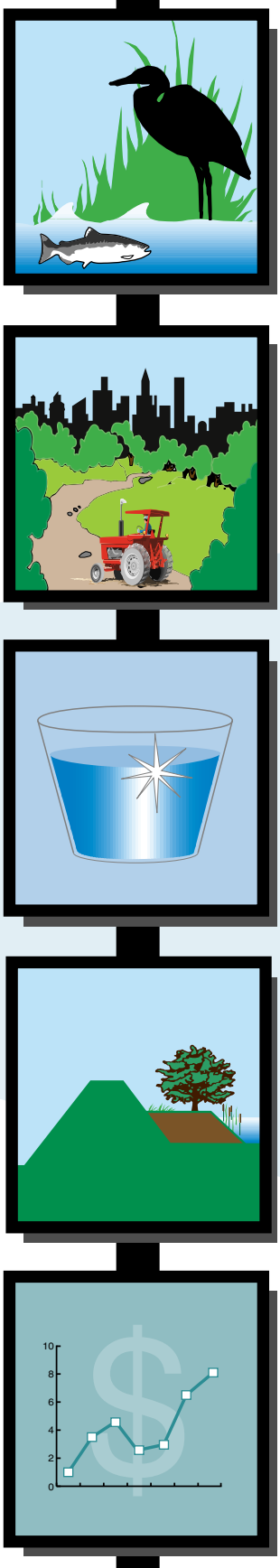


CALFED
BAY-DELTA
PROGRAM

Programmatic Record of Decision

August 28, 2000

TABLE OF CONTENTS

Page

1. INTRODUCTION 1
1.1 Overview 3
1.2 Purposes of This Record of Decision 5
1.3 Background/Historical Context 7
1.3.1 Bay-Delta Accord 7
1.3.2 Mission Statement 8
1.3.3 Four Interrelated Program Objectives 10
1.3.4 Summary of Process 10

2. DECISION 11
2.1 National Environmental Policy Act/California Environmental Quality Act Decision 11
2.1.1 Discussion of Alternative Selection Process 11
2.1.2 Public Comments 13
2.1.3 Preferred Program Alternative 15
2.1.4 Discussion of Alternatives and Comparison to Preferred Program Alternative 24
2.1.5 Environmentally Preferable/Superior Alternative 27
2.1.6 Mitigation 29
2.2 Plan for Action 31
2.2.1 Governance 31
2.2.2 Ecosystem Restoration 35
2.2.3 Watersheds 39
2.2.4 Water Supply Reliability 40
2.2.5 Storage 42
2.2.6 Conveyance 48
2.2.7 Environmental Water Account 54
2.2.8 Water Use Efficiency 59
2.2.9 Water Quality 65
2.2.10 Water Transfers 71
2.2.11 Levees 72
2.2.12 Science 74

3. PROGRAMMATIC ENVIRONMENTAL COMPLIANCE 77
3.1 Clean Water Act Section 404 77
3.2 Conservation Agreement Regarding Multi-Species Conservation Strategy, Including the Federal Endangered Species Act/California Endangered Species Act/Natural Community Conservation Planning Act Commitments 77
3.3 Programmatic Endangered Section 7 Biological Opinions 79

3.4 Natural Community Conservation Plan Determination 80
3.5 Clean Water Act Section 401 Memorandum of Understanding 80
3.6 Coastal Zone Management Act Programmatic Consistency Determination 81
3.7 Permit Clearinghouse 81

APPENDICES

A. Mitigation Measures Adopted in the Record of Decision

B. Mitigation Measures Not Adopted in the Record of Decision

ATTACHMENTS

1. California Environmental Quality Act Requirements
CEQA Findings of Fact
Statement of Overriding Considerations
Certification by the Secretary, California Resources Agency

2. Environmental Water Account Operating Principles Agreement

3. Implementation Memorandum of Understanding

4. Clean Water Act Section 404 Memorandum of Understanding

5. Conservation Agreement Regarding Multi-Species Conservation Strategy

6. Programmatic Endangered Species Act Section 7 Biological Opinions
A. U.S. Fish and Wildlife Service
B. National Marine Fisheries Service

7. Natural Community Conservation Plan Determination

8. Clean Water Act Section 401 Memorandum of Understanding

9. Coastal Zone Management Act Programmatic Consistency Determination

10. Common Acronyms

1. INTRODUCTION

The CALFED Bay-Delta Program is an unprecedented effort to build a framework for managing California's most precious natural resource: water. California and the Federal government in partnership, are launching the largest, most comprehensive water management program in the world. This is the most complex and extensive ecosystem restoration project ever proposed. It is also one of the most intensive water conservation efforts ever attempted. It is the most far-reaching effort to improve the drinking water quality of millions of Californians as well as an unprecedented commitment to watershed restoration. And it is the most significant investment in storage and conveyance in decades. This document is the Record of Decision (ROD) for addressing these efforts through a sustained, long-term effort by the CALFED Agencies and stakeholder groups.

The CALFED Bay-Delta Program began in May 1995 to address the complex issues that surround the Bay-Delta. The CALFED Bay-Delta Program is a cooperative, interagency effort of 18 State and Federal agencies with management or regulatory responsibilities for the Bay-Delta. The CALFED Program is a collaborative effort including representatives of agricultural, urban, environmental, fishery, and business interests, Indian tribes and rural counties who have contributed to the process.

The San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta) estuary is the largest estuary on the West Coast. It is a maze of tributaries, sloughs, and islands and a haven for plants and wildlife,

CALFED

State Agencies

Resources Agency of California*
- **Department of Water Resources**
- **Department of Fish and Game**
- **Reclamation Board**
- **Delta Protection Commission**

California Environmental Protection Agency
- **State Water Resources Control Board**

California Department of Food and Agriculture

Federal Agencies

U.S. Department of Interior
- **Bureau of Reclamation***
- **Fish and Wildlife Service***
- **Bureau of Land Management**
- **U. S. Geological Survey**

U.S. Army Corps of Engineers*

U.S. Environmental Protection Agency*

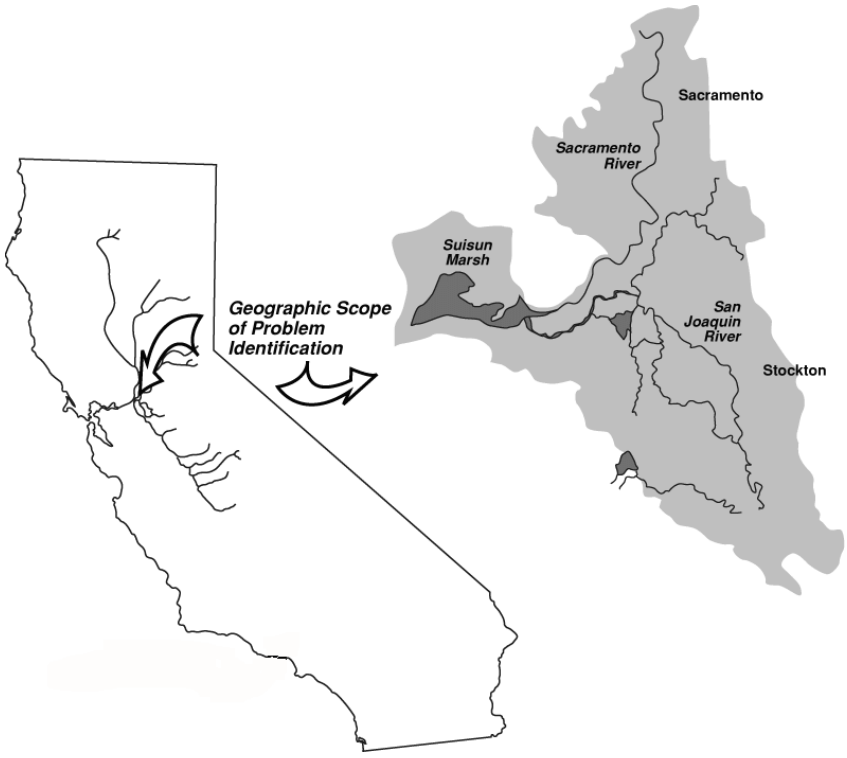
U.S. Department of Commerce, National Oceanic and Atmospheric Administration
- **National Marine Fisheries Service***

U.S. Department of Agriculture
- **Natural Resources Conservation Service***
- **U.S. Forest Service**

Western Area Power Administration

* Co-lead agencies for EIS/EIR

supporting over 750 plant and animal species. The Bay-Delta includes over 738,000 acres in five counties. The Bay-Delta is critical to California's economy, supplying drinking water for two-thirds of Californians and irrigation water for over 7 million acres of the most highly productive agricultural land in the world.



The Bay-Delta is also the hub of California's two largest water distribution systems - the Central Valley Project (CVP) operated by the U.S. Bureau of Reclamation (Reclamation) and the State Water Project (SWP) operated by the California Department of Water Resources (DWR). Together, these water development projects divert about 20 to 70 percent of the natural flow in the system depending on the amount of runoff available in a given year.

These diversions, along with the effects of increased population pressures throughout California, exotic species, water pollution, and numerous other factors have had a serious impact on the fish and wildlife resources in the Bay-Delta estuary. The drought of 1987-92 demonstrated just how vulnerable California is to water shortages. More recent conflicts between water quality, fish protection and water supply also demonstrate how little flexibility there is in the current system. With the State's population expected to grow from 34 million today to 59 million in 2040, the need to conserve, to build our capacity, and to manage our water system more efficiently is no longer just a goal, it is a reality.

Before CALFED, all agreed on the importance of the Bay-Delta estuary for both fish and wildlife habitat and as a reliable source of water, but few agreed on how to manage and protect this valuable resource. The CALFED Bay-Delta Program was established to develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. Over the last five years, hundreds of individuals have spent thousands of hours discussing and debating options for a long-term restoration and management plan for the Bay-Delta estuary. The task is fourfold: 1) to restore the ecological health of a fragile and depleted Bay-Delta estuary; 2) improve the water supply reliability for the State's farms and growing cities that draw water from the Delta and its tributaries, including 7 million acres of the world's most productive farmland; 3) protect the drinking water quality of the 22 million Californians who rely on the Delta for their supplies; and 4) protect the Delta levees that ensure its integrity as a conveyance and ecosystem. Through the Bay-Delta Advisory Council,

State and Federal agencies have worked with stakeholders and the public to shape these options into this framework for a comprehensive plan.

The CALFED Program and the CALFED Agencies have approached many ecosystem and water management issues from a regional perspective: what makes the most sense for the affected region. The regions, which include their respective watersheds, are the Sacramento Valley, the San Francisco Bay Area, the Delta, Westside San Joaquin Valley, San Joaquin River/South San Joaquin Valley, and Southern California. Although each region raises unique ecosystem and water management issues, each region's issues affect the health and function of the Bay-Delta system as a whole. Those regional issues nevertheless need regional solutions that contribute to overcoming the challenges facing the Bay-Delta system. In crafting regional solutions, the CALFED Program has also identified and considered the other, independent actions taken by Federal, State and local agencies operating outside the CALFED Program. In addition, CALFED has taken into account its obligations to comply with ongoing commitments, such as the commitments included in the State's area of origin laws.

Consistent with the stated purposes of the CALFED Bay-Delta Program since its outset in 1995, it is not the intent of this program to address or solve all of the water supply problems in California. The CALFED Program is directly or indirectly tied to a number of specific project proposals that would help toward meeting California's water needs for a wide variety of beneficial uses. CALFED is an important piece of a much larger picture that is the continuing responsibility of local, regional, State and Federal jurisdictions.

1.1 Overview

Following issuance of the Record of Decision, CALFED Agencies will proceed to Stage 1 implementation. Stage 1 covers the first seven years of a 30-year program and builds the foundation for long-term actions. This document sets out actions included in the Preferred Program Alternative for implementing Stage 1. These actions also depend upon subsequent project-specific environmental analyses as well as on subsequent review of financial and legislative proposals in this document by the State and Federal executive branches, Congress and the State Legislature.

The program components are as follows:

- Governance
- Ecosystem Restoration
- Watersheds
- Water Supply Reliability
- Storage
- Conveyance
- Environmental Water Account

- Water Use Efficiency (conservation and recycling)
- Water Quality
- Water Transfers
- Levees
- Science

These program components were recently described in the document entitled *California's Water Future: A Framework for Action*, issued on June 9, 2000. The document is referred to as "the Framework" in other locations in this ROD.

All aspects of the CALFED Program are interrelated and interdependent. Ecosystem restoration is dependent upon water supply and conservation. Water supply depends upon water use efficiency and consistency in regulation. Water quality depends upon improved conveyance, levee stability and healthy watersheds. The success of all of the elements depends upon expanded and more strategically managed storage.

California taxpayers, stakeholders and the Federal government will be called upon to invest billions of dollars over the next decade on CALFED programs. Expenditure of those funds must be based upon accountability and measurable progress being made on all elements of the Program. The project schedules described in this ROD depend upon certain assumptions about State and Federal budgets, optimized construction schedules, willing sellers, and other contingencies. These assumptions may change as the CALFED Program progresses and appropriate revisions to the Program may be necessary. Consistent with Federal law, nothing in this ROD constrains the discretion of the President or his successors to make whatever budgetary or legislative proposals he or his successors deem appropriate or desirable. The commitments of the United States and of the State of California under this ROD are necessarily contingent upon the availability of appropriated funds or upon enactment of authorizing legislation providing other sources of funding.

During implementation, the Program will incorporate both a high level of stakeholder participation and, as a central feature, science-based adaptive management. The Program includes a strong commitment to assure that its decisions and actions are based on sound science. To this end, the Program provides for comprehensive monitoring and data collection, and continuous and comprehensive scientific review of actions and decisions. The highest quality and credibility of science-based decision making will be assured by the integration in the Program of an independent board of scientific experts. In addition, the Program has hired a nationally-recognized scientist to coordinate the science effort, including related scientific studies conducted by CALFED Agencies.

Consistent with Proposition 204, prior to November 15, 2001 and each year thereafter, the CALFED Policy Group or its successor, in consultation with other interested persons and agencies, will review the CALFED Program's progress in meeting the implementation schedule in this ROD. The CALFED Policy Group or its successor will submit an annual report by December 15th to the Governor, the Secretary of the Interior, the State Legislature and the Congress that describes the status of implementation of all elements of the Program. The report will describe the status of all Stage 1 actions, including goals, schedules and financing agreements, taken to meet

CALFED objectives in the following areas:

- Completion of key projects and milestones identified in the Ecosystem Restoration Program.
- Development and implementation of local programs for watershed conservation and restoration.
- Progress in improving water supply reliability and implementing the Environmental Water Account (see section 2.2.7 for Environmental Water Account).
- Achievement of commitments under State and Federal Endangered Species Acts.
- Implementation of a comprehensive science program.
- Progress on storage projects, conveyance improvements, levee improvements, water quality projects, and water use efficiency programs.
- Progress toward acquisition of the State and Federal permits, including Clean Water Act Section 404 permits, for implementation of projects in all identified program areas.
- Progress in achieving benefits in all geographic regions covered by the Program.
- Legislative action on water transfer, groundwater management, water use efficiency and governance issues.
- Status of complementary actions.
- Status of mitigation measures.
- Revisions to funding commitments and program responsibilities.

If at the conclusion of each annual review, or if a timely annual review has not been issued, the Governor or the Secretary of the Interior determines that the schedule or objectives established in this ROD has not been substantially adhered to, the Governor and the Secretary, after notice to, and consultation with, State and Federal CALFED representatives, will prepare a revised schedule that ensures achievement of balanced solutions in all program areas consistent with the intent of this ROD and applicable regulatory compliance documents. Upon determination that the prior schedule has not been substantially adhered to, State funds, if the determination was made by the Governor, and Federal CALFED funds, if the determination was made by the Secretary of the Interior, will to the extent authorized be available for expenditure in the subsequent budget year only if a revised schedule has been developed within six months from the date on which the determination was made. Upon the submission of any revised schedule, funds will be expended in accordance with that revised schedule.

1.2 Purposes of This Record of Decision

This Record of Decision for the CALFED Bay-Delta Final Programmatic Environmental Impact Statement and Report (EIS/EIR) represents the culmination of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) processes. The ROD reflects a final selection of a long-term plan (Preferred Program Alternative), which includes specific actions, to fix the Bay-Delta, describes a strategy for implementing the plan, and identifies complementary actions the CALFED Agencies will also pursue.

For actions contained within the Preferred Program Alternative that are undertaken by a CALFED Agency or funded with money designated for meeting CALFED purposes, environmental review will tier from the Final Programmatic EIS/EIR. These actions will be carried out in a manner consistent with this ROD and incorporate the mitigation strategies contained in Appendix A to this ROD.

The Preferred Program Alternative is a set of programmatic actions, studies, and conditional decisions. It includes the broadly described actions that set the long-term overall direction of the Program. The description of the alternative is programmatic in nature, intended to help agencies and the public make decisions on the broad methods to meet program purposes. The Preferred Program Alternative description is an important legal element of compliance with CEQA and NEPA. The Preferred Program Alternative is not intended to define the site specific actions that will ultimately be implemented.

Whenever a broad environmental impact analysis has been prepared and a subsequent narrower analysis is then prepared on an action included within the entire program or policy, the subsequent analysis need only summarize the issues discussed in the broader analysis and incorporate discussions from the broader analysis by reference. This is known as tiering. Tiered documents focus on issues specific to the subsequent action and rely on the analysis of issues already decided in the broader programmatic review. Absent new information or substantially changed circumstances, documents tiering from the CALFED Final Programmatic EIS/EIR will not revisit the alternatives that were considered alongside CALFED's Preferred Program Alternative nor will they revisit alternatives that were rejected during CALFED's alternative development process.

Within the defined CALFED solution area, individual CALFED Agencies will implement actions that are part of CALFED's Preferred Program Alternative and will develop identified complementary actions, not part of the CALFED Program, which will help achieve CALFED goals and objectives. All actions will be subject to appropriate environmental review. Many of the complementary actions are not included in the CALFED Program because they were already underway when the CALFED effort was started in 1995. In those cases, CALFED programmatic actions have been designed to complement or supplement these existing actions and programs. Other actions will continue to be developed by individual CALFED Agencies over time. Because these new actions and programs are outside the programmatic analysis of impacts that CALFED has prepared, they are not the subject of final decision in this ROD. Implementation of all individual actions within the Preferred Program Alternative, complementary actions and new actions will be predicated on the appropriate level of environmental review, documentation and permitting.

In addition, many activities will be undertaken within the CALFED solution area by non-CALFED Agencies. By certifying the ROD, the CALFED Agencies do not intend to preclude implementation of projects not expressly evaluated in the CALFED Final Programmatic EIS/EIR. Nor do the CALFED Agencies intend to affect the ability of local communities to meet their individual water supply needs. Finally, nothing in this ROD is intended to, nor does, affect the regulatory responsibilities of individual CALFED Agencies.

This ROD recognizes that the CALFED Agencies have specific statutory and/or regulatory

authority and responsibilities, and that actions of these agencies must be consistent with applicable procedural and substantive requirements. Nothing in this ROD is intended to or shall have the effect of constraining or limiting any public entity in carrying out its statutory responsibilities. Nothing in this ROD constitutes an admission by any party as to the proper interpretation of any provision of law; nor is anything in this ROD intended to, nor shall it have the effect, of waiving or limiting any public entity's rights and remedies under any applicable law. Additionally, this document in no way supersedes the requirements of Executive Order 12322 or other Federal water policies and authorities.

The CALFED Agencies recognize that certain departments, boards, and commissions have adjudicative responsibilities with respect to contested matters that are brought before them. Such responsibilities include the requirement that the adjudicative entity and its members avoid bias, prejudice, or interest in the adjudicative matters before them; e.g., they cannot decide, before completion of any required hearing or equivalent proceeding, the outcome of a matter. Some such adjudicative entities exist within the undersigned CALFED Agencies. This ROD does not in any way require or commit an adjudicative entity to participate in proposing a project that will come before it for approval. Under this ROD, the role of adjudicative entities in connection with matters that may require an adjudicative decision is limited to promptly and diligently processing any applications, petitions, or other requests for approval. Nothing in this ROD commits an adjudicative entity to an approval or disapproval of any project subject to the authority of the adjudicative entity, nor to a term or condition in any approval of a project by the adjudicative entity.

1.3 Background/Historical Context

1.3.1 Bay-Delta Accord

Seeking solutions to the resource problems in the Bay-Delta, State and Federal agencies signed an agreement in June 1994 to (1) coordinate their actions to meet water quality standards to protect the Bay-Delta estuary; (2) coordinate the operation of the State Water Project (SWP); and the Central Valley Project (CVP) more closely with recent environmental mandates; and (3) develop a process to establish a long-term Bay-Delta solution to address four categories of problems; ecosystem quality, water quality, water supply reliability, and levee system vulnerability.

This agreement laid the foundation for the Bay-Delta Accord and CALFED. The Accord, formally called the Principles for Agreement on Bay-Delta Standards between the State of California and the Federal Government, detailed interim measures for both environmental protection and regulatory stability in the Bay-Delta. On December 15, 1994, the Accord was signed by State and Federal resource agencies, as well as by stakeholders representing many local water agencies and environmental organizations. Under the terms of a December 1999 extension, the Accord formally expires when this ROD is executed. Thereafter, the provisions in the Accord are replaced in their entirety by the provisions and agreements in this ROD and associated documents.

1.3.2 Mission Statement

Early in the Program development, CALFED Agencies developed and adopted the mission statement, objectives and solution principles to guide how the Program will be implemented. The mission statement, objectives and solution principles are shown in the following box. CALFED used these to shape the alternatives and will continue to use these objectives and principles as actions are implemented. Carrying out the mission, achieving the objectives, and adhering to the solution principles will ensure that CALFED fulfills its commitment to continuous improvement in all of the four problem areas.

MISSION STATEMENT

The mission of the CALFED Bay-Delta Program is to develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system.

OBJECTIVES

CALFED developed the following objectives for a solution:

- Provide good water quality for all beneficial uses.
- 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.
- Reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system.
- Reduce the risk to land use and associated economic activities, water supply, infrastructure and the ecosystem from catastrophic breaching of Delta levees.

SOLUTION PRINCIPLES

In addition, any CALFED solution must satisfy the following **solution principles**:

- ***Reduce Conflicts in the System*** Solutions will reduce major conflicts among beneficial uses of water.

- ***Be Equitable*** Solutions will focus on solving problems in all problem areas. Improvements for some problems will not be made without corresponding improvements for other problems.

- ***Be Affordable*** Solutions will be implementable and maintainable within the foreseeable resources of the Program and stakeholders.

- ***Be Durable*** Solutions will have political and economic staying power and will sustain the resources they were designed to protect and enhance.

- ***Be Implementable*** Solutions will have broad public acceptance and legal feasibility, and will be timely and relatively simple to implement compared with other alternatives.

- ***Have No Significant Redirected Impacts*** Solutions will not solve problems in the Bay-Delta system by redirecting significant negative impacts, when viewed in their entirety, within the Bay-Delta or to other regions of California.

1.3.3 Four Interrelated Program Objectives

The CALFED Program takes a broad approach to addressing the four problem areas of water quality, ecosystem quality, water supply reliability and levee system integrity, recognizing that many of the problems and solutions in the Bay-Delta system are interrelated. Problems in any one program area cannot be solved effectively without addressing problems in all four areas at once. This greatly increases the scope of efforts but will ultimately result in progress toward a lasting solution.

Thus, the single most important difference between the CALFED Bay-Delta Program and past efforts to solve the problems of the Bay-Delta is the comprehensive nature of CALFED's interrelated resource management strategies. A comprehensive CALFED solution will also be supported by governance mechanisms that overcome problem-specific or resource-specific limitations of previous, more narrowly focused, approaches.

1.3.4 Summary of Process

There are three phases to the CALFED Bay-Delta Program:

Phase I - In Phase I, completed in September 1996, CALFED identified the problems confronting the Bay-Delta, developed the mission statement and guiding principles, and devised three preliminary categories of solutions for Delta water conveyance. In addition, CALFED identified three preliminary alternatives, representing differing approaches to conveying water through the Delta, to be further analyzed in Phase II.

Phase II - In Phase II, CALFED has completed the Final Programmatic EIS/EIR and issued this ROD. This includes development of the Preferred Program Alternative and development of the Plan of Action (see Section 2.2) focusing on the first seven years (Stage 1) following issuance of this ROD.

Phase III - Implementation will begin in Phase III. This period will include project-specific environmental review and permitting, as necessary.

During Phase I, CALFED held scoping meetings, technical workshops, public information meetings, and public BDAC workgroup meetings. The commitment to active public involvement continued through Phase II with additional public meetings, presentations before interested groups, media outreach, special mailings of newsletters, regularly updated information on the Program's web site, and a toll-free public information telephone line.

2. DECISION

2.1 National Environmental Policy Act/California Environmental Quality Act Decision

After reviewing the alternatives discussed in the Final Programmatic EIS/EIR and their predicted environmental, economic and social consequences, the CALFED Agencies select the Preferred Program Alternative as the best alternative for meeting the Program purposes. The Preferred Program Alternative provides a long-term plan to improve water quality, stabilize Delta levees, restore the ecosystem and provide water supply reliability.

The alternatives considered in CALFED's Programmatic EIS/EIR represent a reasonable range of alternatives for meeting the program purposes. The Preferred Program Alternative includes a set of broadly described programmatic actions in eight program areas (see Section 2.1.3).

2.1.1 Discussion of Alternative Selection Process

In Phase I, CALFED initiated a lengthy, inclusive public process to develop alternatives in order to accomplish its mission. The Phase I process developed alternatives in six steps: identify problems, define objectives, identify actions, develop solution strategies, assemble alternatives, and refine alternatives. Early in Phase I, the Program identified 50 categories of actions to resolve Bay-Delta problems and achieve Program objectives. These action categories were drawn from existing literature and participation from CALFED agencies, the Bay Delta Advisory Council, and numerous workshops with stakeholders and the general public. Within these categories, hundreds of individual actions were defined. The action categories represent the building blocks of the alternatives. In other words, each alternative is a combination of action categories reflecting differing approaches to achieving Program objectives and addressing solution principles.

As a way to manage the number of alternatives while still representing the full range of approaches to resolving problems, CALFED focused on the critical conflicts in the Bay-Delta system to help define an initial set of alternatives. These conflicts included the relationships between:

- Fisheries and diversions
- Habitat and land use and flood protection
- Water supply availability and beneficial uses
- Water quality and land use

Approximately 100 initial alternatives resulted from this focus. The initial alternatives varied in the level of effort applied to actions related to water use efficiency, water quality, ecosystem quality, and levee system integrity components.

Following evaluations and comments received at public meetings, workshops, and in writing, CALFED reached a number of conclusions regarding the makeup of each alternative:

The best possible source water quality is of paramount importance to urban water supplies. Agencies that deliver drinking water were very concerned about the cost of meeting future drinking water quality standards, as well as the technical challenges associated with treating source water of degraded quality. This suggests strong pollutant source control measures in every alternative.

Delta levees will be needed to protect agriculture, infrastructure, and habitat no matter how water is conveyed in the Delta. Delta levees protect many valuable features, including farms, habitat, infrastructure, and Delta water quality. Even if a new conveyance facility is built that protects water quality for some export users, adequate levee integrity will still be required to protect water quality, facilities and property in the Delta. This argues for a similar level of Delta levee protection in each alternative.

Ecosystem actions in the Program needs a single coherent vision of ecosystem restoration. The restoration of ecosystem functions and the recovery of Bay-Delta species likely will require diverse actions that will be extensive in scope. There is really no alternative to a single comprehensive plan for restoring ecosystem health. Adaptive management will be vital in guiding efforts to improve ecosystem quality. It is this adaptive management that will provide the needed flexibility in the Ecosystem Restoration Program.

Water use efficiency must be strongly pursued in all the alternatives. Water use efficiency will maximize use of existing supply to meet all needs and reduce the need for new storage. This suggests that water use efficiency measures should be implemented at a substantially increased level among all the alternatives.

The Program then refined the alternatives, which led to selection of a set of Phase II alternatives that was large enough to offer a reasonable range of solutions while small enough to allow for detailed analysis. Three basic alternative approaches developed in Phase I of the Program were carried into Phase II. Seventeen alternative configurations of the three basic alternative approaches were developed to further explore potential refinements for storage and conveyance in Phase II. Of the seventeen configurations, five were eliminated from further evaluation, and the environmental consequences of twelve of these were evaluated in the March 1998 Draft Programmatic EIS/EIR.

Based on public and agency comments on the March 1998 Draft Programmatic EIS/EIR and additional technical analysis, the Program was able to further refine and narrow the number of alternative solutions to the four evaluated in the July 2000 Final Programmatic EIS/EIR. Reasons for the elimination or consolidation of alternatives included technical deficiencies, creation of conditions damaging to the aquatic environment, higher costs relative to similarly performing

alternatives, and the lack of a south Delta conveyance improvement element. The Program has determined that the Program objectives cannot be met without some south Delta conveyance improvements.

The four alternatives evaluated in the Final PEIS/EIR, Alternatives 1, 2 and 3 and the Preferred Program Alternative, vary primarily in their approach to water conveyance. Three basic alternative approaches were formed around different configurations of Delta conveyance: existing system conveyance, modified through-Delta conveyance, and dual-Delta conveyance. Each approach includes the same set of actions for water use efficiency, water quality, levee system integrity, ecosystem quality, water transfers, and watersheds. A range of storage options was evaluated for each alternative to support these programs and the Delta conveyance, and to seek a balance between attainment of Program objectives and cost effectiveness. For further discussion of these alternatives and the No Action Alternative and a comparison of each of the alternatives to the Preferred Program Alternative see section 2.1.4 below.

