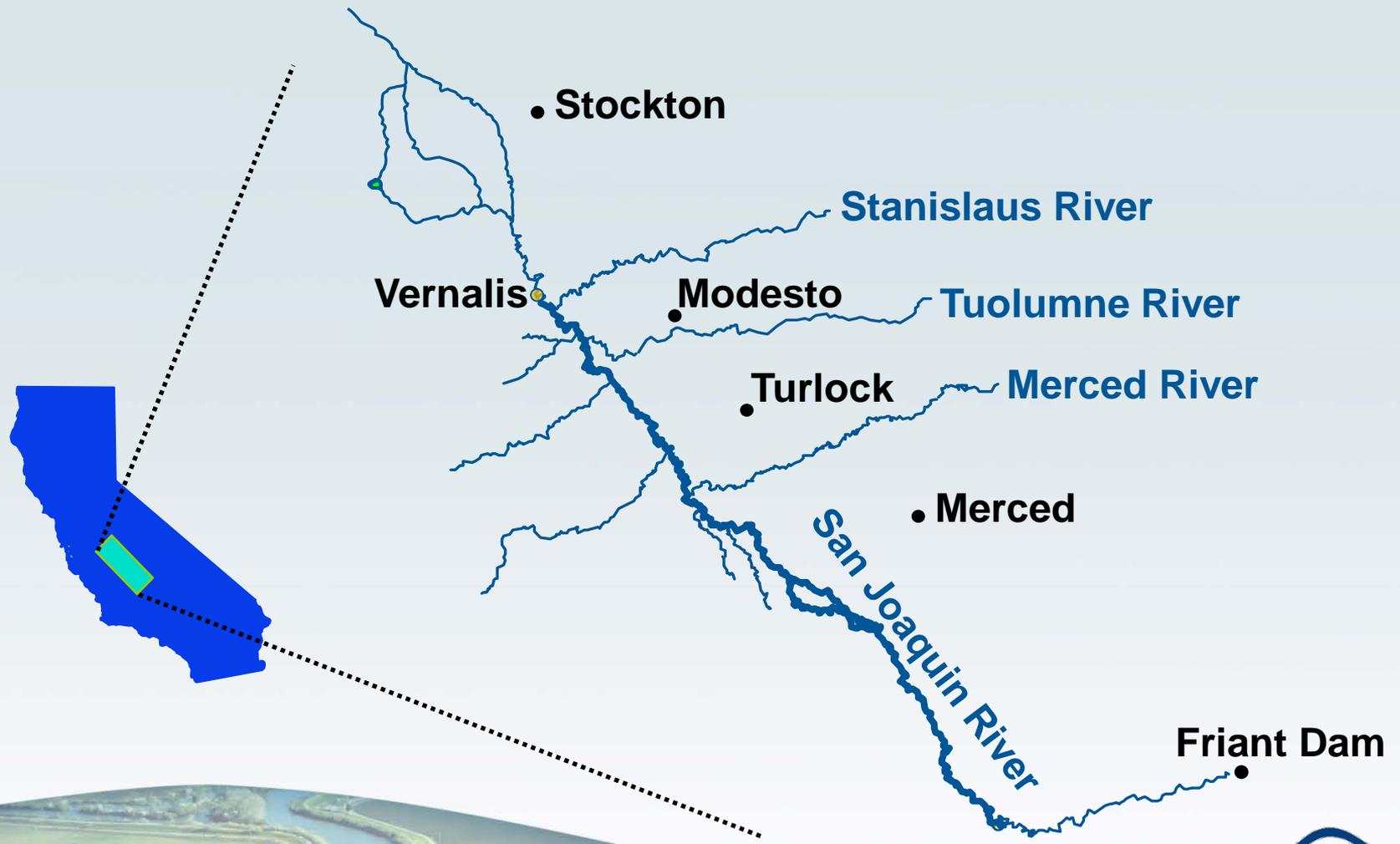




# **Bay-Delta Water Quality Control Plan Update: San Joaquin River Flow and Salinity Objectives**

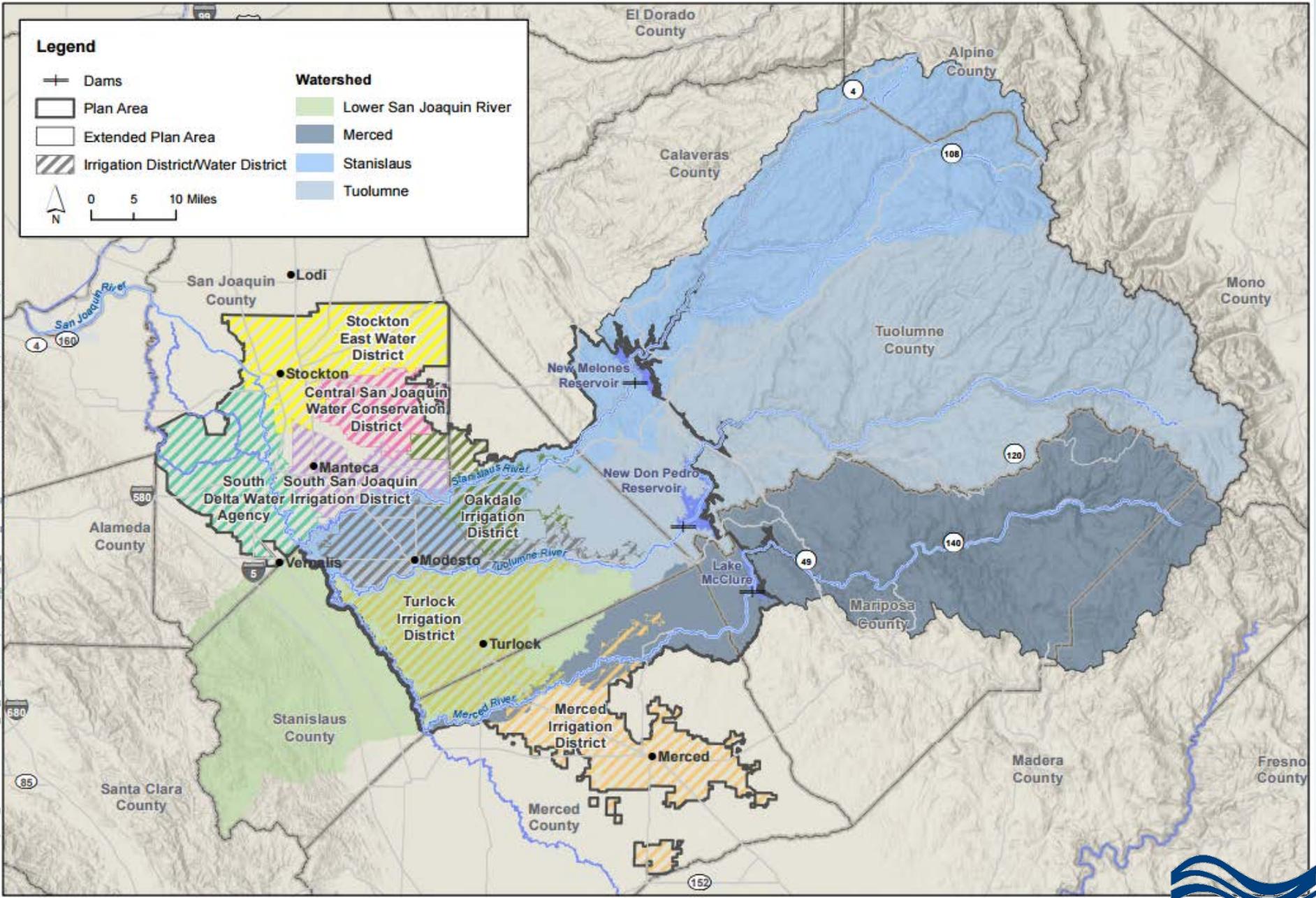
State Water Resources Control Board

# Lower San Joaquin River (LSJR) Basin



### Legend

- Dams
  - Plan Area
  - Extended Plan Area
  - Irrigation District/Water District
- Watershed**
- Lower San Joaquin River
  - Merced
  - Stanislaus
  - Tuolumne
- 0 5 10 Miles



# Four Key Points

- Current Plan is out of date
- Why focus on flow?
- This is hard, requires balancing
- Settlements are encouraged



# Current Plan Out of Date

- Plan last updated 21 years ago in 1995
- Species have been declining – the need for update was identified 10 years ago (in 2006 Plan update)
- Endangered Species Act increasing water restrictions
- Administration's California Water Action Plan directs the State Water Board to complete the update of the Plan to further achievement of the co-equal goals in the Delta



# Why Focus on Flow?

- Scientific studies show that flow is a major factor in the survival of fish like salmon
- Many benefits of flow, including improved growth and survival of native fish by improving water temperatures and increasing floodplain habitat
- Flow affects risk of disease, risk of predation, reproductive success, growth, smoltification, migration, feeding behavior, and other ecological factors
- Non-flow measures can also be important but State Water Board has limited authority to require non-flow measures

# This is Hard, Requires Balancing

- State Water Board's 2010 flow criteria report – a purely technical assessment and no balancing – concluded that 60 percent of flow should be left in the LSJR for the benefit of fish
- Current uses (agriculture, drinking water) rely on up to 80 percent or more of the unimpaired flow
- Unlike the 2010 report, this staff proposal considers other uses and aims to strike a balance among competing uses of water
- The staff proposal recommends a range of between 30 and 50 percent of unimpaired flow, with a starting point of 40 percent – this is a big increase

# This is Hard, Requires Balancing

- This is less than what environmental and commercial fishing interests favor, and more than agricultural and affected urban users want
- Balancing is hard, but is what we are called upon to do
- Because it is hard, State Water Board has a long history of encouraging settlements.



