RECLAMATION

Managing Water in the West

Warren Act Contract for Storage and Conveyance of Non-CVP Water from El Dorado Irrigation District to Westlands Water District in 2015

Draft Environmental Assessment

U. S. Department of the Interior
Bureau of Reclamation
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Abbreviations and Acronyms

AF	acre-feet
BMI	benthic macroinvertebrates
BO	biological opinion
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
cfs	cubic feet per second
CRLF	California red-legged frog
CVP	Central Valley Project
CWC	California Water Code
DWR	California Department of Water Resources
EBMUD	East Bay Municipal Utility District
EFH	essential fish habitat
EID	El Dorado Irrigation District
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EPT	Ephemeroptera, Plecoptera, and Trichoptera
FERC	Federal Energy Regulatory Commission
FMS	Flow Management Standard
FONSI	Findings of No Significant Impact
FPUD	Foresthill Public Utility District
ITA	Indian Trust Asset
µS/cm	microsiemen per centimeter
mg/L	milligram per liter
NOAA Fisheries	National Oceanic and Atmospheric Administration Fisheries Service
NTU	nephelometric turbidity unit
PG&E	Pacific Gas & Electric
Reclamation	Bureau of Reclamation
SCVWD	Santa Clara Valley Water District
SNYLF	Sierra Nevada yellow-legged frog
SWP	State Water Project
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Load
USFWS	United States Fish and Wildlife Service
WWD	Westlands Water District

Section 1
Introduction

1.1 Background

In the San Joaquin Valley, one of the nation's most productive agricultural areas, the dry conditions have contributed to increased applied water demands for crops and current water supplies are not sufficient. Westlands Water District (WWD) provides water supply to over 600,000 acres of farmland within Fresno and Kings Counties (see Figure 1-1). WWD's long-term source of water supply is the Central Valley Project (CVP), operated by the Bureau of Reclamation (Reclamation). The CVP's initial declaration of water made available for 2015 to agricultural service contractors south of the Delta is zero percent of their contract quantity (Reclamation 2015a).

Water transfers have become an important component in WWD's water supply. Transfers from other districts are pursued each year to supplement contract deliveries.

El Dorado Irrigation District (EID) proposes to transfer up to 3,100 acre-feet (AF) of water during summer 2015 to WWD. EID would make the water available through re-operations of EID reservoirs to release water otherwise planned to be stored within the EID network of reservoirs. Specifically, the transfer quantity is derived from the following re-operations:

1. Up to 700 AF would be released from Weber Reservoir that would otherwise be maintained in storage.

2. Up to 2,400 AF would be released from Silver Lake that would otherwise be added to storage in Jenkinson Lake or used directly to meet summer/fall 2015 demands that would instead be met with water previously stored in Jenkinson Lake.

The proposed project would result in the temporary decreased storage of up to 700 AF in Weber Reservoir and 2,400 AF in Jenkinson Lake, and the temporary increased storage of 3,100 AF in Folsom Reservoir before the water is transferred by Reclamation to WWD. To facilitate the transfer, WWD would need to enter into a Warren Act contract with Reclamation for a total of 3,100 AF to facilitate the delivery of the transfer water from EID.

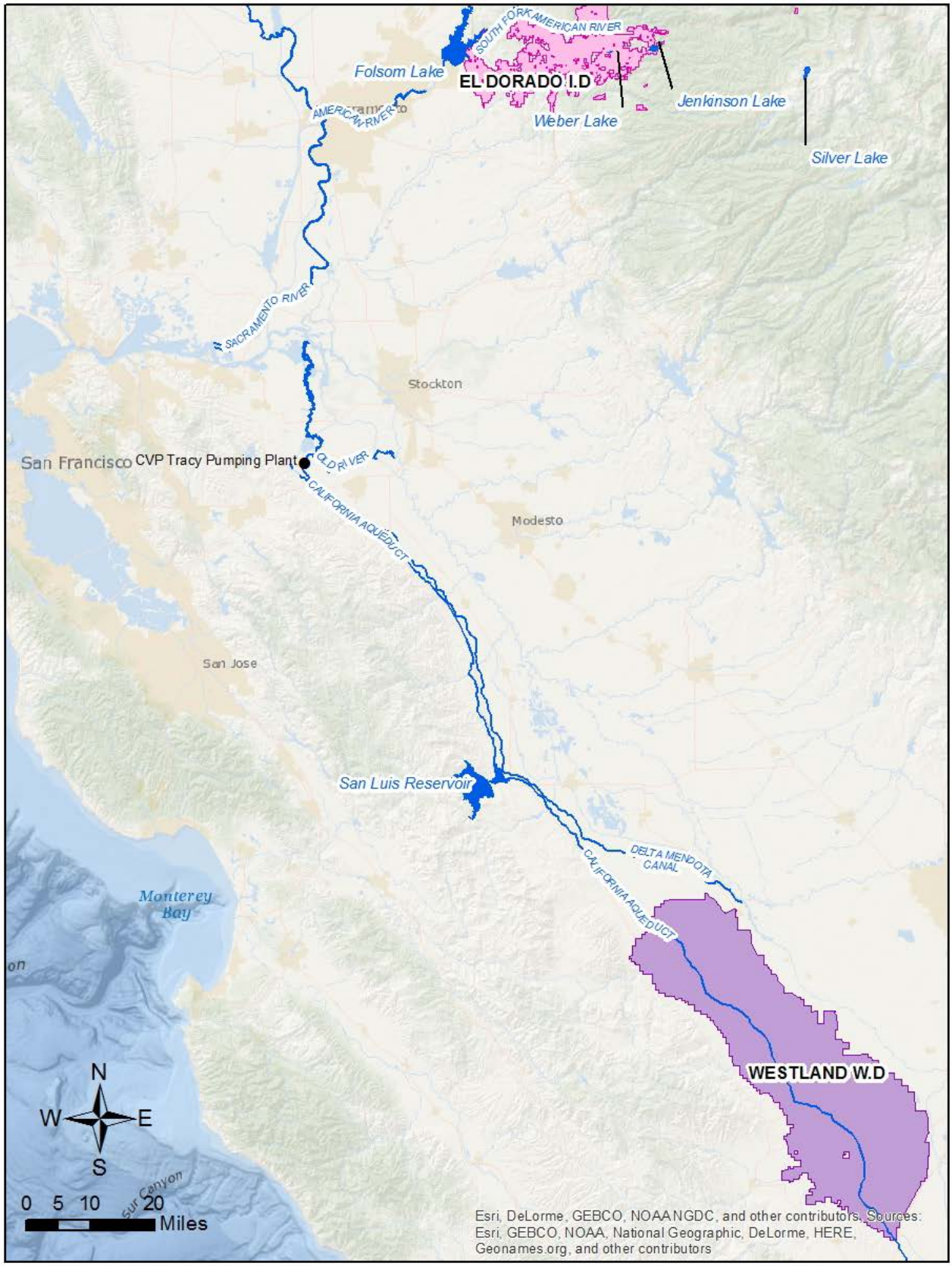

Figure 1-1. Area of Analysis

Because of the dry conditions in 2015, Jones Pumping Plant should have available capacity to convey the proposed EID transfer.

1.1.1 El Dorado Irrigation District

EID was organized in 1925 under the Irrigation District Law (Water Code Section 20500, et seq.). EID provides water to a population of more than 100,000 people within its service area for municipal, industrial, and irrigation uses, as well as wastewater treatment and recycled water services, to meet the growing needs of its customers. It also operates recreational facilities as a condition of its Federal Energy Regulatory Commission (FERC) license. As such, EID is one of the few California districts that provide a full complement of water services.

EID is located in El Dorado County on the western slope of the Sierra Nevada Mountains. The service area is bounded by Sacramento County to the west and the community of Strawberry to the east. The area north of the communities of Coloma and Lotus establishes the northern-most part of the service area, while the communities of Pleasant Valley and South Shingle Springs establish the southern boundary. EID's contiguous service area spans 220 square miles and ranges from 500 feet in elevation, at the Sacramento County line, to more than 4,000 feet in elevation in the eastern part of EID.

EID owns and operates a FERC-licensed hydroelectric power generation system consisting of a powerhouse, 5 reservoirs (Echo Lake, Lake Aloha, Caples Lake, Silver Lake, and El Dorado Forebay), and over 22 miles of flumes, canals, siphons, and tunnels. Project facilities are located east of Placerville in El Dorado, Alpine, and Amador counties. EID also owns and operates several other water facilities including Jenkinson Lake and numerous other water rights and reservoirs acquired in the 1900's including Weber Reservoir and many pre-1914 water rights.

1.1.2 Westlands Water District

WWD was formed in 1952 and encompasses more than 600,000 acres of farmland in western Fresno and Kings Counties. WWD serves approximately 600 family-owned farms that average 900 acres in size.

Water is delivered to WWD through the CVP. WWD's CVP supply is typically pumped from the Sacramento-San Joaquin Delta via Reclamation's Jones Pumping Plant and delivered 70 miles through the Delta-Mendota Canal. The water is then delivered to WWD growers through the San Luis Canal and the Coalinga Canal. Once it leaves the CVP canals, water is delivered to growers through 1,034 miles of underground pipe and more than 3,300 water meters.

WWD growers produce more than 60 commercial food and fiber crops sold for the fresh, dry, canned, and frozen food markets, both domestic and export. More

than 50,000 people live and work in the communities dependent on the WWD's agricultural economy. The communities in and near the WWD's boundaries include Mendota, Huron, Tranquillity, Firebaugh, Three Rocks, Cantua Creek, Helm, San Joaquin, Kerman, Lemoore, and Coalinga.

1.2 Need for the Proposal

Due to water shortages, WWD does not have sufficient water supply to meet the demands within its service area. WWD has entered into a transfer agreement with EID, and this Proposed Action is needed to allow use of CVP facilities to store and convey non-CVP water supply to WWD.

WWD faces deficits in their water supplies in 2015, and similar conditions are envisioned for 2016. The result of this shortfall would be the loss of annual agricultural crops and potential damage to permanent crops. The potential loss of permanent crops such as orchards or vineyards represents a disruption because such crops require years of investment and planning, making their loss effectively irreparable. This transfer would provide water to growers in 2016 to prevent some of the potential damage from the limited water supplies.

Reclamation's purpose of taking action is to evaluate and approve a Warren Act contract to facilitate the transfer from EID to WWD.

Section 2
Proposed Action and Alternatives

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not enter into a one-year Warren Act contract with WWD. Therefore, WWD would not receive 3,100 AF of EID transfer water. As a result, EID would: (1) maintain a higher end-of-season storage level in Weber Reservoir, and (2) re-divert all available supplies from Silver Lake for immediate consumptive use or delivery to Jenkinson Lake to maintain a higher end-of-season storage level in Jenkinson. Silver Lake would reach the same end-of-season level with or without a transfer. There would be no change to instream flow releases in the lower American River, Sacramento River, the Sacramento-San Joaquin River Delta, the Delta-Mendota Canal, and the San Luis Canal. Furthermore, there would be no change in Folsom Reservoir storage or available coldwater volume.

2.2 Proposed Action

EID proposes to transfer up to 3,100 AF of water to WWD during summer 2015. EID would make the water available through re-operations of EID reservoirs to release water otherwise planned to be consumed by EID customers and/or stored within the EID network of reservoirs. Specifically, the transfer quantity is derived from the following re-operations:

1. Approximately 700 AF would be released from Weber Reservoir that would otherwise be maintained in storage.

2. Approximately 2,400 AF would be released from Silver Lake that would otherwise be added to storage in Jenkinson Lake or used directly to meet summer/fall 2015 demands that will instead be met with water previously stored in Jenkinson Lake.

The proposed project would result in the temporary decreased storage of approximately 700 AF in Weber Reservoir and approximately 2,400 AF in Jenkinson Lake, and the temporary increased storage of approximately 3,100 AF in Folsom Reservoir before Reclamation conveys the water to WWD.

As part of the proposed project, EID and Reclamation would enter into a refill agreement for Weber Reservoir and Jenkinson Lake with conditions acceptable to both parties that CVP water system operations would not be adversely

affected during the refill period by the transfers of previously stored water in 2015.

To accomplish this transfer, the following temporary (one year or less) changes in Place of Use and Point of Rediversion are being sought by Petition to the State Water Resources Control Board (SWRCB) pursuant to EID Water Right License 2184 (Application 1692) and consistent with California Water Code (CWC) Sections 1725-1732:

1. The temporary addition of the Reclamation CVP Jones intake facility;

2. The temporary addition of San Luis Reservoir, a Reclamation CVP facility, as a point for the temporary storage and rediversion of the transfer water by WWD under License 2184; and

3. The temporary addition of the WWD service area to License 2184 authorizing consumptive and beneficial uses of transfer water within the WWD service area.

2.2.1 Weber Reservoir Re-Operation

For approximately a decade, EID has made discretionary releases from Weber Reservoir to provide non-federal supplies for its own use through a Warren Act Contract at Folsom Reservoir. In 2015, EID completed a Warren Act contract with Reclamation to allow diversion of up to 8,500 AF of EID's Project 184 water from Folsom Reservoir. This contract allows EID to receive water that was not previously available. Due to the availability of these supplies in 2015 and strategic management of reservoir operations, EID does not anticipate releasing stored water currently available in this reservoir during 2015. Therefore, absent the transfer, EID would only make minimum releases as required by law in 2015. For the transfer, EID would re-operate Weber Reservoir to draw it down under a schedule approved by Reclamation and deliver this water to Folsom Reservoir for transfer to WWD.

Release of approximately 700 AF from Weber Reservoir would occur starting September 1 and end on or about September 21, with flows essentially consistent during the entire three-week period. Table 2-1 summarizes the actual and planned water release from Weber Reservoir. As shown in the table, water releases could increase from 1 cubic foot per second (cfs) to 10 cfs during September 1 to September 23, 2015. Figure 2-1 illustrates the change in storage at Weber Reservoir during 2015.

EID would obtain SWRCB approval of temporary changes to its Weber Reservoir licensed water right (License 2184; Application 1692) under CWC Section 1725, et seq. and would enter into a refill agreement with Reclamation to protect Folsom Reservoir storage during the period when Weber Reservoir is refilled. Reclamation would issue a Warren Act Contract to allow the delivered transfer water to be collected at Folsom Reservoir and conveyed to WWD.

Table 2-1. Weber Reservoir Releases: 2010 through 2014 Historic Data and Planned Reservoir Operations (cfs)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug 1 to Sep 23 (Note 1)	Sep 24 to Sep 30	Oct	Nov	Dec
Maximum	94.8	82.3	134.2	99.6	68.8	46.4	20.7	10.5	9.5	8.2	3.3	148.1
Minimum	1.2	1.3	1.5	1.2	0.9	1.1	0.9	1.1	1.1	0.9	0.8	0.9
Average	13.1	17.1	40.8	36.2	21.9	14.1	3.6	3.8	4.2	1.9	1.6	19.3
2015 Actual	2.3	14.1	25.8	1.3	1.2	1.1	---	---	---	---	---	---
2015 Planned without Transfer Condition	n/a	n/a	n/a	n/a	n/a	n/a	1.3	1	1	1	1.1	1.1
2015 Planned with Transfer Condition (max)	n/a	n/a	n/a	n/a	n/a	n/a	1.3	10	1	1	1.1	1.1

Source: EID 2015a

Note 1: Transfer period is from September 1 to September 23.

