

# **Purpose and Need**

---

## **INTRODUCTION**

### **Background**

The San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta) estuary is the largest estuary on the west coast of North and South America. A highly dynamic and complex environment supporting a diverse and productive ecosystem, the Bay-Delta estuary is a significant state, national, and international resource.

Within the Bay-Delta estuary, approximately 40% of the freshwater runoff from California mixes with water from the Pacific Ocean. The estuary contains approximately 40,000 acres of critical wetlands, including the largest remaining brackish marsh in the United States, and supports 120 species of fish. As the major juncture for salt- and freshwater habitats along California's coast, the area is crucial to the life cycles of a large proportion of the state's anadromous fish. It is also a critical link along the Pacific Flyway for wintering and nesting migratory waterfowl.

In addition to supporting biological resources, the Bay-Delta estuary serves as the primary hub of California's water supply system, providing water for both agricultural and urban uses. The estuary receives the bulk of its fresh water supply from the Sacramento and San Joaquin Rivers, and provides domestic and industrial water supplies for two-thirds of the state's population and irrigation water for the Delta and San Joaquin Valley.

The Bay-Delta estuary has been the focus of increased attention because of concern about the ecosystem's declining health. The area's fisheries have declined steadily from historic levels and populations of many species are at record low levels. A 6-year drought and various state and federal regulatory actions have added to the complexity of the problem and increased the need for appropriate and swift action on managing the Bay-Delta estuary.

### **Framework Agreement**

On December 9, 1992, Governor Pete Wilson created the Governor's Water Policy Council of the State of California. On September 10, 1993, the Federal Ecosystem Directorate (FED) was created to coordinate federal resource protection and management decisions in the Bay-Delta system. In June 1994, the Water Policy Council and FED (collectively entitled CALFED) signed a

Framework Agreement that represents a new and cooperative relationship between the state and federal governments in addressing problems affecting the Bay-Delta estuary. The Framework Agreement acknowledges the critical importance of the Bay-Delta estuary to the natural environment and economy of California, and the multiple and complex resource management decisions that must be made to stabilize, protect, and enhance the Bay-Delta estuary. The agreement highlighted three key areas of state and federal coordination on the Bay-Delta estuary. Specifically, the agreement is intended to provide for increased coordination and communication with respect to:

- water quality standards formulation,
- federal and state water project operation and associated regulatory compliance, and
- development of a long-term Bay-Delta system solution.

First, in December 1994 the Bay-Delta Accord (Accord) was developed by state and federal regulatory agencies with the cooperation of many diverse groups to set forth integrated, interim water quality standards. Second, a state/federal coordination group was created to better integrate the operations of the state and federal water projects.

The third element of the Framework Agreement called for a joint state-federal process to develop long-term solutions to problems in the Bay-Delta estuary related to fish and wildlife, water quality, water supply reliability, and vulnerability of Delta levees and channels to natural disasters. This effort, termed the Bay-Delta Program, is being carried out under the policy direction of CALFED.

### **CALFED Bay-Delta Program Planning Process**

The CALFED Bay-Delta Program is exploring and developing long-term solutions for preserving the Bay-Delta estuary and its resources. The Program is conducting a cooperative planning process that will determine the most appropriate strategy and actions necessary to improve water quality, restore health to the Bay-Delta's ecosystem, provide for a variety of beneficial uses, and minimize Bay-Delta system vulnerability. The Bay-Delta Program is using a three-phase process to identify problems, identify solutions, and devise a long-range plan that protects the Bay-Delta estuary.

The Bay-Delta Program is developing a clear definition of the problems and issues associated with the system and identifying a "short list" of solution alternatives to be analyzed in the next phase. This effort involves a collaborative process to consider all reasonable options for addressing Bay-Delta system problems related to fish and wildlife, water quality, water supply, and levee and channel vulnerability. Numerous workshops and meetings with stakeholders and the general public are being held to identify possible actions and solution alternatives. Once the short list of alternatives is developed, the Program will conduct a broad environmental review of the list to identify the impacts of various alternatives. The full implications associated with each alternative will be considered in the programmatic EIS/EIR including feasibility, cost, and benefits. The primary purpose of this document will be to inform decision makers about the interrelated and

cumulative consequences of the alternatives and to recommend a program alternative for implementation.

