

## Problem and Objective Statements

### Water Quality

#### Problem

The Delta is a source of drinking water for millions of Californians and is critical to the state's agricultural sector. In addition, good water quality is required to maintain the high quality habitat needed in the Bay-Delta system to support a diversity of fish and wildlife populations. Yet, despite improvements in Bay-Delta water quality, the issue remains a primary concern in the Delta.

Pollutants enter the Delta through a variety of sources including sewage treatment plants, industrial facilities, forests, farms and farm fields, mines, residential landscaping, urban streets, and natural sources. They find their way to even the Delta's most remote areas where they interact with water, sediment, plants, and animals. The pollutants, pathogens, natural organics, and salts in Delta waters impact to varying degrees existing fish and wildlife, as well as human and agricultural use of these waters. The salts, entering the Delta through the Bay from the ocean and from agricultural returns upstream, decrease the utility of Delta waters for many purposes including agriculture, drinking water and the ecosystem. The level of natural organics in the water (mainly resulting 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 treatment process necessary to produce safe drinking water. During this treatment, certain by-products are created which may produce potentially adverse human health effects. Pathogens, which include viruses, Giardia and Crypto sporidium, enter the Delta through a variety of sources and pose both human health and treatment-related concerns.

#### Objectives

The goal for the water quality in the Bay-Delta system is to provide good quality water for all beneficial uses. In this context, the term "beneficial uses" covers a wide range of water uses and includes fish and wildlife use, municipal and industrial use, agricultural use, recreational use, and other uses. This goal can be accomplished by addressing several objectives which collectively provide for the improvement of water quality for all beneficial uses. These water quality objectives in summary form are:

- Improve the availability and quality of raw water for **drinking water** needs
- Reduce water quality parameters in **agricultural water** which affect operations and crop productivity

- Improve the availability and quality of **water for industrial needs**
- Improve the quality of raw **water for recreational uses** including consumption of aquatic resources
- **Improve the availability and quality of water** for environmental needs

The common program for water quality improvement will focus on pollutant source control. Reducing the total pollutant load entering the Delta will provide benefits for all water users. Additional benefits can also be obtained by timing release of remaining pollutant discharges.

## Linkages

Improvements to water quality are also directly linked to improvements for ecosystem quality, water supply reliability, and the levee system integrity.

Ecosystem Quality and Water Supply Reliability - The quantity and timing of the water flowing into and out of the Delta directly affects water quality in the Bay-Delta system. Quantity and timing are functions of the natural runoff patterns, changes in land and water use, operations of upstream water projects, diversions (upstream and in-Delta), and exports from the Delta. Thus, any modification to system operations to improve ecosystem quality or to reduce the conflict between ecosystem and water supply, will directly affect water quality for specific beneficial uses, either positively or negatively. Similarly, modifications to system operations to improve water quality will directly affect water supply reliability. This linkage is especially apparent in some reaches of the San Joaquin River within the Delta. While managing and improving water quality is a primary objective of the CALFED Bay-Delta Program, the achievement of the key specific water quality objectives is closely linked to objectives for ecosystem quality and water supply reliability.

Levee System Integrity - Steps to more effectively manage the risk associated with catastrophic failure of the Delta levees will reduce potential elevated Delta salinity levels that would degrade water quality for the ecosystem and for water supplies.

## Phase II Alternatives

The three Phase II Alternatives were designed to address the Program objectives and to take advantage of the linkages from improvements in all four resources categories. Each alternative includes many features to improve water quality:

- Pollutant source control will improve Delta water quality for all uses.
- Levee improvements will reduce potential elevated Delta salinity levels

that would degrade water quality for the ecosystem and for water supplies.

- Improved water supply opportunities through new storage and timing of flows will provide improved water quality.
- The various habitat improvements, such as expanded wetlands, included in the ecosystem restoration will contribute to improved water quality.