# Settlements are Encouraged

- The flow proposal includes “adaptive implementation,” which allows adjustments so water is used wisely and more effectively – implementation of non-flow measures could also reduce the flows needed
- Board is looking for durable local solutions that will improve flows and other conditions that can reduce the need for flow
- Local water agencies and local people working with agency experts and other organizations can provide the foundation for such durable solutions
- The California Natural Resources Agency is leading settlement discussions to explore the potential for a comprehensive agreement on environmental flows in both the San Joaquin and Sacramento River basins



If you would like to make a comment on the WQCP Update and SED you must send your comments by no later than 12:00 noon on January 17, 2017 to: [commentletters@waterboards.ca.gov](mailto:commentletters@waterboards.ca.gov) with “**Comment Letter – 2016 Bay-Delta Plan Amendment & SED**” in the subject line.

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*For more information visit:* <http://waterboards.ca.gov/DeltaWQCP-Phase1>



# Current SJR Spring Flow Objective

- One compliance location: Lower San Joaquin River at Vernalis (inflow to Delta)
- Minimum monthly average flow rates
- Includes "pulse" flow during a 31-day period in April and May of each year
- USBR only responsible water right holder



# Proposed LSJR Flow Objective

- Applies to the Stanislaus, Tuolumne, and Merced Rivers
- Narrative Objective:
  - Maintain inflow conditions from the SJR watershed to the Delta at Vernalis sufficient to support and maintain the natural production of viable native SJR fish populations migrating through the Delta
- Numeric Objective:
  - Feb - June: 30% - 50% unimpaired flow
  - Starting point of 40%
  - Unimpaired flow: the natural water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds



