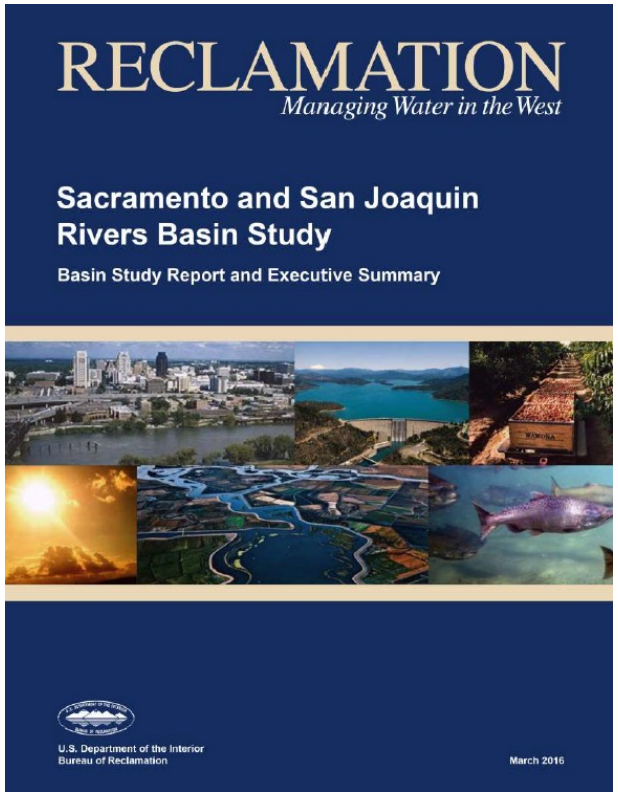
BUREAU OF RECLAMATION

American River Basin Study

California Great Basin Region

American River Basin Study (ARBS)

- Initiated in 2017, completed in 2022
- Builds on Sacramento-San Joaquin Rivers Basin Study (2016)
- Refines previous projections of water supplies and demands
- Focuses on adaptation strategies that are mutually beneficial to Reclamation and non-Federal agencies



ARBS Cost-Share Partners

- Federal – Reclamation
- Non-Federal Cost-Share Partners
  - Placer County Water Agency
  - El Dorado County Water Agency
  - City of Folsom
  - City of Roseville
  - City of Sacramento
  - Regional Water Authority
- Key Contributors
  - California Department of Water Resources
  - University of California – Davis
  - Sacramento Water Forum Agreement
  - Sacramento Municipal Utility District
  - El Dorado Irrigation District
  - Sacramento Area Flood Control Agency

American River Basin Study Area

The Study Area includes the watershed plus adjacent groundwater basins.

Study Objectives

- Refine assessment of future water supplies and demands
- Region-specific strategies to address supply-demand imbalances and infrastructure deficiencies
- Improve regional collaboration for sustainable water management
  - ➢ Improve coordination of local and Federal water management
  - ➢ Align water management tools, strategies, and planning efforts

Summary Findings

- **Increasing Temperatures:**
  - **4-7 ºF increase in basin-averaged annual mean temperature by 2085**

- **Uncertainty in Future Precipitation :**
  - **17% increase in annual mean precipitation under WW climate scenario**
  - **10% decrease in annual mean precipitation under HD climate scenario**

