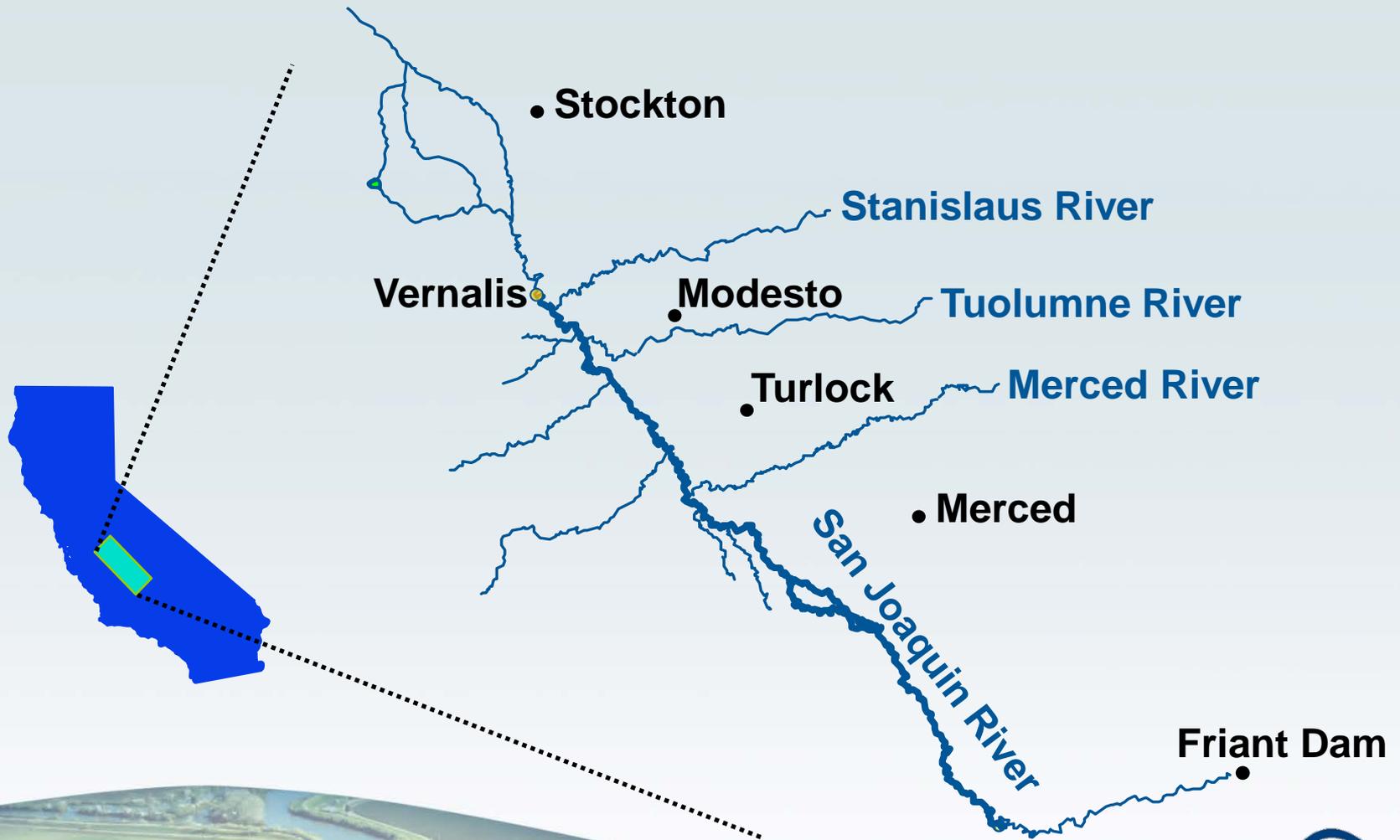




Bay-Delta Water Quality Control Plan Update: San Joaquin River Flow and Salinity Objectives

