% | -713 | -701 | **986** | **2,368** | **1,766** | **398** | **1,167** | **73** | -450 | -83 | -99 | -222 |
| 30% | -1,066 | -815 | **4,011** | **2,366** | **1,519** | **490** | **894** | **451** | -743 | **24** | -207 | -443 |
| 40% | -1,093 | **125** | **3,862** | **2,558** | **349** | **267** | **990** | **1,439** | -889 | **45** | **50** | -74 |
| 50% | **1,623** | **6,051** | **4,226** | **2,098** | **326** | **270** | **459** | **1,161** | -254 | -145 | **211** | -8 |
| 60% | **5,634** | **6,039** | **1,867** | **717** | **121** | **25** | **323** | **1,087** | -222 | **248** | -61 | **4,775** |
| 70% | **8,648** | **8,575** | **2,590** | **200** | **5** | **12** | **94** | **759** | **460** | **155** | **15** | **7,366** |
| 80% | **8,240** | **7,584** | **1,264** | **34** | **2** | **2** | **18** | **245** | **743** | **181** | **199** | **7,410** |
| 90% | **7,340** | **2,942** | **304** | **3** | **1** | **0** | **0** | **14** | **94** | **93** | **359** | **6,591** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **2,838** | **2,990** | **1,920** | **1,230** | **652** | **307** | **408** | **595** | -123 | **39** | **45** | **2,607** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **7,691** | **7,345** | **2,942** | **411** | **47** | **38** | **128** | **503** | **117** | **206** | **68** | **6,545** |
| Above Normal (16%) | **5,806** | **5,992** | **3,166** | **876** | **187** | **58** | **374** | **915** | -280 | -40 | **147** | **4,196** |
| Below Normal (13%) | -618 | **168** | **801** | **2,186** | **627** | **158** | **614** | **782** | -842 | -45 | **347** | -258 |
| Dry (24%) | -1,263 | -682 | **727** | **1,964** | **1,096** | **503** | **572** | **428** | -150 | -105 | -102 | -250 |
| Critical (15%) | -888 | -987 | **1,373** | **1,287** | **1,750** | **972** | **588** | **557** | **231** | **81** | -150 | -258 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 12-4. Chipps Island North Channel Salinity, Monthly EC

### No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 16,047 | 16,468 | 14,342 | 9,586 | 4,567 | 3,838 | 4,822 | 6,482 | 8,206 | 10,723 | 13,180 | 14,552 |
| 20% | 15,023 | 14,703 | 12,712 | 8,291 | 3,037 | 2,816 | 2,827 | 5,524 | 7,337 | 9,436 | 11,971 | 13,854 |
| 30% | 14,888 | 14,526 | 9,201 | 6,815 | 1,618 | 1,297 | 2,090 | 4,639 | 6,817 | 8,804 | 11,754 | 13,756 |
| 40% | 14,555 | 13,409 | 8,375 | 4,265 | 910 | 1,049 | 1,249 | 2,717 | 6,076 | 7,268 | 10,253 | 12,989 |
| 50% | 11,551 | 6,975 | 6,958 | 2,925 | 555 | 592 | 862 | 2,066 | 5,113 | 6,602 | 9,204 | 11,927 |
| 60% | 7,097 | 6,680 | 6,292 | 1,601 | 317 | 345 | 494 | 1,329 | 4,660 | 5,296 | 8,863 | 6,797 |
| 70% | 3,730 | 3,736 | 2,963 | 389 | 218 | 222 | 331 | 932 | 3,654 | 4,872 | 8,480 | 3,843 |
| 80% | 3,615 | 3,398 | 1,015 | 223 | 204 | 200 | 225 | 387 | 2,272 | 4,606 | 8,044 | 3,611 |
| 90% | 3,461 | 3,214 | 368 | 196 | 192 | 192 | 195 | 200 | 660 | 3,804 | 7,616 | 3,551 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 9,932 | 8,973 | 7,014 | 4,159 | 1,740 | 1,368 | 1,728 | 2,867 | 5,156 | 6,921 | 9,906 | 9,375 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 3,545 | 3,212 | 4,067 | 883 | 262 | 307 | 363 | 704 | 2,367 | 4,049 | 7,960 | 3,582 |
| Above Normal (16%) | 6,840 | 6,321 | 6,095 | 1,990 | 599 | 402 | 543 | 1,326 | 4,396 | 5,095 | 8,140 | 6,786 |
| Below Normal (13%) | 13,193 | 12,087 | 8,351 | 5,194 | 2,061 | 1,875 | 2,110 | 3,228 | 5,805 | 6,858 | 9,432 | 12,461 |
| Dry (24%) | 14,717 | 12,092 | 7,534 | 6,579 | 2,575 | 1,612 | 2,114 | 3,848 | 6,326 | 9,046 | 11,723 | 13,696 |
| Critical (15%) | 16,158 | 16,276 | 12,300 | 8,625 | 4,490 | 3,840 | 4,977 | 7,259 | 9,478 | 11,642 | 13,438 | 14,700 |

### Alternative 4 043019

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 16,029 | 16,450 | 14,378 | 10,483 | 4,919 | 3,415 | 4,229 | 6,527 | 8,097 | 10,402 | 13,232 | 14,586 |
| 20% | 15,122 | 14,759 | 14,011 | 8,658 | 2,971 | 1,629 | 2,450 | 5,541 | 7,353 | 9,526 | 12,157 | 14,021 |
| 30% | 14,931 | 14,508 | 12,323 | 6,412 | 1,776 | 750 | 1,622 | 4,043 | 6,752 | 9,055 | 11,947 | 13,881 |
| 40% | 14,669 | 14,158 | 10,870 | 4,006 | 996 | 575 | 940 | 2,459 | 6,119 | 7,549 | 10,211 | 13,240 |
| 50% | 14,244 | 13,877 | 9,335 | 2,803 | 518 | 397 | 566 | 1,650 | 4,975 | 6,897 | 9,382 | 12,468 |
| 60% | 13,479 | 13,156 | 6,993 | 1,410 | 249 | 246 | 343 | 1,076 | 4,455 | 5,412 | 8,813 | 11,759 |
| 70% | 13,107 | 11,665 | 3,206 | 362 | 215 | 215 | 262 | 690 | 3,476 | 5,059 | 8,416 | 11,468 |
| 80% | 12,835 | 8,772 | 1,526 | 215 | 205 | 201 | 216 | 306 | 2,224 | 4,870 | 8,160 | 11,330 |
| 90% | 10,621 | 5,696 | 504 | 196 | 193 | 196 | 196 | 202 | 692 | 3,848 | 7,746 | 10,945 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 13,431 | 12,057 | 8,016 | 4,106 | 1,738 | 1,077 | 1,463 | 2,695 | 5,069 | 7,036 | 10,015 | 12,387 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 11,181 | 10,000 | 6,441 | 747 | 235 | 255 | 330 | 628 | 2,273 | 4,169 | 7,970 | 10,436 |
| Above Normal (16%) | 13,031 | 12,005 | 7,871 | 1,950 | 494 | 282 | 400 | 1,031 | 4,252 | 5,229 | 8,173 | 11,404 |
| Below Normal (13%) | 13,332 | 11,910 | 8,281 | 4,967 | 1,999 | 1,159 | 1,460 | 2,950 | 5,759 | 7,052 | 9,740 | 12,812 |
| Dry (24%) | 15,027 | 12,280 | 7,462 | 6,772 | 2,571 | 1,120 | 1,755 | 3,698 | 6,285 | 9,150 | 11,934 | 13,919 |
| Critical (15%) | 16,166 | 16,330 | 12,267 | 8,489 | 4,715 | 3,571 | 4,588 | 7,070 | 9,351 | 11,669 | 13,495 | 14,735 |

### Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -19 | -17 | **36** | **897** | **352** | -422 | -594 | **45** | -110 | -321 | **51** | **34** |
| 20% | **99** | **57** | **1,299** | **367** | -66 | -1,187 | -378 | **17** | **16** | **90** | **186** | **167** |
| 30% | **44** | -18 | **3,122** | -402 | **159** | -547 | -468 | -596 | -65 | **251** | **193** | **124** |
| 40% | **114** | **749** | **2,495** | -259 | **86** | -474 | -309 | -258 | **44** | **280** | -41 | **251** |
| 50% | **2,693** | **6,902** | **2,378** | -122 | -37 | -195 | -296 | -417 | -137 | **295** | **178** | **541** |
| 60% | **6,382** | **6,476** | **701** | -190 | -68 | -99 | -151 | -253 | -205 | **116** | -50 | **4,962** |
| 70% | **9,378** | **7,929** | **243** | -27 | -3 | -7 | -69 | -242 | -177 | **187** | -64 | **7,625** |
| 80% | **9,220** | **5,374** | **510** | -9 | **1** | **2** | -9 | -81 | -49 | **264** | **116** | **7,719** |
| 90% | **7,159** | **2,482** | **135** | **0** | **1** | **4** | **1** | **2** | **31** | **44** | **130** | **7,394** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3,498** | **3,083** | **1,003** | -53 | -2 | -291 | -265 | -172 | -87 | **115** | **109** | **3,012** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **7,636** | **6,788** | **2,374** | -135 | -27 | -53 | -33 | -76 | -94 | **120** | **10** | **6,854** |
| Above Normal (16%) | **6,191** | **5,684** | **1,776** | -40 | -104 | -121 | -143 | -295 | -144 | **134** | **33** | **4,619** |
| Below Normal (13%) | **139** | -177 | -70 | -228 | -62 | -716 | -650 | -278 | -46 | **194** | **308** | **352** |
| Dry (24%) | **310** | **188** | -72 | **193** | -4 | -492 | -359 | -150 | -40 | **104** | **211** | **223** |
| Critical (15%) | **7** | **54** | -33 | -137 | **224** | -269 | -389 | -189 | -128 | **27** | **56** | **35** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

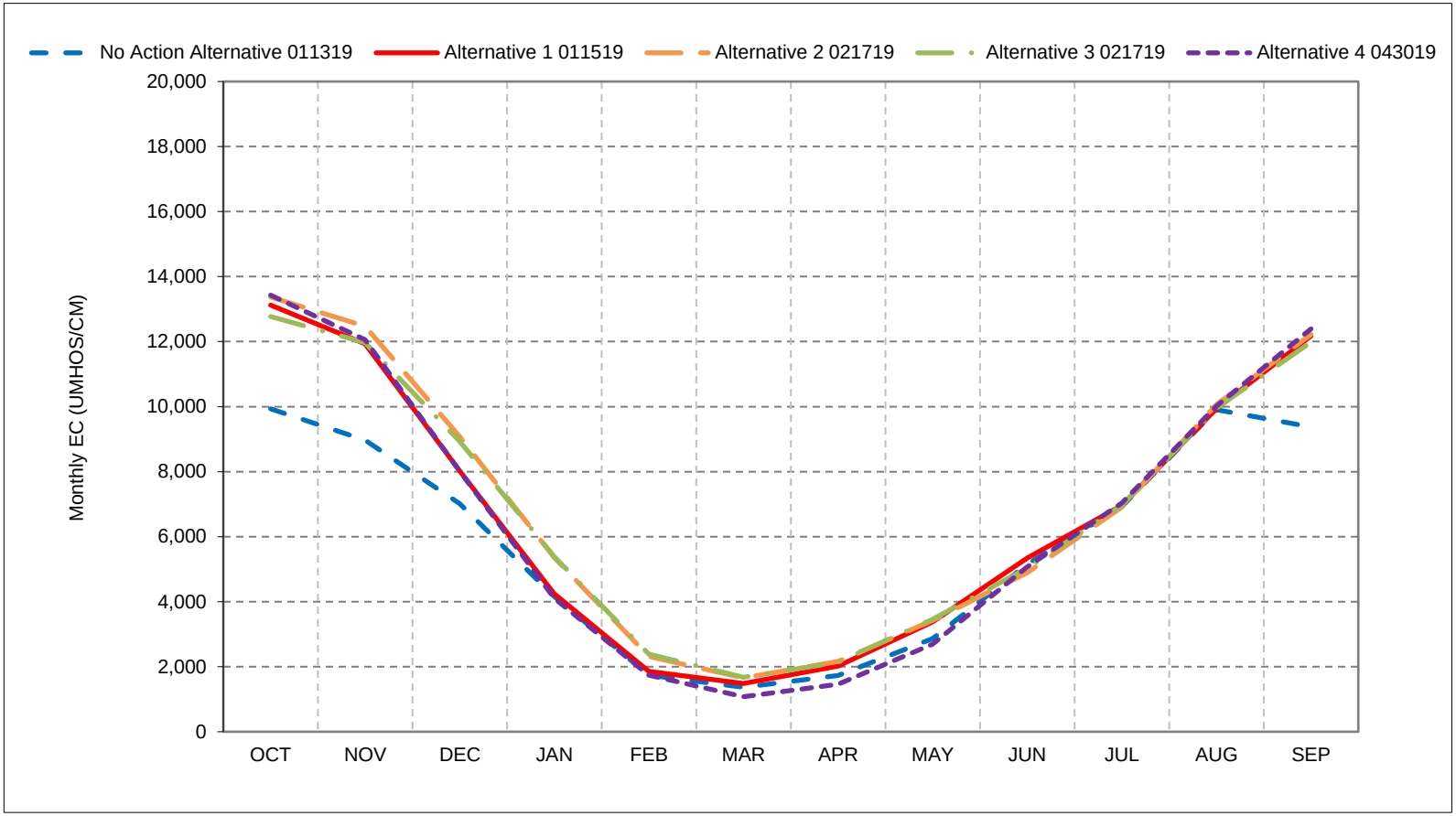
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

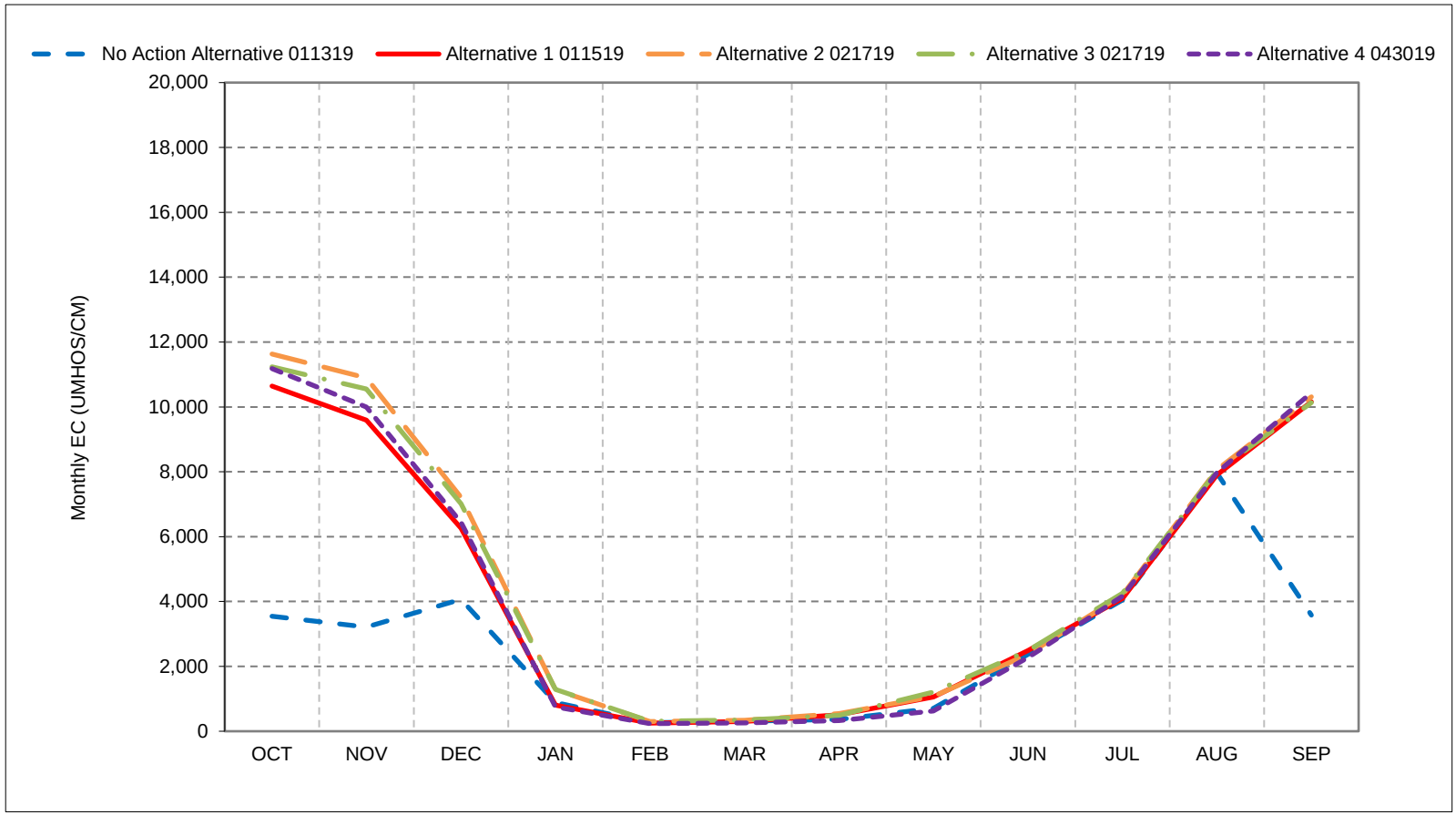
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-1. Chipps Island North Channel Salinity, Long-Term Average EC



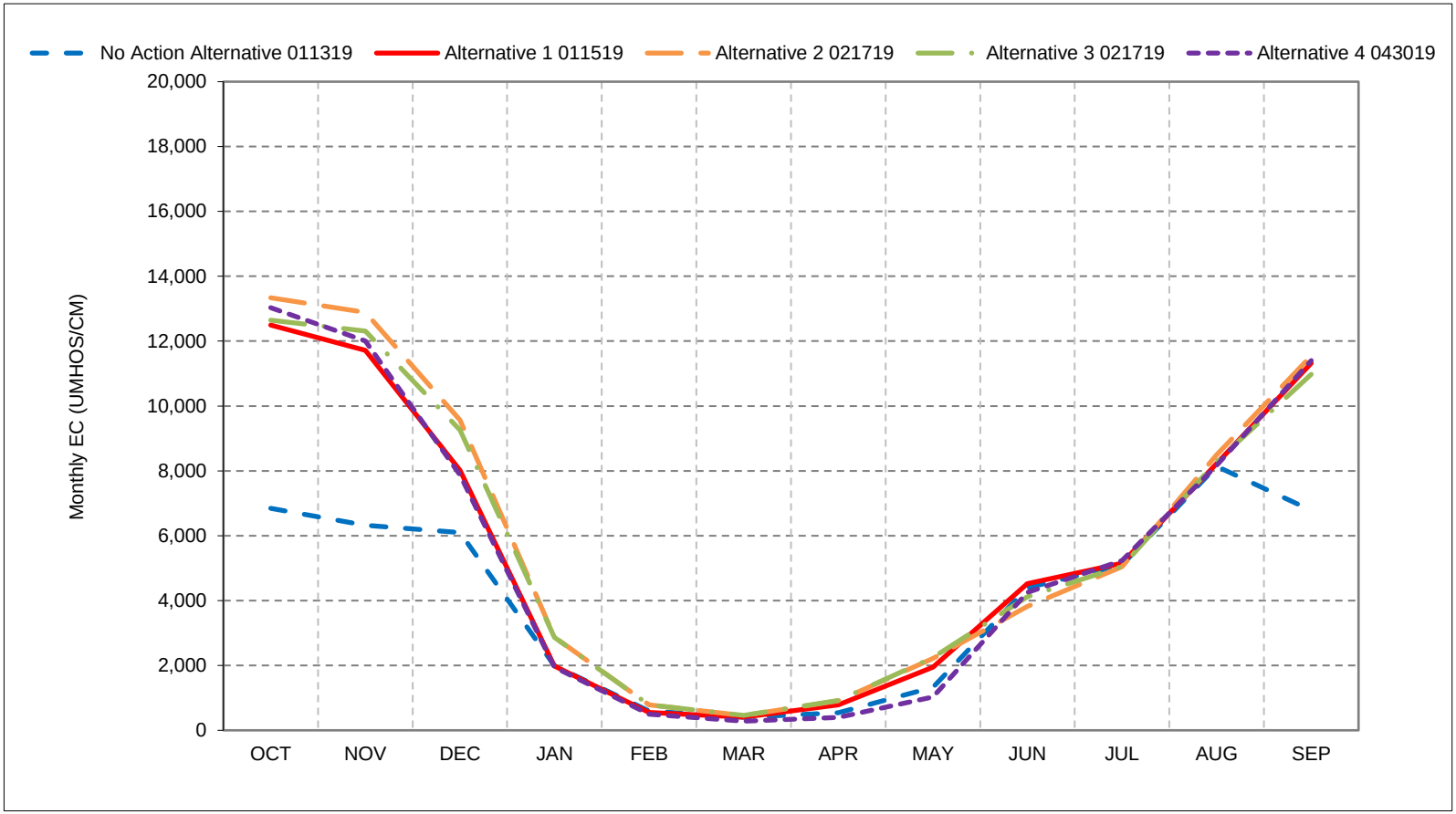

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-2. Chipps Island North Channel Salinity, Wet Year Average EC



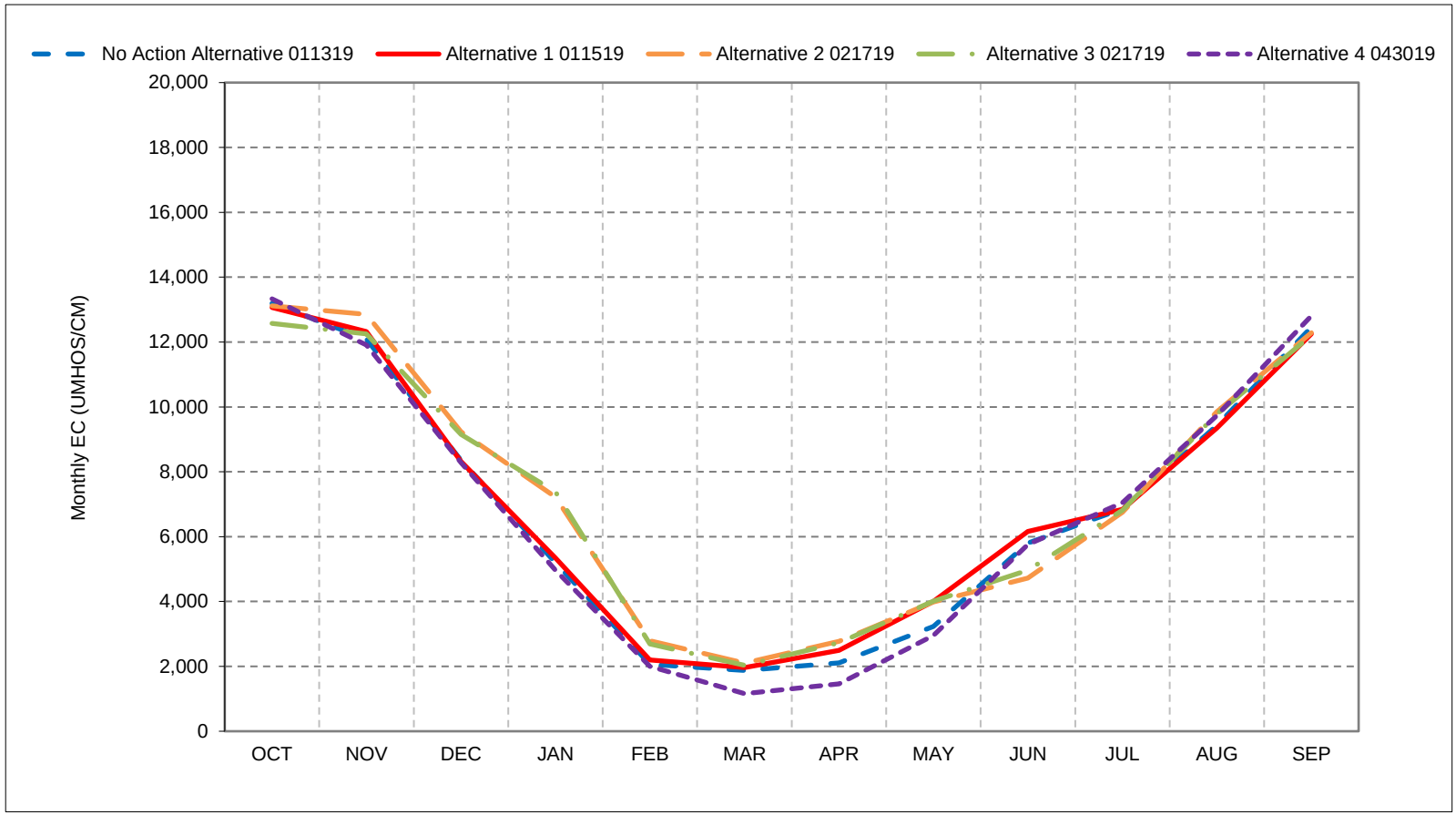

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-3. Chipps Island North Channel Salinity, Above Normal Year Average EC



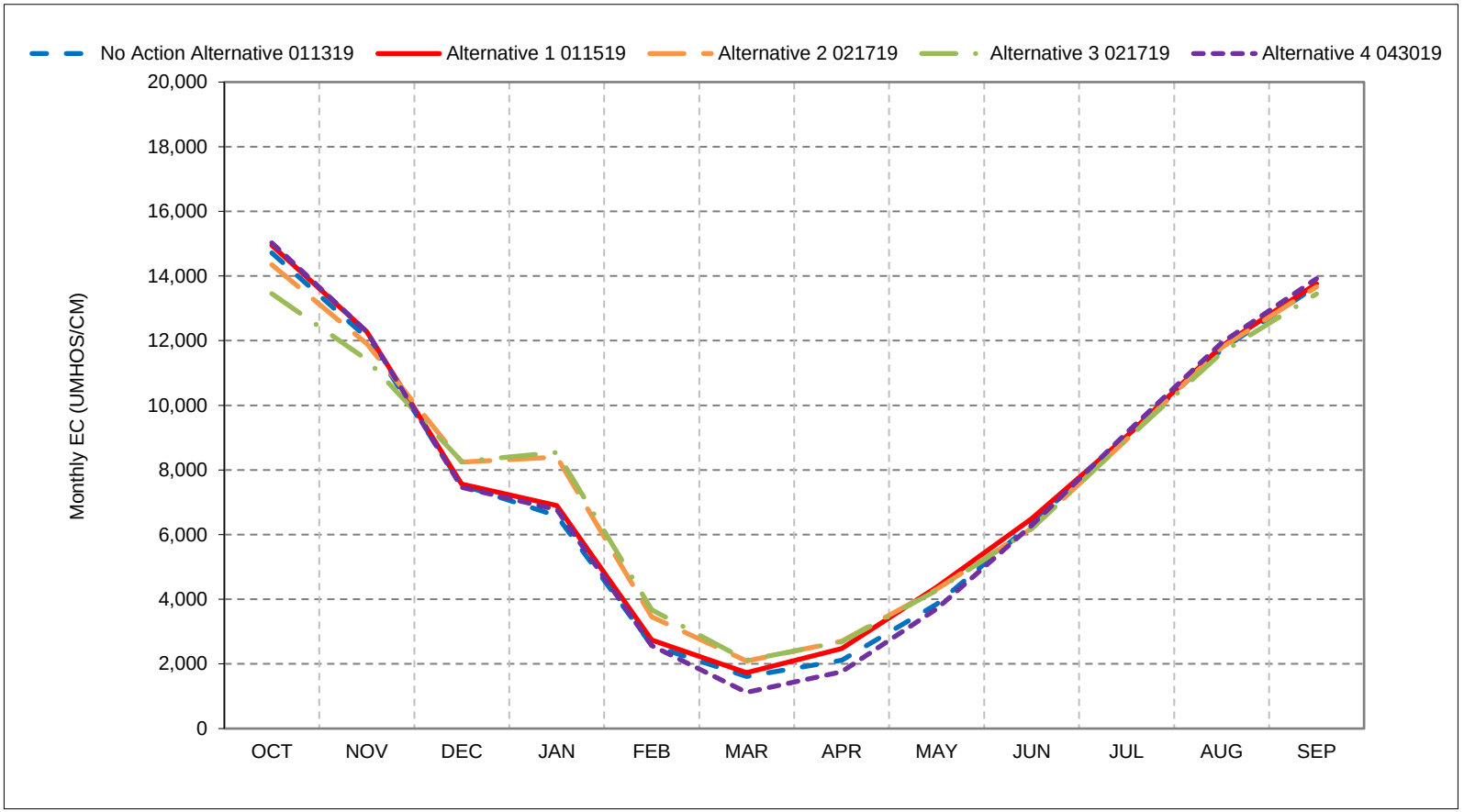

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-4. Chipps Island North Channel Salinity, Below Normal Year Average EC



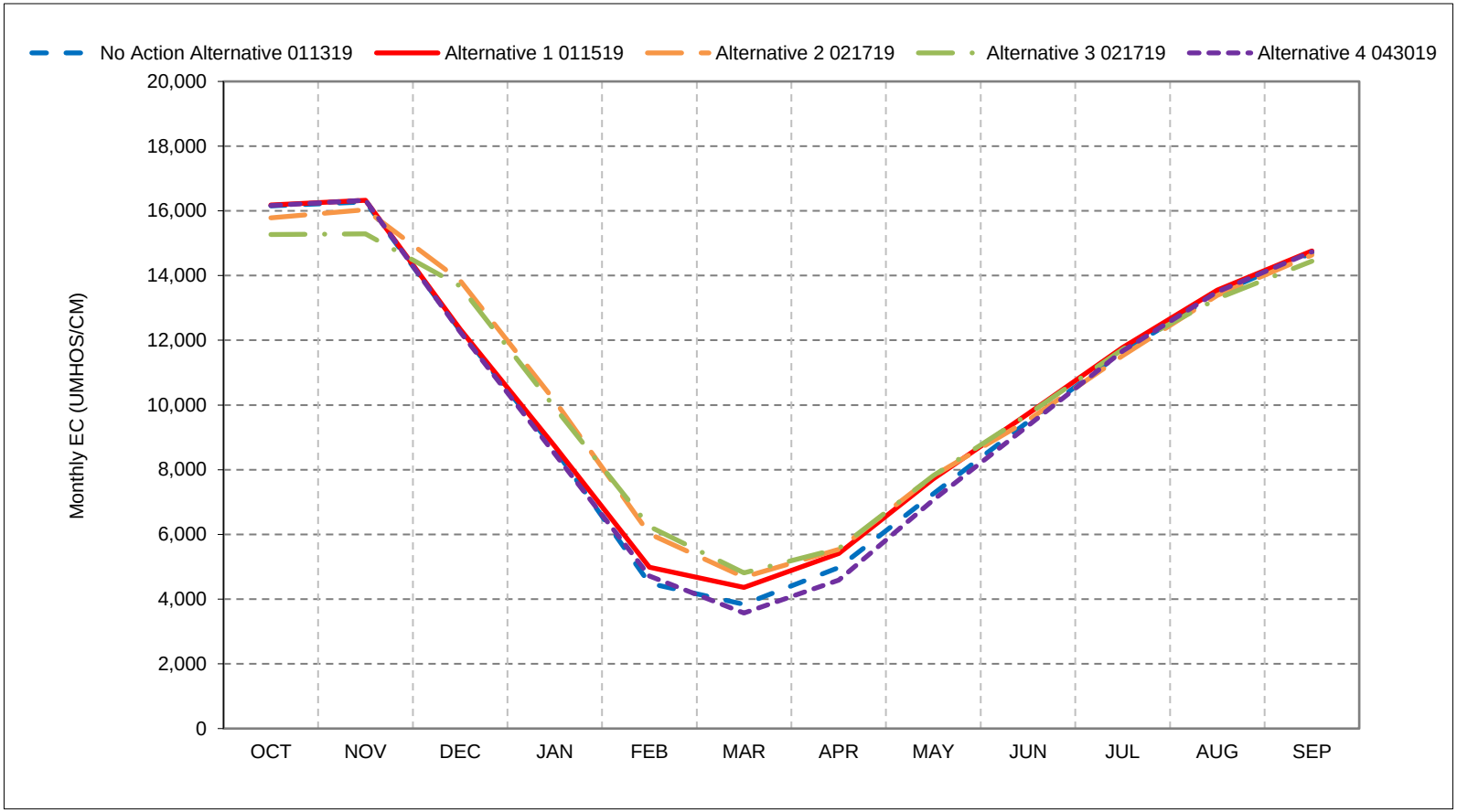

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-5. Chipps Island North Channel Salinity, Dry Year Average EC



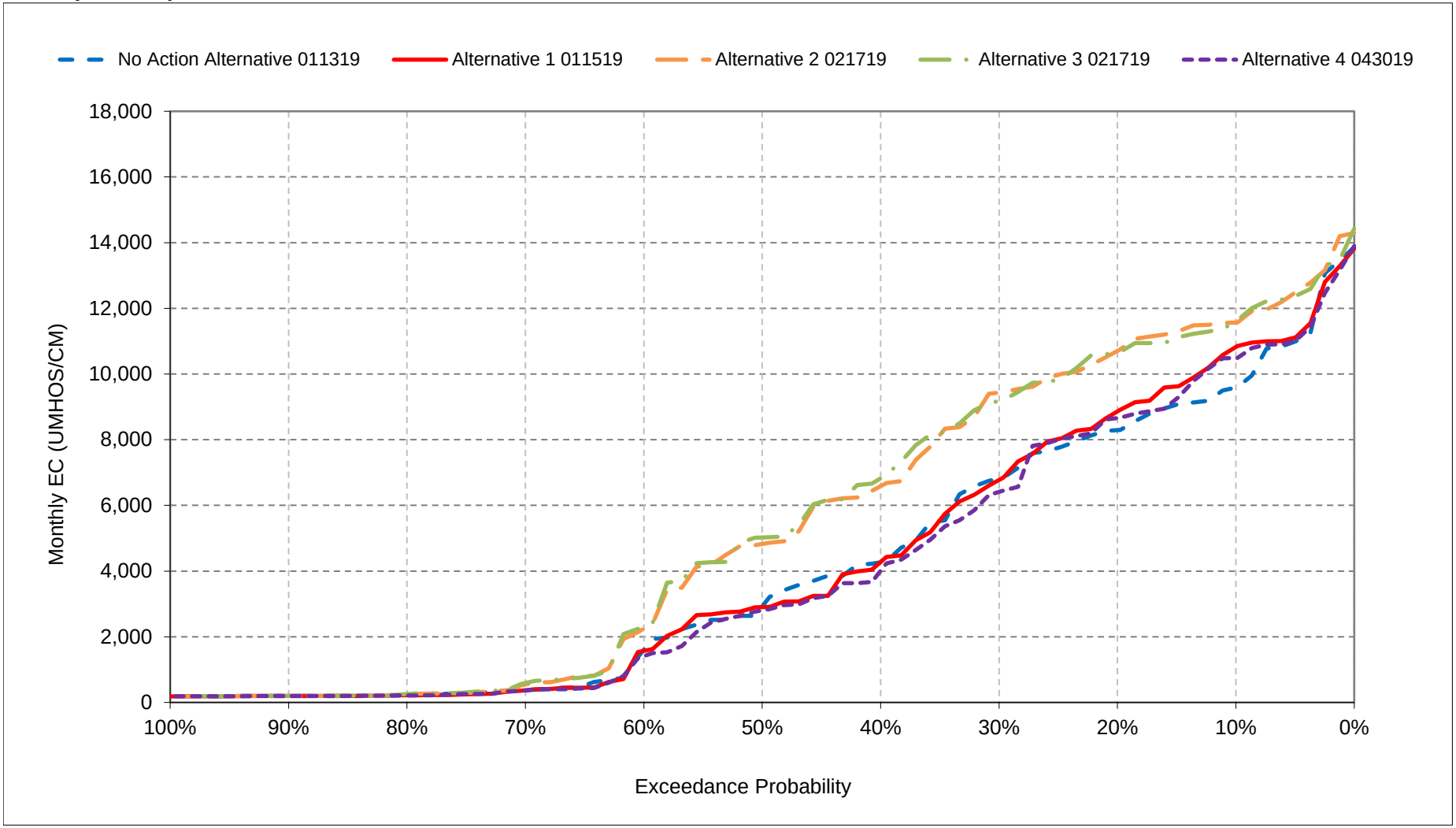

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 12-6. Chipps Island North Channel Salinity, Critical Year Average EC



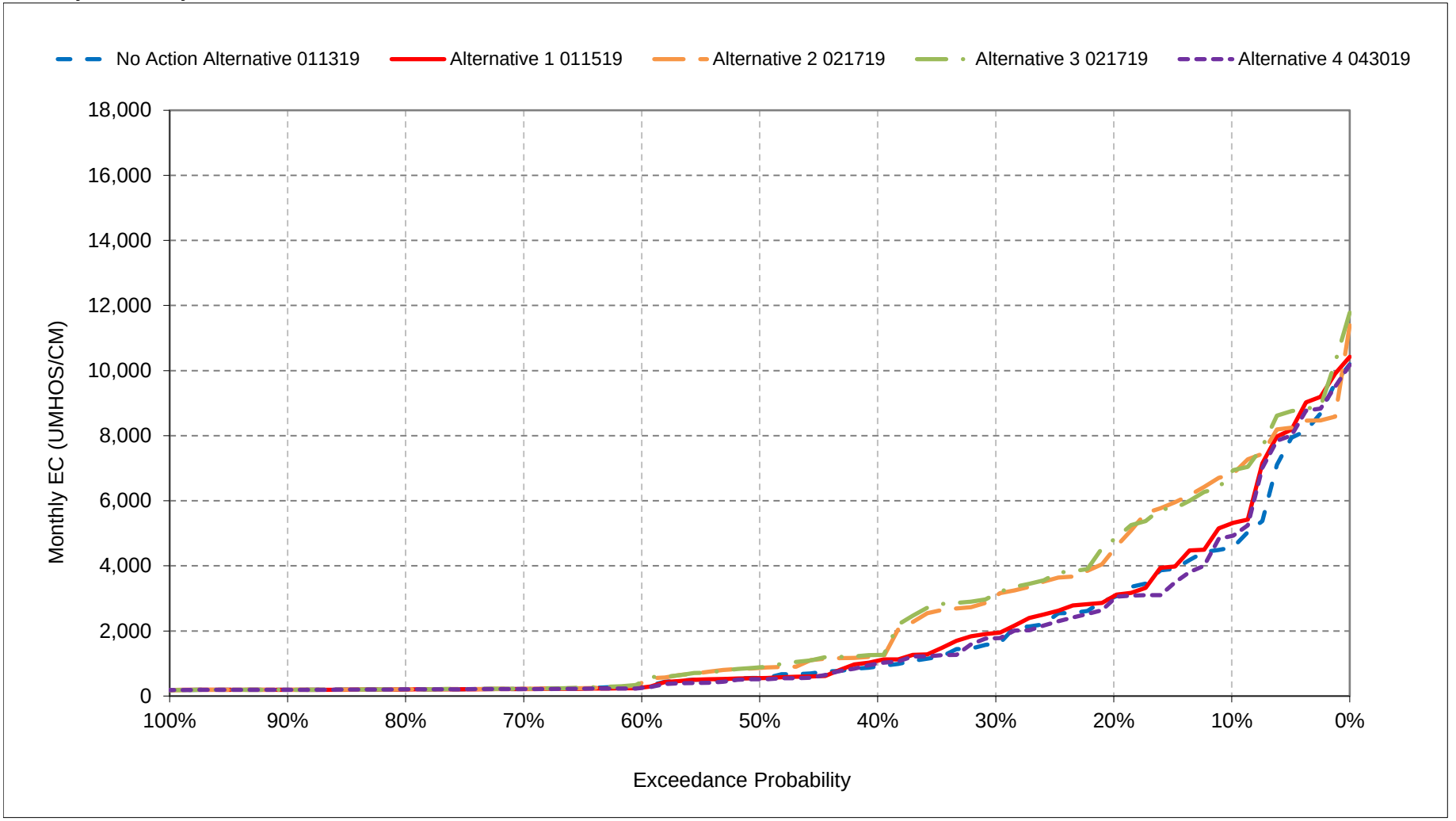

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 12-7. Chipps Island North Channel**
**Salinity, January EC**



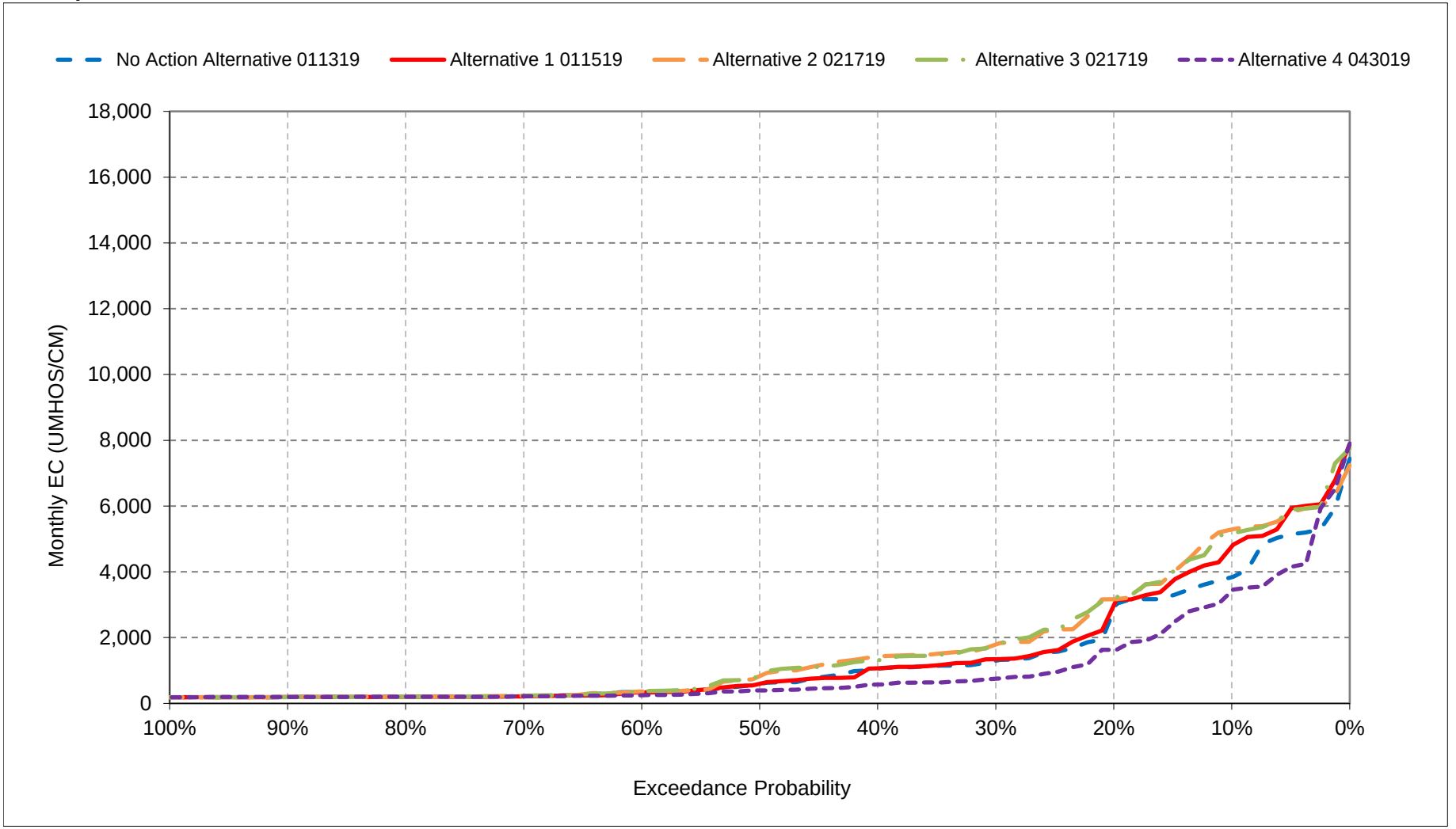

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 12-8. Chipps Island North Channel**
**Salinity, February EC**



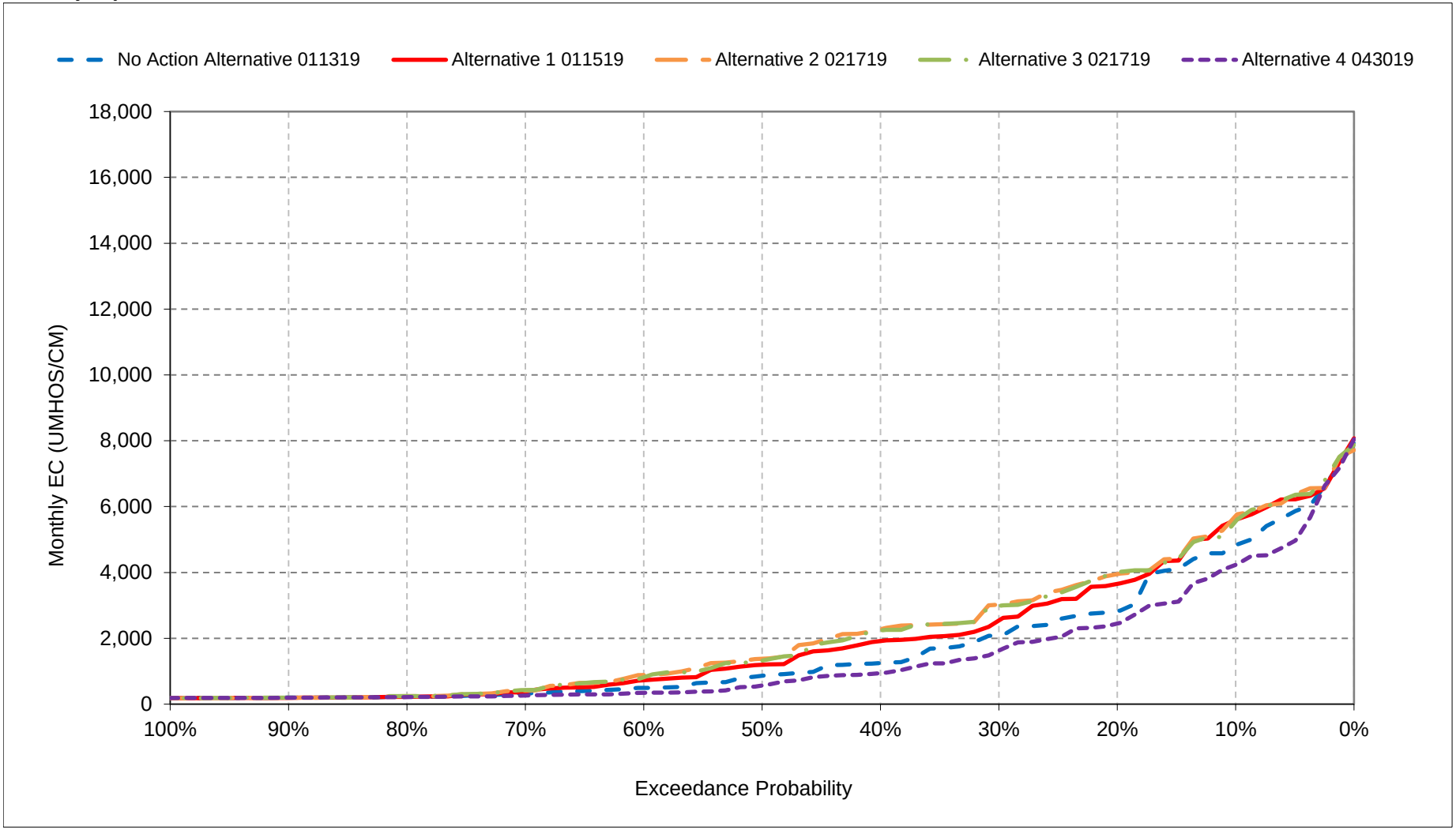

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 12-9. Chipps Island North Channel**
**Salinity, March EC**



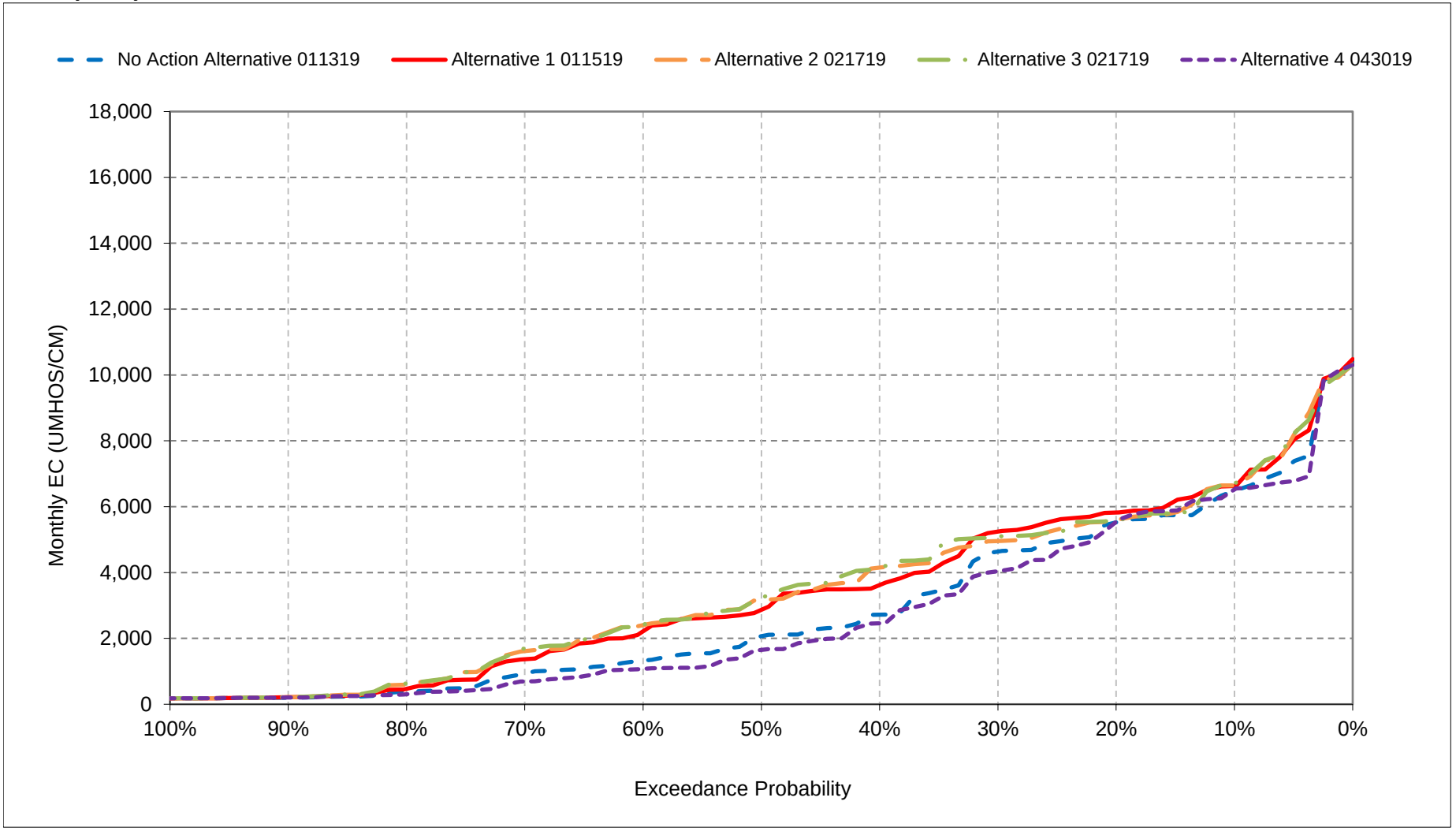

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 12-10. Chipps Island North Channel**
**Salinity, April EC**



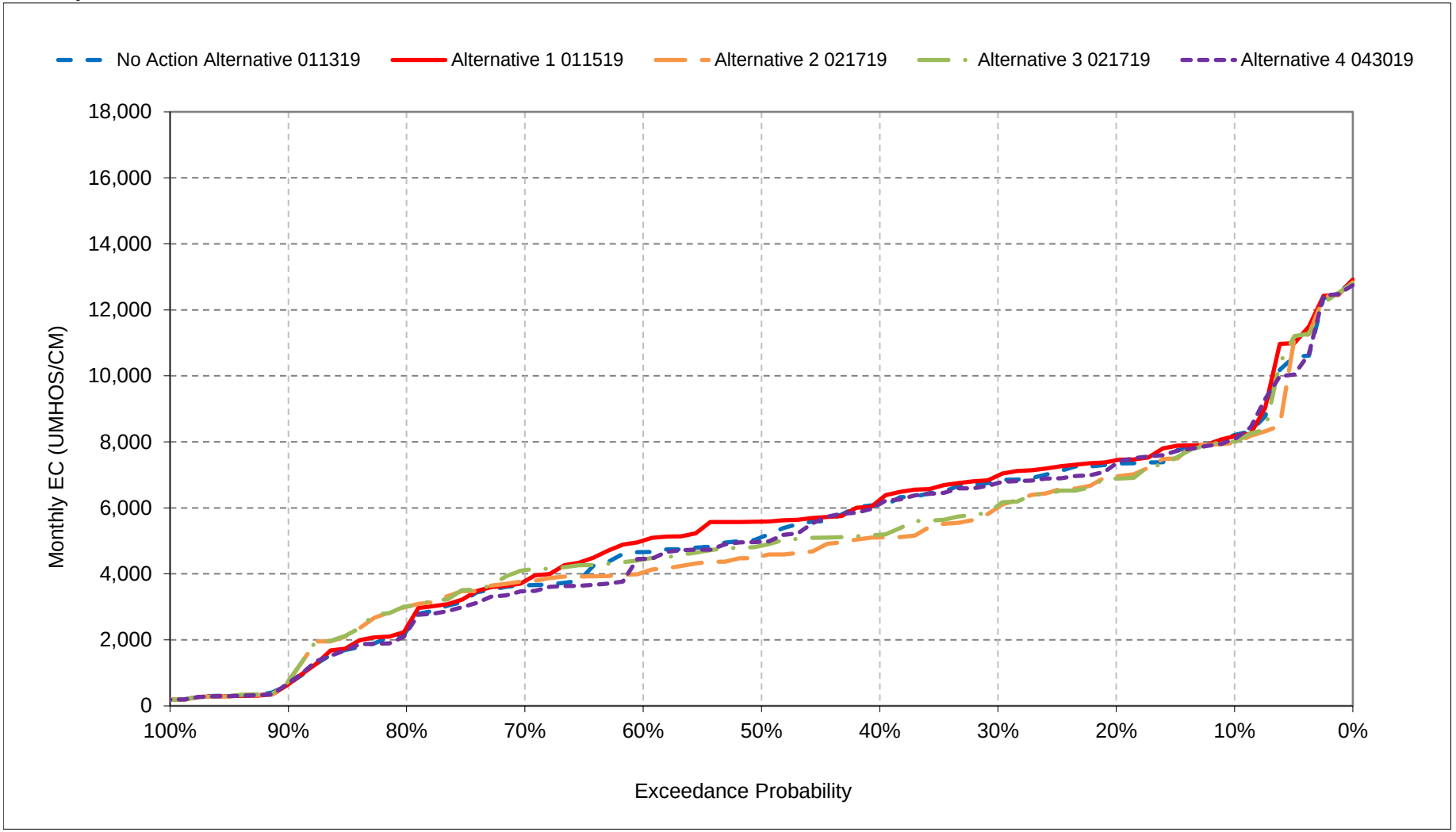

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 12-11. Chipps Island North Channel**
**Salinity, May EC**



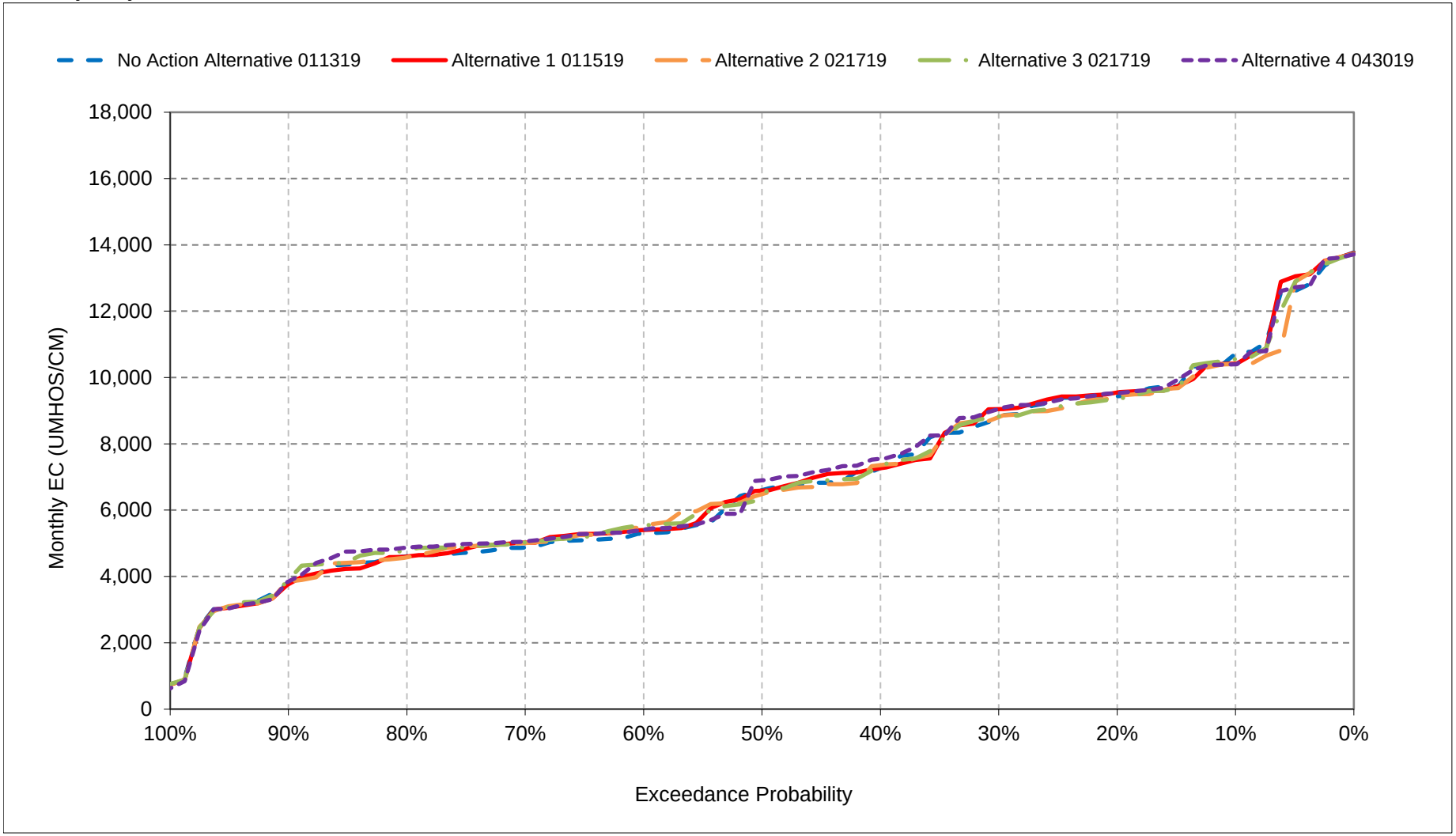

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 12-12. Chipps Island North Channel**
**Salinity, June EC**



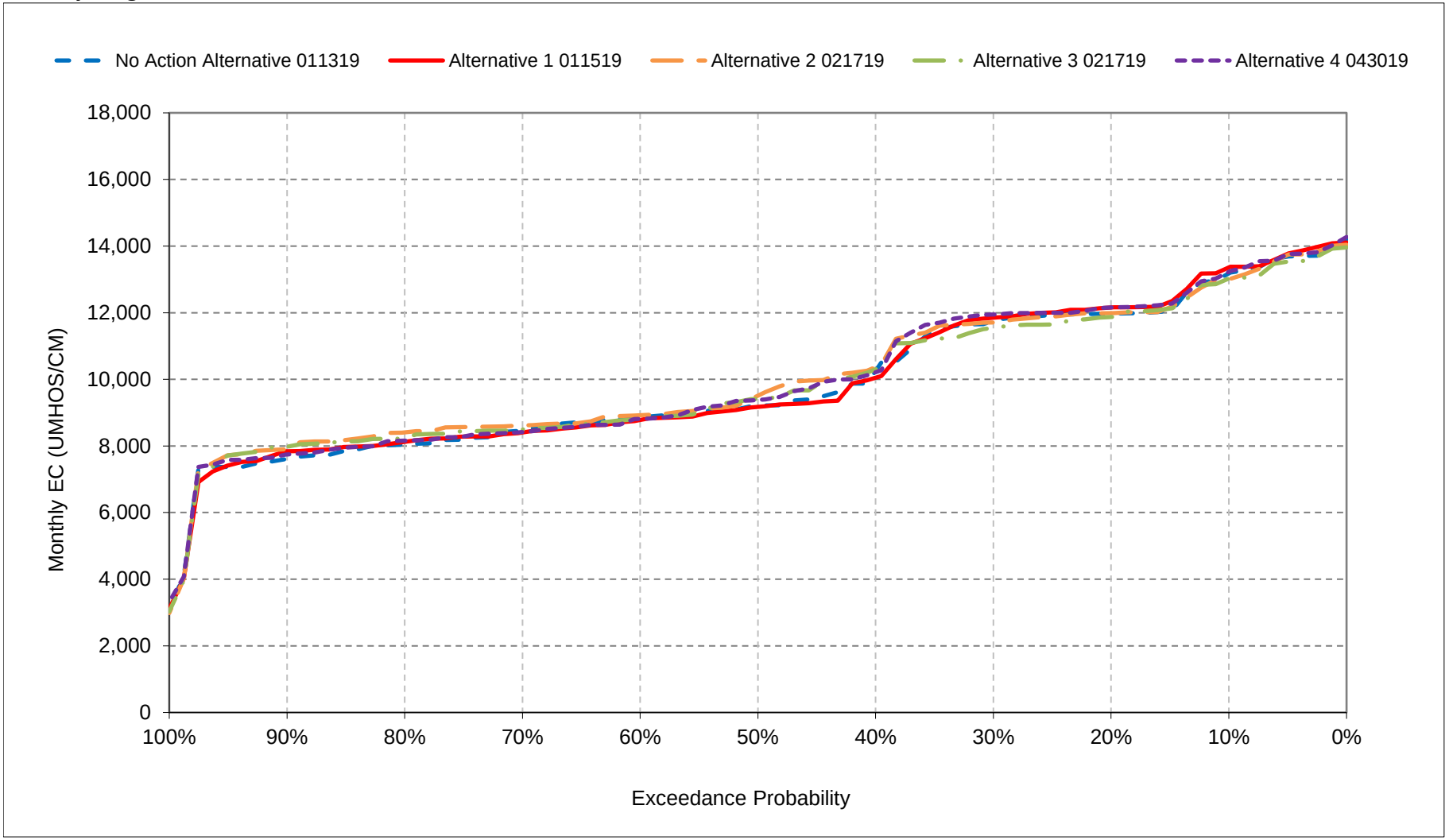

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 12-13. Chipps Island North Channel**
**Salinity, July EC**



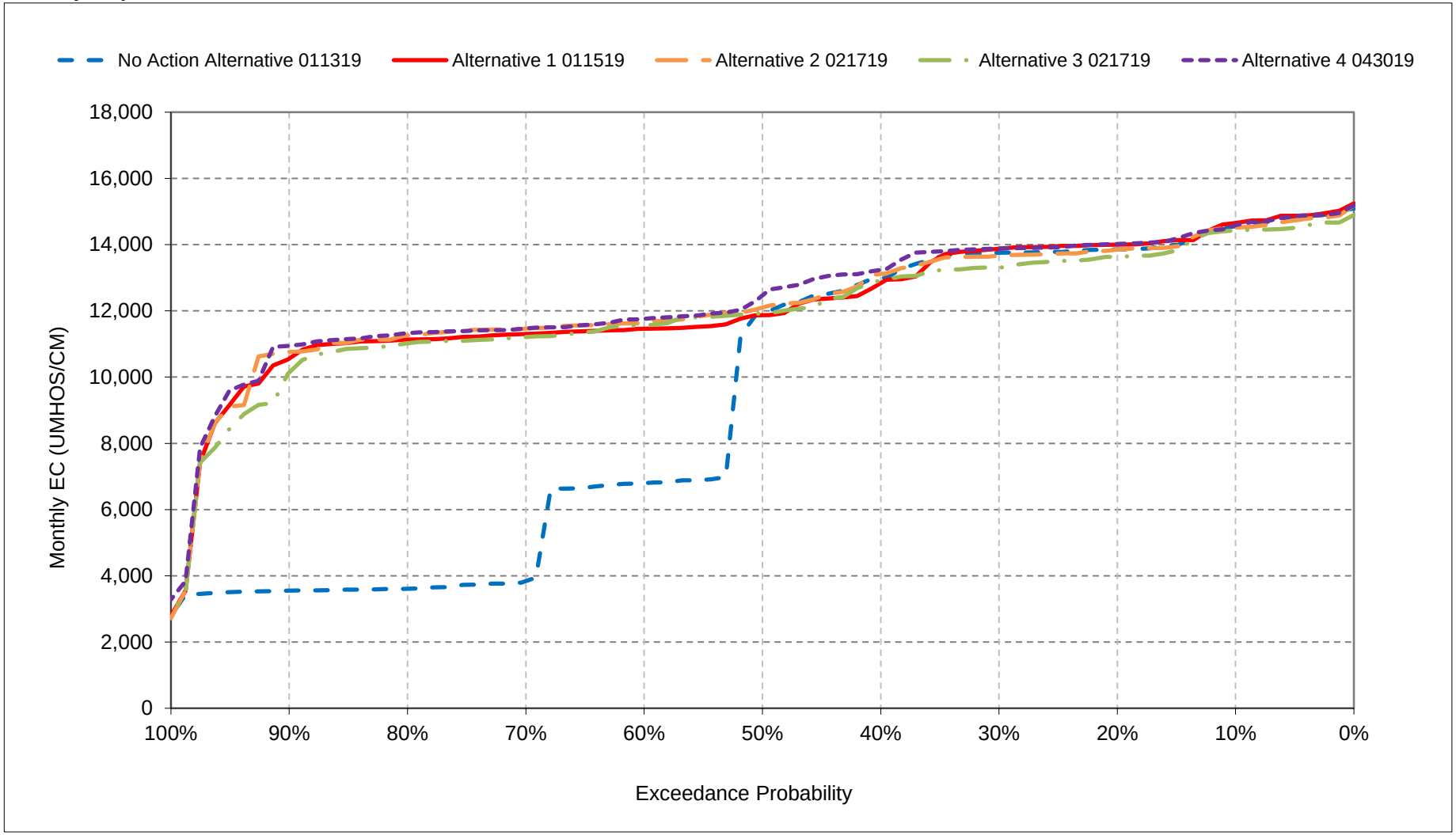

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 12-14. Chipps Island North Channel**
**Salinity, August EC**



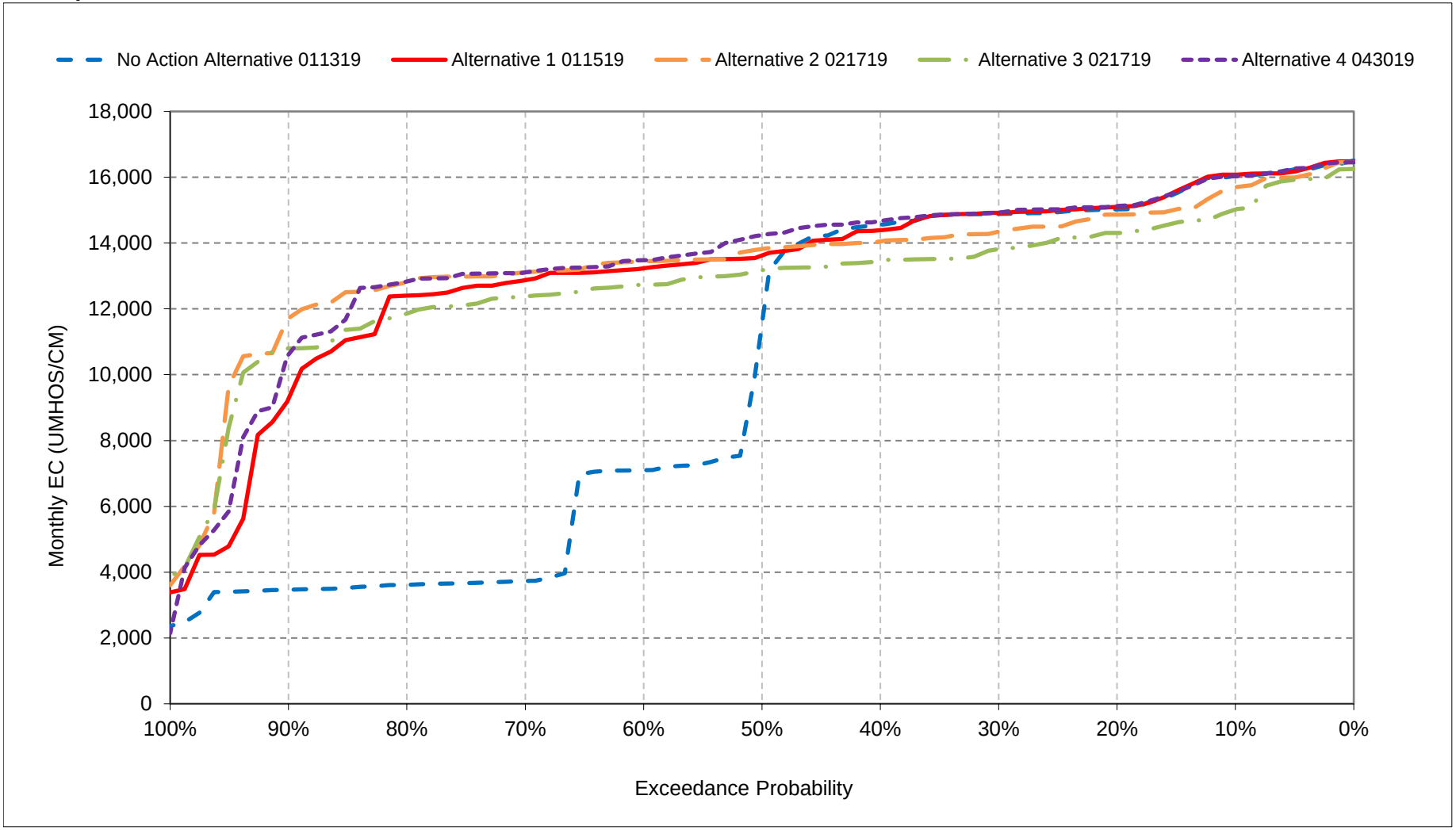

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 12-15. Chipps Island North Channel**
**Salinity, September EC**



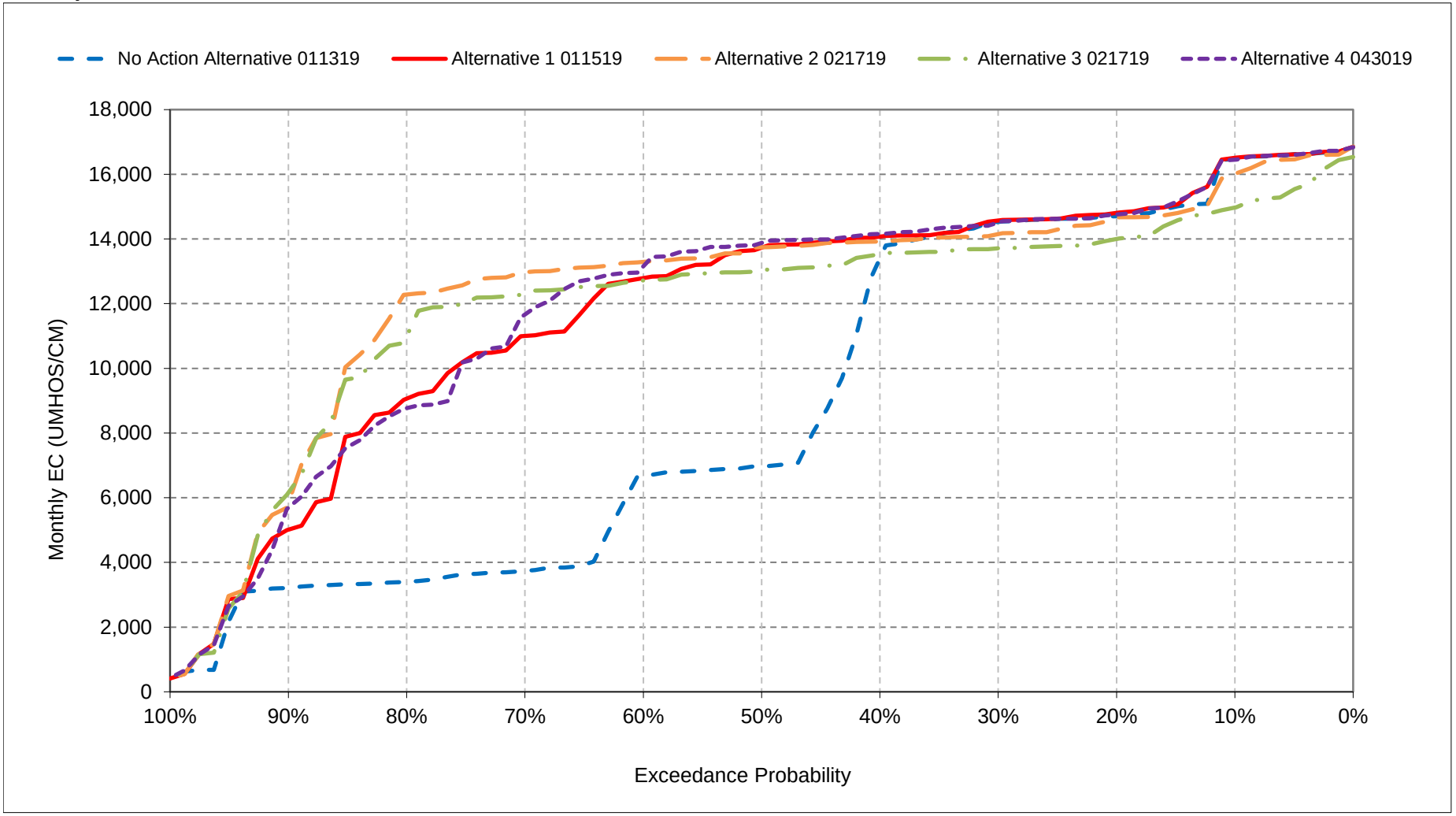

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 12-16. Chipps Island North Channel**
**Salinity, October EC**



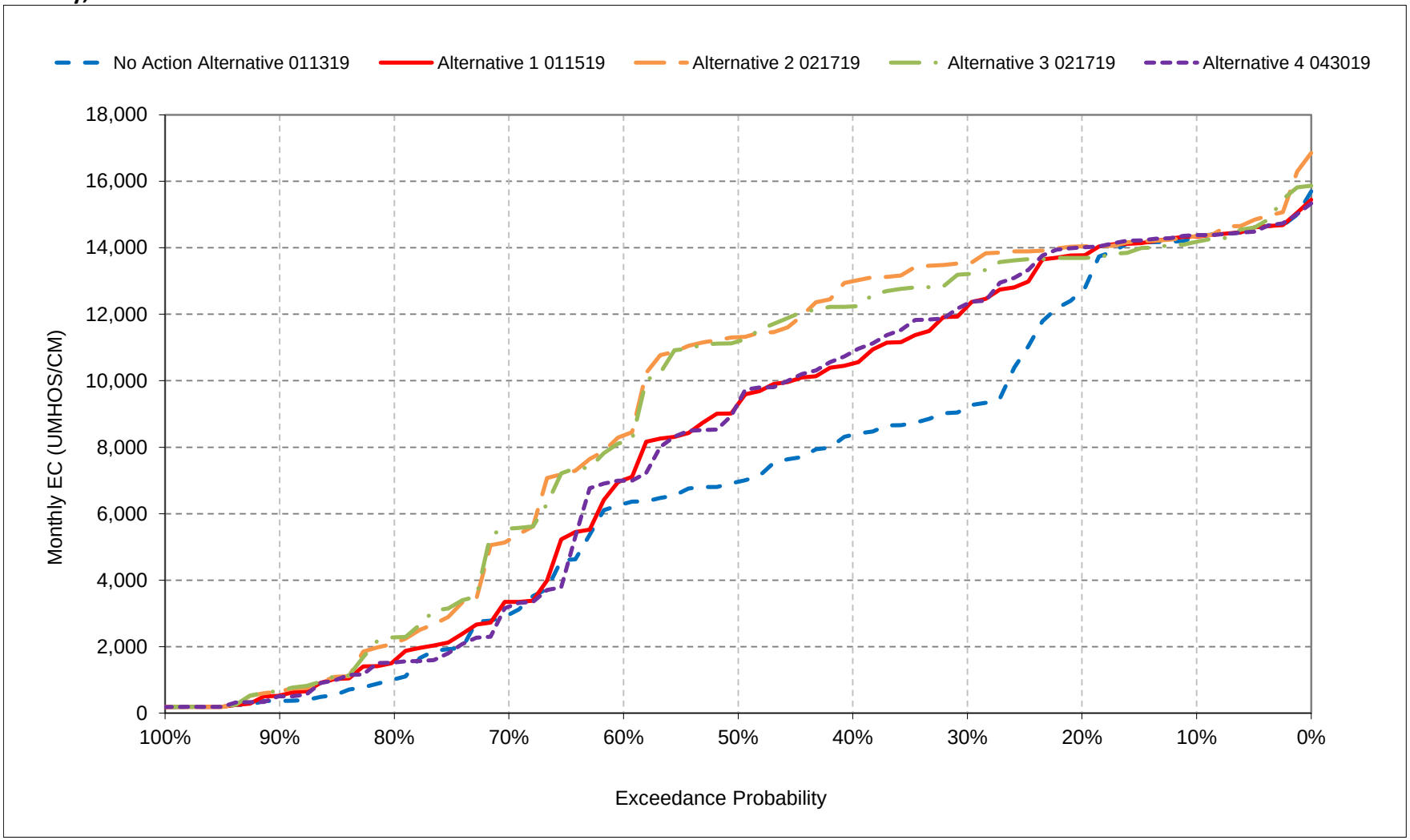

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 12-17. Chipps Island North Channel**
**Salinity, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 12-18. Chipps Island North Channel**
**Salinity, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 13-1. Chipps Island South Channel Salinity, Monthly EC

### No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 14,889 | 15,271 | 12,984 | 8,269 | 3,571 | 2,867 | 3,727 | 5,175 | 6,614 | 9,157 | 11,760 | 13,232 |
| 20% | 13,807 | 13,473 | 11,277 | 7,040 | 2,205 | 1,997 | 1,956 | 4,283 | 5,936 | 7,945 | 10,553 | 12,539 |
| 30% | 13,670 | 13,223 | 7,780 | 5,608 | 1,363 | 875 | 1,405 | 3,463 | 5,408 | 7,336 | 10,348 | 12,394 |
| 40% | 13,360 | 12,043 | 7,003 | 3,438 | 749 | 699 | 820 | 1,863 | 4,772 | 5,859 | 8,757 | 11,609 |
| 50% | 10,186 | 5,748 | 5,610 | 2,555 | 501 | 392 | 564 | 1,326 | 3,896 | 5,248 | 7,726 | 10,525 |
| 60% | 5,882 | 5,390 | 5,002 | 1,083 | 295 | 258 | 334 | 842 | 3,442 | 4,033 | 7,483 | 5,614 |
| 70% | 2,775 | 2,818 | 2,324 | 302 | 217 | 203 | 262 | 576 | 2,629 | 3,772 | 7,089 | 3,180 |
| 80% | 2,716 | 2,496 | 888 | 213 | 199 | 197 | 206 | 266 | 1,565 | 3,529 | 6,598 | 2,889 |
| 90% | 2,553 | 2,404 | 347 | 193 | 191 | 191 | 194 | 191 | 410 | 2,809 | 6,245 | 2,821 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 8,826 | 7,913 | 6,056 | 3,502 | 1,403 | 1,029 | 1,290 | 2,175 | 4,081 | 5,642 | 8,508 | 8,255 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 2,630 | 2,374 | 3,241 | 726 | 247 | 252 | 279 | 496 | 1,739 | 3,038 | 6,607 | 2,854 |
| Above Normal (16%) | 5,633 | 5,178 | 5,093 | 1,674 | 469 | 311 | 382 | 878 | 3,301 | 3,900 | 6,755 | 5,601 |
| Below Normal (13%) | 12,043 | 10,865 | 7,377 | 4,276 | 1,635 | 1,347 | 1,515 | 2,358 | 4,553 | 5,463 | 7,964 | 11,091 |
| Dry (24%) | 13,500 | 10,962 | 6,686 | 5,519 | 2,055 | 1,189 | 1,522 | 2,868 | 5,009 | 7,551 | 10,297 | 12,364 |
| Critical (15%) | 14,973 | 15,093 | 10,936 | 7,425 | 3,618 | 2,932 | 3,872 | 5,892 | 8,025 | 10,151 | 12,040 | 13,383 |

### Alternative 1 011519

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 14,900 | 15,314 | 13,031 | 9,416 | 4,203 | 3,627 | 4,435 | 5,226 | 6,642 | 8,863 | 11,953 | 13,393 |
| 20% | 13,896 | 13,573 | 12,480 | 7,509 | 2,224 | 2,076 | 2,694 | 4,521 | 5,963 | 7,984 | 10,709 | 12,696 |
| 30% | 13,726 | 13,250 | 10,871 | 5,523 | 1,491 | 904 | 1,727 | 3,968 | 5,633 | 7,585 | 10,431 | 12,538 |
| 40% | 13,188 | 12,771 | 9,192 | 3,283 | 729 | 687 | 1,256 | 2,633 | 4,846 | 5,873 | 8,571 | 11,500 |
| 50% | 12,389 | 12,474 | 7,948 | 2,292 | 467 | 393 | 805 | 2,004 | 4,285 | 5,215 | 7,691 | 10,520 |
| 60% | 12,000 | 11,449 | 5,810 | 1,115 | 273 | 247 | 472 | 1,514 | 3,750 | 4,160 | 7,388 | 10,081 |
| 70% | 11,532 | 9,713 | 2,451 | 287 | 212 | 203 | 280 | 840 | 2,742 | 3,897 | 7,008 | 9,933 |
| 80% | 11,038 | 7,690 | 1,464 | 211 | 198 | 196 | 204 | 302 | 1,642 | 3,396 | 6,767 | 9,761 |
| 90% | 8,046 | 4,136 | 607 | 195 | 192 | 191 | 191 | 192 | 405 | 2,781 | 6,405 | 9,245 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 11,903 | 10,776 | 7,079 | 3,589 | 1,503 | 1,130 | 1,508 | 2,580 | 4,237 | 5,678 | 8,535 | 10,845 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 9,394 | 8,442 | 5,443 | 646 | 234 | 249 | 370 | 752 | 1,834 | 3,072 | 6,545 | 8,854 |
| Above Normal (16%) | 11,256 | 10,553 | 7,056 | 1,699 | 430 | 317 | 544 | 1,340 | 3,399 | 3,942 | 6,832 | 9,942 |
| Below Normal (13%) | 11,894 | 11,089 | 7,357 | 4,441 | 1,759 | 1,445 | 1,809 | 3,003 | 4,863 | 5,445 | 7,882 | 10,873 |
| Dry (24%) | 13,733 | 11,162 | 6,728 | 5,827 | 2,190 | 1,278 | 1,807 | 3,296 | 5,151 | 7,557 | 10,414 | 12,443 |
| Critical (15%) | 14,998 | 15,144 | 10,977 | 7,500 | 4,035 | 3,383 | 4,242 | 6,306 | 8,257 | 10,286 | 12,162 | 13,447 |

### Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **11** | **44** | **47** | **1,146** | **633** | **760** | **707** | **51** | **28** | -294 | **193** | **162** |
| 20% | **89** | **100** | **1,203** | **469** | **18** | **79** | **738** | **237** | **27** | **39** | **156** | **157** |
| 30% | **56** | **27** | **3,091** | -85 | **127** | **29** | **322** | **504** | **225** | **249** | **83** | **145** |
| 40% | -172 | **728** | **2,189** | -155 | -20 | -12 | **435** | **771** | **74** | **15** | -186 | -109 |
| 50% | **2,204** | **6,726** | **2,338** | -263 | -34 | **1** | **241** | **678** | **389** | -32 | -35 | -5 |
| 60% | **6,118** | **6,059** | **808** | **32** | -22 | -12 | **137** | **672** | **308** | **128** | -95 | **4,468** |
| 70% | **8,757** | **6,895** | **127** | -15 | -5 | **1** | **18** | **264** | **113** | **125** | -81 | **6,752** |
| 80% | **8,321** | **5,194** | **576** | -2 | -1 | 0 | -2 | **36** | **77** | -132 | **170** | **6,872** |
| 90% | **5,493** | **1,732** | **260** | **2** | **1** | 0 | -2 | **0** | -5 | -29 | **161** | **6,424** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3,077** | **2,862** | **1,023** | **87** | **101** | **101** | **218** | **405** | **156** | **36** | **28** | **2,590** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **6,764** | **6,068** | **2,203** | -80 | -13 | -3 | **91** | **255** | **95** | **34** | -62 | **6,001** |
| Above Normal (16%) | **5,624** | **5,374** | **1,963** | **25** | -38 | **6** | **162** | **462** | **97** | **42** | **77** | **4,341** |
| Below Normal (13%) | -149 | **224** | -20 | **165** | **125** | **98** | **295** | **644** | **311** | -18 | -82 | -218 |
| Dry (24%) | **233** | **200** | **42** | **308** | **135** | **89** | **285** | **428** | **142** | **5** | **117** | **79** |
| Critical (15%) | **25** | **52** | **41** | **75** | **417** | **451** | **371** | **413** | **231** | **135** | **122** | **64** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 13-2. Chipps Island South Channel Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 14,889 | 15,271 | 12,984 | 8,269 | 3,571 | 2,867 | 3,727 | 5,175 | 6,614 | 9,157 | 11,760 | 13,232 |
| 20% | 13,807 | 13,473 | 11,277 | 7,040 | 2,205 | 1,997 | 1,956 | 4,283 | 5,936 | 7,945 | 10,553 | 12,539 |
| 30% | 13,670 | 13,223 | 7,780 | 5,608 | 1,363 | 875 | 1,405 | 3,463 | 5,408 | 7,336 | 10,348 | 12,394 |
| 40% | 13,360 | 12,043 | 7,003 | 3,438 | 749 | 699 | 820 | 1,863 | 4,772 | 5,859 | 8,757 | 11,609 |
| 50% | 10,186 | 5,748 | 5,610 | 2,555 | 501 | 392 | 564 | 1,326 | 3,896 | 5,248 | 7,726 | 10,525 |
| 60% | 5,882 | 5,390 | 5,002 | 1,083 | 295 | 258 | 334 | 842 | 3,442 | 4,033 | 7,483 | 5,614 |
| 70% | 2,775 | 2,818 | 2,324 | 302 | 217 | 203 | 262 | 576 | 2,629 | 3,772 | 7,089 | 3,180 |
| 80% | 2,716 | 2,496 | 888 | 213 | 199 | 197 | 206 | 266 | 1,565 | 3,529 | 6,598 | 2,889 |
| 90% | 2,553 | 2,404 | 347 | 193 | 191 | 191 | 194 | 191 | 410 | 2,809 | 6,245 | 2,821 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 8,826 | 7,913 | 6,056 | 3,502 | 1,403 | 1,029 | 1,290 | 2,175 | 4,081 | 5,642 | 8,508 | 8,255 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 2,630 | 2,374 | 3,241 | 726 | 247 | 252 | 279 | 496 | 1,739 | 3,038 | 6,607 | 2,854 |
| Above Normal (16%) | 5,633 | 5,178 | 5,093 | 1,674 | 469 | 311 | 382 | 878 | 3,301 | 3,900 | 6,755 | 5,601 |
| Below Normal (13%) | 12,043 | 10,865 | 7,377 | 4,276 | 1,635 | 1,347 | 1,515 | 2,358 | 4,553 | 5,463 | 7,964 | 11,091 |
| Dry (24%) | 13,500 | 10,962 | 6,686 | 5,519 | 2,055 | 1,189 | 1,522 | 2,868 | 5,009 | 7,551 | 10,297 | 12,364 |
| Critical (15%) | 14,973 | 15,093 | 10,936 | 7,425 | 3,618 | 2,932 | 3,872 | 5,892 | 8,025 | 10,151 | 12,040 | 13,383 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 14,525 | 14,884 | 13,111 | 10,245 | 5,578 | 4,135 | 4,505 | 5,220 | 6,542 | 8,862 | 11,540 | 13,182 |
| 20% | 13,663 | 13,319 | 12,737 | 9,331 | 3,487 | 2,279 | 2,911 | 4,308 | 5,532 | 7,935 | 10,574 | 12,480 |
| 30% | 13,147 | 12,906 | 12,238 | 8,062 | 2,322 | 1,213 | 2,118 | 3,736 | 4,682 | 7,320 | 10,330 | 12,342 |
| 40% | 12,767 | 12,682 | 11,561 | 5,513 | 1,194 | 916 | 1,559 | 3,001 | 3,899 | 5,944 | 8,969 | 11,744 |
| 50% | 12,523 | 12,408 | 9,938 | 3,851 | 739 | 547 | 926 | 2,241 | 3,379 | 5,112 | 8,101 | 10,738 |
| 60% | 12,203 | 11,984 | 7,018 | 1,789 | 308 | 264 | 568 | 1,632 | 2,935 | 4,312 | 7,514 | 10,342 |
| 70% | 11,798 | 11,624 | 4,086 | 396 | 217 | 206 | 292 | 1,016 | 2,701 | 3,788 | 7,228 | 10,081 |
| 80% | 11,455 | 10,996 | 1,882 | 227 | 198 | 198 | 209 | 376 | 2,127 | 3,424 | 7,019 | 9,904 |
| 90% | 10,390 | 4,858 | 715 | 193 | 192 | 190 | 192 | 192 | 458 | 2,834 | 6,521 | 9,405 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 12,135 | 11,301 | 8,086 | 4,606 | 1,888 | 1,257 | 1,615 | 2,609 | 3,819 | 5,614 | 8,662 | 10,893 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 10,371 | 9,749 | 6,353 | 1,068 | 278 | 273 | 399 | 762 | 1,711 | 3,164 | 6,703 | 9,017 |
| Above Normal (16%) | 12,064 | 11,734 | 8,541 | 2,454 | 612 | 347 | 634 | 1,555 | 2,764 | 3,823 | 7,092 | 10,163 |
| Below Normal (13%) | 11,922 | 11,594 | 8,162 | 6,216 | 2,321 | 1,533 | 2,015 | 2,971 | 3,534 | 5,343 | 8,397 | 10,911 |
| Dry (24%) | 13,126 | 10,754 | 7,349 | 7,198 | 2,752 | 1,541 | 1,979 | 3,229 | 4,859 | 7,465 | 10,380 | 12,344 |
| Critical (15%) | 14,580 | 14,840 | 12,506 | 8,809 | 4,919 | 3,648 | 4,337 | 6,386 | 8,054 | 10,025 | 11,986 | 13,313 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -364 | -386 | **127** | **1,976** | **2,007** | **1,268** | **778** | **45** | -72 | -295 | -220 | -50 |
| 20% | -144 | -154 | **1,461** | **2,291** | **1,282** | **282** | **954** | **24** | -404 | -10 | **22** | -59 |
| 30% | -524 | -317 | **4,457** | **2,454** | **959** | **338** | **713** | **273** | -727 | -16 | -18 | -52 |
| 40% | -594 | **639** | **4,557** | **2,075** | **444** | **217** | **738** | **1,138** | -874 | **85** | **213** | **135** |
| 50% | **2,337** | **6,660** | **4,329** | **1,296** | **238** | **155** | **362** | **915** | -517 | -136 | **376** | **213** |
| 60% | **6,321** | **6,594** | **2,016** | **706** | **13** | **6** | **233** | **790** | -506 | **279** | **31** | **4,728** |
| 70% | **9,024** | **8,806** | **1,762** | **94** | **1** | **4** | **30** | **440** | **72** | **16** | **139** | **6,900** |
| 80% | **8,739** | **8,500** | **993** | **14** | -1 | **1** | **3** | **109** | **563** | -104 | **422** | **7,015** |
| 90% | **7,837** | **2,454** | **368** | 0 | **1** | -1 | -1 | **0** | **47** | **24** | **276** | **6,583** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3,309** | **3,388** | **2,030** | **1,105** | **485** | **228** | **324** | **434** | -263 | -28 | **154** | **2,638** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **7,741** | **7,376** | **3,113** | **342** | **31** | **21** | **119** | **265** | -28 | **126** | **96** | **6,164** |
| Above Normal (16%) | **6,432** | **6,556** | **3,448** | **780** | **143** | **36** | **252** | **677** | -537 | -76 | **338** | **4,562** |
| Below Normal (13%) | -121 | **729** | **785** | **1,941** | **687** | **186** | **501** | **613** | -1,018 | -120 | **433** | -180 |
| Dry (24%) | -374 | -208 | **663** | **1,679** | **697** | **351** | **457** | **361** | -150 | -86 | **83** | -20 |
| Critical (15%) | -393 | -253 | **1,570** | **1,384** | **1,301** | **717** | **465** | **494** | **29** | -126 | -54 | -70 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 13-3. Chipps Island South Channel Salinity, Monthly EC

### No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 14,889 | 15,271 | 12,984 | 8,269 | 3,571 | 2,867 | 3,727 | 5,175 | 6,614 | 9,157 | 11,760 | 13,232 |
| 20% | 13,807 | 13,473 | 11,277 | 7,040 | 2,205 | 1,997 | 1,956 | 4,283 | 5,936 | 7,945 | 10,553 | 12,539 |
| 30% | 13,670 | 13,223 | 7,780 | 5,608 | 1,363 | 875 | 1,405 | 3,463 | 5,408 | 7,336 | 10,348 | 12,394 |
| 40% | 13,360 | 12,043 | 7,003 | 3,438 | 749 | 699 | 820 | 1,863 | 4,772 | 5,859 | 8,757 | 11,609 |
| 50% | 10,186 | 5,748 | 5,610 | 2,555 | 501 | 392 | 564 | 1,326 | 3,896 | 5,248 | 7,726 | 10,525 |
| 60% | 5,882 | 5,390 | 5,002 | 1,083 | 295 | 258 | 334 | 842 | 3,442 | 4,033 | 7,483 | 5,614 |
| 70% | 2,775 | 2,818 | 2,324 | 302 | 217 | 203 | 262 | 576 | 2,629 | 3,772 | 7,089 | 3,180 |
| 80% | 2,716 | 2,496 | 888 | 213 | 199 | 197 | 206 | 266 | 1,565 | 3,529 | 6,598 | 2,889 |
| 90% | 2,553 | 2,404 | 347 | 193 | 191 | 191 | 194 | 191 | 410 | 2,809 | 6,245 | 2,821 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 8,826 | 7,913 | 6,056 | 3,502 | 1,403 | 1,029 | 1,290 | 2,175 | 4,081 | 5,642 | 8,508 | 8,255 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 2,630 | 2,374 | 3,241 | 726 | 247 | 252 | 279 | 496 | 1,739 | 3,038 | 6,607 | 2,854 |
| Above Normal (16%) | 5,633 | 5,178 | 5,093 | 1,674 | 469 | 311 | 382 | 878 | 3,301 | 3,900 | 6,755 | 5,601 |
| Below Normal (13%) | 12,043 | 10,865 | 7,377 | 4,276 | 1,635 | 1,347 | 1,515 | 2,358 | 4,553 | 5,463 | 7,964 | 11,091 |
| Dry (24%) | 13,500 | 10,962 | 6,686 | 5,519 | 2,055 | 1,189 | 1,522 | 2,868 | 5,009 | 7,551 | 10,297 | 12,364 |
| Critical (15%) | 14,973 | 15,093 | 10,936 | 7,425 | 3,618 | 2,932 | 3,872 | 5,892 | 8,025 | 10,151 | 12,040 | 13,383 |

### Alternative 3 021719

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 13,807 | 13,779 | 12,961 | 10,314 | 5,688 | 4,030 | 4,393 | 5,255 | 6,489 | 9,000 | 11,572 | 13,093 |
| 20% | 13,076 | 12,748 | 12,424 | 9,378 | 3,796 | 2,364 | 2,966 | 4,337 | 5,494 | 7,923 | 10,470 | 12,330 |
| 30% | 12,541 | 12,397 | 11,867 | 7,899 | 2,530 | 1,236 | 2,097 | 3,862 | 4,737 | 7,290 | 10,199 | 12,048 |
| 40% | 12,187 | 12,187 | 10,939 | 5,656 | 1,281 | 918 | 1,502 | 3,039 | 3,961 | 5,925 | 8,859 | 11,608 |
| 50% | 11,894 | 11,718 | 9,742 | 4,063 | 738 | 565 | 902 | 2,300 | 3,681 | 5,063 | 7,985 | 10,575 |
| 60% | 11,486 | 11,501 | 6,831 | 1,896 | 328 | 261 | 539 | 1,650 | 3,261 | 4,307 | 7,405 | 10,267 |
| 70% | 11,068 | 11,073 | 4,385 | 421 | 220 | 210 | 295 | 1,089 | 3,005 | 3,834 | 7,101 | 9,827 |
| 80% | 10,618 | 9,682 | 2,121 | 232 | 198 | 198 | 210 | 388 | 2,106 | 3,571 | 6,887 | 9,612 |
| 90% | 9,452 | 5,144 | 815 | 196 | 193 | 191 | 194 | 194 | 462 | 2,903 | 6,549 | 8,846 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 11,530 | 10,788 | 7,965 | 4,653 | 1,967 | 1,277 | 1,597 | 2,642 | 3,949 | 5,673 | 8,563 | 10,659 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 9,977 | 9,412 | 6,174 | 1,089 | 285 | 277 | 358 | 871 | 1,814 | 3,207 | 6,672 | 8,836 |
| Above Normal (16%) | 11,370 | 11,155 | 8,272 | 2,454 | 620 | 351 | 632 | 1,564 | 3,024 | 3,837 | 6,903 | 9,619 |
| Below Normal (13%) | 11,374 | 10,995 | 8,104 | 6,393 | 2,251 | 1,474 | 1,974 | 2,988 | 3,749 | 5,411 | 8,336 | 10,839 |
| Dry (24%) | 12,218 | 10,253 | 7,386 | 7,371 | 2,958 | 1,564 | 1,964 | 3,204 | 4,854 | 7,474 | 10,214 | 12,118 |
| Critical (15%) | 14,066 | 14,072 | 12,349 | 8,634 | 5,158 | 3,788 | 4,372 | 6,389 | 8,251 | 10,243 | 11,912 | 13,138 |

### Alternative 3 021719 minus No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -1,082 | -1,491 | -23 | **2,044** | **2,118** | **1,163** | **665** | **79** | -125 | -157 | -188 | -139 |
| 20% | -731 | -725 | **1,147** | **2,337** | **1,591** | **367** | **1,010** | **54** | -442 | -21 | -82 | -209 |
| 30% | -1,129 | -826 | **4,087** | **2,290** | **1,167** | **361** | **692** | **398** | -672 | -46 | -149 | -345 |
| 40% | -1,173 | **144** | **3,935** | **2,218** | **531** | **219** | **682** | **1,176** | -812 | **67** | **102** | -1 |
| 50% | **1,708** | **5,969** | **4,132** | **1,508** | **238** | **173** | **338** | **974** | -215 | -185 | **259** | **50** |
| 60% | **5,604** | **6,111** | **1,829** | **813** | **33** | **3** | **205** | **809** | -181 | **274** | -78 | **4,654** |
| 70% | **8,294** | **8,255** | **2,061** | **119** | **4** | **8** | **33** | **513** | **376** | **61** | **13** | **6,647** |
| 80% | **7,902** | **7,186** | **1,233** | **18** | -1 | **1** | **4** | **121** | **542** | **42** | **290** | **6,722** |
| 90% | **6,899** | **2,740** | **468** | **2** | **2** | **0** | **0** | **3** | **52** | **94** | **305** | **6,025** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **2,704** | **2,874** | **1,909** | **1,151** | **564** | **248** | **307** | **467** | -133 | **31** | **55** | **2,405** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **7,347** | **7,039** | **2,934** | **362** | **38** | **25** | **79** | **375** | **75** | **169** | **65** | **5,983** |
| Above Normal (16%) | **5,738** | **5,977** | **3,180** | **780** | **151** | **40** | **250** | **685** | -278 | -63 | **148** | **4,019** |
| Below Normal (13%) | -669 | **130** | **727** | **2,117** | **616** | **127** | **460** | **630** | -804 | -52 | **372** | -252 |
| Dry (24%) | -1,283 | -709 | **700** | **1,852** | **903** | **374** | **441** | **335** | -155 | -78 | -83 | -246 |
| Critical (15%) | -907 | -1,021 | **1,413** | **1,209** | **1,540** | **856** | **500** | **497** | **226** | **92** | -128 | -245 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 13-4. Chipps Island South Channel Salinity, Monthly EC

### No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 14,889 | 15,271 | 12,984 | 8,269 | 3,571 | 2,867 | 3,727 | 5,175 | 6,614 | 9,157 | 11,760 | 13,232 |
| 20% | 13,807 | 13,473 | 11,277 | 7,040 | 2,205 | 1,997 | 1,956 | 4,283 | 5,936 | 7,945 | 10,553 | 12,539 |
| 30% | 13,670 | 13,223 | 7,780 | 5,608 | 1,363 | 875 | 1,405 | 3,463 | 5,408 | 7,336 | 10,348 | 12,394 |
| 40% | 13,360 | 12,043 | 7,003 | 3,438 | 749 | 699 | 820 | 1,863 | 4,772 | 5,859 | 8,757 | 11,609 |
| 50% | 10,186 | 5,748 | 5,610 | 2,555 | 501 | 392 | 564 | 1,326 | 3,896 | 5,248 | 7,726 | 10,525 |
| 60% | 5,882 | 5,390 | 5,002 | 1,083 | 295 | 258 | 334 | 842 | 3,442 | 4,033 | 7,483 | 5,614 |
| 70% | 2,775 | 2,818 | 2,324 | 302 | 217 | 203 | 262 | 576 | 2,629 | 3,772 | 7,089 | 3,180 |
| 80% | 2,716 | 2,496 | 888 | 213 | 199 | 197 | 206 | 266 | 1,565 | 3,529 | 6,598 | 2,889 |
| 90% | 2,553 | 2,404 | 347 | 193 | 191 | 191 | 194 | 191 | 410 | 2,809 | 6,245 | 2,821 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 8,826 | 7,913 | 6,056 | 3,502 | 1,403 | 1,029 | 1,290 | 2,175 | 4,081 | 5,642 | 8,508 | 8,255 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 2,630 | 2,374 | 3,241 | 726 | 247 | 252 | 279 | 496 | 1,739 | 3,038 | 6,607 | 2,854 |
| Above Normal (16%) | 5,633 | 5,178 | 5,093 | 1,674 | 469 | 311 | 382 | 878 | 3,301 | 3,900 | 6,755 | 5,601 |
| Below Normal (13%) | 12,043 | 10,865 | 7,377 | 4,276 | 1,635 | 1,347 | 1,515 | 2,358 | 4,553 | 5,463 | 7,964 | 11,091 |
| Dry (24%) | 13,500 | 10,962 | 6,686 | 5,519 | 2,055 | 1,189 | 1,522 | 2,868 | 5,009 | 7,551 | 10,297 | 12,364 |
| Critical (15%) | 14,973 | 15,093 | 10,936 | 7,425 | 3,618 | 2,932 | 3,872 | 5,892 | 8,025 | 10,151 | 12,040 | 13,383 |

### Alternative 4 043019

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 14,836 | 15,252 | 13,035 | 9,079 | 3,697 | 2,459 | 3,188 | 5,121 | 6,499 | 8,875 | 11,820 | 13,282 |
| 20% | 13,899 | 13,578 | 12,673 | 7,280 | 2,157 | 1,122 | 1,719 | 4,311 | 5,925 | 8,034 | 10,732 | 12,676 |
| 30% | 13,726 | 13,214 | 10,946 | 5,214 | 1,355 | 553 | 1,077 | 2,942 | 5,313 | 7,545 | 10,504 | 12,568 |
| 40% | 13,453 | 12,883 | 9,449 | 3,067 | 694 | 385 | 632 | 1,698 | 4,747 | 6,124 | 8,779 | 11,939 |
| 50% | 13,001 | 12,613 | 7,988 | 2,317 | 426 | 279 | 403 | 1,048 | 3,821 | 5,550 | 7,961 | 11,098 |
| 60% | 12,255 | 11,849 | 5,671 | 915 | 242 | 217 | 255 | 673 | 3,244 | 4,176 | 7,452 | 10,379 |
| 70% | 11,852 | 10,338 | 2,329 | 282 | 210 | 204 | 225 | 421 | 2,481 | 3,957 | 7,030 | 10,162 |
| 80% | 11,534 | 7,429 | 1,336 | 209 | 198 | 199 | 206 | 232 | 1,512 | 3,709 | 6,737 | 9,928 |
| 90% | 9,274 | 4,742 | 388 | 196 | 192 | 194 | 195 | 191 | 428 | 2,860 | 6,343 | 9,517 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 12,218 | 10,906 | 7,087 | 3,471 | 1,403 | 824 | 1,089 | 2,048 | 4,004 | 5,752 | 8,622 | 11,062 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 9,940 | 8,879 | 5,642 | 604 | 224 | 223 | 263 | 443 | 1,659 | 3,146 | 6,617 | 9,134 |
| Above Normal (16%) | 11,775 | 10,844 | 6,930 | 1,683 | 392 | 239 | 297 | 666 | 3,179 | 4,018 | 6,786 | 10,030 |
| Below Normal (13%) | 12,215 | 10,694 | 7,340 | 4,112 | 1,593 | 838 | 1,028 | 2,140 | 4,514 | 5,647 | 8,287 | 11,466 |
| Dry (24%) | 13,813 | 11,155 | 6,639 | 5,721 | 2,054 | 832 | 1,251 | 2,773 | 4,971 | 7,666 | 10,518 | 12,600 |
| Critical (15%) | 14,980 | 15,148 | 10,900 | 7,280 | 3,797 | 2,739 | 3,527 | 5,730 | 7,901 | 10,185 | 12,105 | 13,422 |

### Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -53 | -18 | **51** | **809** | **126** | -408 | -540 | -54 | -114 | -283 | **60** | **50** |
| 20% | **92** | **105** | **1,396** | **239** | -49 | -875 | -237 | **28** | -11 | **89** | **179** | **137** |
| 30% | **55** | -9 | **3,166** | -395 | -9 | -323 | -328 | -521 | -95 | **208** | **156** | **175** |
| 40% | **93** | **840** | **2,446** | -371 | -56 | -314 | -189 | -165 | -25 | **265** | **22** | **331** |
| 50% | **2,815** | **6,865** | **2,378** | -238 | -75 | -114 | -161 | -277 | -76 | **303** | **235** | **573** |
| 60% | **6,373** | **6,459** | **670** | -167 | -53 | -42 | -80 | -169 | -197 | **143** | -31 | **4,765** |
| 70% | **9,077** | **7,520** | **5** | -20 | -6 | **1** | -37 | -154 | -148 | **185** | -59 | **6,982** |
| 80% | **8,818** | **4,932** | **448** | -4 | -1 | **2** | **0** | -34 | -52 | **181** | **139** | **7,039** |
| 90% | **6,722** | **2,339** | **42** | **2** | **1** | **3** | **1** | -1 | **18** | **51** | **99** | **6,696** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3,392** | **2,993** | **1,031** | -31 | **1** | -204 | -201 | -127 | -77 | **111** | **115** | **2,807** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **7,310** | **6,505** | **2,401** | -122 | -23 | -29 | -16 | -53 | -80 | **108** | **10** | **6,280** |
| Above Normal (16%) | **6,143** | **5,666** | **1,837** | **9** | -77 | -72 | -85 | -213 | -122 | **118** | **31** | **4,429** |
| Below Normal (13%) | **173** | -171 | -37 | -163 | -42 | -509 | -487 | -219 | -39 | **184** | **324** | **375** |
| Dry (24%) | **313** | **193** | -47 | **202** | -1 | -358 | -272 | -95 | -38 | **114** | **221** | **236** |
| Critical (15%) | **7** | **56** | -36 | -145 | **180** | -193 | -345 | -162 | -125 | **34** | **65** | **39** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

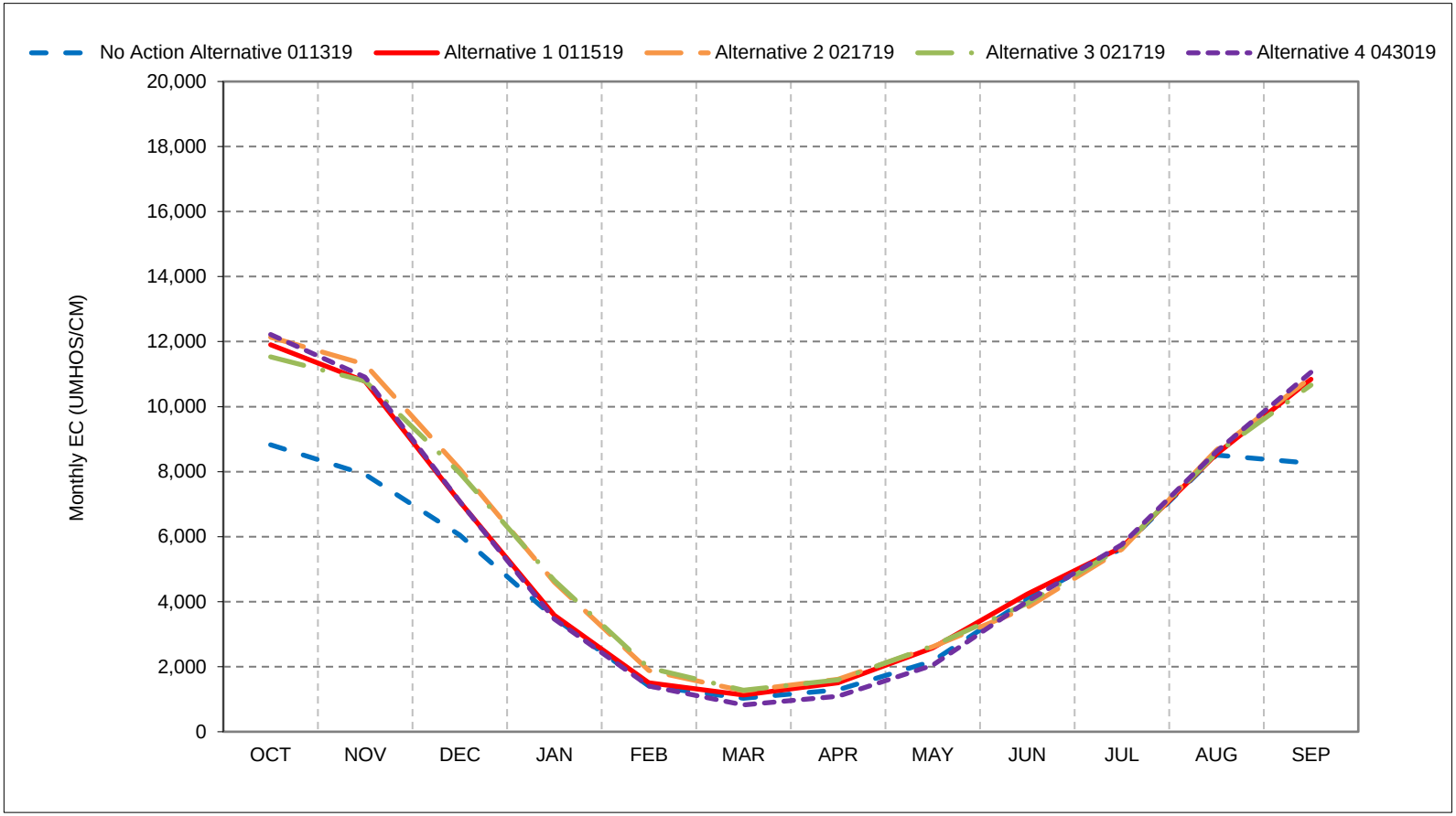
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

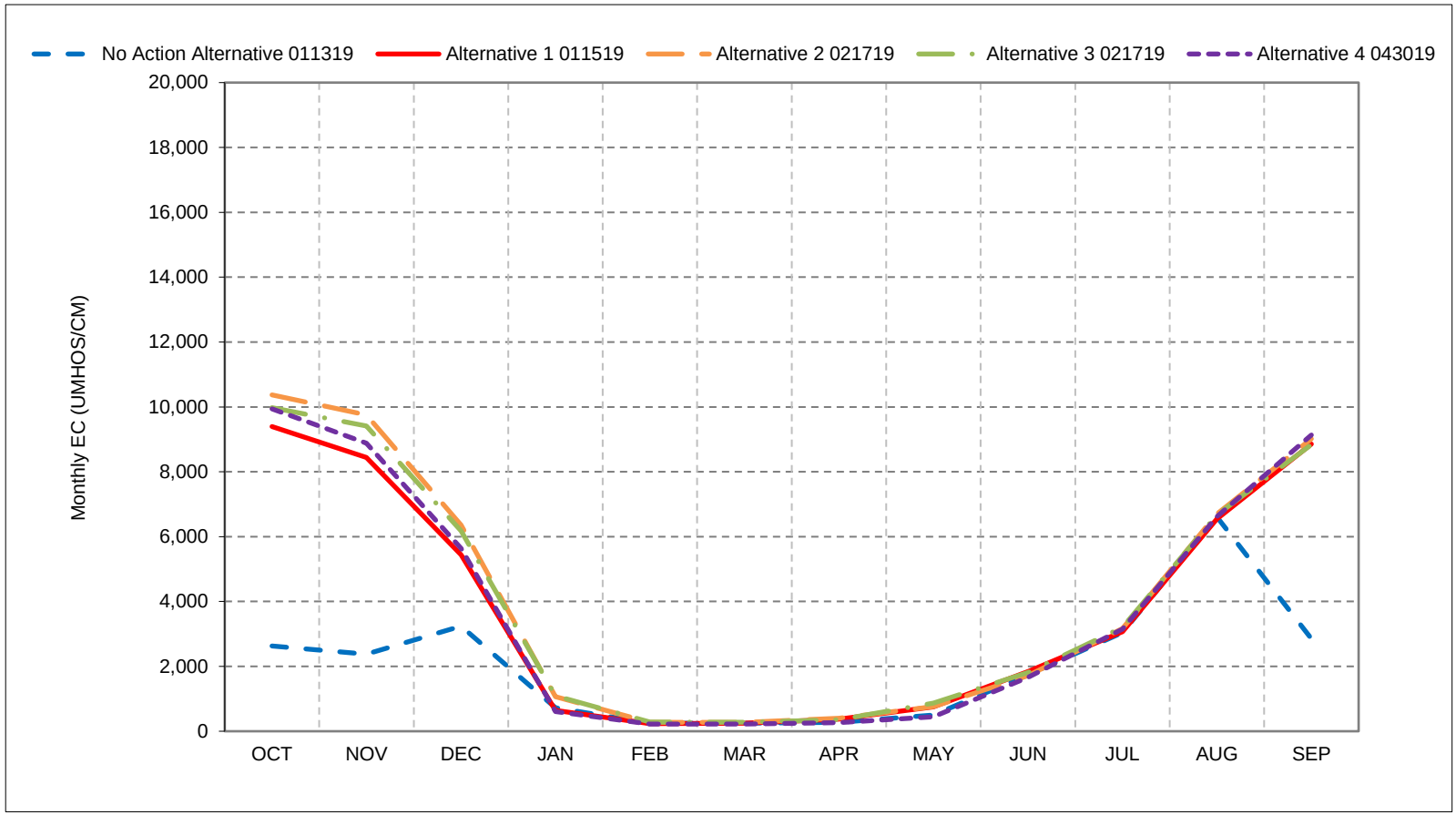
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 13-1. Chipps Island South Channel Salinity, Long-Term Average EC



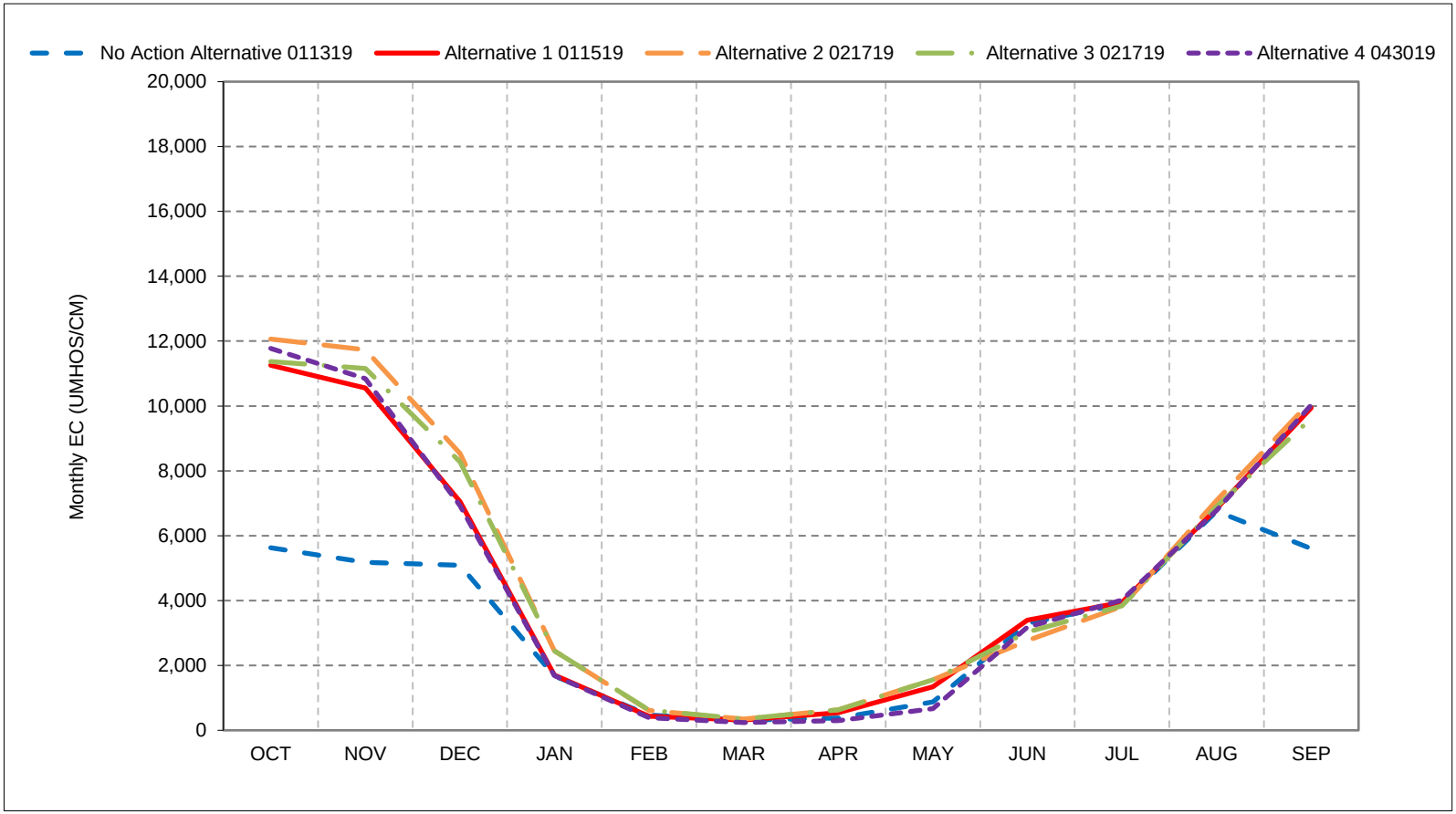

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 13-2. Chipps Island South Channel Salinity, Wet Year Average EC



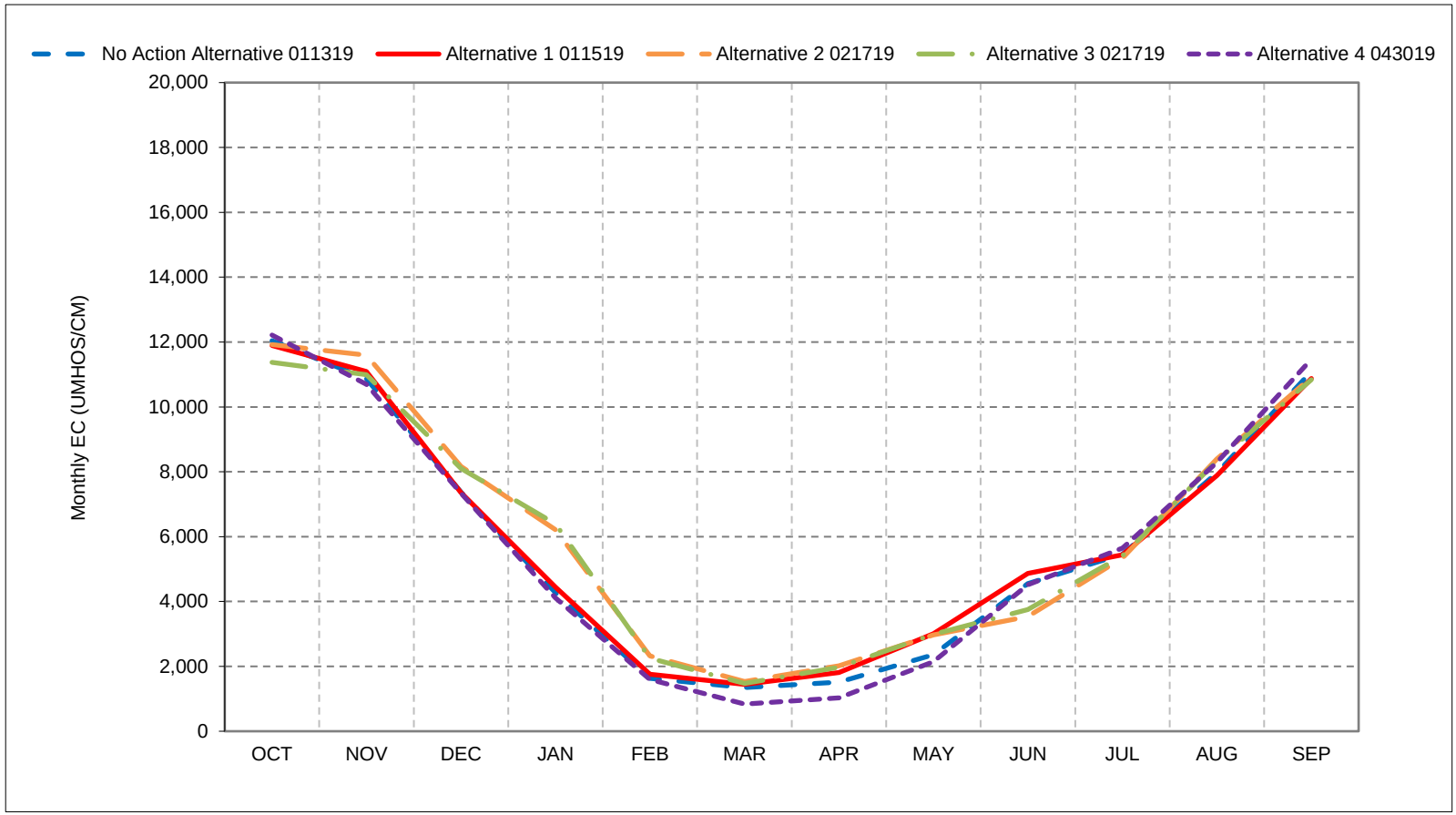

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 13-3. Chipps Island South Channel Salinity, Above Normal Year Average EC



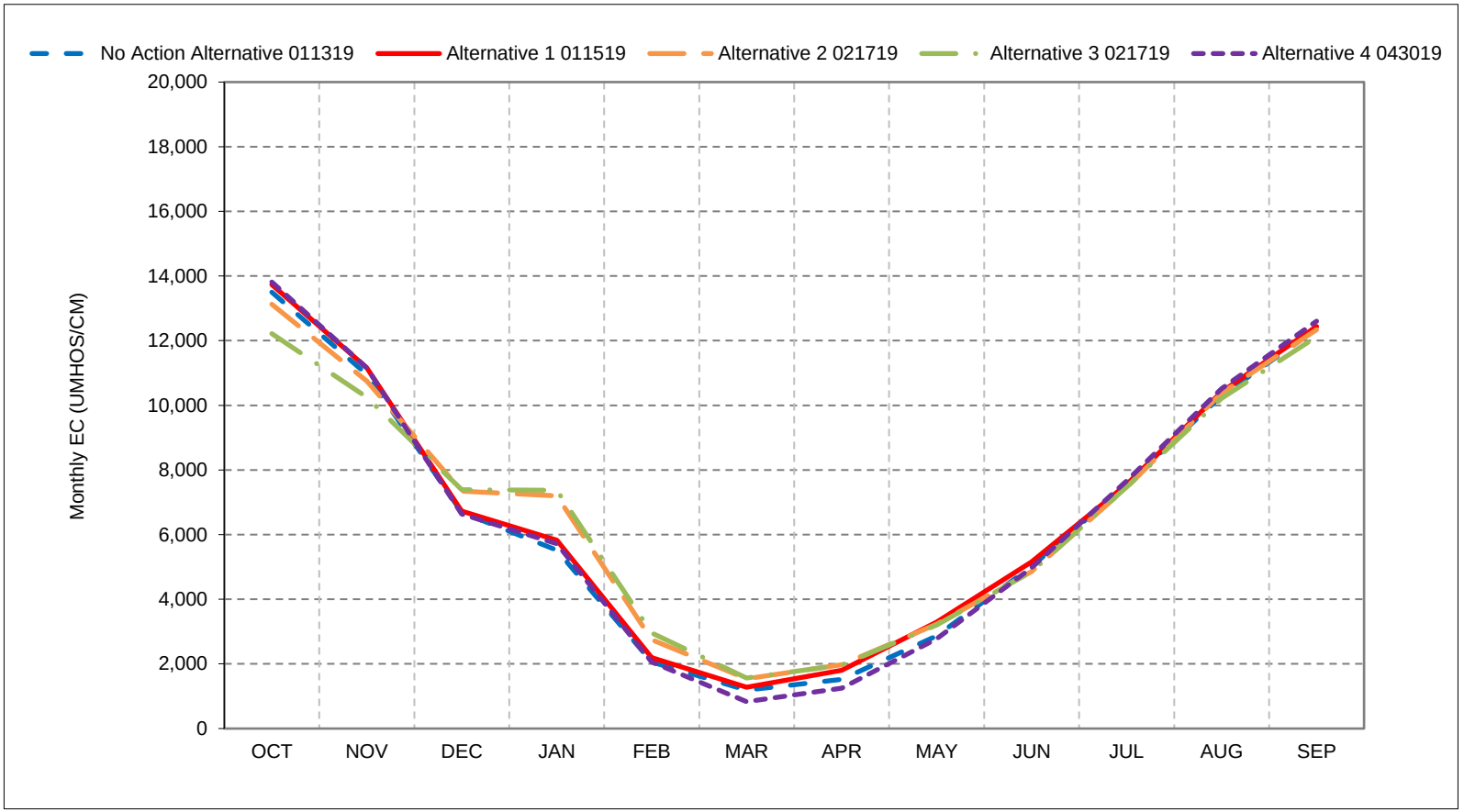

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 13-4. Chipps Island South Channel Salinity, Below Normal Year Average EC



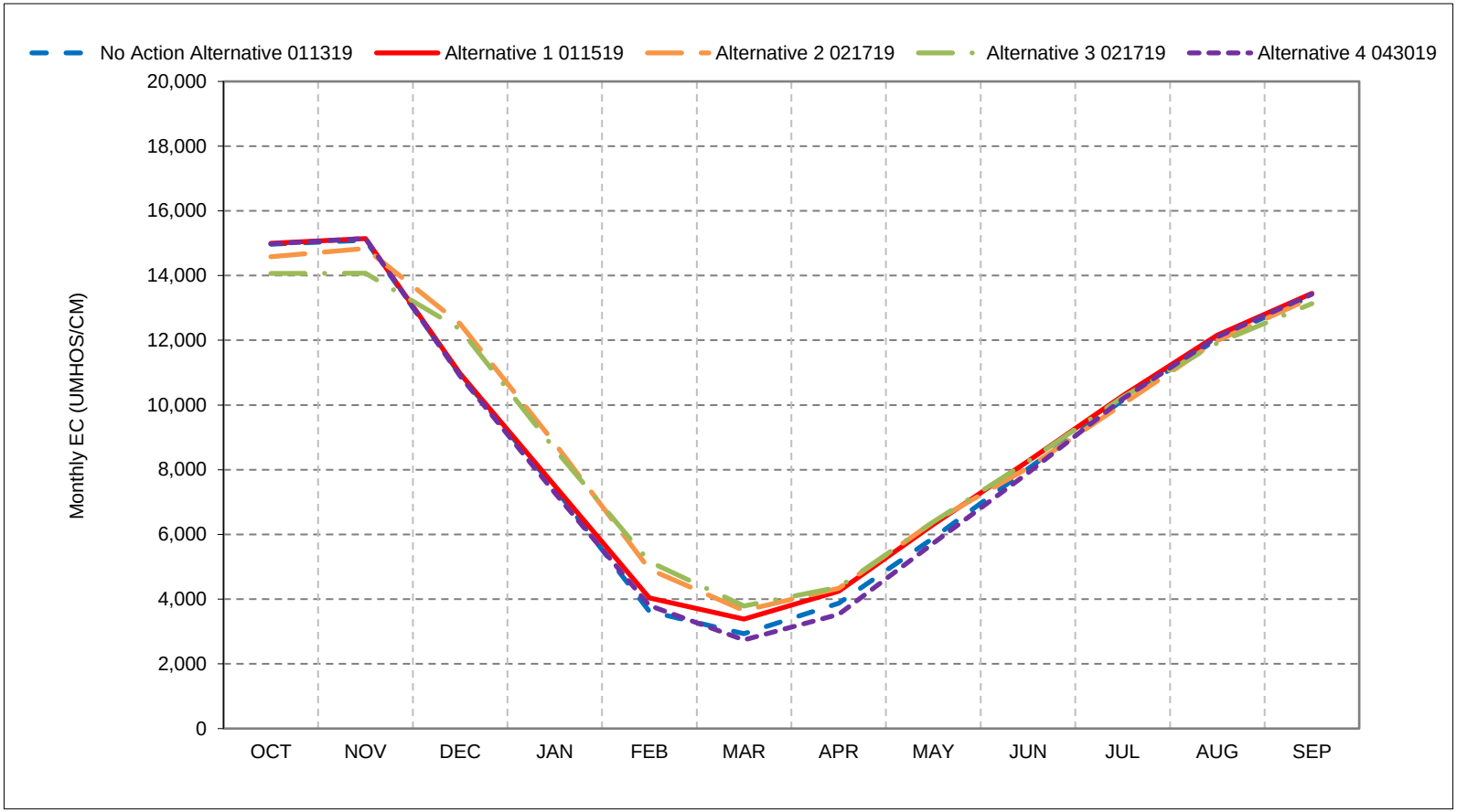

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 13-5. Chipps Island South Channel Salinity, Dry Year Average EC



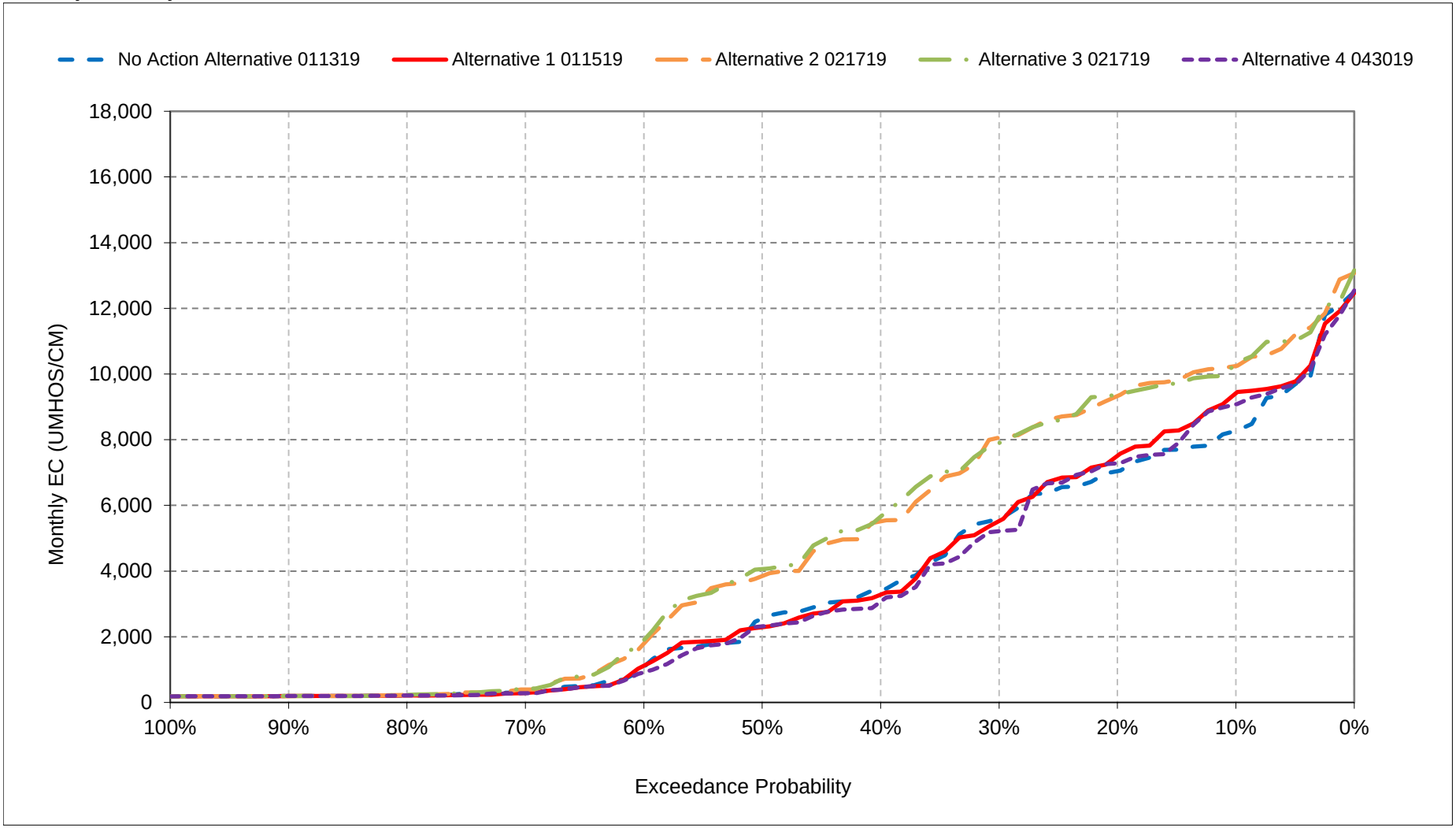

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 13-6. Chipps Island South Channel Salinity, Critical Year Average EC



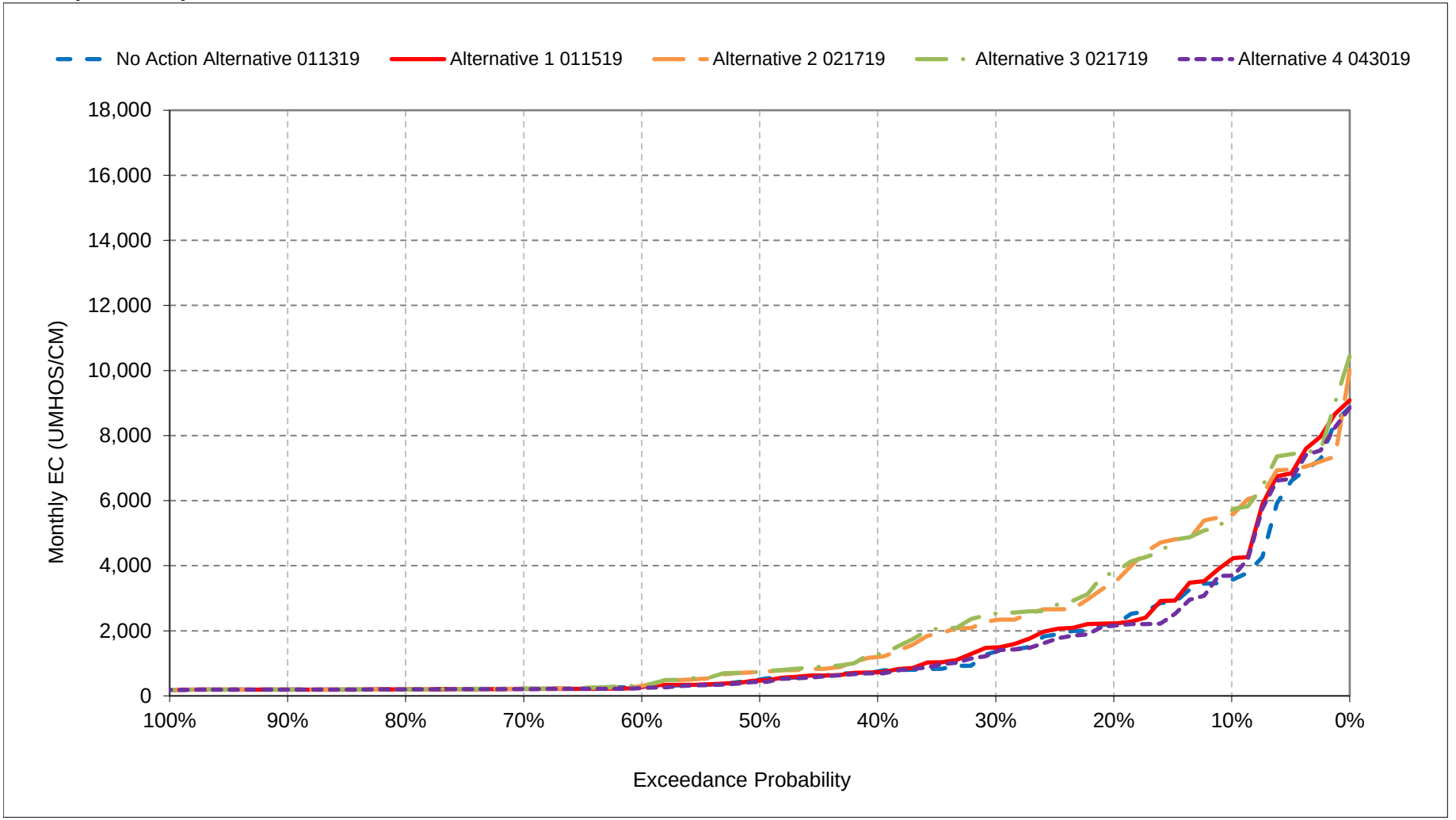

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 13-7. Chipps Island South Channel**
**Salinity, January EC**



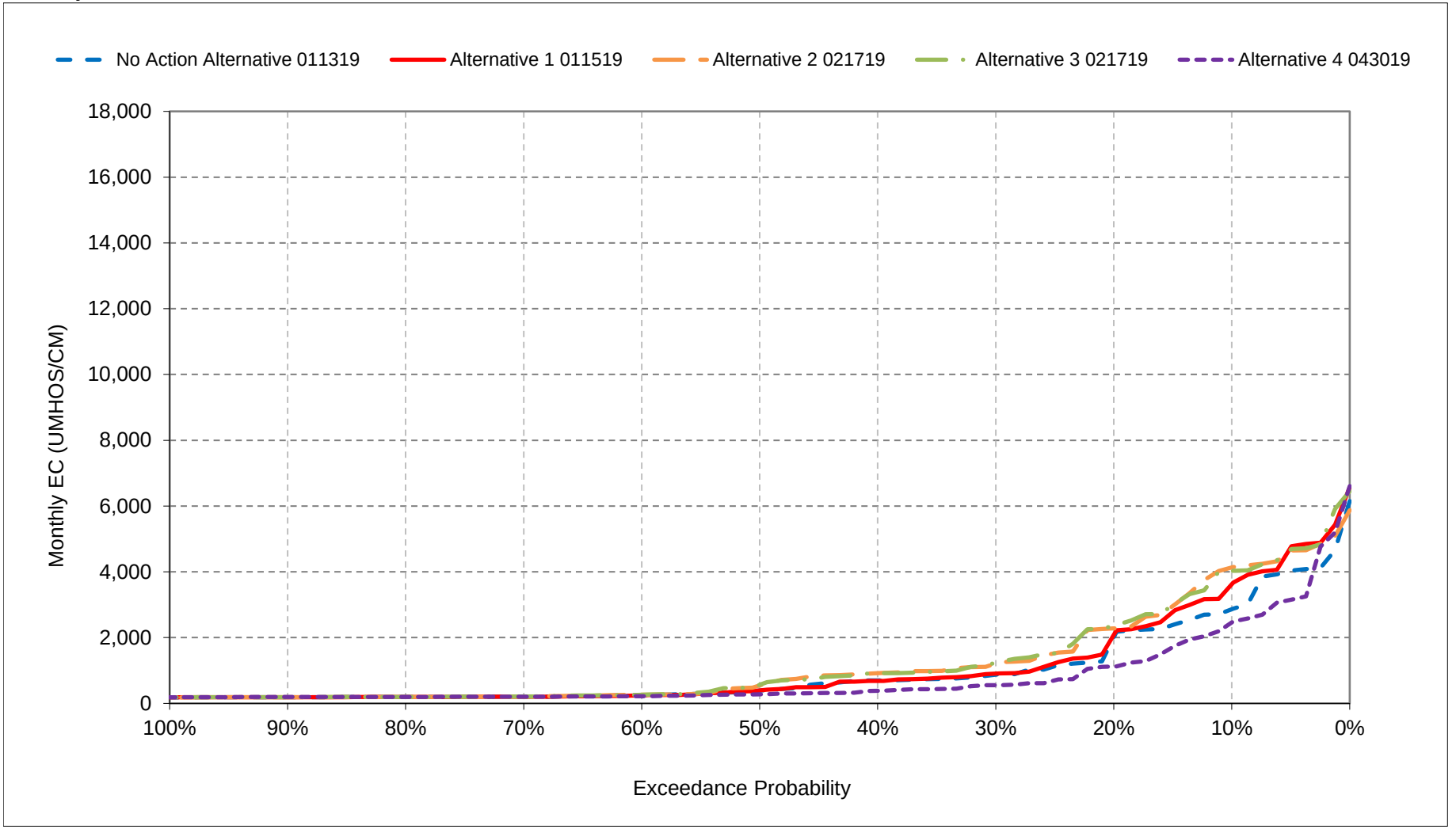

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 13-8. Chipps Island South Channel**
**Salinity, February EC**



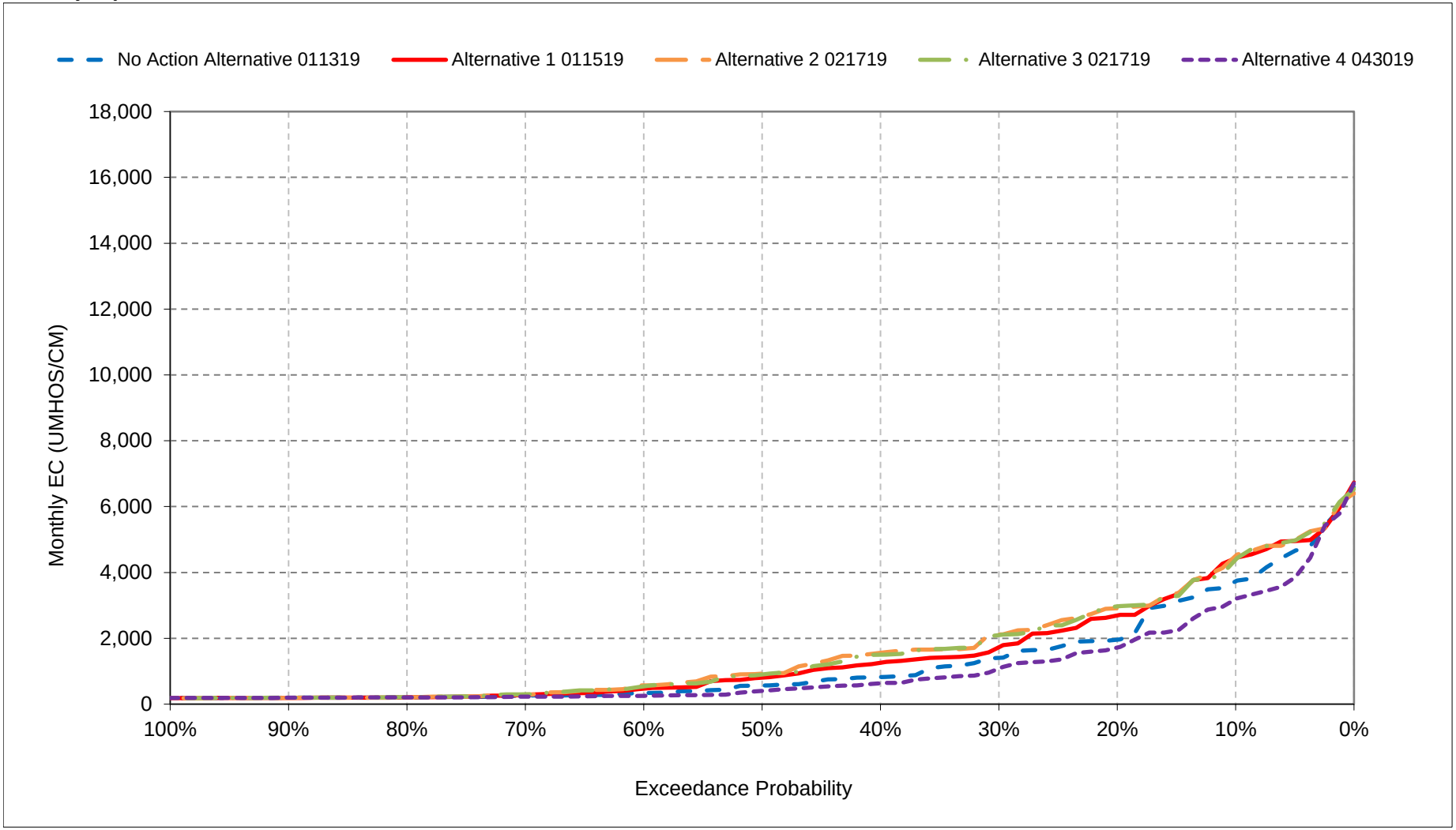

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 13-9. Chipps Island South Channel**
**Salinity, March EC**



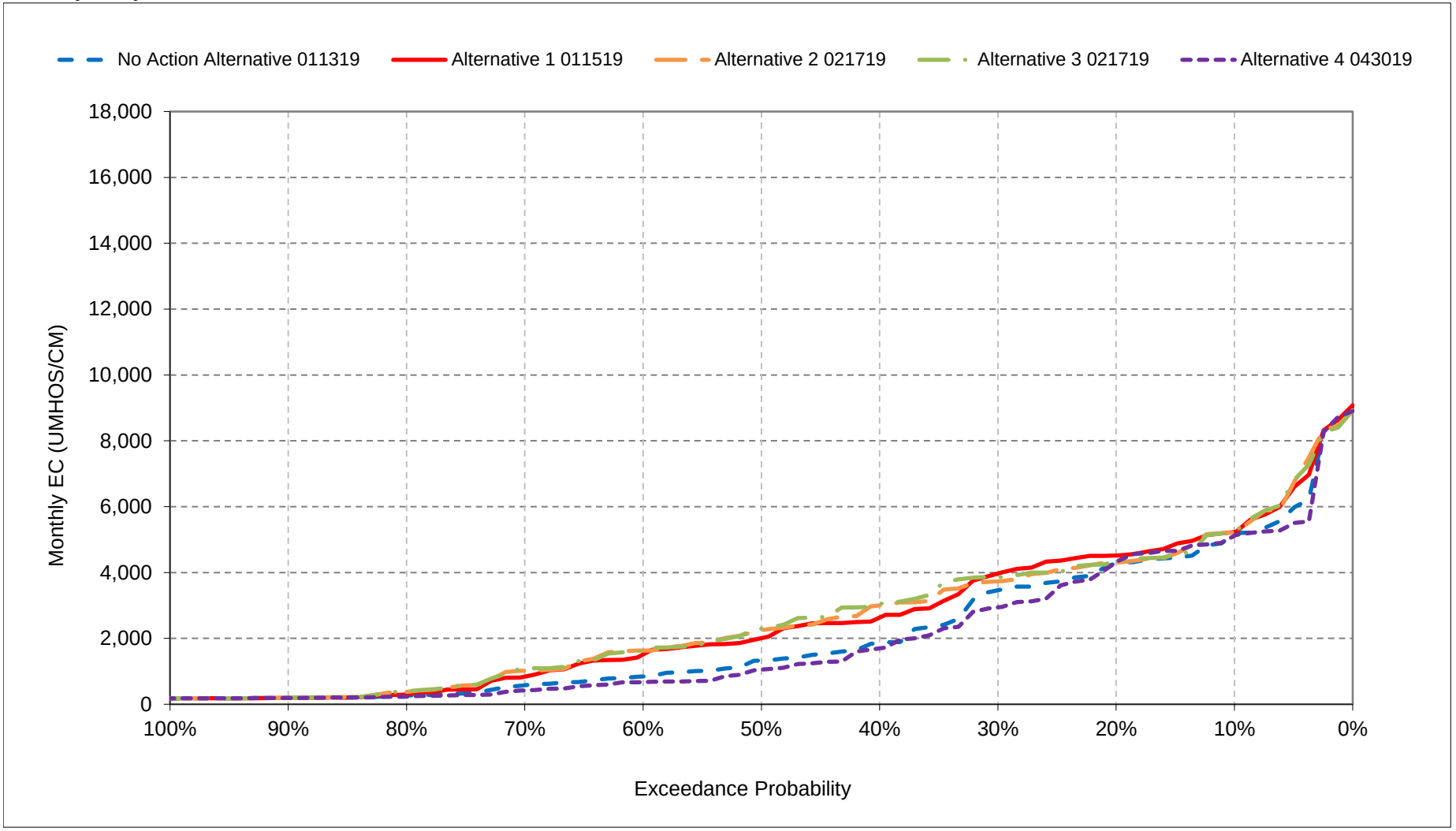

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 13-10. Chipps Island South Channel**
**Salinity, April EC**



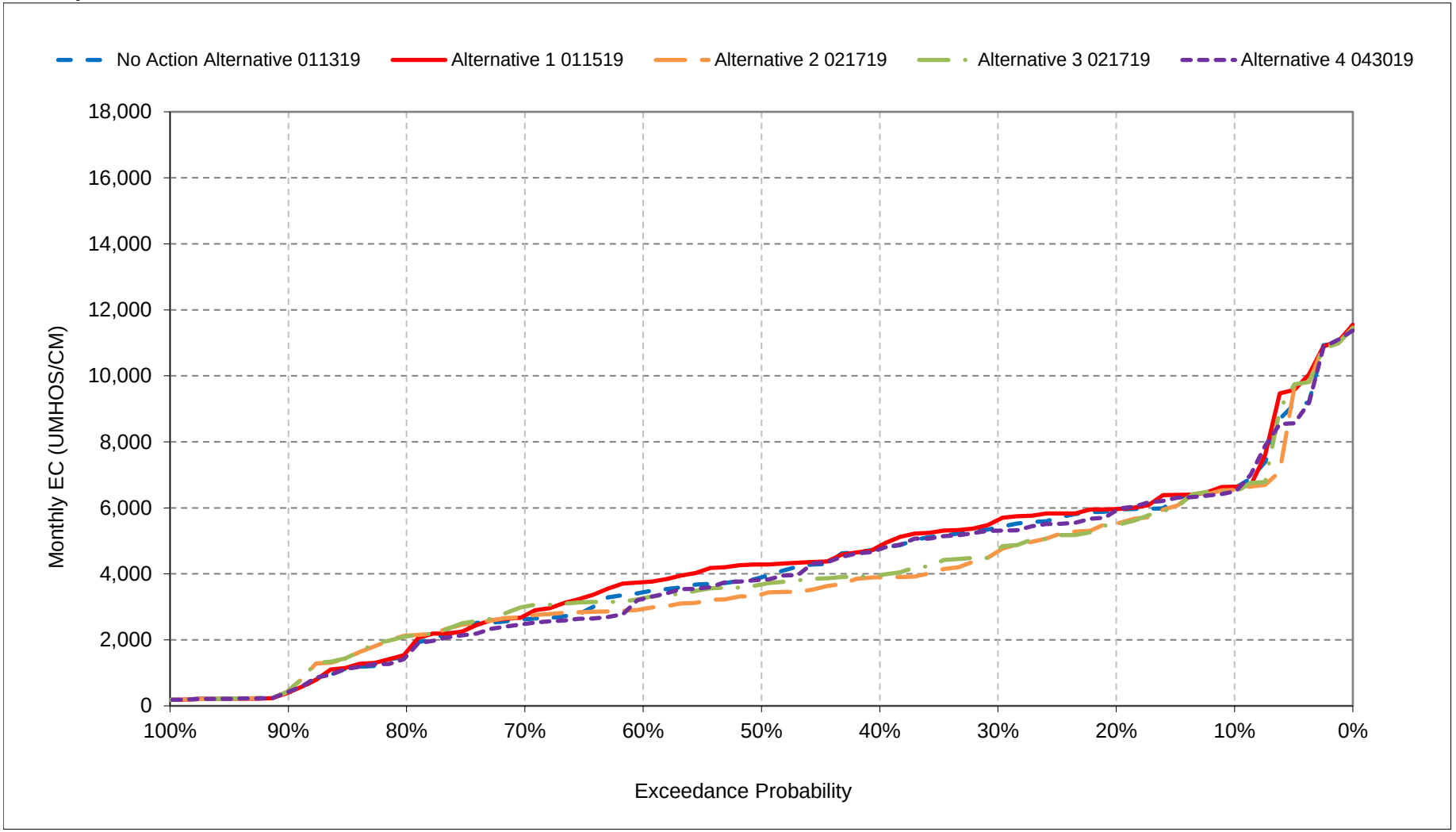

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 13-11. Chipps Island South Channel**
**Salinity, May EC**



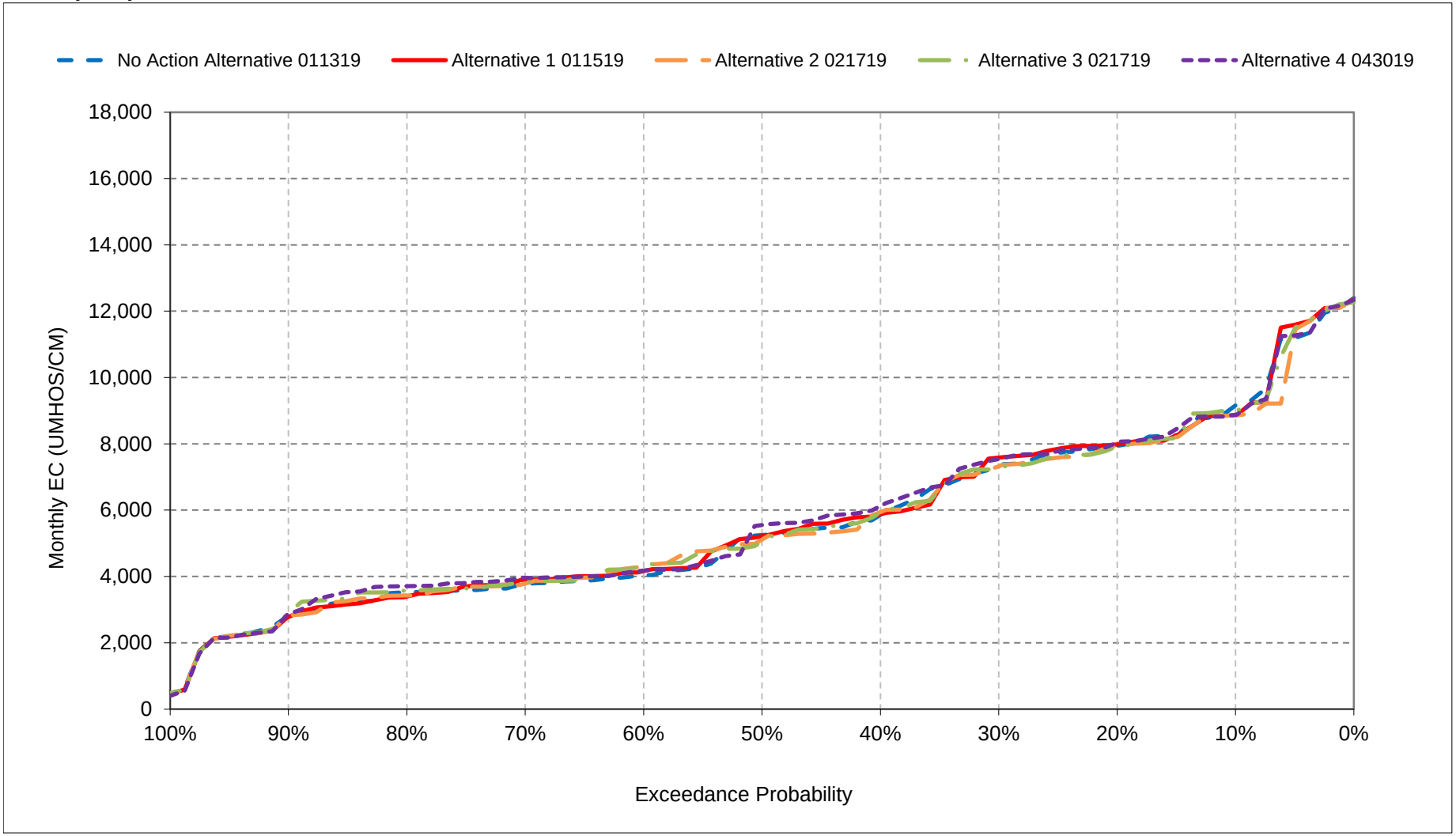

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 13-12. Chipps Island South Channel**
**Salinity, June EC**



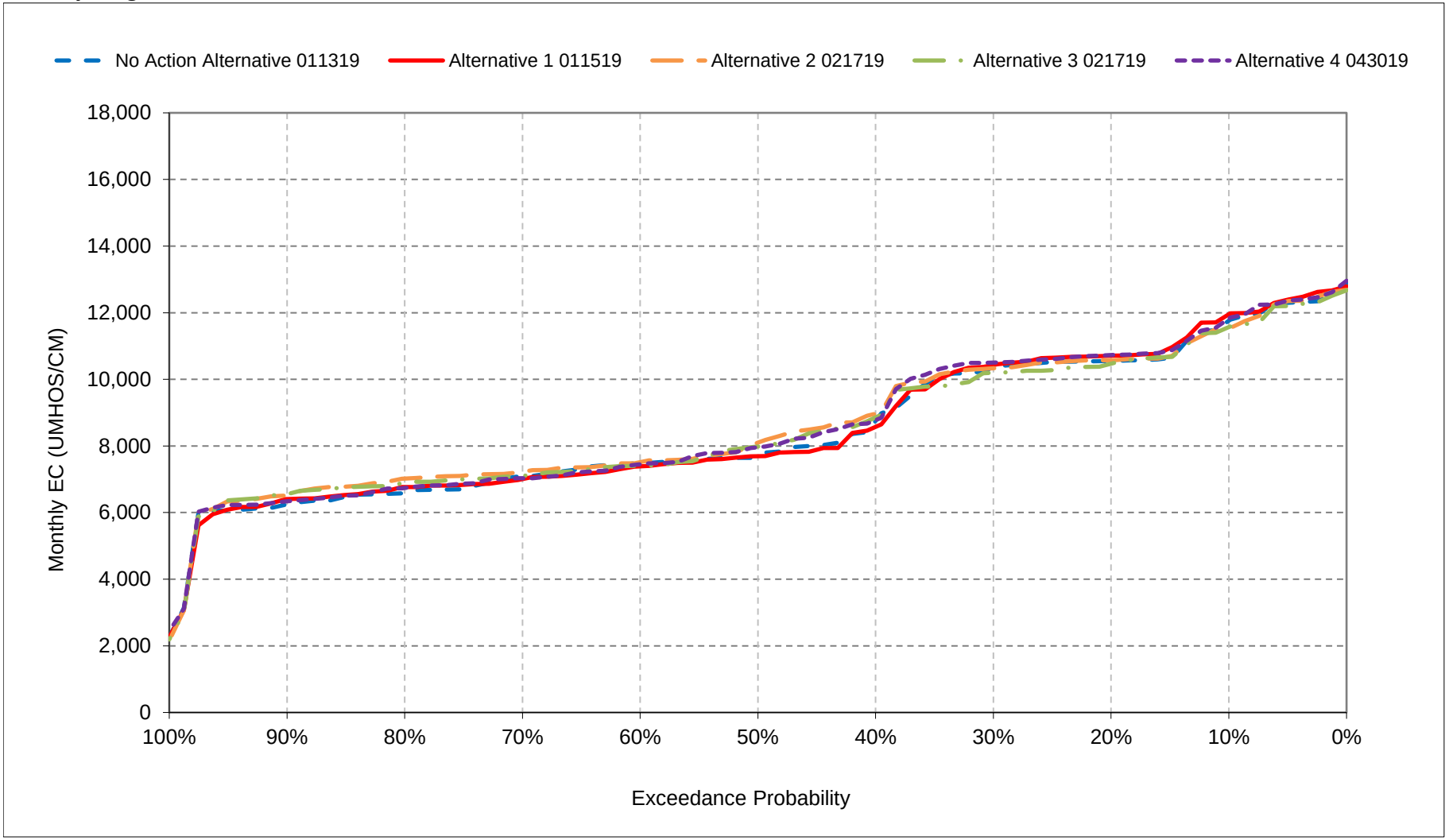

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 13-13. Chipps Island South Channel**
**Salinity, July EC**



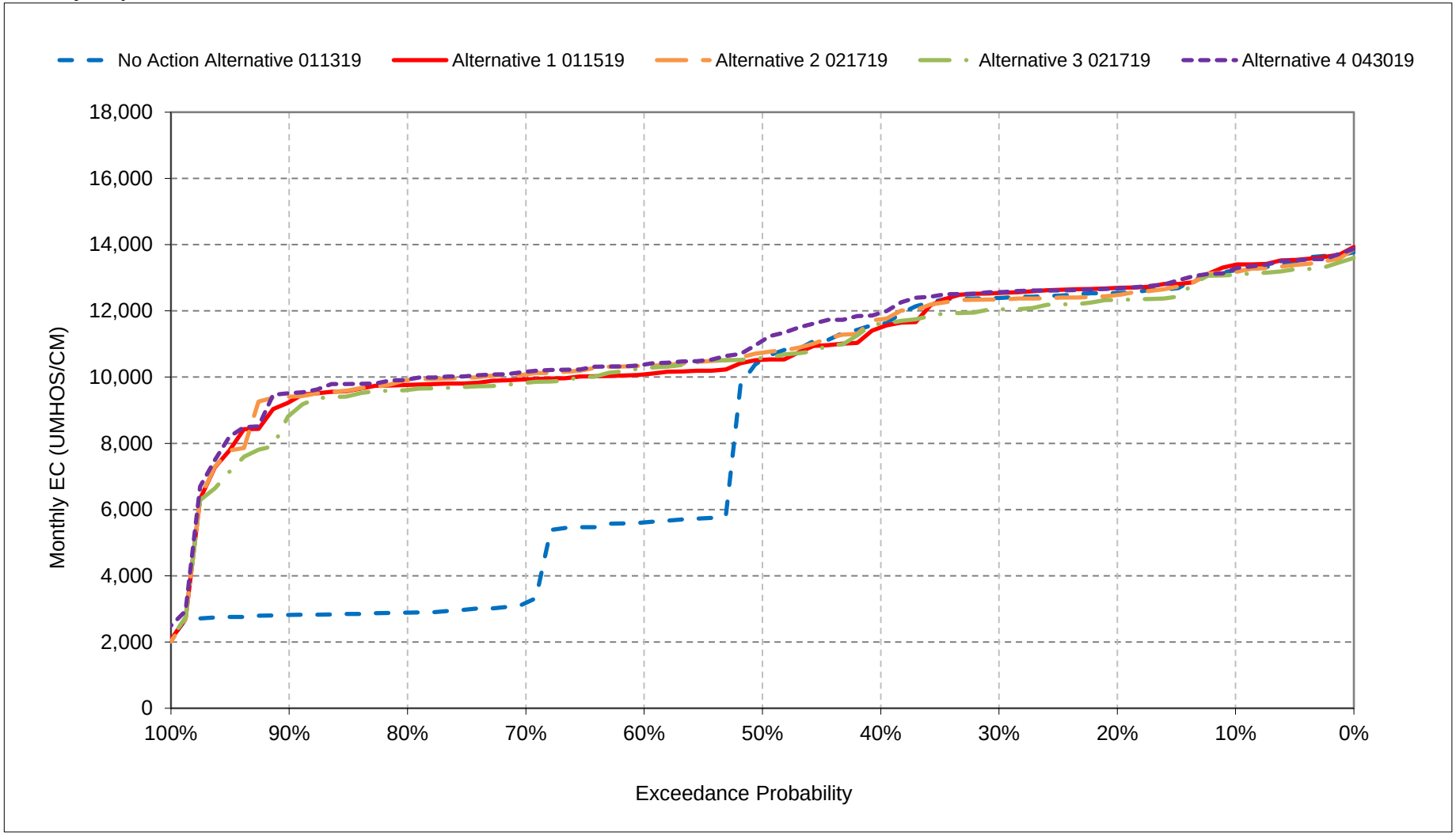

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 13-14. Chipps Island South Channel**
**Salinity, August EC**