A detailed description of the program alternative selection process can be found in Section 1.4 and Response to Comment document of the Final Programmatic EIS/EIR.

2.1.2 Public Comments

Comments Received on June 1999 Draft EIS/EIR

CALFED received and considered a wide variety of comments on the June 1999 Draft Programmatic EIS/EIR. The comments included:

- Approximately 1,500 letters from individuals and organizations.
- Approximately 800 individuals testified at one or more of sixteen hearings held around the State.
- Approximately 2,400 pre-printed letters or postcards.

A total of approximately 11,000 individual comments were identified from these sources. CALFED Agencies prepared responses as part of the Final Programmatic EIS/EIR. A large percentage of the comments were general in nature and did not identify specific items from the Draft Programmatic EIS/EIR. Specific comments were categorized into 23 different areas of interest. Comments and responses can be found in the three volumes of the Response to Comments contained in the Final Programmatic EIS/EIR.

Comments Received on Final Programmatic EIS/EIR

Copies of the Final Programmatic EIS/EIR, including the responses to comments on the draft Programmatic EIS/EIR, were sent to all persons and public agencies who commented on the June 1999 Draft Programmatic EIS/EIR. As of August 28, 2000, CALFED received 411 letters on the Final Programmatic EIS/EIR. The decision makers have reviewed all of the letters commenting on the Final Programmatic EIS/EIR and considered this information as part of the process of preparing the ROD.

Many of the comments have been addressed in this ROD. For instance, the ROD addresses East Bay Municipal Utility District's comment on the source water for the Bay Area Blending Project and clearly articulates the CALFED Agencies' commitment that satisfactory resolution of fishery concerns is a prerequisite to implementation of a new Sacramento River diversion facility. The ROD also addresses the comment of Contra Costa Water District on implementation of Veale and Byron Tract projects in the South Delta. These are just a few examples of comments that have been addressed in the ROD.

Many comments repeat public comments on the Draft EIS/EIR that were addressed as part of the Response to Comments document in the Final Programmatic EIS/EIR. These included comments suggesting that the CALFED Program will forego or inappropriately influence existing regulatory processes. Several of the comments, similar to comments on the Draft EIS/EIR, reflect uncertainty/apprehension about the nature of some program element actions. As indicated in the Response to Comments document, these issues will be resolved as CALFED works with various stakeholders, agencies and local groups to further develop and implement the program element actions.

Several commenters asked for more time to provide additional comments on the Final Programmatic EIS/EIR and asked CALFED to hold a series of public hearings on the CALFED Program. The CALFED Agencies have accepted public comments on the Final Programmatic EIS/EIR from the date the Final Programmatic EIS/EIR was released to the public. This period will not be extended because of the desire to move forward into the project-specific implementation phase of the CALFED Program. Implementation of project-specific actions will involve additional environmental review as well as public involvement in the development of projects.

Many of the comments are project-specific; as such are beyond the level of detail of the Programmatic EIS/EIR and are not appropriate for a decision at this time. However, the concepts associated with the majority of the specific comments have been addressed in the Final Programmatic EIS/EIR and this ROD.

Comments indicated that local or directly affected individuals have not been given an adequate representation in the process and should be given opportunity to participate in all actions and shape decisions. The CALFED Program has been a collaborative effort. Public and agency involvement through outreach and education has been a focus of the CALFED Program since its

initial stages. These efforts have helped shape the CALFED Program, as well as develop the Programmatic EIS/EIR. For over five years, the Program has relied on continuous comments and involvement from individuals and groups who have a stake in finding long-term solutions for the problems affecting the Bay-Delta system. Participants representing rural, agricultural, municipal, and industrial water users; fishing interests; tribal governments; environmental organizations; businesses; and the general public have helped to define problems and evaluate alternatives to solve the challenges confronting the Bay-Delta system. To date, thousands of Californians have contributed to the Program by participating in public meetings and workshops—volunteering time, sharing expertise, and expressing ideas and opinions. Extensive opportunity for stakeholder participation, including participation by tribal governments, local government and affected individuals will continue to be provided as the Program moves forward.

CALFED's strategic approach for implementation includes working with stakeholders, agencies and local groups to further develop and implement the proposed actions. CALFED's strategic approach for implementation also includes staged implementation and staged decision making. The selection of a Preferred Program Alternative provides the broad resource framework and strategy for implementing a comprehensive Bay-Delta Program. The programmatic decision sets in motion the implementation of some actions, as well as additional planning and investigation to refine other actions. Throughout the implementation period, monitoring will provide information about conditions in the Bay-Delta and results of CALFED actions.

Many comments addressed the program plans released with the Final Programmatic EIS/EIR and not the environmental impact analysis contained within the Final Programmatic EIS/EIR. These comments were helpful in highlighting to the decision makers concerns commenters have about the program plans, but did not directly address the environmental impacts of the Program.

A comment regarding the Monterey Agreement questioned whether a response was misnumbered. The correct responses are IA-5.1-70, IA-5.1-128 and IA-2.2-5 rather than IA-5.1-108.

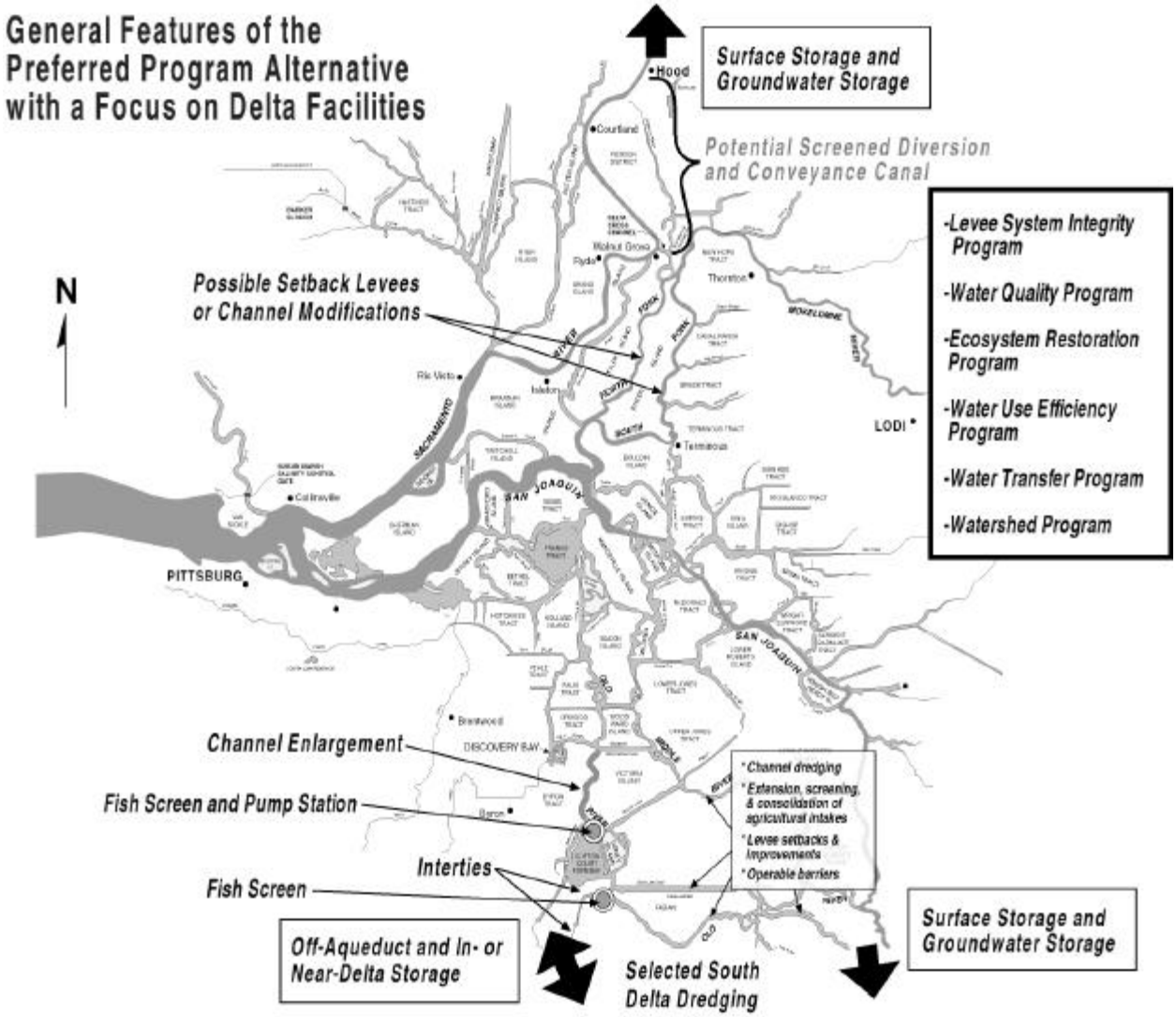
Lastly, several commenters indicated that the Framework contained activities not included in the Final Programmatic EIS/EIR and that the Framework should be integrated with the Final Programmatic EIS/EIR and the Record of Decision. The Framework described a strategy for implementing the Preferred Program Alternative and most actions described in the Framework are a part of the Preferred Program Alternative described in the Final Programmatic EIS/EIR. The Framework also identified complementary actions generally not analyzed in the Final Programmatic EIS/EIR intended to be pursued through further environmental review. Most actions. The complementary actions not analyzed in the Final Programmatic EIS/EIR are not subject to a final decision at this time. The Framework does not affect, in any way, the environmental analysis that was completed as part of the NEPA/CEQA process.

2.1.3 Preferred Program Alternative

The Preferred Program Alternative consists of a set of broadly described programmatic actions

which set the long-term, overall direction of the 30-year CALFED Program. The description is programmatic in nature, intended to help agencies and the public make decisions on broad methods to meet program purposes. The Preferred Program Alternative is made up of the Levee System Integrity Program, Water Quality Program, Ecosystem Restoration Program, Water Use Efficiency Program, Water Transfer Program, Watershed Program, Storage and Conveyance.

Actions described are intended to take place in an integrated framework and not independently of one another. While each program element is described individually, it is understood that only



through coordinated, linked, incremental investigation, analysis and implementation can we effectively resolve problems in the Bay-Delta system.

Levee System Integrity Program

The focus of the Levee System Integrity Program is to improve levee stability to benefit all users of Delta water and land. Actions described in this program element protect water supply reliability by maintaining levee and channel integrity. Levee actions will be designed to provide simultaneous improvement in habitat quality (consistent with the Ecosystem Restoration Program goals), which will indirectly improve water supply reliability. Levee actions also protect water quality, particularly during low flow conditions when a catastrophic levee breach would draw salt water into the Delta.

There are five main parts to the Levee System Integrity Program plus Suisun Marsh levee rehabilitation work:

- Delta Levee Base Level Protection Plan - Improve and maintain existing Delta levee system stability to meet the Army Corps of Engineers PL 84-99 levee standard.
- Delta Levee Special Improvement Projects - Enhance flood protection for key islands that provide statewide benefits to the ecosystem, water supply, water quality, economics, infrastructure, etc.
- Delta Levee Subsidence Control Plan - Implement current best management practices (BMPs) to correct subsidence adjacent to levees and coordinate research to quantify the effects and extent of inner-island subsidence.
- Delta Levee Emergency Management and Response Plan - The emergency management and response plan will build on existing State, Federal, and local agency emergency management programs.
- Delta Levee Risk Assessment - Perform a risk assessment to quantify the major risks to Delta resources from floods, seepage, subsidence and earthquakes, evaluate the consequences, and develop recommendations to manage the risk.
- Suisun Marsh Levees - Evaluate, and where appropriate, rehabilitate Suisun Marsh levees.

Water Quality Program

The CALFED Program is committed to achieving continuous improvement in the quality of the waters of the Bay-Delta system with the goal of minimizing ecological, drinking water and other water quality problems. Improvements in water quality will result in improved ecosystem health, with indirect improvements in water supply reliability. Improvements in water quality also increase the utility of water, making it suitable for more uses and reuses.

The Water Quality Program includes the following actions:

- Drinking water parameters - Reduce the loads and/or impacts of bromide, total organic carbon (TOC), pathogens, nutrients, salinity, and turbidity through a combination of measures that include source reduction, alternative sources of water, treatment, storage and if necessary, conveyance improvements such as a screened diversion structure (up to 4000

cfs) on the Sacramento River between Hood and Georgiana Slough. The Conveyance section of this document includes a discussion of this potential improvement.

- Pesticides - Reduce the impacts of pesticides through (1) development and implementation of BMPs, for both urban and agricultural uses; and (2) support of pesticide studies for regulatory agencies, while providing education and assistance in implementation of control strategies for the regulated pesticide users.
- Organochlorine pesticides - Reduce the load of organochlorine pesticides in the system by reducing runoff and erosion from agricultural lands through BMPs.
- Trace metals - Reduce the impacts of trace metals, such as copper, cadmium, and zinc, in upper watershed areas near abandoned mine sites. Reduce the impacts of copper through urban storm water programs and agricultural BMPs.
- Mercury - Reduce mercury levels in rivers and the estuary by source control at inactive and abandoned mine sites.
- Selenium - Reduce selenium impacts through reduction of loads at their sources and through appropriate land fallowing and land retirement programs.
- Salinity - Reduce salt sources in urban and industrial wastewater to protect drinking and agricultural water supplies, and facilitate development of successful water recycling, source water blending, and groundwater storage programs. Salinity in the Delta will be controlled both by limiting salt loadings from its tributaries, and through managing seawater intrusion by such means as using storage capability to maintain Delta outflow and to adjust timing of outflow, and by export management.
- Turbidity and sedimentation - Reduce turbidity and sedimentation, which adversely affect several areas in the Bay Delta and its tributaries.
- Low dissolved oxygen - Reduce the impairment of rivers and the estuary from substances that exert excessive demand on dissolved oxygen.
- Toxicity of unknown origin - Through research and monitoring, identify parameters of concern in the water and sediment and implement actions to reduce their impacts to aquatic resources.

Ecosystem Restoration Program

The goal of the Ecosystem Restoration Program is to improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta system to support sustainable populations of diverse and valuable plant and animal species. In addition, the Ecosystem Restoration Program, along with the water management strategy, is designed to achieve or contribute to the recovery of listed species found in the Bay-Delta and thus achieve goals of the Multi-Species Conservation Strategy (MSCS). Improvements in ecosystem health will reduce the conflict between environmental water use and other beneficial uses, and allow more flexibility in water management decisions.

The Ecosystem Restoration Program identifies programmatic actions designed to restore, rehabilitate, or maintain important ecological processes, habitats, and species within 14 ecological management zones. Implementation of these programmatic actions will be guided by

six goals presented in the Strategic Plan for Ecosystem Restoration. Nearly 100 restoration objectives have been developed which are directly linked to one of the six goals. Each objective further defines the restoration approach for each ecological process, habitat, species or ecosystem stressor. One to several restoration targets have been developed for each objective to set more specific or quantified restoration levels.

Long-term implementation of the Ecosystem Restoration Program will be guided by the adaptive management approach described in the Strategic Plan for Ecosystem Restoration. This approach to restoration will require review by an ecosystem restoration science review panel and will rely on information developed in the Science Program.

Representative Ecosystem Restoration Program actions include:

- Protecting, restoring, and managing diverse habitat types representative of the Bay-Delta and its watershed.
- Acquiring water from sources throughout the Bay-Delta's watershed to provide flows and habitat conditions for fishery protection and recovery.
- Restoring critical in-stream and channel-forming flows in Bay-Delta tributaries.
- Improving Delta outflow during key periods.
- Reconnecting Bay-Delta tributaries with their floodplains through the construction of setback levees, the acquisition of easements, and the construction and management of flood bypasses for both habitat restoration and flood protection.
- Developing assessment, prevention and control programs for invasive species.
- Restoring aspects of the sediment regime by relocating in-stream and floodplain gravel mining, and by artificially introducing gravels to compensate for sediment trapped by dams.
- Modifying or eliminating fish passage barriers, including the removal of some dams, construction of fish ladders, and construction of fish screens that use the best available technology.
- Targeting research to provide information that is needed to define problems sufficiently, and to design and prioritize restoration actions.

Water Use Efficiency Program

The Water Use Efficiency Program includes actions to assure efficient use of existing and any new water supplies developed by the Program. Efficiency actions can alter the pattern of water diversions and reduce the magnitude of diversions, providing ecosystem benefits. Efficiency actions can also result in reduced discharge of effluent or drainage, improving water quality.

The Water Use Efficiency Program will build on the work of the existing Agricultural Water Management Council and California Urban Water Conservation Council process, supporting and supplementing those processes through planning and technical assistance and through targeted financial incentives (both loans and grants). The Water Use Efficiency Program has identified

potential recovery of currently irrecoverable water losses of over 1.4 million acre-feet of water annually by 2020 as a result of CALFED actions. Early in Stage 1, CALFED will identify measurable goals and objectives for its urban and agricultural water conservation program, water reclamation programs and managed wetlands programs.

Water conservation-related actions include:

- Implement agricultural and urban conservation incentive programs to provide grant funding for water management projects that will provide multiple benefits which are cost-effective at the state-wide level, including improved water quality and reduced ecosystem impacts.
- Identify, in region-specific strategic plans for agricultural areas, quantifiable objectives to assure improvements in water management.
- Expand State and Federal programs to provide increased levels of planning and technical assistance to local water suppliers.
- Work with the Agricultural Water Management Council (AWMC) to identify appropriate agricultural water conservation measures, set appropriate levels of effort, and certify or endorse water suppliers that are implementing locally cost-effective feasible measures.
- Work with the California Urban Water Conservation Council (CUWCC) to establish an urban water conservation BMP certification process and set appropriate levels of effort in order to ensure that water suppliers are implementing cost-effective feasible measures.
- Help urban water suppliers comply with the Urban Water Management Planning Act.
- Identify and implement practices to improve water management for wildlife areas
- Gather better information on water use, identify opportunities to improve water use efficiency, and measure the effectiveness of conservation practices.
- Conduct directed studies and research to improve understanding of conservation actions.

Water recycling actions include:

- Help local and regional agencies comply with the water recycling provisions in the Urban Water Management Planning Act.
- Expand State and Federal recycling programs to provide increased levels of planning, technical, and financing assistance (both loans and grants) and to develop new ways of providing assistance in the most effective manner.
- Provide regional planning assistance that can increase opportunities for the use of recycled water.

Water Transfer Program

The Water Transfer Program proposes a framework of actions, policies, and processes that, collectively, will facilitate water transfers and the further development of a state-wide water transfer market. The framework also includes mechanisms to help provide protection from third party impacts. A transfers market can improve water availability for all types of uses, including the environment. Transfers can also help to match water demand with water sources of the appropriate quality, thus increasing the utility of water supplies.

The Water Transfer Program will include the following actions and recommendations:

- Establish a California Water Transfer Information Clearinghouse to provide a public informational role. The clearinghouse would 1) ensure that information regarding proposed transfers is publicly disclosed and, 2) perform on-going research and data collection functions to improve the understanding of water transfers and their potential beneficial and adverse effects.
- Require water transfer proposals submitted to the DWR, Reclamation, or the State Water Resources Control Board to include analysis of potential groundwater, socio-economic, or cumulative impacts as warranted by individual transfers.
- Streamline the water transfer approval process currently used by DWR, Reclamation, or the State Water Resources Control Board. This would include clarifying and disclosing current approval procedures and underlying policies as well as improving the communication between transfer proponents, reviewing agencies, and other potentially affected parties.
- Refine quantification guidelines used by water transfer approving agencies when they are reviewing a proposed water transfer. This will include resolving issues between stakeholders and approving agencies regarding the application of current agency-based quantification criteria.
- Improve the accessibility of State and Federal conveyance and storage facilities for the transport of approved water transfers.
- Clearly define carriage water requirements and resolve conflicts over reservoir refill criteria such that transfer proponents have a clear understanding of the implications of these requirements.
- Identify appropriate assistance for groundwater protection programs through interaction with CALFED Agencies, stakeholders, the Legislature and local agencies. This is intended to assist local agencies in the development and implementation of groundwater management programs that will protect groundwater basins in water transfer source areas.
- Establish new accounting, tracking, and monitoring methods to aid instream flow transfers under California Water Code Section 1707.

Watershed Program

The goal of the CALFED Watershed Program is to promote locally led watershed management activities and protections that contribute to the achievement of CALFED goals for ecosystem restoration, water quality improvement, and water supply reliability. The Program will accomplish these tasks by providing financial and technical assistance to local community watershed programs.

The Watershed Program includes the following elements:

- Build local community capacity to assess and manage watersheds affecting the Bay-Delta system.
- Develop local watershed assessment and management plans.
- Fund development and implementation of specific watershed conservation, maintenance, and restoration actions identified in these plans.
- Facilitate and improve coordination and assistance among government agencies and local watershed organizations.
- Develop watershed program performance measures and monitoring protocols consistent with the CALFED Science Program.
- Support resource conservation education at the local watershed level, and provide organizational and administrative support to watershed programs.
- Identify the watershed functions and processes that are relevant to CALFED goals and objectives, and provide examples of watershed activities that could improve these functions and processes.

Storage

Groundwater and surface water storage can be used to improve water supply reliability, provide water for the environment at times when it is needed most, provide flows timed to maintain water quality, and protect levees through coordinated operation with existing flood control reservoirs.

Decisions to construct groundwater or surface water storage will be predicated on compliance with all environmental review and permitting requirements, and maintaining balanced implementation of all Program elements. Subject to these conditions, new groundwater and surface water storage will be developed and constructed, together with aggressive implementation of water conservation, recycling, an improved water transfer market, and habitat restoration, as appropriate to meet CALFED Program goals. During Stage 1, through the water management strategy (including the Integrated Storage Investigation), CALFED will continue to evaluate surface water and groundwater storage, identify acceptable project-specific locations, and initiate permitting, NEPA and CEQA documentation, and construction if all conditions are satisfied.

The total volume of new or expanded surface water and groundwater storage evaluated in the Final Programmatic EIS/EIR ranges up to 6 million acre feet, and surface storage facility locations being considered are located in the Sacramento and San Joaquin Valley and in the Delta. Those surface storage sites that will be pursued in Stage 1 are discussed in Section 2.2.5. New groundwater programs could be implemented statewide.

Conveyance

The Preferred Program Alternative employs a through-Delta approach to conveyance. Modifications in the Delta conveyance will result in improved water supply reliability, protection and improvement of Delta water quality, improvements in ecosystem health, and reduced risk of supply disruption due to catastrophic breaching of Delta levees. The Preferred Program Alternative through-Delta conveyance facility actions include:

- Construction of a new screened intake at Clifton Court Forebay with protective screening criteria.
- Construction of either a new screened diversion at Tracy with protective screening criteria; and/or an expansion of the new diversion at Clifton Court Forebay to meet the Tracy Pumping Plant export capacity.
- Implementation of the Joint Point of Diversion (see EWA Operating Principles Agreement in Attachment 2) for the SWP and CVP, and construction of interties.
- Construction of an operable barrier at the head of Old River to improve conditions for salmon migrating up and down the San Joaquin River.
- Construction of operable barriers taking into account fisheries, water quality and water stage needs in the south Delta.
- Operational changes to the SWP operating rules to allow export pumping up to the current physical capacity of the SWP export facilities.

Under the Preferred Program Alternative, north Delta improvements include:

- Studying and evaluating a screened diversion facility on the Sacramento River with a range of diversion capacities up to 4,000 cfs as a measure to improve drinking water quality in the event that the Water Quality Program measures do not result in continuous improvements toward CALFED drinking water goals. Potential diversion sites between and including Hood and Georgiana Slough will be considered as part of this evaluation.

  The diversion facility on the Sacramento River likely would include a fish screen, pumps, and a channel between the Sacramento and Mokelumne Rivers. The diversion facility on the Sacramento River is an action to be considered only after three separate assessments are satisfactorily completed: first, a thorough assessment of Delta Cross Channel (DCC) operation strategies and confirmation of continued concern over water quality impacts from DCC operations; second, a thorough evaluation of the technical viability of a diversion facility; and third, satisfactory resolution of the fisheries concerns about a diversion facility. The assessments of the Delta Cross Channel and the diversion facility on the Sacramento River will be completed simultaneously. The results of all three of these evaluations will be shared with the Delta Drinking Water Council or its successor and the expert panel evaluating fish impacts of Delta conveyance. If these evaluations demonstrate that a diversion facility on the Sacramento River is necessary to address drinking water quality concerns and can be constructed without adversely affecting fish populations, initiate permit and environmental review to enable a decision on siting and construction of

a facility as a part of the Preferred Program Alternative.

- Pursue construction of new setback levees, dredge and/or improve existing levees along the channels of the lower Mokelumne River system from Interstate 5 downstream to the San Joaquin River.

The Preferred Program Alternative includes a process for determining the conditions under which any future additional conveyance facilities or water management actions would be taken. The process would include:

- An evaluation of how water suppliers can best provide a level of public health protection equivalent to Delta source water quality of 50 parts per billion (ppb) bromide and 3 parts per million (ppm) total organic carbon.

- An evaluation based on two independent expert panels' reports -- one on the Program's progress toward these measurable water quality goals and the second on CALFED's progress toward ecosystem restoration objectives, with particular emphasis on fisheries recovery.

2.1.4 Discussion of Alternatives and Comparison to Preferred Program Alternative

No Action Alternative

The No Action Alternative is a description of the anticipated physical, CVP/SWP operation, and regulatory environment that would be in place in 2020 if the Program is not approved and implemented. Impacts of alternatives considered are compared to the No Action Alternative in order to highlight the changes to the environment that would take place as a result of implementing various alternatives.

Compared to the No Action Alternative and existing conditions, the Preferred Program Alternative provides significant improvements in terms of its ecosystem quality, water quality, water supply reliability, and levee system integrity effects. Under the No Action Alternative, each of these four areas of critical concern would continue to deteriorate. In addition, the quality of both in-Delta and export water likely would decline under the No Action Alternative. This decline in water quality would adversely affect irrigated agriculture, ecosystem health, fisheries, and drinking water quality. With the continued decline of the ecosystem, interruptions of water deliveries also likely would occur because of constraints on export pumping to protect threatened and endangered species. Finally, under the No Action Alternative, the Delta levees would continue to be vulnerable to failure because of limited maintenance in some locations and the lack of a comprehensive plan for effective emergency response. The No Action Alternative fails to meet the Program objectives and would result in significant adverse impacts on the health of fisheries, endangered species, species of special concern and their habitat, water quality, and other Bay-Delta resources.

Alternative 1

Under Alternative 1, Delta channels would be maintained essentially in their existing configuration. Several improvements would be made in the south Delta similar to those in the Preferred Program Alternative. The Preferred Program Alternative includes these south Delta actions but also includes actions in the north Delta such as channel modifications for improved water conveyance and flood control and the possible construction of a diversion facility on the Sacramento River. If the diversion facility is not constructed, the Preferred Program Alternative would be the most similar to Alternative 1.

Alternative 1, lacking north Delta channel improvements, would not provide as much flood control benefit in the Delta. Alternative 1 also does not have the potential for water quality improvement provided by the Preferred Program Alternative. The water quality improvement strategy for the Preferred Program Alternative is to aggressively implement the common programs and south Delta improvements, in Stage 1 of implementation, as proposed for Alternative 1. If these water quality objectives are not achieved, the diversion facility on the Sacramento River could be implemented, pending demonstration of benefits for water quality and resolution of fisheries concerns. This contingent action would improve Delta outflow, and decrease salinity and bromide for in-Delta and export water quality.

Alternative 1 would create slightly fewer construction- and facility-related impacts on visual resources, cultural resources, geology and soils, transportation, and air quality compared to the Preferred Program Alternative. Since Alternative 1 does not include a diversion facility on the Sacramento River, it would avoid the associated impacts on fisheries. However, the diversion facility would only be constructed and operated if adverse impacts on fish populations could be avoided. Consequently, the Preferred Program Alternative will not have greater adverse impacts on fish populations than Alternative 1.

Alternative 1 provides less operational flexibility than the Preferred Program Alternative and accordingly could result in fewer benefits to water supply reliability, and water quality. While Alternative 1 would substantially meet the Program's goals and primary objectives, Alternative 1 provides less operational flexibility and is less effective in meeting the Program objectives for water quality, water supply reliability and flood control as compared to the Preferred Program Alternative.

Alternative 2

Alternative 2 would employ a modified through-Delta conveyance approach. Significant improvements to north Delta channels, including construction of setback levees and channel dredging, and construction of a 10,000 cfs diversion from the Sacramento River to the Mokelumne River and associated fish protection facilities, would accompany the south Delta improvements contemplated under Alternative 1 and the Preferred Program Alternative.

The diversion would send greater volume and better quality water from the Sacramento River into the north Delta and east Delta. The diverted water would improve net-Delta outflow which helps to isolate the south Delta pumps from salinity intrusion and reduces the entrainment of San Joaquin River fish. The quality of in-Delta and exported water quality and would improve as compared to the Preferred Program Alternative.

However, Alternative 2 could result in significant adverse impacts on fisheries from the 10,000 cfs diversion facility. Fish mortality would increase as a result of reduced flow on the Sacramento River downstream of the diversion and greater proportion of fish entering Georgianna Slough and the Mokelumne River. Fish mortality would also increase from entrainment at the diversion. There is substantial uncertainty whether a facility as large as 10,000 cfs could be operated and screened sufficiently to avoid or minimize significant adverse effects on fish populations.