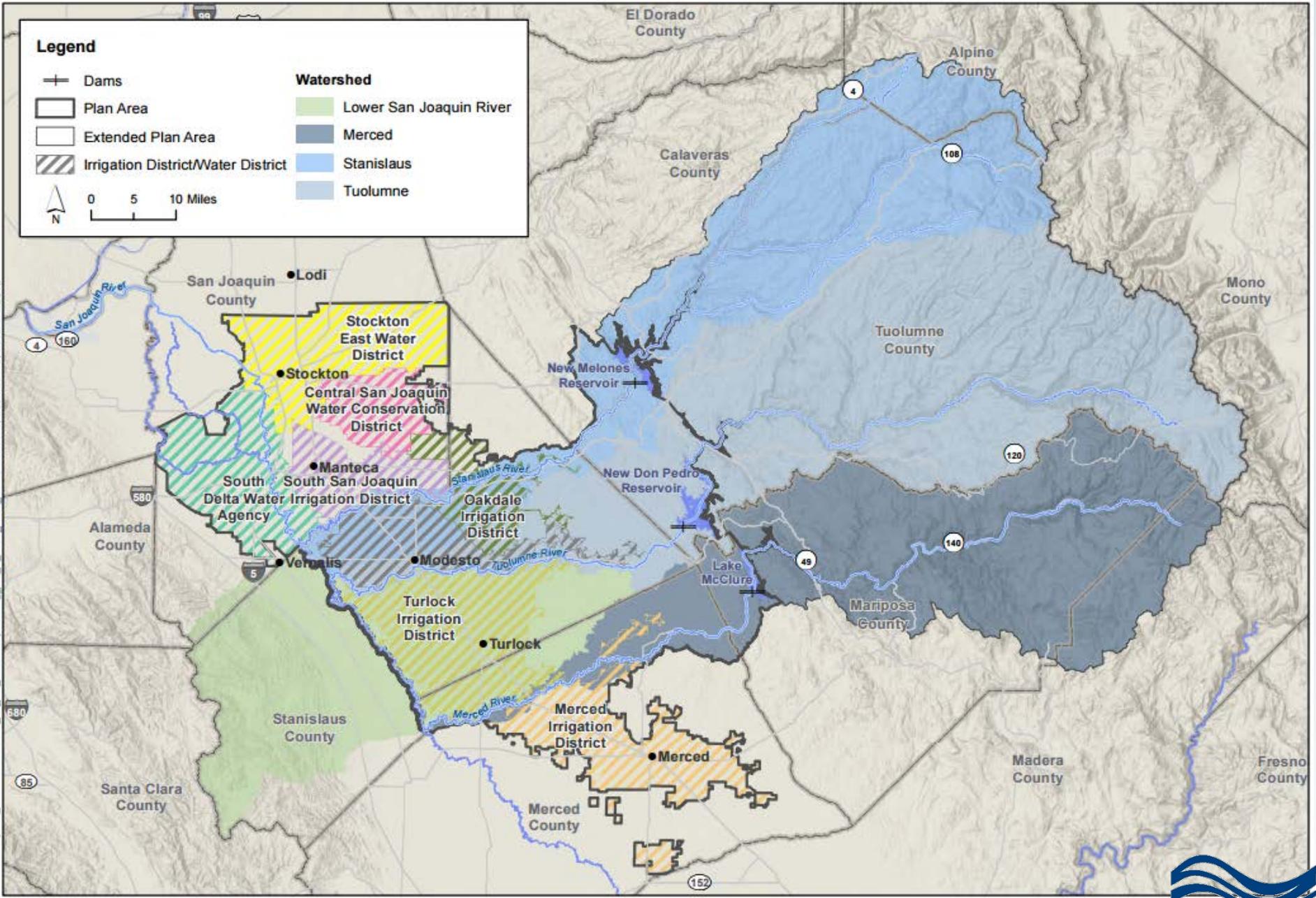
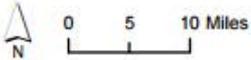
State Water Resources Control Board

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



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- Current Plan is out of date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Current Plan Out of Date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 with “**Comment Letter – 2016 Bay-Delta Plan Amendment & SED**” in the subject line.

