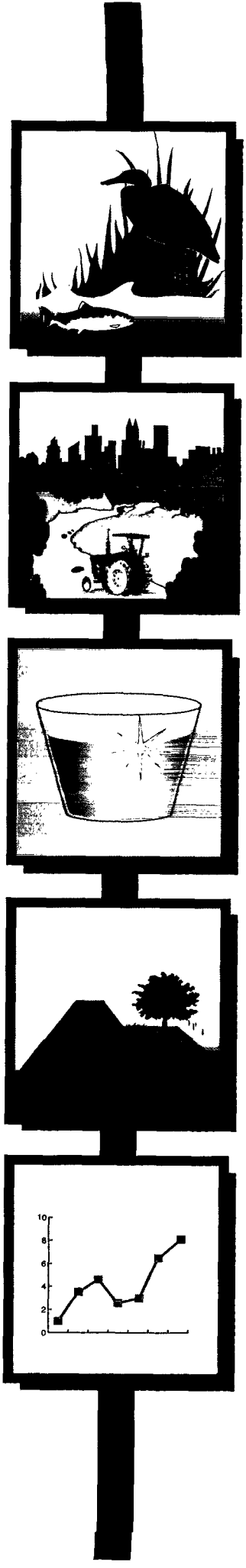

CALFED
BAY-DELTA
PROGRAM

Response to Comments
Vol I: Impact Analysis

Final Programmatic EIS/EIR Technical Appendix
July 2000

C—027485

CALFED Bay-Delta Program
July 2000 Final
Programmatic EIS/EIR

Response to Comments Document

C-027486

Response to Comments
Volume I

C-027487

How to Use the Response to Comments Document

This Response to Comments (RTC) Document contains responses to comments received on the June 25, 1999 Draft CALFED Bay-Delta Program Programmatic Environmental Impact Statement/Environmental Impact Report (Draft). Approximately 1,500 written comment letters were received from individuals and organizations. CALFED also received approximately 2,400 form letters or pre-printed postcards. A total of 760 individuals presented oral testimony at one or more of the 16 hearings held throughout the state during August and September 1999. All together, just over 10,000 individual comments are addressed in this document.

The RTC includes three volumes. Volume I contains responses to comments that are specific to the Impact Analysis Document. Volume I also contains Common Responses, which were developed for similar comments received in great numbers. Volume II contains responses to comments that are specific to various program plans and reports (for example, the Water Quality Program Plan or the Phase II Report). Volume III contains copies of all letters and testimony received that were not answered entirely by Common Responses.

Four alphabetized lists are located in the front of Volume III. The first two lists contain the names of individuals and organizations that submitted comments or provided hearing testimony on the Draft. The third and fourth lists also contain names of individuals and organizations that submitted comments or provided hearing testimony on the Draft; however, these comments and testimony are answered entirely by one or more Common Responses, and the comment letters are not reduced. Following the four lists in Volume III, comment letters are reproduced in alphabetical order. The letters are followed by the hearing testimony, which is reproduced in chronological order.

To locate your comment and its response, look for your name or organization name on the first two lists in Volume III. If you do not find your name or the name of your organization on the first two lists, then refer to the third and fourth lists. Next to the names on the third and fourth lists are the common response numbers that answer your comment letter. Please locate the appropriate common response in Volume I of the RTC and do not proceed to Steps two and tree.

1 Find your name on one of the lists in Volume III.

Each commentor on the first two lists in Volume III has been assigned a number, located to the right of the entry. **Look to the right of your name or organization name to find the number assigned to your letter or testimony.** Use this number to locate the copy of your letter or testimony in Volume III. For example, if the number next to your name is "1000," look for letter 1000 in Volume III. Testimony numbers are indicated by a "T" in the middle of a number. For example, "03T43" indicates the 43rd speaker from the third hearing.

2 Look to the right of your name and find the number assigned to your letter or testimony. Use that number to locate the copy of your letter or testimony in Volume III.