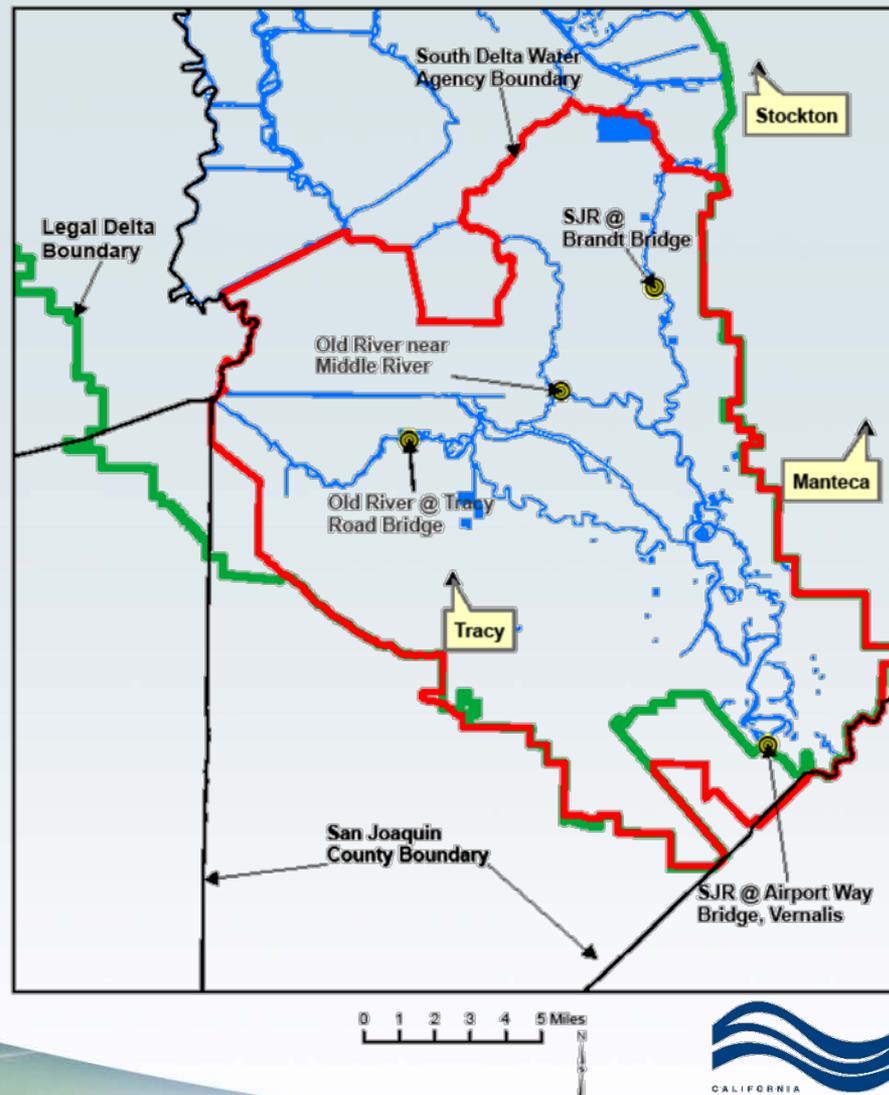
# Proposed LSJR Flow Objective

- Adaptive Implementation
  - Adjustments within the 30% - 50% range
  - Adjustments within Feb - June period
  - Flow shifting to avoid temperature impacts in fall
- Stanislaus, Tuolumne, and Merced (STM) Working Group – implementing entity
  - Biological goals
  - Planning, monitoring, and reporting
  - Voluntary agreements



# Current Southern Delta Salinity Objective

- April through August: 0.7 millimhos per centimeter (mmhos/cm) EC
  - based on the salt sensitivity and growing season of beans
- September through March: 1.0 mmhos/cm EC
  - based on the growing season and salt sensitivity of alfalfa during the seedling stage
- 4 Salinity compliance stations within the south Delta:
  - San Joaquin River at Vernalis
  - San Joaquin River at Brandt Bridge
  - Old River at Middle River
  - Old River at Tracy Road Bridge.

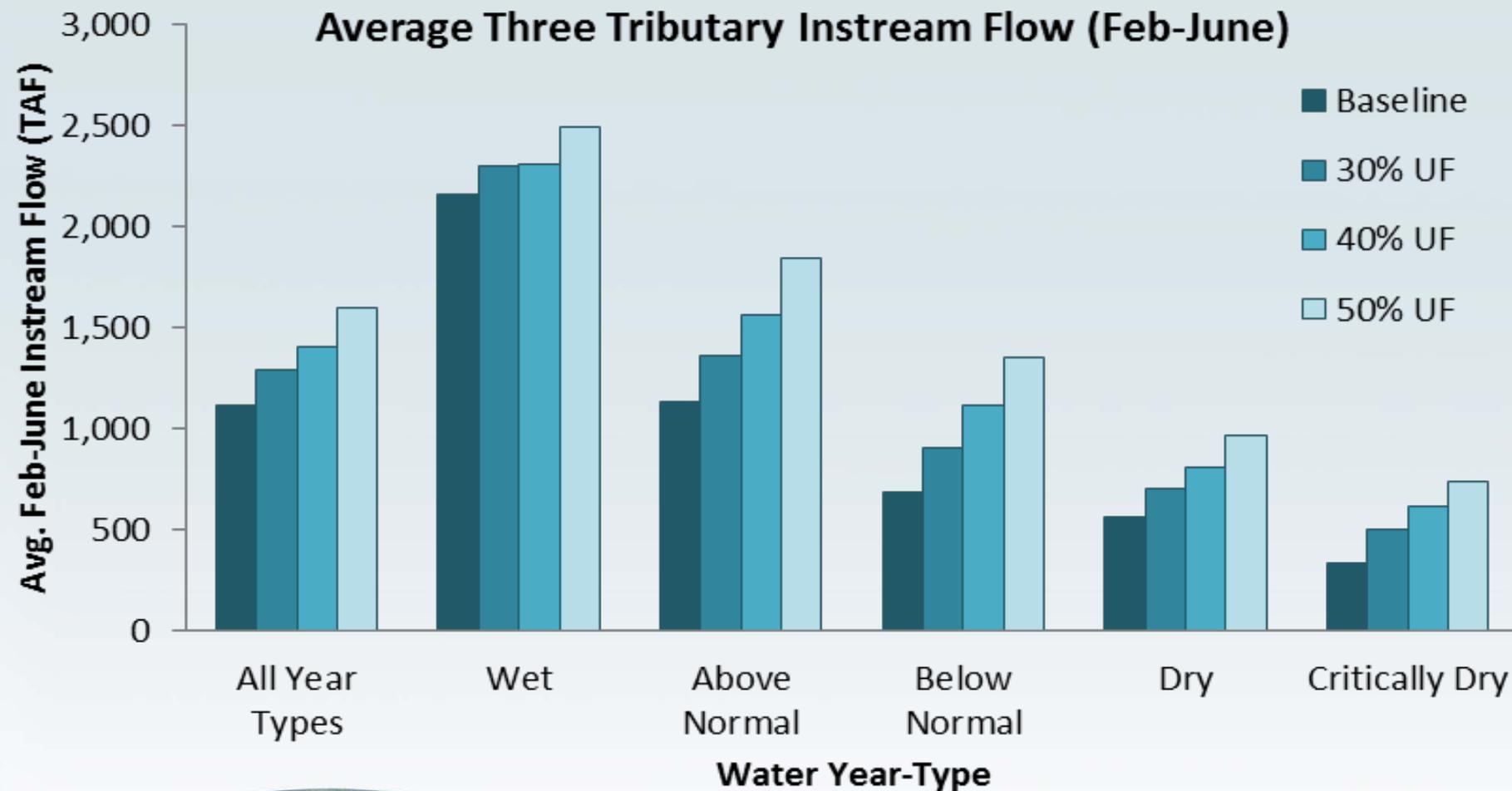


Hoffman Report, Figure 1.1.

