



The Bay-Delta Estuary

Frequently Asked Questions

Q: What is the Bay-Delta?

The San Francisco Bay-Sacramento-San Joaquin River Delta (Bay-Delta) is comprised of two water systems: the Sacramento-San Joaquin River Delta and the San Francisco Bay. Together, they make up the largest natural estuary on the west coast of both the North and South America, covering more than 1,100 square miles.

The Delta portion of the estuary is located at the convergence of the San Joaquin and Sacramento river systems, California's two largest rivers. In natural conditions, fresh water in the Delta flows westward and eventually combines with salt water in the Bay portion of the estuary, which encompasses three major embayments – Suisun Bay, San Pablo Bay, and San Francisco Bay. The mixture begins in Suisun Bay then flows through the Carquinez Strait into the San Pablo Bay, which connects to the San Francisco Bay and Pacific Ocean.

Q: What is the Bay-Delta Ecosystem like?

Because it is located at the convergence of two rivers, the Delta serves as a key migration area for many fish and wildlife species. All Central Valley anadromous fish species migrate through the Delta, while other fish species, including the native delta smelt, longfin smelt, and Sacramento splittail, are year-long Delta residents. The region is also key area for birds migrating along the Pacific Flyway.

Fresh water flowing through the estuary keeps the Bay-Delta ecosystem thriving. The first pulses of runoff from winter storms trigger the migratory journeys of juvenile salmon and cue fish that live in the Delta and northern San Francisco Bay to begin to move to spawning areas. Moreover, adequate freshwater flows through the Delta and into Bay ensures that pollutants do not accumulate and reach toxic levels, or facilitate the growth of harmful, toxic organisms such as algal blooms.

Q: Why is the Delta in Peril?

For years the Bay-Delta ecosystem has been severely affected by a lack of freshwater flows that has led to loss of natural habitat for species and livelihood for Delta communities.

Fresh water in the Sacramento and San Joaquin Rivers is high in demand. As a result, the federal Central Valley Project and California's State Water Project – massive water storage and delivery systems – function in a manner that increasingly diverts and exports more water before it can make its way through the Delta and to the Bay. The lack of freshwater flows in the estuary has nearly driven numerous fish and wildlife species extinct and decreased the amount of fresh water for Delta communities to use for drinking, bathing, cooking, and recreating.

More threats such the new federal biological opinions (biops), the proposed voluntary agreement process (VAs), and the proposed Delta Conveyance project all seek to divert or export more fresh water from the Delta, putting the ecosystem in even greater peril.

Q: What are the “Central Valley Project” and “State Water Project”?

Both the Central Valley Project (CVP) and State Water Project (SWP) are massive water storage and delivery systems throughout California's Central Valley and the state as a whole, respectively, that consists of a number of dams, reservoirs, canals, pumps, aqueducts, and power plants.

The CVP is federally owned and operated and managed by the U.S. Bureau of Reclamation. Conversely, the SWP is state owned and operated and managed by the California Department of Water Resources.

Q: What is a “biological opinion”?

A biological opinion is a document issued by either the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service that concludes how much an agency can “take” (harm, kill, capture, etc.) a listed species and still be in compliance with the federal Endangered Species Act. As such, it operates with the force of a rule that the agency must follow.

In the context of the Bay-Delta, the U.S. Bureau of Reclamation operates the Central Valley Project and dictates how much fresh water flows through the system at any given time. The U.S. Bureau of Reclamation relies on biops from the Fish and Wildlife Service and National Marines Fisheries Service to dictate how much water flows through the ecosystem, directly impacting the health of fish species in the Bay-Delta. Because fish need water, a biop encouraging more water diversions from the Delta can detrimentally affect how fish navigate through their ecosystems and reproduce at the right times of year.

Q: What are the voluntary agreements?

The voluntary agreements (VAs) are unenforceable agreements among state officials, water suppliers and purveyors that will set alternative flow requirements to those set by the Update to the Bay-Delta Water Quality Control Plan (Update). This is a policy set by the State Water Board regulating water quality and flow standards for the Bay-Delta developed in four phases. Phase 1 of the Update was adopted in December in 2018 and set new water quality standards in three tributaries of the San Joaquin River, requiring more water to flow through the south Delta ecosystem and reducing the amount of water that can be diverted and exported. Unfortunately, the Board delayed full implementation of Phase 1 pending a final VA package proposal that sets comparable flow requirements. In March 2022, the VA parties produced an Memorandum of Understanding that set terms from which to build a final VA.

In October 2023, the State Water Board released a draft update for the Sacramento River and Northern Delta (Phase II) to the Bay Delta Plan that continues to consider the VAs as an alternative to science based flow standards.

The proposed VA package does not provide comparable flow, salinity, or temperature benefits to the Board’s proposed standards. A determination of the VAs enforceability has yet to be made. In sum, the anticipated final VA proposal would greatly benefit water exports and continue to burden the Delta ecosystem and its residents.

Q: What is the Delta Conveyance Project?

The Delta Conveyance project is the Newsom Administration’s proposed construction and operation of a single 45-mile tunnel, buried 140-170 ft underground, that would divert millions of acre-feet of freshwater that would otherwise flow naturally through the Bay-Delta, delivering the water to agencies south of the Delta. According to the Final Environmental Impact Report from DWR, the agency is proposing a tunnel that would divert flows from dual intakes located in the Delta communities of Hood and Courtland. Each intake would divert up to 3,000 cubic feet per second (cfs) of water from the Sacramento River.

Q: Why is the single tunnel project bad?

If a tunnel is constructed and operated, water quality and quantity in the Bay-Delta will deteriorate and the ecosystem will collapse. The single tunnel project would divert up to two-thirds of fresh water flowing into the Delta from the Sacramento River, California’s largest river. Fresh water flows are critical to sustaining the habitat for hundreds of fish and wildlife species, as well as stopping the salt water intrusion from the Bay and flushing out the hundreds of thousands of tons of pollutants and salts that accumulate in the Delta annually. The lack of freshwater flows has caused high water temperatures in the Sacramento River leading to mass die-offs of Chinook salmon. In 2023, for the third time in history, the commercial salmon fishing season was closed. Further closures or restrictions will likely be in place for the 2024 season.

While the exact cost of a single tunnel project is unknown, proponents have said it would cost at least \$16 billion, although most environmentalists and independent analysts anticipate it would cost much more when overruns and interest are calculated. That cost will inevitably fall on ratepayers in Southern California where a key water wholesaler, the Metropolitan Water District, is the lead proponent of the project.

For more information, go to our website www.sierraclub.org/california/sf-bay-delta-protection or contact Molly Culton, molly.culton@sierraclub.org, 916-557-1100 x 1100