You can also make oral comments during the hearing held on:

SACRAMENTO

Nov. 10, 2016 and Jan. 3, 2017 – 9 AM
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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.

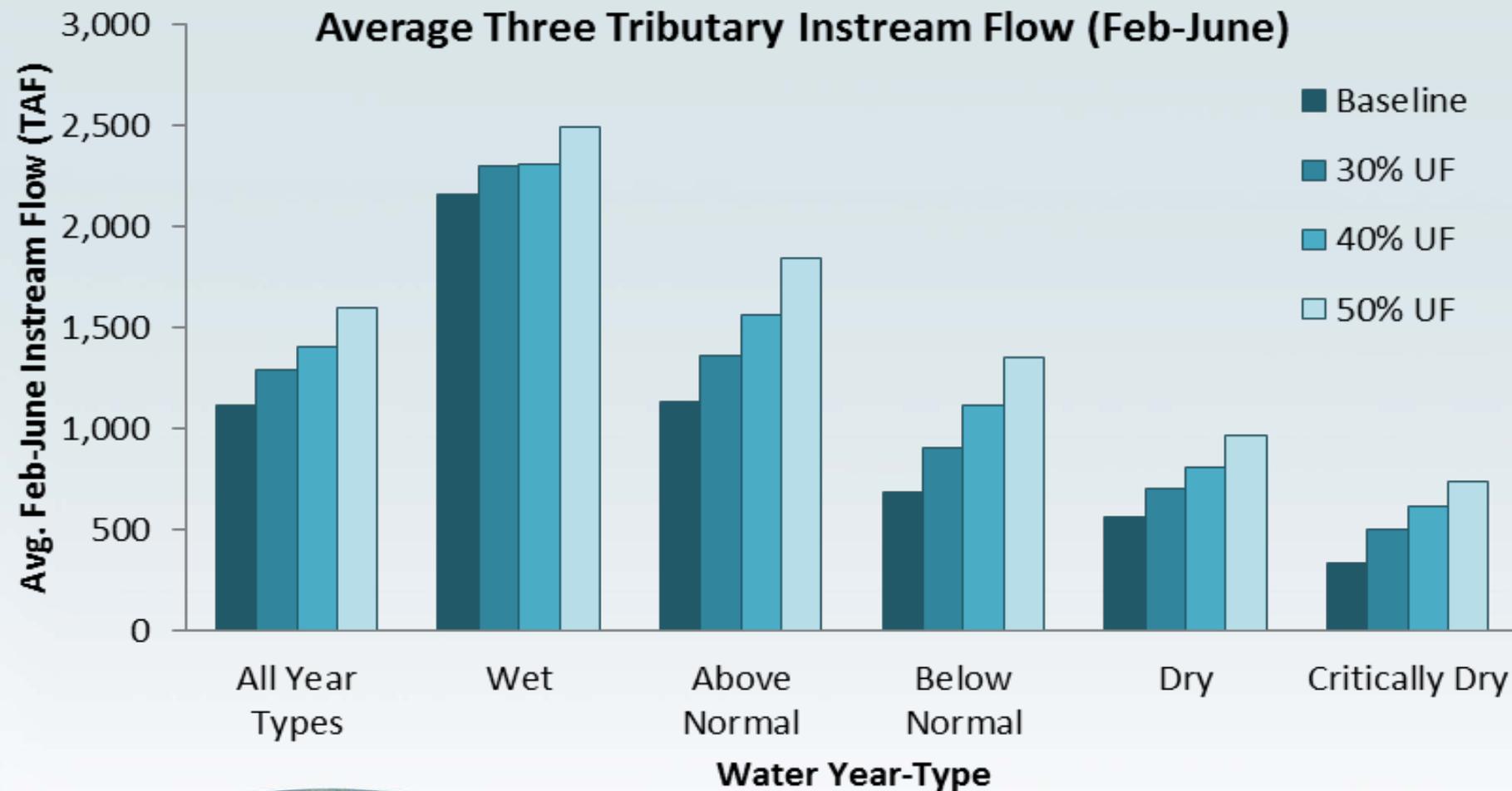


Hoffman Report, Figure 1.1.