# Proposed Southern Delta Salinity Objective

- Year round objective of 1.0 deciSemens per meter (dS/m) EC
- Three compliance locations changed to channel segments
  - SJR from Vernalis to Brandt Bridge
  - Middle River from Old River to Victoria Canal
  - Old River/Grant Line Canal from Head of Old River to West Canal
- Continued conditions in USBR and DWR's water rights
  - USBR - 0.7 EC at Vernalis April - Aug; 1.0 EC Sep - March
  - DWR & USBR - 1.0 EC year round in the interior Delta locations
  - DWR & USBR - Continued operations of agricultural barriers or other reasonable measures to address impacts of SWP/CVP operations on water levels and flow conditions
- Other Requirements
  - Comprehensive Operations Plan - Information, actions, performance goals to address SWP/CVP export operations on water levels and flow conditions affecting salinity
  - Monitoring and reporting
  - Study to characterize dynamics of water level, flow, and salinity conditions
- LSJR flow objectives would improve salinity conditions

# Instream Flows Under the Flow Proposal



Under the 40% unimpaired flow (UF) proposal, average annual instream flow Feb - June would increase by 288 thousand acre feet (TAF), or 26 percent.

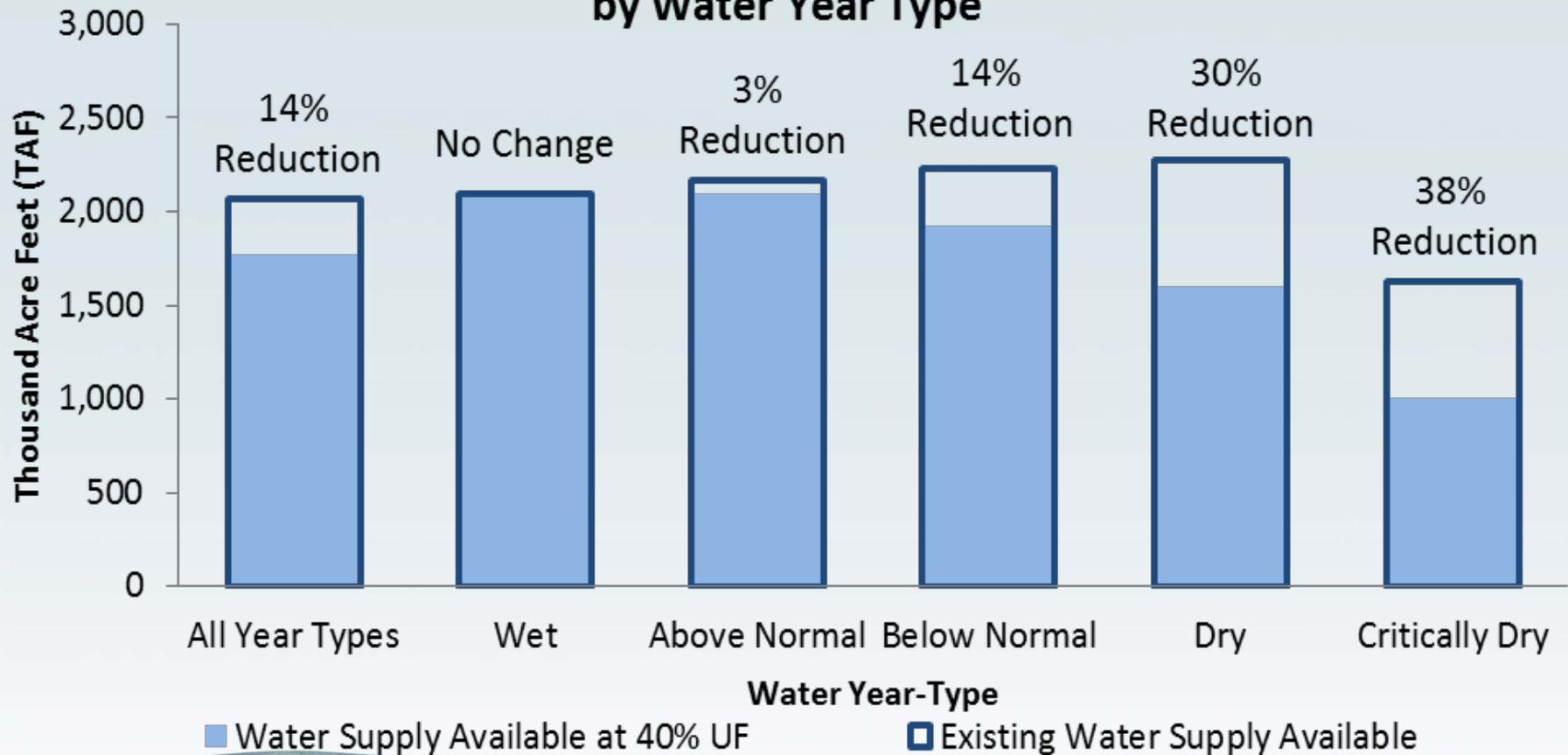
# Ecosystem Benefits of the Flow Proposal