Key:

"---" = no data available

cfs = cubic feet per second

n/a = not applicable

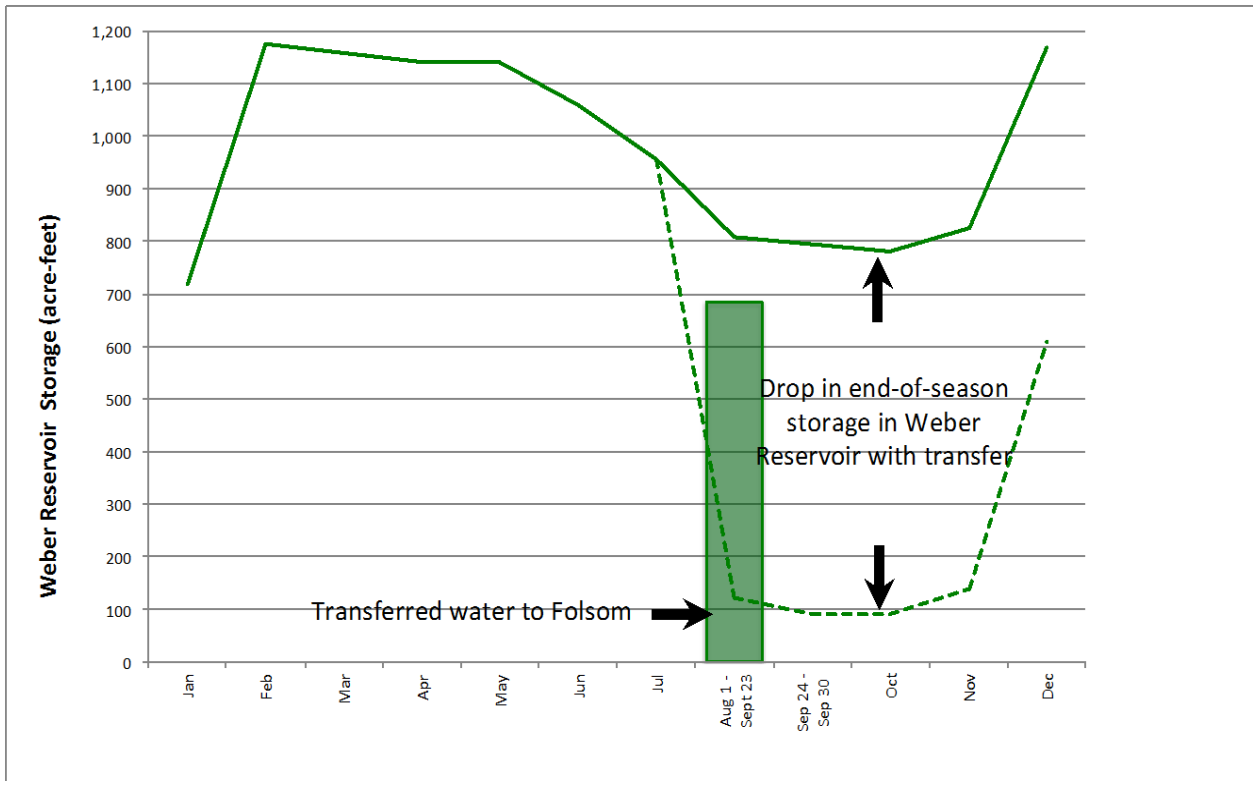

Figure 2-1. Change in Storage at Weber Reservoir during Transfer

The capacity of Weber Reservoir is 1,125 AF and EID's water right authorizes diversion of up to 1,000 AF per year, and requires minimum storage of 200 AF on September 1 annually, and minimum releases not less than 1 cfs to protect and enhance fish, wildlife, and recreation in Weber Creek downstream of Weber Reservoir when active reservoir storage is available. With the proposed transfer of approximately 700 AF from Weber Reservoir, the September 1 storage requirement would be met, and the planned carryover storage would be managed to ensure sufficient continued outflow releases beyond October 1. Based upon modeling of recent hydrology, Weber Reservoir storage would likely drop to approximately 110 AF, but may go as low as 80 AF depending on fall weather patterns, prior to refilling during the following wet period.

2.2.2 Silver Lake/Jenkinson Lake Re-Operation

The transfer also would include approximately 2,400 AF made available through the re-operation of water previously stored in EID's Silver Lake pursuant to pre-1914 water rights, and managed during the year between Silver Lake and Jenkinson Lake. Silver Lake has a capacity of 8,640 AF and Jenkinson Lake has a capacity of 41,033 AF. EID operates Jenkinson Lake and upstream Project 184 reservoirs, including Silver Lake, cooperatively so as to optimize available water supplies and provide desired carry-over for subsequent years.

EID's 2015 operation plan is to re-divert in summer and early fall water previously stored under Silver Lake's pre-1914 water rights for immediate consumptive use and/or delivery into Jenkinson Lake (which is within the Cosumnes River watershed). This planned without-transfer action would re-divert releases of water previously stored in Silver Lake via EID's Kyburz Diversion Dam and El Dorado Canal, from which it would flow either directly to EID's water treatment plant or into Jenkinson Lake via the Hazel Creek Tunnel. Table 2-2 summarizes the actual and planned end of month storage at Jenkinson Reservoir. Figure 2-2 shows the without-transfer operations.

Under the proposed transfer, EID would instead use water already stored in Jenkinson Lake to meet demands during this time period in lieu of using water from Silver Lake, and EID would also not operate the Hazel Creek Tunnel to replenish Jenkinson Lake from Silver Lake. This re-operation would allow water previously stored in Silver Lake to instead be released and re-diverted at Folsom Reservoir between August 1 and September 30, 2015 for transfer to WWD. EID would draw on Jenkinson Lake storage for meeting demands, resulting in a lower than planned end-of-season storage in Jenkinson Lake. The decrease in Jenkinson Lake storage would be approximately equal to the water released from Silver Lake for transfer. Figure 2-3 shows operations with the proposed transfer.

Table 2-2. Jenkinson Reservoir End of Month Storage: Historic and Planned Reservoir Operations Based on 2003 through 2014 Operations Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maximum (AF)	41,279	41,642	41,363	41,325	41,201	41,189	39,284	36,636	34,338	33,085	32,280	41,189
Minimum (AF)	25,841	28,855	32,978	35,065	35,385	34,697	31,816	30,144	29,051	26,554	25,661	24,902
Average (AF)	32,734	35,321	37,945	39,686	39,812	38,700	36,018	33,258	31,048	29,206	28,498	29,731
2015 Actual (AF)	27,785	30,576	32,070	34,050	34,758	33,537	---	---	---	---	---	---
2015 Planned Storage without Transfer Condition (AF)	n/a	n/a	n/a	n/a	n/a	n/a	31,137	**28,639**	**26,628**	24,826	23,973	25,505
2015 Planned Storage with Transfer Condition (AF)	n/a	n/a	n/a	n/a	n/a	n/a	31,137	**27,439**	**24,228**	22,426	21,573	23,105

Notes:
Text shown in **bold** indicates the transfer period.
Key:
"---" = no data available
AF = acre-feet
n/a = not applicable

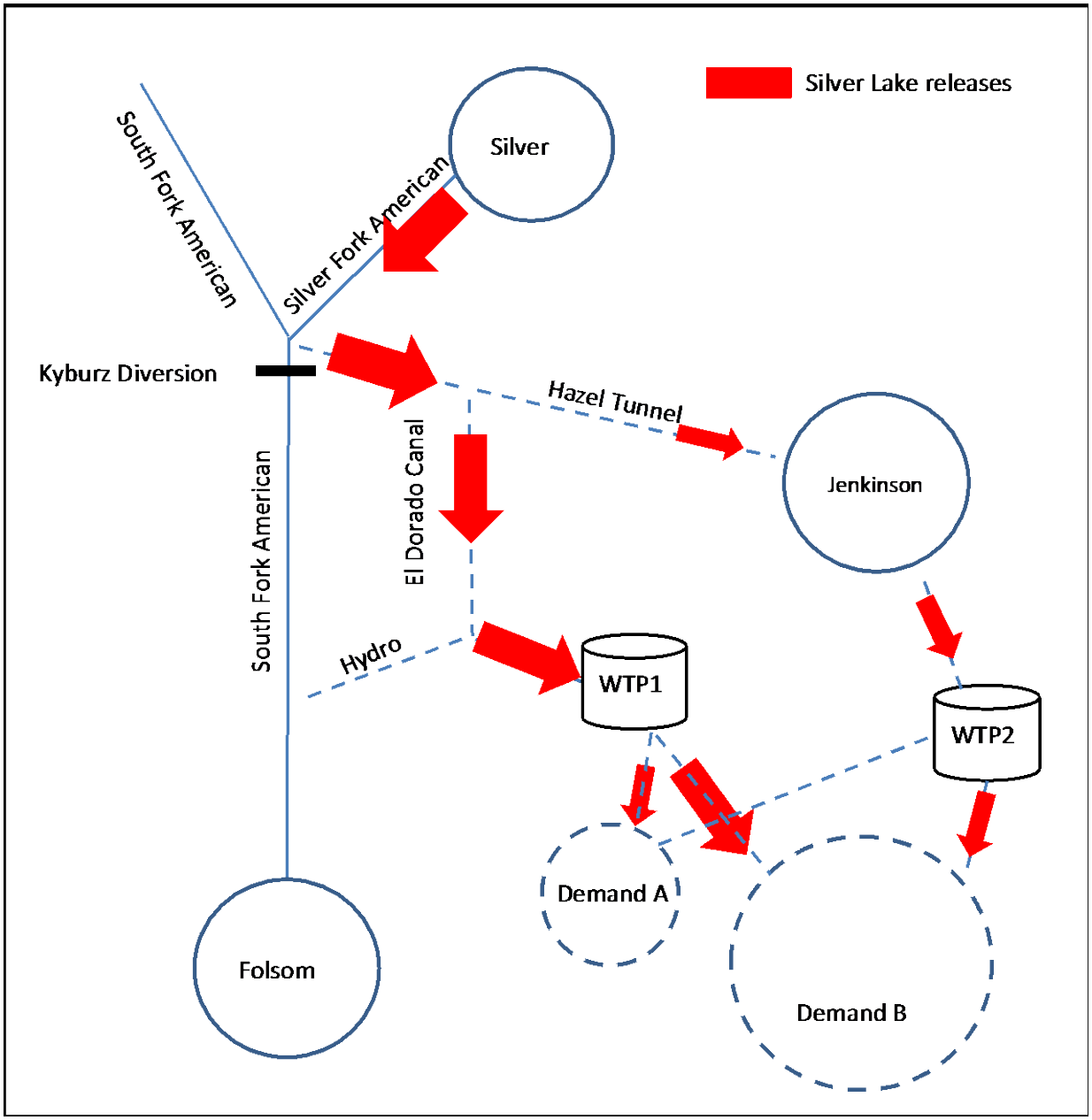

Figure 2-2. Silver Lake: 2015 Planned without Transfer Operation

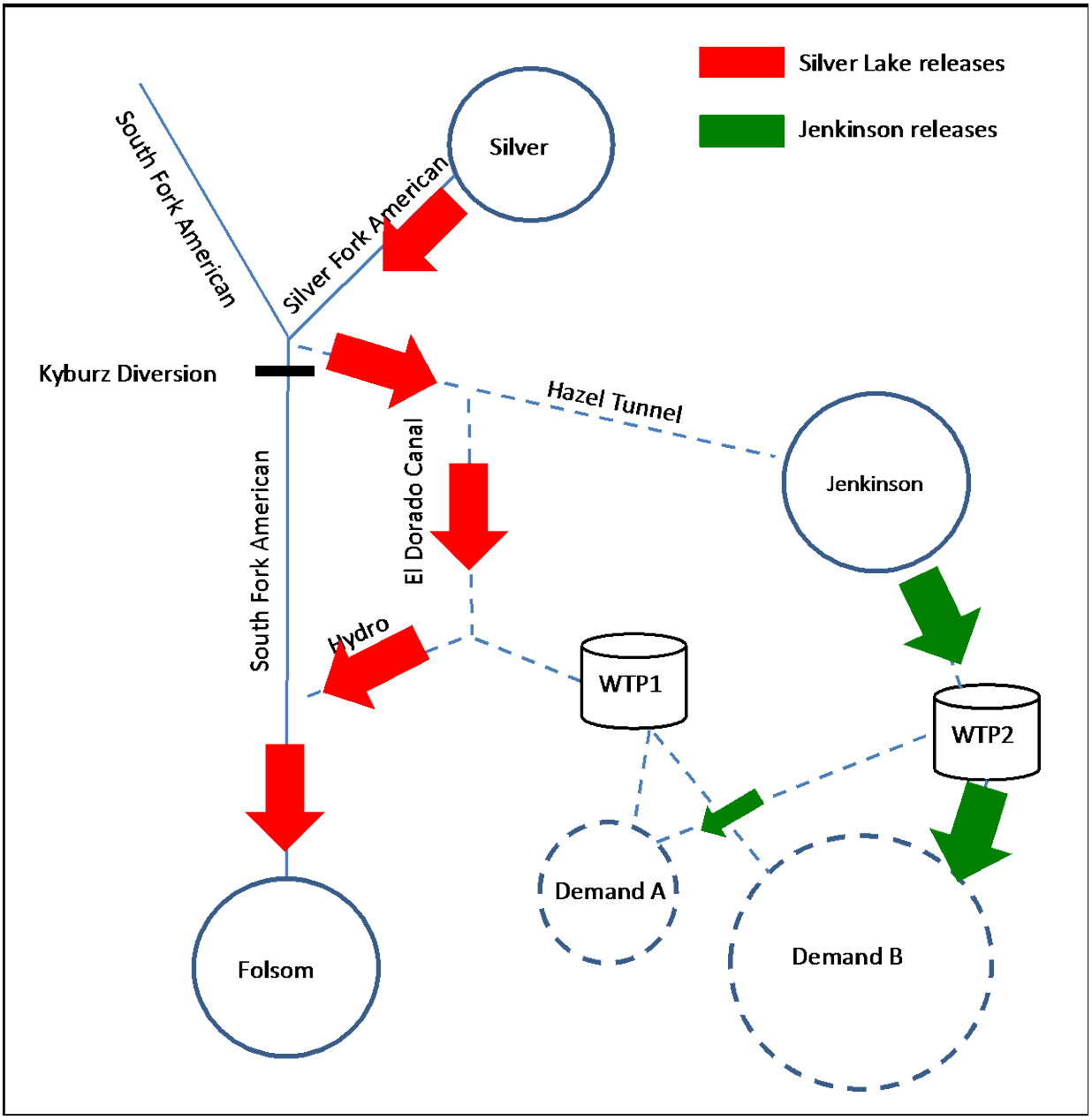

Figure 2-3. Silver Lake: 2015 Planned with Transfer Operation

Transfer of the Silver Lake water stored under a pre-1914 water right (S004708) would not require a petition to the SWRCB. September releases from Silver Lake would be conducted in accordance with all applicable requirements and coordinated with Reclamation. Reclamation would delivered transfer water to be collected at Folsom Reservoir and conveyed to WWD.