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.

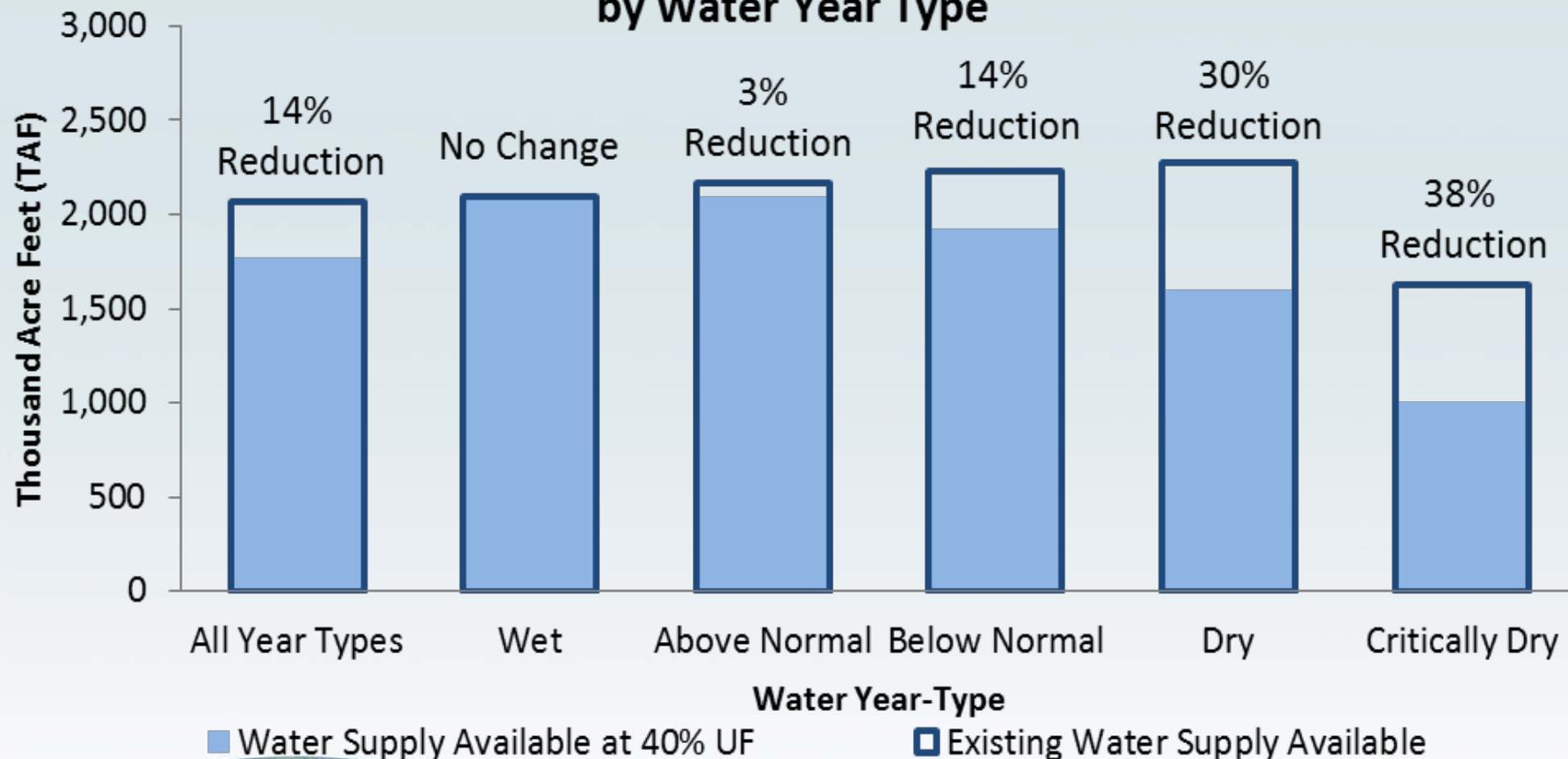
Ecosystem Benefits of the Flow Proposal

- 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?