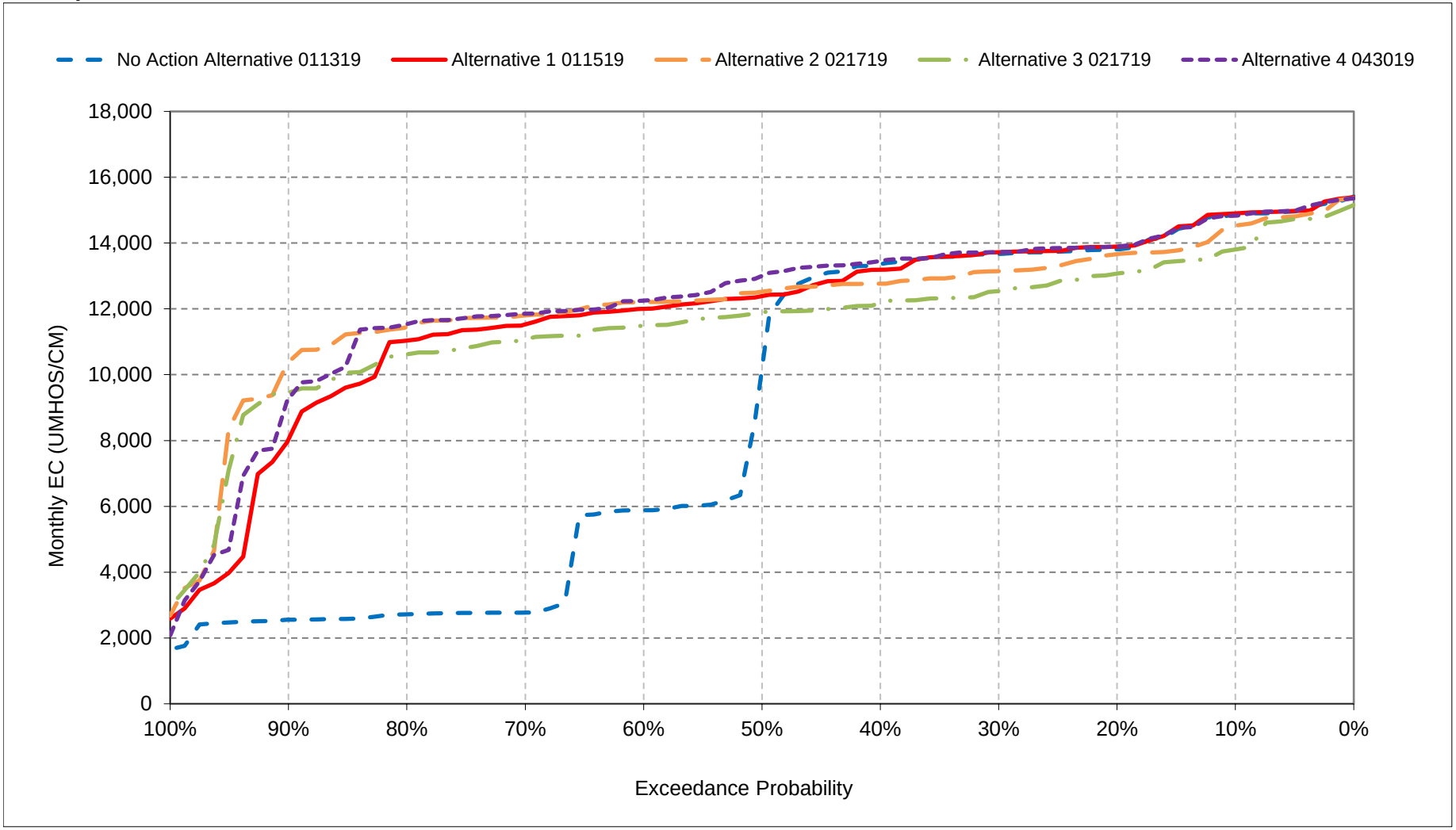

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 13-15. Chipps Island South Channel**
**Salinity, September EC**



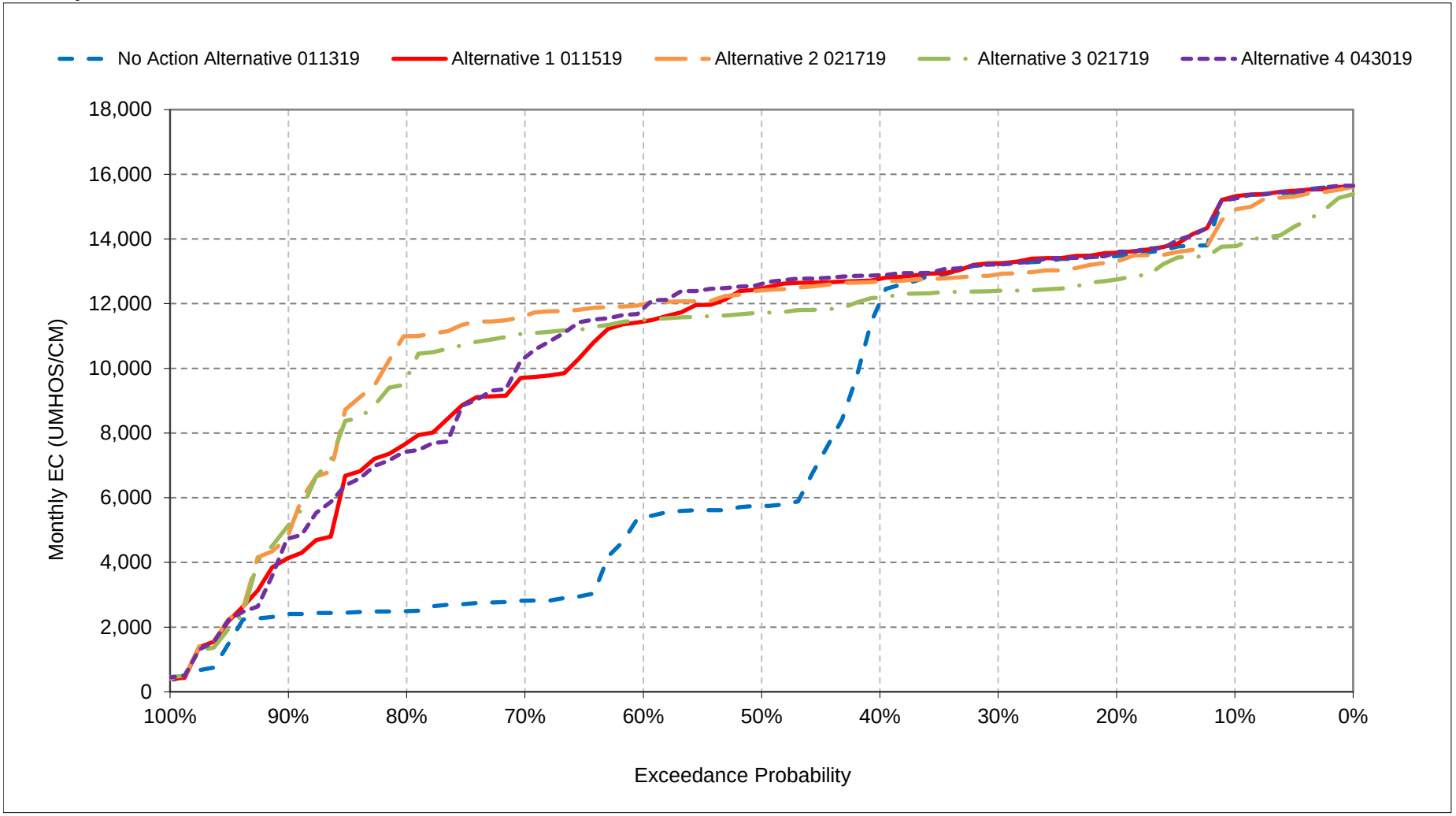

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 13-16. Chipps Island South Channel**
**Salinity, October EC**



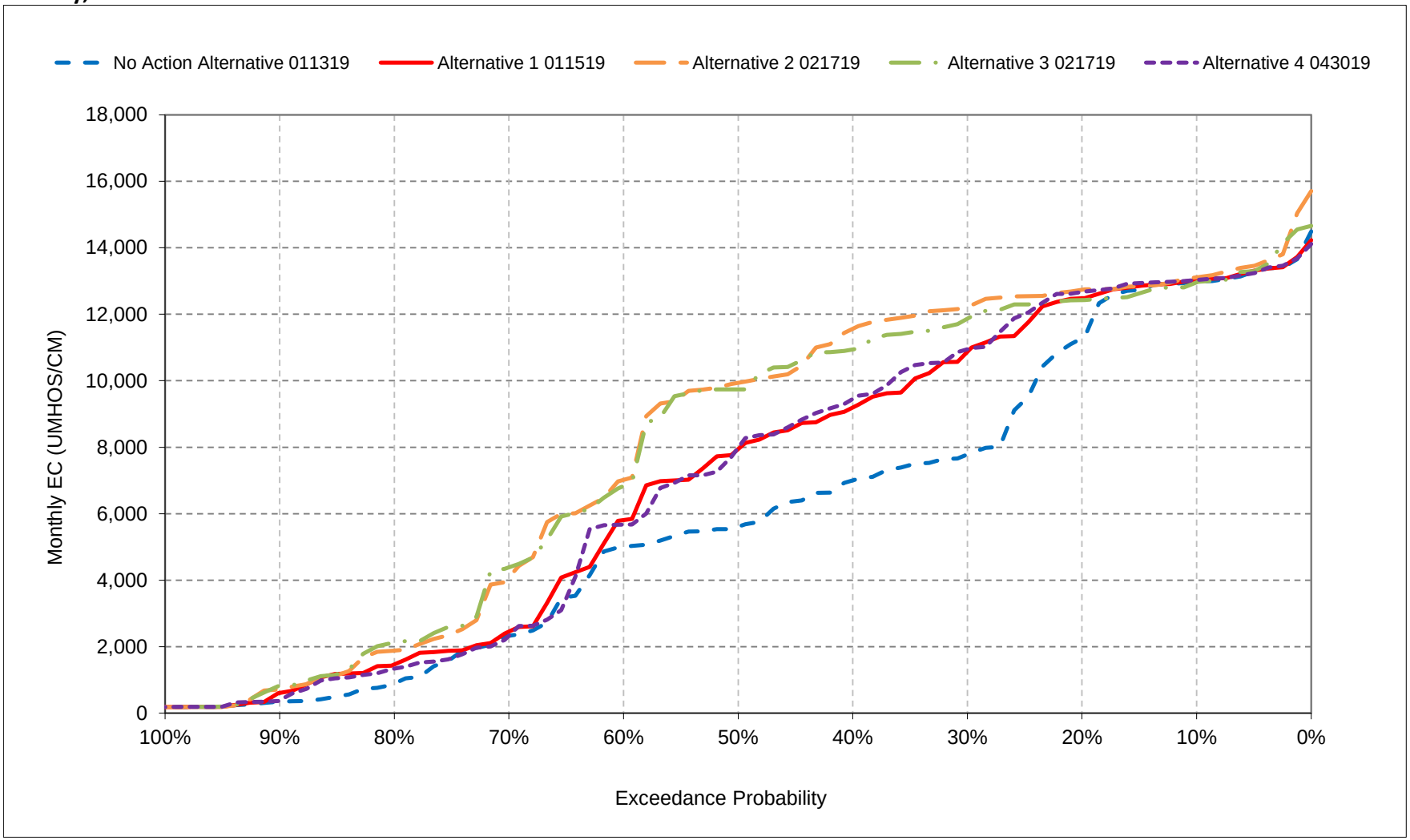

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 13-17. Chipps Island South Channel**
**Salinity, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 13-18. Chipps Island South Channel**
**Salinity, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 14-1. Sacramento River at Port Chicago Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 19,721 | 20,087 | 18,443 | 14,099 | 9,142 | 8,191 | 9,388 | 11,113 | 13,136 | 15,401 | 17,559 | 18,778 |
| 20% | 18,931 | 18,683 | 17,240 | 13,238 | 6,908 | 6,716 | 6,664 | 10,006 | 12,043 | 14,401 | 16,567 | 18,140 |
| 30% | 18,823 | 18,475 | 13,724 | 11,521 | 4,387 | 3,756 | 5,530 | 8,915 | 11,428 | 13,786 | 16,389 | 18,072 |
| 40% | 18,521 | 17,643 | 13,221 | 8,703 | 3,053 | 3,370 | 3,880 | 6,281 | 10,697 | 12,245 | 15,091 | 17,394 |
| 50% | 16,128 | 11,663 | 11,389 | 6,403 | 1,655 | 1,922 | 2,996 | 5,402 | 9,491 | 11,597 | 14,052 | 16,578 |
| 60% | 11,769 | 11,372 | 10,698 | 4,099 | 974 | 1,320 | 1,902 | 4,014 | 9,020 | 10,054 | 13,685 | 11,760 |
| 70% | 7,853 | 7,805 | 6,844 | 1,055 | 372 | 558 | 1,211 | 3,138 | 7,654 | 9,574 | 13,258 | 8,038 |
| 80% | 7,551 | 7,420 | 2,783 | 459 | 241 | 288 | 543 | 1,504 | 5,455 | 9,215 | 12,846 | 7,772 |
| 90% | 7,416 | 7,096 | 925 | 257 | 214 | 234 | 266 | 506 | 2,470 | 7,859 | 12,424 | 7,645 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 13,938 | 12,910 | 10,512 | 6,917 | 3,516 | 3,188 | 3,895 | 5,735 | 9,056 | 11,518 | 14,605 | 13,745 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 7,512 | 6,972 | 7,194 | 1,756 | 541 | 795 | 1,043 | 1,917 | 5,064 | 8,189 | 12,689 | 7,704 |
| Above Normal (16%) | 11,382 | 10,668 | 9,754 | 3,785 | 1,459 | 1,124 | 1,762 | 3,710 | 8,470 | 9,795 | 12,929 | 11,758 |
| Below Normal (13%) | 17,100 | 16,236 | 11,954 | 9,071 | 4,311 | 4,663 | 5,128 | 6,837 | 10,256 | 11,843 | 14,333 | 16,965 |
| Dry (24%) | 18,668 | 16,053 | 10,711 | 10,792 | 5,300 | 4,041 | 5,057 | 7,738 | 10,925 | 13,935 | 16,366 | 18,027 |
| Critical (15%) | 19,849 | 19,916 | 16,867 | 13,058 | 8,487 | 7,834 | 9,317 | 11,848 | 14,128 | 16,267 | 17,887 | 18,899 |

### Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 19,798 | 20,097 | 18,465 | 15,515 | 10,008 | 9,412 | 10,221 | 11,460 | 13,085 | 15,248 | 17,726 | 18,846 |
| 20% | 19,009 | 18,727 | 17,915 | 13,505 | 6,749 | 7,017 | 7,767 | 10,494 | 12,269 | 14,427 | 16,711 | 18,286 |
| 30% | 18,852 | 18,512 | 16,926 | 11,464 | 4,992 | 3,892 | 6,127 | 9,805 | 11,710 | 13,948 | 16,496 | 18,172 |
| 40% | 18,389 | 18,115 | 15,251 | 8,623 | 3,447 | 3,508 | 5,031 | 7,671 | 10,978 | 12,194 | 14,976 | 17,206 |
| 50% | 17,782 | 17,786 | 14,143 | 6,551 | 1,593 | 1,981 | 3,778 | 6,560 | 10,204 | 11,636 | 14,064 | 16,505 |
| 60% | 17,442 | 16,979 | 11,640 | 4,284 | 702 | 1,286 | 2,616 | 5,564 | 9,526 | 10,132 | 13,623 | 16,087 |
| 70% | 17,221 | 15,527 | 7,162 | 920 | 370 | 534 | 1,496 | 4,056 | 8,005 | 9,772 | 13,200 | 16,017 |
| 80% | 16,795 | 13,642 | 3,601 | 422 | 239 | 287 | 612 | 1,894 | 5,764 | 9,210 | 12,906 | 15,810 |
| 90% | 14,054 | 9,389 | 1,099 | 252 | 212 | 232 | 286 | 635 | 2,483 | 7,789 | 12,573 | 15,388 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 17,221 | 15,902 | 11,528 | 6,996 | 3,674 | 3,332 | 4,404 | 6,542 | 9,321 | 11,558 | 14,633 | 16,677 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 15,044 | 13,657 | 9,453 | 1,654 | 518 | 775 | 1,394 | 2,616 | 5,261 | 8,235 | 12,646 | 14,820 |
| Above Normal (16%) | 16,732 | 15,659 | 11,635 | 3,718 | 1,373 | 1,071 | 2,283 | 4,826 | 8,726 | 9,876 | 13,028 | 16,002 |
| Below Normal (13%) | 17,048 | 16,482 | 11,920 | 9,142 | 4,389 | 4,668 | 5,783 | 7,941 | 10,713 | 11,844 | 14,281 | 16,806 |
| Dry (24%) | 18,871 | 16,227 | 10,707 | 11,162 | 5,593 | 4,273 | 5,651 | 8,491 | 11,170 | 13,916 | 16,449 | 18,093 |
| Critical (15%) | 19,873 | 19,957 | 16,918 | 13,210 | 9,154 | 8,528 | 9,879 | 12,374 | 14,407 | 16,387 | 17,976 | 18,952 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **77** | **11** | **21** | **1,415** | **866** | **1,221** | **833** | **348** | -52 | -152 | **167** | **67** |
| 20% | **78** | **43** | **675** | **266** | -159 | **301** | **1,103** | **488** | **226** | **26** | **143** | **147** |
| 30% | **29** | **38** | **3,203** | -58 | **604** | **136** | **597** | **890** | **282** | **162** | **107** | **101** |
| 40% | -132 | **472** | **2,030** | -80 | **394** | **138** | **1,151** | **1,390** | **280** | -50 | -115 | -188 |
| 50% | **1,653** | **6,122** | **2,754** | **147** | -62 | **59** | **782** | **1,158** | **713** | **39** | **13** | -73 |
| 60% | **5,673** | **5,607** | **942** | **184** | -271 | -34 | **714** | **1,551** | **506** | **79** | -61 | **4,328** |
| 70% | **9,368** | **7,722** | **319** | -135 | -3 | -24 | **285** | **918** | **350** | **198** | -58 | **7,978** |
| 80% | **9,243** | **6,222** | **818** | -37 | -2 | -2 | **69** | **390** | **309** | -5 | **59** | **8,037** |
| 90% | **6,638** | **2,294** | **174** | -5 | -2 | -2 | **20** | **129** | **13** | -70 | **149** | **7,743** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3,282** | **2,992** | **1,016** | **79** | **159** | **144** | **509** | **807** | **265** | **40** | **28** | **2,931** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **7,532** | **6,685** | **2,258** | -102 | -23 | -20 | **350** | **698** | **197** | **46** | -43 | **7,116** |
| Above Normal (16%) | **5,350** | **4,991** | **1,881** | -68 | -86 | -54 | **521** | **1,116** | **256** | **81** | **100** | **4,243** |
| Below Normal (13%) | -53 | **246** | -34 | **71** | **78** | **6** | **656** | **1,105** | **458** | **1** | -52 | -159 |
| Dry (24%) | **203** | **174** | -4 | **370** | **293** | **232** | **595** | **753** | **245** | -19 | **83** | **66** |
| Critical (15%) | **25** | **41** | **51** | **152** | **667** | **694** | **562** | **525** | **279** | **120** | **89** | **53** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 14-2. Sacramento River at Port Chicago Salinity, Monthly EC

### No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 19,721 | 20,087 | 18,443 | 14,099 | 9,142 | 8,191 | 9,388 | 11,113 | 13,136 | 15,401 | 17,559 | 18,778 |
| 20% | 18,931 | 18,683 | 17,240 | 13,238 | 6,908 | 6,716 | 6,664 | 10,006 | 12,043 | 14,401 | 16,567 | 18,140 |
| 30% | 18,823 | 18,475 | 13,724 | 11,521 | 4,387 | 3,756 | 5,530 | 8,915 | 11,428 | 13,786 | 16,389 | 18,072 |
| 40% | 18,521 | 17,643 | 13,221 | 8,703 | 3,053 | 3,370 | 3,880 | 6,281 | 10,697 | 12,245 | 15,091 | 17,394 |
| 50% | 16,128 | 11,663 | 11,389 | 6,403 | 1,655 | 1,922 | 2,996 | 5,402 | 9,491 | 11,597 | 14,052 | 16,578 |
| 60% | 11,769 | 11,372 | 10,698 | 4,099 | 974 | 1,320 | 1,902 | 4,014 | 9,020 | 10,054 | 13,685 | 11,760 |
| 70% | 7,853 | 7,805 | 6,844 | 1,055 | 372 | 558 | 1,211 | 3,138 | 7,654 | 9,574 | 13,258 | 8,038 |
| 80% | 7,551 | 7,420 | 2,783 | 459 | 241 | 288 | 543 | 1,504 | 5,455 | 9,215 | 12,846 | 7,772 |
| 90% | 7,416 | 7,096 | 925 | 257 | 214 | 234 | 266 | 506 | 2,470 | 7,859 | 12,424 | 7,645 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 13,938 | 12,910 | 10,512 | 6,917 | 3,516 | 3,188 | 3,895 | 5,735 | 9,056 | 11,518 | 14,605 | 13,745 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 7,512 | 6,972 | 7,194 | 1,756 | 541 | 795 | 1,043 | 1,917 | 5,064 | 8,189 | 12,689 | 7,704 |
| Above Normal (16%) | 11,382 | 10,668 | 9,754 | 3,785 | 1,459 | 1,124 | 1,762 | 3,710 | 8,470 | 9,795 | 12,929 | 11,758 |
| Below Normal (13%) | 17,100 | 16,236 | 11,954 | 9,071 | 4,311 | 4,663 | 5,128 | 6,837 | 10,256 | 11,843 | 14,333 | 16,965 |
| Dry (24%) | 18,668 | 16,053 | 10,711 | 10,792 | 5,300 | 4,041 | 5,057 | 7,738 | 10,925 | 13,935 | 16,366 | 18,027 |
| Critical (15%) | 19,849 | 19,916 | 16,867 | 13,058 | 8,487 | 7,834 | 9,317 | 11,848 | 14,128 | 16,267 | 17,887 | 18,899 |

### Alternative 2 021719

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 19,426 | 19,629 | 18,395 | 16,345 | 11,834 | 9,935 | 10,421 | 11,468 | 12,876 | 15,193 | 17,583 | 18,761 |
| 20% | 18,762 | 18,486 | 18,159 | 15,386 | 8,884 | 7,345 | 8,153 | 10,246 | 11,752 | 14,279 | 16,571 | 18,166 |
| 30% | 18,416 | 18,147 | 17,916 | 14,339 | 6,947 | 4,873 | 6,790 | 9,439 | 10,671 | 13,689 | 16,358 | 18,013 |
| 40% | 18,113 | 17,976 | 17,265 | 11,468 | 3,786 | 4,108 | 5,672 | 8,485 | 9,751 | 12,205 | 15,089 | 17,481 |
| 50% | 17,970 | 17,858 | 15,978 | 9,198 | 2,402 | 2,620 | 4,134 | 7,002 | 8,969 | 11,299 | 14,329 | 16,705 |
| 60% | 17,580 | 17,450 | 13,317 | 5,301 | 1,056 | 1,423 | 2,986 | 5,837 | 8,444 | 10,247 | 13,823 | 16,248 |
| 70% | 17,364 | 17,169 | 9,818 | 1,242 | 422 | 657 | 1,572 | 4,479 | 7,981 | 9,701 | 13,431 | 16,120 |
| 80% | 17,162 | 16,533 | 4,565 | 554 | 256 | 288 | 675 | 2,292 | 6,560 | 9,137 | 13,194 | 15,936 |
| 90% | 16,266 | 10,304 | 1,307 | 259 | 213 | 231 | 289 | 632 | 2,697 | 7,936 | 12,805 | 15,497 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 17,490 | 16,405 | 12,640 | 8,342 | 4,416 | 3,698 | 4,671 | 6,655 | 8,889 | 11,489 | 14,750 | 16,719 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 15,941 | 14,854 | 10,468 | 2,320 | 650 | 880 | 1,482 | 2,686 | 5,195 | 8,366 | 12,800 | 14,940 |
| Above Normal (16%) | 17,557 | 16,716 | 13,294 | 5,080 | 1,829 | 1,244 | 2,579 | 5,272 | 7,994 | 9,721 | 13,293 | 16,198 |
| Below Normal (13%) | 17,162 | 16,988 | 13,110 | 11,209 | 5,252 | 5,024 | 6,274 | 8,009 | 9,230 | 11,643 | 14,712 | 16,848 |
| Dry (24%) | 18,396 | 15,920 | 11,490 | 12,876 | 6,869 | 5,010 | 6,060 | 8,471 | 10,878 | 13,801 | 16,400 | 18,021 |
| Critical (15%) | 19,565 | 19,701 | 18,125 | 14,742 | 10,524 | 9,060 | 10,065 | 12,487 | 14,238 | 16,177 | 17,838 | 18,850 |

### Alternative 2 021719 minus No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -294 | -458 | -48 | **2,246** | **2,692** | **1,744** | **1,033** | **356** | -261 | -208 | **24** | -17 |
| 20% | -169 | -198 | **919** | **2,148** | **1,976** | **629** | **1,489** | **240** | -291 | -122 | **3** | **26** |
| 30% | -407 | -327 | **4,193** | **2,818** | **2,559** | **1,118** | **1,260** | **524** | -757 | -98 | -31 | -58 |
| 40% | -408 | **333** | **4,043** | **2,765** | **733** | **738** | **1,792** | **2,204** | -946 | -40 | -2 | **86** |
| 50% | **1,842** | **6,195** | **4,589** | **2,794** | **747** | **698** | **1,138** | **1,600** | -522 | -298 | **277** | **127** |
| 60% | **5,811** | **6,077** | **2,619** | **1,202** | **83** | **102** | **1,084** | **1,823** | -576 | **193** | **139** | **4,488** |
| 70% | **9,510** | **9,364** | **2,975** | **187** | **50** | **99** | **361** | **1,341** | **326** | **127** | **173** | **8,082** |
| 80% | **9,611** | **9,113** | **1,782** | **95** | **15** | -1 | **132** | **788** | **1,105** | -79 | **348** | **8,163** |
| 90% | **8,849** | **3,209** | **382** | **2** | -1 | -3 | **23** | **125** | **227** | **77** | **381** | **7,852** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3,552** | **3,495** | **2,128** | **1,426** | **900** | **510** | **777** | **921** | -167 | -28 | **145** | **2,974** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **8,429** | **7,882** | **3,274** | **564** | **109** | **85** | **439** | **768** | **131** | **177** | **111** | **7,236** |
| Above Normal (16%) | **6,174** | **6,048** | **3,540** | **1,295** | **370** | **120** | **817** | **1,562** | -476 | -74 | **364** | **4,440** |
| Below Normal (13%) | **61** | **752** | **1,157** | **2,137** | **941** | **361** | **1,146** | **1,173** | -1,026 | -201 | **379** | -117 |
| Dry (24%) | -272 | -133 | **779** | **2,084** | **1,570** | **968** | **1,004** | **733** | -47 | -134 | **34** | -6 |
| Critical (15%) | -284 | -215 | **1,258** | **1,684** | **2,037** | **1,226** | **749** | **639** | **109** | -90 | -49 | -49 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 14-3. Sacramento River at Port Chicago Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 19,721 | 20,087 | 18,443 | 14,099 | 9,142 | 8,191 | 9,388 | 11,113 | 13,136 | 15,401 | 17,559 | 18,778 |
| 20% | 18,931 | 18,683 | 17,240 | 13,238 | 6,908 | 6,716 | 6,664 | 10,006 | 12,043 | 14,401 | 16,567 | 18,140 |
| 30% | 18,823 | 18,475 | 13,724 | 11,521 | 4,387 | 3,756 | 5,530 | 8,915 | 11,428 | 13,786 | 16,389 | 18,072 |
| 40% | 18,521 | 17,643 | 13,221 | 8,703 | 3,053 | 3,370 | 3,880 | 6,281 | 10,697 | 12,245 | 15,091 | 17,394 |
| 50% | 16,128 | 11,663 | 11,389 | 6,403 | 1,655 | 1,922 | 2,996 | 5,402 | 9,491 | 11,597 | 14,052 | 16,578 |
| 60% | 11,769 | 11,372 | 10,698 | 4,099 | 974 | 1,320 | 1,902 | 4,014 | 9,020 | 10,054 | 13,685 | 11,760 |
| 70% | 7,853 | 7,805 | 6,844 | 1,055 | 372 | 558 | 1,211 | 3,138 | 7,654 | 9,574 | 13,258 | 8,038 |
| 80% | 7,551 | 7,420 | 2,783 | 459 | 241 | 288 | 543 | 1,504 | 5,455 | 9,215 | 12,846 | 7,772 |
| 90% | 7,416 | 7,096 | 925 | 257 | 214 | 234 | 266 | 506 | 2,470 | 7,859 | 12,424 | 7,645 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 13,938 | 12,910 | 10,512 | 6,917 | 3,516 | 3,188 | 3,895 | 5,735 | 9,056 | 11,518 | 14,605 | 13,745 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 7,512 | 6,972 | 7,194 | 1,756 | 541 | 795 | 1,043 | 1,917 | 5,064 | 8,189 | 12,689 | 7,704 |
| Above Normal (16%) | 11,382 | 10,668 | 9,754 | 3,785 | 1,459 | 1,124 | 1,762 | 3,710 | 8,470 | 9,795 | 12,929 | 11,758 |
| Below Normal (13%) | 17,100 | 16,236 | 11,954 | 9,071 | 4,311 | 4,663 | 5,128 | 6,837 | 10,256 | 11,843 | 14,333 | 16,965 |
| Dry (24%) | 18,668 | 16,053 | 10,711 | 10,792 | 5,300 | 4,041 | 5,057 | 7,738 | 10,925 | 13,935 | 16,366 | 18,027 |
| Critical (15%) | 19,849 | 19,916 | 16,867 | 13,058 | 8,487 | 7,834 | 9,317 | 11,848 | 14,128 | 16,267 | 17,887 | 18,899 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 18,878 | 18,700 | 18,132 | 16,169 | 11,616 | 9,792 | 10,261 | 11,503 | 12,902 | 15,238 | 17,451 | 18,644 |
| 20% | 18,374 | 17,918 | 17,871 | 15,021 | 9,055 | 7,338 | 8,222 | 10,209 | 11,632 | 14,200 | 16,496 | 17,966 |
| 30% | 17,807 | 17,748 | 17,481 | 14,028 | 6,832 | 4,833 | 6,638 | 9,549 | 10,720 | 13,650 | 16,131 | 17,715 |
| 40% | 17,631 | 17,598 | 16,611 | 11,504 | 3,708 | 4,011 | 5,508 | 8,443 | 9,761 | 12,097 | 15,021 | 17,303 |
| 50% | 17,363 | 17,184 | 15,902 | 9,312 | 2,483 | 2,634 | 3,929 | 7,086 | 9,389 | 11,224 | 14,293 | 16,494 |
| 60% | 17,006 | 16,840 | 13,030 | 5,336 | 1,059 | 1,431 | 2,893 | 5,817 | 8,817 | 10,176 | 13,587 | 16,240 |
| 70% | 16,720 | 16,482 | 9,993 | 1,212 | 415 | 628 | 1,539 | 4,604 | 8,385 | 9,650 | 13,230 | 15,898 |
| 80% | 16,224 | 15,598 | 4,683 | 539 | 254 | 265 | 651 | 2,278 | 6,480 | 9,333 | 13,016 | 15,727 |
| 90% | 15,223 | 10,606 | 1,404 | 246 | 211 | 222 | 271 | 601 | 2,666 | 7,906 | 12,754 | 14,859 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 16,947 | 15,906 | 12,423 | 8,288 | 4,418 | 3,670 | 4,599 | 6,670 | 9,006 | 11,484 | 14,607 | 16,491 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 15,541 | 14,489 | 10,227 | 2,290 | 651 | 868 | 1,357 | 2,803 | 5,303 | 8,364 | 12,708 | 14,746 |
| Above Normal (16%) | 16,910 | 16,181 | 12,905 | 5,019 | 1,790 | 1,220 | 2,542 | 5,256 | 8,294 | 9,678 | 13,036 | 15,679 |
| Below Normal (13%) | 16,690 | 16,414 | 12,940 | 11,266 | 5,033 | 4,852 | 6,182 | 7,992 | 9,446 | 11,640 | 14,593 | 16,755 |
| Dry (24%) | 17,637 | 15,395 | 11,418 | 12,895 | 6,997 | 4,978 | 5,997 | 8,401 | 10,819 | 13,734 | 16,227 | 17,830 |
| Critical (15%) | 19,123 | 19,062 | 17,862 | 14,419 | 10,567 | 9,132 | 10,070 | 12,480 | 14,377 | 16,304 | 17,736 | 18,678 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -843 | -1,387 | -311 | **2,069** | **2,474** | **1,601** | **874** | **390** | -235 | -163 | -108 | -134 |
| 20% | -557 | -765 | **631** | **1,782** | **2,147** | **622** | **1,558** | **203** | -411 | -201 | -72 | -174 |
| 30% | -1,016 | -727 | **3,757** | **2,507** | **2,445** | **1,078** | **1,108** | **634** | -708 | -136 | -258 | -356 |
| 40% | -890 | -44 | **3,390** | **2,801** | **654** | **641** | **1,628** | **2,162** | -936 | -147 | -70 | -92 |
| 50% | **1,235** | **5,520** | **4,513** | **2,909** | **828** | **712** | **933** | **1,683** | -102 | -373 | **242** | -84 |
| 60% | **5,237** | **5,468** | **2,332** | **1,236** | **85** | **111** | **991** | **1,804** | -203 | **122** | -98 | **4,480** |
| 70% | **8,867** | **8,677** | **3,149** | **157** | **43** | **70** | **328** | **1,466** | **731** | **76** | -28 | **7,859** |
| 80% | **8,673** | **8,177** | **1,901** | **80** | **13** | -23 | **108** | **774** | **1,025** | **118** | **169** | **7,954** |
| 90% | **7,807** | **3,511** | **479** | -10 | -3 | -12 | **5** | **95** | **196** | **47** | **330** | **7,214** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3,009** | **2,996** | **1,912** | **1,372** | **902** | **482** | **704** | **935** | -50 | -34 | **2** | **2,746** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **8,029** | **7,516** | **3,033** | **533** | **110** | **73** | **314** | **886** | **239** | **175** | **19** | **7,042** |
| Above Normal (16%) | **5,527** | **5,513** | **3,151** | **1,234** | **331** | **95** | **780** | **1,546** | -175 | -117 | **107** | **3,920** |
| Below Normal (13%) | -410 | **178** | **987** | **2,195** | **722** | **189** | **1,054** | **1,156** | -809 | -204 | **260** | -210 |
| Dry (24%) | -1,031 | -658 | **706** | **2,104** | **1,697** | **937** | **941** | **663** | -106 | -201 | -139 | -197 |
| Critical (15%) | -726 | -854 | **996** | **1,361** | **2,080** | **1,298** | **753** | **632** | **248** | **37** | -151 | -221 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 14-4. Sacramento River at Port Chicago Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 19,721 | 20,087 | 18,443 | 14,099 | 9,142 | 8,191 | 9,388 | 11,113 | 13,136 | 15,401 | 17,559 | 18,778 |
| 20% | 18,931 | 18,683 | 17,240 | 13,238 | 6,908 | 6,716 | 6,664 | 10,006 | 12,043 | 14,401 | 16,567 | 18,140 |
| 30% | 18,823 | 18,475 | 13,724 | 11,521 | 4,387 | 3,756 | 5,530 | 8,915 | 11,428 | 13,786 | 16,389 | 18,072 |
| 40% | 18,521 | 17,643 | 13,221 | 8,703 | 3,053 | 3,370 | 3,880 | 6,281 | 10,697 | 12,245 | 15,091 | 17,394 |
| 50% | 16,128 | 11,663 | 11,389 | 6,403 | 1,655 | 1,922 | 2,996 | 5,402 | 9,491 | 11,597 | 14,052 | 16,578 |
| 60% | 11,769 | 11,372 | 10,698 | 4,099 | 974 | 1,320 | 1,902 | 4,014 | 9,020 | 10,054 | 13,685 | 11,760 |
| 70% | 7,853 | 7,805 | 6,844 | 1,055 | 372 | 558 | 1,211 | 3,138 | 7,654 | 9,574 | 13,258 | 8,038 |
| 80% | 7,551 | 7,420 | 2,783 | 459 | 241 | 288 | 543 | 1,504 | 5,455 | 9,215 | 12,846 | 7,772 |
| 90% | 7,416 | 7,096 | 925 | 257 | 214 | 234 | 266 | 506 | 2,470 | 7,859 | 12,424 | 7,645 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 13,938 | 12,910 | 10,512 | 6,917 | 3,516 | 3,188 | 3,895 | 5,735 | 9,056 | 11,518 | 14,605 | 13,745 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 7,512 | 6,972 | 7,194 | 1,756 | 541 | 795 | 1,043 | 1,917 | 5,064 | 8,189 | 12,689 | 7,704 |
| Above Normal (16%) | 11,382 | 10,668 | 9,754 | 3,785 | 1,459 | 1,124 | 1,762 | 3,710 | 8,470 | 9,795 | 12,929 | 11,758 |
| Below Normal (13%) | 17,100 | 16,236 | 11,954 | 9,071 | 4,311 | 4,663 | 5,128 | 6,837 | 10,256 | 11,843 | 14,333 | 16,965 |
| Dry (24%) | 18,668 | 16,053 | 10,711 | 10,792 | 5,300 | 4,041 | 5,057 | 7,738 | 10,925 | 13,935 | 16,366 | 18,027 |
| Critical (15%) | 19,849 | 19,916 | 16,867 | 13,058 | 8,487 | 7,834 | 9,317 | 11,848 | 14,128 | 16,267 | 17,887 | 18,899 |

### Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 19,759 | 20,076 | 18,447 | 15,287 | 9,706 | 7,580 | 8,622 | 11,048 | 13,045 | 15,174 | 17,660 | 18,839 |
| 20% | 19,039 | 18,712 | 18,133 | 13,483 | 6,645 | 4,761 | 5,902 | 9,974 | 12,172 | 14,396 | 16,714 | 18,327 |
| 30% | 18,868 | 18,452 | 16,888 | 11,132 | 4,799 | 2,585 | 4,411 | 8,186 | 11,433 | 13,997 | 16,540 | 18,149 |
| 40% | 18,646 | 18,176 | 15,448 | 8,261 | 3,167 | 2,044 | 3,196 | 5,927 | 10,743 | 12,378 | 14,994 | 17,506 |
| 50% | 18,215 | 17,852 | 14,121 | 6,457 | 1,465 | 1,488 | 2,137 | 4,632 | 9,333 | 11,857 | 14,269 | 16,962 |
| 60% | 17,572 | 17,338 | 11,722 | 3,757 | 672 | 801 | 1,323 | 3,454 | 8,782 | 10,217 | 13,588 | 16,340 |
| 70% | 17,365 | 16,309 | 7,132 | 888 | 375 | 438 | 882 | 2,581 | 7,215 | 9,727 | 13,227 | 16,124 |
| 80% | 17,157 | 13,424 | 3,106 | 397 | 241 | 270 | 480 | 1,201 | 5,469 | 9,528 | 12,954 | 15,956 |
| 90% | 15,103 | 10,164 | 907 | 252 | 213 | 229 | 271 | 536 | 2,562 | 7,913 | 12,519 | 15,735 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 17,486 | 16,012 | 11,486 | 6,821 | 3,481 | 2,560 | 3,361 | 5,422 | 8,937 | 11,627 | 14,694 | 16,847 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 15,533 | 14,002 | 9,580 | 1,566 | 467 | 605 | 902 | 1,778 | 4,935 | 8,314 | 12,712 | 15,074 |
| Above Normal (16%) | 17,260 | 15,968 | 11,479 | 3,663 | 1,270 | 744 | 1,325 | 3,152 | 8,252 | 9,948 | 12,967 | 16,064 |
| Below Normal (13%) | 17,145 | 16,080 | 11,779 | 8,660 | 4,114 | 3,161 | 3,829 | 6,367 | 10,176 | 12,036 | 14,574 | 17,227 |
| Dry (24%) | 18,936 | 16,248 | 10,591 | 11,009 | 5,295 | 3,061 | 4,361 | 7,408 | 10,866 | 14,014 | 16,526 | 18,207 |
| Critical (15%) | 19,857 | 19,958 | 16,847 | 12,962 | 8,804 | 7,375 | 8,798 | 11,599 | 13,998 | 16,266 | 17,917 | 18,925 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **38** | -11 | **4** | **1,188** | **564** | -611 | -766 | -65 | -92 | -227 | **101** | **61** |
| 20% | **109** | **29** | **893** | **245** | -262 | -1,955 | -762 | -32 | **129** | -5 | **146** | **187** |
| 30% | **45** | -23 | **3,164** | -389 | **411** | -1,171 | -1,119 | -729 | **6** | **211** | **151** | **78** |
| 40% | **125** | **534** | **2,227** | -442 | **113** | -1,326 | -685 | -354 | **45** | **134** | -97 | **112** |
| 50% | **2,087** | **6,189** | **2,732** | **54** | -190 | -434 | -859 | -770 | -159 | **260** | **218** | **385** |
| 60% | **5,803** | **5,965** | **1,024** | -342 | -302 | -520 | -579 | -559 | -239 | **164** | -97 | **4,581** |
| 70% | **9,511** | **8,504** | **288** | -167 | **3** | -120 | -329 | -557 | -440 | **153** | -31 | **8,085** |
| 80% | **9,606** | **6,004** | **323** | -62 | 0 | -18 | -63 | -303 | **14** | **312** | **108** | **8,184** |
| 90% | **7,687** | **3,068** | -19 | -5 | -1 | -5 | **5** | **30** | **92** | **54** | **95** | **8,090** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **3,548** | **3,102** | **974** | -96 | -35 | -628 | -534 | -313 | -120 | **109** | **89** | **3,102** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **8,021** | **7,030** | **2,386** | -190 | -73 | -190 | -141 | -140 | -129 | **126** | **23** | **7,370** |
| Above Normal (16%) | **5,878** | **5,300** | **1,725** | -122 | -189 | -380 | -437 | -558 | -218 | **153** | **38** | **4,306** |
| Below Normal (13%) | **45** | -156 | -174 | -411 | -197 | -1,501 | -1,299 | -470 | -80 | **193** | **241** | **262** |
| Dry (24%) | **268** | **195** | -121 | **218** | -5 | -980 | -696 | -331 | -59 | **79** | **160** | **179** |
| Critical (15%) | **8** | **42** | -20 | -96 | **317** | -459 | -519 | -250 | -130 | -1 | **30** | **25** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

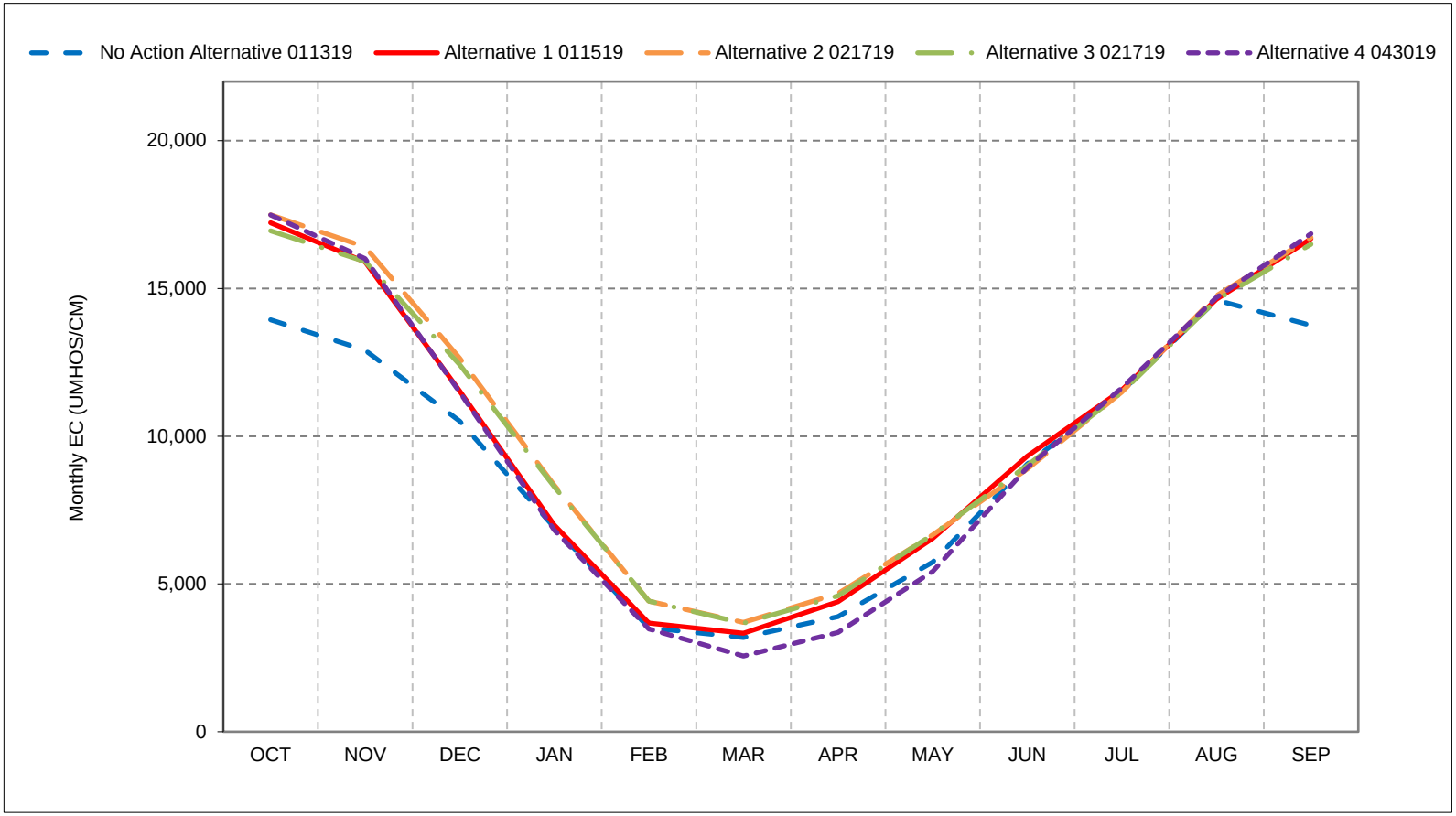
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

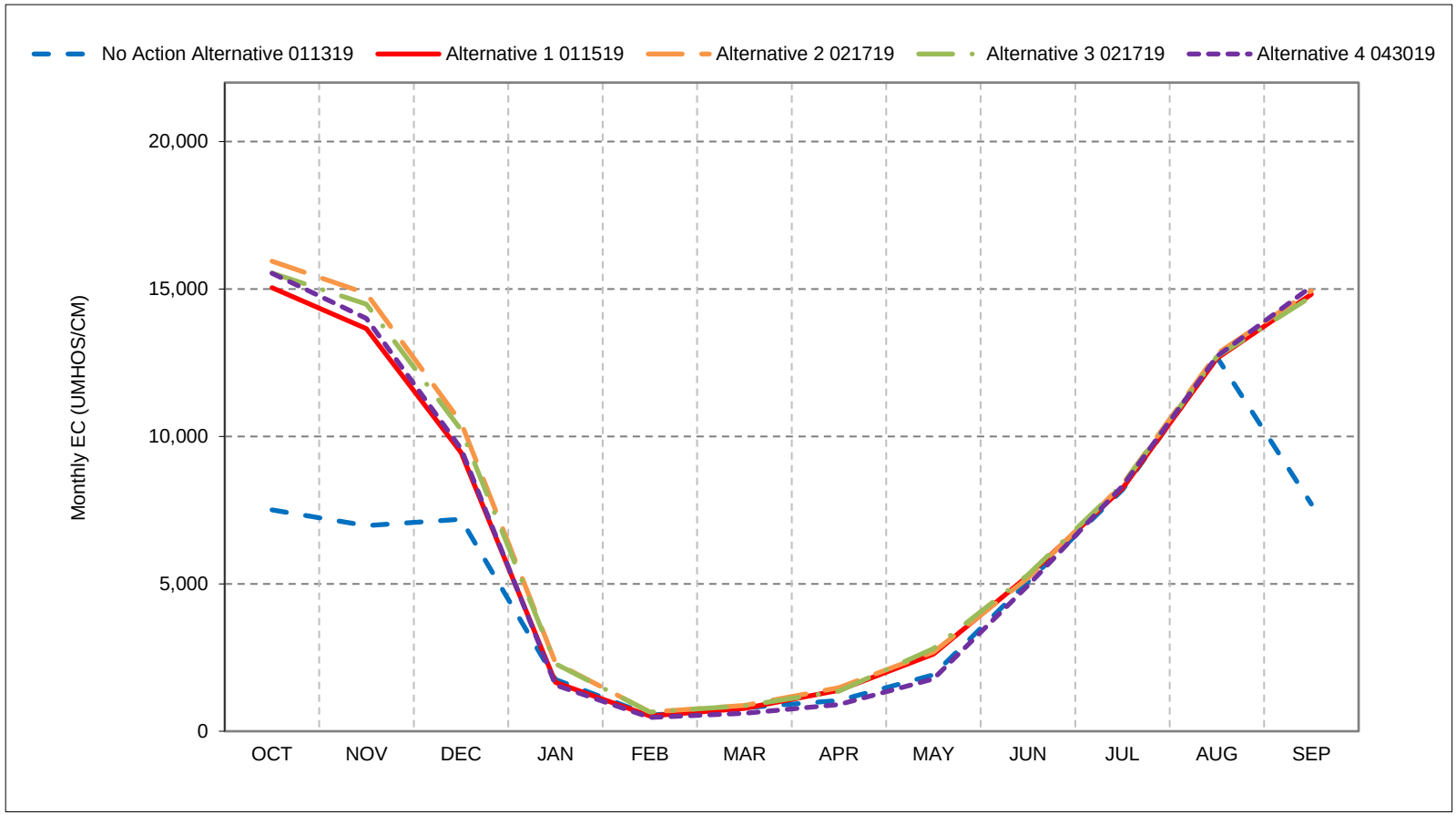
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-1. Sacramento River at Port Chicago Salinity, Long-Term Average EC



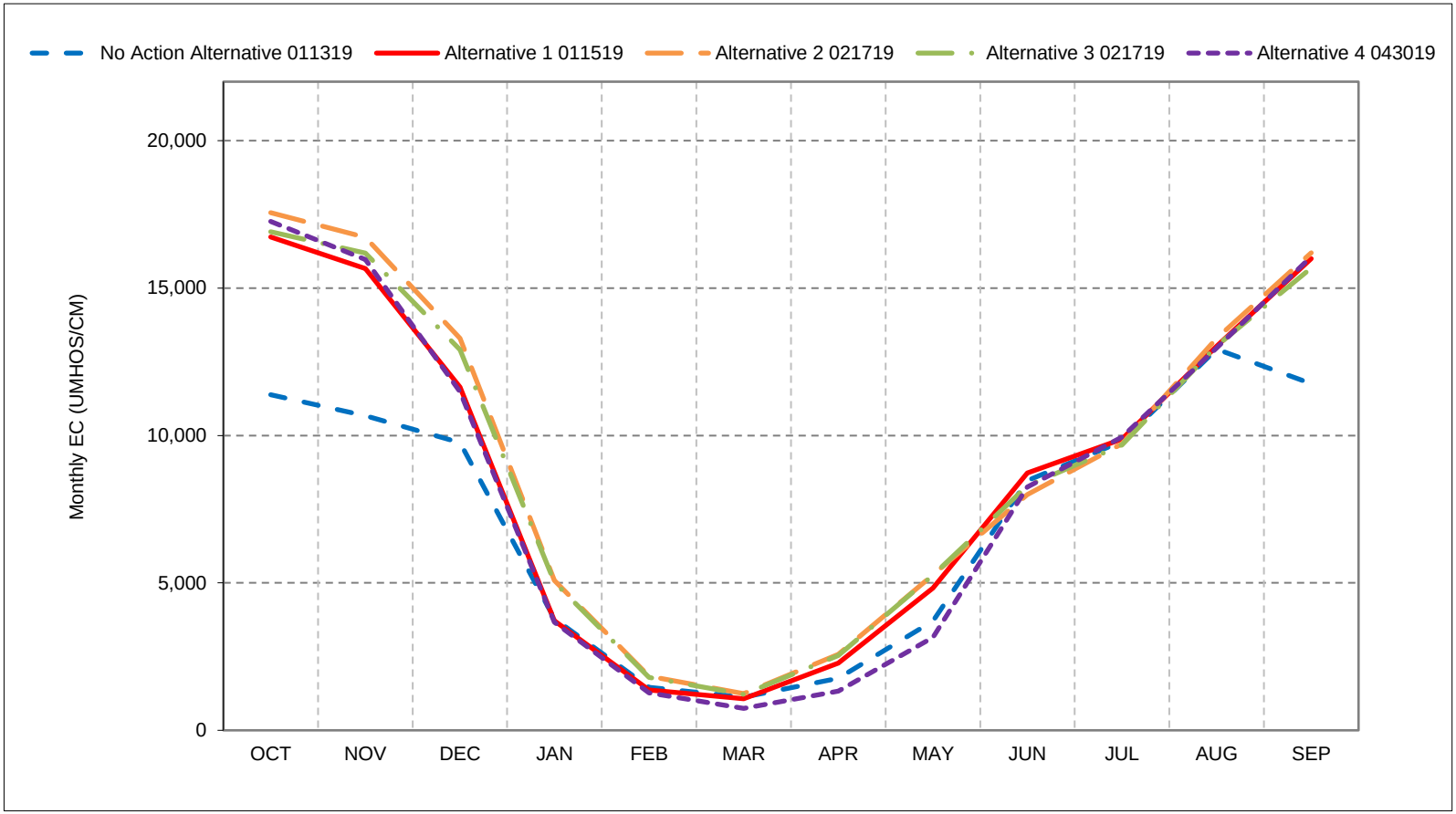

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-2. Sacramento River at Port Chicago Salinity, Wet Year Average EC



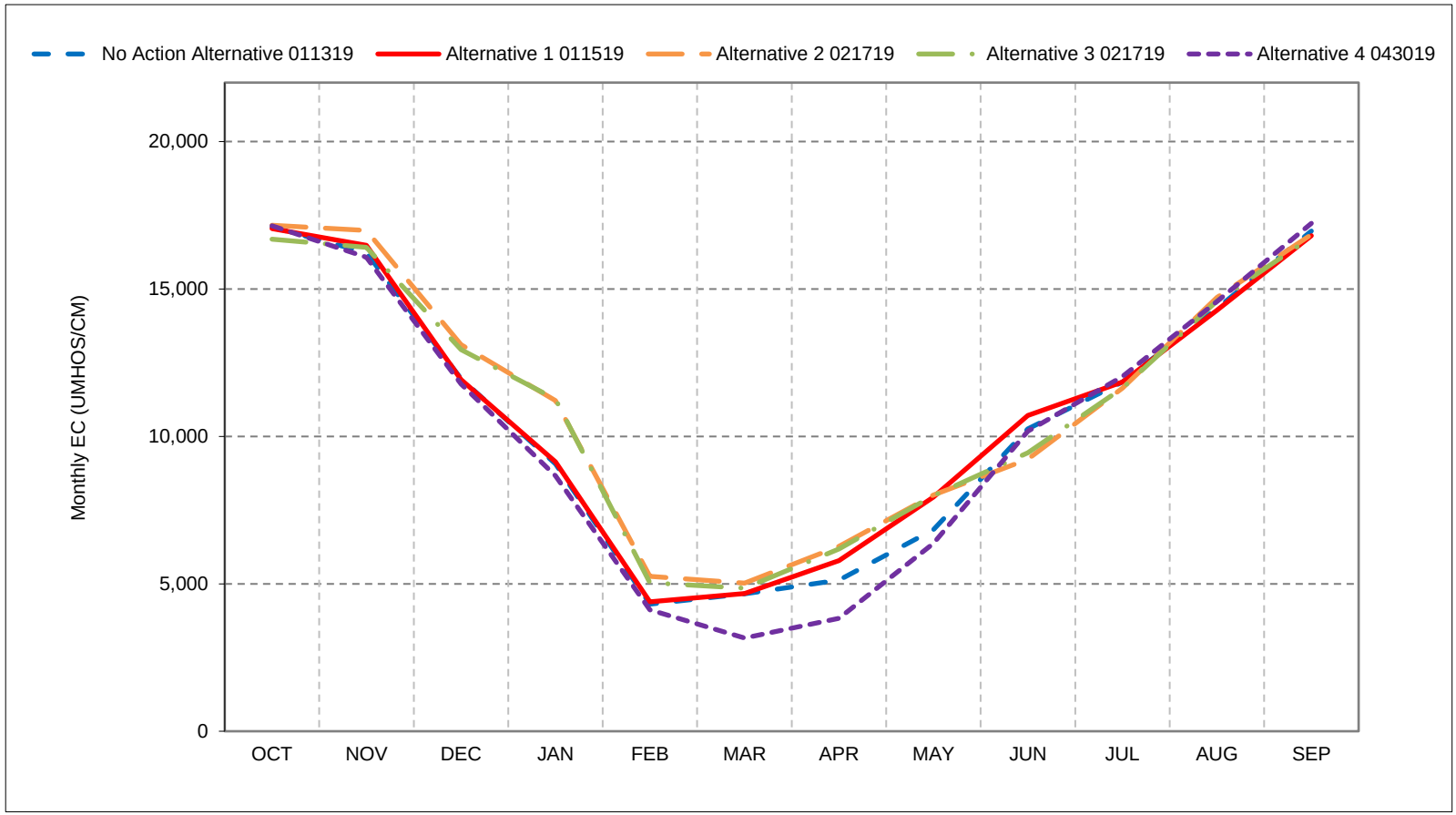

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-3. Sacramento River at Port Chicago Salinity, Above Normal Year Average EC



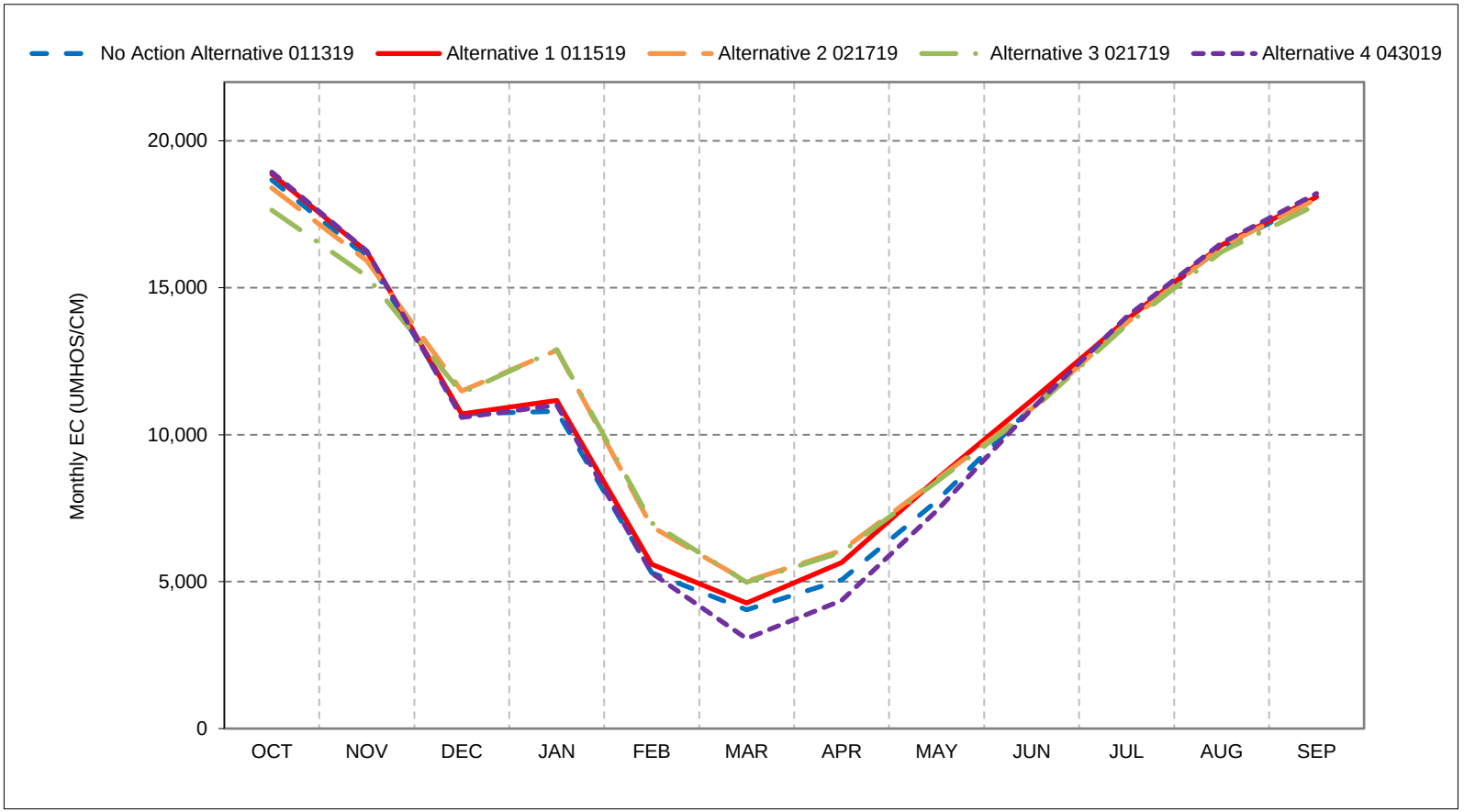

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-4. Sacramento River at Port Chicago Salinity, Below Normal Year Average EC



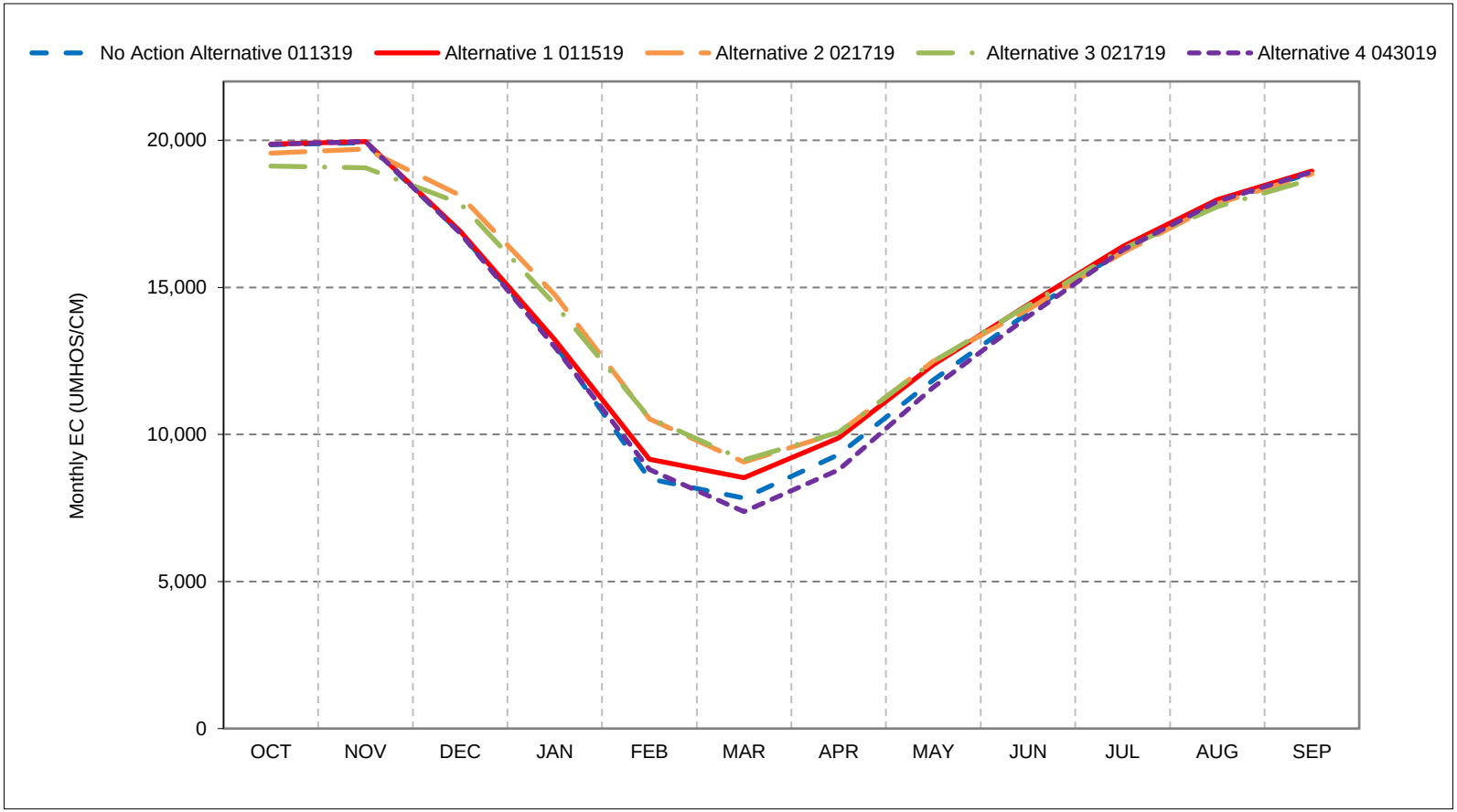

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-5. Sacramento River at Port Chicago Salinity, Dry Year Average EC



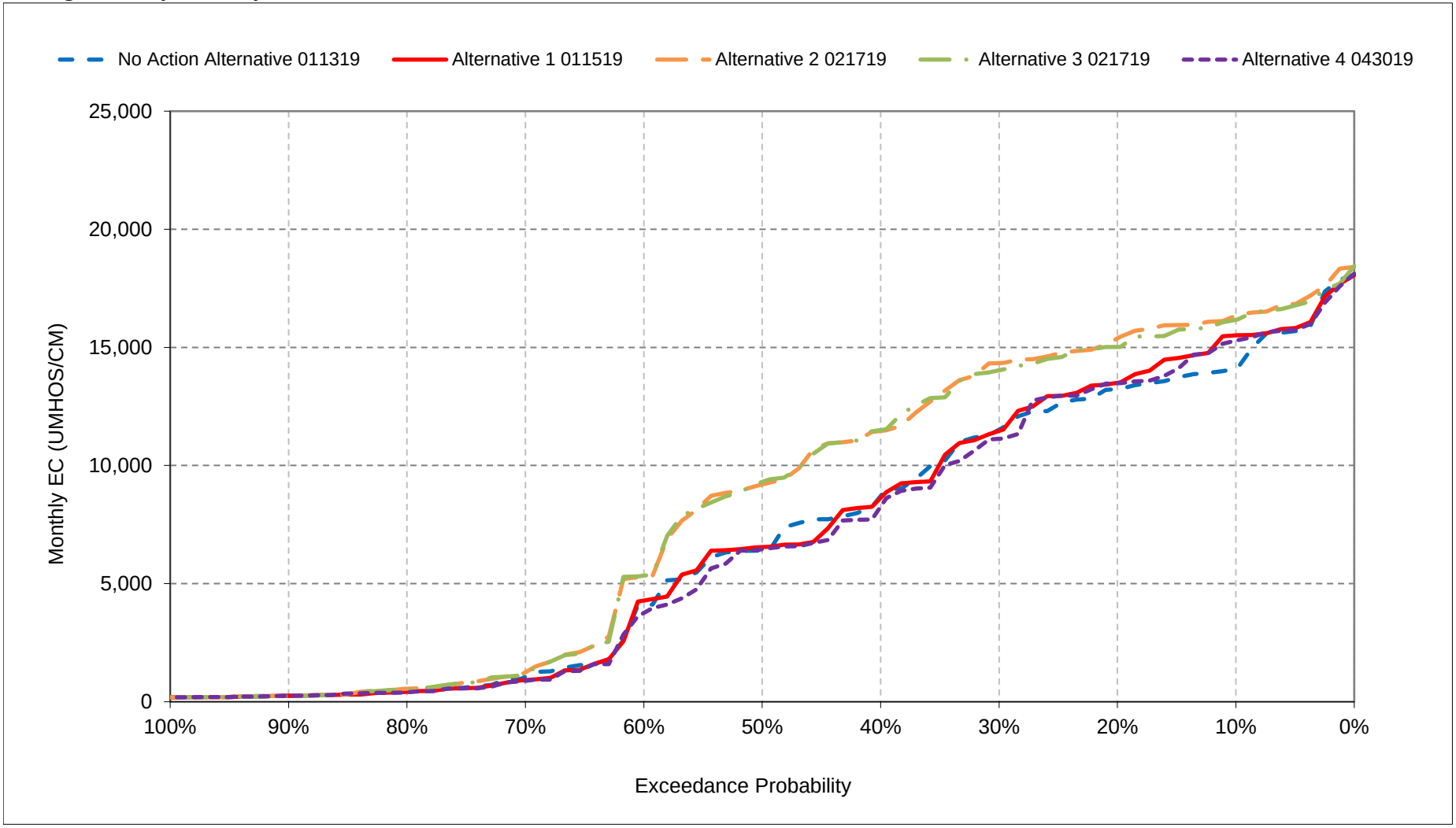

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 14-6. Sacramento River at Port Chicago Salinity, Critical Year Average EC




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

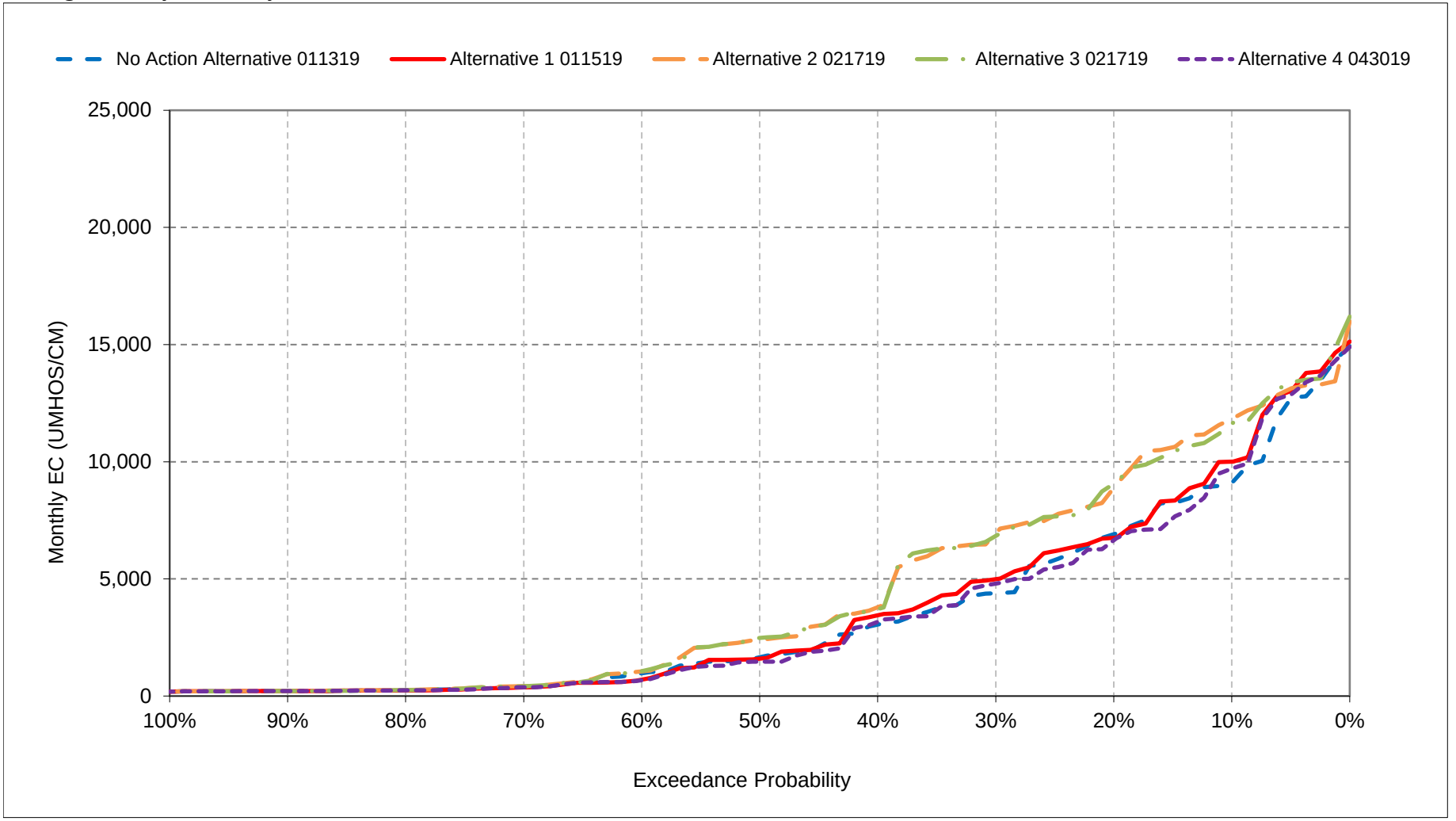
**Figure 14-7. Sacramento River at Port Chicago Salinity, January EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

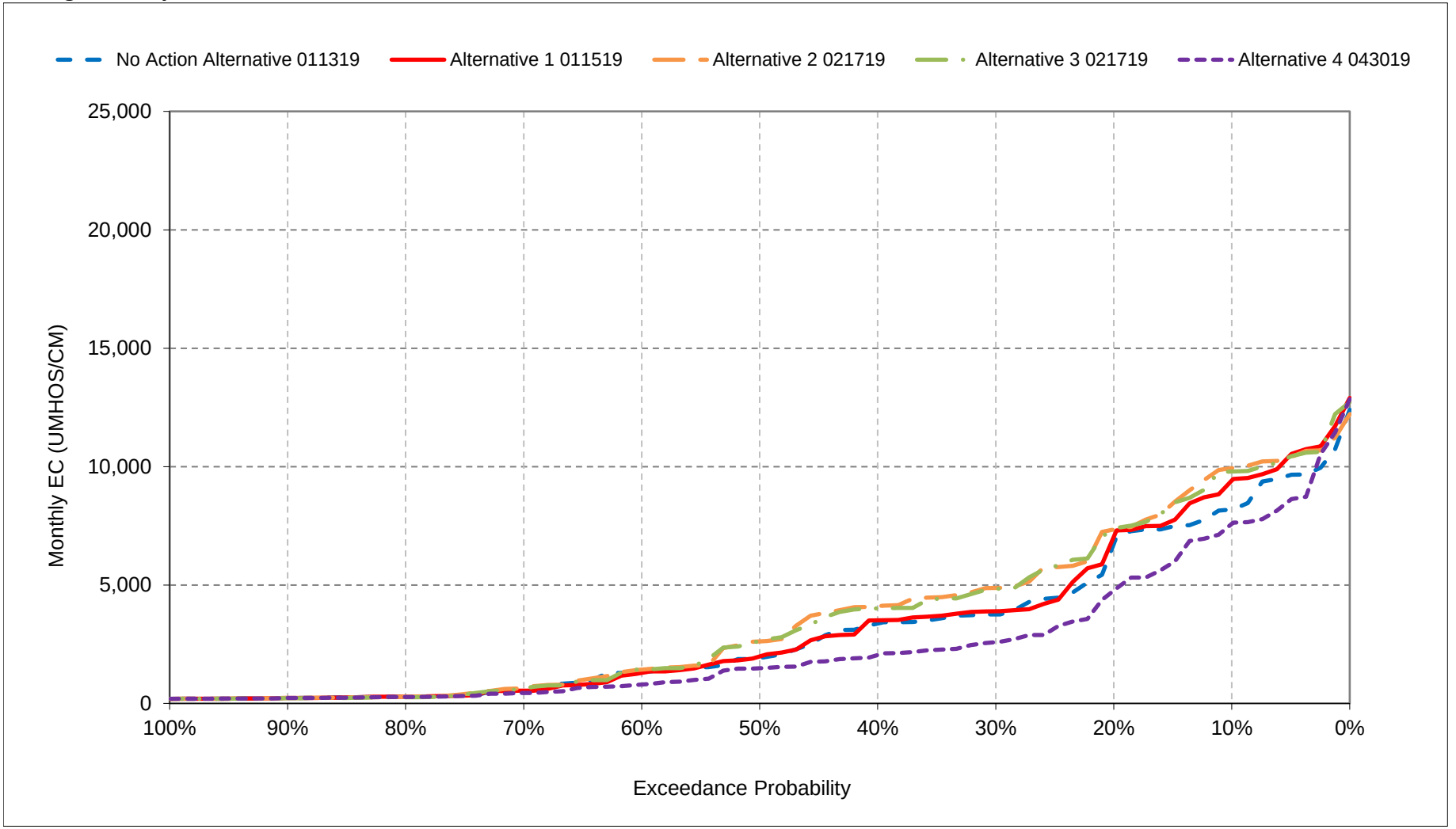
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 14-8. Sacramento River at Port Chicago Salinity, February EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

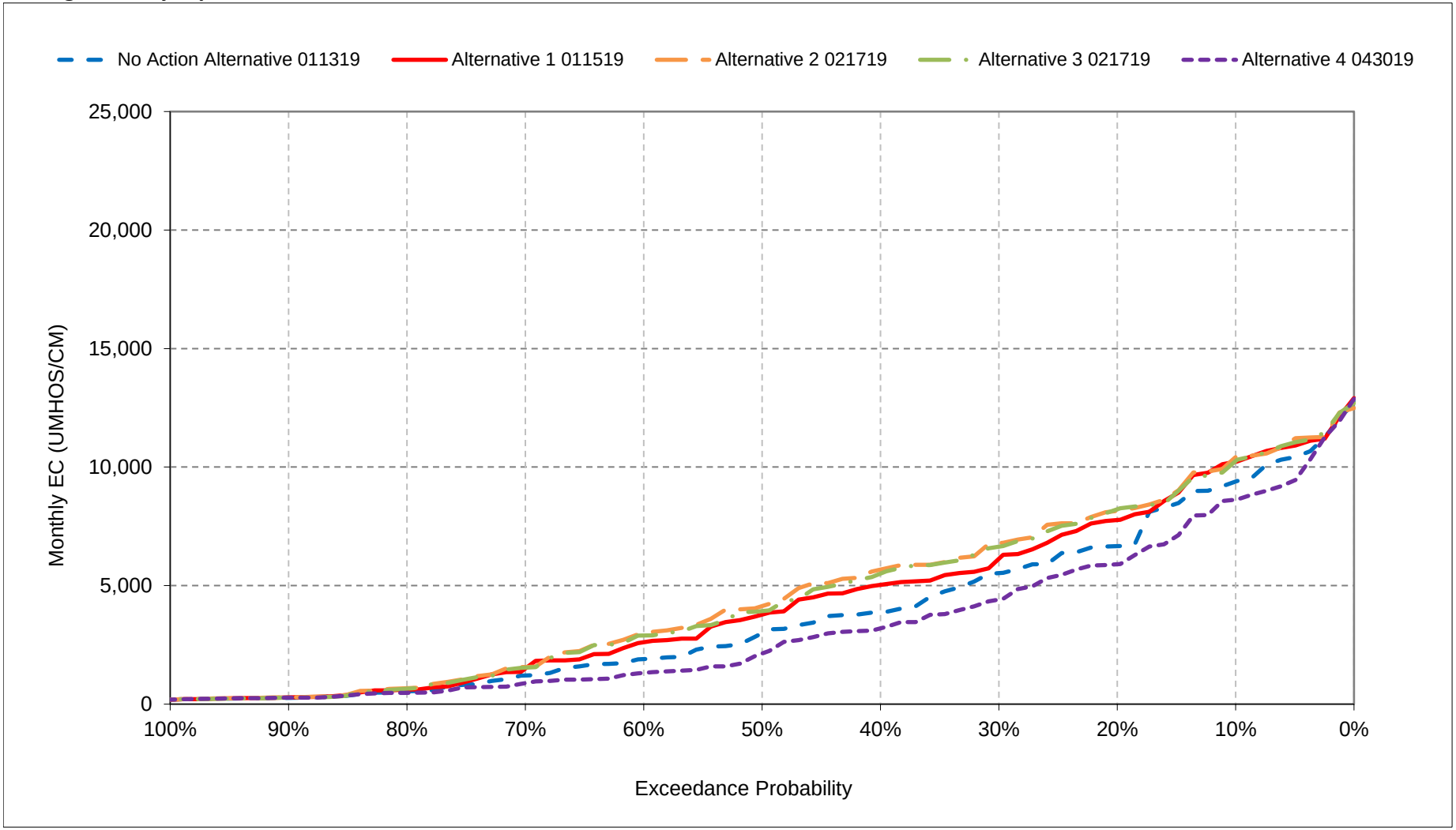
**Figure 14-9. Sacramento River at Port Chicago Salinity, March EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

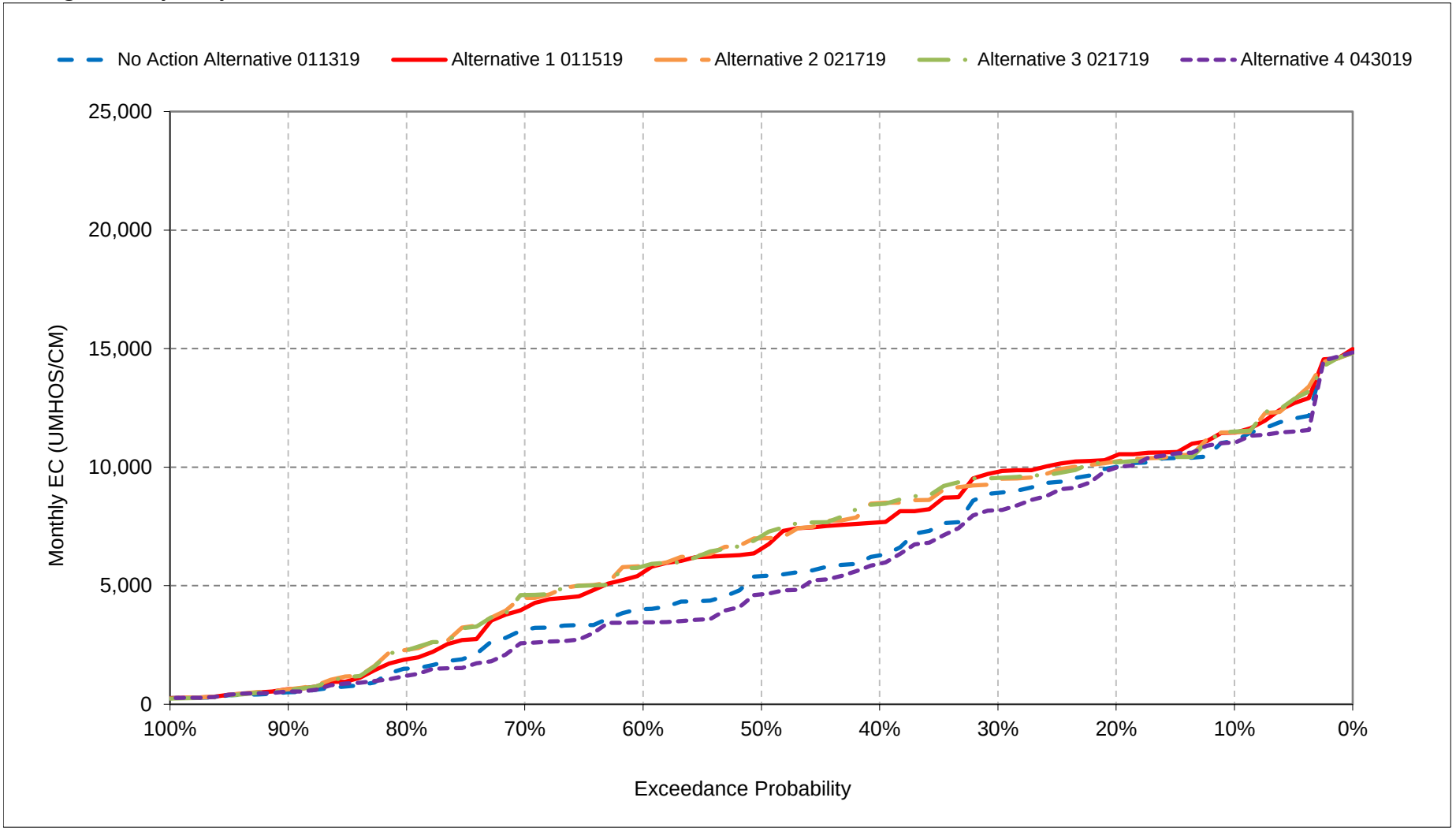
**Figure 14-10. Sacramento River at Port Chicago Salinity, April EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

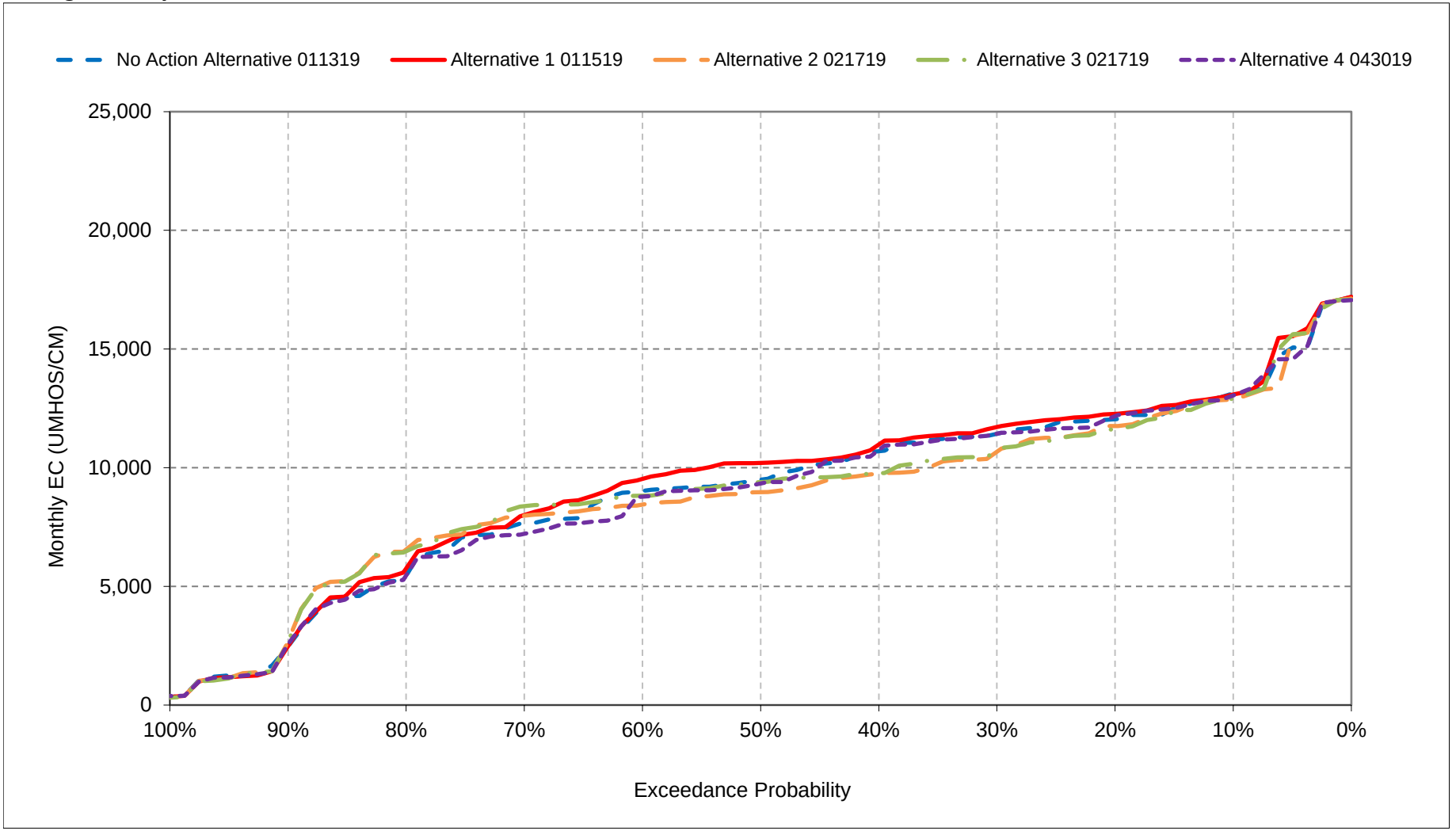
**Figure 14-11. Sacramento River at Port Chicago Salinity, May EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

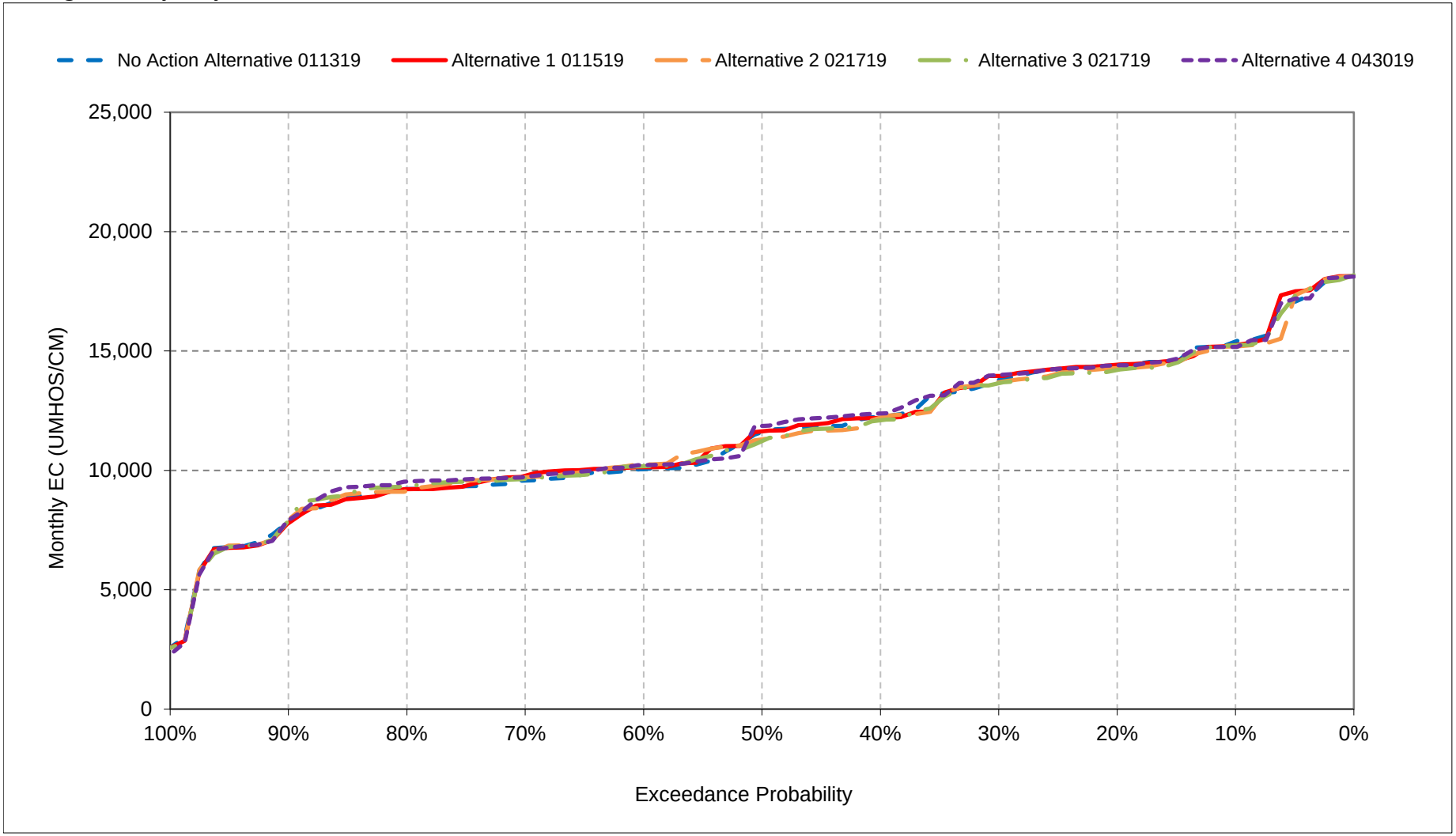
**Figure 14-12. Sacramento River at Port Chicago Salinity, June EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

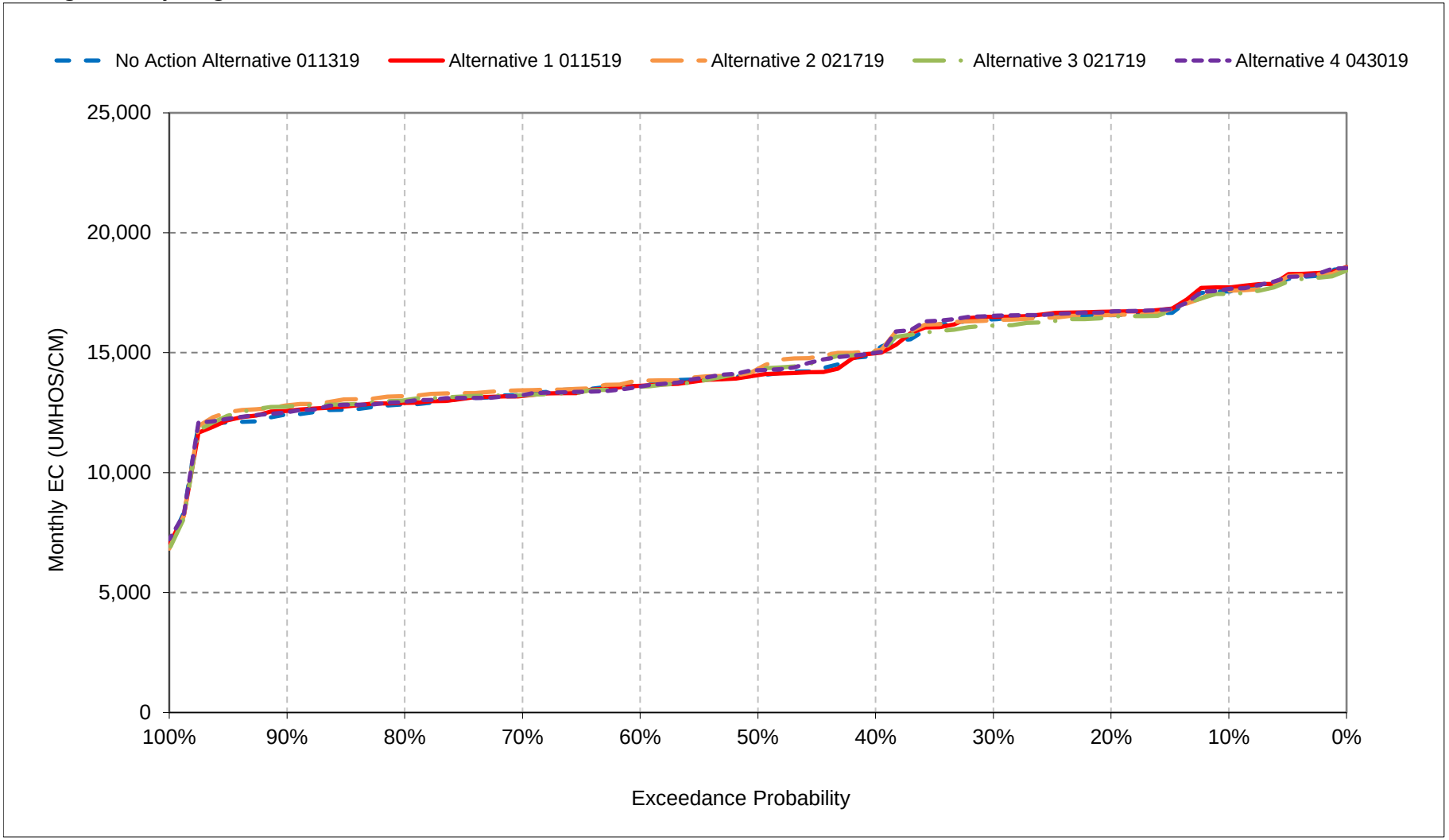
**Figure 14-13. Sacramento River at Port Chicago Salinity, July EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

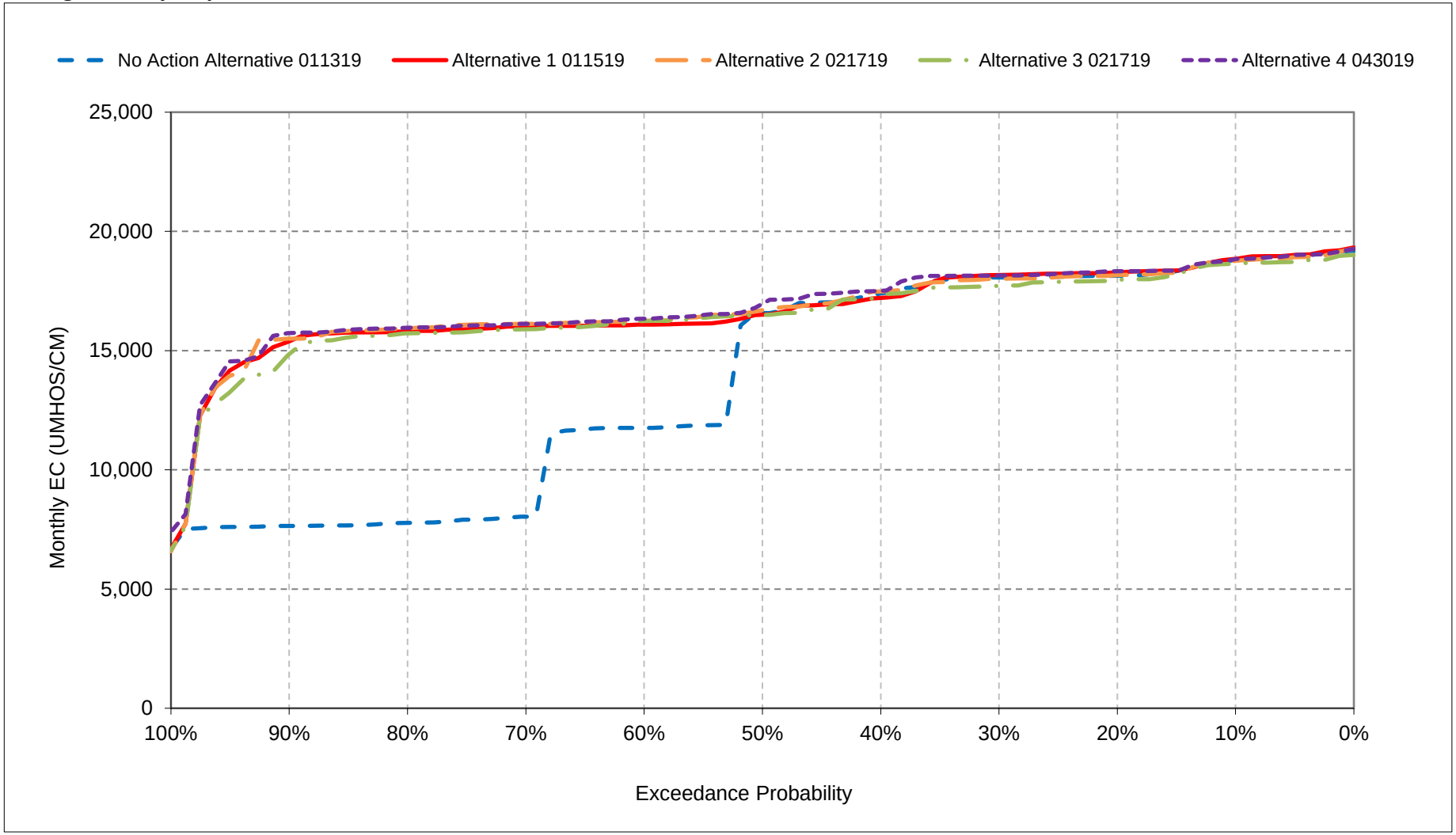
**Figure 14-14. Sacramento River at Port Chicago Salinity, August EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

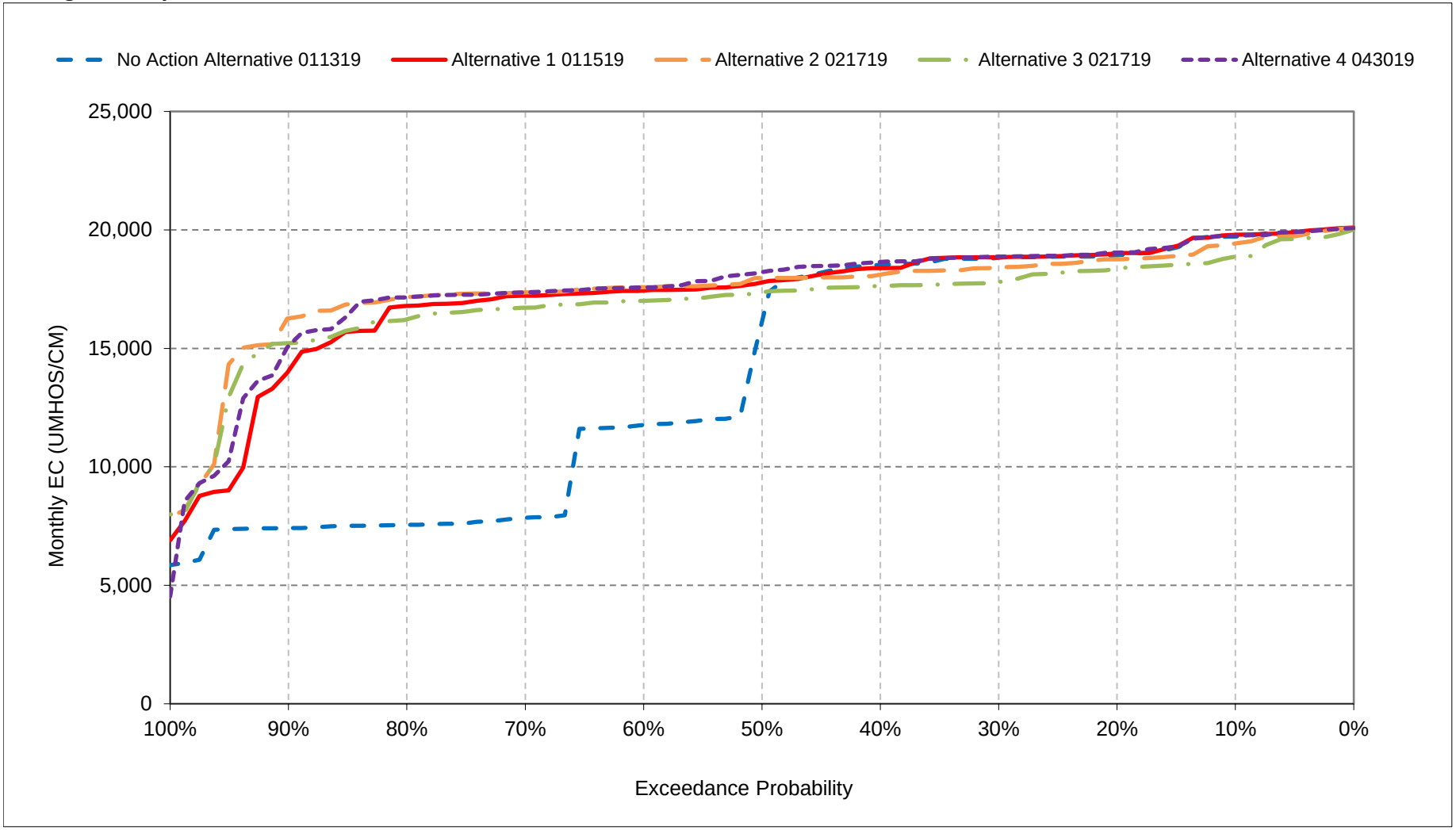
**Figure 14-15. Sacramento River at Port Chicago Salinity, September EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

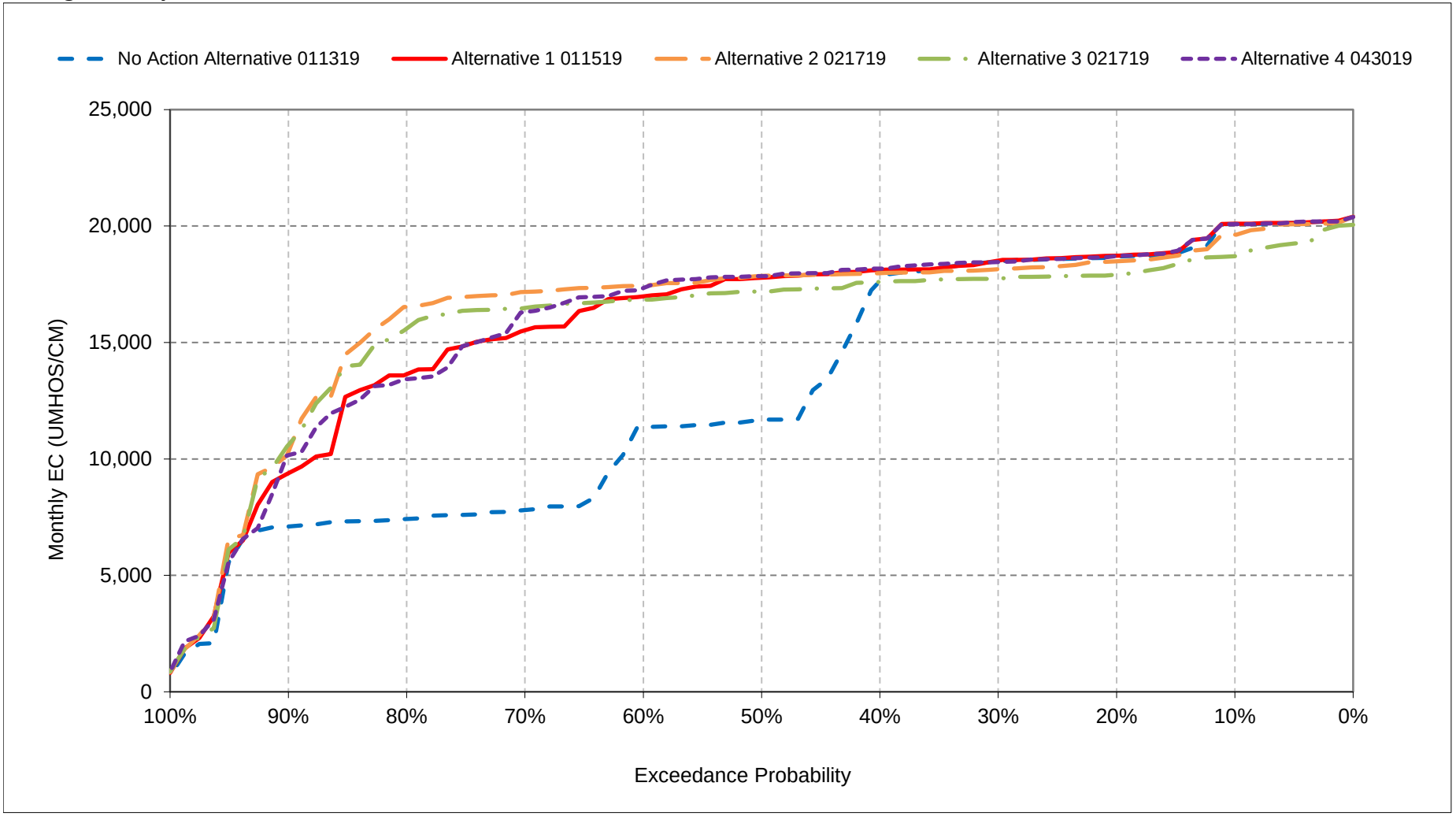
**Figure 14-16. Sacramento River at Port Chicago Salinity, October EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

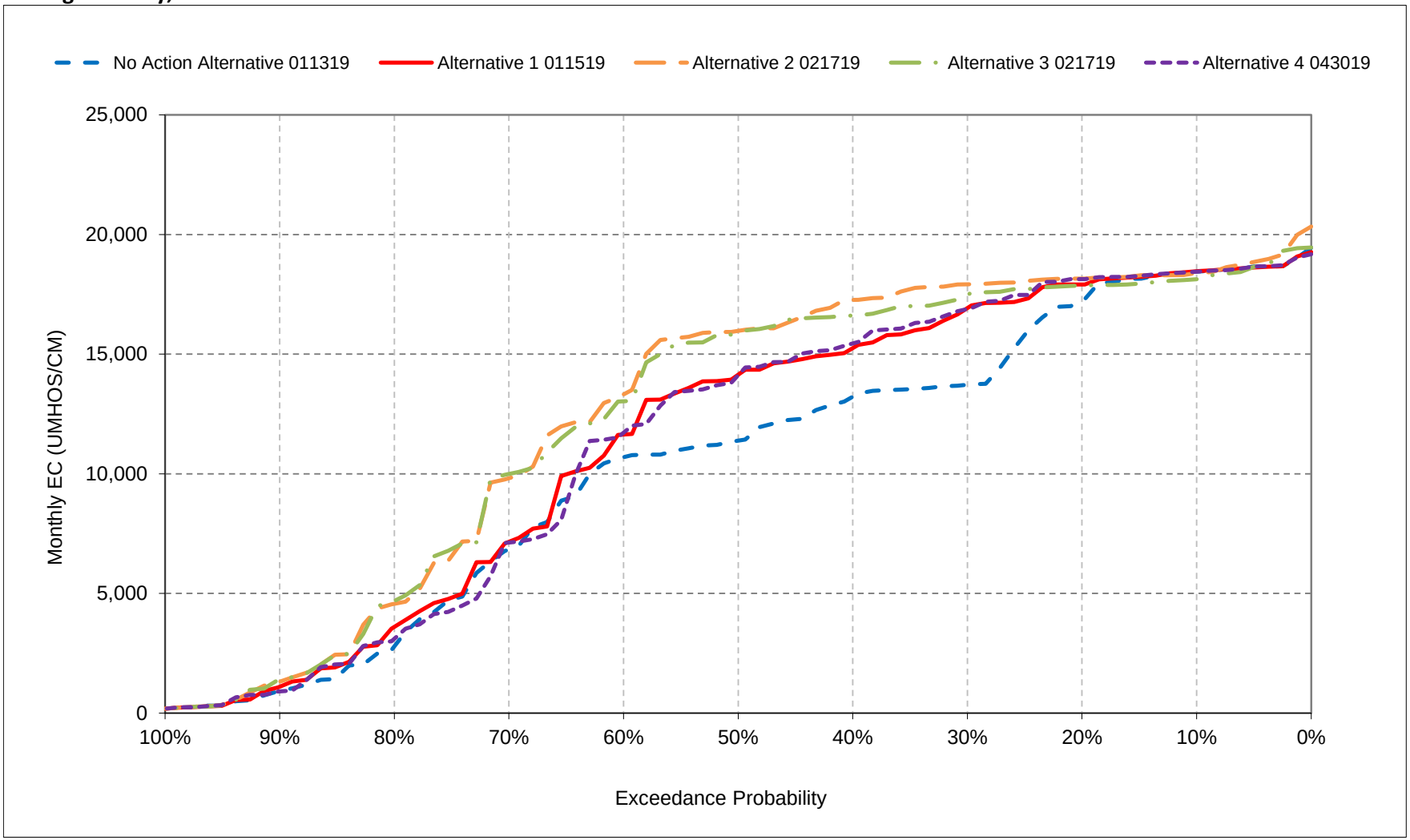
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 14-17. Sacramento River at Port Chicago Salinity, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 14-18. Sacramento River at Port Chicago Salinity, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

# Table 15-1. Jones Pumping Plant South Delta Exports Salinity, Monthly EC

## No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 702 | 739 | 810 | 799 | 790 | 763 | 612 | 542 | 470 | 430 | 553 | 618 |
| 20% | 675 | 691 | 763 | 765 | 702 | 644 | 538 | 524 | 429 | 398 | 452 | 597 |
| 30% | 662 | 645 | 724 | 679 | 673 | 588 | 466 | 494 | 401 | 387 | 431 | 574 |
| 40% | 634 | 611 | 690 | 651 | 643 | 553 | 435 | 445 | 388 | 376 | 414 | 548 |
| 50% | 581 | 519 | 515 | 629 | 598 | 525 | 368 | 397 | 380 | 360 | 399 | 529 |
| 60% | 394 | 396 | 485 | 596 | 537 | 436 | 329 | 375 | 377 | 350 | 370 | 509 |
| 70% | 380 | 358 | 447 | 564 | 486 | 363 | 310 | 361 | 364 | 339 | 349 | 481 |
| 80% | 368 | 344 | 429 | 514 | 406 | 316 | 282 | 314 | 354 | 333 | 339 | 452 |
| 90% | 357 | 330 | 419 | 450 | 317 | 287 | 229 | 202 | 337 | 311 | 324 | 431 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 524 | 516 | 584 | 621 | 574 | 504 | 400 | 403 | 387 | 370 | 408 | 520 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 363 | 337 | 413 | 512 | 405 | 337 | 263 | 286 | 347 | 349 | 339 | 461 |
| Above Normal (16%) | 370 | 385 | 502 | 610 | 563 | 448 | 351 | 373 | 379 | 349 | 350 | 443 |
| Below Normal (13%) | 639 | 597 | 670 | 625 | 607 | 521 | 403 | 431 | 399 | 348 | 406 | 568 |
| Dry (24%) | 654 | 632 | 669 | 691 | 665 | 590 | 477 | 470 | 394 | 373 | 471 | 566 |
| Critical (15%) | 718 | 777 | 824 | 749 | 767 | 765 | 617 | 549 | 464 | 457 | 514 | 612 |

## Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 701 | 760 | 820 | 807 | 736 | 634 | 585 | 506 | 416 | 447 | 540 | 632 |
| 20% | 678 | 714 | 780 | 788 | 679 | 582 | 528 | 465 | 390 | 402 | 449 | 607 |
| 30% | 662 | 679 | 753 | 767 | 641 | 544 | 476 | 438 | 367 | 388 | 428 | 582 |
| 40% | 644 | 656 | 733 | 715 | 607 | 533 | 404 | 395 | 349 | 369 | 417 | 576 |
| 50% | 626 | 635 | 707 | 654 | 570 | 517 | 347 | 351 | 344 | 356 | 401 | 565 |
| 60% | 606 | 621 | 685 | 611 | 532 | 461 | 322 | 337 | 339 | 350 | 369 | 554 |
| 70% | 588 | 602 | 622 | 570 | 475 | 360 | 303 | 329 | 334 | 336 | 351 | 547 |
| 80% | 556 | 563 | 553 | 517 | 399 | 315 | 270 | 301 | 315 | 329 | 343 | 522 |
| 90% | 486 | 430 | 476 | 451 | 311 | 284 | 227 | 200 | 300 | 305 | 328 | 475 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 606 | 620 | 671 | 644 | 548 | 474 | 389 | 370 | 353 | 372 | 408 | 553 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 511 | 552 | 590 | 515 | 401 | 338 | 258 | 268 | 333 | 351 | 338 | 484 |
| Above Normal (16%) | 607 | 600 | 678 | 647 | 546 | 442 | 330 | 335 | 349 | 345 | 355 | 563 |
| Below Normal (13%) | 628 | 606 | 676 | 668 | 586 | 501 | 412 | 400 | 337 | 351 | 420 | 589 |
| Dry (24%) | 658 | 646 | 674 | 731 | 627 | 537 | 465 | 421 | 343 | 371 | 458 | 577 |
| Critical (15%) | 703 | 761 | 829 | 751 | 703 | 676 | 591 | 517 | 428 | 466 | 520 | 620 |

## Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | **21** | **9** | **7** | -54 | -129 | -27 | -36 | -54 | **18** | -13 | **15** |
| 20% | **3** | **23** | **17** | **23** | -23 | -61 | -10 | -59 | -38 | **4** | -3 | **10** |
| 30% | 0 | **34** | **29** | **88** | -32 | -44 | **10** | -56 | -34 | **1** | -3 | **8** |
| 40% | **10** | **45** | **43** | **64** | -36 | -20 | -31 | -51 | -38 | -7 | **3** | **28** |
| 50% | **45** | **116** | **192** | **25** | -28 | -8 | -21 | -46 | -36 | -3 | **2** | **36** |
| 60% | **212** | **225** | **200** | **15** | -5 | **25** | -7 | -38 | -38 | 0 | -1 | **45** |
| 70% | **208** | **244** | **174** | **6** | -10 | -4 | -7 | -32 | -30 | -3 | **2** | **66** |
| 80% | **188** | **219** | **124** | **2** | -7 | -1 | -12 | -13 | -38 | -4 | **4** | **70** |
| 90% | **129** | **101** | **58** | **2** | -6 | -3 | -2 | -2 | -37 | -5 | **3** | **44** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **82** | **105** | **87** | **23** | -25 | -30 | -10 | -33 | -35 | **1** | **0** | **33** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **148** | **215** | **177** | **3** | -4 | **1** | -5 | -18 | -13 | **2** | -1 | **23** |
| Above Normal (16%) | **237** | **215** | **176** | **37** | -17 | -6 | -20 | -39 | -31 | -4 | **5** | **120** |
| Below Normal (13%) | -11 | **9** | **6** | **43** | -21 | -21 | **10** | -31 | -61 | **4** | **14** | **21** |
| Dry (24%) | **4** | **14** | **5** | **40** | -38 | -53 | -12 | -49 | -51 | -2 | -14 | **11** |
| Critical (15%) | -15 | -16 | **4** | **3** | -64 | -90 | -26 | -32 | -35 | **9** | **6** | **7** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 15-2. Jones Pumping Plant South Delta Exports Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 702 | 739 | 810 | 799 | 790 | 763 | 612 | 542 | 470 | 430 | 553 | 618 |
| 20% | 675 | 691 | 763 | 765 | 702 | 644 | 538 | 524 | 429 | 398 | 452 | 597 |
| 30% | 662 | 645 | 724 | 679 | 673 | 588 | 466 | 494 | 401 | 387 | 431 | 574 |
| 40% | 634 | 611 | 690 | 651 | 643 | 553 | 435 | 445 | 388 | 376 | 414 | 548 |
| 50% | 581 | 519 | 515 | 629 | 598 | 525 | 368 | 397 | 380 | 360 | 399 | 529 |
| 60% | 394 | 396 | 485 | 596 | 537 | 436 | 329 | 375 | 377 | 350 | 370 | 509 |
| 70% | 380 | 358 | 447 | 564 | 486 | 363 | 310 | 361 | 364 | 339 | 349 | 481 |
| 80% | 368 | 344 | 429 | 514 | 406 | 316 | 282 | 314 | 354 | 333 | 339 | 452 |
| 90% | 357 | 330 | 419 | 450 | 317 | 287 | 229 | 202 | 337 | 311 | 324 | 431 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 524 | 516 | 584 | 621 | 574 | 504 | 400 | 403 | 387 | 370 | 408 | 520 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 363 | 337 | 413 | 512 | 405 | 337 | 263 | 286 | 347 | 349 | 339 | 461 |
| Above Normal (16%) | 370 | 385 | 502 | 610 | 563 | 448 | 351 | 373 | 379 | 349 | 350 | 443 |
| Below Normal (13%) | 639 | 597 | 670 | 625 | 607 | 521 | 403 | 431 | 399 | 348 | 406 | 568 |
| Dry (24%) | 654 | 632 | 669 | 691 | 665 | 590 | 477 | 470 | 394 | 373 | 471 | 566 |
| Critical (15%) | 718 | 777 | 824 | 749 | 767 | 765 | 617 | 549 | 464 | 457 | 514 | 612 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 728 | 765 | 821 | 862 | 754 | 661 | 540 | 444 | 407 | 446 | 525 | 635 |
| 20% | 710 | 722 | 786 | 785 | 694 | 577 | 489 | 412 | 385 | 396 | 449 | 602 |
| 30% | 691 | 673 | 769 | 748 | 620 | 528 | 439 | 398 | 368 | 372 | 429 | 589 |
| 40% | 682 | 636 | 722 | 727 | 575 | 494 | 382 | 368 | 354 | 357 | 419 | 577 |
| 50% | 668 | 623 | 706 | 684 | 538 | 466 | 359 | 348 | 337 | 348 | 400 | 562 |
| 60% | 657 | 601 | 693 | 584 | 486 | 426 | 334 | 337 | 325 | 335 | 378 | 550 |
| 70% | 639 | 575 | 647 | 514 | 447 | 367 | 316 | 318 | 313 | 322 | 355 | 539 |
| 80% | 609 | 548 | 528 | 456 | 379 | 313 | 276 | 304 | 300 | 310 | 342 | 511 |
| 90% | 486 | 491 | 440 | 428 | 298 | 288 | 233 | 203 | 279 | 293 | 326 | 431 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 641 | 618 | 670 | 639 | 533 | 468 | 379 | 349 | 346 | 360 | 407 | 546 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 539 | 551 | 608 | 485 | 368 | 332 | 265 | 267 | 320 | 341 | 335 | 472 |
| Above Normal (16%) | 683 | 660 | 706 | 624 | 500 | 409 | 333 | 327 | 328 | 322 | 365 | 578 |
| Below Normal (13%) | 672 | 612 | 659 | 709 | 606 | 502 | 412 | 377 | 323 | 329 | 429 | 570 |
| Dry (24%) | 678 | 592 | 633 | 733 | 613 | 523 | 434 | 388 | 350 | 365 | 446 | 568 |
| Critical (15%) | 729 | 769 | 835 | 767 | 729 | 701 | 551 | 460 | 438 | 460 | 525 | 615 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **26** | **26** | **10** | **62** | -36 | -102 | -72 | -98 | -63 | **16** | -28 | **17** |
| 20% | **35** | **31** | **23** | **20** | -8 | -67 | -48 | -112 | -44 | -2 | -3 | **5** |
| 30% | **29** | **28** | **45** | **69** | -53 | -60 | -28 | -96 | -33 | -15 | -2 | **15** |
| 40% | **48** | **24** | **33** | **76** | -67 | -58 | -53 | -78 | -33 | -19 | **5** | **29** |
| 50% | **87** | **104** | **191** | **55** | -60 | -59 | -9 | -49 | -43 | -12 | **2** | **33** |
| 60% | **263** | **206** | **208** | -12 | -50 | -10 | **5** | -39 | -52 | -15 | **9** | **41** |
| 70% | **259** | **217** | **200** | -50 | -38 | **4** | **7** | -43 | -51 | -16 | **6** | **58** |
| 80% | **241** | **204** | **100** | -59 | -27 | -3 | -5 | -10 | -54 | -23 | **3** | **60** |
| 90% | **129** | **162** | **21** | -21 | -20 | **0** | **4** | **1** | -58 | -18 | **1** | -1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **117** | **103** | **85** | **18** | -40 | -36 | -21 | -54 | -41 | -11 | 0 | **26** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **176** | **214** | **195** | -27 | -37 | -5 | **2** | -20 | -27 | -7 | -4 | **10** |
| Above Normal (16%) | **313** | **274** | **204** | **14** | -63 | -38 | -18 | -46 | -52 | -27 | **15** | **135** |
| Below Normal (13%) | **33** | **15** | -11 | **84** | -2 | -20 | **10** | -54 | -76 | -19 | **24** | **2** |
| Dry (24%) | **24** | -40 | -36 | **41** | -52 | -67 | -43 | -82 | -44 | -8 | -25 | **2** |
| Critical (15%) | **10** | -8 | **11** | **18** | -38 | -64 | -66 | -90 | -26 | **3** | **10** | **3** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 15-3. Jones Pumping Plant South Delta Exports Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 702 | 739 | 810 | 799 | 790 | 763 | 612 | 542 | 470 | 430 | 553 | 618 |
| 20% | 675 | 691 | 763 | 765 | 702 | 644 | 538 | 524 | 429 | 398 | 452 | 597 |
| 30% | 662 | 645 | 724 | 679 | 673 | 588 | 466 | 494 | 401 | 387 | 431 | 574 |
| 40% | 634 | 611 | 690 | 651 | 643 | 553 | 435 | 445 | 388 | 376 | 414 | 548 |
| 50% | 581 | 519 | 515 | 629 | 598 | 525 | 368 | 397 | 380 | 360 | 399 | 529 |
| 60% | 394 | 396 | 485 | 596 | 537 | 436 | 329 | 375 | 377 | 350 | 370 | 509 |
| 70% | 380 | 358 | 447 | 564 | 486 | 363 | 310 | 361 | 364 | 339 | 349 | 481 |
| 80% | 368 | 344 | 429 | 514 | 406 | 316 | 282 | 314 | 354 | 333 | 339 | 452 |
| 90% | 357 | 330 | 419 | 450 | 317 | 287 | 229 | 202 | 337 | 311 | 324 | 431 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 524 | 516 | 584 | 621 | 574 | 504 | 400 | 403 | 387 | 370 | 408 | 520 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 363 | 337 | 413 | 512 | 405 | 337 | 263 | 286 | 347 | 349 | 339 | 461 |
| Above Normal (16%) | 370 | 385 | 502 | 610 | 563 | 448 | 351 | 373 | 379 | 349 | 350 | 443 |
| Below Normal (13%) | 639 | 597 | 670 | 625 | 607 | 521 | 403 | 431 | 399 | 348 | 406 | 568 |
| Dry (24%) | 654 | 632 | 669 | 691 | 665 | 590 | 477 | 470 | 394 | 373 | 471 | 566 |
| Critical (15%) | 718 | 777 | 824 | 749 | 767 | 765 | 617 | 549 | 464 | 457 | 514 | 612 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 755 | 763 | 797 | 850 | 722 | 650 | 544 | 447 | 409 | 434 | 519 | 639 |
| 20% | 723 | 716 | 785 | 760 | 676 | 594 | 493 | 414 | 386 | 393 | 453 | 629 |
| 30% | 706 | 675 | 747 | 741 | 613 | 536 | 443 | 400 | 368 | 377 | 436 | 611 |
| 40% | 696 | 649 | 712 | 723 | 574 | 497 | 386 | 370 | 354 | 359 | 420 | 582 |
| 50% | 682 | 619 | 689 | 674 | 540 | 468 | 358 | 351 | 342 | 346 | 399 | 566 |
| 60% | 672 | 602 | 669 | 601 | 489 | 430 | 334 | 340 | 329 | 338 | 369 | 552 |
| 70% | 657 | 573 | 609 | 510 | 451 | 373 | 317 | 324 | 318 | 326 | 355 | 532 |
| 80% | 620 | 534 | 528 | 458 | 379 | 314 | 282 | 306 | 303 | 310 | 336 | 505 |
| 90% | 522 | 471 | 461 | 429 | 297 | 288 | 233 | 203 | 281 | 292 | 327 | 438 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 656 | 613 | 654 | 632 | 530 | 471 | 382 | 352 | 348 | 362 | 408 | 555 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 561 | 561 | 593 | 483 | 369 | 333 | 267 | 269 | 323 | 341 | 336 | 478 |
| Above Normal (16%) | 683 | 658 | 696 | 597 | 494 | 412 | 334 | 330 | 331 | 327 | 357 | 575 |
| Below Normal (13%) | 699 | 615 | 648 | 704 | 609 | 507 | 415 | 380 | 327 | 329 | 426 | 593 |
| Dry (24%) | 695 | 584 | 628 | 731 | 609 | 537 | 440 | 391 | 350 | 364 | 450 | 580 |
| Critical (15%) | 729 | 725 | 794 | 763 | 712 | 691 | 557 | 466 | 438 | 470 | 535 | 621 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **53** | **24** | -13 | **50** | -68 | -114 | -68 | -95 | -61 | **4** | -34 | **21** |
| 20% | **48** | **26** | **22** | -5 | -26 | -49 | -45 | -109 | -43 | -5 | **1** | **32** |
| 30% | **44** | **30** | **23** | **62** | -60 | -52 | -23 | -94 | -34 | -10 | **5** | **37** |
| 40% | **62** | **37** | **22** | **72** | -69 | -56 | -49 | -76 | -34 | -17 | **6** | **34** |
| 50% | **101** | **100** | **174** | **44** | -57 | -57 | -10 | -46 | -38 | -13 | 0 | **37** |
| 60% | **278** | **207** | **184** | **5** | -47 | -6 | **5** | -36 | -48 | -12 | -1 | **43** |
| 70% | **277** | **215** | **161** | -54 | -35 | **10** | **8** | -37 | -46 | -13 | **6** | **52** |
| 80% | **252** | **190** | **99** | -56 | -27 | -2 | **0** | -8 | -51 | -23 | -3 | **53** |
| 90% | **165** | **141** | **42** | -21 | -21 | **1** | **4** | **1** | -56 | -19 | **3** | **6** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **132** | **98** | **70** | **11** | -44 | -33 | -17 | -51 | -39 | -9 | **1** | **34** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **198** | **225** | **179** | -29 | -36 | -4 | **4** | -17 | -24 | -7 | -3 | **17** |
| Above Normal (16%) | **313** | **273** | **193** | -13 | -69 | -35 | -16 | -44 | -48 | -22 | **7** | **132** |
| Below Normal (13%) | **60** | **18** | -22 | **80** | **1** | -15 | **12** | -51 | -71 | -18 | **20** | **25** |
| Dry (24%) | **42** | -48 | -41 | **40** | -56 | -53 | -36 | -79 | -44 | -9 | -21 | **14** |
| Critical (15%) | **11** | -51 | -30 | **15** | -55 | -75 | -60 | -83 | -25 | **12** | **21** | **8** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 15-4. Jones Pumping Plant South Delta Exports Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 702 | 739 | 810 | 799 | 790 | 763 | 612 | 542 | 470 | 430 | 553 | 618 |
| 20% | 675 | 691 | 763 | 765 | 702 | 644 | 538 | 524 | 429 | 398 | 452 | 597 |
| 30% | 662 | 645 | 724 | 679 | 673 | 588 | 466 | 494 | 401 | 387 | 431 | 574 |
| 40% | 634 | 611 | 690 | 651 | 643 | 553 | 435 | 445 | 388 | 376 | 414 | 548 |
| 50% | 581 | 519 | 515 | 629 | 598 | 525 | 368 | 397 | 380 | 360 | 399 | 529 |
| 60% | 394 | 396 | 485 | 596 | 537 | 436 | 329 | 375 | 377 | 350 | 370 | 509 |
| 70% | 380 | 358 | 447 | 564 | 486 | 363 | 310 | 361 | 364 | 339 | 349 | 481 |
| 80% | 368 | 344 | 429 | 514 | 406 | 316 | 282 | 314 | 354 | 333 | 339 | 452 |
| 90% | 357 | 330 | 419 | 450 | 317 | 287 | 229 | 202 | 337 | 311 | 324 | 431 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 524 | 516 | 584 | 621 | 574 | 504 | 400 | 403 | 387 | 370 | 408 | 520 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 363 | 337 | 413 | 512 | 405 | 337 | 263 | 286 | 347 | 349 | 339 | 461 |
| Above Normal (16%) | 370 | 385 | 502 | 610 | 563 | 448 | 351 | 373 | 379 | 349 | 350 | 443 |
| Below Normal (13%) | 639 | 597 | 670 | 625 | 607 | 521 | 403 | 431 | 399 | 348 | 406 | 568 |
| Dry (24%) | 654 | 632 | 669 | 691 | 665 | 590 | 477 | 470 | 394 | 373 | 471 | 566 |
| Critical (15%) | 718 | 777 | 824 | 749 | 767 | 765 | 617 | 549 | 464 | 457 | 514 | 612 |

### Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 720 | 763 | 818 | 805 | 734 | 834 | 664 | 608 | 443 | 454 | 496 | 616 |
| 20% | 679 | 727 | 765 | 784 | 693 | 807 | 594 | 595 | 406 | 398 | 440 | 586 |
| 30% | 667 | 699 | 745 | 739 | 649 | 772 | 519 | 549 | 389 | 385 | 417 | 567 |
| 40% | 653 | 670 | 725 | 699 | 623 | 723 | 428 | 465 | 382 | 369 | 411 | 556 |
| 50% | 639 | 642 | 708 | 650 | 572 | 653 | 347 | 389 | 376 | 357 | 388 | 551 |
| 60% | 625 | 628 | 688 | 608 | 530 | 506 | 320 | 371 | 367 | 350 | 362 | 541 |
| 70% | 615 | 599 | 593 | 569 | 476 | 369 | 309 | 358 | 355 | 342 | 347 | 530 |
| 80% | 570 | 573 | 540 | 518 | 399 | 313 | 276 | 308 | 346 | 329 | 337 | 500 |
| 90% | 518 | 541 | 471 | 451 | 325 | 277 | 227 | 200 | 320 | 308 | 324 | 457 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 622 | 633 | 665 | 636 | 552 | 579 | 413 | 424 | 376 | 371 | 397 | 536 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 540 | 582 | 589 | 514 | 405 | 360 | 259 | 286 | 344 | 353 | 336 | 485 |
| Above Normal (16%) | 637 | 619 | 672 | 634 | 552 | 523 | 336 | 364 | 373 | 350 | 347 | 550 |
| Below Normal (13%) | 612 | 587 | 655 | 646 | 575 | 622 | 431 | 470 | 374 | 355 | 395 | 511 |
| Dry (24%) | 667 | 651 | 669 | 727 | 632 | 727 | 520 | 519 | 377 | 366 | 445 | 565 |
| Critical (15%) | 715 | 776 | 824 | 740 | 715 | 832 | 633 | 585 | 451 | 453 | 508 | 608 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **18** | **24** | **8** | **6** | -56 | **70** | **53** | **66** | -27 | **25** | -57 | -2 |
| 20% | **4** | **37** | **2** | **19** | -9 | **164** | **56** | **71** | -22 | 0 | -12 | -11 |
| 30% | **4** | **54** | **21** | **60** | -24 | **185** | **53** | **55** | -12 | -2 | -14 | -6 |
| 40% | **19** | **58** | **35** | **48** | -20 | **170** | -7 | **20** | -6 | -7 | -3 | **8** |
| 50% | **58** | **123** | **193** | **21** | -26 | **128** | -21 | -8 | -4 | -2 | -11 | **22** |
| 60% | **230** | **232** | **203** | **13** | -7 | **70** | -10 | -4 | -10 | **0** | -8 | **32** |
| 70% | **234** | **240** | **146** | **5** | -10 | **6** | -1 | -3 | -9 | **3** | -2 | **49** |
| 80% | **202** | **229** | **112** | **4** | -6 | -3 | -6 | -6 | -7 | -4 | -2 | **48** |
| 90% | **162** | **211** | **52** | **2** | **7** | -10 | -3 | -2 | -17 | -2 | -1 | **26** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **97** | **118** | **81** | **15** | -22 | **76** | **13** | **21** | -11 | **0** | -10 | **16** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **177** | **245** | **176** | **2** | **0** | **23** | -4 | 0 | -3 | **4** | -3 | **24** |
| Above Normal (16%) | **267** | **233** | **170** | **25** | -11 | **75** | -15 | -9 | -6 | **1** | -4 | **107** |
| Below Normal (13%) | -27 | -10 | -15 | **22** | -32 | **101** | **29** | **39** | -25 | **7** | -10 | -57 |
| Dry (24%) | **13** | **19** | 0 | **36** | -32 | **137** | **43** | **48** | -17 | -7 | -26 | -1 |
| Critical (15%) | -4 | -1 | 0 | -9 | -52 | **66** | **17** | **36** | -13 | -4 | -7 | -5 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

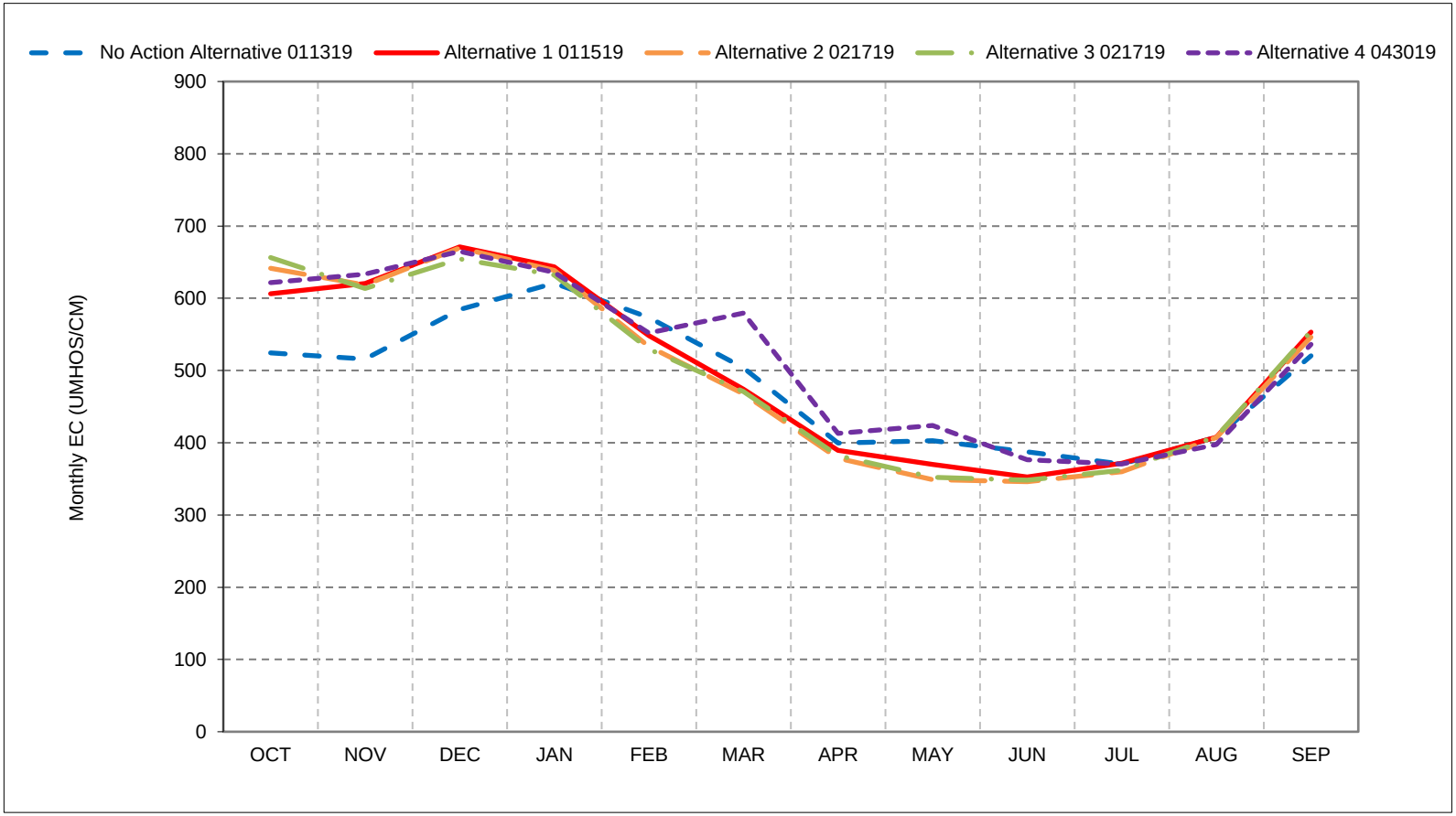
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

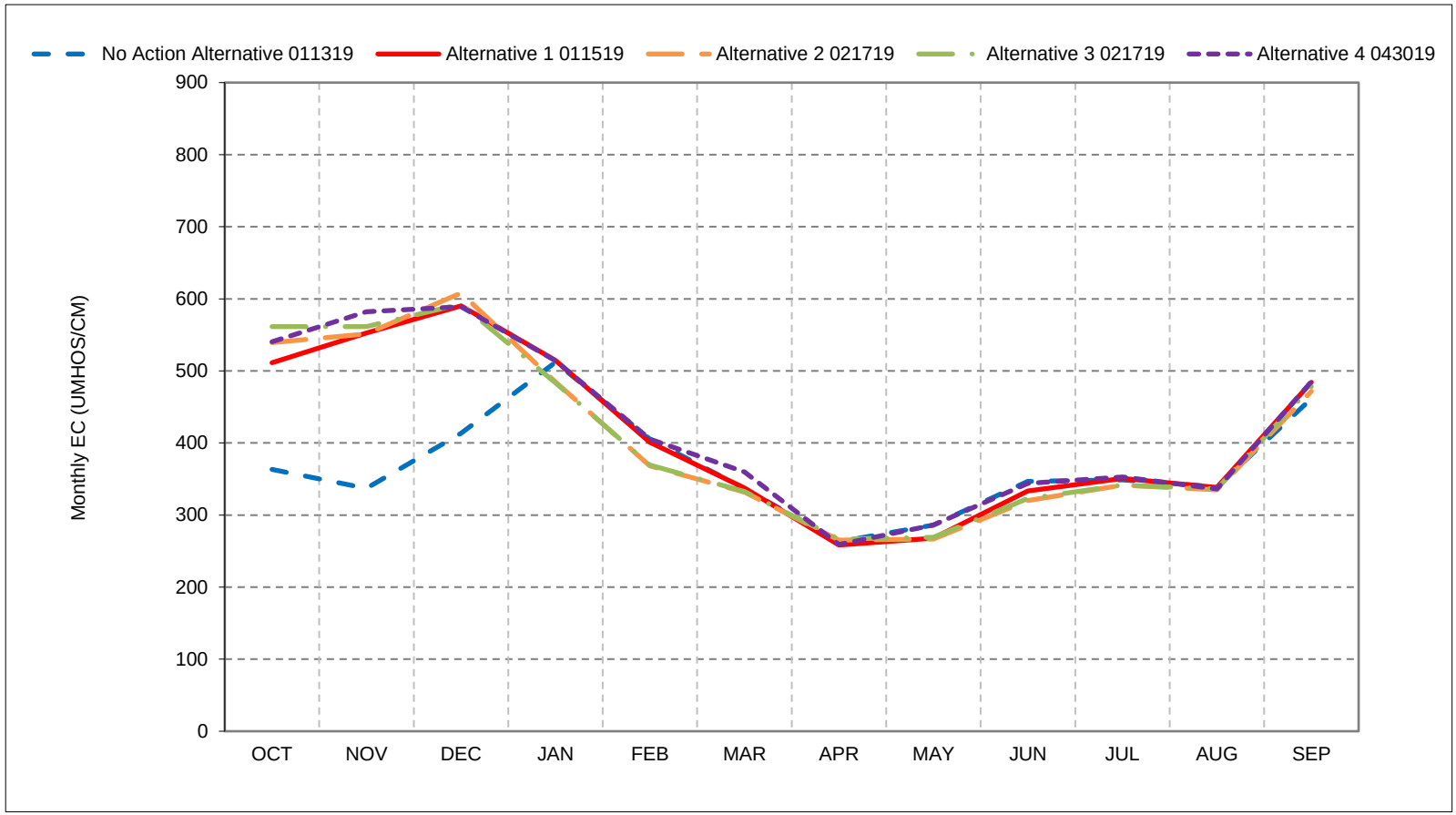
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-1. Jones Pumping Plant South Delta Exports Salinity, Long-Term Average EC



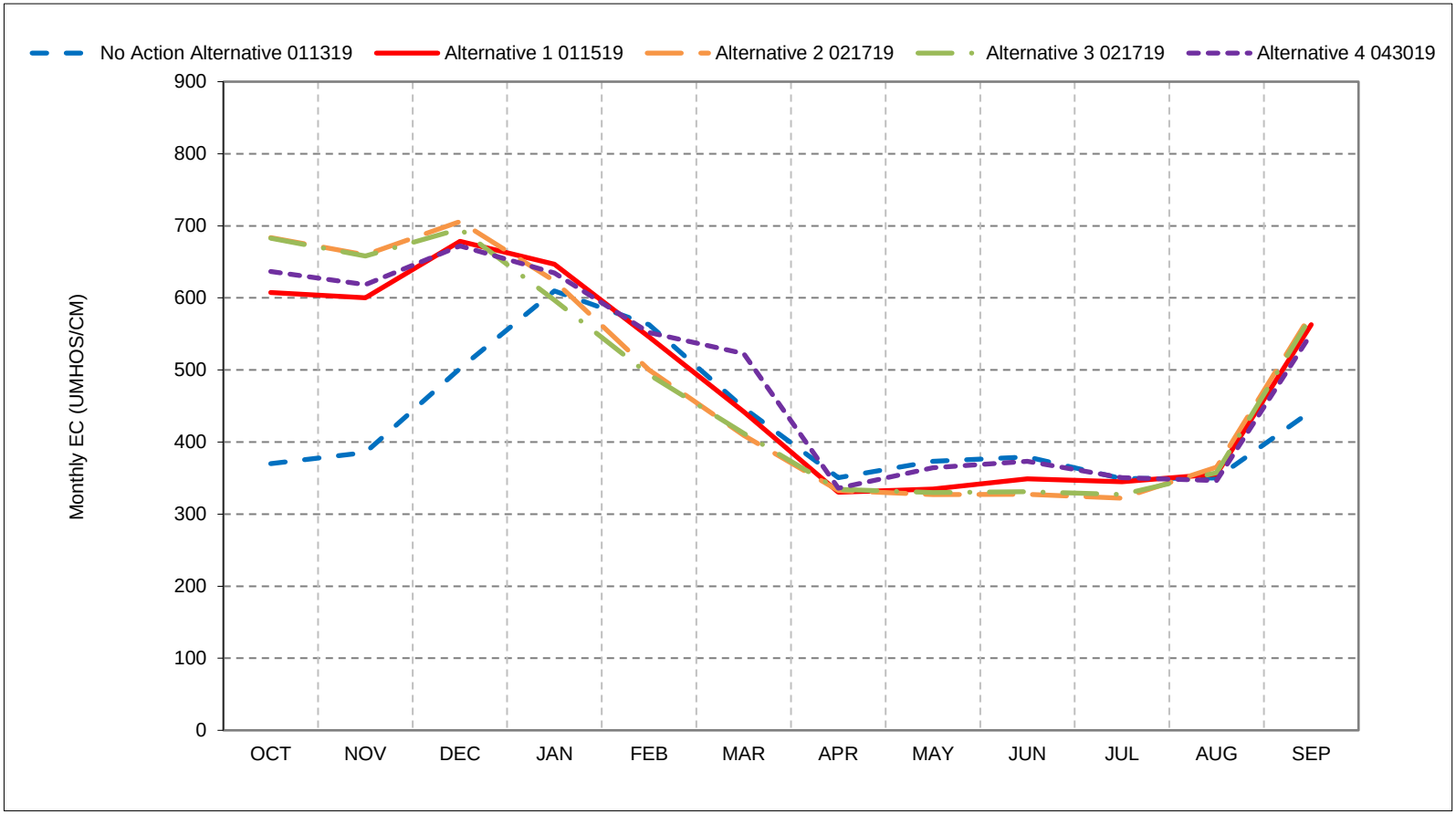

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-2. Jones Pumping Plant South Delta Exports Salinity, Wet Year Average EC



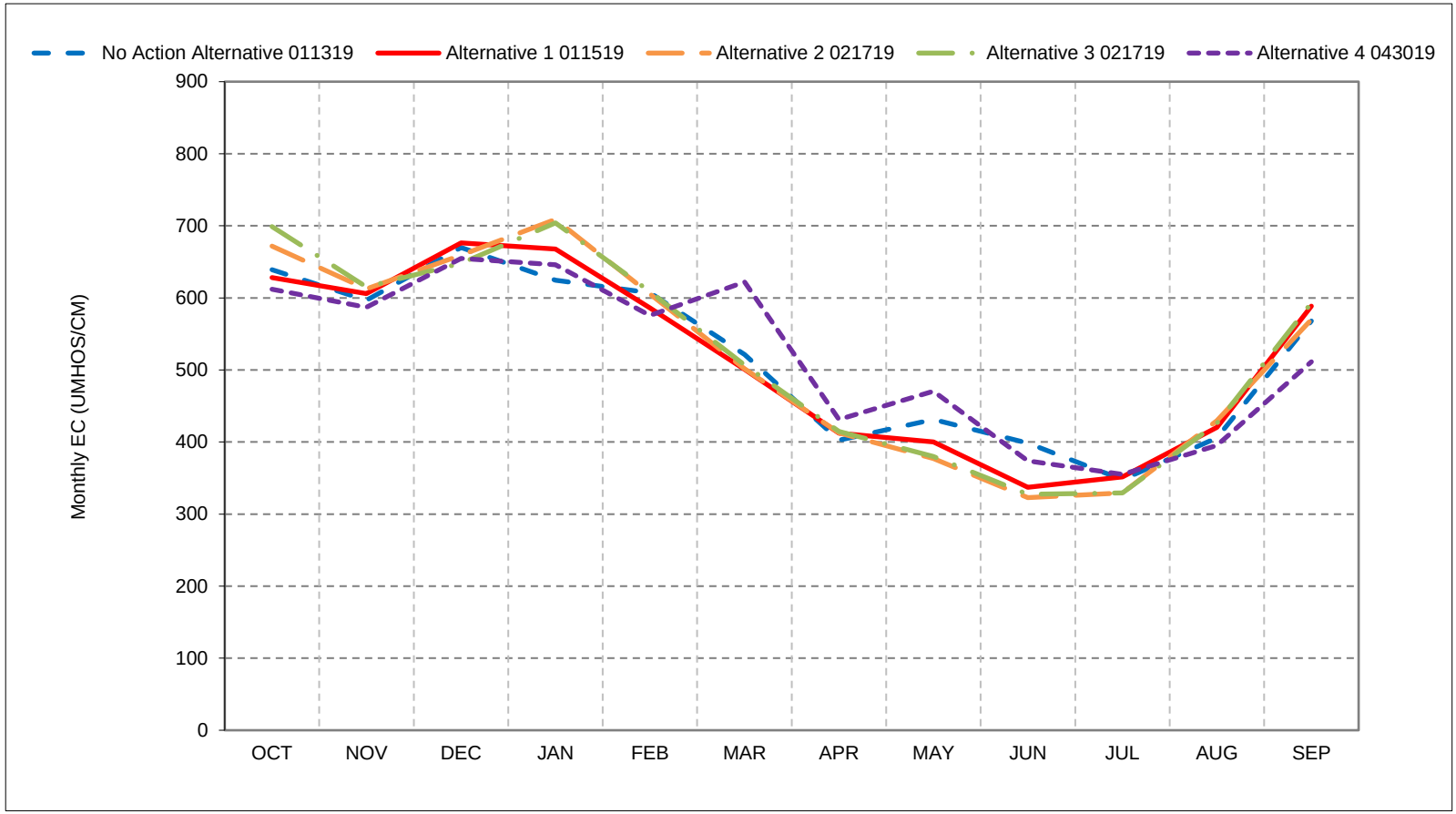

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-3. Jones Pumping Plant South Delta Exports Salinity, Above Normal Year Average EC



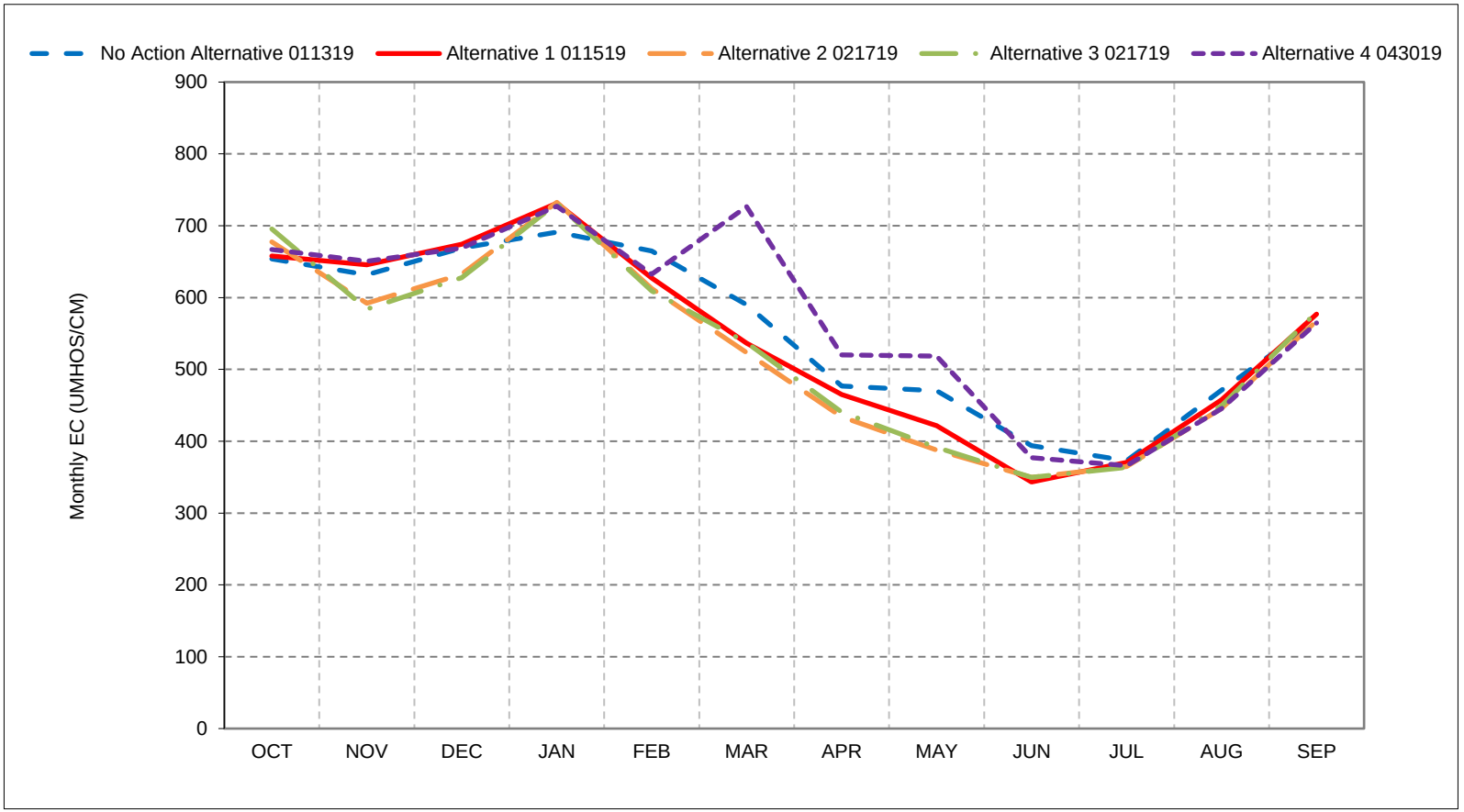

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-4. Jones Pumping Plant South Delta Exports Salinity, Below Normal Year Average EC



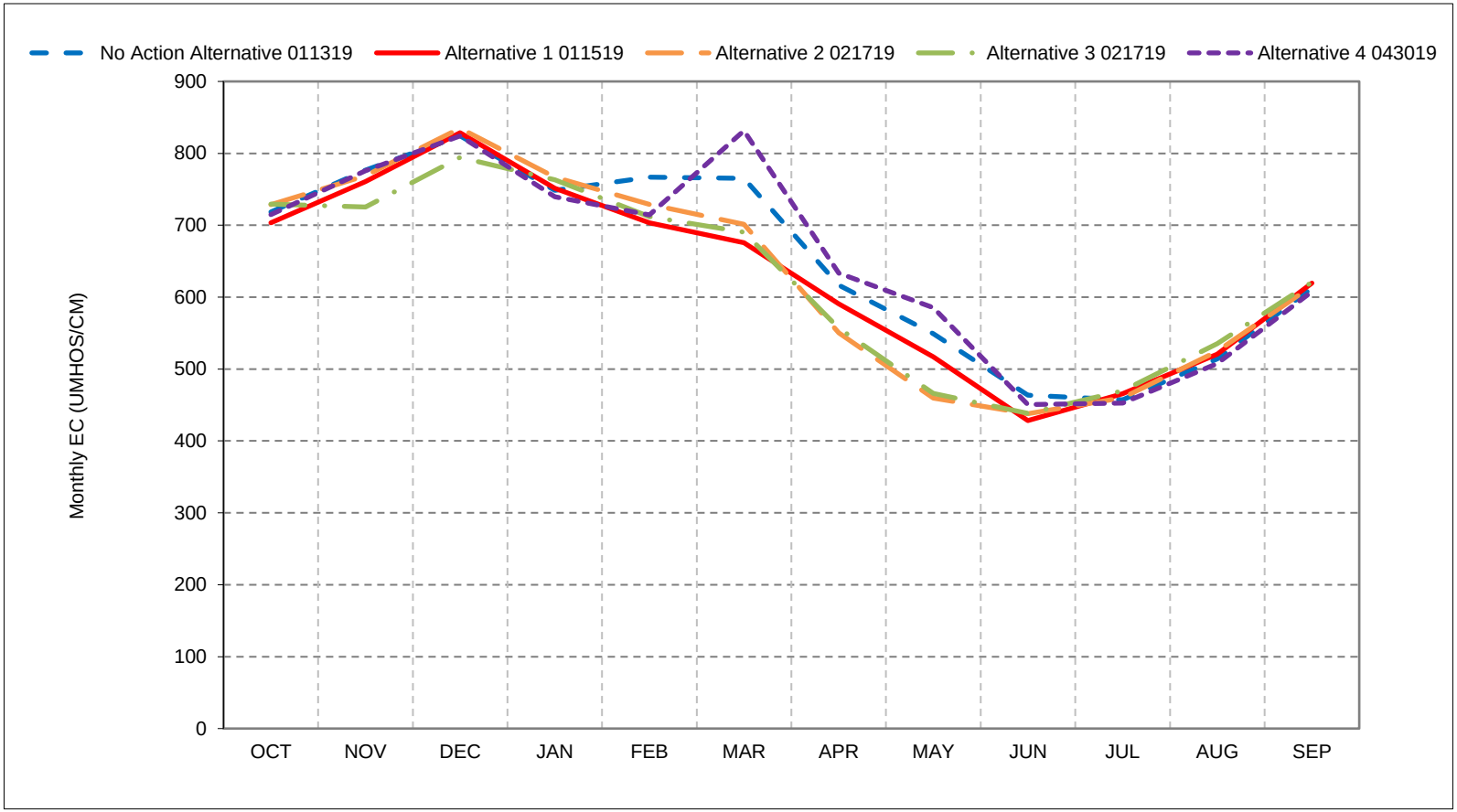

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-5. Jones Pumping Plant South Delta Exports Salinity, Dry Year Average EC



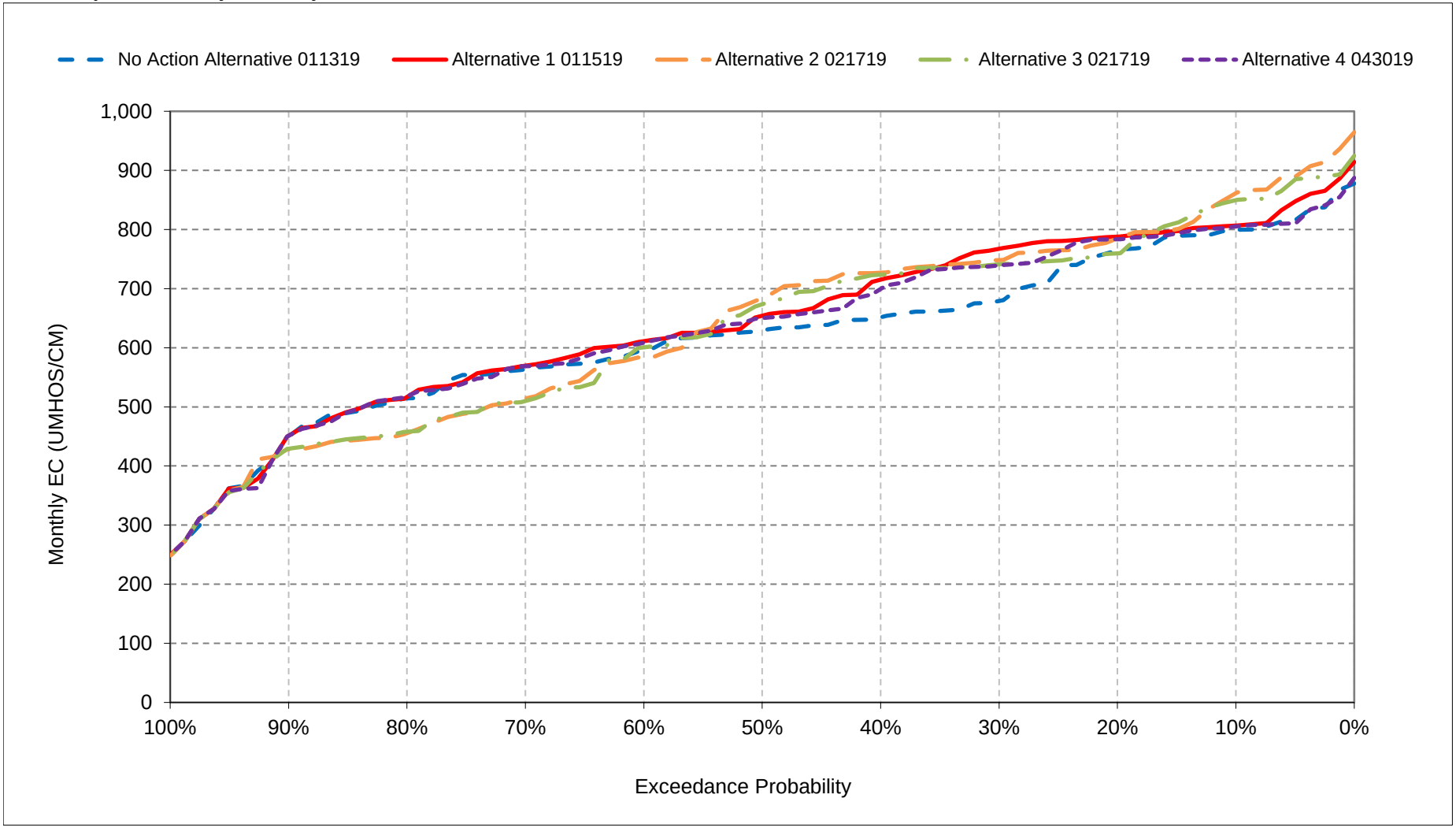

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 15-6. Jones Pumping Plant South Delta Exports Salinity, Critical Year Average EC




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

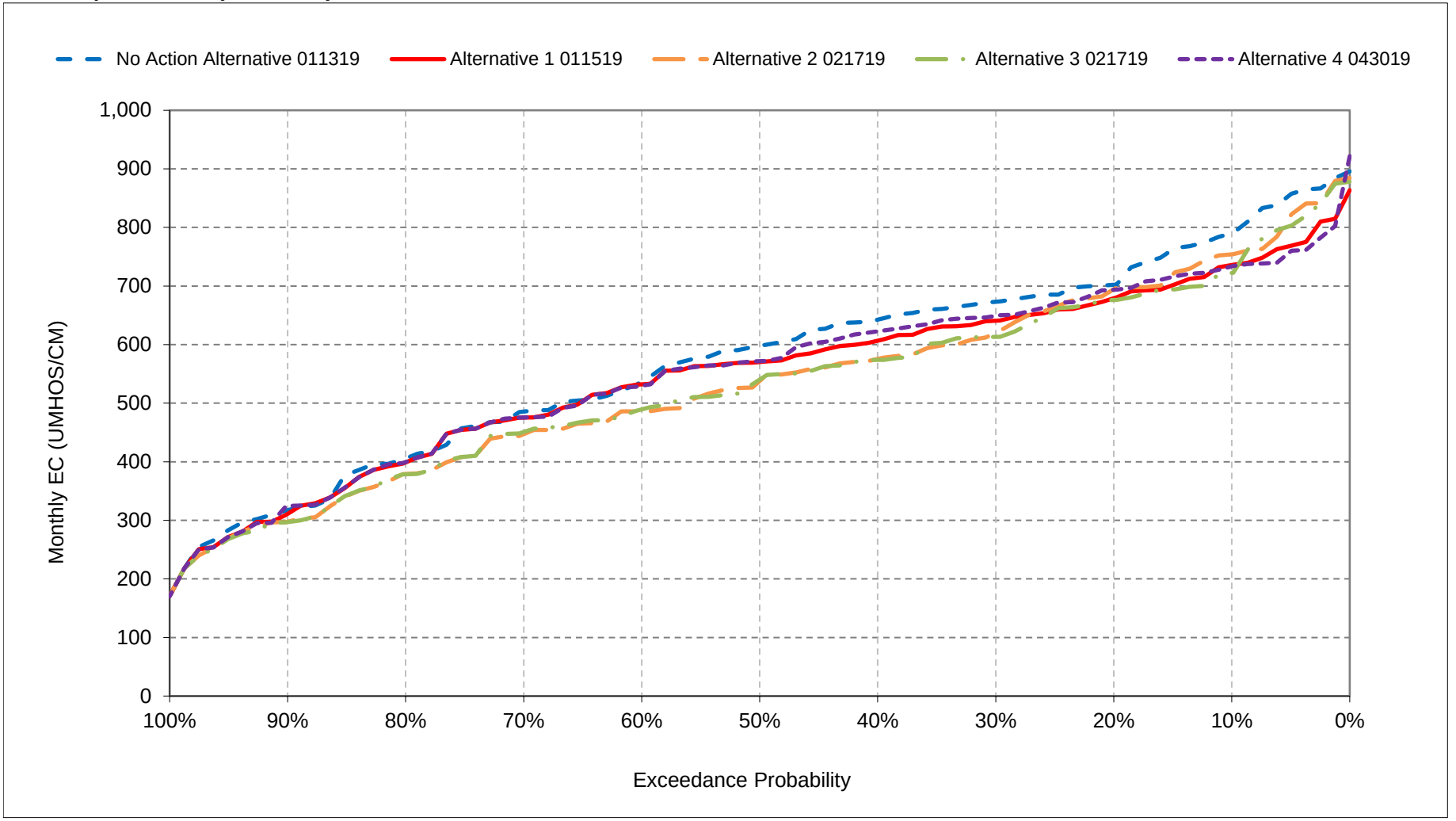
**Figure 15-7. Jones Pumping Plant South Delta Exports Salinity, January EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

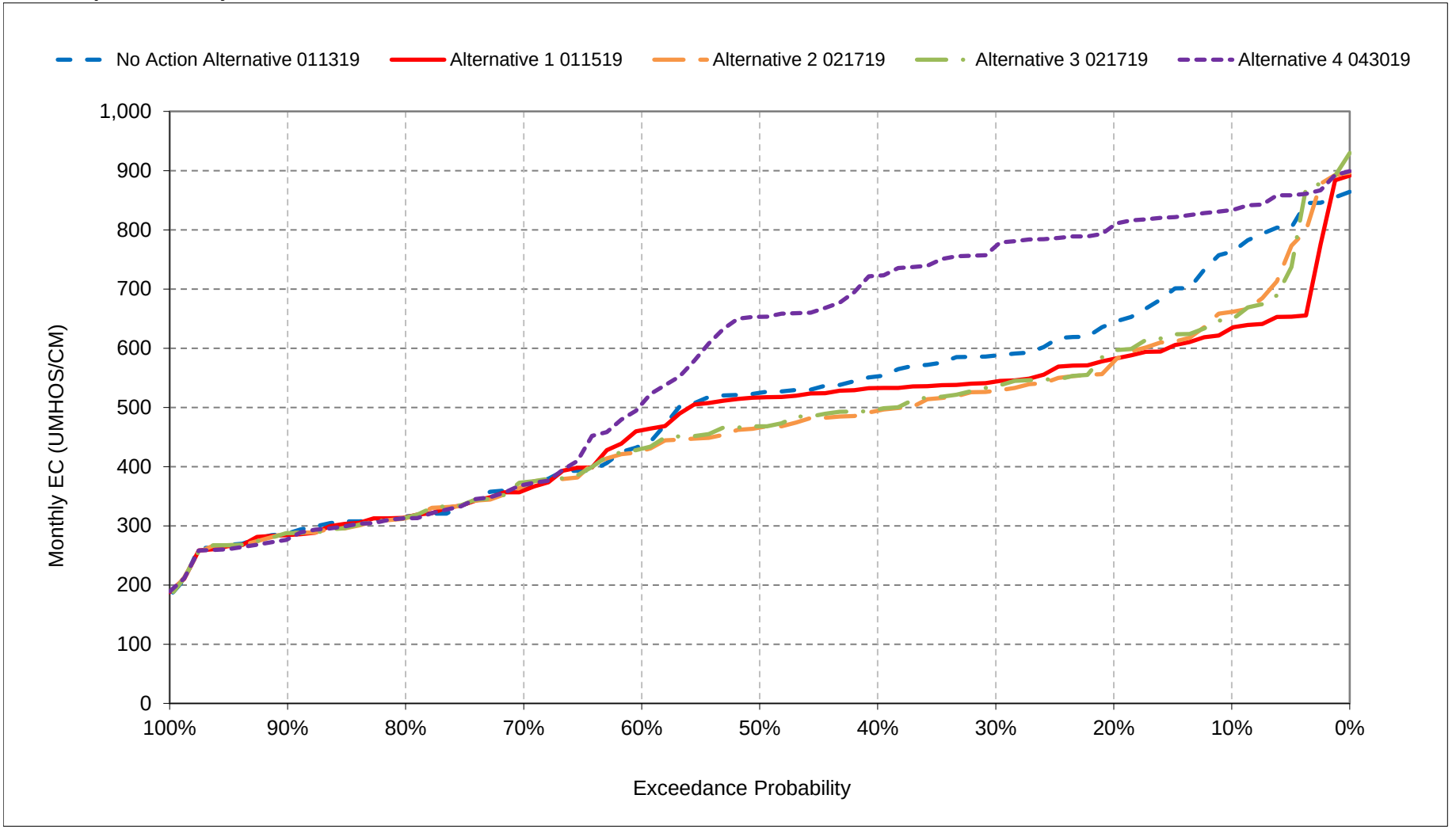
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 15-8. Jones Pumping Plant South**
**Delta Exports Salinity, February EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