After you have found your comment letter or testimony in Volume III, locate the response code that corresponds to the comment. Response codes are found in the right-hand margin of the reprinted letters and testimony transcripts. The codes are located approximately in the vertical center of individually partitioned comments. The abbreviated letters in the response codes indicate the volume and section where the response to a comment is located. **Use the response code to locate the response to your comment in Volume I or II.** Examples of how to use the response codes are provided below; also see the graphic that follows.

3 Find the response code assigned to your comment, located in the right-hand margin next to the specific comment in Volume III.

- Response code "WQ 2.3-4" can be found in Section 2.3 in the "Water Quality Program Plan Responses to Comments" section of Volume II. More specifically, it is the fourth response in Section 2.3.
- Response code "IA 4.3-2" can be found in Section 4.3 in the Impact Analysis Document component of Volume I. More specifically, it is the second response in Section 4.3.
- Response code "CR 1" can be found in the "Common Responses" section of Volume I, under the heading "Common Response 1."

Because some comments have been consolidated, **the response code may direct you to one response that subsequently directs you to another response.** For example, when you reach response WQ 2.3-4, the response may read: "This response has been consolidated with response WQ 2.6-8. Please refer to this response for the answer to your comment." For a complete response to your comment, please read all responses included on your letter or testimony, as well as all responses referred to in the text of the responses provided.

4 Read all included and referenced responses to your comments in Volumes I and II.

The abbreviated letter codes shown below are used in the response codes and the page numbers for Volumes I and II.

Volume I

Contains responses to comments about the Impact Analysis Document and the Common Responses (general topics)

CR	Common Response
IA	Impact Analysis Document

Volume II

Contains responses to comments on the various program plans and reports

CM	Comprehensive Monitoring, Assessment, and Research Program (CMARP)
ERP	Ecosystem Restoration Program Plan
IP	Implementation Plan
IPF	Financing Plan (Chapter 5 in the Implementation Plan)
LS	Levee System Integrity Program Plan
MS	Multi-Species Conservation Strategy (MSCS)
PH2	Phase II Report
WQ	Water Quality Program Plan
WT	Water Transfer Program Plan
WUE	Water Use Efficiency Program Plan
WSH	Watershed Program Plan

Volume III

Contains lists of commentors and copies of all letters and testimony received

Table of Contents

Volume I

COMMON RESPONSES

IMPACT ANALYSIS

VOLUME I (CONTINUED)

Volume II

Volume III

List of Acronyms

A

AB	Assembly Bill
Accord	Principles for Agreement on Bay-Delta Standards between the State of California and the Federal Government (Bay-Delta Accord)
AFB	Air Force Base
AFRP	Anadromous Fish Restoration Program
ALS	Action levels
ARWRI	American River Water Resource Investigation
ASIP	action-specific implementation plan
ATSF	Atchison, Topeka and Santa Fe
AWMC	Agricultural Water Management Council
AWWARF	American Water Works Association Research Foundation

B

BARWRP	Bay Area Regional Water Recycling Project
BATs	best available technologies
Bay-Delta	San Francisco Bay/Sacramento-San Joaquin Delta estuary
BCDC	San Francisco Bay Conservation and Development Commission
BDAC	Bay-Delta Advisory Council
Blueprint	Blueprint for an Environmentally and Economically Sound CALFED Water Supply Reliability Program
BMPs	best management practices
BOD	biochemical oxygen demand

C

CAA	Clean Air Act
CalEPA	California Environmental Protection Agency
CALFED Ops Group	California-Federal Operations Group
CalTrans	California Department of Transportation
CART	CALFED Agency Review Team
CCC	Contra Costa Canal
CCCTs	combined cycle combustion turbines
CCFB	Clifton Court Forebay
CCMP	Comprehensive Conservation and Management Plan
CCWD	Contra Costa Water District
CDF	California Department of Forestry and Fire Protection
CDFA	California Department of Food and Agriculture
CERT	Certification
CEQA	California Environmental Quality Act
CFCP	California Farmland Conservancy Program
cfs	cubic feet per second
CIMIS	California Irrigation Management Information System
CMARP	Comprehensive Monitoring and Research Program
CO	carbon monoxide
Corps	U.S. Army Corps of Engineers
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CTs	combustion turbines
CUWA	California Urban Water Agency
CUWCC	California Urban Water Conservation Council
CVGSM	Central Valley Groundwater and Surface Water Model
CVP	Central Valley Project