While the Preferred Program Alternative incorporates many of the benefits of Alternative 2 derived from north Delta channel modifications, there is uncertainty and concern that objectives for export and in-Delta water quality can be achieved with the common program elements and these actions. If water quality objectives not be met, the Preferred Program Alternative includes a diversion facility on the Sacramento River as a contingent measure to improve export water quality. The facility would have a capacity no greater than 4000 cfs which would substantially reduce impacts on fisheries, and would provide similar, but less pronounced, water quality improvement as Alternative 2. The diversion facility would only be constructed if it is determined that significant adverse impacts on fish populations can be avoided. Alternative 2 does not include this option. While Alternative 2 could meet the Program's goals and primary objectives to some extent, the water quality benefits of Alternative 2 are outweighed by greater technological uncertainty and adverse impacts on fisheries as compared to the Preferred Program Alternative. Accordingly, Alternative 2 is less effective in meeting the Program objectives.

Alternative 3

Alternative 3 would employ a dual-conveyance approach employing a combination of through-Delta improvements similar to the Preferred Program Alternative and an isolated diversion facility on the Sacramento River to take water by canal to the export facilities in the south Delta.

Initially, the dual-Delta conveyance approach with an isolated facility appeared to provide greater technical performance than the other alternatives. Some of the preliminary scientific and engineering evidence suggests that a dual-Delta conveyance configuration may improve export water quality and achieve fish recovery most effectively. Relative to the Preferred Program Alternative, Alternative 3 would improve export water quality and improve Delta flow patterns for fish migration, including reduced incidence of reverse flow and entrainment in the south Delta pumps.

However, other evidence indicates that such a conveyance configuration can cause significant in-Delta water quality problems. The diversion would substantially reduce the flow of the

Sacramento River below the diversion and could aversely affect fish migration and survival. The isolate facility would have a capacity between 5,000 cfs and 10,000 cfs. Higher capacity diversion would pose problems similar to Alternative 2. Additionally, construction-related impacts, land conversion and impacts from operation of the isolated facility, such as seepage, would be substantially greater under the Preferred Program Alternative.

In addition, during scoping and public meetings, many stakeholders and agencies voiced numerous concerns, including the difficulty of in ensuring the appropriate operation of such a facility, fear that an isolated facility will decrease the incentive to manage the Delta as a "common pool" in which export water supply is coupled with the preservation of the Delta, that decreased dependence on a on a through-Delta approach could undermine the commitment for balanced solutions involving maintaining Delta levees, improving in-Delta quality and pursuing ecosystem restoration.

For these reasons, Alternative 3 presents the most serious challenges in terms of cost, scientific uncertainty, assurances and implementation. While Alternative 3 may technically perform better for certain resource areas than the Preferred Program Alternative, it is not clear that the additional cost and risk associated with the isolated facility would be worth the benefits. Years of scientific evaluation would be necessary to determine whether an isolated facility would be needed to meet water quality, water supply reliability and fisheries objectives. At the earliest, evaluation, design and permitting the facility would take ten years. Lastly, the isolated facility is so contentious that stakeholder support for the Program would be significantly eroded. Such lack of support could threaten the viability of the entire Program.

The Preferred Program Alternative has a high likelihood of success in a shorter time period. The Preferred Program Alternative also has lower risk, is less controversial, and would require less modification of the environment than Alternative 3. Alternative 3 is rejected as infeasible due to social and technical considerations, based in large part due to the contentiousness and time associated with an isolated conveyance facility and the uncertainty that it will achieve the Program objectives any better than the Preferred Program Alternative.

2.1.5 Environmentally Preferable/Superior Alternative

As described above, the Preferred Program Alternative adopts a set of programmatic actions designed to achieve the objectives for each of the resource areas while evaluating the effectiveness of those actions, and assessing whether modifications may be needed to meet Program goals and objectives. Accordingly, the Preferred Program Alternative is the "Environmentally Preferable Alternative" under NEPA and the "Environmentally Superior Alternative" under CEQA.

The problems and potential solutions facing the Bay-Delta involve a complex set of interrelated biological, chemical, and physical systems. This complexity, coupled with the broad scope and number of actions needed to implement the Program, the 30-year or more implementation period,

the need to test hypotheses, and resource limitations make it necessary to implement the Program in stages. Consequently, the Preferred Program Alternative provides for implementation of the Program in a staged manner and establishes mechanisms to obtain the necessary additional information to guide the next stage of decision making.

The Preferred Program Alternative consists of a through-Delta conveyance approach, coupled with ecosystem restoration, water quality improvements, levee system improvements, increased water use efficiency, improved water transfer opportunities, watershed restoration, and additional surface waters and groundwater storage. The Preferred Program Alternative meets the Program's multiple purposes, reduces adverse environmental effects, and provides a system of research and monitoring to determine whether modifications or additional actions are needed. It provides multiple benefits, including but not limited to:

- Modifying the timing and magnitude of flow to restore ecological processes and to improve conditions for fish, wildlife, and plants in the Bay-Delta system.
- Improving and increasing aquatic and terrestrial habitats.
- Modifying and eliminating fish passage barriers.
- Constructing fish screens that use the best available technology.
- Reducing the loads and impacts of bromide, total organic carbon, pathogens, nutrients, salinity, and turbidity.
- Reducing the impacts of pesticides.
- Reducing the impacts of trace metals, mercury, and selenium.
- Improving and maintaining the stability of the Delta levees and, after evaluation, appropriately improving and maintaining the Suisun Marsh levee system.
- Enhancing flood protection for key Delta islands.
- Expanding and implementing agricultural and urban conservation incentive programs.
- Implementing better water management for managed wetlands.
- Facilitating water transfers while protecting third parties from potentially significant adverse impacts.
- Supporting local watershed restoration, maintenance, and conservation activities.
- Developing appropriate groundwater and surface storage in conjunction with specified water conservation, recycling, and water transfer programs to provide water for the environment at times when it is needed most, and to improve water supply reliability.
- Modifying existing Delta conveyance systems for improved water supply reliability and water quality, improved ecosystem health, and reduced risk of supply disruption due to catastrophic breaching of Delta levees.

Although the CALFED Agencies did not rule out the possibility of constructing an isolated conveyance facility in the future, they were mindful that, even if approved immediately following the ROD, such a facility could not be studied, approved, funded, and constructed within Stage 1 of implementation.

In light of the technical and feasibility issues discussed above, the CALFED Agencies propose to begin with through-Delta modifications. As part of the Preferred Program Alternative, the Program also would:

- Continue to investigate storage opportunities in the context of the broader water management strategy.
- Evaluate and implement storage projects, predicated on complying with all environmental review and permitting requirements. These efforts will be coordinated under CALFED's Integrated Storage Investigation.
- Implement the Stage 1 of the Ecosystem Restoration, Water Quality, Water Use Efficiency, Water Transfers, Watershed, and Levee System Integrity Program Plans.
- Monitor the results of these actions to determine whether an isolated conveyance facility as part of a dual-Delta conveyance configuration is necessary to meet the Program objectives.

If the Program purposes cannot be fully achieved with the actions proposed in the Preferred Program Alternative, additional actions including an isolated conveyance facility will need to be considered in the future. Until additional information is available to determine whether water quality objectives and fish recovery goals can be met and which, if any, additional actions will be necessary to achieve the Program goals and objectives, the Preferred Program Alternative is the best alternative to achieve overall project purposes and provide significant beneficial improvements over the conditions anticipated under the No Action Alternative, while establishing a process for obtaining this additional information. Moreover, the way the alternatives are structured, going forward with the Preferred Program Alternative does not preclude the Program's ability to undertake additional conveyance actions in the future, subject to appropriate environmental review.

2.1.6 Mitigation

Mitigation Measures Adopted

The Final Programmatic EIS/EIR sets out many potential mitigation measures (see Appendix A to this ROD) to be used during project-specific planning where appropriate. The CALFED Agencies will consider and adopt these measures when conducting second-tier environmental review. In addition to the mitigation measures identified at the programmatic level, the CALFED Agencies will also consider and adopt feasible mitigation measures intended to address project-specific impacts.

In considering effects from the CALFED Program together with effects of other similar projects, the cumulative impact analysis did not identify any additional effects that individually would be minor, but collectively significant. As a result, the analysis of the CALFED Program's contribution to cumulative effects is very similar to the analysis of its long-term effects. The

mitigation strategies identified for the CALFED Program effects are also applicable to mitigate the CALFED Program's cumulative effects.

Mitigation Measures Not Adopted

Generally, mitigation measures were not adopted in this ROD where they were inappropriate or not practicable. Specifically, a measure was not adopted where a mitigation measure is similar to a measure incorporated, a measure is less effective than a measure incorporated, a measure is ineffective for mitigating an adverse effect, a measure is too project-specific for a programmatic document, a measure addresses an impact that is not caused by the CALFED Program, a measure does not address an environmental effect or a measure is not practicable.

Appendix B to this ROD, incorporated herein, contains a list of mitigation measures not adopted and includes reasons why specific measures were not adopted.

Mitigation Monitoring Plan

Projects and activities that implement the CALFED Preferred Program Alternative will be monitored to ensure that mitigation strategies developed in the Final Programmatic EIS/EIR are considered, adopted and implemented. CALFED Agencies will use this mitigation monitoring plan for projects that are within the scope of the Final Programmatic EIS/EIR and carried out or funded by CALFED Agencies as part of the CALFED Program. If and when a new governing agency with authority to carry out CALFED projects is created, this plan would apply to that new agency as well.

Projects and activities implementing the Preferred Program Alternative will undergo future environmental analysis tiering from the Final Programmatic EIS/EIR. In order to qualify for CALFED funding, any implementing project must demonstrate its compliance with this mitigation monitoring plan. As part of these second-tier environmental reviews, the lead agency for each of these projects will use the mitigation strategies (see Appendix A to this ROD) as a starting point to determine appropriate mitigation measures. Because all the potential actions and impacts for tiered projects cannot be anticipated at a programmatic level, each project needs to select those strategies and actions applicable to the specific location and type of action and to consider additional project-specific mitigation measures.

The mitigation monitoring plan includes review, guidance, and reporting components. The CALFED Agencies will prepare a checklist of the mitigation strategies (Appendix A to this ROD) to provide guidance to lead agencies preparing environmental documents that tier from the Final Programmatic EIS/EIR. The lead agencies for second tier documents will note which applicable programmatic mitigation strategies are being adopted and explain why others are not. They will provide a schedule for implementing the adopted mitigation measures, and for reviewing the implementation of those measures. The lead agencies will provide a written report periodically,

but at least once a year to the CALFED Agencies for programmatic review by the lead scientist as to the overall progress in implementing the mitigation measures and the efficacy thereof. A summary of this information will be included in the annual report described in Section 1.1.

2.2 Plan for Action

2.2.1 Governance

Through five years of planning, the CALFED *process* for implementing the Program has assumed an importance virtually equal to the CALFED *actions*. Stakeholders often raise concerns about their role in implementation or about how a particular action will be implemented. This section briefly describes the CALFED Agencies' plan for addressing interim as well as long-term governance issues.

Interim Process

The CALFED Agencies have executed a memorandum of understanding (Attachment 3 to this ROD) that establishes the process for governing implementation of the CALFED Program until the Legislature and Congress establish a new governing structure. The Implementation MOU does not create a new entity or modify existing agency authority. Instead, it identifies the agencies that will lead implementation of each Program element and establishes the CALFED Policy Group as the oversight and coordination body for CALFED implementation.

Long-Term Proposal

After nearly a decade of slow but tangible progress toward shared decision-making and funding, the CALFED Agencies will work with the State Legislature and the Congress to develop legislation for a permanent joint Federal-State commission with shared power to appoint commission members. This approach will require resolution of Federal Constitutional concerns. The new commission would provide direction and oversight in implementing the long-term plan described in this document and the Final Programmatic EIS/EIR. A joint commission made up of high-level appointees would maintain visibility inside and outside the government, assure agency coordination, help secure funding, and provide policy leadership and accountability.

Major responsibilities of the Commission would include: reviewing and approving program priorities and budget proposals; assessing and reporting on progress toward program goals; coordinating within CALFED and with related programs to maximize resources and reduce conflicts; resolving disputes among CALFED Agencies; and maintaining contact with and receiving communications from the public and the media, as well as Congress and the California Legislature. The overarching mandate of the Commission would be to assure effective, balanced

and coordinated implementation in all program areas.

The Commission should be composed of equal numbers of high level officials of the Federal and State agencies responsible for implementing CALFED programs and a similar number of stakeholder and tribal representatives. This structure is generally consistent with the recommendation of the Bay-Delta Advisory Council. For example, the Commission could have 12 members, as follows: four Federal members - from among the U.S. Environmental Protection Agency (EPA), Natural Resources Conservation Service (NRCS), U.S. Army Corps of Engineers (USACE), National Marine Fisheries Service (NMFS)/National Oceanic and Atmospheric Administration (NOAA), Reclamation, U.S. Fish and Wildlife Service (USFWS); four State members - California Department of Fish and Game (DFG), California Department of Water Resources (DWR), California Environmental Protection Agency (CalEPA), Resources Agency; and four other members, representing rural/agricultural water user communities, urban water user communities, environmental advocates and tribes. This structure would ensure a close relationship between the Commission, CALFED Agencies, and the stakeholder community.

As described in Attachment 3, the Commission would be assisted by an advisory committee whose members would include representatives of Indian tribes, local governments and stakeholder groups, including environmental justice representatives. The advisory committee members would be selected based on their experience and expertise in relevant fields, such as ecosystem restoration, agriculture, hydrology, urban water management, fishery biology, water quality, flood management, water conservation and recycling, and economics. Appointments would be made to assure that the advisory committee as a whole is both balanced and diverse. Representatives of CALFED Agencies would attend advisory committee meetings and provide information and updates to the committee.

Implementation Commitments

Local Leadership. The CALFED Agencies will rely on leadership in local communities across the State to provide advice and support for implementing CALFED projects affecting their communities.

Stakeholder Consultation. The CALFED Agencies will continue to solicit and incorporate diverse stakeholder perspectives into its decisions and actions as they implement the CALFED Program. The Secretary of the Interior will charter a new Federal advisory committee and will consult with the Governor regarding membership of the new committee.

Environmental Justice. Consistent with Federal and State authorities including Federal Executive Order 12898, Title VI of the Civil Rights Act of 1964 and recent State legislation, the CALFED Agencies are committed to addressing environmental justice challenges related to the management of water in the Bay-Delta watershed. For example, it is important to examine the potential effects of water management reforms on rural

communities and the public health and financial impacts of ERP and Water Quality Program actions on the large numbers of minorities and disadvantaged people living in urban as well as rural areas. The CALFED Program and its participating agencies are committed to seeking fair treatment of people of all races, cultures, and incomes, such that no segment of the population bears a disproportionately high or adverse health, environmental, social or economic impact resulting from CALFED's programs, policies, or actions. The CALFED Agencies will be responsible for ensuring this policy is carried out across all program areas through the development of environmental justice goals and objectives.

By the end of December 2000, the CALFED Agencies will collaborate with environmental justice and community stakeholders to develop a comprehensive environmental justice workplan across all program areas. This workplan will ensure that the CALFED Agencies develop the capacity and process to understand, monitor, and address environmental justice issues as the program moves into implementation, including identifying and developing specific methods to address and mitigate environmental justice impacts. This workplan should, at a minimum, include commitments such as the development of environmental justice goals and objectives for each program area, investments in staff and resources across program areas and agencies, development and implementation of an environmental justice education program for agency and program staff, collection and analysis of additional demographic information to assist in the identification of impacts, and actions to ensure effective participation on technical and advisory workgroups by those populations adversely impacted.

Tribal Consultation. Consistent with the President's April 29, 1994, Memorandum, the CALFED Agencies will assess the impact of CALFED project-specific plans, projects and activities on tribal trust resources and tribal government rights and concerns. The CALFED Agencies will actively engage federally recognized tribal governments in the planning and development of specific projects in their areas and will consult with such tribes on a government-to-government basis, to the greatest extent practicable and to the extent permitted by law, prior to taking actions that affect such tribal governments. At the request of any tribal government, the CALFED Agencies will enter into a Memorandum of Understanding with that tribal government or multiple tribal governments that will specify the process for how the federal, state and tribal governments will work together, on a government-to-government basis, in developing CALFED projects.

Land Acquisition. Successful implementation of the CALFED Program will affect some agricultural lands. As an important feature of the State's environment and economy, agricultural lands will be preserved during implementation of the Program in a manner consistent with meeting program goals, minimizing impacts to agriculture. Some of the land needed for program implementation is already owned by the Federal or State government and that land will be used to achieve program goals. Partnerships with landowners, including easements with willing landowners, will be pursued to obtain mutual benefits if public land is not available for the intended purpose. Acquisition of fee

title to land will be from willing sellers only, and will be used when neither available public land nor partnerships are appropriate or cost-effective for the specific need. Such acquisitions will consider the potential for third-party and redirected impacts. In addition, to the maximum extent possible, the CALFED Agencies will seek to implement the Program through technical and financial assistance to locally based, collaborative programs such as the Sacramento River Conservation Area/SB 1086 program.

CALFED Agency Coordination. The CALFED Bay-Delta Program has established an important precedent in coordinated and cooperative State and Federal agency relationships. These improved institutional relationships are expected to extend to other programs in which these agencies continue to have roles. Other programs include those developed to address statewide water supplies and demands.

Integration of Non-Signatory Agencies. The CALFED Agencies intend to work with Federal and State agencies that implement other programs that relate to CALFED's mission. While these agencies will not serve as part of the governing structure or incorporate their programs into CALFED, the CALFED Agencies will coordinate their implementation of the CALFED programs with these non-CALFED programs. The CALFED Executive Officer and staff will coordinate with the other agencies' programs and identify conflicts as soon as possible. In some cases, CALFED Agencies or a successor agency may establish contractual relationships with non-CALFED Agencies to implement certain CALFED programs.

Environmental Documentation. The CALFED Agencies will fulfill their respective legal responsibilities for environmental analysis, documentation and permitting pursuant to NEPA, CEQA and all other environmental laws. As indicated below, the CALFED Agencies and/or the new CALFED Commission will complete the necessary programmatic and project-specific analysis of programs and projects.

Permit Clearinghouse. The CALFED Agencies will establish a clearinghouse for obtaining the necessary permits and approvals for CALFED Program implementation. This permit clearinghouse will be established by December 2000.

Adaptive Management/Science. The CALFED Agencies will use science-based adaptive management in the implementation of the CALFED Program.

Beneficiaries Pay. A fundamental philosophy of the CALFED Program is that costs should, to the extent possible, be paid by the beneficiaries of the program actions.

Compliance With Water Rights Laws. The CALFED Agencies will comply with California's water rights laws, including area-of-origin statutes, applicable to their respective actions. Nothing in this ROD is intended to affect existing water rights or water right holders. In the few areas where CALFED Agencies may propose changes to California law (e.g., transfers, appropriate water use measurement), the CALFED

Agencies will work with all interested parties potentially affected by such changes in developing legislative proposals.

Project Operations. In order to promote more efficient water project operations, the operators of the State Water Project (SWP) and Central Valley Project (CVP) will continue to meet regularly with the fishery agencies through the CALFED Operations Group (Ops Group) which has been re-established in the Implementation MOU.

Coordinated Operation Agreement. DWR and Reclamation intend to modify the 1986 CVP/SWP Coordinated Operation Agreement (COA) in order to reflect the many changes in regulatory standards, operating conditions and the EWA. DWR and Reclamation will commence renegotiation of the COA by the middle of 2001.

2.2.2 Ecosystem Restoration

The CALFED Agencies will implement a comprehensive Ecosystem Restoration Program (ERP) throughout the Bay-Delta's watershed, consistent with the Strategic Plan for Ecosystem Restoration. The goal of the ERP is to improve aquatic and terrestrial habitats and natural processes to support stable, self-sustaining populations of diverse and valuable plant and animal species through an adaptive management process. Implementation of the ERP includes recovery of species listed under the State and Federal Endangered Species Acts.

Actions Included in the Programmatic EIS/EIR

To achieve its objectives, the ERP identifies over 600 programmatic actions in all the regions of the Bay-Delta watershed. CALFED's ERP will undertake the following actions using a science-based adaptive management framework, consistent with the ERP Strategic Plan and on-going scientific review. Additional information on the ERP Science Program can be found in the ERP Strategic Plan. The actions listed here are explained in greater detail in Volumes I and II of the ERP and in the ERP Strategic Plan. ERP actions include, but are not limited to:

- Implement large-scale restoration projects on selected streams and rivers including Clear Creek, Deer Creek, Cosumnes River, San Joaquin River and Tuolumne River, in cooperation with local participants.

- Improve fish passage through modifications or removal of the following locally owned dams: small diversion dams on Butte Creek; eight Pacific Gas & Electric Company diversion dams on Battle Creek; McCormick-Saeltzer Dam on Clear Creek; Woodbridge Dam on Mokelumne River; and Clough Dam on Mill Creek. CALFED Agencies will support studies to determine if introduction of wild chinook salmon and steelhead to the upper Yuba River watershed is biologically, environmentally, and socio-economically feasible over the long term and will recommend other fish passage projects through the

Integrated Storage Investigation (ISI). Local interests will participate in implementing these actions, with funding shared by CALFED Agencies and the local interests, based on individual circumstances.

- Restore habitat in the Delta, San Pablo Bay, Suisun Bay and Suisun Marsh, and Yolo Bypass including tidal wetlands and riparian habitat. In addition, 8,000 to 12,000 acres of wildlife-friendly agricultural lands will be established during Stage 1, in cooperation with local participants.

- Restore habitat and hydraulic needs on Frank's Tract in the Delta to optimize improvements in ecosystem restoration, levee stability, and Delta water quality. CALFED Agencies will decide the scope and feasibility of the project by 2002, and begin implementation by the end of Stage 1.

- Improve salmon spawning and juvenile survival in upstream tributaries as defined by the ERP and Strategic Plan**,** by purchasing up to 100 TAF per year by the end of Stage 1. Some of these ERP flows may contribute to the EWA.

- Complete protection and restoration of the Sacramento River meander corridor as part of the Sacramento River Conservation Area/SB 1086 program, including easement or purchase of an additional 15,000 acres, revegetation, and restoration of stream meander function by the end of Stage 1.

- Implement an invasive species program, including prevention, control and eradication.

- Assess the potential need for additional fish contamination monitoring and consumption advisories in the Bay-Delta watershed. If gaps are found, fund additional monitoring, testing, analysis, outreach, pollution prevention, and implementation of best management practices, as appropriate, by the end of Stage 1.

- Assist existing agency programs to reduce turbidity and sedimentation; reduce the impairment caused by low dissolved oxygen conditions; reduce the impacts of pesticides including organochlorine pesticides; reduce the impacts of trace metals; mercury; and selenium; reduce salt sources to protect water supplies; and increase understanding of toxicity of unknown origin.

- Improve dissolved oxygen conditions in the San Joaquin River near Stockton. The dissolved oxygen in the San Joaquin River, in the vicinity of Stockton, dips below State environmental criteria, causing a migratory block for salmon and threatening other fish. CALFED proposes simultaneous investigation of specific causes as well as investigation of innovative methods to reduce problem pollutants in the river. Proposition 13 includes $40 million to construct facilities as part of this effort. Actions include:

  - **S** Finalize investigation of methods to reduce constituents that cause low dissolved

oxygen by the end of 2001 to be included in the Total Maximum Daily Load recommendation to the Central Valley Regional Water Quality Control Board (CVRWQCB).

- **S** Finalize State Basin Plan Amendment and Total Maximum Daily Load for constituents that cause low dissolved oxygen in the San Joaquin River by the end of June 2002.
- **S** Begin implementation of appropriate source controls and other controls as recommended in the Total Maximum Daily Load by the end of 2002.

Single Blueprint for Restoration and Recovery: MSCS-ERP Milestones

The CALFED Agencies will establish, through the ERP and the MSCS, a single blueprint for restoration and species recovery within the geographic scope of the CALFED ERP. The ERP is the Program's blueprint for restoration of the Bay-Delta. The MSCS is not a separate blueprint or supplemental restoration program and does not supplant the ERP. The measures and goals in the MSCS are derived from, or are consistent with, the ERP's measures and goals.

The ERP will be informed by the Science Program, which will monitor and evaluate the implementation of the ERP actions and conduct pertinent research. The ERP and the Science Program are important for Federal Endangered Species Act (FESA), California Endangered Species Act (CESA) and Natural Community Conservation Plan (NCCP) compliance, and are integral to the MSCS. To ensure that the ERP is implemented in a manner and to an extent sufficient to sustain programmatic FESA, CESA and NCCP compliance for all program elements, USFWS, NMFS, and DFG have developed MSCS-ERP Stage 1 Milestones. USFWS, NMFS, and DFG have concluded, based on the best information currently available, that the MSCS-ERP Milestones, if achieved as specified in the Programmatic Regulatory Determinations, define a manner and level of ERP implementation in Stage 1 sufficient to achieve the MSCS's species goals. USFWS, NMFS, and DFG expect and intend that the MSCS-ERP Milestones will be achieved with annual ERP funding of $150 million, as described below (see Funding).

To ensure that substantial progress in being made to achieve the MSCS-ERP Milestones, the USFWS, NMFS, and DFG will participate in an annual process with the ERP and Science Programs to: 1) develop annual and long-term ERP implementation priorities and strategies; 2) develop annual implementation plans; and 3) assess the implementation and performance of ERP actions, including measuring progress towards achieving the MSCS-ERP Milestones. USFWS, NMFS, and DFG expect that the MSCS-ERP Milestones may be revised to reflect new information derived in the process.

Funding

In Stage 1, CALFED plans to invest over $1 billion in ERP projects, in accordance with the priorities established in the Strategic Plan, in addition to funds necessary for the EWA. To be

successfully implemented, the ERP must have at least $150 million from dedicated funding sources annually through Stage 1. (There may be many ways to achieve this.) An additional $50 million will be required annually for the EWA for the first four years. It is anticipated that additional funding to support the EWA will be needed beyond the first four years. To the extent that the EWA acquires a share of new storage and conveyance projects, the need for EWA funding for annual acquisitions of water will be reduced. The level of assets required to support continuation of the EWA beyond the first four years will be evaluated and will be included in a revised biological opinion.

For the ERP, the CALFED Agencies propose a combination of State funding (including Proposition 204 funds), Federal funding, and user fees. Consistent with this proposal, the State has allocated over $173 million in FY 2000-2001, including $100 million from Proposition 204, $35 million from the general fund, $25 million from Proposition 13, and $13 million from Proposition 12. Additionally, through FY 2000, Federal funds in the amount of $190 million have been provided through Reclamation. During the first years, State and Federal funds would provide the bulk of funding, supplemented by approximately $15 million of Central Valley Project Improvement Act (CVPIA) Restoration Funds, and SWP contributions under the Four Pumps Agreement. Following issuance of this ROD, the CALFED Agencies will work with local interests to develop State legislation to create a broad-based user fee that will generate approximately $35 million annually. The CALFED Agencies also will consider the availability of Federal funds. By the end of Stage 1, CALFED will reevaluate the level of dedicated annual funding from State, Federal, and user sources to achieve the ERP goals.

Complementary Action

The Framework identified the following action which was not analyzed in the Final Programmatic EIS/EIR and will, therefore, require additional environmental review.

- Implement integrated flood management, ecosystem restoration and levee restoration under the Sacramento/San Joaquin River Basins Comprehensive Study being prepared by the USACE and California Reclamation Board. Significant elements of this Comprehensive Study, when implemented, will further the purposes of the ERP. The CALFED Agencies intend that final development and implementation of actions under the Comprehensive Study will be coordinated and consistent with the CALFED Bay-Delta Program.

In addition to the ERP actions funded through CALFED, ongoing State and Federal commitments to fish and wildlife restoration will continue and will supplement the achievement of the CALFED objectives and activities. These programs include CVPIA and Four Pumps Agreement among others.

2.2.3 Watersheds

The goal of the CALFED Watershed Program is to promote locally led watershed management activities and protections that contribute to the achievement of CALFED goals for ecosystem restoration, water quality improvement, and water supply reliability. The CALFED Agencies will encourage and support local efforts to resolve issues throughout watersheds in the solution area (both above and below the primary tributary dams). The CALFED Program will support local implementation with funding, coordination, and technical assistance. CALFED proposes investing $300 million in this watershed program in Stage 1.

Watershed plans and actions will be developed to achieve multiple objectives: improved water supply reliability, flood management, environmental restoration, and water quality. For example, the Watershed program anticipates providing assistance to community based organizations in the American River watershed. Current efforts underway in this watershed are focused on forest and fuels management issues, and reducing the threat of catastrophic wildfire. Addressing these issues on a watershed scale can result in reduced water quality impacts and increased aquatic and terrestrial habitats for important species of concern.

Actions Included in the Programmatic EIS/EIR

The major Stage 1 elements of the Watershed Program include:

- Establishing a grant program in the first year to solicit, evaluate and fund local projects that contribute to achieving CALFED goals. The watershed activities targeted by this program will:

  - Build local capacity to assess and manage watersheds affecting the Bay-Delta system.
  - Develop watershed assessments and management plans.
  - Fund development and implementation of specific watershed conservation, maintenance and restoration actions.

  The CALFED Watershed Program has designed a three-step process for soliciting, evaluating and selecting an initial set of demonstration watershed projects: 1) solicitation of watershed projects that meet Program's selection criteria; 2) further proposal development by CALFED staff, the Watershed Workgroup, and an Interagency Watershed Advisory Team; and 3) evaluation and selection of proposals. CALFED's criteria for selecting projects will be based on the following:

  - A balance of diverse watershed activities that demonstrate the potential to improve the Bay-Delta system.
  - Application to multiple CALFED objectives in an integrated fashion, with emphasis on water supply reliability, water quality, and levee stability.