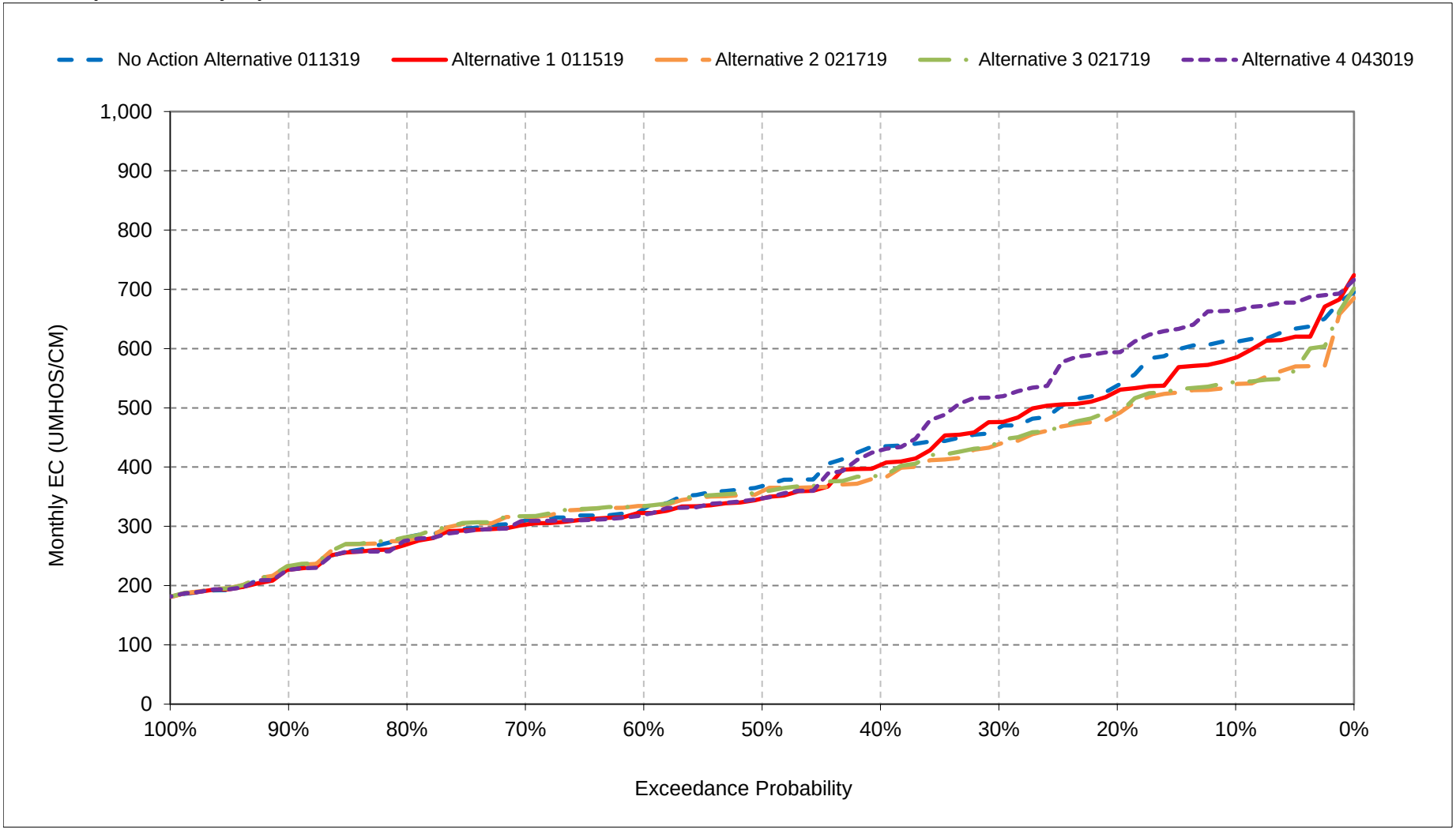
**Figure 15-9. Jones Pumping Plant South Delta Exports Salinity, March EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

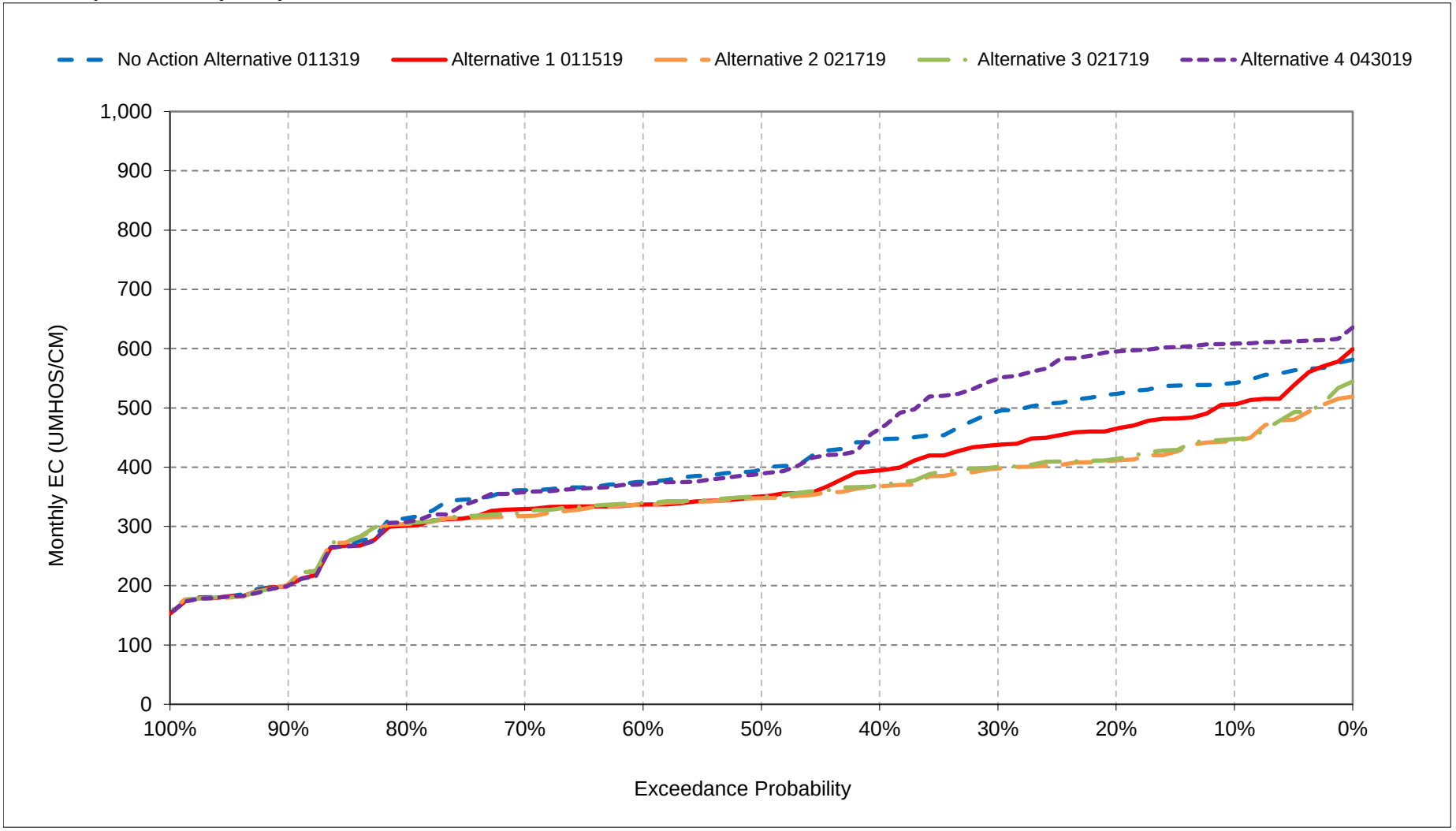
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 15-10. Jones Pumping Plant South**
**Delta Exports Salinity, April EC**



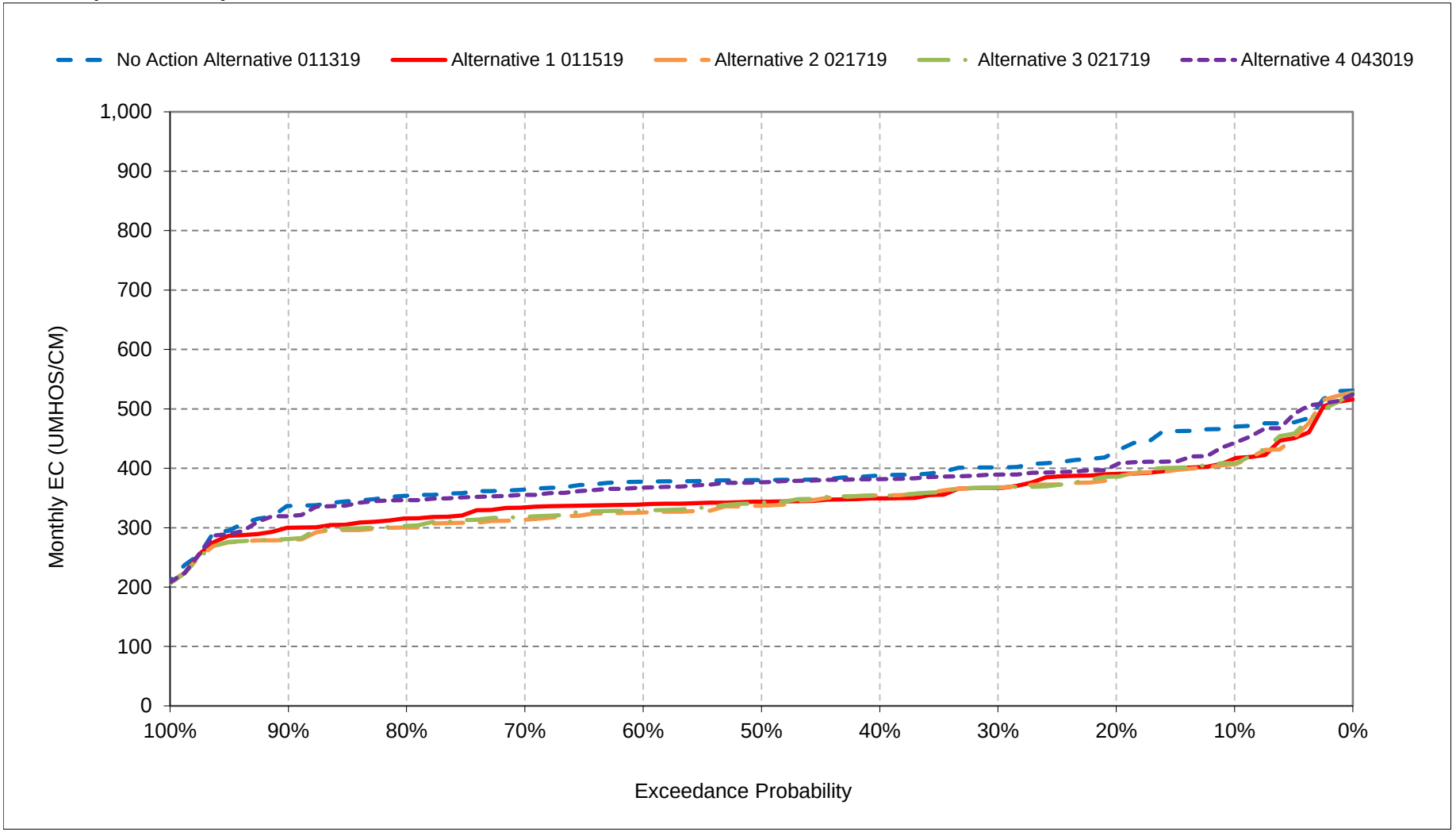

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 15-11. Jones Pumping Plant South**
**Delta Exports Salinity, May EC**



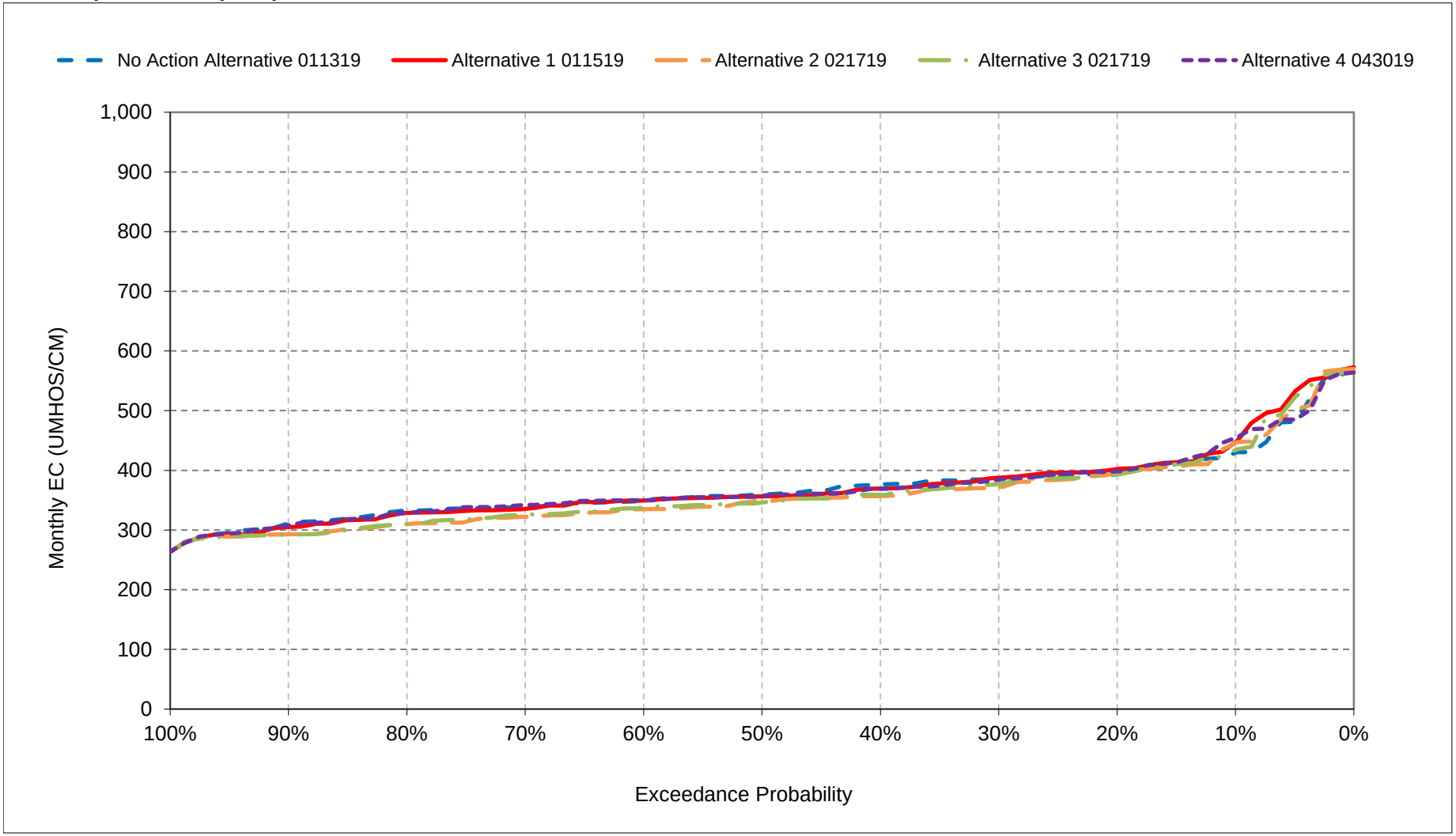

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 15-12. Jones Pumping Plant South**
**Delta Exports Salinity, June EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

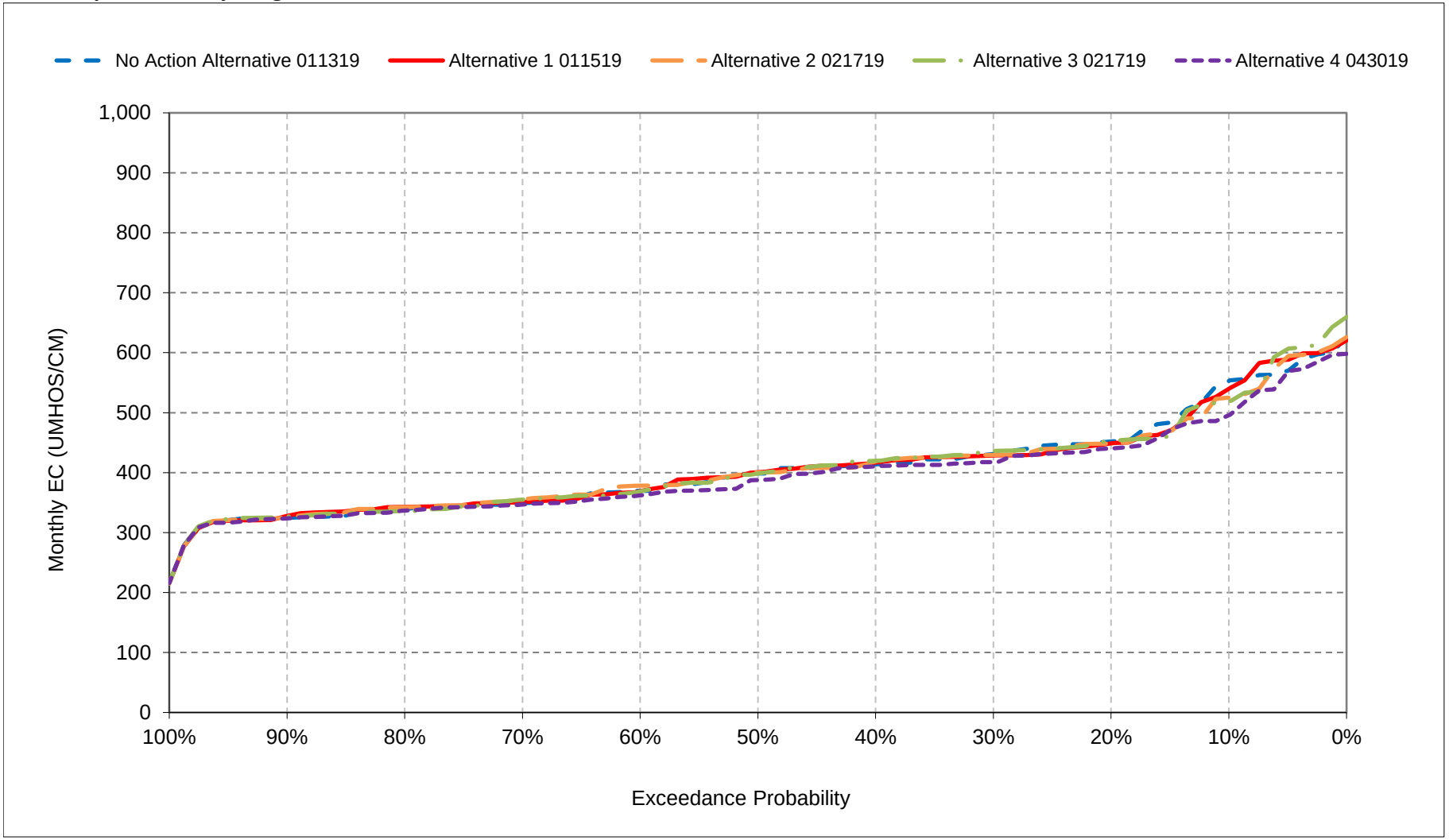
**Figure 15-13. Jones Pumping Plant South Delta Exports Salinity, July EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

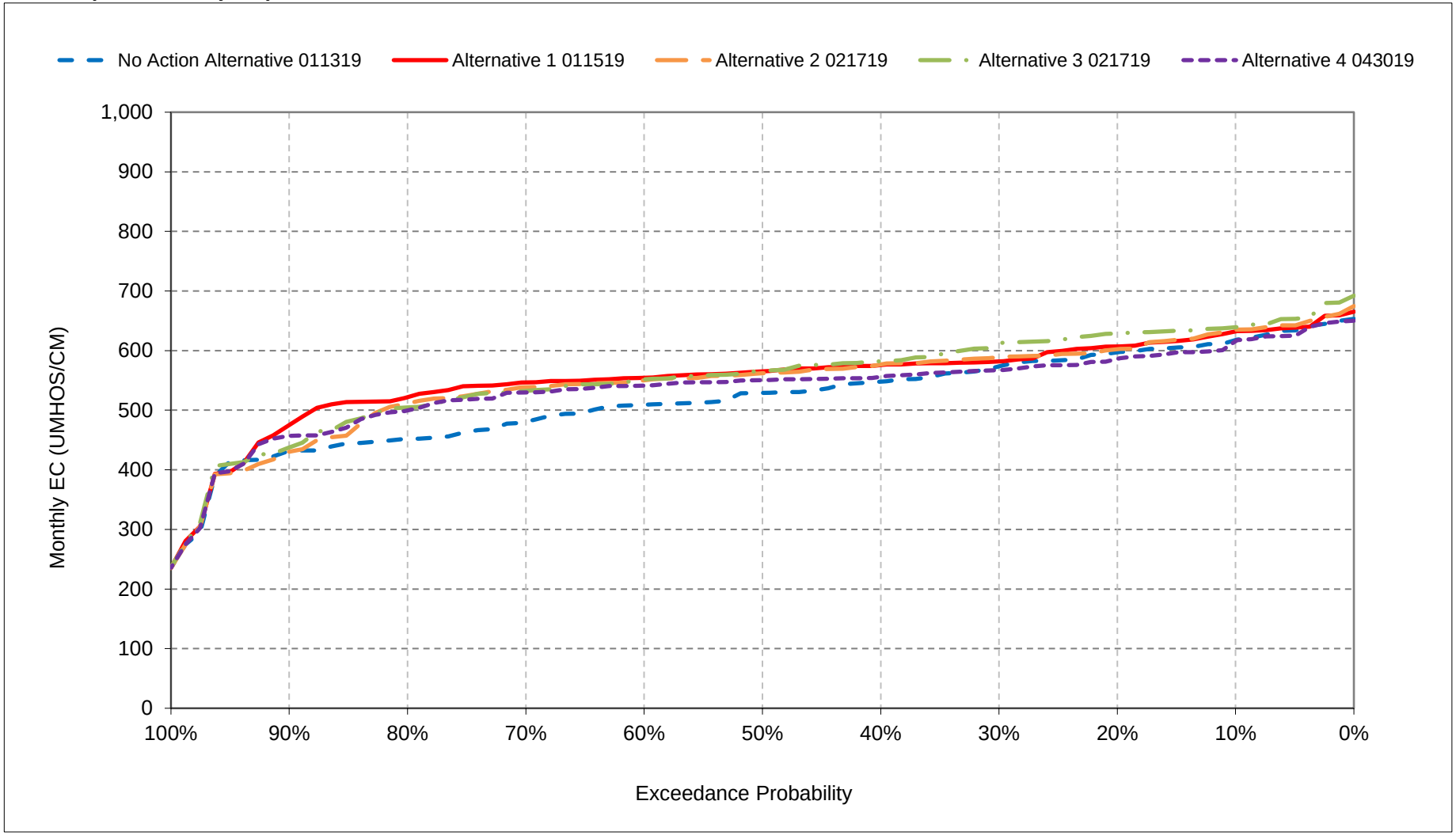
**Figure 15-14. Jones Pumping Plant South Delta Exports Salinity, August EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

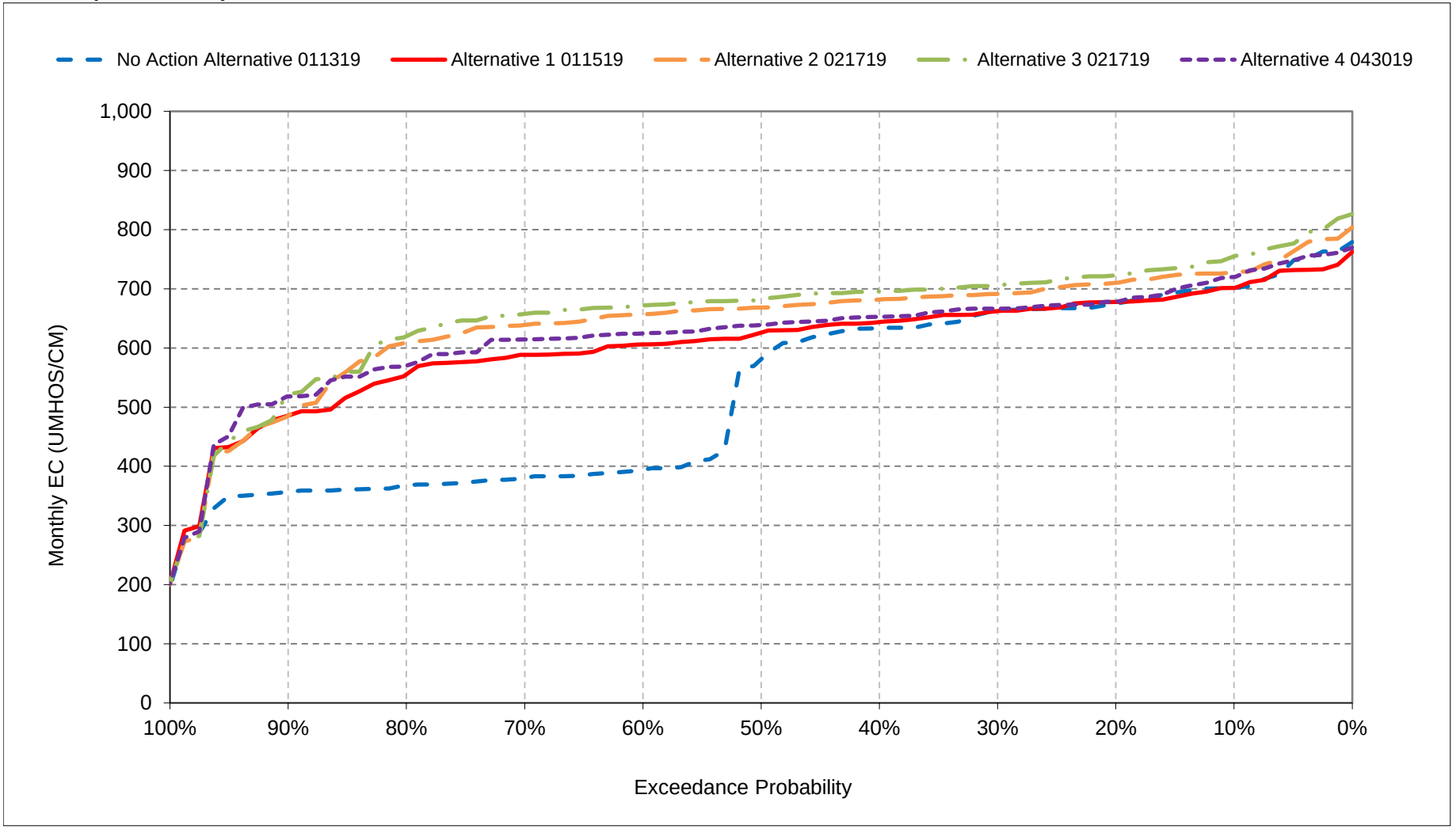
**Figure 15-15. Jones Pumping Plant South Delta Exports Salinity, September EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

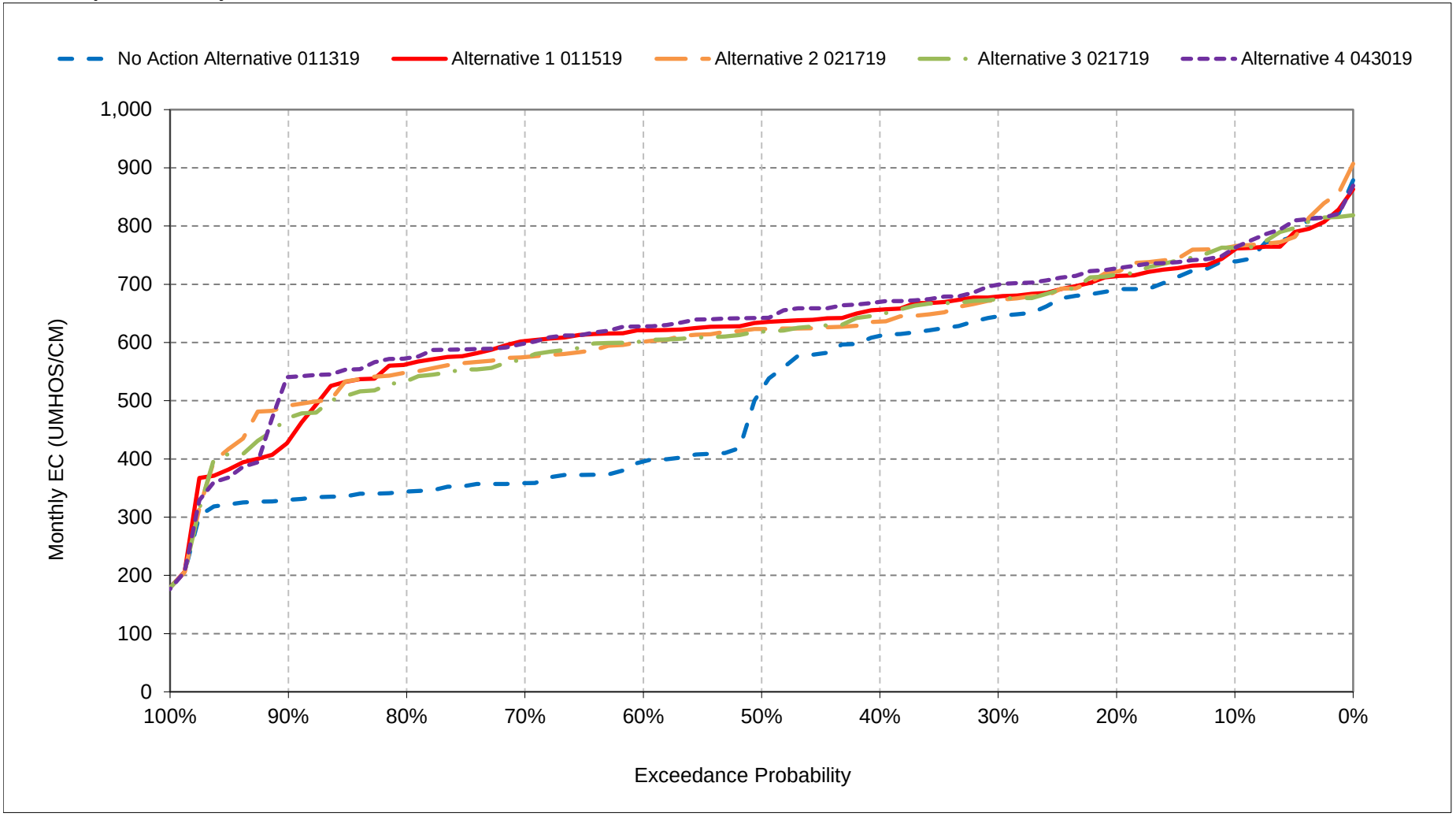
**Figure 15-16. Jones Pumping Plant South Delta Exports Salinity, October EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

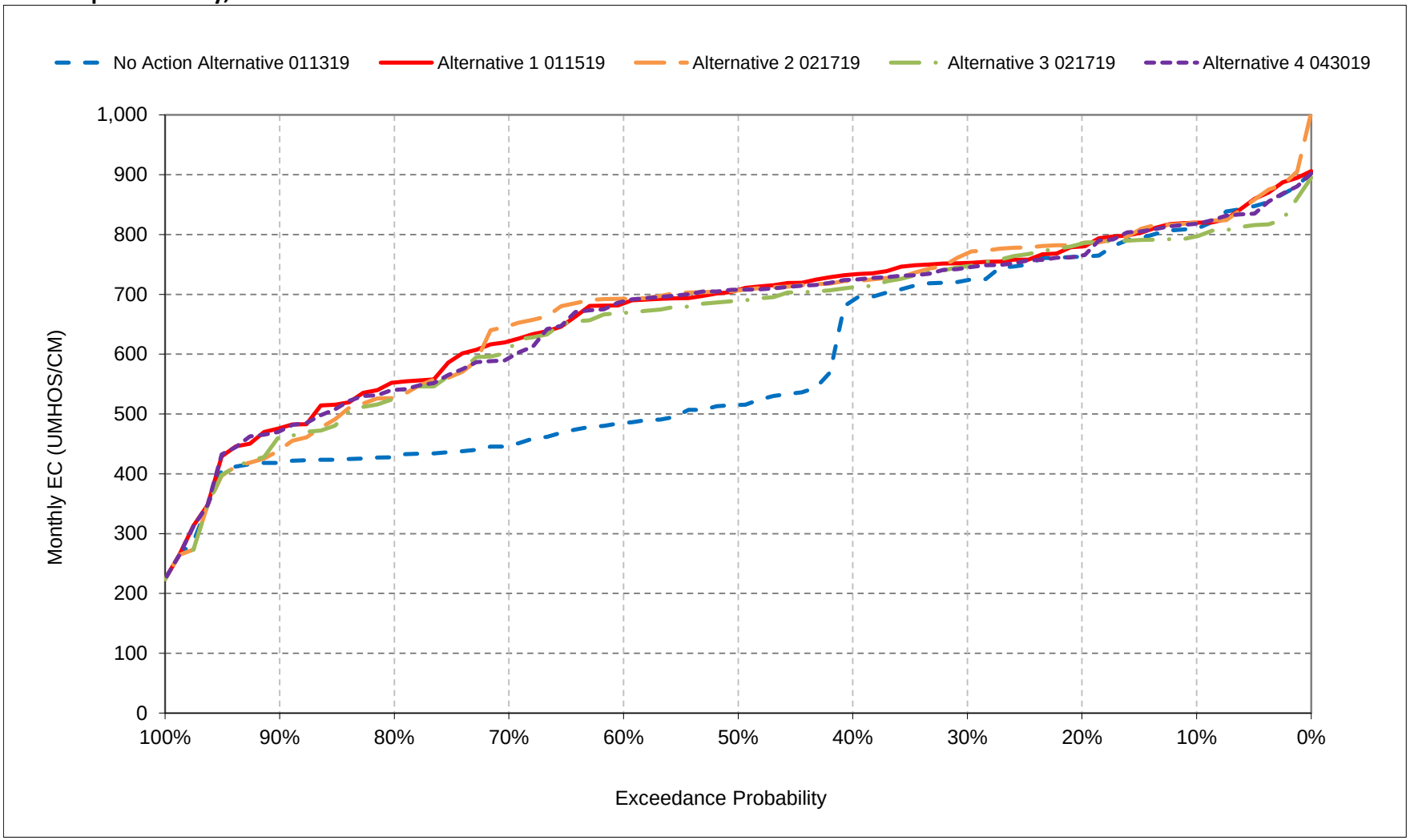
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 15-17. Jones Pumping Plant South Delta Exports Salinity, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 15-18. Jones Pumping Plant South Delta Exports Salinity, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 16-1. Banks Pumping Plant South Delta Exports Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 727 | 768 | 860 | 816 | 682 | 594 | 559 | 530 | 487 | 425 | 528 | 598 |
| 20% | 698 | 706 | 771 | 762 | 600 | 531 | 491 | 471 | 446 | 376 | 412 | 577 |
| 30% | 675 | 653 | 714 | 633 | 556 | 487 | 445 | 449 | 397 | 330 | 391 | 555 |
| 40% | 644 | 624 | 658 | 585 | 534 | 448 | 412 | 421 | 378 | 322 | 366 | 529 |
| 50% | 608 | 521 | 422 | 533 | 495 | 410 | 391 | 377 | 362 | 313 | 360 | 510 |
| 60% | 374 | 336 | 370 | 500 | 477 | 393 | 347 | 351 | 352 | 299 | 332 | 497 |
| 70% | 358 | 322 | 326 | 447 | 431 | 357 | 312 | 330 | 342 | 293 | 312 | 471 |
| 80% | 339 | 306 | 303 | 415 | 370 | 331 | 292 | 307 | 322 | 279 | 297 | 443 |
| 90% | 324 | 299 | 294 | 383 | 343 | 299 | 248 | 201 | 282 | 268 | 278 | 414 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 521 | 507 | 526 | 567 | 504 | 434 | 394 | 384 | 377 | 332 | 370 | 506 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 346 | 300 | 300 | 439 | 390 | 328 | 274 | 270 | 308 | 292 | 303 | 462 |
| Above Normal (16%) | 332 | 343 | 391 | 539 | 496 | 403 | 358 | 356 | 354 | 285 | 303 | 430 |
| Below Normal (13%) | 672 | 612 | 642 | 564 | 517 | 450 | 419 | 422 | 399 | 312 | 364 | 553 |
| Dry (24%) | 675 | 645 | 646 | 657 | 562 | 475 | 448 | 435 | 393 | 339 | 434 | 543 |
| Critical (15%) | 714 | 805 | 858 | 725 | 653 | 611 | 577 | 540 | 505 | 474 | 489 | 576 |

### Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 741 | 799 | 859 | 863 | 676 | 517 | 468 | 421 | 391 | 398 | 519 | 615 |
| 20% | 721 | 761 | 814 | 818 | 611 | 477 | 425 | 393 | 335 | 349 | 401 | 589 |
| 30% | 696 | 725 | 762 | 793 | 541 | 440 | 402 | 377 | 322 | 322 | 388 | 573 |
| 40% | 683 | 695 | 726 | 700 | 518 | 412 | 388 | 354 | 316 | 315 | 367 | 565 |
| 50% | 669 | 662 | 692 | 594 | 486 | 397 | 364 | 321 | 312 | 309 | 353 | 549 |
| 60% | 657 | 650 | 656 | 535 | 437 | 379 | 345 | 312 | 304 | 295 | 333 | 541 |
| 70% | 640 | 640 | 600 | 487 | 426 | 362 | 309 | 302 | 297 | 286 | 309 | 525 |
| 80% | 618 | 593 | 481 | 431 | 371 | 320 | 285 | 292 | 289 | 271 | 298 | 506 |
| 90% | 517 | 400 | 376 | 385 | 323 | 301 | 253 | 222 | 276 | 258 | 285 | 461 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 646 | 655 | 659 | 620 | 492 | 402 | 361 | 335 | 321 | 321 | 368 | 540 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 545 | 587 | 567 | 462 | 382 | 325 | 274 | 256 | 285 | 289 | 302 | 484 |
| Above Normal (16%) | 663 | 627 | 657 | 624 | 493 | 394 | 345 | 315 | 305 | 275 | 308 | 559 |
| Below Normal (13%) | 685 | 630 | 653 | 647 | 516 | 428 | 396 | 357 | 314 | 305 | 381 | 584 |
| Dry (24%) | 698 | 681 | 655 | 738 | 551 | 424 | 394 | 365 | 317 | 327 | 415 | 551 |
| Critical (15%) | 723 | 816 | 871 | 737 | 609 | 515 | 481 | 456 | 432 | 448 | 488 | 579 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **14** | **31** | -1 | **47** | -6 | -77 | -92 | -109 | -96 | -27 | -8 | **17** |
| 20% | **24** | **55** | **43** | **56** | **11** | -54 | -67 | -78 | -111 | -27 | -10 | **12** |
| 30% | **21** | **72** | **49** | **160** | -15 | -48 | -43 | -72 | -75 | -8 | -3 | **18** |
| 40% | **39** | **70** | **68** | **115** | -16 | -37 | -24 | -67 | -61 | -7 | **1** | **37** |
| 50% | **61** | **141** | **270** | **62** | -9 | -14 | -27 | -55 | -50 | -4 | -7 | **39** |
| 60% | **283** | **314** | **286** | **35** | -41 | -14 | -2 | -39 | -48 | -4 | **1** | **43** |
| 70% | **282** | **318** | **274** | **40** | -5 | **5** | -3 | -29 | -46 | -7 | -4 | **54** |
| 80% | **279** | **287** | **178** | **16** | **1** | -11 | -7 | -14 | -33 | -8 | **1** | **64** |
| 90% | **193** | **101** | **82** | **1** | -20 | **2** | **5** | **21** | -6 | -10 | **7** | **48** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **124** | **149** | **132** | **53** | -12 | -32 | -32 | -49 | -56 | -10 | -2 | **34** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **199** | **287** | **267** | **24** | -7 | -2 | 0 | -14 | -23 | -3 | -1 | **22** |
| Above Normal (16%) | **331** | **284** | **266** | **84** | -4 | -8 | -13 | -41 | -49 | -11 | **4** | **129** |
| Below Normal (13%) | **13** | **19** | **11** | **83** | -1 | -22 | -23 | -65 | -85 | -7 | **17** | **31** |
| Dry (24%) | **23** | **36** | **8** | **81** | -11 | -52 | -54 | -70 | -76 | -12 | -19 | **8** |
| Critical (15%) | **9** | **11** | **13** | **11** | -44 | -97 | -96 | -84 | -74 | -25 | -1 | **3** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 16-2. Banks Pumping Plant South Delta Exports Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 727 | 768 | 860 | 816 | 682 | 594 | 559 | 530 | 487 | 425 | 528 | 598 |
| 20% | 698 | 706 | 771 | 762 | 600 | 531 | 491 | 471 | 446 | 376 | 412 | 577 |
| 30% | 675 | 653 | 714 | 633 | 556 | 487 | 445 | 449 | 397 | 330 | 391 | 555 |
| 40% | 644 | 624 | 658 | 585 | 534 | 448 | 412 | 421 | 378 | 322 | 366 | 529 |
| 50% | 608 | 521 | 422 | 533 | 495 | 410 | 391 | 377 | 362 | 313 | 360 | 510 |
| 60% | 374 | 336 | 370 | 500 | 477 | 393 | 347 | 351 | 352 | 299 | 332 | 497 |
| 70% | 358 | 322 | 326 | 447 | 431 | 357 | 312 | 330 | 342 | 293 | 312 | 471 |
| 80% | 339 | 306 | 303 | 415 | 370 | 331 | 292 | 307 | 322 | 279 | 297 | 443 |
| 90% | 324 | 299 | 294 | 383 | 343 | 299 | 248 | 201 | 282 | 268 | 278 | 414 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 521 | 507 | 526 | 567 | 504 | 434 | 394 | 384 | 377 | 332 | 370 | 506 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 346 | 300 | 300 | 439 | 390 | 328 | 274 | 270 | 308 | 292 | 303 | 462 |
| Above Normal (16%) | 332 | 343 | 391 | 539 | 496 | 403 | 358 | 356 | 354 | 285 | 303 | 430 |
| Below Normal (13%) | 672 | 612 | 642 | 564 | 517 | 450 | 419 | 422 | 399 | 312 | 364 | 553 |
| Dry (24%) | 675 | 645 | 646 | 657 | 562 | 475 | 448 | 435 | 393 | 339 | 434 | 543 |
| Critical (15%) | 714 | 805 | 858 | 725 | 653 | 611 | 577 | 540 | 505 | 474 | 489 | 576 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 734 | 780 | 836 | 903 | 695 | 544 | 449 | 397 | 388 | 398 | 502 | 615 |
| 20% | 721 | 748 | 796 | 796 | 593 | 458 | 399 | 381 | 348 | 339 | 404 | 591 |
| 30% | 703 | 684 | 765 | 748 | 512 | 408 | 375 | 367 | 310 | 321 | 389 | 575 |
| 40% | 686 | 658 | 720 | 704 | 475 | 393 | 351 | 328 | 296 | 314 | 368 | 564 |
| 50% | 675 | 635 | 684 | 668 | 440 | 364 | 331 | 314 | 291 | 293 | 351 | 546 |
| 60% | 662 | 605 | 659 | 494 | 406 | 353 | 320 | 310 | 286 | 285 | 335 | 527 |
| 70% | 642 | 591 | 602 | 427 | 371 | 328 | 307 | 296 | 277 | 281 | 314 | 507 |
| 80% | 620 | 545 | 473 | 391 | 332 | 307 | 285 | 283 | 271 | 257 | 304 | 481 |
| 90% | 489 | 490 | 327 | 359 | 311 | 286 | 235 | 221 | 260 | 250 | 293 | 439 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 645 | 630 | 649 | 612 | 473 | 390 | 349 | 327 | 311 | 314 | 369 | 532 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 544 | 564 | 593 | 428 | 338 | 311 | 269 | 254 | 273 | 285 | 303 | 471 |
| Above Normal (16%) | 697 | 687 | 694 | 591 | 430 | 350 | 314 | 302 | 280 | 265 | 320 | 570 |
| Below Normal (13%) | 683 | 622 | 625 | 695 | 579 | 443 | 382 | 343 | 284 | 282 | 395 | 556 |
| Dry (24%) | 684 | 594 | 585 | 735 | 523 | 393 | 370 | 355 | 319 | 322 | 402 | 543 |
| Critical (15%) | 710 | 778 | 852 | 754 | 629 | 547 | 492 | 452 | 442 | 445 | 491 | 584 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **7** | **12** | -24 | **88** | **13** | -50 | -110 | -132 | -99 | -27 | -25 | **17** |
| 20% | **23** | **42** | **25** | **34** | -8 | -74 | -93 | -89 | -98 | -37 | -7 | **14** |
| 30% | **28** | **31** | **52** | **114** | -44 | -79 | -70 | -82 | -87 | -9 | -2 | **20** |
| 40% | **42** | **34** | **62** | **119** | -59 | -55 | -61 | -93 | -82 | -8 | **2** | **35** |
| 50% | **67** | **114** | **262** | **136** | -54 | -46 | -60 | -63 | -71 | -21 | -9 | **36** |
| 60% | **288** | **269** | **289** | -7 | -72 | -40 | -28 | -41 | -66 | -14 | **3** | **30** |
| 70% | **284** | **269** | **276** | -20 | -60 | -29 | -5 | -34 | -65 | -12 | **1** | **36** |
| 80% | **281** | **239** | **170** | -24 | -38 | -23 | -7 | -24 | -51 | -22 | **6** | **39** |
| 90% | **165** | **191** | **33** | -24 | -32 | -12 | -12 | **20** | -22 | -18 | **14** | **25** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **124** | **123** | **123** | **46** | -32 | -44 | -45 | -57 | -66 | -18 | -1 | **26** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **198** | **264** | **293** | -10 | -52 | -17 | -6 | -16 | -35 | -7 | -1 | **9** |
| Above Normal (16%) | **365** | **344** | **303** | **51** | -66 | -52 | -45 | -55 | -74 | -21 | **16** | **140** |
| Below Normal (13%) | **11** | **10** | -17 | **131** | **62** | -8 | -37 | -79 | -115 | -30 | **31** | **3** |
| Dry (24%) | **9** | -51 | -61 | **78** | -39 | -82 | -78 | -79 | -74 | -17 | -32 | 0 |
| Critical (15%) | -3 | -27 | -6 | **28** | -25 | -65 | -84 | -88 | -63 | -29 | **2** | **8** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 16-3. Banks Pumping Plant South Delta Exports Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 727 | 768 | 860 | 816 | 682 | 594 | 559 | 530 | 487 | 425 | 528 | 598 |
| 20% | 698 | 706 | 771 | 762 | 600 | 531 | 491 | 471 | 446 | 376 | 412 | 577 |
| 30% | 675 | 653 | 714 | 633 | 556 | 487 | 445 | 449 | 397 | 330 | 391 | 555 |
| 40% | 644 | 624 | 658 | 585 | 534 | 448 | 412 | 421 | 378 | 322 | 366 | 529 |
| 50% | 608 | 521 | 422 | 533 | 495 | 410 | 391 | 377 | 362 | 313 | 360 | 510 |
| 60% | 374 | 336 | 370 | 500 | 477 | 393 | 347 | 351 | 352 | 299 | 332 | 497 |
| 70% | 358 | 322 | 326 | 447 | 431 | 357 | 312 | 330 | 342 | 293 | 312 | 471 |
| 80% | 339 | 306 | 303 | 415 | 370 | 331 | 292 | 307 | 322 | 279 | 297 | 443 |
| 90% | 324 | 299 | 294 | 383 | 343 | 299 | 248 | 201 | 282 | 268 | 278 | 414 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 521 | 507 | 526 | 567 | 504 | 434 | 394 | 384 | 377 | 332 | 370 | 506 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 346 | 300 | 300 | 439 | 390 | 328 | 274 | 270 | 308 | 292 | 303 | 462 |
| Above Normal (16%) | 332 | 343 | 391 | 539 | 496 | 403 | 358 | 356 | 354 | 285 | 303 | 430 |
| Below Normal (13%) | 672 | 612 | 642 | 564 | 517 | 450 | 419 | 422 | 399 | 312 | 364 | 553 |
| Dry (24%) | 675 | 645 | 646 | 657 | 562 | 475 | 448 | 435 | 393 | 339 | 434 | 543 |
| Critical (15%) | 714 | 805 | 858 | 725 | 653 | 611 | 577 | 540 | 505 | 474 | 489 | 576 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 776 | 776 | 808 | 878 | 661 | 495 | 459 | 405 | 408 | 403 | 498 | 632 |
| 20% | 741 | 744 | 784 | 789 | 602 | 461 | 404 | 385 | 346 | 341 | 403 | 610 |
| 30% | 724 | 700 | 744 | 741 | 510 | 417 | 387 | 371 | 311 | 325 | 392 | 592 |
| 40% | 710 | 664 | 712 | 699 | 473 | 393 | 357 | 333 | 304 | 312 | 372 | 569 |
| 50% | 694 | 647 | 660 | 642 | 438 | 369 | 336 | 320 | 297 | 297 | 352 | 550 |
| 60% | 681 | 615 | 615 | 483 | 410 | 355 | 326 | 313 | 290 | 288 | 331 | 525 |
| 70% | 661 | 576 | 571 | 416 | 369 | 330 | 311 | 301 | 282 | 280 | 312 | 509 |
| 80% | 631 | 541 | 466 | 384 | 328 | 310 | 289 | 288 | 277 | 263 | 304 | 488 |
| 90% | 529 | 484 | 347 | 353 | 310 | 288 | 231 | 219 | 261 | 253 | 289 | 450 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 665 | 626 | 626 | 600 | 465 | 391 | 353 | 332 | 316 | 316 | 371 | 541 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 571 | 578 | 573 | 424 | 338 | 313 | 269 | 256 | 277 | 286 | 306 | 479 |
| Above Normal (16%) | 696 | 682 | 680 | 550 | 416 | 351 | 317 | 306 | 287 | 269 | 312 | 567 |
| Below Normal (13%) | 720 | 627 | 607 | 687 | 580 | 451 | 389 | 348 | 290 | 284 | 391 | 581 |
| Dry (24%) | 710 | 585 | 574 | 725 | 513 | 403 | 381 | 361 | 321 | 322 | 404 | 555 |
| Critical (15%) | 713 | 739 | 790 | 745 | 609 | 530 | 494 | 458 | 447 | 452 | 501 | 591 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **49** | **8** | -52 | **62** | -21 | -99 | -100 | -125 | -79 | -22 | -29 | **34** |
| 20% | **43** | **38** | **12** | **27** | **2** | -70 | -88 | -85 | -100 | -35 | -9 | **33** |
| 30% | **49** | **47** | **31** | **107** | -46 | -71 | -58 | -78 | -86 | -5 | **1** | **37** |
| 40% | **66** | **40** | **54** | **114** | -61 | -56 | -55 | -88 | -74 | -10 | **6** | **40** |
| 50% | **86** | **126** | **238** | **109** | -57 | -41 | -55 | -57 | -65 | -17 | -8 | **40** |
| 60% | **307** | **280** | **246** | -17 | -67 | -38 | -21 | -38 | -61 | -11 | -1 | **27** |
| 70% | **303** | **254** | **245** | -31 | -62 | -27 | -1 | -29 | -60 | -13 | 0 | **38** |
| 80% | **292** | **236** | **163** | -31 | -42 | -21 | -4 | -19 | -45 | -16 | **7** | **45** |
| 90% | **205** | **185** | **53** | -31 | -33 | -11 | -17 | **17** | -21 | -15 | **11** | **36** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **144** | **120** | **100** | **33** | -39 | -42 | -41 | -52 | -61 | -15 | **0** | **36** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **225** | **278** | **273** | -15 | -52 | -15 | -5 | -13 | -31 | -6 | **3** | **17** |
| Above Normal (16%) | **364** | **338** | **289** | **11** | -81 | -52 | -41 | -51 | -68 | -17 | **9** | **136** |
| Below Normal (13%) | **48** | **16** | -36 | **123** | **63** | **1** | -30 | -74 | -109 | -28 | **27** | **28** |
| Dry (24%) | **35** | -60 | -72 | **68** | -49 | -72 | -67 | -74 | -72 | -16 | -29 | **12** |
| Critical (15%) | -1 | -66 | -68 | **20** | -44 | -81 | -83 | -82 | -58 | -21 | **12** | **15** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 16-4. Banks Pumping Plant South Delta Exports Salinity, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 727 | 768 | 860 | 816 | 682 | 594 | 559 | 530 | 487 | 425 | 528 | 598 |
| 20% | 698 | 706 | 771 | 762 | 600 | 531 | 491 | 471 | 446 | 376 | 412 | 577 |
| 30% | 675 | 653 | 714 | 633 | 556 | 487 | 445 | 449 | 397 | 330 | 391 | 555 |
| 40% | 644 | 624 | 658 | 585 | 534 | 448 | 412 | 421 | 378 | 322 | 366 | 529 |
| 50% | 608 | 521 | 422 | 533 | 495 | 410 | 391 | 377 | 362 | 313 | 360 | 510 |
| 60% | 374 | 336 | 370 | 500 | 477 | 393 | 347 | 351 | 352 | 299 | 332 | 497 |
| 70% | 358 | 322 | 326 | 447 | 431 | 357 | 312 | 330 | 342 | 293 | 312 | 471 |
| 80% | 339 | 306 | 303 | 415 | 370 | 331 | 292 | 307 | 322 | 279 | 297 | 443 |
| 90% | 324 | 299 | 294 | 383 | 343 | 299 | 248 | 201 | 282 | 268 | 278 | 414 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 521 | 507 | 526 | 567 | 504 | 434 | 394 | 384 | 377 | 332 | 370 | 506 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 346 | 300 | 300 | 439 | 390 | 328 | 274 | 270 | 308 | 292 | 303 | 462 |
| Above Normal (16%) | 332 | 343 | 391 | 539 | 496 | 403 | 358 | 356 | 354 | 285 | 303 | 430 |
| Below Normal (13%) | 672 | 612 | 642 | 564 | 517 | 450 | 419 | 422 | 399 | 312 | 364 | 553 |
| Dry (24%) | 675 | 645 | 646 | 657 | 562 | 475 | 448 | 435 | 393 | 339 | 434 | 543 |
| Critical (15%) | 714 | 805 | 858 | 725 | 653 | 611 | 577 | 540 | 505 | 474 | 489 | 576 |

### Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 721 | 790 | 852 | 834 | 658 | 624 | 656 | 598 | 511 | 438 | 456 | 587 |
| 20% | 697 | 761 | 791 | 816 | 609 | 582 | 600 | 575 | 411 | 345 | 427 | 563 |
| 30% | 682 | 730 | 736 | 743 | 543 | 543 | 572 | 538 | 401 | 332 | 380 | 545 |
| 40% | 672 | 701 | 715 | 671 | 519 | 522 | 523 | 475 | 379 | 322 | 357 | 538 |
| 50% | 662 | 657 | 691 | 600 | 492 | 493 | 475 | 371 | 362 | 313 | 333 | 528 |
| 60% | 646 | 646 | 657 | 525 | 436 | 451 | 379 | 360 | 351 | 300 | 323 | 520 |
| 70% | 636 | 618 | 611 | 482 | 422 | 384 | 321 | 339 | 343 | 291 | 303 | 496 |
| 80% | 611 | 590 | 474 | 433 | 369 | 331 | 286 | 316 | 331 | 280 | 294 | 478 |
| 90% | 563 | 563 | 375 | 382 | 324 | 303 | 234 | 199 | 286 | 270 | 277 | 427 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 640 | 656 | 648 | 608 | 488 | 469 | 449 | 417 | 376 | 330 | 358 | 514 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 564 | 610 | 564 | 462 | 384 | 344 | 285 | 276 | 310 | 293 | 300 | 478 |
| Above Normal (16%) | 666 | 636 | 651 | 603 | 491 | 462 | 405 | 364 | 355 | 285 | 297 | 537 |
| Below Normal (13%) | 633 | 599 | 614 | 615 | 497 | 521 | 508 | 471 | 378 | 308 | 351 | 483 |
| Dry (24%) | 686 | 673 | 648 | 729 | 547 | 538 | 562 | 515 | 400 | 336 | 401 | 533 |
| Critical (15%) | 704 | 801 | 861 | 721 | 607 | 585 | 609 | 566 | 499 | 465 | 482 | 566 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -6 | **22** | -8 | **18** | -23 | **30** | **97** | **68** | **24** | **14** | -71 | -11 |
| 20% | -1 | **55** | **20** | **54** | **9** | **51** | **109** | **105** | -34 | -32 | **15** | -13 |
| 30% | **7** | **77** | **23** | **109** | -13 | **56** | **126** | **88** | **5** | **2** | -11 | -10 |
| 40% | **28** | **77** | **57** | **86** | -15 | **74** | **111** | **54** | **1** | **1** | -9 | **9** |
| 50% | **54** | **136** | **269** | **67** | -3 | **83** | **85** | -5 | **0** | 0 | -26 | **18** |
| 60% | **272** | **311** | **287** | **24** | -42 | **59** | **31** | **10** | -1 | **2** | -8 | **23** |
| 70% | **278** | **296** | **284** | **35** | -9 | **27** | **8** | **9** | **1** | -3 | -10 | **25** |
| 80% | **273** | **285** | **171** | **18** | -2 | **0** | -6 | **9** | **9** | **1** | -3 | **35** |
| 90% | **239** | **264** | **81** | -2 | -19 | **5** | -14 | -2 | **4** | **2** | -1 | **13** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **118** | **149** | **122** | **41** | -16 | **36** | **55** | **33** | -1 | -2 | -13 | **9** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **218** | **310** | **264** | **23** | -6 | **16** | **11** | **6** | **2** | **1** | -3 | **16** |
| Above Normal (16%) | **334** | **293** | **260** | **63** | -5 | **59** | **46** | **7** | **0** | 0 | -6 | **106** |
| Below Normal (13%) | -39 | -13 | -28 | **51** | -20 | **70** | **89** | **48** | -21 | -4 | -13 | -70 |
| Dry (24%) | **11** | **28** | **2** | **72** | -15 | **63** | **114** | **80** | **7** | -3 | -33 | -10 |
| Critical (15%) | -10 | -4 | **3** | -4 | -47 | -26 | **32** | **25** | -7 | -8 | -7 | -10 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

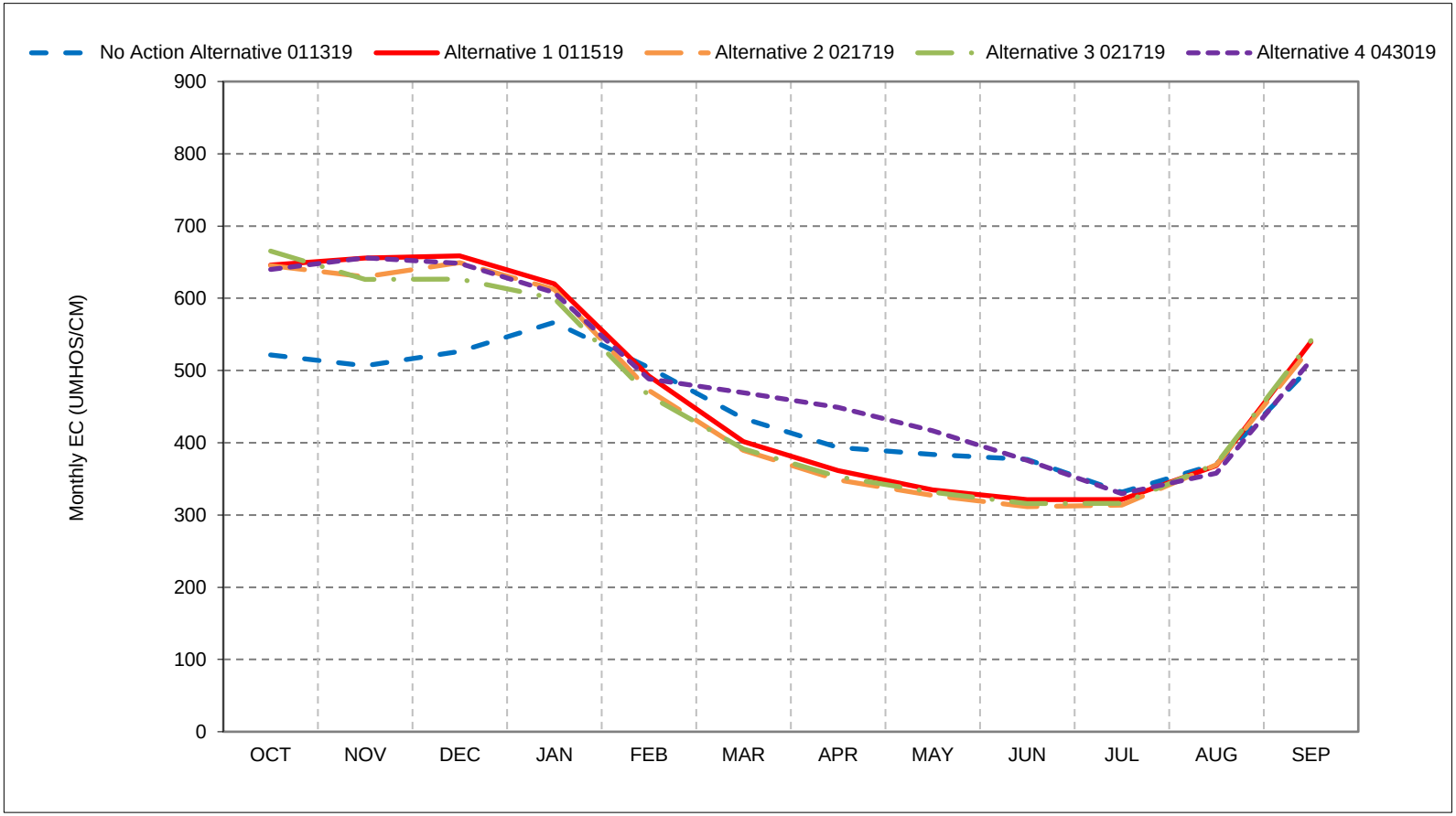
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

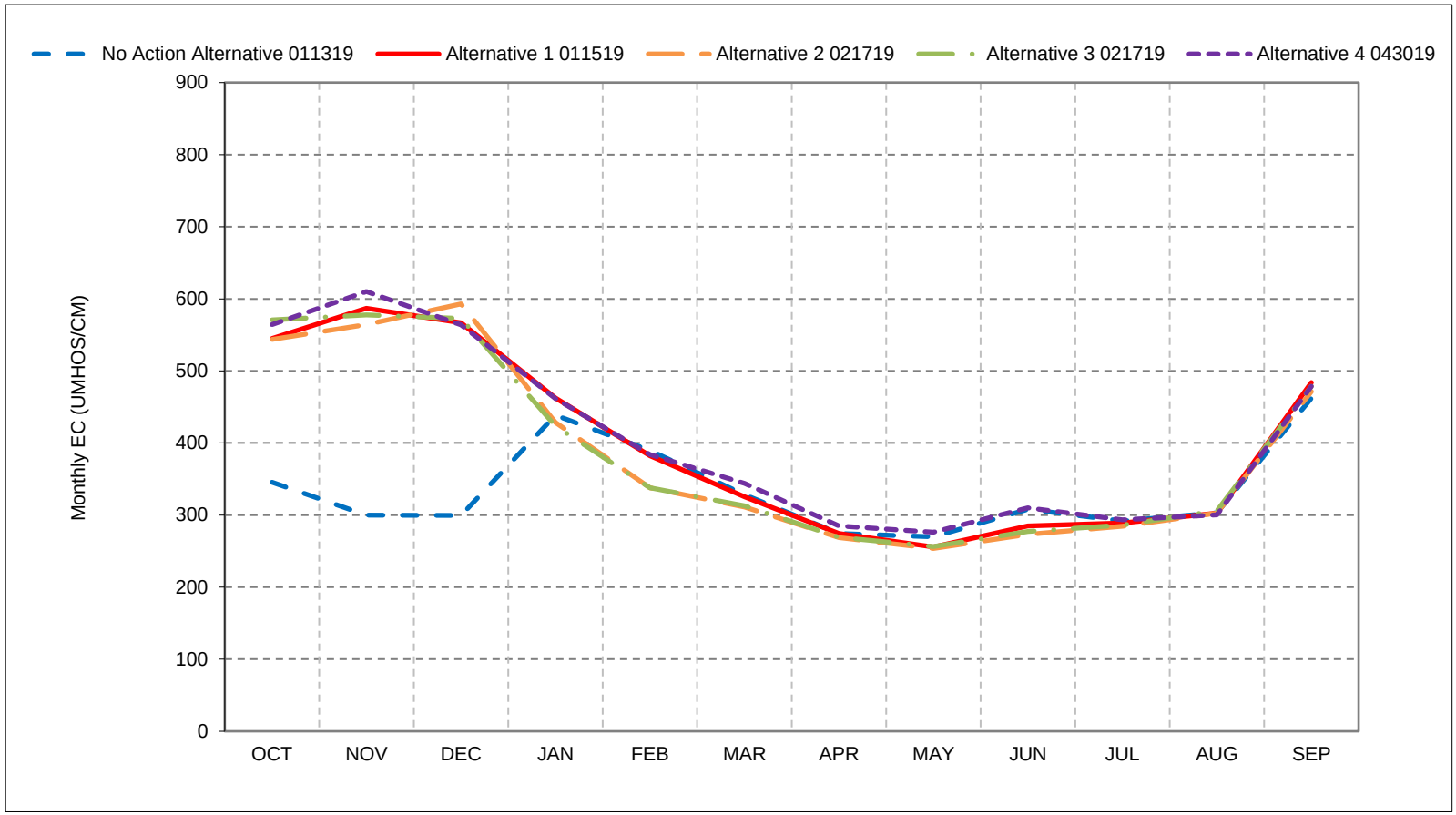
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-1. Banks Pumping Plant South Delta Exports Salinity, Long-Term Average EC



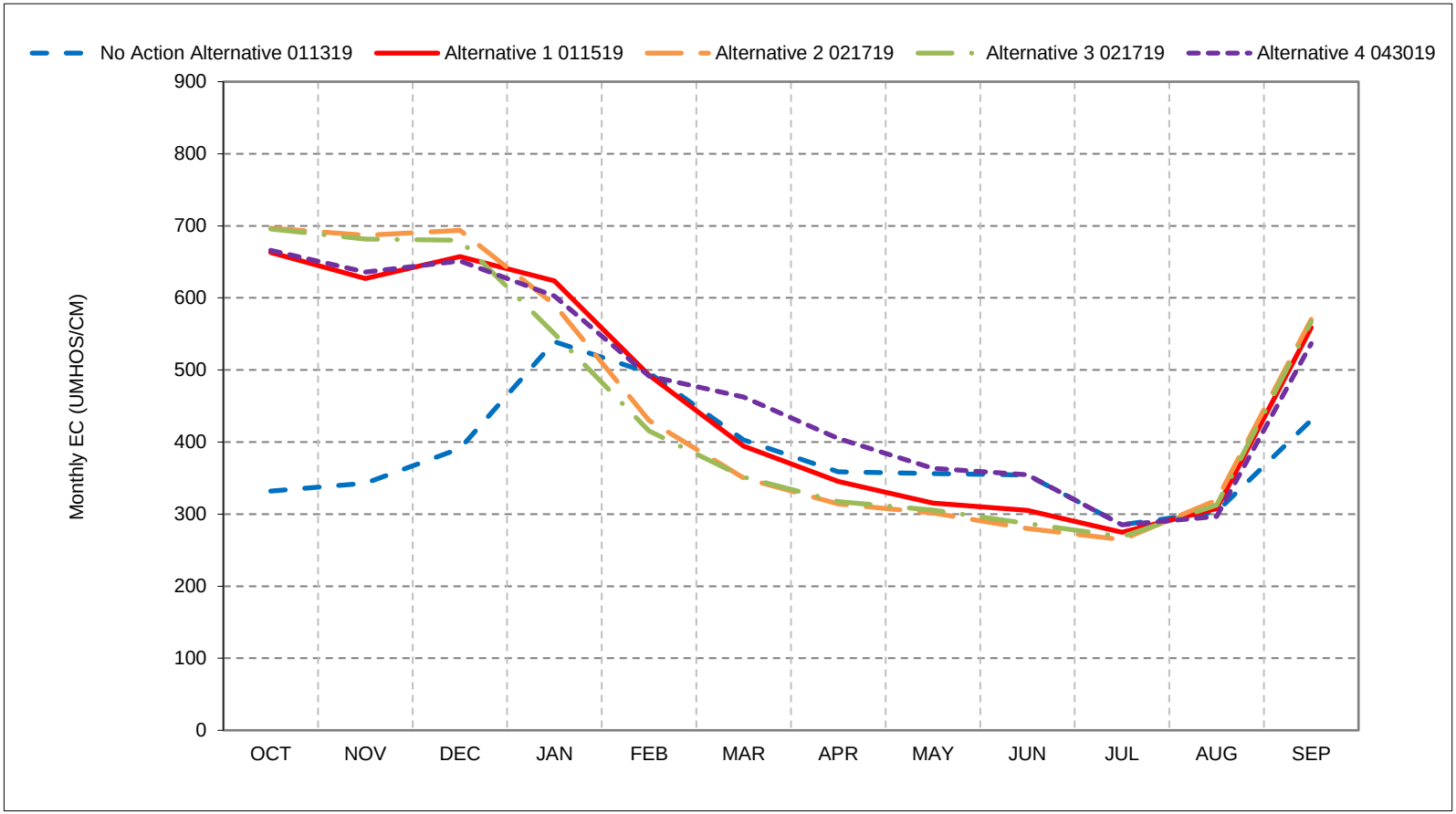

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-2. Banks Pumping Plant South Delta Exports Salinity, Wet Year Average EC



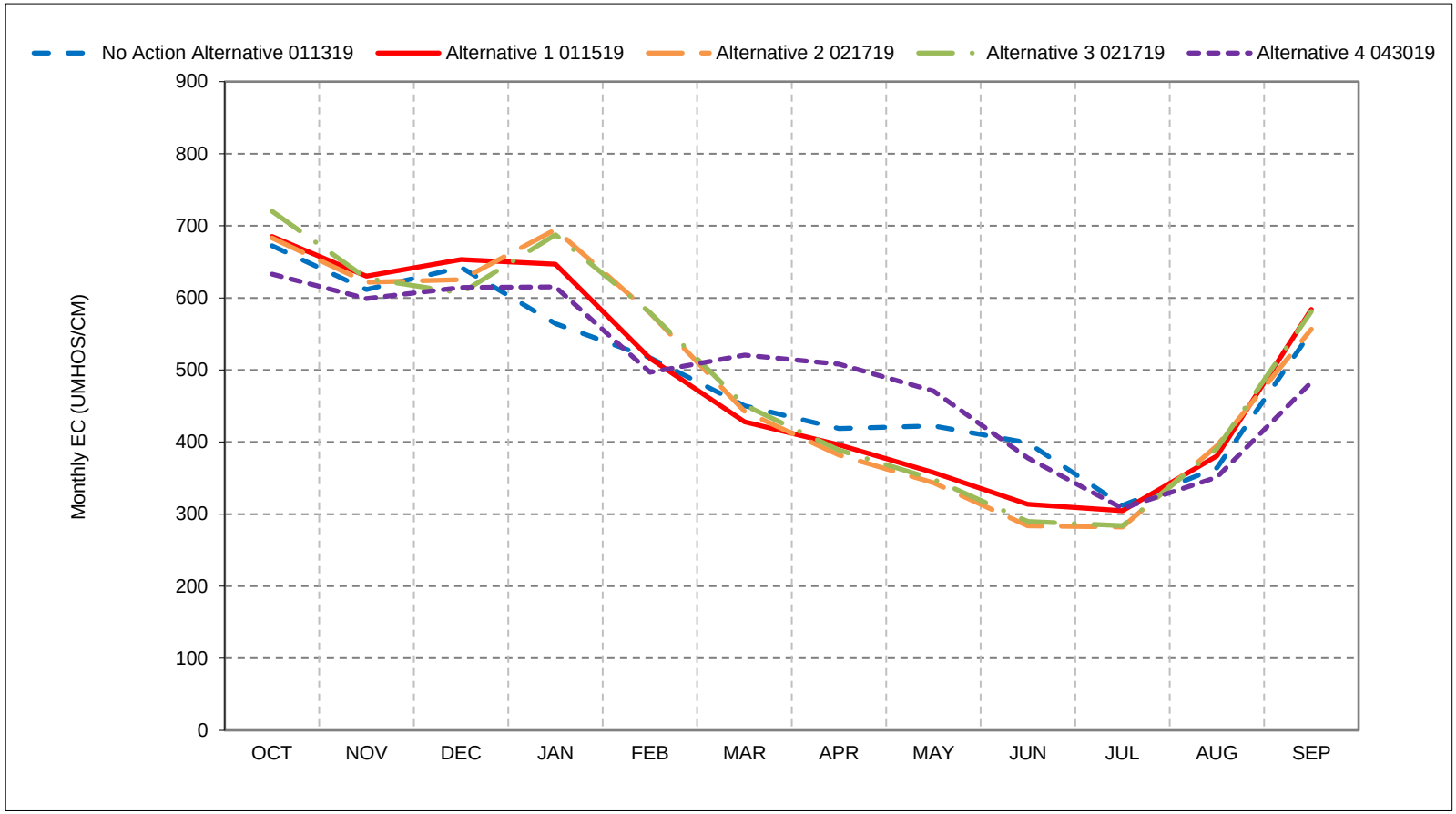

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-3. Banks Pumping Plant South Delta Exports Salinity, Above Normal Year Average EC



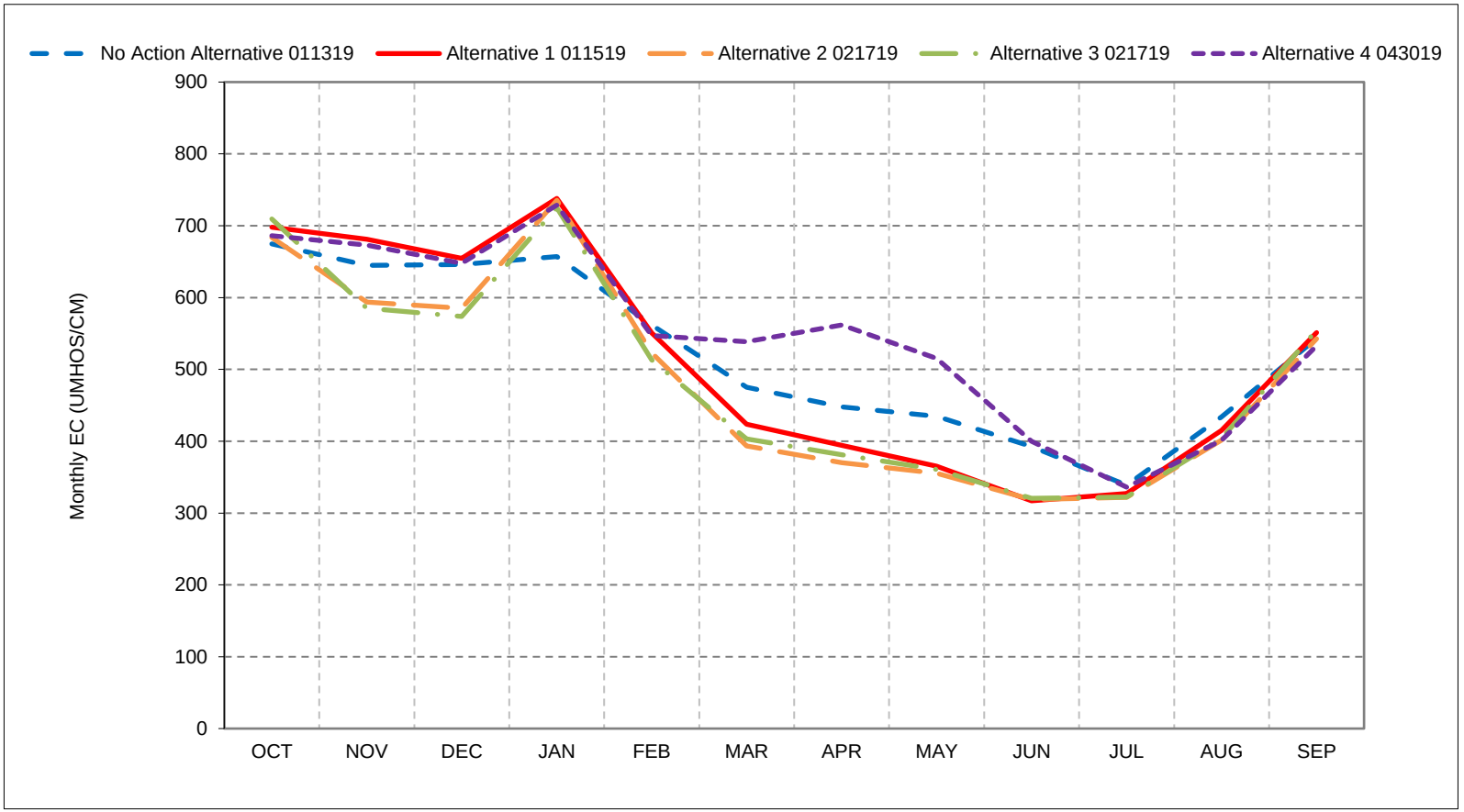

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-4. Banks Pumping Plant South Delta Exports Salinity, Below Normal Year Average EC



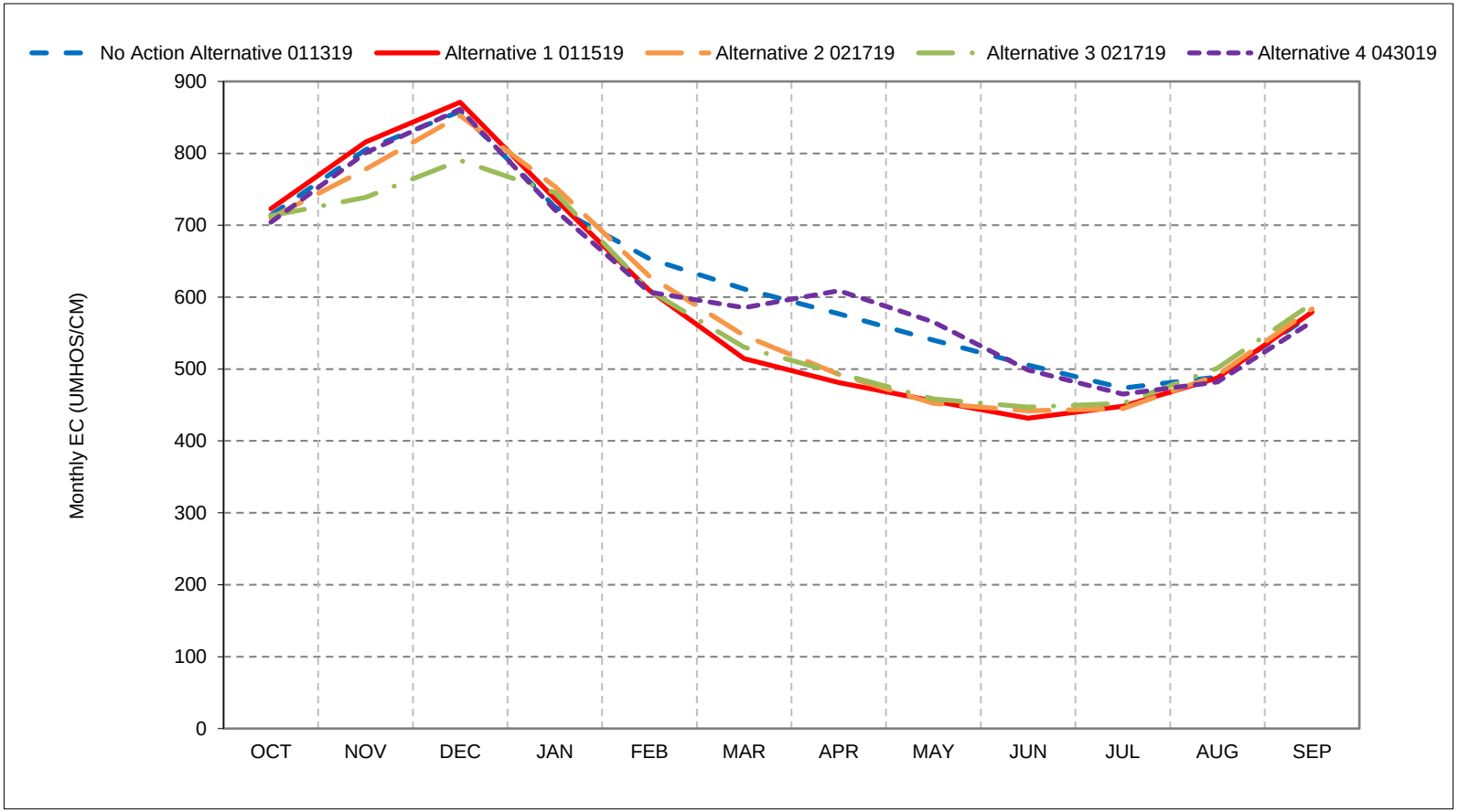

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-5. Banks Pumping Plant South Delta Exports Salinity, Dry Year Average EC



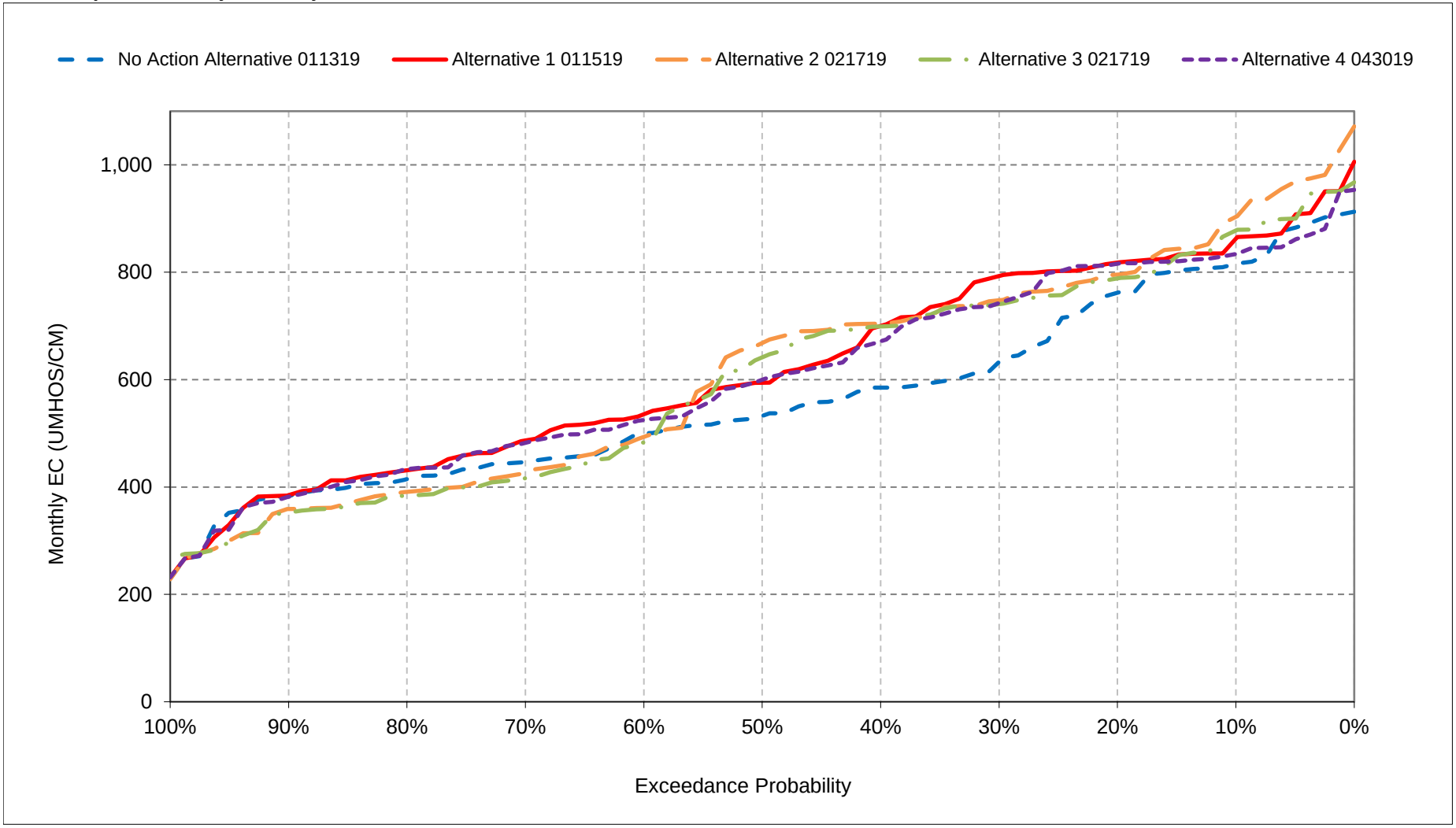

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 16-6. Banks Pumping Plant South Delta Exports Salinity, Critical Year Average EC



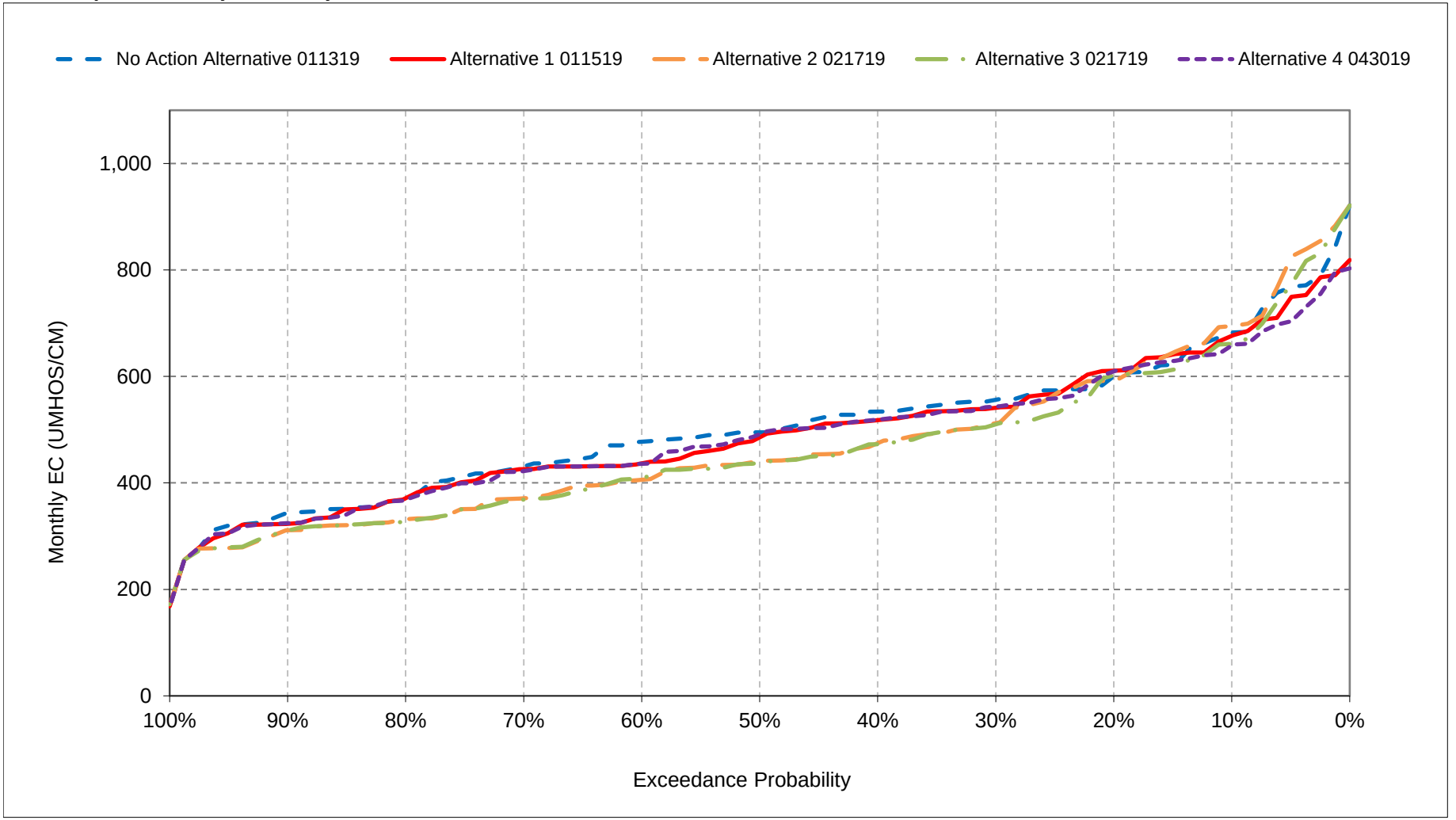

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 16-7. Banks Pumping Plant South**
**Delta Exports Salinity, January EC**



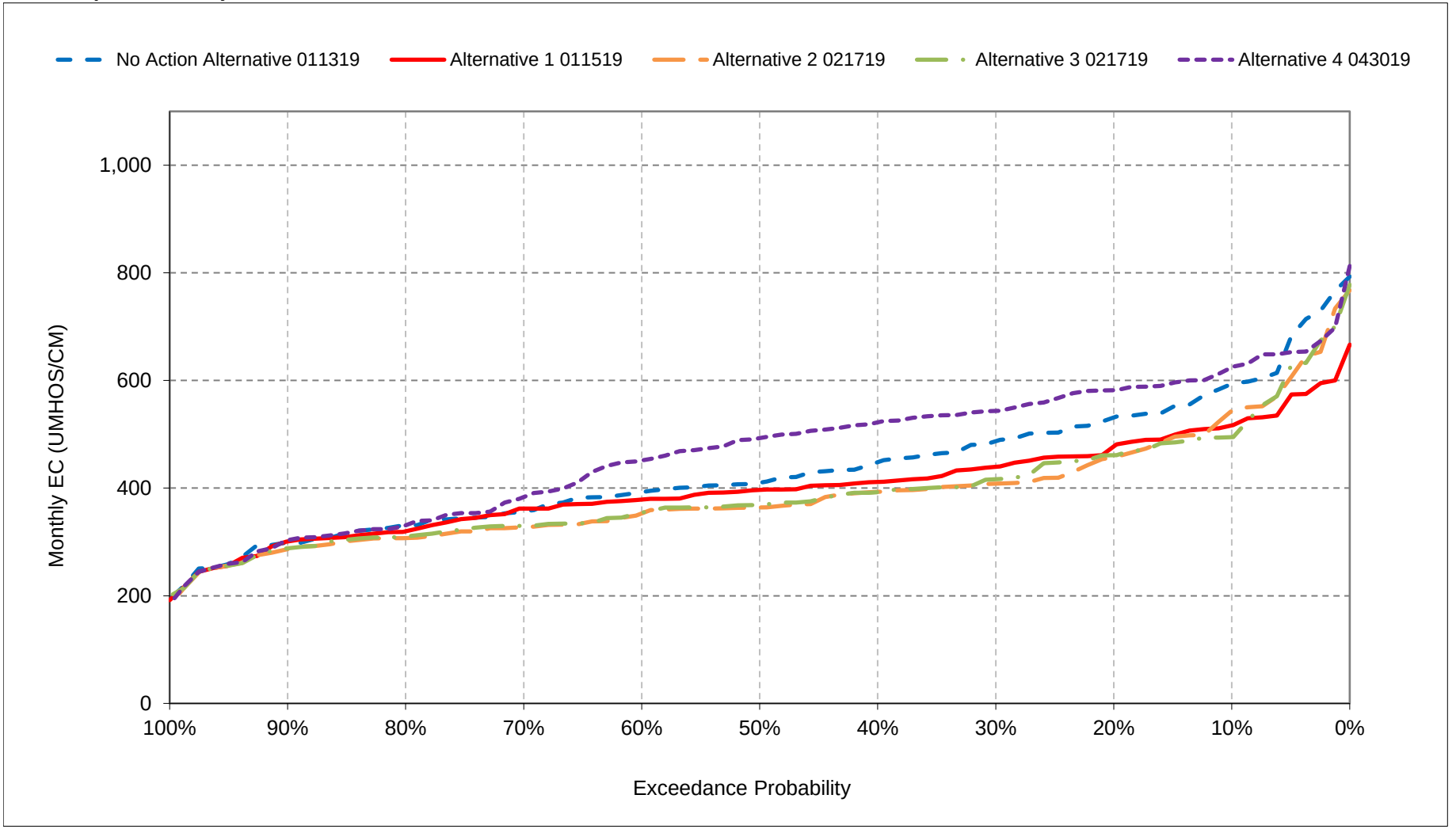

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 16-8. Banks Pumping Plant South**
**Delta Exports Salinity, February EC**



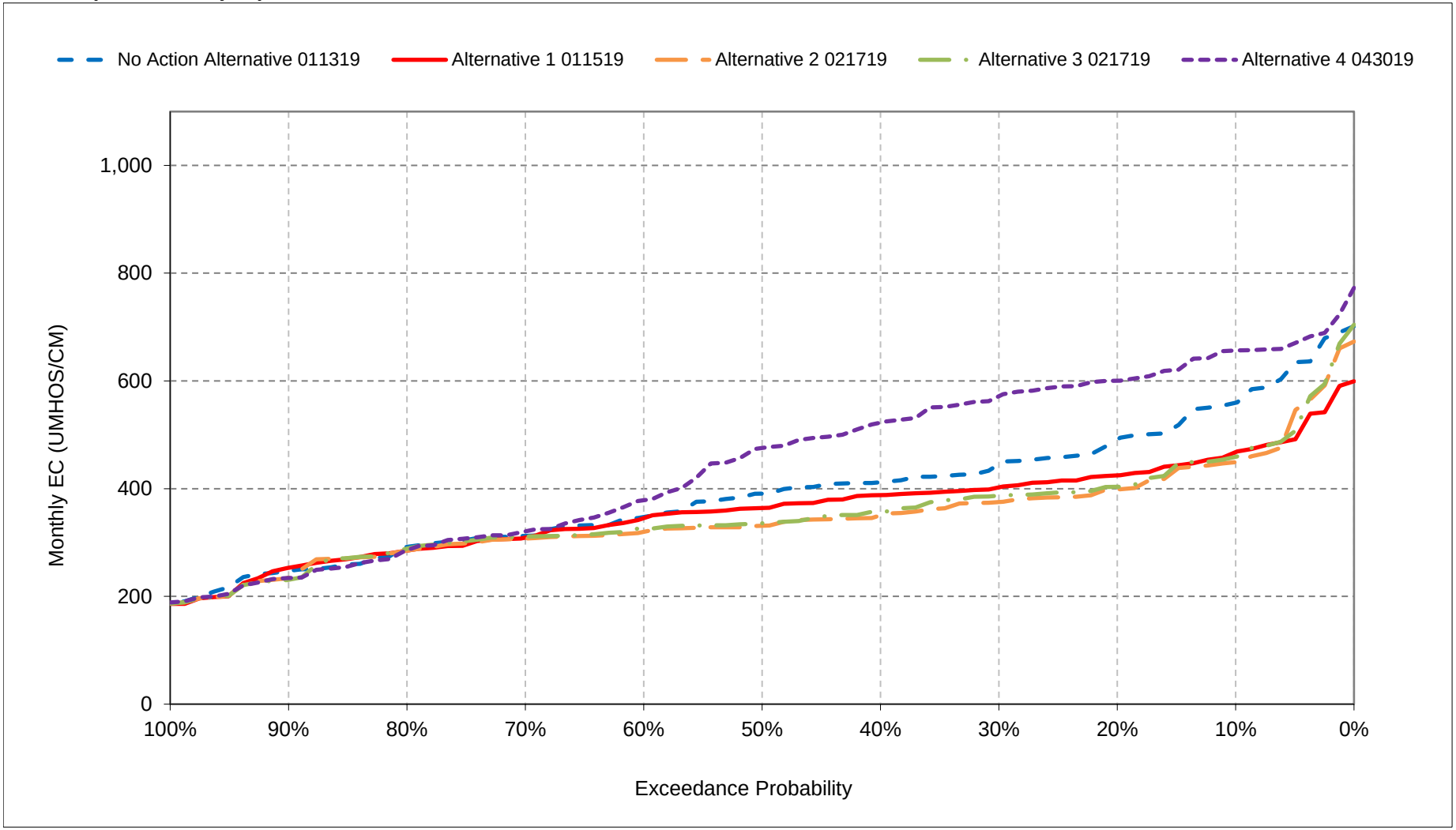

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 16-9. Banks Pumping Plant South**
**Delta Exports Salinity, March EC**



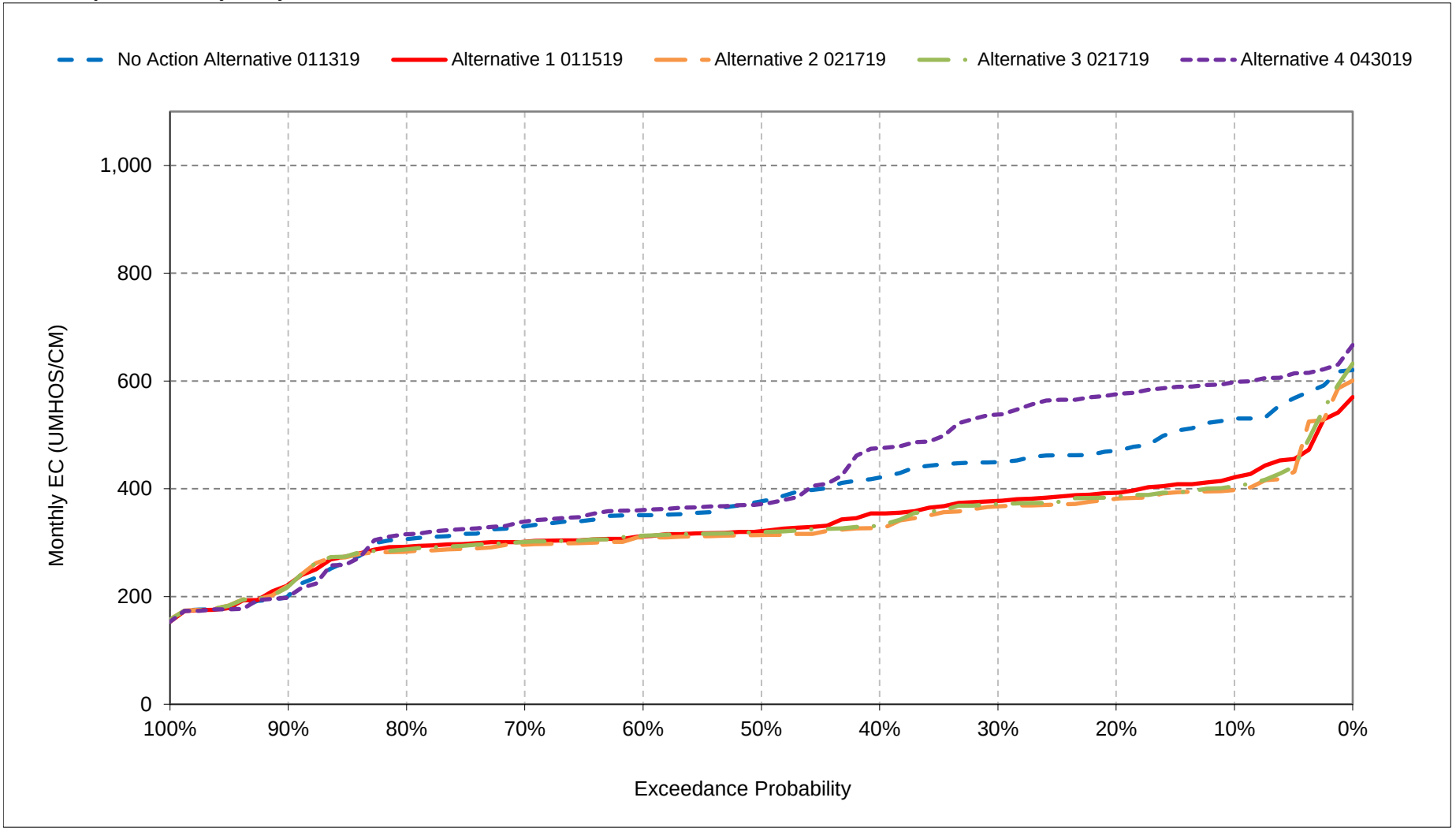

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 16-10. Banks Pumping Plant South**
**Delta Exports Salinity, April EC**



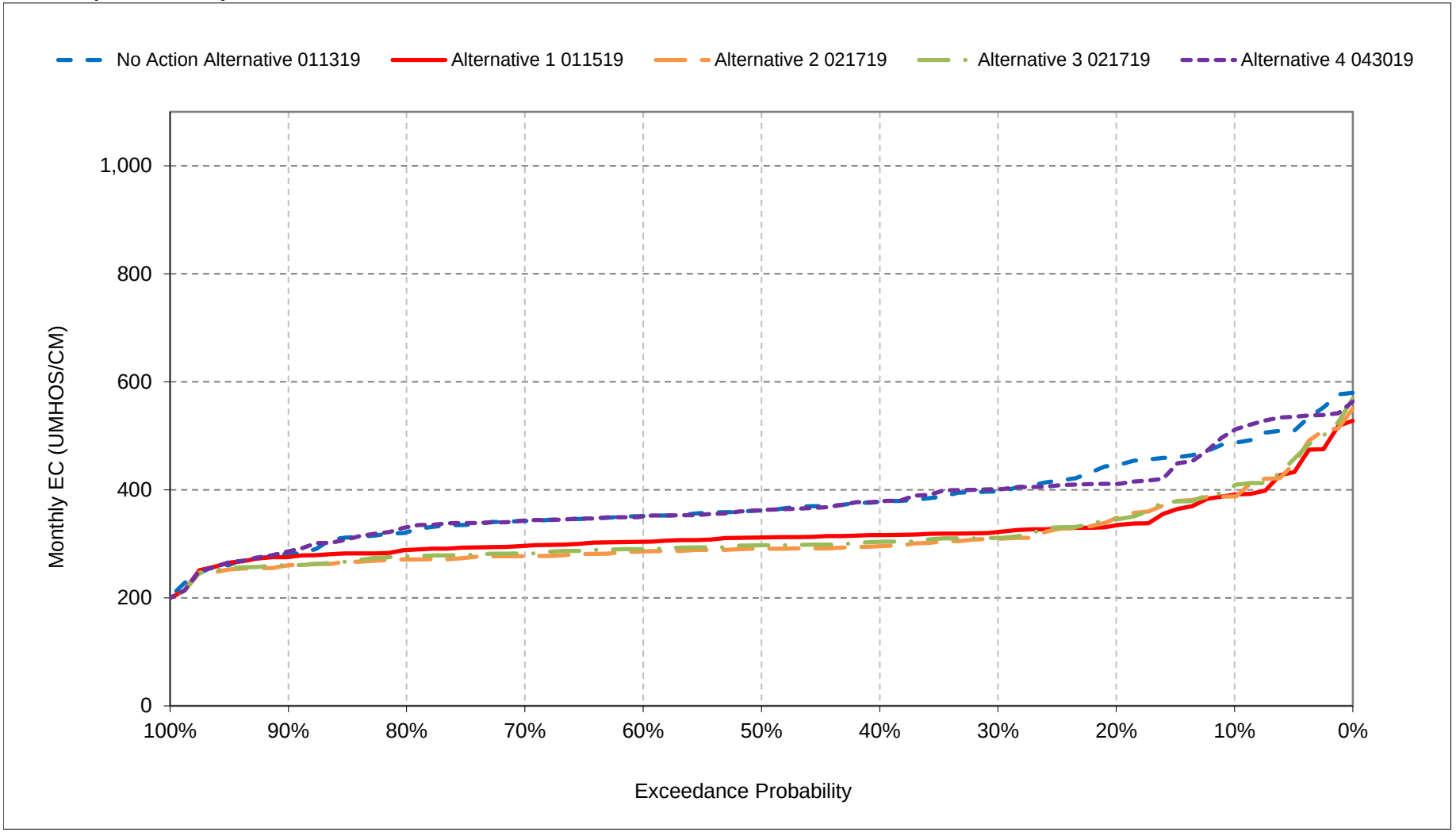

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 16-11. Banks Pumping Plant South**
**Delta Exports Salinity, May EC**



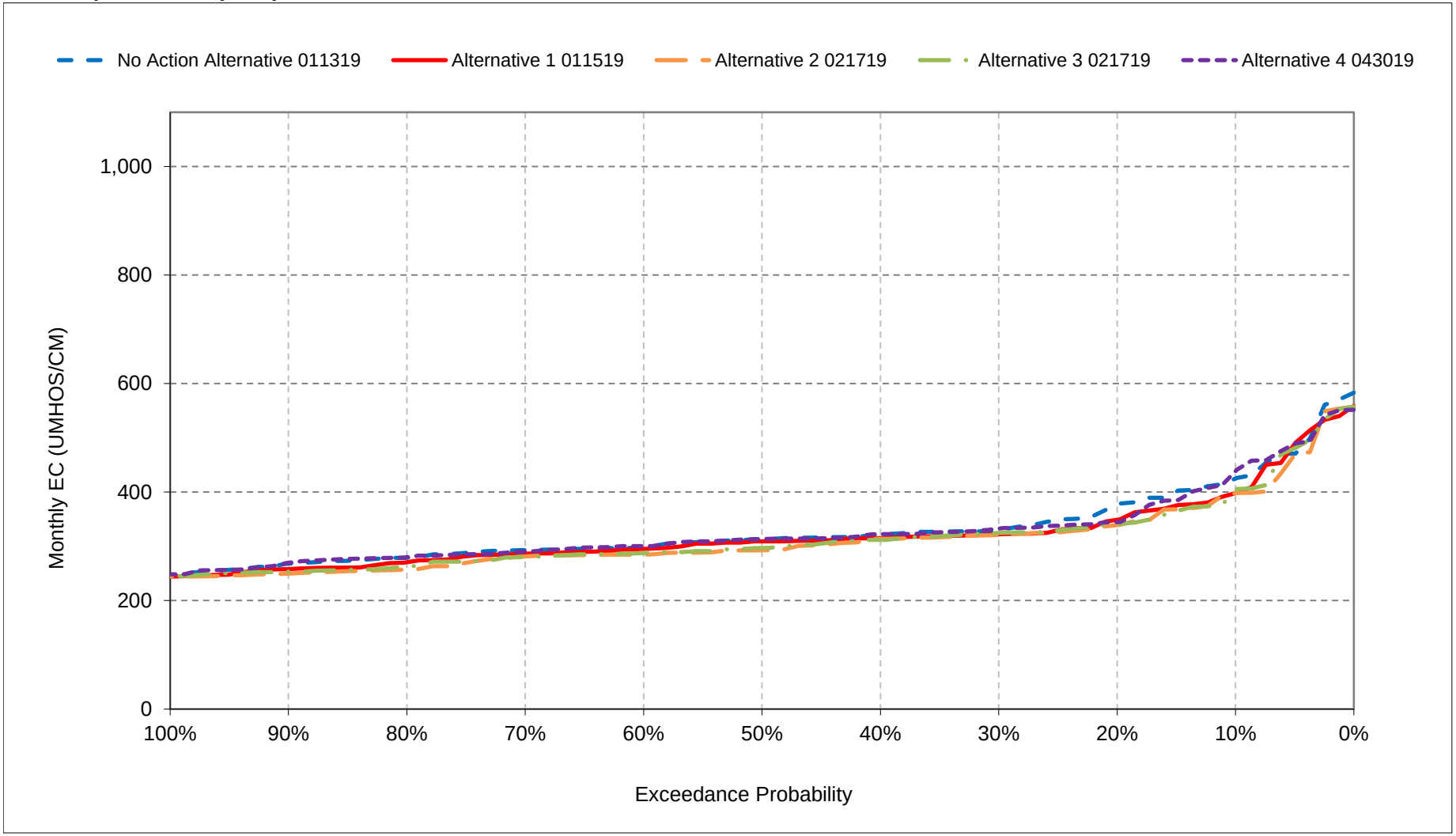

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 16-12. Banks Pumping Plant South**
**Delta Exports Salinity, June EC**



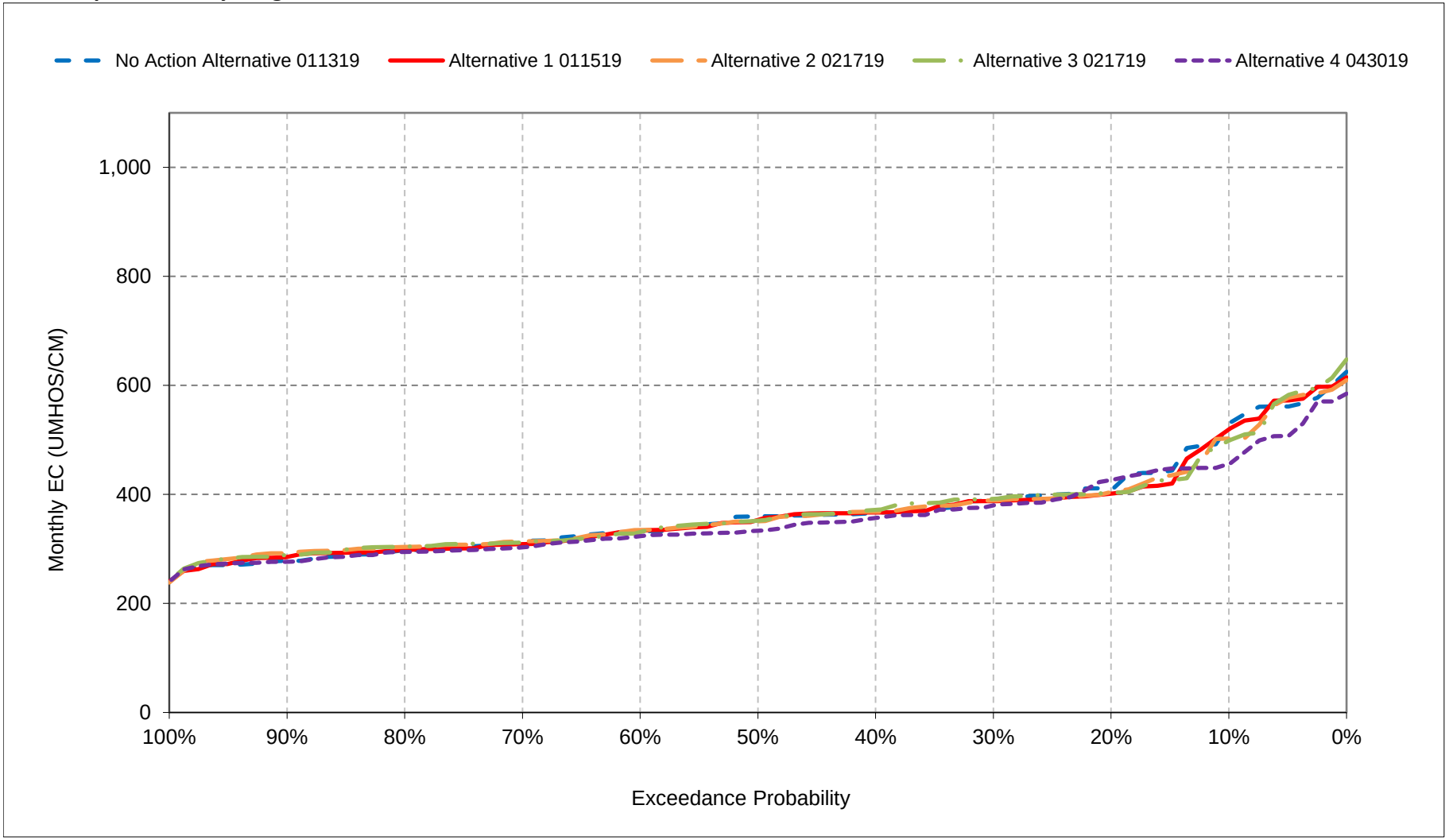

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 16-13. Banks Pumping Plant South**
**Delta Exports Salinity, July EC**



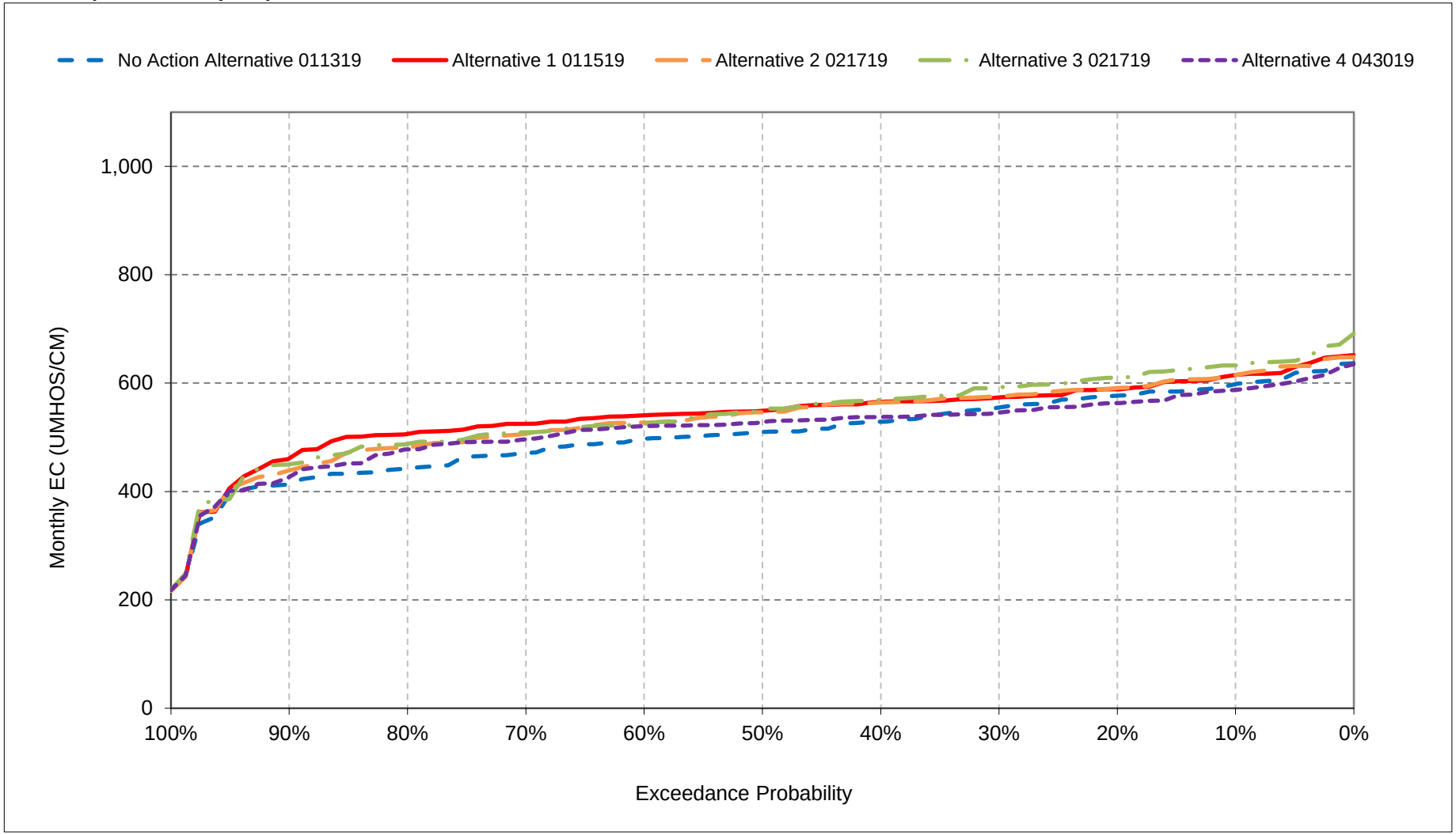

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 16-14. Banks Pumping Plant South**
**Delta Exports Salinity, August EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

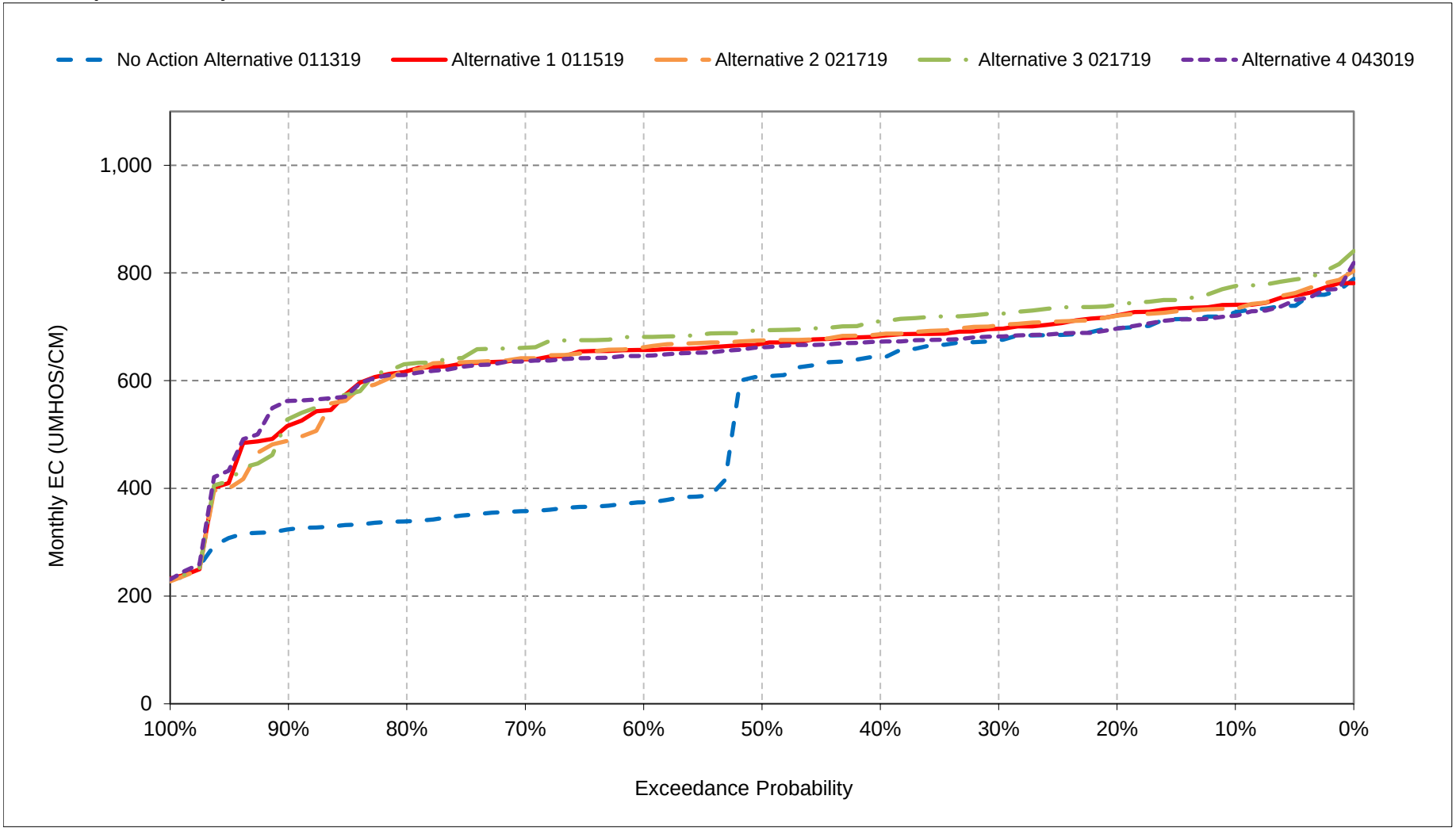
**Figure 16-15. Banks Pumping Plant South Delta Exports Salinity, September EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

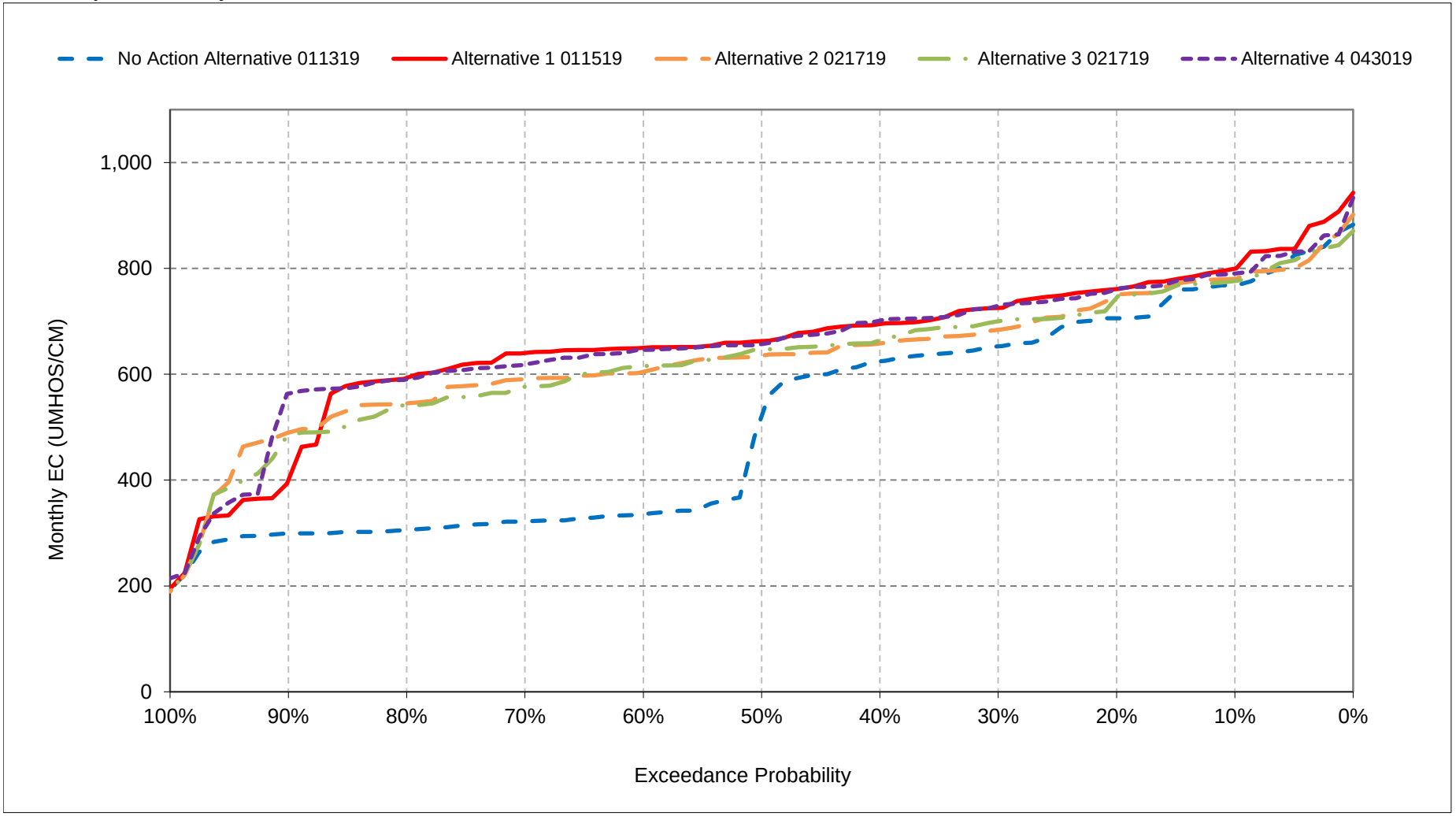
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 16-16. Banks Pumping Plant South**
**Delta Exports Salinity, October EC**



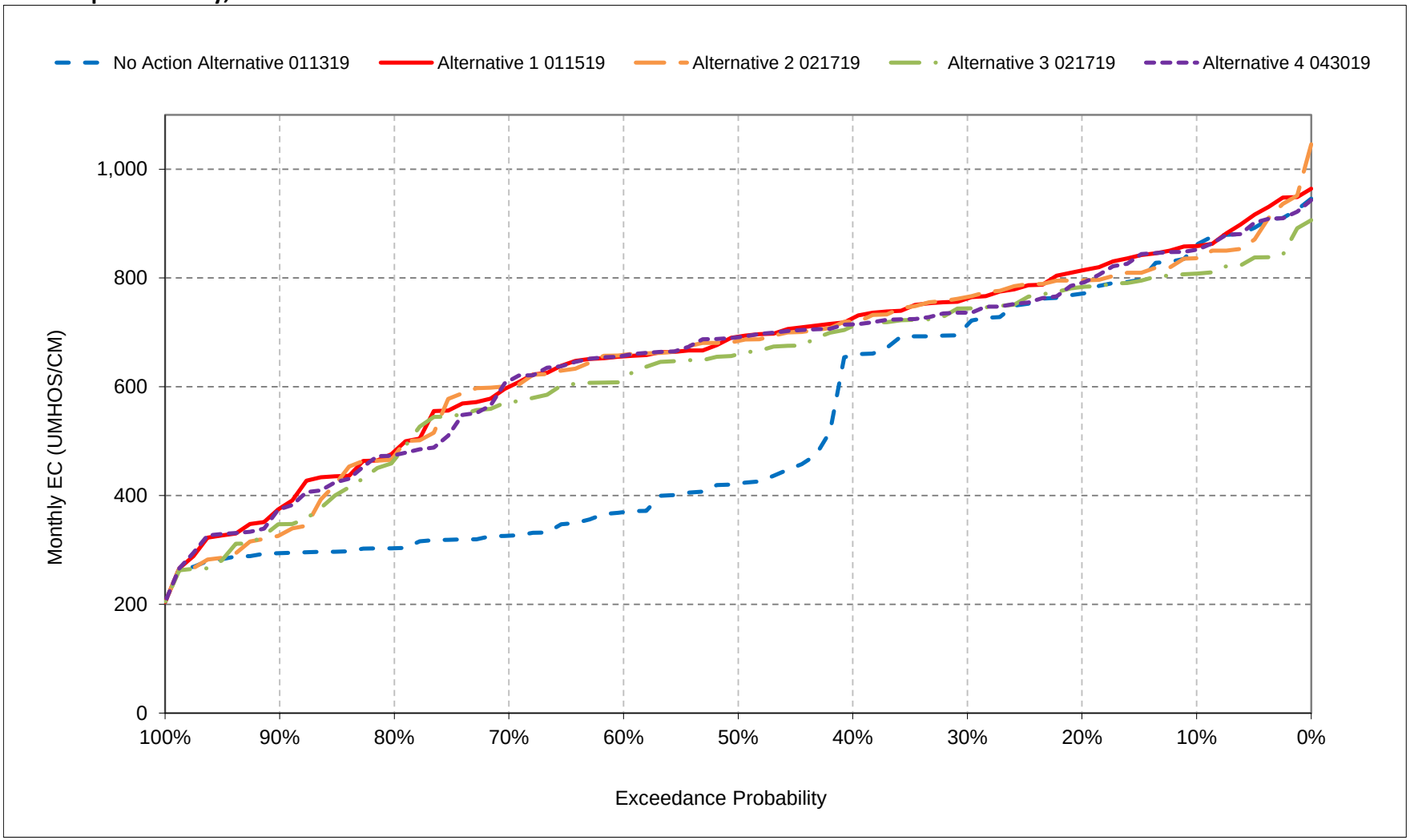

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 16-17. Banks Pumping Plant South**
**Delta Exports Salinity, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 16-18. Banks Pumping Plant South**
**Delta Exports Salinity, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 17-1. Old River at Highway 4, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 849 | 895 | 933 | 864 | 606 | 509 | 509 | 471 | 407 | 411 | 589 | 710 |
| 20% | 801 | 810 | 860 | 778 | 566 | 441 | 445 | 449 | 356 | 344 | 471 | 684 |
| 30% | 776 | 736 | 795 | 634 | 507 | 411 | 422 | 430 | 332 | 329 | 437 | 653 |
| 40% | 744 | 686 | 674 | 570 | 465 | 380 | 400 | 397 | 323 | 319 | 410 | 608 |
| 50% | 689 | 557 | 396 | 537 | 455 | 360 | 361 | 383 | 313 | 291 | 390 | 572 |
| 60% | 342 | 305 | 364 | 487 | 424 | 343 | 324 | 371 | 310 | 278 | 363 | 553 |
| 70% | 322 | 285 | 311 | 426 | 386 | 332 | 309 | 356 | 303 | 270 | 332 | 524 |
| 80% | 312 | 275 | 286 | 391 | 352 | 309 | 278 | 311 | 288 | 263 | 317 | 472 |
| 90% | 299 | 265 | 277 | 348 | 320 | 277 | 226 | 196 | 266 | 256 | 294 | 441 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 564 | 543 | 550 | 566 | 466 | 383 | 364 | 371 | 326 | 319 | 405 | 574 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 310 | 272 | 285 | 429 | 375 | 319 | 260 | 283 | 283 | 267 | 320 | 496 |
| Above Normal (16%) | 315 | 335 | 394 | 525 | 458 | 348 | 342 | 377 | 309 | 266 | 331 | 458 |
| Below Normal (13%) | 764 | 676 | 685 | 561 | 461 | 382 | 409 | 434 | 337 | 308 | 402 | 657 |
| Dry (24%) | 772 | 718 | 684 | 668 | 504 | 407 | 410 | 396 | 328 | 346 | 487 | 639 |
| Critical (15%) | 852 | 938 | 947 | 742 | 612 | 520 | 499 | 453 | 423 | 450 | 538 | 687 |

### Alternative 1 011519

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 864 | 941 | 954 | 904 | 618 | 441 | 417 | 358 | 347 | 424 | 588 | 720 |
| 20% | 834 | 885 | 907 | 838 | 535 | 410 | 382 | 335 | 304 | 342 | 464 | 700 |
| 30% | 804 | 847 | 850 | 800 | 483 | 370 | 367 | 322 | 292 | 332 | 432 | 677 |
| 40% | 786 | 802 | 806 | 646 | 462 | 353 | 349 | 308 | 283 | 302 | 419 | 663 |
| 50% | 773 | 756 | 764 | 560 | 422 | 345 | 338 | 293 | 280 | 288 | 393 | 654 |
| 60% | 758 | 734 | 710 | 503 | 391 | 338 | 324 | 283 | 273 | 276 | 365 | 640 |
| 70% | 730 | 706 | 631 | 444 | 367 | 317 | 312 | 278 | 267 | 266 | 329 | 632 |
| 80% | 700 | 645 | 500 | 397 | 356 | 304 | 296 | 272 | 258 | 259 | 317 | 598 |
| 90% | 563 | 385 | 367 | 354 | 328 | 285 | 273 | 262 | 252 | 251 | 303 | 535 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 741 | 742 | 712 | 612 | 447 | 355 | 339 | 301 | 293 | 319 | 405 | 635 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 615 | 663 | 622 | 442 | 372 | 324 | 285 | 252 | 264 | 265 | 318 | 556 |
| Above Normal (16%) | 760 | 714 | 717 | 597 | 443 | 345 | 330 | 289 | 273 | 260 | 337 | 656 |
| Below Normal (13%) | 775 | 704 | 691 | 635 | 452 | 358 | 356 | 311 | 280 | 315 | 426 | 690 |
| Dry (24%) | 805 | 760 | 691 | 751 | 486 | 359 | 356 | 316 | 284 | 342 | 470 | 657 |
| Critical (15%) | 859 | 950 | 958 | 742 | 548 | 427 | 421 | 385 | 402 | 463 | 541 | 697 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **15** | **45** | **21** | **39** | **12** | -68 | -93 | -113 | -60 | **12** | -1 | **10** |
| 20% | **33** | **75** | **46** | **61** | -31 | -32 | -63 | -114 | -52 | -2 | -8 | **16** |
| 30% | **28** | **111** | **55** | **166** | -23 | -41 | -55 | -108 | -40 | **4** | -4 | **23** |
| 40% | **42** | **116** | **132** | **75** | -3 | -28 | -51 | -89 | -40 | -17 | **9** | **55** |
| 50% | **84** | **199** | **368** | **23** | -33 | -15 | -23 | -90 | -34 | -2 | **3** | **82** |
| 60% | **416** | **429** | **346** | **16** | -32 | -5 | **1** | -88 | -36 | -2 | **2** | **87** |
| 70% | **409** | **421** | **320** | **19** | -19 | -15 | **3** | -78 | -36 | -5 | -2 | **108** |
| 80% | **388** | **369** | **214** | **6** | **4** | -5 | **18** | -39 | -30 | -4 | **0** | **126** |
| 90% | **264** | **120** | **90** | **6** | **9** | **8** | **47** | **66** | -14 | -5 | **9** | **94** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **178** | **200** | **162** | **46** | -19 | -27 | -26 | -70 | -34 | **0** | 0 | **61** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **305** | **391** | **337** | **13** | -4 | **5** | **25** | -31 | -20 | -2 | -2 | **59** |
| Above Normal (16%) | **445** | **379** | **322** | **73** | -15 | -3 | -12 | -88 | -37 | -7 | **6** | **198** |
| Below Normal (13%) | **11** | **29** | **6** | **75** | -10 | -24 | -53 | -123 | -57 | **7** | **24** | **33** |
| Dry (24%) | **33** | **42** | **7** | **83** | -18 | -48 | -53 | -80 | -44 | -4 | -17 | **19** |
| Critical (15%) | **7** | **12** | **11** | **1** | -64 | -93 | -78 | -69 | -21 | **14** | **4** | **10** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 17-2. Old River at Highway 4, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 849 | 895 | 933 | 864 | 606 | 509 | 509 | 471 | 407 | 411 | 589 | 710 |
| 20% | 801 | 810 | 860 | 778 | 566 | 441 | 445 | 449 | 356 | 344 | 471 | 684 |
| 30% | 776 | 736 | 795 | 634 | 507 | 411 | 422 | 430 | 332 | 329 | 437 | 653 |
| 40% | 744 | 686 | 674 | 570 | 465 | 380 | 400 | 397 | 323 | 319 | 410 | 608 |
| 50% | 689 | 557 | 396 | 537 | 455 | 360 | 361 | 383 | 313 | 291 | 390 | 572 |
| 60% | 342 | 305 | 364 | 487 | 424 | 343 | 324 | 371 | 310 | 278 | 363 | 553 |
| 70% | 322 | 285 | 311 | 426 | 386 | 332 | 309 | 356 | 303 | 270 | 332 | 524 |
| 80% | 312 | 275 | 286 | 391 | 352 | 309 | 278 | 311 | 288 | 263 | 317 | 472 |
| 90% | 299 | 265 | 277 | 348 | 320 | 277 | 226 | 196 | 266 | 256 | 294 | 441 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 564 | 543 | 550 | 566 | 466 | 383 | 364 | 371 | 326 | 319 | 405 | 574 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 310 | 272 | 285 | 429 | 375 | 319 | 260 | 283 | 283 | 267 | 320 | 496 |
| Above Normal (16%) | 315 | 335 | 394 | 525 | 458 | 348 | 342 | 377 | 309 | 266 | 331 | 458 |
| Below Normal (13%) | 764 | 676 | 685 | 561 | 461 | 382 | 409 | 434 | 337 | 308 | 402 | 657 |
| Dry (24%) | 772 | 718 | 684 | 668 | 504 | 407 | 410 | 396 | 328 | 346 | 487 | 639 |
| Critical (15%) | 852 | 938 | 947 | 742 | 612 | 520 | 499 | 453 | 423 | 450 | 538 | 687 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 856 | 916 | 983 | 980 | 692 | 484 | 399 | 361 | 358 | 388 | 569 | 723 |
| 20% | 822 | 849 | 934 | 849 | 575 | 413 | 365 | 330 | 309 | 345 | 461 | 699 |
| 30% | 806 | 779 | 879 | 803 | 477 | 367 | 330 | 319 | 281 | 313 | 433 | 682 |
| 40% | 783 | 734 | 816 | 738 | 433 | 335 | 318 | 303 | 272 | 295 | 410 | 665 |
| 50% | 768 | 711 | 772 | 685 | 399 | 326 | 305 | 284 | 263 | 285 | 391 | 644 |
| 60% | 756 | 686 | 725 | 496 | 371 | 307 | 290 | 277 | 256 | 271 | 365 | 628 |
| 70% | 737 | 657 | 660 | 400 | 348 | 284 | 280 | 265 | 251 | 264 | 338 | 605 |
| 80% | 708 | 600 | 481 | 346 | 327 | 273 | 267 | 257 | 246 | 253 | 324 | 568 |
| 90% | 563 | 488 | 335 | 307 | 290 | 260 | 254 | 247 | 236 | 247 | 305 | 506 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 738 | 706 | 725 | 624 | 448 | 348 | 315 | 294 | 283 | 311 | 406 | 625 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 620 | 646 | 668 | 405 | 336 | 306 | 269 | 248 | 251 | 263 | 317 | 542 |
| Above Normal (16%) | 808 | 783 | 784 | 590 | 389 | 305 | 288 | 273 | 252 | 255 | 352 | 671 |
| Below Normal (13%) | 775 | 686 | 682 | 732 | 550 | 369 | 328 | 300 | 258 | 294 | 444 | 655 |
| Dry (24%) | 768 | 634 | 635 | 770 | 487 | 345 | 327 | 313 | 283 | 331 | 451 | 645 |
| Critical (15%) | 831 | 892 | 976 | 794 | 598 | 469 | 414 | 379 | 410 | 456 | 549 | 695 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **7** | **21** | **50** | **116** | **86** | -24 | -110 | -110 | -49 | -23 | -20 | **13** |
| 20% | **21** | **39** | **73** | **71** | **10** | -29 | -80 | -119 | -47 | **1** | -11 | **15** |
| 30% | **30** | **43** | **84** | **169** | -29 | -44 | -92 | -111 | -51 | -16 | -4 | **29** |
| 40% | **39** | **47** | **142** | **167** | -32 | -45 | -82 | -94 | -51 | -24 | 0 | **57** |
| 50% | **79** | **154** | **376** | **147** | -56 | -33 | -56 | -99 | -50 | -5 | **2** | **72** |
| 60% | **415** | **381** | **361** | **9** | -53 | -35 | -33 | -94 | -54 | -7 | **2** | **75** |
| 70% | **415** | **373** | **349** | -26 | -38 | -47 | -29 | -91 | -53 | -6 | **7** | **81** |
| 80% | **397** | **325** | **195** | -45 | -25 | -36 | -11 | -54 | -42 | -10 | **7** | **96** |
| 90% | **264** | **223** | **58** | -41 | -30 | -17 | **28** | **51** | -30 | -9 | **10** | **65** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **174** | **164** | **175** | **58** | -18 | -35 | -49 | -77 | -43 | -8 | **1** | **50** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **310** | **374** | **383** | -24 | -39 | -14 | **9** | -35 | -32 | -4 | -3 | **45** |
| Above Normal (16%) | **493** | **449** | **389** | **66** | -69 | -43 | -54 | -103 | -57 | -12 | **21** | **213** |
| Below Normal (13%) | **11** | **10** | -3 | **171** | **88** | -13 | -81 | -134 | -79 | -15 | **42** | -2 |
| Dry (24%) | -4 | -84 | -49 | **102** | -17 | -61 | -83 | -84 | -45 | -15 | -36 | **7** |
| Critical (15%) | -21 | -46 | **29** | **52** | -14 | -51 | -85 | -74 | -13 | **7** | **11** | **8** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 17-3. Old River at Highway 4, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 849 | 895 | 933 | 864 | 606 | 509 | 509 | 471 | 407 | 411 | 589 | 710 |
| 20% | 801 | 810 | 860 | 778 | 566 | 441 | 445 | 449 | 356 | 344 | 471 | 684 |
| 30% | 776 | 736 | 795 | 634 | 507 | 411 | 422 | 430 | 332 | 329 | 437 | 653 |
| 40% | 744 | 686 | 674 | 570 | 465 | 380 | 400 | 397 | 323 | 319 | 410 | 608 |
| 50% | 689 | 557 | 396 | 537 | 455 | 360 | 361 | 383 | 313 | 291 | 390 | 572 |
| 60% | 342 | 305 | 364 | 487 | 424 | 343 | 324 | 371 | 310 | 278 | 363 | 553 |
| 70% | 322 | 285 | 311 | 426 | 386 | 332 | 309 | 356 | 303 | 270 | 332 | 524 |
| 80% | 312 | 275 | 286 | 391 | 352 | 309 | 278 | 311 | 288 | 263 | 317 | 472 |
| 90% | 299 | 265 | 277 | 348 | 320 | 277 | 226 | 196 | 266 | 256 | 294 | 441 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 564 | 543 | 550 | 566 | 466 | 383 | 364 | 371 | 326 | 319 | 405 | 574 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 310 | 272 | 285 | 429 | 375 | 319 | 260 | 283 | 283 | 267 | 320 | 496 |
| Above Normal (16%) | 315 | 335 | 394 | 525 | 458 | 348 | 342 | 377 | 309 | 266 | 331 | 458 |
| Below Normal (13%) | 764 | 676 | 685 | 561 | 461 | 382 | 409 | 434 | 337 | 308 | 402 | 657 |
| Dry (24%) | 772 | 718 | 684 | 668 | 504 | 407 | 410 | 396 | 328 | 346 | 487 | 639 |
| Critical (15%) | 852 | 938 | 947 | 742 | 612 | 520 | 499 | 453 | 423 | 450 | 538 | 687 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 865 | 886 | 922 | 917 | 625 | 502 | 404 | 359 | 361 | 388 | 561 | 747 |
| 20% | 837 | 832 | 894 | 841 | 566 | 412 | 367 | 332 | 307 | 345 | 461 | 725 |
| 30% | 815 | 779 | 844 | 774 | 476 | 363 | 337 | 321 | 283 | 312 | 441 | 695 |
| 40% | 798 | 754 | 808 | 739 | 433 | 346 | 321 | 300 | 275 | 294 | 419 | 668 |
| 50% | 779 | 705 | 740 | 660 | 400 | 330 | 308 | 286 | 269 | 287 | 389 | 652 |
| 60% | 772 | 662 | 666 | 507 | 365 | 311 | 295 | 280 | 261 | 276 | 357 | 623 |
| 70% | 758 | 621 | 586 | 377 | 349 | 291 | 284 | 272 | 255 | 263 | 335 | 602 |
| 80% | 718 | 547 | 490 | 343 | 317 | 275 | 271 | 261 | 251 | 256 | 315 | 567 |
| 90% | 590 | 478 | 338 | 308 | 291 | 263 | 261 | 248 | 238 | 248 | 304 | 520 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 751 | 687 | 691 | 606 | 440 | 352 | 320 | 297 | 286 | 313 | 406 | 633 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 644 | 654 | 634 | 399 | 338 | 308 | 273 | 250 | 254 | 265 | 318 | 550 |
| Above Normal (16%) | 792 | 767 | 758 | 537 | 374 | 308 | 292 | 276 | 257 | 256 | 340 | 659 |
| Below Normal (13%) | 806 | 678 | 654 | 718 | 548 | 377 | 333 | 302 | 263 | 293 | 438 | 684 |
| Dry (24%) | 789 | 611 | 619 | 751 | 476 | 357 | 334 | 315 | 284 | 330 | 454 | 659 |
| Critical (15%) | 824 | 810 | 898 | 785 | 573 | 460 | 419 | 383 | 408 | 468 | 560 | 695 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **16** | -10 | -11 | **53** | **20** | -6 | -105 | -112 | -46 | -23 | -27 | **37** |
| 20% | **36** | **22** | **33** | **63** | **0** | -29 | -78 | -118 | -49 | **1** | -10 | **42** |
| 30% | **39** | **43** | **49** | **140** | -31 | -48 | -85 | -109 | -49 | -16 | **4** | **42** |
| 40% | **54** | **68** | **134** | **168** | -32 | -35 | -79 | -97 | -48 | -25 | **9** | **60** |
| 50% | **90** | **148** | **344** | **123** | -55 | -30 | -53 | -97 | -44 | -3 | -1 | **80** |
| 60% | **430** | **356** | **301** | **20** | -59 | -32 | -29 | -91 | -49 | -2 | -6 | **71** |
| 70% | **436** | **336** | **275** | -49 | -37 | -41 | -25 | -84 | -48 | -7 | **4** | **78** |
| 80% | **407** | **272** | **203** | -48 | -35 | -35 | -8 | -51 | -37 | -8 | -2 | **95** |
| 90% | **290** | **213** | **61** | -40 | -29 | -14 | **35** | **52** | -28 | -8 | **9** | **79** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **187** | **145** | **141** | **40** | -26 | -31 | -44 | -74 | -41 | -6 | **1** | **59** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **334** | **381** | **348** | -30 | -38 | -11 | **13** | -33 | -29 | -2 | -2 | **53** |
| Above Normal (16%) | **477** | **433** | **364** | **12** | -84 | -40 | -50 | -100 | -52 | -10 | **9** | **201** |
| Below Normal (13%) | **43** | **2** | -31 | **158** | **87** | -4 | -76 | -132 | -74 | -15 | **35** | **28** |
| Dry (24%) | **17** | -107 | -65 | **83** | -27 | -50 | -75 | -81 | -44 | -17 | -33 | **20** |
| Critical (15%) | -28 | -128 | -50 | **44** | -39 | -60 | -80 | -70 | -16 | **18** | **22** | **8** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 17-4. Old River at Highway 4, Monthly EC

### No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 849 | 895 | 933 | 864 | 606 | 509 | 509 | 471 | 407 | 411 | 589 | 710 |
| 20% | 801 | 810 | 860 | 778 | 566 | 441 | 445 | 449 | 356 | 344 | 471 | 684 |
| 30% | 776 | 736 | 795 | 634 | 507 | 411 | 422 | 430 | 332 | 329 | 437 | 653 |
| 40% | 744 | 686 | 674 | 570 | 465 | 380 | 400 | 397 | 323 | 319 | 410 | 608 |
| 50% | 689 | 557 | 396 | 537 | 455 | 360 | 361 | 383 | 313 | 291 | 390 | 572 |
| 60% | 342 | 305 | 364 | 487 | 424 | 343 | 324 | 371 | 310 | 278 | 363 | 553 |
| 70% | 322 | 285 | 311 | 426 | 386 | 332 | 309 | 356 | 303 | 270 | 332 | 524 |
| 80% | 312 | 275 | 286 | 391 | 352 | 309 | 278 | 311 | 288 | 263 | 317 | 472 |
| 90% | 299 | 265 | 277 | 348 | 320 | 277 | 226 | 196 | 266 | 256 | 294 | 441 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 564 | 543 | 550 | 566 | 466 | 383 | 364 | 371 | 326 | 319 | 405 | 574 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 310 | 272 | 285 | 429 | 375 | 319 | 260 | 283 | 283 | 267 | 320 | 496 |
| Above Normal (16%) | 315 | 335 | 394 | 525 | 458 | 348 | 342 | 377 | 309 | 266 | 331 | 458 |
| Below Normal (13%) | 764 | 676 | 685 | 561 | 461 | 382 | 409 | 434 | 337 | 308 | 402 | 657 |
| Dry (24%) | 772 | 718 | 684 | 668 | 504 | 407 | 410 | 396 | 328 | 346 | 487 | 639 |
| Critical (15%) | 852 | 938 | 947 | 742 | 612 | 520 | 499 | 453 | 423 | 450 | 538 | 687 |

### Alternative 4 043019

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 866 | 929 | 946 | 896 | 595 | 626 | 619 | 533 | 372 | 373 | 528 | 699 |
| 20% | 810 | 896 | 881 | 829 | 519 | 596 | 574 | 507 | 338 | 350 | 445 | 665 |
| 30% | 788 | 827 | 843 | 753 | 475 | 555 | 557 | 491 | 324 | 328 | 416 | 648 |
| 40% | 777 | 794 | 807 | 638 | 459 | 530 | 531 | 475 | 316 | 320 | 405 | 636 |
| 50% | 759 | 755 | 751 | 547 | 423 | 510 | 509 | 452 | 311 | 291 | 360 | 630 |
| 60% | 750 | 709 | 694 | 497 | 384 | 483 | 467 | 430 | 304 | 278 | 337 | 618 |
| 70% | 735 | 694 | 628 | 439 | 358 | 445 | 412 | 403 | 299 | 272 | 324 | 604 |
| 80% | 695 | 643 | 442 | 391 | 349 | 408 | 383 | 372 | 292 | 262 | 300 | 563 |
| 90% | 596 | 587 | 350 | 352 | 323 | 335 | 288 | 288 | 273 | 255 | 290 | 494 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 738 | 740 | 699 | 598 | 440 | 500 | 474 | 429 | 319 | 318 | 387 | 607 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 640 | 689 | 613 | 441 | 371 | 406 | 349 | 331 | 284 | 269 | 313 | 553 |
| Above Normal (16%) | 763 | 720 | 702 | 575 | 435 | 516 | 478 | 430 | 307 | 266 | 320 | 631 |
| Below Normal (13%) | 724 | 657 | 655 | 594 | 433 | 539 | 542 | 495 | 311 | 314 | 376 | 571 |
| Dry (24%) | 791 | 746 | 682 | 742 | 478 | 550 | 548 | 488 | 322 | 341 | 454 | 638 |
| Critical (15%) | 848 | 938 | 947 | 726 | 539 | 567 | 559 | 483 | 412 | 444 | 522 | 680 |

### Alternative 4 043019 minus No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **18** | **34** | **13** | **31** | -10 | **117** | **110** | **62** | -35 | -38 | -60 | -11 |
| 20% | **9** | **85** | **21** | **51** | -47 | **155** | **129** | **57** | -18 | **6** | -27 | -18 |
| 30% | **12** | **91** | **48** | **119** | -32 | **144** | **135** | **61** | -8 | 0 | -20 | -6 |
| 40% | **33** | **107** | **133** | **67** | -6 | **149** | **131** | **78** | -7 | **1** | -5 | **28** |
| 50% | **70** | **198** | **355** | **10** | -31 | **150** | **148** | **69** | -2 | 0 | -29 | **58** |
| 60% | **409** | **403** | **330** | **10** | -39 | **140** | **144** | **59** | -5 | **0** | -26 | **65** |
| 70% | **414** | **409** | **317** | **13** | -28 | **113** | **103** | **47** | -4 | **1** | -8 | **81** |
| 80% | **383** | **368** | **156** | **0** | -3 | **99** | **105** | **61** | **4** | -1 | -17 | **91** |
| 90% | **296** | **322** | **73** | **4** | **4** | **58** | **62** | **92** | **7** | -1 | -4 | **53** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **174** | **198** | **148** | **32** | -26 | **117** | **110** | **59** | -7 | -1 | -18 | **33** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **330** | **417** | **328** | **12** | -4 | **87** | **89** | **48** | **1** | **1** | -7 | **56** |
| Above Normal (16%) | **448** | **385** | **307** | **51** | -23 | **167** | **136** | **53** | -2 | 0 | -11 | **173** |
| Below Normal (13%) | -40 | -18 | -30 | **34** | -28 | **157** | **133** | **61** | -26 | **6** | -27 | -86 |
| Dry (24%) | **19** | **28** | -2 | **74** | -25 | **143** | **138** | **92** | -7 | -5 | -33 | 0 |
| Critical (15%) | -5 | **0** | -1 | -16 | -73 | **47** | **60** | **30** | -11 | -6 | -15 | -7 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

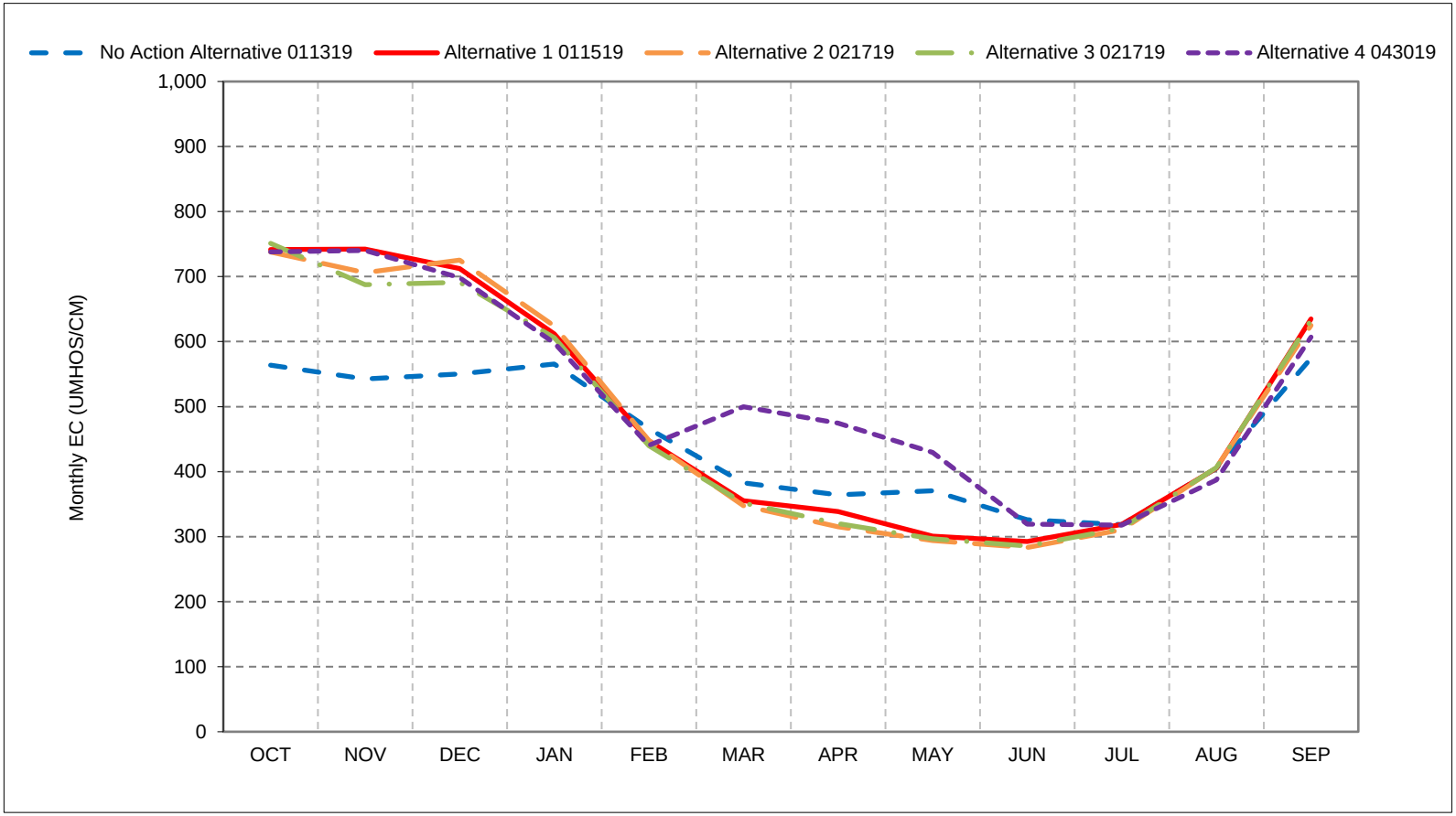
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

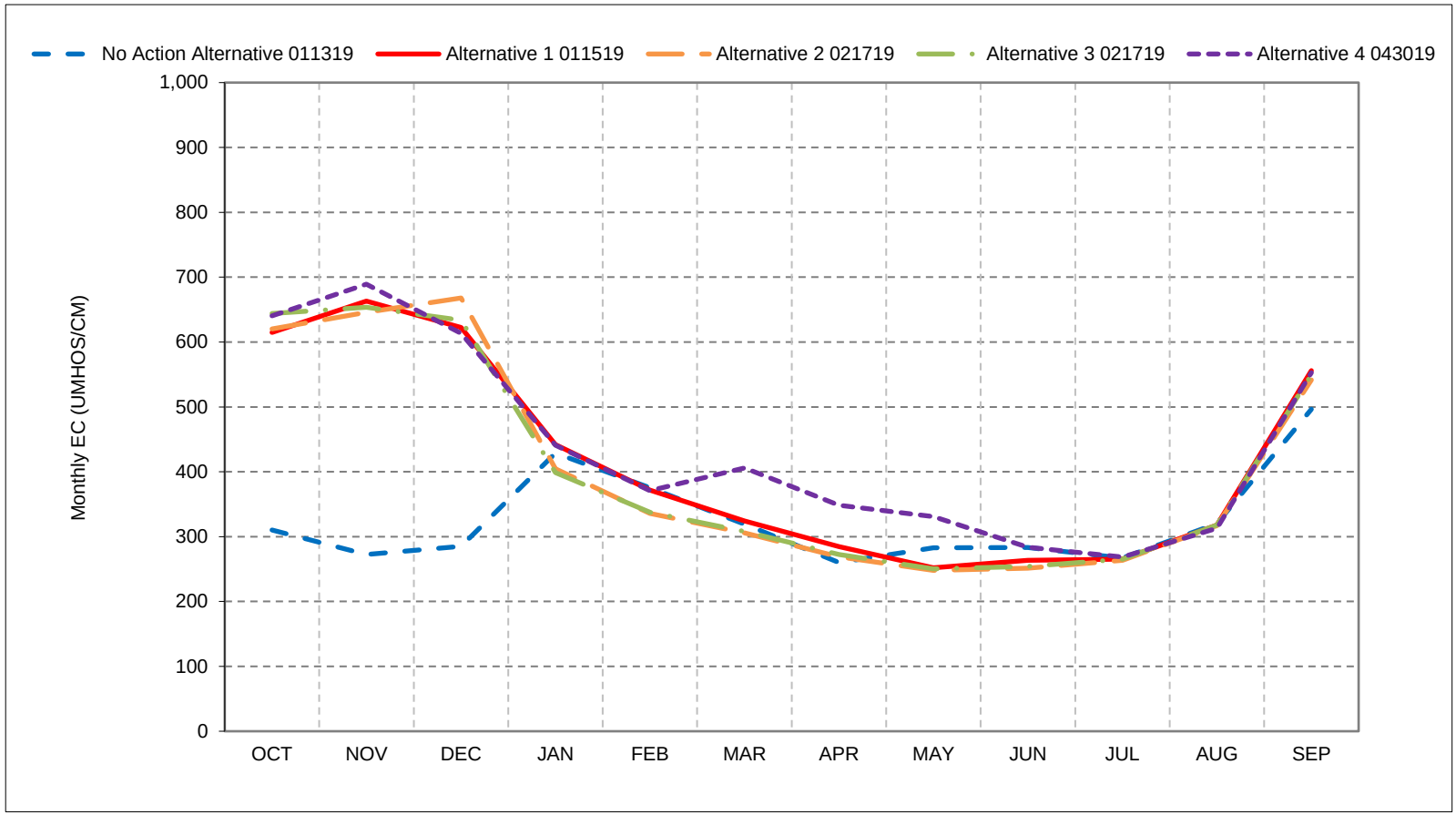
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-1. Old River at Highway 4, Long-Term Average EC



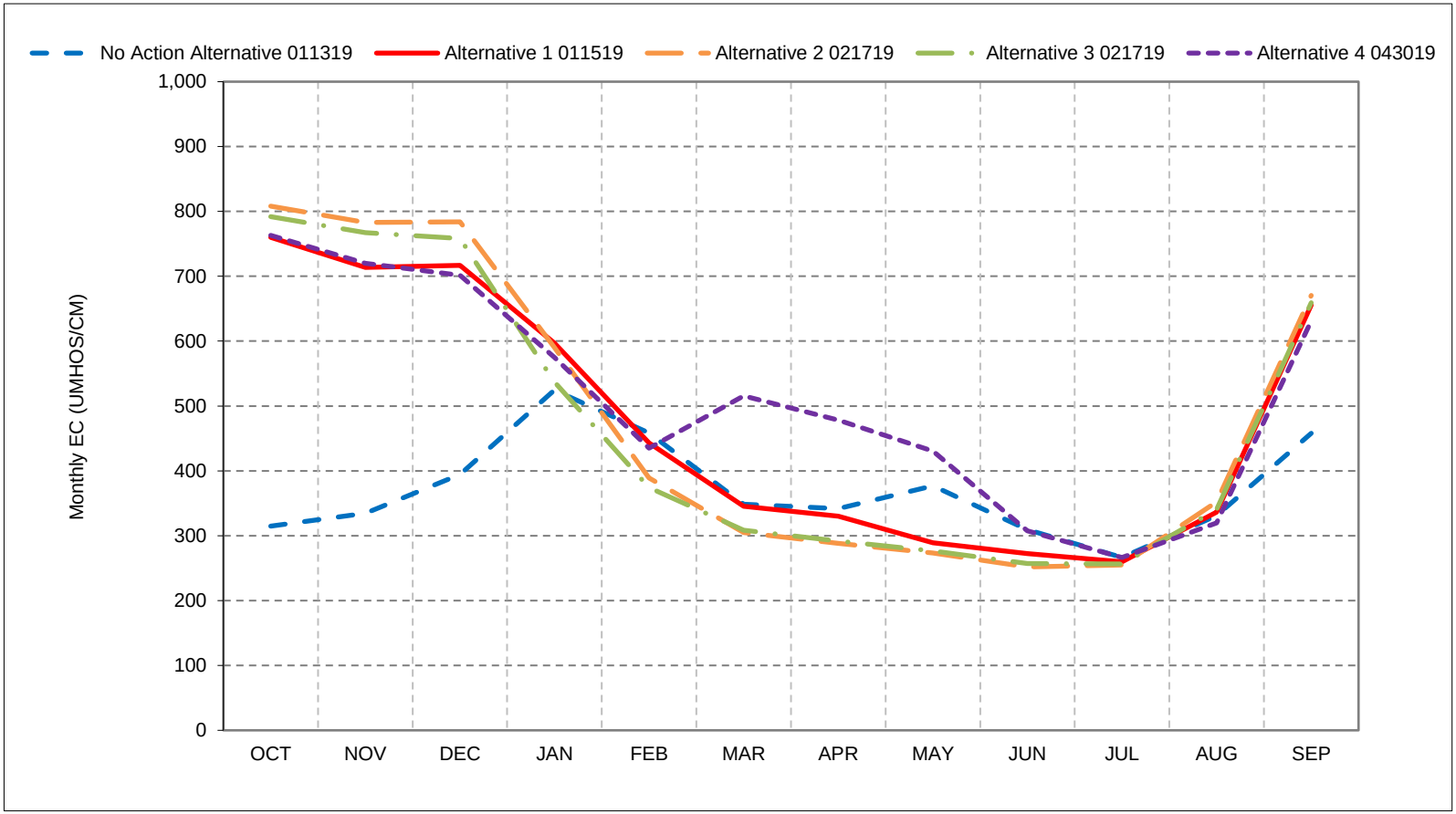

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-2. Old River at Highway 4, Wet Year Average EC



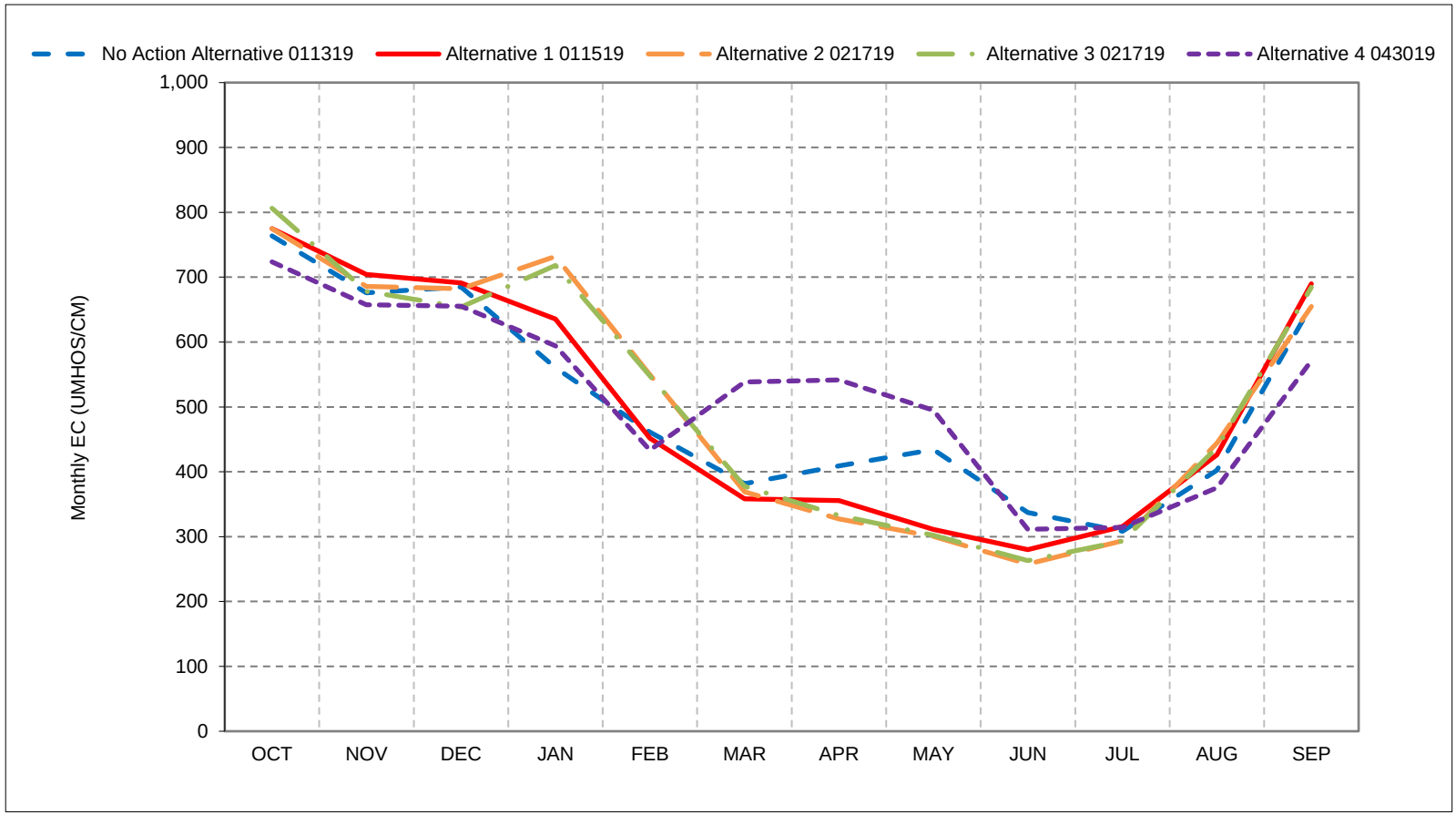

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-3. Old River at Highway 4, Above Normal Year Average EC