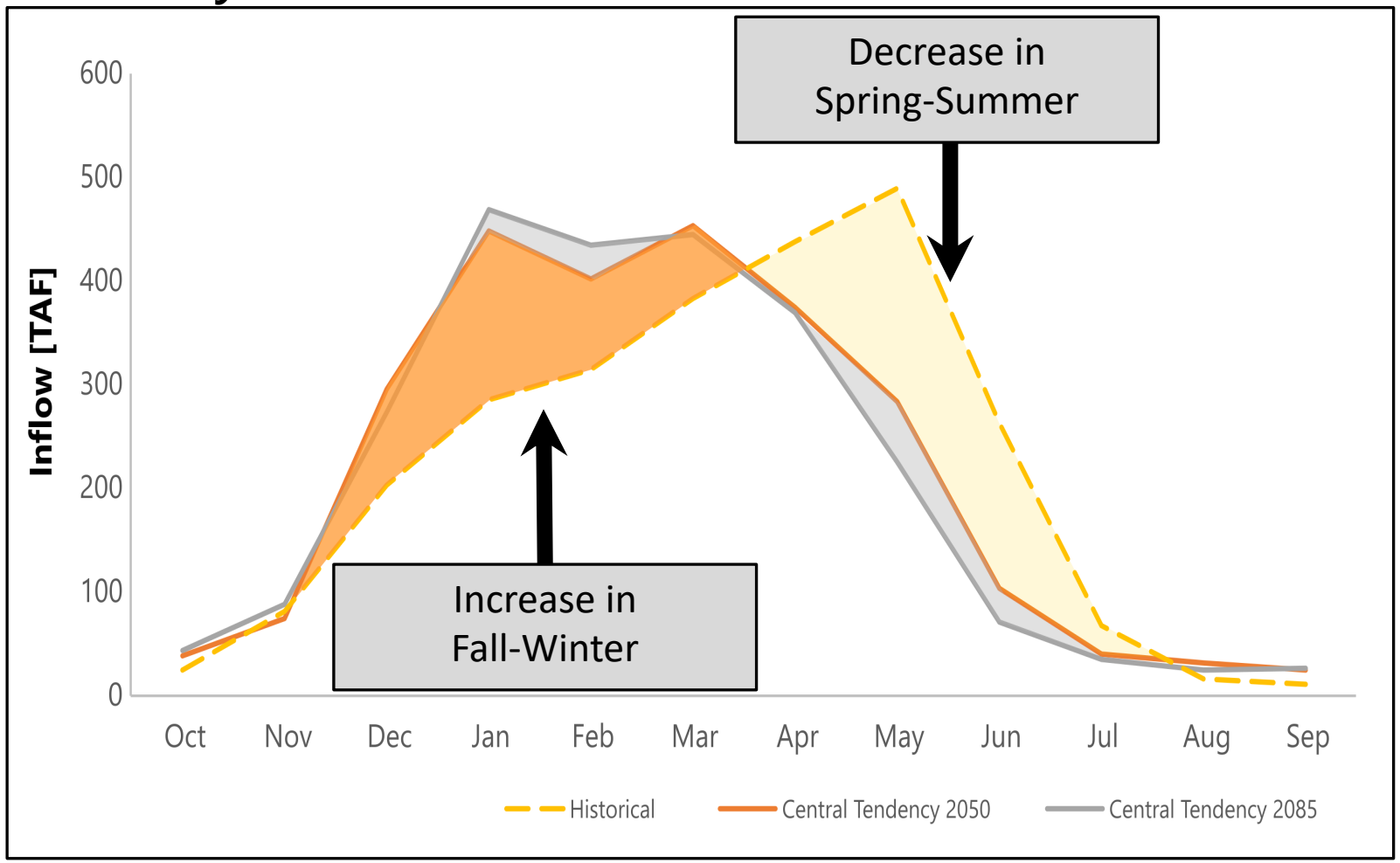
Summary Findings:

- **Changes in Runoff Timing**
  - **Increase in Fall-Winter**
  - **Decrease in Spring-Summer**
  - **Consistent across scenarios**

- **Changes in Runoff Volume**
  - **Increase under wetter climate scenarios**
  - **Decrease under central tendency and drier climate scenarios**

Projected Impacts to Runoff:

Monthly Mean Runoff



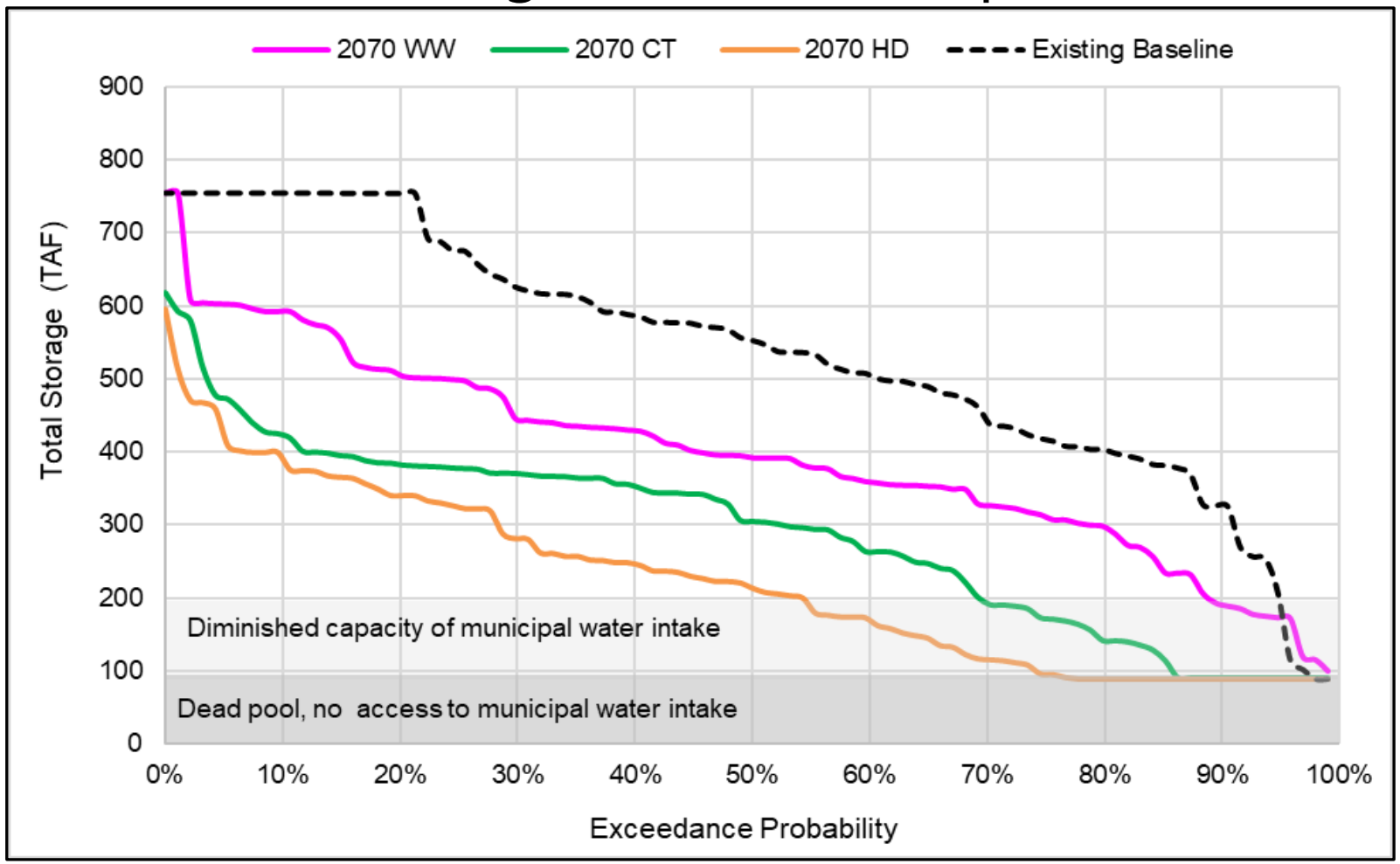
Summary Findings:

- **Full Conservation Pool at End of Year**
  - **Baseline: 20% of years**
  - **Scenarios: 0-2% of years**

- **Diminished Capacity of M&I Intake at End of Year**
  - **Baseline: 2% of years**
  - **Scenarios: 10-45% of yrs**

Projected Impacts to Reservoir Storage:

End-of-Year Storage (Without Adaptation)

