

# Delta Water Management and Regulations

## Information Sheet



**Delta  
Science  
Program**

DELTA STEWARDSHIP COUNCIL

- Water is diverted from the Delta to irrigate farms and provide water to cities around the state, and salinity of that water is a key metric for water supply.
- Salinity is managed through complex water management under regulatory requirements to protect water supply and habitat for native and endangered fish.

### Bay-Delta Plan and D-1641

The California Department of Water Resources (DWR) and the US Bureau of Reclamation (USBR) manage reservoirs and water exports in the Delta watershed and are water right holders for the two major water conveyance projects in California: the State Water Project (SWP) and the Central Valley Project (CVP). Water quality and flow requirements for managing salinity in the Sacramento- San Joaquin Delta (Delta) are established in the State Water Resources Control Board's (State Water Board) Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta Plan). The State Water Board's Water Right Decision 1641 (D-1641) implements the Bay-Delta Plan. DWR and USBR are water rights permittees subject to D-1641 and operate the SWP and the CVP consistent with D-1641.

Compliance monitoring stations throughout the Delta and Suisun Marsh measure salinity and water temperature, and data are evaluated to determine if stations meet compliance requirements.

## Temporary Urgency Change Petitions

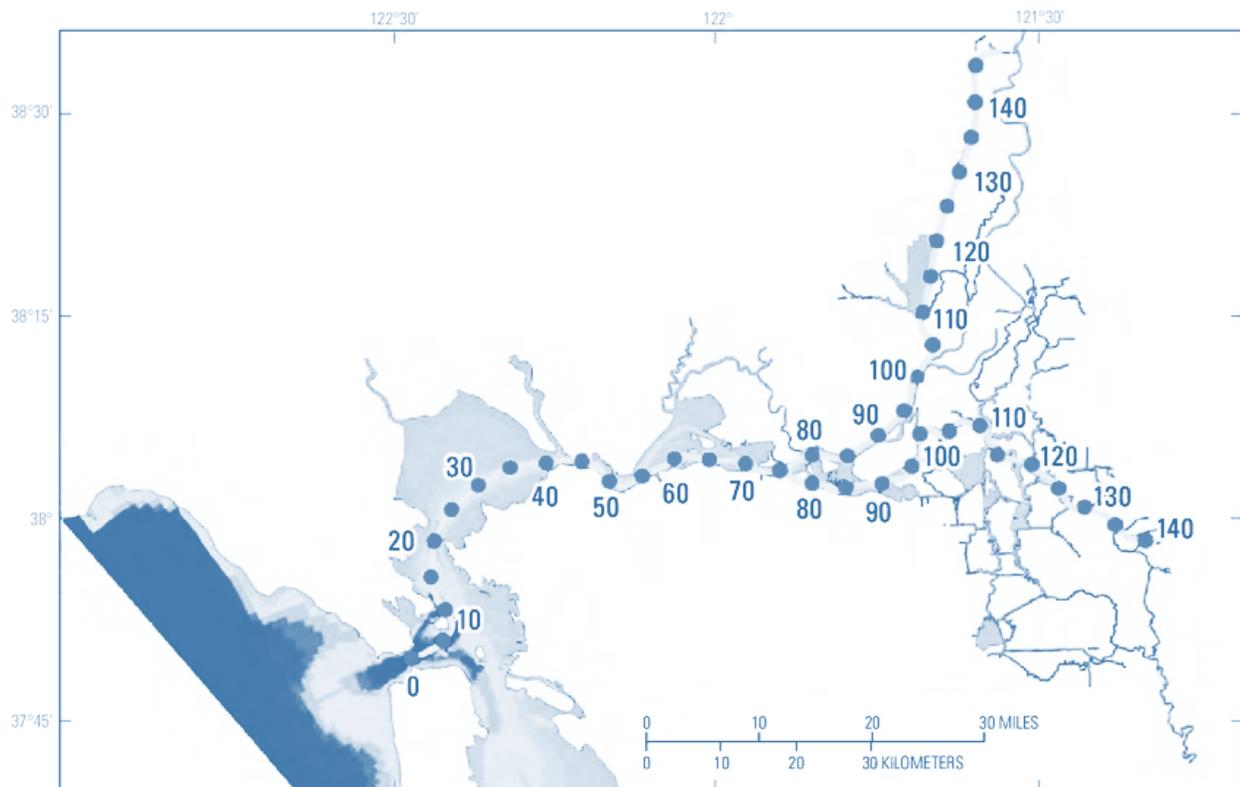
A [Temporary Urgency Change Petition](#) (TUCP) is a process that any post-1914 water right permit or license holder may use to petition the State Water Board approval for a deviation from existing water rights conditions. These TUCPs are utilized to manage circumstances when water quality objectives may not be met for a temporary time, such as during extreme events.