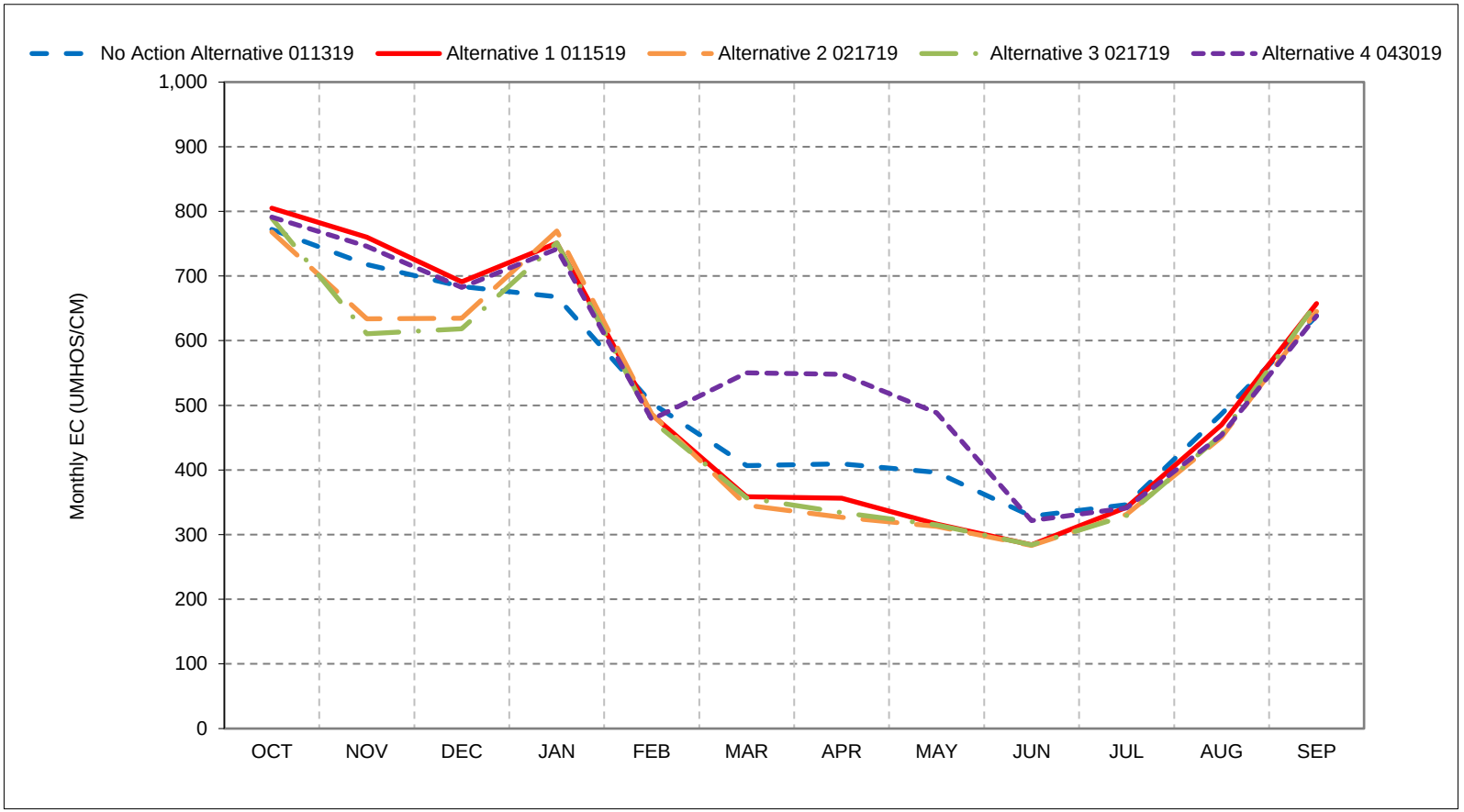

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-4. Old River at Highway 4, Below Normal Year Average EC



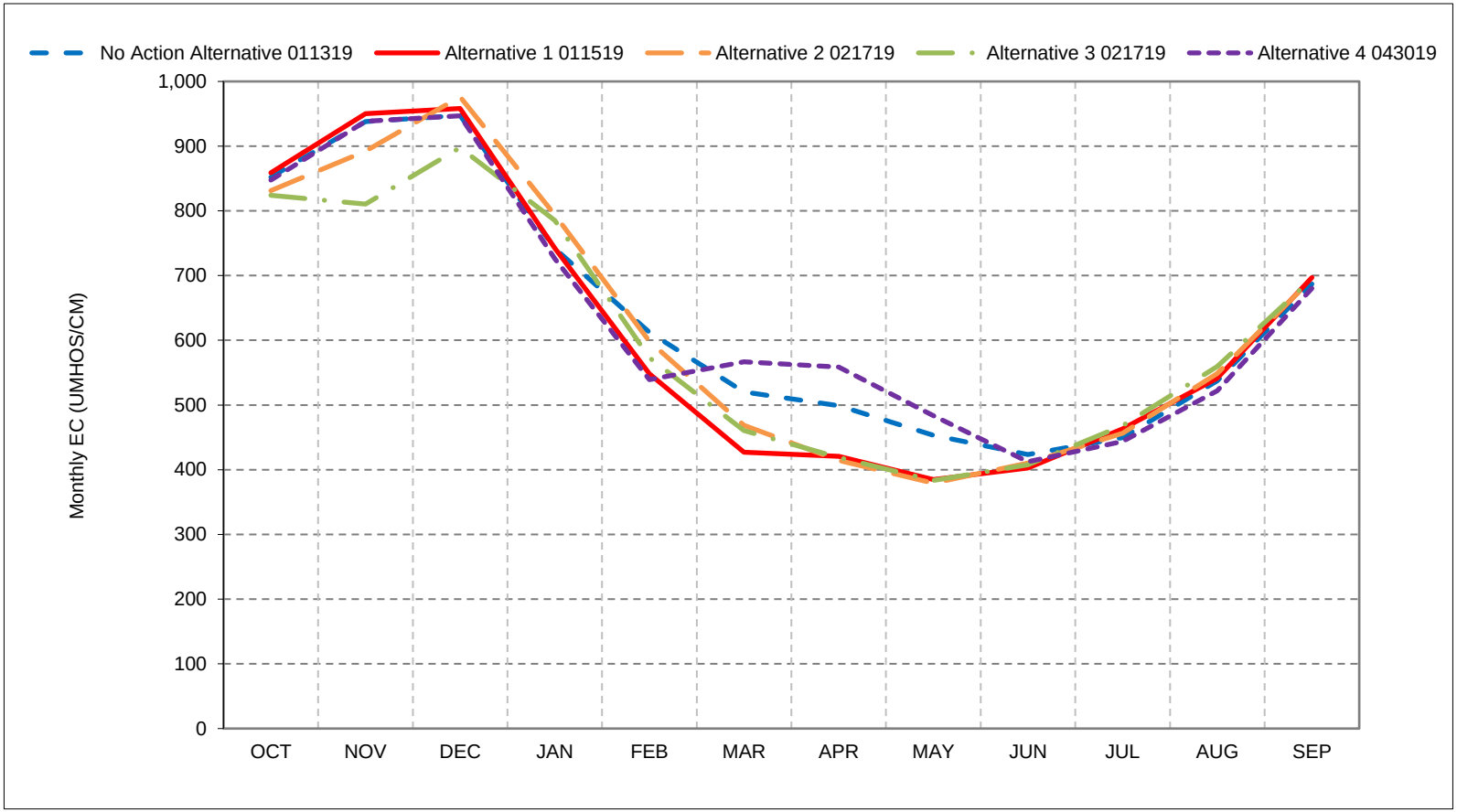

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-5. Old River at Highway 4, Dry Year Average EC



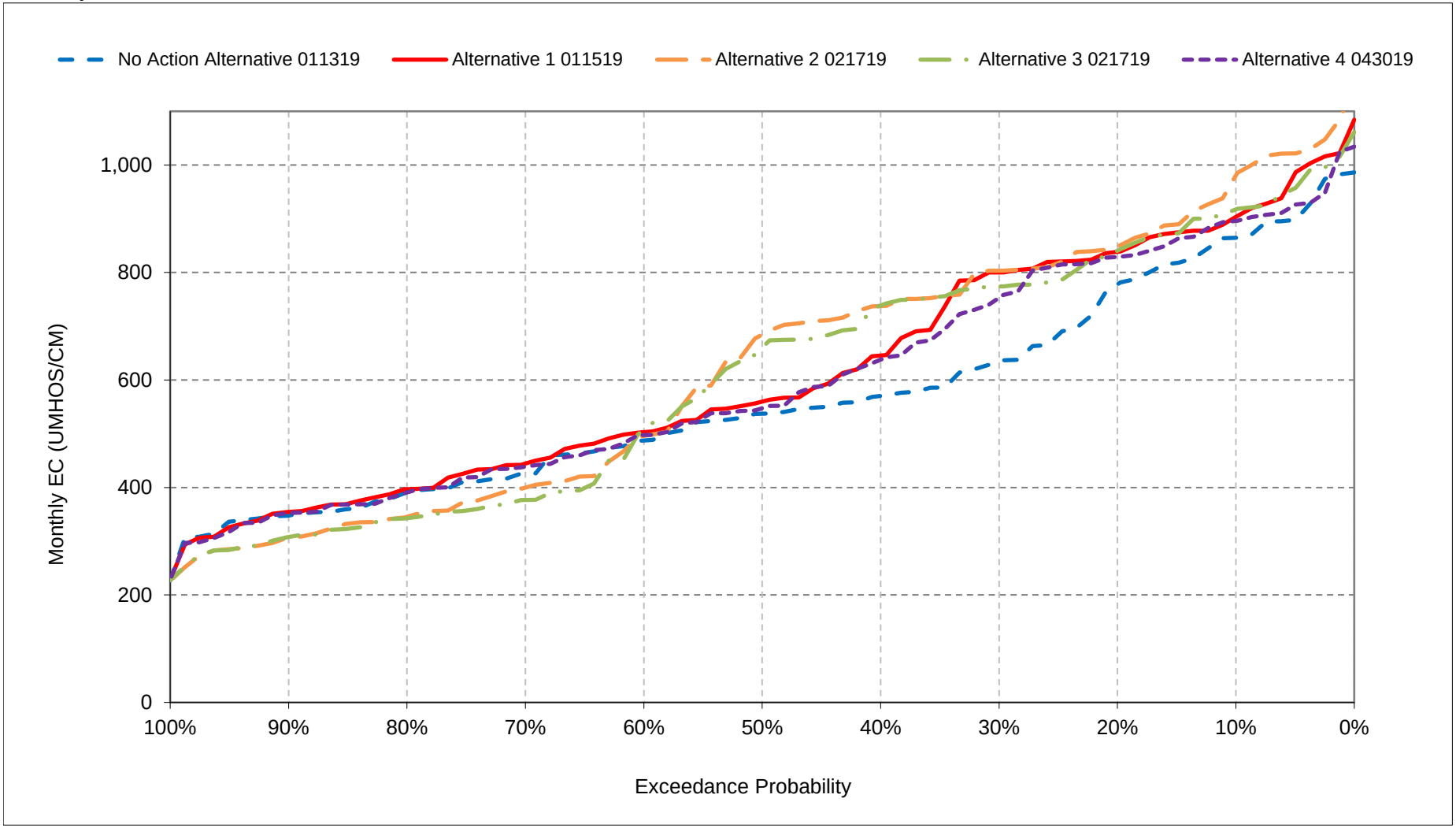

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 17-6. Old River at Highway 4, Critical Year Average EC




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

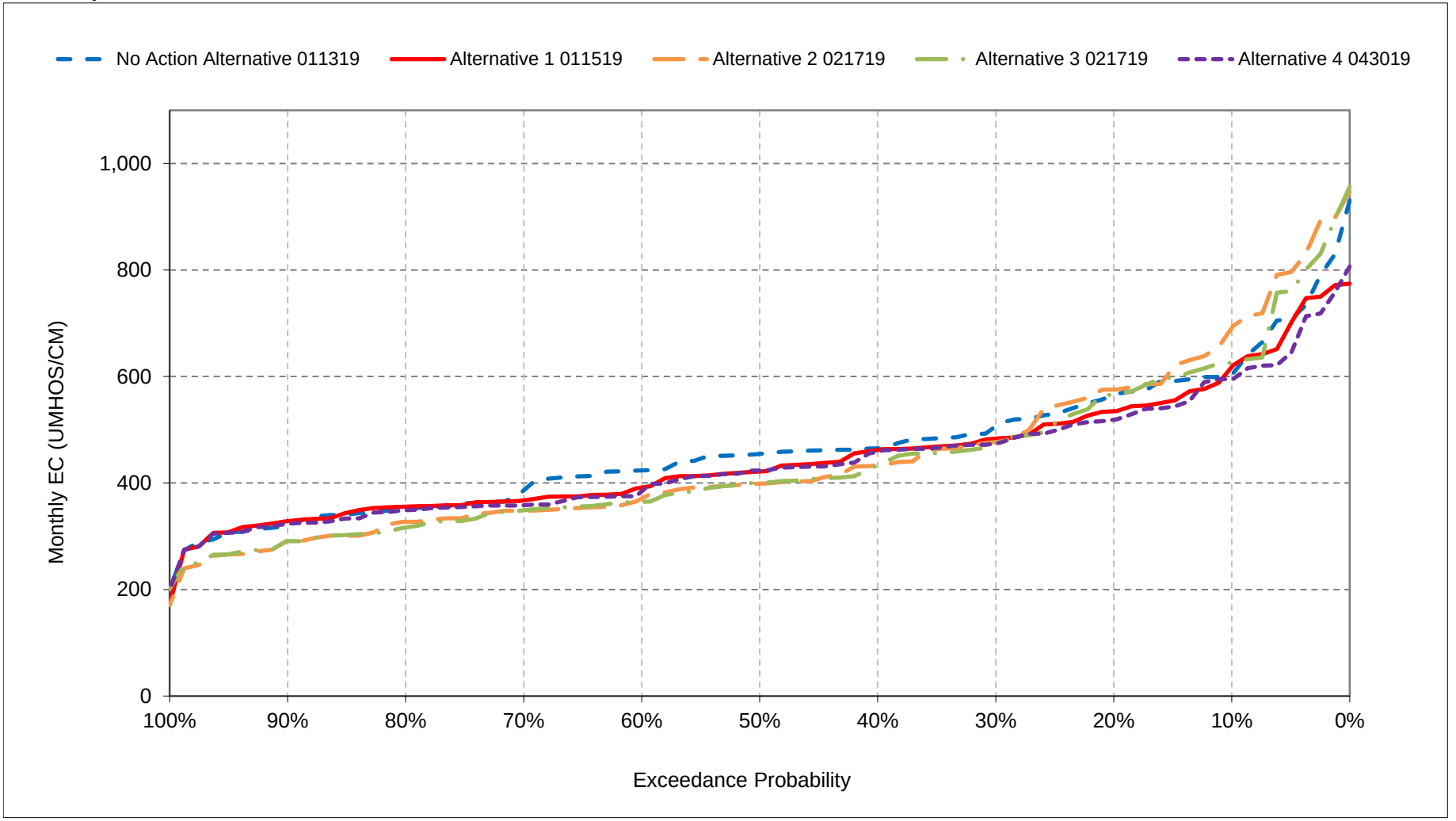
**Figure 17-7. Old River at Highway 4, January EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

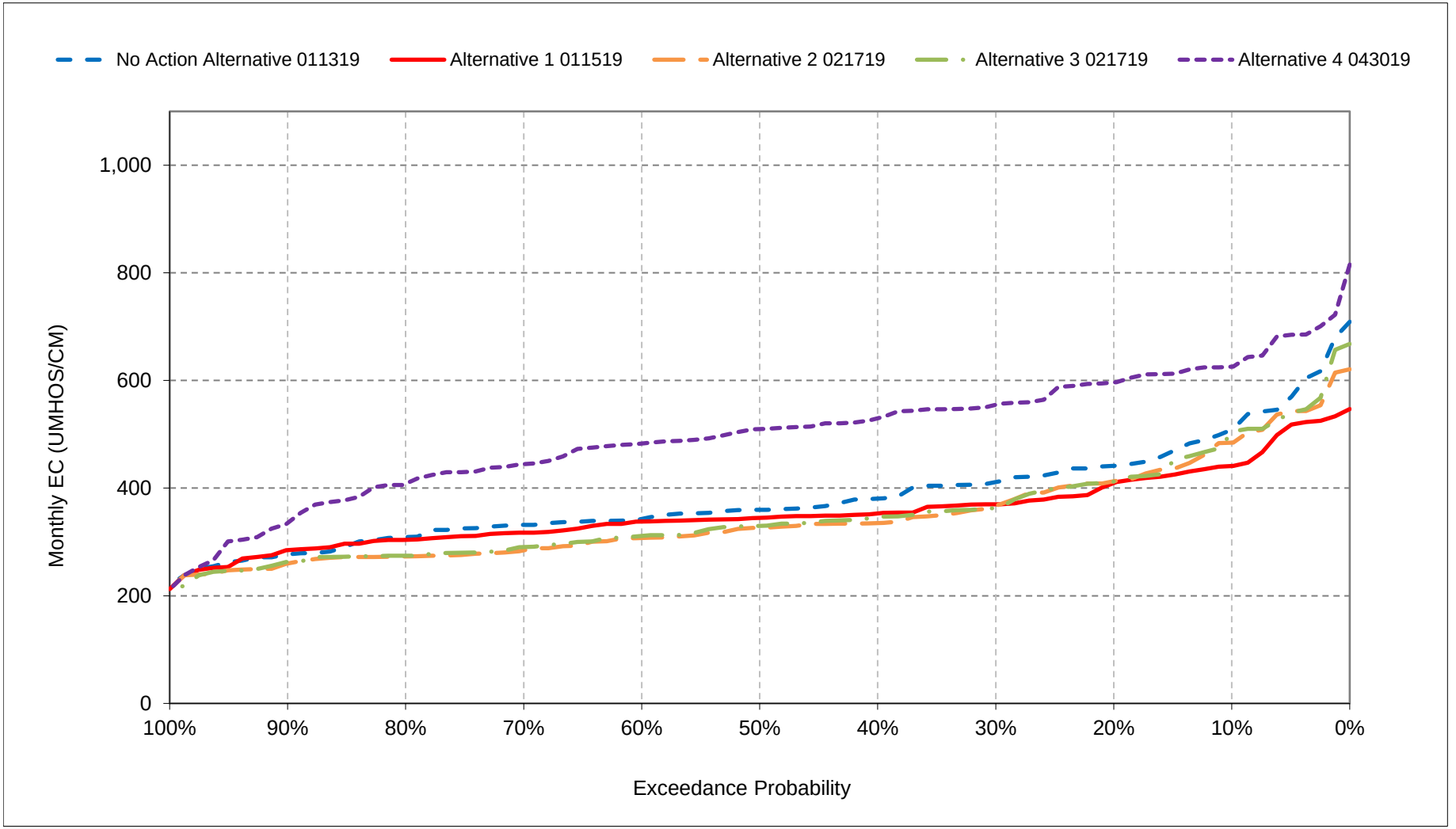
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 17-8. Old River at Highway 4, February EC**



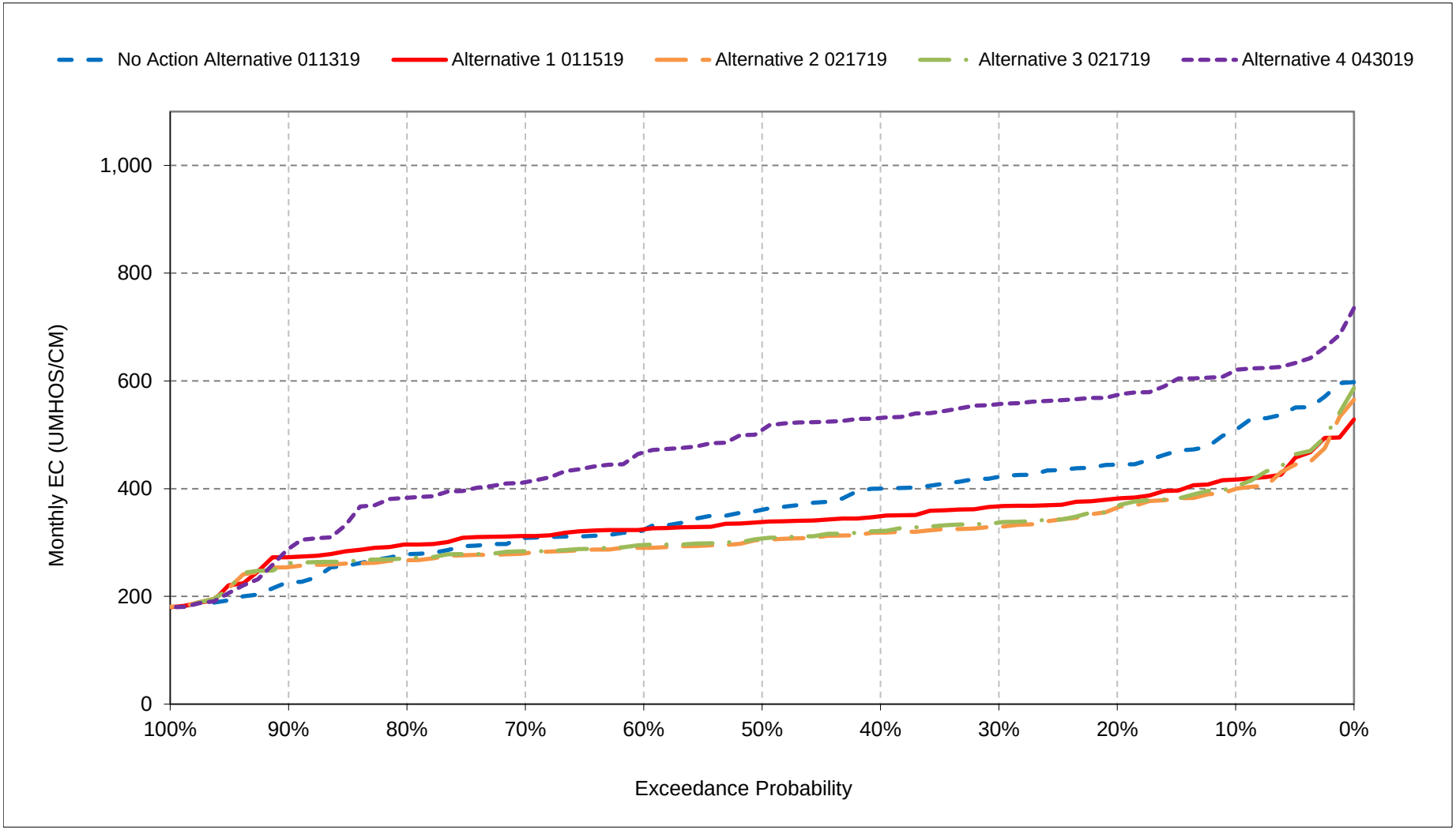

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 17-9. Old River at Highway 4, March**
**EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

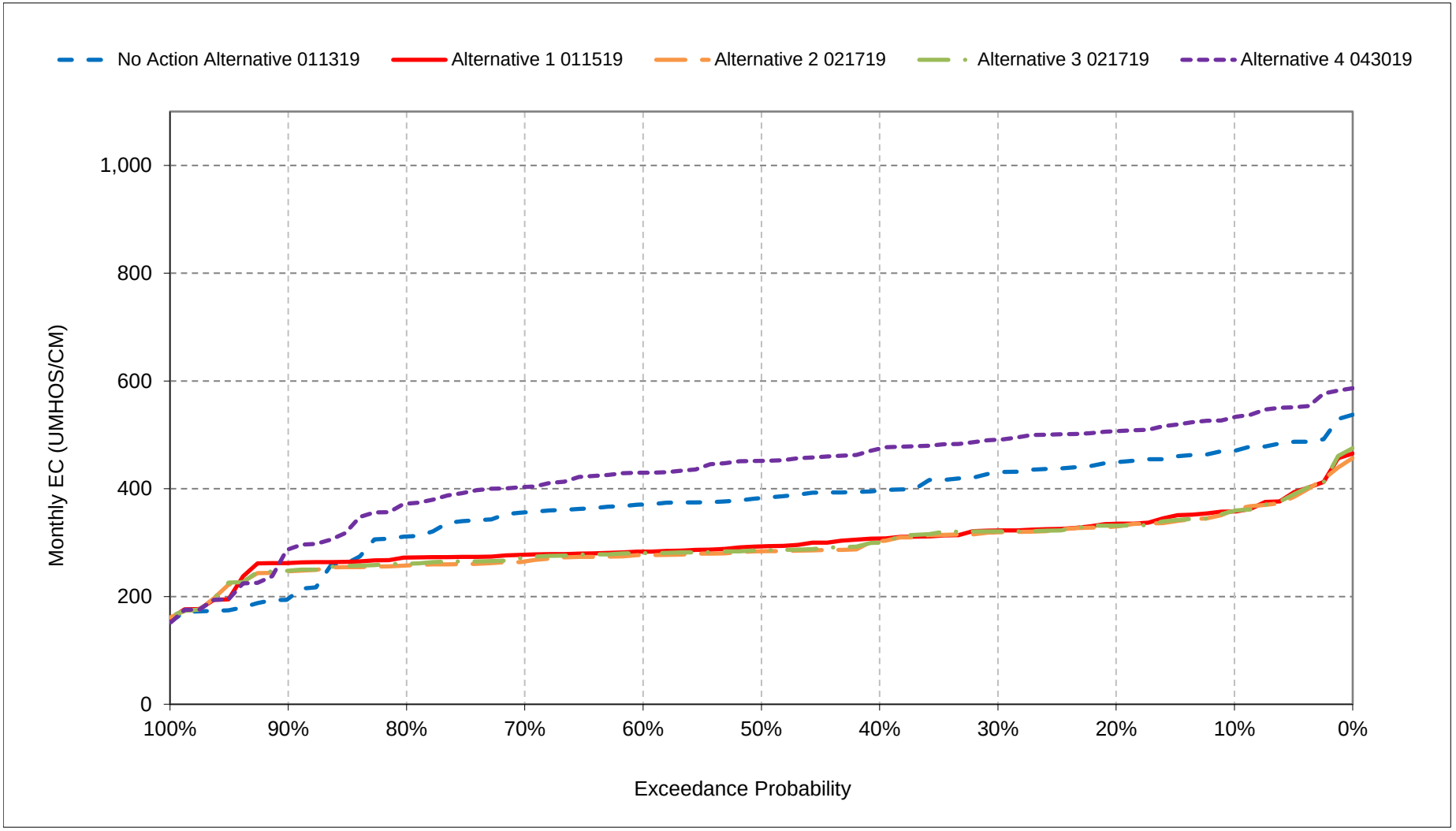
**Figure 17-10. Old River at Highway 4, April EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

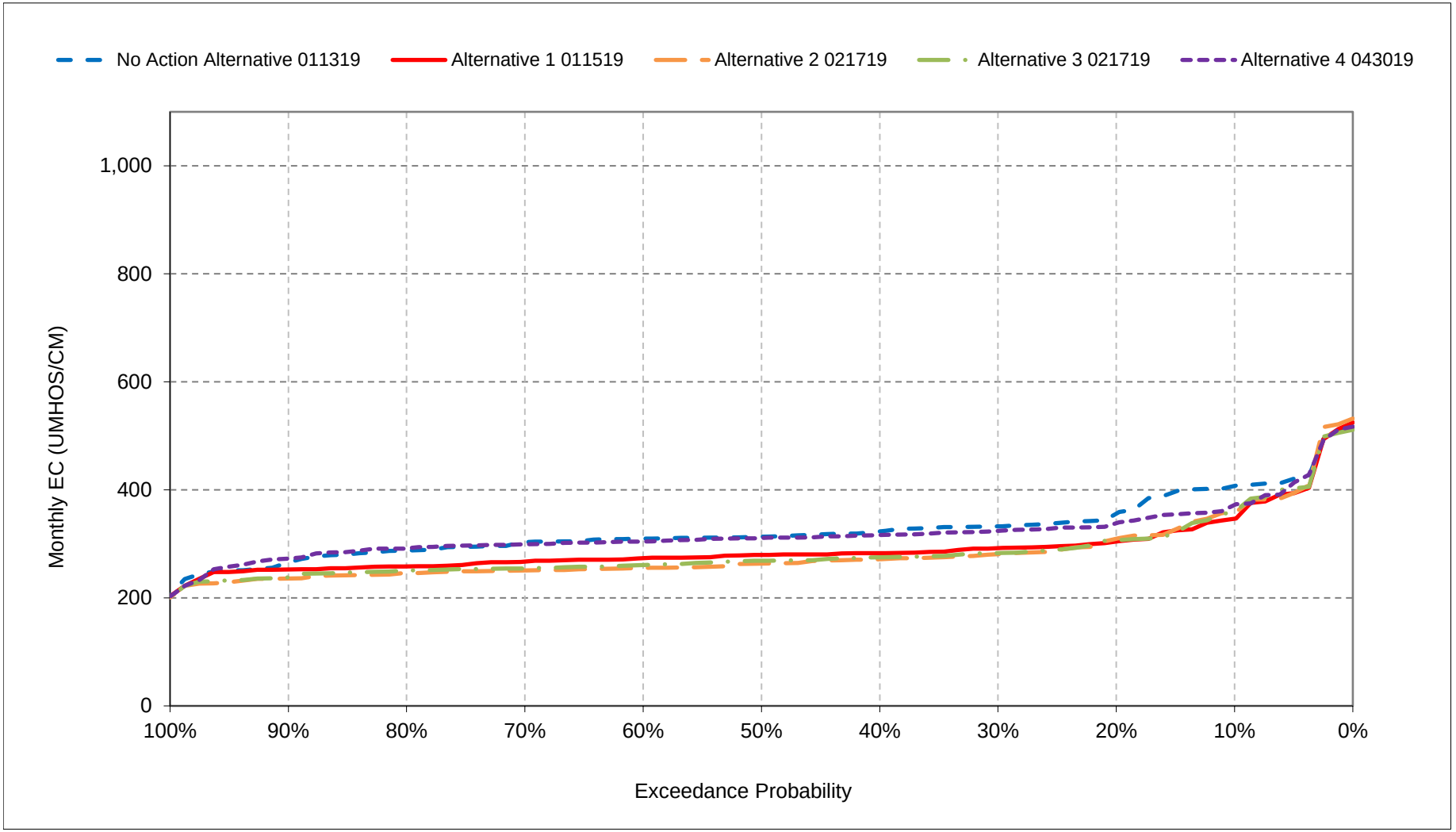
**Figure 17-11. Old River at Highway 4, May EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

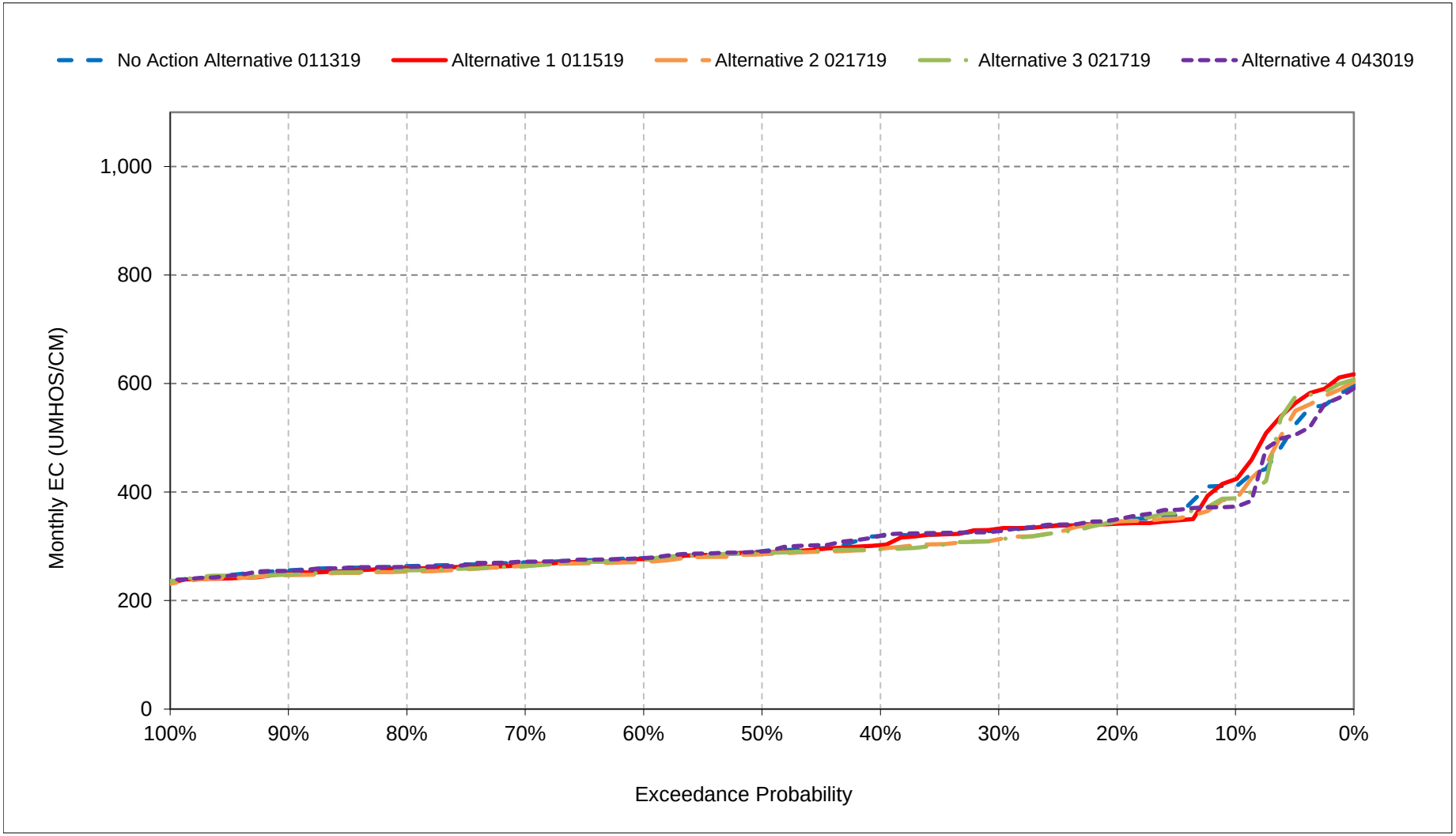
**Figure 17-12. Old River at Highway 4, June EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

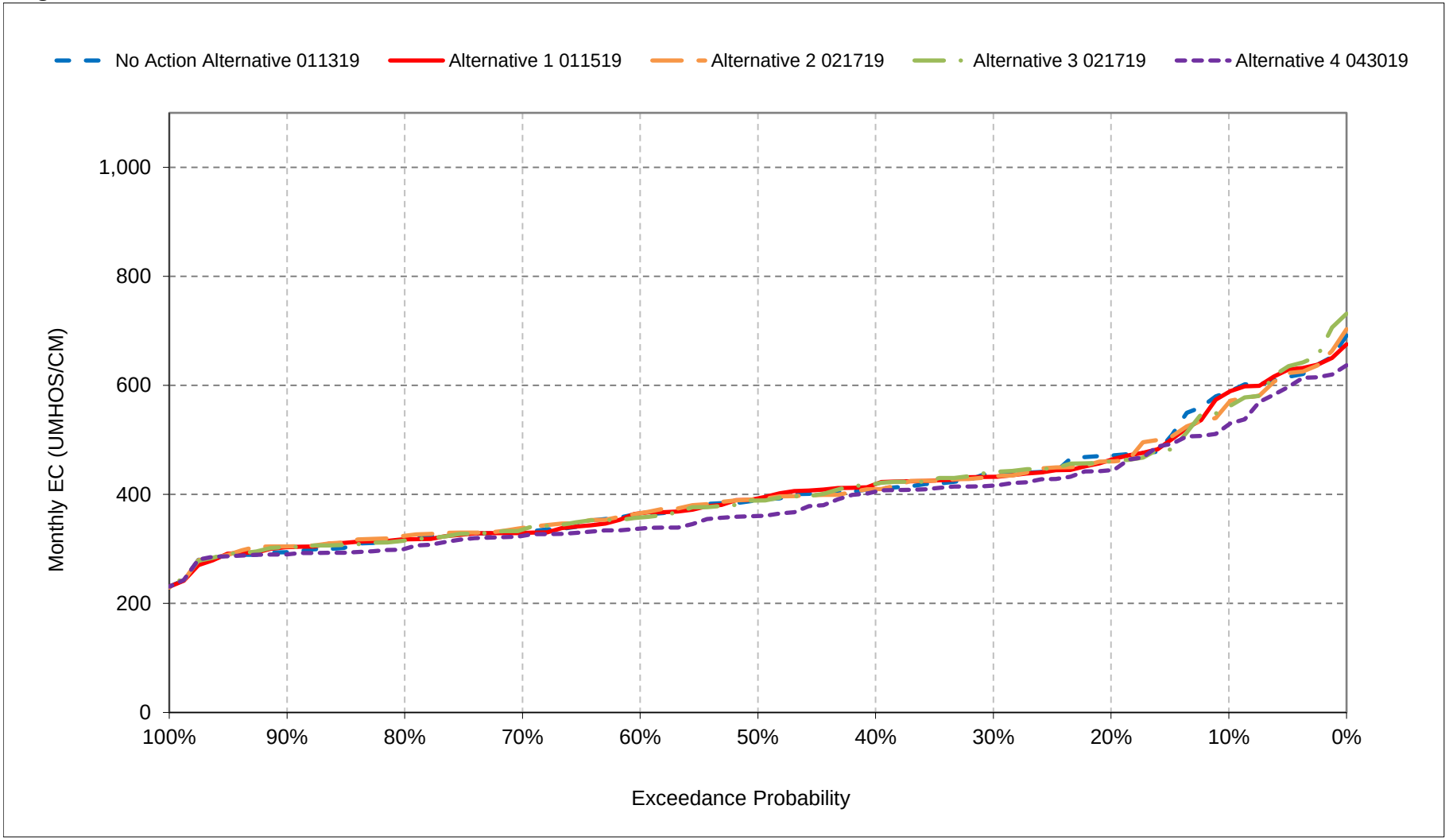
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 17-13. Old River at Highway 4, July**
**EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

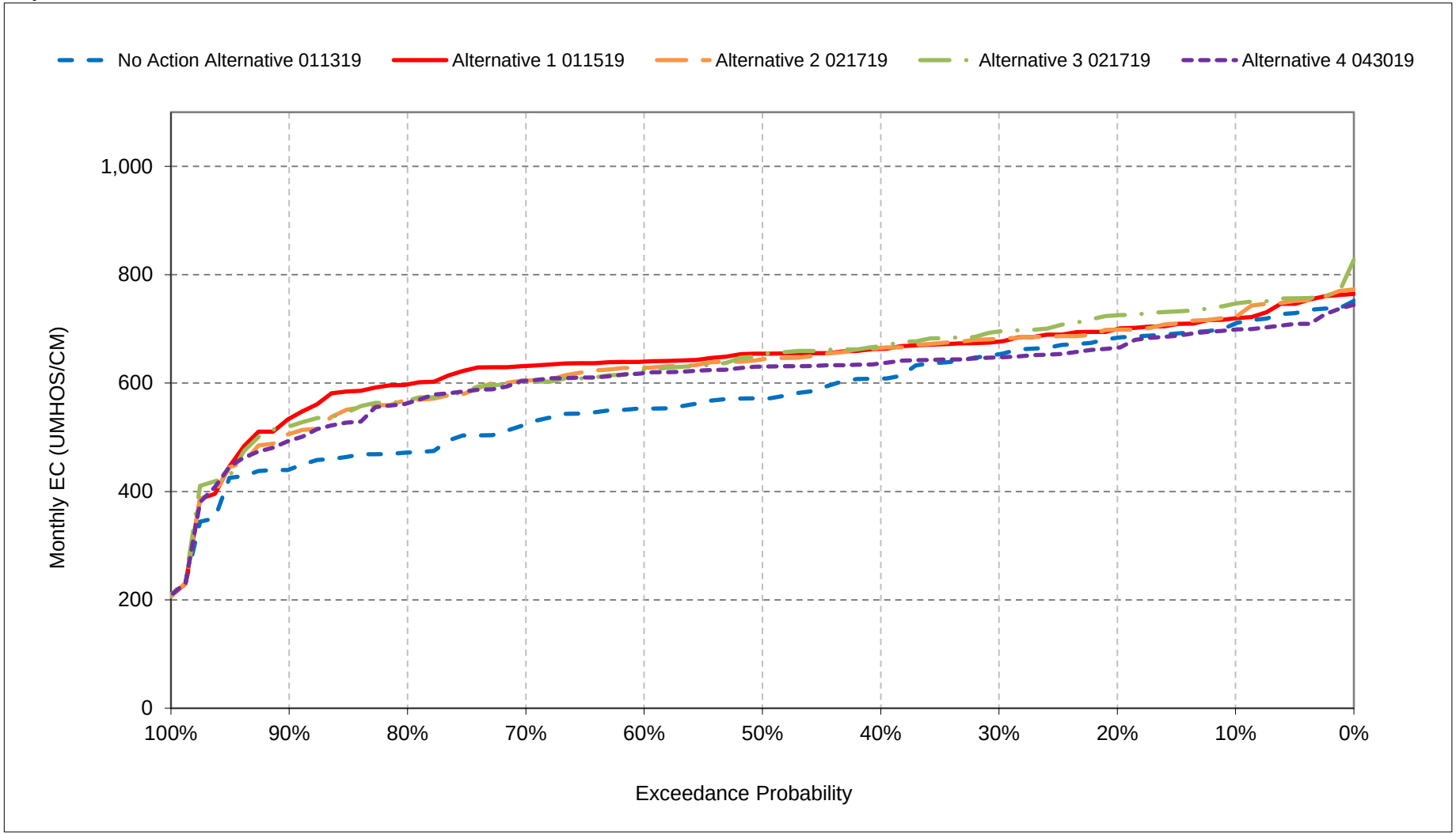
**Figure 17-14. Old River at Highway 4, August EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

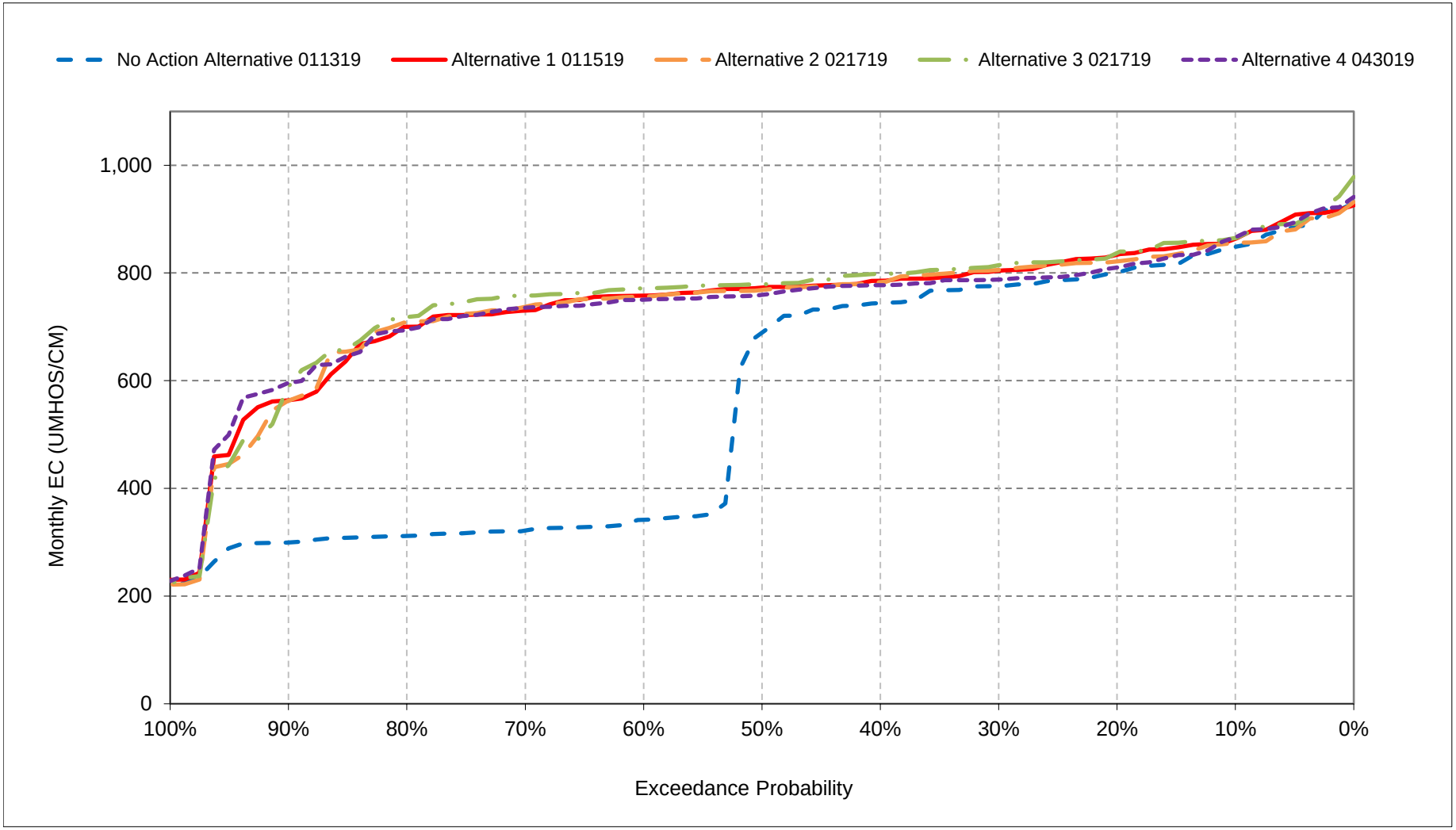
**Figure 17-15. Old River at Highway 4, September EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

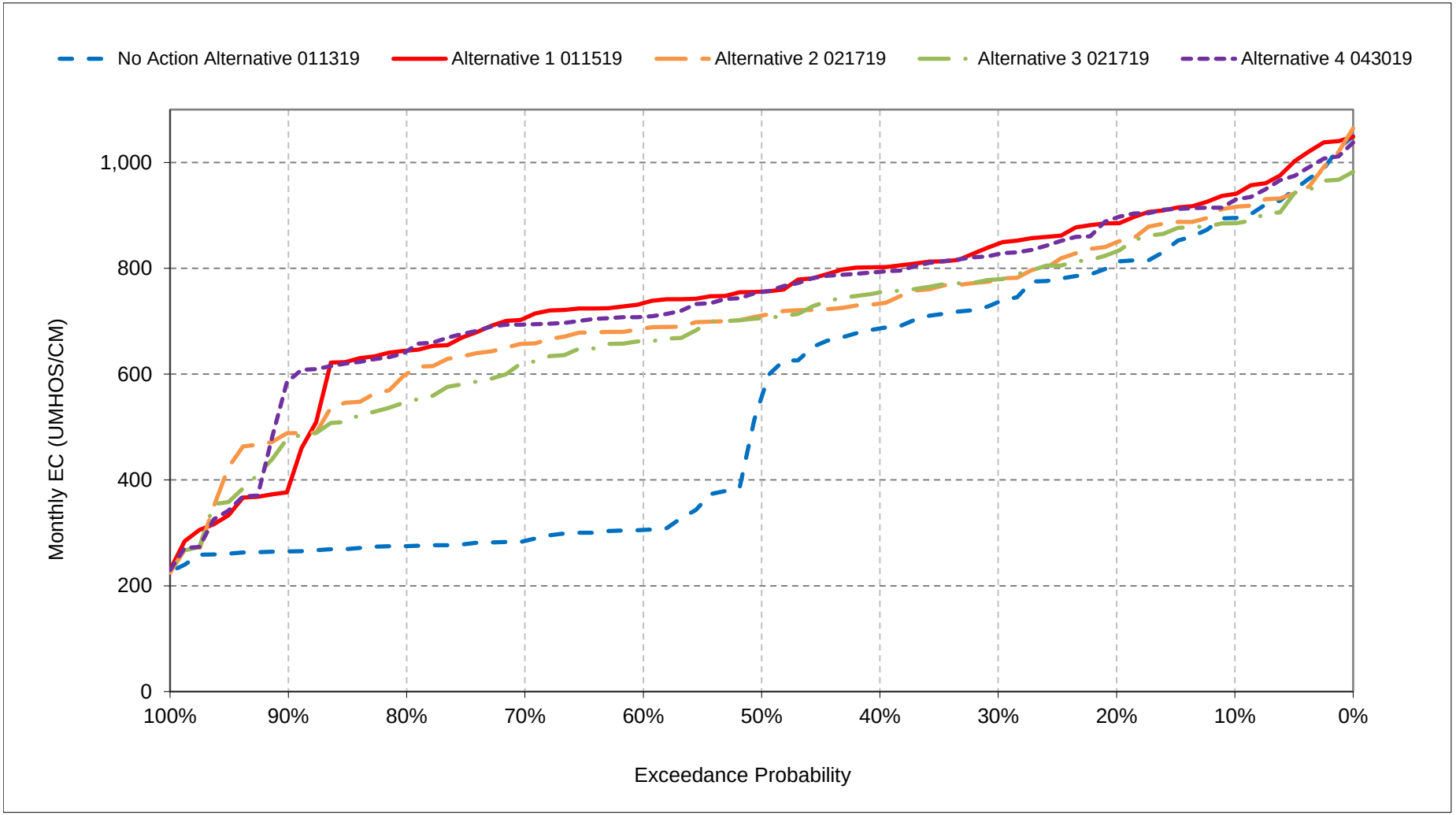
**Figure 17-16. Old River at Highway 4, October EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

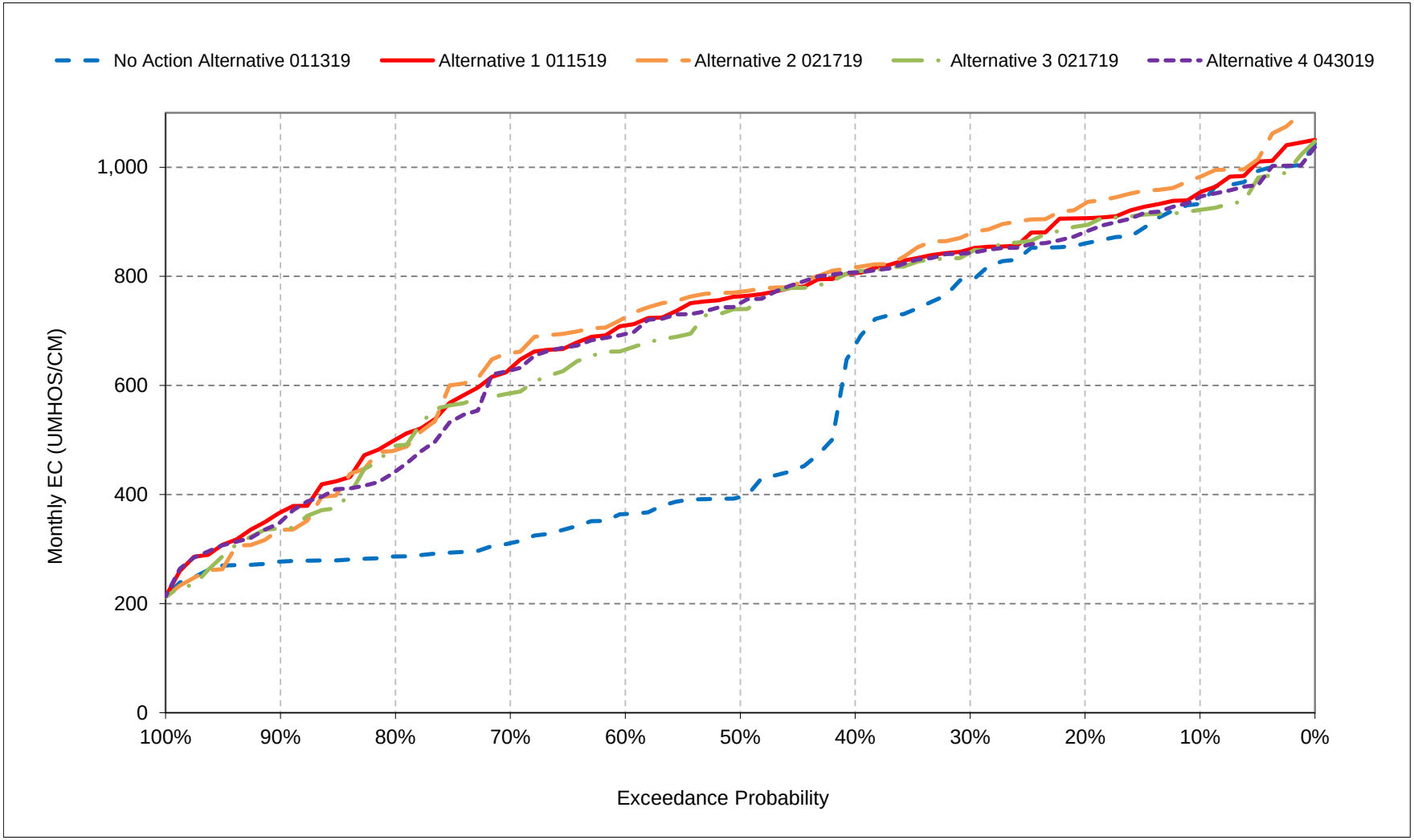
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 17-17. Old River at Highway 4, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 17-18. Old River at Highway 4, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

# Table 18-1. Victoria Canal, Monthly EC

## No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 548 | 578 | 693 | 721 | 662 | 582 | 565 | 482 | 423 | 373 | 434 | 467 |
| 20% | 521 | 532 | 621 | 680 | 611 | 556 | 506 | 464 | 393 | 354 | 363 | 449 |
| 30% | 511 | 504 | 578 | 591 | 575 | 527 | 475 | 447 | 373 | 330 | 351 | 439 |
| 40% | 490 | 474 | 517 | 557 | 551 | 500 | 454 | 430 | 365 | 312 | 327 | 423 |
| 50% | 461 | 432 | 405 | 534 | 528 | 471 | 415 | 390 | 360 | 300 | 305 | 419 |
| 60% | 381 | 362 | 363 | 501 | 505 | 434 | 335 | 364 | 355 | 290 | 301 | 409 |
| 70% | 369 | 351 | 344 | 477 | 479 | 397 | 305 | 348 | 347 | 284 | 289 | 395 |
| 80% | 350 | 345 | 318 | 444 | 425 | 346 | 272 | 305 | 337 | 274 | 270 | 359 |
| 90% | 336 | 337 | 292 | 417 | 359 | 308 | 224 | 193 | 311 | 263 | 257 | 341 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 439 | 436 | 461 | 548 | 521 | 459 | 393 | 377 | 362 | 314 | 326 | 409 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 357 | 336 | 311 | 477 | 426 | 349 | 260 | 277 | 325 | 312 | 282 | 386 |
| Above Normal (16%) | 342 | 357 | 371 | 538 | 526 | 438 | 357 | 370 | 358 | 288 | 270 | 351 |
| Below Normal (13%) | 494 | 470 | 530 | 535 | 538 | 497 | 446 | 435 | 375 | 283 | 307 | 418 |
| Dry (24%) | 506 | 498 | 542 | 597 | 565 | 515 | 470 | 422 | 367 | 301 | 371 | 430 |
| Critical (15%) | 561 | 604 | 682 | 642 | 634 | 589 | 541 | 475 | 429 | 399 | 424 | 479 |

## Alternative 1 011519

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 563 | 616 | 697 | 734 | 639 | 546 | 484 | 410 | 366 | 370 | 421 | 475 |
| 20% | 541 | 564 | 650 | 695 | 595 | 502 | 455 | 387 | 351 | 353 | 361 | 459 |
| 30% | 527 | 536 | 596 | 684 | 575 | 487 | 438 | 373 | 333 | 324 | 336 | 439 |
| 40% | 514 | 514 | 572 | 648 | 539 | 462 | 418 | 354 | 324 | 304 | 323 | 425 |
| 50% | 491 | 499 | 534 | 579 | 510 | 446 | 404 | 330 | 321 | 291 | 310 | 421 |
| 60% | 472 | 482 | 508 | 535 | 481 | 424 | 370 | 320 | 314 | 281 | 301 | 418 |
| 70% | 467 | 469 | 490 | 509 | 458 | 399 | 321 | 310 | 307 | 275 | 291 | 405 |
| 80% | 452 | 445 | 431 | 475 | 429 | 341 | 300 | 303 | 298 | 265 | 270 | 397 |
| 90% | 410 | 372 | 364 | 422 | 361 | 308 | 267 | 232 | 287 | 250 | 260 | 366 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 486 | 497 | 537 | 581 | 507 | 431 | 382 | 333 | 324 | 308 | 325 | 419 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 415 | 442 | 461 | 484 | 423 | 348 | 289 | 264 | 306 | 307 | 282 | 369 |
| Above Normal (16%) | 480 | 464 | 526 | 594 | 524 | 429 | 371 | 322 | 323 | 276 | 273 | 414 |
| Below Normal (13%) | 505 | 487 | 537 | 588 | 529 | 473 | 427 | 358 | 316 | 276 | 314 | 437 |
| Dry (24%) | 520 | 522 | 548 | 654 | 546 | 469 | 430 | 365 | 311 | 295 | 359 | 435 |
| Critical (15%) | 569 | 616 | 695 | 652 | 584 | 513 | 474 | 417 | 390 | 398 | 430 | 485 |

## Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **14** | **38** | **4** | **13** | -23 | -36 | -81 | -72 | -57 | -3 | -13 | **8** |
| 20% | **19** | **32** | **29** | **15** | -17 | -54 | -51 | -78 | -43 | -2 | -2 | **10** |
| 30% | **16** | **31** | **18** | **93** | -1 | -40 | -38 | -74 | -40 | -7 | -15 | **0** |
| 40% | **23** | **40** | **55** | **90** | -12 | -39 | -36 | -76 | -41 | -7 | -4 | **2** |
| 50% | **30** | **67** | **129** | **45** | -18 | -25 | -11 | -60 | -40 | -9 | **5** | **2** |
| 60% | **91** | **120** | **145** | **33** | -23 | -10 | **35** | -44 | -41 | -9 | -1 | **9** |
| 70% | **98** | **118** | **146** | **32** | -21 | **2** | **16** | -38 | -41 | -9 | **2** | **10** |
| 80% | **103** | **100** | **113** | **31** | **3** | -5 | **27** | -2 | -39 | -9 | **0** | **38** |
| 90% | **74** | **35** | **72** | **6** | **2** | **0** | **43** | **40** | -24 | -12 | **3** | **25** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **47** | **60** | **76** | **33** | -14 | -27 | -11 | -44 | -39 | -6 | -1 | **9** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **58** | **106** | **150** | **7** | -3 | -1 | **29** | -13 | -19 | -4 | **0** | -17 |
| Above Normal (16%) | **139** | **107** | **155** | **56** | -2 | -9 | **15** | -48 | -35 | -12 | **2** | **63** |
| Below Normal (13%) | **12** | **17** | **7** | **53** | -9 | -24 | -20 | -77 | -59 | -7 | **7** | **19** |
| Dry (24%) | **14** | **23** | **6** | **57** | -18 | -46 | -40 | -57 | -56 | -6 | -13 | **5** |
| Critical (15%) | **8** | **11** | **13** | **9** | -50 | -76 | -68 | -58 | -39 | -1 | **7** | **7** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 18-2. Victoria Canal, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 548 | 578 | 693 | 721 | 662 | 582 | 565 | 482 | 423 | 373 | 434 | 467 |
| 20% | 521 | 532 | 621 | 680 | 611 | 556 | 506 | 464 | 393 | 354 | 363 | 449 |
| 30% | 511 | 504 | 578 | 591 | 575 | 527 | 475 | 447 | 373 | 330 | 351 | 439 |
| 40% | 490 | 474 | 517 | 557 | 551 | 500 | 454 | 430 | 365 | 312 | 327 | 423 |
| 50% | 461 | 432 | 405 | 534 | 528 | 471 | 415 | 390 | 360 | 300 | 305 | 419 |
| 60% | 381 | 362 | 363 | 501 | 505 | 434 | 335 | 364 | 355 | 290 | 301 | 409 |
| 70% | 369 | 351 | 344 | 477 | 479 | 397 | 305 | 348 | 347 | 284 | 289 | 395 |
| 80% | 350 | 345 | 318 | 444 | 425 | 346 | 272 | 305 | 337 | 274 | 270 | 359 |
| 90% | 336 | 337 | 292 | 417 | 359 | 308 | 224 | 193 | 311 | 263 | 257 | 341 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 439 | 436 | 461 | 548 | 521 | 459 | 393 | 377 | 362 | 314 | 326 | 409 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 357 | 336 | 311 | 477 | 426 | 349 | 260 | 277 | 325 | 312 | 282 | 386 |
| Above Normal (16%) | 342 | 357 | 371 | 538 | 526 | 438 | 357 | 370 | 358 | 288 | 270 | 351 |
| Below Normal (13%) | 494 | 470 | 530 | 535 | 538 | 497 | 446 | 435 | 375 | 283 | 307 | 418 |
| Dry (24%) | 506 | 498 | 542 | 597 | 565 | 515 | 470 | 422 | 367 | 301 | 371 | 430 |
| Critical (15%) | 561 | 604 | 682 | 642 | 634 | 589 | 541 | 475 | 429 | 399 | 424 | 479 |

### Alternative 2 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 559 | 581 | 626 | 756 | 619 | 534 | 477 | 428 | 374 | 368 | 407 | 470 |
| 20% | 536 | 549 | 602 | 652 | 554 | 473 | 429 | 414 | 350 | 346 | 358 | 450 |
| 30% | 524 | 515 | 579 | 622 | 515 | 438 | 407 | 394 | 333 | 318 | 337 | 433 |
| 40% | 513 | 496 | 549 | 598 | 478 | 423 | 388 | 369 | 321 | 303 | 328 | 424 |
| 50% | 505 | 484 | 535 | 567 | 456 | 402 | 370 | 348 | 307 | 290 | 318 | 419 |
| 60% | 489 | 470 | 517 | 467 | 421 | 386 | 352 | 332 | 299 | 280 | 303 | 410 |
| 70% | 479 | 439 | 484 | 442 | 403 | 355 | 333 | 313 | 290 | 266 | 292 | 399 |
| 80% | 458 | 419 | 410 | 418 | 361 | 321 | 301 | 306 | 282 | 250 | 280 | 388 |
| 90% | 377 | 397 | 332 | 361 | 331 | 300 | 257 | 235 | 268 | 247 | 269 | 335 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 487 | 484 | 512 | 546 | 466 | 407 | 369 | 346 | 318 | 303 | 327 | 411 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 410 | 417 | 469 | 433 | 364 | 332 | 286 | 269 | 297 | 303 | 284 | 360 |
| Above Normal (16%) | 499 | 498 | 528 | 535 | 441 | 377 | 347 | 331 | 304 | 267 | 280 | 420 |
| Below Normal (13%) | 509 | 484 | 503 | 594 | 554 | 466 | 411 | 373 | 291 | 260 | 329 | 421 |
| Dry (24%) | 519 | 482 | 482 | 617 | 499 | 424 | 406 | 387 | 316 | 294 | 353 | 426 |
| Critical (15%) | 564 | 614 | 650 | 638 | 579 | 521 | 475 | 436 | 406 | 392 | 429 | 478 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **10** | **3** | -67 | **35** | -43 | -48 | -88 | -54 | -49 | -5 | -27 | **3** |
| 20% | **15** | **17** | -19 | -28 | -58 | -84 | -77 | -51 | -43 | -8 | -4 | **1** |
| 30% | **13** | **11** | **1** | **31** | -61 | -89 | -69 | -54 | -40 | -12 | -15 | -5 |
| 40% | **22** | **22** | **32** | **41** | -73 | -78 | -66 | -62 | -44 | -9 | **1** | **1** |
| 50% | **44** | **52** | **130** | **33** | -72 | -69 | -45 | -42 | -53 | -9 | **13** | **0** |
| 60% | **108** | **108** | **154** | -34 | -84 | -48 | **17** | -32 | -56 | -10 | **1** | **2** |
| 70% | **110** | **88** | **141** | -36 | -76 | -42 | **28** | -36 | -58 | -19 | **3** | **4** |
| 80% | **108** | **74** | **93** | -27 | -64 | -24 | **29** | **1** | -56 | -25 | **10** | **29** |
| 90% | **41** | **60** | **40** | -55 | -27 | -8 | **33** | **43** | -43 | -16 | **12** | -6 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **48** | **47** | **52** | -2 | -55 | -52 | -23 | -31 | -45 | -12 | **1** | **2** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **54** | **81** | **158** | -44 | -62 | -17 | **26** | -7 | -28 | -8 | **2** | -26 |
| Above Normal (16%) | **158** | **141** | **157** | -2 | -84 | -61 | -10 | -39 | -55 | -21 | **10** | **70** |
| Below Normal (13%) | **15** | **15** | -27 | **58** | **16** | -32 | -35 | -62 | -85 | -23 | **22** | **3** |
| Dry (24%) | **14** | -17 | -61 | **21** | -66 | -91 | -64 | -35 | -51 | -7 | -19 | -4 |
| Critical (15%) | **3** | **10** | -32 | -4 | -55 | -68 | -66 | -39 | -24 | -7 | **5** | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 18-3. Victoria Canal, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 548 | 578 | 693 | 721 | 662 | 582 | 565 | 482 | 423 | 373 | 434 | 467 |
| 20% | 521 | 532 | 621 | 680 | 611 | 556 | 506 | 464 | 393 | 354 | 363 | 449 |
| 30% | 511 | 504 | 578 | 591 | 575 | 527 | 475 | 447 | 373 | 330 | 351 | 439 |
| 40% | 490 | 474 | 517 | 557 | 551 | 500 | 454 | 430 | 365 | 312 | 327 | 423 |
| 50% | 461 | 432 | 405 | 534 | 528 | 471 | 415 | 390 | 360 | 300 | 305 | 419 |
| 60% | 381 | 362 | 363 | 501 | 505 | 434 | 335 | 364 | 355 | 290 | 301 | 409 |
| 70% | 369 | 351 | 344 | 477 | 479 | 397 | 305 | 348 | 347 | 284 | 289 | 395 |
| 80% | 350 | 345 | 318 | 444 | 425 | 346 | 272 | 305 | 337 | 274 | 270 | 359 |
| 90% | 336 | 337 | 292 | 417 | 359 | 308 | 224 | 193 | 311 | 263 | 257 | 341 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 439 | 436 | 461 | 548 | 521 | 459 | 393 | 377 | 362 | 314 | 326 | 409 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 357 | 336 | 311 | 477 | 426 | 349 | 260 | 277 | 325 | 312 | 282 | 386 |
| Above Normal (16%) | 342 | 357 | 371 | 538 | 526 | 438 | 357 | 370 | 358 | 288 | 270 | 351 |
| Below Normal (13%) | 494 | 470 | 530 | 535 | 538 | 497 | 446 | 435 | 375 | 283 | 307 | 418 |
| Dry (24%) | 506 | 498 | 542 | 597 | 565 | 515 | 470 | 422 | 367 | 301 | 371 | 430 |
| Critical (15%) | 561 | 604 | 682 | 642 | 634 | 589 | 541 | 475 | 429 | 399 | 424 | 479 |

### Alternative 3 021719

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 586 | 611 | 617 | 733 | 615 | 523 | 501 | 437 | 381 | 386 | 410 | 491 |
| 20% | 564 | 560 | 601 | 670 | 553 | 482 | 443 | 425 | 357 | 350 | 353 | 475 |
| 30% | 547 | 540 | 569 | 634 | 519 | 454 | 418 | 405 | 337 | 325 | 345 | 460 |
| 40% | 537 | 510 | 547 | 597 | 477 | 423 | 399 | 378 | 325 | 306 | 340 | 444 |
| 50% | 530 | 494 | 529 | 555 | 459 | 406 | 381 | 354 | 317 | 296 | 325 | 433 |
| 60% | 518 | 483 | 505 | 472 | 427 | 392 | 358 | 339 | 309 | 285 | 308 | 423 |
| 70% | 505 | 458 | 479 | 443 | 407 | 360 | 335 | 322 | 296 | 270 | 299 | 408 |
| 80% | 482 | 436 | 411 | 408 | 358 | 329 | 305 | 314 | 287 | 255 | 279 | 390 |
| 90% | 402 | 394 | 335 | 363 | 330 | 302 | 271 | 234 | 273 | 248 | 270 | 348 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 511 | 494 | 506 | 541 | 466 | 413 | 378 | 354 | 324 | 308 | 334 | 428 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 437 | 436 | 462 | 432 | 367 | 334 | 290 | 273 | 301 | 306 | 291 | 374 |
| Above Normal (16%) | 519 | 511 | 531 | 512 | 437 | 384 | 352 | 337 | 312 | 274 | 281 | 434 |
| Below Normal (13%) | 543 | 503 | 499 | 598 | 563 | 479 | 422 | 381 | 299 | 265 | 333 | 449 |
| Dry (24%) | 545 | 491 | 481 | 615 | 497 | 436 | 420 | 397 | 322 | 299 | 360 | 444 |
| Critical (15%) | 574 | 602 | 618 | 635 | 570 | 519 | 489 | 452 | 415 | 404 | 442 | 490 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **38** | **33** | -76 | **12** | -47 | -59 | -63 | -45 | -42 | **13** | -24 | **25** |
| 20% | **43** | **29** | -20 | -10 | -58 | -75 | -63 | -39 | -37 | -4 | -9 | **26** |
| 30% | **36** | **35** | -9 | **42** | -56 | -73 | -57 | -42 | -37 | -5 | -6 | **21** |
| 40% | **47** | **35** | **30** | **39** | -74 | -77 | -55 | -53 | -40 | -6 | **13** | **21** |
| 50% | **68** | **61** | **124** | **21** | -69 | -65 | -33 | -36 | -44 | -4 | **20** | **15** |
| 60% | **136** | **121** | **141** | -29 | -78 | -42 | **22** | -25 | -46 | -5 | **7** | **14** |
| 70% | **136** | **107** | **135** | -34 | -72 | -37 | **31** | -26 | -52 | -14 | **10** | **13** |
| 80% | **133** | **91** | **93** | -37 | -67 | -17 | **33** | **9** | -50 | -19 | **9** | **31** |
| 90% | **66** | **57** | **43** | -53 | -28 | -6 | **47** | **41** | -38 | -15 | **14** | **7** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **72** | **58** | **45** | -7 | -55 | -46 | -14 | -23 | -38 | -6 | **8** | **19** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **80** | **99** | **151** | -45 | -59 | -16 | **30** | -4 | -24 | -5 | **8** | -12 |
| Above Normal (16%) | **178** | **153** | **160** | -26 | -89 | -55 | -4 | -33 | -46 | -15 | **11** | **84** |
| Below Normal (13%) | **50** | **33** | -31 | **62** | **25** | -18 | -24 | -54 | -76 | -19 | **26** | **31** |
| Dry (24%) | **39** | -8 | -61 | **18** | -68 | -79 | -50 | -24 | -45 | -2 | -11 | **14** |
| Critical (15%) | **13** | -2 | -64 | -7 | -63 | -71 | -52 | -23 | -14 | **5** | **19** | **12** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 18-4. Victoria Canal, Monthly EC

### No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 548 | 578 | 693 | 721 | 662 | 582 | 565 | 482 | 423 | 373 | 434 | 467 |
| 20% | 521 | 532 | 621 | 680 | 611 | 556 | 506 | 464 | 393 | 354 | 363 | 449 |
| 30% | 511 | 504 | 578 | 591 | 575 | 527 | 475 | 447 | 373 | 330 | 351 | 439 |
| 40% | 490 | 474 | 517 | 557 | 551 | 500 | 454 | 430 | 365 | 312 | 327 | 423 |
| 50% | 461 | 432 | 405 | 534 | 528 | 471 | 415 | 390 | 360 | 300 | 305 | 419 |
| 60% | 381 | 362 | 363 | 501 | 505 | 434 | 335 | 364 | 355 | 290 | 301 | 409 |
| 70% | 369 | 351 | 344 | 477 | 479 | 397 | 305 | 348 | 347 | 284 | 289 | 395 |
| 80% | 350 | 345 | 318 | 444 | 425 | 346 | 272 | 305 | 337 | 274 | 270 | 359 |
| 90% | 336 | 337 | 292 | 417 | 359 | 308 | 224 | 193 | 311 | 263 | 257 | 341 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 439 | 436 | 461 | 548 | 521 | 459 | 393 | 377 | 362 | 314 | 326 | 409 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 357 | 336 | 311 | 477 | 426 | 349 | 260 | 277 | 325 | 312 | 282 | 386 |
| Above Normal (16%) | 342 | 357 | 371 | 538 | 526 | 438 | 357 | 370 | 358 | 288 | 270 | 351 |
| Below Normal (13%) | 494 | 470 | 530 | 535 | 538 | 497 | 446 | 435 | 375 | 283 | 307 | 418 |
| Dry (24%) | 506 | 498 | 542 | 597 | 565 | 515 | 470 | 422 | 367 | 301 | 371 | 430 |
| Critical (15%) | 561 | 604 | 682 | 642 | 634 | 589 | 541 | 475 | 429 | 399 | 424 | 479 |

### Alternative 4 043019

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 554 | 582 | 695 | 721 | 635 | 660 | 628 | 538 | 396 | 384 | 390 | 468 |
| 20% | 526 | 560 | 634 | 691 | 596 | 634 | 583 | 519 | 376 | 357 | 365 | 442 |
| 30% | 509 | 537 | 587 | 675 | 569 | 596 | 560 | 500 | 369 | 327 | 338 | 426 |
| 40% | 496 | 511 | 556 | 628 | 537 | 577 | 541 | 481 | 363 | 303 | 326 | 419 |
| 50% | 487 | 484 | 538 | 569 | 500 | 546 | 493 | 436 | 355 | 292 | 309 | 410 |
| 60% | 467 | 475 | 517 | 535 | 481 | 484 | 412 | 410 | 349 | 285 | 301 | 397 |
| 70% | 457 | 467 | 487 | 508 | 459 | 436 | 353 | 382 | 340 | 282 | 292 | 390 |
| 80% | 447 | 448 | 432 | 464 | 423 | 374 | 317 | 353 | 332 | 275 | 272 | 373 |
| 90% | 414 | 416 | 360 | 421 | 344 | 321 | 260 | 222 | 311 | 265 | 256 | 351 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 479 | 494 | 531 | 573 | 501 | 513 | 457 | 421 | 354 | 312 | 324 | 407 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 419 | 448 | 460 | 484 | 421 | 388 | 306 | 307 | 321 | 311 | 284 | 366 |
| Above Normal (16%) | 480 | 472 | 521 | 580 | 516 | 517 | 433 | 410 | 351 | 285 | 270 | 401 |
| Below Normal (13%) | 475 | 469 | 515 | 566 | 515 | 578 | 532 | 486 | 354 | 281 | 312 | 389 |
| Dry (24%) | 511 | 515 | 544 | 648 | 542 | 588 | 556 | 494 | 359 | 299 | 356 | 428 |
| Critical (15%) | 560 | 604 | 687 | 641 | 579 | 597 | 576 | 497 | 417 | 396 | 426 | 482 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly EC (UMHOS/CM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **6** | **5** | **2** | 0 | -27 | **78** | **63** | **56** | -27 | **11** | -44 | **2** |
| 20% | **5** | **29** | **12** | **11** | -16 | **78** | **77** | **54** | -17 | **3** | **2** | -7 |
| 30% | -2 | **33** | **8** | **83** | -7 | **69** | **85** | **53** | -5 | -3 | -13 | -13 |
| 40% | **5** | **37** | **39** | **70** | -14 | **76** | **87** | **51** | -2 | -9 | -2 | -4 |
| 50% | **26** | **52** | **134** | **35** | -28 | **76** | **78** | **46** | -5 | -8 | **4** | -9 |
| 60% | **86** | **113** | **153** | **34** | -24 | **50** | **77** | **46** | -7 | -5 | -1 | -12 |
| 70% | **88** | **116** | **143** | **31** | -20 | **38** | **48** | **34** | -7 | -3 | **2** | -5 |
| 80% | **98** | **103** | **115** | **20** | -2 | **28** | **45** | **48** | -5 | **0** | **2** | **14** |
| 90% | **78** | **78** | **68** | **4** | -15 | **12** | **36** | **29** | -1 | **2** | 0 | **10** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **40** | **58** | **70** | **25** | -20 | **54** | **64** | **44** | -9 | -2 | -2 | -3 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **63** | **112** | **149** | **7** | -5 | **39** | **46** | **30** | -4 | 0 | **1** | -21 |
| Above Normal (16%) | **138** | **115** | **150** | **42** | -9 | **79** | **76** | **40** | -7 | -3 | -1 | **50** |
| Below Normal (13%) | -19 | -1 | -15 | **31** | -23 | **81** | **86** | **51** | -21 | -2 | **5** | -29 |
| Dry (24%) | **5** | **17** | **2** | **51** | -23 | **73** | **86** | **73** | -8 | -2 | -15 | -2 |
| Critical (15%) | -1 | -1 | **5** | -1 | -55 | **8** | **35** | **22** | -12 | -3 | **3** | **3** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

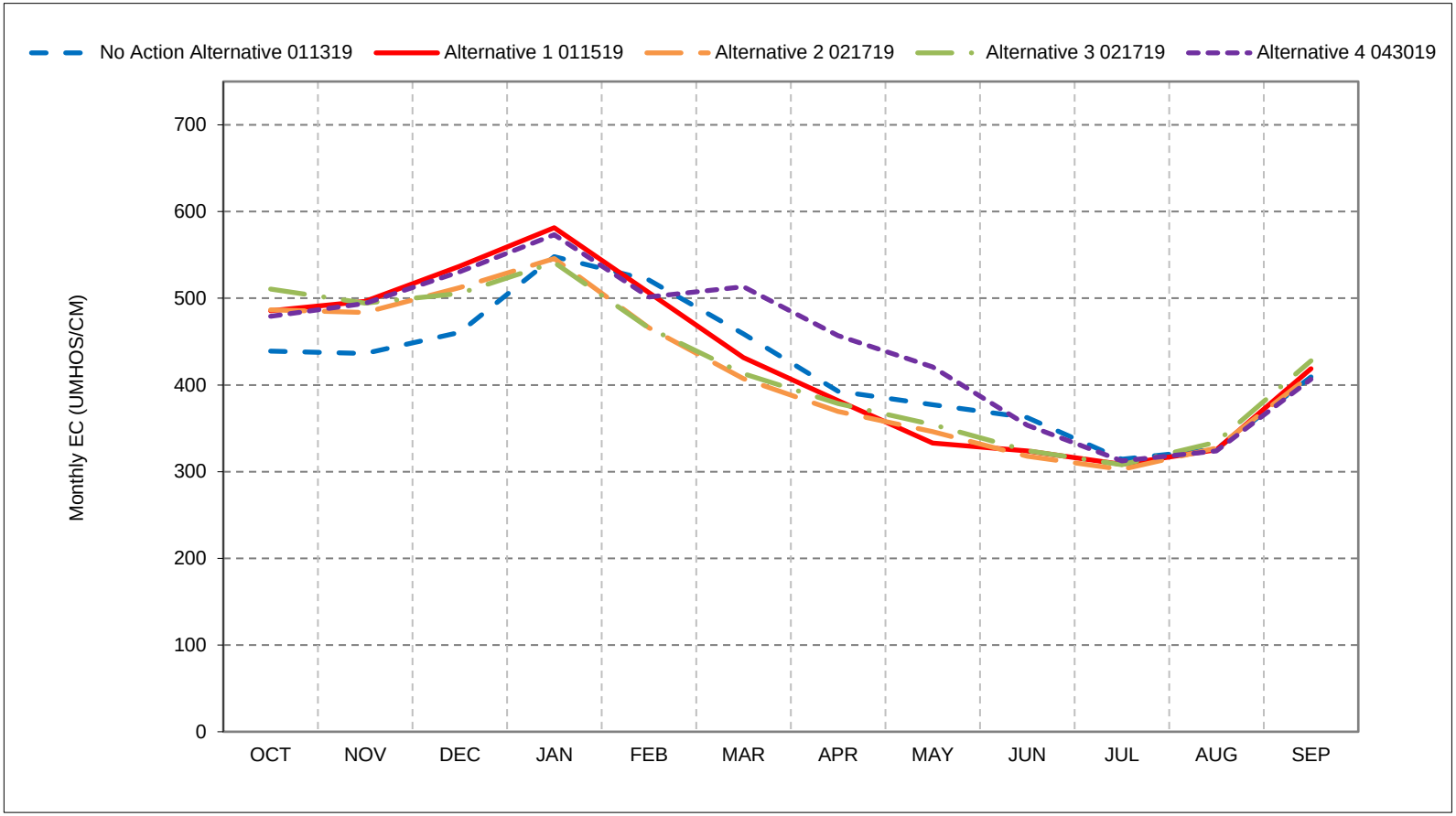
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

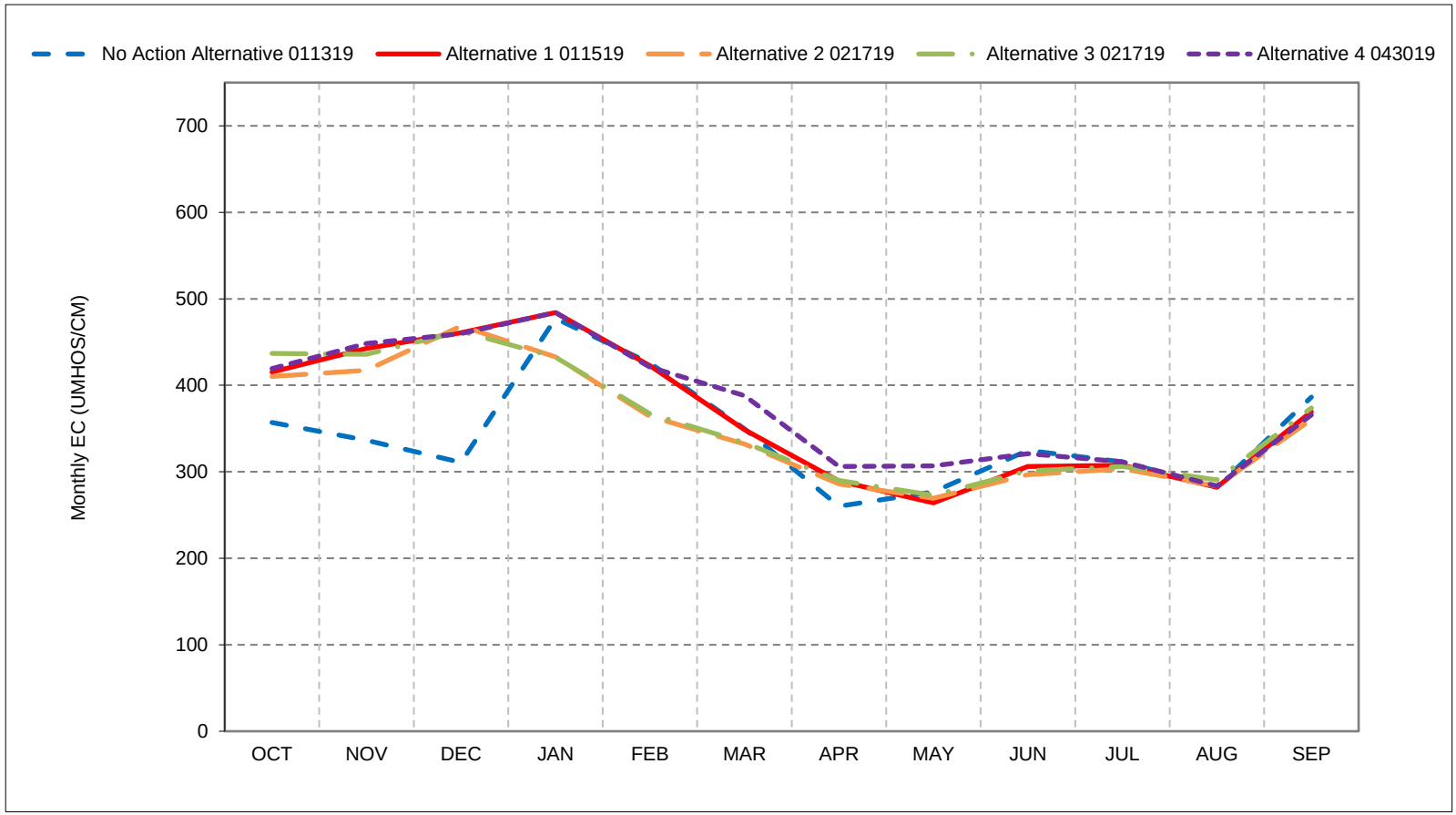
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 18-1. Victoria Canal, Long-Term Average EC



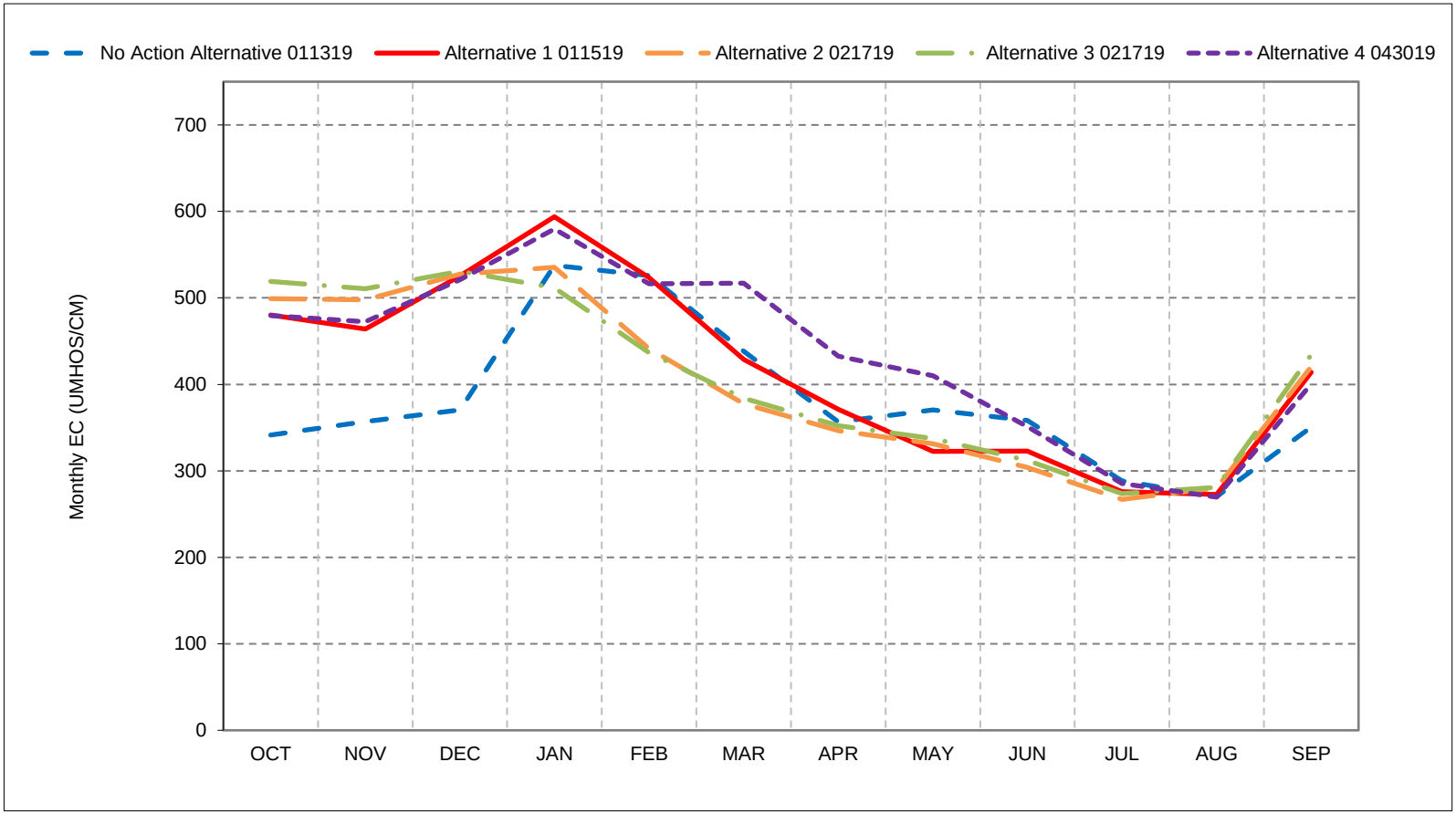

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 18-2. Victoria Canal, Wet Year Average EC



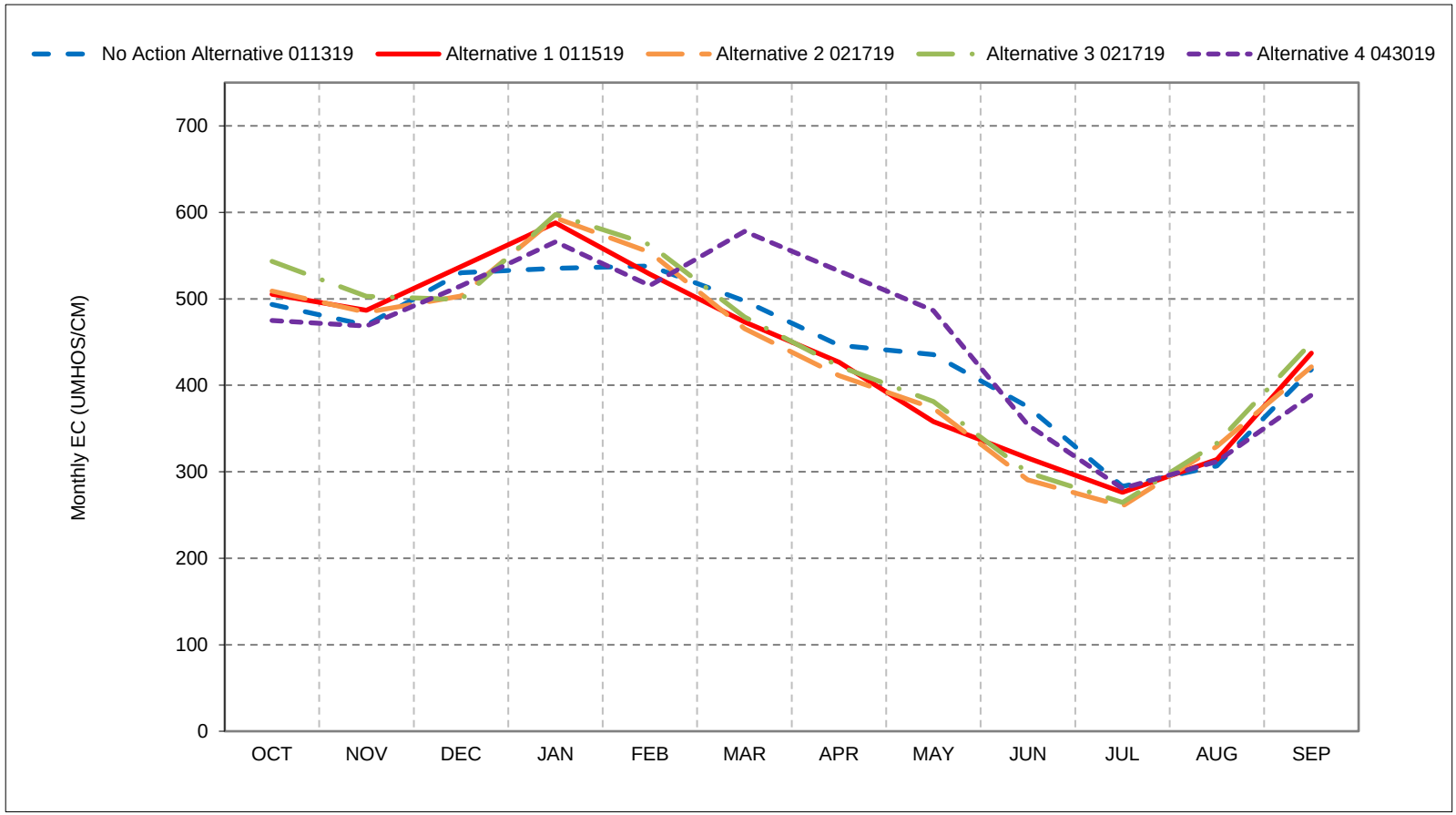

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 18-3. Victoria Canal, Above Normal Year Average EC



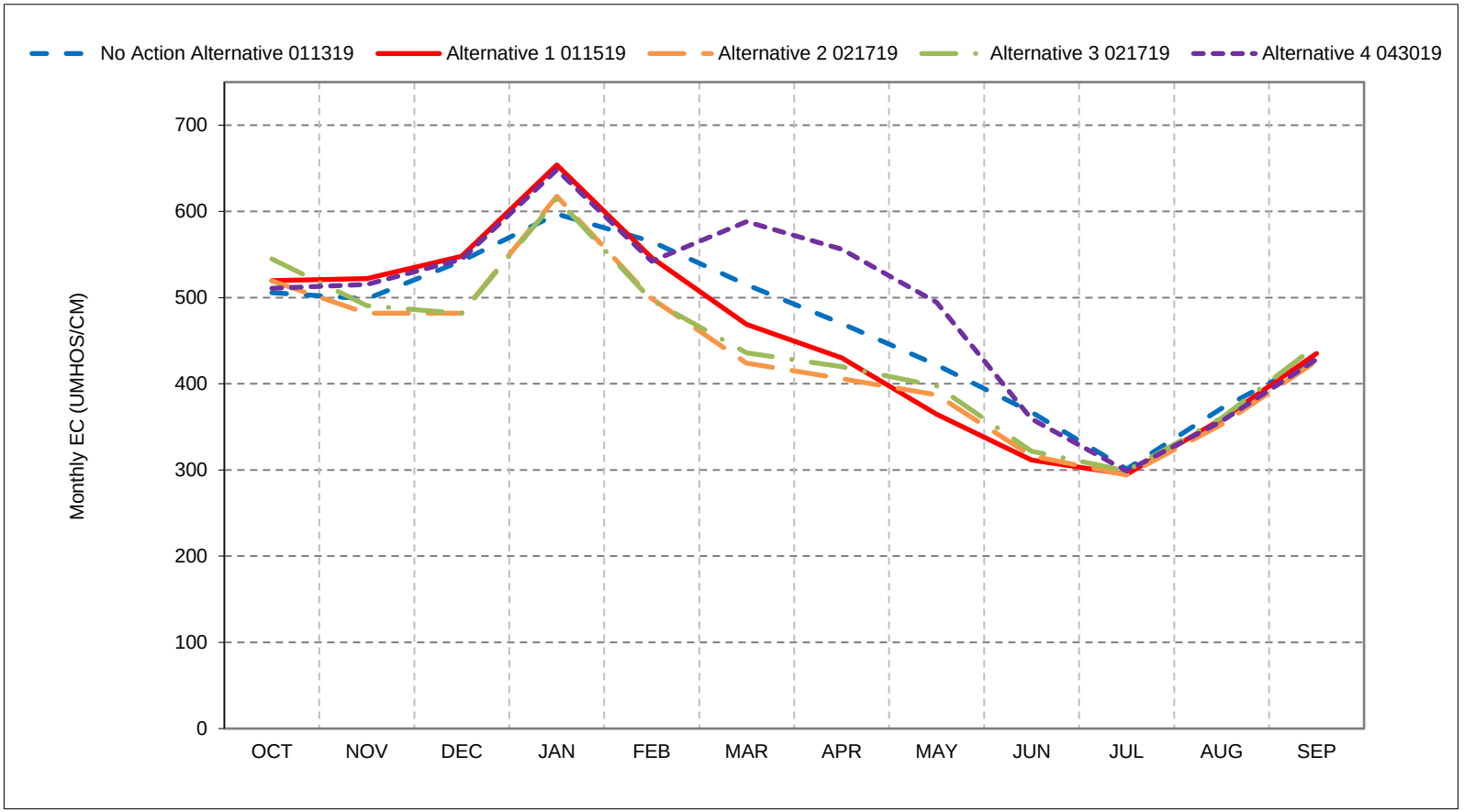

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 18-4. Victoria Canal, Below Normal Year Average EC



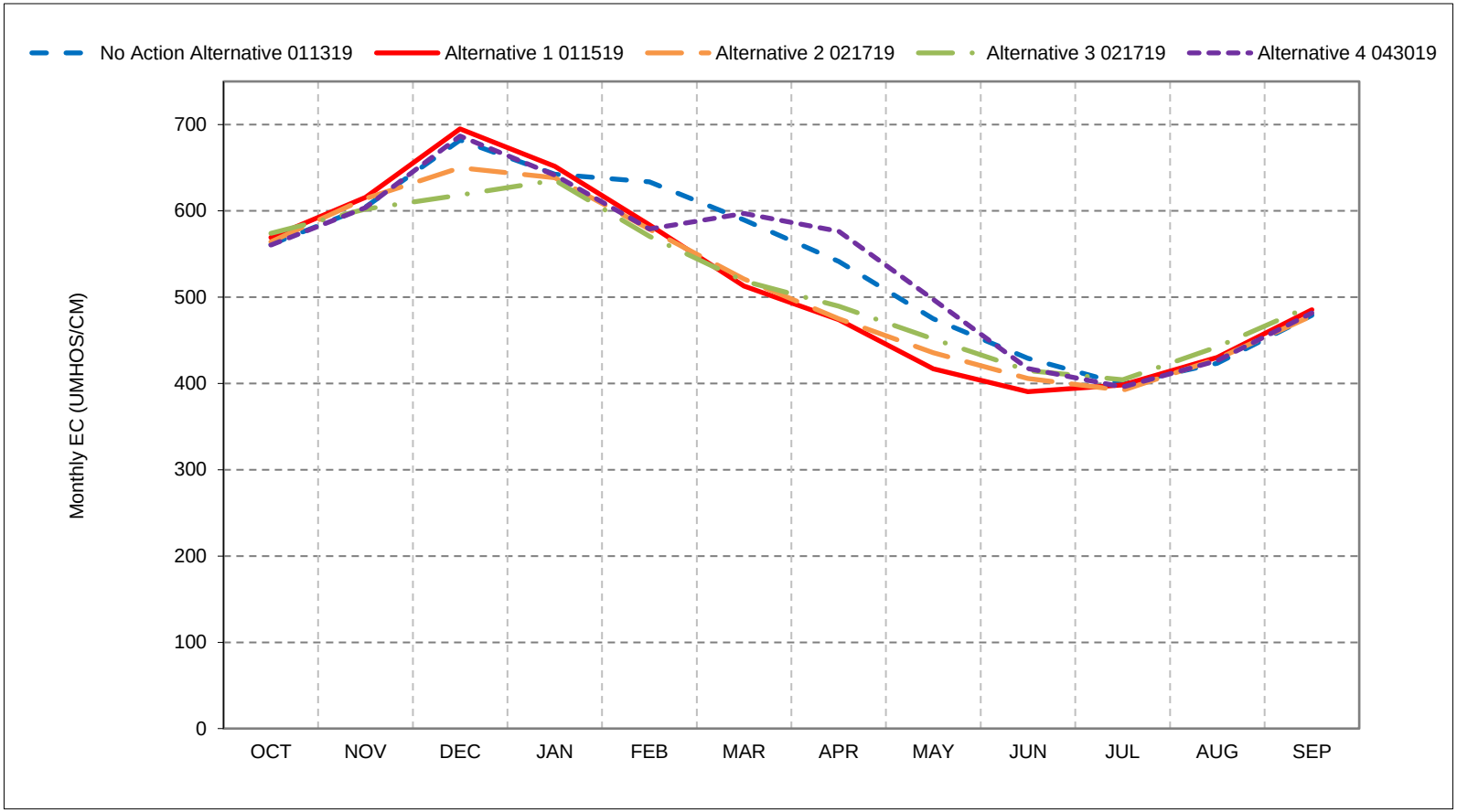

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 18-5. Victoria Canal, Dry Year Average EC



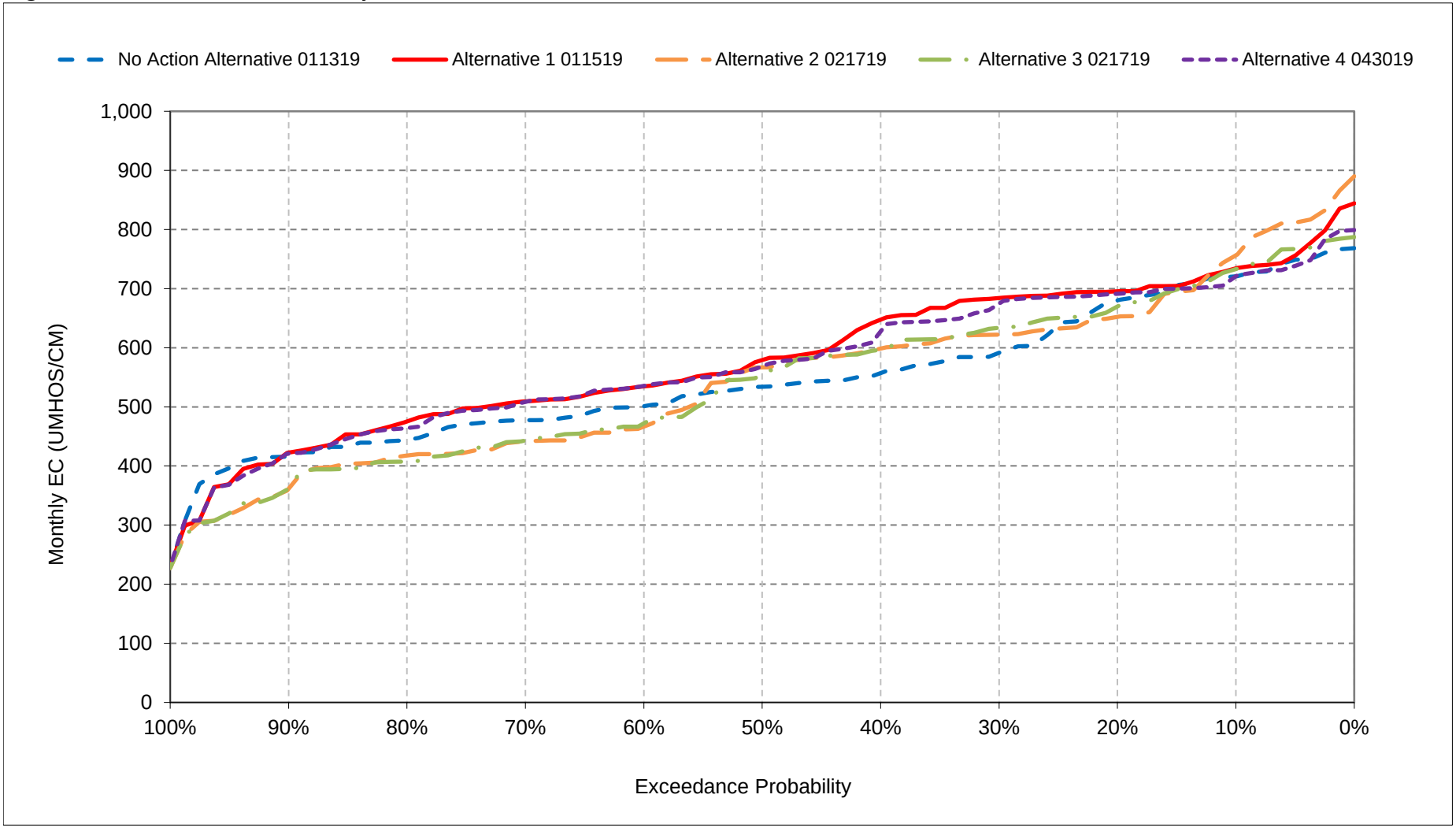

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 18-6. Victoria Canal, Critical Year Average EC




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

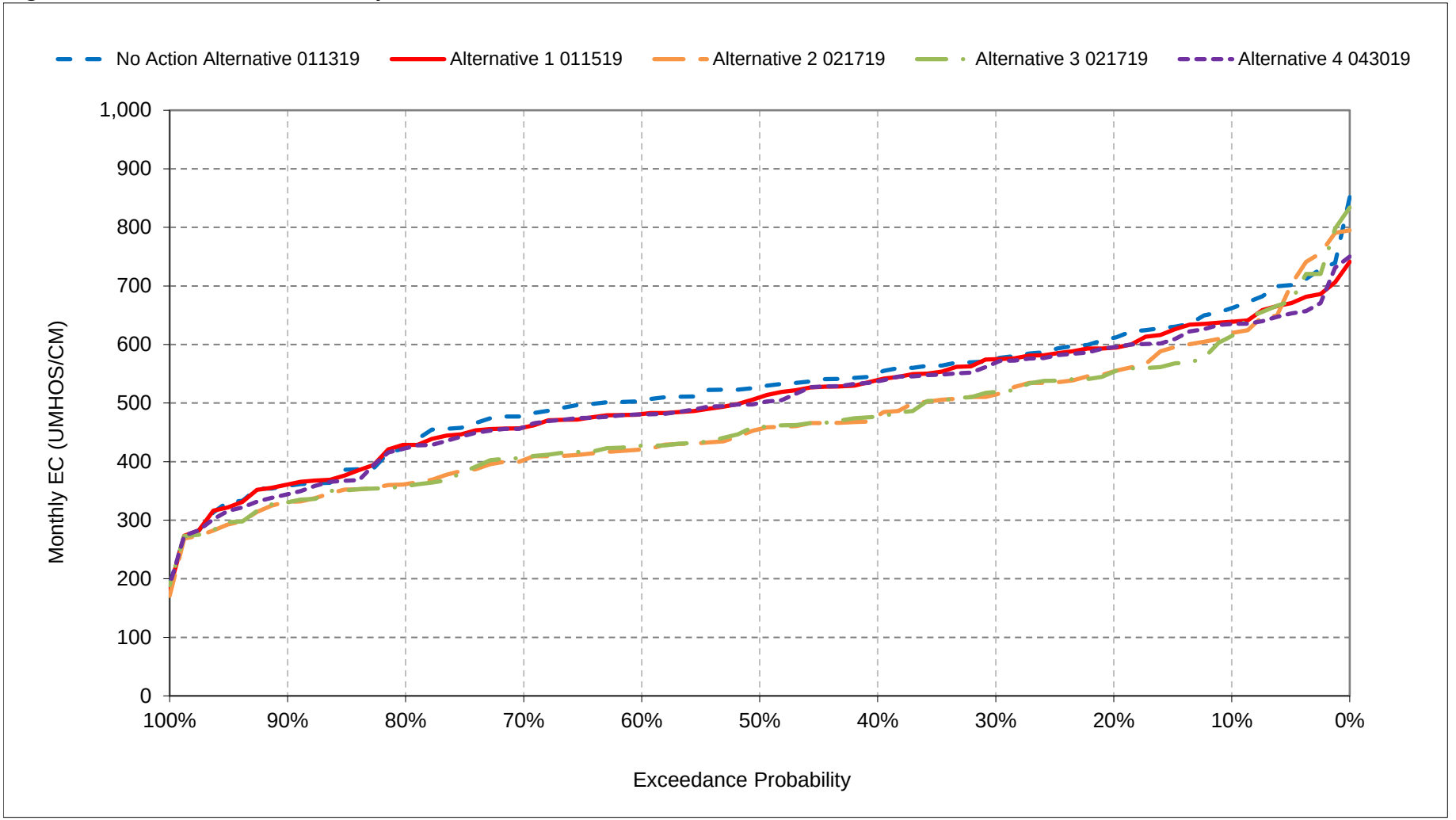
**Figure 18-7. Victoria Canal, January EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

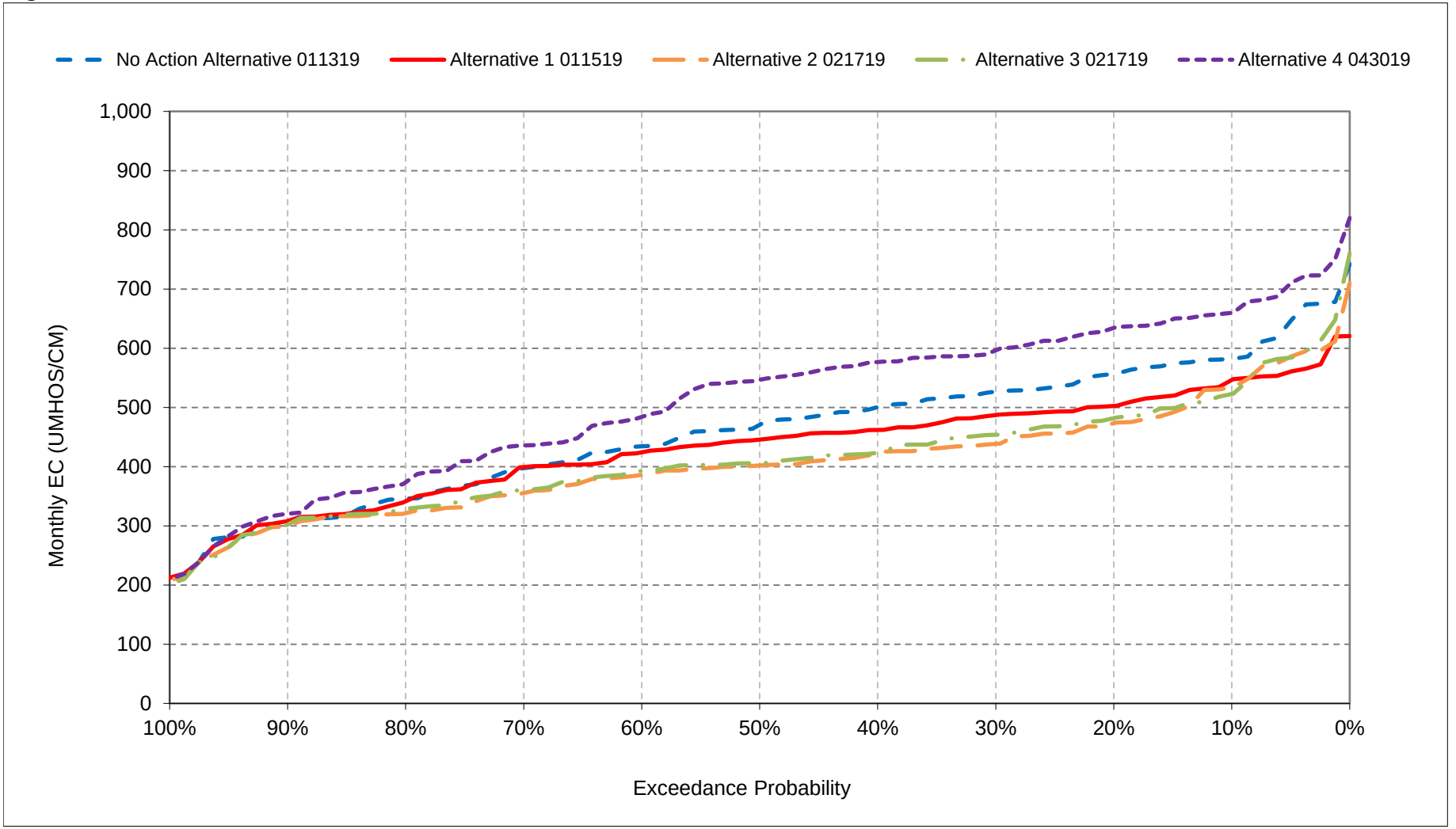
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 18-8. Victoria Canal, February EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

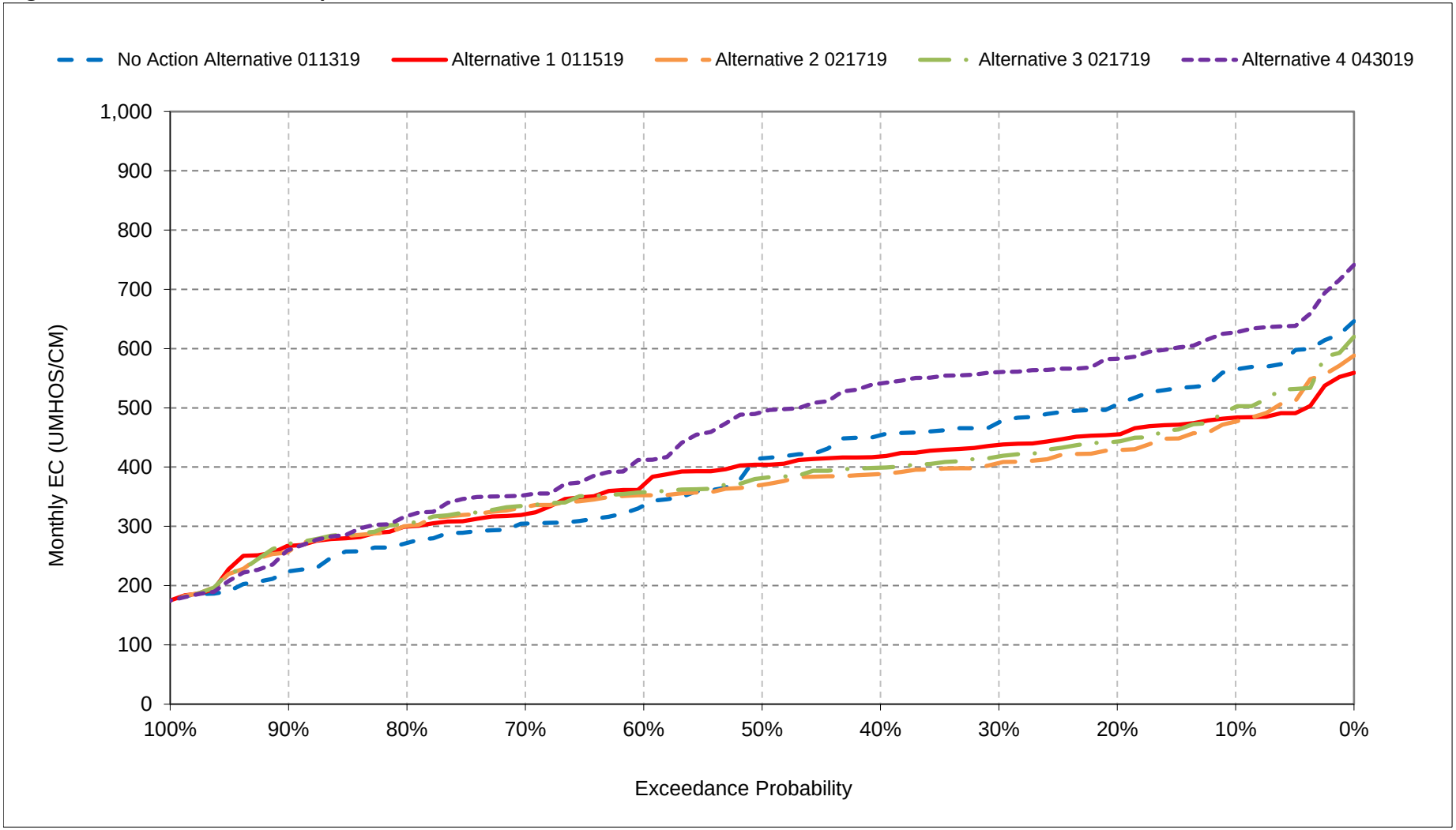
**Figure 18-9. Victoria Canal, March EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

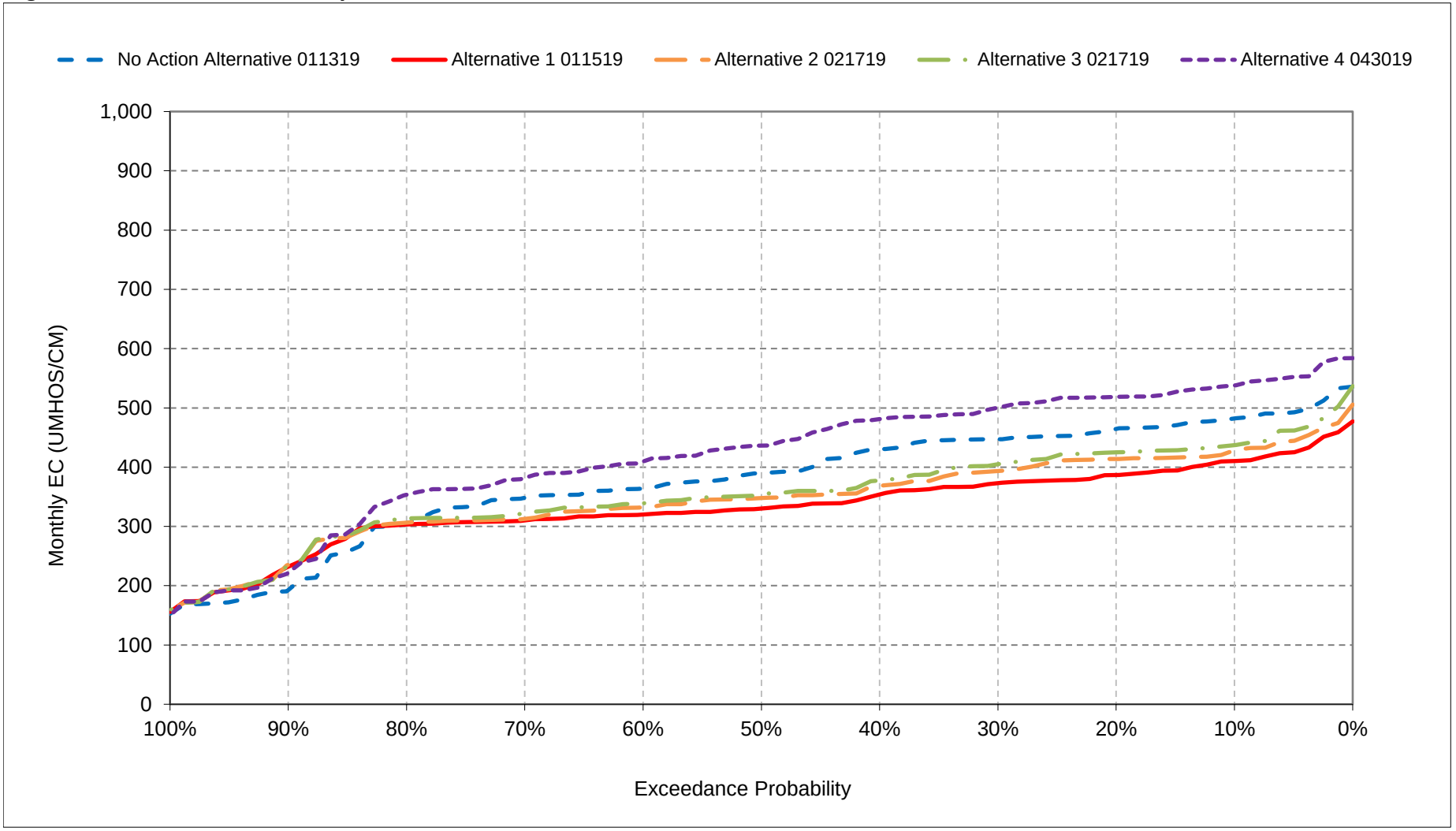
**Figure 18-10. Victoria Canal, April EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

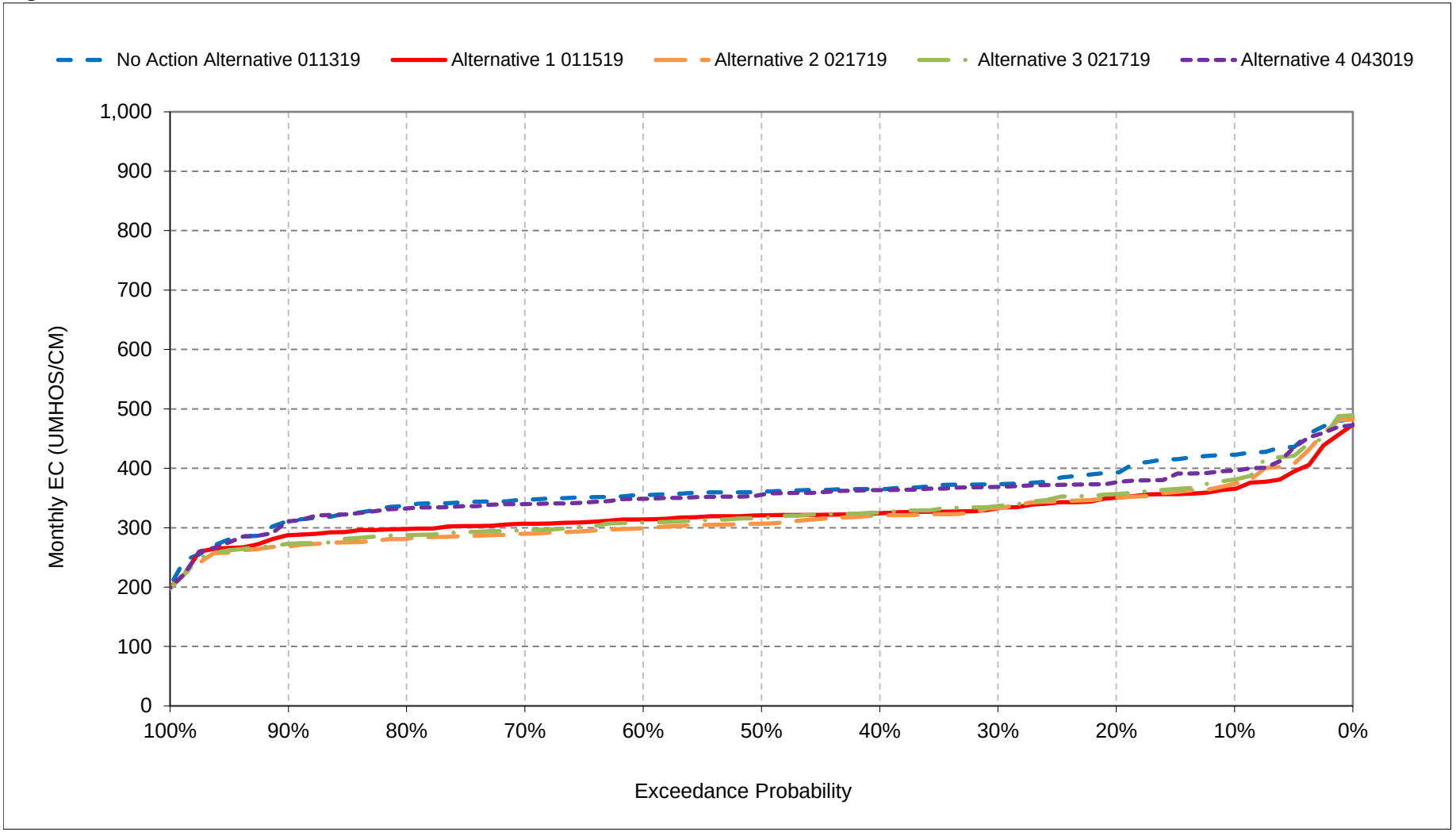
**Figure 18-11. Victoria Canal, May EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

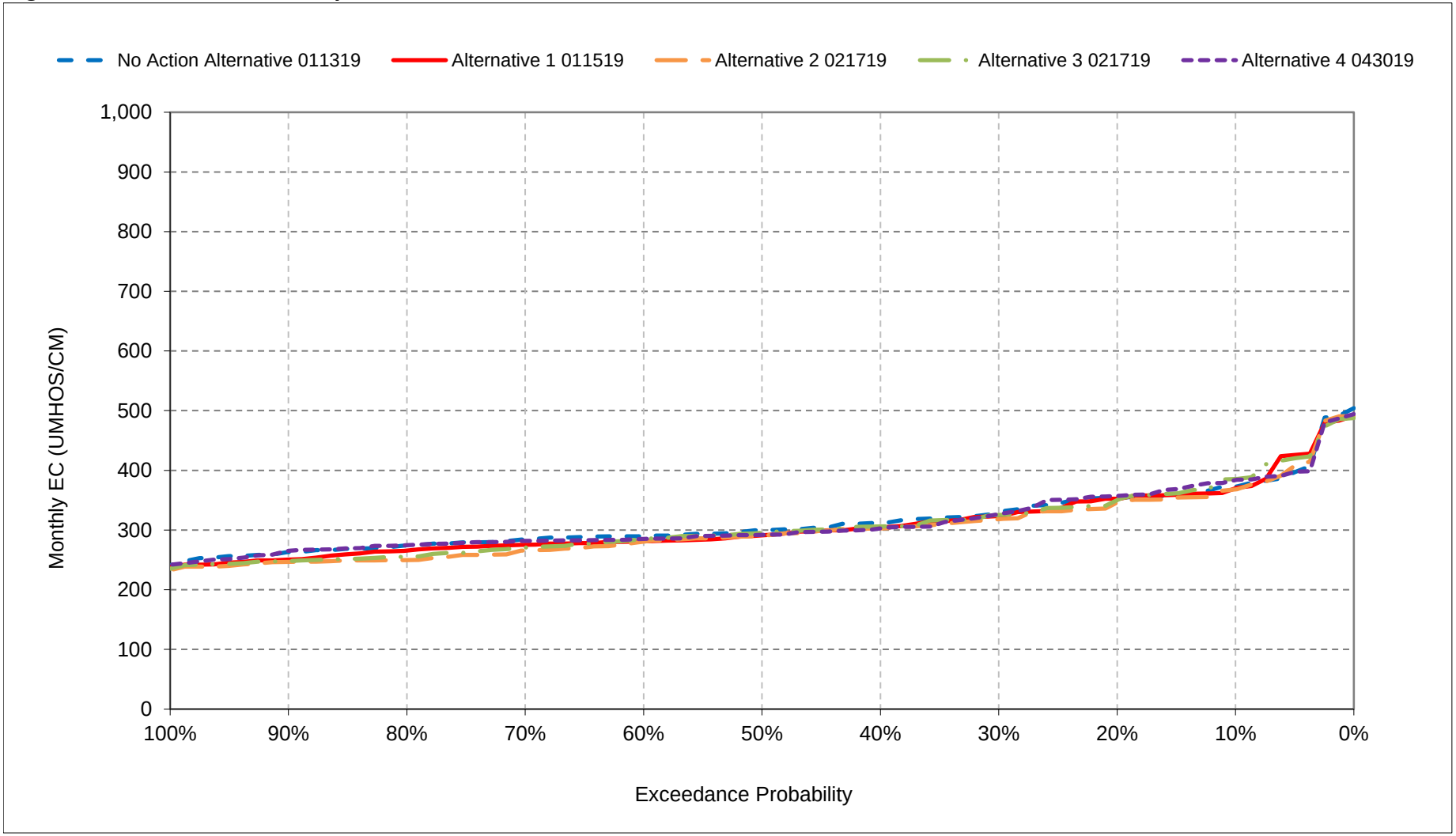
**Figure 18-12. Victoria Canal, June EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

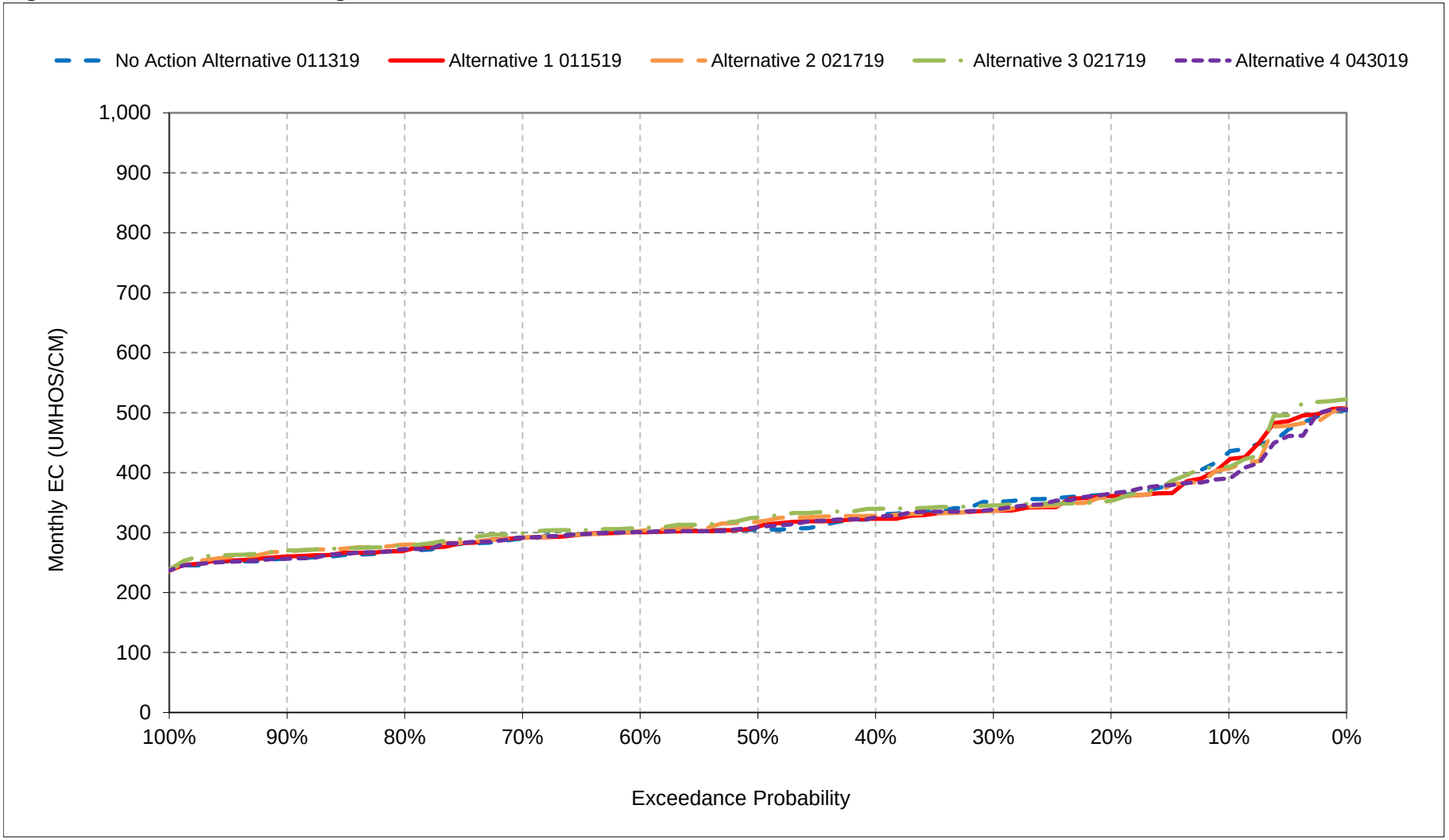
**Figure 18-13. Victoria Canal, July EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

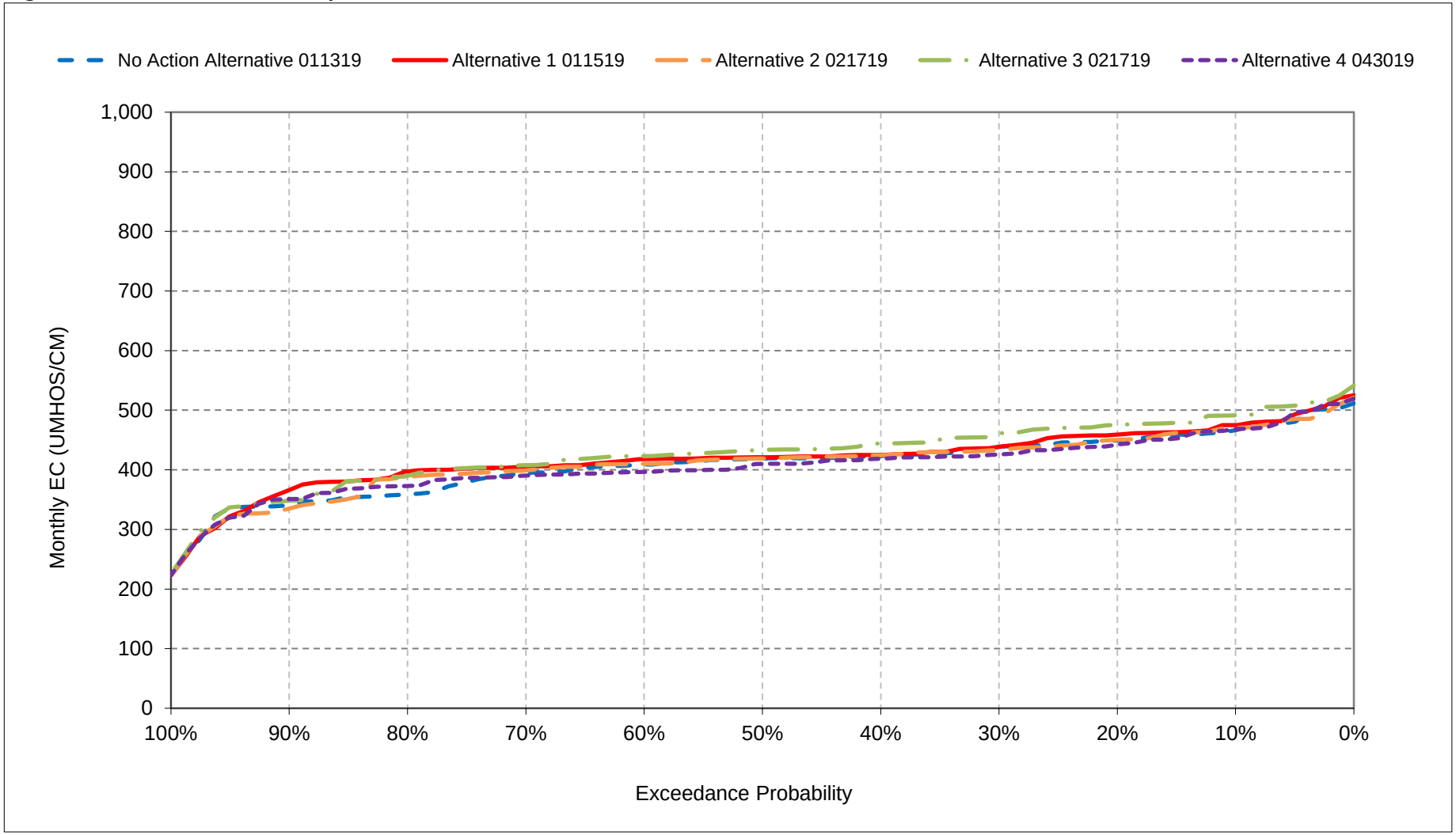
**Figure 18-14. Victoria Canal, August EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

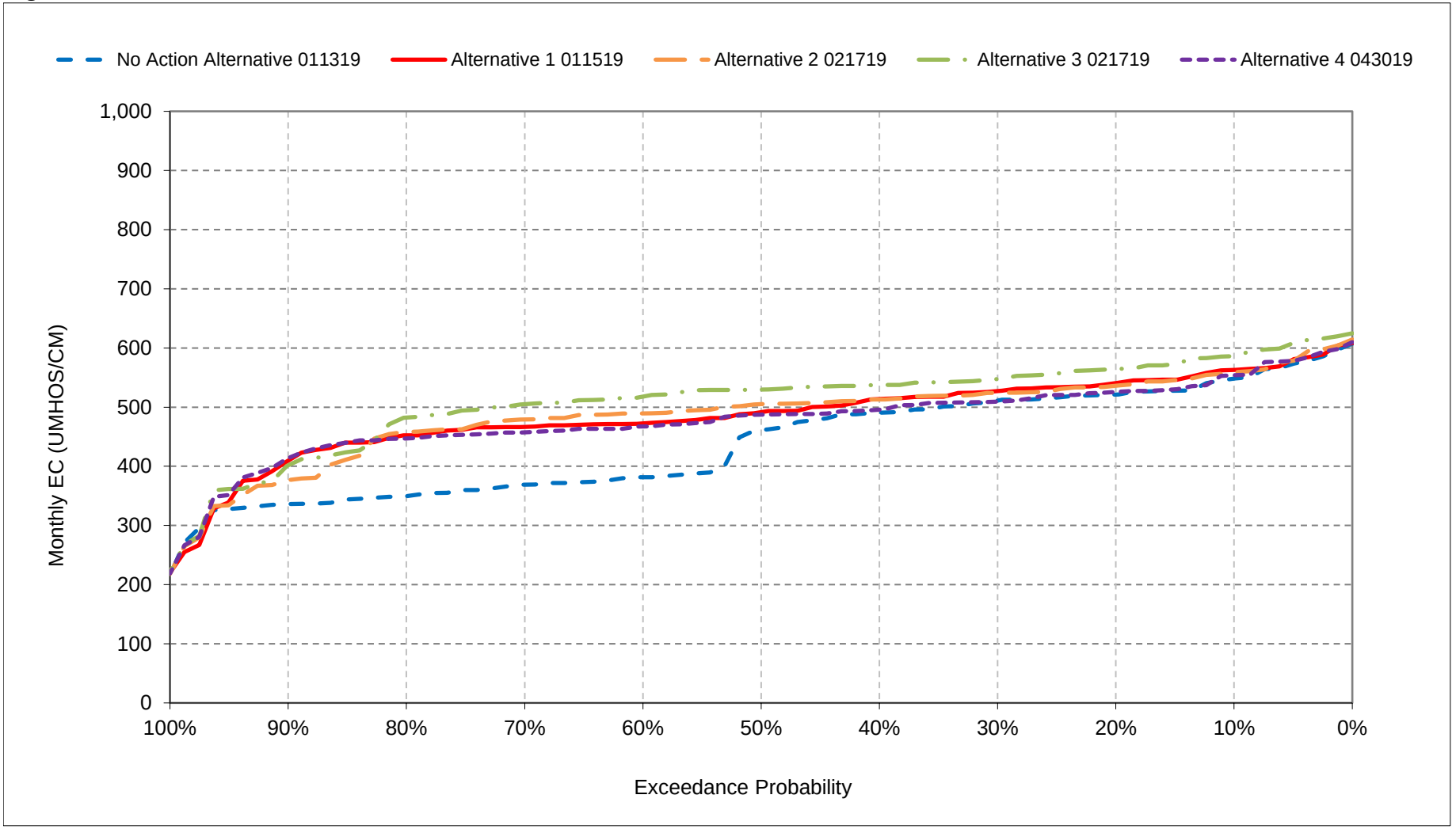
**Figure 18-15. Victoria Canal, September EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

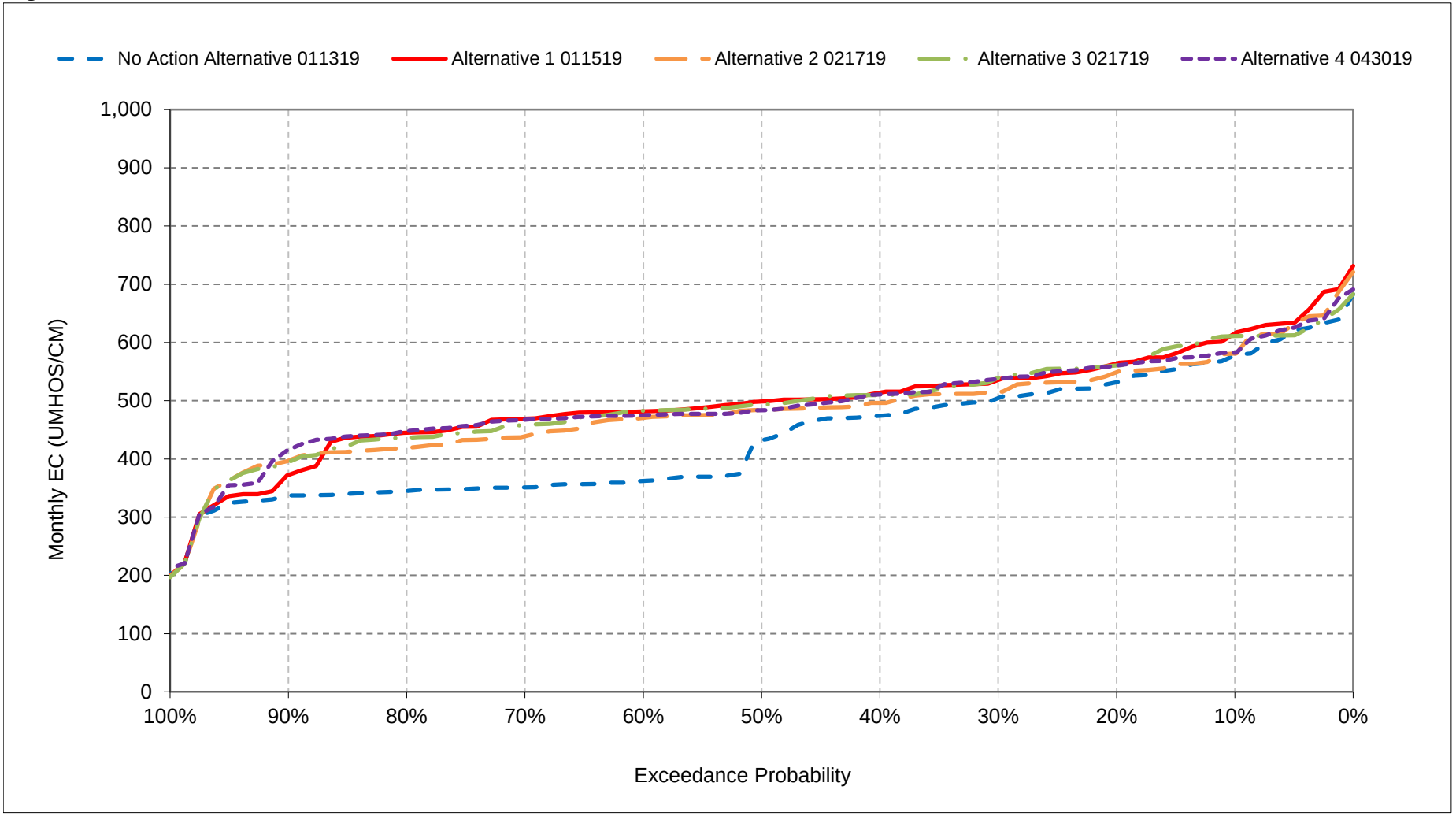
**Figure 18-16. Victoria Canal, October EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

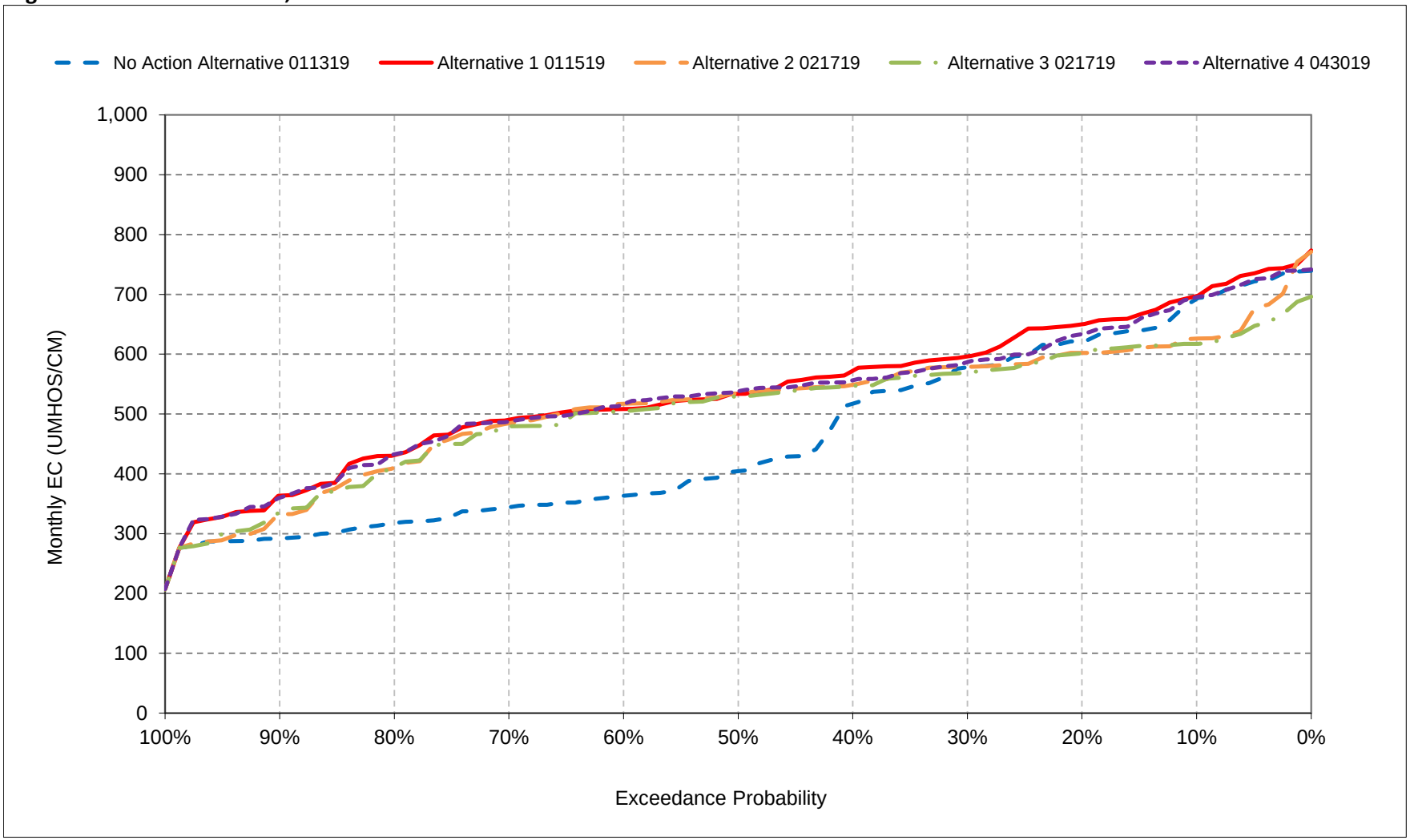
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 18-17. Victoria Canal, November EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 18-18. Victoria Canal, December EC**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

# Attachment 3-7 X2 Position Results (DSM2-QUAL)

The following results of the DSM2-QUAL model are included for Delta X2 conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| X2 | X2_PRV | 45-1 to 45-4 | 45-1 to 45-14 |

## 1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

# Appendix F – Modeling

## Attachment 3-7 – X2 Position Results (DSM2-QUAL)

The following results of the DSM2-QUAL model are included for Delta X2 conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| X2 | X2_PRV | 45-1 to 45-4 | 45-1 to 45-14 |

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

## Table 45-1. X2, Monthly Position

### No Action Alternative 011319

| Statistic | Monthly Position (0) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 96.1 | 96.2 | 93.4 | 87.3 | 79.4 | 77.9 | 80.2 | 83.4 | 86.1 | 90.3 | 93.6 | 95.0 |
| 20% | 94.7 | 93.6 | 90.8 | 85.1 | 75.2 | 74.7 | 74.8 | 81.6 | 84.7 | 87.7 | 92.3 | 94.0 |
| 30% | 94.4 | 93.3 | 87.0 | 82.9 | 69.1 | 67.9 | 72.0 | 79.8 | 84.0 | 86.8 | 91.9 | 93.8 |
| 40% | 94.2 | 91.2 | 85.2 | 77.9 | 65.9 | 66.6 | 68.2 | 74.3 | 82.9 | 84.3 | 88.9 | 92.9 |
| 50% | 90.0 | 83.4 | 83.5 | 73.6 | 61.4 | 62.6 | 66.0 | 71.8 | 80.8 | 82.9 | 87.3 | 91.2 |
| 60% | 84.3 | 82.4 | 82.4 | 67.2 | 57.8 | 60.5 | 62.7 | 68.6 | 79.9 | 80.9 | 87.0 | 83.1 |
| 70% | 77.6 | 77.4 | 75.1 | 58.1 | 54.5 | 56.3 | 59.8 | 66.2 | 77.1 | 80.1 | 86.4 | 76.6 |
| 80% | 77.1 | 76.6 | 64.5 | 55.0 | 54.0 | 54.0 | 55.5 | 61.0 | 72.3 | 79.4 | 85.5 | 75.5 |
| 90% | 76.8 | 75.9 | 56.6 | 54.0 | 54.0 | 54.0 | 54.0 | 55.3 | 64.5 | 77.2 | 84.9 | 75.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 87.0 | 84.5 | 79.2 | 71.4 | 64.3 | 64.2 | 66.3 | 71.1 | 78.8 | 83.1 | 88.6 | 86.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 76.9 | 75.3 | 74.1 | 59.0 | 55.6 | 56.8 | 57.9 | 60.8 | 70.0 | 77.5 | 85.5 | 75.4 |
| Above Normal (16%) | 83.5 | 81.3 | 78.8 | 64.5 | 58.6 | 57.9 | 60.9 | 67.3 | 78.6 | 80.4 | 85.8 | 83.1 |
| Below Normal (13%) | 91.8 | 89.9 | 81.5 | 78.0 | 66.9 | 69.3 | 70.9 | 74.8 | 81.7 | 83.3 | 87.8 | 92.2 |
| Dry (24%) | 94.2 | 88.8 | 78.3 | 80.7 | 70.0 | 67.7 | 70.4 | 76.8 | 82.9 | 87.1 | 91.8 | 93.8 |
| Critical (15%) | 96.3 | 95.8 | 89.9 | 84.4 | 77.2 | 76.7 | 79.7 | 84.6 | 88.4 | 91.4 | 93.9 | 95.1 |

### Alternative 1 011519

| Statistic | Monthly Position (0) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 96.2 | 96.2 | 93.5 | 88.4 | 80.5 | 80.0 | 81.5 | 83.6 | 86.0 | 90.0 | 93.8 | 95.0 |
| 20% | 94.8 | 94.0 | 92.6 | 86.3 | 75.2 | 75.1 | 77.2 | 82.1 | 84.7 | 87.9 | 92.4 | 94.1 |
| 30% | 94.5 | 93.5 | 89.9 | 82.9 | 70.2 | 68.1 | 73.6 | 81.0 | 84.1 | 87.4 | 91.9 | 93.9 |
| 40% | 94.1 | 93.0 | 88.0 | 77.7 | 66.9 | 67.0 | 71.0 | 77.5 | 82.9 | 84.1 | 88.5 | 92.9 |
| 50% | 93.1 | 92.4 | 86.2 | 73.4 | 61.3 | 62.6 | 67.8 | 75.0 | 81.8 | 82.9 | 87.3 | 91.1 |
| 60% | 92.5 | 91.6 | 83.3 | 67.6 | 56.8 | 60.2 | 64.7 | 72.5 | 80.7 | 81.2 | 86.9 | 90.7 |
| 70% | 91.7 | 88.7 | 74.9 | 57.1 | 54.4 | 56.0 | 61.2 | 68.4 | 77.7 | 80.3 | 86.3 | 90.3 |
| 80% | 90.8 | 86.1 | 65.5 | 54.9 | 54.0 | 54.0 | 56.2 | 62.6 | 72.5 | 79.6 | 85.7 | 90.2 |
| 90% | 86.8 | 77.9 | 56.7 | 54.0 | 54.0 | 54.0 | 54.0 | 56.5 | 64.6 | 77.1 | 85.3 | 89.3 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 91.9 | 89.1 | 80.3 | 71.4 | 64.5 | 64.4 | 67.6 | 73.0 | 79.1 | 83.2 | 88.6 | 91.5 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 88.4 | 85.6 | 76.7 | 58.7 | 55.5 | 56.7 | 58.9 | 62.8 | 70.3 | 77.6 | 85.4 | 88.5 |
| Above Normal (16%) | 91.1 | 88.7 | 80.8 | 64.1 | 58.3 | 57.5 | 62.4 | 70.2 | 79.0 | 80.6 | 85.9 | 90.4 |
| Below Normal (13%) | 91.8 | 90.4 | 81.5 | 77.8 | 66.5 | 69.2 | 72.5 | 77.2 | 82.3 | 83.2 | 87.5 | 91.8 |
| Dry (24%) | 94.4 | 89.1 | 78.2 | 81.1 | 70.7 | 68.2 | 71.8 | 78.3 | 83.0 | 87.3 | 91.9 | 93.8 |
| Critical (15%) | 96.3 | 95.9 | 90.0 | 84.6 | 78.5 | 78.0 | 80.7 | 85.5 | 88.6 | 91.6 | 94.1 | 95.2 |

### Alternative 1 011519 minus No Action Alternative 011319

| Statistic | Monthly Position (0) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **0.0** | 0.0 | **0.1** | **1.1** | **1.0** | **2.1** | **1.4** | **0.1** | -0.1 | -0.3 | **0.3** | 0.0 |
| 20% | **0.0** | **0.3** | **1.9** | **1.1** | 0.0 | **0.4** | **2.4** | **0.5** | 0.0 | **0.2** | **0.1** | **0.0** |
| 30% | **0.0** | **0.2** | **2.9** | **0.0** | **1.1** | **0.2** | **1.6** | **1.2** | **0.2** | **0.6** | 0.0 | **0.1** |
| 40% | -0.1 | **1.7** | **2.7** | -0.2 | **0.9** | **0.4** | **2.8** | **3.2** | **0.0** | -0.2 | -0.3 | 0.0 |
| 50% | **3.1** | **9.0** | **2.7** | -0.2 | -0.1 | -0.1 | **1.9** | **3.2** | **1.0** | 0.0 | 0.0 | 0.0 |
| 60% | **8.2** | **9.3** | **1.0** | **0.5** | -1.0 | -0.4 | **2.0** | **3.9** | **0.8** | **0.3** | -0.2 | **7.5** |
| 70% | **14.1** | **11.3** | -0.2 | -1.0 | -0.1 | -0.4 | **1.3** | **2.2** | **0.6** | **0.2** | -0.1 | **13.7** |
| 80% | **13.7** | **9.5** | **1.0** | 0.0 | 0.0 | 0.0 | **0.6** | **1.6** | **0.3** | **0.2** | **0.2** | **14.7** |
| 90% | **10.0** | **2.0** | **0.2** | 0.0 | 0.0 | 0.0 | 0.0 | **1.2** | **0.1** | -0.1 | **0.4** | **14.3** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **4.9** | **4.6** | **1.2** | -0.1 | **0.2** | **0.2** | **1.3** | **1.9** | **0.3** | **0.1** | 0.0 | **5.3** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet | **11.5** | **10.3** | **2.7** | -0.3 | -0.1 | -0.1 | **1.0** | **2.0** | **0.3** | **0.1** | -0.1 | **13.2** |
| Above Normal | **7.6** | **7.4** | **2.0** | -0.4 | -0.3 | -0.4 | **1.5** | **2.9** | **0.4** | **0.1** | **0.1** | **7.3** |
| Below Normal | **0.0** | **0.5** | 0.0 | -0.2 | -0.3 | -0.1 | **1.6** | **2.3** | **0.5** | -0.1 | -0.3 | -0.4 |
| Dry | **0.2** | **0.3** | -0.1 | **0.4** | **0.6** | **0.5** | **1.4** | **1.6** | **0.2** | **0.2** | **0.1** | **0.0** |
| Critical | **0.0** | **0.1** | **0.1** | **0.2** | **1.3** | **1.3** | **1.0** | **0.9** | **0.1** | **0.2** | **0.2** | **0.0** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Results are monthly averaged from DSM2.

## Table 45-2. X2, Monthly Position

### No Action Alternative 011319

| | Monthly Position (0) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 96.1 | 96.2 | 93.4 | 87.3 | 79.4 | 77.9 | 80.2 | 83.4 | 86.1 | 90.3 | 93.6 | 95.0 |
| 20% | 94.7 | 93.6 | 90.8 | 85.1 | 75.2 | 74.7 | 74.8 | 81.6 | 84.7 | 87.7 | 92.3 | 94.0 |
| 30% | 94.4 | 93.3 | 87.0 | 82.9 | 69.1 | 67.9 | 72.0 | 79.8 | 84.0 | 86.8 | 91.9 | 93.8 |
| 40% | 94.2 | 91.2 | 85.2 | 77.9 | 65.9 | 66.6 | 68.2 | 74.3 | 82.9 | 84.3 | 88.9 | 92.9 |
| 50% | 90.0 | 83.4 | 83.5 | 73.6 | 61.4 | 62.6 | 66.0 | 71.8 | 80.8 | 82.9 | 87.3 | 91.2 |
| 60% | 84.3 | 82.4 | 82.4 | 67.2 | 57.8 | 60.5 | 62.7 | 68.6 | 79.9 | 80.9 | 87.0 | 83.1 |
| 70% | 77.6 | 77.4 | 75.1 | 58.1 | 54.5 | 56.3 | 59.8 | 66.2 | 77.1 | 80.1 | 86.4 | 76.6 |
| 80% | 77.1 | 76.6 | 64.5 | 55.0 | 54.0 | 54.0 | 55.5 | 61.0 | 72.3 | 79.4 | 85.5 | 75.5 |
| 90% | 76.8 | 75.9 | 56.6 | 54.0 | 54.0 | 54.0 | 54.0 | 55.3 | 64.5 | 77.2 | 84.9 | 75.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 87.0 | 84.5 | 79.2 | 71.4 | 64.3 | 64.2 | 66.3 | 71.1 | 78.8 | 83.1 | 88.6 | 86.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 76.9 | 75.3 | 74.1 | 59.0 | 55.6 | 56.8 | 57.9 | 60.8 | 70.0 | 77.5 | 85.5 | 75.4 |
| Above Normal (16%) | 83.5 | 81.3 | 78.8 | 64.5 | 58.6 | 57.9 | 60.9 | 67.3 | 78.6 | 80.4 | 85.8 | 83.1 |
| Below Normal (13%) | 91.8 | 89.9 | 81.5 | 78.0 | 66.9 | 69.3 | 70.9 | 74.8 | 81.7 | 83.3 | 87.8 | 92.2 |
| Dry (24%) | 94.2 | 88.8 | 78.3 | 80.7 | 70.0 | 67.7 | 70.4 | 76.8 | 82.9 | 87.1 | 91.8 | 93.8 |
| Critical (15%) | 96.3 | 95.8 | 89.9 | 84.4 | 77.2 | 76.7 | 79.7 | 84.6 | 88.4 | 91.4 | 93.9 | 95.1 |

### Alternative 2 021719

| | Monthly Position (KM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 95.8 | 95.8 | 93.4 | 89.9 | 82.6 | 81.0 | 81.7 | 83.4 | 85.9 | 89.9 | 93.6 | 94.8 |
| 20% | 94.4 | 93.7 | 92.8 | 88.8 | 79.2 | 76.0 | 78.1 | 81.5 | 83.9 | 88.1 | 92.3 | 93.9 |
| 30% | 94.0 | 93.2 | 91.9 | 86.1 | 74.6 | 70.7 | 75.3 | 80.4 | 82.4 | 86.8 | 91.8 | 93.6 |
| 40% | 93.4 | 93.0 | 90.8 | 82.1 | 67.8 | 68.5 | 72.3 | 78.7 | 80.7 | 84.2 | 90.0 | 92.9 |
| 50% | 93.0 | 92.3 | 89.0 | 79.0 | 63.8 | 64.2 | 68.7 | 75.8 | 79.6 | 82.8 | 87.9 | 91.3 |
| 60% | 92.6 | 91.7 | 84.7 | 70.7 | 58.3 | 60.8 | 65.8 | 73.2 | 78.5 | 81.4 | 87.1 | 90.9 |
| 70% | 92.0 | 91.4 | 80.0 | 58.7 | 54.9 | 57.1 | 61.3 | 69.5 | 77.7 | 80.5 | 86.7 | 90.6 |
| 80% | 91.3 | 89.9 | 68.2 | 55.7 | 54.1 | 54.0 | 56.5 | 64.0 | 74.9 | 79.7 | 86.3 | 90.4 |
| 90% | 90.3 | 80.9 | 57.3 | 54.0 | 54.0 | 54.0 | 54.0 | 56.5 | 65.2 | 77.4 | 85.4 | 89.7 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 92.4 | 89.9 | 82.2 | 73.8 | 66.1 | 65.4 | 68.3 | 73.3 | 78.4 | 83.3 | 88.9 | 91.6 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 89.9 | 87.2 | 78.3 | 60.1 | 56.0 | 57.1 | 59.2 | 63.1 | 70.3 | 77.9 | 85.7 | 88.8 |
| Above Normal (16%) | 92.2 | 90.4 | 83.5 | 66.8 | 59.5 | 58.4 | 63.4 | 71.4 | 77.7 | 80.5 | 86.4 | 90.6 |
| Below Normal (13%) | 92.0 | 91.2 | 83.8 | 81.1 | 68.4 | 70.1 | 73.7 | 77.4 | 79.8 | 83.3 | 88.5 | 91.8 |
| Dry (24%) | 93.8 | 88.9 | 79.7 | 84.1 | 73.5 | 70.1 | 72.8 | 78.3 | 82.5 | 87.3 | 91.9 | 93.6 |
| Critical (15%) | 95.8 | 95.7 | 91.8 | 87.1 | 80.8 | 79.0 | 81.1 | 85.6 | 88.3 | 91.2 | 93.8 | 95.0 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Position (0) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -0.4 | -0.4 | **0.0** | **2.5** | **3.2** | **3.1** | **1.5** | 0.0 | -0.2 | -0.4 | **0.0** | -0.2 |
| 20% | -0.3 | **0.0** | **2.0** | **3.7** | **4.0** | **1.3** | **3.3** | -0.1 | -0.8 | **0.5** | 0.0 | -0.1 |
| 30% | -0.4 | -0.1 | **4.9** | **3.2** | **5.4** | **2.8** | **3.3** | **0.6** | -1.6 | 0.0 | -0.1 | -0.2 |
| 40% | -0.8 | **1.7** | **5.5** | **4.2** | **1.9** | **1.9** | **4.1** | **4.4** | -2.1 | -0.1 | **1.1** | **0.0** |
| 50% | **3.0** | **9.0** | **5.6** | **5.4** | **2.5** | **1.6** | **2.7** | **4.0** | -1.2 | -0.1 | **0.7** | **0.1** |
| 60% | **8.3** | **9.3** | **2.3** | **3.5** | **0.5** | **0.3** | **3.1** | **4.6** | -1.3 | **0.5** | **0.1** | **7.8** |
| 70% | **14.4** | **14.0** | **4.9** | **0.6** | **0.4** | **0.8** | **1.4** | **3.4** | **0.6** | **0.4** | **0.3** | **14.0** |
| 80% | **14.2** | **13.4** | **3.6** | **0.7** | **0.1** | 0.0 | **1.0** | **3.0** | **2.7** | **0.3** | **0.8** | **14.9** |
| 90% | **13.6** | **5.0** | **0.7** | 0.0 | 0.0 | 0.0 | 0.0 | **1.2** | **0.7** | **0.1** | **0.6** | **14.7** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **5.4** | **5.4** | **3.0** | **2.4** | **1.9** | **1.2** | **2.0** | **2.2** | -0.4 | **0.1** | **0.3** | **5.3** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet | **12.9** | **11.9** | **4.3** | **1.1** | **0.4** | **0.3** | **1.3** | **2.3** | **0.3** | **0.4** | **0.2** | **13.4** |
| Above Normal | **8.7** | **9.1** | **4.7** | **2.3** | **0.9** | **0.4** | **2.5** | **4.1** | -0.9 | **0.1** | **0.6** | **7.5** |
| Below Normal | **0.2** | **1.3** | **2.3** | **3.1** | **1.5** | **0.8** | **2.8** | **2.6** | -2.0 | 0.0 | **0.8** | -0.4 |
| Dry | -0.3 | **0.1** | **1.4** | **3.4** | **3.5** | **2.4** | **2.4** | **1.5** | -0.3 | **0.1** | **0.1** | -0.2 |
| Critical | -0.5 | -0.2 | **1.9** | **2.8** | **3.6** | **2.3** | **1.4** | **1.0** | -0.2 | -0.2 | -0.1 | -0.2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Results are monthly averaged from DSM2.