- S A variety of watershed settings, such as forest lands, agricultural, urban, mixed, etc., are represented.
- S Geographical distribution throughout the CALFED solution area.
- S Project costs and anticipated results.

C Developing watershed program performance measures and monitoring protocols consistent with the CALFED Science Program by the end of 2002.

Local Leadership

Building local consensus about management of individual watersheds is particularly important to the watershed program. CALFED Agencies are therefore committed to fostering the development of local watershed groups that include adjacent landowners, community members (particularly representatives from traditionally under-represented groups), environmental advocacy groups and locally-involved public agencies (Federal, State and local).

2.2.4 Water Supply Reliability

One of the primary goals of CALFED is to improve the reliability of California's water supply within the context of unpredictable hydrology and the competing needs of fish and wildlife and water users. In addition to hydrology, actions taken in Stage 1 assume that water supply reliability is predicated upon the following factors:

C Clear and consistent implementation of all regulatory decisions and project operations.
C Flexibility, water use efficiency and interagency cooperation to avoid water supply/fish/water quality conflicts where possible.
C Investment in infrastructure to improve storage and conveyance capacity.

Actions Included in the Programmatic EIS/EIR

Actions initiated in the first four years of Stage 1 to improve storage and conveyance capacity (see following sections on Storage and Conveyance) will substantially increase water supply reliability in the later years, but these benefits will not be realized until the new facilities come on line. Similarly, it will take years to implement and fully realize the water supply benefits of water use efficiency, recycling and other conservation measures. Therefore the greatest challenge to improving water supply reliability lies in the first four years of Stage 1.

To address these water supply reliability challenges in this period, CALFED Agencies are taking the following actions in this ROD:

C Establishing an EWA with an average of 380 TAF of water set aside annually in the first years to provide additional water for fishery purposes beyond the regulatory baseline. Water assets will be acquired by CALFED Agencies, consistent with the goals of the

CALFED Water Transfer Program.

- Establishing a Regulatory Baseline by delineating existing regulatory requirements and clarifying implementation of specific regulatory actions (see EWA Section).
- Providing a commitment that there will be no reductions, beyond the baseline regulatory levels described below, in CVP or SWP Delta exports to State and Federal project water users resulting from measures to protect fish. This commitment will initially be provided for the first four years of Stage 1, as outlined in the MSCS Conservation Agreement (see Attachment 5 to this ROD).

In addition, CALFED Agencies will take the following actions in Stage 1:

- Seek SWRCB approval of Joint Point of Diversion and share water derived from Joint Point of Diversion between the CVP and the EWA.
- Implement conjunctive management projects, water conservation measures and water transfers, as described in the sections below.
- Allocate Proposition 13 funds dedicated to interim water supply reliability and water quality.

Proposition 13 contains over $630 million for these purposes, including the following:

- **S** $200 million for groundwater storage projects.
- **S** $250 million for Stage 1 water quality actions and water management actions.
- **S** $180 million for water supply and water quality infrastructure projects in areas that draw supplies from the Delta.

In the first four years of Stage 1, it is anticipated that water deliveries will remain at recent levels for most water users who depend upon water from the CVP, including Exchange Contractors, North of Delta CVP agricultural contractors, refuges, and M&I contractors, as well as for SWP contractors and non-project water users. It is also anticipated that implementation of Joint Point of Diversion, operational flexibility, interagency cooperation, EWA implementation, and other cooperative water management actions (some of which may require further specific environmental review) will result in normal years in an increase to CVP south-of-Delta agricultural water service contractors of 15 percent (or greater) of existing contract totals to 65 to 70 percent. This normal year supply improvement may not be achieved in all years due to annual hydrologic variability and its impact on carryover storage conditions. Substantial progress toward implementation of other program elements, such as development of EWA assets, is also necessary. Water supplies in dry years are likely to be less than the anticipated amounts and more in above normal years. As discussed in this ROD, CALFED Agencies are committed to working with local agencies to implement these regional supply actions and to support local water management actions including conservation and other local measures. Part of this effort will include development of a plan for alternative refuge supplies and conveyance.

The Secretary of the Interior is expected to make a decision later this year on Trinity River flows

pursuant to the original Trinity authorization, the Trinity Restoration Act of 1984, and the CVPIA. The substance of that decision is unknown and therefore cannot be addressed at this time. It is separate from and will not be affected by this ROD. Certain CALFED Agencies have considered the potential that the Trinity River decision may affect CVP allocation and have concluded that it will not affect the allocations to CVP south-of-Delta agricultural water service contractors described immediately above.

Complementary Action

The Framework identified the following action which was not analyzed in the Final Programmatic EIS/EIR.

- **Governor's Drought Contingency Plan.** CALFED Agencies recognize that in the next several years critical water shortages may occur that severely impact the health, welfare and economy of California. To avoid such serious impacts, the Governor has convened a panel, chaired by the Director of DWR, for the purpose of developing a contingency plan to reduce the impacts of critical water shortages primarily for agricultural and urban water users. The plan will identify all available resources (e.g., water transfers, water exchanges, groundwater programs, local partnerships), building upon the experience gained with Governor's Drought Water Bank, to minimize such shortages. The plan also will recommend appropriate funding mechanisms. In addition, CALFED Agencies commit to facilitate transfers of water and expedite regulatory processes to assist in implementation of the plan consistent with legal requirements. The Governor's Panel will submit the plan to the Governor by December 2000.

2.2.5 Storage

Expanding water storage capacity is critical to the successful implementation of all aspects of the CALFED Program. Not only is additional storage needed to meet the needs of a growing population but, if strategically located, it will provide much needed flexibility in the system to improve water quality and support fish restoration efforts. Water supply reliability depends upon capturing water during peak flows and during wet years, as well as more efficient water use through conservation and recycling.

Actions Included in the Programmatic EIS/EIR

The Program identified actions that will be pursued in Stage 1 to expand storage capacity at existing reservoirs and strategically located off-stream sites by approximately 950 TAF, and to implement a major expansion of more environmentally sensitive groundwater storage for an additional 500 TAF to 1 MAF. CALFED Agencies are committed to increasing storage through the development of acceptable projects described below. Storage projects are not developed in

isolation but rather as part of an overall water management strategy. As such, storage combined with other program actions such as conservation, transfers and habitat restoration will contribute to and be compatible with the water supply reliability, water quality and ecosystem restoration program objectives. For example, storage projects must be constructed and operated in a manner that is consistent with CALFED's water quality goal of continuous improvement in Delta water quality. Local agencies will continue to independently develop storage projects to meet local needs.

The Final Programmatic EIS/EIR identified 12 potential surface reservoir sites and many possible groundwater storage sites. Based upon the work of the Integrated Storage Investigation and previous studies, DWR and Reclamation will work with other CALFED Agencies to take the necessary steps to pursue expansion of two existing reservoirs and construction of a new offstream reservoir, with a combined capacity of 950 TAF and a major expansion of groundwater storage for an additional 500 TAF to 1 MAF. DWR and Reclamation will also study two potential storage projects through partnerships with local agencies. However, these two additional sites will require substantial technical work and further environmental review and development of cost-sharing agreements before decisions to pursue them as part of the CALFED Program.

Project	Potential Storage (acre-feet)
In-Delta Storage	250,000
Enlarged Shasta	300,000
Expanded Los Vaqueros	400,000
Groundwater/Conjunctive Use	500,000-1,000,000
TOTAL	1,450,000 - 1,950,000

The remaining potential reservoir sites in CALFED's screened list of 12 sites, as well as those sites previously screened out earlier during the site review process, appear to have less potential for providing benefits during Stage 1 or soon thereafter, either because of cost, extensive planning and analysis required, or other factors. Some of these sites may be retained solely for analysis purposes and could serve as alternatives to the above projects. Future progress and experience with implementation of other parts of the Program, such as the EWA or south Delta conveyance improvements, may better define potential benefits of these storage projects. CALFED does not plan to pursue implementation of any of these projects at this time.

The benefits of increased water supply reliability resulting from actions to provide expanded storage (as well as to provide conveyance improvements, described in section 2.2.6) will be available to be shared among beneficial uses as appropriate to the specific action. In evaluating and allocating costs and benefits of CALFED storage and conveyance projects, actions taken outside the CALFED Program will not provide entitlements or the justification for claims for any

parties or class of beneficial users to any particular allocation of storage and conveyance assets developed through the CALFED Program.

Surface Storage Projects To Be Pursued With Project-specific Study. The CALFED Final Programmatic EIS/EIR identified as a list of twelve potential surface storage projects for consideration. Further project-specific review, however, will be required. Actions taken in Stage 1 will focus on the necessary feasibility studies and environmental review for implementing or proceeding with three surface storage projects. In addition, two reservoirs will need further study before the CALFED Agencies or their successor decides whether to proceed with those projects.

- **In-Delta storage project (approximately 250 TAF).** An in-Delta storage facility can provide both fishery benefits and enhanced water project flexibility. CALFED will explore the lease or purchase of the Delta Wetlands project. CALFED also may initiate a new project, in the event that Delta Wetlands proves cost prohibitive or infeasible.

  - Make decision as to whether to seek authorization for a feasibility study of alternatives (Federal funds) by October 2000.
  - Select project alternative and initiate negotiation with Delta Wetlands owners or other appropriate landowners for acquisition of necessary property by December 2001.
  - Develop project plan that addresses local concerns about effects on neighboring lands and complete any additional needed environmental documentation by July 2002.
  - Complete environmental review and documentation, obtain necessary authorization and funding, and begin construction by the end of 2002.

- **Expand CVP storage in Shasta Lake by approximately 300 TAF.** Such an expansion will increase the pool of cold water available to maintain lower Sacramento River temperatures needed by certain fish and provide other water management benefits, such as water supply reliability.

  - Resolve legal issues to allow State agency cooperation by the end of 2000.
  - Complete feasibility study and preliminary design by the end of 2003.
  - Complete environmental review and documentation, obtain Federal authorization and funding, and begin construction by the end of 2004.

- **Expand Los Vaqueros Reservoir by up to 400 TAF with local partners as part of a Bay Area water quality and water supply reliability initiative.** As part of a Bay Area initiative, an expanded Los Vaqueros Reservoir would provide water quality and water supply reliability benefits to Bay Area water users. As an existing reservoir operated by the Contra Costa Water District (CCWD), the Los Vaqueros Reservoir is subject to a number of mandates and agreements. DWR and

Reclamation will work with CCWD and interested stakeholders to assure that previous commitments, including local voter approval required for expansion, are respected.

- S Identify potential local partners and develop agreement with CCWD and other partners as needed for necessary studies by March 2001.
- S Secure authorization and funding for feasibility studies by July 2001.
- S Begin feasibility study and environmental review July 2001, complete feasibility study by July 2002.
- S Complete environmental review, documentation, and preliminary design on a selected alternative by the end of 2003.
- S Finalize agreements with project participants by mid-2004.
- S Obtain necessary authorizations and funding (including local voter approval) by the end of 2004, and begin construction by the end of 2005.

Surface Projects Requiring Further Consideration. In addition to the projects described above, CALFED will join local partners in Stage 1 to evaluate two additional surface storage projects. While these projects require extensive technical work, significant additional environmental review and development of cost-sharing agreements before a decision to implement the project as part of the CALFED Program.

- C **Sites Reservoir.** This project, with a capacity of up to 1.9 million acre-feet, could enhance water management flexibility in the Sacramento Valley. By reducing water diversion on the Sacramento River during critical fish migration periods, this project can greatly increase reliability of supplies for a significant portion of the Sacramento Valley. It can also provide storage and operational benefits for other CALFED programs including Delta water quality and the EWA.

  - S Develop joint planning program through an MOU with local water interests by October 2000.
  - S Complete environmental review and planning documentation by August 2004.

- C **250-700 TAF of additional storage in the upper San Joaquin River watershed.** It would be designed to contribute to restoration of and improve water quality for the San Joaquin River and facilitate conjunctive water management and water exchanges that improve the quality of water deliveries to urban communities. Additional storage could come from enlargement of Millerton Lake at Friant Dam or a functionally equivalent storage program in the region.

  - S Begin comprehensive study of alternatives by the end of 2000.
  - S Begin feasibility study on selected project by the middle of 2001.
  - S Complete environmental review and planning documentation by the middle of 2006.

Groundwater Storage Projects. CALFED Agencies will facilitate and fund locally supported, managed and controlled groundwater and conjunctive use projects with a total of 500 TAF to 1 MAF of additional storage capacity by 2007. Groundwater/conjunctive use projects will be implemented through locally supported and managed projects or through partnerships with local and regional interests. It is CALFED's intent to support voluntary, locally controlled groundwater projects which are designed to address local water needs first, before considering regional or statewide benefits. Groundwater quality will be an important criterion in the selection, operation and management of any of these locally controlled groundwater storage sites. These projects will include a combination of purchase, lease or sharing storage space with others, and will include consideration of existing groundwater storage facilities. CALFED has identified projects in the Sacramento Valley, near the Delta, the San Joaquin Valley and Southern California that could provide 500 TAF to 1 MAF of storage.

Stage 1 actions will include:

- Finalize agreements with new local project proponents for joint planning and development by February 2001.
- Begin feasibility studies by March 2001 with funding through CALFED and Proposition 13.
- Report on the performance of feasibility studies, implementable projects, and potential benefits and beneficiaries by the end of 2002. The report will separately identify likely local benefits as well as opportunities to benefit statewide water supply reliability and the EWA.
- Implement early stages of the most promising projects by the end of 2004. Aggressively pursue implementation of additional projects by the end of Stage 1.

Groundwater Management. Effective groundwater management programs are essential to the success of groundwater and conjunctive use projects, as well as to other CALFED programs such as water transfers and water quality. Currently, groundwater is managed in some areas of the State through adjudicated basins and by local water districts and agencies. While many of these districts and agencies have developed effective local groundwater programs, most groundwater basins in California are not managed to obtain the benefits that could be gained through conjunctive management of both groundwater and surface water. These benefits can include increased local water supply reliability, water quality protection, reduced subsidence, and mitigation of overdraft. CALFED believes that groundwater management at the sub-basin level will better protect groundwater resources while increasing local benefits that could be gained from conjunctive management. CALFED defines sub-basins as a portion of a groundwater basin delineated to reflect hydrologic or political boundaries. The sub-basin management system also would encourage local agencies to coordinate and integrate stakeholder-driven sub-basin management objectives while keeping intact the goals and elements of local plans. These objectives should include compliance with existing county ordinances and AB 3030 plans.

Therefore, CALFED Agencies will support legislation that encourages groundwater management at the sub-basin level.

AB 3030, which authorizes local agencies to enact voluntary groundwater management plans within their boundaries, is an important foundation for comprehensive groundwater management in California. AB 3030 also allows agencies to enter into agreements to develop basin-wide plans but does not require such basin-wide plans to be developed. DWR will adopt regulations for expenditure of grant and loan funds that make funding contingent upon local agencies having an AB 3030 plan or a functional equivalent in place. CALFED will work with local governments and affected stakeholders to develop legislation to strengthen AB 3030 and provide technical and financial incentives to encourage more effective basin-wide groundwater management plans, in part by conditioning future State funding for water programs on the development of local groundwater management plans by 2004.

Funding

The financing strategy for individual storage projects will vary due to the design and planned operations of each project. Final cost allocations, however, will be made based on the principle of "beneficiaries pay." Generally, the planning and feasibility stages of surface storage projects will be pursued with State and Federal public funding. If a project is determined to be feasible, a cost allocation plan will be prepared as part of the design phase, preliminary cost allocations secured before construction begins, and final cost allocation agreements implemented prior to project completion. The expected total investments in storage during Stage 1 will be approximately $1.4 billion.

Regulatory Compliance

All of the projects described above, as well as many other CALFED program actions, will need to comply with applicable regulatory programs. Potential surface storage projects being evaluated by CALFED will need to comply with, among other things, the requirements of the State and Federal ESA, the Clean Water Act Section 401 certification process, and the USACE regulatory permit program. CALFED has taken a number of steps to assure that the regulatory review process for storage projects proceeds in a timely manner. These steps are discussed in more detail in Section 3.

2.2.6 Conveyance

As indicated in the Preferred Program Alternative, the CALFED Agencies have chosen to pursue a through-Delta conveyance strategy. The CALFED Agencies therefore will take all reasonable actions to optimize the use of the Delta as the means for conveyance of State and Federal project export water.

The CALFED goal for Delta conveyance is to identify and implement conveyance modifications that will improve water supply reliability for in-Delta and export users, support continuous improvement in drinking water quality, and complement ecosystem restoration. More specifically for export and environmental purposes, conveyance improvements are needed to improve the pumping capabilities of SWP export facilities to: (1) restore water project reliability and operational flexibility; (2) allow the EWA to transfer and store water; (3) allow a reliable water transfer market to function; (4) allow SWP facilities to convey larger amounts of water during periods of high quality water in the Delta to improve water quality for urban use; and (5) provide greater capability for SWP facilities to be used to improve the reliability of CVP supplies for both its water users and wildlife refuges. DWR, Reclamation and USACE will lead efforts to implement these conveyance projects.

DWR and Reclamation will work with the other CALFED Agencies to pursue significant improvements in the water conveyance facilities in the Delta in Stage 1, which will be pursued through project-specific environmental review and permitting.

Actions Included in the Programmatic EIS/EIR

The following projects and actions were analyzed on a programmatic basis in the Final Programmatic EIS/EIR. As CALFED Agencies pursue project-specific environmental study, additional project-specific mitigation may be necessary.

> **South Delta.** The specific actions listed below are components of, or are directly related to, the "South Delta Improvement Program" which has been under study and development for a number of years. The CALFED Agencies intend for these actions in the South Delta to address the needs of the export projects, the Delta ecosystem and local, in-Delta agricultural water users. These components will go forward following the completion of project-specific environmental review and permitting. DWR will lead the CALFED Agencies in implementing these south Delta actions. Environmental review will be completed by the end of 2002. These actions, related to providing for more reliable long-term export capability by the SWP and CVP and protection of local diversions in the Delta, are in addition to historic and current efforts (including annual installation of temporary barriers as well as current year local dredging and diversion improvements).

- **Increase SWP pumping from the current limit from March 15 to December 15 to 8,500 cfs; and modify existing pumping criteria from December 15 to March 15 to allow greater use of SWP export capacity.** Increased pumping can be used to increase water supplies through restoring the SWP's operational flexibility as well as allow diversion of a larger proportion of water supplies in the Delta during periods of good water quality. SWP facilities are used first for SWP purposes, as provided for in SWP water supply contracts. Increased pumping capabilities will also increase opportunities to convey water for the CVP, the EWA and water transfers, since the availability of pumping capacity for non-SWP purposes is expected to increase under this action. Such increased pumping is conditional upon avoiding adverse impacts to fishery protection and in-Delta water supply reliability.

  - Complete environmental review by the end of 2002.
  - Secure appropriate regulatory permits by the middle of 2003 to increase pumping up to 8,500 cfs during periods that are currently restricted. This includes completing a project-specific operations plan that addresses the potential impacts of increased pumping. The operations plan will be developed through an open CALFED process. This pumping increase will increase export capability by up to 100,000 acre-feet per month depending on hydrological conditions, fisheries conditions and availability of storage south of the Delta.
  - Full use of this increased pumping capability will require continued implementation of temporary barriers on an annual basis as well as project-specific actions to protect agricultural diversions and navigation in the South Delta.

- **Increase SWP pumping to the maximum capability of 10,300 cfs.** This is to be accomplished through two sets of specific actions set forth below. As the South Delta Improvement Program is fully implemented through the end of Stage 1, the SWP export capability will increase to 10,300 cfs, greatly expanding benefits for all purposes. Full use of this capacity will depend on protection of agricultural diversions and navigation in the South Delta, hydrologic conditions, fisheries conditions, availability of storage south of the Delta, and use for non-SWP purposes.

  - **Design and construct new fish screens at the Clifton Court Forebay and Tracy pumping plant facilities to allow the export facilities to pump at full capacity more regularly.**

    < Complete funding plan by early 2003.
    < Complete facilities design by the middle of 2004.
    < Seek funding and authority to complete initial fish screens, and begin operations and performance testing by the middle of 2006.

- **Dredge and install operable barriers to ensure water of adequate quantity and quality to agricultural diverters within the South Delta.** This will include installation of an operable Grant Line Canal barrier, which will be constructed and operated in accordance with conditions and directions specified by USFWS, DFG and NMFS. In the interim prior to installation of permanent operable barriers, DWR would continue to install temporary barriers on an annual basis.

  - Complete funding plan by early 2003.
  - Complete facilities design by the middle of 2005.
  - Seek funding and authority to complete Head of Old River barrier by the end of 2006.
  - Seek funding and authority to complete Middle River barrier, Tracy barrier and Grant Line Canal barrier by the end of 2007.

- **Design and construct floodway improvements on the lower San Joaquin River to provide conveyance, flood control and ecosystem benefits.** USACE and DWR will work with the other CALFED Agencies to assure that the Comprehensive Study is consistent with this project.

  - Complete environmental studies by early 2003.
  - Complete project design and funding plan by early 2004.
  - Begin construction by the middle of 2005.

- **Reduce agricultural drainage in the Delta.** Actions to reduce such drainage will include early implementation of projects on Veale and Byron tracts to reduce or relocate major sources of drainage into South Delta channels. The purpose of these projects is to minimize elevated salinity and other constituents of concern to drinking water at urban intakes in the South Delta. These projects will be completed prior to completion of the installation of permanent barriers in Old River near the San Joaquin River, Grant Line Canal, Old River near Tracy and Middle River and before SWP pumping can increase to its full capacity of 10,300 cfs during periods that are currently restricted.

North Delta. CALFED will improve flood protection and conveyance facilities in the North Delta for water quality and fishery improvements, and avoid water supply disruptions. The improvements include:

- **Evaluate and implement improved operational procedures for the Delta Cross Channel to address fishery and water quality concerns.** Reclamation will lead this effort, in cooperation with the other CALFED Agencies, particularly the fishery agencies.

- S Begin operational studies (such as more intense fish monitoring on both sides of the Cross Channel, opening and closing the gates on tidal cycles, etc.) by October 2000.
- S Complete studies and make specific recommendations by the end of 2003.

C **Simultaneously evaluate a screened through-Delta facility on the Sacramento River of up to 4,000 cfs.** The diversion facility on the Sacramento River is an action to be considered only after three separate assessments are satisfactorily completed: first, a thorough assessment of Delta Cross Channel (DCC) operation strategies and confirmation of continued concern over water quality impacts from DCC operations; second, a thorough evaluation of the technical viability of a diversion facility; and third, satisfactory resolution of the fisheries concerns about a diversion facility. The lead agencies for this effort are DWR and Reclamation, in cooperation with the other CALFED Agencies. The historic emphasis has been on a screened diversion at Hood on the Sacramento River. This and other potential sites between and including Hood and Georgiana Slough will be considered as part of this evaluation. (The water quality section below discusses other related water quality actions and how this facility could fit into the broader water quality strategy.)

- S Develop specific study plan by October 2000.
- S Fund and begin studies through CALFED Agency appropriations by October 2000.
- S Complete water quality and fish effects studies and develop recommendations, taking into consideration the results of the Delta Cross Channel operational study above and evaluation of water quality measures, by the end of 2003.
- S Complete environmental review of recommended program. If fish protection conditions are met and facility is found to be necessary, seek funding and authority to begin construction by the end of 2007.

C **Design and construct floodway improvements in the North Delta (such as on the lower Mokelumne River and Georgiana Slough) to provide conveyance, flood control and ecosystem benefits.** The CALFED Agencies intend that final development and implementation of actions under the Comprehensive Study will be coordinated and consistent with the CALFED Bay-Delta Program.

- S Complete environmental studies by early 2003.
- S Complete project design and funding plan by early 2004.
- S Make decision whether to seek funding and authority to begin construction by the middle of 2005.

Interties. The CALFED Agencies will pursue a number of interties and bypasses in the water system.

- **An intertie between the SWP and CVP facilities at or near Tracy.** This short channel between the State and Federal canals would allow operators to take advantage of fluctuations in Delta water quality at the two project intakes, delivering higher quality to either project canal.

  - Complete environmental work and project design by the middle of 2004.
  - Complete funding plan by the middle of 2004.
  - Make decision whether to seek funding and authority to begin construction by the end of 2004.
  - Assess the connection of the CVP to the SWP's Clifton Court Forebay with a corresponding increase in the Forebay's screened intake.

Complementary Actions

The Framework identified the following actions, which were not analyzed in the Final Programmatic EIS/EIR and will, therefore, require additional environmental review:

- **Install and operate temporary barriers in the south Delta until fully operable barriers are constructed as the South Delta Improvements Program is implemented.** The purpose of this program is to increase water levels in the south Delta for agricultural irrigators in the area to ensure they have an adequate water supply for diversion until such time as a permanent south Delta solution is provided through implementation of other conveyance facilities identified in the South Delta Improvements Program. The Temporary Barriers Program (TBP) has been in place through 1991-2000. One of the barriers in the TBP is the spring Head of Old River barrier which is a critical component of the Vernalis Adaptive Management Plan, an action which the CALFED Agencies have identified for immediate implementation. The TBP is an annual activity requiring the preparation of environmental documentation, securing required regulatory and access permits, interagency coordination, monitoring, modeling, installation, operation and removal. This is ongoing, beginning in FY 2000-2001.

- **Take actions to protect navigation and protect local diverters in the south Delta who are not adequately protected by the TBP.** Although the south Delta barriers provide adequate protection to much of the south Delta, there are still some diverters who suffer from low water levels because they are downstream or located too far away from the barriers. Actions which need to be taken to protect these diverters may include: installation and operation of portable pumps, limited project-specific dredging of existing intakes, and/or project-specific modification to existing diversion structures including the conversion of siphons to pumps. This action requires preparing detailed plans at each diversion location, preparing permit applications, preparation of environmental documentation (as needed), securing applicable permits and funding and finalizing agreements with the diverter as to the scope of work to be done and funding of the work.

This work is ongoing, as needed, beginning in FY 2000-2001.

- **A bypass canal to the San Felipe Unit at the San Luis Reservoir.** When operated in conjunction with local storage, this canal would allow Santa Clara Valley Water District to receive water directly from the Delta pumping facilities, thereby avoiding water quality problems associated with the "low point" water levels in San Luis Reservoir. Resolving this "low point" issue also will increase the effective storage capacity in San Luis Reservoir up to 200 TAF.

  - Fund studies of bypass canal and related expansion of local storage through Proposition 13, allocate funds to Santa Clara Valley Water District, the implementing agency, by October 2000.
  - Complete environmental review and documentation and preliminary design by the end of 2003.
  - Obtain necessary authorization and funding and begin construction by end of 2004.

- **Facilitate water quality exchanges and similar programs to make high quality Sierra Nevada water in the eastern San Joaquin Valley available to urban Southern California interests.** The Metropolitan Water District of Southern California and the Friant Water Users Authority and its member agencies have commenced preliminary discussions to accomplish these objectives, as well as improving water supply reliability for the agricultural districts. DWR and Reclamation will work with the other CALFED Agencies and these two non-CALFED Agencies to assure that these efforts do not adversely affect ongoing consensus efforts to restore the upper San Joaquin River.

  - Initiate evaluations and studies of potential infrastructure improvements by December 2000.
  - Complete feasibility studies and implement selected demonstration projects by the end of 2001.
  - Complete environmental review and begin implementation of a long-term program, including necessary infrastructure, by the end of 2004.

- **Sacramento and San Joaquin Comprehensive Study.** USACE and the Reclamation Board are currently implementing a Comprehensive Study of the Sacramento and San Joaquin River watersheds to improve flood control efforts out to San Francisco Bay. The Delta and its ability to convey flood waters play a crucial role in the Comprehensive Study. The CALFED Agencies intend that final development and implementation of actions under the Comprehensive Study will be coordinated and consistent with the CALFED Bay-Delta Program.

Funding

CALFED anticipates that the cost of implementing the conveyance program improvements in Stage 1 will be approximately $1 billion.

2.2.7 Environmental Water Account

An essential goal of the CALFED Program is to provide increased water supply reliability to water users while at the same time assuring the availability of sufficient water to meet fishery protection and restoration\recovery needs as part of the overall ERP. As a means to achieving this, the CALFED Agencies will provide commitments under FESA and CESA for the first four years of Stage 1, which will be based on the availability of water from existing regulation, an EWA combined with the ERP, and the ability to obtain additional assets should they be necessary.

The EWA focuses on resolving the fishery/water diversion conflict at the CVP/SWP Delta export pumps because, in recent years, these diversions have suffered the greatest fluctuations in water supply reliability due to conflicts with fishery needs. The CALFED Agencies will continue working with other diverters in the Delta watershed to resolve local fishery-diversion conflicts based on the project-specific needs and opportunities for each diversion. The CALFED Agencies have crafted the EWA so that it has no effect on the water rights of other water right holders in the watershed.

Overall Purpose, Framework and Administration

The EWA has been established to provide water for the protection and recovery of fish beyond water available through existing regulatory actions related to project operations. The EWA is a cooperative management program whose purpose is to provide protection to the fish of the Bay–Delta estuary through environmentally beneficial changes in SWP/CVP operations at no uncompensated water cost to the projects' water users. This approach to fish protection requires the acquisition of alternative sources of project water supply, called the "EWA assets," which will be used to augment streamflows, Delta outflows, to modify exports to provide fishery benefits and to replace the regular project water supply interrupted by the changes to project operations. The replacement water will compensate for reductions in deliveries relative to existing facilities, project operations and the regulatory baseline (as defined below) that result from EWA actions.

