

DRAFT

**CALFED BAY-DELTA PROGRAM
DRAFT Strategy for Addressing Non-native Species**

Introduction

There is general consensus that many past introductions (some intentional and some unintentional) have caused significant environmental and economic impacts to the San Francisco/San Joaquin Bay Delta and Estuary. Some 212 introduced species, including fish, invertebrates and plants, have been recognized in the Estuary (Cohen and Carlton, 1995). There is consensus that many measures implemented to eradicate and control some established aquatic nonindigenous species have not been highly effective. However, some programs to control aquatic plants and some terrestrial species have been somewhat effective on a local basis. Additionally, many species have been introduced over the past 150 years for both recreational and economic uses. The impacts of these species on a highly altered ecosystem and the native species trying to survive in it are in many cases unknown or not well quantified.

Background

The mission of the CALFED Bay-Delta Program is to “restore ecological health and improve water management for beneficial uses in the Bay-Delta system”. The Program has developed an Ecosystem Restoration Program Plan the focus of which is to increase aquatic and terrestrial habitats; improve ecosystem functions; and reduce the effects of stressors that inhibit natural processes, ecosystem functions, habitats, and species. Stressors have been defined as human-caused activities that affect ecosystem processes and functions, habitats, and species. One of the key stressors identified is non-native or introduced species (also referred to as exotic and nonindigenous species). Non-native species impact the Bay-Delta system in many ways. They compete with native species, in many cases causing local extirpation of these species. They alter population and community guilds and food web mechanisms causing significant impacts to other species and changes to habitats.

The importance of addressing non-native species in the development of the long-term CALFED Bay-Delta Program is critical. First, as a key stressor on populations, habitats and ecosystem functions, there is need to understand impacts and determine the importance and relevance of these impacts to the restoration efforts. Second, there is always a potential for future invasions of species that may effect not only ecological concerns but also water management systems. For example, a recently arrived crab species is believed to burrow into the banks of levees. This action has the potential to cause structural damage to the levee systems thereby decreasing their stability. The zebra mussel has rapidly spread across the eastern U.S. and may eventually find its way to western water conveyance facilities despite massive Federal and state efforts to stop it. Analysis in the EIS/EIR must evaluate the flexibility and ability of the various CALFED alternatives to deal with the effects of these potential introductions.

Strategy

A CALFED strategy to address non-native species should be two-fold. It should provide for: 1) coordination with existing Federal and State efforts in prevention, control and monitoring of non-native species; and 2) development of new programs or initiatives to address specific concerns or needs of the CALFED program not encompassed in existing or planned efforts.

The primary efforts should focus on reducing the risk or preventing new introductions; monitoring to ensure prompt detection of new species and to monitor changes in the distribution of introduced species; and control of existing species in a cost-effective, environmentally sound manner. Research is a critical component of all three of the efforts mentioned above.

The following are suggested actions which CALFED would recommend to reduce the impacts of established invasive species, to reduce the rate of new invasions and to respond to new colonies or populations:

Prevention:

- **Increase existing enforcement.** The Department of Fish and Game and the Department of Food and Agriculture have authority to regulate the importation of plants and animals into the State. The existing lists of prohibited species should be inspected, species of concern to the Delta or the CALFED solution area should be identified and singled out for enhanced enforcement actions. Species not on the prohibited list which are of concern or potential concern should be added.
- **New regulations may be required to effectively deal with pathways of introduction not currently regulated.** A specific example is the pathway relative to ship ballast water. In some cases, (and especially ballast water), additional authority and new regulations may be required for State and Federal agencies, some of whom will be outside of the CALFED family (U.S. Coast Guard, Dept. of Transportation). Other pathways of introduction (aquaculture, bait industry, etc.) should be analyzed for risk of introductions.
- **Conduct risk assessments** for those species or pathways which provide opportunities for establishment and have the potential to be eliminated or regulated.
- **Develop public awareness and education programs.** Assist State and Federal agencies in providing public information relative to the dangers of introduced species and ways to prevent introductions.

Control:

- **Rapid response programs to address exotic species from the onset of establishment is necessary.** Programs throughout the U.S. have shown that the more quickly eradication attempts can be initiated, the higher the likelihood that they will be effective. Team must be established and dedicating funding should be set in place to provide quick response to invasions.

Detection/Monitoring/Research:

- **Extensive research is needed to determine conditions that are favorable for potentially invasive species.** Those conditions should be eliminated or pathways for organisms to reach those conditions should be eliminated. Additional research is needed on invasion theory. Many successful colonizations of exotic species can be attributed to a disturbed ecosystem.
- **Additional monitoring to detect introduced species** at an early stage and additional research to document the ecological effects of nonindigenous species.

The Ecosystem Restoration Program Plan has several implementation objectives which provide specific target levels and recommendations regarding non-native species to reduce the impacts of non-native species on native species and Bay-Delta habitats.

Coordination

A Federal Aquatic Nuisance Species Task Force was established in 1991 to coordinate federal governmental efforts related to aquatic nonindigenous species. The legislation reauthorizing the activities of the Task Force was passed last year and included the creation of a subcommittee called the Western Regional Panel. The role of the Western Regional Panel is to conduct a variety of efforts including developing regional priorities (for education, monitoring and inspections, prevention and control efforts), developing an emergency response strategy, and coordination with other non-native programs not conducted pursuant to the National Invasive Species Act of 1996. Current efforts to establish the Western Regional Panel include participation by both state and federal agencies in California as well as stakeholder groups. Coordination with this group will be necessary to ensure that all efforts are conducted in a timely and cost-effective manner.