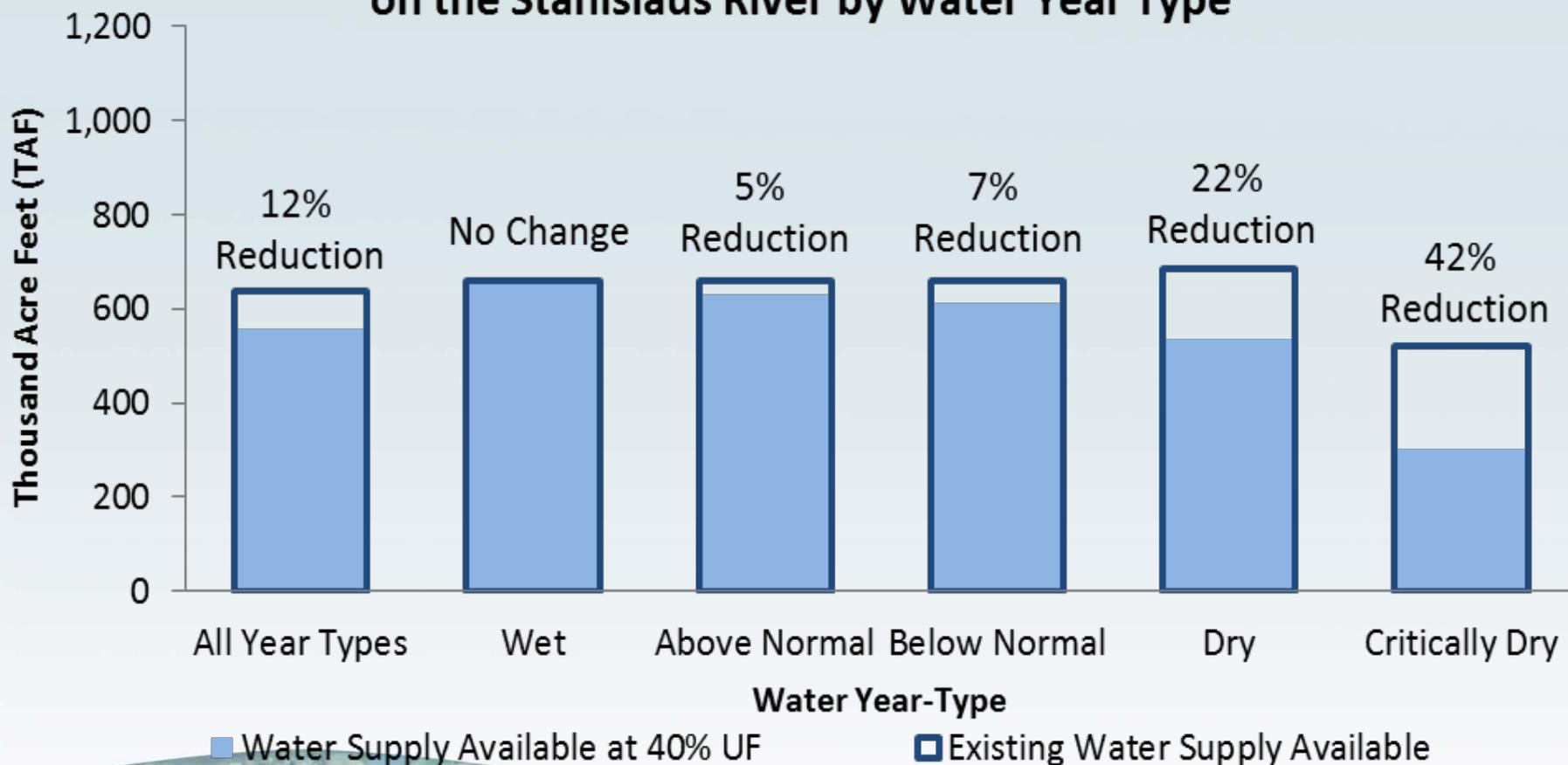
Water Supply Impact of the 40% Unimpaired Flow Proposal within the Plan Area by Water Year Type



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.