USFWS, NMFS, DFG, Reclamation and DWR have established the EWA by executing the Environmental Water Account Operating Principles Agreement contemporaneously with this ROD. This summary should be interpreted to be consistent with the EWA Operating Principles Agreement. To the extent that the EWA Operating Principles Agreement provides greater specificity than or may be inconsistent with this summary, the EWA Operating Principles Agreement controls.

The EWA will provide additional protection for fish and provide support for a commitment not to reduce south of Delta project deliveries. The CALFED Agencies intend to use EWA assets for, among other things, extending pumping curtailments during critical periods for fish. As currently designed, the EWA would not be used to supply water to meet any new regulatory requirements under statutes other than FESA and CESA (such as new Federal Energy Regulatory Commission (FERC) or SWRCB instream flow requirements).

The EWA will be funded jointly by the State and Federal governments and will be authorized to acquire, bank, transfer, sell and borrow water and arrange for its conveyance. EWA assets will be managed by the State and Federal fishery agencies (USFWS, NMFS, and DFG) in coordination with project operators and stakeholders, through the CALFED Operations Group. Initial acquisition of assets for the EWA will be made by Reclamation and DWR. Subsequently, it is anticipated that acquisitions will be made pursuant to a public process that may capitalize upon the ability of other agencies or third parties to acquire assets.

Baseline Level of Protection. The EWA will provide for fishery protection actions that are supplemental to a baseline level of protection established by an existing set of regulatory programs. The baseline level of protection, identified as Tier 1 in the EWA discussion below, consists of:

- **1993 Winter-run Biological Opinion (NMFS)**

- **1995 Delta Water Quality Control Plan (SWRCB)**. At this time, SWP and CVP are responsible for meeting flow related objectives contained in this plan. The CALFED Agencies recognize that the SWRCB may adjust or reallocate the responsibilities for meeting the 1995 Delta Water Quality Control Plan standards, as part of its ongoing Bay-Delta Water Rights Hearing. Adjustment of responsibility to meet the standards will not affect the baseline level of protection for purposes of the EWA.

  Appropriate CALFED Agencies will develop a strategy to deal with the rare circumstances when the CVP obligation under the Water Quality Control Plan exceeds the 450 TAF annual cap for use of CVPIA Section 3406(b)(2) water. In the strategy, to be developed in conjunction with the Governor's Drought Contingency Plan, the Agencies will use their available resources to create an insurance policy that will seek to eliminate impacts to water users, while not adversely affecting other uses.

- **1995 Delta Smelt Biological Opinion (USFWS).** The export curtailment contained in the 1995 Delta Smelt Biological Opinion (item 2 on page 19), commonly referred to as the " 2 to 1 Vernalis flow/export ratio", will be met by Section 3406(b)(2) of the CVPIA and/or EWA. This objective calls for the SWP and CVP to reduce combined exports, below what is allowed in the 1995 Water Quality Control Plan during a 31-day period in April and May. The 1995 WQCP

allows exports to be 100 percent of the base San Joaquin River flow at Vernalis during the April-May pulse period. The SWP will be reimbursed by the EWA for its participation in reducing exports pursuant to the 2 to 1 Vernalis flow/export ratio.

The CVP and SWP will be operated pursuant to the terms of the San Joaquin River Agreement (SJRA) through 2011. While the SJRA is in effect, the exports may be reduced beyond what is called for by the 2 to 1 Vernalis flow/export ratio and San Joaquin River flows may be augmented by water acquired from upstream sources during that same time period. Such an augmentation will not be included as part of the SWP share of Vernalis flow. While operating pursuant to the SJRA, the SWP and CVP will also receive reimbursement from the EWA or pursuant to Section 3406(b)(2) for the additional curtailment. If the SJRA is not implemented for any reason, the operations will default back to the biological opinion operation, pursuant to the terms of the SJRA.

- **Full Use of 800 TAF Supply of Water Pursuant to Section 3406(b)(2) of the CVPIA in accordance with Interior's October 5, 1999 Decision, clarified as follows:** *Water Resulting from Refill of Reservoirs ("Reset")*: Water which is available under the (b)(2) Policy as a result of refill of reservoirs following upstream releases ("reset") will not be used in a manner which results in increased export reductions. Upstream releases of (b)(2) water pumped by the SWP and made available to the EWA will not be subject to the "reset" provision.

  Export Curtailments which Result in Increased Storage ("Offset"): Where a prescribed (b)(2) export curtailment results in a reduction in releases from upstream reservoirs and hence increased storage, the charge to the (b)(2) account will be offset to the extent that the increased storage will result in increased delivery (beyond forecast delivery at the time of the export curtailment) to south-of-Delta CVP contractors in the remainder of the water year. If such deliveries cannot be increased in that water year, such additional water stored in upstream reservoirs shall be available for other (b)(2) uses without charge to the (b)(2) account. Where the delivery to export users in the remainder of the water year will not be increased and end-of-year storage will be increased, there will be no offset to the charge to the (b)(2) account.

Other Environmental Protections. The regulatory baseline above also assumes that other environmental protections contained in statutes remain in place. These other environmental protections include without limitation Level 2 refuge water supplies, as required by the CVPIA. The CVP will use its share of the benefits from Joint Point of Diversion, to the extent available, to provide water required by its Level 2 refuge water supply mandates, but using such benefits will not create any limitation on the Level 2 supply available for refuges.

Asset Development. Immediate development of assets for the first year is critical to EWA success. Initial water purchases and lease of groundwater storage will be secured from willing sellers by the end of 2000. In addition to assets to be acquired annually, as shown in the table below, an initial one-time deposit of water equivalent to 200 TAF of south-of-Delta storage will be acquired from a variety of sources to assure the effectiveness of the EWA and provide assurances for SWP and CVP water supply/deliveries.

Borrowing agreements will allow the EWA to borrow water from the Projects for necessary actions during a water year as long as the water can be repaid without affecting the following year's allocations. To the extent practicable, borrowing from the SWP and CVP will be equitably shared. The limitations on borrowing are described in the EWA Operating Principles Agreement attached to this document.

Source shifting agreements with south-of-Delta water providers for 100 TAF will be used to enhance the effectiveness of the EWA, and to help provide assurance that SWP and CVP water deliveries and operations will not be affected by EWA operations. As CALFED develops new water, the EWA will obtain an appropriate share in order to minimize the need for annual acquisitions and to maximize operational flexibility.

ESA Commitments

As part of the MSCS Conservation Agreement and the FWS and NMFS biological opinions, the CALFED Agencies have provided a commitment, subject to specified conditions and legal requirements, that for the first four years of Stage 1, there will be no reductions, beyond existing regulatory levels, in CVP or SWP Delta exports resulting from measures to protect fish under FESA and CESA. This commitment is based on the availability of three tiers of assets:

> **Tier 1** is baseline water, provided by existing regulation and operational flexibility as described above. The regulatory baseline consists of the biological opinions on winter-run salmon and delta smelt, 1995 Delta Water Quality Control Plan, and 800 TAF of CVP Yield pursuant to CVPIA Section 3406(b)(2).
>
> **Tier 2** consists of the assets in the EWA combined with the benefits of the ERP and is an insurance mechanism that will allow water to be provided for fish when needed without reducing deliveries to water users. These assets are shown in the table on the preceding page. Tier 1 and Tier 2 are, in effect, a water budget for the environment and will be used to avoid the need for Tier 3 assets as described below.

Action Description	Water Available Annually (Average)
SWP Pumping of (b)(2)/ERP Upstream Releases [1]	40,000 acre-feet[2]
EWA Use of Joint Point[3]	75,000 acre-feet
Export/Inflow Ratio Flexibility	30,000 acre-feet
500 cfs SWP Pumping Increase	50,000 acre-feet
Purchases - South of Delta	150,000 acre-feet
Purchases - North of Delta[4]	35,000 acre-feet
TOTAL	380,000 acre-feet

Tier 3 is based upon the commitment and ability of the CALFED Agencies to make additional water available should it be needed. It is unlikely that assets beyond those in Tier 1 and Tier 2 will be needed to meet ESA requirements. However, if further assets are needed in specific circumstances, the third tier will be provided. In considering the need for Tier 3 assets, the fishery agencies will consider the views of an independent science panel. Although the CALFED Agencies do not anticipate needing access to Tier 3 of water assets, the CALFED Agencies will prepare an implementation strategy for Tier 3 by August 2001, establishing a timely scientific panel process and identifying tools and funding should implementation of Tier 3 prove necessary.

Implementation of the EWA and associated ESA commitments is not intended to affect the rights or obligations of third parties.

[1] The EWA and the SWP will share equally the (b)(2) and ERP upstream releases pumped by the SWP after they have served their (b)(2) and ERP purposes.

[2] The amount of water derived from the first four actions will vary based on hydrologic conditions.

[3] The EWA will share access to Joint Point of Diversion, with the CVP receiving 50% of the benefits.

[4] This is the amount of water targeted for the first year; higher amounts are anticipated in subsequent years.

2.2.8 Water Use Efficiency

The goal of the Water Use Efficiency Program is to accelerate the implementation of cost-effective actions to conserve and recycle water throughout the State. Water use efficiency measures are included in the CALFED Program for many reasons, including (a) water use efficiency investments can yield real water supply benefits to urban and agricultural users in the short term, especially compared to surface storage and major conveyance improvements that will take at least 5 to 10 years to complete; and (b) water use efficiency investments can generate significant benefits in water quality and timing of instream flows, even where they may not generate a net increase in available consumptively used water. Water reclamation provides additional opportunities to reduce water demand in a relatively cost-effective and environmentally-benign manner, with multiple benefits for efficiency, dry year reliability and discharge water quality. CALFED Agencies anticipate that significant investments in water use efficiency and water reclamation will be necessary during Stage 1 and beyond to address water supply demands caused by a rapidly increasing population and increased environmental water needs. These savings will be accomplished through incentive-based water use efficiency programs.

Water use efficiency potential varies significantly in California, depending on the region of the State and the sector involved. Working with the stakeholder steering committees and other technical experts, CALFED Agencies have developed ranges of estimated water savings during Stage 1. These estimates include only water that is currently unavailable for other uses because it is lost to excessive evaporation or drains to the ocean or some other unusable destination. In addition, approximately 225 to 310 TAF of water can be made available through water reclamation projects. These water savings would be generated as follows:

- 520 to 688 TAF in the urban sector
- 260 to 350 TAF in the agricultural sector
- 225 to 310 TAF in water reclamation projects

These estimates are not intended as targets, and focusing on potential water savings alone ignores the substantial contribution that water use efficiency investments can make to other CALFED program goals. Water savings estimates for urban uses are greater because water conservation savings are more cost-effective (given the higher cost of most urban supplies). Agricultural conservation opportunities exist but are more limited by financial capability and by the fact that a higher percentage of agricultural return flows are used by downstream users and are therefore not included in conservation estimates.

Incentive-Based Program

The primary CALFED program tool for encouraging investments in water use efficiency will be a competitive grant/loan program. This program, under the leadership of DWR, Reclamation, the SWRCB and NRCS, will identify and provide grants or cooperative agreements (with local cost share) or loans to the most promising water use efficiency projects, including:

- Urban water use efficiency measures.
- Agricultural water use efficiency measures.
- Water reclamation/recycling projects.

CALFED Agencies will rely on a competitive grant/loan program as the best mechanism to assure cost-effective investments in water use efficiency. Under this program, CALFED Agency investments will be made in the most cost-effective water use efficiency measures first. Due to the regional differences in water use efficiency potential, the exact cost-effective measures will vary. For example, in some agricultural districts the cheapest improvements may be to install automated delivery systems, while other districts may find channel improvements or canal lining productive. Similarly, differences exist statewide in the urban sector. Some agencies may focus on low-flow device retrofits, while others may have substantial opportunities for using reclaimed water. CALFED Agencies anticipate that the competitive grant/loan program would allow participating entities to effectively respond to local conditions.

Each grant/loan package will include tailored requirements for performance and accountability. The program would be used primarily as a capitalization mechanism; the ongoing obligations for operation and maintenance would be assumed by the participating agency. By using a competitive grant/loan program approach, water users and the program can respond to changes in the water supply picture over time. As water demands increase in the State as anticipated, and the most cost effective water use efficiency measures have been implemented, water users and the grant/loan program would increasingly turn to the more expensive water use efficiency measures.

Two elements will be critical to the success of a CALFED grant/loan program:

- Water agencies must implement water use efficiency measures that are cost-effective and appropriate at the local level. This level of attainment will be defined by agency compliance with the AB 3616 Agricultural Water Management Plans (for agricultural districts) or implementation of applicable Urban Water Conservation Council "best management practices" (for urban districts). CALFED Agencies anticipate that State and Federal assistance to agencies to attain this base level of water use efficiency will generally be in the form of technical assistance and capitalization loans, not grants. In addition, access to further CALFED Water Use Efficiency Program benefits (e.g., grants) will be conditioned on agency implementation of the applicable water management plans.

- Additional CALFED investments in water use efficiency are premised on the fact that some water use efficiency measures may not be cost-efficient when viewed solely from a local perspective, but may be cost-effective when viewed from a statewide perspective, compared to other water supply reliability options. In this case, CALFED Agencies anticipate a larger State and Federal assistance share in the form of grants. CALFED Agencies' proposed grant/loan program will tailor specific grants or loans to reflect this distinction between local benefits and statewide benefits, and will adjust the required local cost-share requirements accordingly.

The CALFED Agencies will support water use efficiency actions that also provide economic and other benefits to disadvantaged communities by ensuring they have a role in implementing such programs, both in the agricultural and urban sectors. Examples include not only toilet retrofit programs such as those undertaken by community-based organizations in Los Angeles, but also toxics reduction and pollution prevention programs that are linked to water use efficiency and wastewater reduction, and multilingual irrigator training programs.

Actions Included in the Programmatic EIS/EIR

Stage 1 actions of the Water Use Efficiency Program include:

- CALFED Agencies will prepare a program implementation plan, including a proposed organizational structure consistent with the overall CALFED governance structure, responsibilities for technical assistance programs and the grant/loan program, and evaluation procedures, by December 2000. In developing the grant/loan program, CALFED Agencies will consider the particular circumstances of the different program elements, as well as the ongoing stakeholder forums. These forums include the Agricultural Water Management Council, California Urban Water Conservation Council, the steering committees providing guidance to CALFED Agencies in the agricultural, urban and recycling programs, as well as the public advisory committee described below. The program implementation plan will include:

    - Incentives in the agricultural sector that will consider several factors, including: (i) the potential for reducing irrecoverable water losses; (ii) potential for attaining environmental and/or water quality benefits from WUE measures; (iii) regional variation in water management options and opportunities; (iv) availability and cost of alternative water supplies; and (v) whether the water needs of the recipient area can be satisfied from existing sources. Many of these factors are included in the quantifiable objectives being developed in the CALFED process by the agricultural water use efficiency steering committee stakeholder process, and CALFED Agencies anticipate that these quantifiable objectives will be an important factor in prioritizing expenditures under the agricultural incentive program.

    - Incentives in the urban sector that will focus on implementing the urban MOU process and on identifying and implementing measures that are supplemental to BMPs and are cost effective from a statewide perspective.

    - Incentives in the water reclamation area that will recognize the importance of regional water recycling programs, such as the Bay Area regional water recycling program and the Southern California comprehensive water reclamation and reuse study. CALFED Agencies will work with stakeholders to create cost-effectiveness criteria, building on approaches that have been previously developed for regional water recycling programs, that will guide the incentive program for water

reclamation.

- **S** A recognition and plan for addressing the need to make financial allocations in the incentive programs in the early years of implementation, in advance of approvals and/or certifications by the applicable Urban or Agricultural sector councils.

- C Within one year from the adoption of this ROD, CALFED Agencies will establish specific milestones, and associated benefits, remedies and/or consequences to track and guide the implementation of the Agricultural Water Use Efficiency Program. CALFED Agencies will put in place a process, structured to include the involvement and buy-in of interested parties (stakeholder and agency), to accomplish this work. The process will build on the work already begun by the Agricultural Water Use Efficiency Steering Committee.

- C The CALFED Agencies will develop a detailed finance proposal for Stage 1, including an evaluation of local cost share potential, no later than July of 2001. Recognizing that funding for the Water Use Efficiency Program will necessarily come from many different State and Federal sources, CALFED Agencies will assure that the Water Use Efficiency Program has sufficient resources for vigorous programs in each of the agricultural, urban, and water reclamation sectors.

- C DWR and Reclamation will work with the Urban Water Conservation Council and Agricultural Water Management Council to provide technical assistance to urban agencies and agricultural districts developing management plans under the Urban Water Management Planning Act and the AB 3616 process. This effort, when combined with efforts of NRCS and California Department of Food and Agriculture, will in the first four years of Stage 1 provide $34 million in technical assistance to districts and agencies in meeting their Council-endorsed or certified management plans.

- C The Department of the Interior will create a public advisory committee, as part of the new FACA committee, to advise State and Federal agencies on structure and implementation of assistance programs, and to coordinate Federal, State, regional and local efforts for maximum effectiveness. We anticipate that this advisory committee will include representatives of the agricultural, urban, and recycling steering committees, local agencies, and local farmworker organizations. The advisory committee will be established by December 2000.

- C By the end of 2002, CALFED Agencies will implement a process for certification of water suppliers' compliance with the terms of the urban MOU, including implementation of best management practices for urban water conservation. CALFED Agencies will support ongoing efforts of the California Urban Water Conservation Council to address this issue.

- C In addition to the annual evaluations of program progress, by December of 2004 CALFED Agencies will conduct a comprehensive evaluation of the Program's first 4 years, and will make appropriate additional State and Federal investments and actions to assure continued

aggressive implementation of water use efficiency measures in the State.

Water Measurement and Transfer Incentive Actions

Diverse stakeholder groups have recognized the importance of, and need for, appropriate measurement of water deliveries. Measurement will provide better information on statewide and regional water use, enable water purveyors to charge for water according to the amount used, allow water users to demonstrate the effects of efficiency measures, and facilitate a water transfers market. CALFED Agencies have initiated a public process to add greater definition to "appropriate measurement":

- An independent review panel on appropriate measurement will be convened. This panel will provide guidance that will help define appropriate measurement as it relates to surface and groundwater usage. The panel will prepare a consensus definition of appropriate measurement by the end of 2001.

- At the completion of this stakeholder/technical process, CALFED Agencies will work with the California State Legislature to develop legislation for introduction and enactment in the 2003 legislative session requiring the appropriate measurement of all water uses in the State of California.

Complementary Actions

CALFED Agencies believe that in order to promote water use efficiency measures in the agricultural sector, end users need to be able to beneficially participate in an active water transfer market. CALFED Agencies recognize that one barrier to an effective water transfer market is the lack of incentive for individual landowners to utilize available water conservation technologies because any water savings frequently accrue not to the landowner but to the irrigation district or water supply agency. CALFED Agencies will develop and support proposals to remove this disincentive to voluntary implementation of water use efficiency improvements.

Funding

CALFED Agencies have worked with the stakeholder steering committees, technical experts and practitioners to develop cost estimates associated with water use efficiency measures and water reclamation. Based on this outreach effort and evaluation, CALFED Agencies have estimated that achieving the potential water savings above would require an investment by the State and Federal governments in the range of $1.5 to $2 billion over the seven years of Stage 1. These funds, which will be allocated to local entities in the form of grants and/or loans for water use efficiency projects, will be matched with local or private funds on a project-by-project basis. During the first four years of Stage 1, CALFED Agencies propose State and Federal government investment

of $500 million, with an additional $500 million coming from local matching funds. This cost share provides an overall Stage 1 allocation, but individual project cost-shares may vary depending on the detailed finance proposal being developed and the nature of the projects developed by local agencies.

A water use efficiency program of this magnitude is aggressive and unprecedented nationally. CALFED Agencies strongly endorse this aggressive program as part of a broad CALFED Program designed to address California's water supply needs for the future. At the same time, given the uncertainties of implementing such an ambitious program, CALFED Agencies believe it will be appropriate to carefully evaluate the ongoing progress of the Program as it gets off the ground. CALFED Agencies will require annual reports from implementing agencies describing the progress of implementation efforts. These reports should include an ongoing evaluation of the availability of local cost-share financing and program effectiveness, and should include recommendations on removing any impediments to aggressive program implementation. CALFED Agencies anticipate that these annual reports will serve as a guide to subsequent year investments and program refinements. In addition, at the end of the first four years of Stage 1, CALFED Agencies will prepare a more comprehensive evaluation of program implementation. At that time, it may increase or reduce the targeted conservation goals to reflect actual implementation experience, redirect investments within the Water Use Efficiency Program to achieve the most effective results, and/or introduce new programs as necessary and appropriate.

The Stage 1 investments reflect the fact that many of the water use efficiency measures can be brought on line in a relatively short time frame, so that both planning and construction/capital costs are included earlier in Stage 1. Comparing water use efficiency investments on an "annual cost basis" (that is, taking the capital costs and operating costs and amortizing them over the expected life of the project) is a common way to evaluate the cost-effectiveness of water management investments. For example, costs of most of the water use efficiency measures evaluated by CALFED Agencies in the urban sector range from $150 to $450 per acre-foot per year. Under the competitive grant/loan program, the cheaper measures would be employed first.

Initial State and Federal funding for Stage 1 water use efficiency programs outlined in this section are identified within Proposition 204, Proposition 13, the CVPIA, the Reclamation Reform Act, Title XVI of P.L. 102-575, and various accounts in the Federal Farm Bill and related NRCS appropriations. Funding for the completion of the Water Use Efficiency Program will be determined through the Legislative and Congressional budget processes. The CALFED governing body will determine additional funding needs by the middle of 2004, which will be based upon the results of the program review and stakeholder input. Future funding, if necessary, may be sought through a bond measure that may also fund other out-year costs of the CALFED Program.

2.2.9 Water Quality

CALFED's Water Quality Program goal is to provide good water quality for the millions of Californians who rely on the Delta for all or a part of their drinking water. Current drinking water quality problems vary significantly by water agencies, depending on the agency's particular water sources. For example, the Metropolitan Water District of Southern California (MWD) and other Southern California utilities obtain water from the Delta via the State Water Project. MWD also receives highly saline Colorado River water which is then blended with Delta water. High levels of salinity are a major water quality problem for MWD, as are elevated levels of bromide and organic carbon. Salinity makes water taste bad and inhibits effective water recycling programs. Bromides and organic carbon interact with disinfection agents used in water treatment to create hazardous "disinfection byproducts" with potential adverse health effects.

In comparison, the Santa Clara Valley Water District, which is connected to both the Federal project (at San Luis Reservoir) and the State Water Project (via the South Bay Aqueduct from Clifton Court) shares the MWD concerns about salinity in Delta water, but may be even more sensitive to algal problems caused by low water levels in the San Luis Reservoir. The Contra Costa Water District takes its water directly from the Delta, and is highly sensitive to variations in Delta water quality. The North Bay Aqueduct of the SWP suffers from water quality problems during winter runoff periods. East Bay Municipal Utility District (EBMUD) and San Francisco get most of their water from the Sierra Nevada mountains, so they are less affected by Delta water quality. These differing situations for different water agencies require multifaceted approaches to drinking water quality that involve combinations of source water improvement, innovative and collaborative water management, and treatment options.

CALFED Agencies have adopted a general target of continuously improving Delta water quality for all uses, including in-Delta environmental and agricultural uses. Program actions designed to improve water quality to protect environmental uses are generally included in the Ecosystem Restoration Program (ERP) discussed above. For the drinking water quality program, CALFED Agencies have developed a specific goal based upon extensive stakeholder and agency involvement. CALFED Agencies' target for providing safe, reliable, and affordable drinking water in a cost-effective way, is to achieve either: (a) average concentrations at Clifton Court Forebay and other southern and central Delta drinking water intakes of 50 ug/L bromide and 3.0 mg/L total organic carbon, or (b) an equivalent level of public health protection using a cost-effective combination of alternative source waters, source control and treatment technologies.

CALFED Agencies will aggressively pursue a mix of strategies in order to improve in-Delta water quality. Program actions to address the drinking water quality concerns of the more than 22 million Californians who rely on Delta water fall into four broad categories. These actions will:

- Enable users to capture higher quality Delta water for drinking water purposes.
- Reduce contaminants and salinity that impair Delta water quality.
- Evaluate alternative approaches to drinking water treatment to address growing concerns over disinfection byproducts and salinity.

- Enable voluntary exchanges or purchases of high quality source waters for drinking water uses.

None of these actions, by itself, can assure adequate supplies of good quality drinking water for California. They must all be pursued, in conjunction with other CALFED actions such as conveyance and storage improvements, to generate significant improvements in drinking water at the tap. The responsibility for drinking water protection in the Bay-Delta ecosystem is shared by the State Department of Health Services (DHS), CalEPA (including the State Water Resources Control Board and the CVRWQCB) and DWR, with EPA providing funding and technical assistance. In particular, the CVRWQCB, with support from the CALFED agencies and DHS, is currently developing a comprehensive drinking water policy for Delta and upstream tributaries. The CALFED agencies will continue to coordinate drinking water protection efforts, with particular attention to ensuring fair treatment for communities of color and of lower socio-economic status by engaging and supporting local communities and stakeholders who are actively seeking to address water quality issues through pollution prevention, monitoring, and education activities.

The CALFED Agencies will seek to maintain the quality of existing and potential sources of drinking water supply, both groundwater and surface water. Specifically, before any locally controlled groundwater storage facilities are slated for storage of water supplies for local drinking water use, the CALFED Agencies will work with those communities to identify the sites with the lowest possible level of contaminants of concern and to identify the best quality sources economically available.

In response to recent conflicts between Delta water quality, water supply and fishery protection measures, in February 2000, CALFED Agencies developed and implemented an operations management coordination process. As described in the governance section, CALFED Agencies will continue to apply that process to Delta operations. CALFED Agencies believe this process, using the Operations Group and Water Operations Management Team, will assure concurrent consideration of water quality, fisheries and water supply in water project operations.

Actions Included in the Programmatic EIS/EIR

The CALFED Agencies will implement the following major elements of the Water Quality Program:

C **Address drainage problems in the San Joaquin Valley to improve downstream water quality.** This will include implementing recommendations from the San Joaquin Valley Drainage Program, identifying and supporting innovative drainage management programs, and supporting voluntary land retirement programs for drainage impaired lands, with local sponsorship. This includes CALFED actions, which target approximately 35,000 acres of land retirement, as well as complementary land retirement actions under other programs such as CVPIA. Actions include:

- S Finalize State Basin Plan Amendment and Total Maximum Daily Load for salinity in the lower San Joaquin River by the end of 2001.
- S Begin implementation of appropriate source control measures (e.g., on farm and district actions, development of treatment technology, real-time management and reuse projects such as agroforestry) by the end of 2003.

Reclamation is responsible for providing drainage service as required by the San Luis Act for its San Luis Unit contractors on the westside of the San Joaquin Valley and will be considering a range of options for continued work to resolve the drainage issues in that area.

C **Implement source controls in the Delta and its tributaries.** The CALFED Agencies with the assistance of the Department of Health Services will coordinate a comprehensive source water protection program. This program will include identification and implementation of appropriate pollutant source control measures, focused regulatory and/or incentive programs targeting pollutants of concern, development of a monitoring and assessment program, and infrastructure improvements to separate drinking water intakes from irremediable sources of pollutants.

- S CVRWQCB, with support from the CALFED Agencies and DHS, will establish a comprehensive State drinking water policy for Delta and upstream tributaries by the end of 2004.
- S As part of the CALFED Science Program, develop a comprehensive monitoring and assessment program by the beginning of 2003.
- S Evaluate and determine whether additional protective measures (regulatory and/or incentive-based) are necessary to protect beneficial uses by the end of 2004.
- S Consistent with the above policy, CVRWQCB, with support from DWR and DHS, will begin implementation of appropriate source control measures (e.g., advanced wastewater treatment, local drainage management practices) by the end of 2006.

C **Support the ongoing efforts of the Delta Drinking Water Council or its successor** to develop recommendations to the CALFED Agencies on treatment, alternative water sources, conveyance improvements, storage and operations necessary to meet CALFED's goal of continuous improvement in Delta water quality for all uses. The Council will rely in part on the results of a nationwide multi-year, $200 million, multi-stakeholder evaluation program led by the EPA to determine future standards and cost-effective treatment technologies, as well as the findings of the Independent Science Board and science panels. The Council will advise the CALFED Agencies on the composition of science panels related to drinking water. Actions include:

- S Council will complete initial assessment of progress toward meeting CALFED water quality targets and alternative treatment technologies by the end of 2003.
- S Council will complete final assessment and submit final recommendations on

progress toward meeting CALFED water quality targets and alternative treatment technologies by the end of 2007.

- **Invest in Treatment Technology Demonstration.** Recent private sector efforts have generated substantial advances in treatment technologies. The CALFED Agencies will encourage these technologies by funding a demonstration project to design and operate an ultra-violet disinfection plant, as well as other demonstration projects to design and operate desalination facilities for agricultural drainage using membrane treatment technology and focusing on management of brines and on-site waste stream management. Other promising treatment technologies that arise during the Program may be funded as well.

  - Initiate UV disinfection plant demonstration project by the end of 2002.
  - Initiate regional desalination demonstration project by the end of 2002.
  - Evaluate practicability of and determine timelines for full-scale implementation by the beginning of 2007.

- **Control runoff into the California Aqueduct and other similar conveyances.** Much of the land surrounding the southern portions of the California Aqueduct is used for agriculture and grazing. A number of agricultural drains directly impact the Aqueduct, and large stretches of the Aqueduct are not adequately protected from stormwater runoff that is impaired by soil erosion or agricultural and livestock runoff. Other major drinking water conveyance channels have similar runoff problems. The CALFED Agencies will implement appropriate physical modifications and watershed programs to correct these problems.