CVPIA	Central Valley Project Improvement Act
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
CZARA	Coastal Zone Act Reauthorization Amendments
CZMA	Coastal Zone Management Act

D

D-	Water Right Decision
D/DBP	Disinfectant/Disinfection By-Products
DBCP	dibromochloropropane
DBPs	disinfection by-products
DCC	Delta Cross Channel
DEFT	Diversion Effects on Fisheries Team
DFG	California Department of Fish and Game
DHS	California Department of Health Services
DMC	Delta-Mendota Canal
DO	dissolved oxygen
DOC	dissolved organic carbon
DOC	Department of Conservation
DPC	Delta Protection Commission
Dupont	El Dupont De Nemours & Co.
DWR	California Department of Water Resources
DWRSIM	DWR system operational model

E

EBMUD	East Bay Municipal Utility District
EC	electrical conductivity
ECCID	East Contra Costa Irrigation District
EDB	ethylene dibromide
EDD	California Economic Development Department
EEWMA	Economic Evaluation of Water Management Alternatives
E/I ratio	export/import ratio
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ERAF	Education Reinvestment Augmentation Fund of 1992
ERP	Ecosystem Restoration Program
ERPP	Ecosystem Restoration Program Plan
ESA	Endangered Species Act
ESWTR	Enhanced Surface Water Treatment Rule
EWA	Environmental Water Account
EWMP	efficient water management practices

F

FACA	Federal Advisory Council Act
FCAA	Federal Clean Air Act
FEMA	Federal Emergency Management Act
FIP	Federal Implementation Plan
FMP	fishery management plan
FPPA	Farmland Protection Policy Act of 1981
fps	feet per second
FWCA	Fish and Wildlife Coordination Act

G

GIS	geographic information system
gpcd	gallons per capita per day
GWh	gigawatt hours

H

HCP	habitat conservation plan

I

I-5	Interstate-5
I-80	Interstate-80
ICP	Interagency Coordinated Program
IID	Imperial Irrigation District
Interior	U.S. Department of the Interior
IOCs	inorganic chemicals
ISDP	Interim South Delta Program
ISO	California Independent System Operator

J

JPD	joint point of diversion

K

KCWA	Kern County Water Agency

L

LCPSIM	Least-Cost Planning Simulation Model
Ldn	day-night sound level
LEDPA	least environmentally damaging practicable alternative
LESA	Land Evaluation and Site Assessment
Levee Program	Levee System Integrity Program
LIG	Levee Implementation Group
LTMS	Long-Term Management Strategy

M

M&I	municipal and industrial
MAD	mosquito abatement district
MAF	million acre-feet
MCLGs	maximum contaminant level goals
MCLs	maximum contaminant levels
mg/L	milligrams per liter
MH	Maas-Hoffman
MOU	Memorandum of Understanding
MSCS	Multi-Species Conservation Strategy
msl	mean sea level
MTBE	methyl tert-butyl ether
MW	megawatts
MWD	The Metropolitan Water District of Southern California
MWh	megawatt hour
MWQI	Municipal Water Quality Investigation

μg/L	micrograms per liter
μmhos/cm	micromhos per centimeter

N

NBA	North Bay Aqueduct
NAWQA	National Water Quality Assessment
NCCAB	North Central Coast Air Basin
NCCP	Natural Community Conservation Plan
NCFCWCD	Napa County Flood Control and Water Conservation District
NCP	navigation control point
NCWA	Northern California Water Association
NDDB	National Diversity Database
NEPA	National Environmental Policy Act
NHI	Natural Heritage Institute
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NMOG	non-methane organic gas
NOD	Notice of Determination
NOI/NOP	Notice of Intent/Notice of Preparation
NO_x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPS Program	Nonpoint Source Program
NRA	National Recreation Area
NRCS	U.S. Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSDWR	National Secondary Drinking Water Regulations
NWR	National Wildlife Refuge