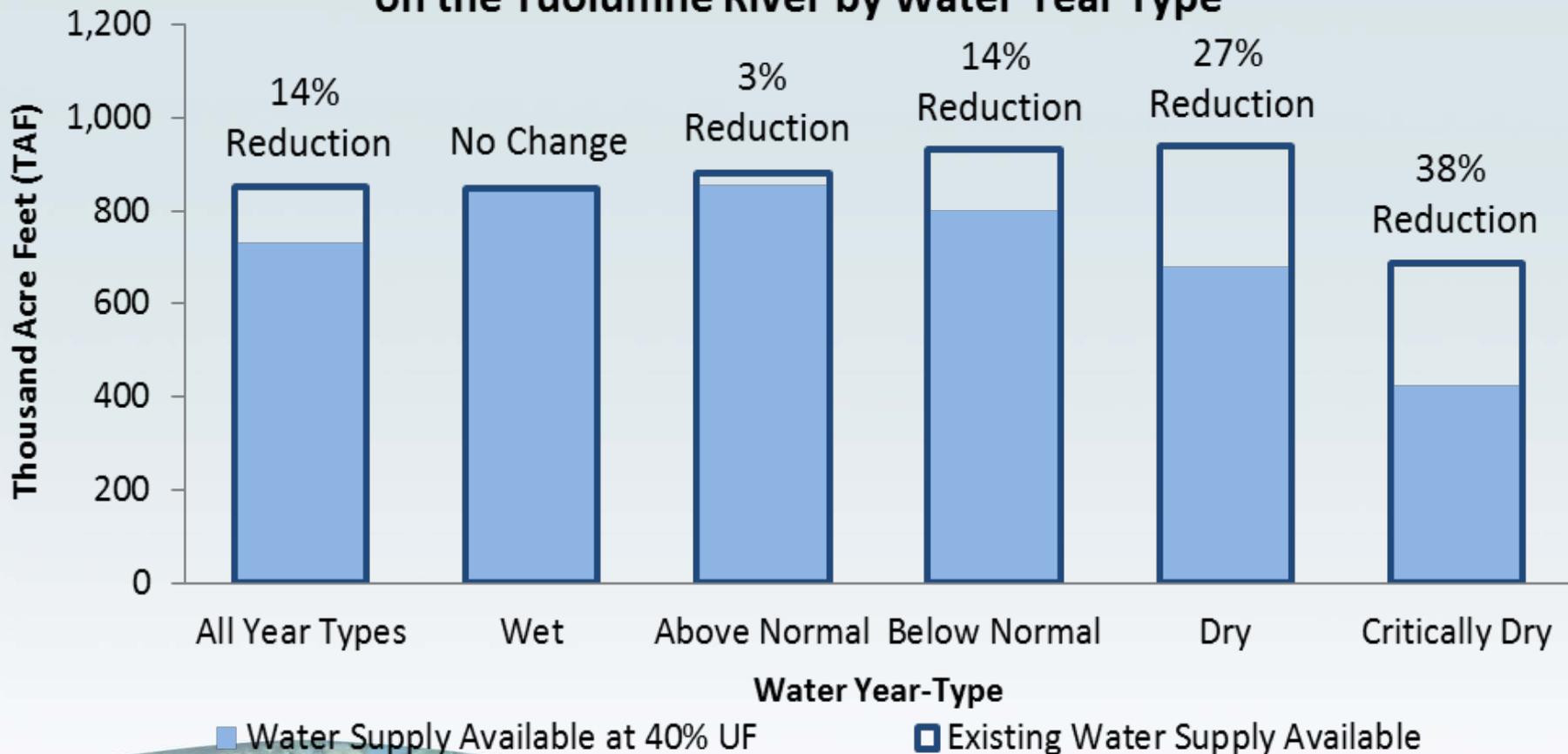
What are the Impacts of the Flow Proposal?