Tables 2-3 through 2-5 summarize the historic Silver Lake Reservoir release data, planned releases without the transfer condition, and planned releases with the transfer condition. Figure 2-4 illustrates the change in storage at Silver Lake and Jenkinson Lake during 2015.

Table 2-3. Silver Lake Reservoir Releases: 2010 through 2014 Historic Data (cfs)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug 1 to Sep 15	Sep 16 to Sep 23	Sep 24 to Sep 30	Oct	Nov	Dec
Maximum	46.8	98.1	41.9	250	262.7	672.1	286.6	33.1	133.3	139.1	208.4	33.9	208.5
Minimum	5.7	3.5	0.5	4.9	23	19	13.7	9.4	10.2	20.3	5.3	5	4.9
Average	17.9	18.4	14.9	46.5	79.2	104.6	44.8	15.9	52.7	50.6	21.9	10.9	27
2015 Actual	9.5	29.3	18	17.2	20	21.1	---	---	---	---	---	---	---

Source: EID 2015a
Key:
"---" = no data available
cfs = cubic feet per second

Table 2-4. Silver Lake Reservoir Releases: 2015 Planned without Transfer Condition (cfs)

	Jul	Aug 1 to Sep 15	Sep 16 to Sep 23	Sep 24 to Sep 30	Oct	Nov	Dec
Released from Silver Lake	18.3	13.8	49.9	48.6	7.5	6.7	6.2
Routed to Jenkinson or directly to WTP	18.3	13.8	49.9	48.6	7.5	6.7	6.2
Increased Jenkinson release to meet WTP demand	0	0	0	0	0	0	0

Source: EID 2015a
Key:
"---" = no data available
cfs = cubic feet per second
WTP = water treatment plant

Table 2-5. Silver Lake Reservoir Releases: 2015 Planned with Transfer Condition (cfs)

	Jul	Aug 1 to Sep 15	Sep 16 to Sep 23	Sep 24 to Sep 30	Oct	Nov	Dec
Released from Silver Lake	18.3	13.8	84.9	8.1	7.5	6.7	6.2
Routed to Jenkinson or directly to WTP	18.3	0	0	8.1	7.5	6.7	6.2
Increased Jenkinson release to meet WTP demand	0	13.8	84.9	0	0	0	0

Source: EID 2015a
Key:
"---" = no data available
cfs = cubic feet per second
WTP = water treatment plant

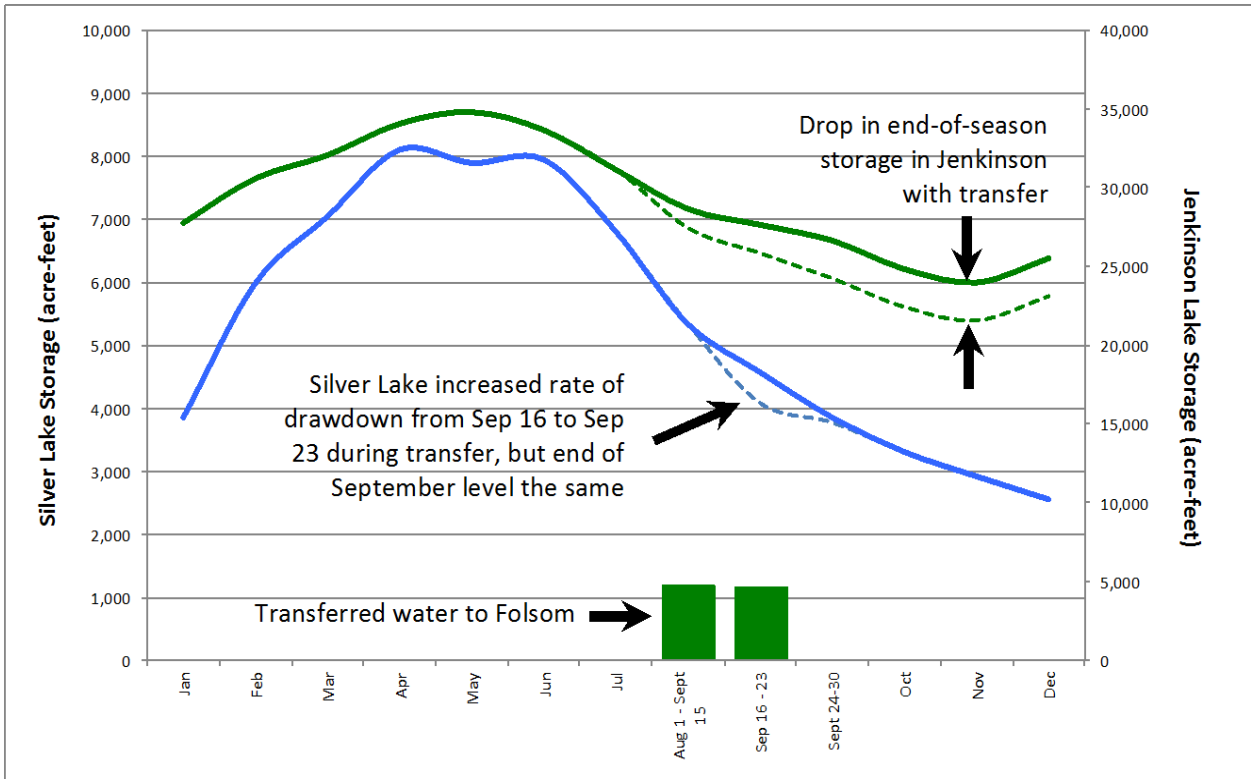

Figure 2-4. Change in Storage at Silver Lake and Jenkinson Lake During Transfer

2.2.3 Transfer Operations

Because Folsom Reservoir is a Point of Delivery and Point of Rediversion under EID's water right for Weber Reservoir, the use of Folsom Reservoir to temporarily store and subsequently release transfer water would be covered under a Warren Act Contract between WWD and Reclamation. Folsom Reservoir would be the Point of Delivery from EID to WWD.

Water released from Folsom Reservoir would be re-operated via Lake Natoma into the lower American River. From the lower American River, water would

flow to the Sacramento River then the Sacramento-San Joaquin Delta then to the Jones intake facility.

Water would be rediverted at the Jones Pumping Plant and conveyed south via the Delta-Mendota Canal to San Luis Reservoir. Transfer water may be temporarily stored in San Luis Reservoir and then delivered via the San Luis Canal, thence the Coalinga Canal, or it may be used immediately by WWD.

The biological opinions on the Coordinated Operations of the CVP and State Water Project (SWP) (U.S. Fish and Wildlife Service [USFWS] 2008; National Oceanic and Atmospheric Administration Fisheries Service [NOAA Fisheries] 2009) analyze transfers through the Delta from July through September and provide compliance with the Endangered Species Act for these transfers.

2.2.4 Schedule

The proposed Water Transfer is scheduled to take place between August 1 and September 30, 2015. Water would begin to be transferred to Folsom Reservoir for storage as soon as federal and state regulatory approvals are received, and WWD and EID have coordinated with Reclamation.

Reclamation would provide the transfer water from the Point of Delivery to WWD on a schedule that is mutually agreeable and/or beneficial to Reclamation, WWD, and the environment such that it would not disrupt normal CVP or SWP operations and would adhere to current operational parameters for the lower American River from Lake Natoma to the confluence with the Sacramento River and the Delta.

WWD would coordinate with Reclamation Central Valley Operations staff to determine the timing and flow rate of transfer water releases from the Point of Delivery for rediversion at the Jones intake facility. Reclamation could release the Transfer Water: (1) on top of (in addition to) projected operations resulting in increased lower American River flows; (2) as part of operations consistent with the Flow Management Standard (FMS) resulting in increased (by 3,100 AF) end-of-September Folsom Reservoir storage; or (3) some combination of (1) and (2). Ultimately, the water would be released by Reclamation to assist with balancing Folsom Reservoir storage and downstream conditions.

Section 3
Affected Environment and Environmental Consequences

3.1 Purpose

This section identifies the potentially affected environmental resources and the environmental consequences that could result from the Proposed Action and the No Action Alternative. The analyses focus on impacts within the Action Area, which include reservoirs, rivers, and facilities used to transfer water from the El Dorado Irrigation District to the Westlands Water District. The Action Area includes Weber, Silver, Jenkinson reservoirs in Eldorado Irrigation District, Folsom Reservoir, which is part of the CVP, and San Luis Reservoir, which is a CVP/SWP facility. The Silver Fork American River, South Fork American River, Lower American River, and the Sacramento River are used to convey transfer water, as well as the Delta. Facilities to pump and convey water to Westlands Water District include Jones Pumping Plant, the Delta-Mendota Canal, San Luis Canal, and O'Neill Forebay, if water passes through San Luis Reservoir.

3.2 Resources Not Analyzed in Detail

Multiple resources had very limited potential for impact, and these impacts were not analyzed in detail. A discussion on several of these resource areas (such as Environmental Justice and Indian Sacred Sites) is required based on Department of the Interior Regulations, Executive Orders, and Reclamation guidelines.

- **Cultural Resources** – The Proposed Action would involve the redistribution of water through existing Federal facilities. There would be no modification of water conveyance facilities and no activities that would result in ground disturbance. Reclamation's cultural resource expert has reviewed the action and determined that it is administrative in nature and has no potential to affect historic properties pursuant to the regulations at 36 Code of Federal Regulations (CFR) Part 800.3(a)(1) (see Appendix A). Because there is no potential to affect historic properties, no cultural resources would be affected as a result of implementing the Proposed Action.

- **Indian Sacred Sites** – Since no modification of the existing Federal or State facilities would be necessary and use of these facilities would

remain within capacity, no Indian sacred sites would be infringed. The Proposed Action would not result in any ground disturbance and would have no effect on Indian sacred sites.

- **Indian Trust Assets** – Indian Trust Assets (ITAs) are legal interests in property or rights held in trust by the United States for Indian Tribes or individual Indians. Indian reservations, Rancherias, and Public Domain Allotments are common ITAs in California. Reclamation Regional Native American Affairs reviewed the Proposed Action and concluded that because the project involves only the use of existing CVP facilities and no new construction is involved, there will be no significant adverse impact on Native American lands or other assets (see Appendix B).

3.3 Water Supply and Hydrology

3.3.1 Affected Environment

Weber Reservoir

Weber Reservoir is owned and operated by EID for water supply, and has a capacity of 1,125 acre-feet. The terms in Water Right License 2184 and a Memorandum of Understanding between EID and California Department of Fish and Wildlife (CDFW) require maintenance of a minimum of 200 AF of reserve storage in Weber Reservoir on September 1 in order have enough reserve storage for minimum instream flow releases into Weber Creek during the dry months of September through November. When storage is greater than 200 AF, the required instream flow is greater than or equal to 1 cfs and is determined by the monthly average inflow for the previous calendar month. When storage is equal to or less than 200 AF, the required instream flow is 1 cfs. When storage is equal to or less than 80 AF (which is the dead pool, when water surface in the reservoir is at or below the outlet pipe elevation), the outlet valve remains open (EID 2005). Table 2-1 shows historic information for maximum, minimum, average, and 2015 actual releases from Weber Reservoir.

Silver Lake

Silver Lake is part of EID's El Dorado Hydroelectric Project (Project 184) and has a capacity of 8,590 acre-feet (EID 2015b). Silver Lake releases water into the Silver Fork of the American River. The Federal Energy Regulatory Commission License for Project 184 includes minimum streamflows of 4 cfs or no flow, depending on year type (EID 2015c).

Without transfers, Silver Lake releases would have been diverted at Kyburz for delivery to water treatment facilities (via Jenkinson Lake), as shown in Figure 2-2. Tables 2-2 and 2-3 shows historic information for maximum, minimum, average and 2015 actual releases from Silver Lake.

Jenkinson Lake

Jenkinson Lake, with a capacity of 41,033 acre-feet, was originally built by Reclamation as part of the CVP but ownership was transferred to EID in 2003. This facility is on Sly Park Creek in the Cosumnes River system, and connected to the American River system through the Kyburz Diversion Dam, El Dorado Canal, and Hazel Creek tunnel.

Folsom Reservoir

Folsom Reservoir is the principal reservoir on the American River, with a maximum storage capacity of 977,000 AF. Reclamation operates Folsom Dam and Reservoir for the purposes of flood control, meeting water contract water right obligations, providing downstream releases for the Lower American River and helping to meet Delta water quality standards. EID, the City of Roseville, San Juan Water District, California State Prison, and the City of Folsom are the main entities that divert water from Folsom Reservoir.

Lake Natoma

Lake Natoma serves as the Folsom Dam afterbay and was formed as a result of Nimbus Dam. Lake Natoma has a maximum storage capacity of 9,000 AF, and inundates approximately 500 acres. Lake Natoma is operated as a re-regulating reservoir that accommodates the diurnal flow fluctuations caused by the power peaking operations at Folsom Power Plant. Nimbus Dam, along with Folsom Dam, regulates water releases to the Lower American River.

Nimbus Dam releases are nearly always controlled during significant portions of a water year by either flood control requirements, fishery requirements under Central Valley Project Improvement Act 3406(b)(2), or through coordination with other CVP and SWP releases to meet downstream SWRCB Decision 1641 requirements in the Delta and CVP water supply objectives.

Lower American River

The Lower American River consists of the 23-mile stretch of river from Nimbus Dam to the confluence of the American and Sacramento rivers in the City of Sacramento.

Sacramento River

The Sacramento River originates near the slopes of Mount Shasta and flows southward to Suisun Bay. Sacramento River flows are controlled primarily by Reclamation's Shasta Dam. Flows in the Sacramento River normally peak during rainy periods during December through February. The Feather and American rivers are the two largest contributors to the Sacramento River. The Lower Sacramento River is defined as that section of the river downstream of its confluence with the Lower American River.

Sacramento-San Joaquin Delta

The Delta lies at the confluence of the Sacramento and San Joaquin rivers. The Delta boundary extends north along the Sacramento River to just south of the American River, south along the San Joaquin River to just north of the

Stanislaus River, east to the City of Stockton, and west to Suisun Bay. Runoff from a variety of Central Valley streams accounts for approximately 95 percent of the inflows into the Delta. The Delta receives flows directly from the Sacramento, San Joaquin, Mokelumne, Cosumnes, and Calaveras rivers. To a large extent, releases from Shasta, Folsom, New Melones, and Millerton reservoirs of the CVP and Lake Oroville of the SWP, and several locally operated reservoirs in the San Joaquin River Basin control the volume and timing of freshwater entering the Delta.

The Delta serves as a major operational focus for SWP and CVP project facilities. The CVP operates the Jones Pumping Plant to lift water from the southern Delta into the Delta-Mendota Canal to service CVP contractors in the San Joaquin Valley and the Tulare Basin. The SWP operates the Banks Pumping Plant, which lifts the water to the California Aqueduct. Current CVP and SWP operations in the Delta are governed by a series of regulations and agreements with the SWRCB, USFWS, NOAA Fisheries, and CDFW.