## Table 45-3. X2, Monthly Position

### No Action Alternative 011319

| | Monthly Position (0) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 96.1 | 96.2 | 93.4 | 87.3 | 79.4 | 77.9 | 80.2 | 83.4 | 86.1 | 90.3 | 93.6 | 95.0 |
| 20% | 94.7 | 93.6 | 90.8 | 85.1 | 75.2 | 74.7 | 74.8 | 81.6 | 84.7 | 87.7 | 92.3 | 94.0 |
| 30% | 94.4 | 93.3 | 87.0 | 82.9 | 69.1 | 67.9 | 72.0 | 79.8 | 84.0 | 86.8 | 91.9 | 93.8 |
| 40% | 94.2 | 91.2 | 85.2 | 77.9 | 65.9 | 66.6 | 68.2 | 74.3 | 82.9 | 84.3 | 88.9 | 92.9 |
| 50% | 90.0 | 83.4 | 83.5 | 73.6 | 61.4 | 62.6 | 66.0 | 71.8 | 80.8 | 82.9 | 87.3 | 91.2 |
| 60% | 84.3 | 82.4 | 82.4 | 67.2 | 57.8 | 60.5 | 62.7 | 68.6 | 79.9 | 80.9 | 87.0 | 83.1 |
| 70% | 77.6 | 77.4 | 75.1 | 58.1 | 54.5 | 56.3 | 59.8 | 66.2 | 77.1 | 80.1 | 86.4 | 76.6 |
| 80% | 77.1 | 76.6 | 64.5 | 55.0 | 54.0 | 54.0 | 55.5 | 61.0 | 72.3 | 79.4 | 85.5 | 75.5 |
| 90% | 76.8 | 75.9 | 56.6 | 54.0 | 54.0 | 54.0 | 54.0 | 55.3 | 64.5 | 77.2 | 84.9 | 75.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 87.0 | 84.5 | 79.2 | 71.4 | 64.3 | 64.2 | 66.3 | 71.1 | 78.8 | 83.1 | 88.6 | 86.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 76.9 | 75.3 | 74.1 | 59.0 | 55.6 | 56.8 | 57.9 | 60.8 | 70.0 | 77.5 | 85.5 | 75.4 |
| Above Normal (16%) | 83.5 | 81.3 | 78.8 | 64.5 | 58.6 | 57.9 | 60.9 | 67.3 | 78.6 | 80.4 | 85.8 | 83.1 |
| Below Normal (13%) | 91.8 | 89.9 | 81.5 | 78.0 | 66.9 | 69.3 | 70.9 | 74.8 | 81.7 | 83.3 | 87.8 | 92.2 |
| Dry (24%) | 94.2 | 88.8 | 78.3 | 80.7 | 70.0 | 67.7 | 70.4 | 76.8 | 82.9 | 87.1 | 91.8 | 93.8 |
| Critical (15%) | 96.3 | 95.8 | 89.9 | 84.4 | 77.2 | 76.7 | 79.7 | 84.6 | 88.4 | 91.4 | 93.9 | 95.1 |

### Alternative 3 021719

| | Monthly Position (KM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 94.4 | 94.3 | 93.0 | 89.3 | 82.5 | 80.6 | 81.4 | 83.6 | 85.8 | 89.9 | 93.3 | 94.4 |
| 20% | 93.6 | 92.7 | 92.1 | 88.2 | 79.6 | 76.0 | 78.3 | 81.7 | 83.7 | 87.8 | 91.7 | 93.3 |
| 30% | 92.7 | 92.4 | 90.8 | 85.7 | 74.7 | 70.6 | 75.1 | 80.7 | 82.3 | 86.7 | 91.2 | 92.8 |
| 40% | 92.2 | 91.5 | 89.8 | 82.5 | 67.7 | 68.3 | 72.3 | 78.7 | 80.9 | 84.0 | 89.2 | 92.2 |
| 50% | 91.5 | 91.3 | 88.4 | 79.2 | 63.9 | 64.3 | 68.3 | 75.9 | 80.1 | 82.6 | 87.3 | 90.9 |
| 60% | 91.0 | 90.9 | 84.5 | 71.0 | 58.2 | 60.8 | 65.6 | 73.2 | 79.3 | 81.3 | 86.6 | 90.3 |
| 70% | 90.2 | 90.5 | 79.9 | 58.7 | 55.0 | 56.9 | 61.1 | 69.9 | 78.6 | 80.5 | 86.3 | 89.8 |
| 80% | 89.8 | 88.0 | 68.2 | 55.6 | 54.1 | 54.0 | 56.3 | 63.9 | 74.9 | 79.9 | 85.9 | 89.5 |
| 90% | 88.5 | 81.1 | 57.4 | 54.0 | 54.0 | 54.0 | 54.0 | 56.3 | 65.1 | 77.4 | 85.1 | 88.2 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 91.1 | 89.0 | 81.8 | 73.6 | 66.2 | 65.3 | 68.1 | 73.4 | 78.6 | 83.2 | 88.4 | 90.8 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 88.8 | 86.5 | 77.9 | 60.0 | 56.0 | 57.0 | 58.9 | 63.3 | 70.5 | 77.9 | 85.4 | 88.1 |
| Above Normal (16%) | 90.8 | 89.3 | 82.7 | 66.7 | 59.4 | 58.3 | 63.3 | 71.4 | 78.2 | 80.4 | 85.7 | 89.3 |
| Below Normal (13%) | 90.7 | 90.3 | 83.5 | 81.1 | 67.9 | 69.8 | 73.6 | 77.4 | 80.1 | 83.2 | 88.0 | 91.2 |
| Dry (24%) | 92.2 | 88.1 | 79.5 | 83.9 | 73.8 | 70.0 | 72.7 | 78.2 | 82.5 | 87.0 | 91.3 | 93.0 |
| Critical (15%) | 94.9 | 94.7 | 91.4 | 86.5 | 81.0 | 79.1 | 81.1 | 85.6 | 88.5 | 91.2 | 93.5 | 94.5 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Position (0) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -1.7 | -1.9 | -0.4 | **2.0** | **3.1** | **2.7** | **1.2** | **0.2** | -0.3 | -0.3 | -0.3 | -0.6 |
| 20% | -1.2 | -0.9 | **1.4** | **3.1** | **4.4** | **1.3** | **3.5** | **0.1** | -1.0 | **0.1** | -0.6 | -0.7 |
| 30% | -1.7 | -0.9 | **3.8** | **2.8** | **5.6** | **2.7** | **3.1** | **0.9** | -1.6 | -0.1 | -0.7 | -1.0 |
| 40% | -2.0 | **0.3** | **4.6** | **4.6** | **1.7** | **1.7** | **4.1** | **4.4** | -2.0 | -0.3 | **0.3** | -0.7 |
| 50% | **1.5** | **7.9** | **5.0** | **5.6** | **2.5** | **1.6** | **2.3** | **4.1** | -0.7 | -0.2 | **0.0** | -0.3 |
| 60% | **6.8** | **8.5** | **2.1** | **3.8** | **0.4** | **0.3** | **2.9** | **4.6** | -0.6 | **0.4** | -0.4 | **7.1** |
| 70% | **12.6** | **13.0** | **4.8** | **0.6** | **0.5** | **0.6** | **1.2** | **3.7** | **1.4** | **0.4** | -0.1 | **13.2** |
| 80% | **12.7** | **11.4** | **3.7** | **0.6** | **0.0** | 0.0 | **0.8** | **3.0** | **2.7** | **0.5** | **0.3** | **14.0** |
| 90% | **11.7** | **5.2** | **0.9** | 0.0 | 0.0 | 0.0 | 0.0 | **1.0** | **0.6** | **0.2** | **0.2** | **13.2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **4.1** | **4.5** | **2.6** | **2.2** | **1.9** | **1.1** | **1.8** | **2.3** | -0.2 | **0.0** | -0.2 | **4.6** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet | **11.9** | **11.2** | **3.8** | **1.0** | **0.4** | **0.2** | **1.0** | **2.5** | **0.5** | **0.4** | -0.1 | **12.7** |
| Above Normal | **7.4** | **7.9** | **3.9** | **2.2** | **0.8** | **0.3** | **2.4** | **4.1** | -0.4 | -0.1 | -0.1 | **6.2** |
| Below Normal | -1.2 | **0.4** | **2.0** | **3.1** | **1.1** | **0.5** | **2.6** | **2.6** | -1.6 | -0.1 | **0.2** | -1.0 |
| Dry | -2.0 | -0.7 | **1.2** | **3.2** | **3.8** | **2.3** | **2.3** | **1.4** | -0.4 | -0.1 | -0.5 | -0.8 |
| Critical | -1.4 | -1.2 | **1.5** | **2.2** | **3.8** | **2.4** | **1.4** | **1.0** | **0.1** | -0.2 | -0.4 | -0.6 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Results are monthly averaged from DSM2.

## Table 45-4. X2, Monthly Position

### No Action Alternative 011319

| | Monthly Position (0) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 96.1 | 96.2 | 93.4 | 87.3 | 79.4 | 77.9 | 80.2 | 83.4 | 86.1 | 90.3 | 93.6 | 95.0 |
| 20% | 94.7 | 93.6 | 90.8 | 85.1 | 75.2 | 74.7 | 74.8 | 81.6 | 84.7 | 87.7 | 92.3 | 94.0 |
| 30% | 94.4 | 93.3 | 87.0 | 82.9 | 69.1 | 67.9 | 72.0 | 79.8 | 84.0 | 86.8 | 91.9 | 93.8 |
| 40% | 94.2 | 91.2 | 85.2 | 77.9 | 65.9 | 66.6 | 68.2 | 74.3 | 82.9 | 84.3 | 88.9 | 92.9 |
| 50% | 90.0 | 83.4 | 83.5 | 73.6 | 61.4 | 62.6 | 66.0 | 71.8 | 80.8 | 82.9 | 87.3 | 91.2 |
| 60% | 84.3 | 82.4 | 82.4 | 67.2 | 57.8 | 60.5 | 62.7 | 68.6 | 79.9 | 80.9 | 87.0 | 83.1 |
| 70% | 77.6 | 77.4 | 75.1 | 58.1 | 54.5 | 56.3 | 59.8 | 66.2 | 77.1 | 80.1 | 86.4 | 76.6 |
| 80% | 77.1 | 76.6 | 64.5 | 55.0 | 54.0 | 54.0 | 55.5 | 61.0 | 72.3 | 79.4 | 85.5 | 75.5 |
| 90% | 76.8 | 75.9 | 56.6 | 54.0 | 54.0 | 54.0 | 54.0 | 55.3 | 64.5 | 77.2 | 84.9 | 75.0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 87.0 | 84.5 | 79.2 | 71.4 | 64.3 | 64.2 | 66.3 | 71.1 | 78.8 | 83.1 | 88.6 | 86.2 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 76.9 | 75.3 | 74.1 | 59.0 | 55.6 | 56.8 | 57.9 | 60.8 | 70.0 | 77.5 | 85.5 | 75.4 |
| Above Normal (16%) | 83.5 | 81.3 | 78.8 | 64.5 | 58.6 | 57.9 | 60.9 | 67.3 | 78.6 | 80.4 | 85.8 | 83.1 |
| Below Normal (13%) | 91.8 | 89.9 | 81.5 | 78.0 | 66.9 | 69.3 | 70.9 | 74.8 | 81.7 | 83.3 | 87.8 | 92.2 |
| Dry (24%) | 94.2 | 88.8 | 78.3 | 80.7 | 70.0 | 67.7 | 70.4 | 76.8 | 82.9 | 87.1 | 91.8 | 93.8 |
| Critical (15%) | 96.3 | 95.8 | 89.9 | 84.4 | 77.2 | 76.7 | 79.7 | 84.6 | 88.4 | 91.4 | 93.9 | 95.1 |

### Alternative 4 043019

| | Monthly Position (KM) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 96.1 | 96.1 | 93.4 | 88.2 | 80.1 | 76.8 | 79.0 | 83.4 | 85.8 | 90.1 | 93.9 | 95.0 |
| 20% | 94.8 | 93.9 | 92.7 | 85.7 | 75.0 | 69.8 | 73.3 | 81.8 | 84.7 | 88.4 | 92.5 | 94.1 |
| 30% | 94.4 | 93.4 | 90.1 | 82.3 | 69.7 | 65.0 | 69.7 | 78.5 | 83.7 | 87.2 | 92.2 | 94.0 |
| 40% | 94.3 | 93.1 | 88.4 | 76.8 | 66.1 | 63.4 | 66.7 | 73.5 | 82.7 | 84.7 | 89.9 | 93.6 |
| 50% | 93.7 | 92.7 | 86.1 | 72.7 | 60.4 | 61.0 | 63.7 | 70.1 | 80.5 | 83.4 | 88.2 | 92.3 |
| 60% | 92.7 | 92.1 | 83.1 | 66.2 | 56.7 | 58.1 | 60.5 | 67.2 | 79.1 | 81.2 | 87.0 | 91.0 |
| 70% | 92.1 | 89.2 | 74.2 | 57.0 | 54.2 | 54.8 | 58.1 | 64.8 | 76.3 | 80.5 | 86.4 | 90.7 |
| 80% | 91.0 | 85.4 | 64.2 | 54.8 | 54.0 | 54.0 | 54.8 | 60.2 | 72.2 | 80.2 | 85.8 | 90.4 |
| 90% | 88.9 | 79.9 | 56.4 | 54.0 | 54.0 | 54.0 | 54.0 | 55.6 | 64.8 | 77.4 | 85.2 | 89.9 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 92.3 | 89.2 | 80.2 | 71.0 | 64.0 | 62.4 | 64.9 | 70.4 | 78.4 | 83.4 | 88.9 | 91.9 |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet (32%) | 89.1 | 86.1 | 76.8 | 58.5 | 55.3 | 56.1 | 57.2 | 60.5 | 69.7 | 77.8 | 85.5 | 89.0 |
| Above Normal (16%) | 92.0 | 89.1 | 80.5 | 63.9 | 58.1 | 56.5 | 59.3 | 65.9 | 78.2 | 80.7 | 85.9 | 90.5 |
| Below Normal (13%) | 91.7 | 89.6 | 81.0 | 76.8 | 66.0 | 65.1 | 67.6 | 73.8 | 81.4 | 83.6 | 88.8 | 92.9 |
| Dry (24%) | 94.5 | 89.1 | 78.0 | 80.7 | 69.9 | 65.3 | 68.7 | 76.1 | 82.6 | 87.6 | 92.2 | 94.1 |
| Critical (15%) | 96.3 | 95.9 | 89.9 | 84.2 | 77.8 | 75.5 | 78.7 | 84.1 | 88.0 | 91.7 | 94.1 | 95.2 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Position (0) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0.0 | 0.0 | **0.0** | **0.9** | **0.6** | -1.1 | -1.2 | 0.0 | -0.3 | -0.1 | **0.4** | **0.0** |
| 20% | **0.0** | **0.2** | **1.9** | **0.6** | -0.2 | -4.9 | -1.5 | **0.2** | -0.1 | **0.7** | **0.2** | **0.1** |
| 30% | -0.1 | **0.1** | **3.1** | -0.6 | **0.6** | -2.9 | -2.3 | -1.3 | -0.2 | **0.5** | **0.3** | **0.2** |
| 40% | **0.1** | **1.8** | **3.2** | -1.0 | **0.2** | -3.2 | -1.5 | -0.8 | -0.2 | **0.4** | **1.0** | **0.6** |
| 50% | **3.7** | **9.4** | **2.6** | -0.9 | -1.0 | -1.7 | -2.2 | -1.7 | -0.2 | **0.5** | **1.0** | **1.1** |
| 60% | **8.5** | **9.7** | **0.7** | -0.9 | -1.1 | -2.4 | -2.2 | -1.3 | -0.8 | **0.3** | 0.0 | **7.9** |
| 70% | **14.5** | **11.7** | -0.9 | -1.1 | -0.3 | -1.5 | -1.8 | -1.4 | -0.8 | **0.4** | **0.0** | **14.1** |
| 80% | **13.9** | **8.9** | -0.4 | -0.1 | 0.0 | 0.0 | -0.7 | -0.8 | 0.0 | **0.8** | **0.3** | **14.9** |
| 90% | **12.1** | **4.0** | -0.2 | 0.0 | 0.0 | 0.0 | 0.0 | **0.3** | **0.3** | **0.1** | **0.3** | **14.8** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **5.3** | **4.7** | **1.0** | -0.4 | -0.2 | -1.8 | -1.4 | -0.7 | -0.3 | **0.3** | **0.3** | **5.7** |
| **Water Year Types[b,c]** | | | | | | | | | | | | |
| Wet | **12.2** | **10.8** | **2.8** | -0.5 | -0.3 | -0.7 | -0.6 | -0.3 | -0.3 | **0.2** | **0.1** | **13.7** |
| Above Normal | **8.6** | **7.8** | **1.7** | -0.6 | -0.5 | -1.4 | -1.5 | -1.4 | -0.4 | **0.3** | **0.1** | **7.4** |
| Below Normal | -0.1 | -0.3 | -0.5 | -1.2 | -0.9 | -4.2 | -3.3 | -1.0 | -0.3 | **0.3** | **1.0** | **0.7** |
| Dry | **0.3** | **0.3** | -0.3 | **0.0** | -0.1 | -2.4 | -1.6 | -0.7 | -0.3 | **0.4** | **0.4** | **0.3** |
| Critical | 0.0 | **0.1** | 0.0 | -0.2 | **0.6** | -1.2 | -1.0 | -0.5 | -0.4 | **0.3** | **0.2** | **0.1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

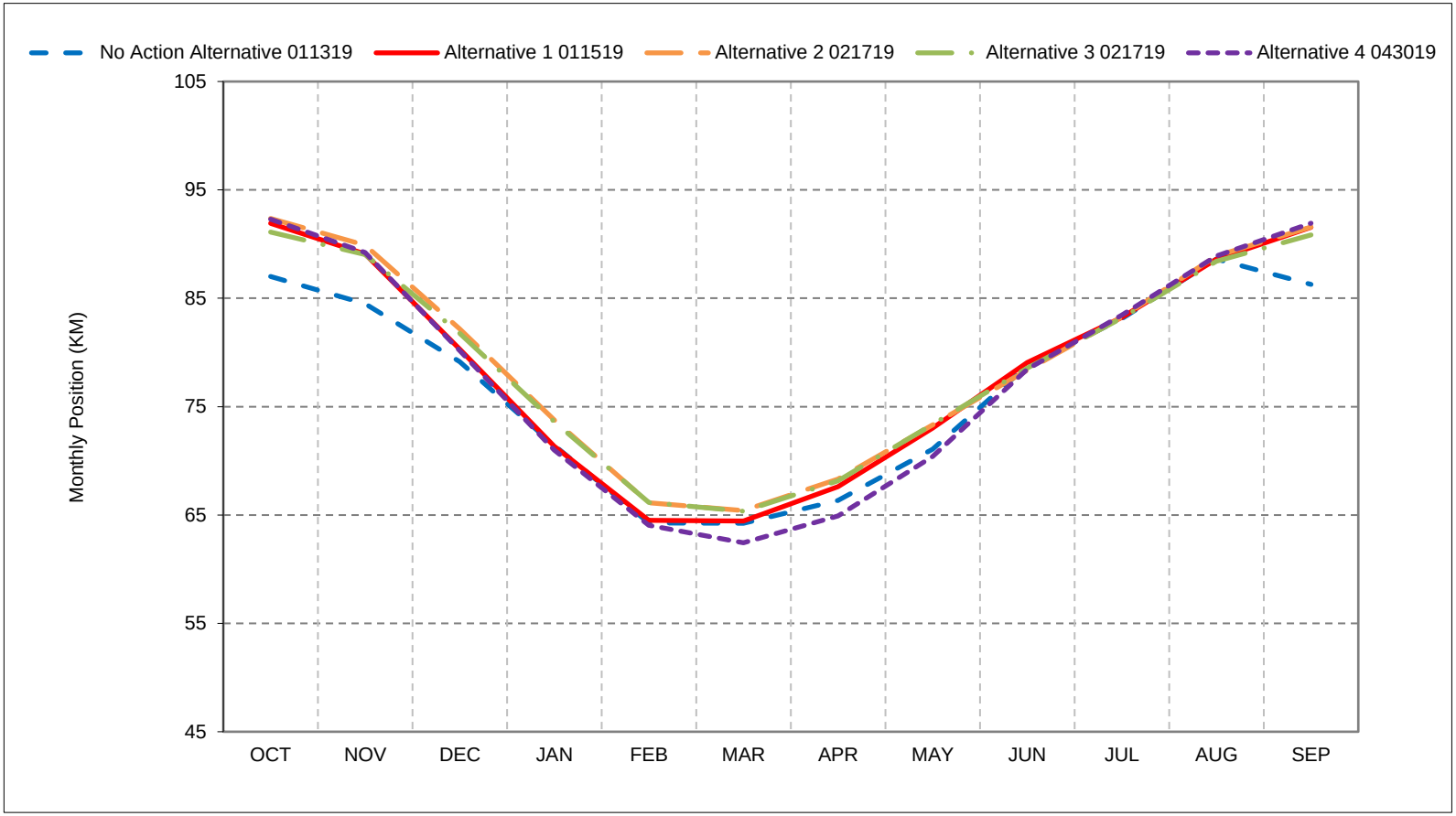
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

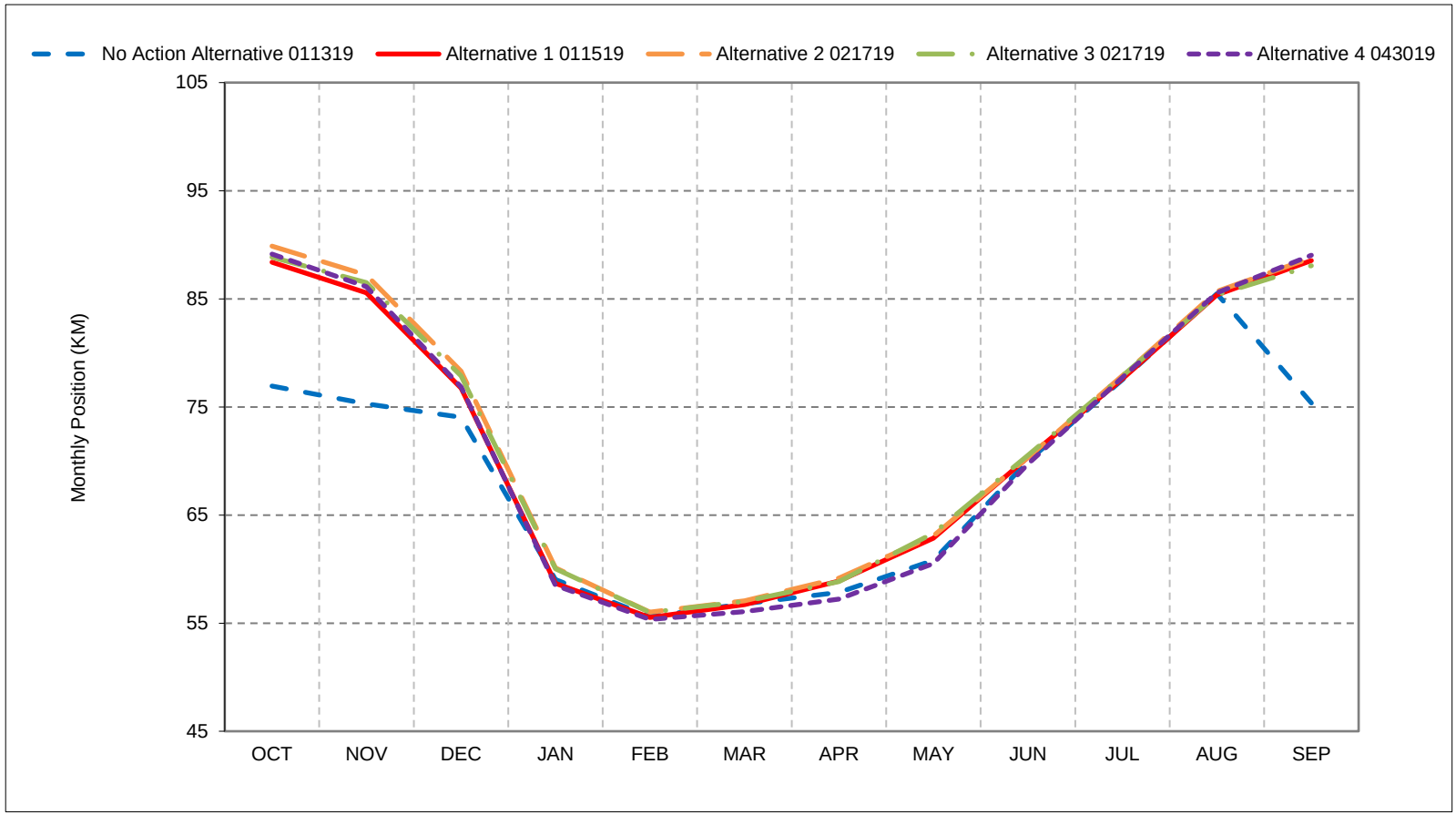
f Results are monthly averaged from DSM2.

## Figure 45-1. X2, Long-Term Average Position



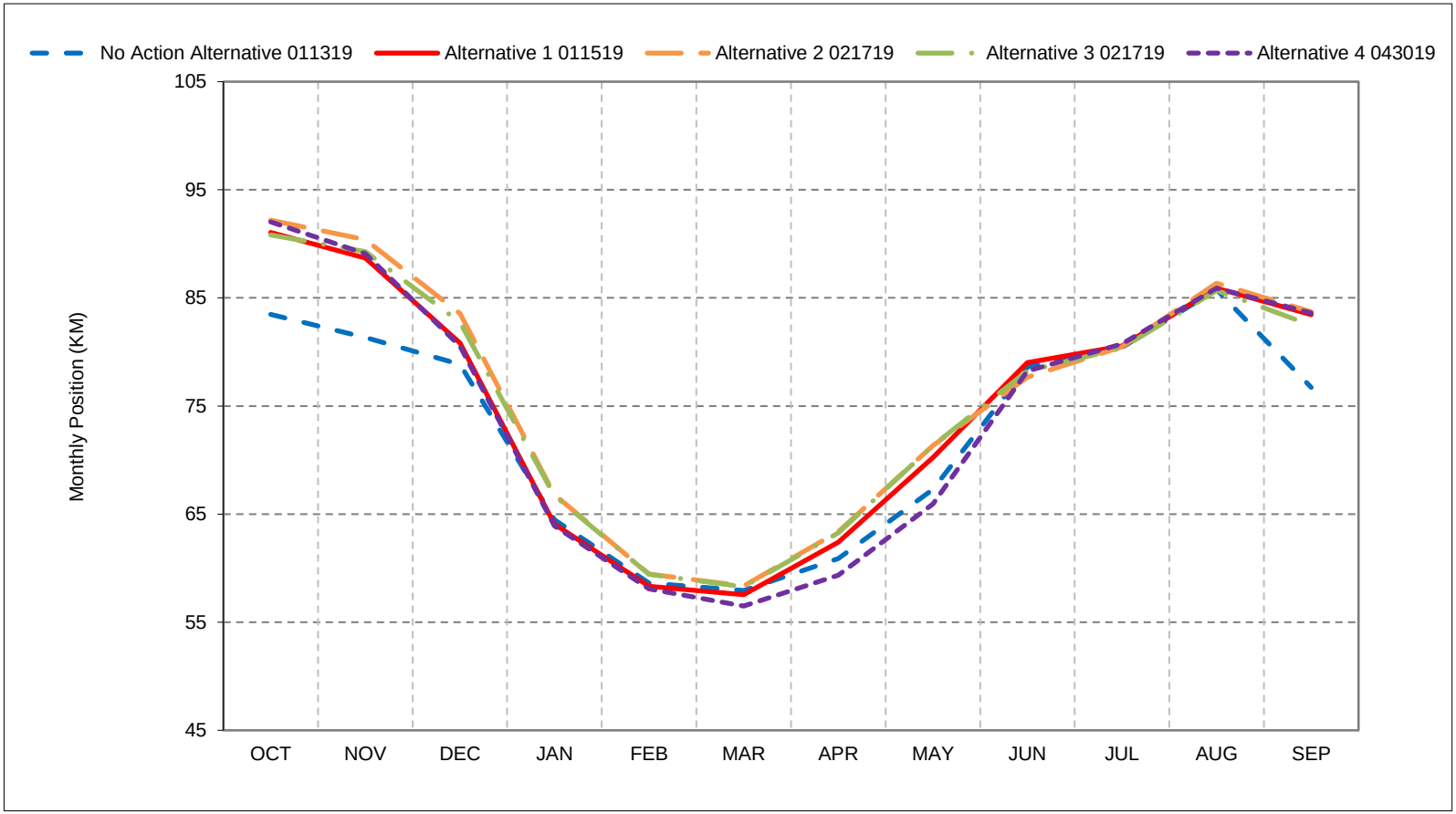

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
* Results are monthly averaged from DSM2.

## Figure 45-2. X2, Wet Year Average Position



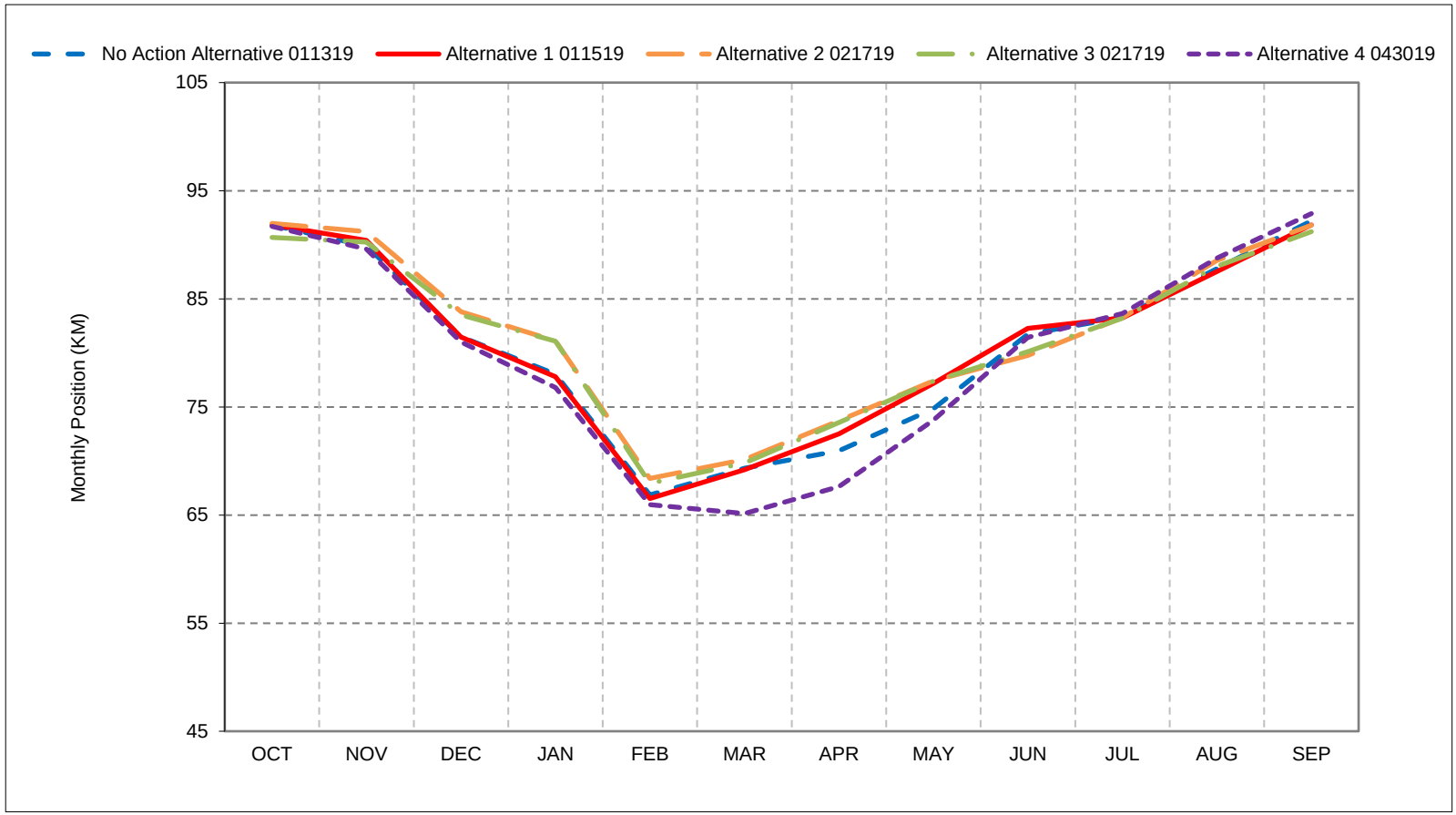

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
* Results are monthly averaged from DSM2.

## Figure 45-3. X2, Above Normal Year Average Position



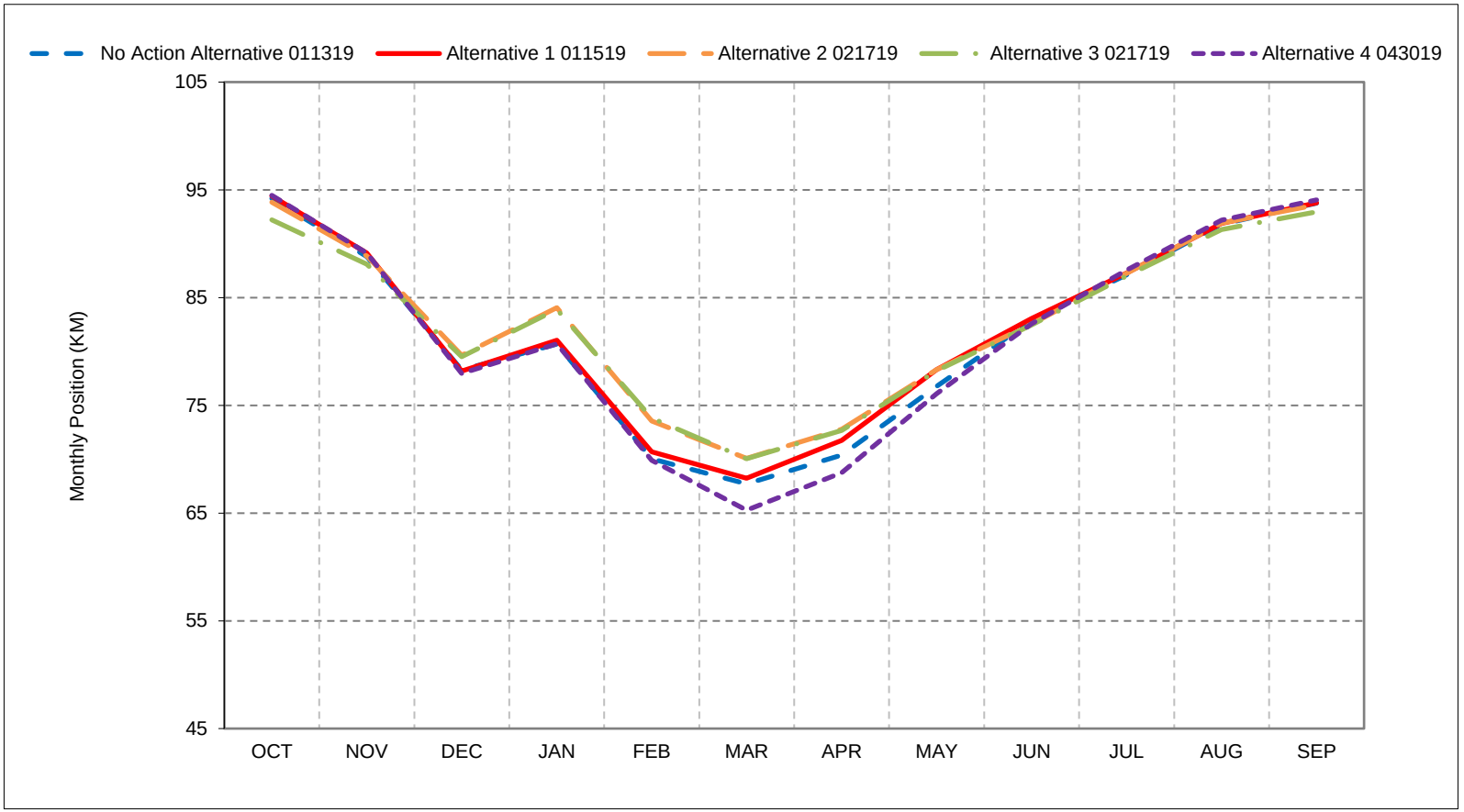

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
* Results are monthly averaged from DSM2.

## Figure 45-4. X2, Below Normal Year Average Position



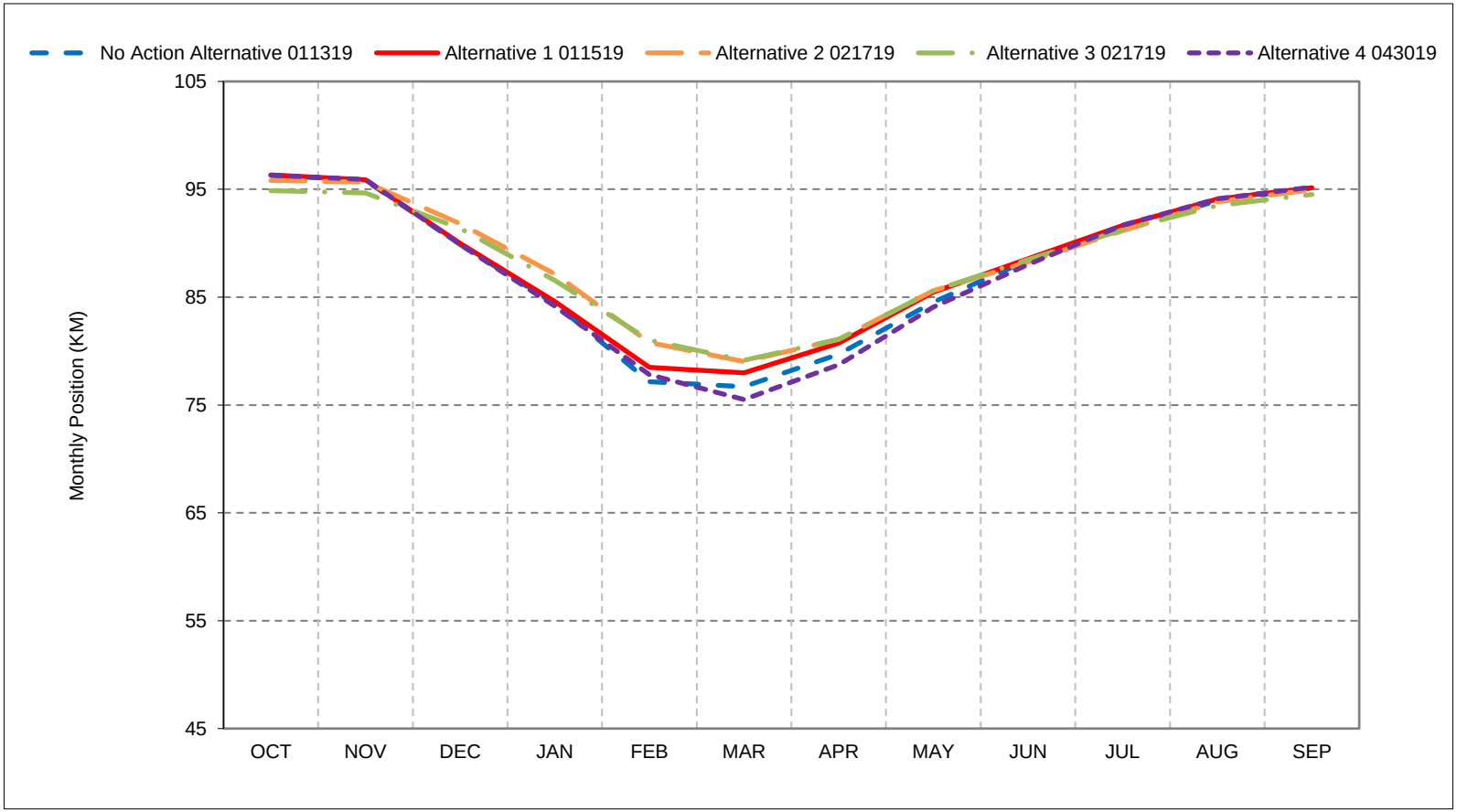

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
* Results are monthly averaged from DSM2.

## Figure 45-5. X2, Dry Year Average Position



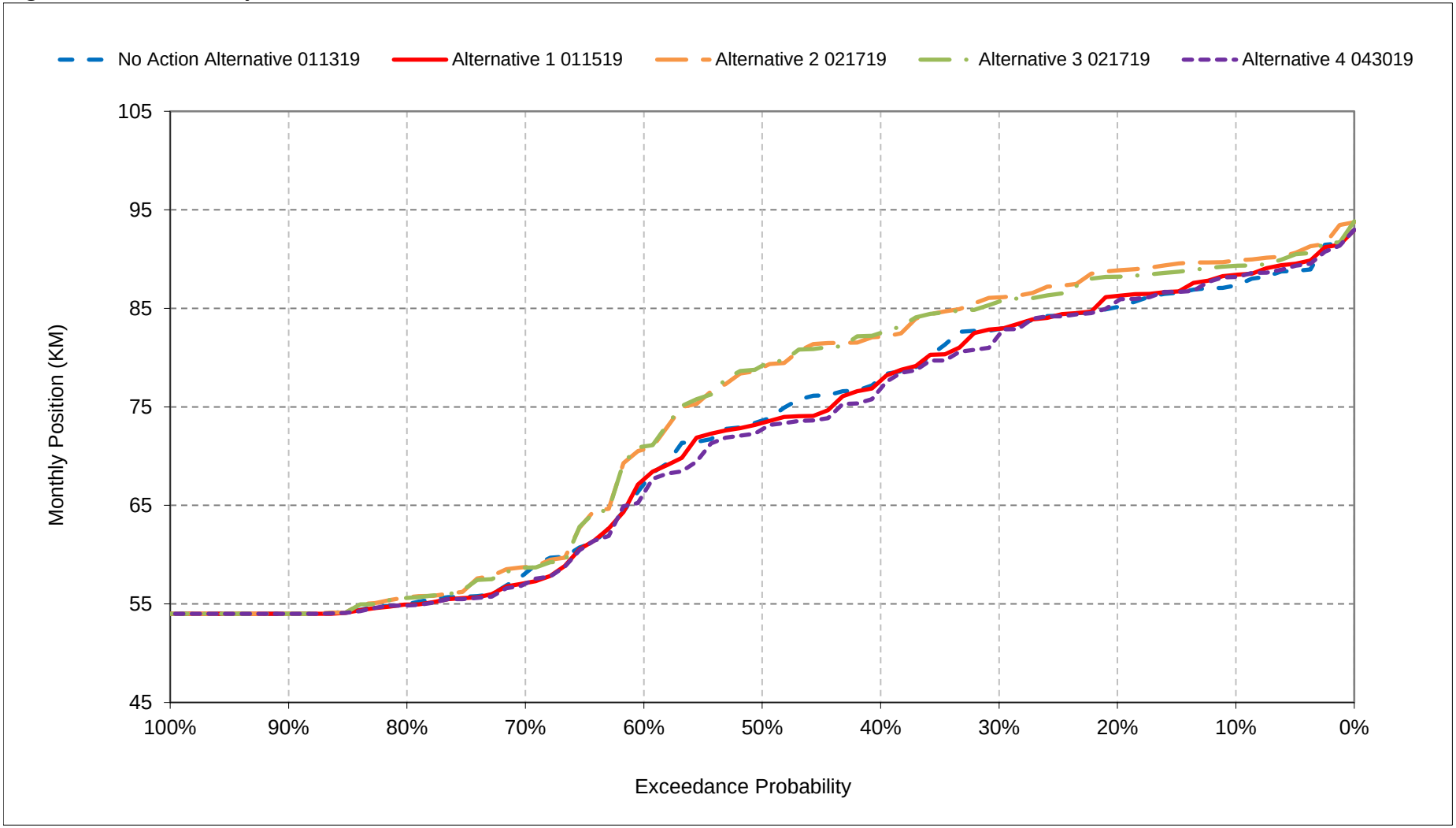

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
* Results are monthly averaged from DSM2.

## Figure 45-6. X2, Critical Year Average Position




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
* Results are monthly averaged from DSM2.

**Figure 45-7. X2, January Position**

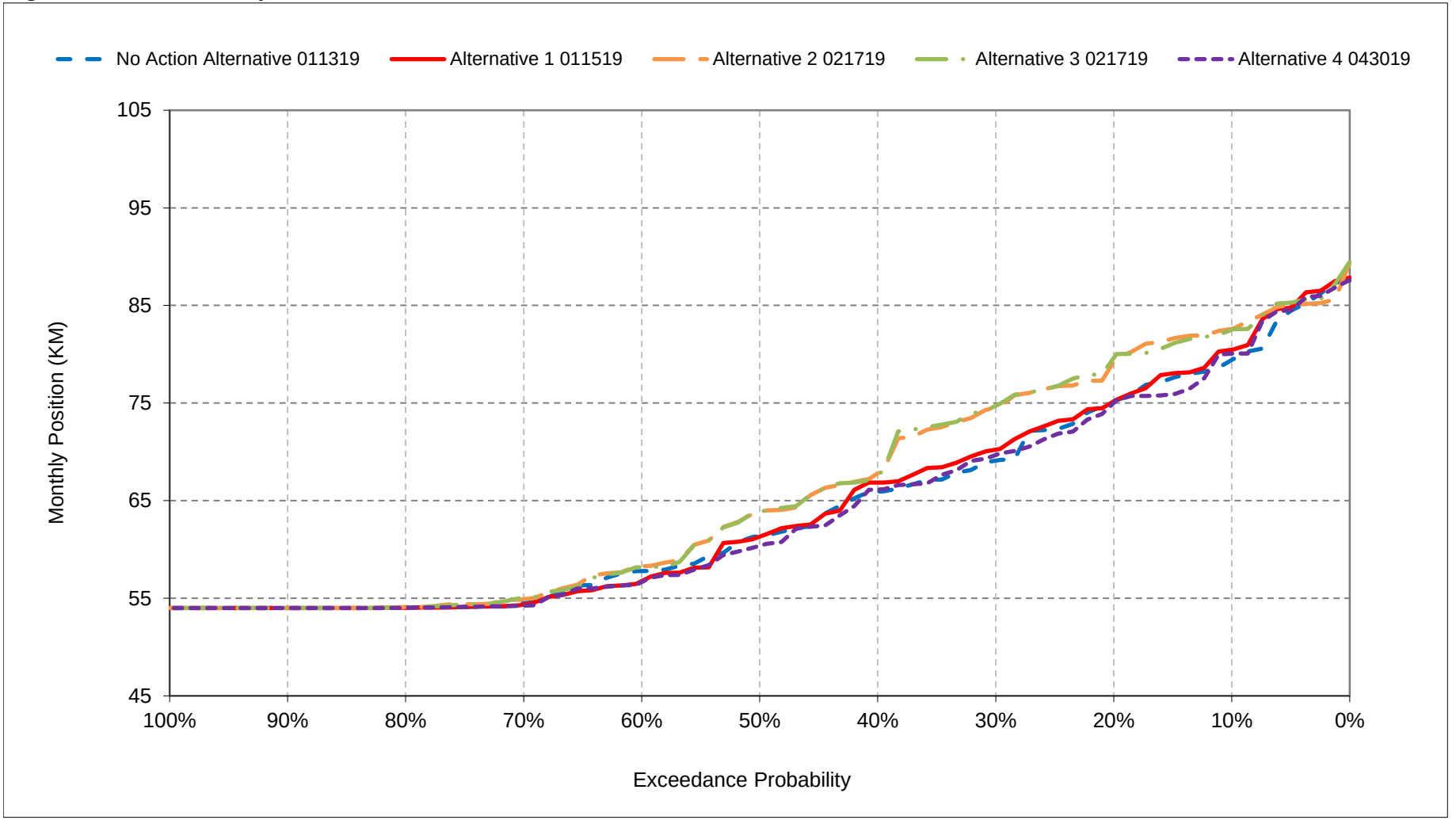



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

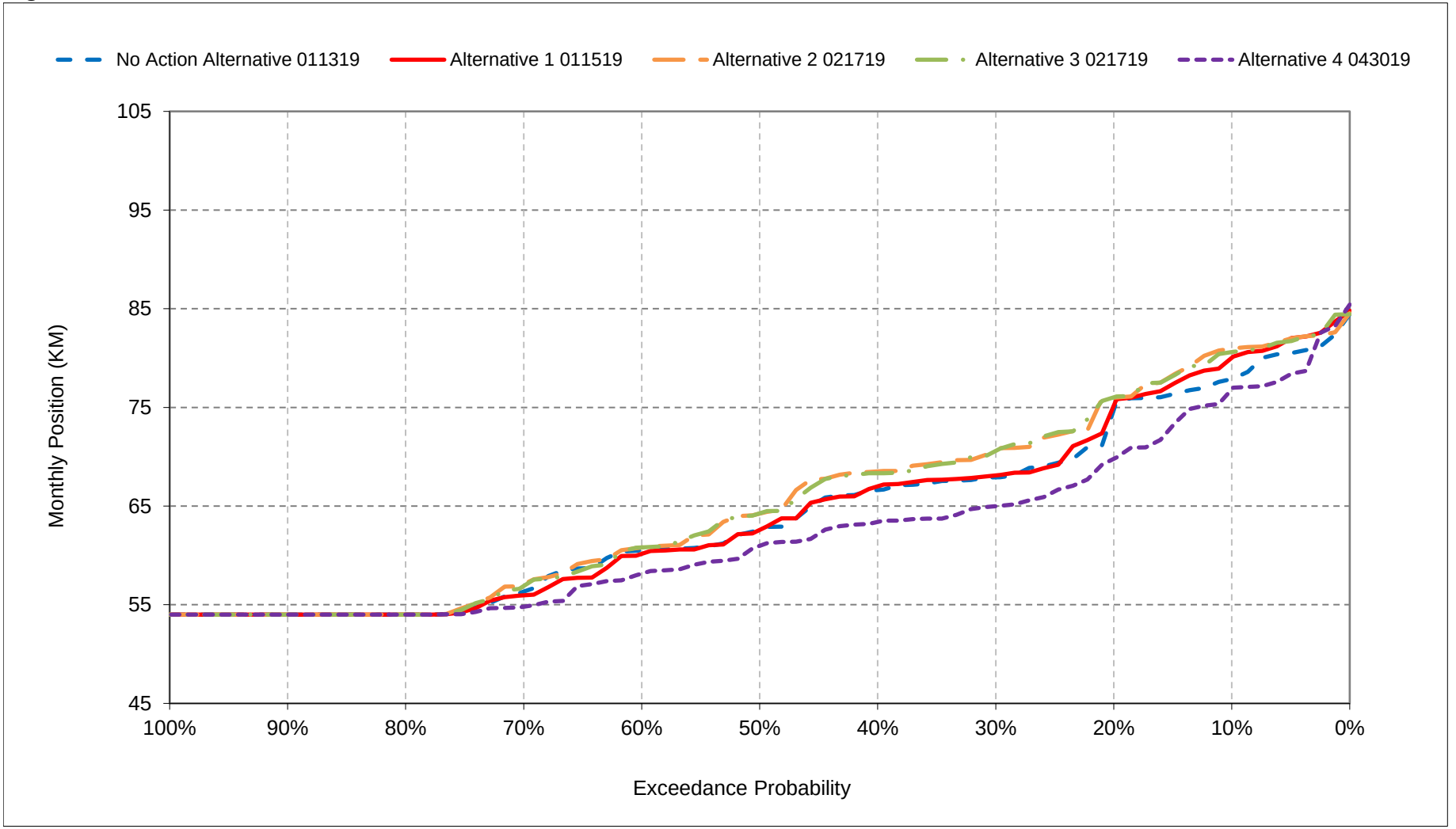
*Results are monthly averaged from DSM2.

**Figure 45-8. X2, February Position**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Results are monthly averaged from DSM2.

**Figure 45-9. X2, March Position**

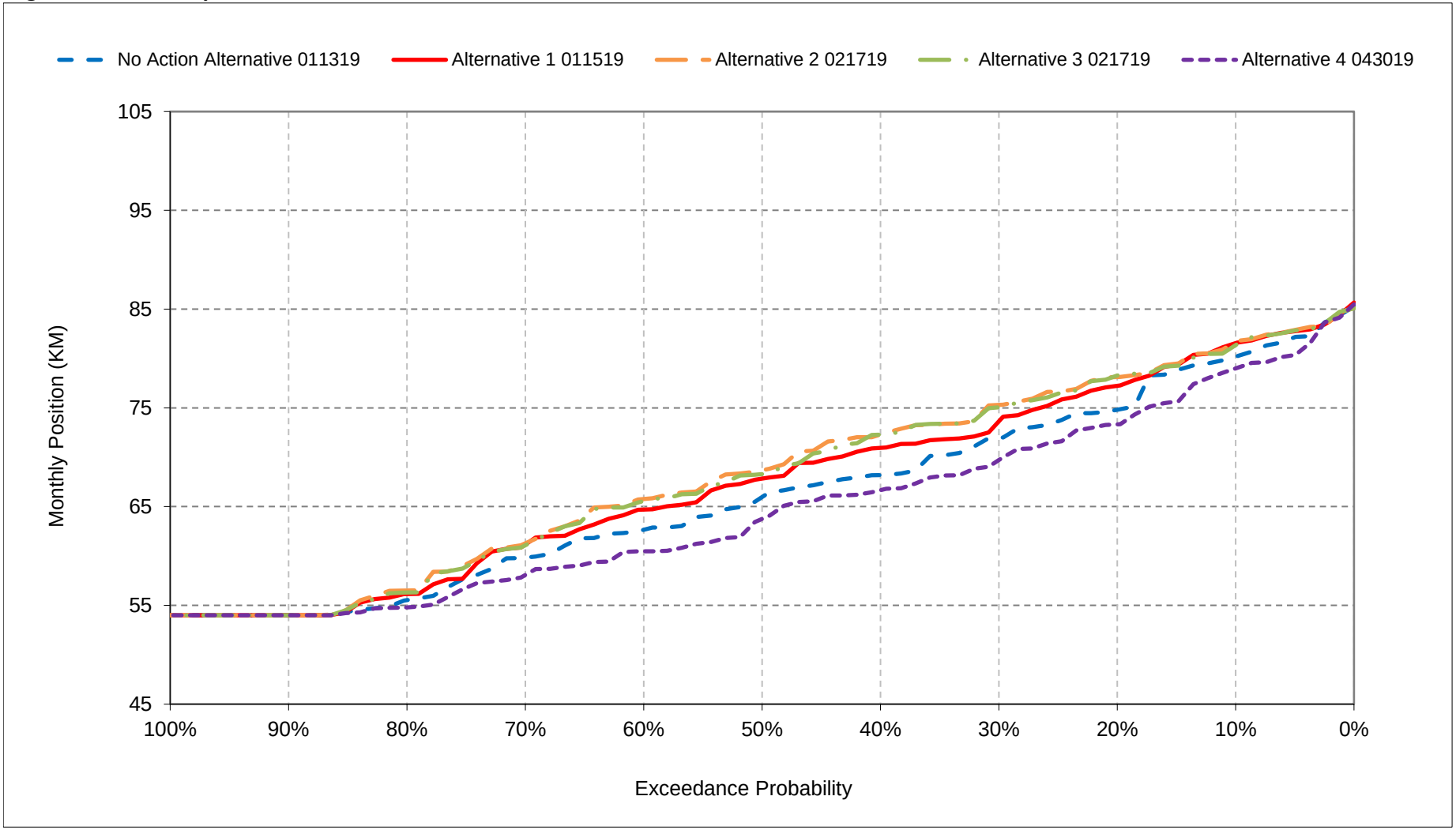



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

**Figure 45-10. X2, April Position**

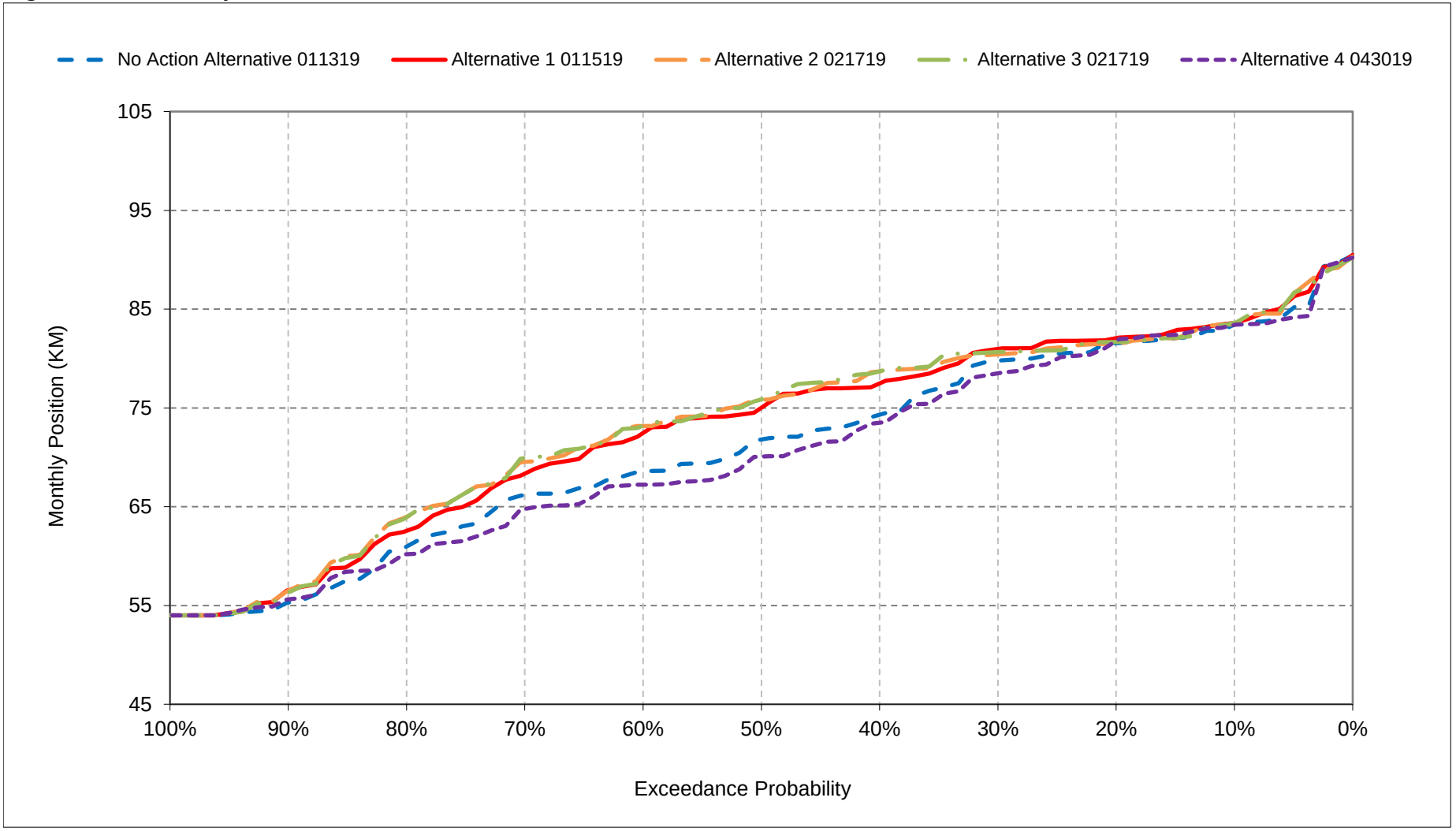



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

**Figure 45-11. X2, May Position**

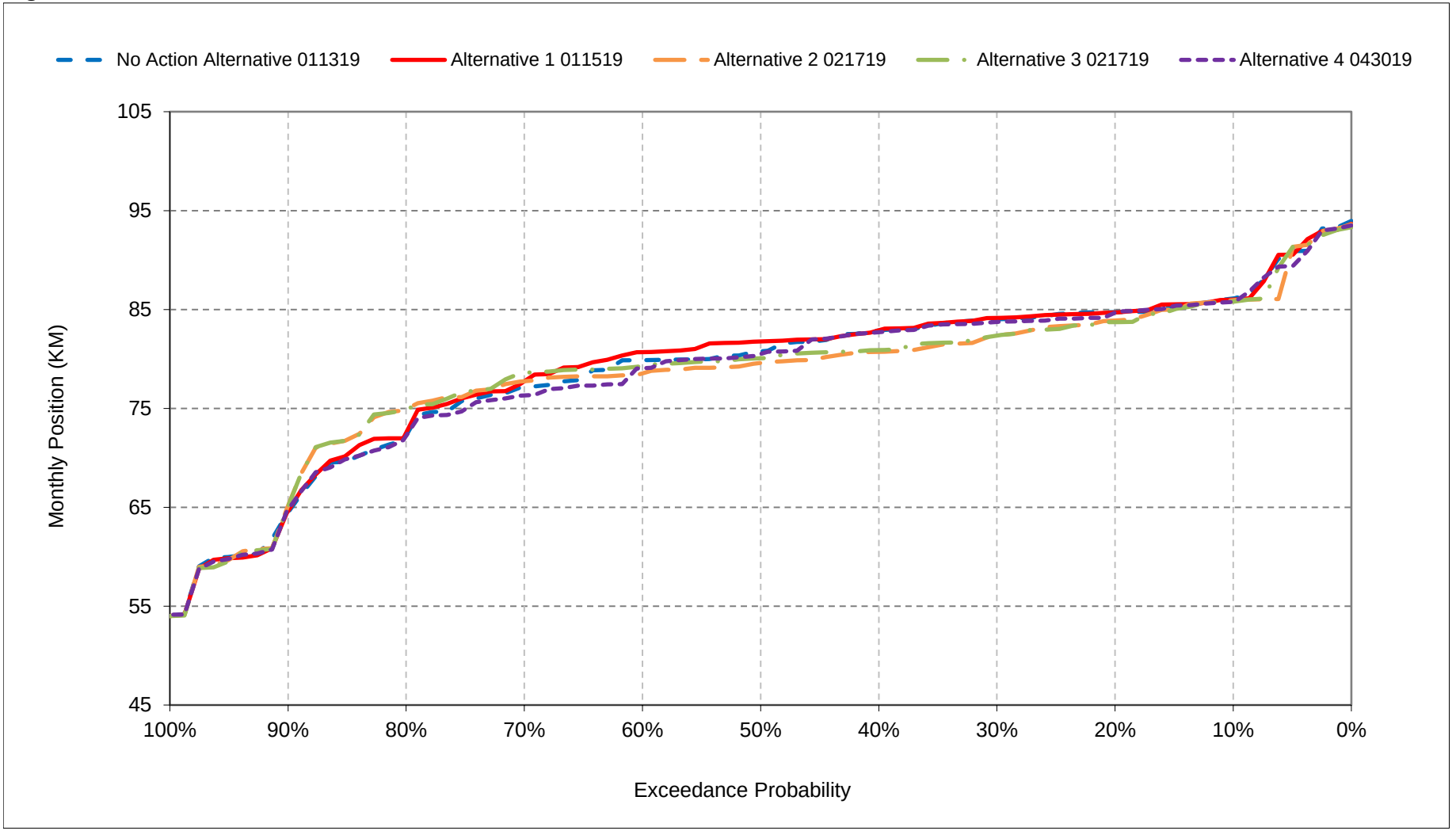



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

**Figure 45-12. X2, June Position**

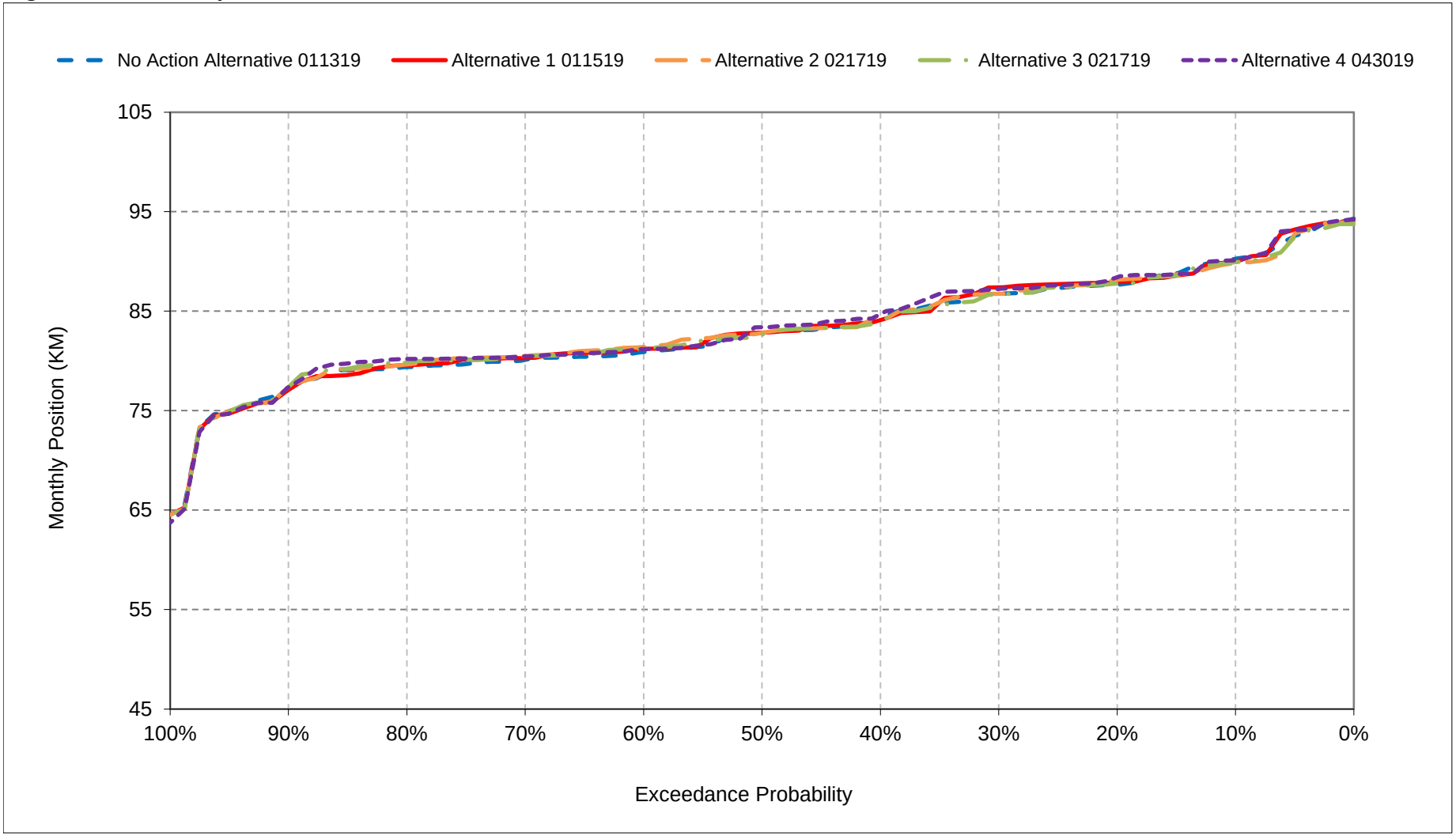



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

**Figure 45-13. X2, July Position**

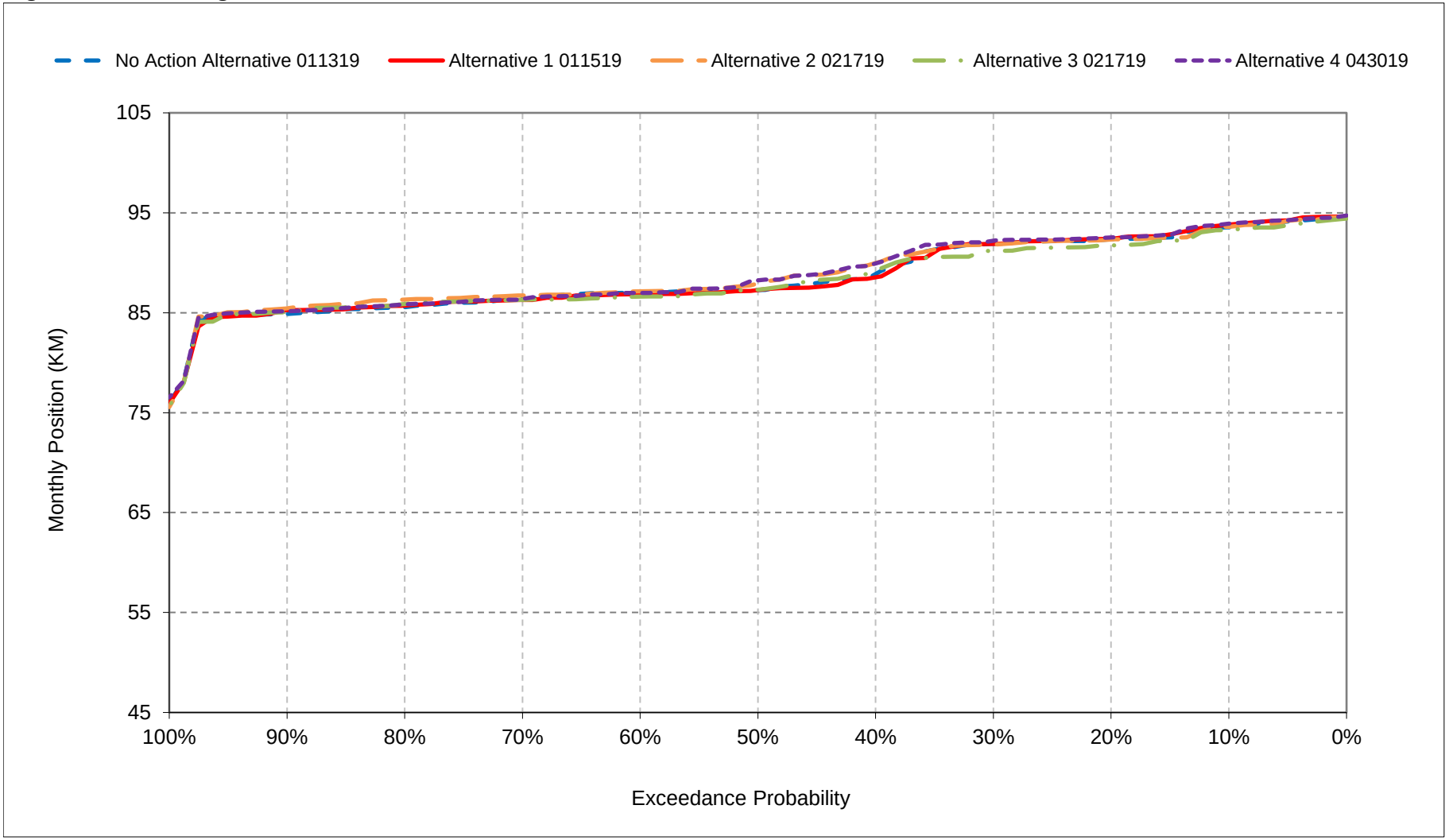



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

**Figure 45-14. X2, August Position**

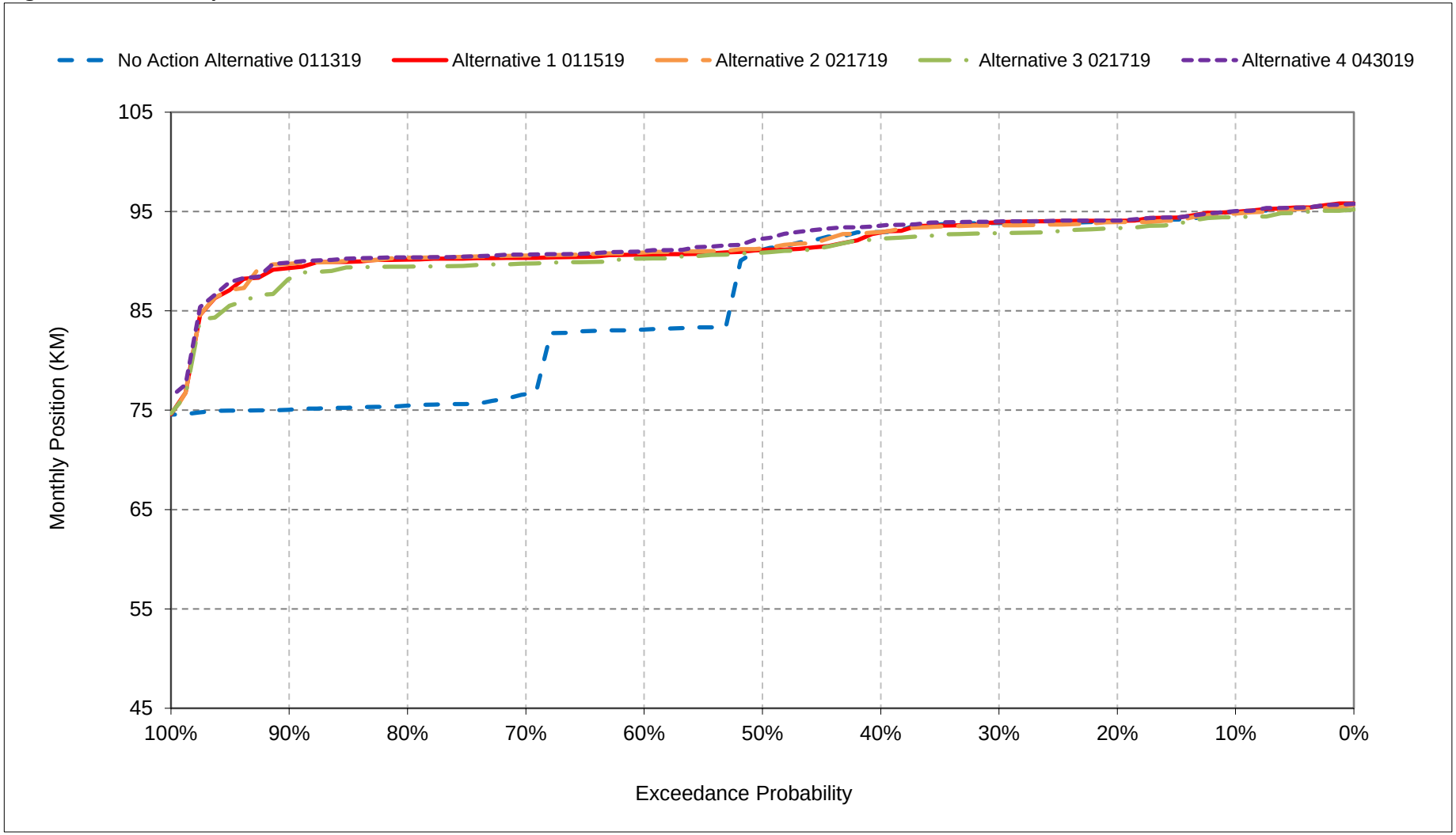



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

**Figure 45-15. X2, September Position**

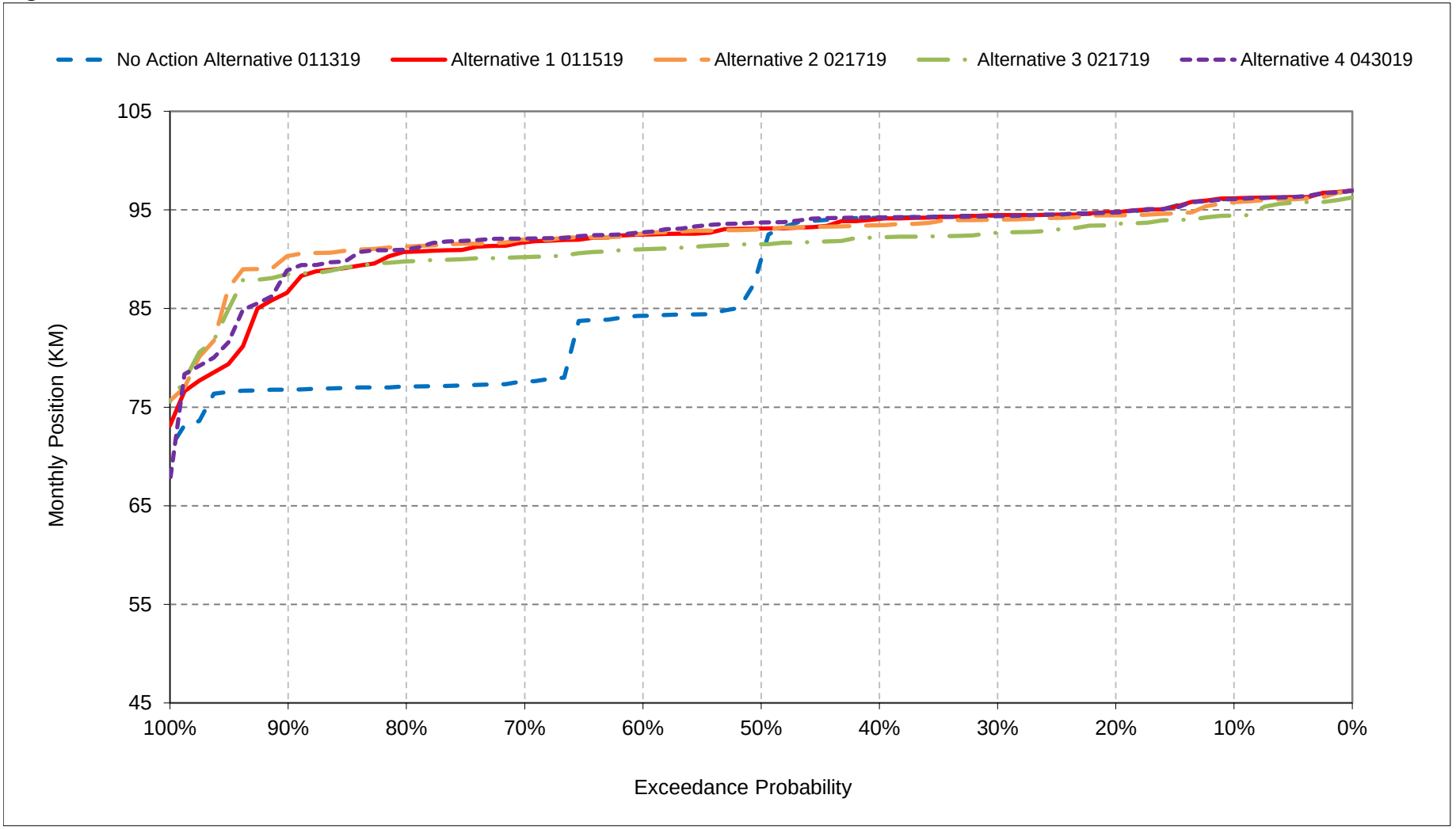



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

**Figure 45-16. X2, October Position**

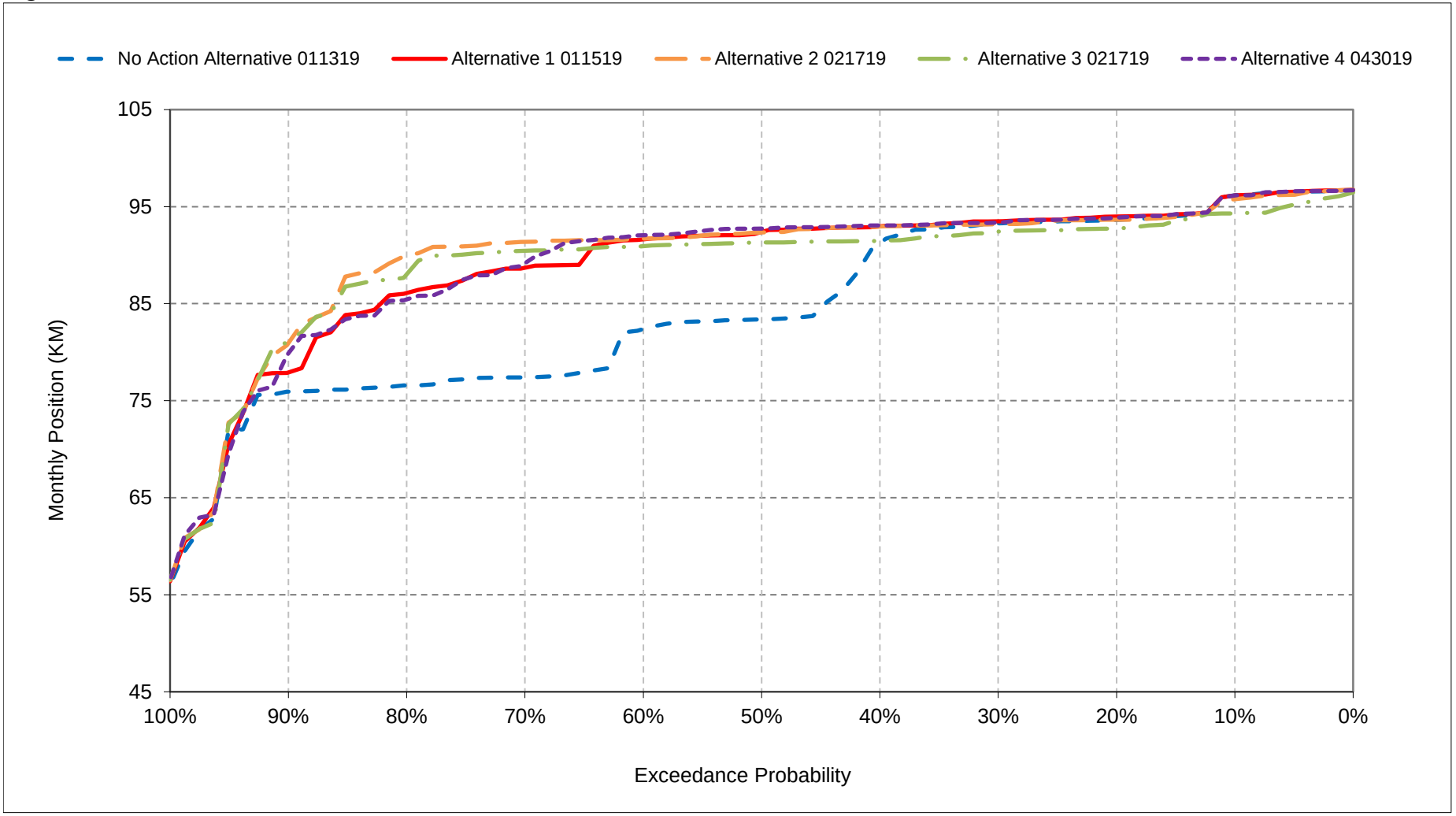



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

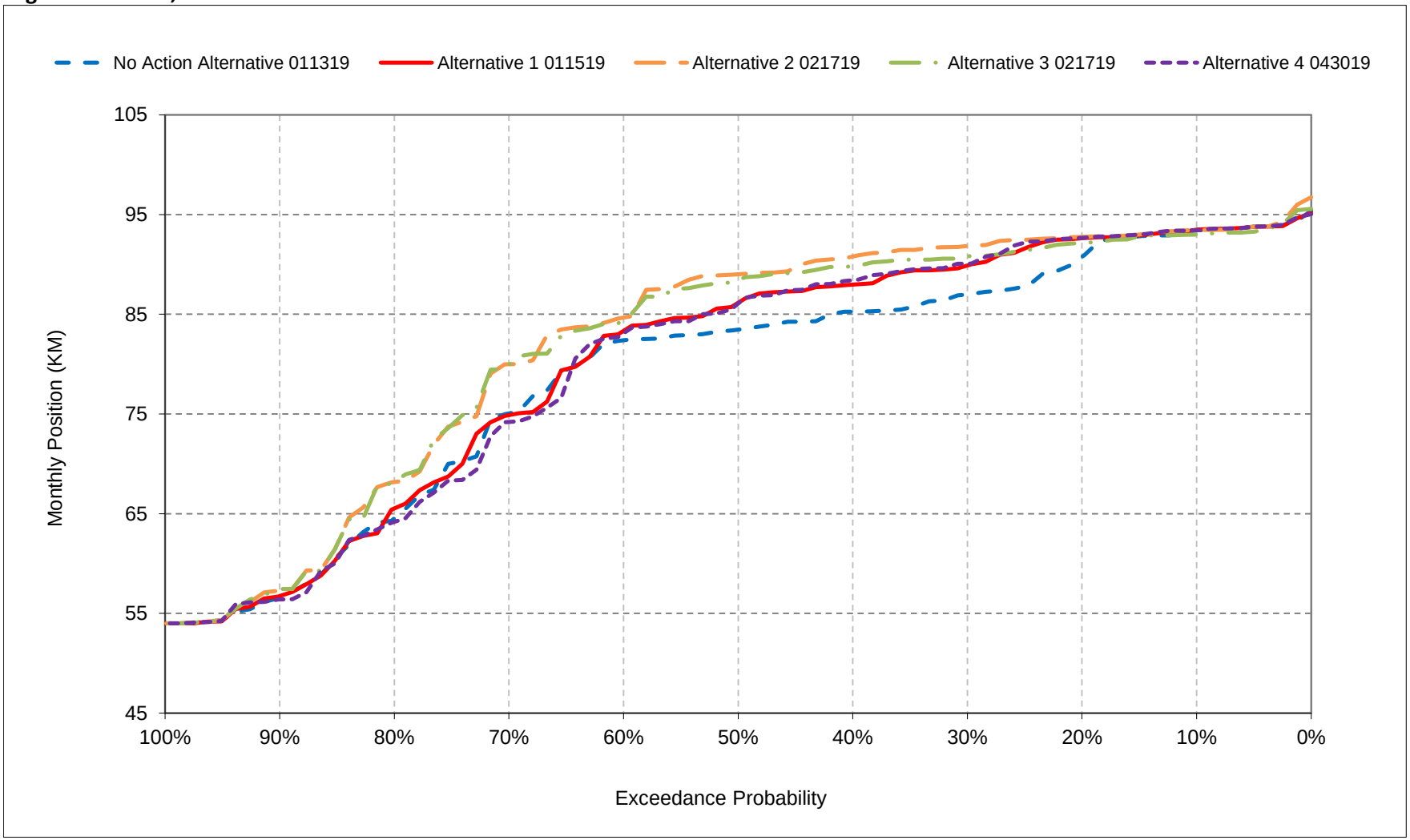
*Results are monthly averaged from DSM2.

**Figure 45-17. X2, November Position**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Results are monthly averaged from DSM2.

**Figure 45-18. X2, December Position**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Results are monthly averaged from DSM2.

# Attachment 3-8 Winter-Run Chinook Temperature Dependent Egg Mortality Results (Martin and Anderson Models)

The following results of the Martin and Anderson Models are included for Winter-Run Chinook Salmon temperature-dependent egg mortality for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Upper Sacramento Winter-Run Chinook Salmon, Martin Model | NA | 1-1 to 1-4 | 1-1 to 1-6 |
| Upper Sacramento Winter-Run Chinook Salmon, Anderson Model | NA | 1-1 to 1-4 | 2-1 to 2-6 |

## 1 Report Formats

- Tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Exceedance charts including all scenarios

# Appendix F – Modeling

## Attachment 3-8 – Winter Run Chinook Temperature Dependent Egg Mortality Results (Martin and Anderson Models)

The following results of the Martin and Anderson models are included for winter run Chinook Salmon temperature-dependent egg mortality for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Upper Sacramento Winter Run Chinook Salmon, Martin Model | NA | 1-1 to 1-4 | 1-1 to 1-6 |
| Upper Sacramento Winter Run Chinook Salmon, Anderson Model | NA | 1-1 to 1-4 | 2-1 to 2-6 |

Report formats

- Tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Exceedance charts including all scenarios

# Table 1-1. Annual Temperature-Dependent Winter-Run Chinook Salmon Mortalities

NAA 011319

| Statistic | Annual Mortality | |
|---|---|---|
| | Martin | Anderson |
| Probability of Exceedance | | |
| 10% | 0.67 | 0.83 |
| 20% | 0.50 | 0.63 |
| 30% | 0.31 | 0.32 |
| 40% | 0.08 | 0.06 |
| 50% | 0.06 | 0.03 |
| 60% | 0.04 | 0.02 |
| 70% | 0.04 | 0.02 |
| 80% | 0.03 | 0.01 |
| 90% | 0.02 | 0.01 |
| Long Term | | |
| Full Simulation Period[a] | 0.23 | 0.24 |
| **Water Year Types[b,c]** | | |
| Wet (32%) | 0.05 | 0.03 |
| Above Normal (16%) | 0.03 | 0.01 |
| Below Normal (13%) | 0.17 | 0.18 |
| Dry (24%) | 0.28 | 0.32 |
| Critical (15%) | 0.75 | 0.83 |

Alternative 1 011519

| Statistic | Annual Mortality | |
|---|---|---|
| | Martin | Anderson |
| Probability of Exceedance | | |
| 10% | 0.46 | 0.46 |
| 20% | 0.28 | 0.16 |
| 30% | 0.11 | 0.08 |
| 40% | 0.06 | 0.06 |
| 50% | 0.03 | 0.03 |
| 60% | 0.02 | 0.02 |
| 70% | 0.01 | 0.01 |
| 80% | 0.01 | 0.01 |
| 90% | 0.01 | 0.01 |
| Long Term | | |
| Full Simulation Period[a] | 0.15 | 0.13 |
| **Water Year Types[b,c]** | | |
| Wet (32%) | 0.05 | 0.04 |
| Above Normal (16%) | 0.04 | 0.03 |
| Below Normal (13%) | 0.11 | 0.06 |
| Dry (24%) | 0.10 | 0.09 |
| Critical (15%) | 0.61 | 0.57 |

Alternative 1 011519 minus NAA 011319

| Statistic | Annual Mortality | |
|---|---|---|
| | Martin | Anderson |
| Probability of Exceedance[a] | | |
| 10% | -0.22 | -0.37 |
| 20% | -0.23 | -0.47 |
| 30% | -0.20 | -0.24 |
| 40% | -0.02 | **0.00** |
| 50% | -0.03 | **0.00** |
| 60% | -0.02 | 0.00 |
| 70% | -0.02 | 0.00 |
| 80% | -0.02 | 0.00 |
| 90% | -0.02 | **0.00** |
| Long Term | | |
| Full Simulation Period[a] | -0.07 | -0.10 |
| **Water Year Types[b,c]** | | |
| Wet (32%) | 0.00 | **0.01** |
| Above Normal (16%) | **0.00** | **0.01** |
| Below Normal (13%) | -0.06 | -0.11 |
| Dry (24%) | -0.18 | -0.23 |
| Critical (15%) | -0.15 | -0.26 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

# Table 1-2. Annual Temperature-Dependent Winter-Run Chinook Salmon Mortalities

NAA 011319

| Statistic | Annual Mortality | |
|---|---|---|
| | Martin | Anderson |
| Probability of Exceedance | | |
| 10% | 0.67 | 0.83 |
| 20% | 0.50 | 0.63 |
| 30% | 0.31 | 0.32 |
| 40% | 0.08 | 0.06 |
| 50% | 0.06 | 0.03 |
| 60% | 0.04 | 0.02 |
| 70% | 0.04 | 0.02 |
| 80% | 0.03 | 0.01 |
| 90% | 0.02 | 0.01 |
| Long Term | | |
| Full Simulation Period[a] | 0.23 | 0.24 |
| **Water Year Types[b,c]** | | |
| Wet (32%) | 0.05 | 0.03 |
| Above Normal (16%) | 0.03 | 0.01 |
| Below Normal (13%) | 0.17 | 0.18 |
| Dry (24%) | 0.28 | 0.32 |
| Critical (15%) | 0.75 | 0.83 |

Alternative 2 021719

| Statistic | Annual Mortality | |
|---|---|---|
| | Martin | Anderson |
| Probability of Exceedance | | |
| 10% | 0.66 | 0.82 |
| 20% | 0.43 | 0.54 |
| 30% | 0.30 | 0.26 |
| 40% | 0.11 | 0.07 |
| 50% | 0.06 | 0.05 |
| 60% | 0.05 | 0.03 |
| 70% | 0.04 | 0.02 |
| 80% | 0.03 | 0.01 |
| 90% | 0.02 | 0.01 |
| Long Term | | |
| Full Simulation Period[a] | 0.22 | 0.23 |
| **Water Year Types[b,c]** | | |
| Wet (32%) | 0.06 | 0.04 |
| Above Normal (16%) | 0.06 | 0.03 |
| Below Normal (13%) | 0.11 | 0.08 |
| Dry (24%) | 0.26 | 0.32 |
| Critical (15%) | 0.77 | 0.85 |

Alternative 2 021719 minus NAA 011319

| Statistic | Annual Mortality | |
|---|---|---|
| | Martin | Anderson |
| Probability of Exceedance[a] | | |
| 10% | -0.02 | -0.01 |
| 20% | -0.07 | -0.09 |
| 30% | 0.00 | -0.06 |
| 40% | **0.03** | **0.01** |
| 50% | **0.00** | **0.02** |
| 60% | **0.01** | **0.01** |
| 70% | **0.00** | **0.00** |
| 80% | 0.00 | 0.00 |
| 90% | -0.01 | **0.00** |
| Long Term | | |
| Full Simulation Period[a] | 0.00 | 0.00 |
| **Water Year Types[b,c]** | | |
| Wet (32%) | **0.01** | **0.01** |
| Above Normal (16%) | **0.02** | **0.01** |
| Below Normal (13%) | -0.05 | -0.10 |
| Dry (24%) | -0.02 | 0.00 |
| Critical (15%) | **0.01** | **0.02** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 1-3. Annual Temperature-Dependent Winter-Run Chinook Salmon Mortalities

NAA 011319

| Statistic | Annual Mortality | |
|---|---|---|
| | Martin | Anderson |
| Probability of Exceedance | | |
| 10% | 0.67 | 0.83 |
| 20% | 0.50 | 0.63 |
| 30% | 0.31 | 0.32 |
| 40% | 0.08 | 0.06 |
| 50% | 0.06 | 0.03 |
| 60% | 0.04 | 0.02 |
| 70% | 0.04 | 0.02 |
| 80% | 0.03 | 0.01 |
| 90% | 0.02 | 0.01 |
| Long Term | | |
| Full Simulation Period[a] | 0.23 | 0.24 |
| **Water Year Types[b,c]** | | |
| Wet (32%) | 0.05 | 0.03 |
| Above Normal (16%) | 0.03 | 0.01 |
| Below Normal (13%) | 0.17 | 0.18 |
| Dry (24%) | 0.28 | 0.32 |
| Critical (15%) | 0.75 | 0.83 |

Alternative 3 021719

| Statistic | Annual Mortality | |
|---|---|---|
| | Martin | Anderson |
| Probability of Exceedance | | |
| 10% | 0.68 | 0.82 |
| 20% | 0.43 | 0.54 |
| 30% | 0.31 | 0.26 |
| 40% | 0.13 | 0.09 |
| 50% | 0.06 | 0.05 |
| 60% | 0.05 | 0.03 |
| 70% | 0.04 | 0.02 |
| 80% | 0.03 | 0.01 |
| 90% | 0.02 | 0.01 |
| Long Term | | |
| Full Simulation Period[a] | 0.23 | 0.24 |
| **Water Year Types[b,c]** | | |
| Wet (32%) | 0.06 | 0.04 |
| Above Normal (16%) | 0.05 | 0.03 |
| Below Normal (13%) | 0.12 | 0.09 |
| Dry (24%) | 0.27 | 0.33 |
| Critical (15%) | 0.78 | 0.85 |

Alternative 3 021719 minus NAA 011319

| Statistic | Annual Mortality | |
|---|---|---|
| | Martin | Anderson |
| Probability of Exceedance[a] | | |
| 10% | **0.01** | -0.01 |
| 20% | -0.07 | -0.09 |
| 30% | 0.00 | -0.06 |
| 40% | **0.05** | **0.04** |
| 50% | **0.00** | **0.02** |
| 60% | **0.01** | **0.00** |
| 70% | 0.00 | **0.00** |
| 80% | -0.01 | 0.00 |
| 90% | -0.01 | **0.00** |
| Long Term | | |
| Full Simulation Period[a] | **0.00** | **0.00** |
| **Water Year Types[b,c]** | | |
| Wet (32%) | **0.01** | **0.01** |
| Above Normal (16%) | **0.02** | **0.01** |
| Below Normal (13%) | -0.05 | -0.09 |
| Dry (24%) | -0.01 | **0.01** |
| Critical (15%) | **0.02** | **0.03** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

## Table 1-4. Annual Temperature-Dependent Winter-Run Chinook Salmon Mortalities

NAA 011319

| Statistic | Annual Mortality | |
|---|---|---|
| | Martin | Anderson |
| Probability of Exceedance | | |
| 10% | 0.67 | 0.83 |
| 20% | 0.50 | 0.63 |
| 30% | 0.31 | 0.32 |
| 40% | 0.08 | 0.06 |
| 50% | 0.06 | 0.03 |
| 60% | 0.04 | 0.02 |
| 70% | 0.04 | 0.02 |
| 80% | 0.03 | 0.01 |
| 90% | 0.02 | 0.01 |
| Long Term | | |
| Full Simulation Period[a] | 0.23 | 0.24 |
| **Water Year Types[b,c]** | | |
| Wet (32%) | 0.05 | 0.03 |
| Above Normal (16%) | 0.03 | 0.01 |
| Below Normal (13%) | 0.17 | 0.18 |
| Dry (24%) | 0.28 | 0.32 |
| Critical (15%) | 0.75 | 0.83 |

Alternative 4 043019

| Statistic | Annual Mortality | |
|---|---|---|
| | Martin | Anderson |
| Probability of Exceedance | | |
| 10% | 0.37 | 0.40 |
| 20% | 0.22 | 0.13 |
| 30% | 0.12 | 0.09 |
| 40% | 0.08 | 0.07 |
| 50% | 0.03 | 0.03 |
| 60% | 0.02 | 0.03 |
| 70% | 0.02 | 0.01 |
| 80% | 0.01 | 0.01 |
| 90% | 0.01 | 0.01 |
| Long Term | | |
| Full Simulation Period[a] | 0.14 | 0.13 |
| **Water Year Types[b,c]** | | |
| Wet (32%) | 0.05 | 0.04 |
| Above Normal (16%) | 0.03 | 0.02 |
| Below Normal (13%) | 0.10 | 0.07 |
| Dry (24%) | 0.11 | 0.09 |
| Critical (15%) | 0.55 | 0.55 |

Alternative 4 043019 minus NAA 011319

| Statistic | Annual Mortality | |
|---|---|---|
| | Martin | Anderson |
| Probability of Exceedance[a] | | |
| 10% | -0.30 | -0.43 |
| 20% | -0.28 | -0.50 |
| 30% | -0.19 | -0.23 |
| 40% | 0.00 | **0.01** |
| 50% | -0.03 | **0.00** |
| 60% | -0.02 | **0.00** |
| 70% | -0.02 | 0.00 |
| 80% | -0.02 | 0.00 |
| 90% | -0.02 | **0.00** |
| Long Term | | |
| Full Simulation Period[a] | -0.08 | -0.11 |
| **Water Year Types[b,c]** | | |
| Wet (32%) | 0.00 | **0.01** |
| Above Normal (16%) | 0.00 | **0.01** |
| Below Normal (13%) | -0.07 | -0.11 |
| Dry (24%) | -0.17 | -0.23 |
| Critical (15%) | -0.21 | -0.28 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-1. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Martin Model, Long-Term Average

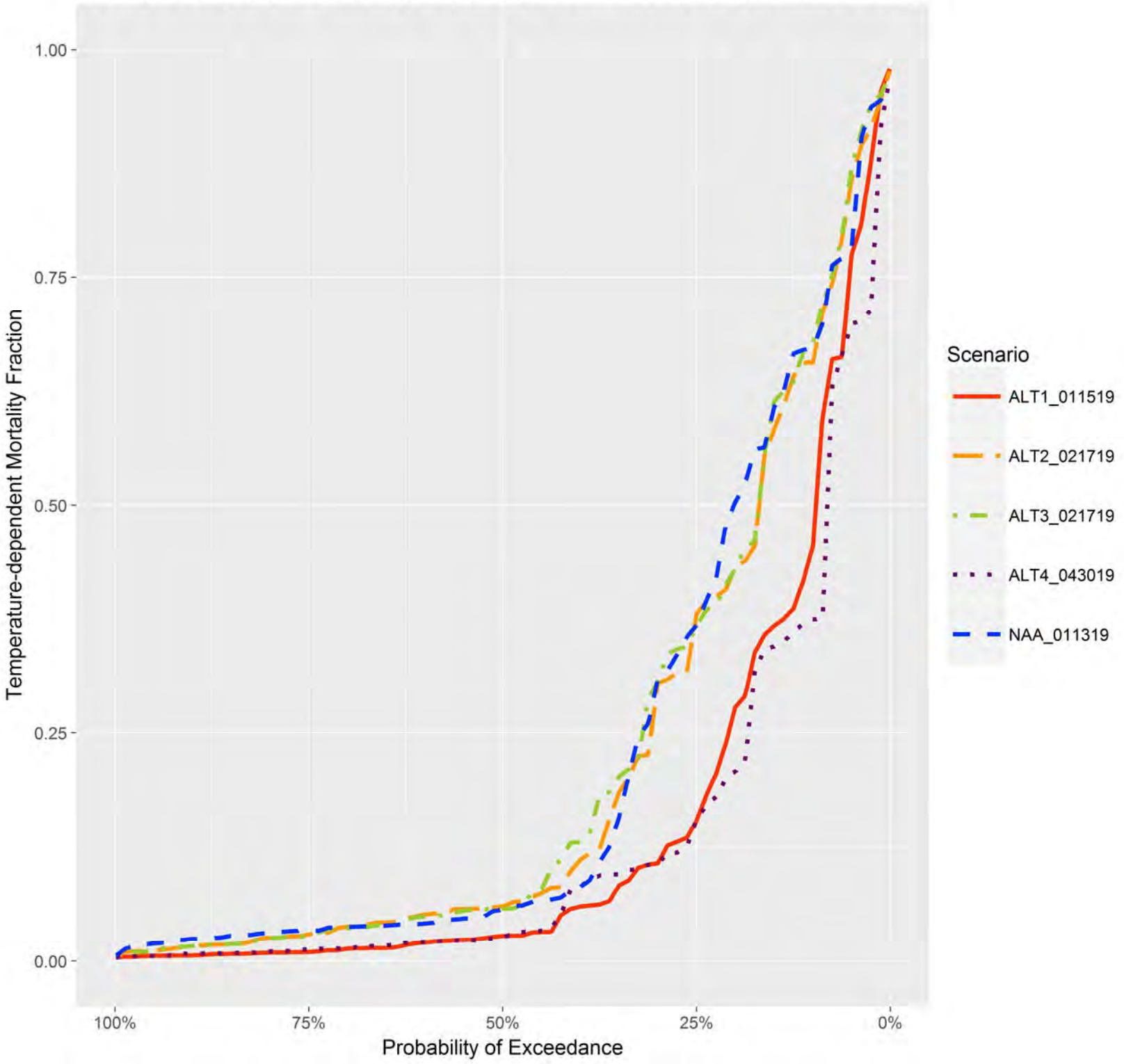


Figure 1-2. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Martin Model, Wet Year Average

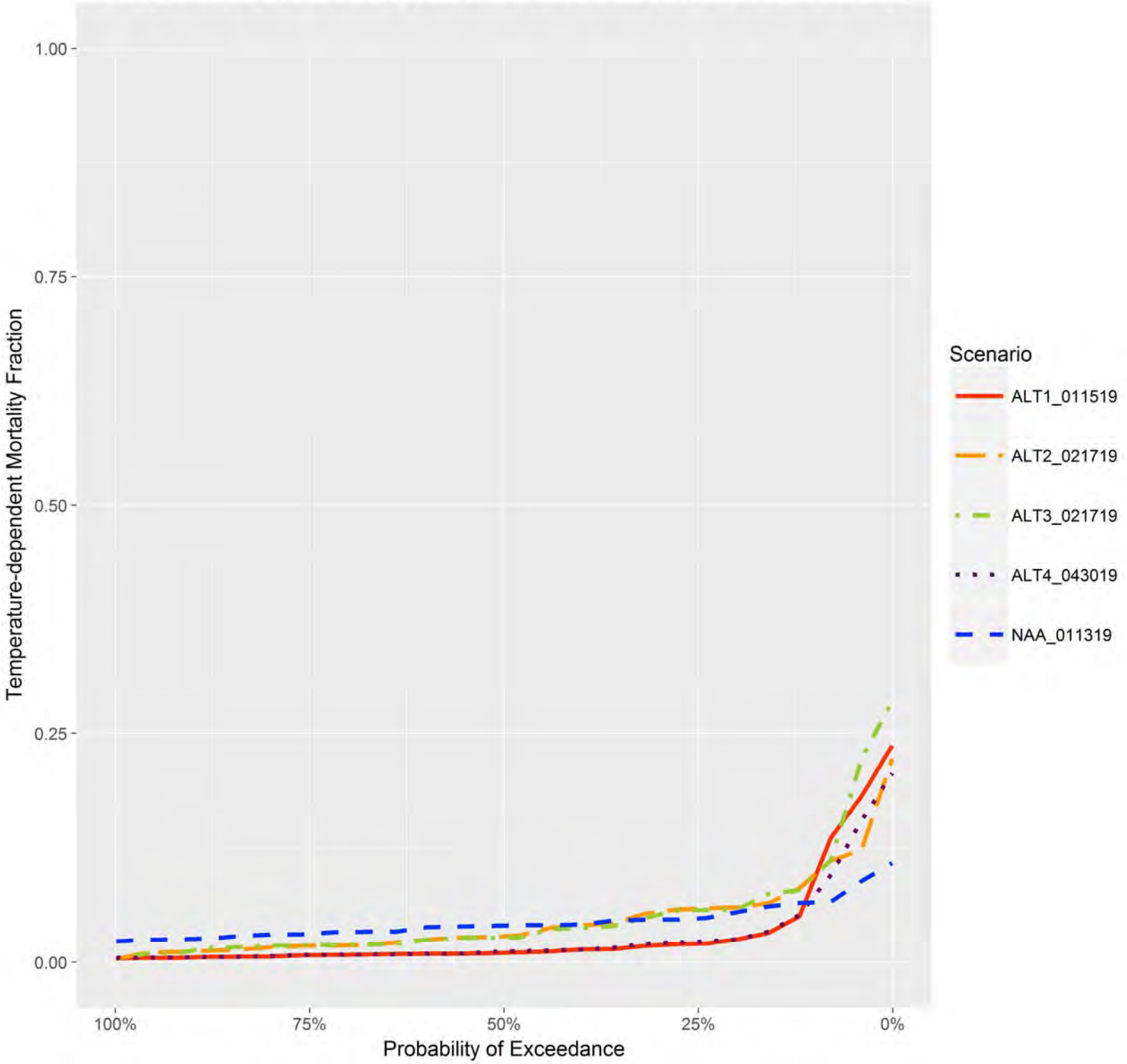


Figure 1-3. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Martin Model, Above Normal Year Average

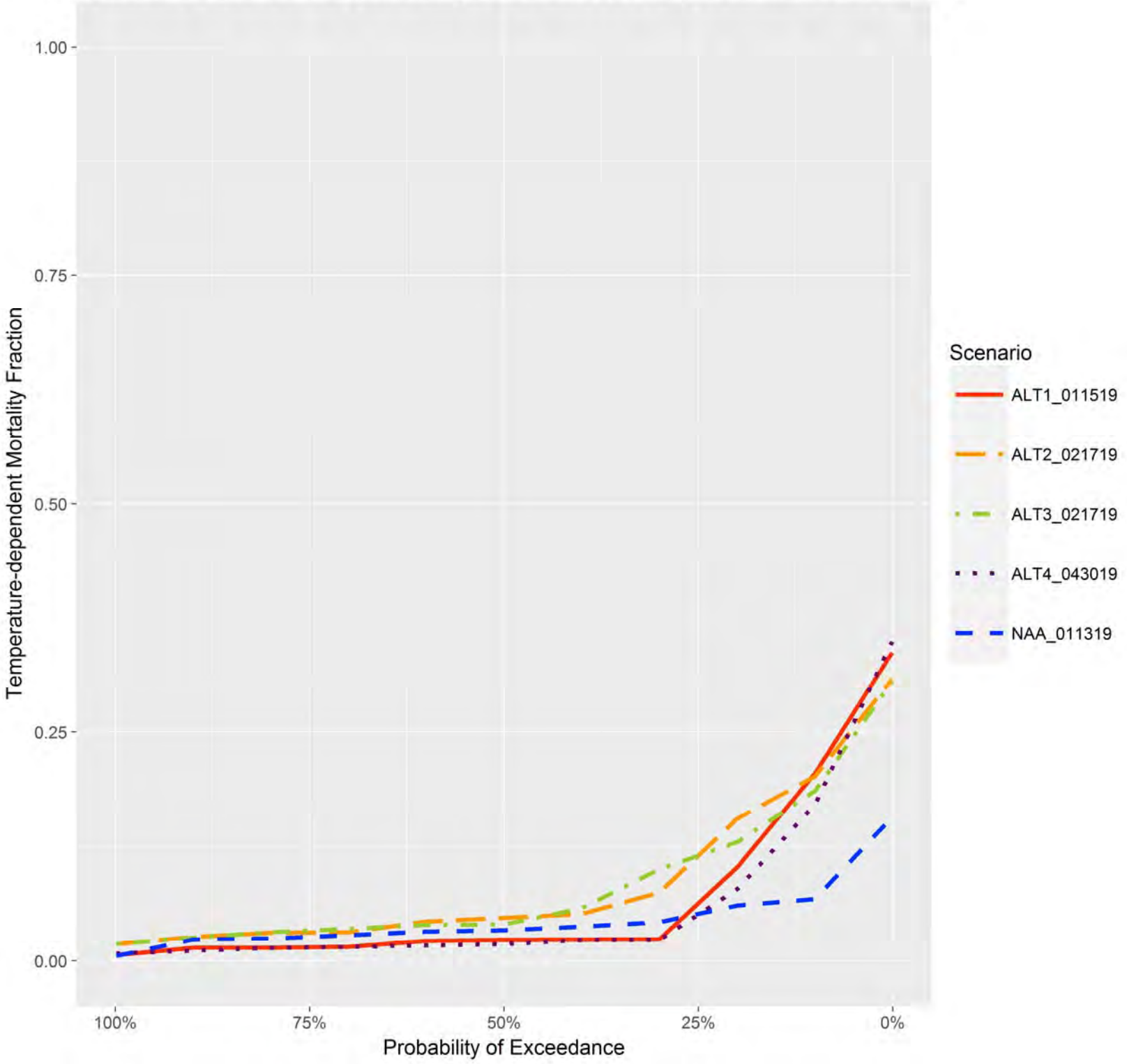


Figure 1-4. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Martin Model, Below Normal Year Average

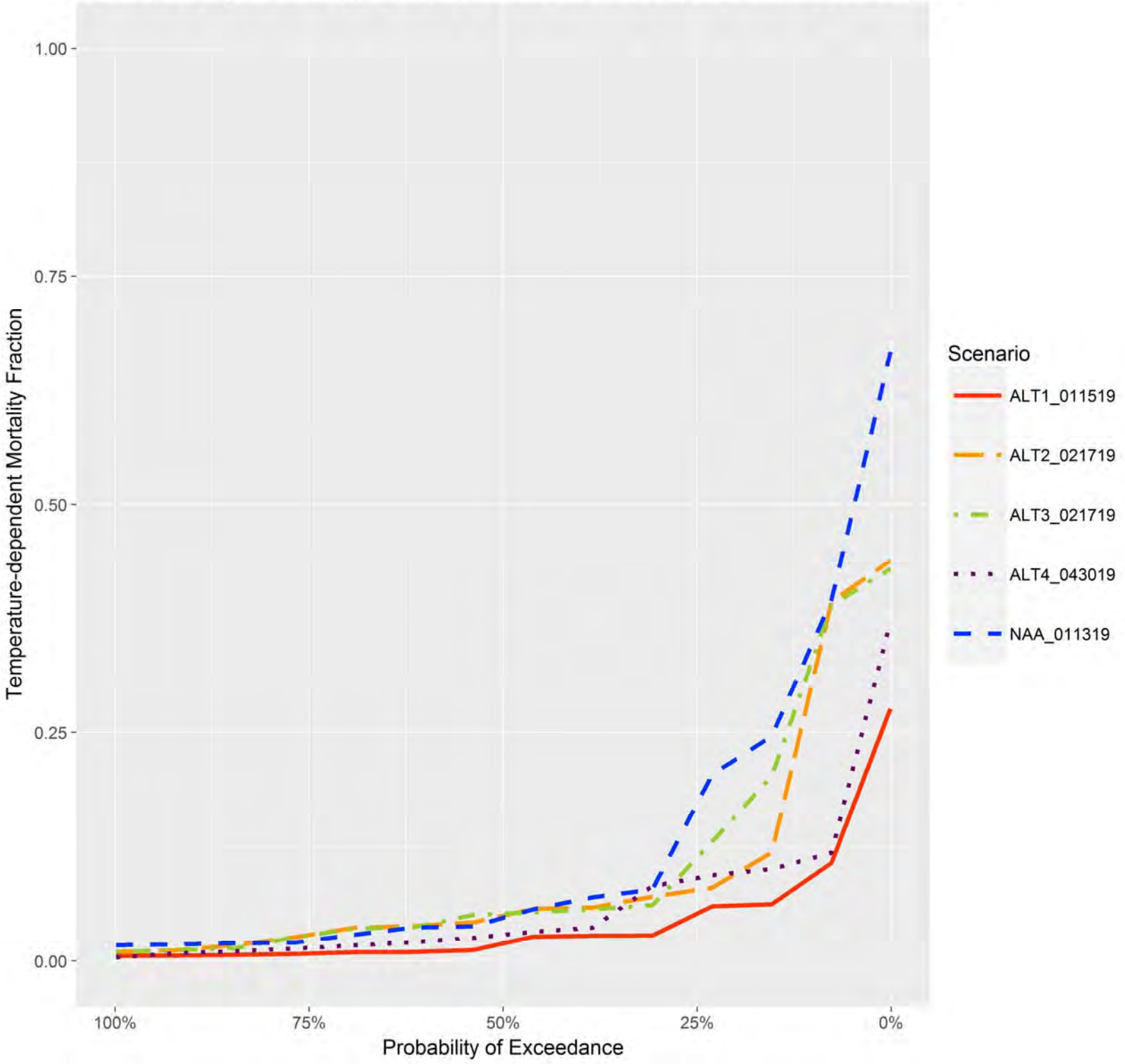


Figure 1-5. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Martin Model, Dry Year Average

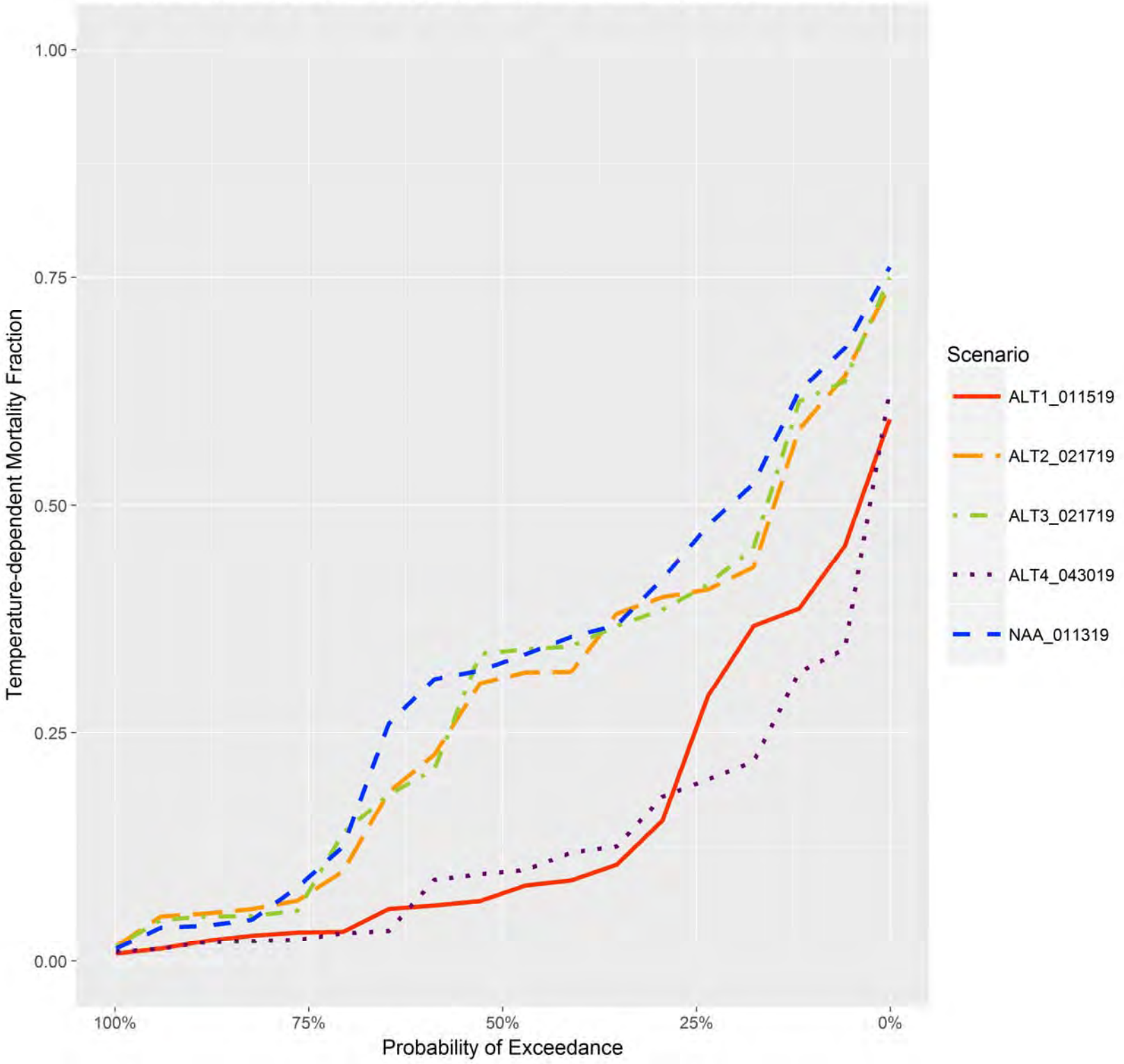


Figure 1-6. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Martin Model, Critical Year Average

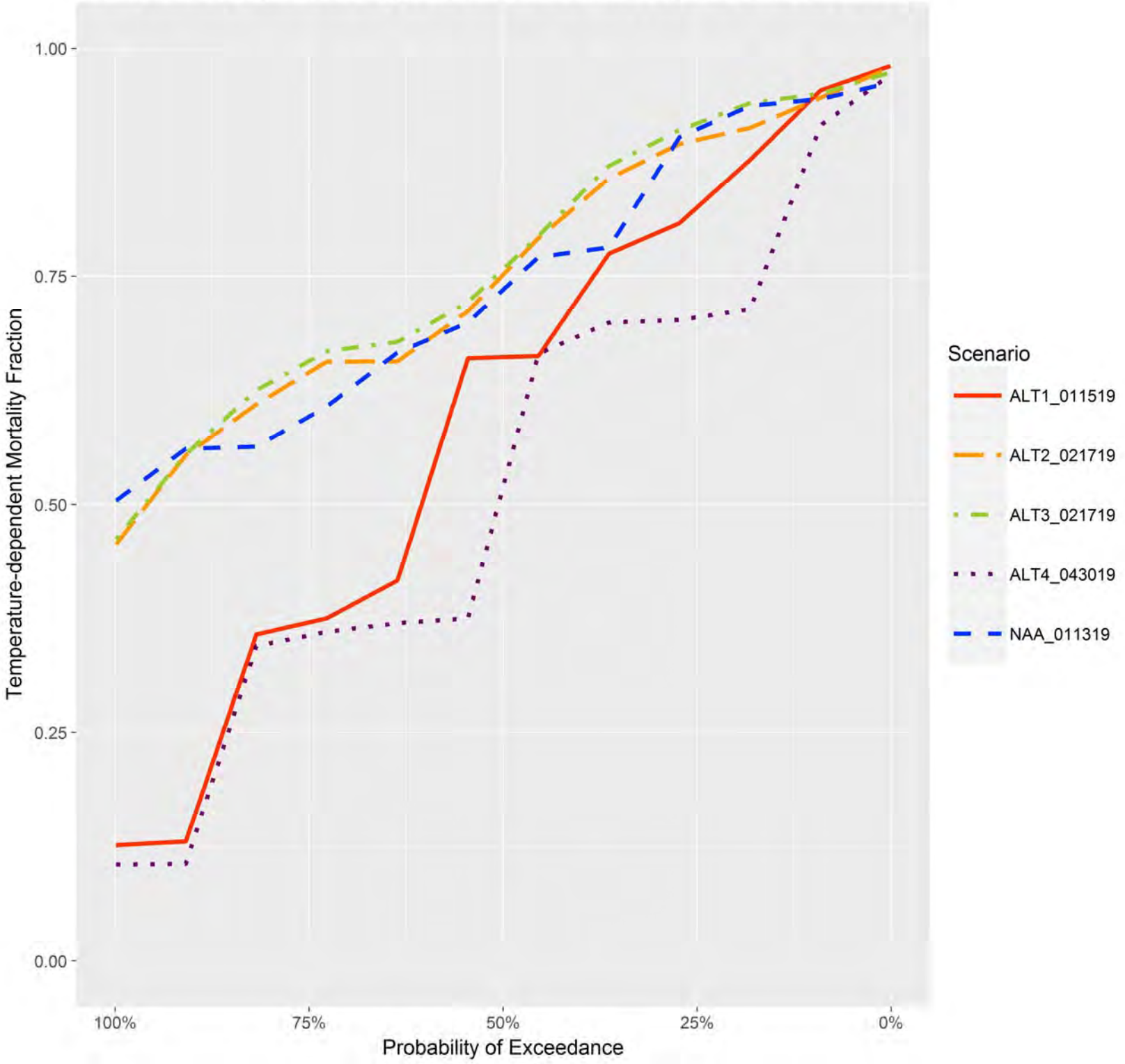


Figure 2-1. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Anderson Model, Long-Term Average

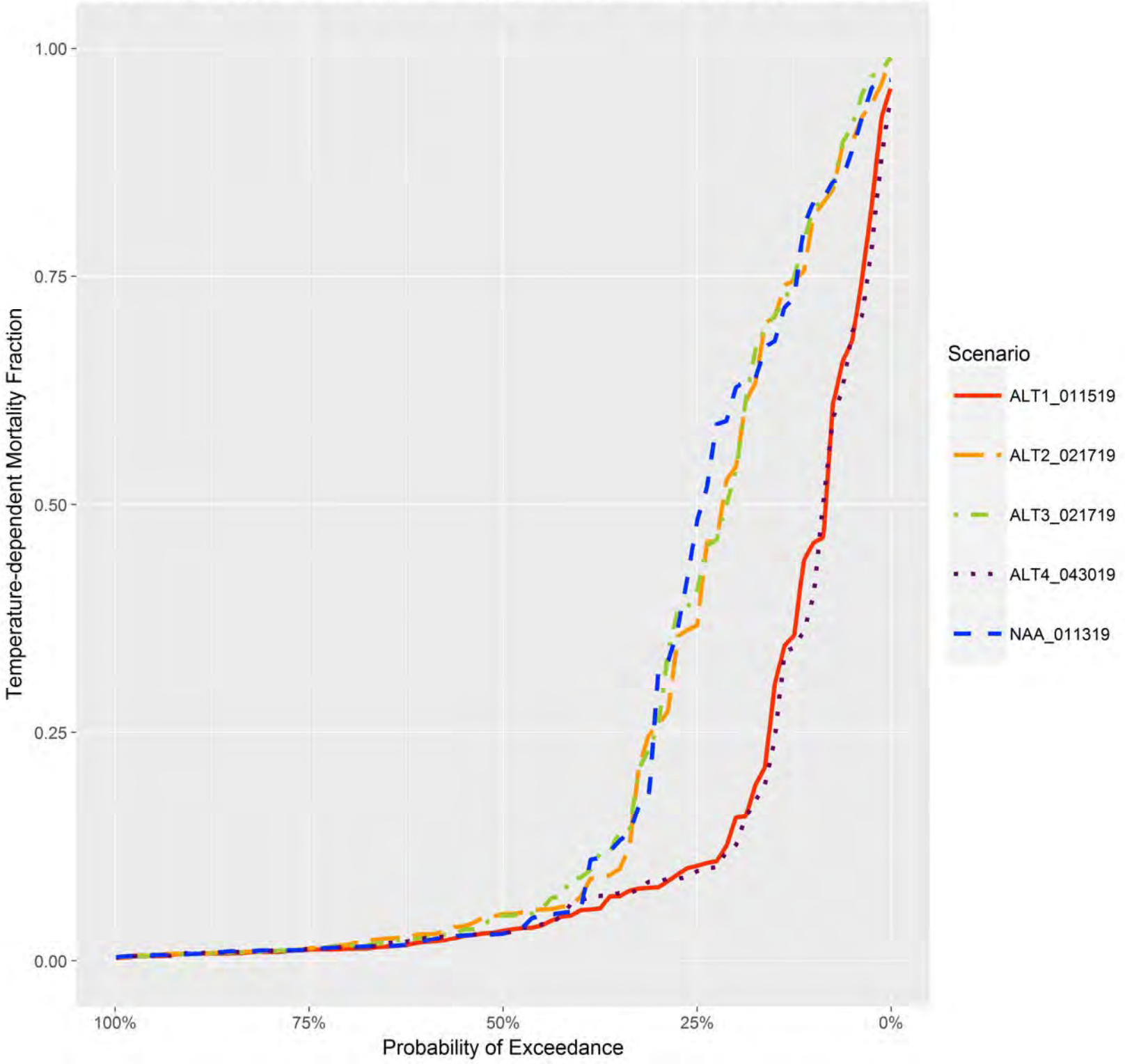


Figure 2-2. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Anderson Model, Wet Year Average

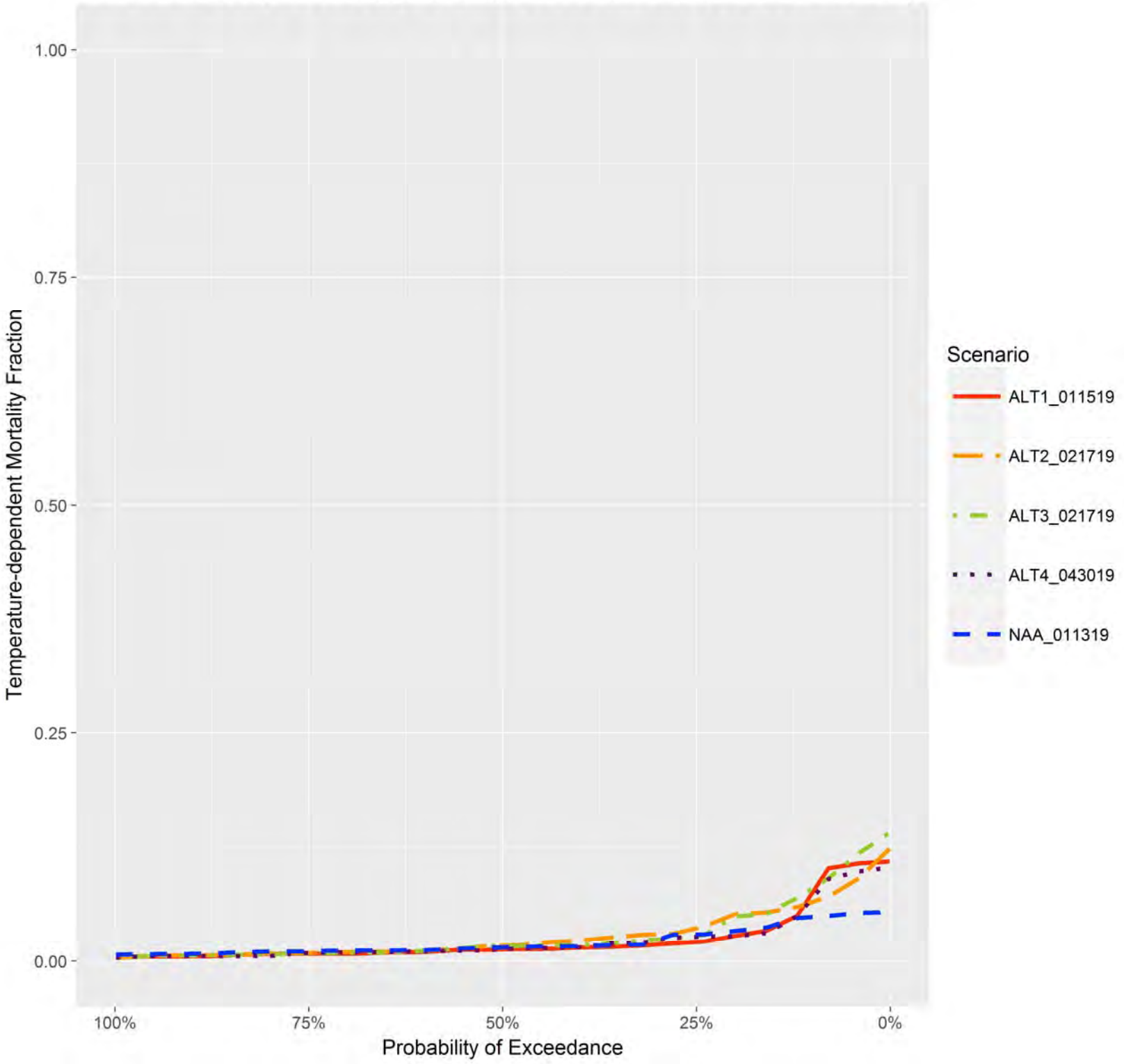


Figure 2-3. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Anderson Model, Above Normal Year Average

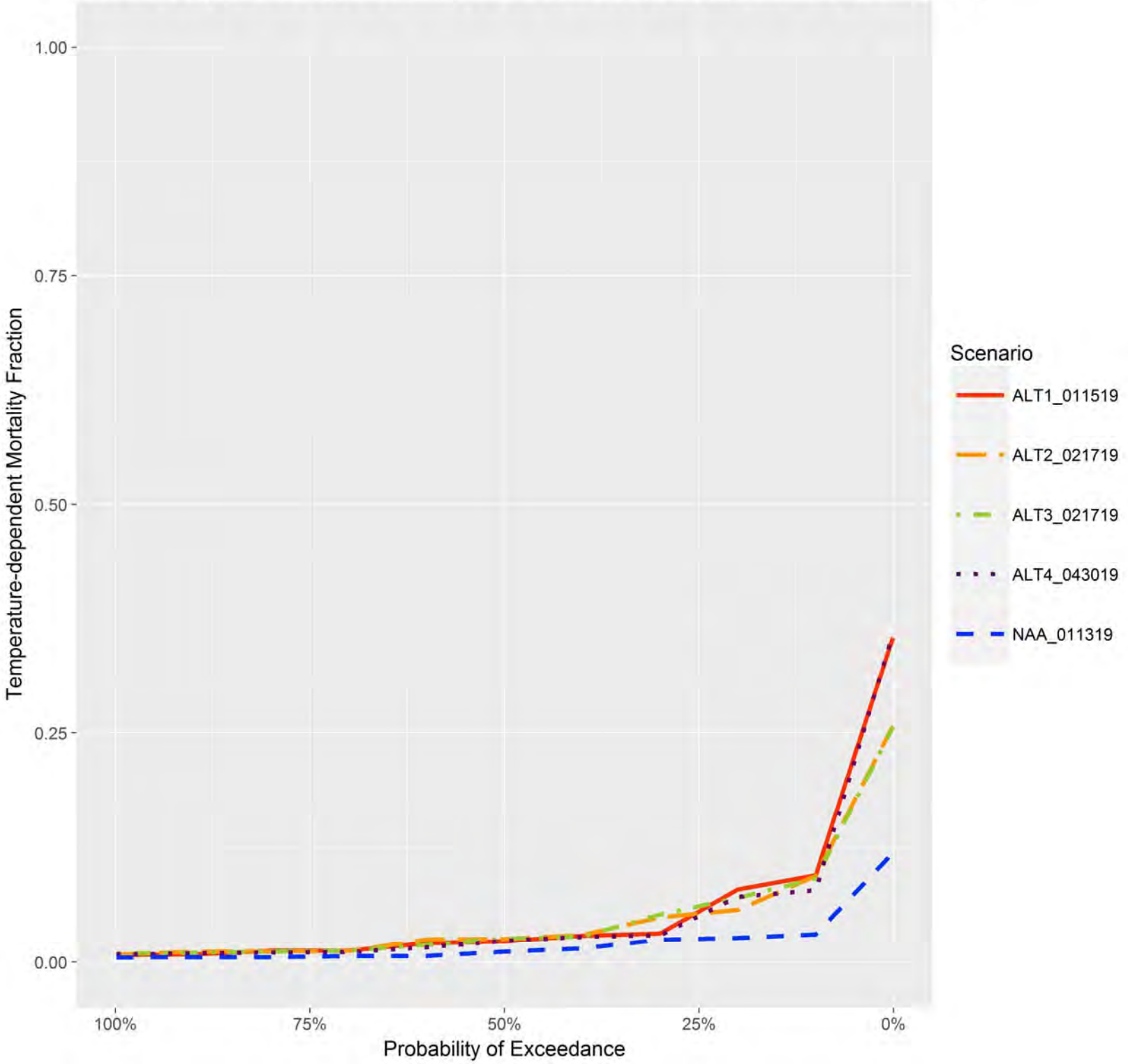


Figure 2-4. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Anderson Model, Below Normal Year Average

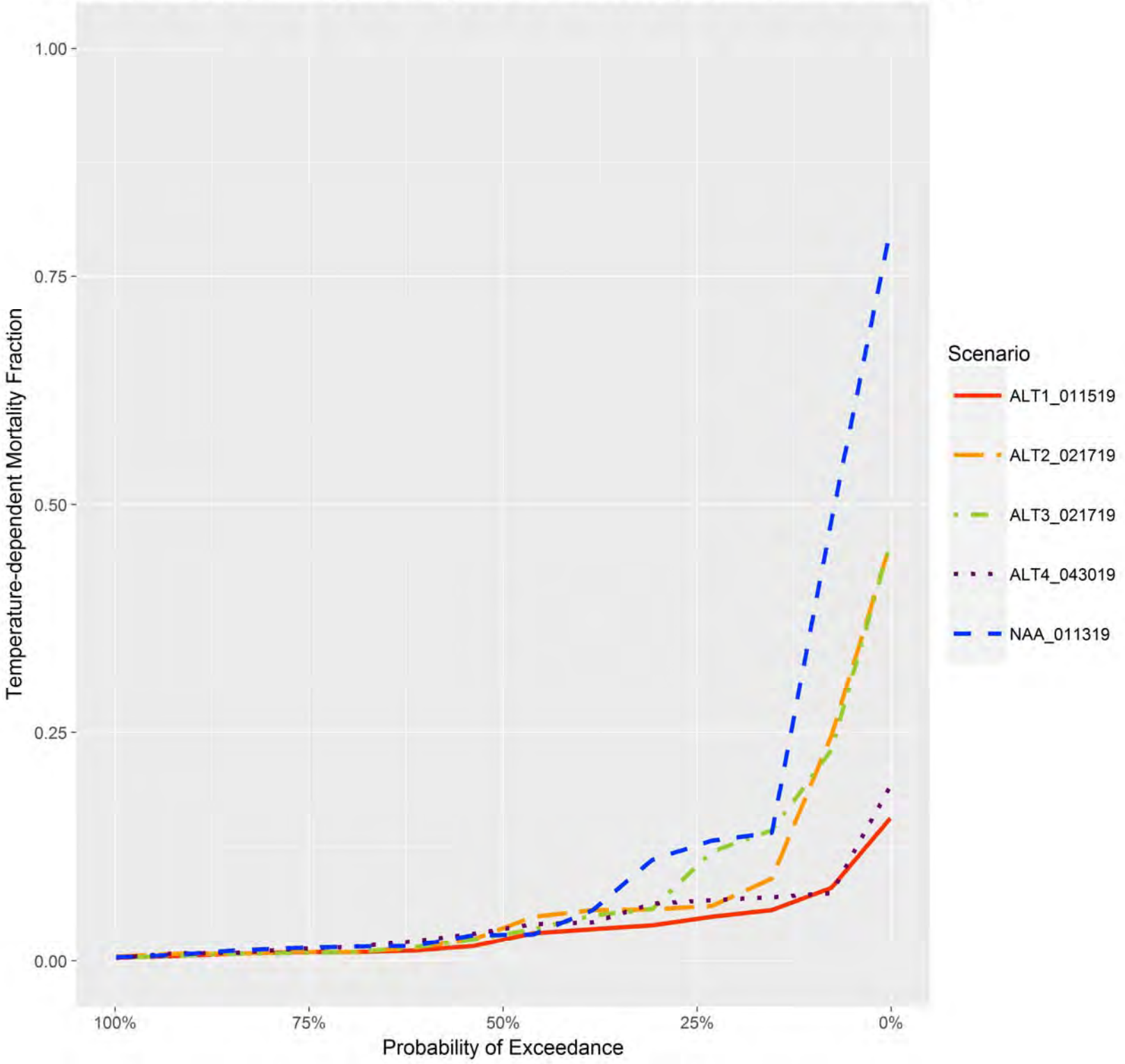


Figure 2-5. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Anderson Model, Dry Year Average

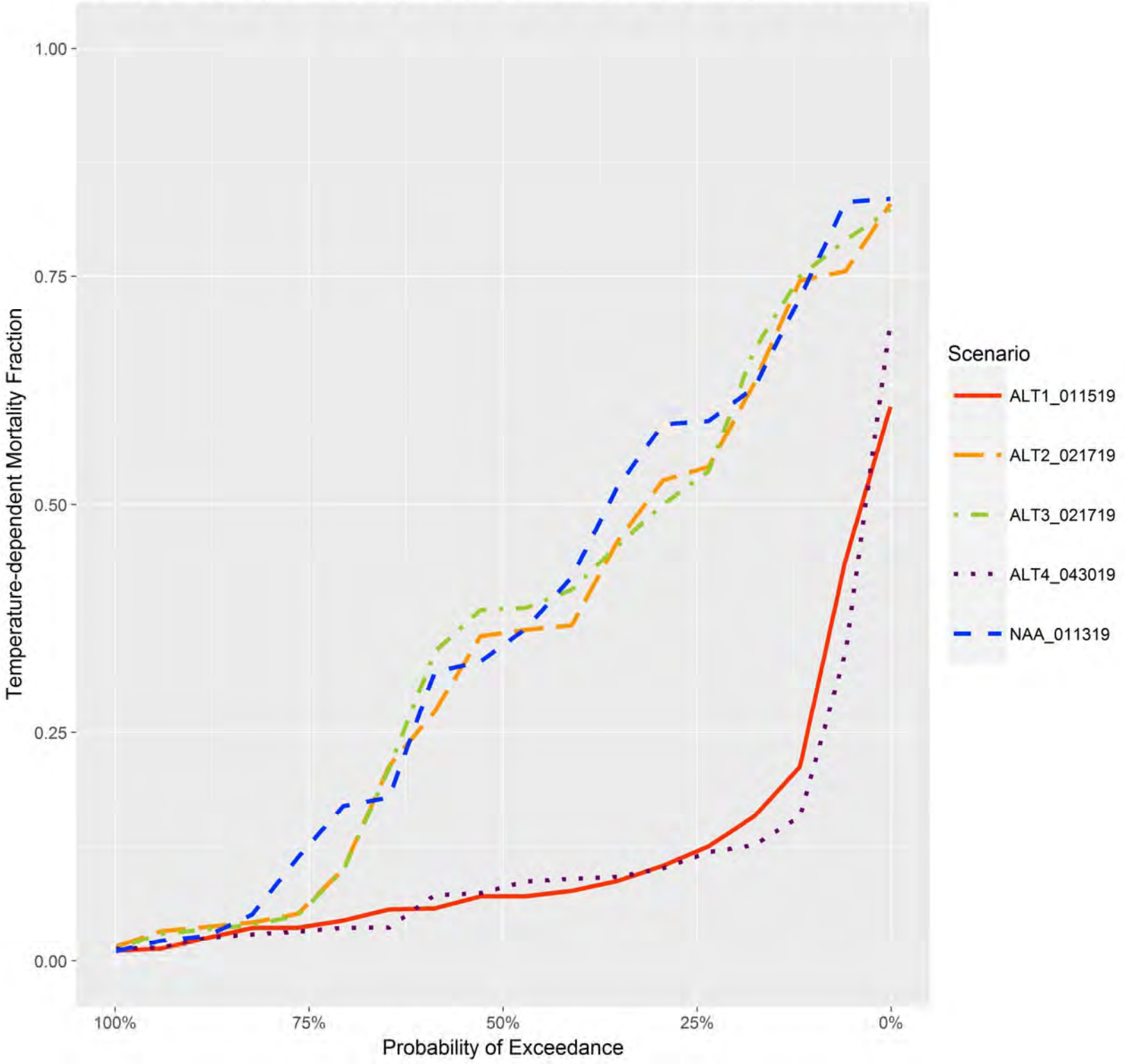
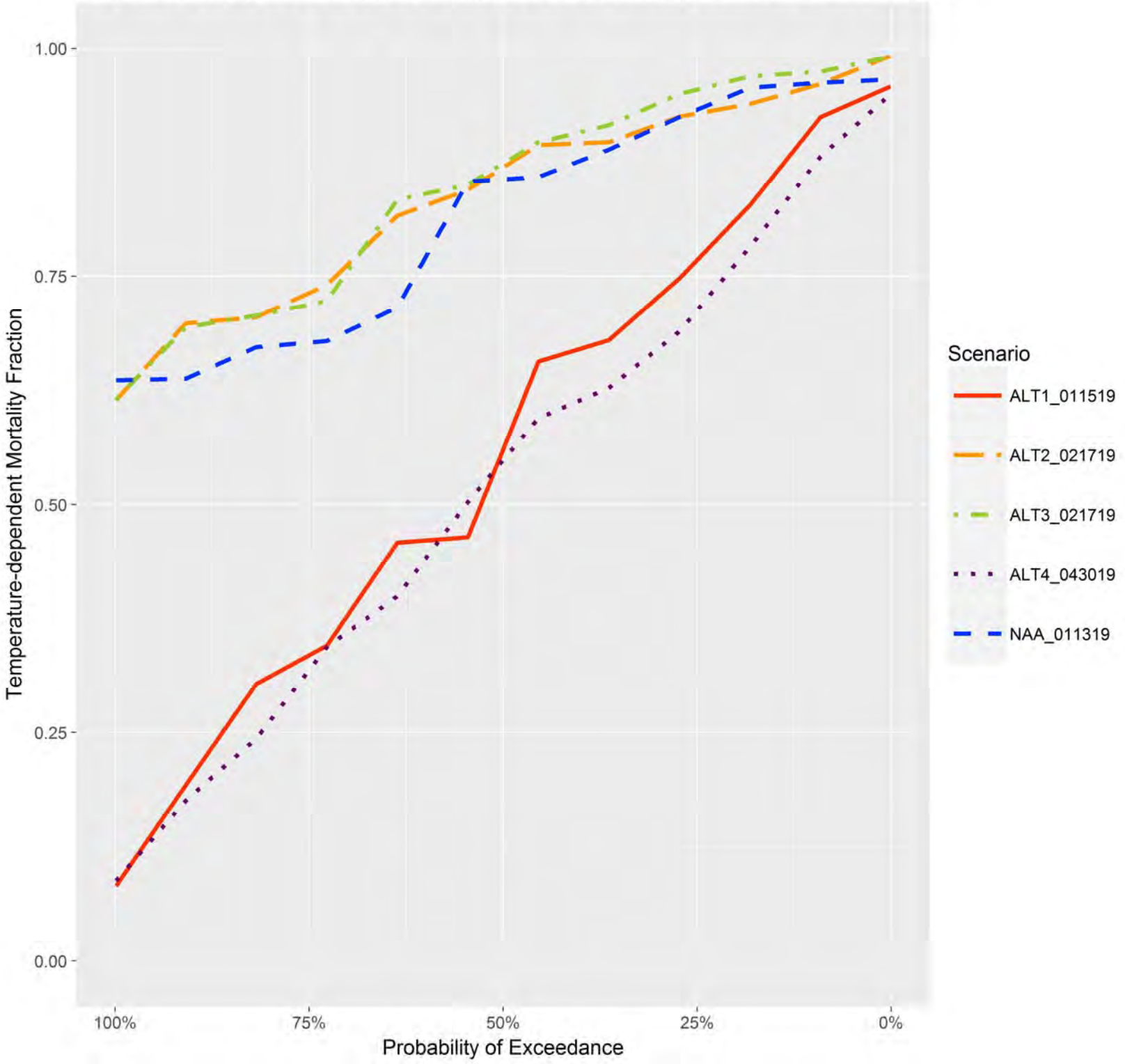


Figure 2-6. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Anderson Model, Critical Year Average



# Attachment 3-9 Water Supply Results (CalSim II)

The following results of the CalSim II model are included for diversions at key project locations for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| CalSim II Water Supply Summary Report | NA | 1-1 to 1-8 | 1-1 to 1-9 |
| Total Delta Exports | TOTAL_EXP | | 2-1 |

## 1 Report Formats

- Tables comparing water supply of two scenarios (water supply by region and type, and water supply by type)
- Annual exceedance charts including all scenarios

# Appendix F – Modeling

## Attachment 3-9 – Water Supply Results (CalSim II)

The following results of the CalSim II model are included for diversions at key project locations for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| **Title** | **Model Parameter** | **Table Numbers** | **Figure Numbers** |
|---|---|---|---|
| CalSim II Water Supply Summary Report | NA | 1-1 to 1-8 | 1-1 to 1-9 |
| Total Delta Exports | TOTAL_EXP | | 2-1 |

Report formats

- Tables comparing water supply of two scenarios (water supply by region and type, and water supply by type)
- Annual exceedance charts including all scenarios

**Table 1-1. CALSIM II Water Summary Report, by Region and Type, Long-Term Average and Dry and Critical Year Averages**

| | | | | Alternative 1 011519 | No Action Alternative 011319 | Alternative 1 011519 minus No Action Alternative 011319 |
|---|---|---|---|---|---|---|
| **Water Supply Reliability** | | | | | | |
| **Sacramento River Hydrologic Region** | | | | | | |
| CVP Settlement | Contract Delivery (annual average) | (TAF/year) | Long Term | 1,599 | 1,609 | -10 |
| | | | Dry and Critical | 1,581 | 1,590 | -10 |
| CVP Refuge Level 2 | Contract Delivery (annual average) | (TAF/year) | Long Term | 162 | 157 | 4 |
| | | | Dry and Critical | 144 | 143 | 1 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 223 | 217 | 6 |
| | | | Dry and Critical | 193 | 189 | 4 |
| CVP Ag | Contract Delivery (annual average - does not include Settlement contractors) | (TAF/year) | Long Term | 255 | 230 | 24 |
| | | | Dry and Critical | 152 | 127 | 26 |
| SWP FRSA | Contract Delivery (annual average) | (TAF/year) | Long Term | 937 | 937 | 0 |
| | | | Dry and Critical | 874 | 873 | 1 |
| SWP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 30 | 29 | 1 |
| | | | Dry and Critical | 21 | 20 | 1 |
| **San Joaquin River Hydrologic Region (not including Friant-Kern and Madera Canal water users)** | | | | | | |
| CVP Exchange | Contract Delivery (annual average) | (TAF/year) | Long Term | 852 | 852 | 0 |
| | | | Dry and Critical | 825 | 825 | 0 |
| CVP Refuge Level 2 | Contract Delivery (annual average) | (TAF/year) | Long Term | 259 | 260 | -1 |
| | | | Dry and Critical | 251 | 250 | 0 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 17 | 16 | 1 |
| | | | Dry and Critical | 15 | 14 | 1 |
| CVP Ag | Contract Delivery (annual average; does not include Exchange contractors) | (TAF/year) | Long Term | 387 | 314 | 73 |
| | | | Dry and Critical | 213 | 162 | 52 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 4 | 3 | 1 |
| | | | Dry and Critical | 2 | 2 | 0 |
| **San Francisco Bay Hydrologic Region** | | | | | | |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 282 | 275 | 8 |
| | | | Dry and Critical | 292 | 285 | 8 |
| CVP Ag | Contract Delivery (annual average) | (TAF/year) | Long Term | 47 | 38 | 9 |
| | | | Dry and Critical | 26 | 20 | 6 |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term | 223 | 198 | 25 |
| | | | Dry and Critical | 132 | 125 | 8 |
| **Central Coast Hydrologic Region** | | | | | | |
| SWP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 44 | 39 | 4 |
| | | | Dry and Critical | 25 | 23 | 2 |
| **Tulare Lake Hydrologic Region (not including Friant-Kern Canal water users)** | | | | | | |
| CVP Refuge Level 2 | Contract Delivery (annual average) | (TAF/year) | Long Term | 12 | 12 | 0 |
| | | | Dry and Critical | 11 | 11 | 0 |
| CVP Ag | Contract Delivery (annual average - includes Cross Valley Canal) | (TAF/year) | Long Term | 783 | 644 | 139 |
| | | | Dry and Critical | 446 | 339 | 108 |
| SWP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 85 | 75 | 9 |
| | | | Dry and Critical | 48 | 43 | 5 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 669 | 572 | 97 |
| | | | Dry and Critical | 356 | 320 | 36 |
| **South Lahontan Hydrologic Region** | | | | | | |
| SWP M&I | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 280 | 247 | 34 |
| | | | Dry and Critical | 163 | 149 | 14 |
| **South Coast Hydrologic Region** | | | | | | |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term | 1,405 | 1,212 | 192 |
| | | | Dry and Critical | 817 | 747 | 70 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 8 | 7 | 1 |
| | | | Dry and Critical | 5 | 4 | 0 |
| **Total For All Regions** | | | | | | |
| Total Supplies | Contract Delivery (CVP, SWP and other) (annual average) | (TAF/year) | Long Term | 8,564 | 7,947 | 617 |
| | | | Dry and Critical | 6,591 | 6,259 | 332 |

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.

**Table 1-2. CALSIM II Water Supply Summary Report, by Type, Long-Term Average and Dry and Critical Year Averages**

| | | | | Alternative 1 011519 | No Action Alternative 011319 | Alternative 1 011519 minus No Action Alternative 011319 |
|---|---|---|---|---|---|---|
| **Water Supply Reliability** | | | | | | |
| **North of Delta** | | | | | | |
| CVP Ag | Contract Delivery (annual average; does not include Exchange contractors) | (TAF/year) | Long Term | 255 | 230 | 24 |
| | | | Dry and Critical | 152 | 127 | 26 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 396 | 390 | 7 |
| | | | Dry and Critical | 391 | 385 | 6 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 0 | 0 | 0 |
| | | | Dry and Critical | 0 | 0 | 0 |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term | 101 | 100 | 1 |
| | | | Dry and Critical | 68 | 68 | 0 |
| **Total CVP North of Delta** | | | | | | |
| Total CVP Ag and M&I NOD | Contract Delivery (CVP) (annual average) | (TAF/year) | Long Term | 651 | 620 | 31 |
| | | | Dry and Critical | 544 | 512 | 32 |
| **Total SWP North of Delta** | | | | | | |
| Total SWP Ag and M&I NOD | Contract Delivery (SWP) (annual average) | (TAF/year) | Long Term | 101 | 100 | 1 |
| | | | Dry and Critical | 68 | 68 | 0 |
| **Total North of Delta** | | | | | | |
| Total North of Delta Ag and M&I Deliveries | Contract Delivery (CVP, SWP and other) (annual average) | (TAF/year) | Long Term | 752 | 720 | 32 |
| | | | Dry and Critical | 612 | 580 | 32 |
| **South of Delta** | | | | | | |
| CVP Ag | Contract Delivery (annual average; does not include Exchange contractors) | (TAF/year) | Long Term | 1,218 | 997 | 221 |
| | | | Dry and Critical | 686 | 521 | 166 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 126 | 119 | 8 |
| | | | Dry and Critical | 108 | 102 | 7 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 680 | 582 | 98 |
| | | | Dry and Critical | 362 | 326 | 36 |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term | 1,966 | 1,702 | 264 |
| | | | Dry and Critical | 1,138 | 1,039 | 99 |
| **Total CVP South of Delta** | | | | | | |
| Total CVP Ag and M&I SOD | Contract Delivery (CVP) (annual average) | (TAF/year) | Long Term | 1,344 | 1,115 | 229 |
| | | | Dry and Critical | 794 | 622 | 172 |
| **Total SWP South of Delta** | | | | | | |
| Total SWP Ag and M&I SOD | Contract Delivery (SWP) (annual average) | (TAF/year) | Long Term | 2,646 | 2,284 | 362 |
| | | | Dry and Critical | 1,500 | 1,364 | 135 |
| **Total South of Delta** | | | | | | |
| Total South of Delta Ag and M&I Deliveries | Contract Delivery (CVP, SWP and other) (annual average) | (TAF/year) | Long Term | 3,990 | 3,399 | 591 |
| | | | Dry and Critical | 2,294 | 1,987 | 307 |

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.

