



## CALFED BAY-DELTA PROGRAM

*The CALFED Bay-Delta Program is an unprecedented cooperative effort among state and federal agencies and the public to ensure a healthy ecosystem, reliable water supplies, good water quality, and stable levees in California's Bay-Delta.*

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# Ecosystem Restoration Common Program

## Importance of Ecosystem Restoration

Once a safe haven for vast and varied populations of plants, fish, and wildlife, the Bay-Delta habitats for foraging, reproduction, and other functions have been altered significantly from prehistoric conditions. Environmental conditions are oftentimes not suitable for fish and wildlife to reproduce, forage, or escape from predators. Toxic materials in the water and excessive water temperatures threaten whole species of fish. Habitats are fragmented, making it more difficult for fish and wildlife to migrate. Water diversions reduce survival of migrating fish through physical injury, delayed passage, increased stress, and increased vulnerability to predators. Meanwhile, "exotic" species -- fish and wildlife species imported to the Delta from other habitats -- threaten the survival of native species.

These poor conditions also affect people -- those who enjoy the Delta's beauty and recreational opportunities and those who rely on fishing for either their leisure or their livelihood. Declining fish populations have also placed limitations on water supply diversions from the Delta.

## Introduction

The CALFED Bay-Delta Program alternatives share common programs for water use efficiency, ecosystem restoration, water quality protection, and levee improvement. (The alternatives differ according to the conveyance and storage elements.) This fact sheet summarizes the ecosystem restoration common program.

## Overview

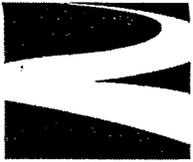
While the Bay-Delta can never be returned to prehistoric conditions, its ecosystem functions can be restored. Ecosystem functions are all the qualities of a natural environment that enable native fish, wildlife, and plants to flourish. The CALFED Bay-Delta Program proposes to restore these functions for the benefit of all the important species that rely on the area's freshwater, brackish tidal marsh, shallow water, riparian woodland, or shaded waterway environments.

Whenever possible, the Ecosystem Restoration Common Program aims to take advantage of natural processes, rather than further disrupting the system to create healthy but artificial conditions. For example, efforts are proposed to establish "meander zones" upstream of the Delta, where tributaries can flow without restriction.

The Ecosystem Restoration Common Program also seeks to restore some of the ecosystem's natural resilience, in part by protecting diversity so that species can adapt to changing conditions. The restoration activities given preference in this component are those that benefit several species and improve other resource areas, including water quality, levee stability, and water supply reliability.

Where competition for Bay-Delta resources makes it impossible to avoid impacts to species, habitats, or ecological functions, compensation would be made by reducing other causes of mortality or improving habitats elsewhere in the Bay-Delta.

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## Potential Implementation Measures

### Stakeholder Analysis

The Bay-Delta Advisory Council (BDAC), which represents Bay-Delta stakeholders, has assigned a work group to help identify policy issues relating to ecosystem restoration and to gather information about possible ecosystem restoration programs.

### Protect, Enhance, and Where Necessary Restore Habitats\*

Existing high-quality habitat will be protected and managed before it is lost to further degradation. Where habitats have already been lost, they should be restored to the degree necessary to ensure a healthy, functioning ecosystem. When ecosystem improvements require acquiring privately-owned land, it will be sought from willing sellers.

### Develop and/or Acquire Water for Environmental Use

Water developed or purchased from willing sellers will be used to increase instream flows, to increase outflow from the Delta into the Bay, or for other measures that will benefit the environment.

### Manage Habitats

Habitats can be more effectively protected and nurtured by changing some agricultural practices, improving coordination among government agencies, and making it easier to secure permits for habitat restoration.

### Reverse Subsidence

Land use in the Delta has caused many islands to subside so that their "elevations" are as much as 18 feet below sea level. On some islands this process will be reversed by restoring wetlands that generate new peat soil or by other means. The extent of this restoration will be determined in Phase II.

### Control Exotic Species

Numerous species have been imported to the Bay-Delta from other habitats, such as fish that enter the system when ships dump their ballast water. These species can endanger native Delta species. Efforts will be made to prevent introducing any more exotic species.

### Install More and Better Fish Screens

Fish screens are installed to keep fish from straying from their natural habitat or migration route into a diversion. Numerous unscreened diversions on Delta tributary streams will be screened and better fish screens should be considered at existing screened diversions.

### Protect and Manage Fish Populations

The alternatives will incorporate real-time monitoring of the location and health of fish populations. Such a program could enable water system operations to be modified to benefit fish.

### \*Examples of Habitat Protection, Enhancement, and Restoration

- Improve shallow water tidal habitat. Roughly 8,000 to 12,000 acres of leveed lands, such as on Prospect Island, along Threemile Slough, and in the southeast Delta, could be converted to tidal habitat.
- Restore riparian habitats. Along the Sacramento and San Joaquin Rivers and their tributaries, 4,000 to 5,000 acres could be purchased and transformed into riparian habitat. More riparian habitat will be developed in conjunction with levee stabilization projects.
- Convert diked bay lands to tidal wetlands. This could include conversion of 4,000 to 6,000 acres.
- Improve riverine habitats. Riverine habitats will be improved on the Sacramento River, along Delta channels, and upstream of the Delta. At some locations between Verona and Collinsville on the Sacramento River, levees could be set back, restoring natural river flow for as much as 125 total miles of waterways. Another 20 to 40 river miles of meander belts could be created north of Colusa. River banks and shallow water habitat similarly could be reconstructed along 100 to 150 miles of leveed Sacramento River banks.
- Restore habitats in the San Joaquin River. Habitat values will be restored or enhanced by deepening channels to decrease water temperatures.
- Improve habitats along floodways. For example, 7,000 to 12,000 acres of agricultural land along floodways could be converted to seasonal wetlands.