  - Initiate comprehensive evaluation of necessary physical modifications (e.g., modifications to berms, bypasses, and stormdrains to divert stormwater away from and prevent its discharge into the Aqueduct and other similar conveyance channels) by the end of 2001.
  - Develop and implement watershed programs adjacent to appropriate conveyance channels by the beginning of 2004.
  - Identify and begin implementation of necessary physical improvements by the end of 2005.

- **Address water quality problems at the North Bay Aqueduct.** The North Bay Aqueduct suffers from high total organic carbon and turbidity from local watershed runoff. Ongoing studies are investigating land-use "best management practices" (BMPs).

  - Provide funding to implement BMPs to improve watershed runoff water quality by the end of 2002.
  - By the end of 2003, study feasibility of relocating North Bay Aqueduct intake.

- **Study recirculation of export water to reduce salinity and improve dissolved oxygen in the San Joaquin River.** Exporting water from the Delta through the CVP and SWP at volumes greater than what is needed can establish additional flows in the San Joaquin River that could be used for salinity reduction and improving dissolved oxygen in the river.

  - Develop a workplan by October 2000.
  - Initiate the feasibility study of recirculation of water exported from the Delta through State and Federal water projects by the end of 2000.
  - Provide a recommendation to the CALFED governing body on the use of recirculation to meet CALFED objectives by the end of 2002. The recommendation will include analysis of impacts and benefits, and recommendations on infrastructure improvements necessary to implement recirculation should it be appropriate.

Complementary Actions

The Framework identified the following actions which were not analyzed in the Final Programmatic EIS/EIR and will, therefore, require additional environmental review.

- **Establish a Bay Area Blending/Exchange project.** The CALFED Agencies will implement a project that enables Bay Area water districts to work cooperatively to address water quality and supply reliability concerns on a consensual basis. As noted above, water supply agencies in the Bay Area have different water sources and different water supply and water quality concerns. This is an "umbrella" project that will evaluate a range of potential changes to existing infrastructure and institutional arrangements to encourage a regional approach to water supply operations. An example is the possibility of building "interconnects" between agency supply aqueducts, so that water suppliers can take advantage of different sources when water quality is highest (e.g., existing and/or additional Sierra Nevada mountain sources). These interconnects could be more effective if used in conjunction with an expanded Los Vaqueros Reservoir, discussed above in the storage section. Another example is to arrange local water transfers, where one district pays for water conservation measures in another district in exchange for some or all of the saved, presumably higher quality water. Some reviews that may have relevance to a Bay Area Blending /Exchange project already are underway in different contexts. For example, a supplemental EIS is being prepared to analyze potential alternatives related to East Bay MUD's contract with the Bureau of Reclamation. The Bay Area Blending/Exchange project is complementary to actions in the CALFED programmatic documents, and would help achieve objectives for water quality and water supply reliability, consistent with the CALFED solution principle of no significant redirected impacts.

  - Identify potential local partners and develop agreements as needed for necessary studies by July 2001.
  - Secure authorization and funding for feasibility studies by July 2001.

- S Begin feasibility study and environmental review by July 2001, complete feasibility study by July 2002.
- S Complete environmental review, documentation and preliminary design on a selected alternative by the end of 2003.
- S Finalize agreements with project participants by mid-2004.
- S Obtain necessary authorizations and funding (including any required local voter approval) by the end of 2004, and begin construction by the end of 2005.

C **Facilitate water quality exchanges and similar programs.** The CALFED Agencies will support efforts, consistent with overall CALFED principles**,** to make high quality Sierra Nevada water in the eastern San Joaquin Valley (e.g., San Joaquin River, Kings River, Kern River, and/or their tributaries) available to urban Southern California interests. The Metropolitan Water District of Southern California and the Friant Water Users Authority and its member agencies have commenced discussions to explore ways to accomplish these objectives, as well as improving water supply reliability for the agricultural districts. The CALFED Agencies will work to assure that these efforts do not affect ongoing consensus efforts to restore the upper San Joaquin River.

- S Initiate evaluations and studies of current capabilities and potential infrastructure improvements by December 2000.
- S Complete feasibility studies and identify initial projects, if any, by the end of 2001.
- S If agreement is reached by the parties involved, complete environmental review and begin implementation of a long-term program, including necessary infrastructure, by the end of 2004.

C **Develop and implement within two years a plan to meet all existing water quality standards and objectives for which the State and Federal water projects have responsibility.**

Funding

CALFED Agencies propose investing approximately $950 million during Stage 1 in water quality programs. Of this investment, more than $500 million would come from State and Federal sources and the remainder from local sources. Sources of Federal funding, in addition to future direct appropriations, include State direction of a portion of its share of Federal Safe Drinking Water Act State Revolving Fund (SRF), Clean Water Act Section 319 funds, Clean Water Act SRF and other Federal grant programs under State control. The State may use these funding sources, as available, in accordance with applicable criteria. The State's budget for FY 2000-01 includes more than $68 million from the Proposition 13 Interim Reliable Water Supply and Water Quality Program for water quality improvement projects. Additional Proposition 13 funds will be available during Stage 1 from the Safe Drinking Water, Flood Protection Corridor, Urban Streams Restoration, Watershed Protection, Nonpoint Source Pollution Control, Clean Water, and Water Recycling programs to fund projects with water quality benefits.

2.2.10 Water Transfers

The transfer of water between willing sellers and buyers represents an economically and environmentally sound part of the State's water strategy. Voluntary water transfers provide an important water resource management tool by fostering efficient allocation of water resources throughout the State. In some areas, local water transfers are common and CALFED Agencies will continue to support such local transfers. The successful implementation of the CALFED Program depends upon access to California's major water transportation systems and removing other barriers to transfers: physical, institutional and legal. Therefore, the goal of the CALFED Water Transfer Program is to encourage the development of a more effective water transfer market that facilitates water transfers and streamlines the approval process while protecting water rights, environmental conditions, and local economic interests.

Actions Included in the Programmatic EIS/EIR

Success of the CALFED Water Transfer Program will require the adoption of a comprehensive and progressive water wheeling policy that will require the enactment of State legislation to establish clear and concise laws governing access to and the cost of conveyance facilities as well as providing clear definitions of applicable rules and regulations.

In order to facilitate an efficient water market, DWR, SWRCB and Reclamation will focus on implementing the following elements:

- **Increase the availability of existing facilities for water transfers.** It is necessary to encourage and promote water transfers by facilitating "wheeling" transactions. Such transactions are paramount to the ultimate success of CALFED. Therefore, if legislation is not enacted during the 2000 legislative year to clarify the State's wheeling laws, the State administration will sponsor legislation in 2001.

- **Lower transaction costs through permit streamlining**. The CALFED Agencies propose to develop streamlined transfer approval procedures for certain kinds of transactions (intra-regional transfers, short-term transfers, dry-year transfers). This streamlining would include "pre-certification" of certain classes of transfers (e.g. local transfers) and expedited environmental review procedures and may necessitate legislation to implement. Actions include:

    - Convene a panel of stakeholders, including both transfer supporters and community representatives with concerns about transfers, to draft recommendations for a streamlined transfer approval process by December 2000.
    - Introduce legislative changes by April 2001.

A more active water transfer market heightens concern about the clarity of policies and procedures and the potential for third-party impacts. To respond to this and other concerns regarding better access to market information, CALFED Agencies are developing the "On-Tap" on-line water transfer information source, which will clarify application of policies and procedures and provide up-to-date information about ongoing transfer activity. This increased market information will reduce applicant and regulatory confusion and will allow third parties, including local communities, to track water transfers that may affect them and identify related outcomes from those transfers. Milestones include:

- Provide operational On-Tap website by the end of 2000.
- Establish California Water Transfers Information Clearinghouse to disseminate information on groundwater impacts, cumulative impacts and local socioeconomic impacts of transfers by the end of 2001.

Complementary Action

The Framework identified the following action which was not analyzed in the Final Programmatic EIS/EIR and will, therefore, require additional environmental review.

CALFED Agencies believe that in order to promote water use efficiency measures in the agricultural sector, end users need to be able to beneficially participate in an active water transfer market. CALFED Agencies recognize that one barrier to an effective water transfer market is the lack of incentive for individual landowners to utilize available water conservation technologies because any water savings frequently accrue not to the landowner but to the irrigation district or water supply agency. CALFED Agencies will develop and support proposals to remove this disincentive to voluntary deployment of water use efficiency improvements.

2.2.11 Levees

The goal of the CALFED Levee System Integrity Program is to provide long-term protection for multiple Delta resources by maintaining and improving the integrity of the extensive Delta levees system. CALFED proposes investing a total of approximately $450 million in Stage 1.

The Delta covers 738,000 acres of productive farmland and wildlife habitat interlaced with hundreds of miles of waterways. Much of this land is below sea level. Eleven hundred miles of levees are needed to protect Delta land uses including 520,000 acres of farmland, the Mokelumne Aqueduct that crosses the Delta to serve water to the East Bay, three State highways, a railroad, natural gas and electric transmission facilities, and thousands of acres of habitat. Levees also protect water quality for Delta and export users. If a levee fails, salt water from the Bay can inundate land that is below sea level, which can seriously affect Delta water supplies for months.

The CALFED Agencies propose substantial efforts during Stage 1 to rebuild certain levees in

ways that encourage habitat for aquatic and terrestrial species. These efforts are being undertaken consistent with the Ecosystem Restoration Program and are discussed under that heading, as well as under the Conveyance Projects section. DWR and USACE will lead the CALFED Agencies in implementing the Levee System Integrity Program. Where necessary, the Reclamation and USACE will seek Congressional authorization for Delta levee improvements. The Levee System Integrity Program consists of these elements:

- **Base Level Protection.** The Program will provide base level funding to help local reclamation districts reconstruct all Delta levees to a base level of protection (the "PL 84-99 standard). Currently, about 520 out of 1,100 miles of Delta levees do not meet this standard. During Stage 1, about 200 additional miles of levee will be brought up to a base level of protection.

- **Special Improvement Projects.** This Program will enhance stability on levees that have particular importance in the system. Priorities include life and personal property (more than 400,000 people live in Delta towns and cities) water quality (preventing salinity intrusion), protecting agricultural production, and protecting ecosystems.

- **Levee Subsidence Control Plan.** Draining and cultivation of Delta marsh lands causes the peat soil to break down and compact. Over time, land has subsided from sea level so that today two-thirds of the Delta is below sea level and subject to flooding. Some points are now 21 feet below sea level. CALFED will develop "best management practices" to control and reverse subsidence and work with local districts and landowners to implement cost-effective measures.

- **Levee Emergency Response Plan.** This will enhance the ability of local, State, and Federal agencies to rapidly respond to levee emergencies.

Levees in the Suisun Marsh have been included within the scope of the Levee System Integrity Program for purposes of considering whether levees within the Suisun Marsh may need repair or improvement to accomplish other CALFED objectives (e.g., ecosystem restoration). However, the CALFED Agencies do not intend to accept any responsibility or provide any assurance for maintaining the stability of Suisun Marsh levees through their inclusion in the Levee System Integrity Program. This does not preclude any existing CALFED Agency agreements and commitments for Suisun Marsh levee maintenance.

While the CALFED Agencies may fund repairs or improvements for levees throughout the solution area, the CALFED Agencies do not intend that any levee not already deemed eligible for the non-Federal Flood Control Work rehabilitation program be converted into an eligible non-Federal Flood Control Work levee as a consequence of this ROD, and do not intend to seek legislation that would convert any existing levee into an eligible non-Federal Flood Control Work, as part of the CALFED Levee System Integrity Program. This does not constrain any CALFED Agency from implementing existing levee repair or improvement programs in the CALFED solution area.

Actions Included in the Programmatic EIS/EIR

Stage 1 actions for the CALFED Levee System Integrity Program include:

- Initiate actions to refine the Delta Emergency Management Plan by 2000.
- Develop a Delta Risk Management Strategy that identifies risks to Delta levees, evaluates consequences, and recommends actions by 2001.
- Develop Best Management Practices for the reuse of dredged materials by 2001.
- Institute a program for using bay and Delta dredge material to repair Delta levees and restore Delta habitat, targeting 2 million cubic yards of dredge material applied in Stage 1. This program must be coordinated with CVRWQCB and other interested agencies to assure that the dredge material reuse program adequately addresses concerns over salinity and the quality of dredge material. An aggressive protective dredge material reuse program will be critical to the success of both the base level program and special improvement projects.

Complementary Action

The Framework identified the following actions which was not analyzed in the Final Programmatic EIS/EIR and will, therefore, require additional environmental review.

- **Sacramento/San Joaquin River Comprehensive Study.** USACE is currently performing a Comprehensive Study of the Sacramento and San Joaquin River watersheds to improve flood control efforts. The Delta's levees play a crucial role in controlling floods and therefore in the Comprehensive Study. The CALFED Agencies intend that final development and implementation of actions under the Comprehensive Study will be coordinated and consistent with the CALFED Bay-Delta Program.

2.2.12 Science

This ROD establishes the CALFED Science Program, which will bring world-class science to all elements of the program; ecosystem restoration, water supply reliability, water use efficiency and conservation, water quality, and flood management (e.g., levee stability). Performance measures and indicators for each program element will track progress.

The purpose of the CALFED Science Program is to provide a comprehensive framework and develop new information and scientific interpretations necessary to implement, monitor, and evaluate the success of the CALFED Program (including all program components), and to communicate to managers and the public the state of knowledge of issues critical to achieving CALFED goals.

The Science Program will be developed and directed by an interim lead scientist, who will also serve in the role of lead scientist during the initial years of program implementation. Implementation of the CALFED Science Program includes implementation of the Comprehensive

Monitoring, Assessment and Research Program (CMARP), now under the direction of the interim lead scientist. The Science Program also has primary responsibility to establish the role of adaptive management in program implementation, implement strategies to reduce uncertainties that impede successful accomplishment of CALFED goals, provide programmatic review of overall implementation of mitigation measures and integrate the CALFED Science Program with existing/related agency science programs.

An overarching principle of the Science Program is adaptive management. Adaptive management is defined as using and treating actions as partnerships between scientists and managers, designing those actions as experiments with a level of risk commensurate with the status of those species involved, and bringing science to bear in evaluating the feasibility of those experiments. New information and scientific interpretations will be developed through adaptive management, as the programs progress, and will be used to confirm or modify problem definitions, conceptual models, research, and implementation actions.

In order to better integrate scientific review into the CALFED Program, the Governor and the Secretary of the Interior will appoint an independent science board to provide oversight and peer review for the overall program. Also, specific independent science panels may be convened as standing bodies or on an as needed basis. For example, the Science Program will assist with convening an independent science panel to review implementation and operation of the EWA. In addition, the existing ERP Interim Science Board will likely become the ERP Science Panel, and provide ongoing independent review of the ERP.

While much of the need for scientific review is often focused on habitat restoration efforts, the CALFED Science Program will cover all of the program components. Water supply reliability, water use efficiency and conservation, water quality, and flood management/levee stability can each benefit from the periodic review of an independent science panel to help ensure the best investments are being made and results are being achieved, as well as form strategies to reduce scientific uncertainties. The interim lead scientist will work with CALFED program managers and CALFED Agencies to develop priorities for these program areas.

In early Stage 1, the emphasis for the CALFED Science Program will be on ecosystem restoration activities, including design of effective monitoring, targeted research and development of priorities. These efforts will be based initially on the 12 uncertainties identified in the ERP Strategic Plan.

The Science Program will not be directly involved in making regulatory decisions, but rather in ensuring that CALFED, and the CALFED Agencies, are incorporating the best available knowledge into activities and decisions that are made, as well as continuously working toward narrowing scientific uncertainties, bettering knowledge, and advancing the debate. The CALFED Science Program will be conducted in an open and collaborative manner to allow and encourage involvement of stakeholder and academic science communities. The CALFED Science Program can serve as a science clearinghouse for the CALFED Agencies and identify and articulate areas of scientific uncertainty relevant to key issues.

Actions Included in the Programmatic EIS/EIR

The CALFED Science Program will accomplish the following in Stage 1:

- Appoint an independent science board for the CALFED Program as a whole by the middle of 2001.
- Appoint an independent science panel for the EWA by the middle of 2001.
- Coordinate existing monitoring and scientific research programs.
- Refine the set of ecological, operational and other predictive models that will be used in the evaluative process by the end of 2001.
- Establish performance measures and indicators, and a consistent strategy of on-going development of these, for each of the program areas.
- Develop an annual science report, format and content, which includes:
    - Status of the species and effectiveness of efforts to improve conditions, including EWA, ERP and water management strategies, and provide recommendations to maximize fishery benefits while minimizing impacts to water supply.
    - Assessment of progress and effectiveness of each program element as indicated by performance measures and indicators.
    - Complete feasibility study to establish and construct CALFED Science Center.
    - Recommended research and/or program adjustments.
- Prepare first annual report by the end of 2001.

CALFED intends to invest approximately $300 million in the science program during Stage 1.

3. PROGRAMMATIC ENVIRONMENTAL COMPLIANCE

3.1 Clean Water Act Section 404

The CALFED Preferred Program Alternative includes numerous activities that would involve the discharge of dredged or fill material to waters of the United States (including wetlands). As such, these activities require authorization under Section 404 of the Clean Water Act before they can proceed (Section 404 permits). Activities which would require Section 404 permits range from projects involving significant construction of new infrastructure (such as new surface water storage facilities) to ecosystem restoration projects (such as creating new wetland habitat by contouring land and changing local hydrology).

The USACE issues Section 404 permits. Before the USACE can issue a Section 404 permit for a project, it must determine, among other things, whether a proposed project complies with regulations issued by EPA pursuant to Section 404(b)(1) of the Clean Water Act Section 404(b)(1) Guidelines. The USACE cannot determine whether to issue a Section 404 permit for a particular project until a project-specific administrative record is developed to permit a determination as to whether the project complies with the Guidelines as well as other relevant regulatory requirements. Because project-specific evaluations for the CALFED Program will only be completed after the ROD for the Programmatic EIS/EIR, no project-specific Section 404 permits will be issued for Program projects at the time of this ROD. However, the USACE and EPA have developed a Memorandum of Understanding (MOU) to facilitate timely consideration of Section 404 permits for CALFED projects. See Attachment 4 to this ROD.

3.2 Multi-Species Conservation Strategy Conservation Agreement, Including the Federal Endangered Species Act/California Endangered Species Act/Natural Community Conservation Planning Act Commitments

While the ERP is the Program's blueprint for restoration and recovery, the MSCS is the Program's conservation and regulatory compliance strategy. The MSCS addresses the potential adverse and beneficial effects on plant and animal species of all Program actions, including ERP actions and other Program actions such as levee system integrity, water storage and water conveyance actions. Based in large part on the ERP, the MSCS' premise is that the Program as a whole, including all program elements, will improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta. The ERP, therefore, serves two purposes: 1) to achieve Program objectives for ecosystem restoration; and 2) to enable actions from all Program elements

to be completed in compliance with FESA, CESA and NCCPA.

To serve both of these purposes, ERP implementation must be informed by the best available scientific information and by information about the implementation of other program actions. Information about the implementation of other program actions is necessary to ensure that they do not conflict with or limit the success of the ERP. In addition, ERP restoration actions must be implemented concurrently, and at commensurate levels with the other Program actions. This will ensure that the Program as a whole continues to increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta. The MSCS-ERP Milestones identified by the USFWS, NMFS and DFG are intended to establish, based on the best information currently available, a group of actions derived from the ERP Plan that 1) establish an adequate level of ERP implementation during Stage 1, 2) for the first four years, can be implemented with annual ERP funding of $150 million, 3) would not be inhibited by proposed Stage 1 actions in other program elements, and 4) would enable proposed Stage 1 actions in other program elements to be completed in compliance with FESA, ESA and the NCCPA.

The CALFED Agencies' development of annual, near- and long-term ERP implementation priorities and strategies will be based on the goals and objectives of the ERP Strategic Plan, the MSCS, FESA recovery plans, and implementation plans developed for specific ecological management zones, and will be informed by the Science Program. The MSCS-ERP Milestones represent the USFWS', NMFS' and DFG's objectives for ERP implementation that would allow Covered Species to make significant progress toward restoration and recovery. As with ERP implementation priorities and strategies generally, USFWS, NMFS, and DFG intend that the Science Program will inform the MSCS-ERP Milestones. Specifically, USFWS, NMFS, and DFG will seek annual review within the Science Program of 1)whether other program elements conflict with ERP implementation priorities and strategies so as to limit the success of the ERP, and 2) whether the ERP implementation priorities and strategies will ensure that the Program as a whole continues to increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta. As the Science Program develops information about ERP implementation, USFWS, NMFS, and DFG will revise the MSCS-ERP Milestones as necessary, consistent with the FESA and NCCPA.

USFWS, NMFS and DFG will not approve revisions to the MSCS-ERP Milestones that would cause or allow an effect to Covered Species or critical habitat designated under FESA that was not considered in the programmatic regulatory determinations, or would otherwise require the re-initiation of formal consultation under 50 CFR section 402.16. Consequently, the USFWS and NMFS expect that their approved revisions to the MSCS-ERP Milestones can be incorporated in each agency's programmatic biological opinions through informal consultation, rather than formal consultation, under section 7 of FESA. DFG will incorporate its approved revisions to the MSCS-ERP Milestones by amending the "California Department of Fish and Game Approval and Supporting Findings for the CALFED Bay-Delta Program Multiple Species Conservation Strategy."

3.3 Programmatic Endangered Species Act Section 7 Biological Opinions

Federal agencies must achieve FESA compliance under Section 7 of the act. Section 7 states that any Federal agency that funds, authorizes, or carries out an action that may affect a listed species must consult with USFWS and/or NMFS. This programmatic consultation is to ensure that the action is not likely to jeopardize the continued existence of any endangered or threatened species, or to result in the destruction or adverse modification of habitat critical to such species. If the lead agency determines that an agency action is likely to affect a listed species or critical habitat, the agency taking the action must initiate formal consultation. This programmatic consultation does not authorize any incidental take for listed or proposed species.

Formal consultation begins when the Federal agency provides USFWS or NMFS a written biological assessment of the action. USFWS and/or NMFS review the biological assessment and other relevant information, then do the following:

- Determine the sufficiency of information for consultation.
- Provide a written biological opinion that details how the action will affect any endangered species, threatened species, or critical habitat.
- Develop reasonable and prudent alternatives to the action that will avoid jeopardizing the continued existence of such species.
- Develop reasonable and prudent measures to the action to minimize the effects of the incidental taking.

Reasonable and prudent alternatives and reasonable and prudent measures are non-discretionary in order to be exempt from the prohibitions of take under section 9 of the Act. If the action will cause incidental take of an endangered or threatened species, USFWS and/or NMFS will provide a statement of the level of take that is anticipated to occur from implementing the action. If the Federal agency or other entity carrying out the action implements the specified measures and does not exceed the level of take stated in the biological opinion, FESA does not prohibit the incidental take caused by the action.

The MSCS served as the biological assessment for CALFED and initiated a programmatic consultation under Section 7. USFWS and NMFS have prepared programmatic biological opinions for CALFED based on the MSCS and other relevant information. See Attachment 6 to this ROD. As CALFED actions or groups of actions requiring Section 7 consultations are identified and defined, Action Specific Implementation Plans (ASIPs) can be prepared that use information and analyses in the MSCS and the programmatic biological opinions. The ASIPs will serve as the biological assessment of the CALFED actions or groups of actions; they will provide necessary details about the actions and their impacts on MSCS evaluated species and NCCP communities. USFWS and NMFS will then use the ASIPs to develop action-specific biological opinions.

CALFED Program implementation, in conjunction with the MSCS and programmatic biological opinions, will provide benefits in subsequent project-specific consultations. Specifically, individual projects that qualify for consultation will be evaluated within the context of the Program as a whole, which includes major elements designed to improve the environmental baseline and lead to the recovery of targeted species. These major elements will be subject to on-going monitoring, evaluation, and the application of adaptive management. Project-specific biological opinions will take into account the environmental benefits that accrue from the CALFED Program. As a result, FWS and NMFS anticipate that implementation of the overall CALFED Program will streamline the ESA compliance process and, as actions are taken that benefit listed species, will reduce the need for additional provisions to satisfy legal requirements.

3.4 Natural Community Conservation Plan Determination

The NCCPA authorizes the preparation of Natural Community Conservation Plans (NCCPs). NCCPs provide the means for regional or areawide protection and perpetuation of natural wildlife diversity, while allowing compatible and appropriate development and growth. Federal, State, and local agencies may undertake natural community conservation planning independently or in cooperation with other persons. NCCPs must be approved by the DFG. DFG may authorize incidental take of identified species, including endangered and threatened species, whose conservation and management is provided for in an approved NCCP. Because NCCPA allows DFG to authorize incidental take of endangered and threatened species, an NCCP may be used to comply with CESA.

The MSCS has been submitted to DFG as a proposed programmatic NCCP. Based on the MSCS and other relevant information, DFG will determine whether the MSCS complies with NCCPA. If the MSCS complies with NCCPA, DFG will prepare an NCCP approval and issue supporting findings. As under FESA, when specific CALFED actions or groups of actions have been identified and defined, ASIPs that use information and analyses in the MSCS and the programmatic NCCP approval will provide necessary details about the actions and their impacts on MSCS evaluated species and NCCP communities. The ASIPs can then serve as project-specific NCCPs for CALFED actions or groups of actions. See Attachment 7 to this ROD.

3.5 Clean Water Act Section 401 Memorandum of Understanding

Under Section 401 of the CWA, the SWRCB and the RWQCBs certify whether or not federally licensed or funded projects are consistent with the maintenance or attainment of water quality requirements. The SWRCB and the RWQCBs for the San Francisco Bay and Central Valley Regions have signed a memorandum of understanding as to how they will process the Section 401 certification of the CALFED storage projects and other projects requiring such certification. See

Attachment 8 to this ROD.

3.6 Coastal Zone Management Act Programmatic Consistency Determination

Under the Coastal Zone Management Act (CZMA) of 1972, coastal states are required to develop Coastal Zone Management Programs, and Federal agencies are required to certify that any proposed activities in or affecting the coastal zone are consistent with the State's program. In California, the San Francisco Bay Conservation and Development Commission (BCDC) oversees the San Francisco Bay segment of California's Coastal Zone Management Program. Among other areas, BCDC also has permit jurisdiction over projects in certain waterways up to the Sacramento-San Joaquin Delta (east of Chipps Island) that empty into the Bay and in specific saltponds and managed wetlands.

The Program has prepared a Programmatic Coastal Zone Management Act Consistency Determination that documents the possible effects of the Preferred Program Alternative on coastal resources. See Attachment 9 to this ROD. The consistency determination documents the actions that the Program will take to ensure that the Preferred Program Alternative is carried out in a manner consistent, to the maximum extent practicable, with the CZMA and the California Coastal Act of 1976. BCDC has approved the consistency determination.

3.7 Permit Clearinghouse

The CALFED Agencies will establish a permit clearinghouse process to coordinate and expedite permit applications across all CALFED programs. This process will detailed in an MOU by December 2000. As part of the clearinghouse, the CALFED Agencies will provide:

- A permit handbook
- Permit tracking database that tracks milestones for CALFED actions
- A unified application format
- A non-binding dispute resolution process
- Annual reports and meetings to track progress
- Permit coordinators

The CALFED Agencies, working in regulatory and/or implementation roles, will do the following as part of the permit clearinghouse process:

- Participate in regular meetings and assist in preparation of annual reports to track progress on overall CALFED program implementation.
- Identify and pursue regional environmental permits, opportunities to group permits, a single

environmental review process for multiple projects, or other measures that increase the efficiency of environmental compliance efforts.

- Appoint a single point of contact for their agency and as appropriate, a single point of contact for regulatory compliance activities.
- Form multi-agency, multi-disciplinary teams to assist in project definition, impact analysis, identification of avoidance and mitigation measures, development of permit conditions and information necessary to comply with regulatory requirements.
- Develop standard guidance, study methodologies, and mitigation requirements as needed.
- Respond in a timely manner to environmental documents, permit applications, other regulatory requirements.
- Ensure that environmental considerations are an integral part of project formulation.
- Identify issues in dispute early, attempt to resolve those issues at the lowest level possible, and elevate those issues as needed in an orderly manner so that they can be resolved and not result in delays.

The permit clearinghouse concept does not provide CALFED projects with any higher priority than other projects submitted by non-CALFED Agencies. The CALFED Agencies will support increases in regulatory staff to assure all CALFED and non-CALFED projects submitted for permitting have equal priority and that the CALFED Program schedule will be met. In addition, the permit clearinghouse does not change the standard of review under statutes governing the review of each regulatory agency.

Having considered the contents of this document, its attachments and the documents supporting this decision, we hereby adopt this Record of Decision. By signing this Record of Decision together, we exercise our respective authorities over only those portions relevant to our authority.