## Table 1-3. CALSIM II Water Summary Report, by Region and Type, Long-Term Average and Dry and Critical Year Averages

| | | | | Alternative 2 021719 | No Action Alternative 011319 | Alternative 2 021719 minus No Action Alternative 011319 |
|---|---|---|---|---|---|---|
| **Water Supply Reliability** | | | | | | |
| **Sacramento River Hydrologic Region** | | | | | | |
| CVP Settlement | Contract Delivery (annual average) | (TAF/year) | Long Term | 1,608 | 1,609 | -1 |
| | | | Dry and Critical | 1,589 | 1,590 | -1 |
| CVP Refuge Level 2 | Contract Delivery (annual average) | (TAF/year) | Long Term | 163 | 157 | 5 |
| | | | Dry and Critical | 149 | 143 | 6 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 220 | 217 | 2 |
| | | | Dry and Critical | 187 | 189 | -2 |
| CVP Ag | Contract Delivery (annual average - does not include Settlement contractors) | (TAF/year) | Long Term | 254 | 230 | 24 |
| | | | Dry and Critical | 142 | 127 | 16 |
| SWP FRSA | Contract Delivery (annual average) | (TAF/year) | Long Term | 937 | 937 | 0 |
| | | | Dry and Critical | 873 | 873 | -1 |
| SWP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 31 | 29 | 2 |
| | | | Dry and Critical | 24 | 20 | 4 |
| **San Joaquin River Hydrologic Region (not including Friant-Kern and Madera Canal water users)** | | | | | | |
| CVP Exchange | Contract Delivery (annual average) | (TAF/year) | Long Term | 852 | 852 | 0 |
| | | | Dry and Critical | 824 | 825 | 0 |
| CVP Refuge Level 2 | Contract Delivery (annual average) | (TAF/year) | Long Term | 260 | 260 | 0 |
| | | | Dry and Critical | 249 | 250 | -1 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 18 | 16 | 2 |
| | | | Dry and Critical | 15 | 14 | 1 |
| CVP Ag | Contract Delivery (annual average; does not include Exchange contractors) | (TAF/year) | Long Term | 437 | 314 | 122 |
| | | | Dry and Critical | 241 | 162 | 79 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 4 | 3 | 1 |
| | | | Dry and Critical | 3 | 2 | 1 |
| **San Francisco Bay Hydrologic Region** | | | | | | |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 286 | 275 | 12 |
| | | | Dry and Critical | 295 | 285 | 10 |
| CVP Ag | Contract Delivery (annual average) | (TAF/year) | Long Term | 53 | 38 | 15 |
| | | | Dry and Critical | 30 | 20 | 10 |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term | 243 | 198 | 44 |
| | | | Dry and Critical | 154 | 125 | 29 |
| **Central Coast Hydrologic Region** | | | | | | |
| SWP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 52 | 39 | 12 |
| | | | Dry and Critical | 32 | 23 | 9 |
| **Tulare Lake Hydrologic Region (not including Friant-Kern Canal water users)** | | | | | | |
| CVP Refuge Level 2 | Contract Delivery (annual average) | (TAF/year) | Long Term | 12 | 12 | 0 |
| | | | Dry and Critical | 11 | 11 | 0 |
| CVP Ag | Contract Delivery (annual average - includes Cross Valley Canal) | (TAF/year) | Long Term | 892 | 644 | 248 |
| | | | Dry and Critical | 503 | 339 | 164 |
| SWP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 99 | 75 | 23 |
| | | | Dry and Critical | 60 | 43 | 17 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 863 | 572 | 291 |
| | | | Dry and Critical | 507 | 320 | 187 |
| **South Lahontan Hydrologic Region** | | | | | | |
| SWP M&I | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 308 | 247 | 61 |
| | | | Dry and Critical | 204 | 149 | 55 |
| **South Coast Hydrologic Region** | | | | | | |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term | 1,621 | 1,212 | 408 |
| | | | Dry and Critical | 1,055 | 747 | 308 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 11 | 7 | 3 |
| | | | Dry and Critical | 6 | 4 | 2 |
| **Total For All Regions** | | | | | | |
| Total Supplies | Contract Delivery (CVP, SWP and other) (annual average) | (TAF/year) | Long Term | 9,223 | 7,947 | 1,276 |
| | | | Dry and Critical | 7,153 | 6,259 | 894 |

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.
3. All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

**Table 1-4. CALSIM II Water Supply Summary Report, by Type, Long-Term Average and Dry and Critical Year Averages**

| | | | | Alternative 2 021719 | No Action Alternative 011319 | Alternative 2 021719 minus No Action Alternative 011319 |
|---|---|---|---|---|---|---|
| **Water Supply Reliability** | | | | | | |
| **North of Delta** | | | | | | |
| CVP Ag | Contract Delivery (annual average; does not include Exchange contractors) | (TAF/year) | Long Term | 254 | 230 | 24 |
| | | | Dry and Critical | 142 | 127 | 16 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 392 | 390 | 3 |
| | | | Dry and Critical | 385 | 385 | -1 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 0 | 0 | 0 |
| | | | Dry and Critical | 0 | 0 | 0 |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term | 102 | 100 | 2 |
| | | | Dry and Critical | 71 | 68 | 3 |
| **Total CVP North of Delta** | | | | | | |
| Total CVP Ag and M&I NOD | Contract Delivery (CVP) (annual average) | (TAF/year) | Long Term | 646 | 620 | 26 |
| | | | Dry and Critical | 527 | 512 | 15 |
| **Total SWP North of Delta** | | | | | | |
| Total SWP Ag and M&I NOD | Contract Delivery (SWP) (annual average) | (TAF/year) | Long Term | 102 | 100 | 2 |
| | | | Dry and Critical | 71 | 68 | 3 |
| **Total North of Delta** | | | | | | |
| Total North of Delta Ag and M&I Deliveries | Contract Delivery (CVP, SWP and other) (annual average) | (TAF/year) | Long Term | 749 | 720 | 29 |
| | | | Dry and Critical | 598 | 580 | 18 |
| **South of Delta** | | | | | | |
| CVP Ag | Contract Delivery (annual average; does not include Exchange contractors) | (TAF/year) | Long Term | 1,382 | 997 | 385 |
| | | | Dry and Critical | 774 | 521 | 253 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 131 | 119 | 13 |
| | | | Dry and Critical | 112 | 102 | 11 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 878 | 582 | 295 |
| | | | Dry and Critical | 516 | 326 | 190 |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term | 2,251 | 1,702 | 550 |
| | | | Dry and Critical | 1,457 | 1,039 | 418 |
| **Total CVP South of Delta** | | | | | | |
| Total CVP Ag and M&I SOD | Contract Delivery (CVP) (annual average) | (TAF/year) | Long Term | 1,514 | 1,115 | 398 |
| | | | Dry and Critical | 886 | 622 | 264 |
| **Total SWP South of Delta** | | | | | | |
| Total SWP Ag and M&I SOD | Contract Delivery (SWP) (annual average) | (TAF/year) | Long Term | 3,129 | 2,284 | 845 |
| | | | Dry and Critical | 1,973 | 1,364 | 609 |
| **Total South of Delta** | | | | | | |
| Total South of Delta Ag and M&I Deliveries | Contract Delivery (CVP, SWP and other) (annual average) | (TAF/year) | Long Term | 4,643 | 3,399 | 1,243 |
| | | | Dry and Critical | 2,859 | 1,987 | 873 |

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.
3. All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

**Table 1-5. CALSIM II Water Summary Report, by Region and Type, Long-Term Average and Dry and Critical Year Averages**

| | | | | Alternative 3 021719 | No Action Alternative 011319 | Alternative 3 021719 minus No Action Alternative 011319 |
|---|---|---|---|---|---|---|
| **Water Supply Reliability** | | | | | | |
| **Sacramento River Hydrologic Region** | | | | | | |
| CVP Settlement | Contract Delivery (annual average) | (TAF/year) | Long Term | 1,608 | 1,609 | -1 |
| | | | Dry and Critical | 1,589 | 1,590 | -2 |
| CVP Refuge Level 2 | Contract Delivery (annual average) | (TAF/year) | Long Term | 163 | 157 | 5 |
| | | | Dry and Critical | 149 | 143 | 6 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 219 | 217 | 2 |
| | | | Dry and Critical | 186 | 189 | -2 |
| CVP Ag | Contract Delivery (annual average - does not include Settlement contractors) | (TAF/year) | Long Term | 252 | 230 | 22 |
| | | | Dry and Critical | 140 | 127 | 13 |
| SWP FRSA | Contract Delivery (annual average) | (TAF/year) | Long Term | 937 | 937 | 0 |
| | | | Dry and Critical | 874 | 873 | 0 |
| SWP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 31 | 29 | 2 |
| | | | Dry and Critical | 24 | 20 | 4 |
| **San Joaquin River Hydrologic Region (not including Friant-Kern and Madera Canal water users)** | | | | | | |
| CVP Exchange | Contract Delivery (annual average) | (TAF/year) | Long Term | 852 | 852 | 0 |
| | | | Dry and Critical | 823 | 825 | -1 |
| CVP Refuge Level 2 | Contract Delivery (annual average) | (TAF/year) | Long Term | 260 | 260 | 0 |
| | | | Dry and Critical | 249 | 250 | -1 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 18 | 16 | 2 |
| | | | Dry and Critical | 15 | 14 | 1 |
| CVP Ag | Contract Delivery (annual average; does not include Exchange contractors) | (TAF/year) | Long Term | 432 | 314 | 118 |
| | | | Dry and Critical | 236 | 162 | 74 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 4 | 3 | 1 |
| | | | Dry and Critical | 2 | 2 | 1 |
| **San Francisco Bay Hydrologic Region** | | | | | | |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 285 | 275 | 10 |
| | | | Dry and Critical | 292 | 285 | 7 |
| CVP Ag | Contract Delivery (annual average) | (TAF/year) | Long Term | 52 | 38 | 14 |
| | | | Dry and Critical | 29 | 20 | 9 |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term | 242 | 198 | 43 |
| | | | Dry and Critical | 154 | 125 | 29 |
| **Central Coast Hydrologic Region** | | | | | | |
| SWP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 51 | 39 | 12 |
| | | | Dry and Critical | 31 | 23 | 8 |
| **Tulare Lake Hydrologic Region (not including Friant-Kern Canal water users)** | | | | | | |
| CVP Refuge Level 2 | Contract Delivery (annual average) | (TAF/year) | Long Term | 12 | 12 | 0 |
| | | | Dry and Critical | 11 | 11 | 0 |
| CVP Ag | Contract Delivery (annual average - includes Cross Valley Canal) | (TAF/year) | Long Term | 886 | 644 | 242 |
| | | | Dry and Critical | 492 | 339 | 154 |
| SWP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 98 | 75 | 23 |
| | | | Dry and Critical | 60 | 43 | 16 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 855 | 572 | 283 |
| | | | Dry and Critical | 506 | 320 | 186 |
| **South Lahontan Hydrologic Region** | | | | | | |
| SWP M&I | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 312 | 247 | 65 |
| | | | Dry and Critical | 203 | 149 | 53 |
| **South Coast Hydrologic Region** | | | | | | |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term | 1,600 | 1,212 | 388 |
| | | | Dry and Critical | 1,039 | 747 | 292 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 11 | 7 | 3 |
| | | | Dry and Critical | 6 | 4 | 2 |
| **Total For All Regions** | | | | | | |
| Total Supplies | Contract Delivery (CVP, SWP and other) (annual average) | (TAF/year) | Long Term | 9,181 | 7,947 | 1,233 |
| | | | Dry and Critical | 7,110 | 6,259 | 851 |

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.
3. All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

**Table 1-6. CALSIM II Water Supply Summary Report, by Type, Long-Term Average and Dry and Critical Year Averages**

| | | | | Alternative 3 021719 | No Action Alternative 011319 | Alternative 3 021719 minus No Action Alternative 011319 |
|---|---|---|---|---|---|---|
| **Water Supply Reliability** | | | | | | |
| **North of Delta** | | | | | | |
| CVP Ag | Contract Delivery (annual average; does not include Exchange contractors) | (TAF/year) | Long Term | 252 | 230 | 22 |
| | | | Dry and Critical | 140 | 127 | 13 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 391 | 390 | 1 |
| | | | Dry and Critical | 382 | 385 | -4 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 0 | 0 | 0 |
| | | | Dry and Critical | 0 | 0 | 0 |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term | 102 | 100 | 3 |
| | | | Dry and Critical | 72 | 68 | 4 |
| **Total CVP North of Delta** | | | | | | |
| Total CVP Ag and M&I NOD | Contract Delivery (CVP) (annual average) | (TAF/year) | Long Term | 643 | 620 | 23 |
| | | | Dry and Critical | 521 | 512 | 9 |
| **Total SWP North of Delta** | | | | | | |
| Total SWP Ag and M&I NOD | Contract Delivery (SWP) (annual average) | (TAF/year) | Long Term | 102 | 100 | 3 |
| | | | Dry and Critical | 72 | 68 | 4 |
| **Total North of Delta** | | | | | | |
| Total North of Delta Ag and M&I Deliveries | Contract Delivery (CVP, SWP and other) (annual average) | (TAF/year) | Long Term | 745 | 720 | 25 |
| | | | Dry and Critical | 593 | 580 | 13 |
| **South of Delta** | | | | | | |
| CVP Ag | Contract Delivery (annual average; does not include Exchange contractors) | (TAF/year) | Long Term | 1,371 | 997 | 375 |
| | | | Dry and Critical | 757 | 521 | 237 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 131 | 119 | 13 |
| | | | Dry and Critical | 112 | 102 | 10 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 870 | 582 | 287 |
| | | | Dry and Critical | 515 | 326 | 189 |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term | 2,232 | 1,702 | 530 |
| | | | Dry and Critical | 1,438 | 1,039 | 399 |
| **Total CVP South of Delta** | | | | | | |
| Total CVP Ag and M&I SOD | Contract Delivery (CVP) (annual average) | (TAF/year) | Long Term | 1,502 | 1,115 | 387 |
| | | | Dry and Critical | 869 | 622 | 247 |
| **Total SWP South of Delta** | | | | | | |
| Total SWP Ag and M&I SOD | Contract Delivery (SWP) (annual average) | (TAF/year) | Long Term | 3,102 | 2,284 | 817 |
| | | | Dry and Critical | 1,953 | 1,364 | 588 |
| **Total South of Delta** | | | | | | |
| Total South of Delta Ag and M&I Deliveries | Contract Delivery (CVP, SWP and other) (annual average) | (TAF/year) | Long Term | 4,604 | 3,399 | 1,205 |
| | | | Dry and Critical | 2,822 | 1,987 | 835 |

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.
3. All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

## Table 1-7. CALSIM II Water Summary Report, by Region and Type, Long-Term Average and Dry and Critical Year Averages

| | | | | Alternative 4 043019 | No Action Alternative 011319 | Alternative 4 043019 minus No Action Alternative 011319 |
|---|---|---|---|---|---|---|
| **Water Supply Reliability** | | | | | | |
| **Sacramento River Hydrologic Region** | | | | | | |
| CVP Settlement | Contract Delivery (annual average) | (TAF/year) | Long Term | 1,601 | 1,609 | -9 |
| | | | Dry and Critical | 1,584 | 1,590 | -6 |
| CVP Refuge Level 2 | Contract Delivery (annual average) | (TAF/year) | Long Term | 158 | 157 | 1 |
| | | | Dry and Critical | 140 | 143 | -2 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 210 | 217 | -7 |
| | | | Dry and Critical | 176 | 189 | -12 |
| CVP Ag | Contract Delivery (annual average - does not include Settlement contractors) | (TAF/year) | Long Term | 226 | 230 | -4 |
| | | | Dry and Critical | 107 | 127 | -20 |
| SWP FRSA | Contract Delivery (annual average) | (TAF/year) | Long Term | 937 | 937 | 0 |
| | | | Dry and Critical | 873 | 873 | 0 |
| SWP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 28 | 29 | -1 |
| | | | Dry and Critical | 18 | 20 | -2 |
| **San Joaquin River Hydrologic Region (not including Friant-Kern and Madera Canal water users)** | | | | | | |
| CVP Exchange | Contract Delivery (annual average) | (TAF/year) | Long Term | 852 | 852 | 0 |
| | | | Dry and Critical | 825 | 825 | 0 |
| CVP Refuge Level 2 | Contract Delivery (annual average) | (TAF/year) | Long Term | 260 | 260 | 0 |
| | | | Dry and Critical | 252 | 250 | 2 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 16 | 16 | 0 |
| | | | Dry and Critical | 13 | 14 | -1 |
| CVP Ag | Contract Delivery (annual average; does not include Exchange contractors) | (TAF/year) | Long Term | 307 | 314 | -8 |
| | | | Dry and Critical | 131 | 162 | -31 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 3 | 3 | 0 |
| | | | Dry and Critical | 1 | 2 | 0 |
| **San Francisco Bay Hydrologic Region** | | | | | | |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 266 | 275 | -9 |
| | | | Dry and Critical | 268 | 285 | -17 |
| CVP Ag | Contract Delivery (annual average) | (TAF/year) | Long Term | 37 | 38 | -2 |
| | | | Dry and Critical | 16 | 20 | -4 |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term | 190 | 198 | -8 |
| | | | Dry and Critical | 113 | 125 | -12 |
| **Central Coast Hydrologic Region** | | | | | | |
| SWP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 37 | 39 | -3 |
| | | | Dry and Critical | 19 | 23 | -4 |
| **Tulare Lake Hydrologic Region (not including Friant-Kern Canal water users)** | | | | | | |
| CVP Refuge Level 2 | Contract Delivery (annual average) | (TAF/year) | Long Term | 12 | 12 | 0 |
| | | | Dry and Critical | 12 | 11 | 0 |
| CVP Ag | Contract Delivery (annual average - includes Cross Valley Canal) | (TAF/year) | Long Term | 616 | 644 | -28 |
| | | | Dry and Critical | 275 | 339 | -64 |
| SWP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term | 70 | 75 | -5 |
| | | | Dry and Critical | 36 | 43 | -7 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 551 | 572 | -20 |
| | | | Dry and Critical | 285 | 320 | -35 |
| **South Lahontan Hydrologic Region** | | | | | | |
| SWP M&I | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 233 | 247 | -14 |
| | | | Dry and Critical | 128 | 149 | -22 |
| **South Coast Hydrologic Region** | | | | | | |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term | 1,155 | 1,212 | -57 |
| | | | Dry and Critical | 632 | 747 | -115 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term | 7 | 7 | 0 |
| | | | Dry and Critical | 4 | 4 | 0 |
| **Total For All Regions** | | | | | | |
| Total Supplies | Contract Delivery (CVP, SWP and other) (annual average) | (TAF/year) | Long Term | 7,772 | 7,947 | -175 |
| | | | Dry and Critical | 5,907 | 6,259 | -352 |

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.
3. All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

**Table 1-8. CALSIM II Water Supply Summary Report, by Type, Long-Term Average and Dry and Critical Year Averages**

| | | | | Alternative 4 043019 | No Action Alternative 011319 | Alternative 4 043019 minus No Action Alternative 011319 |
|---|---|---|---|---|---|---|
| **Water Supply Reliability** | | | | | | |
| **North of Delta** | | | | | | |
| CVP Ag | Contract Delivery (annual average; does not include Exchange contractors) | (TAF/year) | Long Term<br>Dry and Critical | 226<br>107 | 230<br>127 | -4<br>-20 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term<br>Dry and Critical | 377<br>360 | 390<br>385 | -13<br>-26 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term<br>Dry and Critical | 0<br>0 | 0<br>0 | 0<br>0 |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term<br>Dry and Critical | 99<br>66 | 100<br>68 | -1<br>-2 |
| **Total CVP North of Delta** | | | | | | |
| Total CVP Ag and M&I NOD | Contract Delivery (CVP) (annual average) | (TAF/year) | Long Term<br>Dry and Critical | 603<br>466 | 620<br>512 | -17<br>-46 |
| **Total SWP North of Delta** | | | | | | |
| Total SWP Ag and M&I NOD | Contract Delivery (SWP) (annual average) | (TAF/year) | Long Term<br>Dry and Critical | 99<br>66 | 100<br>68 | -1<br>-2 |
| **Total North of Delta** | | | | | | |
| Total North of Delta Ag and M&I Deliveries | Contract Delivery (CVP, SWP and other) (annual average) | (TAF/year) | Long Term<br>Dry and Critical | 702<br>532 | 720<br>580 | -18<br>-48 |
| **South of Delta** | | | | | | |
| CVP Ag | Contract Delivery (annual average; does not include Exchange contractors) | (TAF/year) | Long Term<br>Dry and Critical | 959<br>422 | 997<br>521 | -37<br>-98 |
| CVP M&I | Contract Delivery (annual average) | (TAF/year) | Long Term<br>Dry and Critical | 115<br>98 | 119<br>102 | -3<br>-4 |
| SWP Ag | Contract Delivery (including Article 21) (annual average) | (TAF/year) | Long Term<br>Dry and Critical | 561<br>290 | 582<br>326 | -21<br>-36 |
| SWP M&I | Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average) | (TAF/year) | Long Term<br>Dry and Critical | 1,614<br>879 | 1,702<br>1,039 | -88<br>-160 |
| **Total CVP South of Delta** | | | | | | |
| Total CVP Ag and M&I SOD | Contract Delivery (CVP) (annual average) | (TAF/year) | Long Term<br>Dry and Critical | 1,075<br>520 | 1,115<br>622 | -41<br>-102 |
| **Total SWP South of Delta** | | | | | | |
| Total SWP Ag and M&I SOD | Contract Delivery (SWP) (annual average) | (TAF/year) | Long Term<br>Dry and Critical | 2,175<br>1,169 | 2,284<br>1,364 | -109<br>-195 |
| **Total South of Delta** | | | | | | |
| Total South of Delta Ag and M&I Deliveries | Contract Delivery (CVP, SWP and other) (annual average) | (TAF/year) | Long Term<br>Dry and Critical | 3,250<br>1,689 | 3,399<br>1,987 | -150<br>-297 |

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.
3. All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

**Figure 1-1. CVP North of Delta Agricultural Water Service Contract Deliveries, Annual (Mar-Feb)**

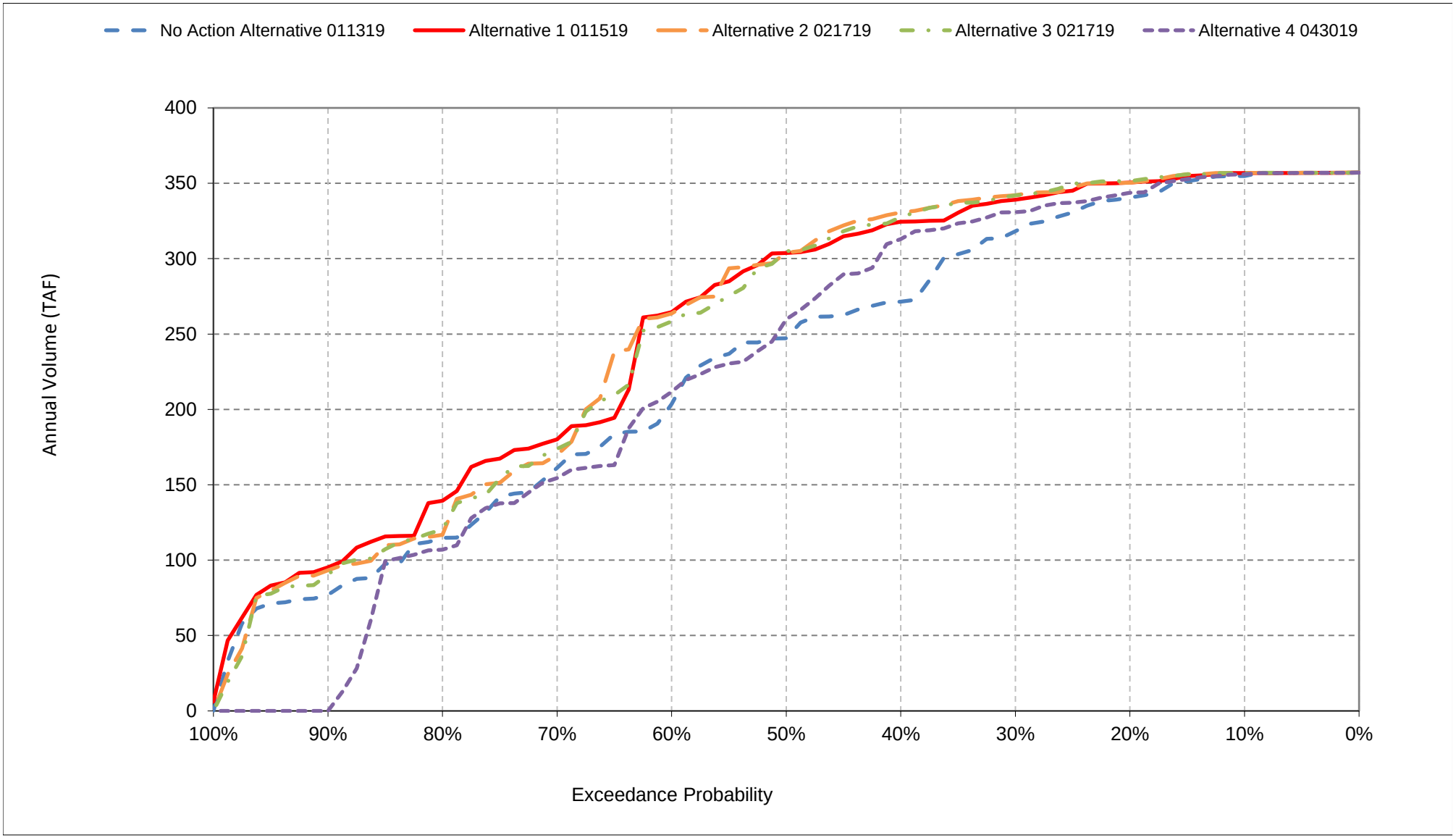


**Figure 1-2. CVP South of Delta Agricultural Water Service Contract Deliveries, Annual (Mar-Feb)**

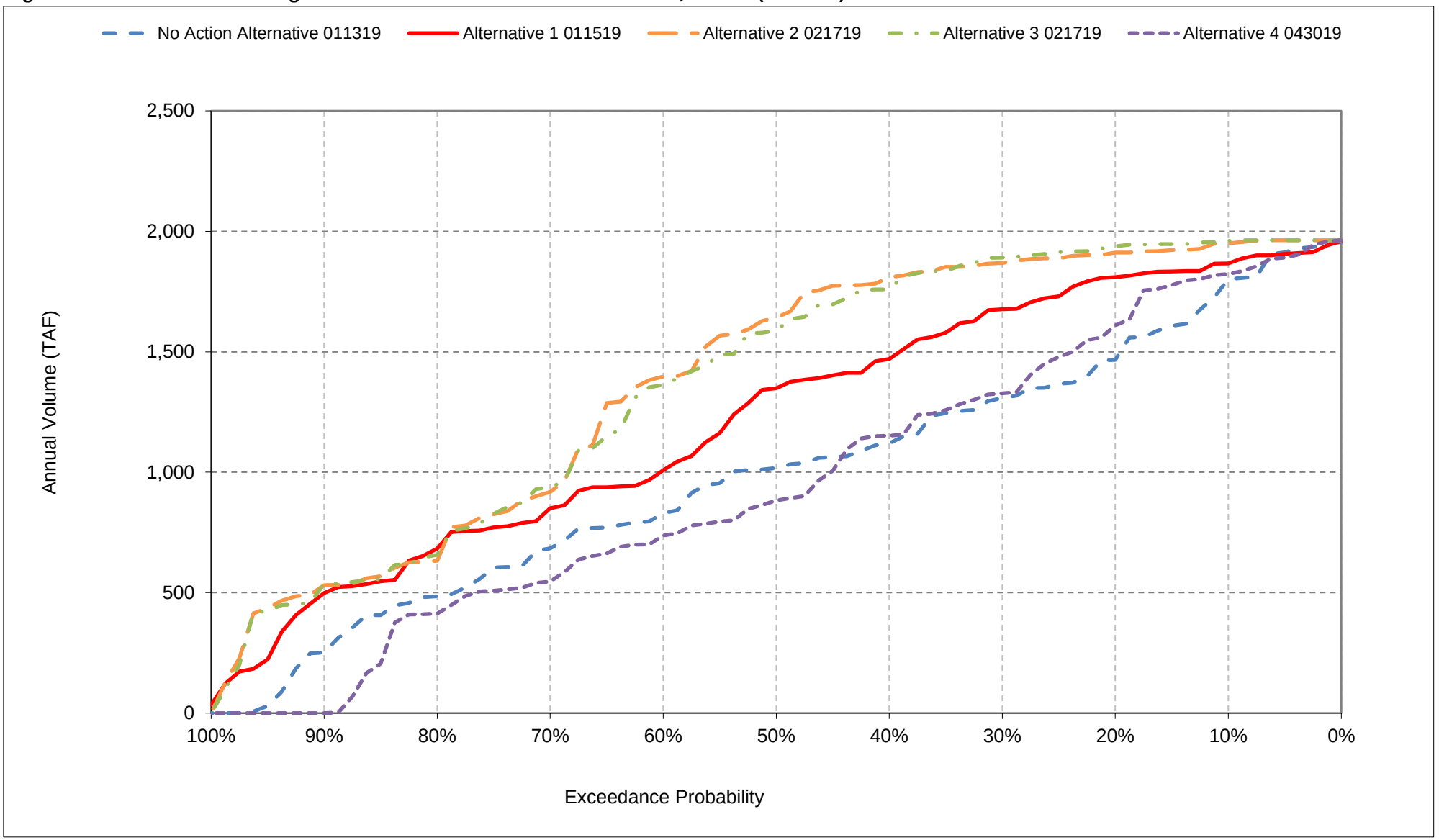


**Figure 1-3. CVP North of Delta M&I Water Service Contract Deliveries, Annual (Mar-Feb)**

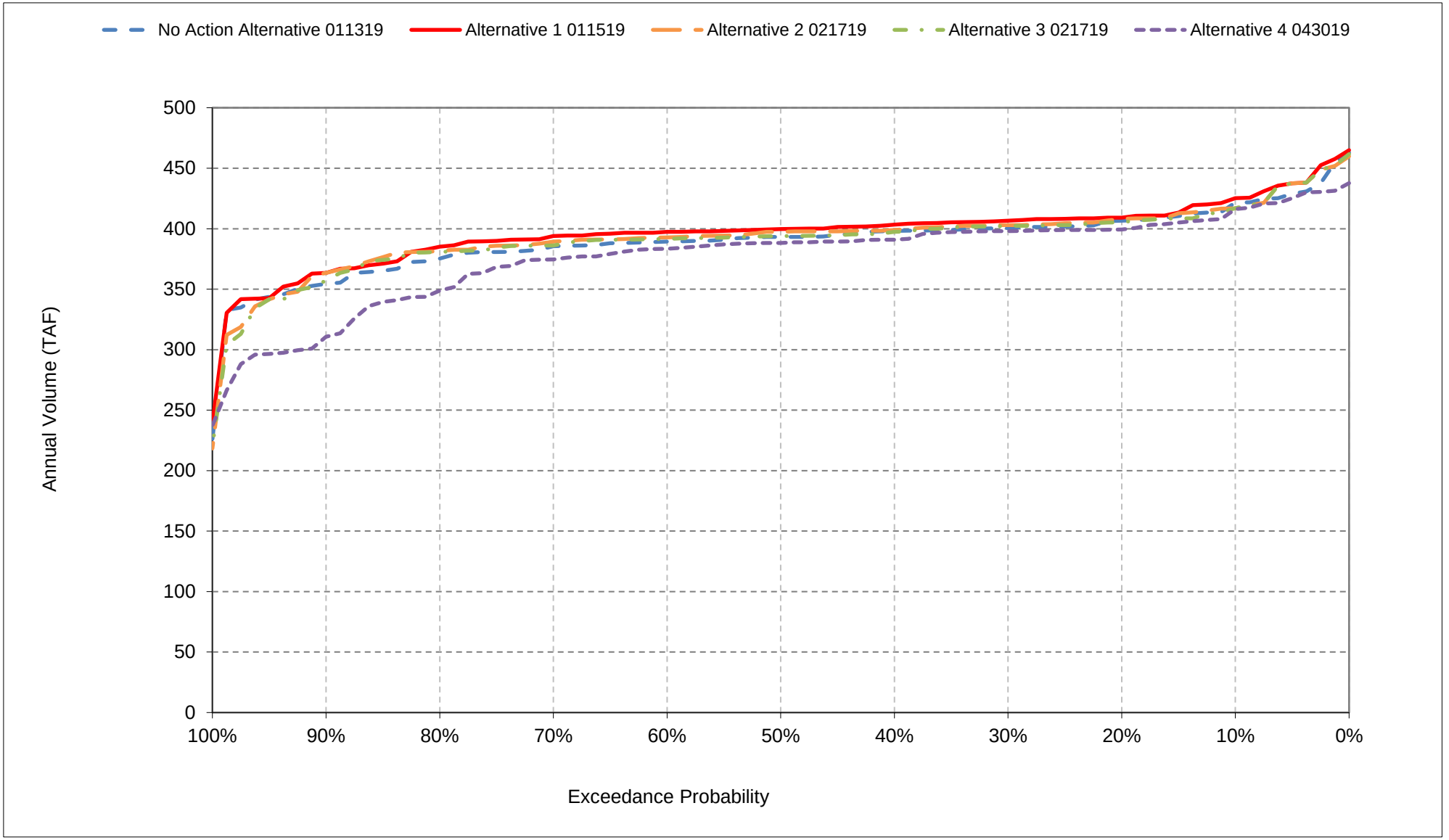


**Figure 1-4. CVP South of Delta M&I Water Service Contract Deliveries, Annual (Mar-Feb)**

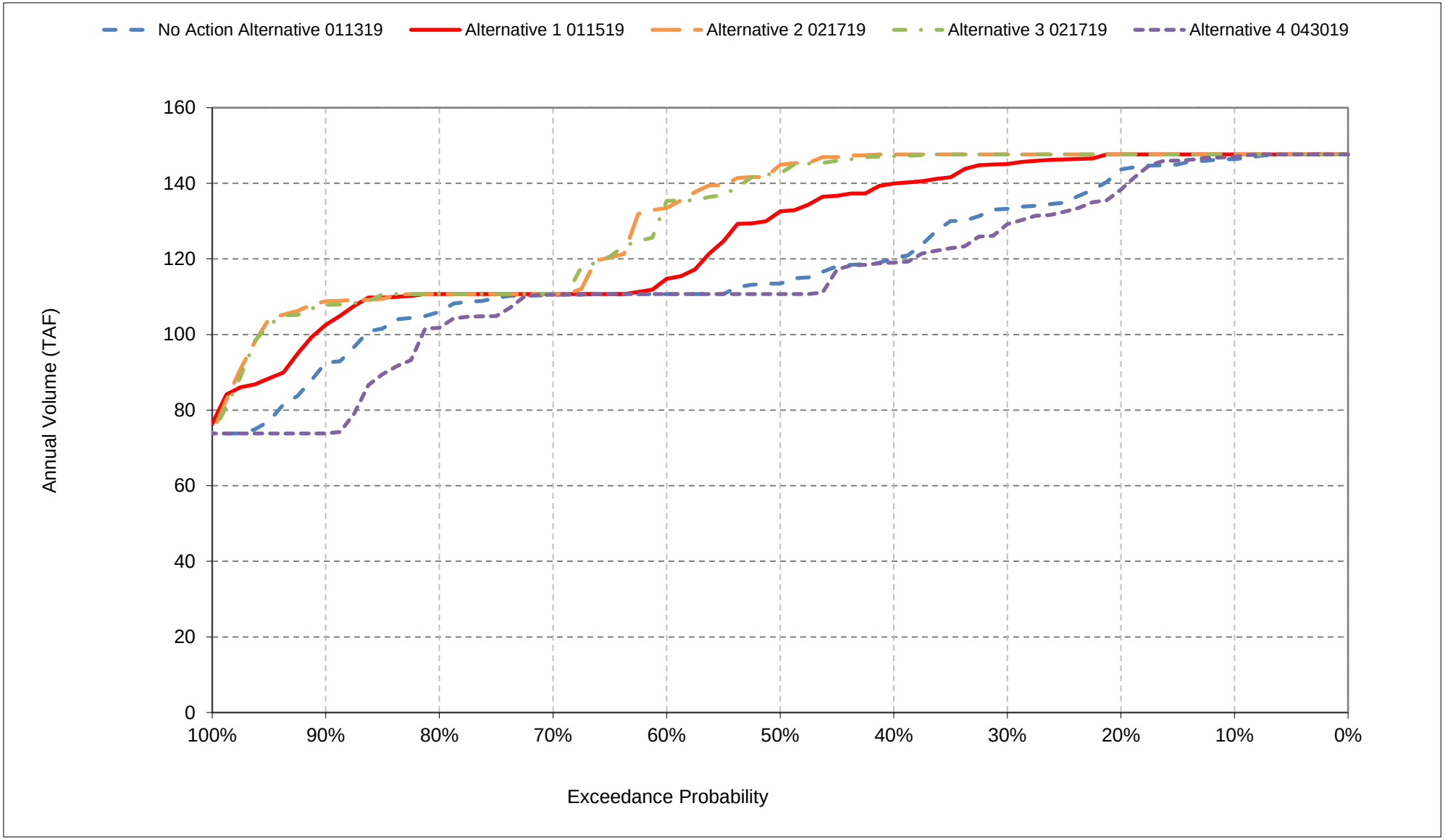


**Figure 1-5. Total SWP Deliveries, Annual (Jan-Dec)**

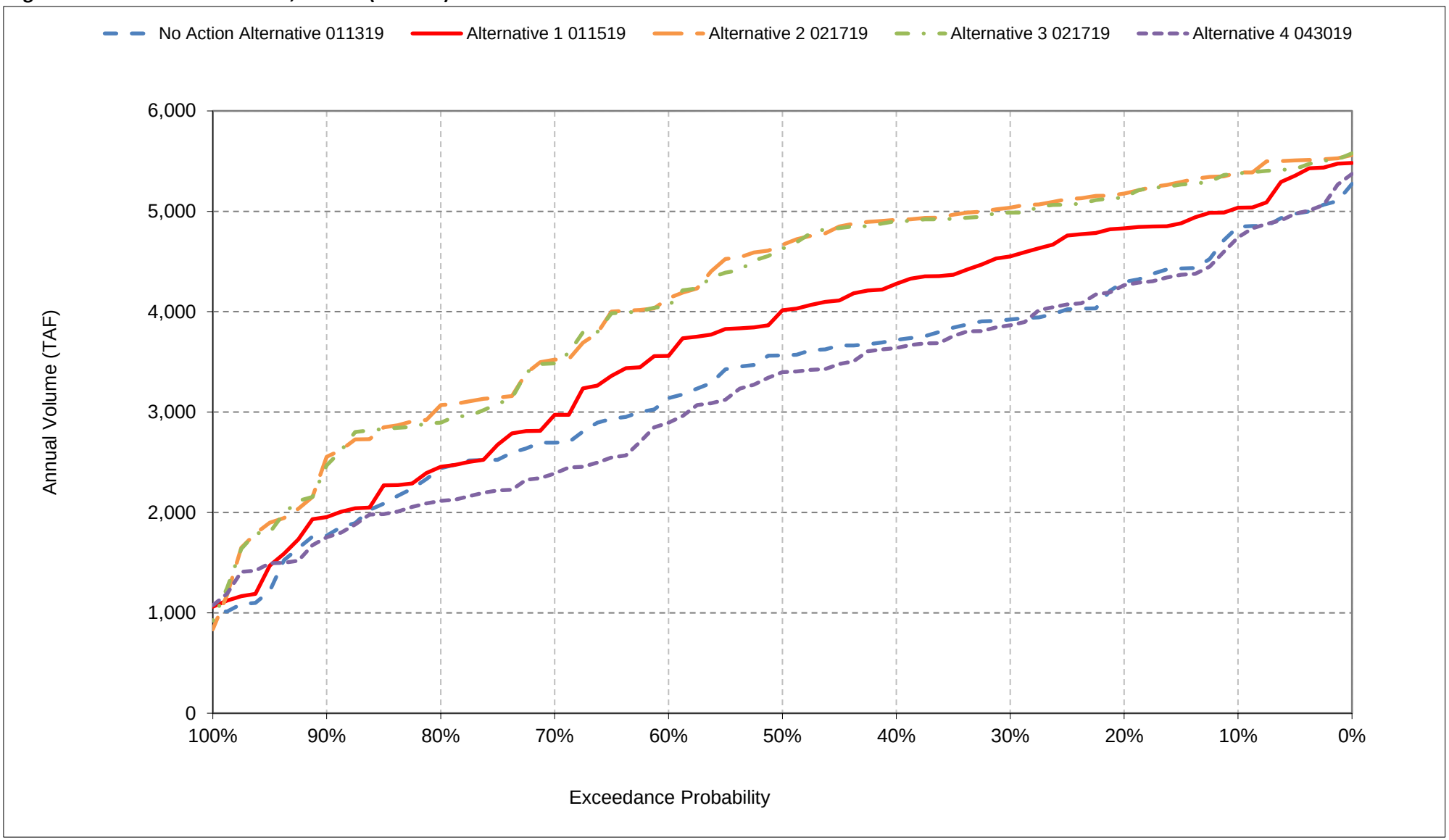


**Figure 1-6. Total SWP South of Delta Deliveries including Article 21 and 56, Annual (Jan-Dec)**

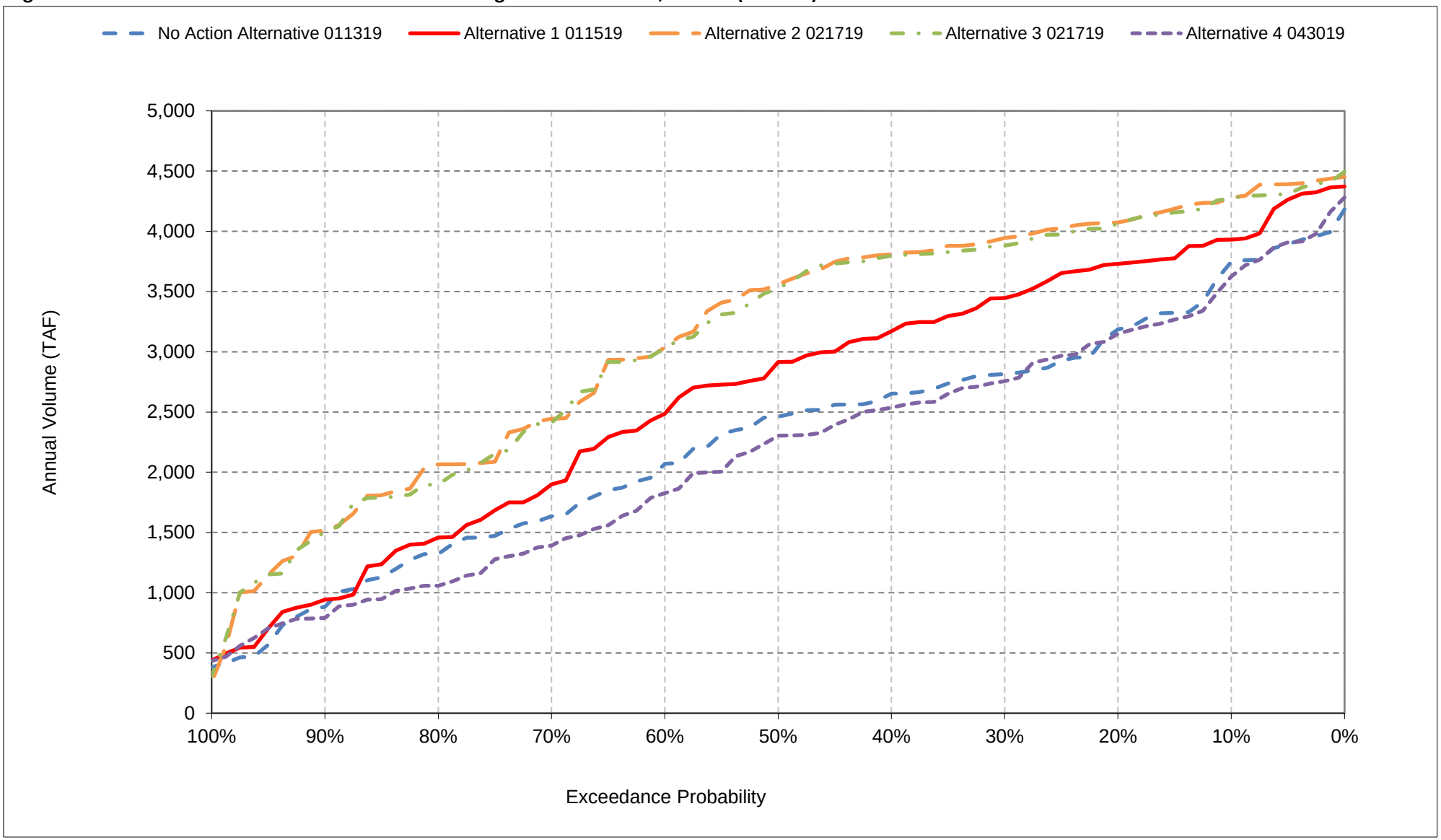


**Figure 1-7. SWP Table A Deliveries with Article 56, Annual (Jan-Dec)**

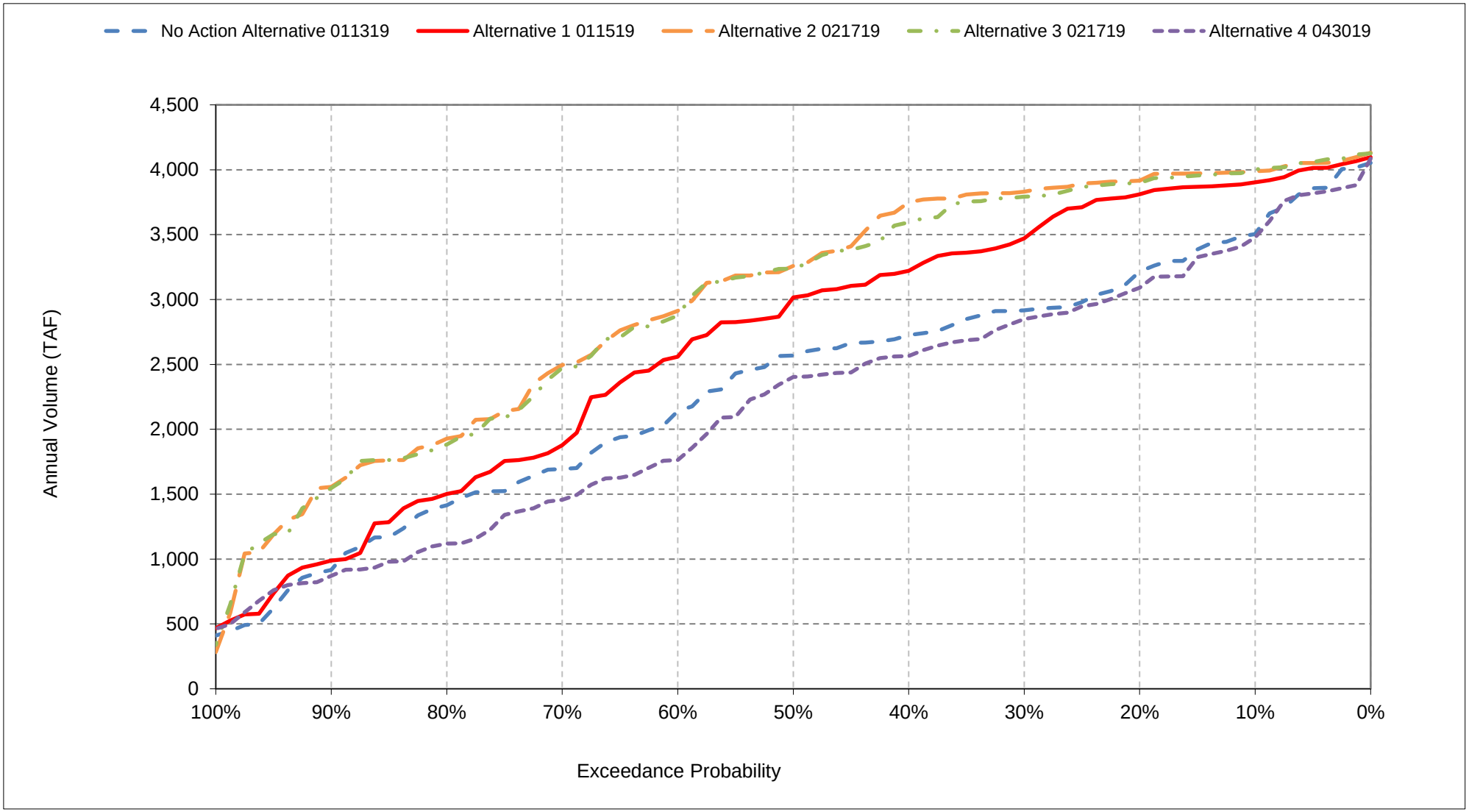


**Figure 1-8. SWP South of Delta Table A Deliveries with Article 56, Annual (Jan-Dec)**

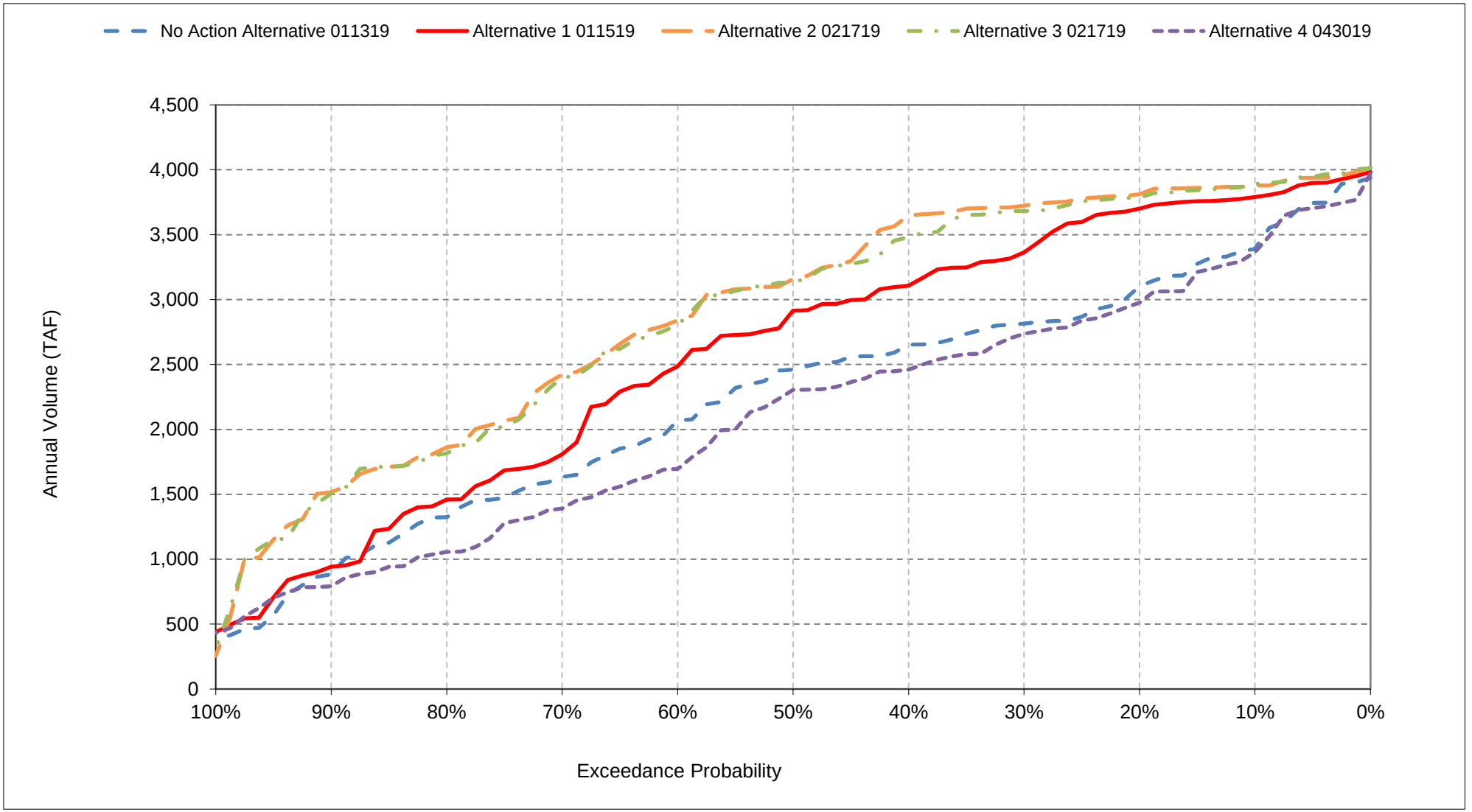


**Figure 1-9. SWP Article 21 Deliveries, Annual (Jan-Dec)**

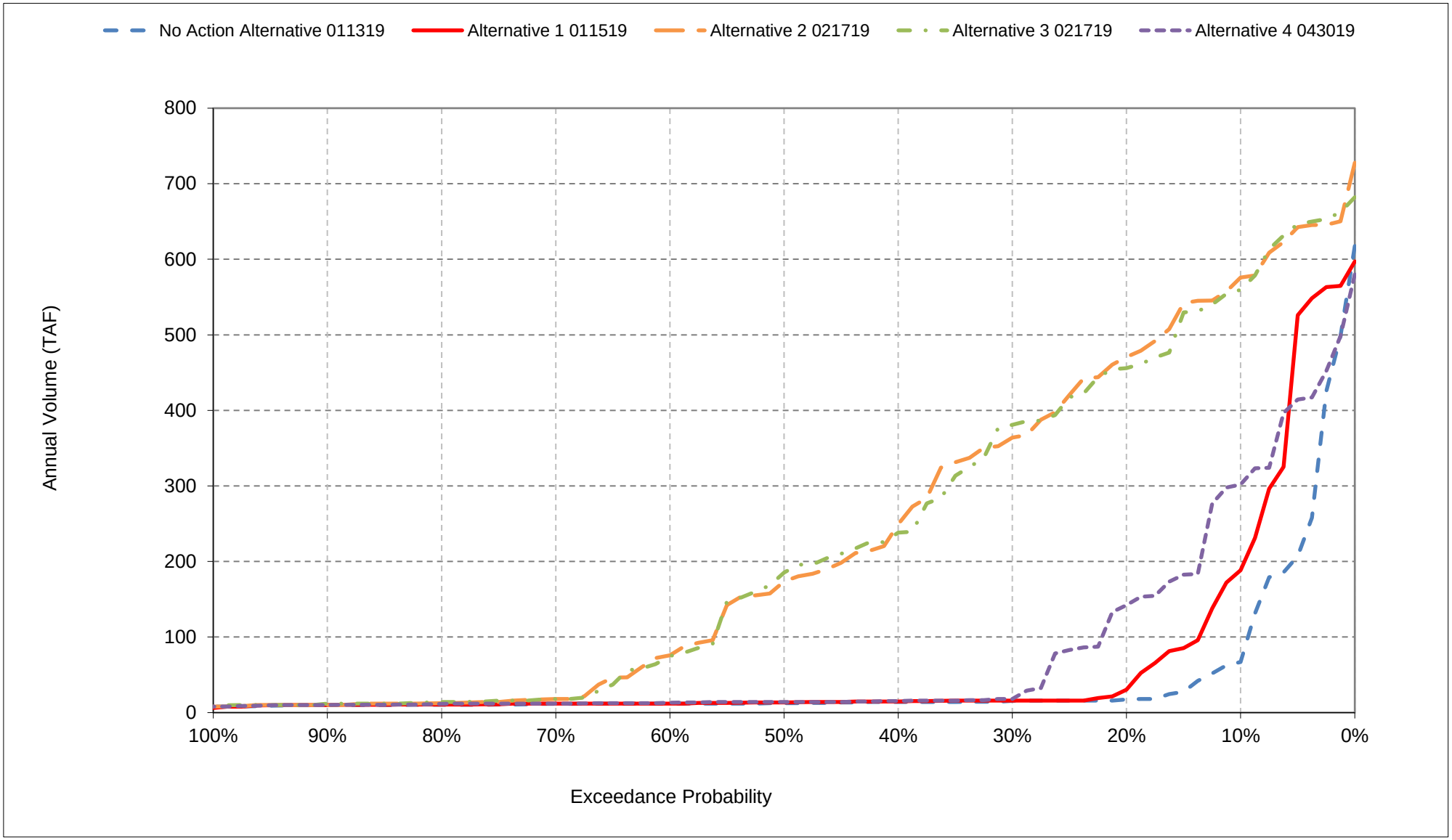
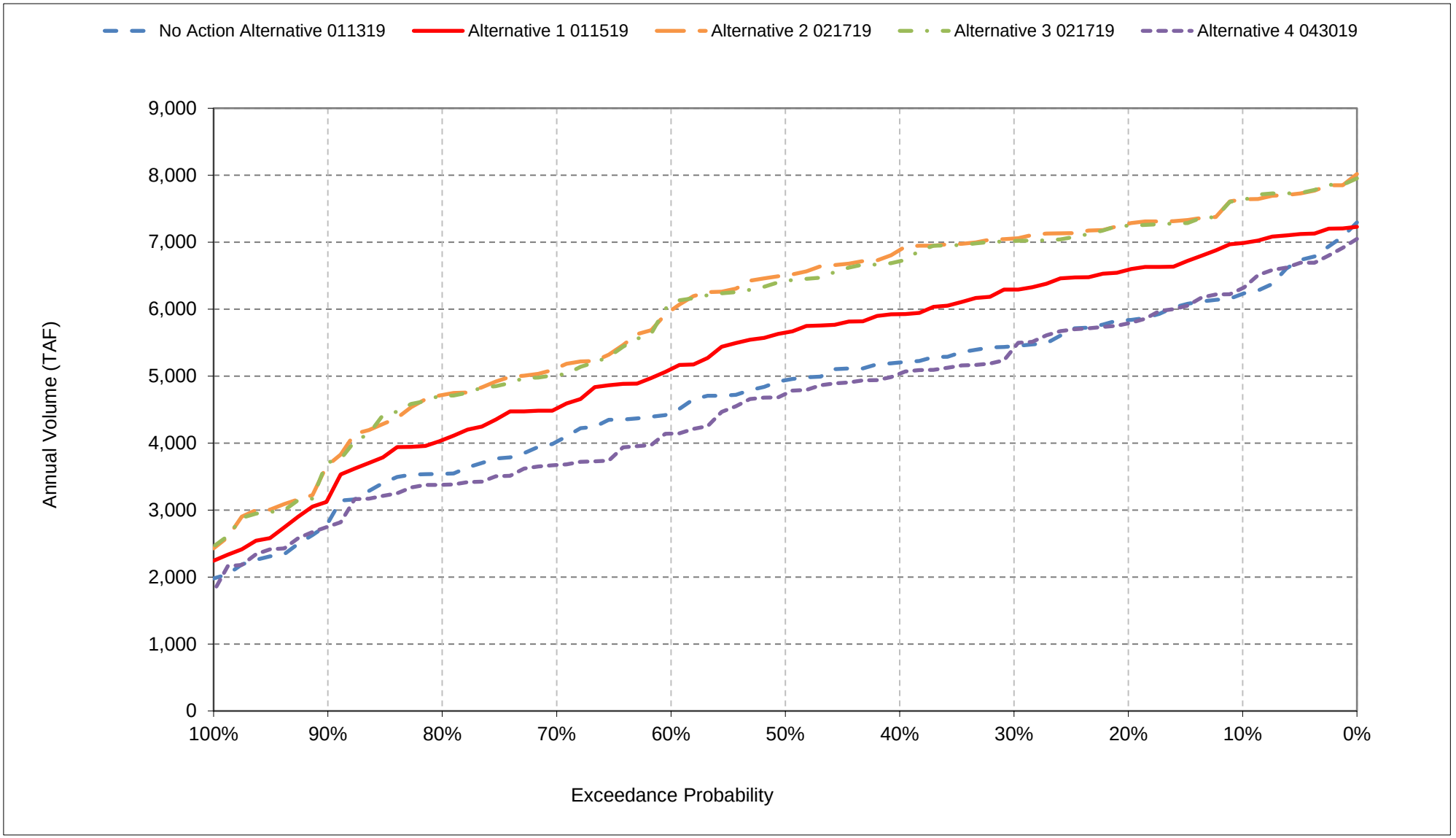


**Figure 2-1. Total Delta Exports, Annual (Oct-Sep)**



# Attachment 3-10 Chloride Results (DSM2-QUAL)

The following results of the DSM2-QUAL model are included for Delta chloride conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Contra Costa Pumping Plant Chloride | ROLD024 | 19-1 to 19-4 | 19-1 to 19-18 |
| San Joaquin River at Antioch Chloride | RSAN007 | 20-1 to 20-4 | 20-1 to 20-18 |
| Banks Pumping Plant South Delta Exports Chloride | CLIFTON_COURT | 21-1 to 21-4 | 21-1 to 21-18 |
| Jones Pumping Plant South Delta Exports Chloride | CHDMC006 | 22-1 to 22-4 | 22-1 to 22-18 |
| North Bay Aqueduct Chloride | SLBAR002 | 23-1 to 23-4 | 23-1 to 23-18 |

## 1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

# Appendix F – Modeling

## Chloride Results (DSM2-QUAL)

The following results of the DSM2-QUAL model are included for Delta chloride conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

| Title | Model Parameter | Table Numbers | Figure Numbers |
|---|---|---|---|
| Contra Costa Pumping Plant Chloride | ROLD024 | 19-1 to 19-4 | 19-1 to 19-18 |
| San Joaquin River at Antioch Chloride | RSAN007 | 20-1 to 20-4 | 20-1 to 20-18 |
| Banks Pumping Plant South Delta Exports Chloride | CLIFTON_COURT | 21-1 to 21-4 | 21-1 to 21-18 |
| Jones Pumping Plant South Delta Exports Chloride | CHDMC006 | 22-1 to 22-4 | 22-1 to 22-18 |
| North Bay Aqueduct Chloride | SLBAR002 | 23-1 to 23-4 | 23-1 to 23-18 |

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

## Table 19-1. Contra Costa Pumping Plant #1 Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 241 | 255 | 252 | 207 | 107 | 59 | 61 | 58 | 38 | 82 | 139 | 190 |
| 20% | 219 | 219 | 231 | 163 | 84 | 44 | 53 | 52 | 32 | 50 | 105 | 181 |
| 30% | 207 | 190 | 206 | 127 | 69 | 39 | 47 | 50 | 29 | 46 | 90 | 170 |
| 40% | 198 | 171 | 135 | 103 | 59 | 35 | 45 | 46 | 28 | 37 | 81 | 157 |
| 50% | 174 | 119 | 67 | 89 | 51 | 32 | 41 | 43 | 27 | 28 | 73 | 135 |
| 60% | 33 | 31 | 45 | 77 | 45 | 30 | 39 | 40 | 26 | 26 | 65 | 124 |
| 70% | 31 | 25 | 35 | 48 | 35 | 27 | 35 | 35 | 25 | 25 | 54 | 112 |
| 80% | 29 | 23 | 29 | 39 | 31 | 25 | 29 | 29 | 24 | 23 | 47 | 95 |
| 90% | 28 | 21 | 24 | 30 | 27 | 23 | 26 | 20 | 23 | 22 | 40 | 85 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 127 | 121 | 117 | 102 | 60 | 37 | 42 | 42 | 31 | 43 | 79 | 137 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 29 | 23 | 30 | 51 | 44 | 31 | 33 | 34 | 25 | 23 | 48 | 103 |
| Above Normal (16%) | 33 | 44 | 65 | 82 | 52 | 31 | 47 | 50 | 26 | 25 | 54 | 89 |
| Below Normal (13%) | 200 | 166 | 162 | 105 | 55 | 33 | 49 | 51 | 29 | 40 | 78 | 171 |
| Dry (24%) | 206 | 182 | 159 | 139 | 67 | 38 | 41 | 38 | 28 | 54 | 107 | 164 |
| Critical (15%) | 244 | 272 | 253 | 166 | 100 | 57 | 52 | 47 | 57 | 86 | 129 | 186 |

### Alternative 1 011519

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 247 | 274 | 259 | 227 | 105 | 53 | 45 | 32 | 34 | 87 | 141 | 197 |
| 20% | 231 | 250 | 240 | 199 | 76 | 39 | 33 | 28 | 29 | 52 | 106 | 186 |
| 30% | 220 | 231 | 228 | 175 | 64 | 34 | 30 | 27 | 26 | 46 | 91 | 180 |
| 40% | 211 | 216 | 207 | 107 | 59 | 31 | 29 | 25 | 25 | 37 | 84 | 174 |
| 50% | 206 | 200 | 190 | 92 | 49 | 29 | 27 | 24 | 23 | 28 | 77 | 169 |
| 60% | 203 | 189 | 166 | 71 | 40 | 27 | 26 | 24 | 23 | 26 | 63 | 166 |
| 70% | 191 | 177 | 130 | 49 | 34 | 26 | 25 | 23 | 22 | 24 | 54 | 162 |
| 80% | 175 | 153 | 87 | 41 | 30 | 24 | 24 | 22 | 21 | 23 | 49 | 151 |
| 90% | 125 | 62 | 41 | 29 | 28 | 22 | 23 | 21 | 20 | 22 | 41 | 123 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 197 | 193 | 170 | 115 | 58 | 34 | 30 | 26 | 29 | 44 | 80 | 163 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 150 | 164 | 141 | 54 | 42 | 34 | 28 | 22 | 22 | 23 | 47 | 134 |
| Above Normal (16%) | 199 | 183 | 172 | 103 | 51 | 31 | 29 | 24 | 22 | 25 | 56 | 169 |
| Below Normal (13%) | 204 | 178 | 162 | 126 | 56 | 31 | 30 | 26 | 25 | 44 | 87 | 182 |
| Dry (24%) | 220 | 197 | 160 | 166 | 67 | 32 | 30 | 26 | 26 | 54 | 103 | 172 |
| Critical (15%) | 249 | 278 | 256 | 164 | 88 | 45 | 39 | 38 | 62 | 93 | 130 | 190 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **6** | **19** | **7** | **20** | -2 | -6 | -16 | -26 | -4 | **4** | **2** | **7** |
| 20% | **11** | **31** | **9** | **36** | -8 | -5 | -20 | -24 | -2 | **2** | **1** | **5** |
| 30% | **13** | **40** | **22** | **48** | -5 | -5 | -17 | -23 | -2 | **1** | **1** | **9** |
| 40% | **13** | **45** | **73** | **5** | 0 | -4 | -16 | -21 | -4 | 0 | **3** | **17** |
| 50% | **31** | **81** | **123** | **3** | -2 | -3 | -14 | -19 | -4 | -1 | **3** | **34** |
| 60% | **169** | **158** | **121** | -6 | -6 | -3 | -12 | -16 | -4 | -1 | -2 | **42** |
| 70% | **160** | **152** | **95** | **1** | -1 | -1 | -9 | -12 | -3 | 0 | **1** | **50** |
| 80% | **146** | **130** | **58** | **2** | -1 | -1 | -5 | -6 | -3 | 0 | **2** | **56** |
| 90% | **97** | **41** | **18** | -1 | **1** | -1 | -3 | **2** | -2 | **0** | **1** | **38** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **70** | **73** | **53** | **13** | -2 | -3 | -12 | -15 | -2 | **1** | **0** | **26** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **121** | **141** | **111** | **3** | -2 | **2** | -5 | -12 | -2 | 0 | -1 | **31** |
| Above Normal (16%) | **167** | **139** | **107** | **21** | -1 | -1 | -18 | -26 | -4 | 0 | **2** | **80** |
| Below Normal (13%) | **4** | **12** | **0** | **22** | **1** | -2 | -20 | -25 | -4 | **4** | **9** | **11** |
| Dry (24%) | **14** | **15** | **1** | **26** | **0** | -6 | -11 | -12 | -2 | -1 | -5 | **8** |
| Critical (15%) | **4** | **6** | **3** | -1 | -12 | -12 | -12 | -9 | **4** | **7** | **1** | **4** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 19-2. Contra Costa Pumping Plant #1 Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 241 | 255 | 252 | 207 | 107 | 59 | 61 | 58 | 38 | 82 | 139 | 190 |
| 20% | 219 | 219 | 231 | 163 | 84 | 44 | 53 | 52 | 32 | 50 | 105 | 181 |
| 30% | 207 | 190 | 206 | 127 | 69 | 39 | 47 | 50 | 29 | 46 | 90 | 170 |
| 40% | 198 | 171 | 135 | 103 | 59 | 35 | 45 | 46 | 28 | 37 | 81 | 157 |
| 50% | 174 | 119 | 67 | 89 | 51 | 32 | 41 | 43 | 27 | 28 | 73 | 135 |
| 60% | 33 | 31 | 45 | 77 | 45 | 30 | 39 | 40 | 26 | 26 | 65 | 124 |
| 70% | 31 | 25 | 35 | 48 | 35 | 27 | 35 | 35 | 25 | 25 | 54 | 112 |
| 80% | 29 | 23 | 29 | 39 | 31 | 25 | 29 | 29 | 24 | 23 | 47 | 95 |
| 90% | 28 | 21 | 24 | 30 | 27 | 23 | 26 | 20 | 23 | 22 | 40 | 85 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 127 | 121 | 117 | 102 | 60 | 37 | 42 | 42 | 31 | 43 | 79 | 137 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 29 | 23 | 30 | 51 | 44 | 31 | 33 | 34 | 25 | 23 | 48 | 103 |
| Above Normal (16%) | 33 | 44 | 65 | 82 | 52 | 31 | 47 | 50 | 26 | 25 | 54 | 89 |
| Below Normal (13%) | 200 | 166 | 162 | 105 | 55 | 33 | 49 | 51 | 29 | 40 | 78 | 171 |
| Dry (24%) | 206 | 182 | 159 | 139 | 67 | 38 | 41 | 38 | 28 | 54 | 107 | 164 |
| Critical (15%) | 244 | 272 | 253 | 166 | 100 | 57 | 52 | 47 | 57 | 86 | 129 | 186 |

### Alternative 2 021719

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 234 | 263 | 276 | 249 | 148 | 64 | 41 | 34 | 38 | 74 | 136 | 199 |
| 20% | 227 | 231 | 256 | 209 | 105 | 46 | 33 | 28 | 28 | 47 | 101 | 185 |
| 30% | 220 | 208 | 236 | 188 | 73 | 39 | 28 | 26 | 26 | 41 | 90 | 180 |
| 40% | 210 | 193 | 216 | 166 | 58 | 30 | 27 | 25 | 24 | 33 | 80 | 173 |
| 50% | 205 | 184 | 203 | 141 | 51 | 29 | 25 | 24 | 22 | 28 | 74 | 167 |
| 60% | 199 | 172 | 183 | 85 | 39 | 26 | 24 | 22 | 21 | 25 | 67 | 162 |
| 70% | 192 | 162 | 143 | 47 | 33 | 24 | 23 | 22 | 20 | 25 | 55 | 152 |
| 80% | 177 | 137 | 94 | 38 | 29 | 23 | 22 | 21 | 20 | 23 | 49 | 138 |
| 90% | 136 | 88 | 36 | 27 | 23 | 21 | 21 | 19 | 19 | 22 | 41 | 117 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 194 | 179 | 182 | 129 | 67 | 36 | 29 | 25 | 28 | 41 | 79 | 159 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 154 | 162 | 163 | 54 | 38 | 31 | 27 | 21 | 21 | 23 | 46 | 129 |
| Above Normal (16%) | 219 | 207 | 202 | 114 | 46 | 27 | 27 | 22 | 20 | 24 | 62 | 175 |
| Below Normal (13%) | 203 | 169 | 165 | 169 | 95 | 37 | 27 | 25 | 23 | 37 | 92 | 169 |
| Dry (24%) | 202 | 148 | 149 | 178 | 77 | 33 | 27 | 25 | 26 | 49 | 95 | 167 |
| Critical (15%) | 234 | 250 | 271 | 190 | 112 | 59 | 40 | 40 | 62 | 90 | 132 | 187 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -7 | **7** | **23** | **42** | **41** | **5** | -19 | -25 | -1 | -8 | -3 | **9** |
| 20% | **7** | **12** | **25** | **46** | **21** | **2** | -20 | -24 | -3 | -3 | -4 | **3** |
| 30% | **13** | **18** | **31** | **61** | **4** | **0** | -18 | -23 | -3 | -4 | **1** | **10** |
| 40% | **12** | **22** | **81** | **63** | -1 | -5 | -18 | -21 | -4 | -4 | -1 | **16** |
| 50% | **30** | **65** | **136** | **52** | 0 | -3 | -16 | -19 | -5 | -1 | **1** | **32** |
| 60% | **166** | **141** | **138** | **8** | -6 | -3 | -14 | -18 | -5 | -1 | **2** | **37** |
| 70% | **162** | **137** | **108** | -1 | -2 | -3 | -11 | -14 | -5 | 0 | **2** | **40** |
| 80% | **148** | **114** | **65** | -1 | -1 | -2 | -7 | -8 | -4 | **0** | **2** | **43** |
| 90% | **107** | **67** | **13** | -3 | -4 | -2 | -5 | 0 | -4 | 0 | **1** | **33** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **67** | **59** | **64** | **28** | **7** | -1 | -13 | -16 | -3 | -1 | **0** | **22** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **125** | **139** | **133** | **2** | -6 | -1 | -6 | -13 | -4 | 0 | -2 | **26** |
| Above Normal (16%) | **186** | **164** | **137** | **32** | -6 | -4 | -20 | -27 | -6 | -1 | **8** | **85** |
| Below Normal (13%) | **3** | **3** | **3** | **65** | **40** | **3** | -22 | -26 | -6 | -2 | **15** | -2 |
| Dry (24%) | -4 | -34 | -10 | **39** | **10** | -4 | -14 | -12 | -3 | -6 | -12 | **3** |
| Critical (15%) | -10 | -21 | **18** | **25** | **12** | **2** | -12 | -7 | **5** | **4** | **4** | **1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 19-3. Contra Costa Pumping Plant #1 Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 241 | 255 | 252 | 207 | 107 | 59 | 61 | 58 | 38 | 82 | 139 | 190 |
| 20% | 219 | 219 | 231 | 163 | 84 | 44 | 53 | 52 | 32 | 50 | 105 | 181 |
| 30% | 207 | 190 | 206 | 127 | 69 | 39 | 47 | 50 | 29 | 46 | 90 | 170 |
| 40% | 198 | 171 | 135 | 103 | 59 | 35 | 45 | 46 | 28 | 37 | 81 | 157 |
| 50% | 174 | 119 | 67 | 89 | 51 | 32 | 41 | 43 | 27 | 28 | 73 | 135 |
| 60% | 33 | 31 | 45 | 77 | 45 | 30 | 39 | 40 | 26 | 26 | 65 | 124 |
| 70% | 31 | 25 | 35 | 48 | 35 | 27 | 35 | 35 | 25 | 25 | 54 | 112 |
| 80% | 29 | 23 | 29 | 39 | 31 | 25 | 29 | 29 | 24 | 23 | 47 | 95 |
| 90% | 28 | 21 | 24 | 30 | 27 | 23 | 26 | 20 | 23 | 22 | 40 | 85 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 127 | 121 | 117 | 102 | 60 | 37 | 42 | 42 | 31 | 43 | 79 | 137 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 29 | 23 | 30 | 51 | 44 | 31 | 33 | 34 | 25 | 23 | 48 | 103 |
| Above Normal (16%) | 33 | 44 | 65 | 82 | 52 | 31 | 47 | 50 | 26 | 25 | 54 | 89 |
| Below Normal (13%) | 200 | 166 | 162 | 105 | 55 | 33 | 49 | 51 | 29 | 40 | 78 | 171 |
| Dry (24%) | 206 | 182 | 159 | 139 | 67 | 38 | 41 | 38 | 28 | 54 | 107 | 164 |
| Critical (15%) | 244 | 272 | 253 | 166 | 100 | 57 | 52 | 47 | 57 | 86 | 129 | 186 |

### Alternative 3 021719

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 236 | 244 | 252 | 225 | 120 | 64 | 41 | 33 | 37 | 74 | 135 | 201 |
| 20% | 226 | 226 | 240 | 201 | 102 | 48 | 33 | 28 | 28 | 46 | 100 | 193 |
| 30% | 218 | 210 | 224 | 177 | 68 | 38 | 29 | 26 | 26 | 40 | 91 | 181 |
| 40% | 211 | 193 | 209 | 165 | 57 | 33 | 27 | 25 | 25 | 35 | 83 | 174 |
| 50% | 206 | 181 | 192 | 125 | 50 | 30 | 26 | 24 | 23 | 28 | 72 | 166 |
| 60% | 200 | 154 | 158 | 80 | 38 | 27 | 25 | 23 | 22 | 25 | 62 | 158 |
| 70% | 189 | 140 | 124 | 42 | 33 | 24 | 24 | 22 | 21 | 24 | 55 | 152 |
| 80% | 183 | 114 | 93 | 35 | 29 | 23 | 22 | 21 | 20 | 23 | 45 | 138 |
| 90% | 138 | 81 | 43 | 26 | 24 | 21 | 21 | 20 | 19 | 22 | 39 | 121 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 195 | 168 | 168 | 123 | 64 | 36 | 30 | 26 | 28 | 41 | 78 | 161 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 159 | 161 | 148 | 52 | 38 | 31 | 28 | 21 | 21 | 24 | 46 | 131 |
| Above Normal (16%) | 208 | 198 | 190 | 96 | 42 | 27 | 28 | 23 | 21 | 24 | 56 | 168 |
| Below Normal (13%) | 210 | 162 | 153 | 163 | 95 | 38 | 28 | 25 | 23 | 36 | 89 | 178 |
| Dry (24%) | 204 | 136 | 142 | 171 | 74 | 35 | 28 | 26 | 26 | 48 | 95 | 170 |
| Critical (15%) | 227 | 211 | 242 | 187 | 103 | 58 | 41 | 38 | 60 | 93 | 134 | 184 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -5 | -11 | -1 | **18** | **13** | **5** | -20 | -26 | -1 | -9 | -5 | **11** |
| 20% | **6** | **7** | **9** | **37** | **18** | **3** | -20 | -24 | -4 | -4 | -5 | **12** |
| 30% | **11** | **19** | **19** | **50** | -1 | -1 | -18 | -23 | -3 | -6 | **1** | **11** |
| 40% | **13** | **22** | **75** | **62** | -2 | -3 | -17 | -21 | -4 | -2 | **2** | **17** |
| 50% | **31** | **62** | **125** | **36** | -1 | -2 | -15 | -19 | -4 | 0 | -1 | **31** |
| 60% | **167** | **123** | **113** | **4** | -7 | -3 | -14 | -17 | -4 | -1 | -3 | **34** |
| 70% | **159** | **114** | **89** | -6 | -3 | -3 | -11 | -13 | -4 | 0 | **1** | **40** |
| 80% | **153** | **91** | **63** | -4 | -2 | -1 | -7 | -8 | -4 | **0** | -2 | **43** |
| 90% | **110** | **60** | **19** | -4 | -4 | -2 | -5 | 0 | -3 | **0** | -1 | **36** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **67** | **48** | **50** | **21** | **4** | -1 | -12 | -16 | -3 | -1 | -1 | **24** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **130** | **138** | **119** | **0** | -6 | 0 | -5 | -13 | -3 | **0** | -2 | **28** |
| Above Normal (16%) | **175** | **154** | **125** | **14** | -10 | -4 | -19 | -27 | -5 | -1 | **2** | **79** |
| Below Normal (13%) | **9** | -4 | -8 | **58** | **40** | **5** | -21 | -26 | -6 | -4 | **11** | **7** |
| Dry (24%) | -2 | -46 | -17 | **32** | **7** | -3 | -13 | -12 | -3 | -7 | -12 | **7** |
| Critical (15%) | -17 | -61 | -11 | **21** | **3** | **1** | -11 | -9 | **2** | **7** | **5** | -2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 19-4. Contra Costa Pumping Plant #1 Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 241 | 255 | 252 | 207 | 107 | 59 | 61 | 58 | 38 | 82 | 139 | 190 |
| 20% | 219 | 219 | 231 | 163 | 84 | 44 | 53 | 52 | 32 | 50 | 105 | 181 |
| 30% | 207 | 190 | 206 | 127 | 69 | 39 | 47 | 50 | 29 | 46 | 90 | 170 |
| 40% | 198 | 171 | 135 | 103 | 59 | 35 | 45 | 46 | 28 | 37 | 81 | 157 |
| 50% | 174 | 119 | 67 | 89 | 51 | 32 | 41 | 43 | 27 | 28 | 73 | 135 |
| 60% | 33 | 31 | 45 | 77 | 45 | 30 | 39 | 40 | 26 | 26 | 65 | 124 |
| 70% | 31 | 25 | 35 | 48 | 35 | 27 | 35 | 35 | 25 | 25 | 54 | 112 |
| 80% | 29 | 23 | 29 | 39 | 31 | 25 | 29 | 29 | 24 | 23 | 47 | 95 |
| 90% | 28 | 21 | 24 | 30 | 27 | 23 | 26 | 20 | 23 | 22 | 40 | 85 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 127 | 121 | 117 | 102 | 60 | 37 | 42 | 42 | 31 | 43 | 79 | 137 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 29 | 23 | 30 | 51 | 44 | 31 | 33 | 34 | 25 | 23 | 48 | 103 |
| Above Normal (16%) | 33 | 44 | 65 | 82 | 52 | 31 | 47 | 50 | 26 | 25 | 54 | 89 |
| Below Normal (13%) | 200 | 166 | 162 | 105 | 55 | 33 | 49 | 51 | 29 | 40 | 78 | 171 |
| Dry (24%) | 206 | 182 | 159 | 139 | 67 | 38 | 41 | 38 | 28 | 54 | 107 | 164 |
| Critical (15%) | 244 | 272 | 253 | 166 | 100 | 57 | 52 | 47 | 57 | 86 | 129 | 186 |

### Alternative 4 043019

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 248 | 265 | 251 | 225 | 104 | 99 | 97 | 68 | 40 | 68 | 121 | 185 |
| 20% | 225 | 252 | 239 | 197 | 73 | 80 | 88 | 63 | 30 | 52 | 94 | 177 |
| 30% | 212 | 226 | 227 | 167 | 60 | 70 | 81 | 59 | 28 | 44 | 84 | 168 |
| 40% | 208 | 213 | 211 | 109 | 56 | 67 | 77 | 56 | 27 | 38 | 76 | 164 |
| 50% | 204 | 194 | 193 | 85 | 48 | 59 | 68 | 50 | 27 | 29 | 62 | 161 |
| 60% | 199 | 182 | 157 | 71 | 37 | 57 | 62 | 47 | 25 | 26 | 53 | 159 |
| 70% | 190 | 174 | 132 | 47 | 33 | 51 | 57 | 44 | 25 | 25 | 49 | 153 |
| 80% | 182 | 153 | 69 | 39 | 29 | 41 | 50 | 41 | 24 | 23 | 42 | 140 |
| 90% | 139 | 120 | 37 | 29 | 27 | 37 | 34 | 30 | 23 | 22 | 37 | 111 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 196 | 192 | 166 | 110 | 56 | 63 | 68 | 50 | 31 | 42 | 72 | 154 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 160 | 173 | 138 | 54 | 41 | 53 | 52 | 39 | 24 | 24 | 45 | 133 |
| Above Normal (16%) | 201 | 184 | 166 | 97 | 48 | 68 | 79 | 56 | 26 | 25 | 49 | 161 |
| Below Normal (13%) | 188 | 159 | 152 | 112 | 51 | 68 | 84 | 60 | 27 | 43 | 65 | 141 |
| Dry (24%) | 214 | 191 | 157 | 163 | 65 | 66 | 77 | 55 | 29 | 52 | 97 | 165 |
| Critical (15%) | 243 | 272 | 252 | 159 | 86 | 70 | 65 | 52 | 57 | 84 | 123 | 184 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **7** | **10** | -1 | **19** | -3 | **40** | **36** | **10** | **2** | -14 | -19 | -5 |
| 20% | **5** | **32** | **8** | **33** | -11 | **36** | **35** | **11** | -2 | **2** | -12 | -4 |
| 30% | **5** | **35** | **21** | **41** | -9 | **31** | **34** | **9** | -1 | -2 | -6 | -2 |
| 40% | **10** | **42** | **76** | **6** | -3 | **32** | **32** | **10** | -1 | **0** | -6 | **7** |
| 50% | **30** | **74** | **126** | -4 | -3 | **27** | **26** | **6** | 0 | **0** | -12 | **26** |
| 60% | **166** | **151** | **112** | -5 | -8 | **27** | **23** | **7** | -1 | 0 | -12 | **34** |
| 70% | **160** | **149** | **97** | -1 | -2 | **24** | **22** | **9** | 0 | **0** | -4 | **41** |
| 80% | **153** | **130** | **39** | 0 | -1 | **17** | **21** | **13** | 0 | 0 | -5 | **45** |
| 90% | **111** | **99** | **13** | -1 | **0** | **14** | **8** | **11** | **0** | **0** | -3 | **27** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **68** | **71** | **48** | **9** | -5 | **26** | **26** | **9** | 0 | 0 | -7 | **17** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **131** | **150** | **108** | **2** | -2 | **22** | **19** | **5** | 0 | **0** | -4 | **30** |
| Above Normal (16%) | **168** | **140** | **101** | **15** | -4 | **37** | **32** | **7** | -1 | **0** | -5 | **72** |
| Below Normal (13%) | -12 | -7 | -10 | **7** | -4 | **34** | **35** | **9** | -2 | **3** | -13 | -30 |
| Dry (24%) | **8** | **9** | -2 | **23** | -2 | **29** | **36** | **17** | **1** | -3 | -10 | **1** |
| Critical (15%) | -1 | **1** | -1 | -7 | -14 | **14** | **13** | **5** | 0 | -2 | -6 | -2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

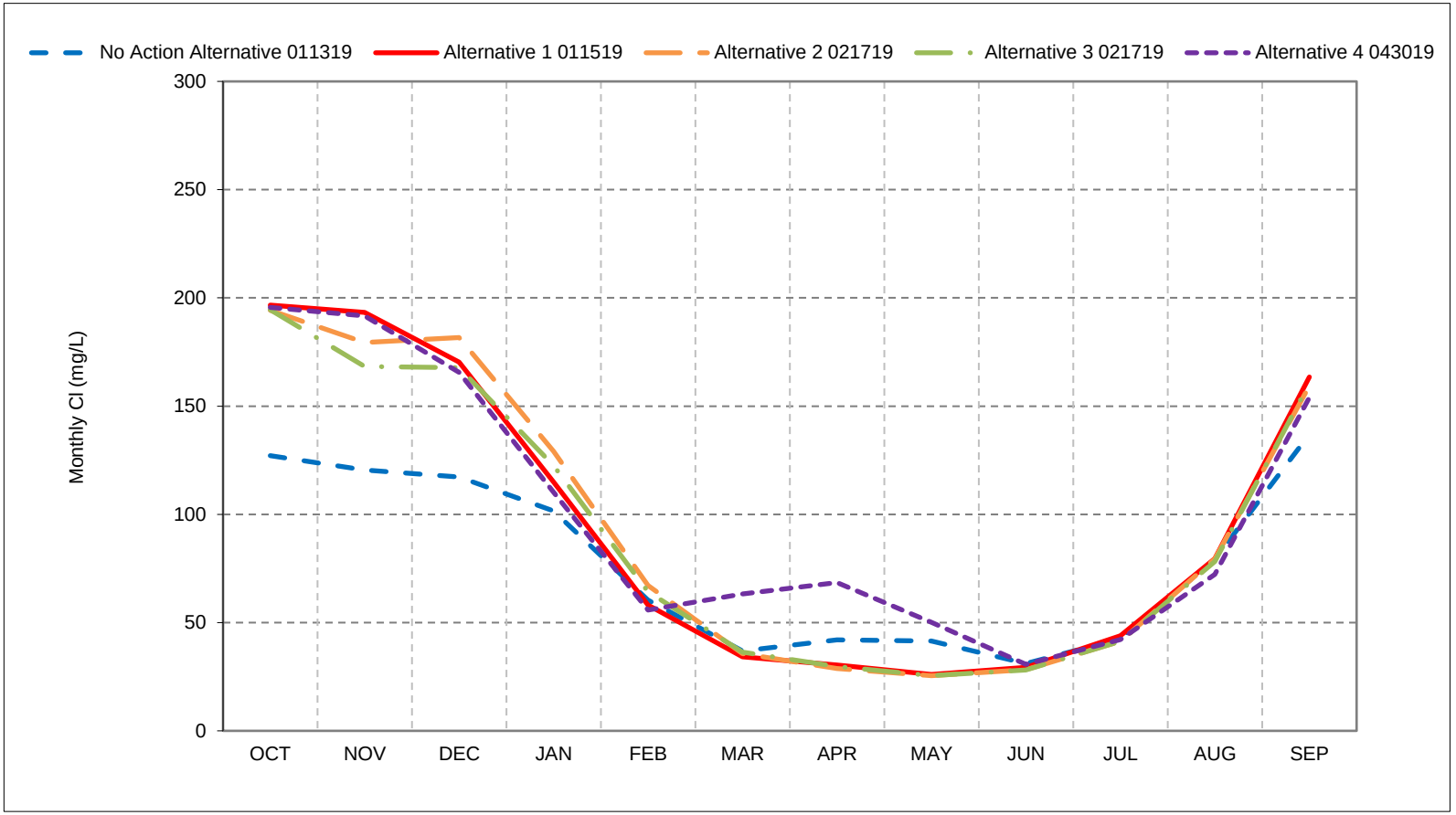
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

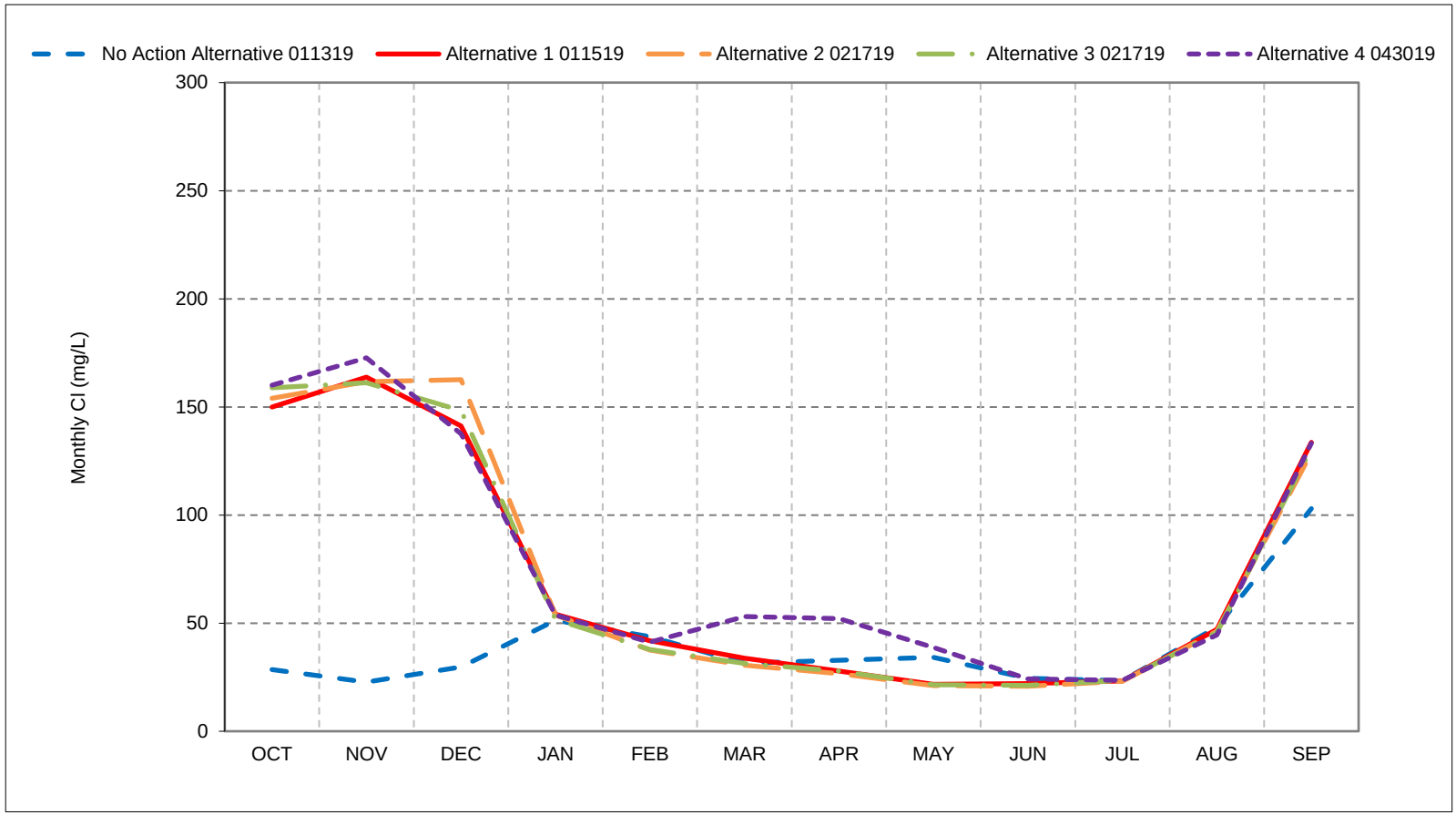
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 19-1. Contra Costa Pumping Plant #1 Chloride, Long-Term Average Cl



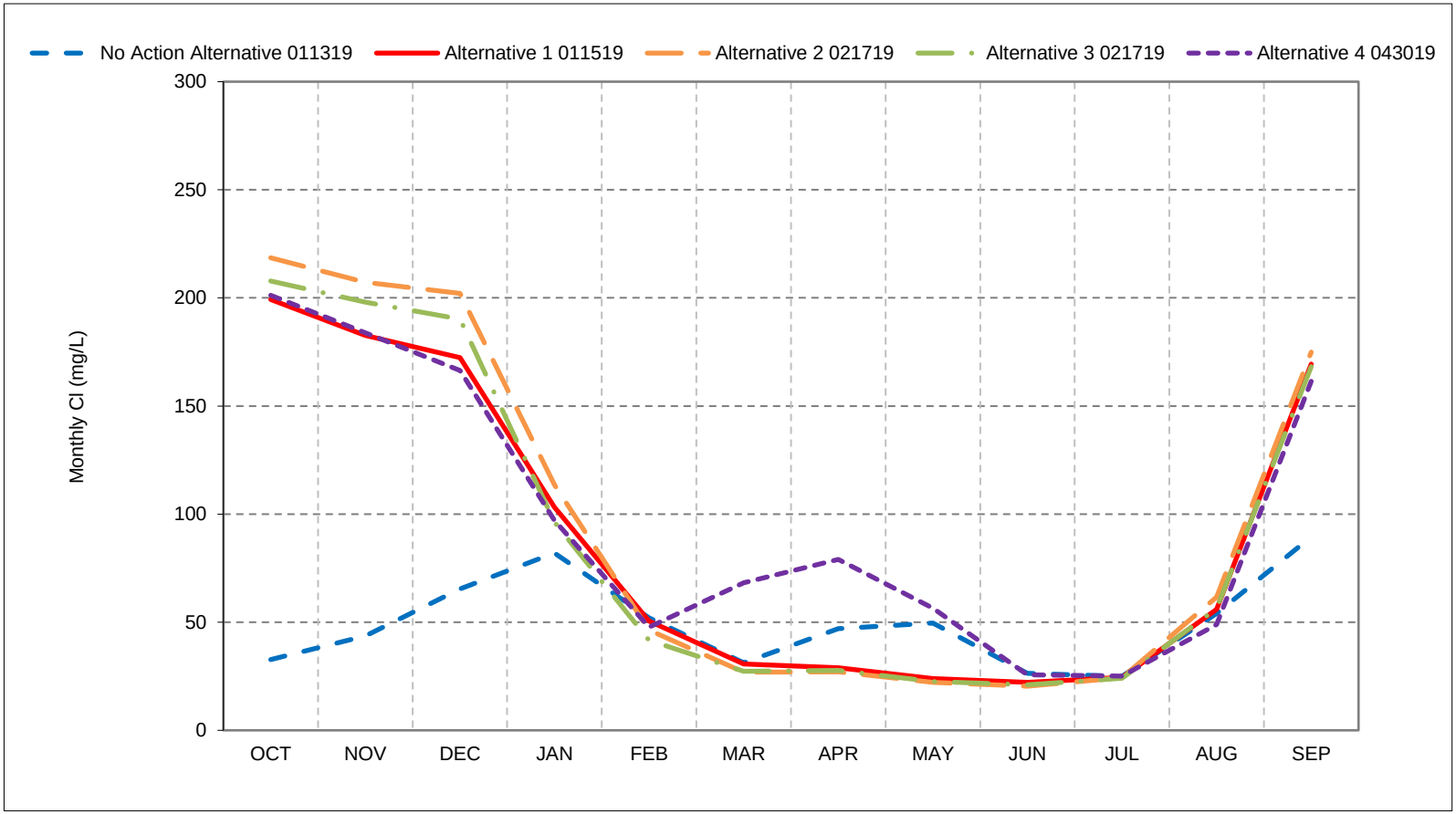

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 19-2. Contra Costa Pumping Plant #1 Chloride, Wet Year Average Cl



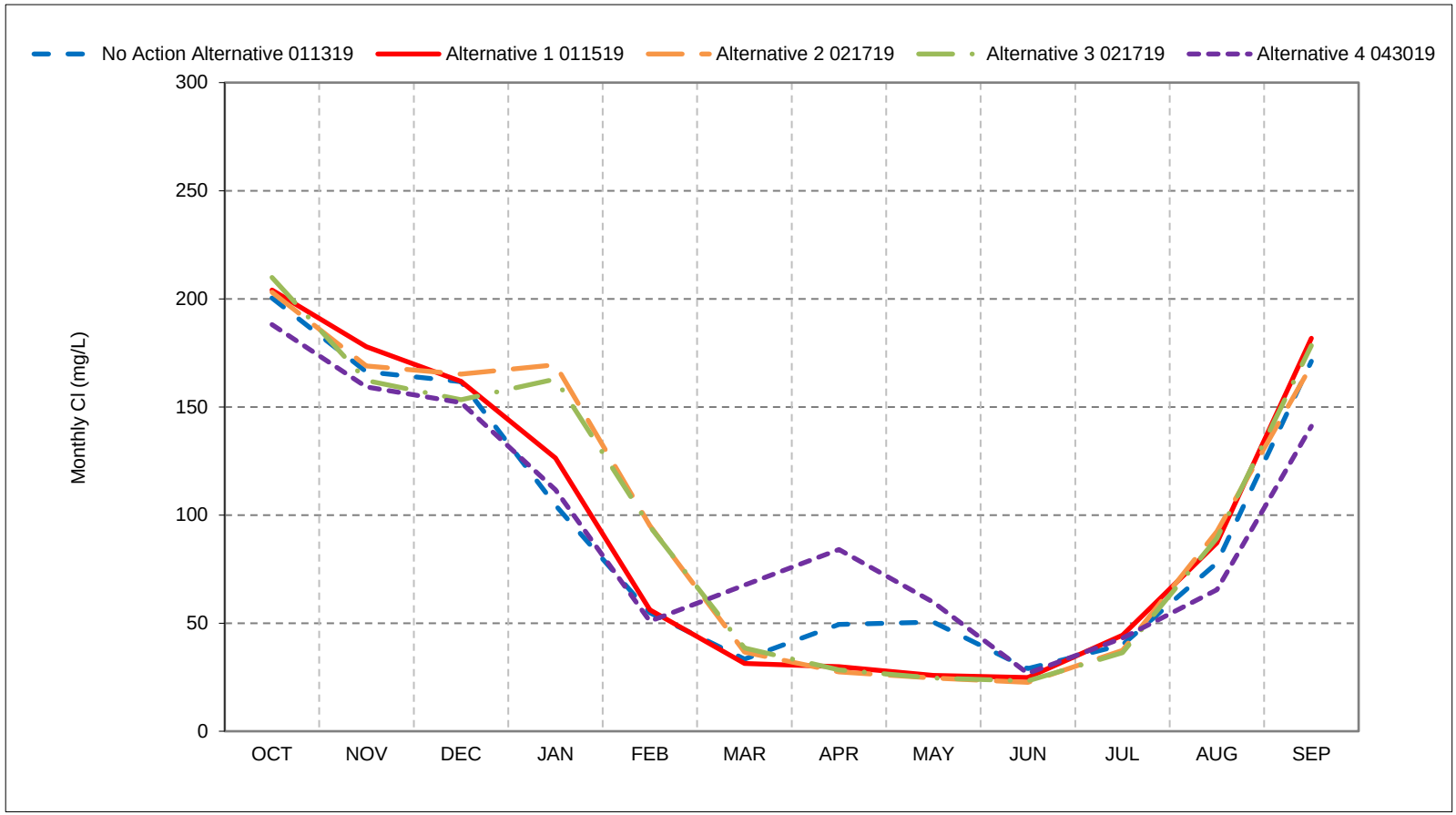

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 19-3. Contra Costa Pumping Plant #1 Chloride, Above Normal Year Average Cl



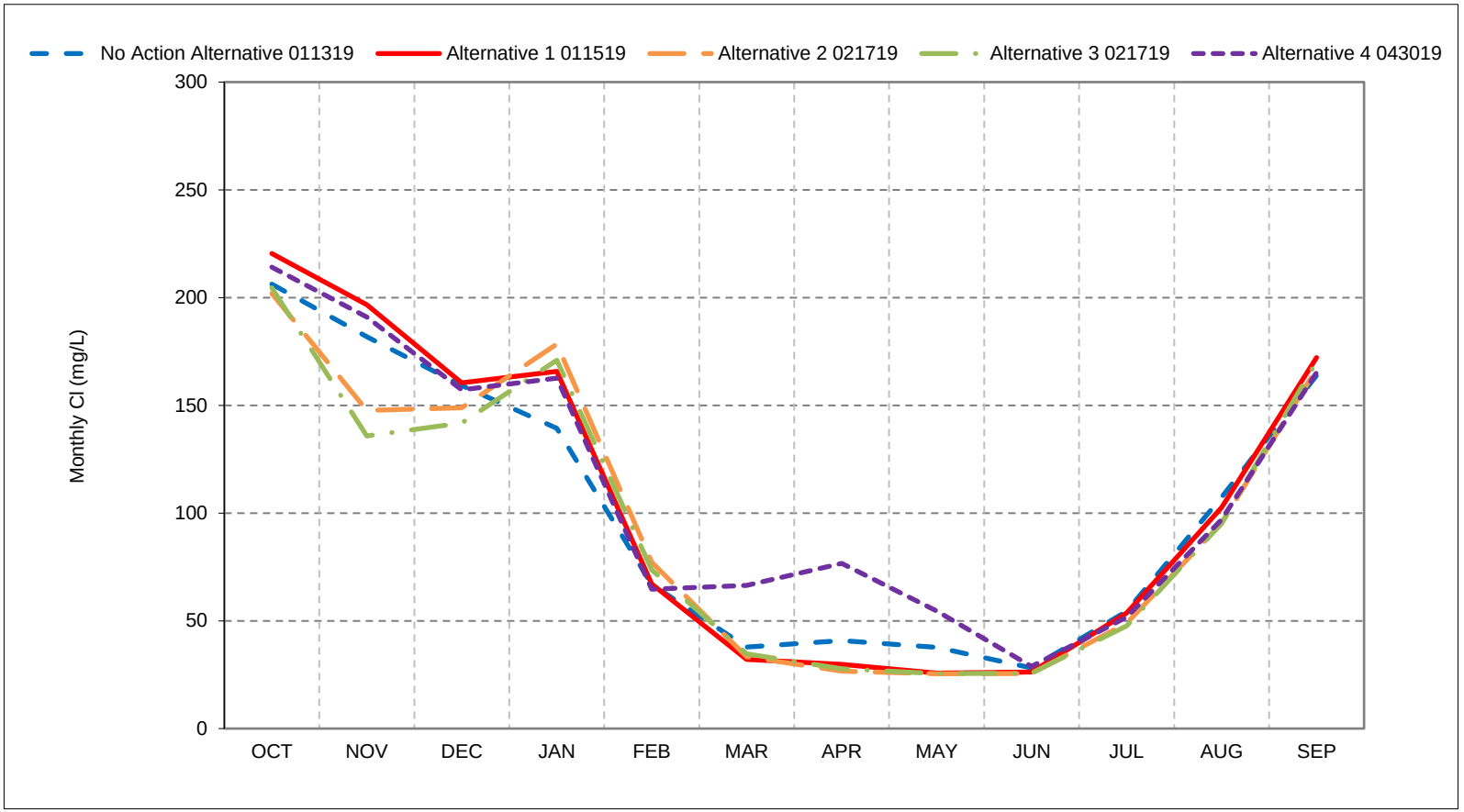

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 19-4. Contra Costa Pumping Plant #1 Chloride, Below Normal Year Average Cl



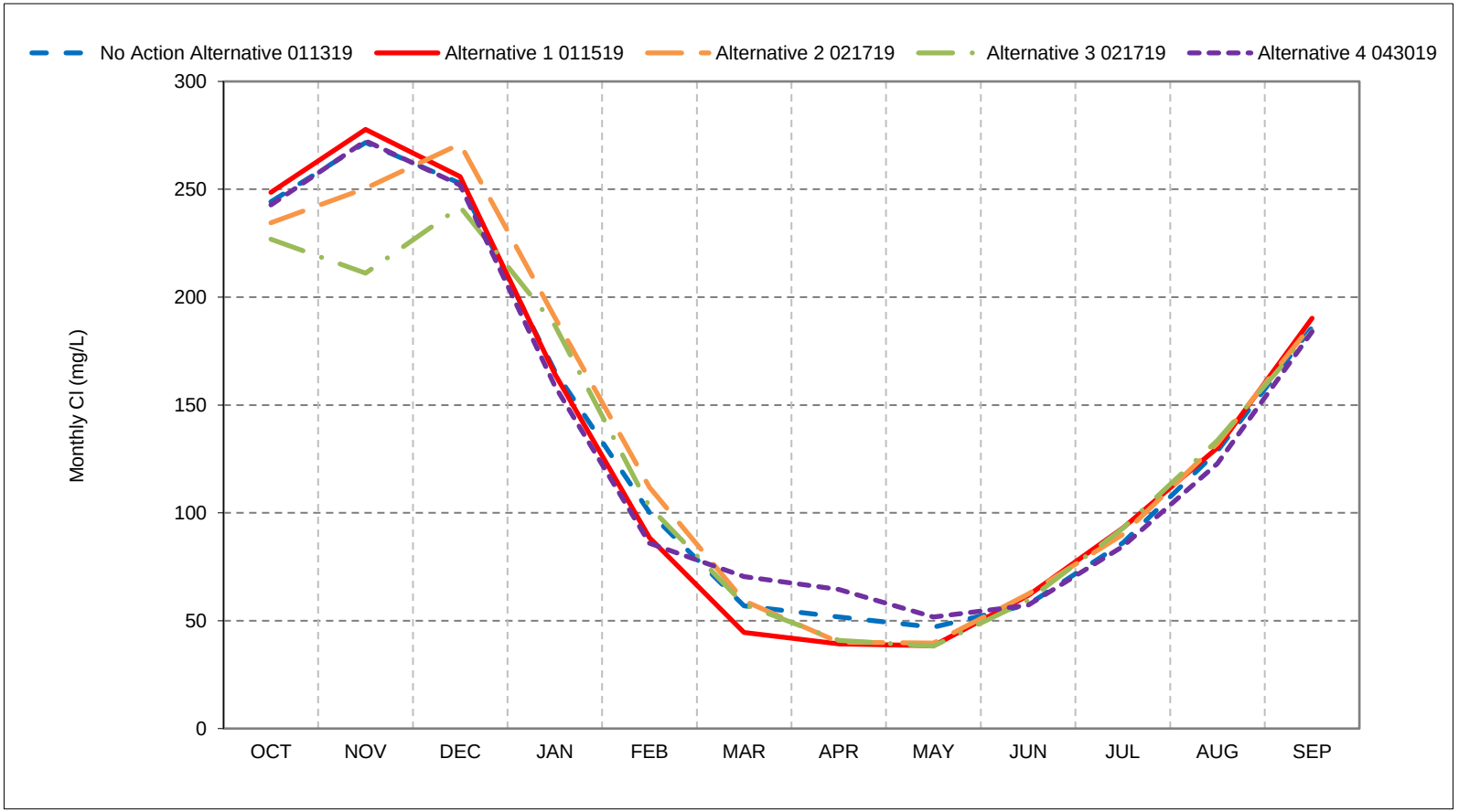

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 19-5. Contra Costa Pumping Plant #1 Chloride, Dry Year Average Cl



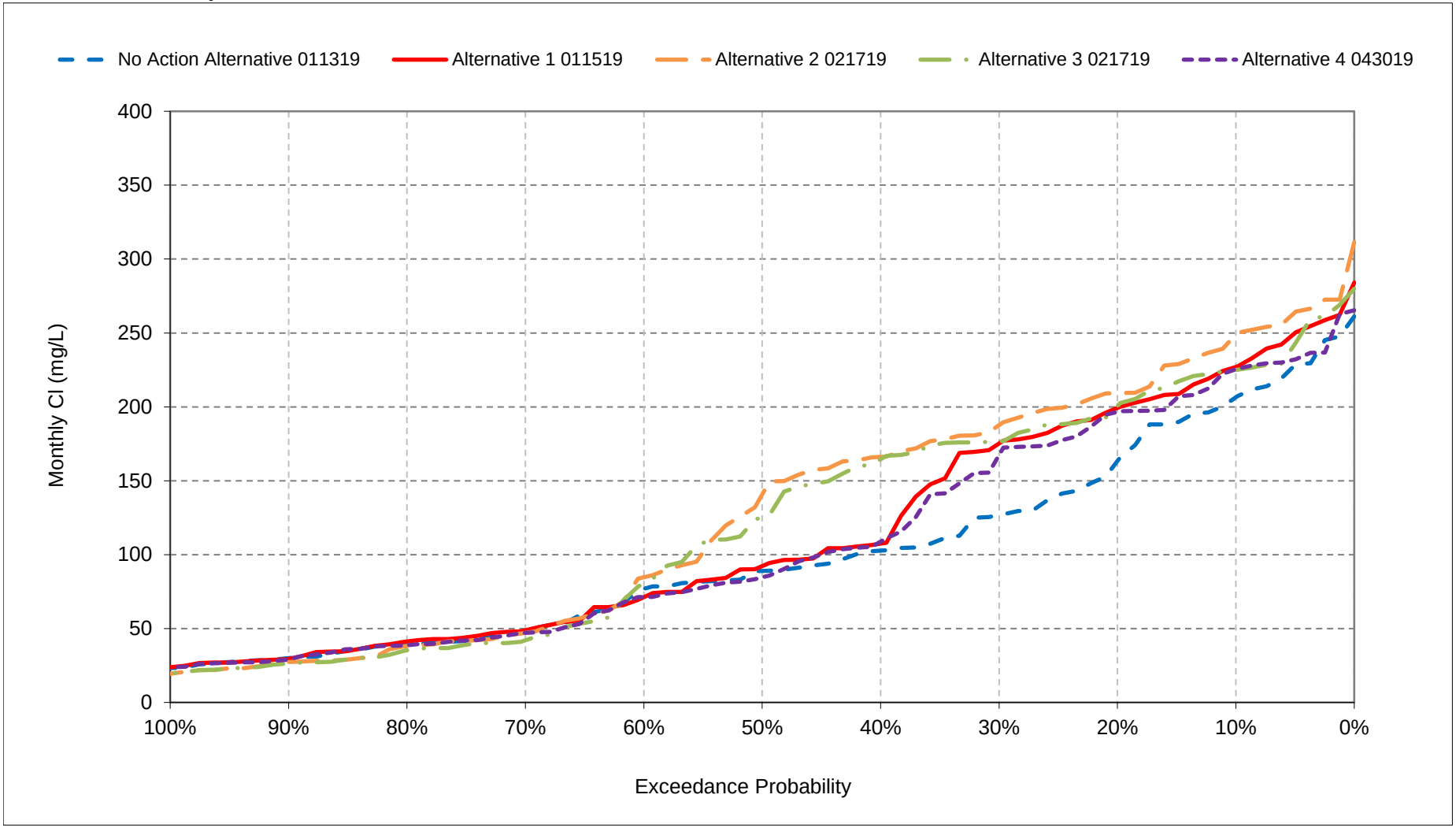

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 19-6. Contra Costa Pumping Plant #1 Chloride, Critical Year Average Cl



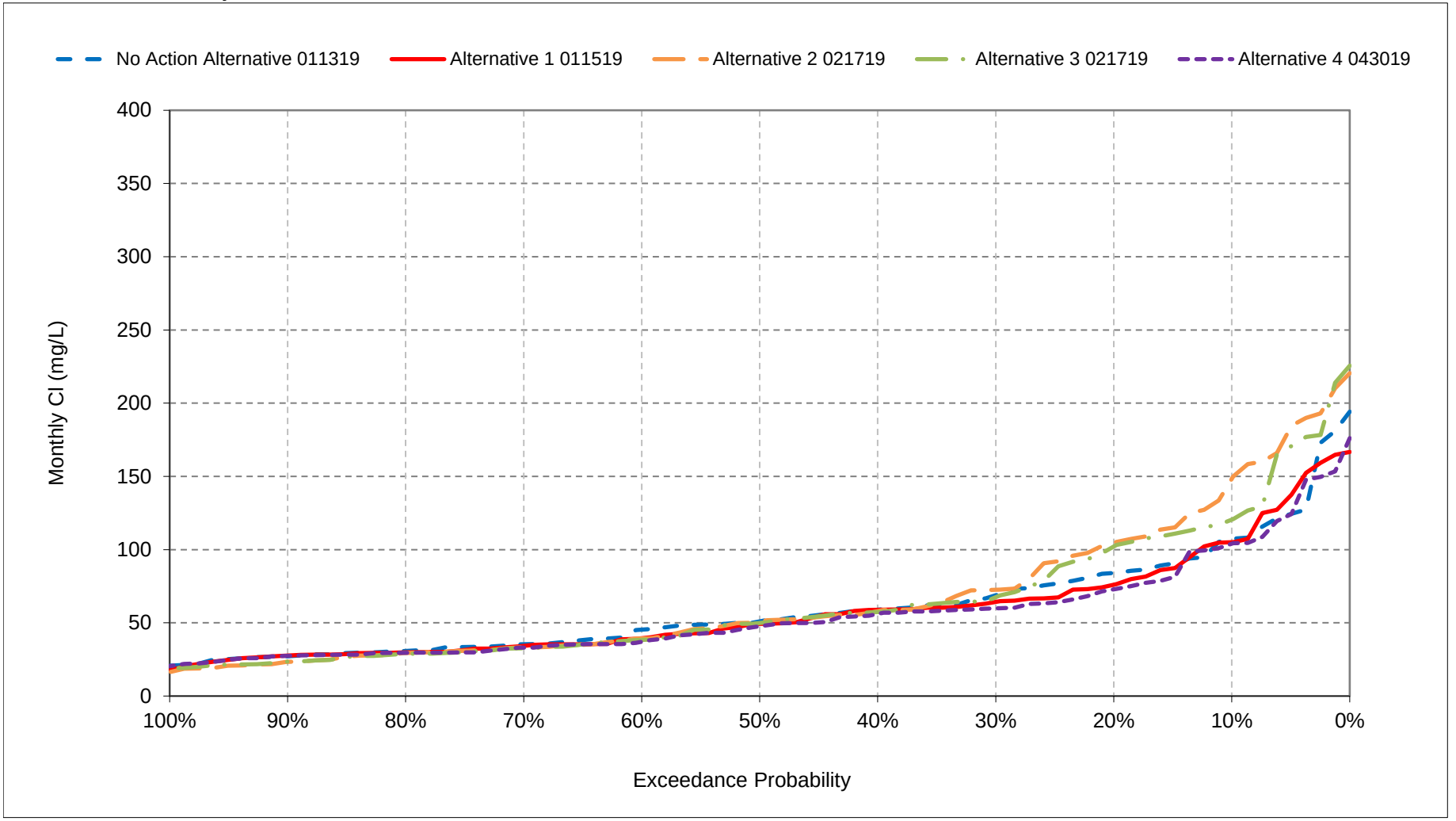

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 19-7. Contra Costa Pumping Plant**
**#1 Chloride, January Cl**



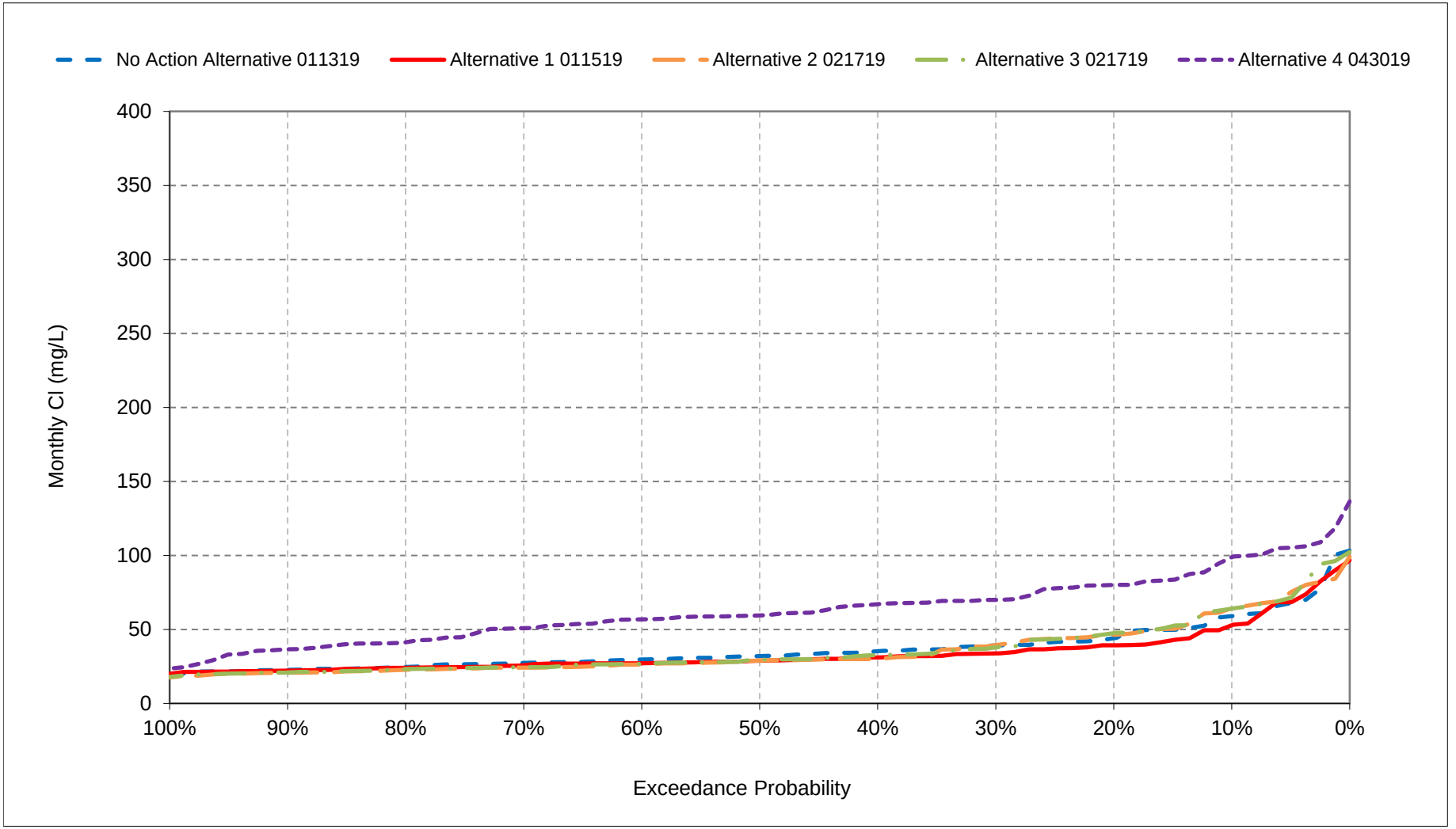

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 19-8. Contra Costa Pumping Plant**
**#1 Chloride, February Cl**



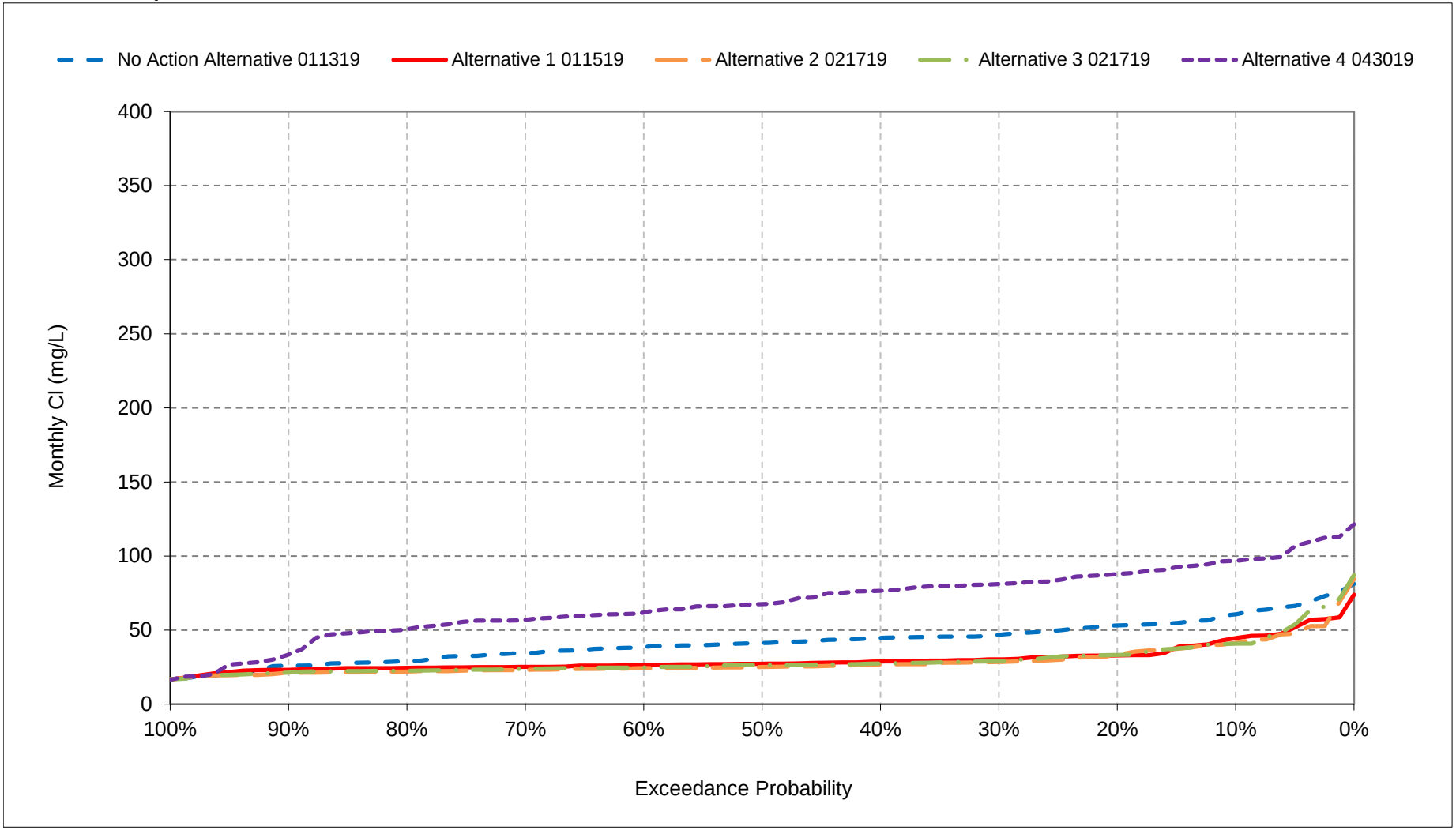

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 19-9. Contra Costa Pumping Plant**
**#1 Chloride, March Cl**



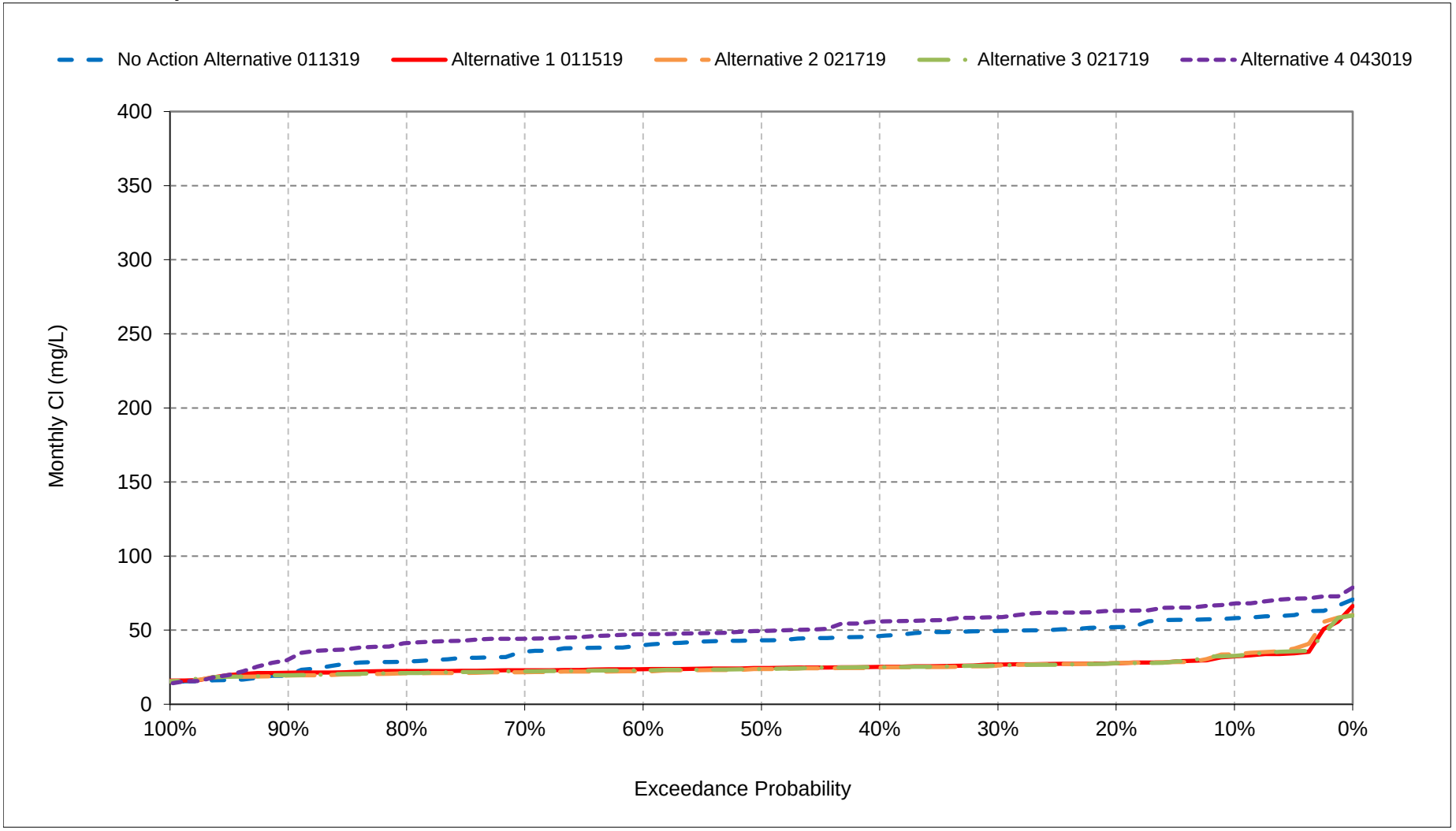

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 19-10. Contra Costa Pumping Plant**
**#1 Chloride, April Cl**



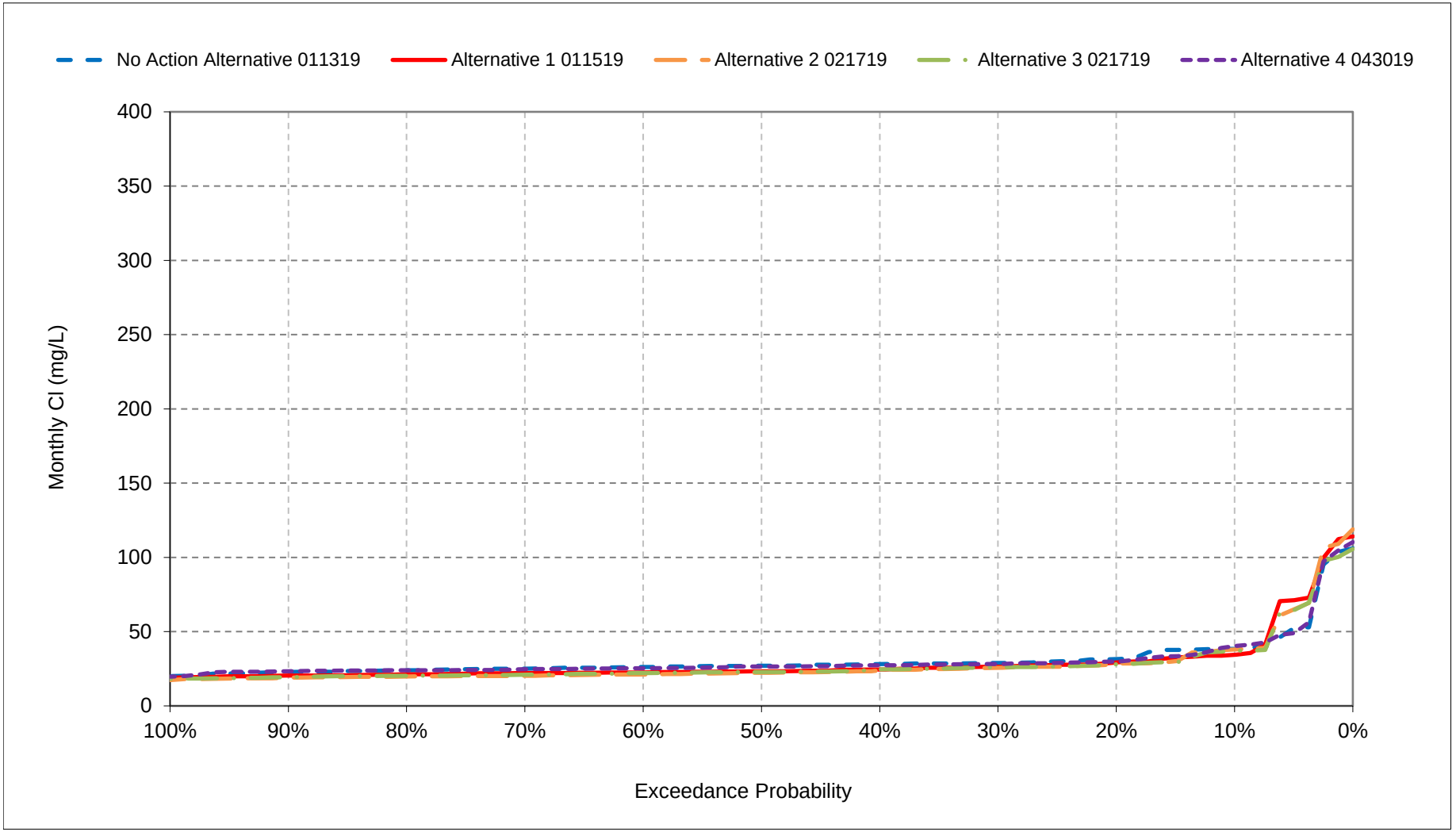

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 19-11. Contra Costa Pumping Plant**
**#1 Chloride, May Cl**



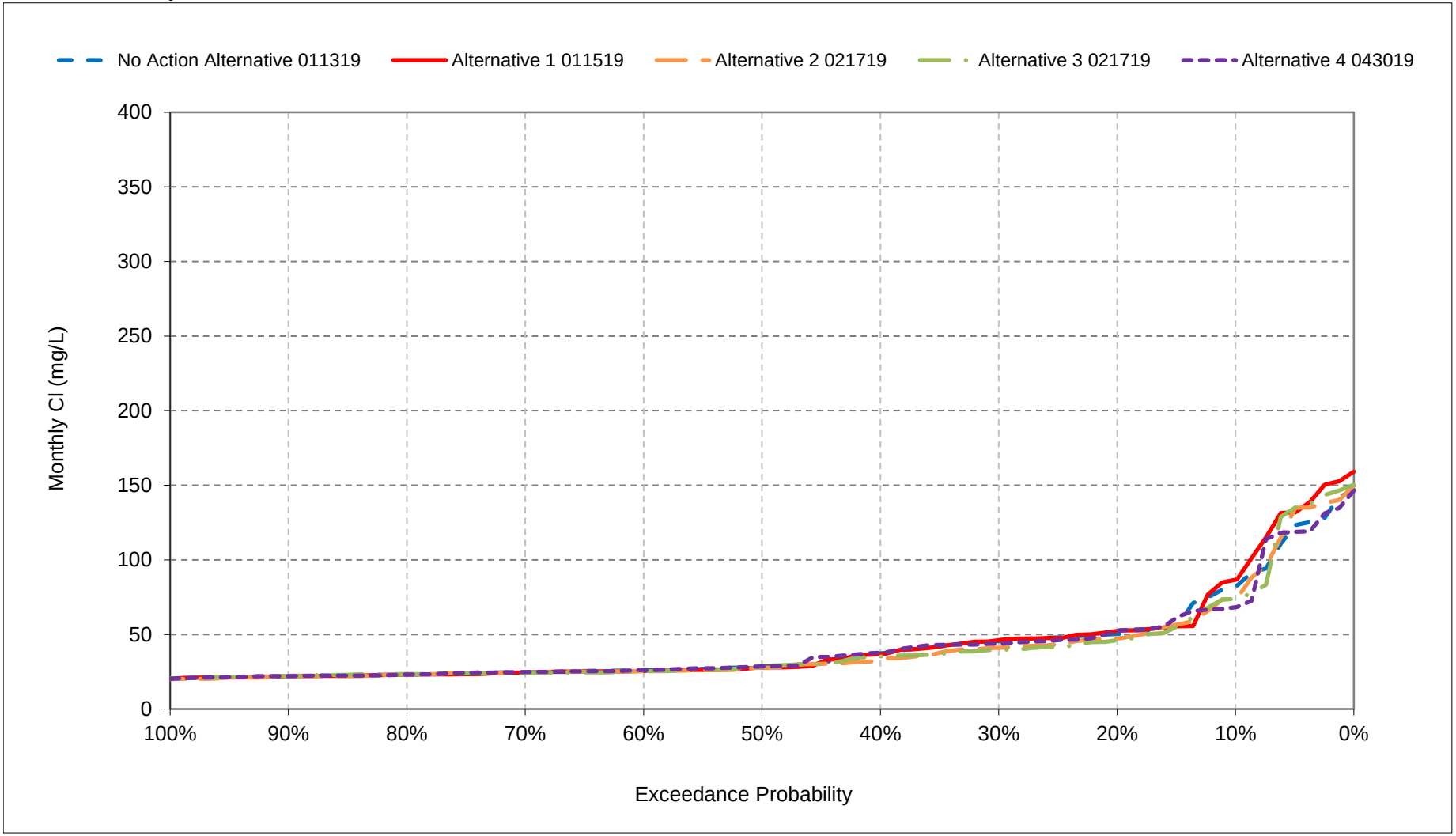

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 19-12. Contra Costa Pumping Plant**
**#1 Chloride, June Cl**



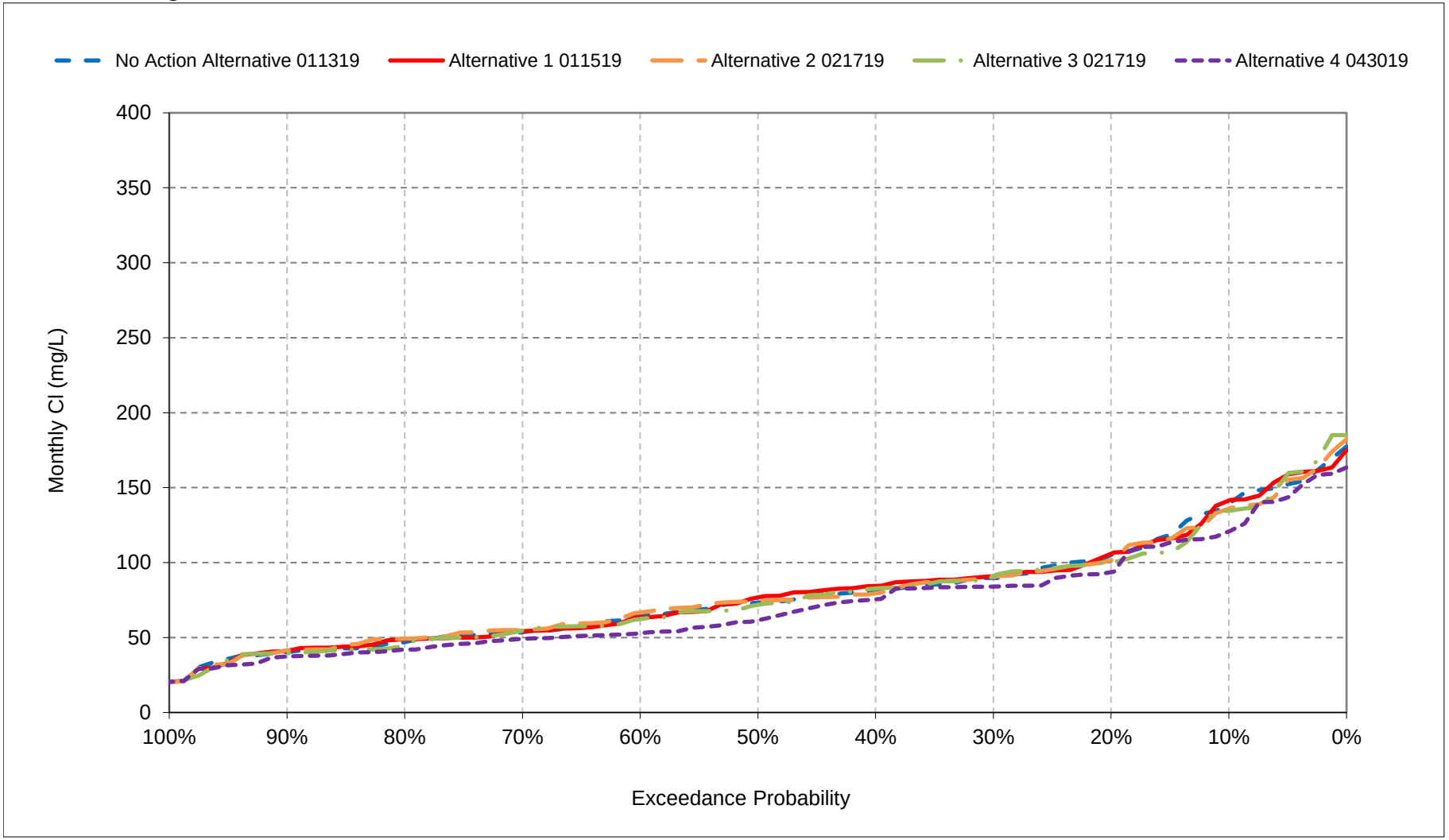

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 19-13. Contra Costa Pumping Plant**
**#1 Chloride, July Cl**



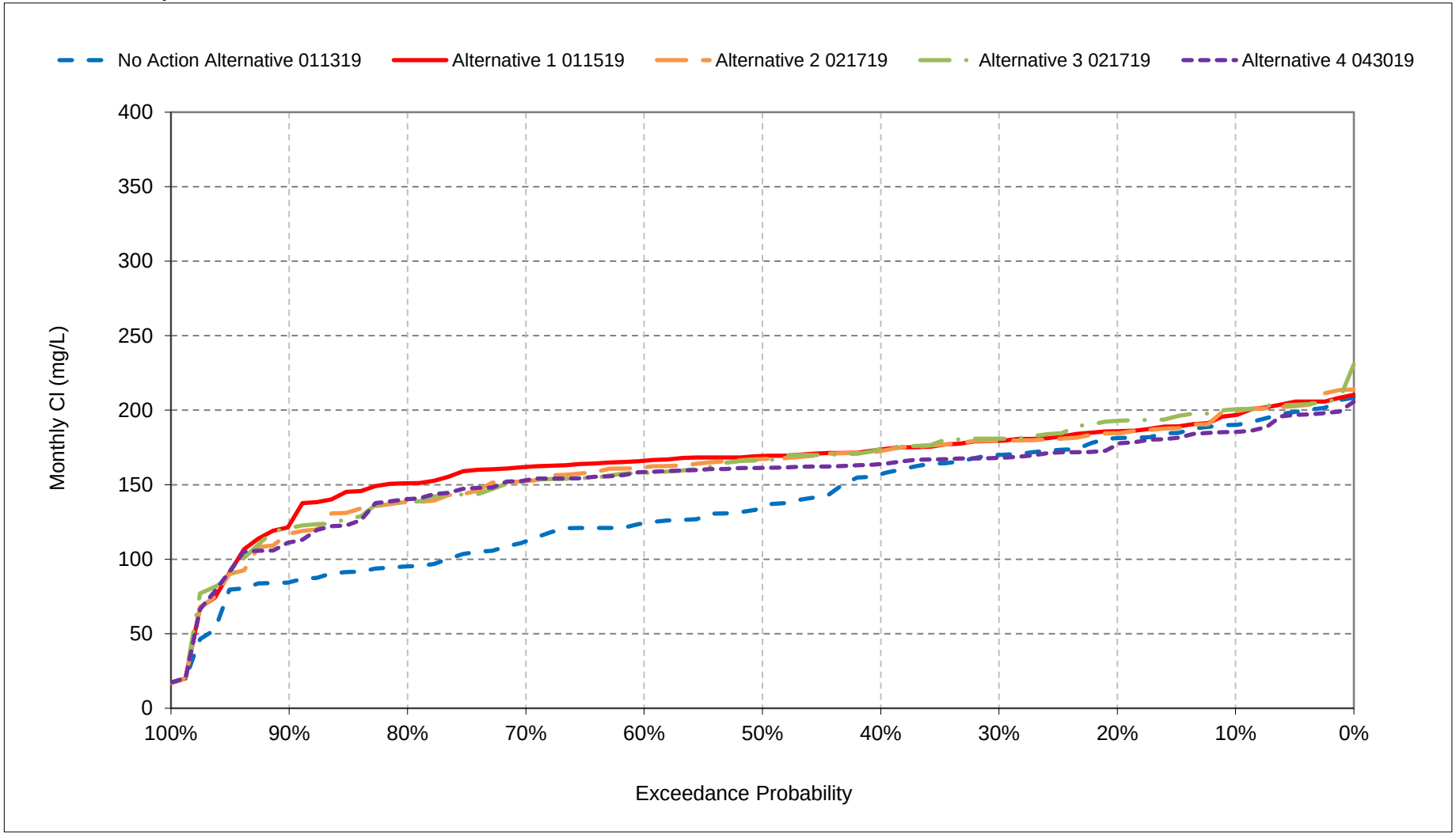

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 19-14. Contra Costa Pumping Plant**
**#1 Chloride, August Cl**



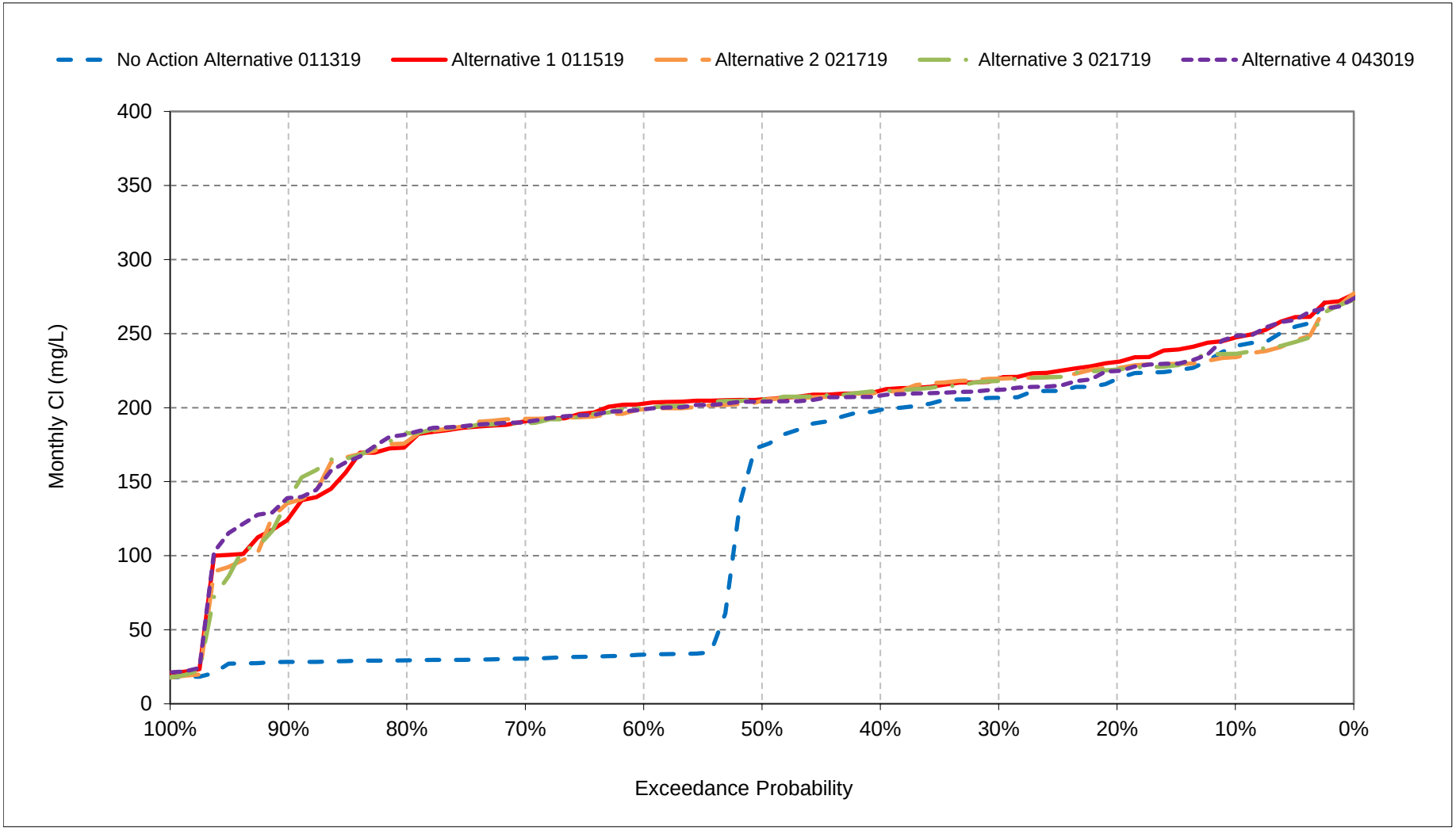

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 19-15. Contra Costa Pumping Plant**
**#1 Chloride, September Cl**



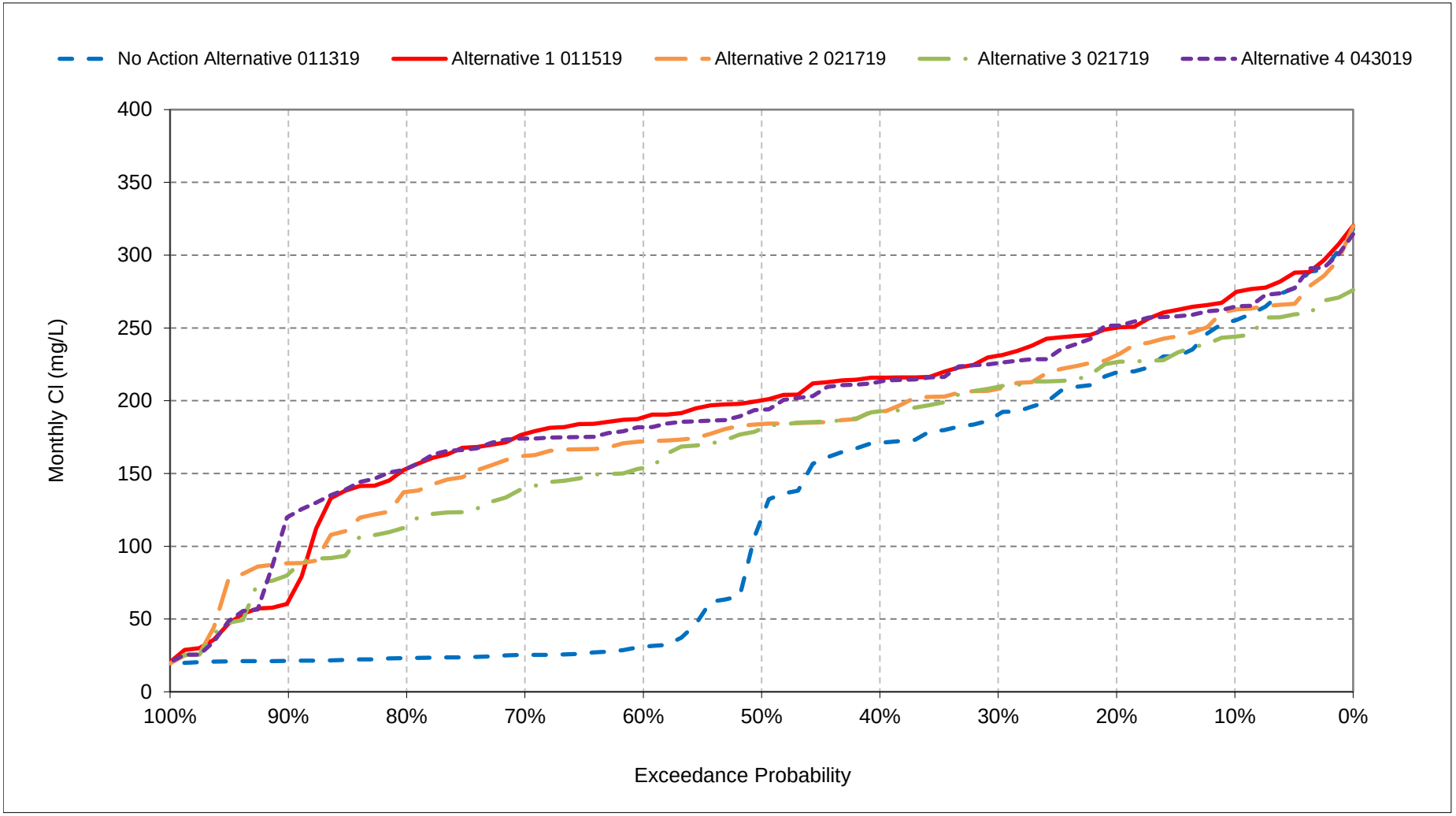

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 19-16. Contra Costa Pumping Plant**
**#1 Chloride, October Cl**



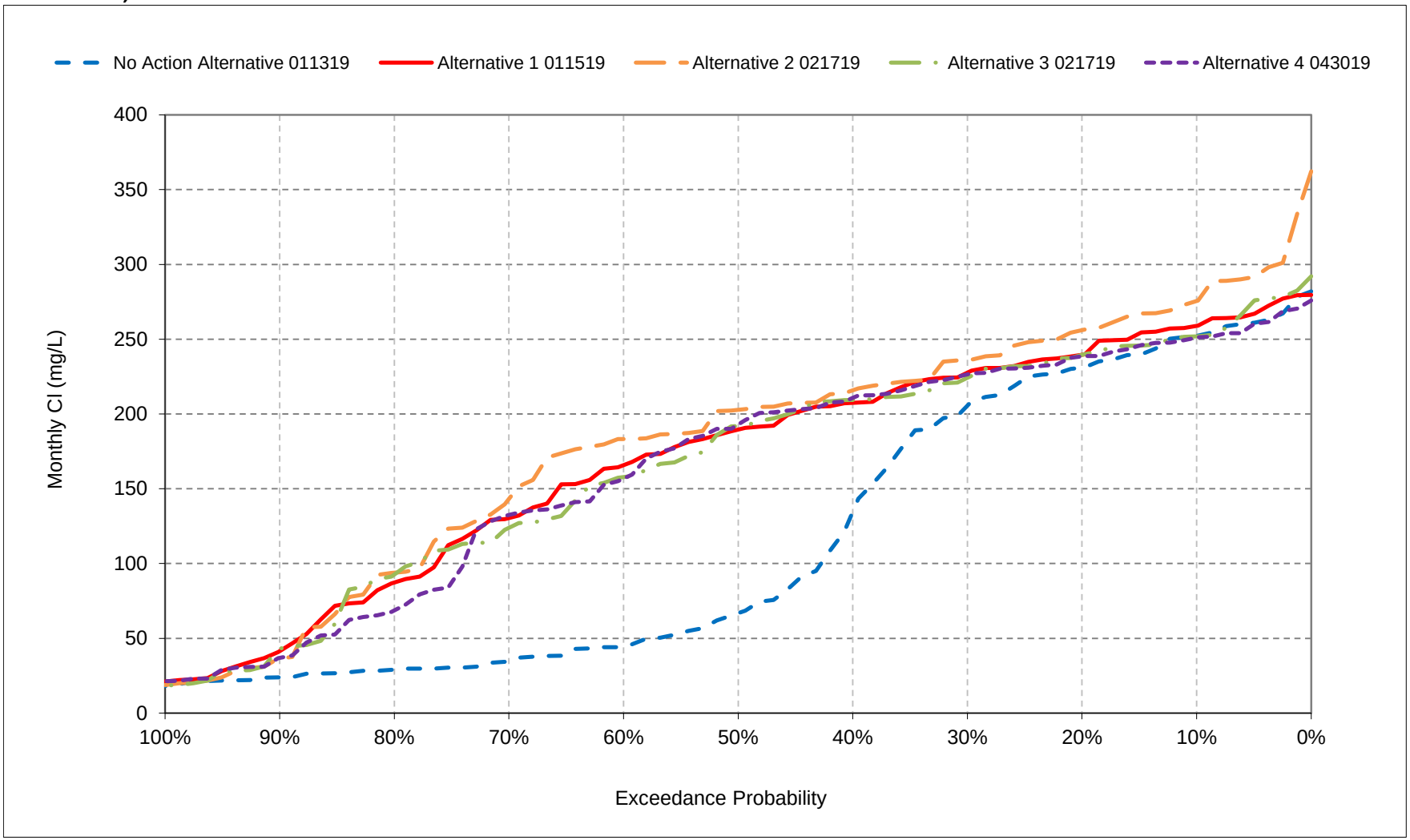

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 19-17. Contra Costa Pumping Plant**
**#1 Chloride, November Cl**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 19-18. Contra Costa Pumping Plant**
**#1 Chloride, December Cl**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 20-1. San Joaquin River at Antioch Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,266 | 2,369 | 1,871 | 958 | 274 | 164 | 208 | 419 | 573 | 1,087 | 1,607 | 1,974 |
| 20% | 2,072 | 1,971 | 1,513 | 748 | 160 | 94 | 83 | 297 | 513 | 910 | 1,389 | 1,891 |
| 30% | 2,008 | 1,902 | 897 | 535 | 79 | 38 | 51 | 205 | 448 | 809 | 1,339 | 1,832 |
| 40% | 1,933 | 1,697 | 787 | 331 | 51 | 28 | 30 | 82 | 377 | 578 | 1,093 | 1,721 |
| 50% | 1,272 | 532 | 573 | 257 | 32 | 25 | 25 | 47 | 288 | 485 | 929 | 1,486 |
| 60% | 496 | 471 | 466 | 77 | 27 | 23 | 22 | 29 | 228 | 317 | 880 | 589 |
| 70% | 178 | 164 | 189 | 27 | 24 | 21 | 21 | 24 | 143 | 271 | 816 | 354 |
| 80% | 158 | 142 | 59 | 23 | 22 | 20 | 21 | 21 | 69 | 249 | 729 | 325 |
| 90% | 141 | 123 | 23 | 20 | 20 | 18 | 20 | 18 | 19 | 183 | 676 | 295 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,180 | 1,039 | 747 | 378 | 117 | 64 | 78 | 157 | 349 | 580 | 1,055 | 1,149 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 149 | 131 | 302 | 64 | 25 | 21 | 21 | 27 | 111 | 212 | 745 | 301 |
| Above Normal (16%) | 484 | 459 | 548 | 172 | 36 | 22 | 23 | 37 | 234 | 299 | 763 | 592 |
| Below Normal (13%) | 1,762 | 1,506 | 991 | 424 | 121 | 67 | 71 | 134 | 357 | 515 | 951 | 1,609 |
| Dry (24%) | 1,970 | 1,557 | 898 | 590 | 172 | 72 | 77 | 183 | 411 | 849 | 1,341 | 1,842 |
| Critical (15%) | 2,318 | 2,345 | 1,450 | 884 | 308 | 187 | 270 | 548 | 877 | 1,294 | 1,661 | 2,014 |

### Alternative 1 011519

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,287 | 2,378 | 1,890 | 1,111 | 306 | 242 | 322 | 450 | 617 | 1,064 | 1,647 | 2,000 |
| 20% | 2,082 | 2,015 | 1,773 | 796 | 180 | 108 | 137 | 347 | 545 | 915 | 1,421 | 1,927 |
| 30% | 2,012 | 1,915 | 1,439 | 522 | 99 | 41 | 70 | 272 | 501 | 817 | 1,372 | 1,856 |
| 40% | 1,927 | 1,862 | 1,123 | 328 | 54 | 28 | 44 | 147 | 397 | 563 | 1,063 | 1,721 |
| 50% | 1,823 | 1,795 | 912 | 229 | 30 | 24 | 28 | 93 | 306 | 490 | 916 | 1,472 |
| 60% | 1,705 | 1,623 | 627 | 79 | 27 | 23 | 22 | 62 | 245 | 327 | 874 | 1,423 |
| 70% | 1,635 | 1,170 | 290 | 28 | 24 | 21 | 20 | 28 | 160 | 293 | 785 | 1,363 |
| 80% | 1,521 | 855 | 183 | 24 | 21 | 20 | 19 | 18 | 70 | 243 | 755 | 1,339 |
| 90% | 832 | 439 | 65 | 21 | 20 | 18 | 19 | 17 | 18 | 188 | 696 | 1,201 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,709 | 1,528 | 930 | 398 | 134 | 77 | 93 | 195 | 372 | 584 | 1,062 | 1,551 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 1,221 | 1,105 | 694 | 55 | 24 | 21 | 22 | 41 | 114 | 215 | 729 | 1,170 |
| Above Normal (16%) | 1,601 | 1,494 | 909 | 200 | 38 | 23 | 26 | 60 | 229 | 302 | 772 | 1,371 |
| Below Normal (13%) | 1,728 | 1,539 | 994 | 474 | 144 | 84 | 93 | 201 | 408 | 516 | 944 | 1,567 |
| Dry (24%) | 2,032 | 1,596 | 907 | 643 | 196 | 80 | 98 | 228 | 444 | 842 | 1,374 | 1,865 |
| Critical (15%) | 2,324 | 2,361 | 1,445 | 880 | 364 | 243 | 312 | 611 | 937 | 1,320 | 1,685 | 2,032 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **20** | **9** | **19** | **152** | **32** | **78** | **115** | **31** | **45** | -23 | **40** | **26** |
| 20% | **10** | **43** | **260** | **48** | **20** | **14** | **54** | **50** | **32** | **4** | **32** | **37** |
| 30% | **4** | **13** | **542** | -13 | **20** | **4** | **20** | **68** | **53** | **8** | **33** | **24** |
| 40% | -6 | **165** | **336** | -3 | **3** | 0 | **14** | **66** | **21** | -15 | -30 | **0** |
| 50% | **551** | **1,263** | **340** | -28 | -1 | -1 | **3** | **46** | **17** | **5** | -13 | -14 |
| 60% | **1,209** | **1,152** | **161** | **2** | **0** | 0 | 0 | **33** | **18** | **10** | -7 | **835** |
| 70% | **1,457** | **1,006** | **101** | **0** | 0 | 0 | -1 | **4** | **17** | **23** | -31 | **1,009** |
| 80% | **1,363** | **713** | **124** | **1** | -1 | **0** | -1 | -3 | **1** | -6 | **26** | **1,014** |
| 90% | **690** | **316** | **43** | **1** | **0** | **0** | -1 | -1 | -1 | **6** | **19** | **906** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **528** | **489** | **184** | **20** | **17** | **13** | **15** | **37** | **24** | **4** | **7** | **402** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1,072** | **974** | **393** | -9 | -2 | **0** | **1** | **14** | **3** | **3** | -16 | **869** |
| Above Normal (16%) | **1,117** | **1,035** | **360** | **28** | **2** | **1** | **4** | **23** | -6 | **3** | **10** | **780** |
| Below Normal (13%) | -35 | **33** | **3** | **50** | **23** | **18** | **23** | **67** | **50** | **2** | -7 | -42 |
| Dry (24%) | **62** | **39** | **10** | **53** | **24** | **8** | **22** | **45** | **33** | -6 | **33** | **23** |
| Critical (15%) | **6** | **16** | -4 | -4 | **55** | **57** | **42** | **63** | **60** | **26** | **24** | **17** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 20-2. San Joaquin River at Antioch Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,266 | 2,369 | 1,871 | 958 | 274 | 164 | 208 | 419 | 573 | 1,087 | 1,607 | 1,974 |
| 20% | 2,072 | 1,971 | 1,513 | 748 | 160 | 94 | 83 | 297 | 513 | 910 | 1,389 | 1,891 |
| 30% | 2,008 | 1,902 | 897 | 535 | 79 | 38 | 51 | 205 | 448 | 809 | 1,339 | 1,832 |
| 40% | 1,933 | 1,697 | 787 | 331 | 51 | 28 | 30 | 82 | 377 | 578 | 1,093 | 1,721 |
| 50% | 1,272 | 532 | 573 | 257 | 32 | 25 | 25 | 47 | 288 | 485 | 929 | 1,486 |
| 60% | 496 | 471 | 466 | 77 | 27 | 23 | 22 | 29 | 228 | 317 | 880 | 589 |
| 70% | 178 | 164 | 189 | 27 | 24 | 21 | 21 | 24 | 143 | 271 | 816 | 354 |
| 80% | 158 | 142 | 59 | 23 | 22 | 20 | 21 | 21 | 69 | 249 | 729 | 325 |
| 90% | 141 | 123 | 23 | 20 | 20 | 18 | 20 | 18 | 19 | 183 | 676 | 295 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,180 | 1,039 | 747 | 378 | 117 | 64 | 78 | 157 | 349 | 580 | 1,055 | 1,149 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 149 | 131 | 302 | 64 | 25 | 21 | 21 | 27 | 111 | 212 | 745 | 301 |
| Above Normal (16%) | 484 | 459 | 548 | 172 | 36 | 22 | 23 | 37 | 234 | 299 | 763 | 592 |
| Below Normal (13%) | 1,762 | 1,506 | 991 | 424 | 121 | 67 | 71 | 134 | 357 | 515 | 951 | 1,609 |
| Dry (24%) | 1,970 | 1,557 | 898 | 590 | 172 | 72 | 77 | 183 | 411 | 849 | 1,341 | 1,842 |
| Critical (15%) | 2,318 | 2,345 | 1,450 | 884 | 308 | 187 | 270 | 548 | 877 | 1,294 | 1,661 | 2,014 |

### Alternative 2 021719

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,168 | 2,279 | 1,912 | 1,326 | 562 | 298 | 328 | 463 | 601 | 1,076 | 1,561 | 1,985 |
| 20% | 1,996 | 1,957 | 1,849 | 1,149 | 316 | 132 | 159 | 316 | 493 | 871 | 1,395 | 1,888 |
| 30% | 1,908 | 1,868 | 1,760 | 893 | 176 | 63 | 99 | 257 | 381 | 802 | 1,339 | 1,834 |
| 40% | 1,829 | 1,828 | 1,591 | 586 | 108 | 34 | 62 | 173 | 264 | 563 | 1,127 | 1,739 |
| 50% | 1,792 | 1,753 | 1,279 | 410 | 53 | 27 | 31 | 109 | 218 | 470 | 991 | 1,534 |
| 60% | 1,732 | 1,701 | 783 | 197 | 28 | 23 | 23 | 74 | 176 | 343 | 884 | 1,468 |
| 70% | 1,678 | 1,613 | 380 | 37 | 24 | 22 | 20 | 33 | 160 | 283 | 836 | 1,400 |
| 80% | 1,592 | 1,434 | 258 | 24 | 21 | 20 | 19 | 18 | 106 | 243 | 777 | 1,345 |
| 90% | 1,338 | 528 | 89 | 20 | 20 | 18 | 18 | 16 | 19 | 178 | 719 | 1,223 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,729 | 1,614 | 1,115 | 541 | 178 | 86 | 101 | 197 | 319 | 573 | 1,078 | 1,559 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 1,415 | 1,348 | 855 | 103 | 28 | 21 | 23 | 41 | 100 | 224 | 753 | 1,200 |
| Above Normal (16%) | 1,754 | 1,724 | 1,183 | 302 | 56 | 23 | 30 | 77 | 162 | 292 | 816 | 1,421 |
| Below Normal (13%) | 1,725 | 1,624 | 1,097 | 773 | 225 | 87 | 107 | 194 | 243 | 507 | 1,029 | 1,568 |
| Dry (24%) | 1,841 | 1,480 | 999 | 825 | 249 | 99 | 111 | 219 | 403 | 823 | 1,354 | 1,842 |
| Critical (15%) | 2,197 | 2,285 | 1,817 | 1,061 | 469 | 271 | 324 | 629 | 896 | 1,277 | 1,655 | 2,008 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -98 | -90 | **41** | **368** | **289** | **134** | **120** | **44** | **29** | -10 | -46 | **11** |
| 20% | -76 | -15 | **336** | **400** | **156** | **37** | **77** | **19** | -20 | -39 | **5** | -3 |
| 30% | -100 | -34 | **863** | **358** | **97** | **25** | **49** | **53** | -67 | -8 | **0** | **3** |
| 40% | -104 | **130** | **804** | **255** | **57** | **6** | **32** | **91** | -113 | -15 | **34** | **18** |
| 50% | **521** | **1,221** | **706** | **153** | **21** | **3** | **6** | **62** | -71 | -15 | **62** | **48** |
| 60% | **1,237** | **1,230** | **317** | **119** | **1** | **0** | **1** | **44** | -51 | **27** | **3** | **880** |
| 70% | **1,500** | **1,449** | **191** | **10** | **0** | **0** | -1 | **9** | **17** | **12** | **20** | **1,046** |
| 80% | **1,434** | **1,291** | **199** | **1** | -1 | 0 | -2 | -3 | **37** | -6 | **48** | **1,019** |
| 90% | **1,197** | **405** | **66** | **0** | **0** | 0 | -2 | -2 | 0 | -5 | **43** | **928** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **548** | **575** | **369** | **163** | **61** | **22** | **23** | **39** | -29 | -7 | **24** | **410** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1,266** | **1,217** | **553** | **39** | **3** | **0** | **2** | **14** | -11 | **12** | **8** | **899** |
| Above Normal (16%) | **1,270** | **1,265** | **635** | **130** | **21** | **1** | **7** | **40** | -72 | -8 | **53** | **829** |
| Below Normal (13%) | -37 | **119** | **107** | **348** | **104** | **20** | **37** | **60** | -114 | -7 | **78** | -41 |
| Dry (24%) | -129 | -77 | **101** | **235** | **77** | **27** | **34** | **36** | -8 | -26 | **13** | **0** |
| Critical (15%) | -121 | -60 | **367** | **177** | **161** | **84** | **54** | **80** | **19** | -17 | -6 | -6 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 20-3. San Joaquin River at Antioch Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,266 | 2,369 | 1,871 | 958 | 274 | 164 | 208 | 419 | 573 | 1,087 | 1,607 | 1,974 |
| 20% | 2,072 | 1,971 | 1,513 | 748 | 160 | 94 | 83 | 297 | 513 | 910 | 1,389 | 1,891 |
| 30% | 2,008 | 1,902 | 897 | 535 | 79 | 38 | 51 | 205 | 448 | 809 | 1,339 | 1,832 |
| 40% | 1,933 | 1,697 | 787 | 331 | 51 | 28 | 30 | 82 | 377 | 578 | 1,093 | 1,721 |
| 50% | 1,272 | 532 | 573 | 257 | 32 | 25 | 25 | 47 | 288 | 485 | 929 | 1,486 |
| 60% | 496 | 471 | 466 | 77 | 27 | 23 | 22 | 29 | 228 | 317 | 880 | 589 |
| 70% | 178 | 164 | 189 | 27 | 24 | 21 | 21 | 24 | 143 | 271 | 816 | 354 |
| 80% | 158 | 142 | 59 | 23 | 22 | 20 | 21 | 21 | 69 | 249 | 729 | 325 |
| 90% | 141 | 123 | 23 | 20 | 20 | 18 | 20 | 18 | 19 | 183 | 676 | 295 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,180 | 1,039 | 747 | 378 | 117 | 64 | 78 | 157 | 349 | 580 | 1,055 | 1,149 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 149 | 131 | 302 | 64 | 25 | 21 | 21 | 27 | 111 | 212 | 745 | 301 |
| Above Normal (16%) | 484 | 459 | 548 | 172 | 36 | 22 | 23 | 37 | 234 | 299 | 763 | 592 |
| Below Normal (13%) | 1,762 | 1,506 | 991 | 424 | 121 | 67 | 71 | 134 | 357 | 515 | 951 | 1,609 |
| Dry (24%) | 1,970 | 1,557 | 898 | 590 | 172 | 72 | 77 | 183 | 411 | 849 | 1,341 | 1,842 |
| Critical (15%) | 2,318 | 2,345 | 1,450 | 884 | 308 | 187 | 270 | 548 | 877 | 1,294 | 1,661 | 2,014 |

### Alternative 3 021719

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 1,977 | 1,935 | 1,806 | 1,189 | 485 | 270 | 290 | 424 | 586 | 1,075 | 1,565 | 1,962 |
| 20% | 1,824 | 1,755 | 1,689 | 1,071 | 295 | 127 | 145 | 298 | 459 | 852 | 1,365 | 1,832 |
| 30% | 1,725 | 1,706 | 1,598 | 800 | 161 | 56 | 86 | 249 | 356 | 754 | 1,290 | 1,795 |
| 40% | 1,650 | 1,658 | 1,429 | 560 | 106 | 30 | 53 | 167 | 264 | 532 | 1,090 | 1,693 |
| 50% | 1,567 | 1,572 | 1,188 | 382 | 49 | 27 | 28 | 107 | 234 | 426 | 943 | 1,491 |
| 60% | 1,514 | 1,518 | 687 | 181 | 29 | 24 | 23 | 67 | 183 | 314 | 842 | 1,423 |
| 70% | 1,429 | 1,449 | 361 | 34 | 25 | 22 | 21 | 30 | 160 | 254 | 783 | 1,311 |
| 80% | 1,300 | 1,137 | 257 | 25 | 21 | 20 | 20 | 18 | 95 | 226 | 735 | 1,263 |
| 90% | 1,094 | 538 | 79 | 21 | 20 | 18 | 19 | 17 | 19 | 183 | 683 | 1,114 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,544 | 1,439 | 1,035 | 512 | 173 | 84 | 94 | 185 | 317 | 555 | 1,039 | 1,500 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 1,271 | 1,220 | 765 | 98 | 28 | 22 | 21 | 49 | 102 | 211 | 718 | 1,145 |
| Above Normal (16%) | 1,534 | 1,532 | 1,071 | 273 | 55 | 23 | 28 | 70 | 172 | 261 | 750 | 1,283 |
| Below Normal (13%) | 1,558 | 1,431 | 1,029 | 752 | 206 | 78 | 95 | 177 | 242 | 473 | 983 | 1,533 |
| Dry (24%) | 1,612 | 1,323 | 960 | 795 | 248 | 95 | 101 | 196 | 376 | 791 | 1,314 | 1,797 |
| Critical (15%) | 2,021 | 2,011 | 1,710 | 976 | 459 | 271 | 306 | 597 | 908 | 1,301 | 1,636 | 1,982 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -290 | -433 | -65 | **230** | **212** | **106** | **82** | **5** | **14** | -11 | -42 | -13 |
| 20% | -248 | -216 | **177** | **323** | **134** | **33** | **63** | **1** | -54 | -59 | -24 | -58 |
| 30% | -283 | -196 | **702** | **265** | **82** | **18** | **35** | **45** | -92 | -56 | -49 | -37 |
| 40% | -283 | -39 | **642** | **229** | **55** | **2** | **24** | **85** | -112 | -46 | -3 | -28 |
| 50% | **295** | **1,040** | **615** | **125** | **18** | **3** | **3** | **60** | -55 | -58 | **14** | **5** |
| 60% | **1,018** | **1,047** | **220** | **103** | **2** | **1** | **0** | **38** | -45 | -2 | -38 | **834** |
| 70% | **1,251** | **1,285** | **172** | **7** | **1** | **1** | 0 | **6** | **17** | -16 | -33 | **957** |
| 80% | **1,142** | **995** | **198** | **2** | -1 | **0** | -1 | -2 | **26** | -23 | **6** | **938** |
| 90% | **953** | **416** | **57** | **1** | **1** | **1** | -1 | -1 | 0 | **1** | **7** | **819** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **364** | **399** | **288** | **134** | **56** | **20** | **16** | **28** | -32 | -25 | -16 | **351** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1,122** | **1,088** | **463** | **34** | **3** | **0** | **0** | **22** | -9 | -1 | -27 | **844** |
| Above Normal (16%) | **1,050** | **1,073** | **522** | **101** | **19** | **1** | **6** | **33** | -63 | -38 | -13 | **691** |
| Below Normal (13%) | -205 | -74 | **38** | **328** | **85** | **11** | **25** | **43** | -115 | -41 | **32** | -77 |
| Dry (24%) | -358 | -234 | **62** | **205** | **75** | **23** | **24** | **13** | -35 | -58 | -27 | -45 |
| Critical (15%) | -297 | -334 | **261** | **92** | **150** | **84** | **36** | **48** | **31** | **7** | -24 | -32 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 20-4. San Joaquin River at Antioch Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,266 | 2,369 | 1,871 | 958 | 274 | 164 | 208 | 419 | 573 | 1,087 | 1,607 | 1,974 |
| 20% | 2,072 | 1,971 | 1,513 | 748 | 160 | 94 | 83 | 297 | 513 | 910 | 1,389 | 1,891 |
| 30% | 2,008 | 1,902 | 897 | 535 | 79 | 38 | 51 | 205 | 448 | 809 | 1,339 | 1,832 |
| 40% | 1,933 | 1,697 | 787 | 331 | 51 | 28 | 30 | 82 | 377 | 578 | 1,093 | 1,721 |
| 50% | 1,272 | 532 | 573 | 257 | 32 | 25 | 25 | 47 | 288 | 485 | 929 | 1,486 |
| 60% | 496 | 471 | 466 | 77 | 27 | 23 | 22 | 29 | 228 | 317 | 880 | 589 |
| 70% | 178 | 164 | 189 | 27 | 24 | 21 | 21 | 24 | 143 | 271 | 816 | 354 |
| 80% | 158 | 142 | 59 | 23 | 22 | 20 | 21 | 21 | 69 | 249 | 729 | 325 |
| 90% | 141 | 123 | 23 | 20 | 20 | 18 | 20 | 18 | 19 | 183 | 676 | 295 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,180 | 1,039 | 747 | 378 | 117 | 64 | 78 | 157 | 349 | 580 | 1,055 | 1,149 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 149 | 131 | 302 | 64 | 25 | 21 | 21 | 27 | 111 | 212 | 745 | 301 |
| Above Normal (16%) | 484 | 459 | 548 | 172 | 36 | 22 | 23 | 37 | 234 | 299 | 763 | 592 |
| Below Normal (13%) | 1,762 | 1,506 | 991 | 424 | 121 | 67 | 71 | 134 | 357 | 515 | 951 | 1,609 |
| Dry (24%) | 1,970 | 1,557 | 898 | 590 | 172 | 72 | 77 | 183 | 411 | 849 | 1,341 | 1,842 |
| Critical (15%) | 2,318 | 2,345 | 1,450 | 884 | 308 | 187 | 270 | 548 | 877 | 1,294 | 1,661 | 2,014 |

### Alternative 4 043019

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 2,258 | 2,365 | 1,889 | 1,071 | 274 | 118 | 171 | 414 | 579 | 1,083 | 1,599 | 1,988 |
| 20% | 2,120 | 2,009 | 1,802 | 772 | 141 | 57 | 78 | 305 | 521 | 913 | 1,414 | 1,924 |
| 30% | 2,017 | 1,914 | 1,427 | 502 | 89 | 28 | 47 | 164 | 464 | 827 | 1,366 | 1,868 |
| 40% | 1,952 | 1,869 | 1,149 | 309 | 51 | 26 | 28 | 74 | 390 | 591 | 1,044 | 1,767 |
| 50% | 1,899 | 1,834 | 917 | 228 | 30 | 24 | 26 | 35 | 297 | 528 | 945 | 1,592 |
| 60% | 1,748 | 1,712 | 619 | 63 | 27 | 23 | 24 | 26 | 216 | 325 | 879 | 1,460 |
| 70% | 1,694 | 1,290 | 268 | 27 | 24 | 22 | 22 | 22 | 134 | 294 | 788 | 1,429 |
| 80% | 1,637 | 808 | 166 | 23 | 21 | 21 | 21 | 20 | 63 | 268 | 749 | 1,366 |
| 90% | 1,165 | 450 | 35 | 21 | 20 | 19 | 20 | 18 | 19 | 193 | 693 | 1,269 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 1,767 | 1,551 | 932 | 383 | 124 | 54 | 69 | 151 | 352 | 590 | 1,064 | 1,588 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 1,335 | 1,198 | 729 | 52 | 23 | 22 | 22 | 24 | 104 | 223 | 737 | 1,223 |
| Above Normal (16%) | 1,676 | 1,535 | 890 | 196 | 35 | 23 | 24 | 28 | 229 | 311 | 760 | 1,390 |
| Below Normal (13%) | 1,792 | 1,461 | 985 | 429 | 127 | 44 | 52 | 120 | 375 | 541 | 973 | 1,663 |
| Dry (24%) | 2,044 | 1,586 | 896 | 629 | 182 | 48 | 64 | 182 | 428 | 857 | 1,382 | 1,891 |
| Critical (15%) | 2,317 | 2,359 | 1,431 | 849 | 336 | 177 | 241 | 533 | 875 | 1,288 | 1,659 | 2,017 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -8 | -4 | **18** | **113** | **0** | -46 | -37 | -5 | **7** | -4 | -8 | **13** |
| 20% | **48** | **38** | **290** | **24** | -19 | -38 | -5 | **8** | **8** | **3** | **24** | **33** |
| 30% | **9** | **12** | **531** | -33 | **10** | -9 | -4 | -41 | **16** | **18** | **28** | **36** |
| 40% | **19** | **171** | **362** | -22 | **0** | -2 | -2 | -8 | **13** | **13** | -49 | **46** |
| 50% | **627** | **1,302** | **345** | -29 | -2 | -1 | **1** | -12 | **9** | **43** | **16** | **105** |
| 60% | **1,253** | **1,241** | **153** | -14 | 0 | 0 | **1** | -3 | -11 | **8** | -2 | **871** |
| 70% | **1,516** | **1,126** | **79** | -1 | 0 | **1** | **1** | -2 | -9 | **24** | -28 | **1,075** |
| 80% | **1,479** | **666** | **107** | **0** | -1 | **1** | **0** | -1 | -5 | **19** | **20** | **1,040** |
| 90% | **1,023** | **327** | **13** | **1** | **0** | **1** | **0** | **0** | 0 | **11** | **17** | **974** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **587** | **512** | **186** | **5** | **7** | -10 | -9 | -7 | **3** | **10** | **10** | **439** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **1,186** | **1,067** | **428** | -12 | -2 | **1** | **1** | -2 | -7 | **10** | -8 | **922** |
| Above Normal (16%) | **1,192** | **1,076** | **342** | **24** | 0 | **1** | **1** | -9 | -5 | **11** | -3 | **798** |
| Below Normal (13%) | **29** | -44 | -6 | **5** | **6** | -23 | -18 | -14 | **17** | **27** | **21** | **54** |
| Dry (24%) | **75** | **30** | -2 | **39** | **10** | -23 | -12 | -1 | **17** | **8** | **41** | **50** |
| Critical (15%) | -1 | **14** | -19 | -35 | **28** | -9 | -29 | -16 | -2 | -5 | -2 | **2** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

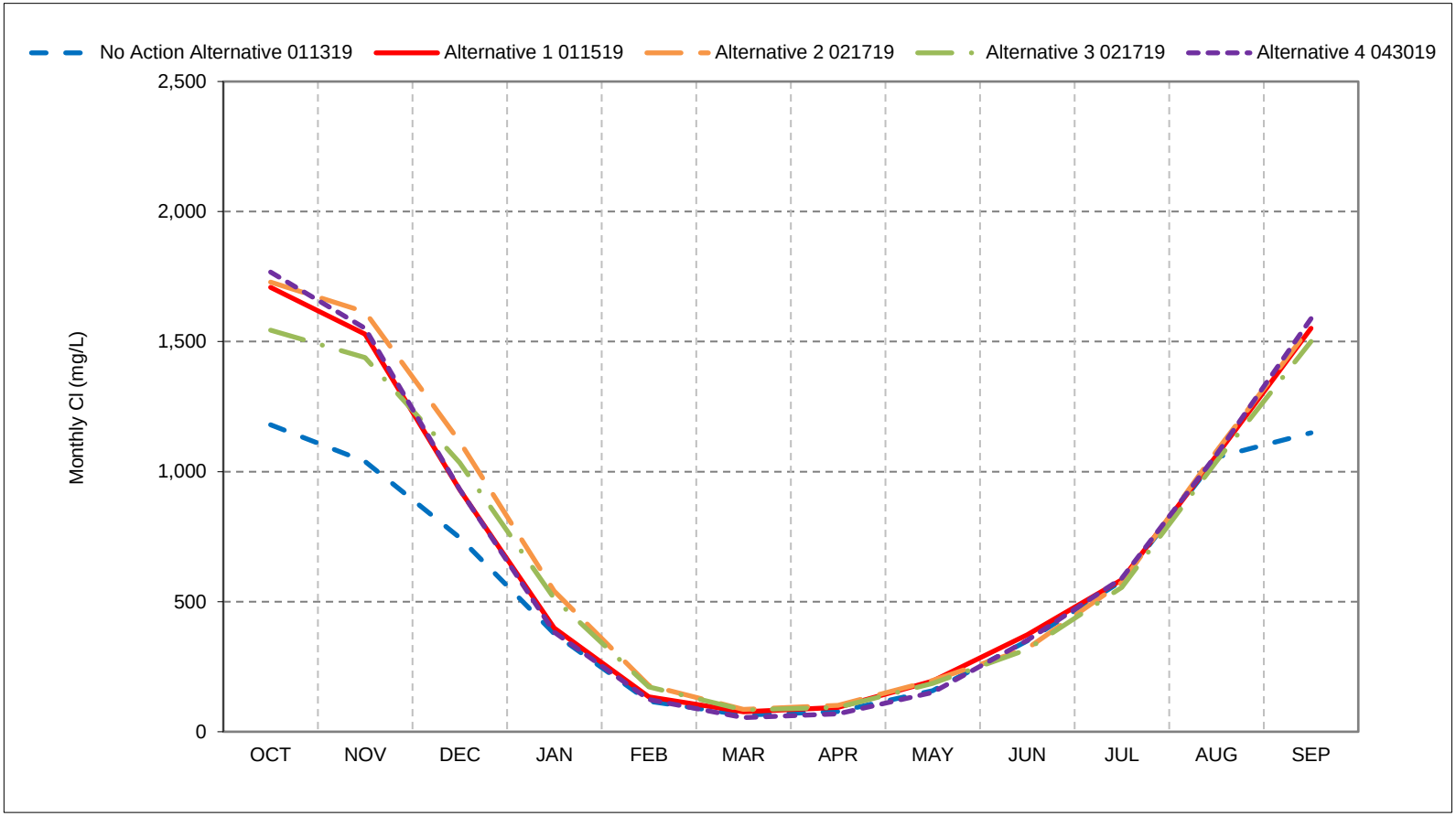
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

