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 bulk of the freshwater supply comes from the watersheds of the Sacramento and San Joaquin Rivers. The estuary contains approximately 70,000 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 its ecological importance, 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 agricultual irrigation water for about 200 different crops in the Delta and San Joaquin Valley.

Given this importance, the Bay-Delta estuary has been the focus of competing interests - economic, ecological, urban and agricultural. Numerous efforts have been made to address the Bay-Delta problems but, the issues are complex and interrelated and many continue unresolved.

Organizational History and Structure of the CALFED Bay-Delta Program

The CALFED Bay-Delta Program (Program) was established in May 1995 and is one element of CALFED, a consortium of five state and five federal agencies with management and regulatory responsibilities in the Bay-Delta estuary.

At the state level, these agencies include the California Resources Agency, Department of Water Resources, Department of Fish and Game, California Environmental Protection Agency and State Water Resource Control Board. At the federal level, participating agencies include the U.S. Department of Interior, Bureau of Reclamation, Fish and Wildlife Service, Environmental Protection Agency and the National Marine Fisheries Service. The U.S. Army Corps of Engineers also participates as a cooperating agency in the preparation of the Program's programmatic environmental impact statement/ report.

CALFED provides policy direction to the Program. It was formed as part of the Framework Agreement signed in June 1994 by California Governor Pete Wilson and by Bruce

Babbitt, Secretary of the U.S. Department of Interior. As part of this Framework Agreement, the state and federal governments pledged to work together to formulate water quality standards to protect the Bay-Delta estuary, coordinate State Water Project (SWP) and Central Valley Project (CVP) operations and develop a long-term Bay-Delta solution.

Impetus to forge this long-term solution came at the state level in December 1992 with formation of the Water Policy Council and the Bay Delta Oversight Council, an advisory group to the Water Policy Council. The following year, in September 1993, the Federal Ecosystem Directorate was created at the federal level to coordinate federal resource protection and management decisions for the Bay-Delta.

In December 1994, an agreement- the Bay-Delta Accord- was signed by state and federal regulatory agencies, with cooperation of diverse interest groups. This accord set out integrated, water quality standards, and created a state/federal coordination group to better integrate the SWP and CVP. The Program is charged with responsibility for the third issue; development of a long-term solution.

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CALFED Bay-Delta Program Planning Process

The Program is conducting a three-phase cooperative effort that will determine and implement the most appropriate strategy and actions necessary to improve water quality, restore health to the Bay-Delta's ecosystem, provide water for a variety of beneficial uses, and minimize the vulnerability of the Delta's levees and channels.

- The first phase, identifies solution alternatives to be analyzed in Phase II .

- The second phase includes: refinement of the Phase I alternative components; development of strategies for implementing the components; and a broad environmental review to identify the impacts of various alternatives. All alternatives analyzed in the Programmatic EIR/EIS are based upon their ability to meet the Program's goals and objectives and the six solution principles.

- The third phase of the Program includes project specific environmental review of individual components of the recommended alternative. Implementation of these components would follow in a staged fashion over several years.

The Program uses a two-tiered geographic scope to identify problems and develop solutions. The first tier identifies the geographic problem scope as being the legally defined Delta, Suisun Bay (extending to the Carquinez Strait), and Suisun Marsh. For the remainder of this chapter, this geographic problem area will be called the "Bay-Delta system". The Program

will 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 second tier of the geographic scope of possible solutions to these problems encompasses 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 includes the Central Valley watershed, the Southern California water system, and the Pacific Ocean.

PURPOSE AND NEED

The purpose of the CALFED Bay-Delta Program is to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. To practicably achieve this program purpose, CALFED will simultaneously address problems of the Bay-Delta system within four critical resource categories: ecosystem quality, water quality, water supply reliability, and system integrity. Important physical, ecological, and socioeconomic linkages exist among the problems and possible solutions in each of these categories. Achieving CALFED's overall purpose requires satisfactorily addressing each of the following four objectives.