Signed and dated:

United States of America

AUG 28 2000

Bruce Babbitt, Secretary
U.S. Department of the Interior

Date

AUG 28 2000

Carol M. Browner, Administrator
U.S. Environmental Protection Agency

Date

29 AUG 2000

Dr. Joseph W. Westphal, Assistant Secretary
of the Army for Civil Works

Date

8-28-00

Norman Y. Mineta, Secretary
U.S. Department of Commerce

Date

8-28-00

Richard E. Rominger, Deputy Secretary
U.S. Department of Agriculture

Date

Felicia Marcus, Regional Administrator
U.S. Environmental Protection Agency

8/28/00
Date

Brigadier General Peter T. Madsen, Commander
South Pacific Division
U.S. Army Corps of Engineers

28 Aug/00
Date

Jeffrey R. Vonk, State Conservationist
Natural Resources Conservation Services

8-28-00
Date

Rebecca Lent, Ph.D., Regional Administrator
National Marine Fisheries Service

8/28/00
Date

Michael J. Spear, Manager
California-Nevada Operations
U.S. Fish and Wildlife Service

8/28/00
Date

Lester A. Snow, Director, Mid-Pacific Region
U.S. Bureau of Reclamation

8/28/00
Date

State of California

Mary D. Nichols, Secretary
California Resources Agency

8/23/00
Date

Winston H. Hickox, Secretary
California Environmental Protection Agency

8/28/00
Date

APPENDIX A

Mitigation Measures Adopted in the Record of Decision

Appendix A
Mitigation Measures Adopted in the Record of Decision

The CALFED Agencies commit to considering and adopting the following mitigation measures where appropriate in development and implementation of project specific actions. The mitigation measures address short-term, long-term and cumulative effects of the CALFED Program. The measures are grouped by section from the impact analysis chapters of the Final Programmatic EIS/EIR.

5.1 Water Supply and Water Management. Potentially significant effects of implementing the Preferred Program on water supply and water management include temporary local water supply interruptions due to turbidity of water during construction of Program facilities, levee construction and maintenance, and habitat restoration activities.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on water supply and water management:

1. Use best construction and drainage management practices to avoid transport of soils and sediments into waterways.
2. Use cofferdams to construct levees and channel modifications in isolation from existing waterways.
3. Use sediment curtains to contain turbidity plumes during dredging.
4. Schedule ground disturbing construction during the dry season.

5.3 Water Quality. Implementation of the Preferred Program Alternative may have several potentially significant effects on water quality. These effects include: (1) Releases of inorganic and organic suspended solids into the water column and turbidity resulting from increased erosion during construction, dredging, or drainage of flooded lands; (2) Releases of toxic substances, such as pesticides, selenium, and heavy metal residues, into the water column during construction and dredging and other Program actions; (3) Net increases in salinity if evaporation increases converting irrigated cropland to wetlands; (4) Increased electrical conductivity (a measure of salinity) of water in the Delta; (5) Increases of TOC in river water caused by the increased contact between flowing or ponded water and vegetation or peat soils that would result from conversion of agricultural lands to wetlands and from actions in other Program elements; (6) Increased water temperatures and resultant decreased dissolved oxygen concentrations due to the increased residence time of water in the Delta and from actions in various Program elements; (7) Decreases in in-stream water quality if water use efficiency measures or water transfers reduce diluting flows; (8) Increases in concentrations of constituents of concern if water transfers reduce in-stream flows and deplete river assimilative capacity; (9) Increase in methylation of mercury in constructed shallow-water habitat; (10) Degradation of surface water by the transfer of poorer quality groundwater; (11) Changes in natural flow regimes in areas where new surface storage is built; and (12) Surface storage innundation of toxic material.

The following mitigation measures will reduce potential effects of implementation of the Preferred

Program Alternative on water quality:

1. Improve treatment levels provided at municipal wastewater treatment plants to upgrade the quality of the constituents of concern discharged to receiving waters in order to compensate for the reduction in dilution caused by improved water use efficiency. Improved salt management of wastewater inputs to treatment plants could reduce salt concentrations in discharges.
2. Release additional water from enlarged or additional off-stream surface storage, or from additional groundwater storage.
3. Release additional water from storage in existing reservoirs or groundwater basins.
4. Treat wastewater at the source, such as Delta drains, upgrade water treatment processes at drinking water treatment plants and/or provide treatment at the point of use (consumer's tap).
5. Use innovative, cost-effective disinfection processes (for example, UV irradiation, and ozonation, in combination with other agents) that form fewer or less harmful DBPs.
6. Use existing river channels for water transfers and timing the transfers to avoid adverse water quality effects.
7. Use best construction and drainage management practices to avoid transport of soils and sediments into waterways.
8. Use cofferdams to construct levees and channel modifications in isolation from existing waterways.
9. Use sediment curtains to contain turbidity plumes during dredging.
10. Separate water supply intakes from discharges of agricultural and urban runoff.
11. Apply agricultural and urban BMPs, and treat drainage from lands with concentrations of potentially harmful constituents to reduce contaminants. Treat drainage from agricultural lands underlain by peat soils to remove TOC.
12. Relocate diversion intakes to locations with better source water quality.
13. Restore additional riparian vegetation to increase shading of channels and reduce evaporation.
14. Identify and investigate issues regarding beneficial reuse of dredged material, including conducting core sampling and analysis of proposed dredged areas, and implement engineering solutions to avoid or prevent environmental exposure to toxic substances after dredging.
15. Cap exposed toxic sediments with clean clay/silt and protective gravel.
16. Test for mercury in soils and locate constructed shallow-water habitat away from sources of mercury until methods for reducing mercury in water and sediments are implemented.
17. Operate storage facility operations to maintain the frequency, magnitude, and duration of flows necessary to maintain and restore downstream water quality and habitat.
18. Avoid innundation or design solutions to innundation of toxic materials, such as covering with an engineered cap.
19. Schedule ground disturbing construction during the dry season.
20. Follow established and proper procedures and regulations for identifying, removing and disposing of contaminated materials.
21. Utilize the criteria in the Water Transfer Program, in conjunction with existing legal constraints on water transfers, to protect against adverse effects due to water transfers.

The criteria for future water transfer proposals include:

- Water rights of all legal water users must not be impaired.
- Transfers must not harm fish and wildlife resources and their habitats.
- Transfers must not cause overdraft or degradation of groundwater basins, or impair correlative rights of overlying users.

22. Develop new groundwater basin management plans or expand existing groundwater basin management plans, including defining objectives, project boundaries, responsibilities, operation and maintenance specifications and procedures, and conditions under which corrective actions are taken.
23. Reduce or discontinue groundwater pumping.
24. Monitor and test groundwater wells and aquifers.
25. Continue the studies concerning reuse of beneficial Bay dredge material in the Delta for potential water quality impacts related to salinity, metals mobilization, and other environmental and health hazards.
26. Investigate all potential sources of borrow and the cost effectiveness of each source's use for levee rehabilitation and construction, including the use of sediment traps as a source of borrow.
27. Prepare a borrow plan that includes future costs and options for obtaining adequate quantities of borrow needed for implementation of the Levee System Integrity Plan.
28. Modify water conveyance operations, including DCC and south Delta operations. Program implementation will occur in phases to permit new information gained from studies and monitoring to influence changes in facility design and operations.

5.4 Groundwater. Implementation of the Preferred Program Alternative may have potentially significant effects on groundwater. These effects include: (1) Changes in groundwater levels; (2) Increased demand for groundwater supplies; (3) Increased groundwater overdraft; (4) Increased land subsidence; (5) Increased degradation of groundwater quality from contaminant movement, salt-water intrusion, or naturally poor-quality water drawn into the aquifer; and (6) Impacts from groundwater recharge and storage system operations.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on groundwater:

1. Create additional groundwater or surface water storage facilities to improve water supply reliability and decrease overdraft.
2. Support voluntary transfers of water from basins with excess supplies.
3. Purchase water rights from willing sellers (including transferring water rights between sectors—for example, from agricultural to municipal uses).
4. Support local groundwater management that reduces overdraft and third-party effects, including reduction or discontinuation of groundwater pumping.
5. Implement conservation measures to reduce demand.
6. Integrate the Ecosystem Restoration Program floodplain restoration efforts with setback levees.
7. Support local and regional efforts to increase water supplies from recycling.

8. Support increased regulations regarding new and existing domestic wells and septic systems.
9. Develop alternative water supplies.
10. Monitor and test groundwater wells and aquifers.
11. Limit new septic tank systems in vulnerable areas.
12. Allow water levels to increase periodically.
13. Import new soil (including dredged spoil) to raise land surface.
14. Support local projects to recharge aquifers.
15. Support local agencies in distributing groundwater pumping over a wide region rather than to a concentrated area to minimize drawdown of the aquifer.
16. Treat extracted groundwater at the well head.
17. Dilute poor-quality groundwater with higher quality water.
18. Support local agencies in developing new groundwater basin management plans or expanding existing groundwater basin management plans, including defining objectives, project boundaries, responsibilities, operation and maintenance specifications and procedures, and conditions under which corrective actions are taken.
19. Temporarily remove the recharge system from service to avoid effects associated with high water tables.
20. Monitor water-level conditions on islands adjacent to flooded Delta islands.
21. Install interception wells at in-Delta storage facilities to control seepage.
22. Line conveyance canals to prevent seepage.
23. Control seepage through pumping and other appropriate measures.
24. Design new levees and improve existing levees to withstand hydraulic stresses and seepage from flooding Delta islands.
25. Utilize the criteria and objectives in the Water Transfer Program, in conjunction with existing legal constraints on water transfers, to protect against adverse effects due to water transfers. The criteria for future water transfer proposals include:
    - Water rights of all legal water users must not be impaired.
    - Transfers must not cause overdraft or degradation of groundwater basins, or impair correlative rights of overlying users.

5.5 Geology and Soils. Implementation of the Preferred Program Alternative may have potentially significant effects on geology and soils. These effects may include: (1) Conversion of agricultural land soils for levee system construction and potential for erosion on outboard slope of levees; (2) Increases in local subsidence from potential increased reliance on groundwater use; (3) Increases in wind and soil erosion and in soil salinity due to fallowed agricultural lands; (4) Increased construction-related short-term soil erosion, and increased sediment deposition and soil compaction; (5) Potential changes in downstream geomorphology from enlarging existing storage facilities and other Program actions; and (6) Ground disturbance, inundation, seepage, and shoreline wind- and wave-generated erosion from new storage facilities and other Program actions.

The following mitigation measures will reduce potential effects of implementation of the Preferred

Program Alternative on geology and soils:

1. Monitor groundwater levels and subsidence in areas of increased reliance on groundwater resources and regulate withdrawal rates at levels below those that cause subsidence.
2. Minimize and avoid direct groundwater transfers or groundwater substitution transfers from regions: 1) experiencing long-term overdraft, 2) where subsidence historically has occurred, or 3) where local extensometers indicate that subsidence rates are increasing.
3. Protect flooded Delta island inboard levee slopes against wind and wave erosion with vegetation, soil matting, or rock.
4. Protect exposed soils with mulches, geotextiles, and vegetative ground covers during and after project construction activities in order to minimize soil loss.
5. Implement erosion control measures and bank stabilization projects.
6. Increase sediment deposition and provide substrate for new habitat by planting terrestrial and aquatic vegetation.
7. Measure channel morphology over time to monitor changes and implement erosion control measures where needed.
8. Re-use dredged materials to reduce or replace soil loss.
9. Leave crop stubble from previous growing season in place while fallowing and employ cultivation methods that will cause the least amount of disturbance in order to minimize erosion of surface soils.
10. Limit the salinity of replacement water, relative to local conditions, in water transfers.
11. Ensure that the volume of irrigation water used is sufficient to flush accumulated salts from the root zone.
12. Operate new storage facilities to minimize sediment trapping and increase sediment transport in rivers and tributaries.
13. Retrofit soil-comprised structures to seismic events with shock-absorbing devices and materials in areas of seismic vulnerability, wherever possible.
14. Prepare and implement best construction management plans.
15. Prepare and implement a water quality and soils monitoring program.
16. Prepare and implement construction mitigation plans.
17. Prepare and implement contingency plans for wetland and marshland restoration.
18. Modify storage facility operations to maintain the frequency, magnitude, and duration of flows necessary to maintain and restore downstream habitat.
19. Control boat traffic in order to reduce boat wakes to levels that will not cause levee or bank erosion.
20. Monitor water-level conditions on islands adjacent to in-Delta storage.
21. Install interception wells at in-Delta storage facilities to control seepage.
22. Line conveyance canals to prevent seepage.
23. Control seepage through pumping and other appropriate measures.
24. Design new levees and improve existing levees to withstand hydraulic stresses and seepage from flooding Delta islands.
25. Use cofferdams to construct levees and channel modifications in isolation from existing waterways.
26. Use sediment curtains to contain turbidity plumes during dredging.
27. Investigate the cost effectiveness and safety of using sediment traps as a source of borrow.

5.6 Noise. Implementation of the Preferred Program Alternative may have potentially significant effects on noise. These effects may include: (1) Increased noise from heavy equipment operation during construction; (2) Noise from construction-related traffic along major access and haul routes and construction labor force vehicle traffic; (3) Increased noise from facility operation of spillways, pumping generating plants, and switchyards; (4) Increased noise from automobile or boat traffic associated with recreational use at enlarged reservoirs; and (5) Increased traffic noise from permanently relocated roadways.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on noise:

1. Use electrically powered equipment instead of internal combustion equipment where feasible.
2. Locate staging and stockpile areas, and supply and construction vehicle routes as far away from sensitive receptors as possible.
3. Establish and enforce construction site and haul road speed limits.
4. Restrict the use of bells, whistles, alarms, and horns to safety warning purposes.
5. Design equipment to conform with local noise standards.
6. Locate equipment as far from sensitive receptors as possible.
7. Equip all construction vehicles and equipment with appropriate mufflers and air inlet silencers.
8. Restrict hours of construction to periods permitted by local ordinances.
9. Locate noisy equipment within suitable sound-absorbing enclosures.
10. Erect sound wall barriers or noise attenuation berms between noise generation sources and sensitive receptors.
11. Schedule construction activities to avoid breeding seasons of sensitive species and peak recreating use.
12. Locate redirected roadways away from sensitive receptors.
13. Encourage use of public transportation and carpooling for construction workers.
14. Restrict boating speeds or access to areas with sensitive receptors.
15. Conduct project-specific noise analyses for actions with noise impacts.

5.7 Transportation. Implementation of the Preferred Program Alternative may have potentially significant effects transportation. These effects may include: (1) Increasing local traffic flows as the public accesses recreational resources at new storage facilities; (2) Changing traffic flows as roads are temporarily rerouted around construction sites; (3) Relocating or permanently closing roads; (4) Delays and disruptions resulting from detouring traffic as new roadways and railroad bridges are constructed around storage and conveyance facilities; (5) Adding construction vehicles to existing traffic levels, especially on narrow, two-lane local roads with winding routes; (6) Closing two-lane roads to one lane in order to facilitate roadway improvements or relocations associated with the Watershed Program; (7) Impeding or blocking patrol or rescue boats in Delta channels where fish barriers and flow control structures are installed; and (8) Creating safety conflicts by operating large, slow-moving dredging equipment on Delta waterways.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on transportation:

1. Provide convenient and parallel detours to routes closed during construction.
2. Allow trains to use existing tracks while bridges are being built.
3. Encourage use of public transportation and carpooling for construction workers.
4. Clearly mark roadway intersections with warnings where visibility is poor in the project vicinity.
5. Provide boat portage or a stationary jib crane.
6. Relocate boat launch facilities.
7. Relocate emergency access roads.
8. Require contractors to follow appropriate state and federal safety protocols.
9. Coordinate dredging and safety precautions with state and local authorities.
10. Schedule construction at times and seasons to minimize delays.
11. Expand public transportation resources and local roadways.
12. Expand public transportation, roads, and highways.
13. Locate roadways in areas with fewer conflicts.
14. Design roadways to avoid or minimize traffic congestion.

5.8 Air Quality. Implementation of the Preferred Program Alternative may have potentially significant effects on air quality. These effects may include: (1) Direct, short-term air pollutant emissions during construction activities; (2) Fugitive emissions of wind-blown dust; (3) Emissions associated with prescribed burning programs; (4) Emissions from increases in equipment use and cultivation, agricultural chemical use, and crop shifting and burning; (5) Emissions if land use changes lead to higher recreational uses; and (6) Emissions from use of fossil fuels or other energy resources associated with pressurized irrigation systems; and (7) Indirect air quality impacts from increased power generation to meet Program energy consumption and changes in operation.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on air quality:

1. Set traffic limits on construction vehicles.
2. Maintain properly tuned equipment.
3. Limit the hours of operation or amount of equipment.
4. Limit the use of agricultural chemicals.
5. Coordinate prescribed burning programs with relevant air quality management agencies to ensure that the programs are accounted for in air quality management plans.
6. Regularly water construction sites to control levels of dust in the air.
7. Use soil stabilizers and dust suppressants on unpaved service roadways.
8. Conduct daily contained sweeping of paved surfaces.
9. Limit vehicle idling time.
10. Use alternatively fueled equipment.
11. Require selection of borrow sites that are closest to fill locations.
12. Implement construction practices that reduce generation of particulate matter.

13. Hydoseed and mulch exposed areas.
14. Use cultivation practices that minimize soil disturbance.
15. Follow air basin management plans to avoid or minimize vehicle-related emissions.
16. Restrict the kinds of recreational vehicles or the times of operation for certain off-road vehicles on fallowed agricultural land to limit the amount of fugitive dust.
17. Implement prescribed burning during favorable weather conditions.
18. Implement alternatives to crop burning including tilling and shallow flooding.
19. Coordinate crop stubble burning with relevant air quality management agencies to ensure that the programs are accounted for in air quality management plans.
20. Encourage use of public transportation and carpooling for construction workers.
21. Obtain replacement power from non-emitting sources such as other hydro, solar, and wind sources. This can occur through construction of, or the use of incentives to construct non-emitting power plants. This approach is consistent with state and federal policies related to promoting use of renewable resource type generation as expressed in Public Utility Code Section 381(c) (part of what is commonly referred to as AB 1890) and Executive Order 12902.
22. Utilize the best available control technology for new power production facilities.

6.1 Fisheries and Aquatic Systems. Implementation of the Preferred Program Alternative may have potentially significant effects on fisheries and aquatic systems. These effects may include: (1) Increased non-native species abundance and distribution to levels detrimental to native species from reestablishment of aquatic areas; (2) Blocked access to habitat and altered water quality and flow conditions from placement of barriers in the south Delta; (3) Altered natural ecosystem structure, removal of benthic communities, and creation of conditions that may damage habitat for desired species from dredging activities and other Program actions; (4) Release of toxic substances into surface waters; (5) Short-term disturbance of existing biological communities and species habitat, mobilized sediments, and input contaminants from construction activities; (6) Reduced streamflow and Delta outflow, changed seasonal flow and water temperature variability from water supply management, and changes in salinity associated with several Program elements resulting in reduced habitat abundance, impaired species movement, and increased loss of fish to diversions; (7) Increased entrainment loss of chinook salmon and other species from diversions to new off-stream and in-Delta storage; (8) Reduced frequency and magnitude of net natural flow conditions in the south and central Delta from Delta Cross Channel operations and south Delta barriers resulting in reduced system productivity, impaired species movement, and increased losses to diversions; (9) Reduced net flow conditions in the Sacramento River downstream of the diversion facility on the Sacramento River; (10) Increased fish mortality through abrasion, increased predation, and other factors from the new fish screen facility for the diversion facility on the Sacramento River; and (11) Delayed migration and reduced spawning success for adult fish moving from the Mokelumne River channels into the Sacramento River from fish screens and a diversion facility on the Sacramento River.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on fisheries and aquatic systems:

1. Implement BMPs, including a storm water pollution prevention plan, toxic materials control and spill response plan, and vegetation protection plan.
2. Limit construction activities to windows of minimal species vulnerability.
3. Create additional habitat for desired species, including increased aquatic area and structural diversity through construction of setback levees and channel islands.
4. Control undesirable non-native species.
5. Operate new and existing diversions to avoid and minimize effects on fish--avoid facility operations during periods of high species vulnerability.
6. Locate the diversion points to avoid primary distribution of desired species.
7. Control predators in the diversion facility (screen bays) and modify diversion facility structure and operations to minimize predator habitat.
8. Construct a barrier to fish movement on Georgiana Slough.
9. Coordinate and maximize water supply system operations flexibility consistent with seasonal flow and water temperature needs of desired species.
10. Identify and investigate issues regarding beneficial reuse of dredged material, including conducting core sampling and analysis of proposed dredged areas, and implement engineering solutions to avoid or prevent environmental exposure to toxic substances after dredging.
11. Cap exposed toxic sediments with clean clay/silt and protective gravel.
12. Locate constructed shallow-water habitat away from sources of mercury until methods for reducing mercury in water and sediment are implemented.
13. Use cofferdams to construct levees and channel modifications in isolation from existing waterways.
13. Use sediment curtains to contain turbidity plumes during dredging.
14. Schedule ground disturbing construction during the dry season.
15. Follow established and proper procedures and regulations for identifying, removing and disposing of contaminated materials.
16. Utilize the criteria and objectives in the Water Transfer Program, in conjunction with existing legal constraints on water transfers, to protect against adverse effects due to water transfers. The criteria for future water transfer proposals include:
    - Transfers must not harm fish and wildlife resources and their habitats.

6.2 Vegetation and Wildlife. Implementation of the Preferred Program Alternative may have potentially significant effects on vegetation and wildlife. These effects may include: (1) Temporary and permanent loss and degradation of wetland, riparian and other natural communities; (2) Substantial temporary or permanent loss and disturbance of wintering waterfowl foraging habitat; (3) Substantial decrease in important upland wildlife habitat and use areas; (4) Temporary and permanent fragmentation of riparian habitats and/or wildlife movement corridors; (5) Temporary or permanent loss of habitat or direct impacts on special-status species; (6) Loss of portions of rare natural communities and significant natural areas; (7) Temporary disturbance or mortality of special-status species due to construction and habitat management activities; (8) Permanent loss of incidental wetland and riparian habitats that depend on agricultural inefficiencies; and (9) Reduction in quantity or quality of forage for species of concern.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on vegetation and wildlife:

1. Avoid direct or indirect disturbance to wetland and riparian communities, special-status species habitat, rare natural communities, significant natural areas, and other sensitive habitat.
2. Restore and enhance sufficient in-kind wetland and riparian habitat or rare natural communities and significant natural areas at offsite locations (near project sites) before or at the time that project impacts are incurred. Replace not only acreage lost, but also habitat value loss.
3. Design Program features to permit on-site mitigation or nearby restoration of wetland, riparian habitat, special-status species habitat, rare natural communities, and significant natural areas that have been removed by permanent facilities.
4. Phase the implementation of Ecosystem Restoration Program habitat restoration to offset temporary habitat losses and to restore habitat (including special-status species habitat) before, or at the same time that, project impacts associated with the Ecosystem Restoration Program are incurred.
5. Restore wetland and riparian communities, special-status species habitat, and wildlife use areas temporarily disturbed by on-site construction activities immediately following construction. Example actions include direct planting of native plants, controlling non-native plants to improve conditions for reestablishing native plants, and enhancing and restoring the original site hydrology to allow for the natural reestablishment of the affected plant community.
6. Avoid creating wetlands in areas with high concentrations of mercury in sediments and anaerobic conditions.
7. Phase the implementation of modifications to levees that would be necessary to meet PL 84-99 standards in order to minimize the effects of fragmentation of riparian habitats and associated wildlife.
8. Implement BMPs such as avoiding disturbance to highly erodible soils and installing siltation barriers and detention basins to reduce the potential for siltation of nearby wetlands.
9. Maintain sufficient outflow downstream of constructed off-stream reservoirs to maintain existing downstream wetland riparian communities.
10. Restore or enhance sufficient waterfowl foraging habitat near existing use areas to offset impacts on the abundance, quality and availability of waterfowl forage. Restoration and enhancement actions include restoring and managing seasonal wetlands for wintering waterfowl, producing crops with high forage value (such as corn and rice), and modifying farming practices to increase forage availability (for example, leaving portions of forage crops unharvested through winter or shallowly flooding fields).
11. Avoid important wildlife habitat areas, such as critical deer winter range and fawning habitat.
12. Restore and enhance important wildlife habitat use areas temporarily disturbed by on-site construction activities by planting and maintaining native species immediately following construction.
13. Restore and enhance upland habitat areas within affected watersheds or in other watershed

if sufficient habitat enhancement is unavailable within the affected watershed. This could include modifying existing land management practices (for example, grazing and fire management practices) to improve conditions for the natural reestablishment and long-term maintenance of affected plant communities and habitats.

14. Avoid direct or indirect disturbance to areas occupied by special-status species.
15. Avoid construction or maintenance activities within or near occupied special-status species habitat areas or important wildlife use areas when species may be sensitive to disturbance, such as during the breeding season.
16. Restore habitat areas occupied by special-status species that are temporarily disturbed by on-site construction activities immediately following construction.
17. Restore and enhance suitable habitat areas that are occupied by, or are near and accessible to, special status species that have been affected by the permanent removal of occupied habitat areas.
18. Phase habitat restoration actions to restore sufficient suitable habitat to minimize the adverse affects of impacts on occupied special-status species habitats before impacts are incurred.
19. For species for which relocation or artificial propagation is feasible, establish additional populations of special-status species adversely affected by the Program in suitable habitat areas elsewhere within their historical range.
20. Provide incentives to alter agricultural practices to improve habitat conditions for affected special-status species that use agricultural lands. This could included planting and managing crops to increase the availability or quantity of forage for affected species.
21. Avoid direct or indirect disturbances to rare natural communities and significant natural areas.
22. Restore or enhance disturbed rare natural communities or significant natural areas at off-site locations before, or when, Program actions that could affect these communities are incurred.
23. Restore rare natural communities or significant natural areas at or near affected locations after Program activities are completed.
24. Manage recreation-related activities on lands managed under the Program to minimize or avoid potential adverse effects of recreation-related activities on sensitive habitats, important wildlife use areas, and special-status species.
25. Phase ERP to initially restore natural waterfowl foraging on agricultural lands with low forage value while restored habitat with high forage value develops.
26. Phase ERP to initially restore wetland habitat with high forage value to offset the loss of agricultural foraging habitat that may result from the ERP.
27. Restore riparian vegetation disturbed by on-site construction activities immediately following construction.
28. Restore or enhance sufficient in-kind riparian habitat at off-site locations, near project sites, in a manner that reduces the degree of existing habitat fragmentation before, or when, project impacts are incurred to offset habitat losses.
29. Restore habitat temporarily disturbed by on-site construction activities immediately following construction.
30. Restore rare natural communities, significant natural areas, and wildlife use areas

temporarily disturbed by on-site construction activities immediately following construction. Example actions include direct planting of native plants, controlling non-native plants to improve conditions for reestablishing native plants, and enhancing and restoring the original site hydrology to allow for the natural reestablishment of the affected plant community.

31. Restore and enhance suitable habitat areas that are occupied by, or are near and accessible to, special-status species that have been adversely affected by the permanent removal of occupied habitat areas.

7.1 Agricultural Land and Water Use. Implementation of the Preferred Program Alternative may have potentially significant effects on agricultural land and water use. These effects may include: (1) Conversion of prime, statewide important, and unique farmlands to project uses; (2) Conflicts with local government plans and policies; and (3) Conflicts with adjacent land uses.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on agricultural land and water use:

1. Site and align Program features to avoid or minimize effects on agriculture.
2. Examine structural and nonstructural alternatives to achieve project goals in order to avoid effects on agricultural land.
3. Implement features that are consistent with local and regional land use plans.
4. Involve all affected parties, especially landowners and local communities, in developing appropriate configurations to achieve the optimal balance between resource effects and benefits.
5. Retain water allocations from retired drainage-impaired lands within the existing water districts.
6. Support the testing and application of alternative crops to idled farmland (for example, agroforestry or energy crops).
7. Provide water supply reliability benefits to agricultural water users.
8. Support the California Farmland Conservancy Program in acquiring easements on agricultural land in order to prevent its conversion to urbanized uses and increase farm viability. Focus on lands in proximity to where any conversion effect takes place.
9. Restore existing degraded habitat as a priority before converting agricultural land.
10. Focus habitat restoration efforts on developing new habitat on public lands before converting agricultural land.
11. If public lands are not available for restoration efforts, focus restoration efforts on acquiring lands that can meet ecosystem restoration goals from willing sellers where at least part of the reason to sell is an economic hardship (for example, lands that flood frequently or where levees are too expensive to maintain).
12. Use farmer-initiated and developed restoration and conservation projects as a means of reaching Program goals.
13. Where small parcels of land need to be acquired for waterside habitat, seek out points of land on islands where the ratio of levee miles to acres farmed is high.
14. Obtain easements on existing agricultural land for minor changes in agricultural practices

(such as flooding rice fields after harvest) that would increase the value of the agricultural crop(s) to wildlife.

15. Include provisions in floodplain restoration efforts for compatible agricultural practices.
16. Purchase water for habitat purposes so that the same locality is not affected over the long term.
17. Use a planned or phased habitat development approach in concert with adaptive management.
18. Minimize the amount of water supply required to sustain habitat restoration acreage.
19. Develop buffers and other tangible support for remaining agricultural lands. Vegetation planted on these buffers should be compatible with farming and habitat objectives.
20. In implementing levee reconstruction measures, work with landowners to establish levee reconstruction methods that avoid or minimize the use of agricultural land.
21. Work with landowners to establish levee subsidence BMPs that avoid effects on land use practices. Through adaptive management, further modify BMPs to reduce effects on agricultural land.
22. Implement erosion control measures to the extent possible during and after project construction activities. These erosion control measures can include grading the site to avoid acceleration and concentration of overland flows, using silt fences or hay bales to trap sediment, and revegetation areas with native riparian plants and wet meadow grasses.
23. Protect exposed soils with mulches, geotextiles, and vegetative ground covers to the extent possible during and after project construction activities in order to minimize soil loss.
24. Use rotational fallowing to reduce selenium drainage.
25. When it appears that land within an agricultural preserve may be acquired from a willing seller by a State CALFED agency for a public improvement as used in Government Code Section 51920, advise the Director of Conservation and the local governing body responsible for the administration of the preserve of the proposal.
26. Limit the number of acres that can be fallowed (in order to produce transferrable water) in a given area (district or county) or the amount of water that can be transferred from a given area.
27. Support assistance programs to aid local entities in developing and implementing groundwater management programs in water transfer source areas.
28. Dredged materials will be analyzed, dredged and handled in accordance with permit requirements. Permits will incorporate mitigation strategies identified in Section 5.3 to prevent release of contaminants of concern.
29. Utilize the criteria and objectives in the Water Transfer Program, in conjunction with existing legal constraints on water transfers, to protect against adverse effects due to water transfers. The criteria for future water transfer proposals include:
    - Water transfers must be voluntary.
    - Water market transactions must result in the transfer or exchange of water that truly increases the utility of the supply, not water that a transferor has never used or water that would have been legally available for downstream use in the absence of a transfer.
    - Water rights of all legal water users must not be impaired.
    - Transfers must not cause overdraft or degradation of groundwater basins, or impair

correlative rights of overlying users.