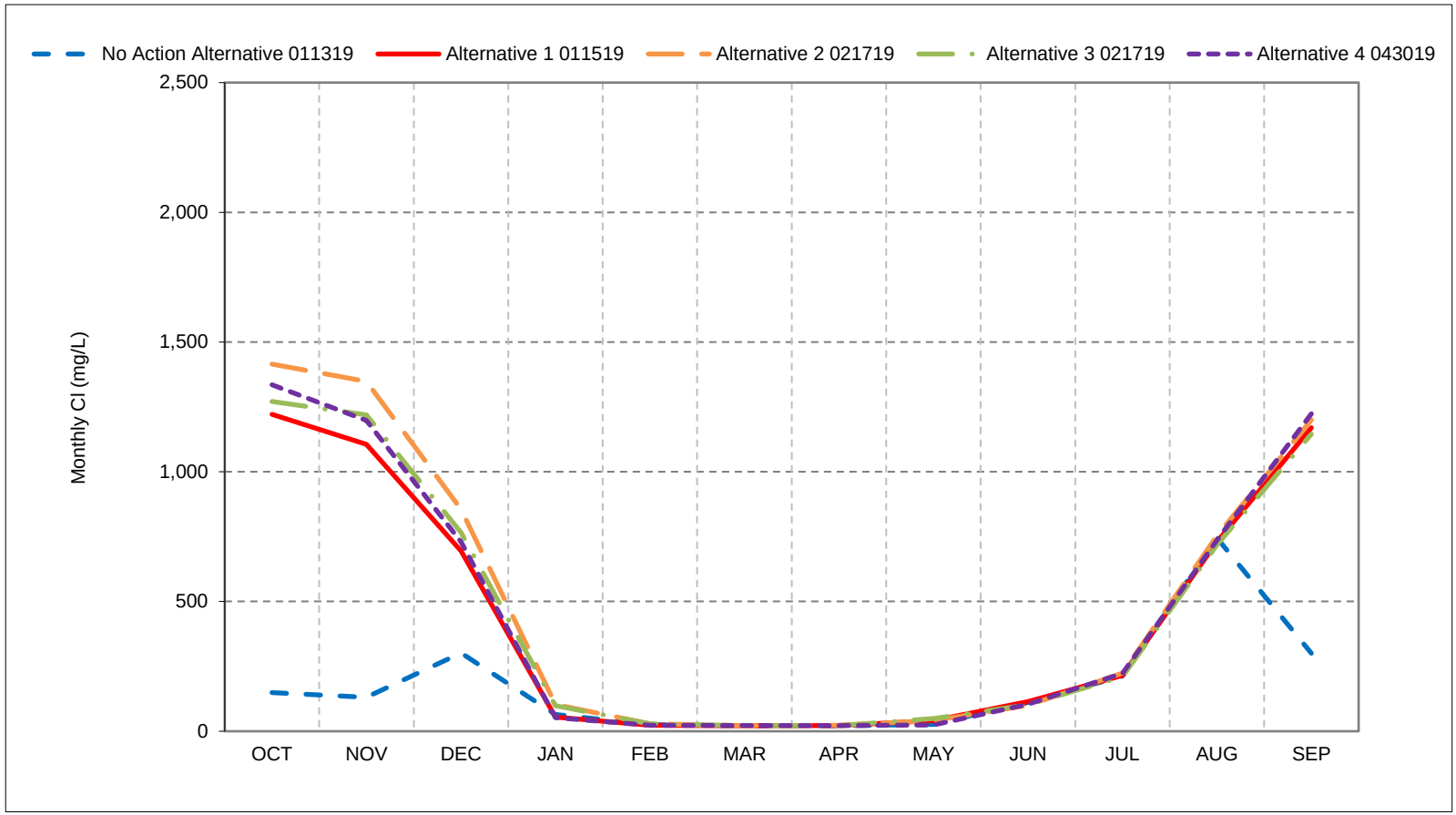
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 20-1. San Joaquin River at Antioch Chloride, Long-Term Average Cl



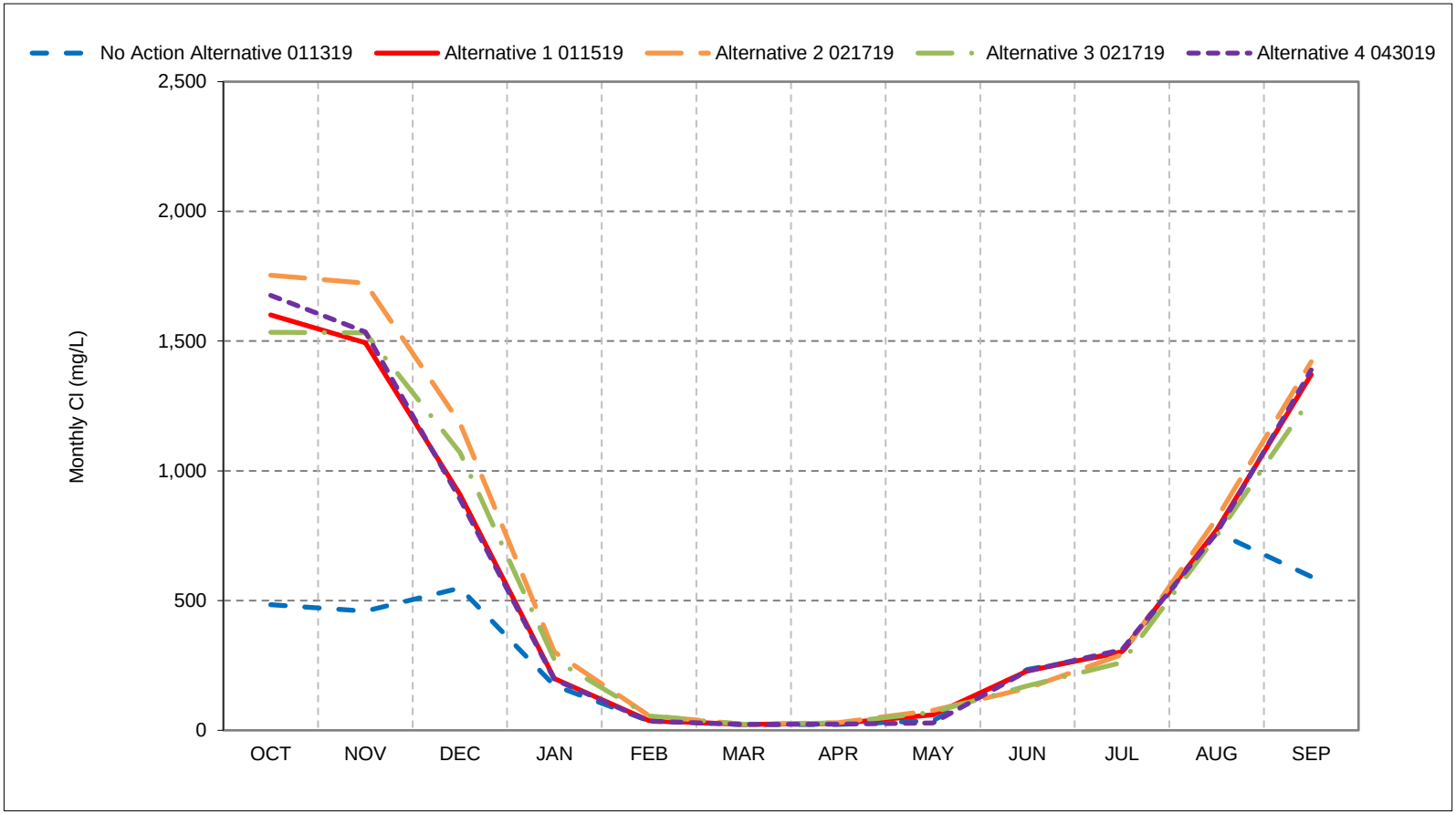

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 20-2. San Joaquin River at Antioch Chloride, Wet Year Average Cl



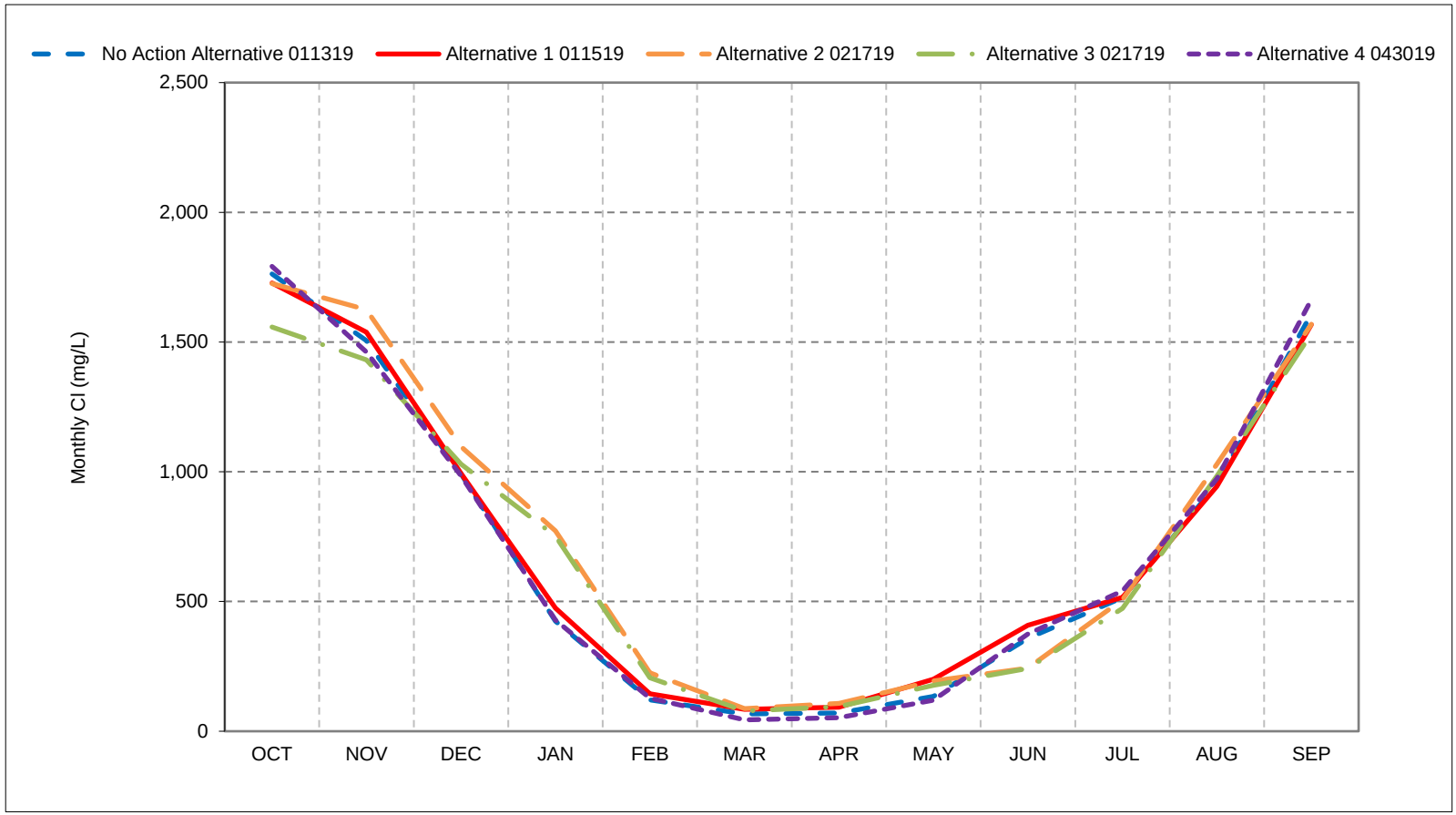

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 20-3. San Joaquin River at Antioch Chloride, Above Normal Year Average Cl



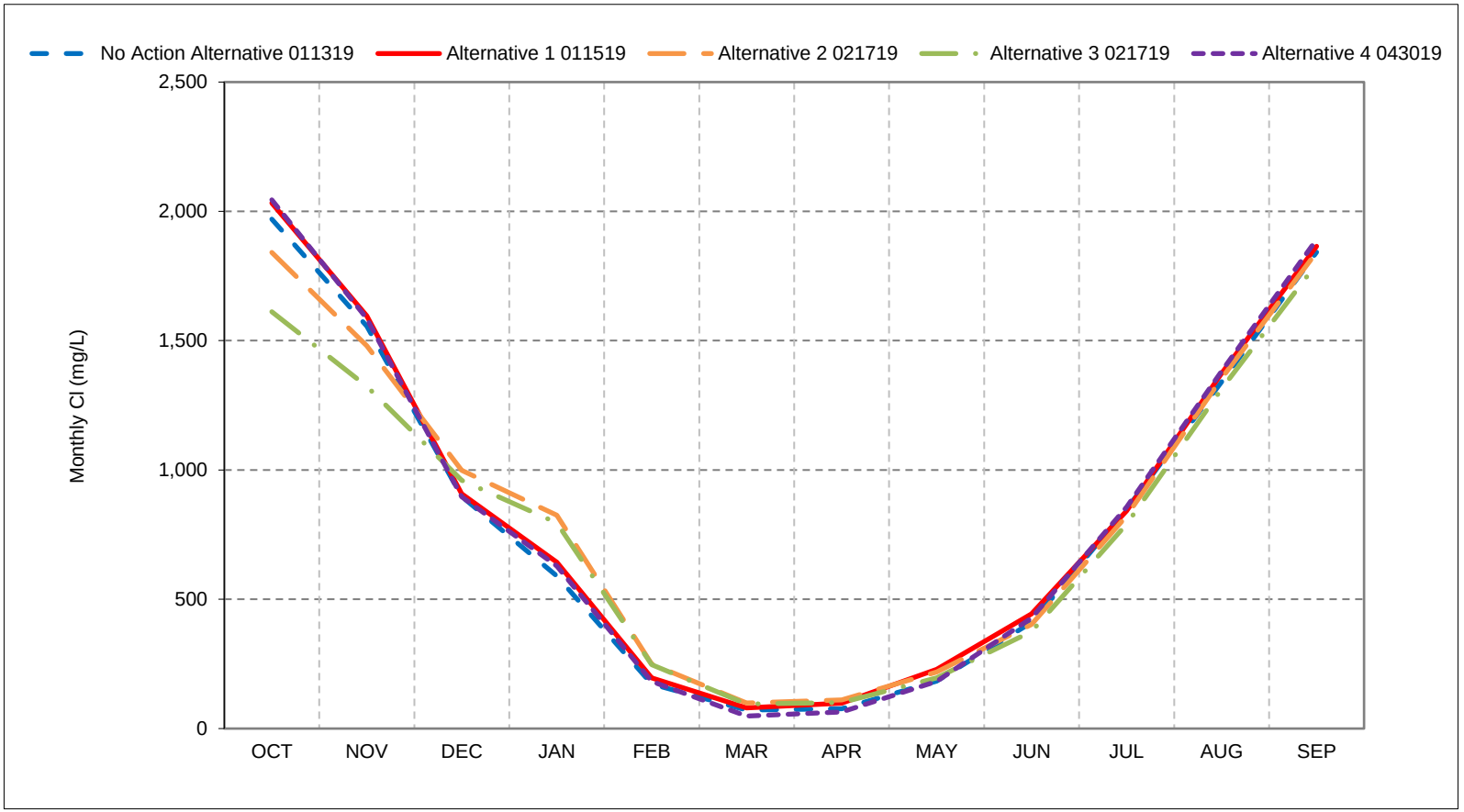

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 20-4. San Joaquin River at Antioch Chloride, Below Normal Year Average Cl



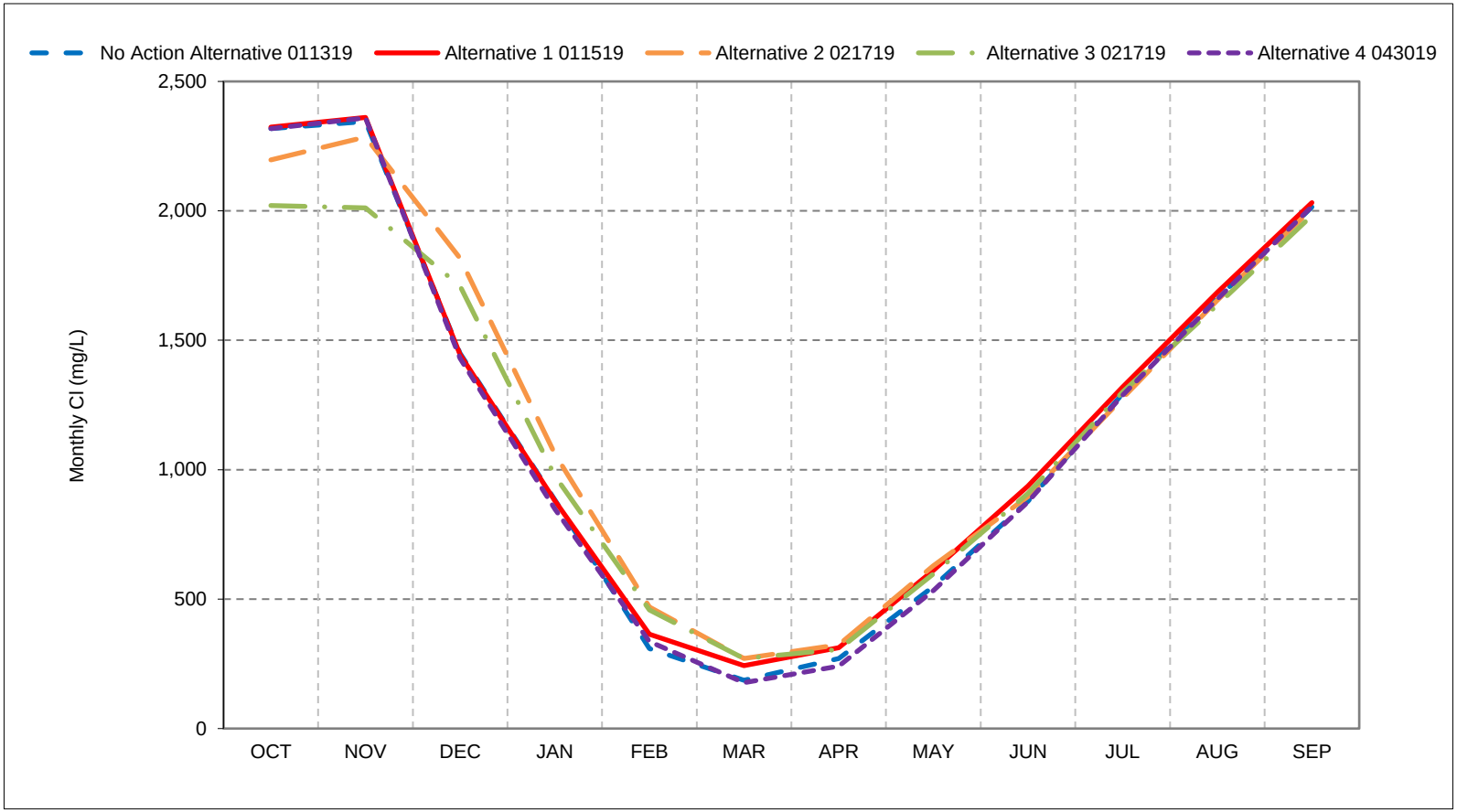

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 20-5. San Joaquin River at Antioch Chloride, Dry Year Average Cl



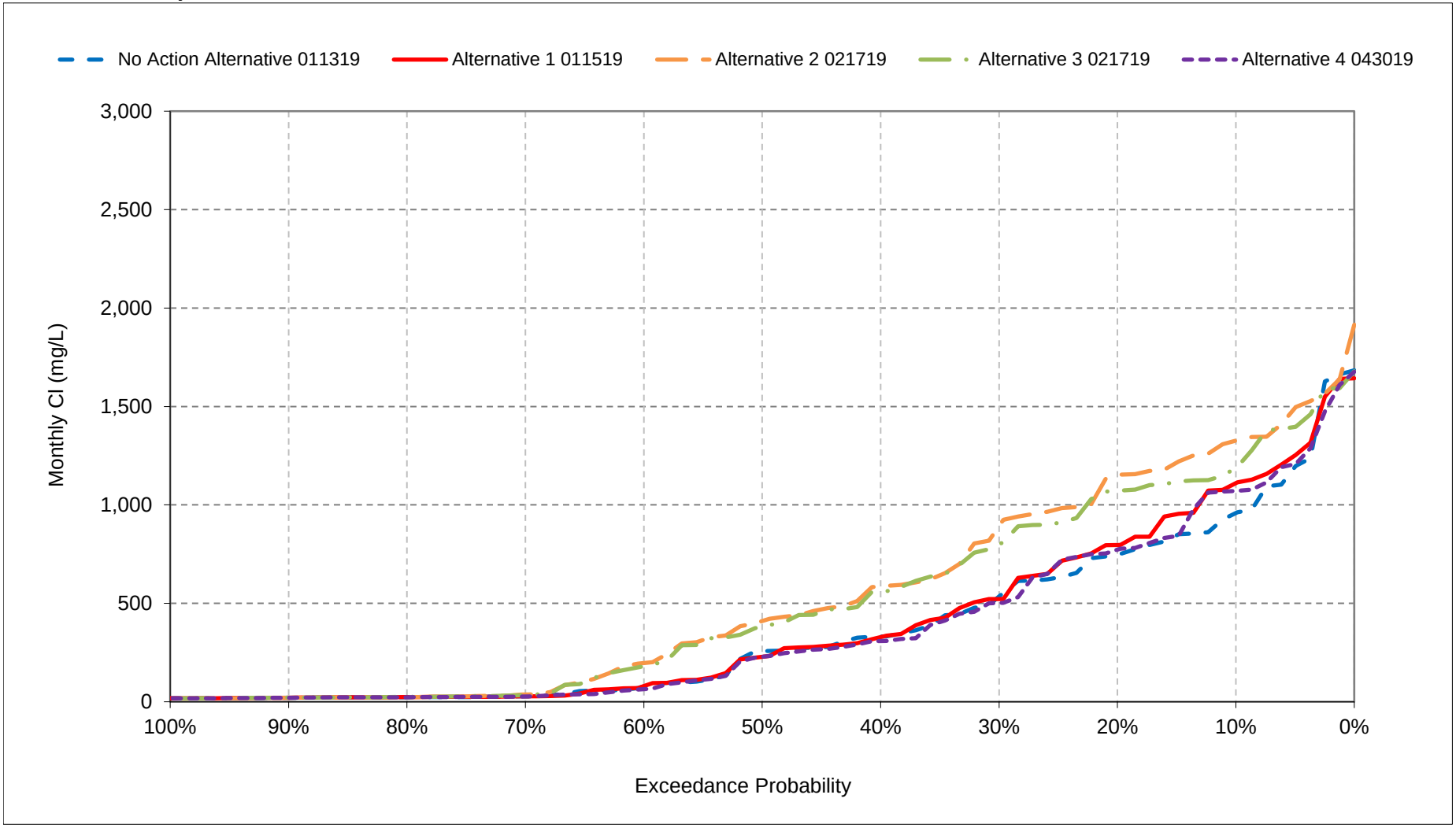

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 20-6. San Joaquin River at Antioch Chloride, Critical Year Average Cl



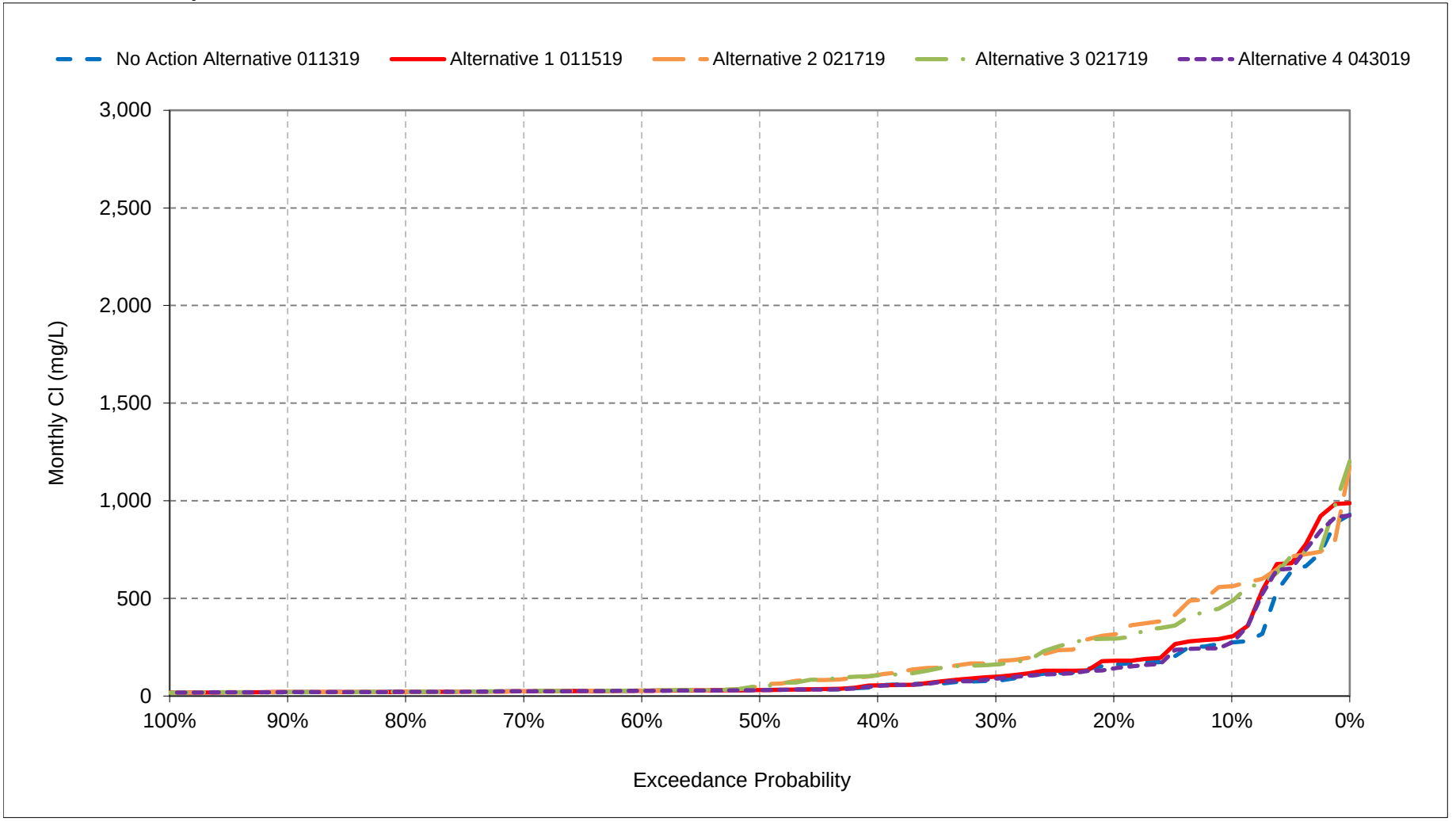

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 20-7. San Joaquin River at Antioch**
**Chloride, January Cl**



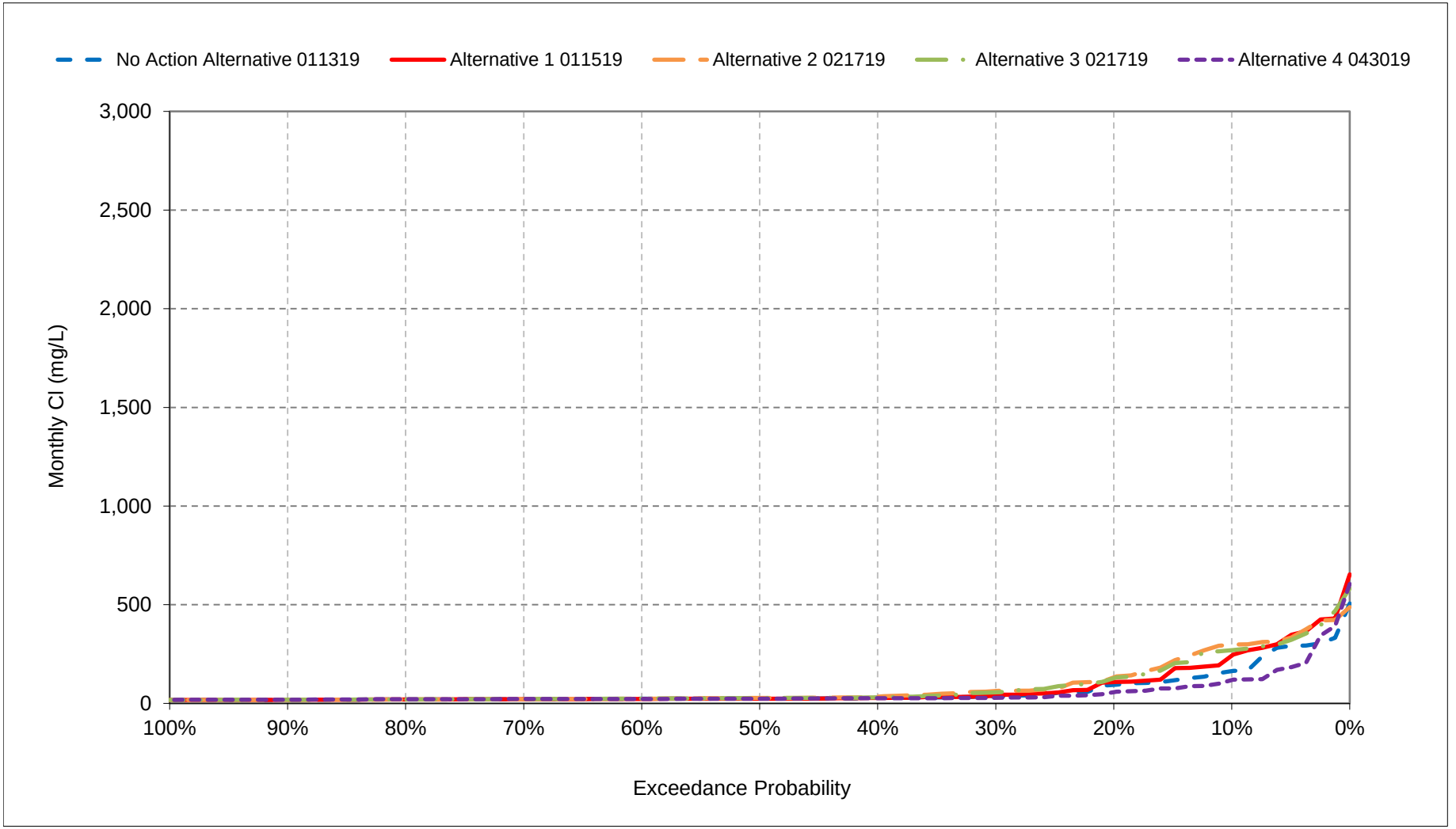

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 20-8. San Joaquin River at Antioch**
**Chloride, February Cl**



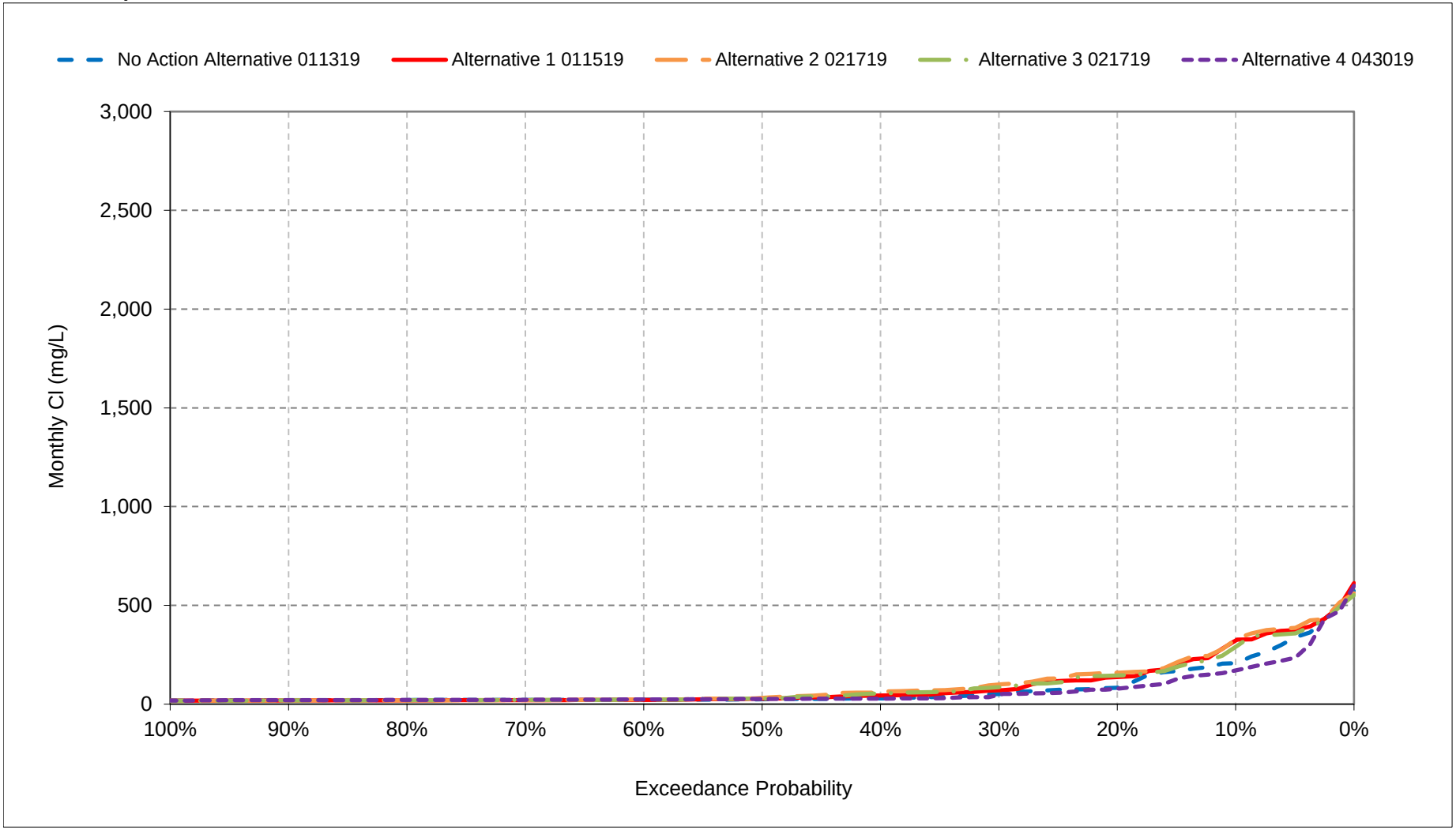

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 20-9. San Joaquin River at Antioch**
**Chloride, March Cl**



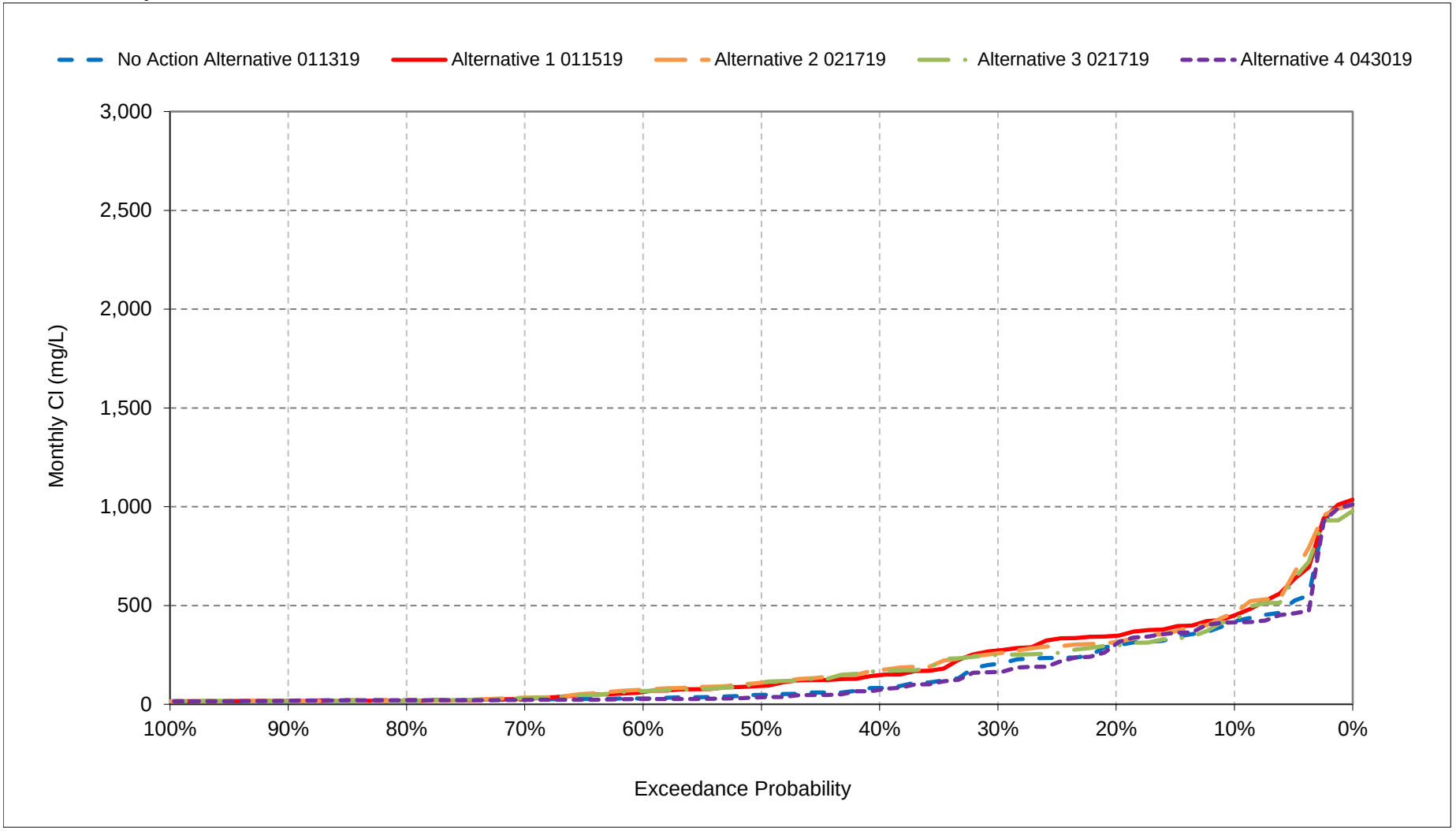

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 20-10. San Joaquin River at Antioch**
**Chloride, April Cl**



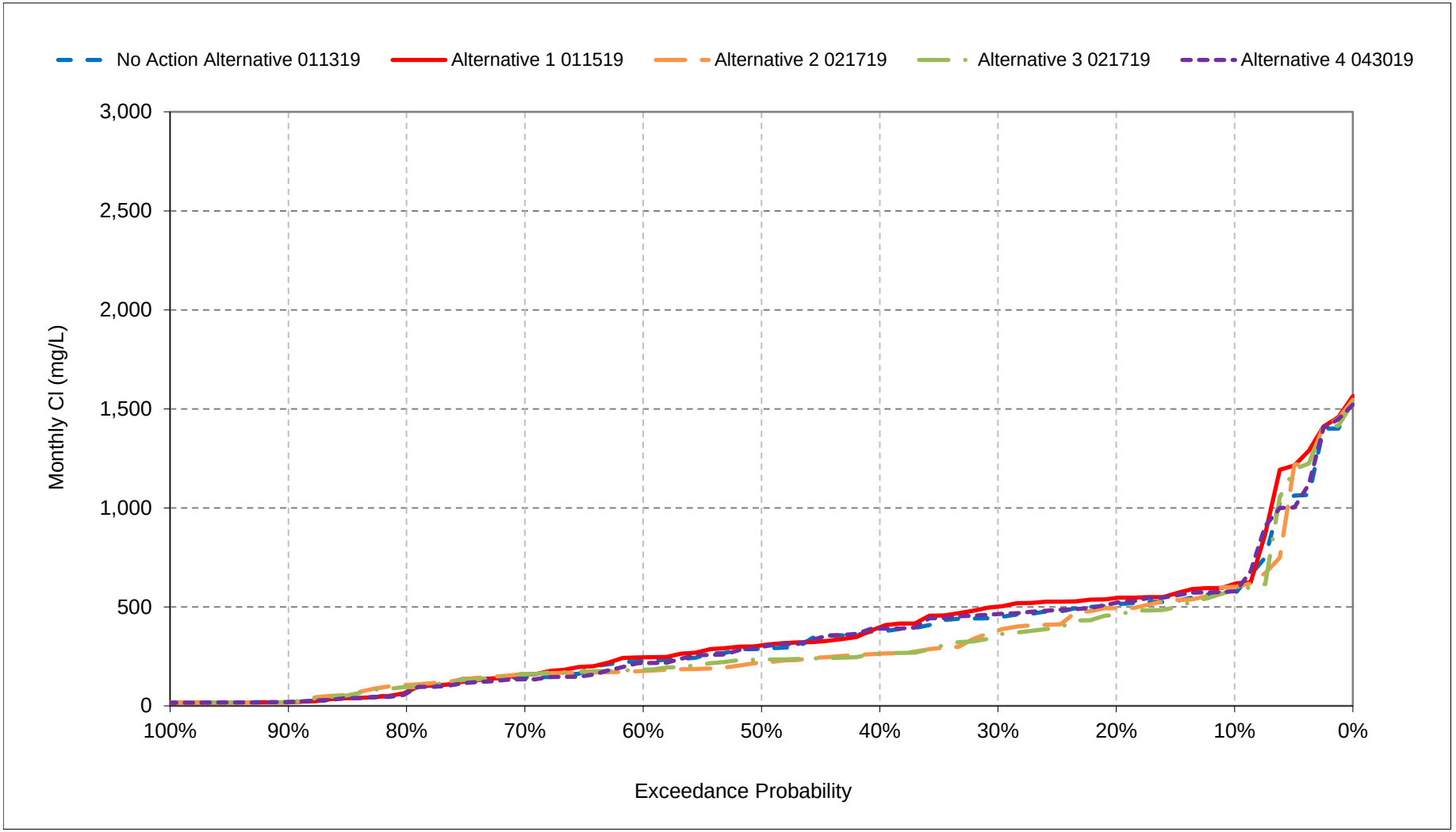

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 20-11. San Joaquin River at Antioch**
**Chloride, May Cl**



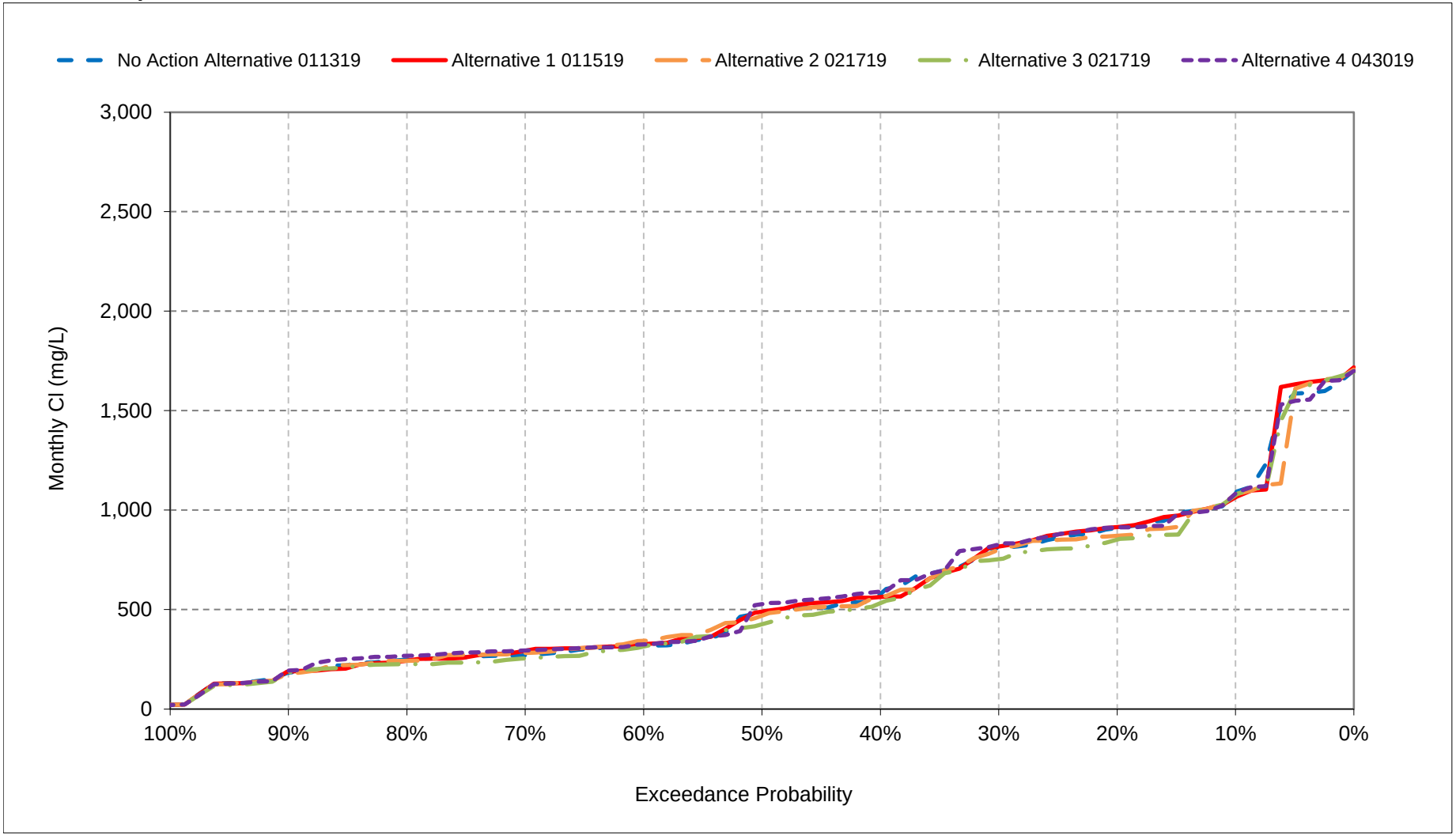

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 20-12. San Joaquin River at Antioch**
**Chloride, June Cl**



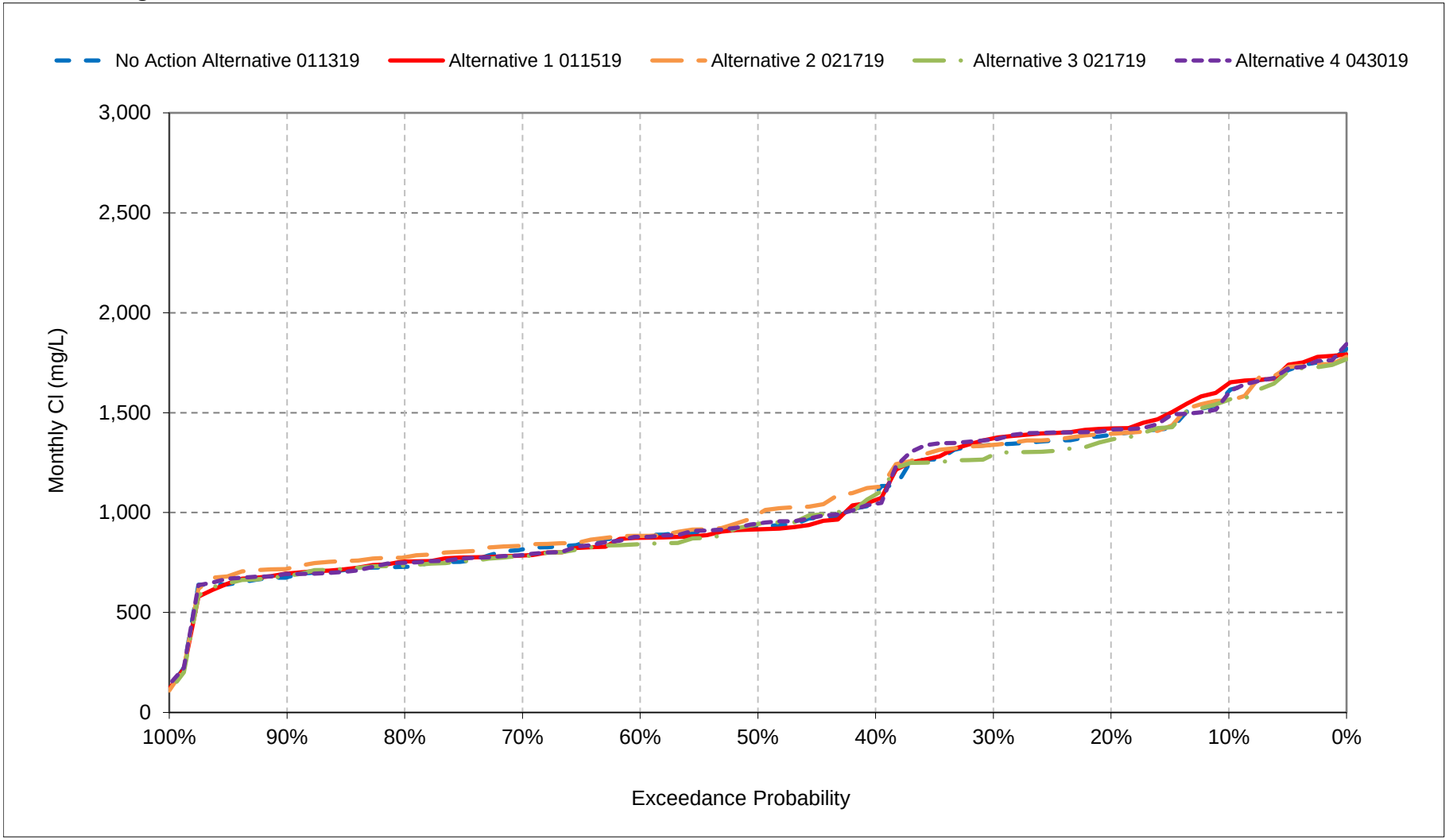

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 20-13. San Joaquin River at Antioch**
**Chloride, July Cl**



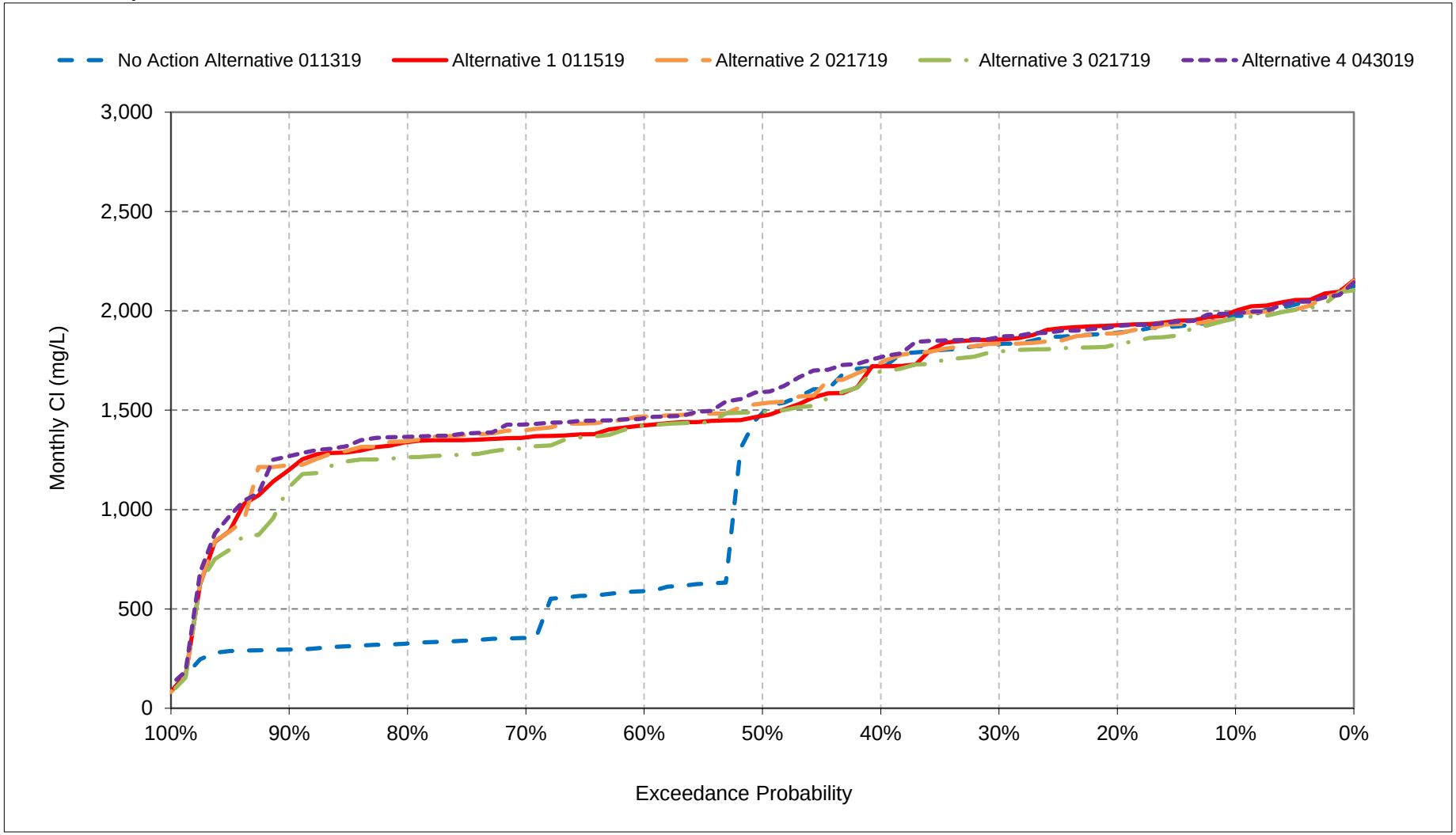

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 20-14. San Joaquin River at Antioch**
**Chloride, August Cl**



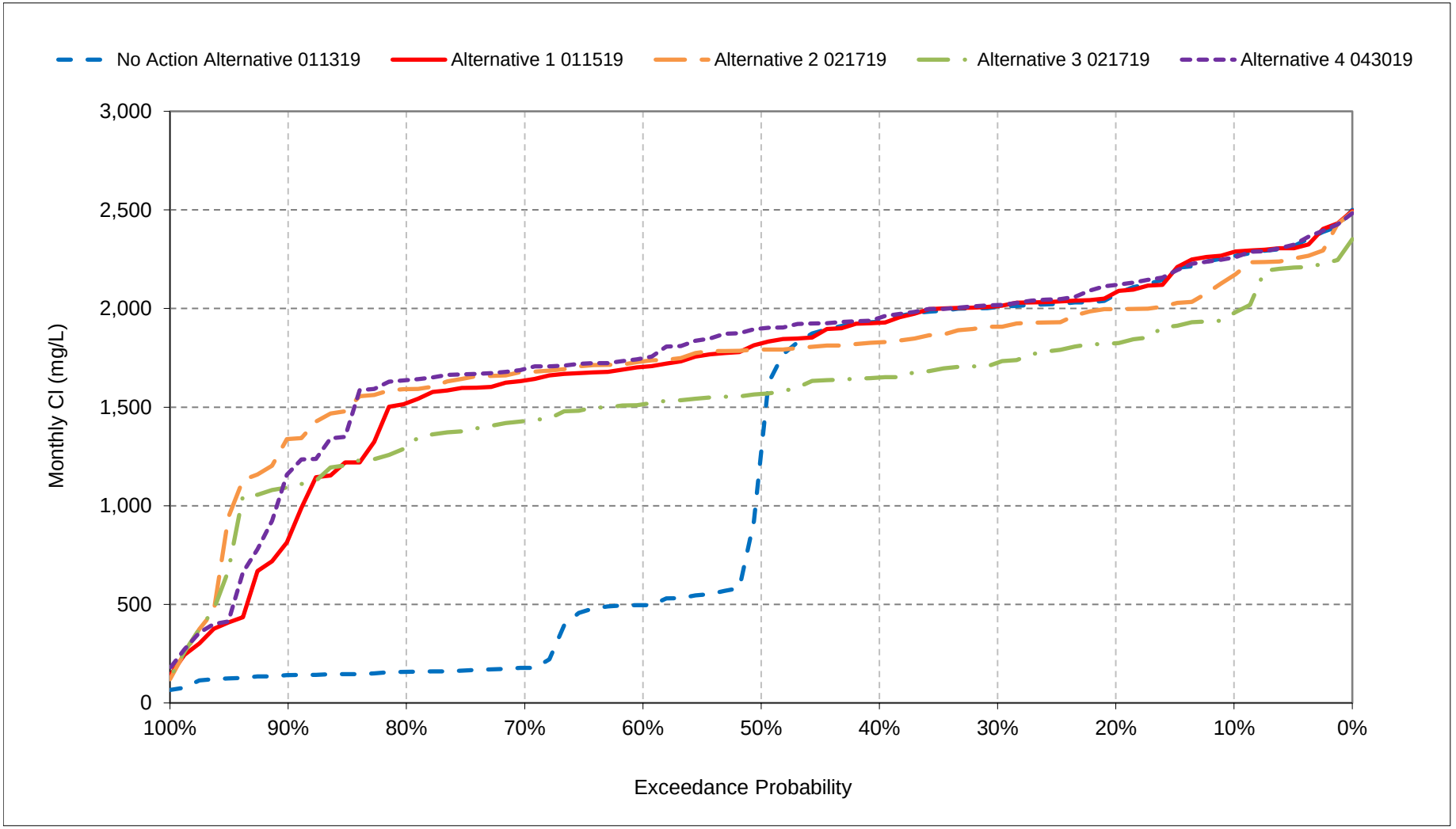

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 20-15. San Joaquin River at Antioch**
**Chloride, September Cl**



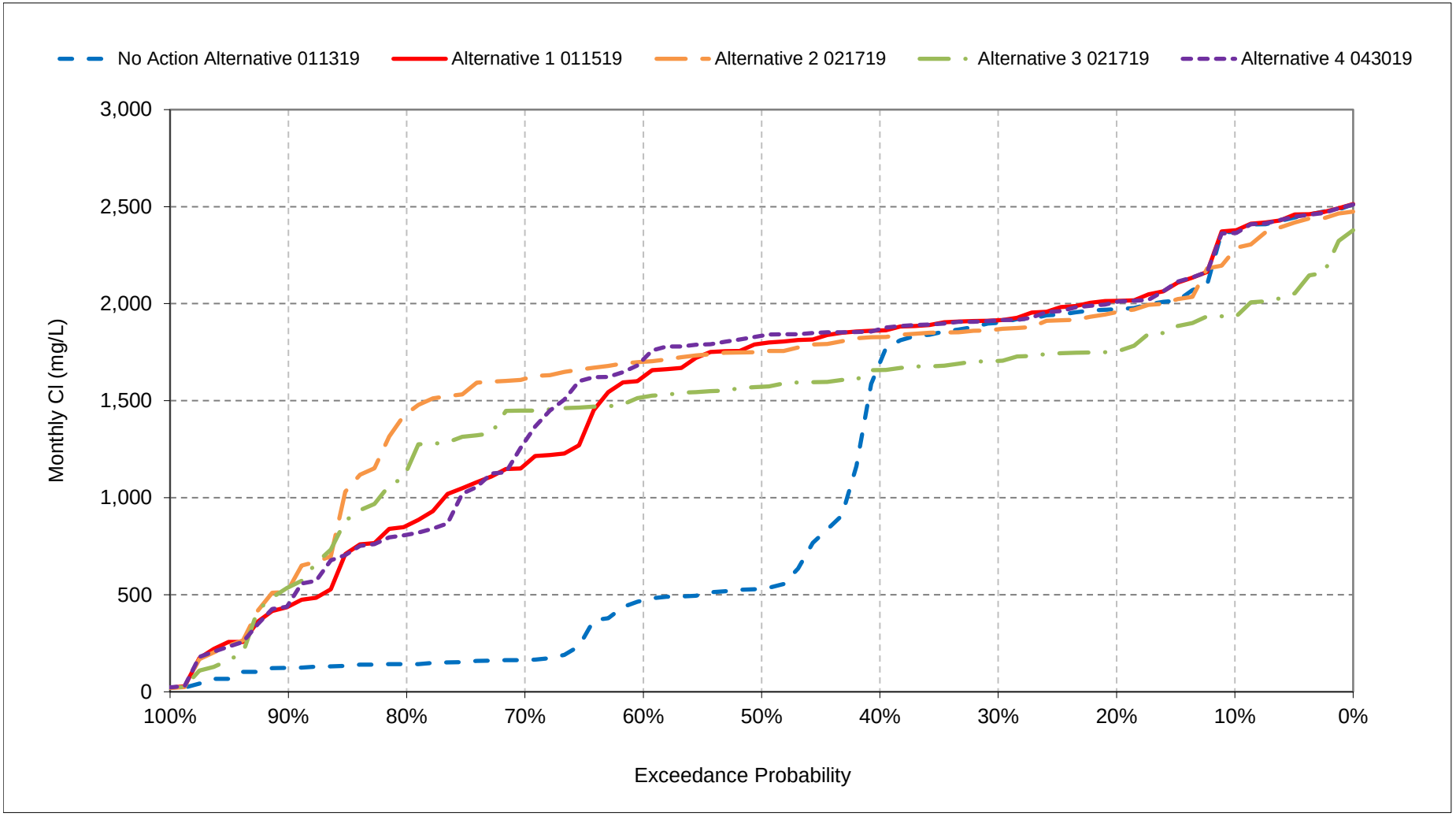

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 20-16. San Joaquin River at Antioch**
**Chloride, October Cl**



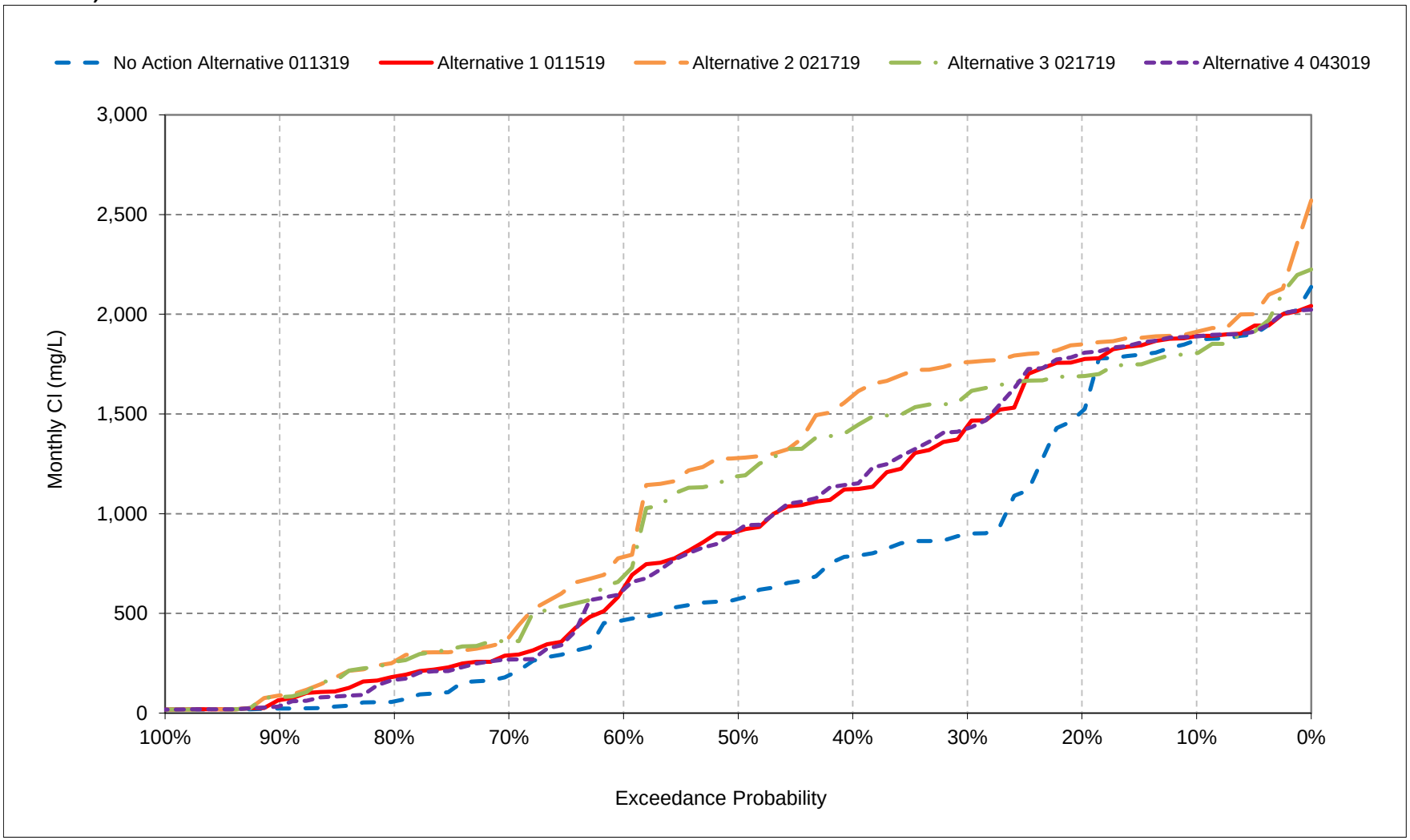

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 20-17. San Joaquin River at Antioch**
**Chloride, November Cl**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 20-18. San Joaquin River at Antioch**
**Chloride, December Cl**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 21-1. Banks Pumping Plant South Delta Exports Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 157 | 169 | 195 | 182 | 144 | 119 | 109 | 101 | 89 | 71 | 100 | 121 |
| 20% | 149 | 151 | 170 | 167 | 121 | 101 | 90 | 84 | 77 | 57 | 67 | 114 |
| 30% | 142 | 136 | 153 | 130 | 109 | 89 | 77 | 78 | 63 | 44 | 61 | 108 |
| 40% | 134 | 128 | 137 | 117 | 102 | 78 | 67 | 70 | 58 | 42 | 54 | 101 |
| 50% | 123 | 98 | 70 | 102 | 91 | 67 | 61 | 57 | 53 | 39 | 53 | 95 |
| 60% | 57 | 46 | 55 | 93 | 86 | 62 | 49 | 50 | 50 | 35 | 45 | 92 |
| 70% | 52 | 42 | 43 | 77 | 73 | 52 | 39 | 44 | 48 | 34 | 39 | 84 |
| 80% | 47 | 37 | 36 | 68 | 55 | 44 | 33 | 37 | 42 | 30 | 35 | 76 |
| 90% | 42 | 35 | 34 | 59 | 48 | 35 | 25 | 18 | 30 | 28 | 30 | 68 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 99 | 95 | 100 | 112 | 94 | 74 | 63 | 61 | 58 | 45 | 56 | 94 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 49 | 36 | 36 | 75 | 62 | 44 | 32 | 32 | 39 | 34 | 37 | 82 |
| Above Normal (16%) | 45 | 48 | 61 | 104 | 91 | 65 | 53 | 52 | 51 | 32 | 37 | 73 |
| Below Normal (13%) | 142 | 124 | 133 | 111 | 97 | 78 | 69 | 70 | 64 | 39 | 54 | 108 |
| Dry (24%) | 142 | 134 | 134 | 137 | 110 | 85 | 78 | 74 | 62 | 47 | 74 | 105 |
| Critical (15%) | 153 | 179 | 195 | 157 | 136 | 124 | 114 | 104 | 94 | 85 | 89 | 114 |

### Alternative 1 011519

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 161 | 178 | 195 | 196 | 143 | 97 | 83 | 70 | 61 | 63 | 98 | 125 |
| 20% | 156 | 167 | 182 | 183 | 124 | 86 | 71 | 62 | 45 | 49 | 64 | 118 |
| 30% | 148 | 157 | 167 | 176 | 104 | 75 | 65 | 58 | 42 | 42 | 61 | 113 |
| 40% | 145 | 148 | 157 | 149 | 98 | 67 | 61 | 51 | 40 | 40 | 55 | 111 |
| 50% | 141 | 139 | 147 | 119 | 88 | 63 | 54 | 42 | 39 | 38 | 51 | 106 |
| 60% | 137 | 135 | 137 | 103 | 74 | 58 | 48 | 39 | 37 | 34 | 45 | 104 |
| 70% | 132 | 132 | 121 | 89 | 71 | 53 | 38 | 36 | 35 | 32 | 38 | 100 |
| 80% | 126 | 119 | 87 | 73 | 56 | 41 | 31 | 33 | 32 | 29 | 35 | 94 |
| 90% | 97 | 64 | 57 | 60 | 42 | 36 | 26 | 21 | 29 | 27 | 31 | 81 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 134 | 137 | 138 | 127 | 91 | 65 | 54 | 47 | 42 | 42 | 55 | 104 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 106 | 118 | 112 | 82 | 60 | 44 | 32 | 28 | 32 | 34 | 37 | 88 |
| Above Normal (16%) | 139 | 129 | 137 | 128 | 90 | 63 | 49 | 40 | 37 | 30 | 38 | 109 |
| Below Normal (13%) | 145 | 130 | 136 | 134 | 97 | 72 | 63 | 52 | 39 | 37 | 59 | 116 |
| Dry (24%) | 149 | 144 | 137 | 160 | 107 | 71 | 62 | 54 | 40 | 43 | 68 | 107 |
| Critical (15%) | 156 | 182 | 198 | 160 | 124 | 97 | 87 | 80 | 73 | 78 | 89 | 115 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **4** | **9** | 0 | **13** | -2 | -22 | -26 | -31 | -27 | -8 | -2 | **5** |
| 20% | **7** | **16** | **12** | **16** | **3** | -15 | -19 | -22 | -32 | -8 | -3 | **3** |
| 30% | **6** | **21** | **14** | **46** | -4 | -14 | -12 | -20 | -21 | -2 | -1 | **5** |
| 40% | **11** | **20** | **19** | **33** | -5 | -10 | -7 | -19 | -18 | -2 | **0** | **10** |
| 50% | **17** | **40** | **77** | **18** | -3 | -4 | -8 | -16 | -14 | -1 | -2 | **11** |
| 60% | **81** | **90** | **82** | **10** | -12 | -4 | -1 | -11 | -14 | -1 | **0** | **12** |
| 70% | **80** | **91** | **78** | **11** | -1 | **1** | -1 | -8 | -13 | -2 | -1 | **15** |
| 80% | **80** | **82** | **51** | **5** | **0** | -3 | -2 | -4 | -9 | -1 | **0** | **18** |
| 90% | **55** | **29** | **23** | **0** | -6 | **1** | **1** | **3** | -1 | -1 | **2** | **14** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **35** | **42** | **38** | **15** | -3 | -9 | -9 | -14 | -16 | -3 | -1 | **10** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **57** | **82** | **76** | **7** | -2 | -1 | 0 | -4 | -7 | -1 | 0 | **6** |
| Above Normal (16%) | **94** | **81** | **76** | **24** | -1 | -2 | -4 | -12 | -14 | -2 | **1** | **37** |
| Below Normal (13%) | **4** | **5** | **3** | **24** | 0 | -6 | -6 | -18 | -24 | -2 | **5** | **9** |
| Dry (24%) | **7** | **10** | **2** | **23** | -3 | -15 | -15 | -20 | -22 | -3 | -5 | **2** |
| Critical (15%) | **3** | **3** | **4** | **3** | -13 | -28 | -27 | -24 | -21 | -7 | 0 | **1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 21-2. Banks Pumping Plant South Delta Exports Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 157 | 169 | 195 | 182 | 144 | 119 | 109 | 101 | 89 | 71 | 100 | 121 |
| 20% | 149 | 151 | 170 | 167 | 121 | 101 | 90 | 84 | 77 | 57 | 67 | 114 |
| 30% | 142 | 136 | 153 | 130 | 109 | 89 | 77 | 78 | 63 | 44 | 61 | 108 |
| 40% | 134 | 128 | 137 | 117 | 102 | 78 | 67 | 70 | 58 | 42 | 54 | 101 |
| 50% | 123 | 98 | 70 | 102 | 91 | 67 | 61 | 57 | 53 | 39 | 53 | 95 |
| 60% | 57 | 46 | 55 | 93 | 86 | 62 | 49 | 50 | 50 | 35 | 45 | 92 |
| 70% | 52 | 42 | 43 | 77 | 73 | 52 | 39 | 44 | 48 | 34 | 39 | 84 |
| 80% | 47 | 37 | 36 | 68 | 55 | 44 | 33 | 37 | 42 | 30 | 35 | 76 |
| 90% | 42 | 35 | 34 | 59 | 48 | 35 | 25 | 18 | 30 | 28 | 30 | 68 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 99 | 95 | 100 | 112 | 94 | 74 | 63 | 61 | 58 | 45 | 56 | 94 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 49 | 36 | 36 | 75 | 62 | 44 | 32 | 32 | 39 | 34 | 37 | 82 |
| Above Normal (16%) | 45 | 48 | 61 | 104 | 91 | 65 | 53 | 52 | 51 | 32 | 37 | 73 |
| Below Normal (13%) | 142 | 124 | 133 | 111 | 97 | 78 | 69 | 70 | 64 | 39 | 54 | 108 |
| Dry (24%) | 142 | 134 | 134 | 137 | 110 | 85 | 78 | 74 | 62 | 47 | 74 | 105 |
| Critical (15%) | 153 | 179 | 195 | 157 | 136 | 124 | 114 | 104 | 94 | 85 | 89 | 114 |

### Alternative 2 021719

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 159 | 172 | 188 | 207 | 148 | 105 | 78 | 63 | 61 | 63 | 93 | 125 |
| 20% | 155 | 163 | 177 | 177 | 119 | 80 | 64 | 59 | 49 | 47 | 65 | 118 |
| 30% | 150 | 145 | 168 | 163 | 96 | 66 | 57 | 55 | 38 | 41 | 61 | 114 |
| 40% | 146 | 138 | 155 | 151 | 85 | 62 | 50 | 43 | 34 | 39 | 55 | 111 |
| 50% | 142 | 131 | 145 | 140 | 76 | 54 | 44 | 39 | 33 | 33 | 50 | 106 |
| 60% | 139 | 122 | 138 | 91 | 66 | 51 | 41 | 38 | 32 | 31 | 45 | 100 |
| 70% | 133 | 118 | 122 | 72 | 56 | 43 | 38 | 34 | 30 | 30 | 39 | 94 |
| 80% | 127 | 105 | 85 | 61 | 45 | 38 | 31 | 31 | 29 | 27 | 37 | 87 |
| 90% | 89 | 90 | 43 | 52 | 39 | 32 | 23 | 21 | 27 | 25 | 33 | 75 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 134 | 130 | 135 | 125 | 85 | 61 | 51 | 45 | 40 | 40 | 55 | 102 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 106 | 112 | 120 | 72 | 47 | 40 | 30 | 27 | 30 | 33 | 37 | 85 |
| Above Normal (16%) | 149 | 146 | 148 | 118 | 73 | 51 | 40 | 36 | 31 | 29 | 41 | 113 |
| Below Normal (13%) | 145 | 127 | 128 | 148 | 115 | 76 | 59 | 48 | 31 | 31 | 63 | 109 |
| Dry (24%) | 145 | 119 | 117 | 160 | 99 | 62 | 55 | 51 | 41 | 42 | 64 | 105 |
| Critical (15%) | 152 | 172 | 193 | 165 | 129 | 106 | 90 | 79 | 76 | 77 | 90 | 116 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **2** | **3** | -7 | **25** | **4** | -14 | -31 | -38 | -28 | -8 | -7 | **5** |
| 20% | **7** | **12** | **7** | **10** | -2 | -21 | -26 | -26 | -28 | -11 | -2 | **4** |
| 30% | **8** | **9** | **15** | **33** | -13 | -22 | -20 | -23 | -25 | -3 | -1 | **6** |
| 40% | **12** | **10** | **18** | **34** | -17 | -16 | -17 | -26 | -23 | -2 | **1** | **10** |
| 50% | **19** | **33** | **75** | **39** | -16 | -13 | -17 | -18 | -20 | -6 | -3 | **10** |
| 60% | **82** | **77** | **82** | -2 | -20 | -11 | -8 | -12 | -19 | -4 | **1** | **8** |
| 70% | **81** | **77** | **79** | -6 | -17 | -8 | -1 | -10 | -18 | -3 | **0** | **10** |
| 80% | **80** | **68** | **48** | -7 | -11 | -7 | -2 | -7 | -13 | -3 | **2** | **11** |
| 90% | **47** | **54** | **9** | -7 | -9 | -3 | -2 | **3** | -3 | -3 | **4** | **7** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **35** | **35** | **35** | **13** | -9 | -13 | -13 | -16 | -18 | -5 | 0 | **8** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **56** | **75** | **84** | -3 | -15 | -5 | -1 | -5 | -9 | -2 | 0 | **3** |
| Above Normal (16%) | **104** | **98** | **86** | **15** | -19 | -15 | -13 | -16 | -20 | -4 | **4** | **40** |
| Below Normal (13%) | **3** | **3** | -5 | **37** | **18** | -2 | -10 | -22 | -32 | -9 | **9** | **1** |
| Dry (24%) | **3** | -15 | -17 | **22** | -11 | -23 | -22 | -23 | -21 | -5 | -9 | 0 |
| Critical (15%) | -1 | -8 | -2 | **8** | -7 | -18 | -24 | -25 | -18 | -8 | **1** | **2** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 21-3. Banks Pumping Plant South Delta Exports Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 157 | 169 | 195 | 182 | 144 | 119 | 109 | 101 | 89 | 71 | 100 | 121 |
| 20% | 149 | 151 | 170 | 167 | 121 | 101 | 90 | 84 | 77 | 57 | 67 | 114 |
| 30% | 142 | 136 | 153 | 130 | 109 | 89 | 77 | 78 | 63 | 44 | 61 | 108 |
| 40% | 134 | 128 | 137 | 117 | 102 | 78 | 67 | 70 | 58 | 42 | 54 | 101 |
| 50% | 123 | 98 | 70 | 102 | 91 | 67 | 61 | 57 | 53 | 39 | 53 | 95 |
| 60% | 57 | 46 | 55 | 93 | 86 | 62 | 49 | 50 | 50 | 35 | 45 | 92 |
| 70% | 52 | 42 | 43 | 77 | 73 | 52 | 39 | 44 | 48 | 34 | 39 | 84 |
| 80% | 47 | 37 | 36 | 68 | 55 | 44 | 33 | 37 | 42 | 30 | 35 | 76 |
| 90% | 42 | 35 | 34 | 59 | 48 | 35 | 25 | 18 | 30 | 28 | 30 | 68 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 99 | 95 | 100 | 112 | 94 | 74 | 63 | 61 | 58 | 45 | 56 | 94 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 49 | 36 | 36 | 75 | 62 | 44 | 32 | 32 | 39 | 34 | 37 | 82 |
| Above Normal (16%) | 45 | 48 | 61 | 104 | 91 | 65 | 53 | 52 | 51 | 32 | 37 | 73 |
| Below Normal (13%) | 142 | 124 | 133 | 111 | 97 | 78 | 69 | 70 | 64 | 39 | 54 | 108 |
| Dry (24%) | 142 | 134 | 134 | 137 | 110 | 85 | 78 | 74 | 62 | 47 | 74 | 105 |
| Critical (15%) | 153 | 179 | 195 | 157 | 136 | 124 | 114 | 104 | 94 | 85 | 89 | 114 |

### Alternative 3 021719

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 171 | 171 | 180 | 200 | 138 | 91 | 81 | 65 | 66 | 65 | 92 | 130 |
| 20% | 161 | 162 | 173 | 175 | 122 | 81 | 65 | 60 | 48 | 47 | 65 | 124 |
| 30% | 156 | 150 | 162 | 161 | 95 | 69 | 60 | 56 | 39 | 43 | 62 | 119 |
| 40% | 152 | 139 | 153 | 149 | 85 | 62 | 52 | 45 | 37 | 39 | 56 | 112 |
| 50% | 148 | 134 | 138 | 133 | 75 | 55 | 46 | 41 | 35 | 35 | 50 | 107 |
| 60% | 144 | 125 | 125 | 88 | 67 | 51 | 43 | 39 | 33 | 32 | 44 | 100 |
| 70% | 138 | 114 | 113 | 69 | 55 | 44 | 39 | 36 | 30 | 30 | 39 | 95 |
| 80% | 130 | 104 | 83 | 59 | 43 | 38 | 32 | 32 | 30 | 27 | 37 | 89 |
| 90% | 101 | 88 | 49 | 50 | 38 | 32 | 23 | 21 | 27 | 26 | 32 | 78 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 140 | 129 | 129 | 121 | 83 | 62 | 52 | 46 | 41 | 41 | 56 | 104 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 113 | 115 | 114 | 71 | 47 | 40 | 31 | 28 | 31 | 33 | 37 | 87 |
| Above Normal (16%) | 148 | 144 | 144 | 107 | 69 | 51 | 41 | 37 | 32 | 29 | 39 | 112 |
| Below Normal (13%) | 155 | 129 | 123 | 146 | 115 | 79 | 61 | 49 | 33 | 31 | 61 | 116 |
| Dry (24%) | 152 | 117 | 114 | 157 | 96 | 65 | 59 | 53 | 41 | 42 | 65 | 108 |
| Critical (15%) | 153 | 161 | 175 | 162 | 124 | 101 | 91 | 81 | 77 | 79 | 93 | 118 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **14** | **2** | -15 | **18** | -6 | -28 | -29 | -36 | -22 | -6 | -8 | **10** |
| 20% | **12** | **11** | **4** | **8** | **1** | -20 | -25 | -24 | -29 | -10 | -3 | **10** |
| 30% | **14** | **13** | **9** | **31** | -13 | -20 | -17 | -22 | -25 | -2 | **0** | **11** |
| 40% | **19** | **11** | **15** | **32** | -17 | -16 | -16 | -25 | -21 | -3 | **2** | **12** |
| 50% | **25** | **36** | **68** | **31** | -16 | -12 | -16 | -16 | -18 | -5 | -2 | **11** |
| 60% | **88** | **80** | **70** | -5 | -19 | -11 | -6 | -11 | -17 | -3 | 0 | **8** |
| 70% | **86** | **72** | **70** | -9 | -18 | -8 | 0 | -8 | -17 | -4 | 0 | **11** |
| 80% | **83** | **67** | **46** | -9 | -12 | -6 | -1 | -5 | -12 | -2 | **2** | **13** |
| 90% | **58** | **53** | **15** | -9 | -9 | -3 | -2 | **3** | -3 | -2 | **3** | **10** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **41** | **34** | **29** | **9** | -11 | -12 | -12 | -15 | -17 | -4 | **0** | **10** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **64** | **79** | **78** | -4 | -15 | -4 | -1 | -4 | -8 | -1 | **1** | **5** |
| Above Normal (16%) | **104** | **96** | **82** | **3** | -23 | -15 | -12 | -15 | -19 | -3 | **2** | **39** |
| Below Normal (13%) | **14** | **4** | -10 | **35** | **18** | **0** | -9 | -21 | -31 | -8 | **8** | **8** |
| Dry (24%) | **10** | -17 | -21 | **19** | -14 | -21 | -19 | -21 | -20 | -5 | -8 | **3** |
| Critical (15%) | 0 | -19 | -19 | **6** | -13 | -23 | -24 | -23 | -17 | -6 | **4** | **4** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 21-4. Banks Pumping Plant South Delta Exports Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 157 | 169 | 195 | 182 | 144 | 119 | 109 | 101 | 89 | 71 | 100 | 121 |
| 20% | 149 | 151 | 170 | 167 | 121 | 101 | 90 | 84 | 77 | 57 | 67 | 114 |
| 30% | 142 | 136 | 153 | 130 | 109 | 89 | 77 | 78 | 63 | 44 | 61 | 108 |
| 40% | 134 | 128 | 137 | 117 | 102 | 78 | 67 | 70 | 58 | 42 | 54 | 101 |
| 50% | 123 | 98 | 70 | 102 | 91 | 67 | 61 | 57 | 53 | 39 | 53 | 95 |
| 60% | 57 | 46 | 55 | 93 | 86 | 62 | 49 | 50 | 50 | 35 | 45 | 92 |
| 70% | 52 | 42 | 43 | 77 | 73 | 52 | 39 | 44 | 48 | 34 | 39 | 84 |
| 80% | 47 | 37 | 36 | 68 | 55 | 44 | 33 | 37 | 42 | 30 | 35 | 76 |
| 90% | 42 | 35 | 34 | 59 | 48 | 35 | 25 | 18 | 30 | 28 | 30 | 68 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 99 | 95 | 100 | 112 | 94 | 74 | 63 | 61 | 58 | 45 | 56 | 94 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 49 | 36 | 36 | 75 | 62 | 44 | 32 | 32 | 39 | 34 | 37 | 82 |
| Above Normal (16%) | 45 | 48 | 61 | 104 | 91 | 65 | 53 | 52 | 51 | 32 | 37 | 73 |
| Below Normal (13%) | 142 | 124 | 133 | 111 | 97 | 78 | 69 | 70 | 64 | 39 | 54 | 108 |
| Dry (24%) | 142 | 134 | 134 | 137 | 110 | 85 | 78 | 74 | 62 | 47 | 74 | 105 |
| Critical (15%) | 153 | 179 | 195 | 157 | 136 | 124 | 114 | 104 | 94 | 85 | 89 | 114 |

### Alternative 4 043019

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 155 | 175 | 193 | 188 | 138 | 128 | 137 | 120 | 96 | 75 | 80 | 117 |
| 20% | 149 | 167 | 176 | 182 | 124 | 116 | 121 | 114 | 67 | 48 | 72 | 111 |
| 30% | 144 | 158 | 160 | 162 | 105 | 105 | 113 | 103 | 64 | 45 | 58 | 105 |
| 40% | 142 | 150 | 154 | 141 | 98 | 99 | 99 | 85 | 58 | 42 | 52 | 103 |
| 50% | 139 | 137 | 147 | 121 | 90 | 91 | 85 | 56 | 53 | 39 | 45 | 101 |
| 60% | 134 | 134 | 137 | 100 | 74 | 79 | 58 | 53 | 50 | 36 | 42 | 98 |
| 70% | 131 | 126 | 124 | 87 | 70 | 59 | 41 | 47 | 48 | 33 | 36 | 91 |
| 80% | 124 | 118 | 85 | 73 | 55 | 44 | 31 | 40 | 44 | 30 | 34 | 86 |
| 90% | 110 | 111 | 57 | 59 | 42 | 36 | 23 | 18 | 32 | 28 | 29 | 72 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 132 | 137 | 135 | 123 | 89 | 84 | 79 | 71 | 57 | 44 | 52 | 97 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 111 | 125 | 111 | 82 | 60 | 49 | 35 | 34 | 40 | 34 | 36 | 87 |
| Above Normal (16%) | 140 | 131 | 136 | 122 | 90 | 82 | 66 | 54 | 51 | 32 | 35 | 103 |
| Below Normal (13%) | 130 | 121 | 125 | 125 | 92 | 98 | 95 | 84 | 58 | 38 | 50 | 88 |
| Dry (24%) | 146 | 142 | 135 | 158 | 106 | 103 | 110 | 97 | 64 | 46 | 64 | 102 |
| Critical (15%) | 151 | 178 | 195 | 156 | 123 | 117 | 124 | 111 | 92 | 83 | 87 | 111 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -2 | **6** | -2 | **5** | -7 | **9** | **28** | **19** | **7** | **4** | -20 | -3 |
| 20% | 0 | **16** | **6** | **15** | **3** | **14** | **31** | **30** | -10 | -9 | **4** | -4 |
| 30% | **2** | **22** | **6** | **31** | -4 | **16** | **36** | **25** | **1** | **1** | -3 | -3 |
| 40% | **8** | **22** | **16** | **25** | -4 | **21** | **32** | **16** | **0** | **0** | -3 | **3** |
| 50% | **15** | **39** | **77** | **19** | -1 | **24** | **24** | -1 | **0** | 0 | -8 | **5** |
| 60% | **78** | **89** | **82** | **7** | -12 | **17** | **9** | **3** | 0 | **0** | -2 | **7** |
| 70% | **79** | **84** | **81** | **10** | -2 | **8** | **2** | **2** | **0** | -1 | -3 | **7** |
| 80% | **78** | **81** | **49** | **5** | 0 | **0** | -2 | **3** | **3** | **0** | -1 | **10** |
| 90% | **68** | **75** | **23** | 0 | -5 | **1** | -2 | 0 | **1** | **0** | 0 | **4** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **34** | **42** | **35** | **12** | -4 | **10** | **16** | **9** | 0 | -1 | -4 | **2** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **62** | **88** | **75** | **7** | -2 | **5** | **4** | **2** | **1** | **0** | -1 | **5** |
| Above Normal (16%) | **95** | **83** | **74** | **18** | -1 | **17** | **13** | **2** | **0** | 0 | -2 | **30** |
| Below Normal (13%) | -11 | -4 | -8 | **15** | -6 | **20** | **25** | **14** | -6 | -1 | -4 | -20 |
| Dry (24%) | **3** | **8** | **0** | **20** | -4 | **18** | **33** | **23** | **2** | -1 | -9 | -3 |
| Critical (15%) | -3 | -1 | **1** | -1 | -13 | -7 | **9** | **7** | -2 | -2 | -2 | -3 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

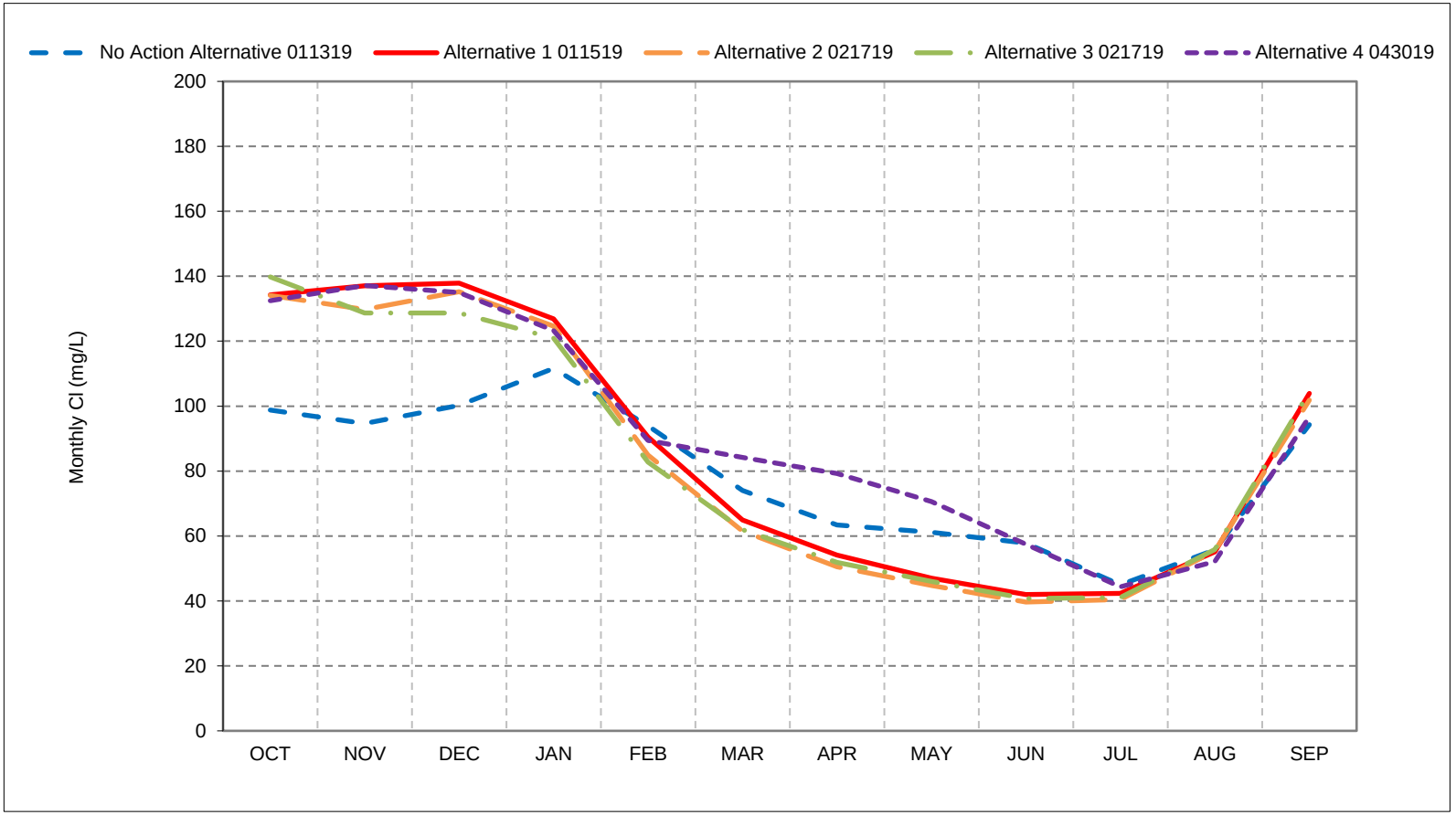
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

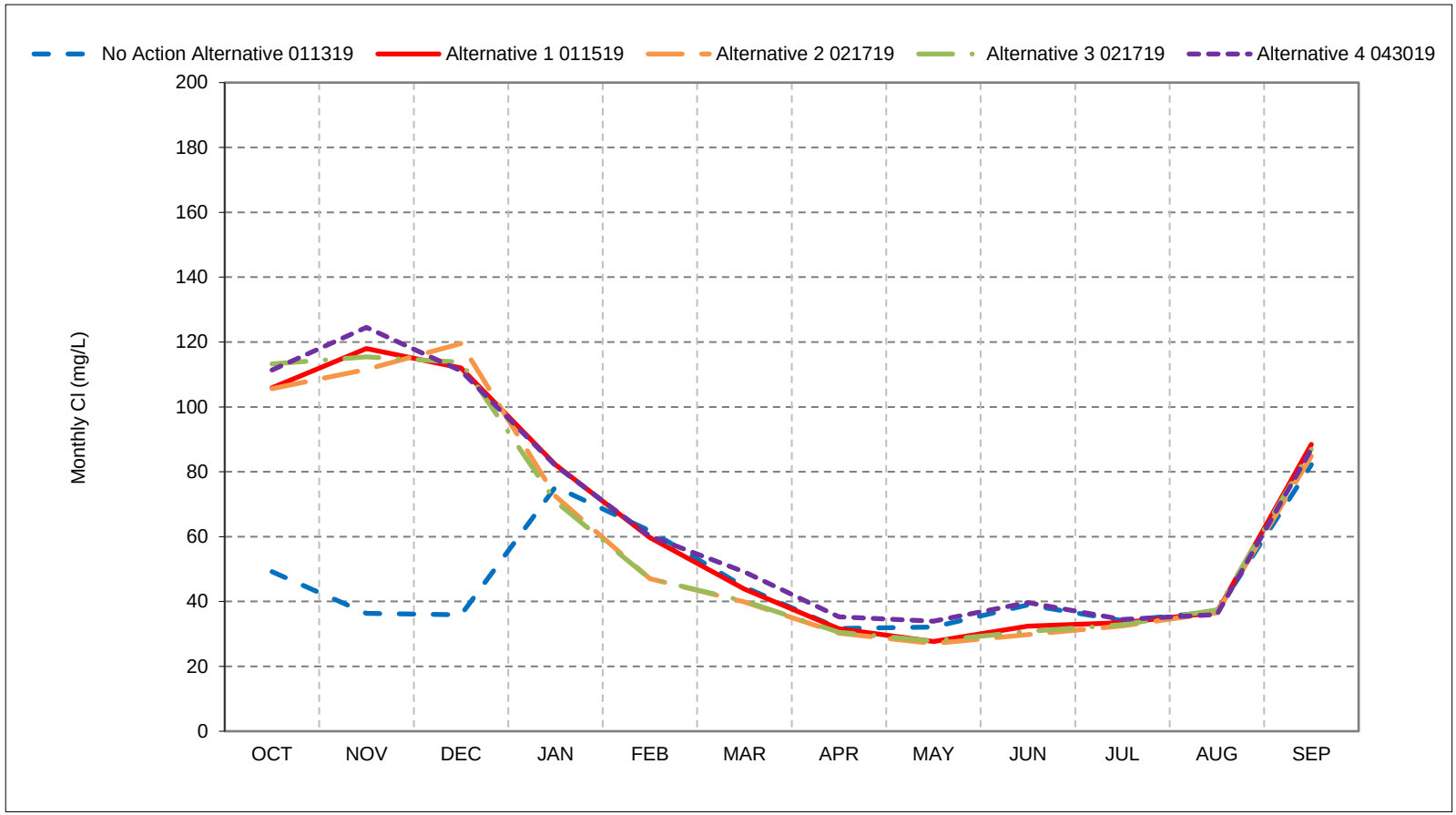
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 21-1. Banks Pumping Plant South Delta Exports Chloride, Long-Term Average Cl



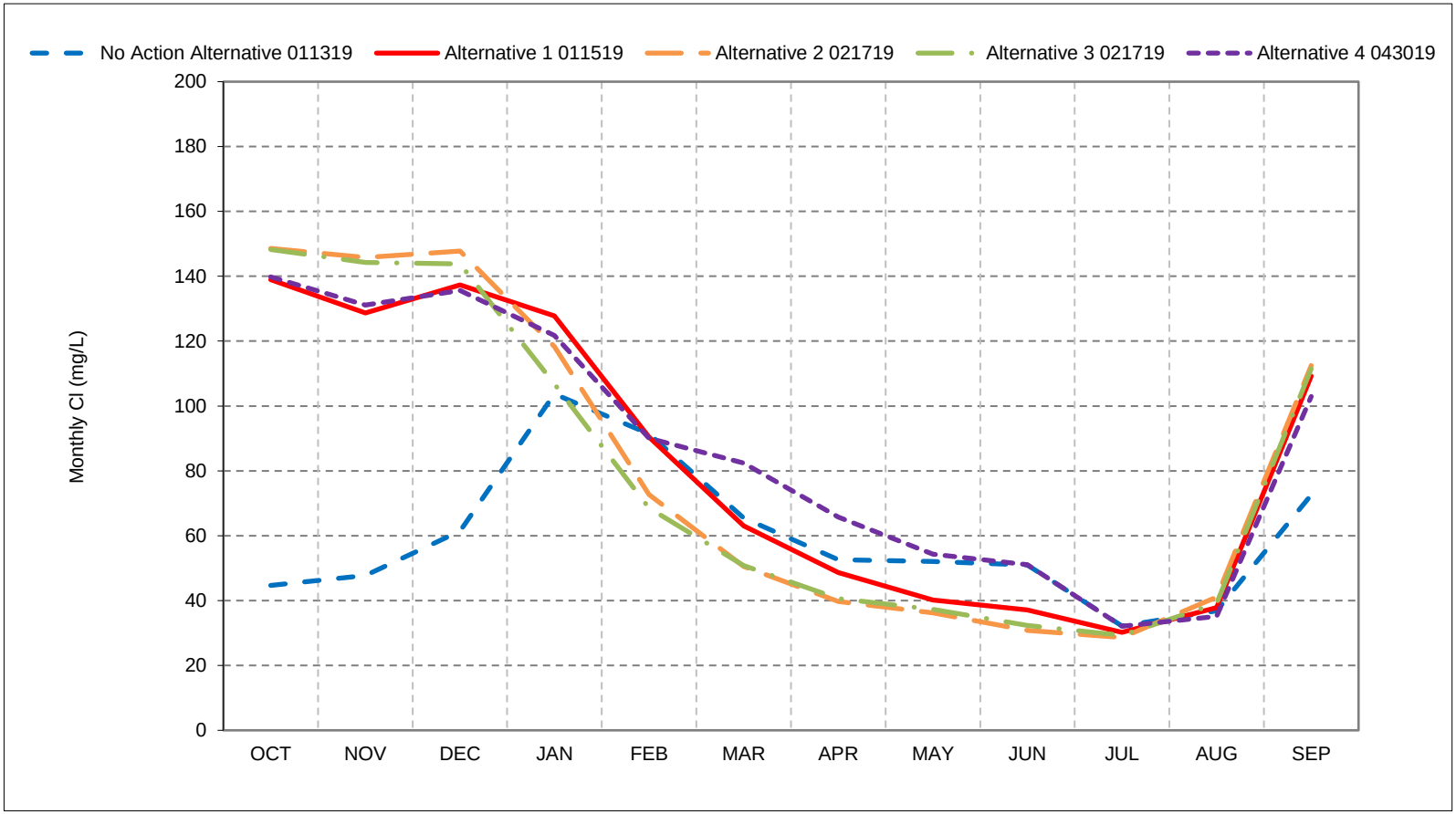

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 21-2. Banks Pumping Plant South Delta Exports Chloride, Wet Year Average Cl



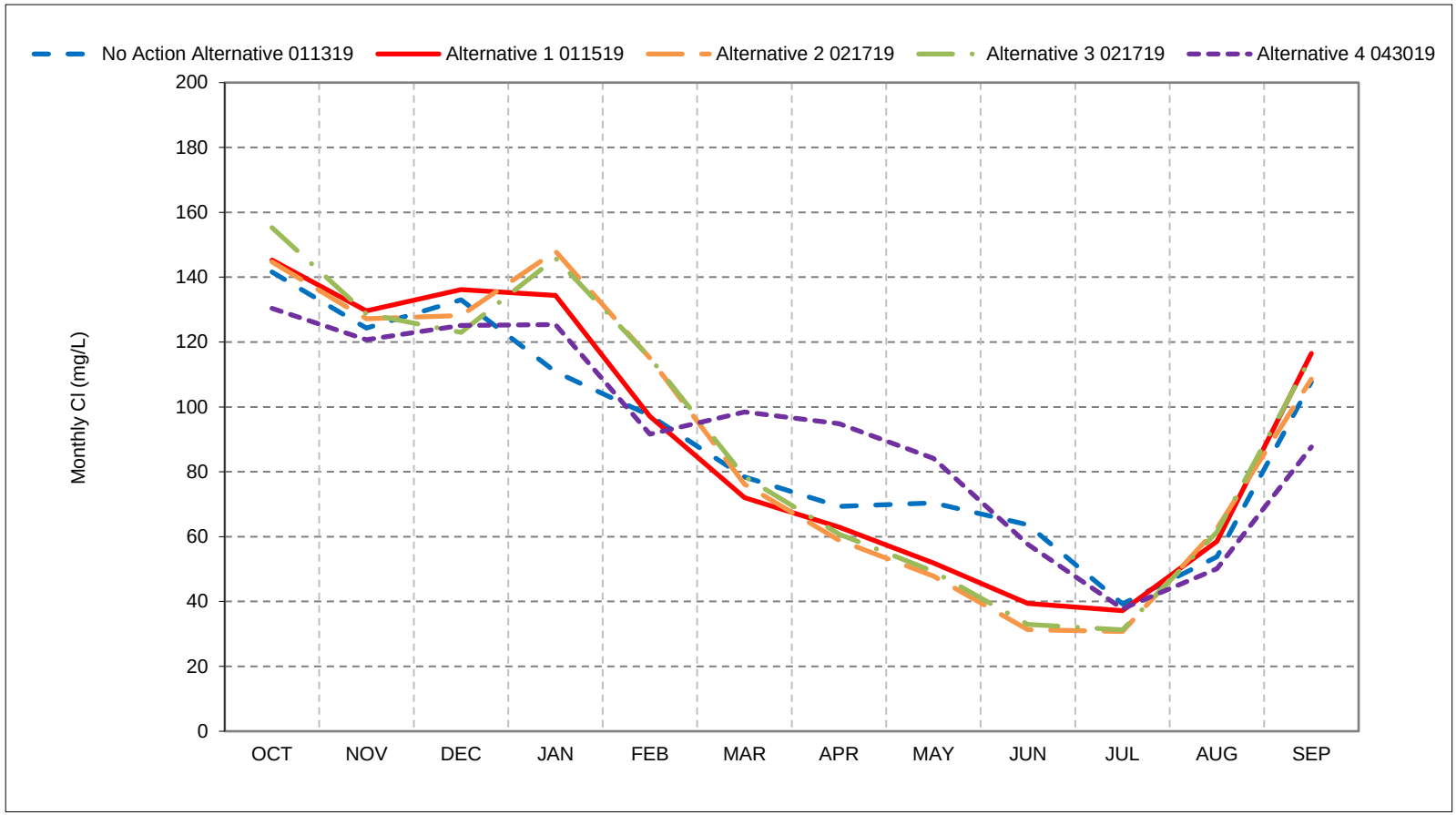

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 21-3. Banks Pumping Plant South Delta Exports Chloride, Above Normal Year Average Cl



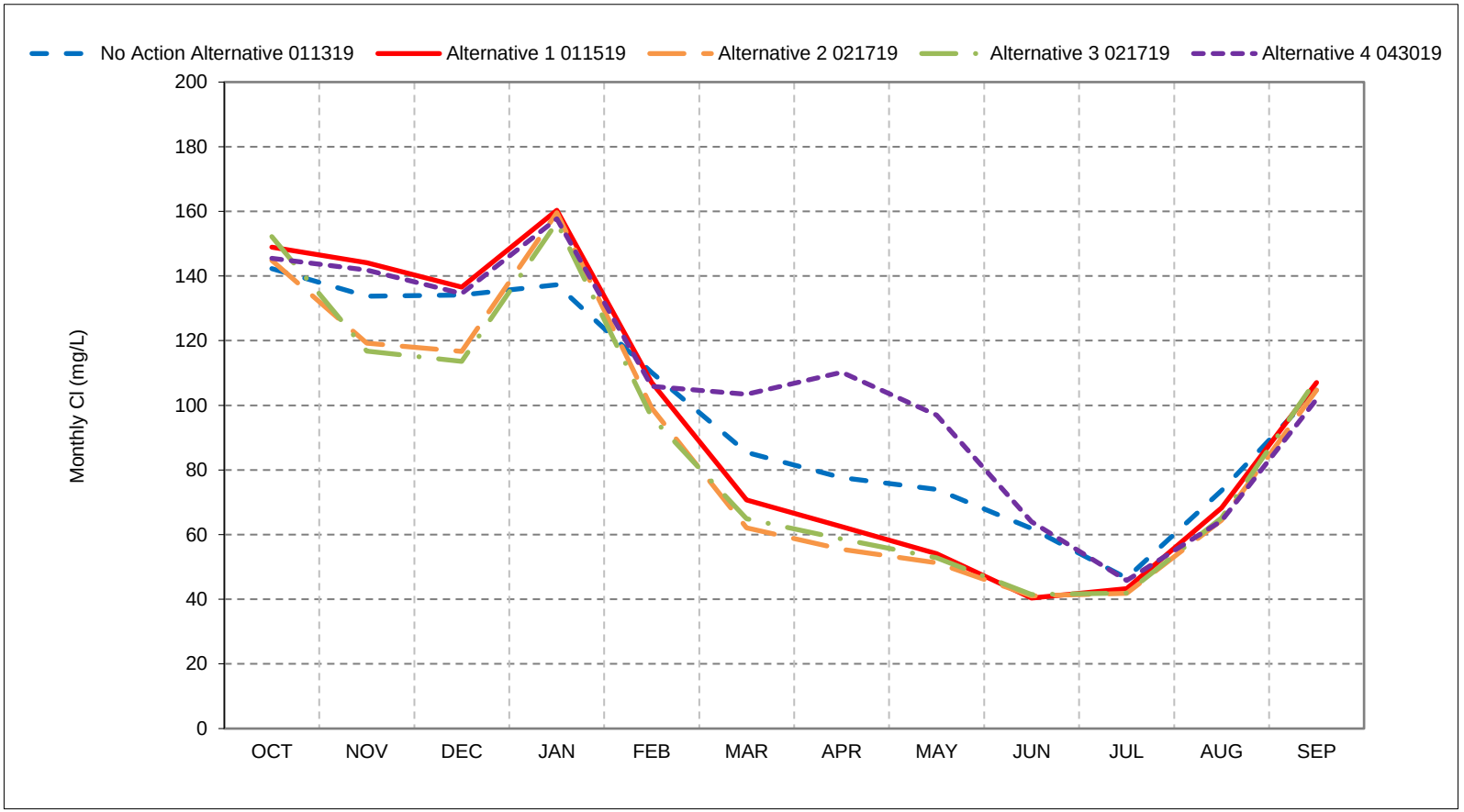

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 21-4. Banks Pumping Plant South Delta Exports Chloride, Below Normal Year Average Cl



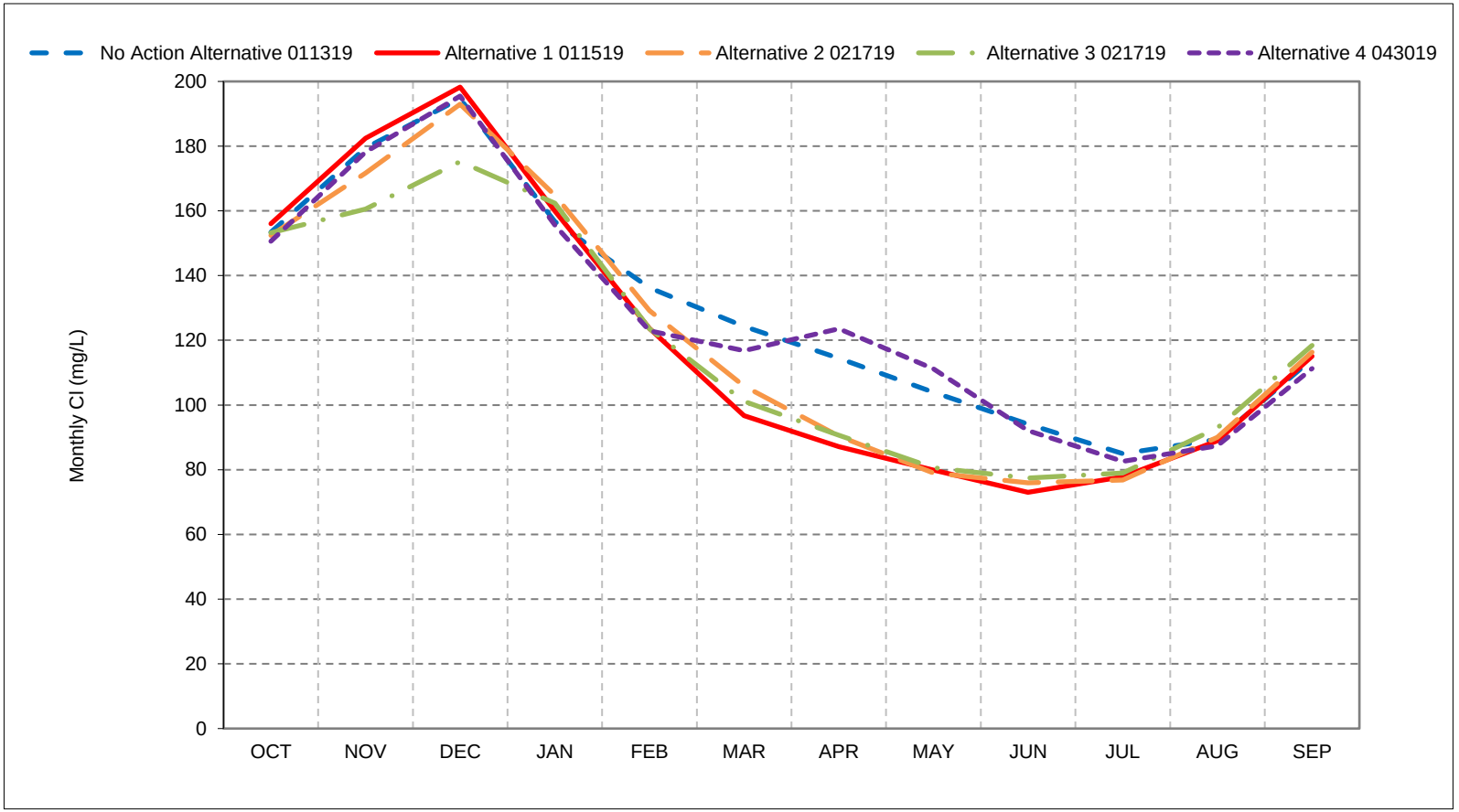

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 21-5. Banks Pumping Plant South Delta Exports Chloride, Dry Year Average Cl



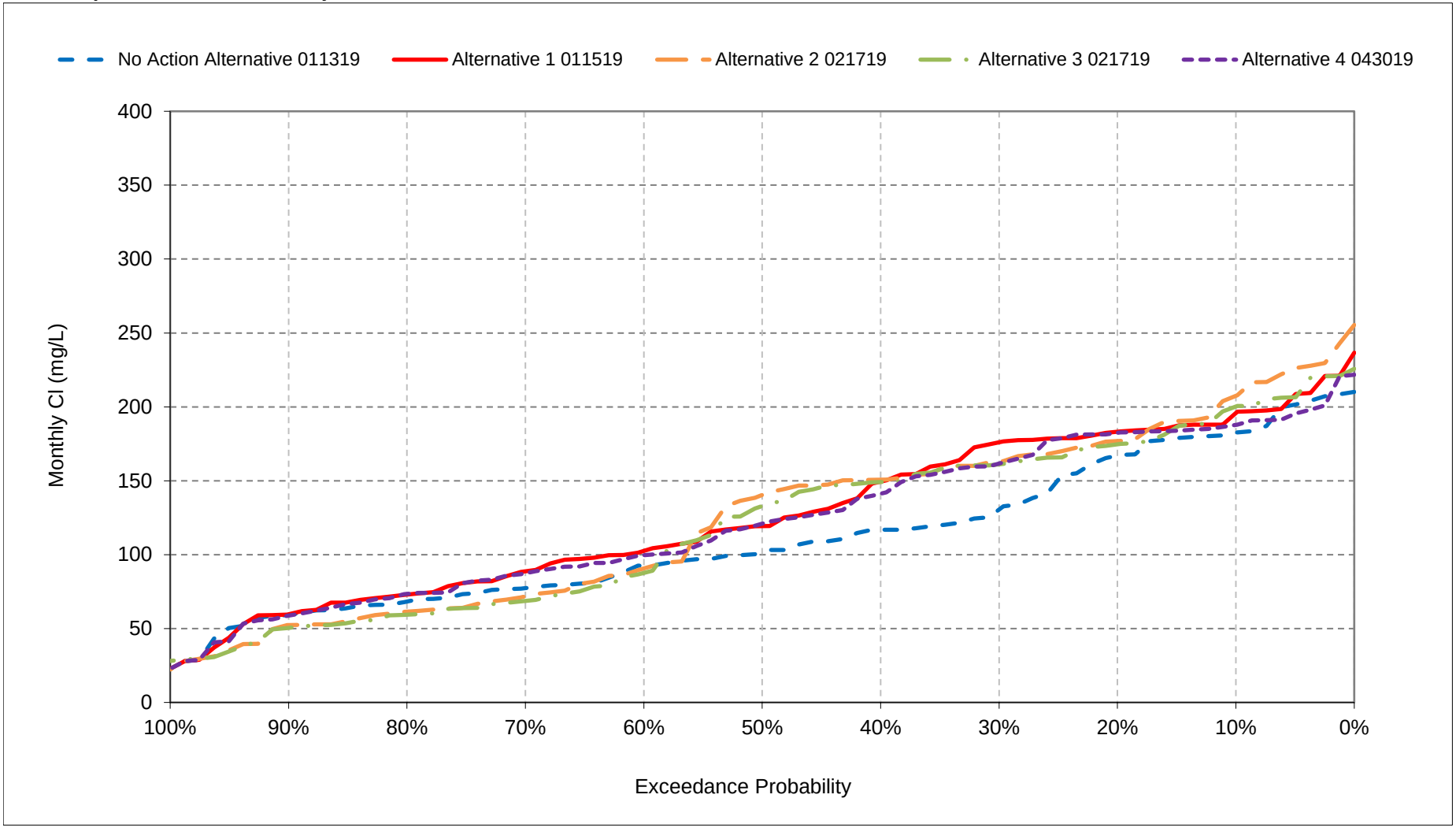

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 21-6. Banks Pumping Plant South Delta Exports Chloride, Critical Year Average Cl



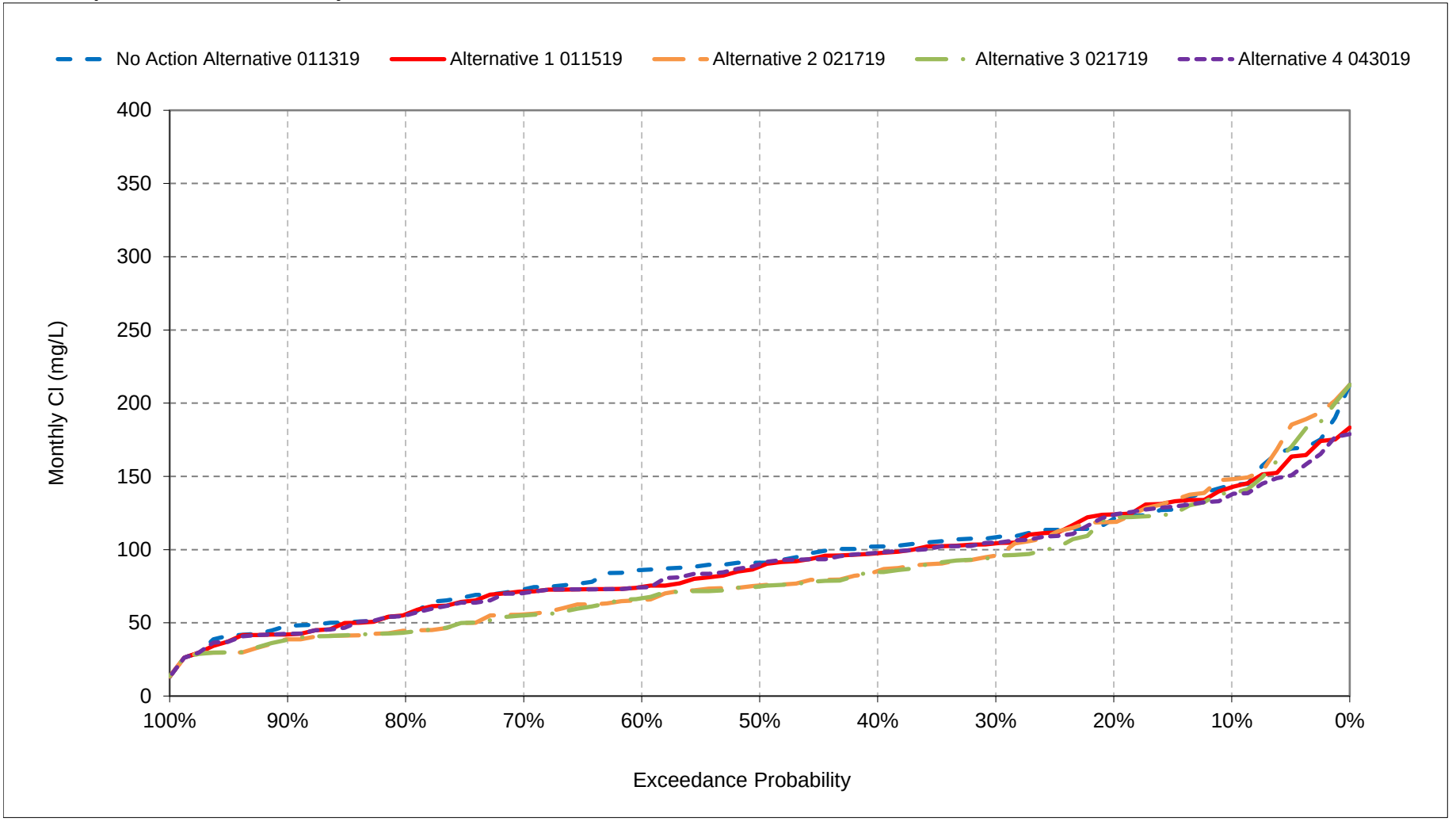

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 21-7. Banks Pumping Plant South**
**Delta Exports Chloride, January Cl**



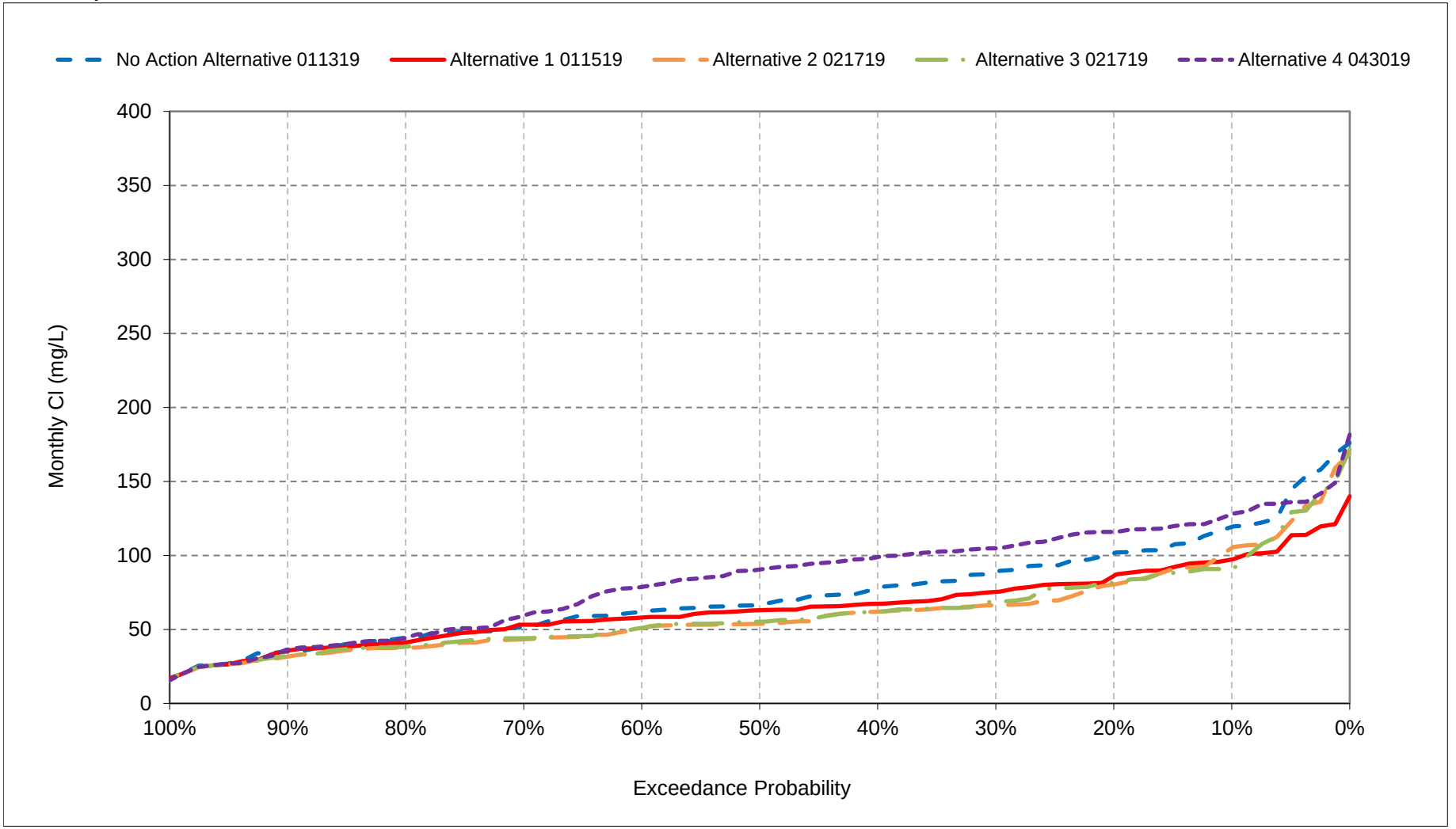

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 21-8. Banks Pumping Plant South**
**Delta Exports Chloride, February Cl**



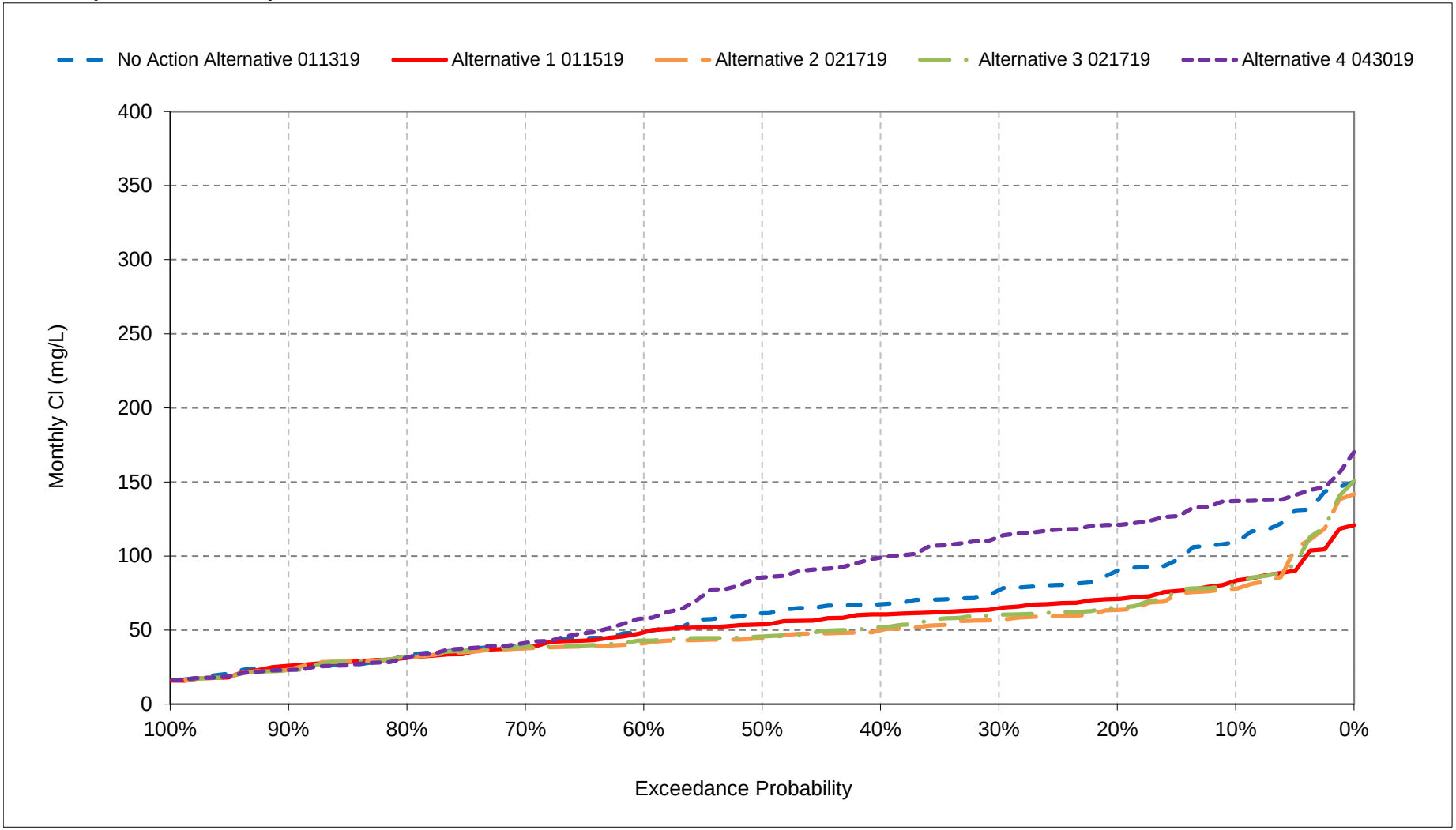

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 21-9. Banks Pumping Plant South**
**Delta Exports Chloride, March Cl**



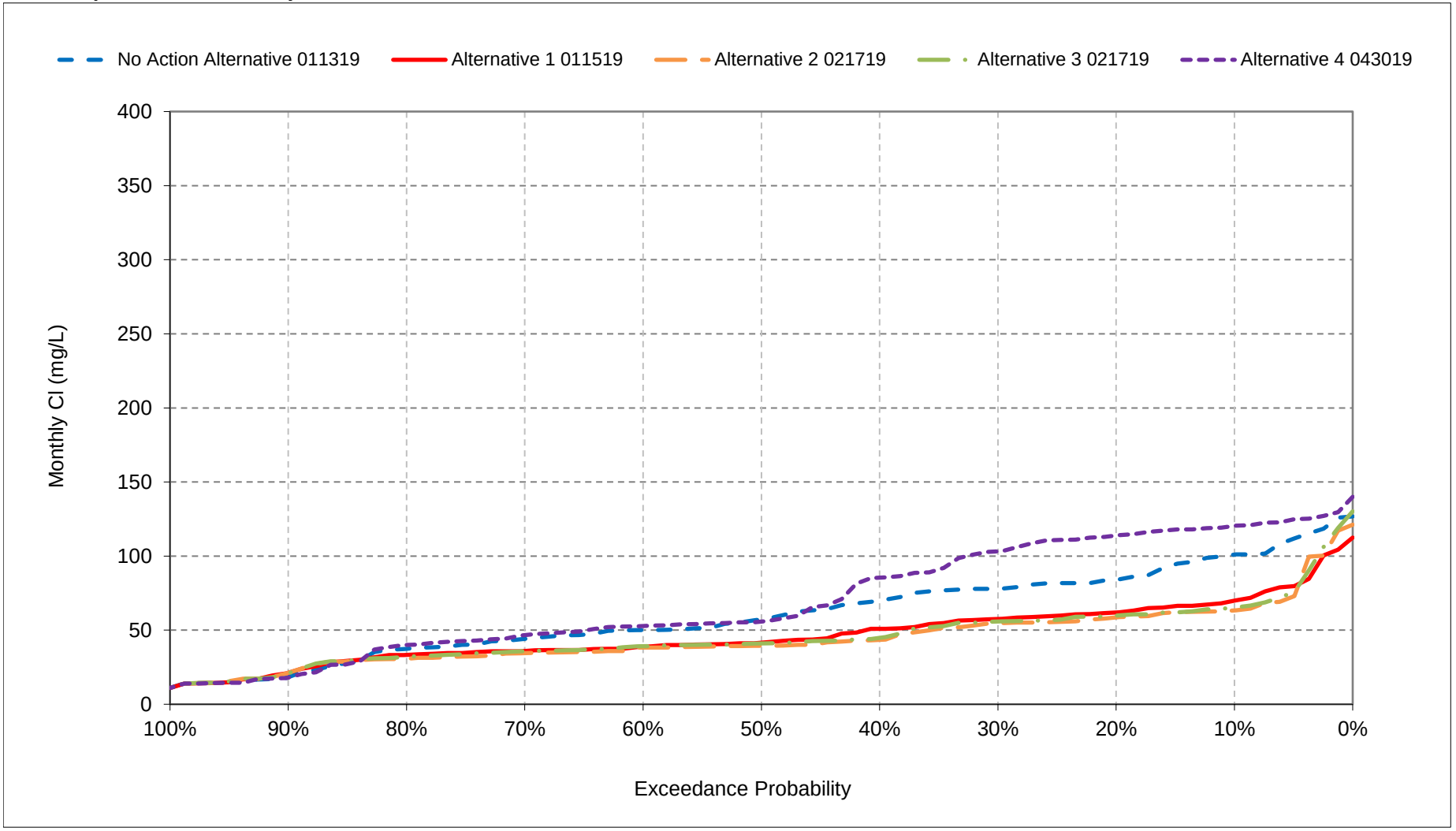

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 21-10. Banks Pumping Plant South**
**Delta Exports Chloride, April Cl**



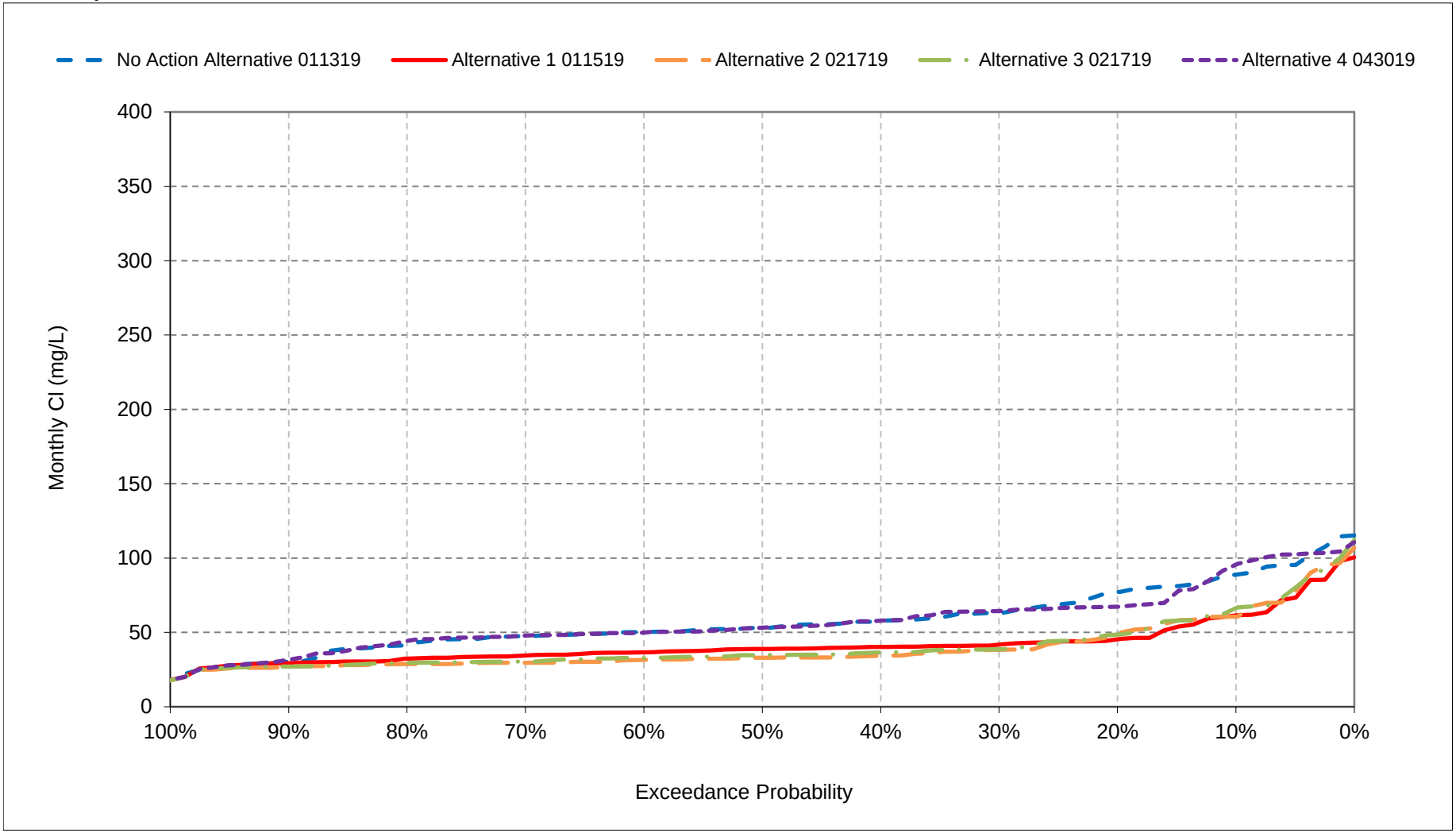

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 21-11. Banks Pumping Plant South**
**Delta Exports Chloride, May Cl**



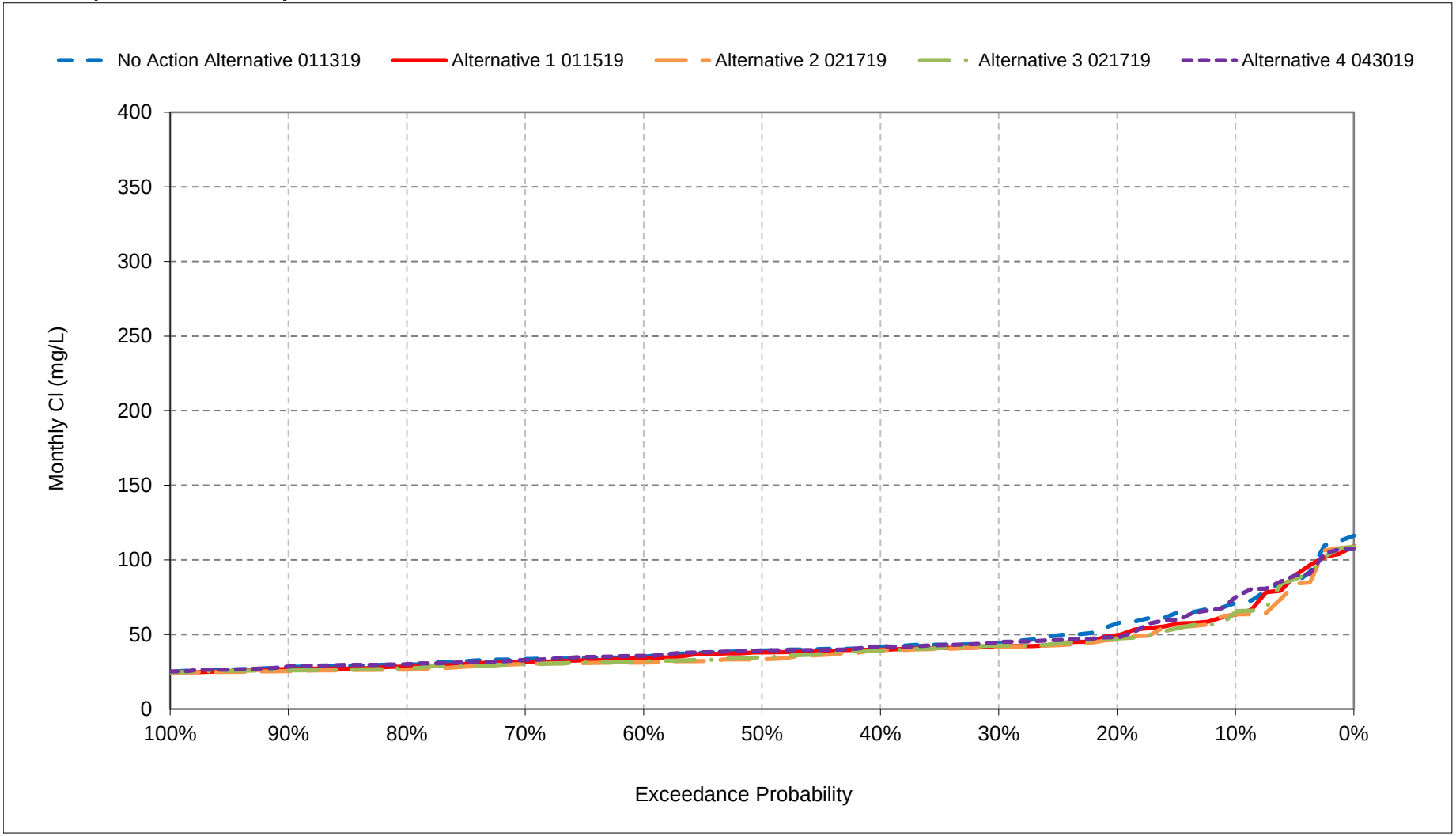

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 21-12. Banks Pumping Plant South**
**Delta Exports Chloride, June Cl**



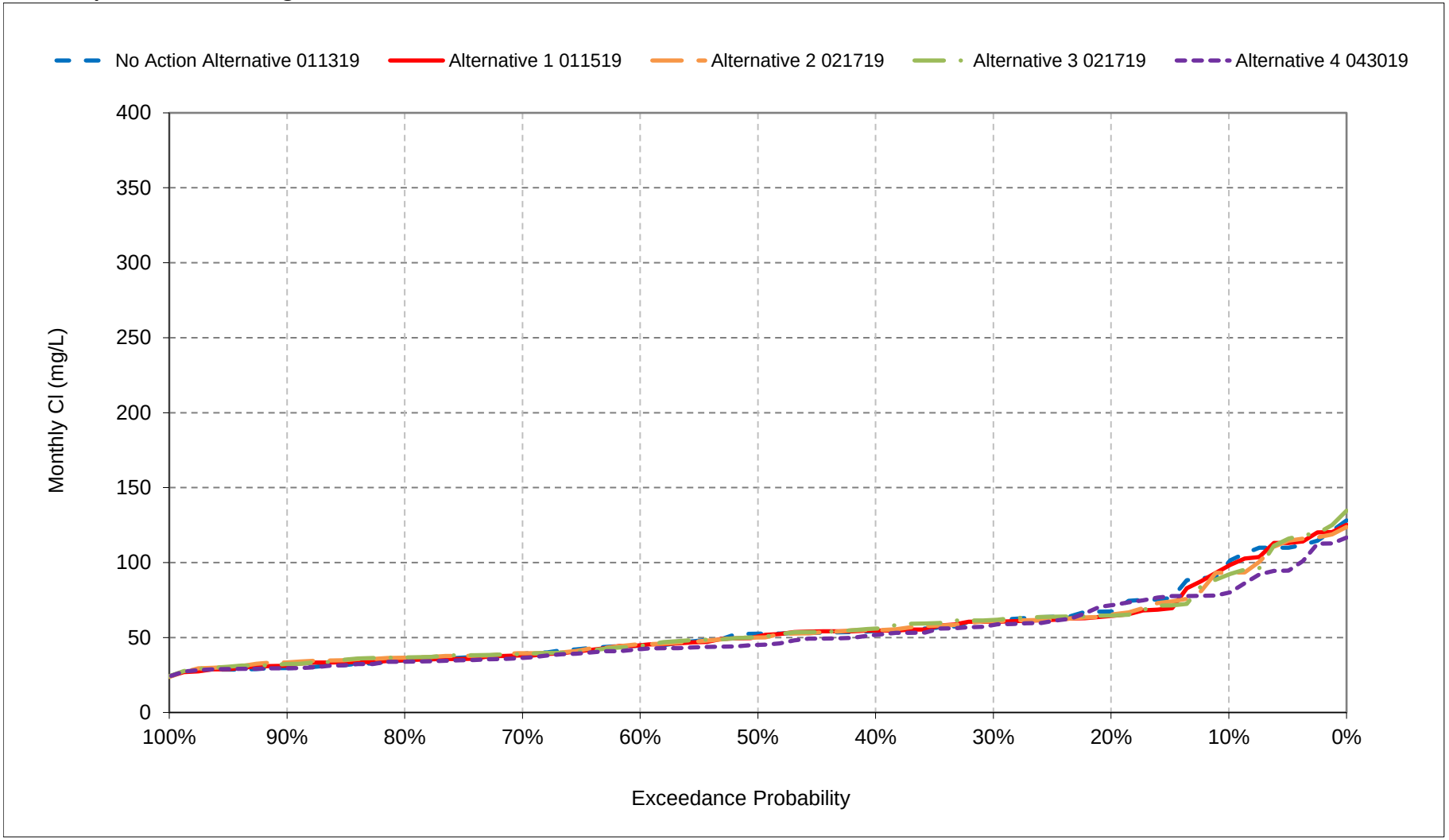

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 21-13. Banks Pumping Plant South**
**Delta Exports Chloride, July Cl**



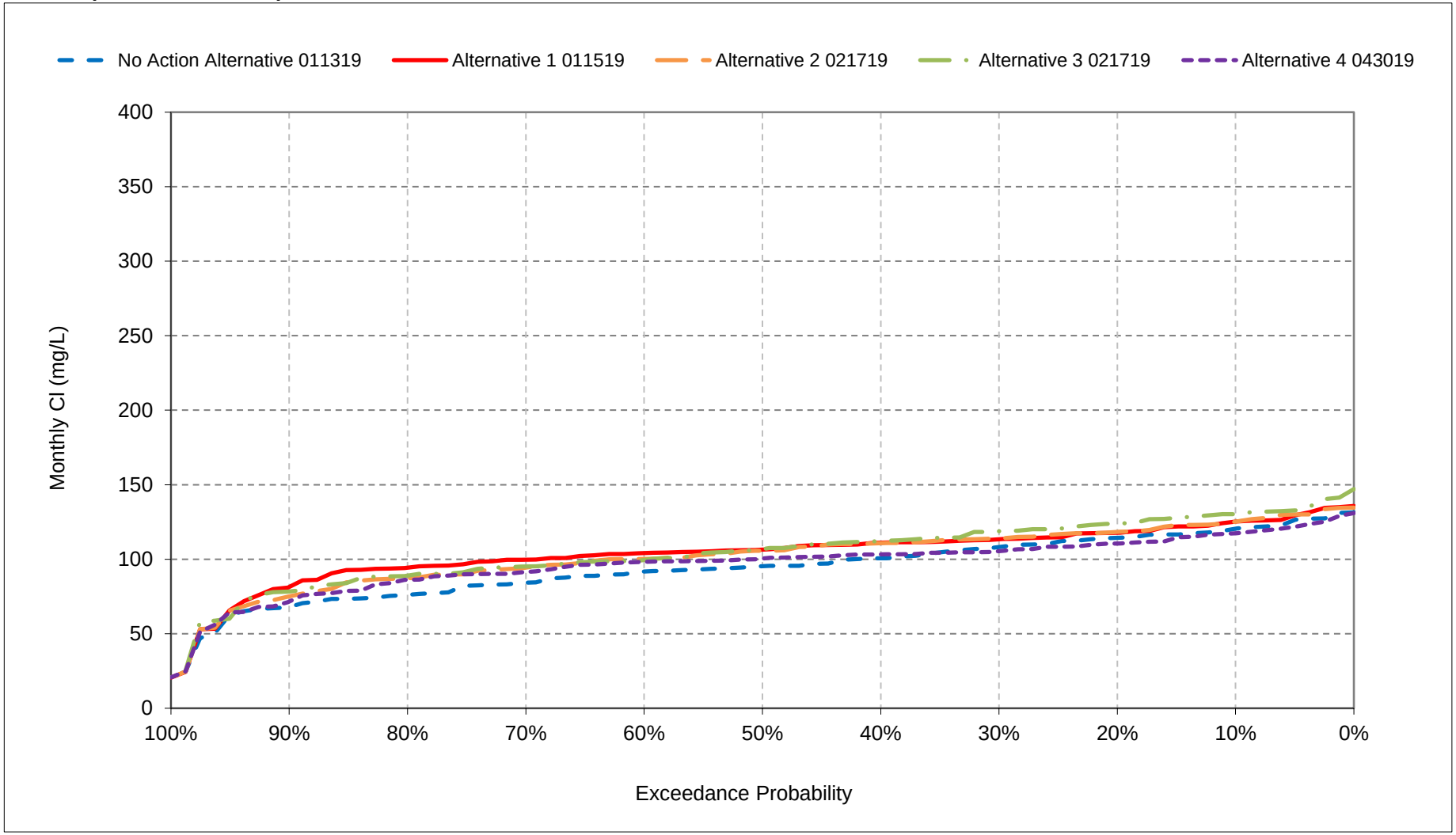

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 21-14. Banks Pumping Plant South**
**Delta Exports Chloride, August Cl**



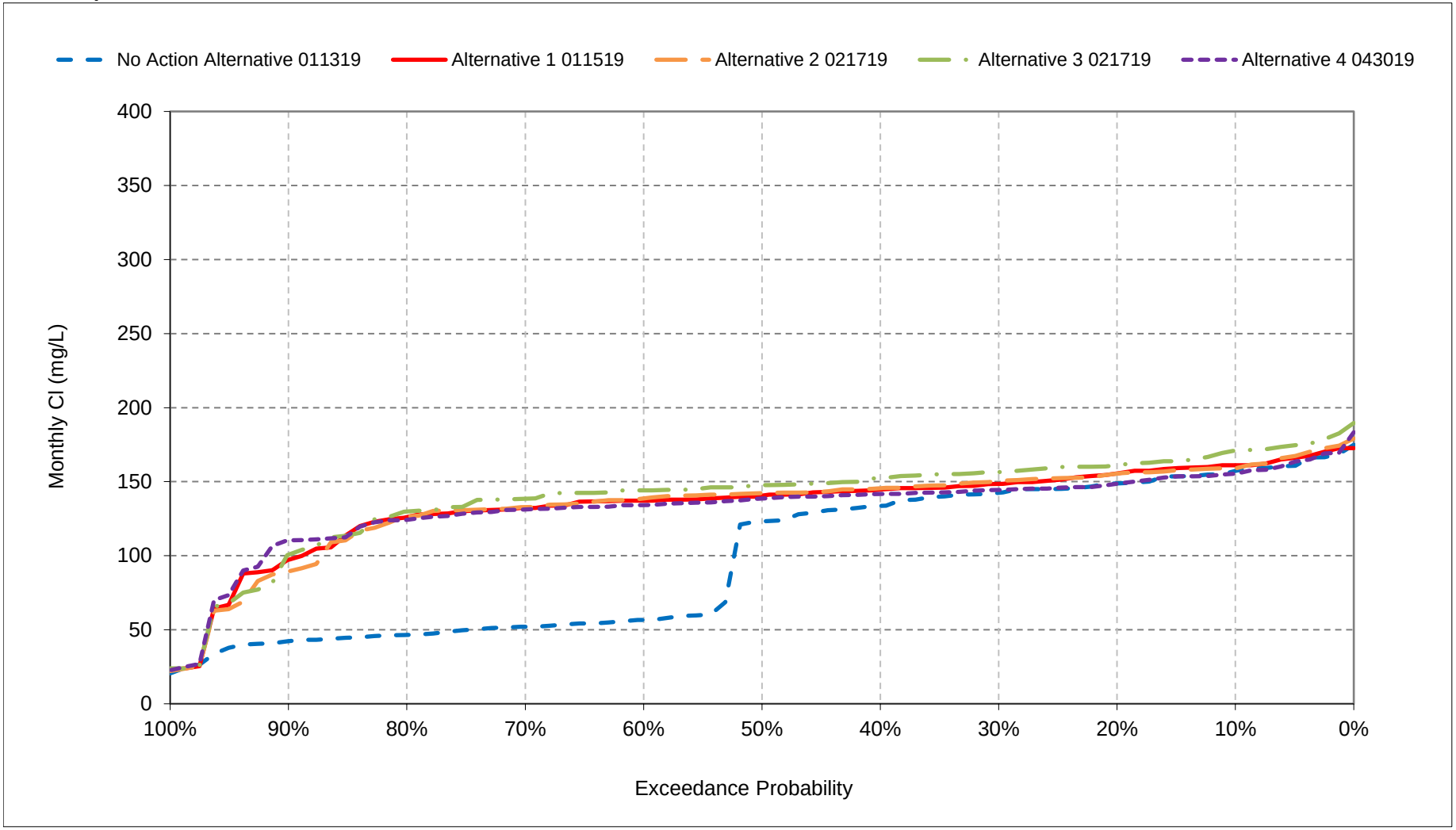

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 21-15. Banks Pumping Plant South**
**Delta Exports Chloride, September Cl**



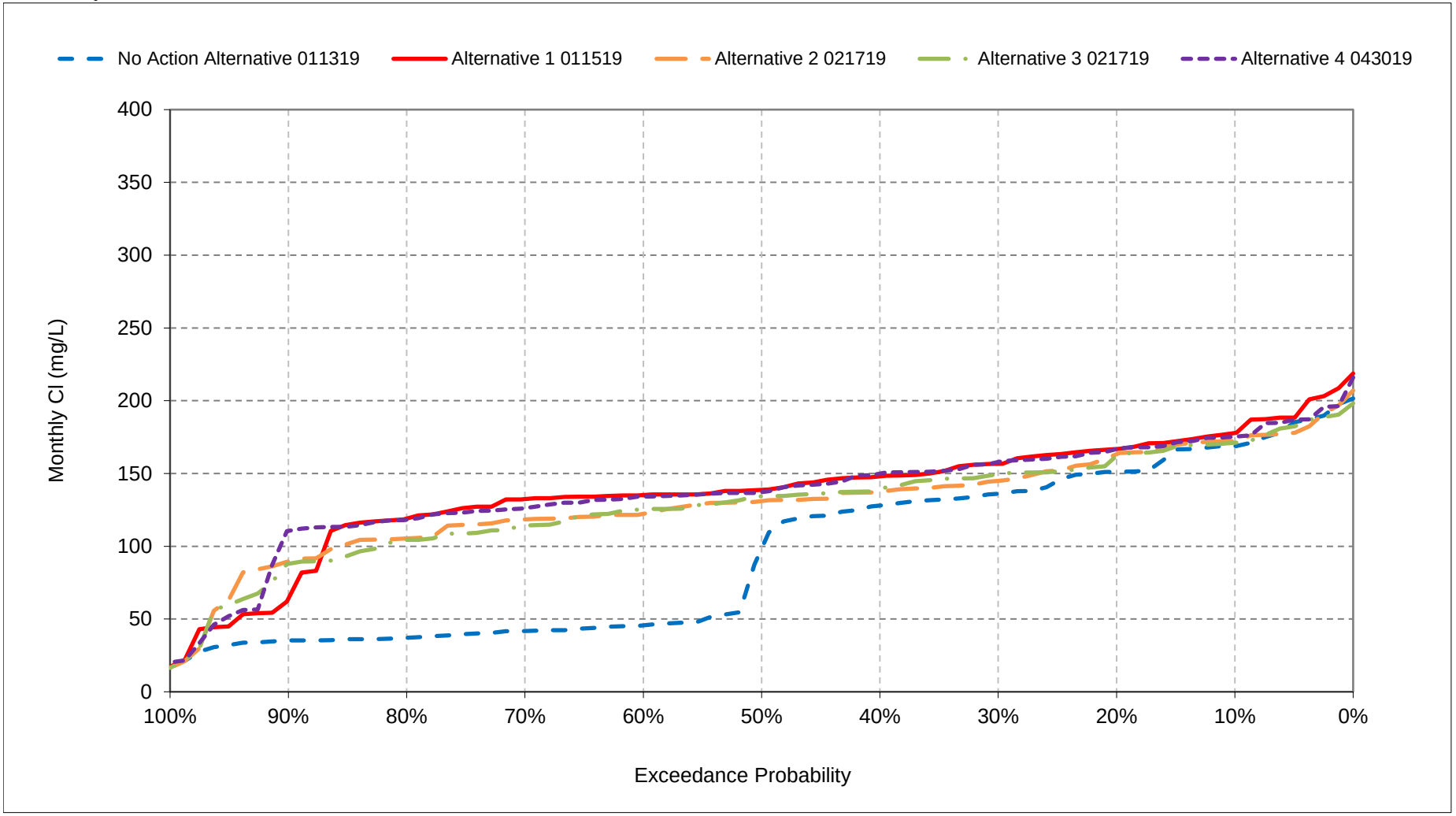

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 21-16. Banks Pumping Plant South**
**Delta Exports Chloride, October Cl**



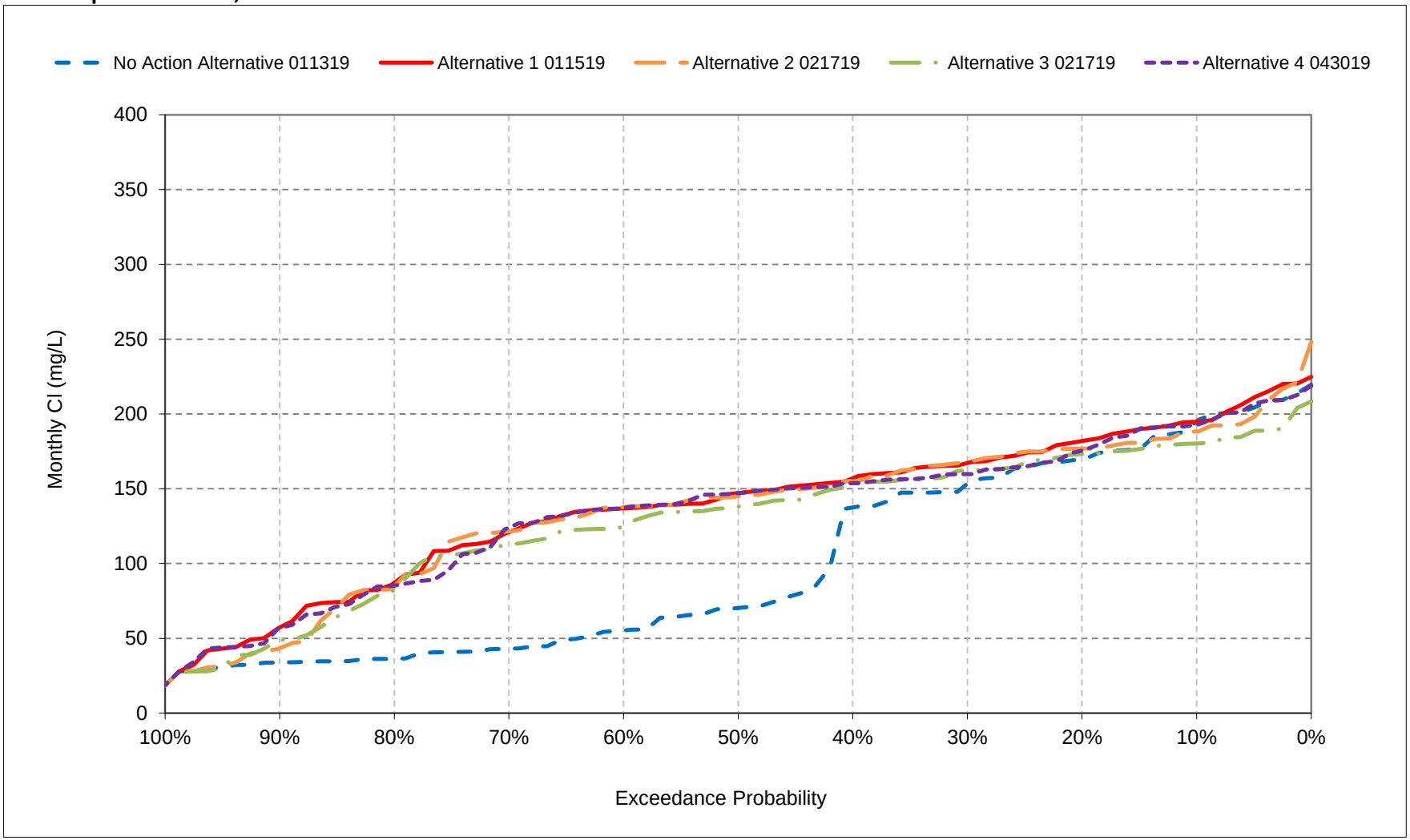

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 21-17. Banks Pumping Plant South**
**Delta Exports Chloride, November Cl**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 21-18. Banks Pumping Plant South**
**Delta Exports Chloride, December Cl**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 22-1. Jones Pumping Plant South Delta Exports Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 150 | 161 | 181 | 178 | 175 | 167 | 124 | 104 | 84 | 72 | 108 | 126 |
| 20% | 142 | 147 | 167 | 168 | 150 | 133 | 103 | 99 | 72 | 64 | 79 | 120 |
| 30% | 139 | 134 | 156 | 144 | 142 | 117 | 83 | 91 | 64 | 60 | 73 | 114 |
| 40% | 131 | 124 | 147 | 136 | 133 | 107 | 74 | 77 | 61 | 57 | 68 | 106 |
| 50% | 116 | 98 | 97 | 129 | 120 | 100 | 55 | 63 | 58 | 52 | 64 | 101 |
| 60% | 62 | 63 | 88 | 120 | 103 | 74 | 44 | 57 | 58 | 50 | 55 | 95 |
| 70% | 58 | 52 | 77 | 111 | 88 | 54 | 38 | 53 | 54 | 47 | 49 | 87 |
| 80% | 55 | 48 | 72 | 97 | 66 | 40 | 30 | 40 | 51 | 45 | 47 | 79 |
| 90% | 52 | 44 | 69 | 78 | 40 | 32 | 22 | 18 | 46 | 39 | 42 | 73 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 100 | 97 | 117 | 127 | 114 | 94 | 65 | 67 | 61 | 56 | 66 | 98 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 54 | 47 | 68 | 96 | 67 | 47 | 30 | 37 | 50 | 50 | 47 | 82 |
| Above Normal (16%) | 55 | 60 | 93 | 124 | 110 | 78 | 50 | 57 | 58 | 50 | 50 | 76 |
| Below Normal (13%) | 132 | 120 | 141 | 128 | 123 | 99 | 65 | 73 | 64 | 49 | 66 | 112 |
| Dry (24%) | 136 | 130 | 141 | 147 | 139 | 118 | 86 | 84 | 62 | 56 | 84 | 111 |
| Critical (15%) | 155 | 171 | 185 | 163 | 169 | 168 | 126 | 107 | 82 | 80 | 97 | 125 |

### Alternative 1 011519

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 150 | 167 | 184 | 180 | 160 | 131 | 117 | 94 | 69 | 77 | 104 | 130 |
| 20% | 143 | 153 | 172 | 175 | 144 | 116 | 100 | 83 | 61 | 65 | 78 | 123 |
| 30% | 139 | 144 | 164 | 169 | 133 | 105 | 86 | 75 | 55 | 60 | 72 | 116 |
| 40% | 133 | 137 | 159 | 154 | 123 | 102 | 65 | 62 | 50 | 55 | 69 | 114 |
| 50% | 128 | 131 | 152 | 136 | 113 | 97 | 49 | 50 | 48 | 52 | 64 | 111 |
| 60% | 123 | 127 | 145 | 124 | 102 | 82 | 42 | 46 | 47 | 50 | 55 | 108 |
| 70% | 118 | 122 | 127 | 112 | 85 | 52 | 36 | 44 | 45 | 46 | 50 | 106 |
| 80% | 108 | 110 | 107 | 97 | 64 | 40 | 28 | 36 | 40 | 44 | 48 | 99 |
| 90% | 88 | 73 | 86 | 79 | 39 | 31 | 22 | 18 | 35 | 37 | 43 | 85 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 123 | 127 | 141 | 134 | 107 | 85 | 63 | 57 | 51 | 56 | 66 | 108 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 96 | 108 | 119 | 97 | 66 | 47 | 28 | 31 | 46 | 50 | 47 | 88 |
| Above Normal (16%) | 123 | 121 | 143 | 134 | 106 | 77 | 45 | 46 | 49 | 48 | 51 | 110 |
| Below Normal (13%) | 129 | 123 | 143 | 140 | 117 | 93 | 67 | 64 | 46 | 50 | 70 | 118 |
| Dry (24%) | 138 | 134 | 142 | 158 | 129 | 103 | 83 | 70 | 48 | 56 | 80 | 114 |
| Critical (15%) | 150 | 167 | 186 | 164 | 150 | 143 | 118 | 97 | 72 | 83 | 98 | 127 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | **6** | **3** | **2** | -15 | -37 | -8 | -10 | -15 | **5** | -4 | **4** |
| 20% | **1** | **7** | **5** | **7** | -7 | -18 | -3 | -17 | -11 | **1** | -1 | **3** |
| 30% | 0 | **10** | **8** | **25** | -9 | -13 | **3** | -16 | -10 | **0** | -1 | **2** |
| 40% | **3** | **13** | **12** | **18** | -10 | -6 | -9 | -14 | -11 | -2 | **1** | **8** |
| 50% | **13** | **33** | **55** | **7** | -8 | -2 | -6 | -13 | -10 | -1 | **1** | **10** |
| 60% | **60** | **64** | **57** | **4** | -1 | **7** | -2 | -11 | -11 | 0 | 0 | **13** |
| 70% | **59** | **70** | **50** | **2** | -3 | -1 | -2 | -9 | -9 | -1 | **0** | **19** |
| 80% | **54** | **62** | **35** | **1** | -2 | 0 | -2 | -4 | -11 | -1 | **1** | **20** |
| 90% | **37** | **29** | **16** | **0** | -2 | -1 | 0 | 0 | -11 | -2 | **1** | **13** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **23** | **30** | **25** | **6** | -7 | -8 | -3 | -9 | -10 | **0** | **0** | **9** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **42** | **61** | **50** | **1** | -1 | **0** | -1 | -5 | -4 | **1** | 0 | **7** |
| Above Normal (16%) | **68** | **61** | **50** | **11** | -5 | -2 | -6 | -11 | -9 | -1 | **1** | **34** |
| Below Normal (13%) | -3 | **3** | **2** | **12** | -6 | -6 | **3** | -9 | -18 | **1** | **4** | **6** |
| Dry (24%) | **1** | **4** | **1** | **11** | -11 | -15 | -3 | -14 | -14 | -1 | -4 | **3** |
| Critical (15%) | -4 | -4 | **1** | **1** | -18 | -26 | -7 | -9 | -10 | **2** | **2** | **2** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 22-2. Jones Pumping Plant South Delta Exports Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 150 | 161 | 181 | 178 | 175 | 167 | 124 | 104 | 84 | 72 | 108 | 126 |
| 20% | 142 | 147 | 167 | 168 | 150 | 133 | 103 | 99 | 72 | 64 | 79 | 120 |
| 30% | 139 | 134 | 156 | 144 | 142 | 117 | 83 | 91 | 64 | 60 | 73 | 114 |
| 40% | 131 | 124 | 147 | 136 | 133 | 107 | 74 | 77 | 61 | 57 | 68 | 106 |
| 50% | 116 | 98 | 97 | 129 | 120 | 100 | 55 | 63 | 58 | 52 | 64 | 101 |
| 60% | 62 | 63 | 88 | 120 | 103 | 74 | 44 | 57 | 58 | 50 | 55 | 95 |
| 70% | 58 | 52 | 77 | 111 | 88 | 54 | 38 | 53 | 54 | 47 | 49 | 87 |
| 80% | 55 | 48 | 72 | 97 | 66 | 40 | 30 | 40 | 51 | 45 | 47 | 79 |
| 90% | 52 | 44 | 69 | 78 | 40 | 32 | 22 | 18 | 46 | 39 | 42 | 73 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 100 | 97 | 117 | 127 | 114 | 94 | 65 | 67 | 61 | 56 | 66 | 98 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 54 | 47 | 68 | 96 | 67 | 47 | 30 | 37 | 50 | 50 | 47 | 82 |
| Above Normal (16%) | 55 | 60 | 93 | 124 | 110 | 78 | 50 | 57 | 58 | 50 | 50 | 76 |
| Below Normal (13%) | 132 | 120 | 141 | 128 | 123 | 99 | 65 | 73 | 64 | 49 | 66 | 112 |
| Dry (24%) | 136 | 130 | 141 | 147 | 139 | 118 | 86 | 84 | 62 | 56 | 84 | 111 |
| Critical (15%) | 155 | 171 | 185 | 163 | 169 | 168 | 126 | 107 | 82 | 80 | 97 | 125 |