O

O_3	ozone
OC	organochlorine
Ops	Operations Coordination

P

PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PEIS	Programmatic Environmental Impact Statement
PFMC	Pacific Fishery Management Council
PG&E	Pacific Gas and Electric Company
PL	Public Law
PM_{10}	particulate matter smaller than 10 microns in diameter
$PM_{2.5}$	particulate matter smaller than 2.5 microns in diameter
ppb	parts per billion
ppm	parts per million
ppt	parts per thousand
Program	CALFED Bay-Delta Program
Programmatic EIS/EIR	Programmatic Environmental Impact Statement/Environmental Impact Report
PTM	Particle Tracking Module

Q

QWEST	Measure of net flow in the lower San Joaquin River and other smaller Delta channels

R

RBDD	Red Bluff Diversion Dam
Reclamation	U.S. Bureau of Reclamation
RMP	Regional Monitoring Plan
RO	reverse osmosis
ROD	Record of Decision
RWQCB	Regional Water Quality Control Board

S

SB	Senate Bill
SBA	South Bay Aqueduct
SCFCWCD	Solano County Flood Control and Water Conservation District
SCVWD	Santa Clara Valley Water District
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMPA	Suisun Marsh Preservation Agreement
SNA	Significant Natural Area
SO_2	sulfur dioxide
SOC	synthetic organic chemical
SR 99	State Route 99
SRA	State Recreation Area
SRFCP	Sacramento River Flood Control Project
Strategic Plan	Strategic Plan for the Ecosystem Restoration Program
SDCWA	San Diego County Water Authority
SJVDIP	San Joaquin Valley Drainage Implementation Program
SWP	State Water Project
SWRCB	State Water Resources Control Board
SWTR	Surface Water Treatment Rule

T

TAF	thousand acre-feet
TCE	trichloroethylene
TDS	total dissolved solids
THM	trihalomethane
TIE	toxicity identification evaluation
TMDL	total maximum daily load
TOC	total organic carbon
TSS	total suspended solids
TTHMs	total trihalomethanes

U

USFS	U.S. Forest Service
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service
USTs	underground storage tanks

V

UV	ultra-violet
VAMP	Vernalis Adaptive Management Plan
VMS	Visual Management System
VOCs	volatile organic chemicals

W

Western	Western Area Power Administration
WMA	Wildlife Management Area
WQCP	Water Quality Control Plan
WQPP	Water Quality Program Plan
WSCC	Western Systems Coordinating Council

Common Responses

C-027499

As part of the public review process, CALFED received several thousand letters and postcards with general statements, such as "Try water conservation before building dams," and "California needs more storage." Even though these types of comments did not specifically address the information in the June 1999 Draft Programmatic EIS/EIR, CALFED developed the following common responses to discuss the issues raised by such general statements. The common responses present a broad view of the CALFED Solution and Program elements in response to these general comments.

The 23 common responses cover topics ranging from water conservation to water exports and from restoration efforts to growth and planning. Although the common responses are designed to be read separately, CALFED encourages reading all the common responses for a more complete overview of the CALFED Program.

COMMON RESPONSE 1. PROGRAMMATIC ENVIRONMENTAL DOCUMENTS AND CALFED PROGRAM OBJECTIVES

This common response addresses comments that reflect uncertainty about the use of a Programmatic Environmental Impact Statement/Environmental Impact Report (EIS/EIR) and the makeup of the CALFED Bay-Delta Program (CALFED Program).

Some comments express concern that the descriptions of the alternatives and consequences are too vague while the Program plans are too specific to be "programmatic", these commentors imply that this somehow violates the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). Other consistent themes in comments are that the CALFED Program has not adequately addressed the assumptions used in its analysis of consequences; has not adequately defined mitigation measures; and has not quantified the effects of cost, technical feasibility, assurances, and governance on various resources.

Additional commentors have expressed a concern that (1) the Programmatic EIS/EIR does not provide enough "hard science" to make a decision; (2) it is inappropriate for CALFED to defer decisions or projects in order to develop new material, such as the Integrated Storage Investigation, before the federal Record of Decision and state Certification (ROD/CERT) on the Programmatic EIS/EIR because there will not be sufficient time to review the new information before the ROD/CERT is approved; and (3) CALFED has already "made its decision" to implement the Preferred Program Alternative and is not really open to the Programmatic EIS/EIR process.