CVP Facilities and Operations

The CVP Delta Division facilities include the Delta Cross Channel, the Contra Costa Canal, the Jones Pumping Plant and associated fish collection facility, and the Delta-Mendota Canal.

The Jones Pumping Plant, located in the south Delta about five miles from the City of Tracy, is used to lift water from the Delta into the Delta-Mendota Canal. The pumping plant is located at the end of a 2.5-mile intake channel. At the head of the intake channel, louver screens intercept fish, which are collected and transported by tanker to release sites away from the pumps. Jones Pumping Plant consists of six pumps with a collective maximum rated capacity of about 5,100 cfs, although the permitted capacity is 4,600 cfs.

Water exported at Jones Pumping Plant is conveyed via the Delta-Mendota Canal and via the joint reach of the California Aqueduct (San Luis Canal) to M&I and agricultural contractors in the San Joaquin Valley. Water from the Delta-Mendota Canal also may be pumped into San Luis Reservoir, where the water commingles with SWP water exported at Banks Pumping Plant. CVP water in San Luis Reservoir is subsequently released back into the Delta-Mendota Canal or the San Luis Canal via O'Neill Forebay.

San Luis Reservoir

San Luis Reservoir is a storage facility south of the Delta, operated jointly by the CVP and SWP. Water is stored during the fall and winter months when Delta pumps can export more water than is needed for scheduled water demands. Similarly, water is released from San Luis Reservoir during spring and summer months when water demands are greater than the project's Delta export capacity. The total storage of San Luis Reservoir is 2,028,000 AF, of which 966,000 AF is dedicated to the CVP and 1,062,000 AF is dedicated to the SWP. San Luis Reservoir receives water from and releases water to O'Neill

Forebay through the Gianelli Pumping-Generating Plant. The O'Neill Forebay also receives CVP supplies from the Delta-Mendota Canal via the Federal O'Neill Pump-Generating Plant, and SWP supplies from the California Aqueduct.

3.3.2 Environmental Consequences

No Action

Under the No Action Alternative, the transfer would not occur. WWD would not receive the additional water supply. Instream flows would not change in Weber Creek, the South Fork and Silver Fork American rivers, and the lower American River below Nimbus Dam. Similarly, Folsom Reservoir storage would not change.

Proposed Action

The analysis of the potential effects on water resources associated with the alternatives was based on reservoir storage or river flows, relative to the No Action Alternative, of sufficient magnitude, to affect the water supply availability to EID users or CVP contractors.

Weber Reservoir, Silver Lake, and Jenkinson Lake

Under the Proposed Action, storage at Weber Reservoir would be reduced by 700 acre-feet and storage at Jenkinson Lake would be reduced by 2,400 acre-feet by the end of September. Storage in Silver Lake would decrease temporarily in mid-September, but would recover (based on lower releases in late September) by the end of the month.

No legal water users would be injured because EID's transfer of water would slightly increase streamflows in the Silver Fork and South Fork American rivers and Weber Creek. Any increase would be minor and would not cause any water flows to increase above normal seasonal levels, or to violate any regulatory requirements. The released water was stored by EID in accordance with its water rights and would otherwise have remained in storage.

After the water transfer, the empty storage in Weber Reservoir would be refilled with water from Weber Creek and Jenkinson Lake would be refilled with water from the Cosumnes River system (Hazel and Sly Park creeks). Refill would decrease downstream flows slightly compared to the No Action Alternative. However, EID would sign a reservoir refill agreement with Reclamation, ensuring that future refill of any storage space in Weber Reservoir created by the transfer would not affect Folsom Reservoir storage compared to refill operations that EID would otherwise have been entitled to in accordance with its water rights. Similarly, refill in Jenkinson Lake would be timed to avoid potential impacts to other legal users of water on the Cosumnes River system and in the Delta. Because of this refill agreement, the changes in streamflow would occur during wet periods when decreased streamflow would not affect water users.

The decrease in reservoir storage in the EID reservoirs is equal to the water available for transfer. The volume of water made available under the Proposed Action would not be of substantial magnitude, relative to the No Action Alternative, and therefore would not substantially affect water supply availability for EID users.

Folsom Reservoir

Under the Proposed Action, Folsom Reservoir storage would increase relative to the No Action Alternative by up to 3,100 acre-feet by September 30, 2015. Folsom Reservoir storage for the No Action Alternative was 488,000 AF on June 18, 2015 (Reclamation 2015c) and is expected to decrease to 120,000 AF by the end of September (Reclamation 2015d). With the Proposed Action the September storage would be up to 3,100 acre-feet higher. This water would be released in by the end of September when it can be moved through the Delta. Because no decreases in reservoir storage would occur under Proposed Action, water supply availability for CVP customers would not be decreased and there would be no effect to CVP customers.

EID would refill its reservoirs based on the terms of a refill agreement, which would require refill to occur when it would not affect downstream users of water. Refill would decrease inflow into Folsom Reservoir, but the refill agreement would stipulate that this change could only occur under certain conditions to avoid any impacts to the CVP and SWP.

Lower American River

Releases to the Lower American River below Nimbus Dam under the Proposed Action, would be approximately 50 cfs higher when the transfer water is released from Folsom Reservoir in September than flows expected under the No Action Alternative. During this period, the increases in flow would not affect water supply availability to CVP customers or other legal users of water. As discussed above, flows would decrease as the reservoirs are refilled. However, the refill agreements would prevent impacts to water users.

Sacramento River

Flows on the Lower Sacramento River (below the confluence with the Lower American River) would increase slightly when the transfer water are released from Folsom Reservoir in September and decrease slightly during the refill period. These changes are insubstantial relative to the No Action Alternative.

Sacramento-San Joaquin Delta Inflows and Export Pumping

Under the Proposed Action, inflows into the Delta would increase slightly relative to the No Action Alternative when the transfer water is released from Folsom Reservoir in September, because flows below the confluence of the Lower American River and Sacramento River would increase by approximately 50 cfs in September. In addition, export pumping from the Jones Banks Pumping Plant would only increase slightly. Therefore, changes in water

supply availability to CVP customers would not occur under the Proposed Action relative to the No Action Alternative.

San Luis Reservoir

Under the Proposed Action, total storage in San Luis Reservoir may increase slightly relative to the No Action Alternative. Currently, there is available storage capacity in San Luis Reservoir. The proposed transfer would use only available storage capacity available in the Federal share and would have no effect on CVP or SWP customers.

3.4 Water Quality

3.4.1 Affected Environment

Weber Reservoir

Water in Weber Reservoir is generally considered to be of good quality. There are currently no Total Maximum Daily Loads (TMDLs) developed for Weber Reservoir. Limited water quality data is available for Weber Reservoir, but Table 3-1 shows some water quality data from 1957 in Weber Creek downstream of the reservoir.

Table 3-1. Water Quality Parameters Sampled in Weber Creek

Water Quality Parameter	Value
pH (standard units)	7.7
Electrical Conductivity (µS/cm)	133

Source: California Department of Water Resources (DWR) 2015
µS/cm = microsiemen per centimeter
Sampling period from 1957

Silver Lake

Silver Lake is a small mountain lake with generally good water quality. There are currently no TMDLs developed for Silver Lake. Water quality sampling in the lake has been limited, but data from 1959 and 1960 is shown in Table 3-2.

Table 3-2. Water Quality Parameters Sampled at Silver Lake

Water Quality Parameter	Value
pH (standard units)	6.9
Electrical Conductivity (µS/cm)	16

Source: DWR 2015
µS/cm = microsiemen per centimeter
Sampling period from 1959-1960

Jenkinson Lake

Jenkinson Lake is in the upstream reaches of the Cosumnes River system on Sly Creek. There are currently no TMDLs developed for Jenkinson Lake. Water quality testing from 2008-2012 at the intake to the EID water treatment plant found high quality water (EID 2014). Turbidity was low, with values generally less than 10 nephelometric turbidity units (NTUs) (consistently able to meet the treated water goal of turbidity less than 0.3 NTU). Total Organic Carbon measurements ranged from less than 1 up to 1.9 mg/L, but measurements in 2011 and 2012 were lower and consistently less than 1.4 mg/L.

Folsom Reservoir and Lake Natoma

Snowmelt and precipitation from the upper American River Watershed discharges water into Folsom Reservoir and Lake Natoma. In general, runoff from the relatively undeveloped watershed is of very high quality, rarely exceeding California's water quality objectives (Wallace, Roberts, & Todd et al. 2003). Due to changes in the operation of Shasta Dam, releases from Folsom Reservoir are used to fulfill water delivery obligations and downstream water quality standards that would normally be met by releases from Shasta (Reclamation 2013a). The reservoir is listed on the 2010 303(d) list as impaired by mercury (SWRCB 2011). The source of the mercury is historic mining. Table 3-3 presents general water quality data for Folsom Reservoir.

Table 3-3. Water Quality Parameters Sampled at Folsom Reservoir

Water Quality Parameter	Minimum	Maximum	Average
PH (standard units)	5.8	8.5	7.1
Turbidity (NTU)	1	68	1.2
Dissolved Oxygen (mg/L)	7.0	14	10.3
Total Organic Carbon (mg/L)	2	3.5	N/A
Total Nitrogen (mg/L)	N/A	N/A	N/A
Total Phosphorus (mg/L)	N/A	N/A	N/A
Electric Conductivity (µS/cm)	19	123	52

Source: Larry Walker Associates 1999
mg/L = milligrams per liter
µS/cm = microsiemen per centimeter
NTU = nephelometric turbidity unit

Lower American River

Gold mining has occurred within the American River basin since the Gold Rush in 1848. The lower American River is listed as an impaired water body because of mercury lost during gold recovery (SWRCB 2011). The urbanized portions of the lower American River are also listed for unknown toxicity. This is believed to be a result of use of herbicides and pesticides on landscaped residential and commercial areas (SWRCB 2011). Table 3-4 shows water quality parameters in the Lower American River.

Table 3-4. Water Quality Parameters Sampled on the Lower Fork American River (American River at Water Treatment Plant)

Water Quality Parameter	Minimum	Maximum	Average
pH (standard units)	6.6	7.7	7.3
Turbidity (NTU)	1	20	2.2
Total Organic Carbon (mg/L)	0.9	3.6	1.6
Total Nitrogen (mg/L)	0.1	0.3	0.2
Total Phosphorus (mg/L)	0.01	0.1	0.02
Electrical Conductivity (µS/cm)	40	95	63

Sources: DWR 2015
mg/L = milligrams per liter
µS/cm = microsiemen per centimeter
NTU = nephelometric turbidity unit
Samples collected 3/1/2006 – 4/5/2015

Sacramento River at Hood

The Sacramento River sampling site at Hood is located on the Lower Sacramento River south of Sacramento. Therefore, water quality samples at this site reflect the impacts of land use upstream. Impacts to water quality in this region include agricultural runoff, acid mine drainage, stormwater runoff, water releases from dams, diversions, and urban runoff (Reclamation 2013b). Table 3-5 presents the general water quality data for samples collected at Hood.

Table 3-5. Water Quality Parameters Sampled at Sacramento River at Hood

Water Quality Parameter	Minimum	Maximum	Average
pH (standard units)	6.9	7.9	7.6
Turbidity (NTU)	1	192	12.8
Total Organic Carbon (mg/L)	1	11	2.6
Total Nitrogen (mg/L)	0.1	1.7	0.7
Total Phosphorus (mg/L)	0.02	.03	0.09
Electrical Conductivity (µS/cm)	73	242	161

Sources: DWR 2015
mg/L = milligrams per liter
µS/cm = microsiemen per centimeter
NTU = nephelometric turbidity unit
Samples Collected 3/1/2006 – 9/6/2015

Delta

The existing water quality constituents of concern in the Delta can be categorized broadly as metals, pesticides, nutrient enrichment and associated eutrophication, constituents associated with suspended sediments and turbidity, salinity, bromide, and organic carbon. Salinity is a water quality constituent that is of specific concern; Table 3-6 presents water quality data for salinity at selected stations within the Delta.

Table 3-6. Water Quality Data for Selected Stations within the Delta

Location	Mean TDS (mg/L)	Mean Electrical Conductivity (µS/cm)	Mean Chloride, Dissolved (mg/L)
Sacramento River at Hood	94.5	161	6.7
North Bay Aqueduct at Barker Slough	191	326	24
SWP Clifton Court Intake	242	436	70
CVP Banks Pumping Plant	243	431	74
Contra Costa Intake at Rock Slough	248	442	77
San Joaquin River at Vernalis	306	559	75

Source: DWR 2015
mg/L = milligram per liter
µS/cm = microsiemen per centimeter
TDS = Total Dissolved Solids
Samples Collected 3/1/2006 – 9/6/2015

San Luis Reservoir

San Luis Reservoir is an off-stream reservoir that stores excess winter and spring water from Delta. Water is delivered to the reservoir through the California Aqueduct and Delta-Mendota Canal. Water levels in San Luis Reservoir vary each season because of the amount and timing of water delivered from the California Aqueduct and Delta-Mendota Canal. San Luis Reservoir was designated as mercury impaired on the 2010 California 303(d) List. The potential source of the mercury was listed as unknown (SWRCB 2011).

During the summer months, when water levels are lowest, water quality in San Luis Reservoir can decline due to a combination of warmer temperatures, wind-induced nutrient mixing, and algal blooms near the reservoir surface. When San Luis Reservoir approaches its late summer/early fall low point, algae concentrations in water drawn into the reservoir's pumping plants may be high enough that the water becomes difficult to treat.

3.4.2 Environmental Consequences

No Action

Under the No Action Alternative, no additional flow from the South Fork American River would be released to affect water quality in the American River system, Sacramento River, or the Delta.

Proposed Action

The analysis of potential changes in water quality associated with the proposed water transfer considers whether increased release of water from storage could affect the concentrations of water quality constituents of concern within reservoirs or rivers.

Weber Reservoir, Silver Lake, and Jenkinson Lake

Under the Proposed Action, the combined storage at Weber Reservoir and Jenkinson Lake would be reduced by up to 3,100 AF by September 30, 2015

relative to the No Action Alternative. The storage in Silver Lake would decline temporarily, but would recover by September 30, 2015. Because of their positions high in the watershed, inflow mainly comes from snowmelt, and the reservoirs do not receive a high level of contaminants. Water quality is generally considered good; therefore, under the Proposed Action, decreased storage would not have substantial adverse effects on water quality within these reservoirs.

South Fork American River, Silver Fork American River, and Weber Creek

The volume of flow in the South Fork American River, Silver Fork American River, and Weber Creek during August and September would increase relative to the No Action Alternative. The higher flows would not result in an increase in the concentration of contaminants.

Folsom Reservoir and Lake Natoma

Because no decreases in reservoir storage would occur under the Proposed Action relative to the No Action Alternative, there would be no notable degradation to the water quality in Folsom Reservoir.

Lower American River below Nimbus Dam

Historically, water quality parameters for the Lower American River have typically been well within acceptable limits to achieve water quality objectives and beneficial uses identified for this waterbody (SWRCB 1998), and remain so today.

Under the Proposed Action there would be a slight increase in flows along the Lower American River below Nimbus Dam, relative to the No Action Alternative. The increase in flow will not degrade the water quality in the Lower American River below Nimbus Dam.