- Restores the pattern and some limited magnitude of flow that are more closely aligned to the flow conditions to which native species are adapted
- Improves attainment of temperature criteria and increases floodplain inundation, resulting in greater survival and resiliency of native fish



# What are the Impacts of the Flow Proposal?

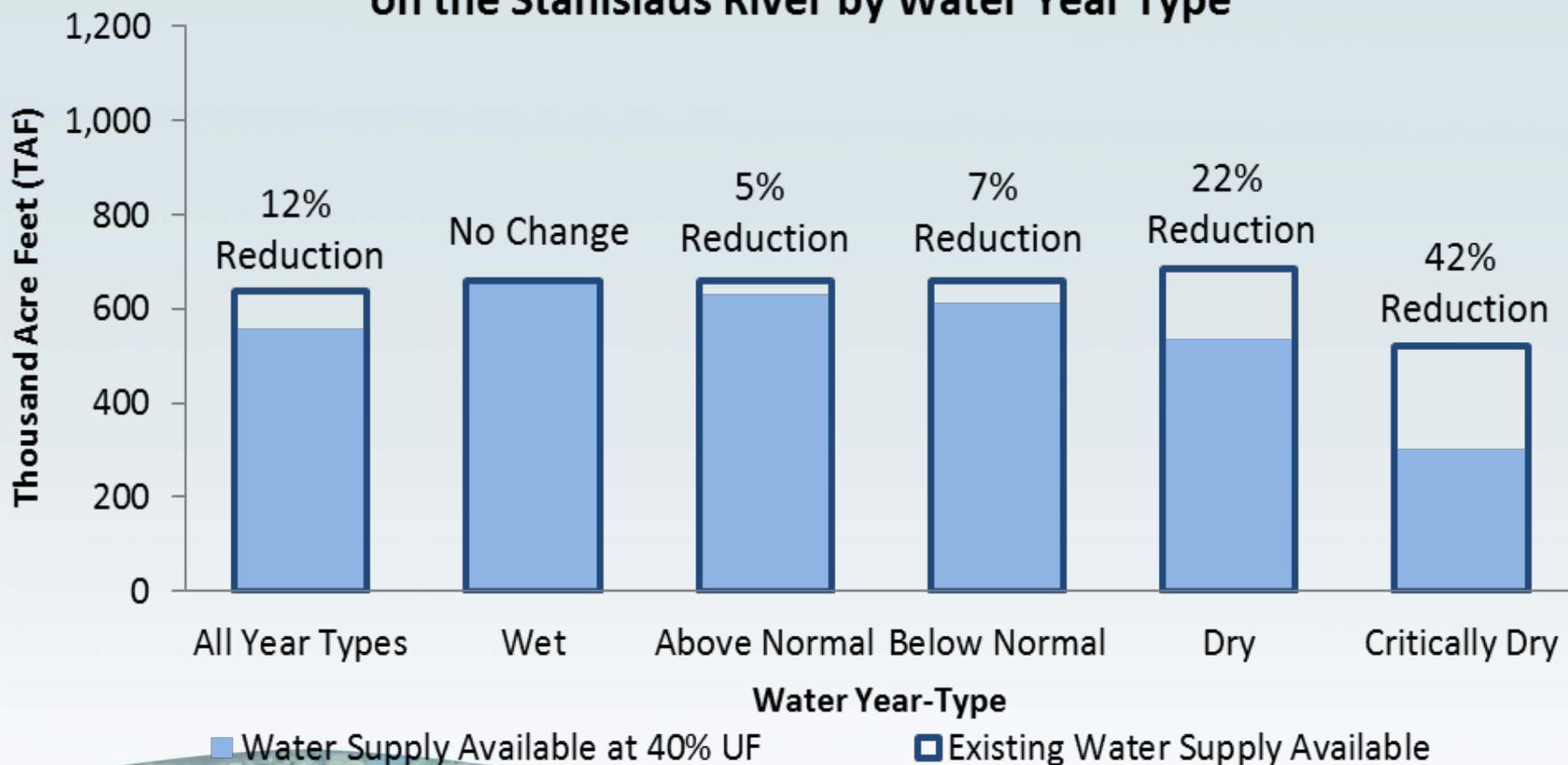
## Water Supply Impact of the 40% Unimpaired Flow Proposal within the Plan Area by Water Year Type



The greatest impact on diversions for human use would be in driest years; there would be almost no impact on diversions for human use in wet years.