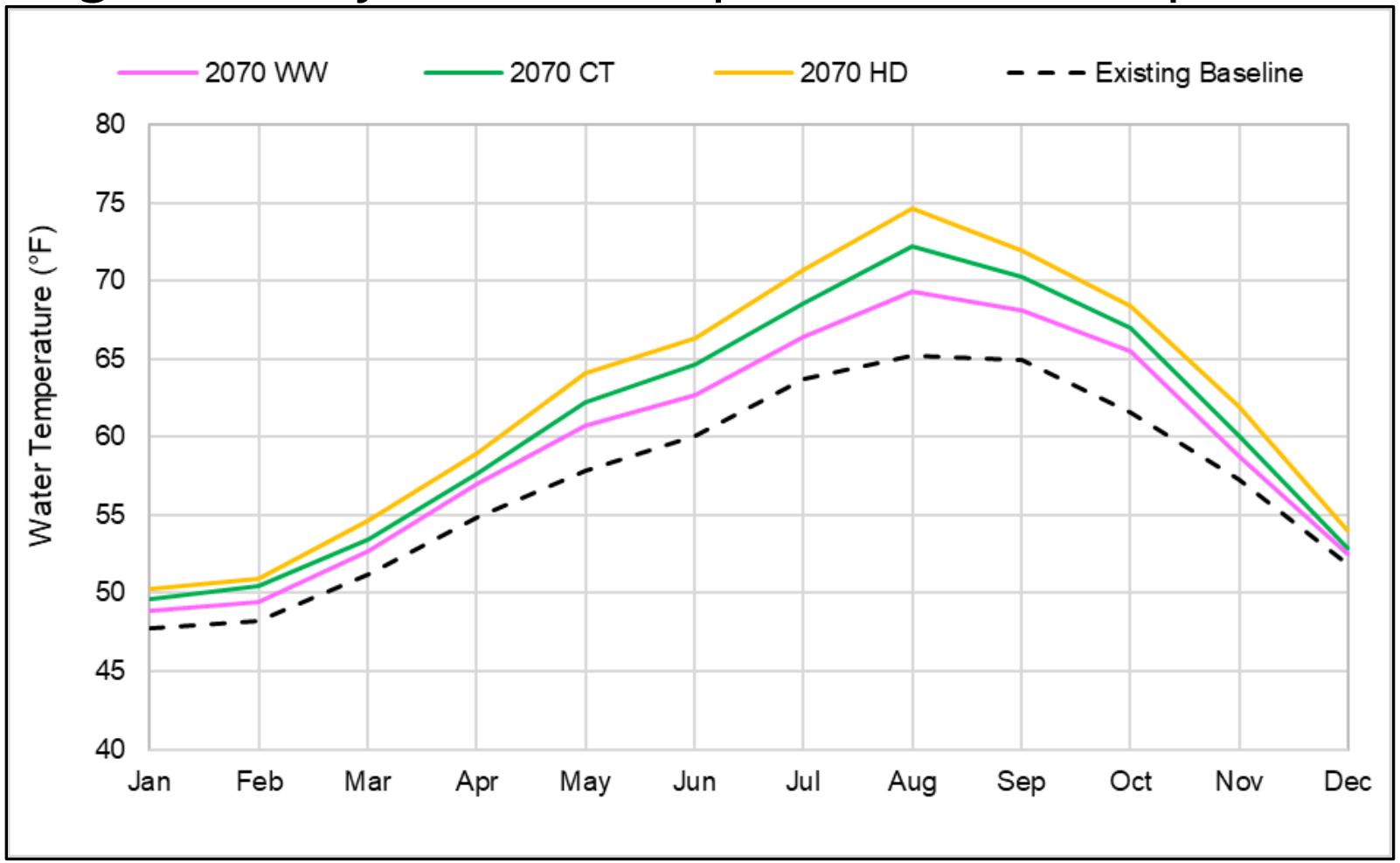


Summary Findings:

- **Lower American River Water Temperatures**
  - **4-10 ºF increase in average August water temperatures**

Projected Impacts to Water Temperatures:

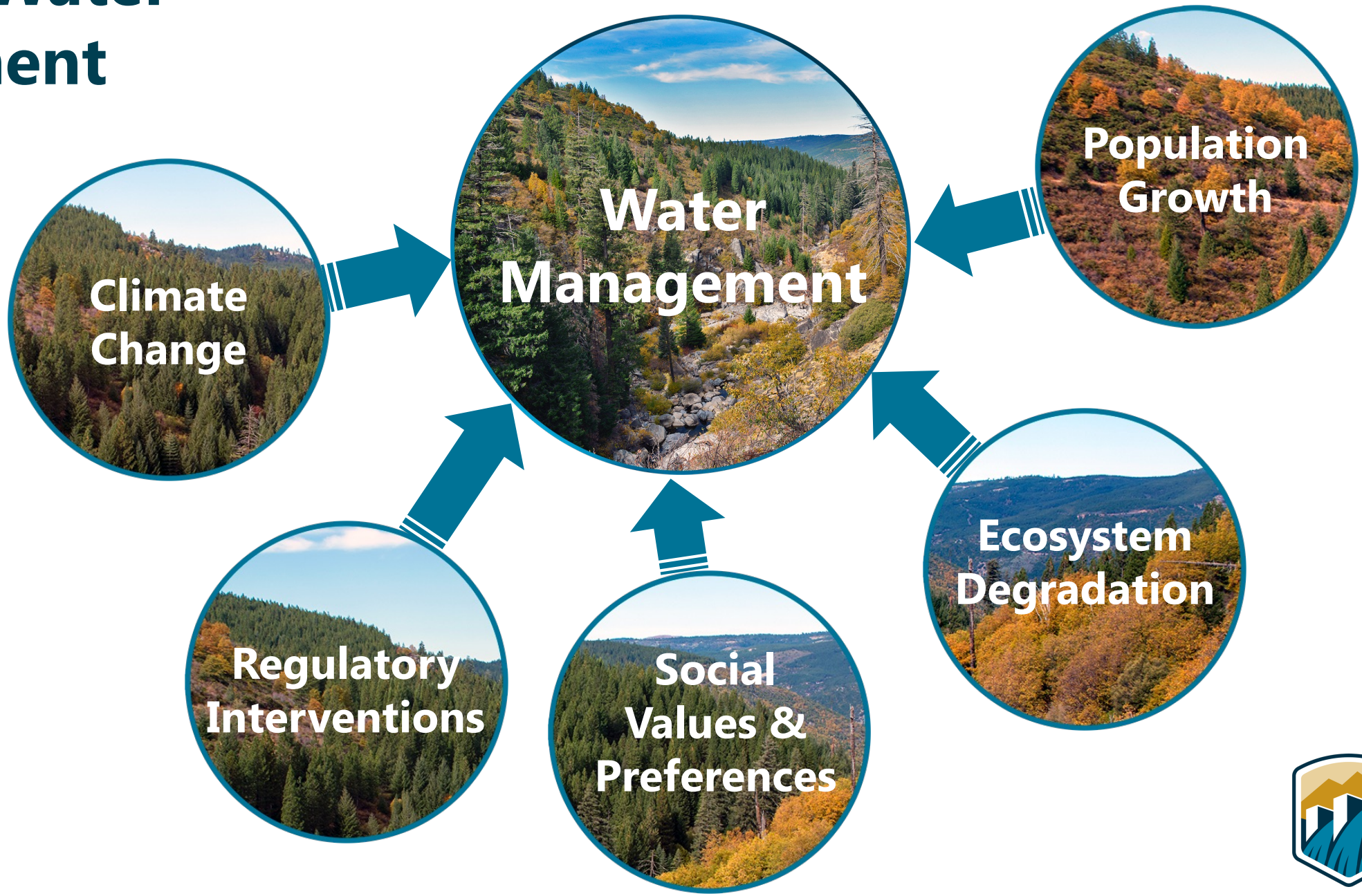
Avg. Monthly Water Temp. (Without Adaptation)



Summary Findings:

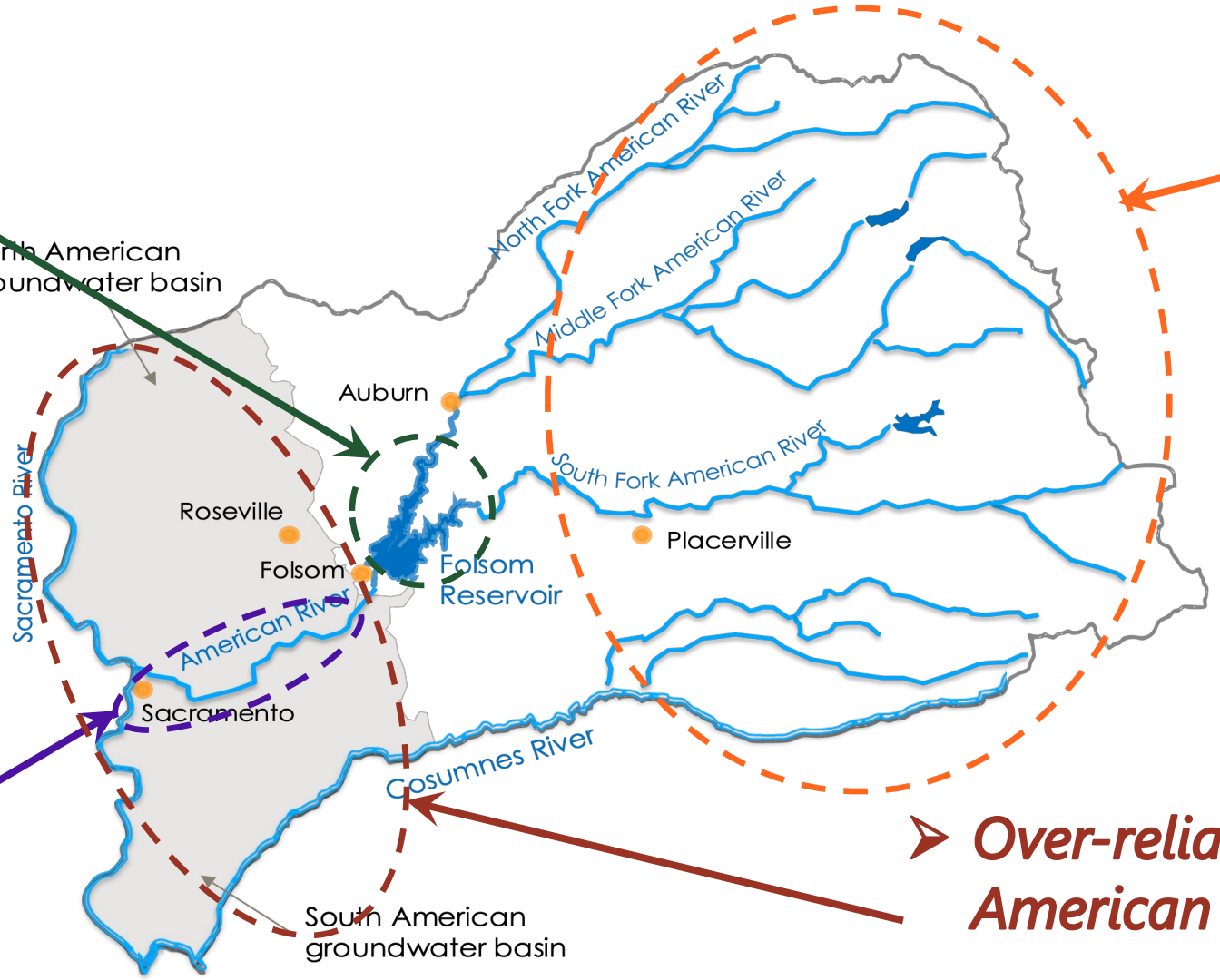
- **Projected increases in water supply-demand imbalance across all water users**
  - **Valley Floor: 10-30 TAF**
  - **Foothills: 80-120 TAF**

Regional Water Management Stressors



Key Regional Vulnerabilities

- *Folsom's small size*
- *Folsom's competing priorities*
- *Limited groundwater in the foothills*
- *Shrinking snowpack*
- *Forest Fires*



- *Sensitive endangered species*
- *High urban flood risks*
- *Over-reliance on American River*
- *Groundwater overdraft risks*

Partnering for the Future

Importance of CVP Contracts	• American River Division agencies work with Reclamation to ensure water supplies.
Alder Creek Reservoir and Conservation Project	• Reclamation and EDCWA are working to initiate a Federal Feasibility Study.
Sacramento River Diversion Project	• Reclamation, PCWA, and RiverArc project partners are working to advance planning for a Sacramento Groundwater Bank
Federally Recognized Groundwater Bank (North and South Basin)	• Reclamation and RWA are working to advance planning for a Sacramento Groundwater Bank

Partnering for the Future

Folsom Dam Raise with Groundwater Banking (South Basin)	• USACE is initiating construction of the Folsom Dam Raise • PCWA and SAFCA are cooperating on reservoir improvements upstream of Folsom Dam to improve downstream flood protection. • SAFCA is investigating the potential for flood-managed aquifer recharge in Sacramento County.
Modified Flow Management Standard Project	• The Modified Flow Management Standards has been included in the NMFS and USFWS 2019 Biological Opinions on Long-term Operation of the Central Valley Project and State Water Project.


BUREAU OF
RECLAMATION