Sacramento River

Flows in the Lower Sacramento River (below the confluence with the Lower American River) would not change significantly under the Proposed Action, relative to the No Action Alternative. Since inflows from the American River provide a slightly better quality, the implementation of the Proposed Action relative to the No Action Alternative is not expected to affect water quality in the Sacramento River.

Delta

Flows into the Delta would increase slightly under the Proposed Action, but these changes would be insubstantial compared to the flows under the No Action Alternative. A portion of the inflow would be exported through Jones Pumping Plant, and a portion would increase Delta outflow into San Francisco Bay. Because the flow changes are very small, they would result in negligible changes to water quality within the Delta.

San Luis Reservoir
Under the Proposed Action, the transfer would use only excess storage capacity available in the Federal share of San Luis Reservoir storage which would not significantly change relative to the No Action Alternative. Therefore, the concentration of contaminants in San Luis Reservoir would not increase under the Proposed Action relative to the No Action Alternative.

3.5 Fisheries and Aquatic Resources

3.5.1 Affected Environment

The affected environment for each water way is described below. Appendix C includes a list of sensitive species.

Silver Lake
Rainbow trout (*Oncorhynchus mykiss*), brook trout (*Salvelinus fontinalis*), and lake trout or mackinaw (*Salvelinus namaycush*) are found in Silver Lake. Rainbow trout is the only native trout species. All trout species are important recreational fisheries, and rainbow and lake trout are particularly valued in Silver Lake by anglers.

Silver Fork American River and South Fork American River
Rainbow trout, brook trout, and brown trout (*Salmo trutta*) are found in the Silver Fork (ECORP 2013). Rainbow trout, a spring spawner, is the only native trout species in the American River basin. Brown and brook trout are non-native, fall-spawning species. All trout species are important recreational fisheries; both rainbow and brown trout are particularly valued in the upper Silver Fork by anglers. Rainbow trout are the dominant trout species in the Silver Fork. The benthic macroinvertebrates (BMI) community in the Silver Fork and the South Fork American River is diverse and abundant, and includes a high percentage of non-tolerant (sensitive) species, including Ephemeroptera, Plecoptera, and Trichoptera (EPT) species. The presence of non-tolerant BMIs, in particular EPT species, is indicative of good water quality conditions.

Native fish species that are present in the South Fork American River include rainbow trout, Sacramento sucker (*Catostomus occidentalis*), California roach (*Hesperoleucus symmetricus*), speckled dace (*Rhinichthys osculus*), Sacramento pikeminnow (*Ptychocheilus grandis*), hardhead minnow (*Mylopharodon conocephalus*), and prickly sculpin (*Cottus asper*) (ECORP 2013). Hardhead minnow is a U.S. Forest Service species of concern. Non-native fish species include brown trout and brook trout. Rainbow trout are the dominant trout species in the South Fork American River.

No migratory fish species are able to access the South Fork American River (including Silver Fork) due to the presence of Nimbus Dam on Lake Natoma.

Weber Reservoir
The fish fauna of Weber Reservoir predominantly consists of rainbow trout, brown trout, and several non-native centrarchid (bass and sunfish) species. Other native fish species that may potentially be present in Weber Reservoir include Sacramento sucker, California roach, and prickly sculpin. Non-native fish species, along with brown trout, may include largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), spotted bass (*M. punctulatus*), bluegill (*Lepomis macrochirus*), green sunfish (*L. cyanellus*), and common carp (*Cyprinus carpio*).

Weber Creek
Rainbow trout, a spring spawner, is the only native trout species in Weber Creek, with non-native brown trout, a fall spawner, potentially present. Other fish species that may occur in Weber Creek are as described above for Weber Reservoir, however Sacramento sucker, California roach, and prickly sculpin are likely the more abundant species, along with the numerically dominant rainbow trout. The BMI community in Weber Creek is somewhat less diverse and abundant than compared to other west slope streams, due at least partially to consistently low stream flows. BMI species are the primary prey for trout and native fish species. Though most BMI species are present as various instars (life history stages) throughout the year, BMI production is highest in spring. No migratory fish species are able to access the Weber Creek due to the presence of Nimbus Dam on Lake Natoma.

Jenkinson Lake
The aquatic resources residing in Jenkinson Lake, and especially the fish community, are similar to those found in Weber Reservoir.

Cosumnes River
The headwaters of the Cosumnes River flow through the El Dorado National Forest and support native trout fisheries and many other aquatic species. The lower reaches of the river provide critical salmon spawning habitat and the broad floodplain of the lower river harbors valley oak riparian forest and freshwater wetlands used by thousands of resident and migratory birds. The Cosumnes River is a tributary of the Mokelumne River. The Cosumnes River includes 35 miles river miles of anadromous habitat from Latrobe Falls at an elevation near 400 feet, downstream to the confluence with the Mokelumne River. Because of this low elevation, spawning is only likely to occur in wet water years, and the production of yearling emigrants is unlikely due to warm summer water temperatures. The Cosumnes River may provide important non-natal rearing habitat to Central Valley steelhead from the Mokelumne River or other nearby steelhead-producing rivers (NOAA Fisheries 2014).

Folsom Reservoir
Folsom Reservoir supports a “two-story” fishery during the stratified portion of the year (April through November), with warmwater species using the upper, warmwater layer and coldwater species using the deeper, colder portion of the

reservoir. Native species that occur in the reservoir include hardhead and Sacramento pikeminnow. However, introduced largemouth bass, smallmouth bass, spotted bass, bluegill, black and white crappie (*Pomoxis nigromaculatus* and *P. annularis*), and catfish (*Ictalurus spp.* and *Ameiurus spp.*) constitute the primary warmwater sport fisheries of Folsom Reservoir. The coldwater sport species present in the reservoir include rainbow and brown trout, kokanee salmon (*Oncorhynchus nerka*), and Chinook salmon (*Oncorhynchus tshawytscha*), all of which are currently or have been stocked by CDFW. Although brown trout are no longer stocked, a population still remains in the reservoir. Because these coldwater salmonid species are stream spawners, they do not reproduce within Folsom Reservoir. However some spawning by one or more of these species may occur in the North Fork American River upstream of Folsom Reservoir.

Folsom Reservoir's coldwater pool is important not only to the reservoir's coldwater fish species identified above, but also is important to lower American River fall-run Chinook salmon and Central Valley steelhead (*Oncorhynchus mykiss*). Seasonal releases from the reservoir's coldwater pool provide thermal conditions in the lower American River that support annual in-river production of these salmonid species. However, Folsom Reservoir's coldwater pool is not large enough to facilitate coldwater releases during the warmest months (July through September) to provide maximum thermal benefits to over-summering juvenile steelhead rearing in the lower American River, and coldwater releases during October and November that would maximally benefit fall-run Chinook salmon immigration, spawning, and embryo incubation. Consequently, management of the reservoir's coldwater pool on an annual basis is essential to providing thermal benefits to both fall-run Chinook salmon and steelhead, within the constraints of coldwater pool availability.

Lower American River and Sacramento River

Species of primary management concern include those that are recreationally or commercially important (fall-run Chinook salmon, steelhead, American shad [*Alosa sapidissima*], and striped bass [*Morone saxatilis*]); Federal- and/or State-listed species within the Action Area (winter- and spring-run Chinook salmon, steelhead, delta smelt [*Hypomesus transpacificus*], and green sturgeon [*Acipenser medirostris*]); and State species of special concern (late fall-run Chinook salmon, green sturgeon, hardhead, longfin smelt [*Spirinchus thaleichthys*], river lamprey [*Lamptera ayresi*], Sacramento perch [*Archoplites interruptu*], Sacramento splittail [*Pogonichthys macrolepidotus*], and California roach).

Sacramento-San Joaquin Delta

The Bay-Delta estuary provides habitat for a diverse assemblage of fish and macroinvertebrates. Many of the fish and macroinvertebrate species inhabit the estuary year-round, while other species inhabit the system on a seasonal basis as a migratory corridor between upstream freshwater riverine habitat and coastal

marine waters, as seasonal foraging habitat, or for reproduction and juvenile rearing.

Migratory (e.g., anadromous) fish species which inhabit the Bay-Delta system and its tributaries include, but are not limited to, white sturgeon, green sturgeon, Chinook salmon (including fall- run, spring-run, winter-run, and late-fall-run Chinook salmon), steelhead, American shad, Pacific lamprey, and river lamprey (Moyle 2002). The Bay-Delta estuary and tributaries also support a diverse community of resident fish which includes, but is not limited to, Sacramento sucker, prickly and riffle sculpin, California roach, hardhead, hitch, Sacramento blackfish, Sacramento pikeminnow, speckled dace, Sacramento splittail, tule perch, inland silverside, black crappie, bluegill, green sunfish, largemouth bass, smallmouth bass, white crappie, threadfin shad, carp, golden shiner, black and brown bullhead, channel catfish, white catfish, and a variety of other species which inhabit the more estuarine and freshwater portions of the Bay-Delta system (Moyle 2002).

Many of the fish and macroinvertebrate species have experienced generally declining trends in abundance (Moyle et al. 1995) with several native species, including winter-run and spring-run Chinook salmon, steelhead, and delta smelt either listed or being considered for listing under the Federal Endangered Species Act or California Endangered Species Act. A number of fish and macroinvertebrate species inhabiting the estuary also support recreational and commercial fisheries, such as fall-run Chinook salmon, Bay shrimp, Pacific herring, northern anchovy, starry flounder, striped bass, largemouth bass, sturgeon, and many others, and hence the estuary also has been identified as essential fish habitat (EFH) for many of these species.

3.5.2 Environmental Consequences

No Action Alternative

Continued dry hydrologic conditions could affect special status fish species by reducing inflow to the Delta. Reclamation and the Department of Water Resources (DWR) may have difficulty meeting the operational requirements of the Biological Opinions (BOs) on the Continued Long-term Operations of the CVP/SWP (NOAA Fisheries and USFWS BOs) and D1641. CVP and SWP operations on the Sacramento, Feather, and American rivers will be managed adaptively to meet environmental and water quality standards that are put in place throughout the water year. Reclamation and DWR developed a Drought Contingency Plan for the CVP and SWP that includes a temporary urgency change petition to the SWRCB to address continued dry conditions (Reclamation and DWR 2015). The temporary urgency change petition includes requests to change the minimum Net Delta Outflow Index, the minimum flows on the San Joaquin River at Airport Way Bridge, and the Delta Cross Channel gate closure requirements. Reclamation and DWR will continue to coordinate closely with the SWRCB to balance the need to provide water supplies south of the Delta, and protect water quality in the Delta.

Proposed Action

Silver Lake

The potential 2,400 AF water transfer from Silver Lake would increase releases into the Silver Fork of the American River, but the transfer was designed to maintain flows below the observed maximum monthly flow that has occurred during the past five years (since 2010) in Silver Fork. Transfer water would be released from Silver Lake such that the transfer release rate from August 1 through September 23 would be less than observed maximum monthly rate flow during that same time period over the past five years (i.e., 133.3 cfs in September 2011); the maximum modeled transfer release rate would be approximately 84.9 cfs over the 8-day time period between September 16 and 23 (Tables 2-2 through 2-4 and Figure 2-4).

Approximately 1,500 AF of water would be released from Silver Lake into the Silver Fork during August and through September 15, consisting of 'minimum release plus leakage' flows (13.8 cfs average flow). As such, storage in Silver Lake during the August 1 through September 15 time period was calculated to be approximately 5,333 AF, both with and without transfer flows. During September 16 through 23, 2015, resulting storage in Silver Lake would be reduced to approximately 4,082 AF, as compared to approximately 4,569 AF without the transfer release. During the following week (September 24 through 30), storage in Silver Lake, with and without transfer release, was calculated to be 3,772 and 3,852 AF, respectively. By October, calculated storage in Silver Lake would be approximately 3,305 AF, both with and without the earlier transfer release, due to the high refill capacity of Silver Lake. The low down-ramping rate would have a negligible effect on resident populations of rainbow and brown trout in Silver Lake.

Silver Fork American River

Approximately 1,500 AF of water is expected to be released from Silver Lake into the Silver Fork during August and through September 15, consisting of 'minimum release plus leakage' flows, resulting in a 13.8 cfs maximum flow through September 15. The remaining 900 AF (calculated as the remaining transfer from the total Silver Lake target of 2,400 AF) would be released from September 16 through 23, resulting in maximum Silver Fork streamflow of approximately 84.9 cfs, well under the maximum rate that has historically occurred during that time period over the past five years (133.3 cfs in September 2011) (Tables 2-2 through 2-4).

Slight differences in wetted channel width and wetted area along the stream margins are expected to occur between the proposed Water Transfer and historic (over the past five years) conditions, as average water depth at 84.9 cfs is calculated to increase by approximately 1.5 feet over depths observed at minimum flow (4 cfs). Slight increases in depths and water velocities to microhabitats (riffles, pools, runs) in Weber Creek would be apparent, but would not significantly affect existing cover values for fish, or negatively affect

the quality of food-producing (BMIs) riffles in those habitats due to the high level of habitat complexity that exists throughout Silver Fork. Increases in depth and water velocities would be within the range of depths and velocities that currently occur in Silver Fork during this time period. Direct adverse effects to aquatic resources would also be negligible, since potentially adverse effects to existing instream habitats would not be expected to occur.

The temporary elevation of streamflows during the proposed water transfer would be coupled with suitable ramping rates as indicated in the Hydroelectric Project 184 Settlement Agreement. Ramping rates at the beginning and end of the transfer release would restrict increases in water depth in Silver Fork to 1 foot per hour up to a 75 cfs release, and to 0.5 feet per hour up to a 175 cfs release. This technically-based license requirement, previously approved by the state and federal resource agencies, would result in continued protection of aquatic resources in both Silver Lake and Silver Fork, and in particular would result in a negligible adverse effect on resident populations of rainbow and brown trout.

South Fork American River below Kyburz Diversion Dam

The confluence of the Silver Fork with the South Fork American River is immediately above the Kyburz diversion dam. Proposed Water Transfer flows to this point would mimic historic flows, and would continue to be diverted at Kyburz diversion dam. With the Proposed Action, instead of being directed for consumptive use, the transfer release flow would be discharged back into the South Fork American River through the El Dorado Powerhouse just upstream from Slab Creek Reservoir, and then travel downstream to Folsom Reservoir. As in Silver Fork, the water transfer would have negligible effects to aquatic resources in the South Fork American River downstream of the El Dorado Powerhouse and extending to the confluence with Folsom Reservoir, since streamflows would increase by a maximum of 84.9 cfs over base flow for approximately 8 days. That increase is approximately 50 cfs less than the historic maximum increase in flow of 133.3 cfs as released during that time period from Silver Lake.

Jenkinson Lake

Jenkinson Lake has a capacity of 41,033 AF, though current storage is less than 35,000 AF. Storage in Jenkinson Lake at the beginning of August 2015 (and prior to releases associated with the Proposed Action) is expected to be approximately 31,137 AF. With the Silver Lake portion of the Water Transfer occurring from August 1 through August 31, resulting storage in Jenkinson Lake would decrease by approximately 1,200 AF. By September 30, 2015, storage would decrease by an additional approximately 1,200 AF, for a total decline of approximately 2,400 AF associated with the Proposed Action (i.e., approximately 24,228 AF total storage in Jenkinson Lake, as compared with approximately 26,628 AF storage value without the proposed transfer). The small changes in storage and low down-ramping rate would have a negligible effect on resident fish populations in Jenkinson Lake.