Programmatic Environmental Documentation. CALFED is using a three-phase process to develop a long-term solution to the problems of the Bay-Delta system. At the end of Phase I in 1996, three broad, concept-level Program alternatives were described. In Phase II (which ends at the issuance of the ROD/CERT), the three alternatives were refined and analyzed—along with the Preferred Program Alternative—in CALFED's Programmatic EIS/EIR. Phase III follows a final decision on the Programmatic EIS/EIR and begins the implementation stage of the Program.

The Programmatic EIS/EIR is expected to culminate in a final decision documented in the ROD/CERT. This decision on the Program is not designed to approve specific facilities or their locations but to provide a general plan for long-term implementation. The approval of the ROD/CERT will not, in itself, enact

any changes in law or regulation and will not authorize construction of specific projects. Instead, this programmatic decision describes the range of actions that collectively will meet the Program's goals and objectives, and sets the framework for future decisions on these actions. Some of these actions may require new legislation, some may require changes in operation of water facilities, some may require acquisition of land or water rights, and others could require the construction of new facilities. Although the decision affects a much broader geographic area, the decision in the ROD/CERT will be similar to the approval of a general plan for a city or county. General plans set the policies that guide future land use decisions within the plan area. More detailed specific plans then follow the general plans.

In addition to preparing the Programmatic EIS/EIR, two other efforts are occurring during Phase II. The first is the refinement of the components that make up the Program by developing technical, operational, financial, and institutional strategies to use in implementing the Program in Phase III. The second effort is identifying and commencing more detailed evaluation of actions to be implemented within the first 4 years following the conclusion of the programmatic environmental review process. These efforts are described in the Phase II Report and Implementation Plan.

The multitude of Phase II activities has led to some confusion over the level of detail in the Programmatic EIS/EIR and the nature of the decision that will be made as a result. As described previously, although the ROD/CERT will approve a broad plan to guide implementation, it is appropriate—even necessary—to continue refining the plan concurrently to allow a smooth and uninterrupted transition from planning to implementation. To do otherwise would leave a wide break between a programmatic decision and any decisions on implementing specific actions encompassed by the plan. Continuing to analyze and refine the plan also provides the public and agency decision makers with the most current information available to understand how later specific actions may be implemented and what their corresponding environmental impacts may be.

Both NEPA and CEQA require that an agency consider the environmental effects of its actions at the earliest point in time when the analysis is meaningful. During extensive public scoping meetings, the CALFED agencies determined that the wide array of potential actions, the broad geographic area affected, the length of time for implementation, and the inter-related nature of the resources and goals for the CALFED Program indicated that a programmatic level environmental review would allow for fuller disclosure and improve the opportunity for decision makers and the public to consider alternatives. Identifying and analyzing potential future combined effects of a proposal allows a greater opportunity to design actions that avoid, minimize, or mitigate identified impacts. The Programmatic EIS/EIR then will be used to tier more detailed environmental documents for individual actions during Phase III.

Assumptions used in the Programmatic EIS/EIR analyses are clearly laid out in the documentation and were explained in several public meetings held throughout the process. The reader is referred to Chapter 10 and Attachment A in the Programmatic EIS/EIR for detailed information about the public review process and the assumptions, respectively.

As a programmatic-level document, the Programmatic EIS/EIR does not analyze site-specific impacts of future projects at specific locations and therefore cannot predict with certainty which impacts will occur and what site-specific mitigation measures are appropriate for second-tier projects. Consequently, the Programmatic EIS/EIR identifies mitigation strategies, approaches tailored to the type of impacts anticipated as a result of CALFED Program projects, which will provide the basis to structure more specific mitigation measures.