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



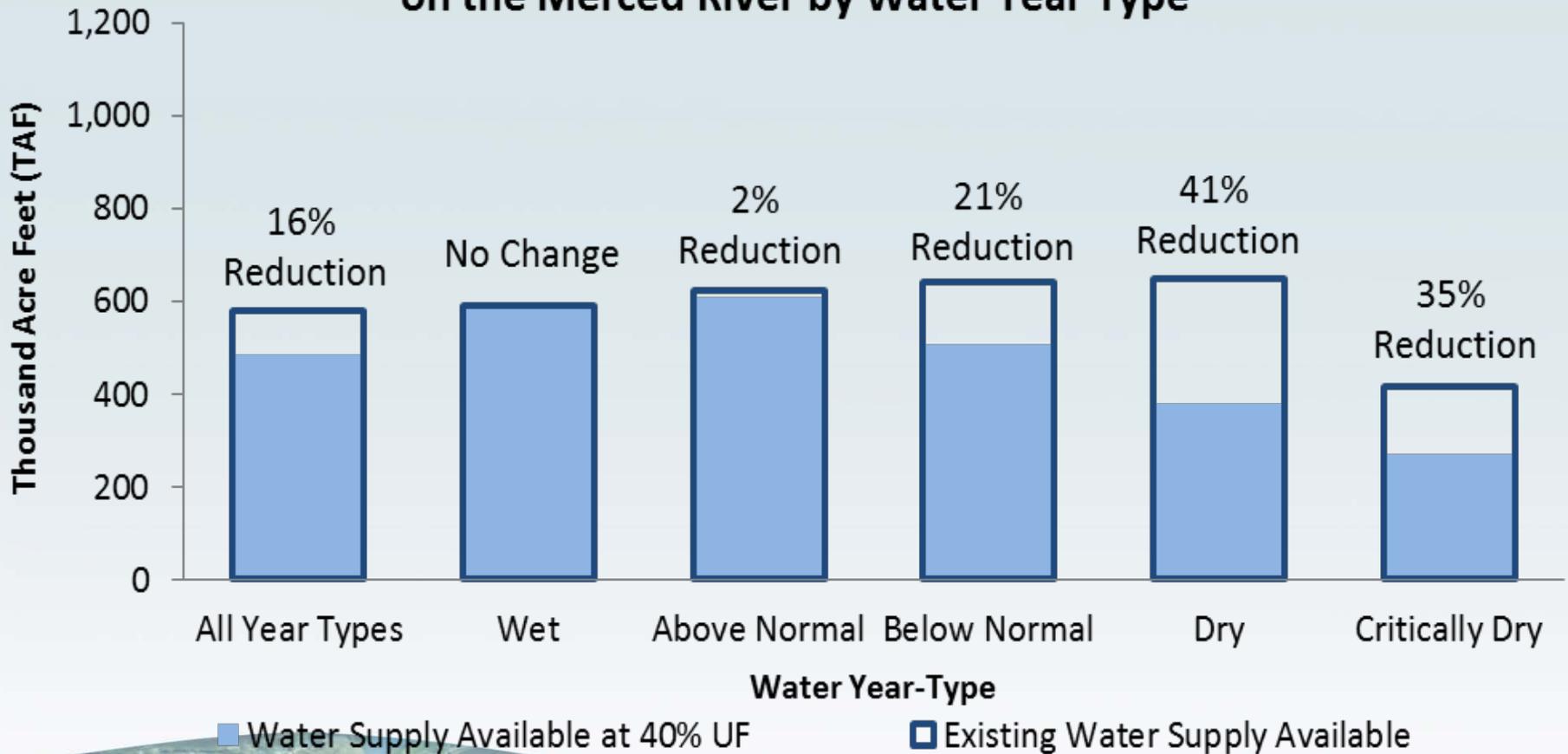
What are the Impacts of the Flow Proposal?

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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