Cosumnes River

Flows in Consumnes River would decrease during refill of Jenkinson Lake. Jenkinson Lake would need to be refilled by the amount of the transfer, 2,400 AF. Refill would occur during wet years in high flow periods and in accordance with a reservoir refill agreement between EID and Reclamation. Refill during high flow periods would not affect flows for downstream fisheries.

Weber Creek

The proposed Water Transfer would likely have temporary beneficial effects to aquatic resources in Weber Creek, due to an increase in magnitude of the low flows currently released from Weber Reservoir; minimum reservoir release to Weber Creek is approximately 1 cfs throughout the year, depending on the previous month's inflow and reservoir storage conditions. The maximum flow observed during the proposed transfer period (August 1 through September 23) over the past five years was 10.5 cfs (in 2011), with an average monthly flow of 3.8 cfs over that time period. The entire Weber Reservoir Water Transfer would be approximately 700 AF, and would occur from August 1 through September 23, resulting in maximum streamflows in Weber Creek of approximately 10.0 cfs during the Water Transfer. Average monthly flows after September 23 and for the remaining months in 2015 (through December) were calculated to be at minimum flow (about 1 cfs) (Table 2-1 and Figure 2-1).

Differences in wetted channel width and wetted area along the stream margins between the proposed Water Transfer and historic (over the past five years) conditions would be negligible, as average water depth was calculated to increase by about 3 inches over depths observed at minimum flow (1 cfs). Such changes in depths and water velocities to microhabitats (riffles, pools, runs) in Weber Creek would not significantly affect existing cover values for fish, or negatively affect the quality of food-producing (BMIs) riffles in those habitats. Direct adverse effects to aquatic resources would also be negligible, as potential effects to existing instream habitats would be minimal to negligible.

In addition to the magnitude of flows, the ramping rate of increased or decreased flows may also have the potential to adversely affect aquatic resources if it occurs at a rate that could immediately displace or strand fish or other aquatic resources. The Weber Dam and Reservoir Operations Manual (EID 2005) identifies a ramping rate from the reservoir such that changes in Weber Creek in-stream depth would not exceed 0.5 feet per hour as measured at Weber outlet gage W-3. This rate was approved by CDFW as being suitable for minimizing or preventing stranding or displacement of those fish species present below Weber Dam. The Proposed Action would follow this specified ramping rate. Further, potential effects of ramping would be ameliorated with distance downstream from the release point.

Weber Reservoir

The targeted 700 AF water transfer from Weber Reservoir was modeled with the concept of providing transfer release flow at rates less than the observed maximum flow (10.5 cfs in September 2011) that has occurred during the past five years (since 2010) in Weber Creek (Table 3-2). Modeling results indicate that approximately 700 AF can be released from Weber Reservoir beginning on August 1 and ending on or about September 23 while maintaining releases at rates less than the observed historic maximum flow for that time period (10.5 cfs) in Weber Creek at Weber outlet gage W-3 while also transferring all water by September 30. The maximum release rate during the period of water transfer release would be 10.0 cfs.

Storage in Weber Reservoir at the beginning of August 2015 is expected to be approximately 915 AF. With the water transfer occurring through September 23, 2015, the resulting storage would decline to approximately 121 AF by September 23. A minimum of 200 AF will be maintained as of September 1 per SWRCB, Division of Water Rights Order WR 2007-0035-DWR. Traditionally, Weber Reservoir easily refills as evident even during the most recent historically dry periods of 2014 and 2015 when the reservoir refilled. Actual refill during winter 2015 will be subject to an agreement to be entered into with Reclamation. However, even using hydrologic conditions from 2013/14 and 2014/15, Weber Reservoir would easily refill and sufficient carryover storage is expected to be available in future years to provide required minimum flows. The low down-ramping rate would have a negligible effect on resident populations of fish species in Weber Reservoir.

Folsom Reservoir

The Proposed Action would temporarily increase storage in Folsom Reservoir by 3,000 AF during September. Projected end-of-month storage in September is approximately 120,000 AF. An additional 3,000 AF would add about 2.5 percent of storage and would have negligible changes to reservoir elevation and would not adversely affect resident fish. Figure 3-1 shows average daily temperature during September 2014 of water entering Folsom Reservoir at the South Fork American River gage near Pilot Hill compared to temperature of water releases at the American River Folsom Dam gage. During September, the temperature of the transfer water entering Folsom Reservoir from the South Fork American River would mostly be lower than the temperature of water being released from Folsom Reservoir. In 2015, continued dry conditions and reduced snowmelt would likely result in warmer temperatures in both the South Fork American River and Folsom Reservoir. Although temperatures may be warmer, it is not expected that the relative changes would be different from 2014 conditions. Temperatures in the South Fork American River would continue to be slightly cooler or similar to those in Folsom Reservoir. The Proposed Action would not affect the coldwater pool at Folsom Reservoir or the coldwater fishery in the reservoir.

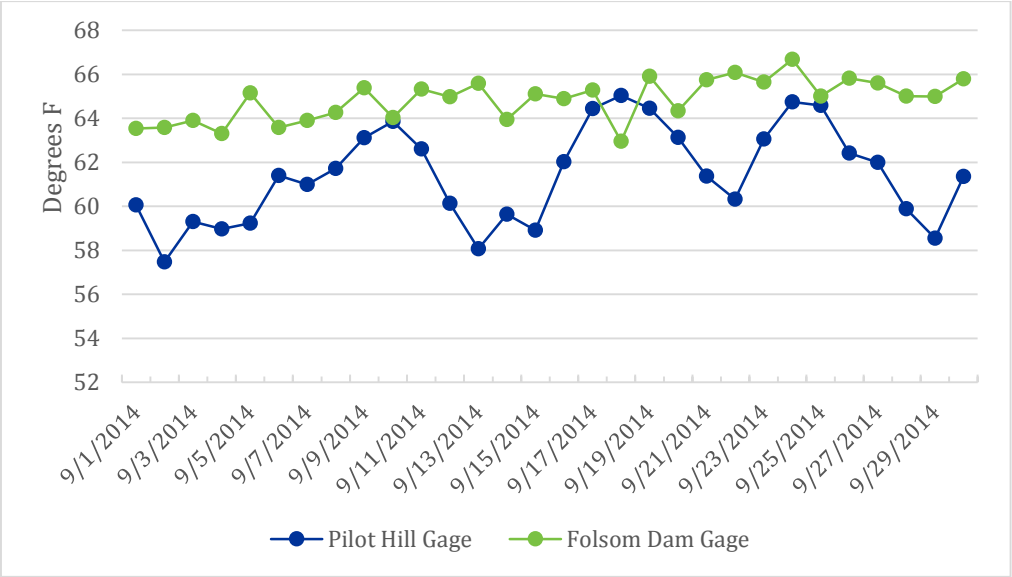

Figure 3-1. September 2014 Water Temperature at Pilot Hill and Below Folsom Dam

Lower American River and Sacramento River

The effects analysis focused on determining potential effects to anadromous salmonids because their life history requirements are generally more restrictive than those of other fish species found in the rivers. Thus, if anadromous salmonids are not affected by the Proposed Action relative to the No Action Alternative, it is unlikely that other, less sensitive fish species (e.g., splittail, American shad and striped bass) would be affected.

The proposed water transfer would be released from Folsom Reservoir into the lower American River by the end of September. In September 2014, average daily American River flows were 1,386 cfs at Fair Oaks and average daily Sacramento River flows were 8,263 cfs at Freeport. The Proposed Action would increase flows in the lower American River and Sacramento River by approximately 50 cfs during September, which is a 4 percent increase in the American River and less than 1 percent increase in the Sacramento River relative to 2014 flows.

Adult upstream immigration of fall-run Chinook salmon generally occurs from August through December. Adult winter-run Chinook salmon immigration and holding in the Sacramento River occurs from December through July, with a peak during the period extending from January through April. Late fall-run Chinook salmon immigration in the Sacramento River occurs from October through April, with a peak during December. The increase in flow under the Proposed Action would not reduce the suitability of habitat conditions during adult immigration.

This magnitude of flow increase would also not appreciably reduce spawning habitat availability and incubation, increase redd dewatering or juvenile stranding, or reduce the suitability of habitat conditions during juvenile rearing for Central Valley steelhead and other sensitive fish species. Therefore, changes in flow as a result of the Proposed Action would not affect sensitive fish in the American or Sacramento River.

In addition to flow, water temperature is an important consideration for the lower American River, particularly for fall-run Chinook salmon and steelhead. Seasonal releases from Folsom Reservoir's coldwater pool influence thermal conditions for the lower American River. Folsom Reservoir's coldwater pool oftentimes is not large enough to allow for coldwater releases during the warmest months (i.e., July through September) to provide maximum thermal benefits to steelhead, and coldwater releases during October and November for fall-run Chinook salmon immigration, spawning, and incubation.

The average daily American River water temperature below Folsom Dam in September 2014 was 65 degrees F. The average daily temperature of the water transfer from EID under the Proposed Action during September would be 61 degrees F. Under the Proposed Action, most additional flow would enter Folsom Reservoir during September, when inflows are generally cooler than outflows (see Figure 3-1). The flow changes into and out of Folsom Reservoir would be small with the Proposed Action, and not expected to affect temperature of the releases because of the small flow changes and cooler water entering the reservoir. The Proposed Action is not expected to increase the temperature of releases into the Lower American River; and therefore, would not adversely affect fish habitat.

Sacramento-San Joaquin Delta

Changes in mean monthly Delta exports under the Proposed Action relative to the No Action Alternative would generally be very small. The Proposed Action would slightly augment delta exports when transfers are released from Folsom Reservoir in September. Adult fall-run Chinook would be passing through the delta and heading upstream to spawning tributaries at that time. The additional flows into the delta could provide a slight benefit to upstream migrating Chinook. Since the adults are migrating upstream against the flow they would not be attracted to the change in flows towards the export facilities.

Transfers would slightly increase inflow into the Delta, but would not change outflow conditions as compared to the No Action Alternative. Reclamation would implement transfers within the current operating parameters set by USFWS and NOAA Fisheries. Therefore, the Proposed Action would not adversely affect sensitive fish species in the Delta.

3.6 Terrestrial Resources

3.6.1 Affected Environment

This section describes the existing conditions of terrestrial and riparian resources and consists of identification of communities and associated special-status plant and wildlife species with the potential to occur in the Action Area. Appendix C includes a list of sensitive species.

Silver Lake

Sierra Nevada yellow-legged frog (SNYLF) (*Rana sierrae*) are present in tributaries to and along the southeast shorelines of Silver Lake (EID 2010). SNYLF activity coincides with spring snow melt, and is dependent upon water temperature. Breeding occurs shortly after snow melt when adults emerge from hibernation, and generally extends from May into summer. Eggs are laid in ponds, isolated pools, and lakes that do not freeze over, as the tadpole stage may occur for several years.

Silver Fork American River and South Fork American River

SNYLF are present in the Silver Fork basin above 6,000 feet elevation, though they have not been observed in the mainstem Silver Fork of the American River (Silver Fork). SNYLF activity coincides with spring snow melt, and is dependent upon water temperature. Breeding occurs shortly after snow melt when adults emerge from hibernation, and generally extends from May into summer. Eggs are laid in ponds, isolated pools, and lakes that do not freeze over, as the tadpole stage may occur for several years. Eggs and tadpoles are not present in the Silver Fork.

Weber Reservoir

No special-status amphibian species are present in Weber Reservoir. California red-legged frog (CRLF) (Rana draytonii) were historically (but not currently) sighted in lower Weber Creek. However, the only current population of CRLF in El Dorado County is present in the upper Weber Creek watershed in a 63-acre area known as Spivey Pond, owned by the American River Conservancy. Bullfrogs and non-native predatory fish are abundant in Weber Reservoir, which precludes the presence of CRLF in the reservoir. CRLF breeding occurs from mid-December through early April along the margins and shallow parts of natural or manmade ponds, or wide slow sections of streams without predatory, non-native fish species. Breeding sites require inundation into summer for tadpoles to reach a size for metamorphosis.

Weber Creek

No special-status amphibian species are currently known to be present in Weber Creek. CRLF are present in the American River basin, and have been historically (but not currently) sighted in lower Weber Creek (see discussion of Weber Reservoir).

Jenkinson Lake and Cosumnes River
The amphibian resources residing in Jenkinson Lake are similar to those found in Weber Reservoir. Consumnes River flows downstream of Jenkinson Lake. Descending towards the Central Valley, the river passes through blue oak, grassland, and vernal pool communities. The lower river is a broader floodplain with valley oak riparian forest and freshwater wetlands used by thousands of resident and migratory birds.

Folsom Reservoir and Lake Natoma
Habitats associated with Folsom Reservoir include non-native grassland, blue oak-pine woodland, and mixed oak woodland. The reservoir rim (i.e., draw-down zone) is devoid of vegetation, with the exception of willow shrubs that have established in areas that are not subject to fluctuations in water elevations. The only contiguous band of riparian vegetation occurring at Folsom Reservoir is along Sweetwater Creek, on the southern end of the reservoir (City-County Office of Metropolitan Water Planning 1999). Oak-pine woodlands and non-native grasslands in the reservoir area support a variety of birds. A number of raptor species also utilize oak woodland habitats for nesting, foraging, and roosting. Many mammal species occur in the woodland. Amphibians and reptiles are found in oak woodlands.

The primary vegetation around Lake Natoma consists of cottonwoods, poison oak, and wild grape (*Vitis californica*). Wildlife communities found at Lake Natoma are similar to those found at Folsom Reservoir. Federal and state listed and proposed candidate species of the area include the valley elderberry longhorn beetle, CRLF, mountain yellow-legged frog, pallid bat, northwestern pond turtle, giant garter snake, tricolored blackbird, bald eagle, California black rail, purple martin, Boggs Lake hedge-hyssop and Stanford's arrowhead.

Special-status plant species potentially occurring in the vicinity of the Folsom Reservoir and Lake Natoma include Jepson's onion (*Allium jepsonii*), big-scale balsamroot (*Balsamorhiza macrolepis var. macrolepi*s), Parry's horkelia (*Horkelia parryi*), Hartweg's golden sunburst (*Pseudobahia bahifolia*), and Boggs Lake hedge-hyssop (*Gratiola heterosepala).*

Federal and state listed and proposed candidate wildlife species of the area include the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), CRLF, SNYLF, frog, pallid bat (*Antrozous pallidus*), northwestern pond turtle (*Actinemys marmorata*), giant garter snake, tricolored blackbird, bald eagle (*Buteo swainsoni*), California black rail (*Laterallus jamaicensis*), and purple martin (*Progne subis*).

Lower American River
The channel morphology and riparian communities along the Lower American River have been highly impacted by human activities over the past century. Currently, a large portion of the Lower American River is characterized by riparian forests dominated by Fremont cottonwood and willows. In addition,

backwater ponds and lagoons are present, resulting from both natural gravel deposits and artificial dredging (Sands, et. al., 1985).