The Bay-Delta Program is using a two-tiered geographic scope to identify problems and develop solutions. The geographic-problem scope consists of the legally defined Delta, Suisun Bay (extending to the Carquinez Strait), and Suisun Marsh. For purposes of this discussion, this geographic area will be called the "Bay-Delta system". The program proposes to address problems that exist within these boundaries or are closely linked to this area and related to water management and beneficial economic and environmental water use.

The scope of possible solutions to these problems may encompass any action that can be implemented by the CALFED agencies or can be influenced by them to address the identified problems, regardless of whether its implementation takes place within the problem area. Thus, the geographic scope for solutions would expand to include the Central Valley watershed, the Southern California water system, and the Pacific Ocean.

## PURPOSE AND NEED

The overall purpose of the CALFED Bay-Delta Program is to develop a comprehensive plan for ecosystem protection and restoration, and improved water management including water quality, water supply reliability, and levee and channel stabilization. More specifically, the purposes of the CALFED Bay-Delta Program are to: a) improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta system to support sustainable populations of the fish and wildlife species relying on the Bay-Delta system; b) provide water of satisfactory quality for all beneficial uses of Bay-Delta system water; c) minimize conflict among beneficial uses of Bay-Delta system water and reduce the mismatch between Bay-Delta system water supplies and current and projected beneficial uses of the Bay-Delta system; and d) reduce the risk to land uses and associated economic activities, water supply, infrastructure, and the ecosystem from the gradual deterioration or catastrophic failure of Bay-Delta system levees.

These purposes respond to needs identified in the Framework Agreement to address the inextricably intertwined problems affecting the Bay-Delta system's public values. These values include protection of the Bay-Delta system and its fish and wildlife resources, water quality, water supply reliability, and stabilization of Delta levees and channels. While these problems are interdependent and interrelated, the following problem discussions do not focus on the linkages.

The Bay-Delta system no longer provides a diversity of habitats nor the habitat quality necessary to maintain ecological functions and support healthy populations and communities of plants and animals. The health of the Bay-Delta system has declined as a result of loss of habitat that supports various life stages of aquatic and terrestrial biota and a reduction in habitat related to several factors.

The steady decline in habitat quantity, quality, and diversity results from many activities both in the Bay-Delta system and areas upstream. The earliest major damaging event was the unrestricted

use of hydraulic mining in the river drainages along the eastern edges of the Central Valley. Habitats in Central Valley streams were degraded as channel beds and shallow areas filled with sediment. In addition, the reduced capacity of the sediment-filled channels resulted in an increase in the frequency and extent of periodic flooding. This accelerated the need for flood control measures to protect adjacent agricultural lands. Levee construction to protect these lands eliminated fish access to shallow overflow areas, and dredging to construct levees eliminated tule bed habitat along the river channels. Since the 1850s, 700,000 acres of overflow and seasonally inundated lands in the Bay-Delta system have been converted for use in agriculture and urban development. Many of the remaining stream sections have been dredged or channelized to improve navigation, increase stream conveyance during periods of flooding, and facilitate water export.

Upstream water development, such as the Central Valley Project and State Water Project, depletion of natural flows, and the export of water from the Bay-Delta system, have changed seasonal patterns of inflow, reduced annual outflow, and muted the natural variability of flows into and through the Bay-Delta system. Facilities constructed to support water diversions (e.g., Delta Cross Channel and Clifton Court Forebay) cause straying or direct losses of fish (e.g., through unscreened diversions) and increased natural predation. Entrainment and export of substantial quantities of food-web organisms, eggs, larvae, and young fish further exacerbate the impacts resulting from overall habitat decline.