- Entities receiving transferred water should be required to show that they are making efficient use of existing water supplies.
- Water rights holders (whether districts or individuals) must play a strong role in determining whether water to which they have a right is transferred.
- The beneficial and adverse impacts on fiscal integrity of the districts and on the economy of agricultural communities in source and receiving areas cannot be ignored.

30. Implement seepage control measures.
31. Support local groundwater management that reduces overdraft and third-party effects, including reduction or discontinuation of groundwater pumping.

7.4 Urban Land Use. Implementation of the Preferred Program Alternative may have potentially significant effects on urban land use. These effects may include: (1) Displacement of some existing commercial uses and residents from Program actions located in urban land use areas; (2) Physical disruption or division of established communities; and (3) Potential conflicts of habitat development and storage and conveyance facilities with general plan land use designations or zoning if located in urban use areas.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on urban land use:

1. Select and design program actions that minimize the displacement of existing residents.
2. Select and design Program actions that do not physically disrupt or divide established communities.
3. Select Program actions that are consistent with local and regional land use plans. This could include consulting and working with local jurisdictions affected by Program actions early in the planning and environmental review process.
4. Notify all affected persons (for example, residents, property owners, school officials, and business owners) in the project area of the construction plans and schedules. This could include arranging schedules for road detours with residents and businesses to maintain access to homes, schools, and businesses; as well as providing protection, relocation, or temporary disconnection of utility services.
5. Select and design Program actions that do not physically disrupt or divide established communities.
6. Minimize the amount of permanent easement required for construction of facilities and consult with property owners to select easement locations that would lessen property disruption and fragmentation.
7. Relocate roads and utilities prior to project construction to ensure continued access and utility service through the project area.
8. Prepare a detailed engineering and construction plan as part of the project design plans and specifications, and include procedures for rerouting and excavating, supporting, and filling areas around utility cables and pipes in this plan.
9. Verify utility locations through consultation with appropriate entities and field surveys

(such as probing and pot-holing).

10. Reconnect disconnected cables and lines promptly.

7.6 Utilities and Public Services. Implementation of the Preferred Program Alternative may have potentially significant effects on utilities and public services. These effects may include: (1) Need for relocation or modification of major infrastructure components; and (2) Increased risk of gas line rupture during construction.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on utilities and public services:

1. Site project facilities and transmission infrastructure to avoid existing infrastructure.
2. Construct overpasses, small bridges, or other structures to accommodate existing infrastructure.
3. Coordinate construction activities with utility providers.
4. Design and operate facilities to minimize the amount of energy required and to maximize the amount of energy created.
5. Design project facilities to avoid or minimize their effect on existing infrastructure.

7.7 Recreation. Implementation of the Preferred Program Alternative may have potentially significant effects on recreation. These effects may include: (1) Temporary closure of recreation areas during construction; (2) Decrease in recreation opportunities and increases in boat traffic in some areas due to speed zone restrictions or prohibition of motorized boating in some areas; (3) More stringent enforcement of boat discharges; (4) Temporary or permanent changes in boating access and navigation; (5) Permanent closure of recreation facilities; (6) Potential decrease in flooded lands suitable for wildlife, hunting, and fishing as a result of water use efficiency actions; (7) Reduced water-contact recreation quality from cold water reservoir releases; (8) Displacement of fish and wildlife and loss of terrestrial and loss of on-stream recreation from new off-stream or expanded on-stream reservoirs; (9) Potential for reduced access to recreation facilities and decreased recreation opportunities from changes in reservoir levels; and (10) Potential short-term construction effects of dredging, such as obstructing or closing channels and creating noise and visual effects.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on recreation:

1. Incorporate project-level recreation improvements and enhancements.
2. Work with recreational interests to protect and enhance recreation resources.
3. Conduct an analysis of boating circulation to ensure that appropriate alternative routes are identified and clearly marked if boating circulation in the Delta is to be modified due to temporary, seasonal, or permanent channel closures or to speed restrictions.
4. Identify and mark alternate boating routes.
5. Restoring and designing existing and new levees to accommodate vehicular access and parking for shoreline fishing, boat launching, swimming, hiking, bicycling, and wildlife

viewing where feasible.

6. Maintain boating access to prime areas.
7. Construct portage facilities.
8. Construct boat locks.
9. Provide public information regarding alternate access.
10. Avoid construction during peak-use seasons and times.
11. Post warning signs and buoys in channels.
12. Provide in-kind recreation facilities.
13. Maintain reservoir levels as high as feasible during the recreation season, given regulatory and other operational constraints.
14. Minimize water level fluctuation and establish minimum pool levels.
15. Coordinate operation of all reservoir facilities to minimize adverse reservoir fluctuations in any particular facility consistent with regulatory and other operational constraints.
16. Purchase trail rights-of-way or recreational easements.
17. Provide or improve vehicle access and parking for recreation areas.
18. Provide access to waterfront areas and island edges.
19. Create new day-use boating and camping areas.
20. Relocate or construct new recreation facilities and infrastructure.

7.8 Flood Control. Implementation of the Preferred Program Alternative may have potentially significant effects on flood control. These effects may include: (1) Effects on levee stability from levee and berm vegetation management practices for habitat purposes; (2) Reduced levee stability from habitat restoration using conservation easements along riparian corridors; (3) Increased seepage on adjacent islands, possibly leading to flooding from seepage-induced failure from shallow flooding of Delta islands susceptible to subsidence; (4) Increases in wind-fetched and wave erosion on landside levee slopes from island flooding; (5) Increased levels of flooding downstream of diversions after removal of diversion structures and other obstructions to flow in the Sacramento River tributaries; (6) Increased flood stages along small streams due to increases in the roughness of the stream channel from vegetation on stream banks; (7) Levee slumping and cracking caused by groundwater overdraft and subsidence; and (8) Increased stage upstream of and possible decreased stage downstream from gate structures located in channels that reduce the channel's flood flow conveyance.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on flood control:

1. Allow reasonable clearing of deep-rooted trees and shrubs from levee side slopes to support inspection, maintenance, repair, and emergency response, while preserving habitat values.
2. Permit clearing of deep-rooted shrubs and trees on levee side slopes. Trees and shrubs should be allowed to grow only on adjacent berms. If roots penetrate levees, fill materials should be added to levee landside slopes in order to construct a partial setback levee and increase stability.
3. Widen streams downstream of removed water diversion structure to increase conveyance

capacity.

4. Incorporate flood control criteria into the design of stream bank revegetation projects. For example, by increasing the width of vegetated sections to maintain conveyance capacity, the net effect of vegetation on flood control would be negligible.
5. Identify locations susceptible to seepage-induced failure on Delta islands that may be intentionally flooded for habitat.
6. Implement a seepage monitoring program on nonflooded islands adjacent to potential shallow-flooded islands.
7. Develop seepage control performance standards to be used during island flooding and storage periods to determine net seepage caused by shallow flooding.
8. Improve levees to withstand expected hydraulic stresses and seepage.
9. Design erosion protection measures to minimize or eliminate wave splash and run-up erosion.
10. Use rip rap or another suitable means of slope protection to dissipate wave force.
11. Construct large wind/wave breaks in the flooded islands to reduce wind-fetch and erosion potential.
12. Identify existing or planned wells that could affect groundwater and substrate conditions underlying nearby levees or flood control devices.
13. Provide incentives to terminate use of wells that can adversely affect levee stability, reduce their pumping volume to safe withdrawal levels as they affect substrate stability, or otherwise replace them with sources that could not affect levee stability.
14. Design structures to minimize the loss of channel conveyance at gate structures located in channels.
15. Install relief wells near the toes of existing levees on neighboring lands.
16. Construct toe berms with an internal drainage system on neighboring lands.
17. Lower the pool elevation on the storage islands.
18. Develop wetland easements adjacent to levees on neighboring islands.
19. Construct a combination of seep and interior ditches and increase pumping rates, install clay blankets, and install impervious cutoff walls through storage island levees.
20. Control boat traffic in order to reduce boat wakes to levels that will not cause levee or bank erosion.
21. Coordinate erosion protection measures and wave force dissipation measures with the Ecosystem Restoration Program to minimize adverse effects to revegetation efforts.
22. Implement flood management measures including dredging, levee maintenance, and snag removal.
23. Support local groundwater management that reduces overdraft and third-party effects, including reduction or discontinuation of groundwater pumping..
24. Support local agencies in distributing groundwater pumping over a wide region rather than to a concentrated area to minimize drawdown of the aquifer.

7.11 Cultural Resources. Implementation of the Preferred Program Alternative may have potentially significant effects on cultural resources. These effects may include: (1) Effects on cultural resources from construction, excavation, fill and flooding; and (2) Alteration of the

historic setting of a cultural resource.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on cultural resources:

1. Conduct cultural resource inventories.
2. Avoid sites through project redesign.
3. Map sites prior to undertaking actions that affect cultural resources.
4. Conduct surface collections.
5. Perform test excavations.
6. Probe for potentially buried sites.
7. Prepare reports to document mitigation work.
8. Conduct full-scale excavation of sites slated for destruction as a result of projects.
9. Prepare public interpretive documents.
10. Document historic structures by preparing Historic Engineering Records or Historic American Building Surveys.
11. Conduct ethnographic studies for traditional cultural properties.

7.12 Public Health and Environmental Hazards. Implementation of the Preferred Program Alternative may have potentially significant effects on public health and environmental hazards. These effects may include: (1) Short- and long-term increases in mosquito breeding habitat from wetland restoration activities and fluctuating water levels; (2) Increased risk of groundwater and surface water contamination from naturally occurring or spilled hazardous materials and from improper handling of hazardous materials; (3) Increased exposure to hazardous materials and waste from construction activities related to storage and conveyance projects and other Program elements; (4) Increases in water quality degradation, resuspension of contaminants, and exposure to hazardous materials from dredging activities; and (5) Increases in levels of methyl mercury released into the Bay-Delta ecosystem from wetland restoration, levee rehabilitation activities and conveyance actions.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on public health and environmental hazards:

1. Use various mosquito control methods, such as biological agents, chemical agents, and ecological manipulation of mosquito breeding habitat.
2. Support actions to establish or find funding for mosquito abatement activities.
3. Remove or disturb water that remains stagnant for more than 3 days at a construction site.
4. Limit construction to cool weather, when mosquito production is lowest.
5. Limit construction to periods of low precipitation to avoid pools of standing water.
6. Follow established and proper procedures and regulations for identifying, removing and disposing of contaminated materials.
7. Increase monitoring activities to ensure that groundwater pumping equipment is operating to existing standards.
8. Limit or coordinate construction activities to favorable weather conditions to forestall dispersing hazardous materials.

9. Conduct core sampling and analysis of proposed dredge areas and engineer solutions to avoid or prevent environmental exposure to toxic substances after dredging.
10. Modify engineering plans to minimize mercury related problems.
11. Cap exposed toxic sediments with clean clay/silt and protective gravel.
12. Locate constructed shallow-water habitat away from sources of mercury until methods for reducing mercury in water and sediment are implemented.
13. Use cofferdams to construct levees and channel modifications in isolation from existing waterways.
14. Use sediment curtains to contain turbidity plumes during dredging

7.13 Visual Resources. Implementation of the Preferred Program Alternative may have potentially significant effects on visual resources. These effects may include: (1) Long-term visual effects of new facilities or modified existing facilities; (2) Effects in visually sensitive areas from restoration actions; (3) Degraded watershed views from such actions as erosion control and fire management practices; (4) Creation of borrow pits or spoils material disposal sites associated with storage, conveyance, levee projects, and other Program actions; and (5) Long-term visual effects from construction activities extending more than 5 years.

The following mitigation measures will reduce potential effects of implementation of the Preferred Program Alternative on visual resources:

1. Time changes in flow regimes to minimize "bathtub ring" effects during times of peak recreation use.
2. Minimize construction activities during the peak-use recreation season.
3. Avoid unnecessary ground disturbance outside the necessary construction area.
4. Water areas where dust is generated, particularly along unpaved haul routes and during earth-moving activities, to reduce visual effects caused by dust.
5. Locate and direct exterior lighting for construction activities so that it is concealed to the extent practicable when viewed from local roads, nearby communities, and any recreation areas.
6. Site proposed reservoir(s), if possible, to minimize required cut and fill and locate the reservoir on the flattest topographic section of the site to minimize its visibility.
7. Construct facilities with earth-tone building materials or other visually aesthetic design materials.
8. Revegetate disturbed areas as soon as possible after construction.
9. Locate visually obtrusive features, such as burrow pits and dredged material disposal sites, outside visually sensitive areas and observation sites.
10. Select vegetation type, placement, and density to be compatible with patterns of existing vegetation where revegetation occurs in natural areas. Vegetation such as emergent marsh grasses that can tolerate periodic flooding and drying may be useful.
11. Install landscape screening, such as grouped plantings of trees and tall shrubs, to screen proposed facilities from nearby sensitive viewers.
12. Use native trees, bushes, shrubs, and ground-cover for landscaping, when appropriate, at facilities such as dams and pumping-generating plants, and along new and expanded canals

and conveyance channels, in a manner that does not compromise facility safety and access.

13. Create view opportunities of outstanding features through selective vegetation reduction or constructing roadside viewing areas.
14. Recontour and add vegetation to areas rated as “poor” in variety class.

APPENDIX B

Mitigation Measures Not Adopted in the Record of Decision

Appendix B
Mitigation Measures Not Adopted in the Record of Decision

The following mitigation measures recommended in comments on the Programmatic EIS/EIR are either (1) not adopted because they inappropriate, or (2) rejected as not practicable due to specific economic, technological, or other considerations. The measures are grouped by section from the impact analysis chapters of the Final Programmatic EIS/EIR. Parenthetical references are to the Response to Comments Volume III document appended to the Final Programmatic EIS/EIR.

5.2 Hydrodynamics and Hydraulics

- Provide mitigation strategies aimed at reducing significant impacts to Bay-Delta hydrodynamics and riverine hydraulics (e.g., unacceptable velocity increases) in Section 5.2. (1217-21)

This mitigation measure was not adopted because it is similar to, and therefore duplicative of, mitigation measures already incorporated and adopted in this ROD. Mitigation strategies are not included in Section 5.2 because the section deals only with hydrodynamic and hydraulic modeling. However, the environmental effects resulting from hydrodynamic and hydraulic changes are addressed in other sections of the Final Programmatic EIS/EIR in the context of each of the resources affected. For example, effects on water quality, soils, fisheries and aquatic ecosystems, and flood control and appropriate mitigation strategies are addressed in Sections 5.3, 5.5, 6.1, and 7.8, respectively.

5.3 Water Quality

- Implement source control and offset increasing loads to treatment plants due to water transfers and water conservation as a measure to reduce total dissolved solids (TDS). (1226-D-8)

- Include mitigation strategies for the potential increase in BOC, bacteria, and pathogens from the Ecosystem Restoration Program. (1217-30)

These mitigation measures were not adopted because they are similar to, and therefore duplicative of, mitigation measures already incorporated and adopted in this ROD. To the extent Program actions would result in increases of constituents of concern such as TDS, TOC and pathogens, mitigation strategies in Section 5.3, including treating wastewater at the source, upgrading water treatment processes, and applying agricultural and urban BMPs, will reduce these effects.

- Mitigate the selenium impacts of refineries and municipalities in the North Bay area by assisting with financing a drainage facility for San Joaquin Valley selenium loads. (1349-49)

This mitigation measure was not adopted because it addresses an environmental effect not caused by the CALFED Program. Selenium impacts are not caused by the CALFED Program. This comment addresses existing selenium impacts of refineries and municipal treatment facilities, not CALFED actions. However, CALFED includes actions such as agricultural land retirement in the western San Joaquin Valley to reduce the adverse effects of selenium in order to reach its primary objectives for water quality and ecosystem quality.

- Include mitigation measures to address bromide reduction to the State Water Project, such as real time operational flexibility of the export pumps as a means for reducing export of bromide and salinity. (1230-A-8)

This mitigation measure was not adopted because it addresses an environmental effect not caused by the CALFED Program. Bromide is an existing constituent of concern which enters the Delta through the intrusion of seawater through the Bay, not as a result of CALFED Program actions. However, CALFED includes actions such as real-time management of the export pumps to meet water quality objectives.

5.7 Transportation

- Require future EIRs and EISs for project-specific actions to include traffic assessments and analysis of traffic associated with increases in recreational opportunities resulting from new reservoirs, and other land conversions to recreational uses. (1217-32)

This mitigation measure was not adopted because it is ineffective in mitigating adverse environmental effects. All CALFED project specific actions will comply with the requirements of NEPA and CEQA. Traffic analyses do not mitigate transportation impacts, but they may be used to identify the need for site-specific mitigation measures. To the extent appropriate, traffic analyses may be required for certain project specific actions. However, not every action that increases recreational uses will require traffic analyses, making it inappropriate to adopt this mitigation measure at the programmatic level.

5.8 Air Quality

- Work with local and regional planning jurisdictions to identify areas subject to agricultural land conversion for advance planning for air quality impacts. (1217-33)

This mitigation measure was not adopted because it is similar to, and therefore duplicative of, mitigation measures already incorporated and adopted in this ROD. Mitigation strategies 4, 11, and 21 on page 7.1-2 in the Final Programmatic EIS/EIR address this suggestion.

6.2 Vegetation and Wildlife

- The mitigation strategies should discuss need for additional action at the site specific level if program actions disturb special-status species or protected habitats.

This mitigation measure was not adopted because it is similar to, and therefore duplicative of, mitigation measures already incorporated and adopted in this ROD. This recommendation is addressed by the adopted Mitigation Monitoring Plan discussed in Chapter 9 of the Final Programmatic EIS/EIR and in this ROD. CALFED will monitor all mitigation measures through the Science Program.

7.1 Agricultural Land and Water Use

- Meet Program goals by maintaining land in private ownership, rather than through government purchase.

This mitigation measure was not adopted because it is similar to, and therefore duplicative of, mitigation measures already incorporated and adopted in this ROD. Mitigation strategies 9, 10, and 14 on page 7.1-2 in the Final Programmatic EIS/EIR address this suggestion. (IA7.1.11-15)

- Work with local landowners and organizations in planning and developing projects.

This mitigation measure was not adopted because it is similar to, and therefore duplicative of, mitigation measures already incorporated and adopted in this ROD. Mitigation strategies 4, 11, and 21 on page 7.1-2 in the Final Programmatic EIS/EIR address this suggestion. (IA7.1.11-15)

- Maintain the productivity and flexibility of agricultural lands to the greatest extent practicable when implementing the entire Program.

This suggestion is too general to be an effective mitigation measure as defined by CEQA. However, several mitigation strategies in Section 7.1.11, such as “Restoring existing degraded habitat as a priority before converting agricultural land,” would assist in serving this purpose. (IA7.1.11-15) Therefore, this mitigation measure was not adopted.

- Require buffers when developing habitat projects adjacent to agricultural uses.

This mitigation measure was not adopted because it is similar to, and therefore duplicative of, mitigation measures already incorporated and adopted in this ROD. This recommendation is addressed by mitigation strategy 19 on page 7.1-3 in the Final Programmatic EIS/EIR. Specifics on buffer design must be developed at the site-specific level. (IA7.1.11-16)

- Establish an easement or transfer of development rights program.

This mitigation measure was not adopted because it is similar to, and therefore duplicative of, mitigation measures already incorporated and adopted in this ROD. Further, the State of California already has developed such a program, the California Farmland Conservancy Program that is administered by the Department of Conservation. This is addressed in mitigation strategy 8 on page 7.1-2 in the Final Programmatic EIS/EIR. (IA7.1.11-16)

- Phase implementation of specific Program components.

This mitigation measure was not adopted because it is similar to, and therefore duplicative of, mitigation measures already incorporated and adopted in this ROD. This is addressed by mitigation strategy 17 in Section 7.1.11. This strategy would allow implementation to proceed as needed, rather than happening all at once. (IA7.1.11-16)

- Establish an agricultural mitigation oversight entity to oversee implementation of mitigation by CALFED.

This mitigation measure was not adopted because it is similar to, and therefore duplicative of, mitigation measures already incorporated and adopted in this ROD. This recommendation is addressed by the adopted Mitigation Monitoring Plan discussed in Chapter 9 of the Final Programmatic EIS/EIR and this ROD. (IA7.1.11-15) CALFED will monitor all mitigation measures through the Comprehensive Monitoring, Assessment and Research Program.

- Implement a Planned Unit Development approach to habitat development.

This mitigation measure was not adopted because if is ineffective in mitigating adverse environmental effects. Planned Unit Developments are urban planning designations that allow large tracts of housing or commercial development to set their own development standards outside normal zoning ordinances. The comment provides insufficient information to evaluate how Planned Unit Developments could apply as a mitigation strategy. (IA7.1.11-16)

- Require comprehensive environmental evaluation for projects that will adversely affect agricultural lands, using the NRCS Land Evaluation and Site Assessment (LESA) system.

All CALFED project specific actions will comply with the requirements of NEPA and CEQA. LESA may be used by federal agencies, as appropriate for the scale of project, and can optionally be used by state agencies. LESA is designed to gauge the impacts of urban-type development and may be inappropriate for evaluation of other project specific actions. Therefore, the full or partial use of LESA may or may not be used at the project specific level but is not appropriate at the programmatic level. (IA7.1.11-15)

- Provide development agreements to support remaining agricultural lands when a project results in agricultural land conversion.

It is unclear what type of impact this measure would mitigate. It appears to be a separate

agreement to carry out mitigation measures at the site-specific level. Site-specific mitigation measures will be included in second-tier environmental documents, as appropriate, with the required measures, such as conditions of approval, to monitor such mitigation. It is unclear what purpose would be served by a second document memorializing these mitigations. (IA7.1.11-16)

- Develop specific mitigation measures for the Ecosystem Restoration Program.

This measure is too project-specific for a programmatic document. In developing project specific mitigation measures for project specific Ecosystem Restoration Program actions, CALFED agencies will continue to consider any appropriate measures that help avoid or reduce environmental effects. Because the Ecosystem Restoration Program Plan does not provide project specific information, more detailed mitigation measures for potential effects of project specific actions cannot be determined at this time. The EIS/EIR contains a large number of mitigation strategies for agricultural effects, which must be used by individual project lead agencies in determining mitigation measures for project specific actions. Section 7.1.11 includes 27 mitigation strategies for effects due to agricultural land conversion and local planning impacts; Sections 7.2 and 7.3 include an additional 19 mitigation strategies to reduce adverse agricultural economic and social effects. (IA7.1.11-21)

- Purchase flood easements and repair existing levees rather than developing setback levees.

Decisions on how best to increase flood protection for lands behind specific levees have not yet been made. The Long-Term Levee Protection Plan includes levee strengthening and setback levees as options. (IA7.1.11-16) The merits and liabilities of setting back levees will be closely scrutinized, and the use of setback levees may not be feasible or desirable in many cases. Landowners and other stakeholders will be consulted during project formulation. (LS-4.2-2.) At a programmatic level, the option to use setback levees is included in order to allow flexibility to achieve the primary objectives of ecosystem quality and levee system integrity, depending on the characteristics of the various second-tier levee projects.

- Direct habitat development to poorer quality agricultural soils.

Several mitigation strategies in Section 7.1.11, such as “restore existing degraded habitat as a priority before converting agricultural land,” “focus restoration efforts on public lands before converting agricultural land,” “focus restoration efforts on acquiring lands from willing sellers where part of the reason to sell is economic hardship,” and “use farmer-initiated and developed restoration projects,” would assist in serving this purpose. However, since the various habitat types have specific soils requirements, as do agricultural crops, this measure will not be appropriate for every habitat restoration action. While this measure will be considered for project specific actions, it is not appropriate to adopt this mitigation measure at the programmatic level.

- Reaffirm the state’s right-to-farm policy.

The right-to-farm statute was designed to prevent impacts on agriculture from encroaching

urbanization and generally does not apply to the CALFED Program actions. In addition, reaffirming an existing statute is not a mitigation measure. (IA7.1.11-15)

- Before implementing any action requiring additional water, develop the water source; if water is from former agricultural use, mitigate the significant environmental impact.

CALFED agencies will, by necessity, need to identify and purchase water for projects before that water is applied. That is not a mitigation measure but a practical reality given California's water rights laws. (IA7.1.11-15) Section 7.1 of the Final Programmatic EIS/EIR describes the existing environment as it pertains to agriculture. The environmental effects resulting from a change in water use are addressed in other sections of the Final Programmatic EIS/EIR in the context of each of the resources affected. For example, changes in water use leading to loss of agricultural land or impacts to groundwater levels, water quality or water supply are addressed in Sections 7.1, 5.4, 5.3 and 5.1, respectively. Loss or conversion of agricultural land is considered a significant and unavoidable impact of the Program even though all practicable mitigation measures were adopted to reduce this impact. Economic and social effects of water transfers and other Program actions and ways to reduce these effects are discussed in Sections 7.2 and 7.3, respectively.

- Develop an Agricultural Water Account to mitigate for agricultural water directed to CALFED uses.

While the CALFED Program does not include an Agricultural Water Account, the water supply reliability actions as outlined in Sections 2.2.4 and 2.2.5 of the ROD are intended to provide greater certainty of water supplies for agricultural and other users.

- Pay fair market values.

Payment of fair market values is incorporated as a standard Program policy to minimize economic effects. (See Page 7.2-23.) (IA7.1.11-19)

- Scheduling construction activities to allow harvests.

Scheduling construction activities to allow harvests is incorporated as a standard Program policy to minimize economic effects. (See Page 7.2-23.) (IA7.1.11-19)

- Establish Agricultural Exclusive zoning.

Establishing zoning is a local responsibility. CALFED has no authority to establish local zoning, even in conjunction with the Delta Protection Commission. (IA7.1.11-16) This mitigation measure is therefore not adopted for legal considerations.

- Increase subvention funding and property tax sharing and develop legislation for rural development zones.

Increased subvention funding and property tax sharing, and legislation for rural development zones are outside the abilities of the Program's lead agencies to implement. (IA7.1.11-19) These suggestions are more appropriately directed to the Legislature. This mitigation measure is therefore rejected for legal considerations.

- When conversion occurs, remove Class I and II soils from the habitat site to other agricultural locations.

This measure could hamper ecosystem restoration progress because habitat types have soil requirements similar to agricultural crops. For instance, valley oak woodlands would not grow on hard, poorly drained soils. The costs of moving vast amounts of soils may not be justified by the gains from the receiving parcels and could limit the ability to restore the land to agricultural purposes in the future. Further, additional regulatory hurdles, such as triggering the Surface Mining and Reclamation Act, could make this mitigation even less economically feasible. (IA7.1.11-18) This mitigation measure is therefore not adopted. for economic, legal and technological considerations and because it could cause new adverse environmental effects.

- Require 1 acre of farmland to be protected for every acre converted.

Protection of off-site lands to mitigate conversions of farmlands is addressed in mitigation strategy 8 of Section 7.1. However, the exact amounts to be protected would depend on the project specific effects of conversion, as measured in the second-tier environmental document. The feasibility of this mitigation strategy would also need to be evaluated at the project-specific level, and would depend on the number of voluntary participants in the easement program and the cost of acquiring the easements. (IA7.1.11-18). At a programmatic level, the feasibility of this measure is too uncertain. This mitigation measure is therefore not adopted for technical and economic considerations.

- Adopt a no-net-loss policy for agricultural land.

Because the Program will require agricultural lands in the Delta and elsewhere for Program purposes, a no-net-loss policy as suggested would require at least a 1:1 replacement as mitigation for any agricultural lands converted to Program purposes. This proposed mitigation is not practicable and is therefore not adopted. The cost of purchasing and providing land, irrigation infrastructure, and water as mitigation for agricultural land loss—which direct replacement would require—would make almost any project that is converting agricultural lands infeasible, whether for habitat or urban uses. In addition, irrigation of new lands can cause its own series of environmental effects. Section 7.1.12 describes farmland conversions caused by the Program as a potentially significant environmental effect at the programmatic level. (IA7.1.7-10) The Program objectives to improve and increase terrestrial habitats in order to support sustainable populations of diverse and valuable plant and animal species in the Bay-Delta cannot be achieved without some creation of habitat on land currently used for agriculture. (IA7.1.11-11)

7.12 Public Health

- CALFED must include mitigation to assure that urban water agencies can cost-effectively treat water from the Delta for public health protection since there are no definite plans to construct an isolated facility. (1230-A-3)

This mitigation measure was not adopted because it addresses an environmental impact not caused by the CALFED Program. CALFED actions will not reduce the quality of drinking water nor increase the cost of drinking water treatment. However, CALFED includes source control, water treatment facility improvements and other actions to protect public health.