The lower American River provides a diverse assemblage of vegetation communities, including freshwater marsh and emergent wetland, riparian scrub, riparian forest, and in the upper, drier areas farther away from the river, oak woodland and non-native grassland. The most common reptiles and amphibians that depend on the riparian habitats along the river include western toad (*Bufo boreas*), Pacific tree frog (*Hyla regilla*), bullfrog (*Rana catesbeiana*), western pond turtle (*Clemmys marmorata*), western fence lizard (*Sceloporus occidentalis*), common garter snake (*Thamnophis sirtalis*), and gopher snake (*Pituophis catenifer*).

Special-status plant species potentially occurring in the vicinity of the Lower American River are similar to those described for Folsom Reservoir and Lake Natoma. Special-status terrestrial wildlife species potentially occurring in the vicinity of the Lower American River include valley elderberry longhorn beetle, western pond turtle, bald eagle, Swainson's hawk, bank swallow (*Riparia riparia*), yellow-billed cuckoo (*Coccyzus americanus*), and western burrowing owl (*Athene cunicularia*).

Sacramento River

Levees along the approximately 60-mile length of the lower Sacramento River from the confluence with the American River to Collinsville were constructed immediately adjacent to the river, and riparian vegetation is therefore generally absent or consists of single rows of Fremont cottonwood, sycamore, or willow trees (Gibson, 1975).

Agricultural land (rice, dry grains, pastures, orchards, vineyards, and row and truck crops) is common along the lower reaches of the Sacramento River. Mammals such as river otters and muskrats utilize riverine habitats for foraging and cover. Many amphibians and some reptiles (e.g., western pond turtles) inhabit riverine habitats for at least part of their life cycles. The freshwater/emergent wetlands represent habitat for many wildlife species, including reptiles and amphibians such as the western pond turtle, bullfrog, and Pacific tree frog. Agricultural areas adjacent to the river also represent foraging habitat for many raptor species.

Special-status plant and terrestrial wildlife species potentially occurring in the vicinity of the lower Sacramento River are similar to those described for the Lower American River.

Sacramento-San Joaquin Delta

Located at the confluence of the Sacramento and San Joaquin rivers, the Sacramento-San Joaquin River Delta was once a large tidal freshwater marsh. Beginning in the 1800s, levees were built along river channels, and the land was drained to allow for agricultural development. As a result, the Delta today consists of 57 separate tracts or "islands" bounded by water. Lands on these

islands are primarily agricultural fields, bordered by disturbed, non-native grasslands.

Most of the vegetation in the Delta consists of irrigated agricultural fields and associated ruderal (disturbed) non-native vegetation fringes that border cultivated fields. Throughout much of the Delta, these areas border the levees of various sloughs, channels, and other waterways within the historic floodplain. Native habitats include remnant riparian vegetation that persists in some areas, with brackish and freshwater marshes also being present. The remaining areas of emergent marsh provide important habitat for many resident and migratory species.

Special-status plant species potentially occurring in the vicinity of the Sacramento-San Joaquin River Delta include Bogg's Lake hedge-hyssop, Sanford's sagittaria (*Sagittaria sanfordii*), and rose mallow (*Hibiscus lasiocarpus*).

Special-status terrestrial wildlife species potentially occurring in the vicinity of the Delta are similar to those described for the Lower American RiverSpecific species of this area that are federal and state listed as well as proposed candidates include the valley elderberry longhorn beetle, California red-legged frog, northwestern pond turtle, giant garter snake, tricolored blackbird, Swainson's hawk, northern harrier and the Mason's lilaeopsis.

3.6.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, reservoir elevations at Folsom reservoir in 2015 are already well below the ordinary high water mark due to the drought conditions and will remain low through the riparian growing season. Under these low water levels, the adjacent riparian vegetation is hydrologically disconnected from the reservoir. There would be no effects to terrestrial and riparian species under the No Action Alternative.

Proposed Action

Resources potentially affected by the Proposed Action include riparian vegetation, and special-status plants, or terrestrial wildlife species dependent on vegetation communities within the inundation areas of reservoirs or supported by flows within the river reaches. Potential effects on riparian resources may result from changes in flows during the growing season (March through October). Water transfers under the Proposed Action would increase storage in Folsom Reservoir in August and September and increase flows in the lower American River in late September.

The temporary increase in storage in Folsom Reservoir are within the range of storage/water surface elevations that occur under annual normal operations and

would not change the existing condition. The Proposed Action would not affect riparian vegetation or terrestrial resources.

Under the Proposed Action, changes in flows in the lower American River are relatively small and do not affect overall river stage. Alteration of the magnitude, frequency, and dynamics of river flows has been shown to result in effects to riparian vegetation (e.g., cottonwoods) through changes in water availability, sediment transport and deposition, and distribution of vegetation. The flow changes under the Proposed Action, relative to the No Action Alternative, are not of the magnitude to affect geomorphic processes or riparian recruitment. Further, these small flow changes would not change environmental conditions for special-status species. In addition, the increase in flows may provide minor benefits to riparian vegetation and species that are supported by riparian habitats during this extremely dry year.

Changes in flows of 50 cfs as a result of the Proposed Action in the Sacramento River and Delta would also be minor and not affect riparian vegetation and terrestrial resources.

3.7 Agriculture

3.7.1 Affected Environment

The land use within WWD is predominantly agriculture, with approximately 600,000 acres of farmland in Fresno and Kings counties. Table 3-7 shows the amount of acres of each crop grown within WWD in 2014.

Table 3-7. WWD 2014 Crop Acreage Report

Crop	Acres	Crop	Acres
Alfalfa-Hay	5,429	Oats	1,216
Alfalfa-Seed	1,813	Onions-Dehy	4,317
Almonds	81,945	Onions-Fresh	5,711
Apples	110	Oranges	3,540
Apricots	656		
Asparagus	765	Parsley	1,667
		Pasture	287
		Peaches	1,140
Barley	1,442	Peppers-Misc	278
Beans-Garbanzo	7,070	Pistachios	33,617
Beans-Green	160	Plums	331
Beans-Jojoba	47	Pluots	95
Blueberries	185	Pomegranates	2,711
Broccoli	766	Prunes	148
		Pumpkins	15
Cabbage	237		
Cantaloupes	10,900	Safflower	407
Cherries	886	Seed Crop-Misc	334

Crop	Acres	Crop	Acres
Corn-Sweet	4,231	Stevia	1
Cotton-Lint-Acala/Upland	2,173		
Cotton-Lint-Pima	22,379	Tangerines	108
		Tomatoes-Fresh	2,146
Flowers	83	Tomatoes-Proc.	67,013
Garlic	12,200	Walnuts	447
Grain Hay	538	Watermelons	2,097
Grain/Sorgham	34	Wheat	15,255
Grapefruit	20		
Grapes-Raisin	765	Non-bearing Trees & Vines	23,584
Grapes-Table	1,186	Fallow	206,915
Grapes-Wine	16,072	Non-Harvested	13,138
Honeydew Melons	2,968		
Lemons	352	Subtotal	571,821
Lettuce-Fall	3,450	Double Crop	3,817
Lettuce-Spring	5,791	Total	568,004
Nectarines	362		
Nursery	288		

Source: WWD 2014

Reduced CVP allocations have resulted in more land fallowed in WWD relative to wetter hydrologic years when allocations are higher. Table 3-8 shows the acreage fallowed in WWD from 2005 through 2014 and the water year type.

Table 3-8. Acreage Fallowed in WWD and Water Year Type (2005-2014)

Year	Acreage Fallowed	Water Year Type
2005	66,804	Above Normal
2006	54,944	Wet
2007	94,409	Dry
2008	99,663	Critical
2009	156,239	Dry
2010	122,598	Below Normal
2011	53,068	Wet
2012	90,781	Below Normal
2013	121,251	Dry
2014	206,915	Critical

Source: WWD 2005-2014

3.7.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, growers in the WWD would continue to experience a water shortage and receive none of their CVP allocation in 2015. Growers would take actions to protect permanent crops first to protect their investments. If available, growers would likely pump groundwater to substitute

for reduced surface water supplies. If groundwater is not available, growers would idle field crops and use available water to irrigate permanent crops.

Proposed Action

The Proposed Action would provide an additional water supply to agricultural lands in WWD, which would allow lands to be productive rather than fallow. Due to the zero percent water allocation in 2015, WWD is anticipating that the amount of fallowed land will be similar to 2014 fallowed acreage. Hydrologic conditions were critical in 2014 and WWD also received a zero percent allocation in 2014. The Proposed Action would provide additional water supply to WWD relative to the No Action Alternative and would be a beneficial effect.

The additional water provided in the Proposed Action would be used for existing agriculture and therefore would not generate any population growth or cause any existing land uses to be converted.

3.8 Recreation

3.8.1 Affected Environment

EID owns and operates several recreational facilities, including facilities at Jenkinson Lake and Silver Lake. Sly Park Recreation Area at Jenkinson Lake includes 640 surface acres of water; 10 picnic areas; 9 miles of shoreline, hiking, and equestrian trails; two boat ramps; 191 individual campsites; and nine group camping areas. Water skiing, wake boarding, canoeing, kayaking, fishing, cruising, and sailing are allowed within Jenkinson Lake. Sly Park Recreation Area was used by over 600,000 visitors in 2013 (EID 2013). Fish species in Jenkinson Lake include but are not limited to brown trout, rainbow trout, and largemouth bass. Day use and camping are also available around Silver Lake, and fishing and boating are allowed within the lake. Fish in Silver Lake include but are not limited to brown trout, rainbow trout, and lake trout.

The South Fork American River provides rafting, kayaking, and fishing opportunities, and trails in the vicinity provide opportunities for hiking, running, mountain biking, and equestrian use.

Folsom Reservoir and Lake Natoma are in the Folsom Reservoir State Recreation Area. Boating, fishing and waterskiing are the primary water related activities at Folsom Reservoir. Hiking, biking, camping, picnicking, and horseback riding are also popular activities within the State Recreation Area. Lake Natoma is popular for rowing, kayaking, fishing, and canoeing.

3.8.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the proposed transfer would not occur. WWD would not receive the additional water supply. Reservoir water levels would not change in Weber Reservoir, Jenkinson Lake, or Folsom Reservoir.

Proposed Action

Implementing the Proposed Action would not cause physical deterioration of existing recreational facilities. The Proposed Action would result in temporary lower elevation levels in Jenkinson Lake and Weber Reservoir and slightly increased flows downstream of Weber Reservoir (but within historical levels) primarily spread over the first 23 days in September during the water transfer. Given the small scale of the project and short-term nature of the water transfer, these temporary changes would not result in substantial impacts to recreational uses.

Reservoir levels in Folsom Reservoir would increase by a small amount (up to 3,100 acre-feet) in August and September. These changes would be very minor, and would not likely have a substantial benefit on recreational opportunities during this time of year.

3.9 Socioeconomic Resources

3.9.1 Affected Environment

The area located within WWD is primarily rural agricultural land that provides farm-related jobs. There are small businesses that support agriculture, for example: feed and fertilizer sales, machinery sales and service, pesticide applicators, transport, packaging, marketing, etc. within the surrounding area. Per capita income is lower in Fresno and Kings County than in California as a whole, and the unemployment and poverty rates are also considerably higher (Table 3-9).

Table 3-9. 2009-2013 Employment and Economic Data

	Per Capita Income	Unemployment Rate	Poverty Rate
Fresno County	$20,208	8.9%	26.0%
Kings County	$18,429	8.1%	21.0%
California	$29,527	7.3%	15.9%

Source: U.S. Census Bureau 2015a; U.S. Census Bureau 2015b

3.9.2 Environmental Consequences

No Action Alternative

Without supplemental water, landowners in WWD growing permanent crops would have to find alternative sources of water, likely at greater cost. If alternative sources of water could not be found then crops could fail. This would be an adverse impact to farmers and agriculture dependent businesses in the area.

Proposed Action

The Proposed Action would provide supplemental water to WWD to sustain existing crops. Socioeconomic conditions within the region as described in the

affected environment would be within historical fluctuations. Conditions would remain the same as existing conditions and there would be no impacts to socioeconomic resources.

3.10 Environmental Justice

Executive Order 12898 (February 11, 1994) mandates federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.

3.10.1 Affected Environment

The market for seasonal workers on local farms draws thousands of migrant workers, commonly of Hispanic origin from Mexico and Central America, into the San Joaquin Valley. Agriculture and related businesses are the main industry in WWD, providing employment opportunities for these minority and/or disadvantaged populations. Demographic data for Fresno and Kings Counties are shown in Table 3-10.

Table 3-10. 2013 Demographic Data

	Total Population	White (not Hispanic)	Black or African American	American Indian	Asian	Native Hawaiian/ Pacific Islander	Hispanic or Latino
Fresno County	956,102	77.4%	5.9%	3.0%	10.5%	0.3%	51.6%
Kings County	150,862	81.4%	7.4%	3.0%	4.3%	0.3%	52.7%
California	38,431,393	73.5%	6.6%	1.7%	14.1%	0.5%	38.4%

Source: U.S. Census Bureau 2015b

3.10.2 Environmental Consequences

No Action Alternative

Without supplemental water, landowners in WWD growing permanent crops would have to find alternative sources of water, likely at greater cost. If alternative sources of water could not be found then crops may be taken out of production. This could be an adverse impact to low income wage earners in the area, since it would reduce employment opportunities.

Proposed Action

Under the Proposed Action, the availability of additional water would help maintain agricultural production and local employment in WWD. Employment opportunities for low-income wage earners and minority population groups would be consistent with historical conditions. Disadvantaged populations would not be subject to disproportionate impacts.

3.11 Cumulative Impacts

Cumulative impacts are defined in Council on Environmental Quality Regulations (40 CFR 1508.7) as follows:

> Cumulative impact is the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The Proposed Action would only occur in summer and fall of 2015. The 3,100 AF of transfer water supplied to WWD would prevent the loss of agricultural crops and potential damage to perennial crops as a result of WWD's 2015 zero allocation from the CVP. The proposed changes in rivers and reservoirs would be very small compared to the flows and reservoir storage in these areas.

Several other transfers have been proposed to originate in the American River system:

- **2015 Transfer of Non-CVP Water from Foresthill Public Utility District (FPUD) to Santa Clara Valley Water District (SCVWD)** – In response to the low statewide water allocations, FPUD is proposing a temporary one-year transfer of 2,000 AF to SCVWD for use within SCVWD's service area. To facilitate the transfer, Reclamation proposes to execute a temporary one-year Warren Act contract authorizing the storage and conveyance of up to 2,000 AF less 5 percent conveyance loss of FPUD water through federal facilities (Reclamation 2015b).
- **2015 Transfer of Non-CVP Water from Placer County Water Agency to East Bay Municipal Utility District (EBMUD)** – Placer County Water Agency is proposing a temporary one-year transfer of 12,000 AF to EBMUD for use within EBMUD's service area.
- **2015 Transfer of Non-CVP Water from San Juan Water District to SCVWD** – San Juan Water District is proposing a temporary one-year transfer of 22,000 AF to SCVWD for use within SCVWD's service area.