### Alternative 2 021719

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 158 | 168 | 184 | 196 | 165 | 139 | 104 | 77 | 66 | 77 | 100 | 131 |
| 20% | 152 | 156 | 174 | 174 | 148 | 114 | 89 | 67 | 60 | 63 | 78 | 122 |
| 30% | 147 | 142 | 169 | 163 | 127 | 100 | 75 | 63 | 55 | 56 | 72 | 118 |
| 40% | 144 | 131 | 156 | 157 | 114 | 91 | 59 | 55 | 51 | 52 | 69 | 114 |
| 50% | 140 | 128 | 151 | 145 | 103 | 83 | 52 | 49 | 46 | 49 | 64 | 110 |
| 60% | 137 | 121 | 147 | 116 | 89 | 72 | 45 | 46 | 43 | 45 | 58 | 107 |
| 70% | 132 | 114 | 134 | 97 | 77 | 55 | 40 | 41 | 39 | 42 | 51 | 103 |
| 80% | 123 | 106 | 101 | 80 | 58 | 39 | 29 | 37 | 36 | 38 | 48 | 96 |
| 90% | 88 | 90 | 75 | 72 | 35 | 32 | 23 | 18 | 30 | 33 | 43 | 73 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 133 | 127 | 141 | 132 | 102 | 84 | 59 | 51 | 49 | 53 | 66 | 106 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 104 | 108 | 124 | 88 | 56 | 45 | 30 | 31 | 42 | 47 | 46 | 85 |
| Above Normal (16%) | 145 | 138 | 151 | 128 | 93 | 67 | 45 | 44 | 43 | 42 | 54 | 115 |
| Below Normal (13%) | 141 | 124 | 138 | 152 | 123 | 93 | 68 | 57 | 42 | 44 | 72 | 112 |
| Dry (24%) | 143 | 119 | 130 | 159 | 125 | 99 | 74 | 61 | 50 | 54 | 77 | 112 |
| Critical (15%) | 158 | 169 | 188 | 169 | 158 | 150 | 107 | 81 | 75 | 81 | 100 | 125 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **8** | **7** | **3** | **18** | -10 | -29 | -21 | -28 | -18 | **5** | -8 | **5** |
| 20% | **10** | **9** | **7** | **6** | -2 | -19 | -14 | -32 | -12 | -1 | -1 | **2** |
| 30% | **8** | **8** | **13** | **20** | -15 | -17 | -8 | -27 | -10 | -4 | 0 | **4** |
| 40% | **14** | **7** | **9** | **22** | -19 | -17 | -15 | -22 | -10 | -6 | **1** | **8** |
| 50% | **25** | **30** | **55** | **16** | -17 | -17 | -2 | -14 | -12 | -3 | **0** | **9** |
| 60% | **75** | **59** | **59** | -3 | -14 | -3 | **1** | -11 | -15 | -4 | **2** | **12** |
| 70% | **74** | **62** | **57** | -14 | -11 | **1** | **2** | -12 | -14 | -5 | **2** | **17** |
| 80% | **69** | **58** | **28** | -17 | -8 | -1 | -1 | -3 | -15 | -6 | **1** | **17** |
| 90% | **37** | **46** | **6** | -6 | -6 | **0** | **1** | **0** | -16 | -5 | **0** | 0 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **33** | **29** | **24** | **5** | -11 | -10 | -6 | -15 | -12 | -3 | 0 | **7** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **50** | **61** | **56** | -8 | -10 | -1 | **0** | -6 | -7 | -2 | -1 | **3** |
| Above Normal (16%) | **89** | **78** | **58** | **4** | -18 | -11 | -5 | -13 | -15 | -8 | **4** | **38** |
| Below Normal (13%) | **9** | **4** | -3 | **24** | 0 | -6 | **3** | -15 | -22 | -5 | **7** | **0** |
| Dry (24%) | **7** | -11 | -10 | **12** | -15 | -19 | -12 | -23 | -13 | -2 | -7 | **1** |
| Critical (15%) | **3** | -2 | **3** | **5** | -11 | -18 | -19 | -26 | -7 | **1** | **3** | **1** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 22-3. Jones Pumping Plant South Delta Exports Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 150 | 161 | 181 | 178 | 175 | 167 | 124 | 104 | 84 | 72 | 108 | 126 |
| 20% | 142 | 147 | 167 | 168 | 150 | 133 | 103 | 99 | 72 | 64 | 79 | 120 |
| 30% | 139 | 134 | 156 | 144 | 142 | 117 | 83 | 91 | 64 | 60 | 73 | 114 |
| 40% | 131 | 124 | 147 | 136 | 133 | 107 | 74 | 77 | 61 | 57 | 68 | 106 |
| 50% | 116 | 98 | 97 | 129 | 120 | 100 | 55 | 63 | 58 | 52 | 64 | 101 |
| 60% | 62 | 63 | 88 | 120 | 103 | 74 | 44 | 57 | 58 | 50 | 55 | 95 |
| 70% | 58 | 52 | 77 | 111 | 88 | 54 | 38 | 53 | 54 | 47 | 49 | 87 |
| 80% | 55 | 48 | 72 | 97 | 66 | 40 | 30 | 40 | 51 | 45 | 47 | 79 |
| 90% | 52 | 44 | 69 | 78 | 40 | 32 | 22 | 18 | 46 | 39 | 42 | 73 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 100 | 97 | 117 | 127 | 114 | 94 | 65 | 67 | 61 | 56 | 66 | 98 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 54 | 47 | 68 | 96 | 67 | 47 | 30 | 37 | 50 | 50 | 47 | 82 |
| Above Normal (16%) | 55 | 60 | 93 | 124 | 110 | 78 | 50 | 57 | 58 | 50 | 50 | 76 |
| Below Normal (13%) | 132 | 120 | 141 | 128 | 123 | 99 | 65 | 73 | 64 | 49 | 66 | 112 |
| Dry (24%) | 136 | 130 | 141 | 147 | 139 | 118 | 86 | 84 | 62 | 56 | 84 | 111 |
| Critical (15%) | 155 | 171 | 185 | 163 | 169 | 168 | 126 | 107 | 82 | 80 | 97 | 125 |

### Alternative 3 021719

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 165 | 167 | 177 | 192 | 156 | 135 | 105 | 78 | 66 | 74 | 98 | 132 |
| 20% | 156 | 154 | 174 | 166 | 143 | 119 | 90 | 68 | 60 | 62 | 79 | 129 |
| 30% | 151 | 142 | 163 | 161 | 125 | 103 | 76 | 64 | 55 | 58 | 74 | 124 |
| 40% | 148 | 135 | 153 | 156 | 114 | 92 | 60 | 55 | 51 | 52 | 70 | 116 |
| 50% | 144 | 126 | 146 | 142 | 104 | 83 | 52 | 50 | 47 | 49 | 64 | 111 |
| 60% | 141 | 122 | 141 | 121 | 89 | 73 | 45 | 47 | 44 | 46 | 55 | 107 |
| 70% | 137 | 113 | 123 | 95 | 78 | 56 | 40 | 42 | 41 | 43 | 51 | 102 |
| 80% | 127 | 102 | 100 | 81 | 58 | 39 | 30 | 37 | 36 | 38 | 46 | 94 |
| 90% | 99 | 84 | 81 | 72 | 35 | 32 | 23 | 18 | 30 | 33 | 43 | 75 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 137 | 125 | 137 | 130 | 101 | 85 | 60 | 52 | 50 | 53 | 66 | 108 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 110 | 111 | 119 | 88 | 57 | 46 | 30 | 32 | 43 | 47 | 46 | 87 |
| Above Normal (16%) | 145 | 138 | 148 | 120 | 91 | 68 | 45 | 45 | 44 | 43 | 52 | 114 |
| Below Normal (13%) | 149 | 125 | 135 | 151 | 124 | 94 | 68 | 58 | 43 | 44 | 71 | 119 |
| Dry (24%) | 148 | 116 | 129 | 158 | 124 | 103 | 76 | 62 | 50 | 54 | 78 | 115 |
| Critical (15%) | 158 | 157 | 176 | 168 | 153 | 147 | 109 | 83 | 75 | 84 | 103 | 127 |

### Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **15** | **7** | -4 | **14** | -19 | -32 | -19 | -27 | -17 | **1** | -10 | **6** |
| 20% | **14** | **7** | **6** | -1 | -7 | -14 | -13 | -31 | -12 | -1 | **0** | **9** |
| 30% | **12** | **8** | **7** | **18** | -17 | -15 | -7 | -27 | -10 | -3 | **1** | **11** |
| 40% | **18** | **11** | **6** | **21** | -20 | -16 | -14 | -22 | -10 | -5 | **2** | **10** |
| 50% | **29** | **28** | **50** | **13** | -16 | -16 | -3 | -13 | -11 | -4 | 0 | **11** |
| 60% | **79** | **59** | **52** | **1** | -13 | -2 | **1** | -10 | -14 | -3 | 0 | **12** |
| 70% | **79** | **61** | **46** | -15 | -10 | **3** | **2** | -11 | -13 | -4 | **2** | **15** |
| 80% | **72** | **54** | **28** | -16 | -8 | -1 | **0** | -2 | -14 | -7 | -1 | **15** |
| 90% | **47** | **40** | **12** | -6 | -6 | **0** | **1** | **0** | -16 | -5 | **1** | **2** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **38** | **28** | **20** | **3** | -12 | -9 | -5 | -14 | -11 | -2 | **0** | **10** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **56** | **64** | **51** | -8 | -10 | -1 | **1** | -5 | -7 | -2 | -1 | **5** |
| Above Normal (16%) | **89** | **78** | **55** | -4 | -20 | -10 | -5 | -12 | -14 | -6 | **2** | **38** |
| Below Normal (13%) | **17** | **5** | -6 | **23** | **0** | -4 | **3** | -15 | -20 | -5 | **6** | **7** |
| Dry (24%) | **12** | -14 | -12 | **11** | -16 | -15 | -10 | -22 | -13 | -3 | -6 | **4** |
| Critical (15%) | **3** | -15 | -9 | **4** | -16 | -21 | -17 | -24 | -7 | **4** | **6** | **2** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 22-4. Jones Pumping Plant South Delta Exports Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 150 | 161 | 181 | 178 | 175 | 167 | 124 | 104 | 84 | 72 | 108 | 126 |
| 20% | 142 | 147 | 167 | 168 | 150 | 133 | 103 | 99 | 72 | 64 | 79 | 120 |
| 30% | 139 | 134 | 156 | 144 | 142 | 117 | 83 | 91 | 64 | 60 | 73 | 114 |
| 40% | 131 | 124 | 147 | 136 | 133 | 107 | 74 | 77 | 61 | 57 | 68 | 106 |
| 50% | 116 | 98 | 97 | 129 | 120 | 100 | 55 | 63 | 58 | 52 | 64 | 101 |
| 60% | 62 | 63 | 88 | 120 | 103 | 74 | 44 | 57 | 58 | 50 | 55 | 95 |
| 70% | 58 | 52 | 77 | 111 | 88 | 54 | 38 | 53 | 54 | 47 | 49 | 87 |
| 80% | 55 | 48 | 72 | 97 | 66 | 40 | 30 | 40 | 51 | 45 | 47 | 79 |
| 90% | 52 | 44 | 69 | 78 | 40 | 32 | 22 | 18 | 46 | 39 | 42 | 73 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 100 | 97 | 117 | 127 | 114 | 94 | 65 | 67 | 61 | 56 | 66 | 98 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 54 | 47 | 68 | 96 | 67 | 47 | 30 | 37 | 50 | 50 | 47 | 82 |
| Above Normal (16%) | 55 | 60 | 93 | 124 | 110 | 78 | 50 | 57 | 58 | 50 | 50 | 76 |
| Below Normal (13%) | 132 | 120 | 141 | 128 | 123 | 99 | 65 | 73 | 64 | 49 | 66 | 112 |
| Dry (24%) | 136 | 130 | 141 | 147 | 139 | 118 | 86 | 84 | 62 | 56 | 84 | 111 |
| Critical (15%) | 155 | 171 | 185 | 163 | 169 | 168 | 126 | 107 | 82 | 80 | 97 | 125 |

### Alternative 4 043019

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 155 | 167 | 183 | 180 | 159 | 188 | 139 | 123 | 76 | 79 | 91 | 126 |
| 20% | 143 | 157 | 168 | 173 | 148 | 180 | 119 | 120 | 66 | 64 | 75 | 117 |
| 30% | 140 | 149 | 162 | 161 | 135 | 170 | 98 | 107 | 61 | 60 | 69 | 112 |
| 40% | 136 | 141 | 156 | 149 | 127 | 156 | 72 | 83 | 59 | 55 | 67 | 108 |
| 50% | 132 | 133 | 152 | 135 | 113 | 136 | 49 | 61 | 57 | 52 | 61 | 107 |
| 60% | 128 | 129 | 146 | 123 | 101 | 94 | 41 | 56 | 55 | 50 | 53 | 104 |
| 70% | 125 | 121 | 119 | 112 | 86 | 55 | 38 | 52 | 51 | 47 | 49 | 101 |
| 80% | 112 | 113 | 104 | 98 | 64 | 39 | 29 | 38 | 49 | 44 | 46 | 92 |
| 90% | 98 | 104 | 84 | 79 | 43 | 30 | 22 | 18 | 41 | 38 | 42 | 80 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 127 | 131 | 140 | 131 | 108 | 116 | 69 | 73 | 58 | 56 | 63 | 103 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 104 | 117 | 118 | 97 | 67 | 53 | 29 | 37 | 49 | 51 | 46 | 89 |
| Above Normal (16%) | 131 | 126 | 142 | 131 | 107 | 100 | 46 | 55 | 56 | 50 | 49 | 107 |
| Below Normal (13%) | 124 | 117 | 137 | 134 | 114 | 127 | 73 | 84 | 57 | 51 | 63 | 96 |
| Dry (24%) | 140 | 135 | 141 | 157 | 130 | 157 | 98 | 98 | 58 | 54 | 77 | 111 |
| Critical (15%) | 154 | 171 | 185 | 161 | 154 | 187 | 130 | 117 | 78 | 79 | 95 | 123 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **5** | **7** | **2** | **2** | -16 | **20** | **15** | **19** | -8 | **7** | -16 | -1 |
| 20% | **1** | **10** | **1** | **5** | -3 | **47** | **16** | **20** | -6 | 0 | -3 | -3 |
| 30% | **1** | **16** | **6** | **17** | -7 | **53** | **15** | **16** | -3 | -1 | -4 | -2 |
| 40% | **5** | **17** | **10** | **14** | -6 | **48** | -2 | **6** | -2 | -2 | -1 | **2** |
| 50% | **16** | **35** | **55** | **6** | -7 | **37** | -6 | -2 | -1 | -1 | -3 | **6** |
| 60% | **66** | **66** | **58** | **4** | -2 | **20** | -3 | -1 | -3 | **0** | -2 | **9** |
| 70% | **67** | **69** | **42** | **1** | -3 | **2** | 0 | -1 | -3 | **1** | -1 | **14** |
| 80% | **58** | **65** | **32** | **1** | -2 | -1 | -1 | -2 | -2 | -1 | -1 | **14** |
| 90% | **46** | **60** | **15** | **0** | **2** | -2 | 0 | 0 | -5 | -1 | 0 | **7** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **28** | **34** | **23** | **4** | -6 | **22** | **4** | **6** | -3 | **0** | -3 | **5** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **50** | **70** | **50** | **1** | **0** | **7** | -1 | **0** | -1 | **1** | -1 | **7** |
| Above Normal (16%) | **76** | **66** | **48** | **7** | -3 | **22** | -4 | -2 | -2 | **0** | -1 | **31** |
| Below Normal (13%) | -8 | -3 | -4 | **6** | -9 | **29** | **8** | **11** | -7 | **2** | -3 | -16 |
| Dry (24%) | **4** | **5** | 0 | **10** | -9 | **39** | **12** | **14** | -5 | -2 | -7 | 0 |
| Critical (15%) | -1 | 0 | 0 | -3 | -15 | **19** | **5** | **10** | -4 | -1 | -2 | -1 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

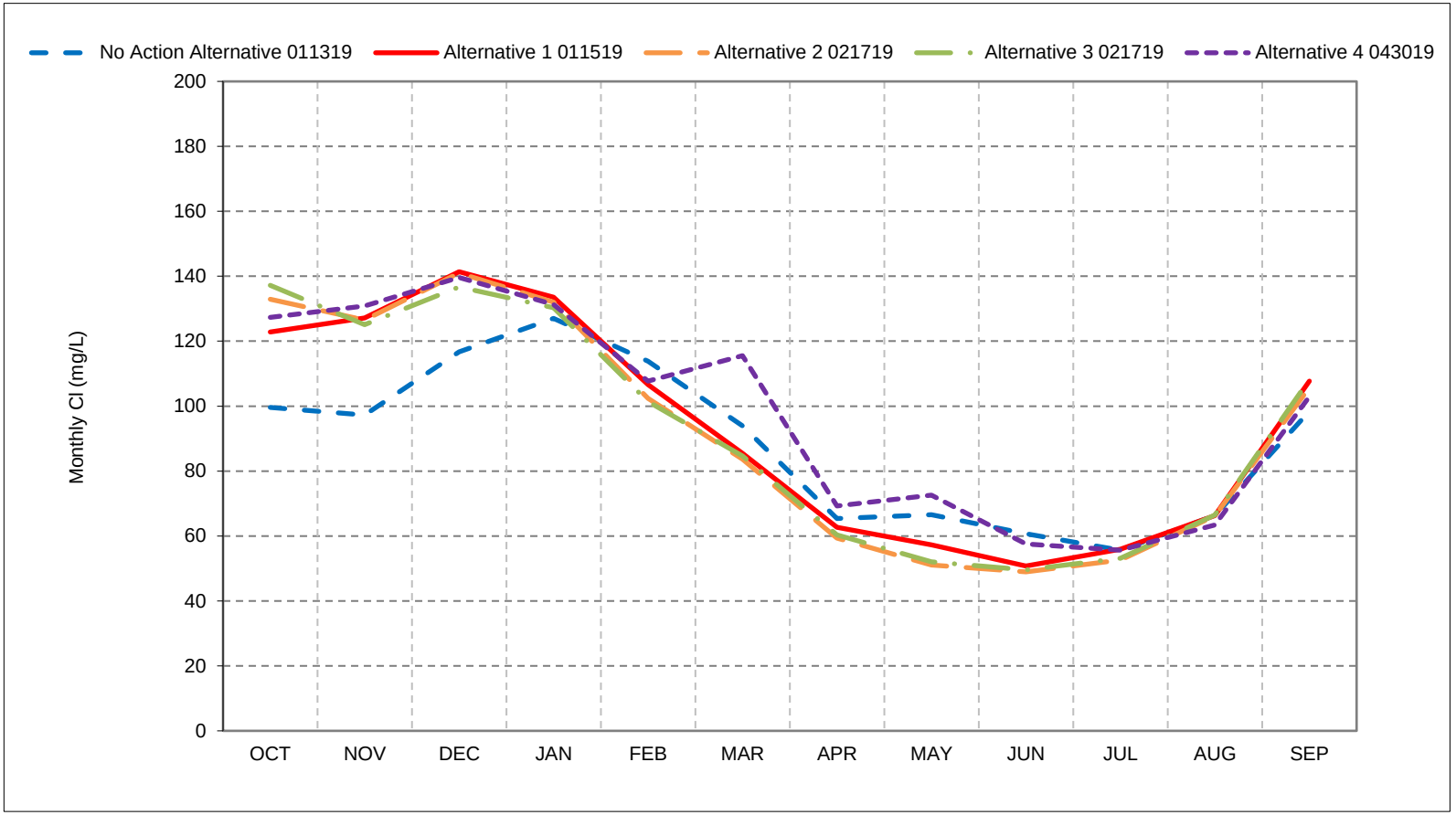
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

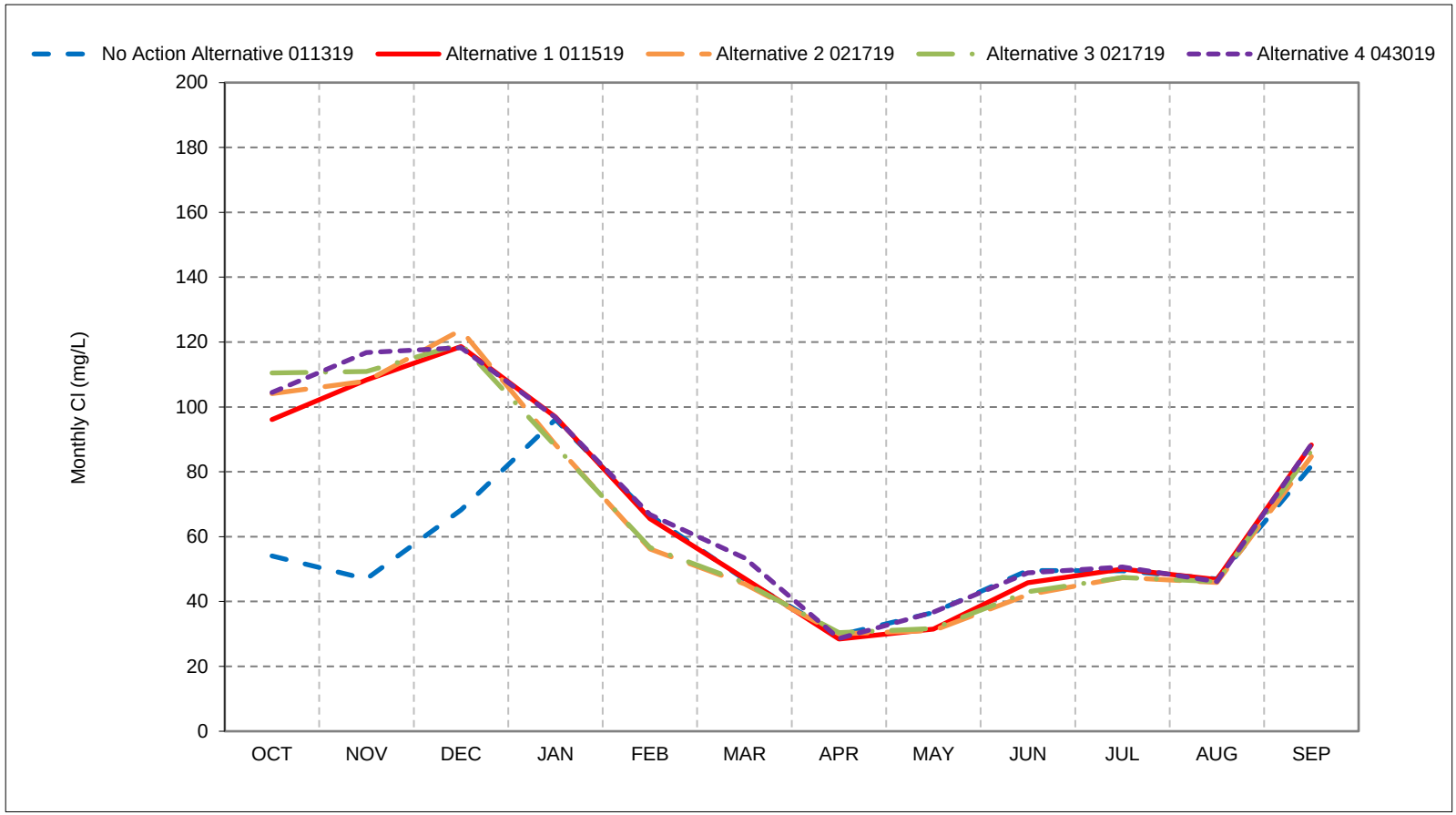
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 22-1. Jones Pumping Plant South Delta Exports Chloride, Long-Term Average Cl



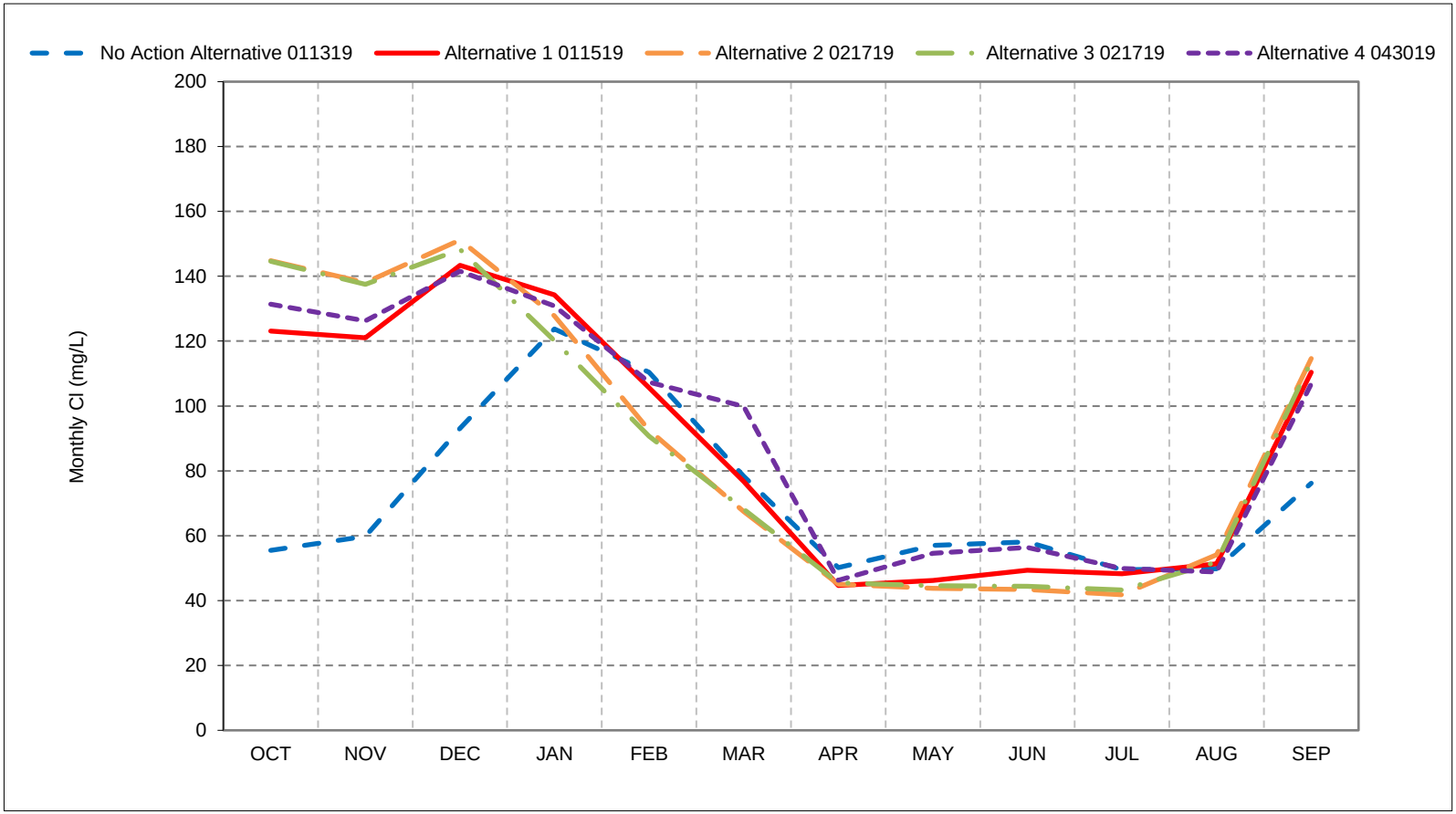

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 22-2. Jones Pumping Plant South Delta Exports Chloride, Wet Year Average Cl



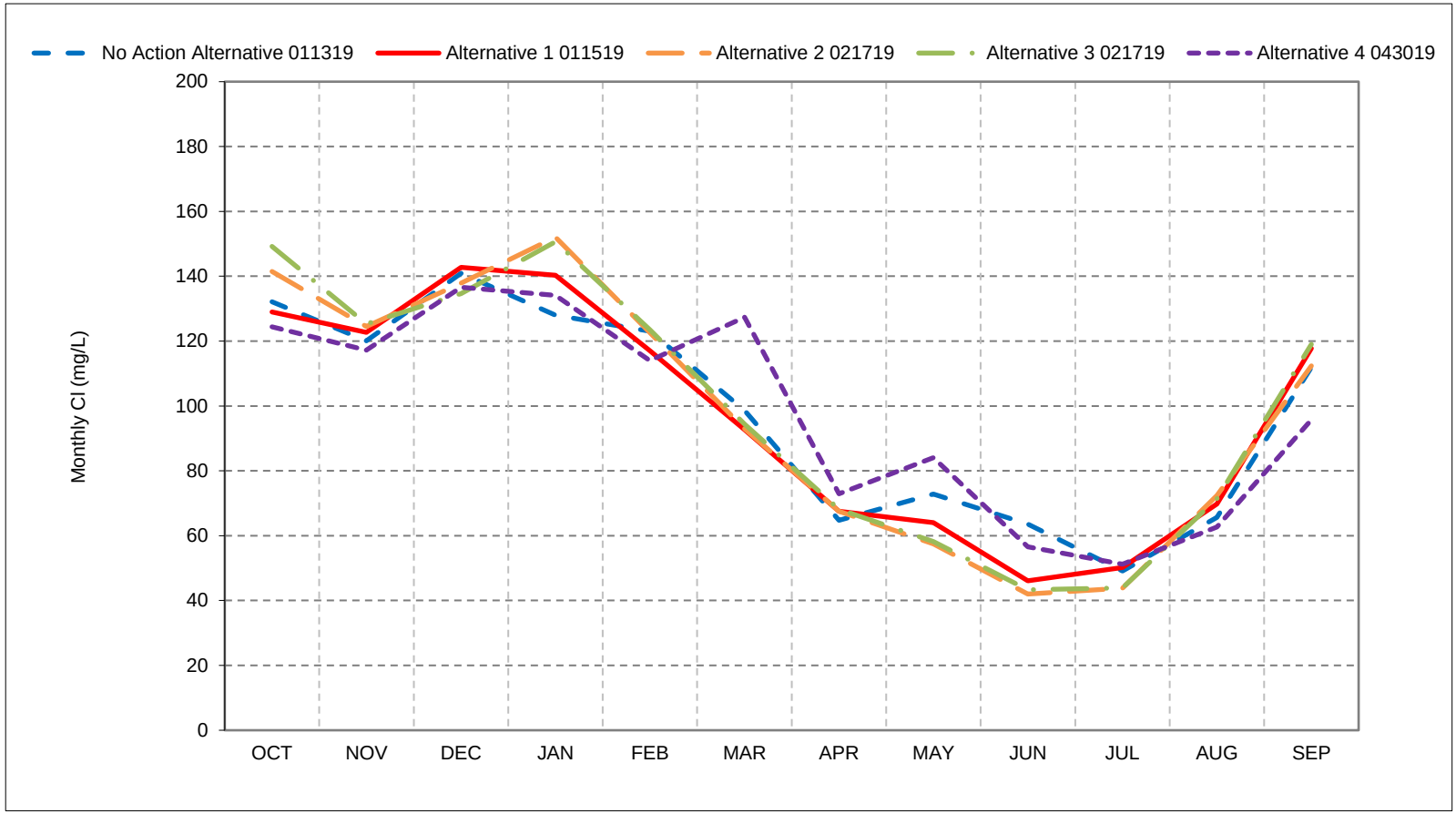

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 22-3. Jones Pumping Plant South Delta Exports Chloride, Above Normal Year Average Cl



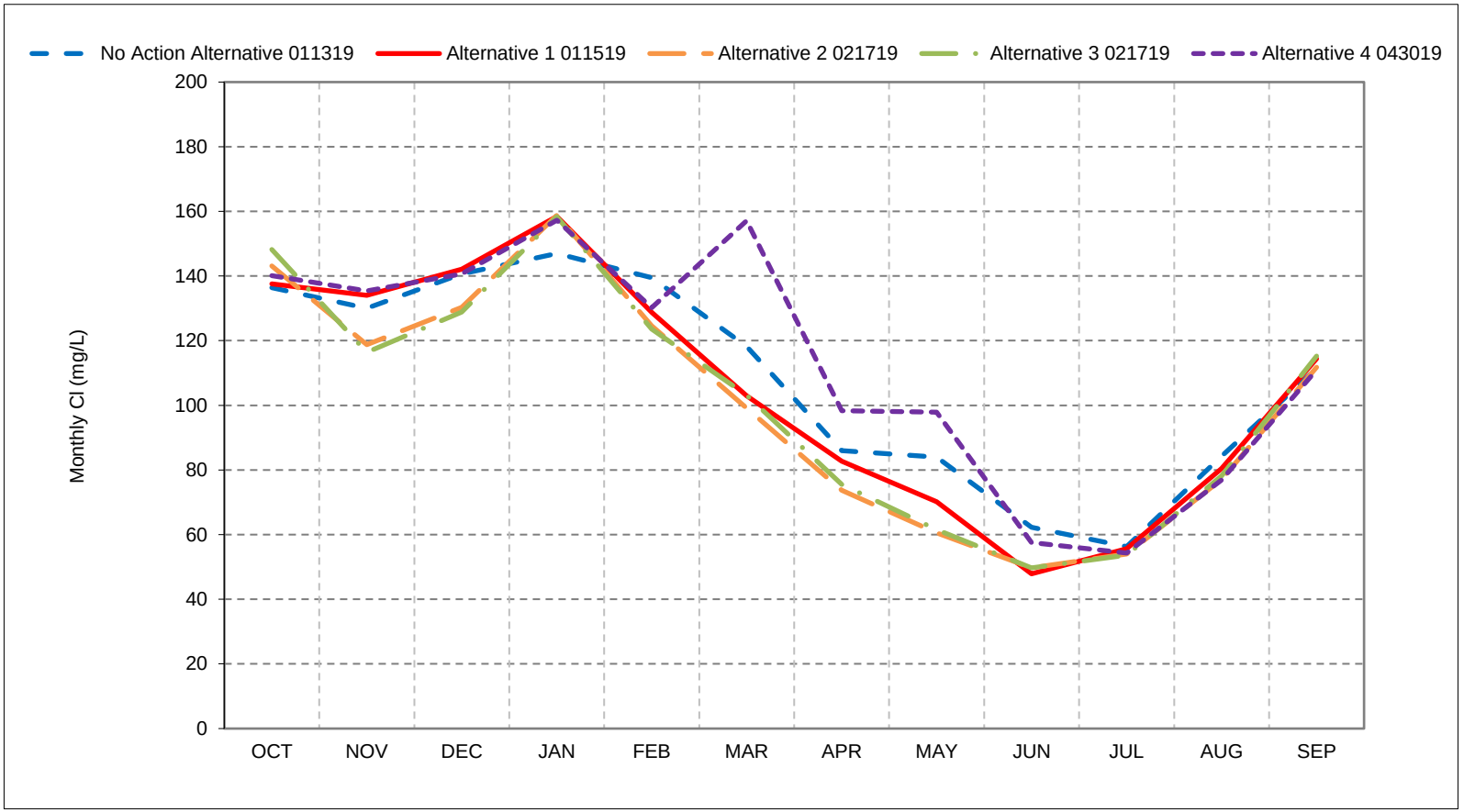

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 22-4. Jones Pumping Plant South Delta Exports Chloride, Below Normal Year Average Cl



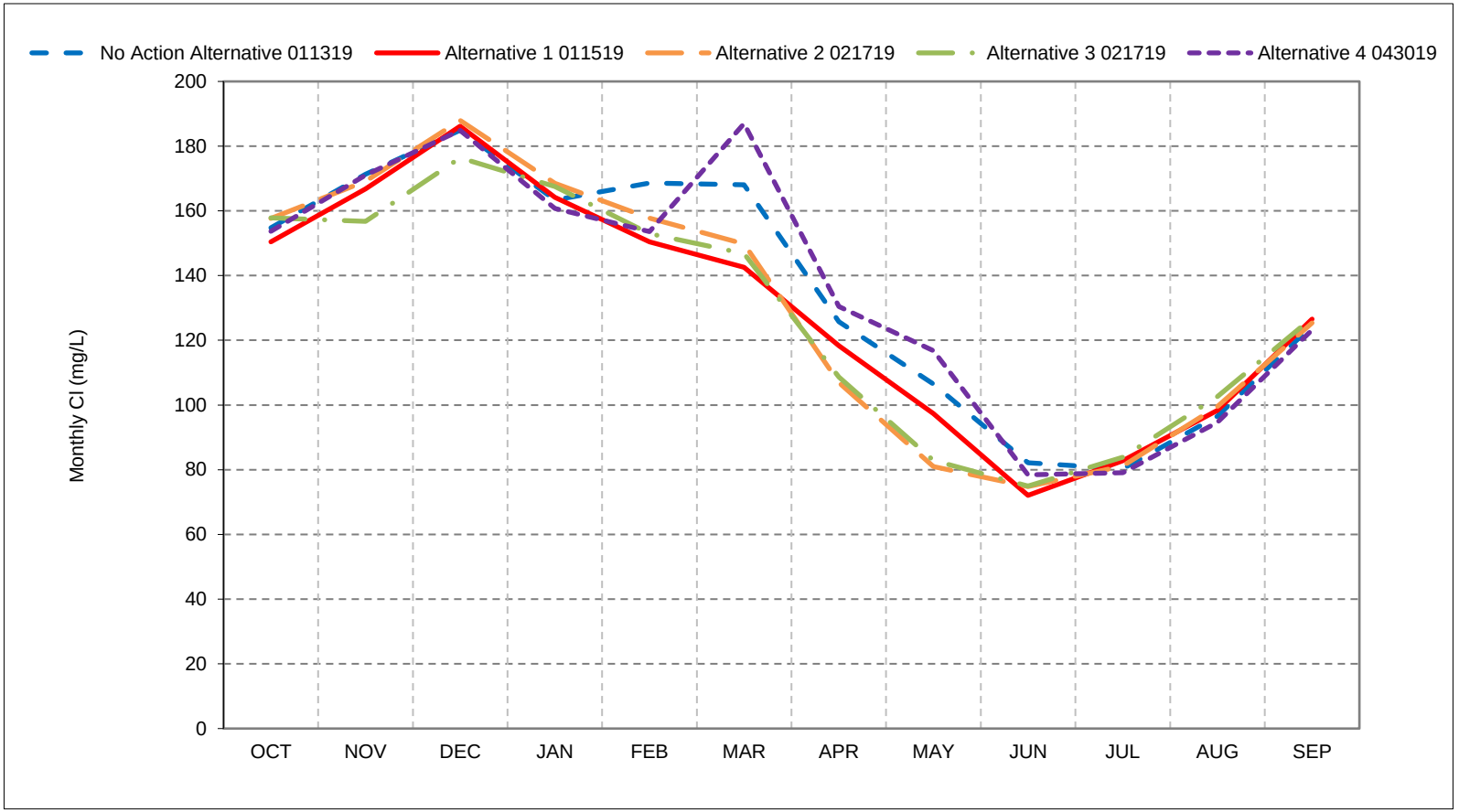

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 22-5. Jones Pumping Plant South Delta Exports Chloride, Dry Year Average Cl



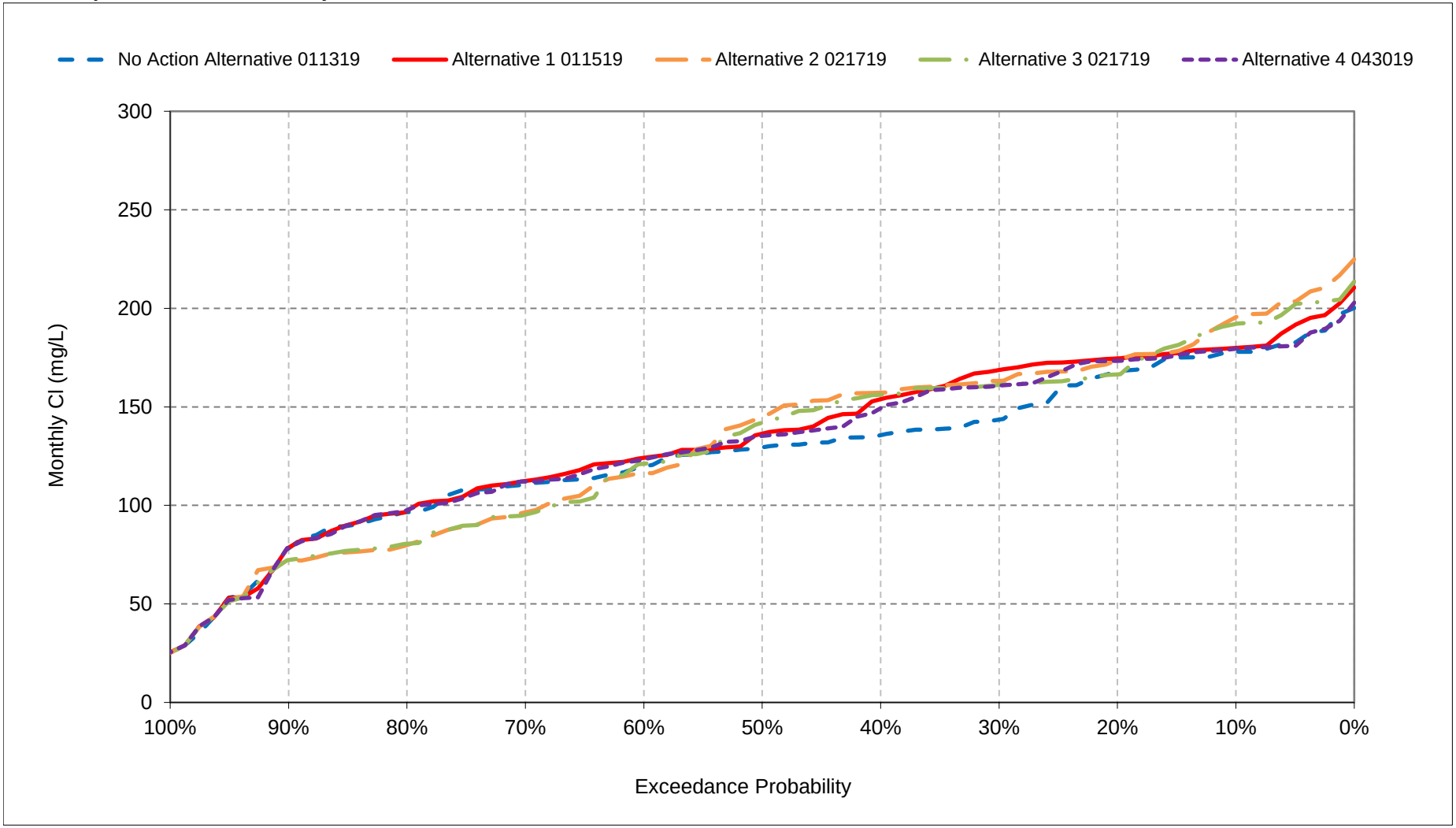

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 22-6. Jones Pumping Plant South Delta Exports Chloride, Critical Year Average Cl



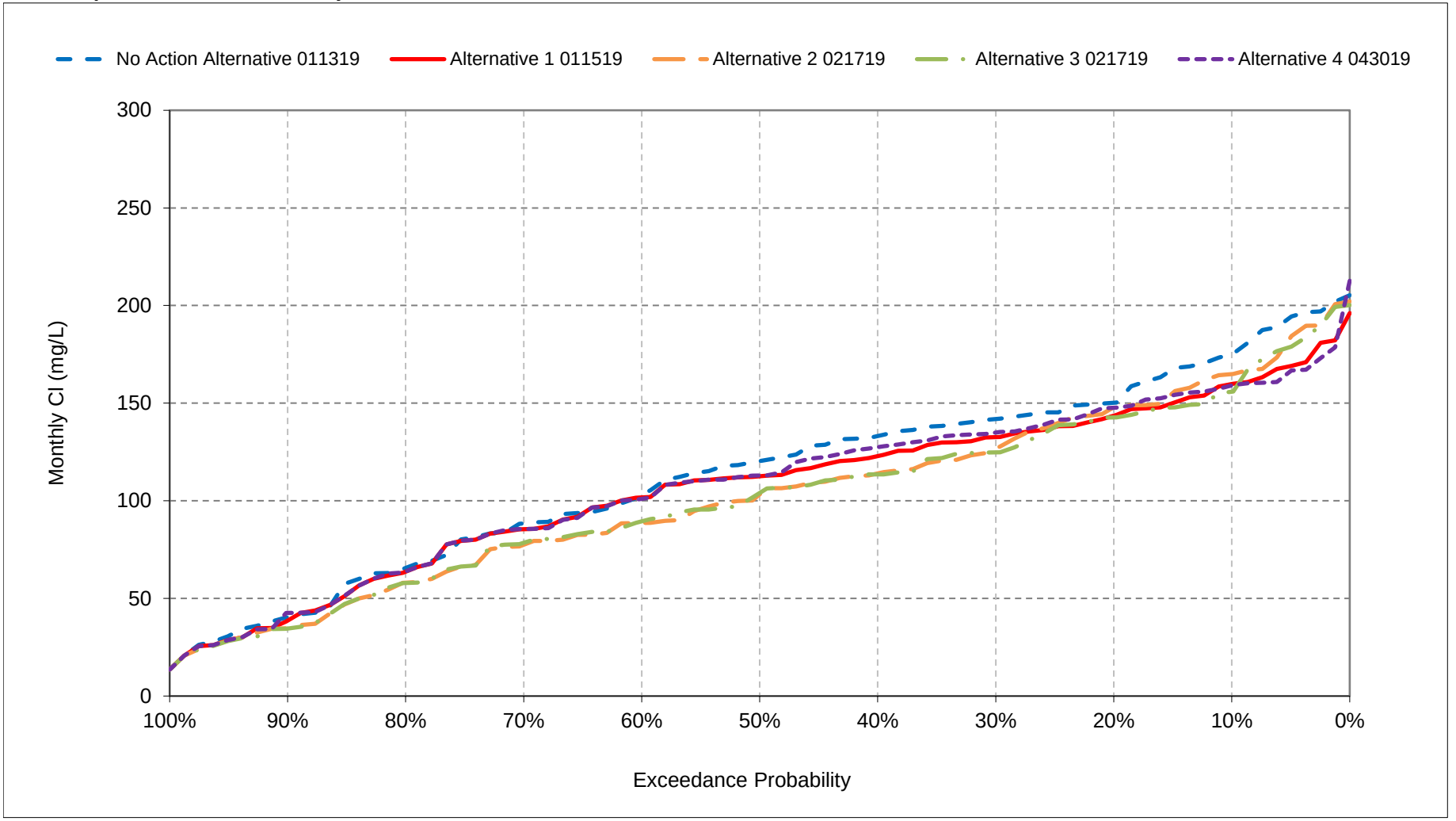

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 22-7. Jones Pumping Plant South**
**Delta Exports Chloride, January Cl**



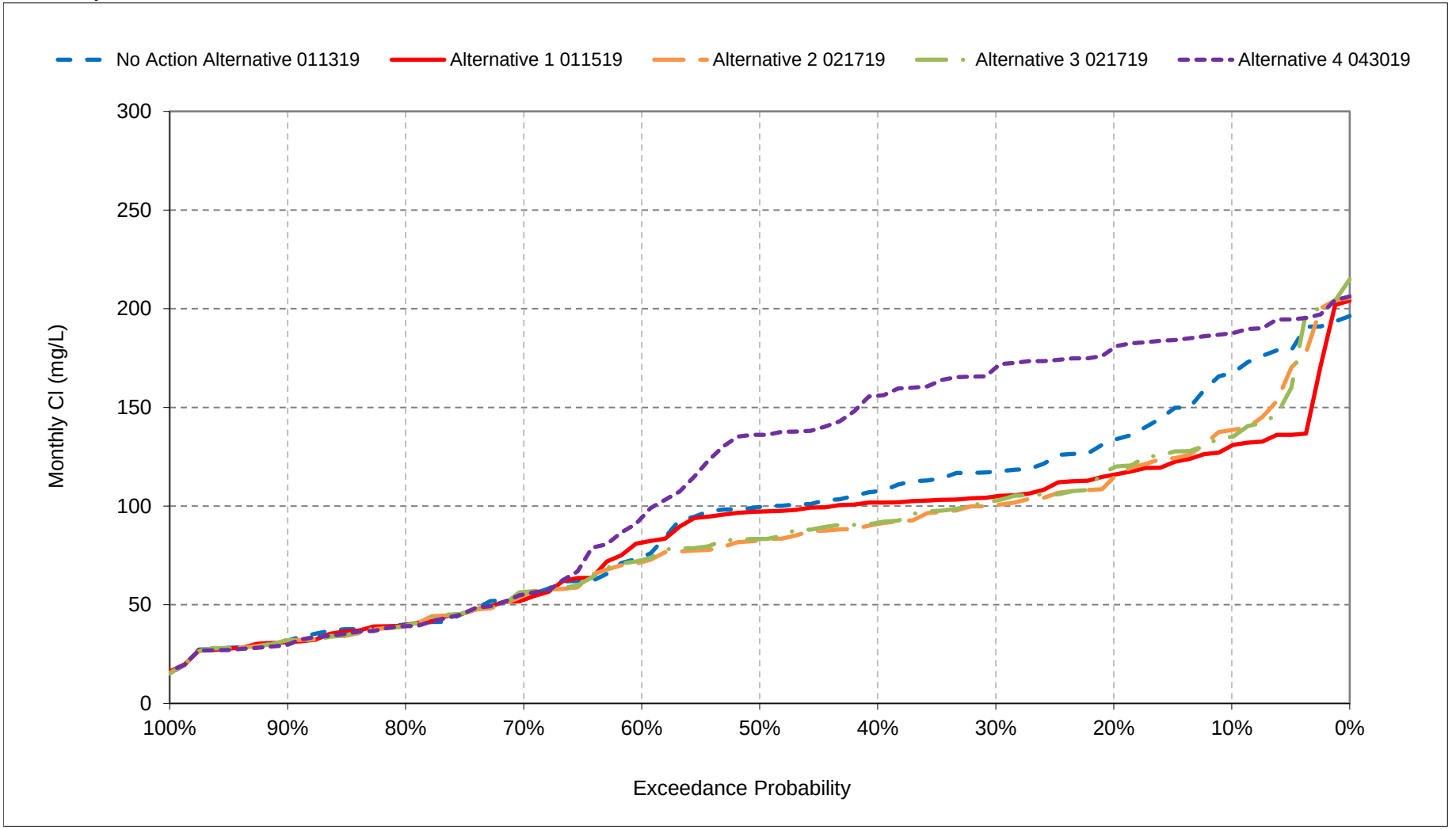

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 22-8. Jones Pumping Plant South**
**Delta Exports Chloride, February Cl**



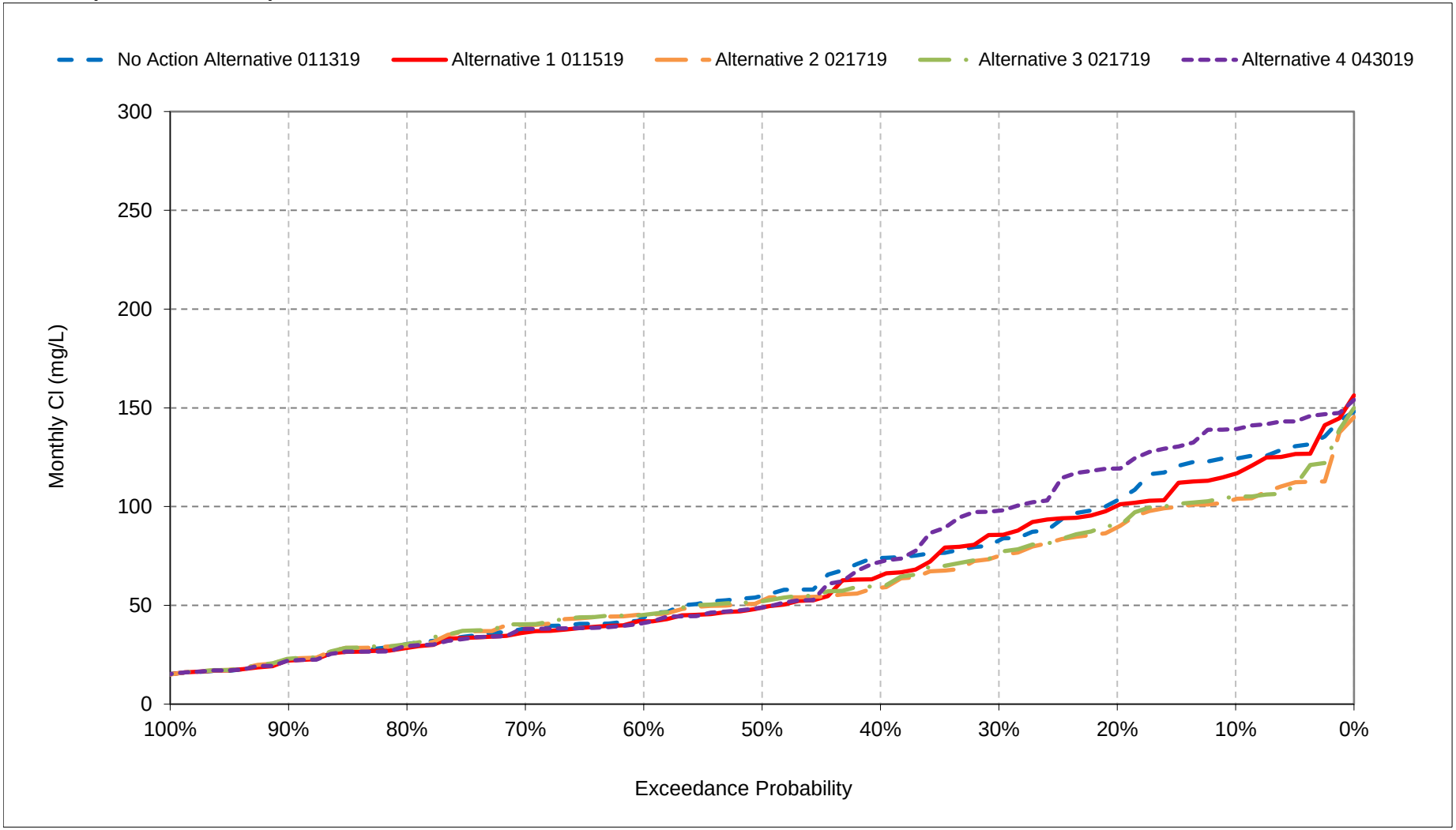

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 22-9. Jones Pumping Plant South**
**Delta Exports Chloride, March Cl**



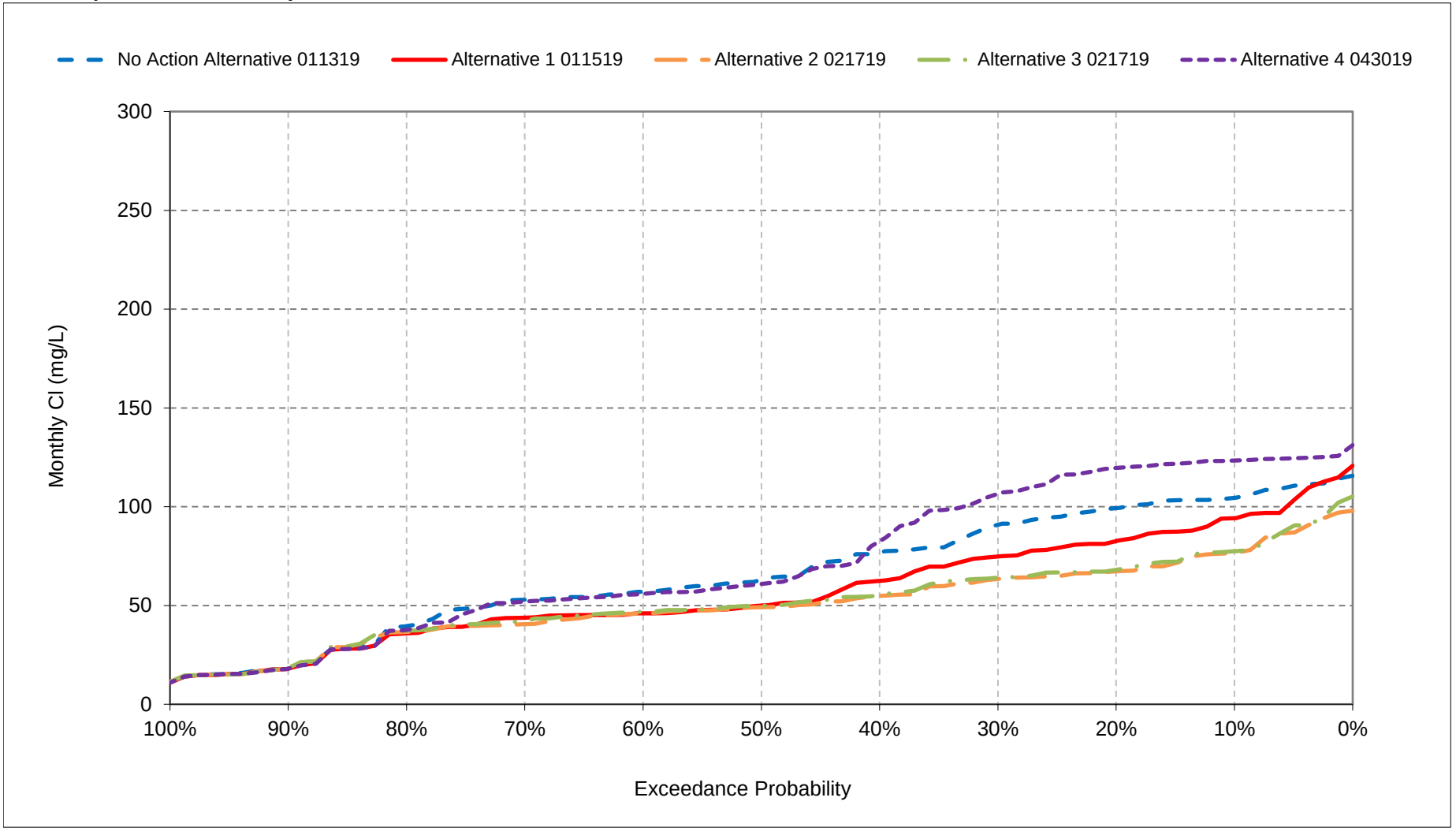

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 22-10. Jones Pumping Plant South**
**Delta Exports Chloride, April Cl**



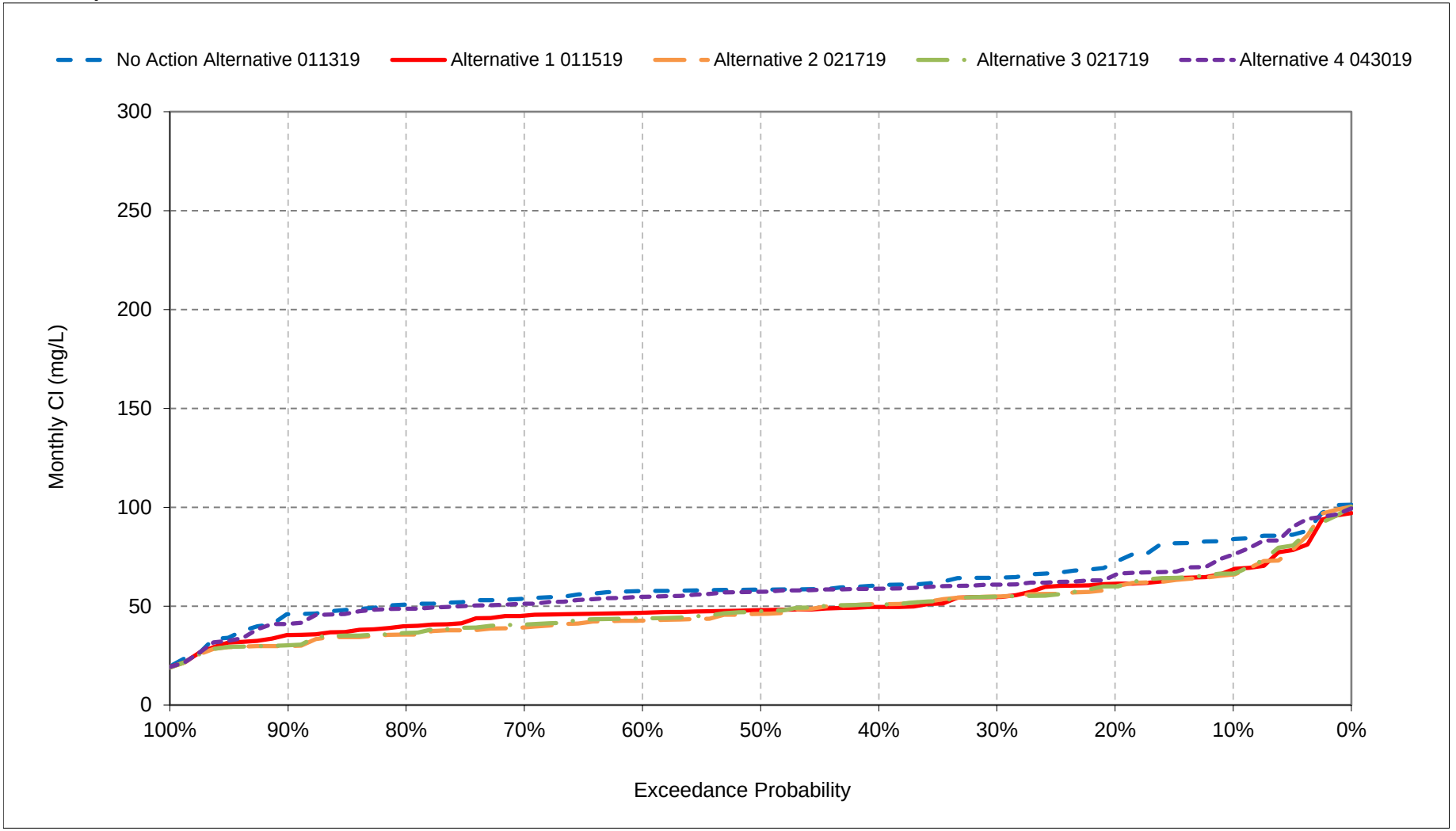

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 22-11. Jones Pumping Plant South**
**Delta Exports Chloride, May Cl**



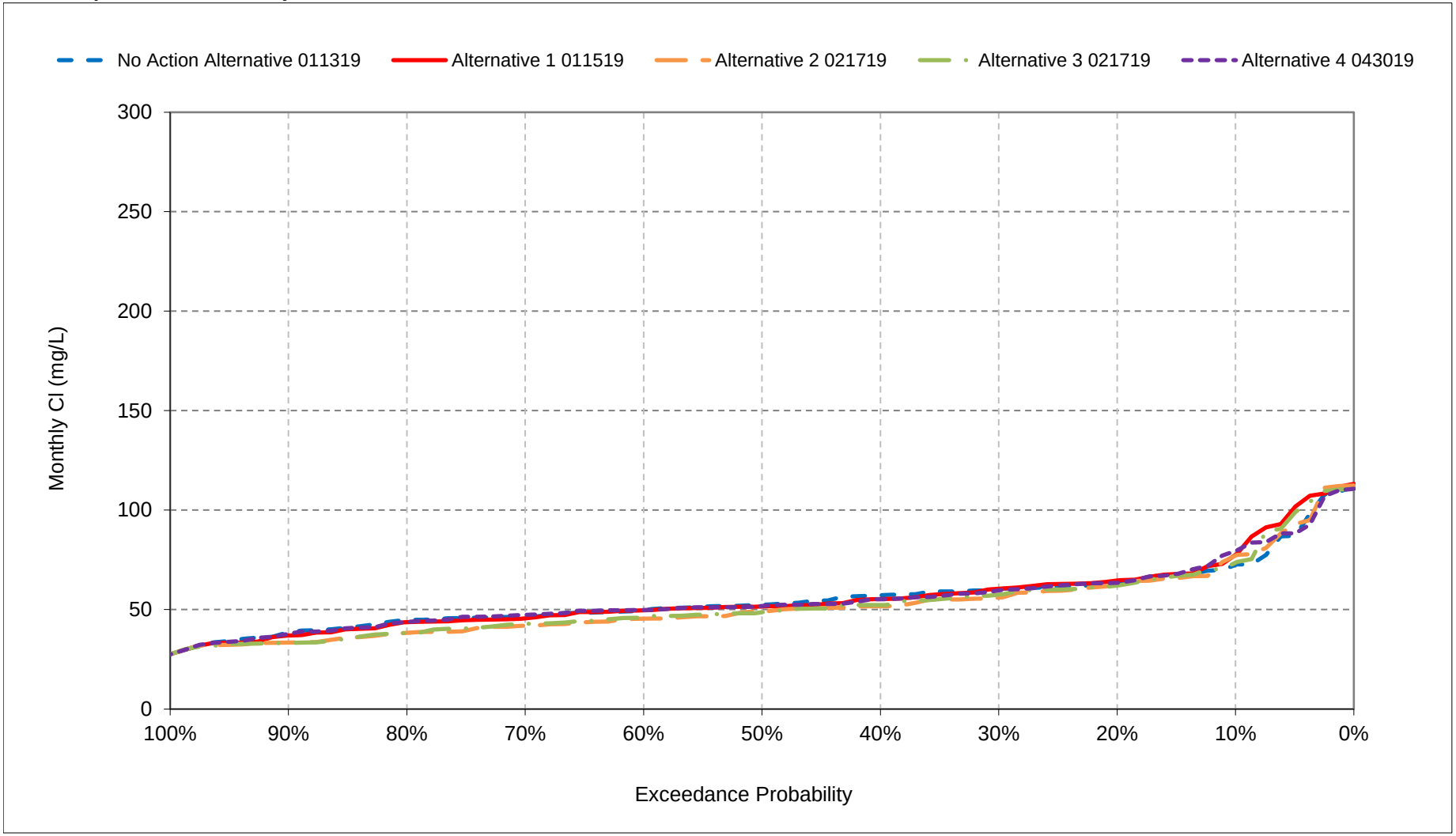

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 22-12. Jones Pumping Plant South**
**Delta Exports Chloride, June Cl**



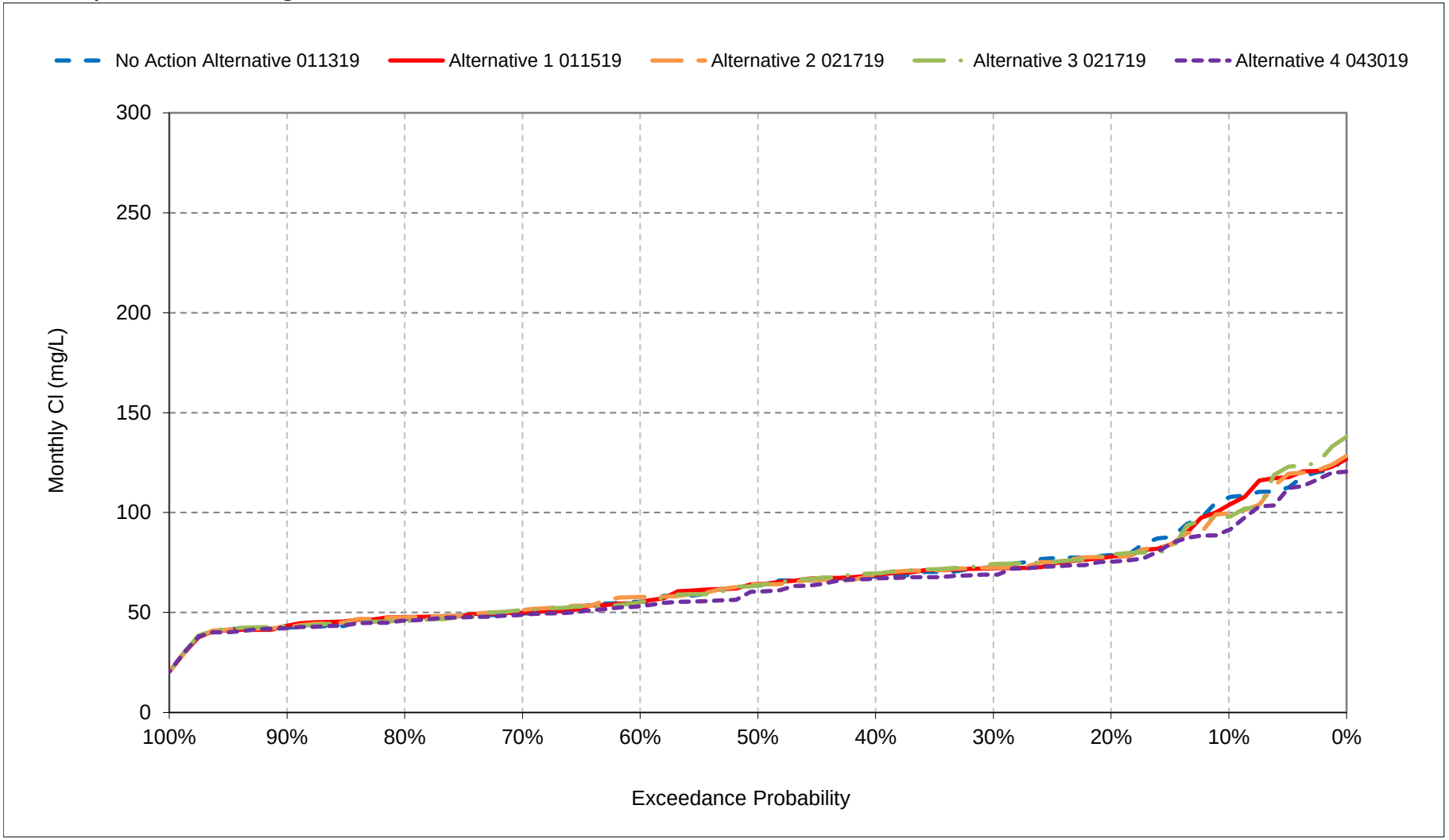

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 22-13. Jones Pumping Plant South**
**Delta Exports Chloride, July Cl**



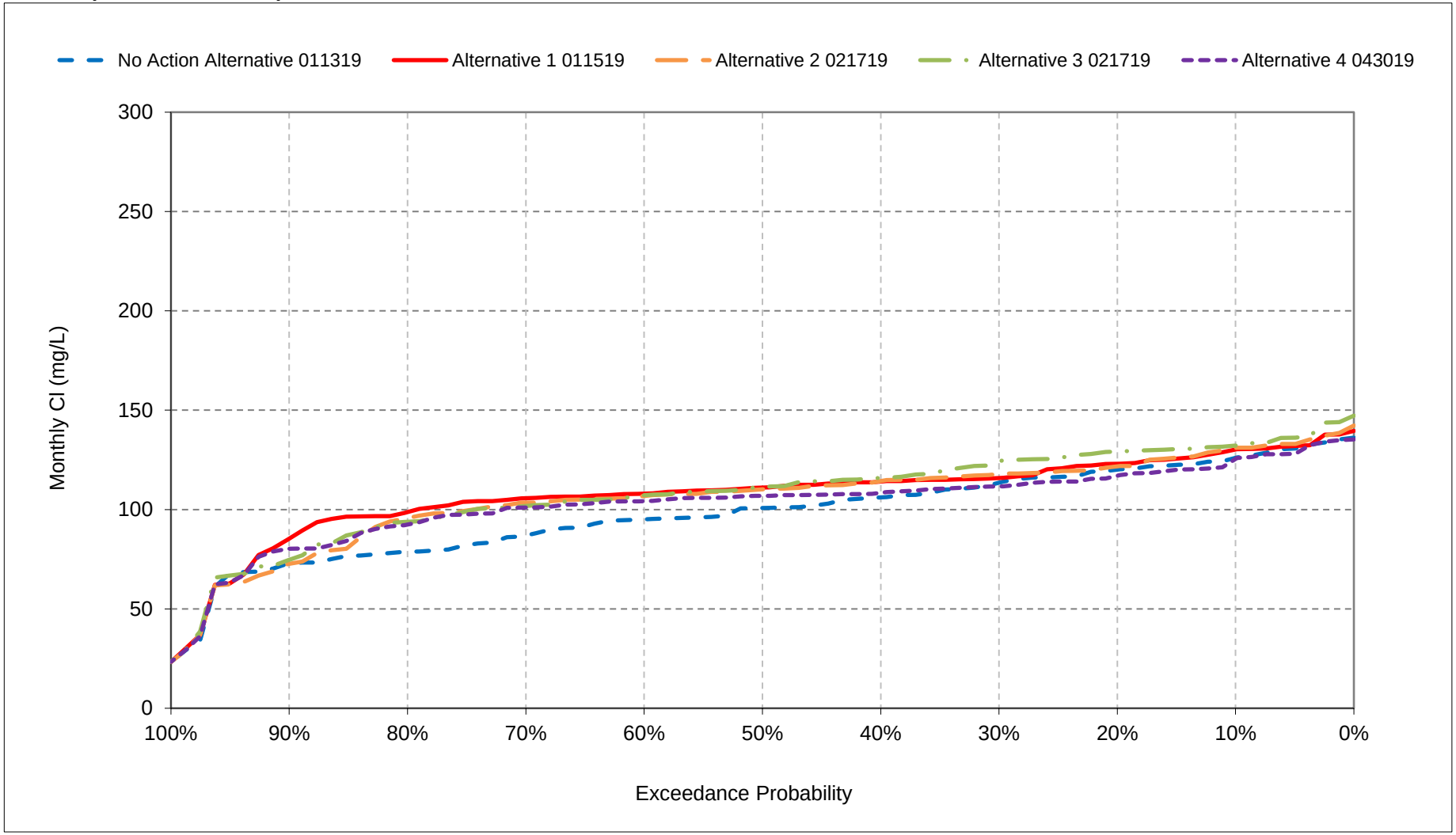

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 22-14. Jones Pumping Plant South**
**Delta Exports Chloride, August Cl**



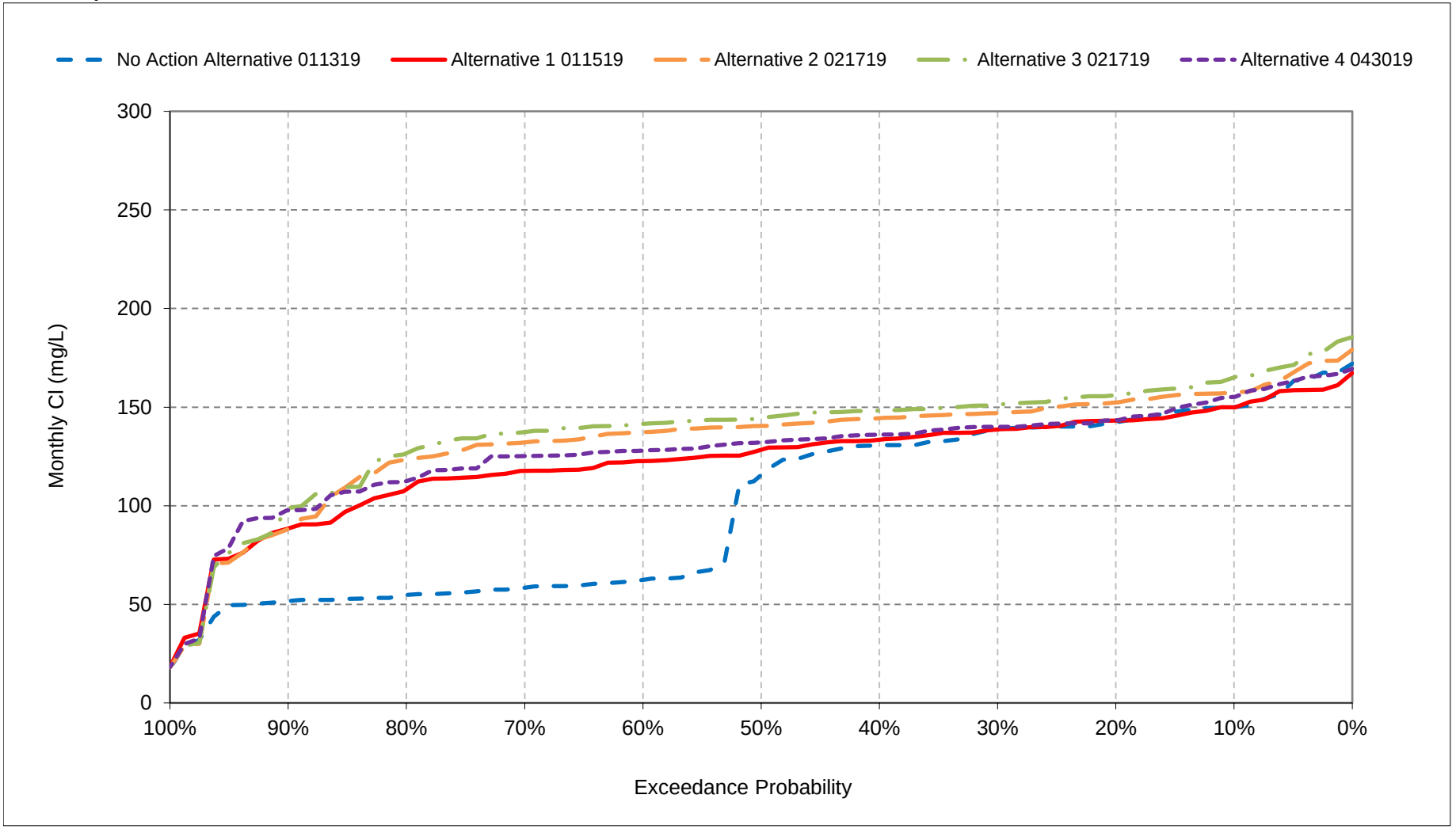

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 22-15. Jones Pumping Plant South**
**Delta Exports Chloride, September Cl**



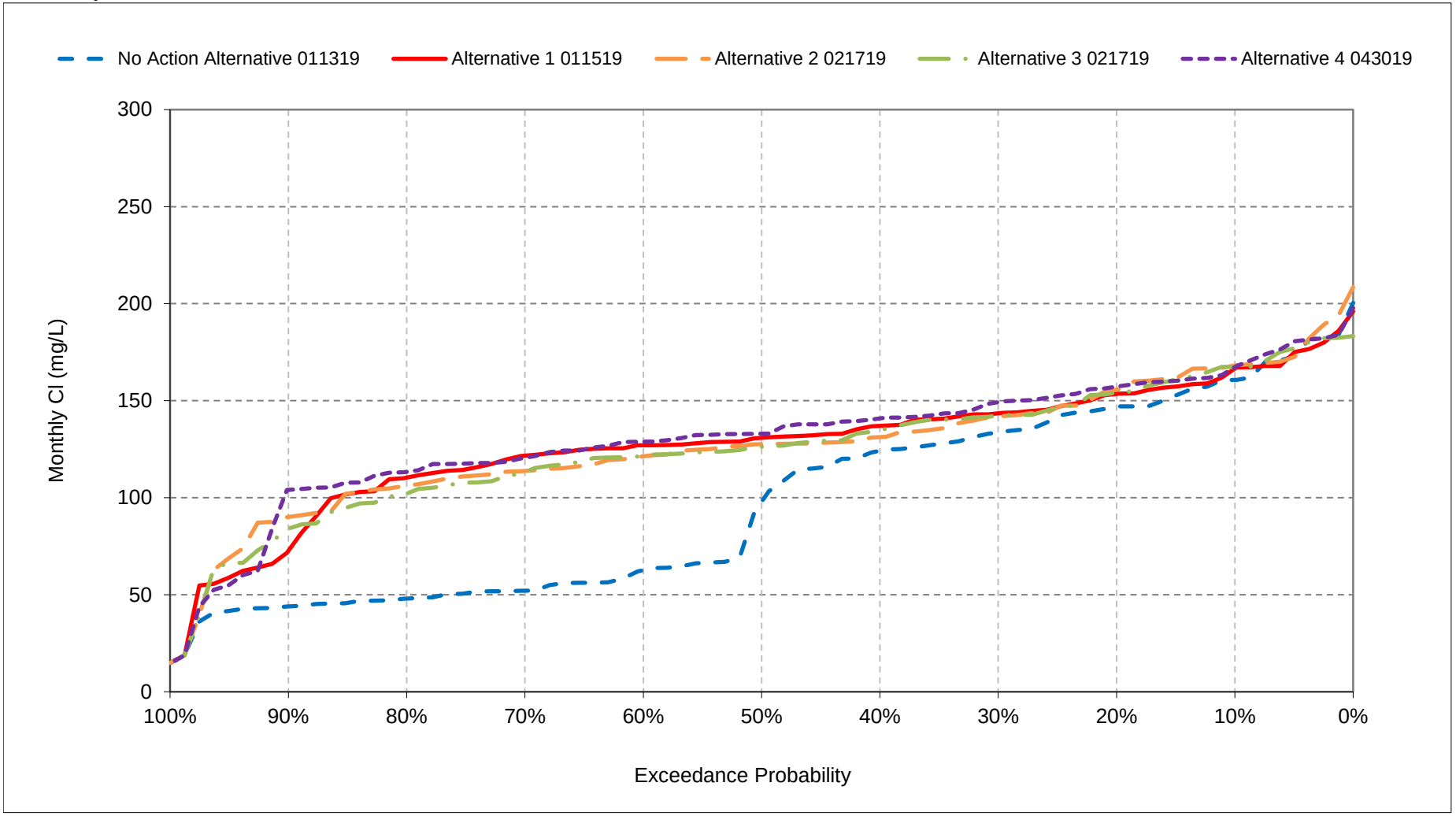

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 22-16. Jones Pumping Plant South**
**Delta Exports Chloride, October Cl**



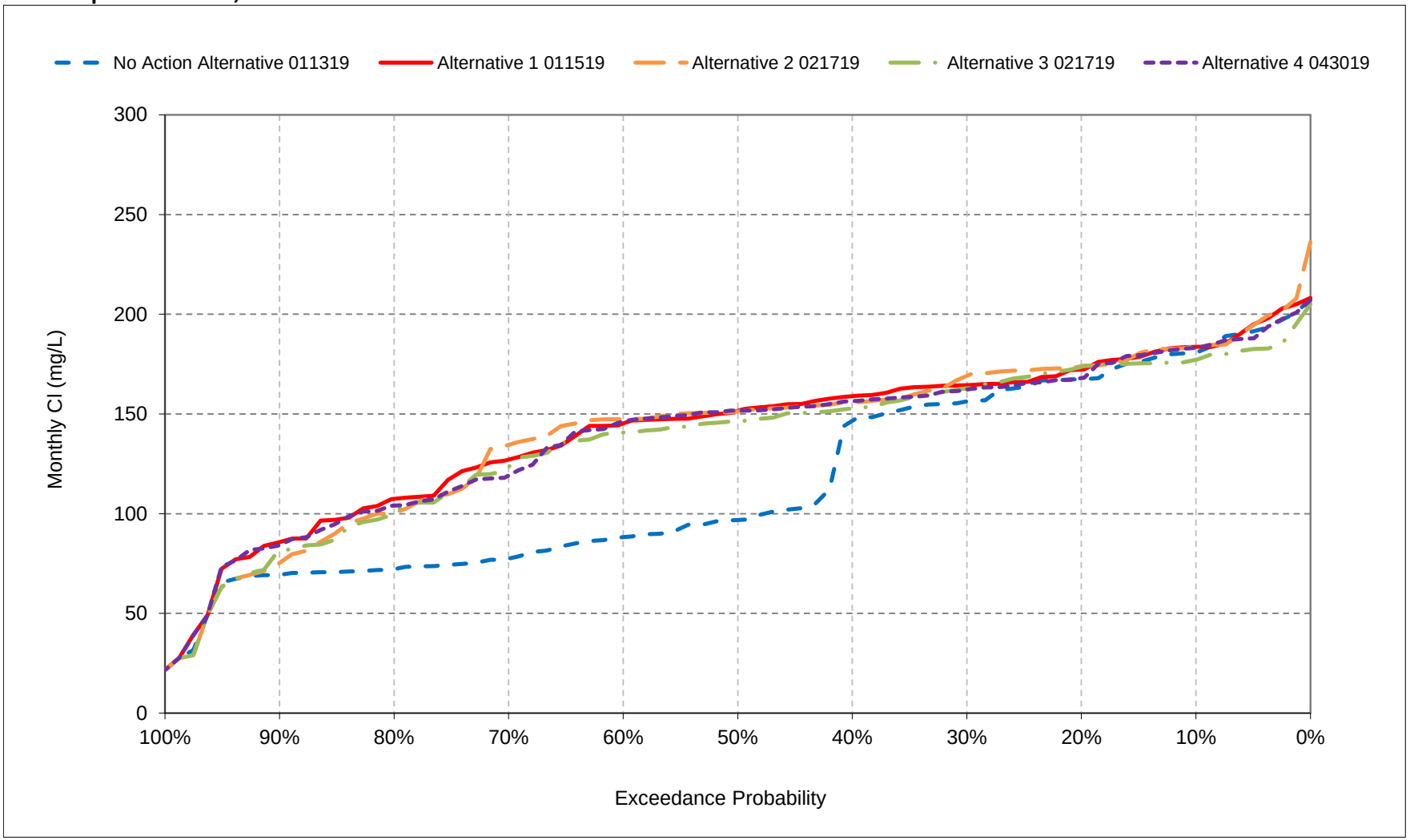

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 22-17. Jones Pumping Plant South**
**Delta Exports Chloride, November Cl**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 22-18. Jones Pumping Plant South**
**Delta Exports Chloride, December Cl**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Table 23-1. Barker Slough at NBA Intake Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 18 | 18 | 20 | 23 | 25 | 23 | 21 | 19 | 18 | 18 | 18 | 18 |
| 20% | 18 | 18 | 18 | 22 | 24 | 22 | 20 | 18 | 17 | 17 | 17 | 17 |
| 30% | 17 | 18 | 18 | 21 | 23 | 21 | 19 | 18 | 17 | 17 | 16 | 17 |
| 40% | 17 | 17 | 18 | 20 | 22 | 20 | 19 | 18 | 17 | 17 | 16 | 16 |
| 50% | 16 | 17 | 18 | 19 | 21 | 20 | 19 | 17 | 17 | 16 | 16 | 16 |
| 60% | 16 | 17 | 17 | 19 | 20 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| 70% | 16 | 16 | 17 | 18 | 20 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| 80% | 16 | 16 | 17 | 18 | 19 | 18 | 17 | 17 | 17 | 16 | 16 | 16 |
| 90% | 16 | 16 | 16 | 18 | 19 | 18 | 17 | 17 | 16 | 16 | 16 | 16 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 17 | 17 | 18 | 20 | 22 | 20 | 19 | 18 | 17 | 17 | 17 | 17 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 16 | 17 | 17 | 20 | 22 | 20 | 18 | 17 | 17 | 16 | 16 | 16 |
| Above Normal (16%) | 16 | 16 | 17 | 21 | 22 | 20 | 18 | 17 | 17 | 16 | 16 | 16 |
| Below Normal (13%) | 17 | 17 | 17 | 19 | 21 | 20 | 19 | 17 | 17 | 16 | 16 | 16 |
| Dry (24%) | 17 | 17 | 18 | 20 | 22 | 21 | 20 | 18 | 17 | 17 | 16 | 17 |
| Critical (15%) | 18 | 18 | 19 | 20 | 21 | 21 | 21 | 21 | 20 | 18 | 18 | 18 |

### Alternative 1 011519

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 18 | 18 | 19 | 23 | 25 | 23 | 21 | 20 | 18 | 18 | 18 | 18 |
| 20% | 18 | 18 | 18 | 22 | 24 | 22 | 20 | 18 | 17 | 17 | 17 | 17 |
| 30% | 17 | 18 | 18 | 21 | 23 | 21 | 19 | 18 | 17 | 17 | 17 | 17 |
| 40% | 17 | 17 | 18 | 20 | 22 | 20 | 19 | 18 | 17 | 16 | 16 | 17 |
| 50% | 17 | 17 | 18 | 19 | 21 | 20 | 19 | 17 | 17 | 16 | 16 | 16 |
| 60% | 16 | 17 | 17 | 19 | 20 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| 70% | 16 | 16 | 17 | 18 | 20 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| 80% | 16 | 16 | 16 | 18 | 19 | 18 | 17 | 17 | 16 | 16 | 16 | 16 |
| 90% | 16 | 16 | 16 | 18 | 18 | 18 | 17 | 17 | 16 | 16 | 16 | 16 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 17 | 17 | 18 | 20 | 21 | 20 | 19 | 18 | 17 | 17 | 17 | 17 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 16 | 17 | 17 | 20 | 22 | 20 | 18 | 17 | 17 | 16 | 16 | 16 |
| Above Normal (16%) | 16 | 16 | 17 | 21 | 22 | 20 | 18 | 17 | 17 | 16 | 16 | 16 |
| Below Normal (13%) | 17 | 17 | 17 | 19 | 20 | 20 | 19 | 17 | 17 | 16 | 16 | 16 |
| Dry (24%) | 17 | 17 | 18 | 20 | 22 | 21 | 20 | 18 | 17 | 17 | 16 | 17 |
| Critical (15%) | 18 | 18 | 19 | 20 | 21 | 21 | 21 | 21 | 20 | 18 | 18 | 18 |

### Alternative 1 011519 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **0** | **0** | 0 | 0 | 0 | 0 | **0** | **1** | 0 | **0** | 0 | **0** |
| 20% | 0 | **0** | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | **0** | **0** |
| 30% | **0** | **0** | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | **0** | **0** |
| 40% | **0** | 0 | **0** | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | **0** |
| 50% | **0** | 0 | 0 | **0** | **0** | **0** | **0** | 0 | 0 | 0 | 0 | **0** |
| 60% | **0** | 0 | **0** | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** | **0** |
| 70% | **0** | **0** | 0 | 0 | 0 | **0** | **0** | **0** | 0 | 0 | **0** | **0** |
| 80% | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** |
| 90% | **0** | 0 | **0** | 0 | 0 | 0 | 0 | **0** | **0** | 0 | **0** | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** | 0 | **0** | **0** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| Above Normal (16%) | **0** | 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** |
| Below Normal (13%) | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | 0 |
| Dry (24%) | **0** | 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 | 0 | **0** | **0** |
| Critical (15%) | **0** | **0** | **0** | 0 | **0** | **0** | **0** | **1** | **1** | **0** | 0 | **0** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 23-2. Barker Slough at NBA Intake Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 18 | 18 | 20 | 23 | 25 | 23 | 21 | 19 | 18 | 18 | 18 | 18 |
| 20% | 18 | 18 | 18 | 22 | 24 | 22 | 20 | 18 | 17 | 17 | 17 | 17 |
| 30% | 17 | 18 | 18 | 21 | 23 | 21 | 19 | 18 | 17 | 17 | 16 | 17 |
| 40% | 17 | 17 | 18 | 20 | 22 | 20 | 19 | 18 | 17 | 17 | 16 | 16 |
| 50% | 16 | 17 | 18 | 19 | 21 | 20 | 19 | 17 | 17 | 16 | 16 | 16 |
| 60% | 16 | 17 | 17 | 19 | 20 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| 70% | 16 | 16 | 17 | 18 | 20 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| 80% | 16 | 16 | 17 | 18 | 19 | 18 | 17 | 17 | 17 | 16 | 16 | 16 |
| 90% | 16 | 16 | 16 | 18 | 19 | 18 | 17 | 17 | 16 | 16 | 16 | 16 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 17 | 17 | 18 | 20 | 22 | 20 | 19 | 18 | 17 | 17 | 17 | 17 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 16 | 17 | 17 | 20 | 22 | 20 | 18 | 17 | 17 | 16 | 16 | 16 |
| Above Normal (16%) | 16 | 16 | 17 | 21 | 22 | 20 | 18 | 17 | 17 | 16 | 16 | 16 |
| Below Normal (13%) | 17 | 17 | 17 | 19 | 21 | 20 | 19 | 17 | 17 | 16 | 16 | 16 |
| Dry (24%) | 17 | 17 | 18 | 20 | 22 | 21 | 20 | 18 | 17 | 17 | 16 | 17 |
| Critical (15%) | 18 | 18 | 19 | 20 | 21 | 21 | 21 | 21 | 20 | 18 | 18 | 18 |

### Alternative 2 021719

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 18 | 18 | 20 | 23 | 25 | 23 | 22 | 21 | 18 | 18 | 18 | 18 |
| 20% | 17 | 18 | 19 | 22 | 24 | 22 | 20 | 19 | 17 | 17 | 17 | 17 |
| 30% | 17 | 17 | 18 | 21 | 23 | 22 | 19 | 18 | 17 | 17 | 17 | 17 |
| 40% | 17 | 17 | 18 | 20 | 22 | 20 | 19 | 18 | 17 | 16 | 16 | 17 |
| 50% | 17 | 17 | 18 | 19 | 21 | 20 | 19 | 17 | 17 | 16 | 16 | 16 |
| 60% | 16 | 17 | 17 | 19 | 20 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| 70% | 16 | 16 | 17 | 18 | 20 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| 80% | 16 | 16 | 16 | 18 | 19 | 18 | 17 | 17 | 16 | 16 | 16 | 16 |
| 90% | 16 | 16 | 16 | 18 | 18 | 18 | 17 | 17 | 16 | 16 | 16 | 16 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 17 | 17 | 18 | 20 | 22 | 20 | 19 | 18 | 17 | 17 | 17 | 17 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 16 | 17 | 17 | 20 | 22 | 20 | 18 | 17 | 16 | 16 | 16 | 16 |
| Above Normal (16%) | 16 | 16 | 17 | 21 | 21 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| Below Normal (13%) | 17 | 17 | 18 | 19 | 21 | 20 | 19 | 17 | 17 | 16 | 16 | 16 |
| Dry (24%) | 17 | 17 | 18 | 20 | 22 | 21 | 20 | 18 | 17 | 17 | 16 | 17 |
| Critical (15%) | 18 | 18 | 19 | 20 | 21 | 22 | 22 | 22 | 21 | 18 | 18 | 18 |

### Alternative 2 021719 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 0 | 0 | **0** | 0 | 0 | **0** | **1** | **1** | **0** | 0 | 0 | 0 |
| 20% | 0 | 0 | **0** | **0** | **0** | **0** | **1** | **0** | **0** | 0 | 0 | **0** |
| 30% | 0 | 0 | **0** | **0** | 0 | **0** | **0** | **0** | 0 | 0 | **0** | **0** |
| 40% | 0 | 0 | **0** | **0** | 0 | **0** | 0 | 0 | 0 | 0 | **0** | **0** |
| 50% | **0** | 0 | 0 | **0** | **0** | **0** | 0 | **0** | 0 | 0 | **0** | **0** |
| 60% | **0** | **0** | **0** | 0 | **0** | **0** | **0** | 0 | 0 | 0 | **0** | **0** |
| 70% | **0** | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 80% | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 90% | **0** | 0 | **0** | **0** | 0 | 0 | 0 | **0** | **0** | 0 | **0** | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | 0 | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 | **0** | **0** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| Above Normal (16%) | **0** | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | **0** | **0** |
| Below Normal (13%) | 0 | 0 | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** |
| Dry (24%) | 0 | 0 | **0** | **0** | **0** | **0** | **0** | **0** | 0 | 0 | **0** | **0** |
| Critical (15%) | 0 | 0 | **0** | **0** | **0** | **1** | **1** | **1** | **1** | **0** | 0 | 0 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 23-3. Barker Slough at NBA Intake Chloride, Monthly Cl

No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 18 | 18 | 20 | 23 | 25 | 23 | 21 | 19 | 18 | 18 | 18 | 18 |
| 20% | 18 | 18 | 18 | 22 | 24 | 22 | 20 | 18 | 17 | 17 | 17 | 17 |
| 30% | 17 | 18 | 18 | 21 | 23 | 21 | 19 | 18 | 17 | 17 | 16 | 17 |
| 40% | 17 | 17 | 18 | 20 | 22 | 20 | 19 | 18 | 17 | 17 | 16 | 16 |
| 50% | 16 | 17 | 18 | 19 | 21 | 20 | 19 | 17 | 17 | 16 | 16 | 16 |
| 60% | 16 | 17 | 17 | 19 | 20 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| 70% | 16 | 16 | 17 | 18 | 20 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| 80% | 16 | 16 | 17 | 18 | 19 | 18 | 17 | 17 | 17 | 16 | 16 | 16 |
| 90% | 16 | 16 | 16 | 18 | 19 | 18 | 17 | 17 | 16 | 16 | 16 | 16 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 17 | 17 | 18 | 20 | 22 | 20 | 19 | 18 | 17 | 17 | 17 | 17 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 16 | 17 | 17 | 20 | 22 | 20 | 18 | 17 | 17 | 16 | 16 | 16 |
| Above Normal (16%) | 16 | 16 | 17 | 21 | 22 | 20 | 18 | 17 | 17 | 16 | 16 | 16 |
| Below Normal (13%) | 17 | 17 | 17 | 19 | 21 | 20 | 19 | 17 | 17 | 16 | 16 | 16 |
| Dry (24%) | 17 | 17 | 18 | 20 | 22 | 21 | 20 | 18 | 17 | 17 | 16 | 17 |
| Critical (15%) | 18 | 18 | 19 | 20 | 21 | 21 | 21 | 21 | 20 | 18 | 18 | 18 |

Alternative 3 021719

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 16 | 16 | 16 | 17 | 18 | 18 | 17 | 17 | 16 | 16 | 16 | 16 |
| 20% | 16 | 16 | 16 | 17 | 18 | 18 | 17 | 16 | 16 | 16 | 16 | 16 |
| 30% | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 16 | 16 | 16 | 15 | 15 |
| 40% | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 16 | 16 | 16 | 15 | 15 |
| 50% | 15 | 15 | 16 | 16 | 17 | 17 | 16 | 16 | 16 | 15 | 15 | 15 |
| 60% | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 15 | 15 | 15 |
| 70% | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 15 | 15 | 15 | 15 |
| 80% | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 15 | 15 | 15 | 15 |
| 90% | 15 | 15 | 15 | 16 | 16 | 16 | 16 | 15 | 15 | 15 | 15 | 15 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 16 | 16 | 15 | 15 | 15 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 15 | 15 | 16 | 16 | 16 | 16 | 16 | 16 | 15 | 15 | 15 | 15 |
| Above Normal (16%) | 15 | 15 | 16 | 16 | 17 | 16 | 16 | 16 | 16 | 15 | 15 | 15 |
| Below Normal (13%) | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 16 | 16 | 15 | 15 | 15 |
| Dry (24%) | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 16 | 16 | 16 | 16 | 16 |
| Critical (15%) | 16 | 16 | 16 | 17 | 17 | 18 | 17 | 17 | 16 | 16 | 16 | 16 |

Alternative 3 021719 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | -3 | -2 | -3 | -6 | -7 | -5 | -4 | -3 | -2 | -2 | -2 | -2 |
| 20% | -2 | -2 | -2 | -5 | -6 | -5 | -3 | -2 | -1 | -1 | -1 | -2 |
| 30% | -2 | -2 | -2 | -5 | -6 | -4 | -2 | -1 | -1 | -1 | -1 | -1 |
| 40% | -1 | -2 | -2 | -4 | -5 | -3 | -2 | -1 | -1 | -1 | -1 | -1 |
| 50% | -1 | -2 | -2 | -3 | -4 | -3 | -2 | -1 | -1 | -1 | -1 | -1 |
| 60% | -1 | -1 | -2 | -3 | -4 | -3 | -2 | -1 | -1 | -1 | -1 | -1 |
| 70% | -1 | -1 | -1 | -3 | -4 | -3 | -2 | -1 | -1 | -1 | -1 | -1 |
| 80% | -1 | -1 | -1 | -2 | -3 | -2 | -2 | -1 | -1 | -1 | -1 | -1 |
| 90% | -1 | -1 | -1 | -2 | -3 | -2 | -2 | -1 | -1 | -1 | -1 | -1 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | -1 | -2 | -2 | -4 | -5 | -3 | -2 | -2 | -1 | -1 | -1 | -1 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | -1 | -1 | -2 | -4 | -5 | -3 | -2 | -1 | -1 | -1 | -1 | -1 |
| Above Normal (16%) | -1 | -1 | -2 | -4 | -5 | -3 | -2 | -1 | -1 | -1 | -1 | -1 |
| Below Normal (13%) | -1 | -1 | -2 | -3 | -4 | -3 | -2 | -1 | -1 | -1 | -1 | -1 |
| Dry (24%) | -2 | -2 | -2 | -3 | -5 | -4 | -3 | -2 | -1 | -1 | -1 | -1 |
| Critical (15%) | -3 | -2 | -3 | -3 | -4 | -4 | -4 | -4 | -3 | -2 | -2 | -2 |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

## Table 23-4. Barker Slough at NBA Intake Chloride, Monthly Cl

### No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 18 | 18 | 20 | 23 | 25 | 23 | 21 | 19 | 18 | 18 | 18 | 18 |
| 20% | 18 | 18 | 18 | 22 | 24 | 22 | 20 | 18 | 17 | 17 | 17 | 17 |
| 30% | 17 | 18 | 18 | 21 | 23 | 21 | 19 | 18 | 17 | 17 | 16 | 17 |
| 40% | 17 | 17 | 18 | 20 | 22 | 20 | 19 | 18 | 17 | 17 | 16 | 16 |
| 50% | 16 | 17 | 18 | 19 | 21 | 20 | 19 | 17 | 17 | 16 | 16 | 16 |
| 60% | 16 | 17 | 17 | 19 | 20 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| 70% | 16 | 16 | 17 | 18 | 20 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| 80% | 16 | 16 | 17 | 18 | 19 | 18 | 17 | 17 | 17 | 16 | 16 | 16 |
| 90% | 16 | 16 | 16 | 18 | 19 | 18 | 17 | 17 | 16 | 16 | 16 | 16 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 17 | 17 | 18 | 20 | 22 | 20 | 19 | 18 | 17 | 17 | 17 | 17 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 16 | 17 | 17 | 20 | 22 | 20 | 18 | 17 | 17 | 16 | 16 | 16 |
| Above Normal (16%) | 16 | 16 | 17 | 21 | 22 | 20 | 18 | 17 | 17 | 16 | 16 | 16 |
| Below Normal (13%) | 17 | 17 | 17 | 19 | 21 | 20 | 19 | 17 | 17 | 16 | 16 | 16 |
| Dry (24%) | 17 | 17 | 18 | 20 | 22 | 21 | 20 | 18 | 17 | 17 | 16 | 17 |
| Critical (15%) | 18 | 18 | 19 | 20 | 21 | 21 | 21 | 21 | 20 | 18 | 18 | 18 |

### Alternative 4 043019

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | 18 | 18 | 20 | 23 | 25 | 23 | 21 | 19 | 18 | 18 | 18 | 18 |
| 20% | 18 | 18 | 18 | 22 | 24 | 22 | 20 | 18 | 17 | 17 | 17 | 17 |
| 30% | 17 | 18 | 18 | 21 | 23 | 21 | 19 | 18 | 17 | 17 | 16 | 17 |
| 40% | 17 | 17 | 18 | 20 | 22 | 20 | 19 | 17 | 17 | 16 | 16 | 17 |
| 50% | 17 | 17 | 18 | 19 | 21 | 20 | 19 | 17 | 17 | 16 | 16 | 17 |
| 60% | 16 | 17 | 17 | 19 | 20 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| 70% | 16 | 16 | 17 | 18 | 20 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| 80% | 16 | 16 | 16 | 18 | 19 | 18 | 17 | 17 | 16 | 16 | 16 | 16 |
| 90% | 16 | 16 | 16 | 18 | 18 | 18 | 17 | 16 | 16 | 16 | 16 | 16 |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | 17 | 17 | 18 | 20 | 21 | 20 | 19 | 18 | 17 | 17 | 17 | 17 |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | 16 | 17 | 17 | 20 | 22 | 20 | 18 | 17 | 17 | 16 | 16 | 16 |
| Above Normal (16%) | 16 | 16 | 17 | 21 | 21 | 19 | 18 | 17 | 17 | 16 | 16 | 16 |
| Below Normal (13%) | 17 | 17 | 17 | 19 | 20 | 20 | 18 | 17 | 17 | 16 | 16 | 17 |
| Dry (24%) | 17 | 17 | 18 | 20 | 22 | 21 | 19 | 18 | 17 | 17 | 16 | 17 |
| Critical (15%) | 19 | 18 | 19 | 20 | 21 | 21 | 21 | 20 | 20 | 18 | 18 | 18 |

### Alternative 4 043019 minus No Action Alternative 011319

| | Monthly Cl (mg/L) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistic | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Probability of Exceedance | | | | | | | | | | | | |
| 10% | **0** | **0** | **0** | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | **0** |
| 20% | 0 | **0** | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| 30% | 0 | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| 40% | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| 50% | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| 60% | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | **0** |
| 70% | **0** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | **0** |
| 80% | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| 90% | **0** | 0 | **0** | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** | **0** |
| Long Term | | | | | | | | | | | | |
| Full Simulation Period[a] | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| **Water Year Types[b]** | | | | | | | | | | | | |
| Wet (32%) | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| Above Normal (16%) | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| Below Normal (13%) | **0** | **0** | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| Dry (24%) | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| Critical (15%) | **0** | **0** | **0** | 0 | 0 | 0 | 0 | 0 | **0** | **0** | **0** | **0** |

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

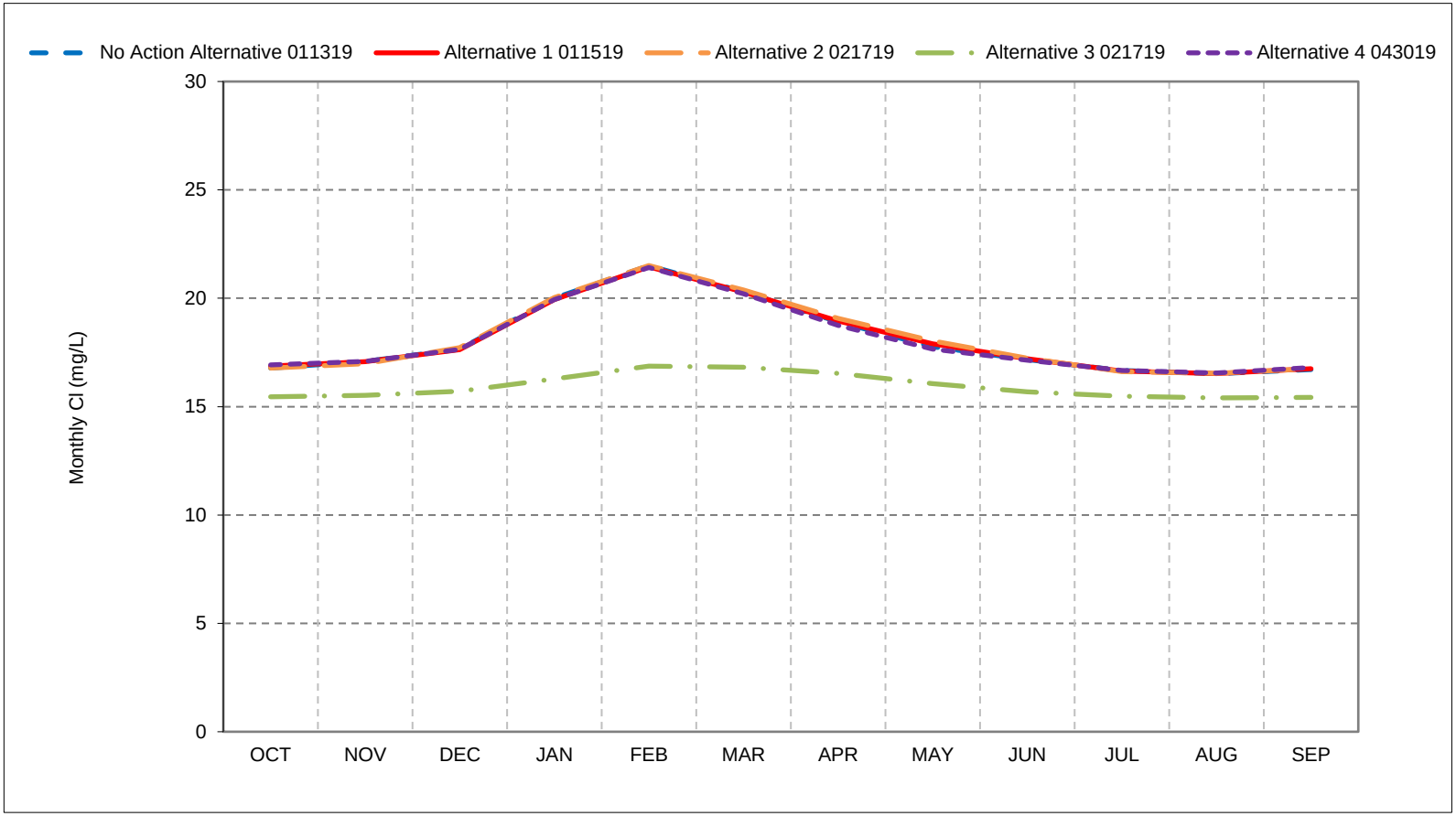
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

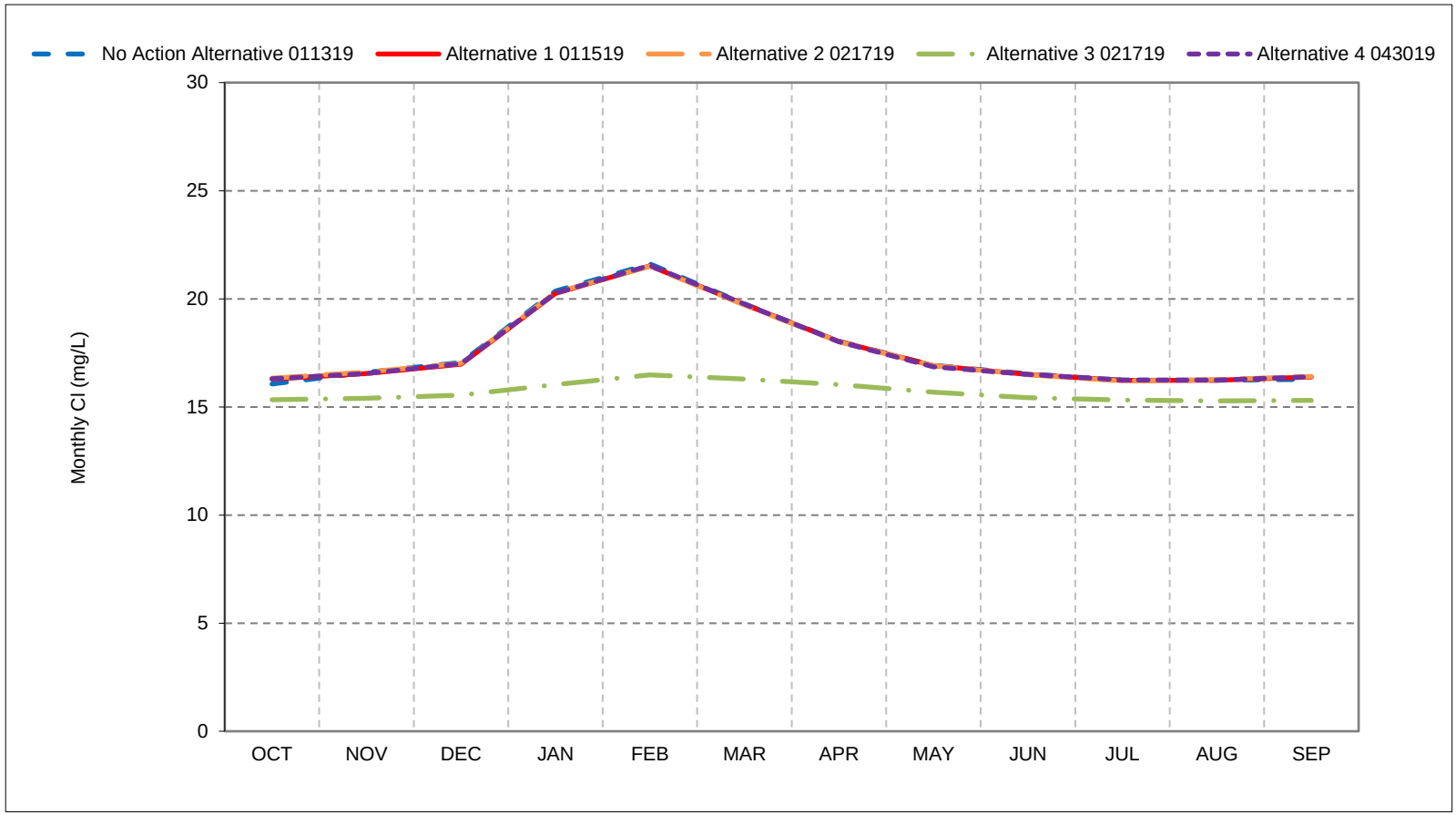
f These are draft results meant for qualitative analysis and are subject to revision.

## Figure 23-1. Barker Slough at NBA Intake Chloride, Long-Term Average Cl



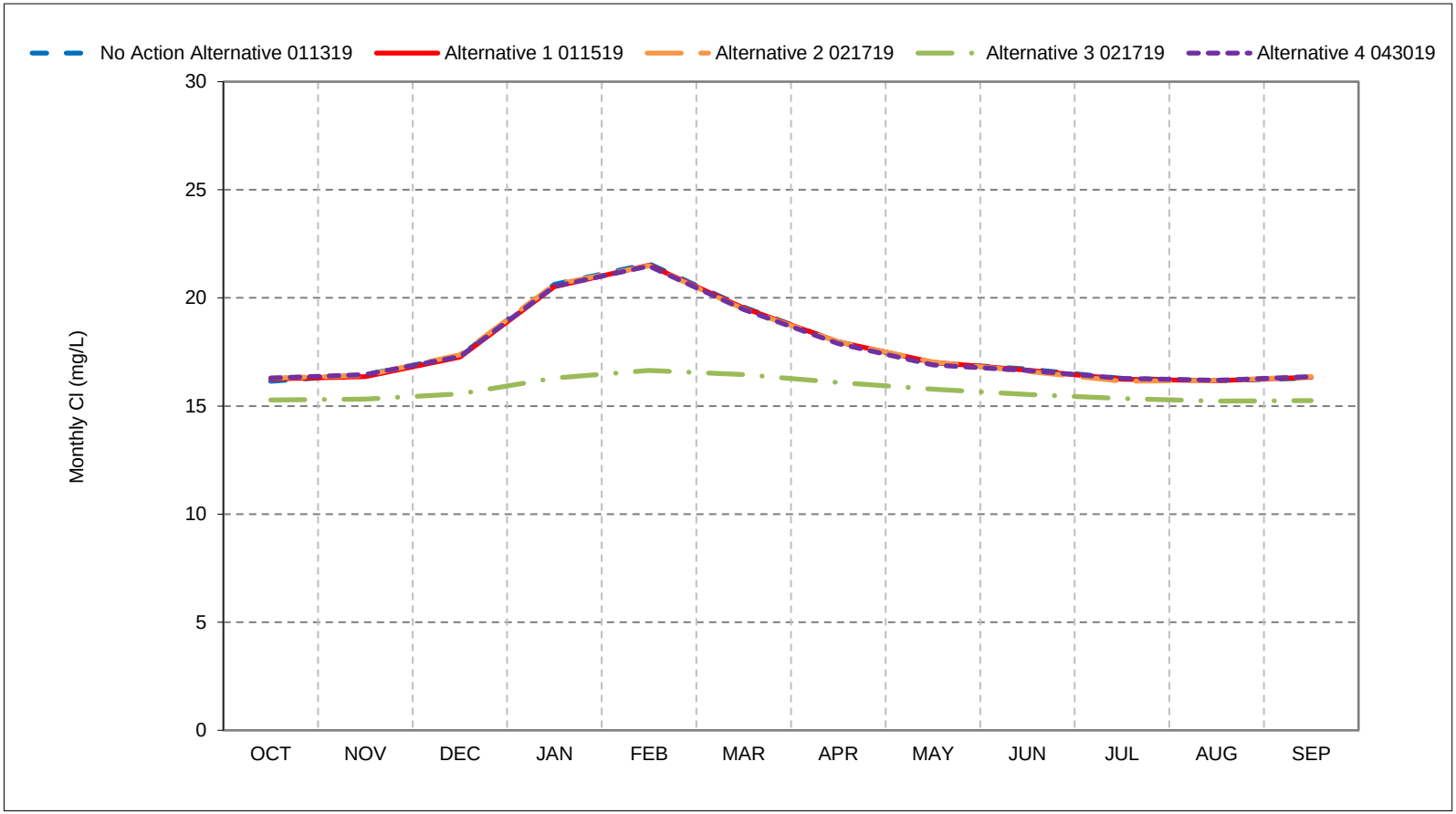

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 23-2. Barker Slough at NBA Intake Chloride, Wet Year Average Cl



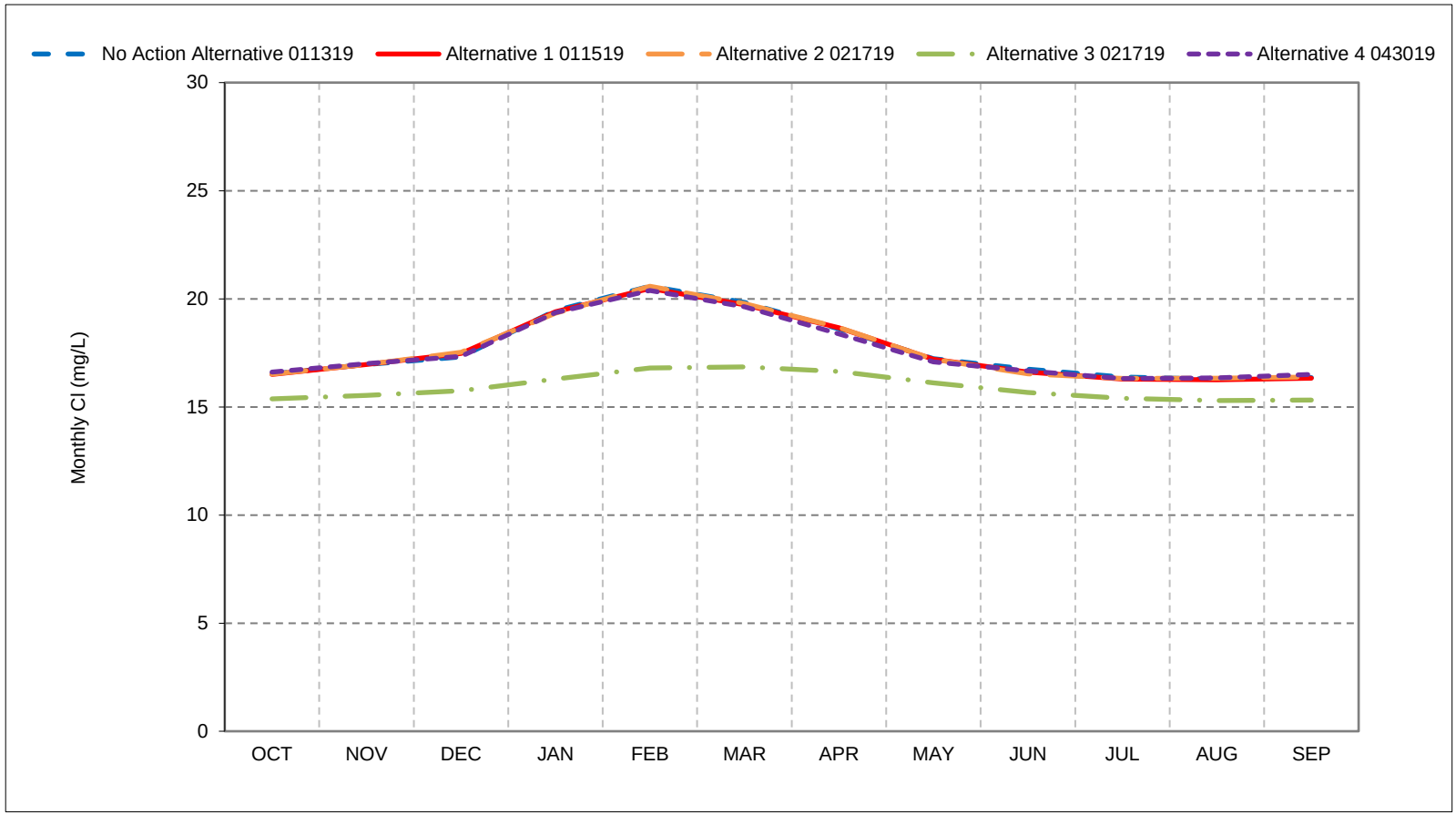

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 23-3. Barker Slough at NBA Intake Chloride, Above Normal Year Average Cl



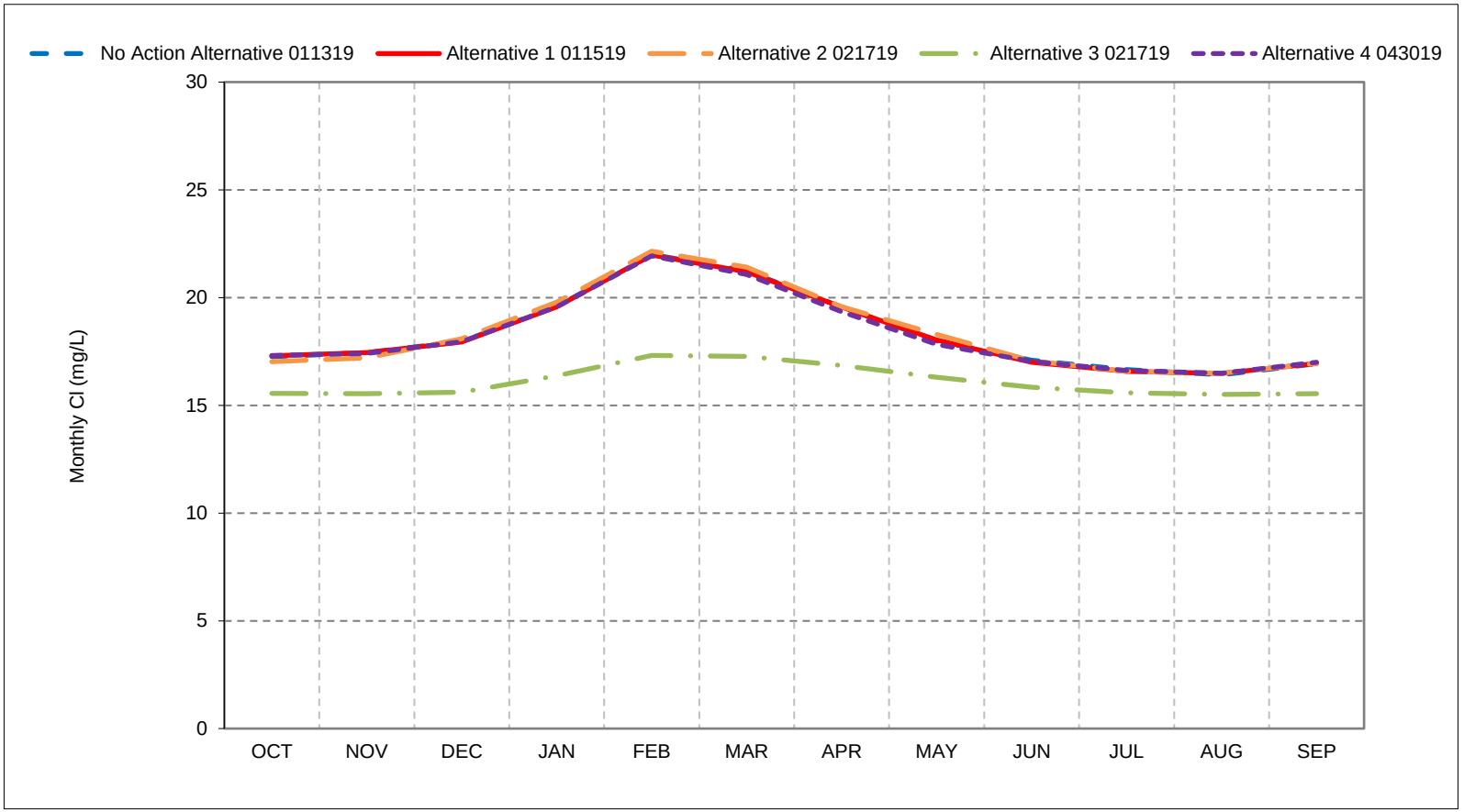

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 23-4. Barker Slough at NBA Intake Chloride, Below Normal Year Average Cl



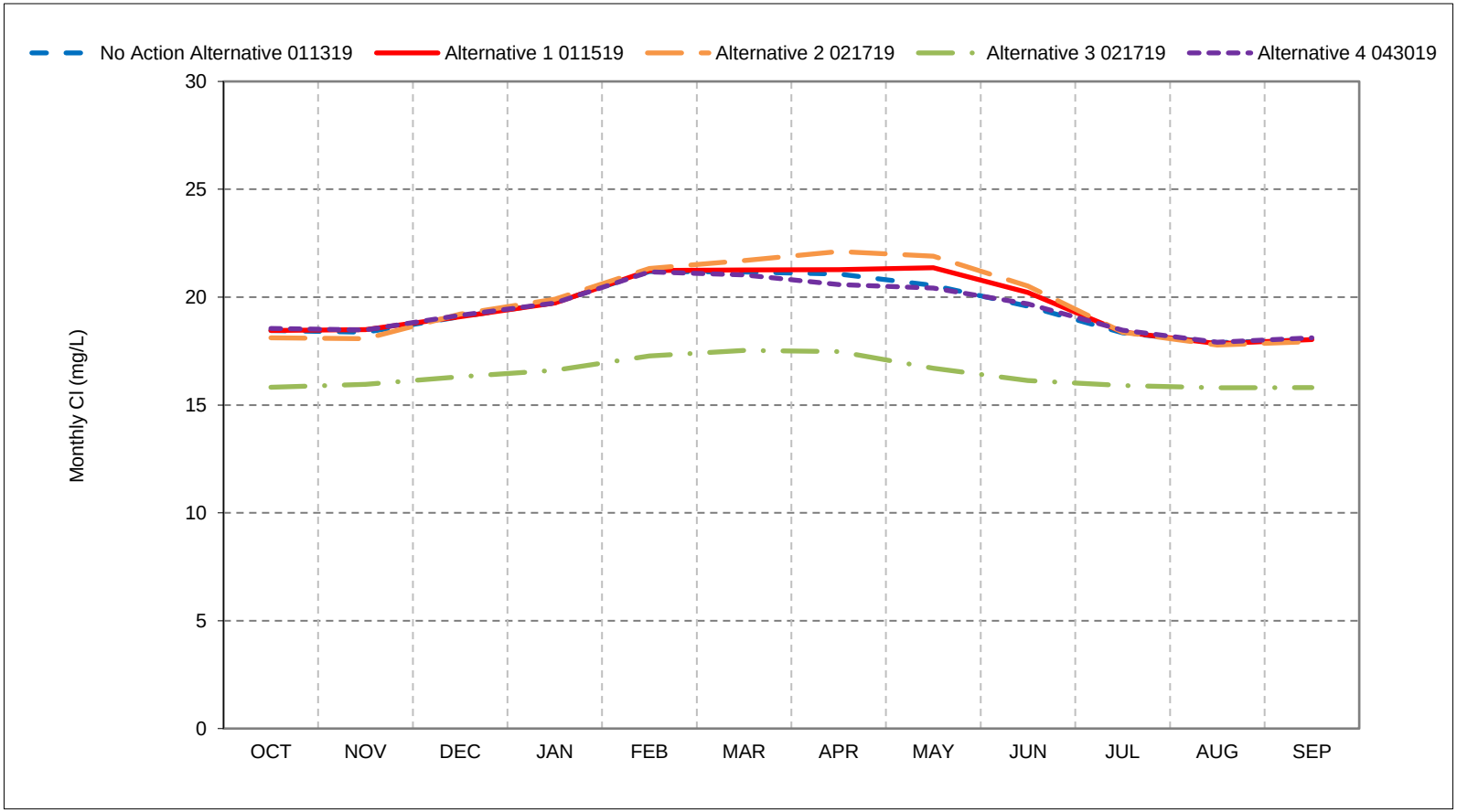

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 23-5. Barker Slough at NBA Intake Chloride, Dry Year Average Cl




*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

## Figure 23-6. Barker Slough at NBA Intake Chloride, Critical Year Average Cl



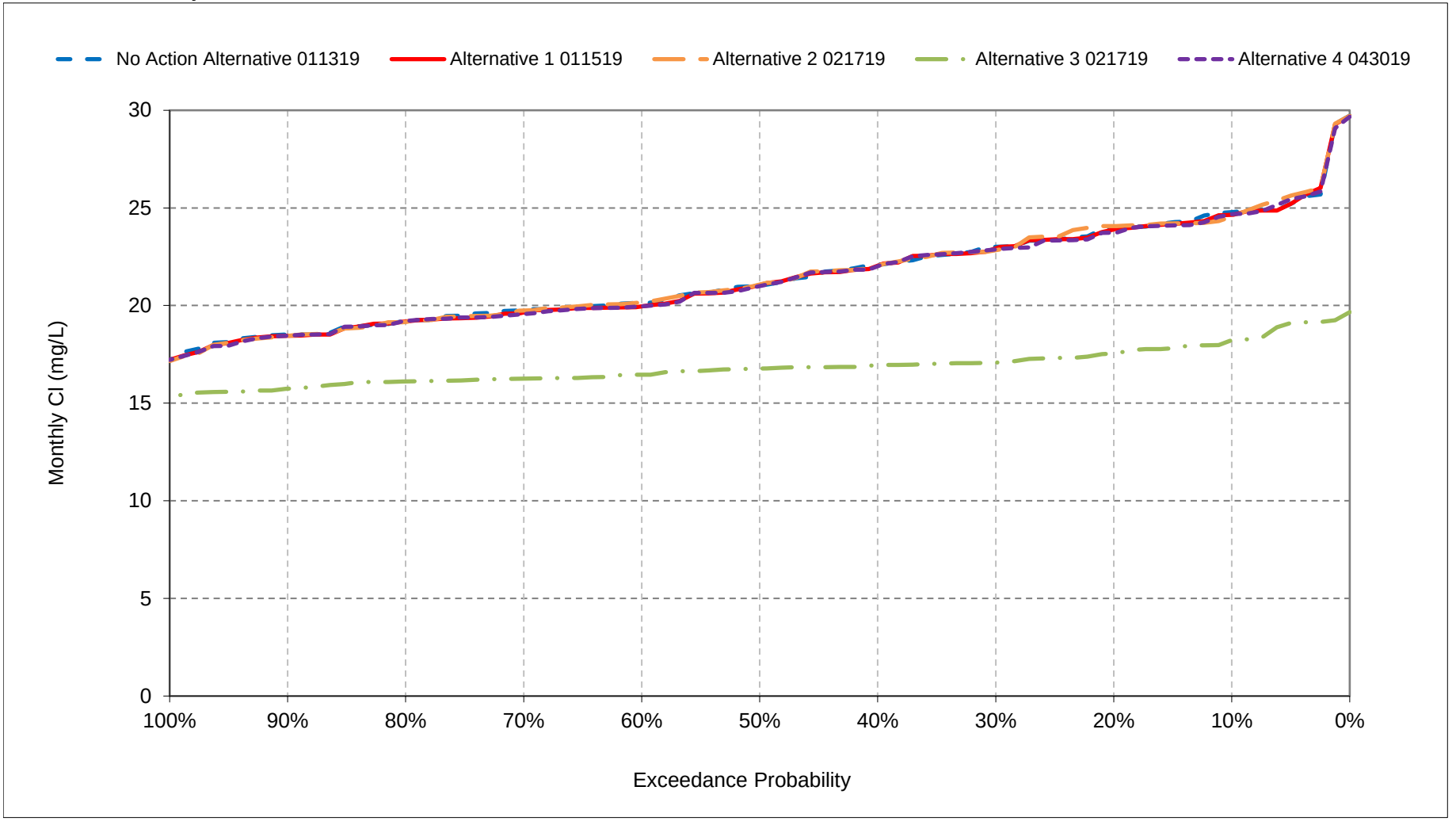

*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 23-7. Barker Slough at NBA Intake**
**Chloride, January Cl**



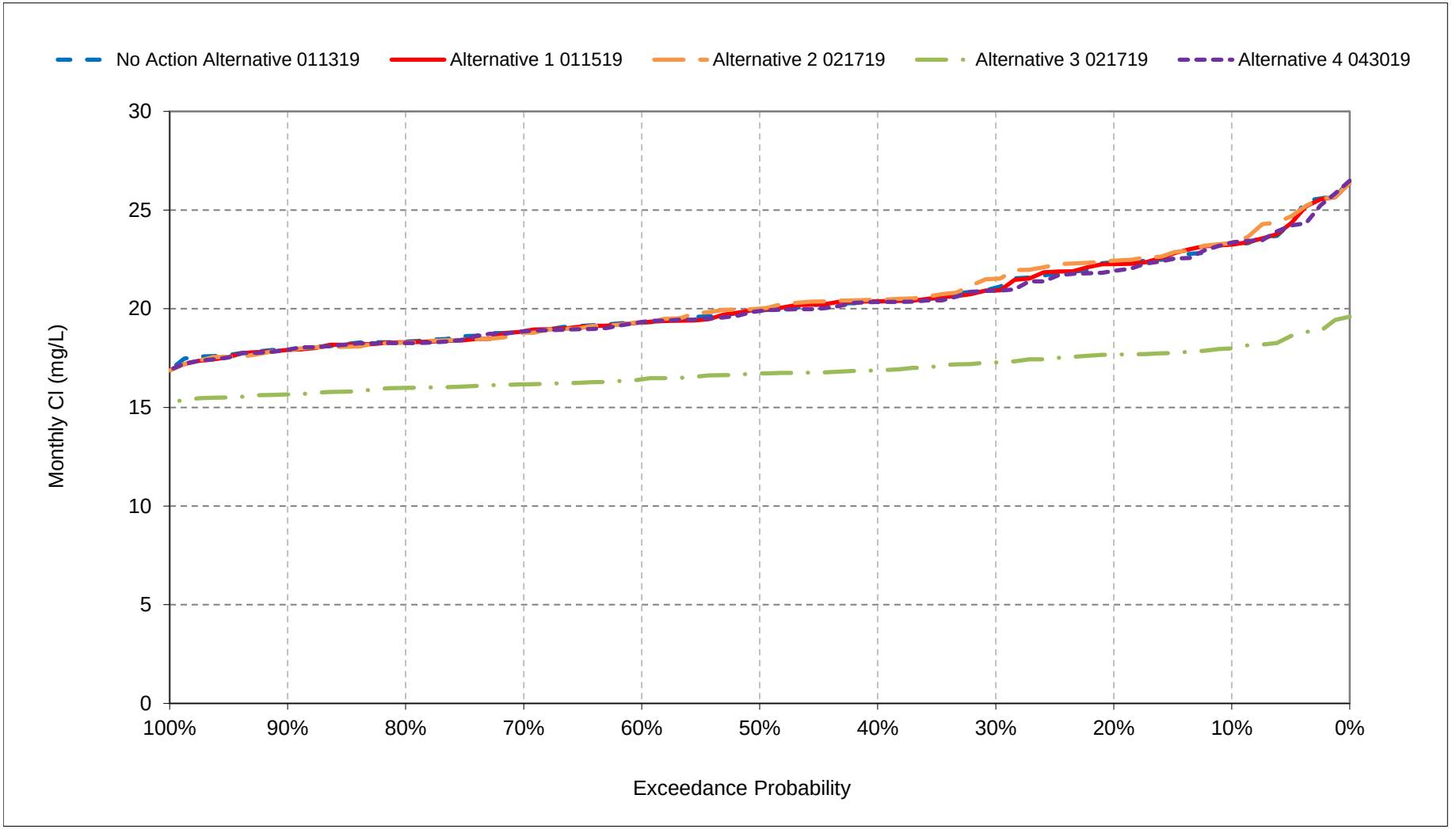

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 23-8. Barker Slough at NBA Intake**
**Chloride, February Cl**



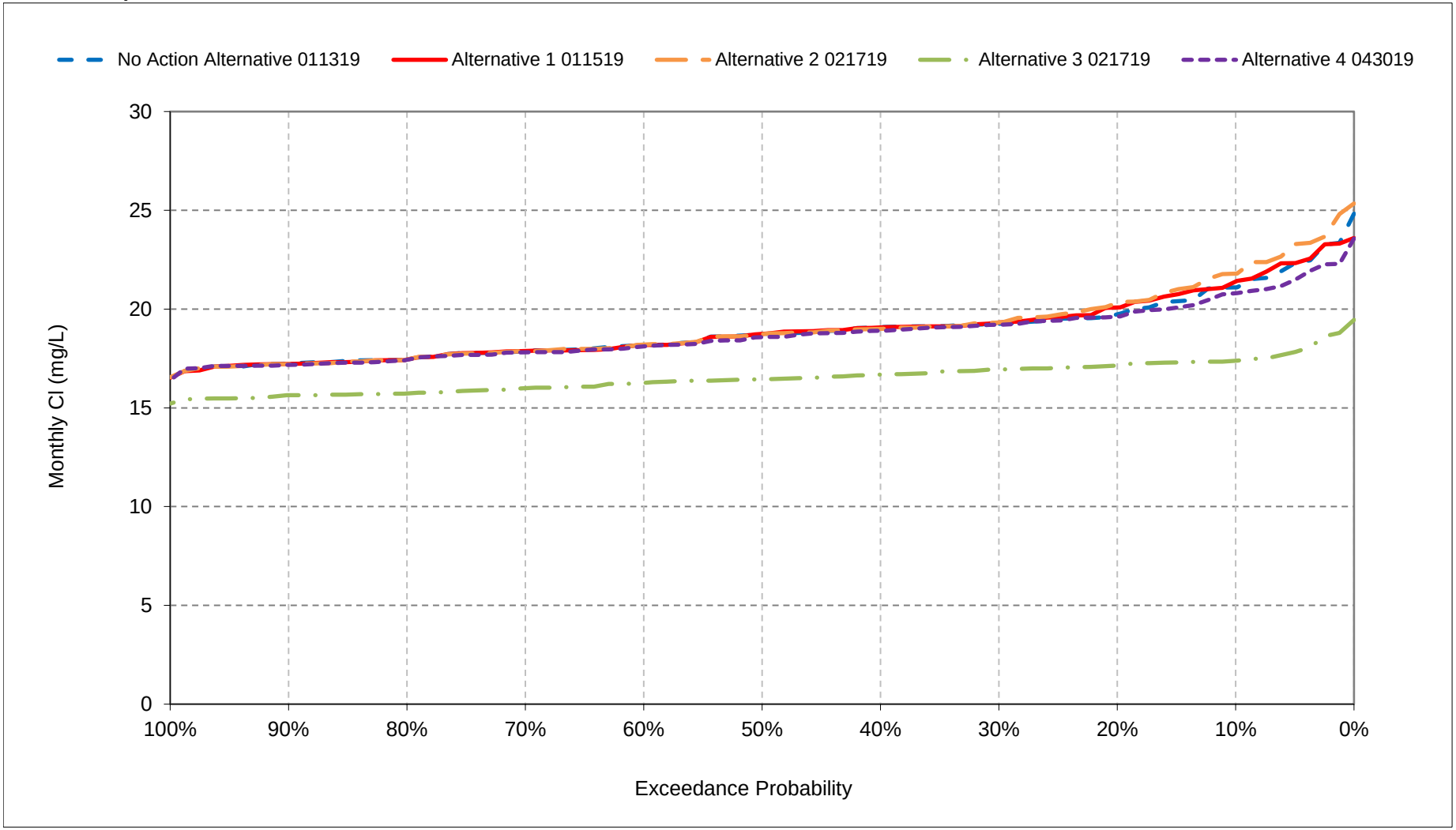

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 23-9. Barker Slough at NBA Intake**
**Chloride, March Cl**



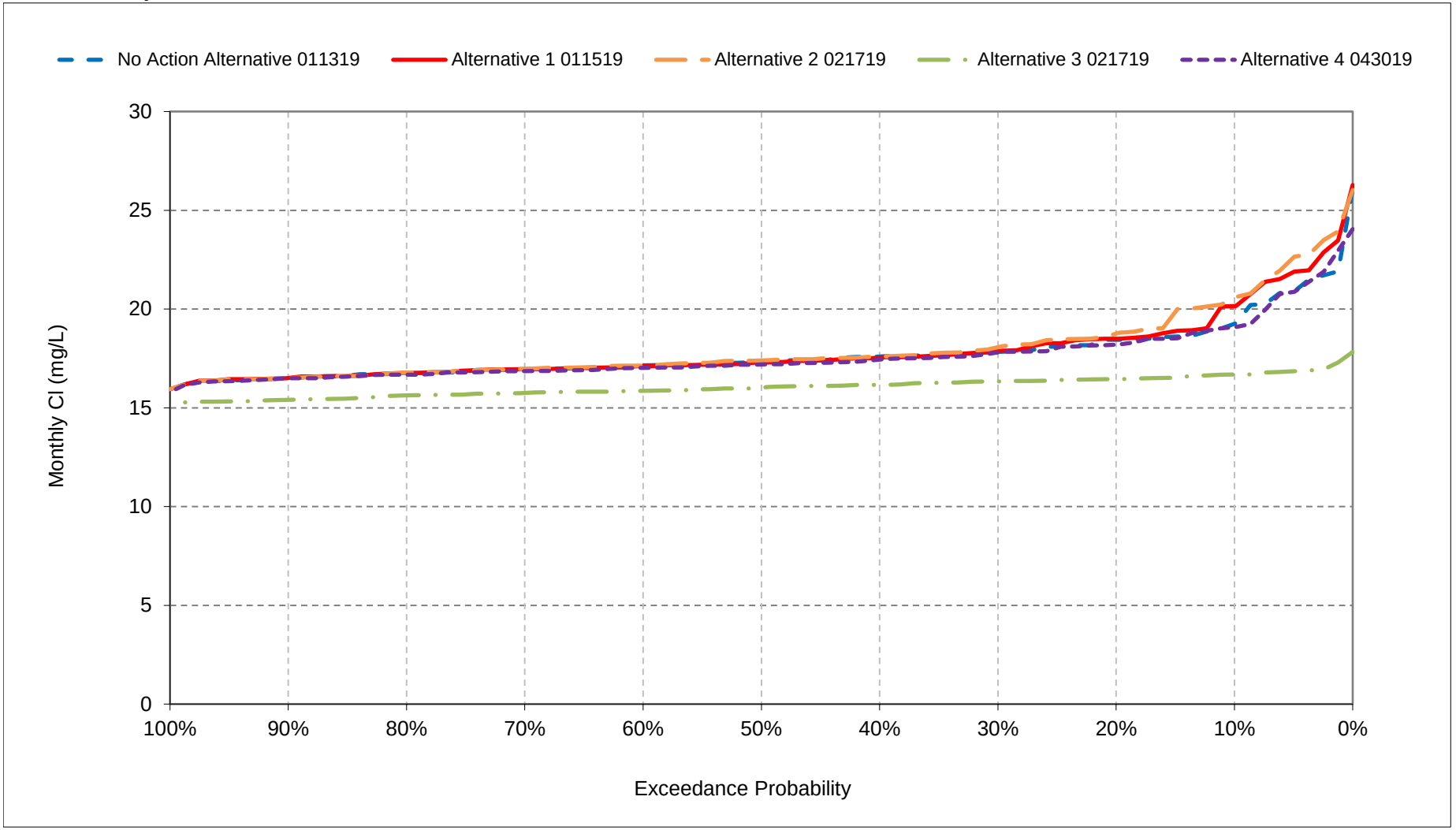

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 23-10. Barker Slough at NBA Intake**
**Chloride, April Cl**



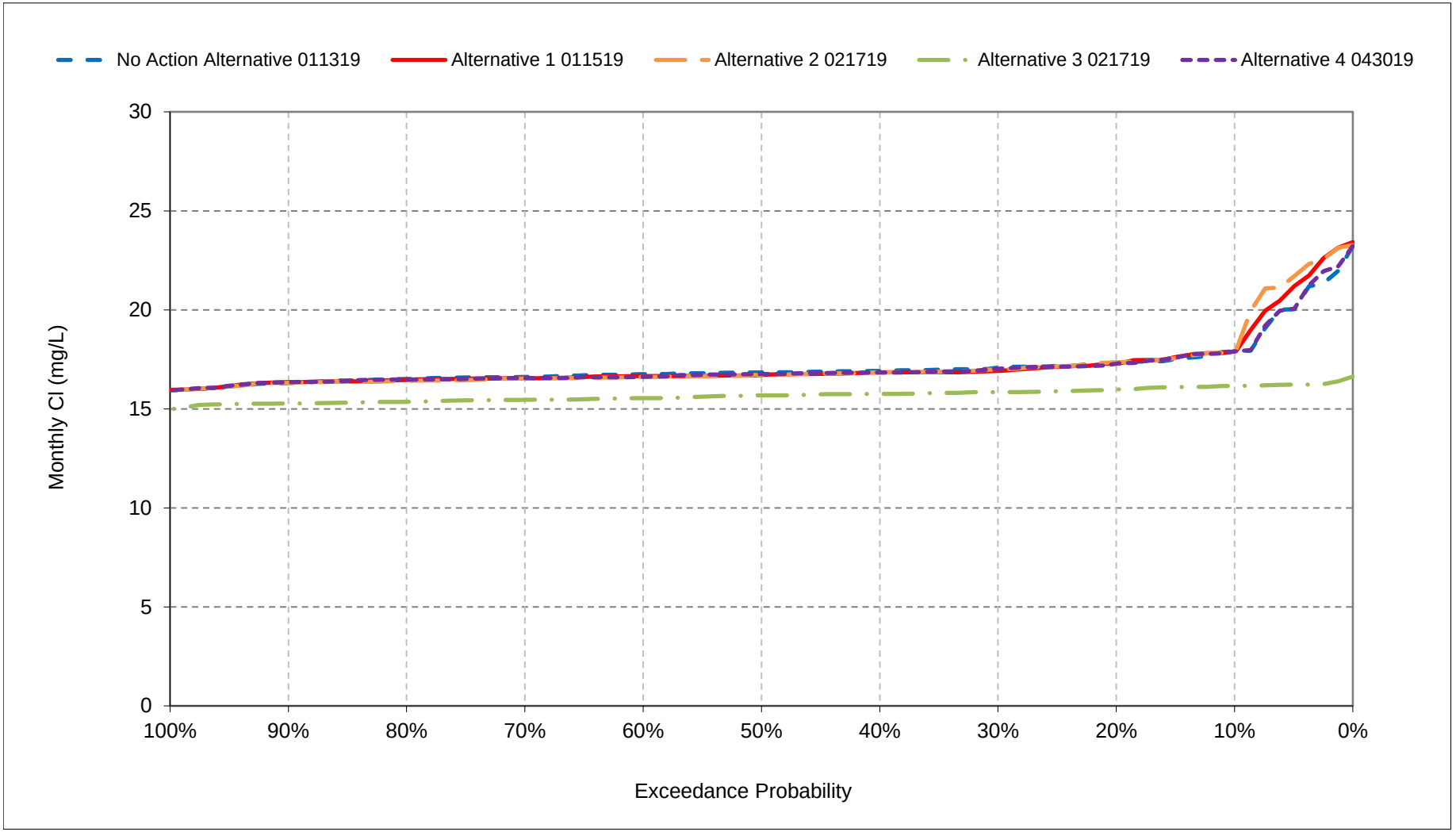

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 23-11. Barker Slough at NBA Intake**
**Chloride, May Cl**



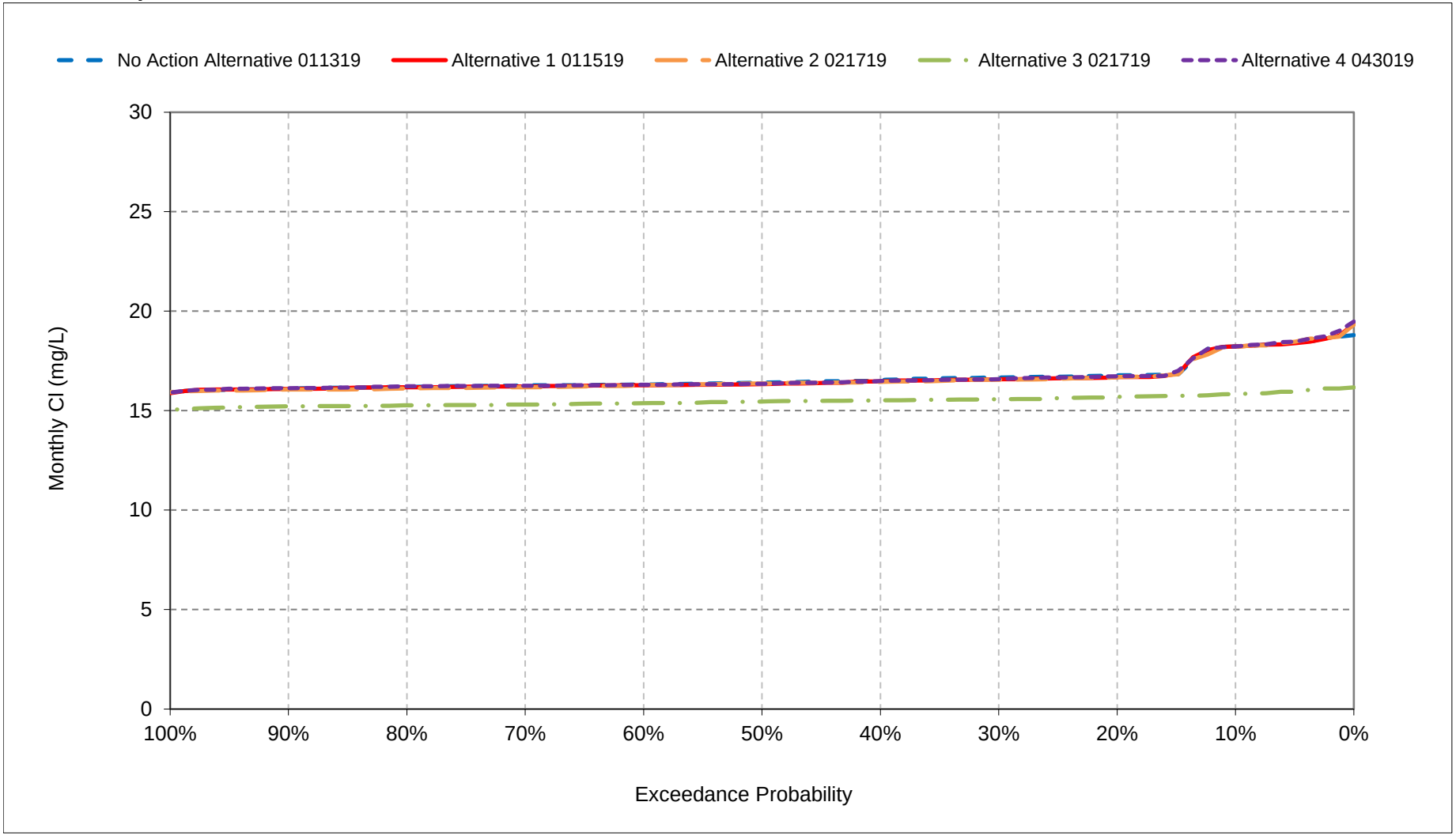

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 23-12. Barker Slough at NBA Intake**
**Chloride, June Cl**



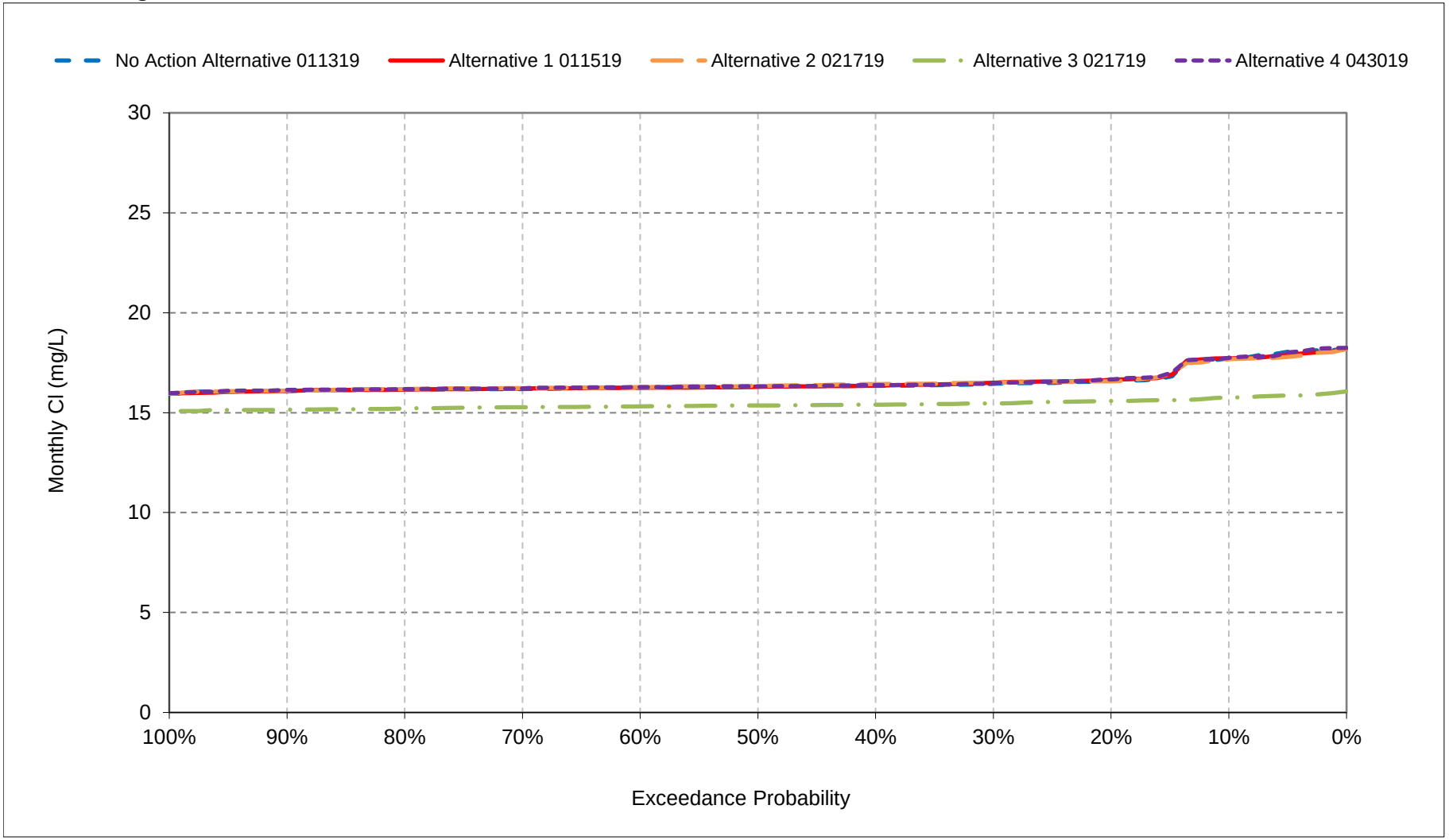

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 23-13. Barker Slough at NBA Intake**
**Chloride, July Cl**



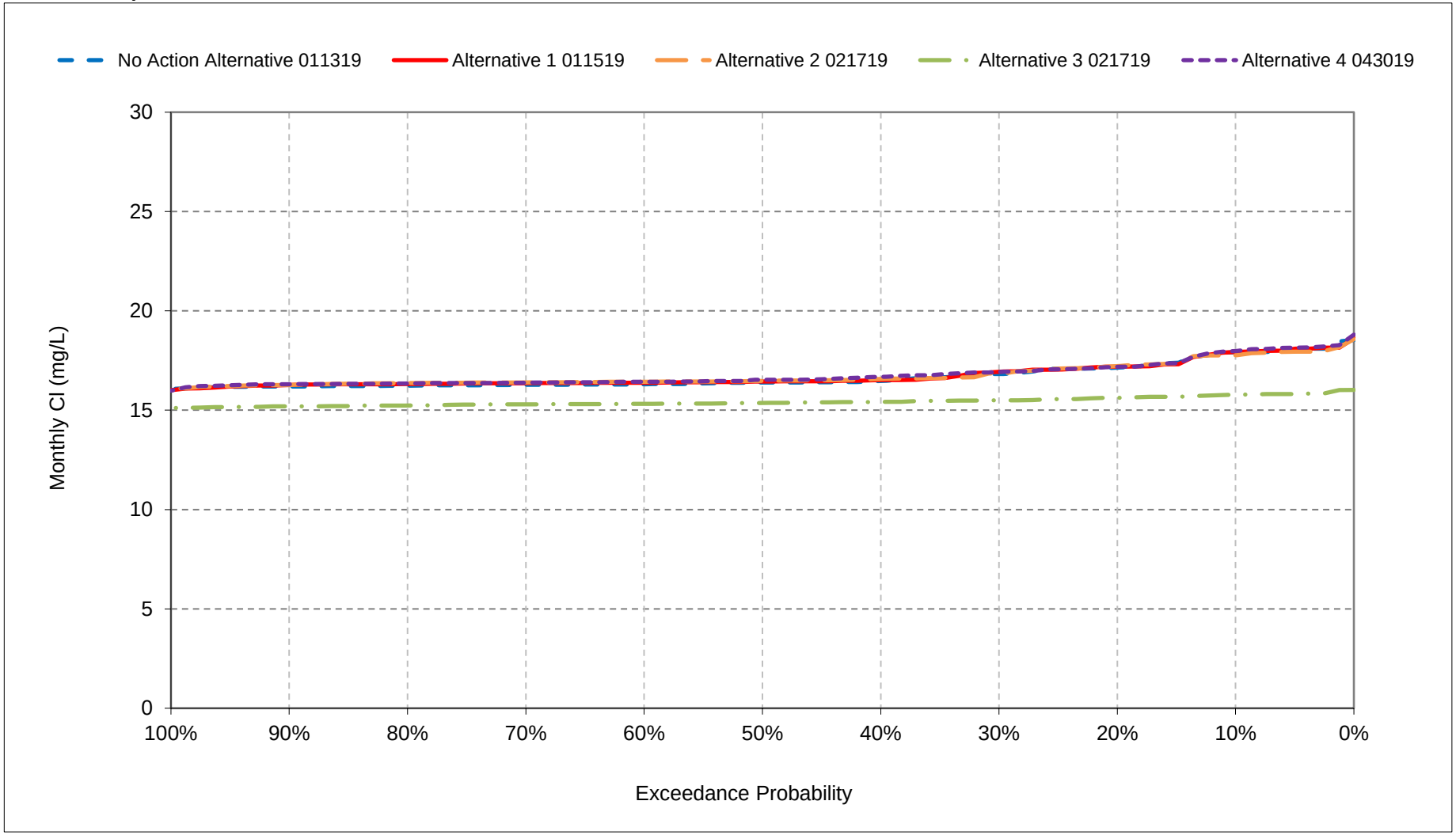

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 23-14. Barker Slough at NBA Intake**
**Chloride, August Cl**



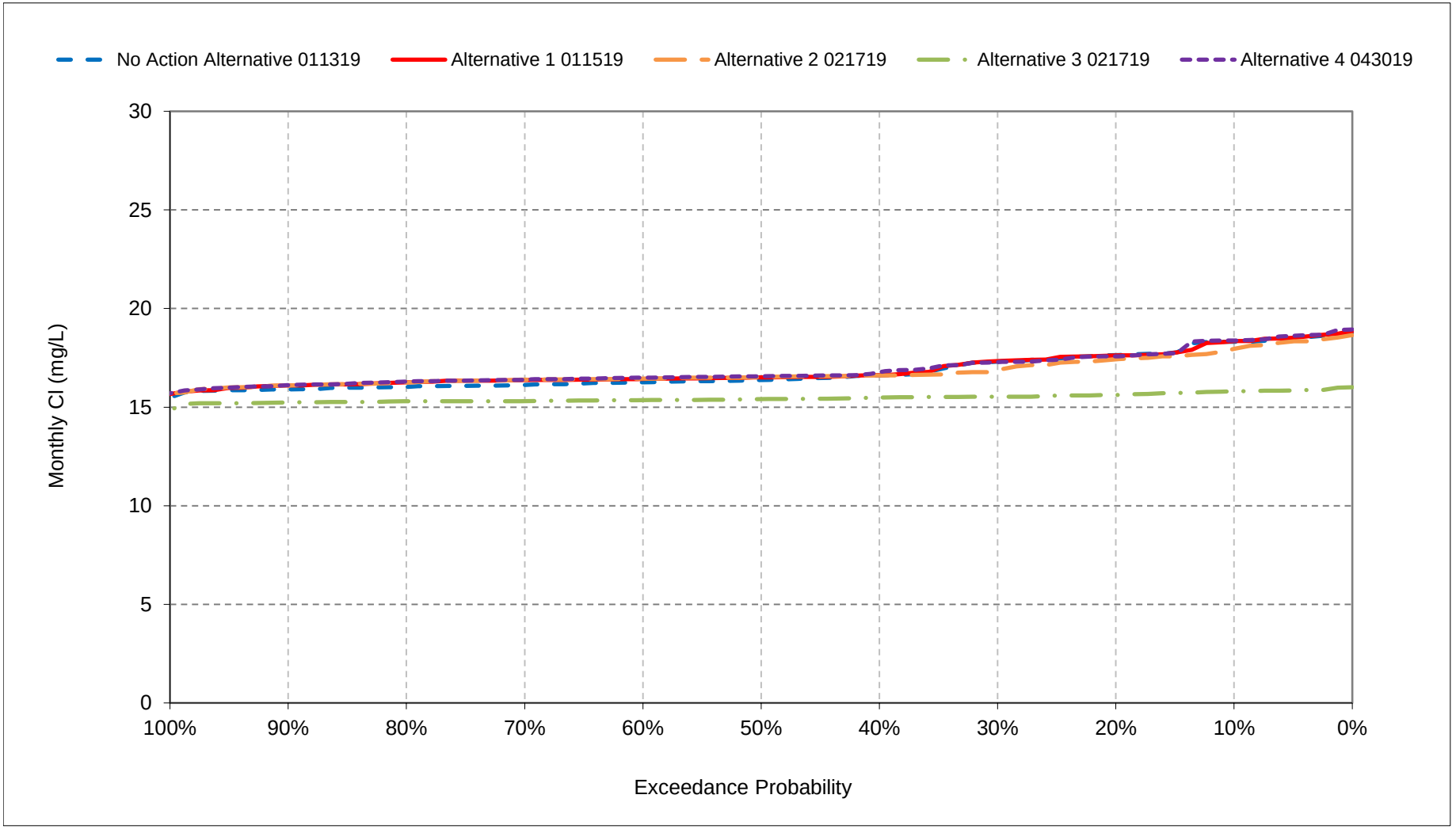

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 23-15. Barker Slough at NBA Intake**
**Chloride, September Cl**



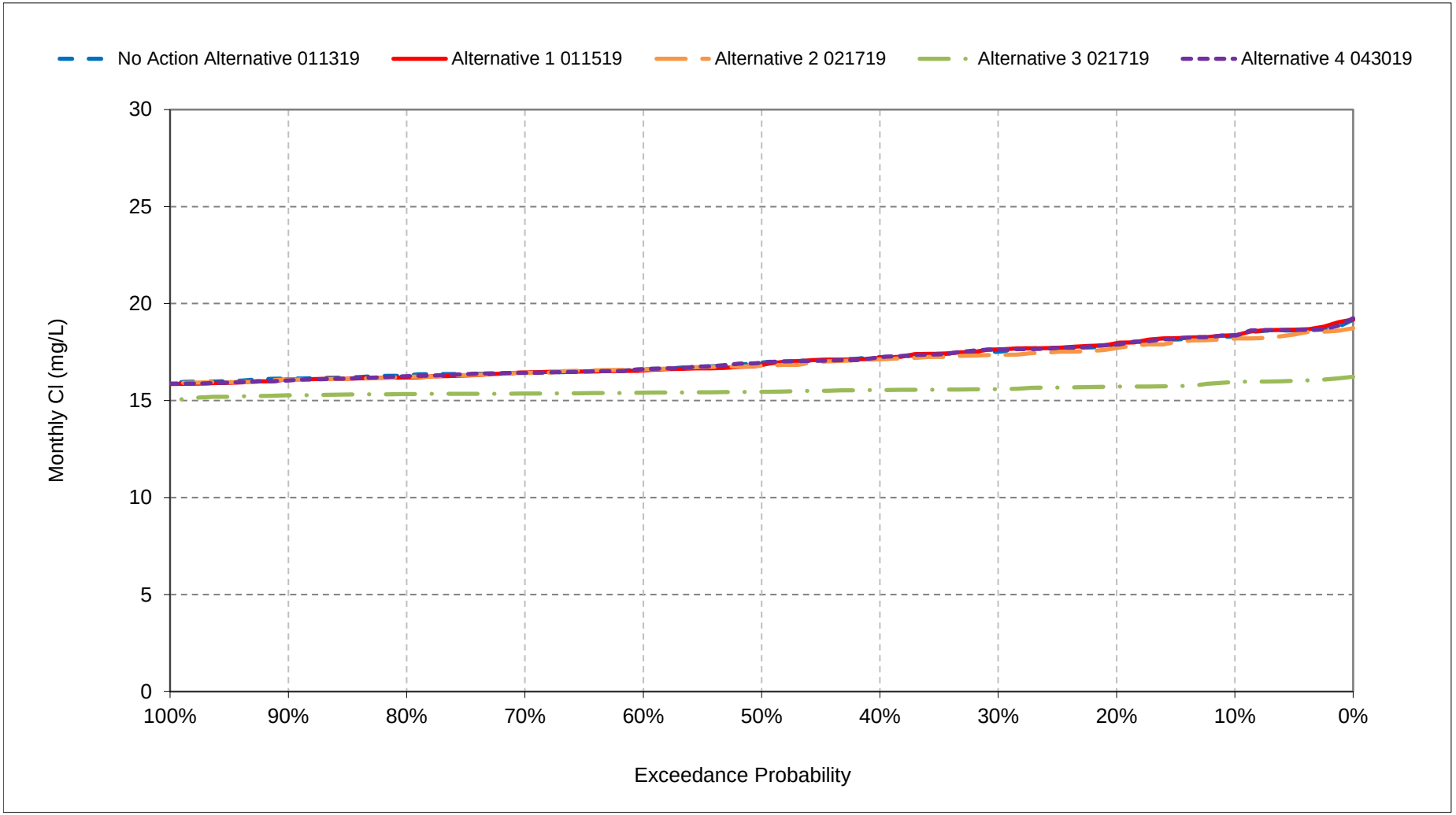

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 23-16. Barker Slough at NBA Intake**
**Chloride, October Cl**



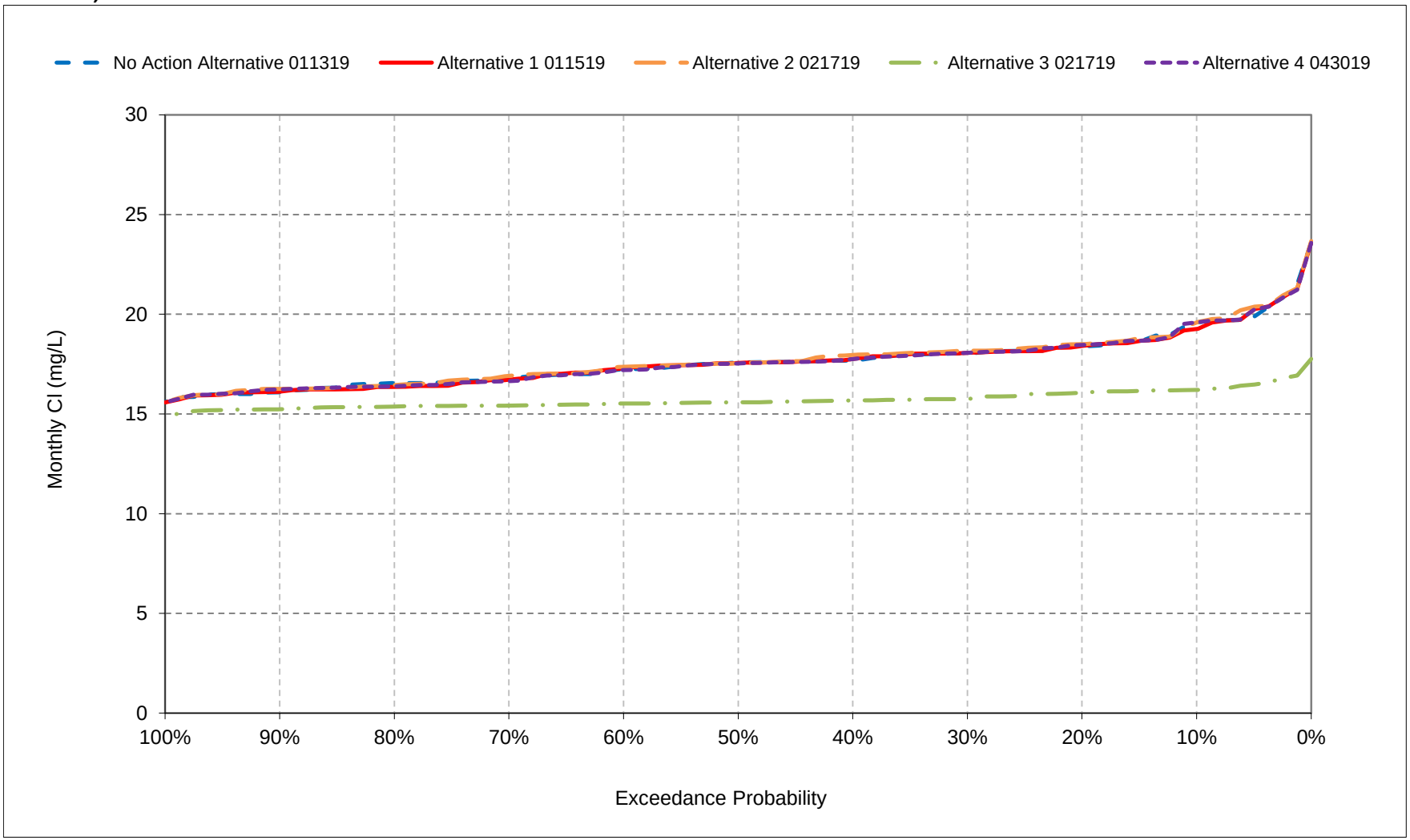

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 23-17. Barker Slough at NBA Intake**
**Chloride, November Cl**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

**Figure 23-18. Barker Slough at NBA Intake**
**Chloride, December Cl**




*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.