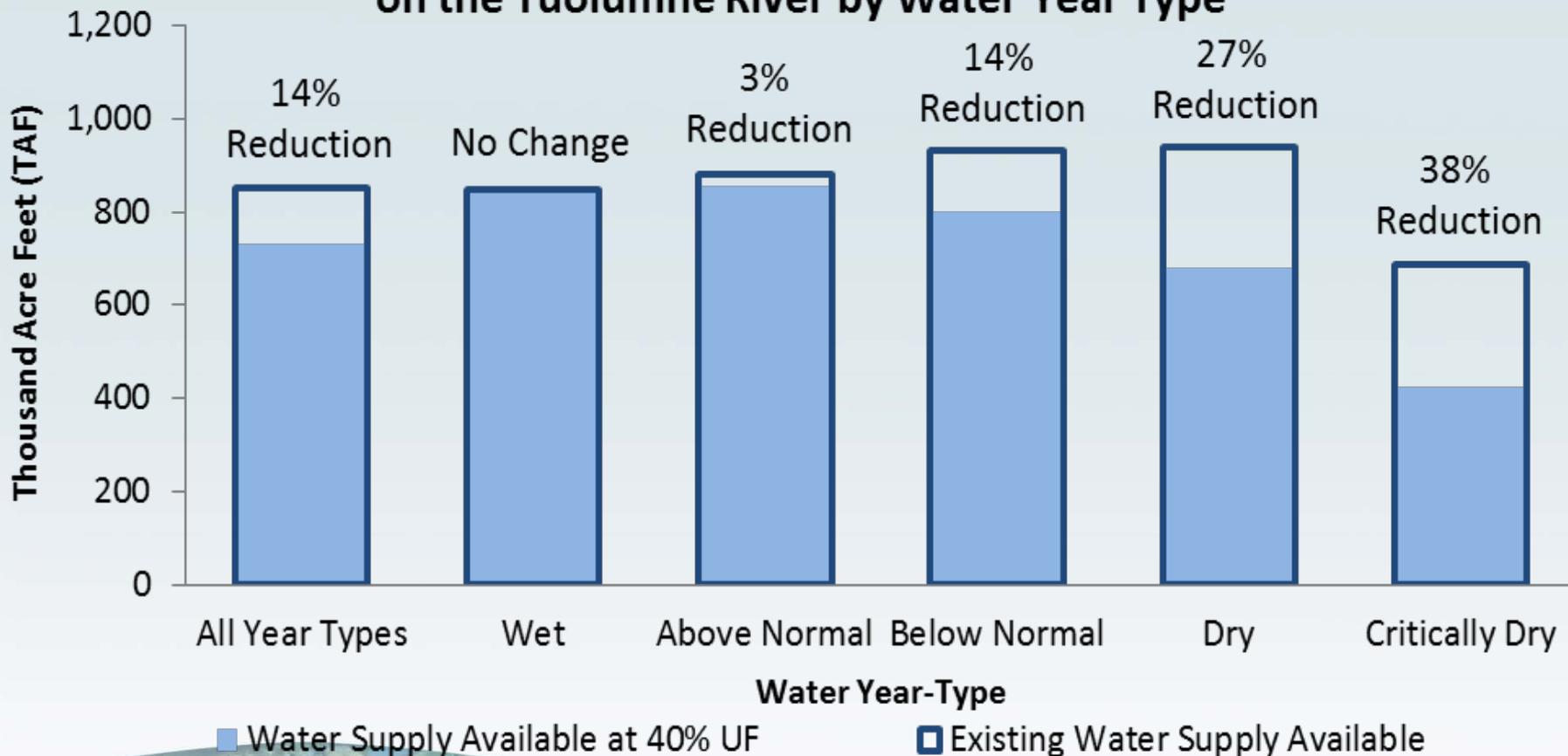
# What are the Impacts of the Flow Proposal?