Reclamation has completed environmental analysis for the transfer from FPUD to SCVWD. Reclamation has also approved a Long-Term Water Transfer Environmental Impact Statement/Environmental Impact Report (EIS/EIR) that analyzed transfers originating upstream from the Delta to the San Joaquin Valley and San Francisco Bay area. In addition to the transfers from the American River system described above, San Luis & Delta-Mendota Water

Authority has planned additional transfers from the Sacramento River system under the Long-Term Water Transfer EIS/EIR.

3.11.1 Water Supply and Hydrology

The additional transfers in the cumulative condition could increase storage in Folsom Reservoir and flows downstream on the Lower American River, Lower Sacramento River, and into the Delta. Under the cumulative condition, flows could increase by about 400 cfs; however, these changes in flow are relatively minor compared to the flows in these systems under the No Action Alternative. These changes in storage and river flows would not affect water supply to other legal users of water.

3.11.2 Water Quality

Similar to the changes described for Water Supply and Hydrology, the flow changes would be small and not likely to affect water quality in the reservoir or river systems. Under the cumulative condition, about 400 cfs of additional flow would enter the Delta. A portion of this flow would be exported from the Delta, or upstream from the Delta at EBMUD's Freeport diversion facility. For the flows that enter the Delta, a portion of the flow would become Delta outflow, which would maintain water quality in the Delta. The flow changes would be small and would result in insubstantial changes to water quality in the Delta.

3.11.3 Fisheries and Aquatic Resources

Under the cumulative condition, there would be additional transfers from the American River region and transfers from the Sacramento River region. Transfers from the American River region would increase flows on the Middle and North Forks of the American River and increase storage in Folsom Reservoir. There would be no additional transfers on the South Fork American River; therefore, there would be no cumulative effects to upstream tributaries and reservoirs. The Proposed Action would not affect the Middle or North Forks of the American River, so there would be no cumulative effects to these tributaries.

Increased flows from all transfers into Folsom Reservoir could affect temperatures in the reservoir. Under the cumulative condition, up to 24,000 AF could be stored in Folsom Reservoir for transfer, which including the Proposed Action. Approximately 403 cfs would flow into the reservoir in September from the North, Middle, and South Forks of the American River. In September 2014, average daily temperature of the North Fork American River was 64.5 degrees F and average daily temperature of the South Fork American River was 61 degrees F. Average daily temperature of water released from Folsom Dam in September 2015 was 65 degrees F. Water temperature of transfers under the cumulative condition would be similar to temperatures in Folsom Reservoir and is not expected to affect the coldwater pool or releases into the lower American River.

Water transfers would increase flows in the lower American River in late September by 403 cfs. The increase in flow under the Proposed Action would not reduce the suitability of habitat conditions during adult immigration. This flow increase would also not appreciably reduce spawning habitat availability and incubation, increase redd dewatering or juvenile stranding, or reduce the suitability of habitat conditions during juvenile rearing for Central Valley steelhead and other sensitive fish species. Therefore, changes in flow under the cumulative condition would not affect sensitive fish in the American River.

Under the cumulative condition, transfers from the Sacramento River region would increase flows in the Sacramento River downstream of the American River confluence in October and November. Flow increases in the Sacramento River under the cumulative condition would be a benefit to sensitive fish species.

Changes in mean monthly Delta exports under the cumulative condition relative to the No Action Alternative would generally be small. Transfers would augment delta exports in the late-September through November period. Adult fall-run Chinook would be passing through the delta and heading upstream to spawning tributaries at that time. The additional flows into the delta could provide a slight benefit to upstream migrating Chinook. Since the adults are migrating upstream against the flow they would not be attracted to the change in flows towards the export facilities.

Reclamation would continue to operate the CVP and transfers in accordance with current operational parameters established by various regulating agencies including the USFWS, NOAA Fisheries, and SWRCB, for the protection of downstream resources, including fish. Therefore, transfers under the cumulative condition would not adversely affect sensitive fish species in the Delta.

3.11.4 Riparian Vegetation and Terrestrial Resources

Water transfers under the cumulative condition would increase storage in Folsom Reservoir by up to 24,000 AF during September and increase flows in the lower American River in September by up to 403 cfs.

The temporary increase in storage in Folsom Reservoir would be within the range of storage/water surface elevations that occur under annual normal operations. Transfers under the cumulative condition would not affect riparian vegetation or terrestrial resources in the reservoir.

Under the Proposed Action, changes in flows in the lower American River would be relatively small and not affect overall river stage. Alteration of the magnitude, frequency, and dynamics of river flows has been shown to result in effects to riparian vegetation (e.g., cottonwoods) through changes in water availability, sediment transport and deposition, and distribution of vegetation. The flow changes under the cumulative condition are not of the magnitude to

affect geomorphic processes or riparian recruitment. Further, these flow changes would not change environmental conditions for special-status species. In addition, the increase in flows may provide minor benefits to riparian vegetation and species that are supported by riparian habitats during this extremely dry year.

Increased flows as a result of cumulative water transfers in the Sacramento River and Delta would be minor relative to existing flows and not affect riparian vegetation and terrestrial resources.

3.11.5 Agricultural Resources

Water transfers under the cumulative condition would provide an additional water supply to agricultural lands in WWD and the San Joaquin Valley, which would allow lands to be productive rather than fallow. Due to the zero percent water allocation in 2015, WWD and other south-of Delta agricultural CVP contractors are anticipating that the amount of fallowed land will be similar to 2014 fallowed acreage. Therefore, water transfers would be a beneficial effect to agricultural resources under the cumulative condition.

The additional water provided by transfers would be used for existing agriculture and therefore would not generate any population growth or cause any existing land uses to be converted.

3.11.6 Socioeconomic Resources

Unusually dry conditions are putting pressure on agricultural operations throughout the state. The Proposed Action would help landowners to make up for a scarcity of surface water sources, while the No Action alternative would not allow them to make up the shortfall. Without the ability to make use of a variety of water supplies, already-difficult economic conditions would worsen.

3.11.7 Environmental Justice

Unusually dry conditions are putting pressure on agricultural operations throughout the state. The Proposed Action would help landowners to make up for a scarcity of surface water sources, while the No Action alternative would not allow them to make up the shortfall. Without the ability to make use of a variety of water supplies, already-difficult economic conditions would worsen. Since farm laborers often come from minority and low-income populations, environmental justice populations would disproportionately be affected by any changes in the area's agricultural conditions.

Section 4
Consultation and Coordination

4.1 Public Review Period

Reclamation intends to sign a Finding of No Significant Impact (FONSI) for this project, and will make the environmental assessment available for public comment. All comments will be addressed in the FONSI. Additional analysis will be prepared if substantive comments identify impacts that were not previously analyzed or considered.

4.2 Endangered Species Act (16 U.S.C. 1531 et seq.)

Section 7 of the Endangered Species Act requires Federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species.

The Proposed Action is consistent with the export pumping limits described in 2008 USFWS and 2009 NOAA Fisheries Biological Opinions on the operations of the CVP and State Water Project. Reclamation has determined the Proposed Action would not affect proposed or listed species or critical habitat.

4.3 Persons and Agencies Consulted During Preparation of this EA

- Bureau of Reclamation
- El Dorado Irrigation District
- Westlands Water District

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Section 5
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Appendix A

Cultural Resources Coordination

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CULTURAL RESOURCES COMPLIANCE
Division of Environmental Affairs
Cultural Resources Branch (MP-153)

MP-153 Tracking Number: 15-SCAO-213

Project Name: One Year Water transfer El Dorado Irrigation District (EID) and Westlands Water District (WWD)

NEPA Document: EA

NEPA Contact: Doug Kleinsmith, Natural Resource Specialist

MP 153 Cultural Resources Reviewer: Scott Williams, Archaeologist

Date: August 3, 2015

Reclamation proposes to approve EID to transfer up to 3,100 AF of water to WWD during summer 2015. This is the type of undertaking that does not have the potential to cause effects to historic properties, should such properties be present, pursuant to the NHPA Section 106 regulations codified at 36 CFR § 800.3(a)(1). Reclamation has no further obligations under NHPA Section 106, pursuant to 36 CFR § 800.3(a)(1).

EID would transfer or make water available to WWD through re-operations of EID reservoirs to release water otherwise planned to be consumed by EID customers and/or stored within the EID network of reservoirs. There would be no change in land or water use, nor will there be any ground disturbance resulting from the proposed action. After reviewing documentation provided within the Draft EA, Reclamation has concluded this action would not have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places. This document serves as notification that Section 106 compliance has been completed for this undertaking. Please note that if project activities subsequently change, additional NHPA Section 106 review, including further consultation with the SHPO, may be required.

This document is intended to convey the completion of the NHPA Section 106 process for this undertaking. Please retain a copy in the administrative record for this action. Should changes be made to this project, additional NHPA Section 106 review, possibly including consultation with the State Historic Preservation Officer, may be necessary. Thank you for providing the opportunity to comment.

Appendix B

Indian Trust Assets Coordination

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Indian Trust Assets
Request Form (MP Region)

Submit your request to your office's ITA designee or to MP-400, attention Deputy Regional Resources Manager

Date: July 15, 2015

Requested by (preparer)	Doug Kleinsmith
Fund	XXXR0680R
WBS	RR17529652MP44006
Fund Cost Center	2015200
Region # (if other than MP)	
Project Name	Westlands Water District Warren Act Contract
CEC or EA Number	
Project Description (attach additional sheets if needed and include photos if appropriate)	El Dorado Irrigation District (EID) proposes to transfer up to 3,100 acre-feet (AF) of water during summer and fall 2015 to WWD. EID would make the water available through re-operations of EID reservoirs to release water otherwise planned to be stored within the EID network of reservoirs. To facilitate the transfer, Reclamation proposes to execute a Warren Act contract for a total of 3,100 AF of EID water to be stored and conveyed through Federal facilities. There would be no construction or modification of facilities.

***Project Location (Township, Range, Section, e.g., T12 R5E S10, or Lat/Long cords). Include map(s)**	

/s/ Richard M. Stevenson	_Richard M. Stevenson	July 16, 2015
Signature	Printed name of approver	Date

I have reviewed the Project Description for this transfer and the facilities to be used in the Warren Act conveyance of the 3100 AF of water. The Project involves only the use of existing CVP facilities; no new construction is involved. For these reasons I have concluded that there will be no significant adverse impact on Native American Lands or other assets.

Appendix C

Sensitive Species List

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Appendix C
Sensitive Species List

Common Name	Scientific Name	Status	Location (for fish, most upstream location)
Fish			
Central Valley spring-run Chinook salmon	*Oncorhynchus tshawytscha*	FT and CH	Sacramento River, lower American River
Central Valley Fall and Late Fall-run Chinook salmon	*Oncorhynchus tshawytscha*	FSOC	Sacramento River, lower American River
Sacramento River winter-run Chinook salmon	*Oncorhynchus tshawytscha*	FE and CH	Sacramento River
Central Valley steelhead	*Oncorhynchus mykiss irideus*	FT and CH	Sacramento River, lower American River, Cosumnes River
Southern DPS green sturgeon	*Acipenser medirostris*	FT	Sacramento River
Delta smelt	*Hypomesus transpacificus*	FT	Delta
Longfin smelt	*Spirinchus thaleichthys*	FC	Delta
Sacramento perch	*Archoplites interruptus*	CSC	Sacramento River
Sacramento splittail	*Pogonichthys macrolepidotus*	CSC	Delta
Amphibians			
California tiger salamander	*Ambystoma californiense*	FT, CSC	Riparian woodlands
Northern leopard frog	*Lithobates pipiens*	CSC	Freshwater marsh
Foothill yellow-legged frog	*Rana boylii*	CSC	Aquatic areas and riparian woodlands
California red-legged frog	*Rana draytonii*	FT, CSC	Aquatic areas and riparian woodlands
Sierra Nevada yellow-legged frog	*Rana sierrae*	FE, ST, CSC	Aquatic areas and riparian woodlands
Reptiles			
Western pond turtle	*Emys marmorata*	CSC	Aquatic areas and riparian woodlands
Coast horned lizard	*Phrynosoma blainvillii*	CSC	Riparian woodlands
Giant garter snake	*Thamnophis gigas*	FT, ST	Aquatic areas and riparian woodlands
Invertebrates			
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	Riparian woodlands
Birds			
Swainson's hawk	*Buteo swainsoni*	ST	Riparian woodlands
northern harrier	*Circus cyaneus*	CSC	Riparian woodlands
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FT, SE	Riparian woodlands

Common Name	Scientific Name	Status	Location (for fish, most upstream location)
Saltmarsh common yellowthroat	*Geothlypis trichas sinuosa*	CSC	Salt marsh and freshwater marsh
Bald eagle	*Haliaeetus leucocephalus*	SE	Riparian woodlands
Yellow-breasted chat	*Icteria virens*	CSC	Riparian woodlands
California black rail	*Laterallus jamaicensis coturniculus*	ST	Salt marsh and freshwater marsh
Suisun/San Pablo song sparrow	*Melospiza melodia maxillaris/samuelis*	CSC	Salt marsh and freshwater marsh
Purple martin	*Progne subis*	CSC	Riparian woodlands
California clapper rail	*Rallus longirostris obsoletus*	FE, SE	Salt marsh and brackish marsh
Least Bell's vireo	*Vireo bellii pusillus*	FE, SE	Riparian woodlands
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	CSC	Freshwater marsh
Mammals			
Pallid bat	*Antrozous pallidus*	CSC	Riparian woodlands
Western red bat	*Lasiurus blossevillii*	CSC	Riparian woodlands
Sierra Nevada snowshoe hare	*Lepus americanus tahoensis*	CSC	Riparian woodlands
San Pablo vole	*Microtus californicus sanpabloensis*	CSC	Salt marsh
Fisher - West Coast DPS	*Pekania pennanti*	PFT, SC, CSC	Riparian woodlands
Salt-marsh harvest mouse	*Reithrodontomys raviventris*	FE, SE	Salt marsh
Suisun shrew	*Sorex ornatus sinuosus*	CSC	Salt marsh and freshwater marsh
Plants			
Soft salty bird's-beak	*Chloropyron molle* ssp. *molle*	FE	Salt marsh
Suisun thistle	*Cirsium hydrophilum* var. *hydrophilum*	FE	Salt marsh
Delta button-celery	*Eryngium racemosum*	FE, SE	Riparian scrub
Boggs Lake hedge-hyssop	*Gratiola heterosepala*	SE	Freshwater marsh
Tahoe yellow cress	*Rorippa subumbellata*	FC, SE	Freshwater marsh
California seablite	*Suaeda californica*	FE	Salt marsh and freshwater marsh

Sources: California Natural Diversity Database (CNDDB); National Marine Fisheries Service; U.S. Fish and Wildlife Service Information for Planning and Conservation (IPaC), accessed August 3, 2015.

Key:
CH = Critical Habitat
CSC = California Species of Concern
FC = Federal Candidate
FE = Federal Endangered
FT = Federal Threatened
FSOC = Federal Species of Concern
PFT = Proposed Federal Threatened
SC = State Candidate
SE = State Endangered
ST = State Threatened