Ecosystem Quality

CALFED will improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species. To attain this objective, CALFED will meet a variety of goals such as:

- Improve and increase aquatic habitats so that they can support sustainable production and survival of native and other desirable estuarine and anadromous fish in the estuary;
- Improve and increase important wetland species so they can support the sustainable production and survival of wildlife species; and
- Increase population health and population size of Delta species to levels that assure sustained survival.

Water Quality

CALFED will provide good water quality for all beneficial uses, including exported drinking water, agricultural uses (both in-Delta and exported), industrial uses, recreational in-Delta uses, and aquatic habitats of the Bay-Delta. To attain this objective, CALFED will meet a variety of goals such as:

- Reduce the level of water quality parameters of concern to human health in water supply or treat to reduce concern;
- Improve or manage water quality to maintain or improve agricultural economic productivity by reducing water quality contaminants that reduce crop productivity on lands receiving Delta water, reduce cropping choices, or increase costs; and
- Reduce industrial treatment and/or production costs.

Water Supply Reliability

CALFED will reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system. To attain this objective, CALFED will meet a variety of goals such as:

- Maintain adequate Bay-Delta system supplies to meet the existing and future short- and long-term in-Delta beneficial use needs;
- Improve Bay-Delta system export water supply and timing to help meet reasonable existing and future short- and long-term needs; and
- Improve the adequacy of Bay-Delta water to meet short- and long-term expected needs for Delta outflow.

System Integrity

CALFED will reduce the risk to land uses and associated economic activities, water supply, infrastructure, and the Bay-Delta ecosystem from catastrophic breaching of Delta levees. To attain this objective, CALFED will meet a variety of goals such as:

- Manage the risk to existing land use, associated economic activities and infrastructure from gradual deterioration of Delta conveyance and flood control facilities and catastrophic inundation of Delta islands;
- Manage the risk to water supply facilities in the Delta and from catastrophic inundation of Delta islands; and
- Manage the risk to the existing Delta ecosystem from gradual deterioration of Delta conveyance and flood control facilities and catastrophic inundation of Delta islands.

The overall purpose responds to needs identified in the Framework Agreement to address the interrelated problems affecting the Bay-Delta system.

Ecosystem Quality

The health of the Bay-Delta system has declined as a result of a number of factors including degradation and loss of habitat that supports various life stages of aquatic and terrestrial biota. Further, the decline in health has resulted from activities within, upstream and downstream of the Bay-Delta system. The earliest major damaging event was the unrestricted use of hydraulic mining in the river drainages along the eastern edge 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, industrial and urban 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, industrial and urban development. Many of the remaining stream sections have been dredged or channelized to improve navigation and to increase stream conveyance capacity to accommodate flood flows and facilitate water export.

Upstream water development and use, depletion of natural flows by local diverters, and the export of water from the Bay-Delta system, have changed seasonal patterns of inflow, reduced outflow, and diminished the natural variability of flows into and through the Bay-Delta system. Facilities constructed to support water diversions (upstream, in-Delta and export), cause straying or direct losses of fish (e.g., through unscreened diversions) and can increase exposure

of juvenile fish to predation. Entrainment and removal of substantial quantities of food-web organisms, eggs, larvae, and young fish further exacerbate the impacts of overall habitat decline.

Habitat alteration and water diversions are not the only factors that have affected ecosystem health. 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 may compete for available space and food supplies, sometimes to the detriment of native species or economically important introduced species.

Water Quality

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. Increasingly stringent drinking water requirements require new treatment technologies and are spurring the need for water providers to seek higher quality source waters and to address pollution in source waters. 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 returns upstream and within the Delta 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 disinfection chemicals commonly used to meet public health requirements in water treatment. During this treatment process, certain disinfection by-products are created that produce carcinogenic effects on humans.

Water Supply Reliability

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 for the water during certain seasons or during water-short years has magnified 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 water supplies and flexibility to meet the quantity and timing of water delivered from the Bay-Delta system. Water suppliers and users are concerned that additional restrictions, if needed, to protect species, would increase the uncertainty and further reduce the availability of Bay-Delta system water for agricultural, industrial and urban purposes.

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 in the Delta or water transport across the Bay-Delta system for out of Delta use.

System Integrity

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.

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