For example, during the 2021 drought, DWR and USBR petitioned the State Water Board for certain D-1641 standards modifications in June-August to conserve upstream storage for fish and wildlife protection and Delta salinity control while continuing to meet critical water supply needs.

## Fall X2 and NMFS and USFWS Biological Opinions

The location (measured in kilometers from the Golden Gate Bridge) where average daily salinity is 2 parts per thousand at 1 meter from the bottom of the water body is referred to as "X2" (Jassby et al. 1995). This salinity threshold is used as a habitat indicator for the location of the low salinity zone, where freshwater transitions into brackish water. Historically, the low salinity zone was associated with high productivity and plentiful native fish. D-1641 includes a requirement for the location of X2 in February through June to support this high productivity.

The US Fish and Wildlife Service (USFWS) designated an X2 standard for fall months with the intent to ensure suitable habitat for native fish, implementing an adaptive management plan to study the relationship between fall X2 and the endangered delta smelt. The 2008 USFWS Biological Opinion on the operation of the CVP and SWP set X2 for September and October at less than or equal to 74 km upstream of the Golden Gate Bridge in "wet" years and at less than or equal to 81 km in "above normal" years. "Below Normal", "Dry", and "Critical" years had no Fall X2 requirement. These requirements are also reflected in the National Oceanic and Atmospheric Administration (NOAA)-National Marine Fisheries Service (NMFS) Biological Opinion, released in 2019, to protect anadromous and marine species listed in the Endangered Species Act-



**Figure 1.** Map of Delta and San Francisco Estuary with kilometer ticks illustrating distance from the Golden Gate Bridge (Image modified from <https://viewperformance.deltacouncil.ca.gov/pm/salinity>)

In 2019, the USFWS released an updated Biological Opinion on the operation of the CVP and SWP that modified X2 to 80 km or less from the Golden Gate in “above normal” and “wet” years in September and October. The updated Biological Opinion also implemented other measures, such as the operation of the Suisun Marsh Salinity Control Gates (SMSCG) (see Salinity Summary fact sheet for more details) and fish food enhancement actions, that are expected to achieve ecological benefits.

### State Water Project Incidental Take Permit

DWR is issued an incidental take permit (ITP) by the California Department of Fish and Wildlife that limits the number of four threatened fish species- delta smelt, longfin smelt, and spring and winter Chinook salmon- that can be taken by the operations of the SWP. The current ITP, covering 2020-2030, includes a Summer-Fall Habitat Action that requires DWR to maintain X2 at less than 80km in Wet and Above Normal water years (consistent with the 2019 USFWS BO) and operate the SMSCG in Above Normal, Below Normal, or Dry water years, and includes an

additional 100,000 acre-feet of water to supplement Delta outflow from June-October in Wet and Above Normal years. The 100,000 acre-feet of water may be carried over from Wet and Above Normal years to the subsequent year and may be used to operate the SMSCG if the subsequent year is a Dry year, in the absence of other available water.

Month	Water Year Type				
	Wet	Above Normal	Below Normal	Dry	Critical
June	Additional 100,000 acre-feet Delta Outflow	Operate SMSCG for 60 days	Operate SMSCG for 60 days	In dry years following Below Normal years, operate SMSCG for 30 days	No Action
July		Additional 100,000 acre-feet Delta Outflow			
August					
September	30-day average X2 ≤80km	30-day average X2 ≤80km	In dry years following Wet or Above Normal water years operate SMSCG for 60 days		
October					

**Table 1.** Criteria required to be met through implementation of the Summer-Fall Action to benefit delta smelt habitat, by water year type.

## References and Further Reading

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State Water Resources Control Board. Revised Water Right Decision 1641. In the Matter of: Implementation of Water Quality Objectives for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary; A Petition to Change Points of Diversion of the Central Valley Project and the State Water Project in the Southern Delta; and A Petition to Change Places of Use and Purposes of Use of the Central Valley Project. December 29, 1999, revised March 15, 2000.

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[https://www.waterboards.ca.gov/waterrights/water\\_issues/programs/bay\\_delta/](https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/)

USFWS. Biological Opinion for the Reinitiation of Consultation on the Coordinated Operations of the Central Valley Project and State Water Project.

[https://www.fws.gov/sfbaydelta/cvp-swp/documents/10182019\\_ROC\\_BO\\_final.pdf](https://www.fws.gov/sfbaydelta/cvp-swp/documents/10182019_ROC_BO_final.pdf)