## Water Supply Impact of the 40% Unimpaired Flow Proposal on the Stanislaus River by Water Year Type



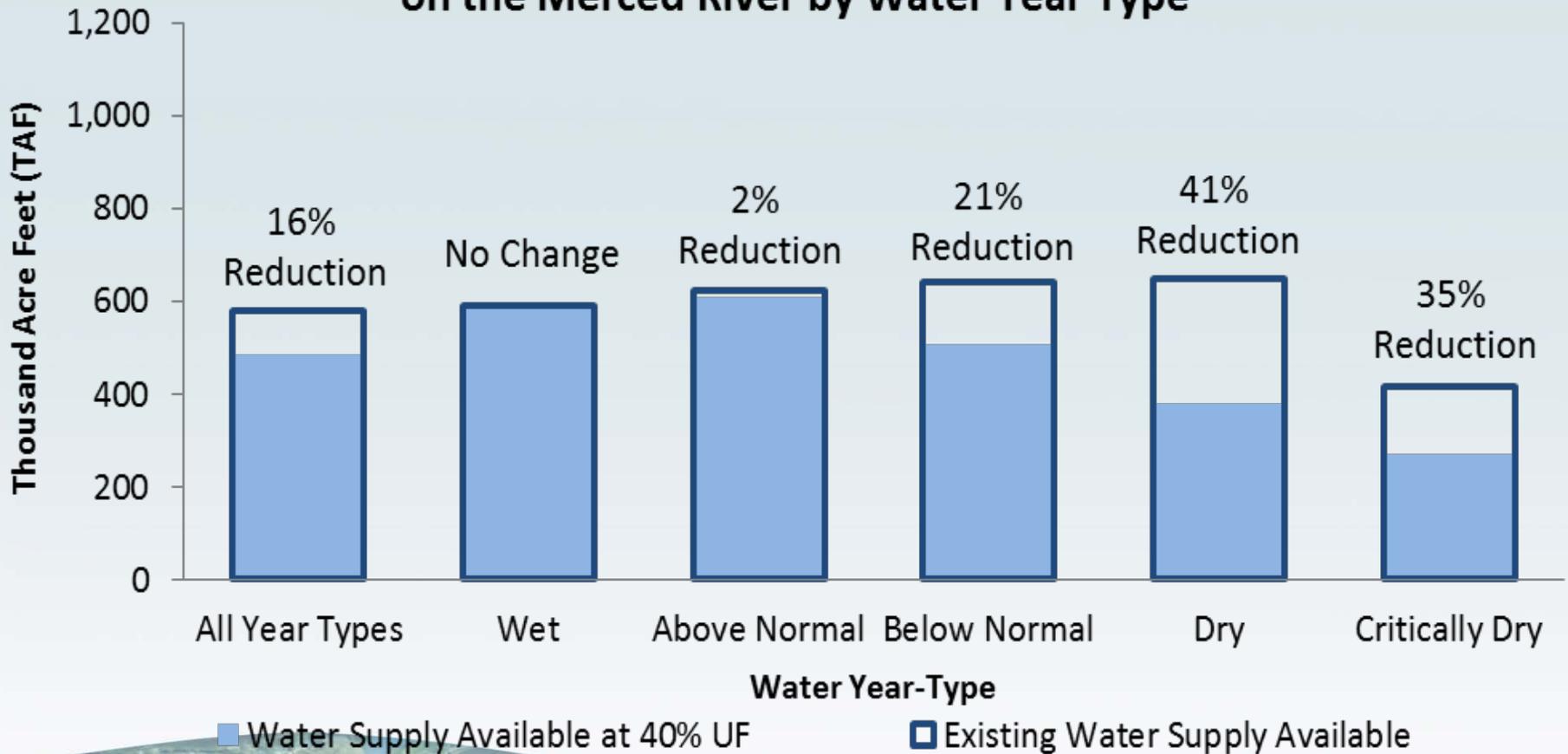
# What are the Impacts of the Flow Proposal?

**Water Supply Impact of the 40% Unimpaired Flow Proposal on the Tuolumne River by Water Year Type**



# What are the Impacts of the Flow Proposal?

**Water Supply Impact of the 40% Unimpaired Flow Proposal on the Merced River by Water Year Type**



# What are the Impacts of the Flow Proposal?

Implementing the 40% flow proposal could result in:

- 14% reduction (293 TAF) in water available for surface water diversion (7% to 23% reduction for 30% to 50% range of unimpaired flow)
- Increase groundwater pumping by an average of 105 thousand acre-feet per year (TAF/yr)
- Increase unmet agricultural water demand by 69 TAF/yr (2014 baseline GW pumping) to 137 TAF/yr (2009 baseline GW pumping) in the plan area
- An average annual decrease in economic output of \$64 million (2.5% reduction from baseline annual average agricultural economic sector output of \$2.6 billion)

# Phase 1 Next Steps

- Public Hearing Dates:
  - Nov 10: Sacramento
  - Dec 16: Manteca
  - Dec 19: Merced
  - Dec 20: Modesto
  - Jan 3: Sacramento
- Technical Workshops: December, dates TBD
- SED & WQCP Comments due: Jan 17, 2017
- Release Final SED & Plan: May 2017
- Board meeting to adopt: July 2017

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