Habitat alteration and water diversions are not the only factors that have caused ecosystem problems. Water-quality degradation caused by pollutants and increased concentrations of substances, such as selenium, may also have contributed to the overall decline in the health and productivity of the Bay-Delta system. In addition, undesirable introduced species compete for available space and food supplies, sometimes to the detriment of native or economically important introduced species.

The Bay-Delta system provides the water supply for a wide range of instream, riparian, and other beneficial water uses. While some beneficial water uses depend on the Bay-Delta system for a portion of their water needs, others are, or have become, highly or totally dependent on Bay-Delta water supplies. As water use and competition among uses has increased during the past several decades, conflicts have increased among users of Bay-Delta water. Heightened competition and conflict during certain seasons or during water-short years magnify the conflicts.

Water flow and timing requirements have been established for certain fish and wildlife species with critical life stages dependent on freshwater flows. These requirements have reduced flexibility to meet the quantity and timing of water delivered from the Bay-Delta system. Concerns exist that additional restrictions that might be needed to protect species could increase the uncertainty of Bay-Delta system water for agricultural and urban purposes. This disparity between water demands and water availability has created uncertainty in the water service areas over supplies.

Delta levees and channels may fail because of decreasing levee stability, earthquakes, sea level rise, or overtopping during floods. Such failures in the system could result in interruptions in the quality and availability of water for beneficial uses or water transport across the Bay-Delta system.

Good quality water is required to maintain the high-quality habitat needed in the Bay-Delta system to support a diversity of fish and wildlife populations. In addition, the Bay-Delta system is a source of drinking water for millions of Californians and is critical to the state's agricultural sector. Pollutants enter the Bay-Delta system through a variety of sources including sewage treatment plants, industrial facilities, forests, farm fields, mines, residential landscaping, urban streets, and natural sources. The pollutants, pathogens, natural organics, and salts in the Bay-Delta system waters affect, in varying degrees, existing fish and wildlife, as well as human and agricultural use of these waters. The salts entering the Bay-Delta system from the ocean and from agricultural returns upstream decrease the utility of Bay-Delta system waters for many purposes including the ecosystem, agriculture, and drinking water. The level of natural organics in the water (resulting primarily from the natural process of plant decay on many of the Delta peat soil islands) is of concern because of the way natural organics react with other chemicals during the drinking-water treatment process. During this treatment process, certain by-products are created that may produce potentially adverse effects on human health. Pathogens, which include viruses, *Giardia*, and *Cryptosporidium*, enter the Bay-Delta system through a variety of sources and pose both human health and treatment-related concerns.

Levees were first constructed in the Sacramento-San Joaquin Delta during the late 1800s when settlers began to turn tidal marshes into agricultural land. Over time, both natural settling of levees and shallow subsidence of Delta island soils resulted in a need to increase levee heights to maintain protection. There is a concern that this increased height, coupled with poor levee construction and inadequate maintenance, makes Delta levees vulnerable to failure, especially during earthquakes or floods. Failure of Delta levees can result in flooding of Delta farmland and wildlife habitat. If a flooded island is not repaired and drained, the resulting large body of open water can expose adjacent islands to increased wave action and possible levee erosion. Levee failure on specific islands can have impacts on water supply distribution systems such as the Mokelumne Aqueduct. Similarly, levee failure on key Delta islands can draw salty water up into the Delta; as water from downstream rushes to fill the breached island. This would be of particular concern in low-water years when less fresh water would be available to repel the incoming salt water. Such a failure could result in an interruption of water supply for both urban and agricultural users and degradation of water quality and aquatic habitats.

The complex array of agencies with planning, regulatory and/or permitting authorities over levees makes rehabilitation and maintenance efforts difficult. Regulatory measures that protect endangered species and critical habitat sometimes conflict with and prolong levee rehabilitation and maintenance work.