For each potentially significant environmental impact, one or more mitigation strategies are identified. These mitigation strategies will be considered as part of second-tier environmental review by any agency proposing to undertake projects that are within the scope of this Programmatic EIS/EIR. Where a second-tier project involves impacts that are addressed in the Programmatic EIS/EIR, the applicable mitigation strategies will be used to formulate site-specific mitigation measures and enforcement programs. The commitment to consider mitigation strategies, and to apply and enforce mitigation measures pursuant to those strategies, will be included in the ROD/CERT. In addition, any state or federal project funded through legislation that provides for projects to be consistent with, or in accord with, the CALFED Program will need to demonstrate compliance with this commitment, as set forth in the Mitigation Monitoring Plan adopted at the time of the ROD/CERT.

NEPA and CEQA are intended to inform decision makers and the public of the environmental consequences of the proposed action, provide an analysis of alternatives, and ensure consideration of mitigation options. The governance, financing (including cost-sharing), and assurance structures do not cause physical changes to the environment or affect the analysis of anticipated impacts, alternatives, or mitigation options. These issues therefore are not analyzed in the programmatic impact analysis document.

As noted previously, second-tier or site-specific environmental documents will be prepared for individual projects, where potentially significant environmental impacts require such analysis. Second-tier documents will be prepared to concentrate on issues specific to the individual project being implemented and site(s) chosen for the action before construction can be initiated.

Many comments support or oppose only one program element exclusively. For example, many comments stated that water conservation alone is the solution to water management or that all that is needed to achieve CALFED's goals is the Ecosystem Restoration Program.

CALFED Program Objectives. The CALFED Program is a cooperative, inter-agency effort of state and federal agencies with management or regulatory responsibilities for the Bay-Delta region that was formed to address the tangle of complex issues that surrounds the Delta. The CALFED Program was established to reduce conflicts in the system by solving problems in four areas: ecosystem quality, water quality, water supply reliability, and levee and channel integrity.

In the past, most efforts to improve water supply reliability or water quality, improve ecosystem health, or maintain and improve Delta levees were single-purpose projects. A single purpose can keep the scope of a project manageable but ultimately may make the project more difficult to implement. The difficulty occurs because a project with narrow scope may help to solve a single problem but result in impacts on other resources, causing other problems and leading to conflict. Ultimately, no problem is solved; or one problem is solved while others are created.

The CALFED Program takes a different approach, recognizing that many of the problems in the Bay-Delta system are inter-related. Problems in any one problem area cannot be solved effectively without addressing problems in all four areas at once. This approach greatly increases the scope of our efforts but will ultimately enable us to make progress and move forward to a lasting solution.

Significantly, there are many linkages among the objectives in the four problem areas and among the actions that might be taken to achieve these objectives. Solving problems in four areas at once does not require a four-fold increase in the cost or number of actions. Most actions that are taken to meet program

objectives, if carefully developed and implemented, will result in simultaneous improvements in two, three, or even four problem areas.

The CALFED Program is a collaborative effort that includes representatives of agricultural, urban, environmental, fishery, and business groups, as well as local governments and water and irrigation districts, who have contributed to the process. The Bay-Delta Advisory Council (BDAC), a 34-member federally chartered citizens' advisory committee, provides formal comment and advice to the agencies during regularly scheduled public meetings. In addition, the CALFED process has included members of the public in development of every Program component from ecosystem restoration to financing. CALFED has encouraged and solicited members of the public to review and comment on proposals and technical supporting material.

Three fundamental concepts related to the Bay-Delta system and its problems have guided the development of proposed CALFED solutions. These concepts are not new, but CALFED has looked at them in new ways to develop options for solving problems successfully.

First, the four problem areas (ecosystem quality, water quality, water supply reliability, and levee system integrity) are inherently inter-related. CALFED cannot effectively describe problems in one problem area without discussing the other problem areas. It follows that solutions also will be inter-related; many past attempts to improve a single problem area have achieved limited success because solutions were too narrowly focused.

Second, there is great variation in the flow of water through the system and in the demand for that water at any time scale that might be examined (from year to year, between seasons, and even on a daily basis within a single season). The value of water for all uses tends to vary according to its scarcity and timing of need versus supply. This variable leads to the need for an overall water management strategy to address water demand, water supply, and how the value of water can be maximized.

Finally, the solutions must be guided by adaptive management. The Bay-Delta ecosystem is exceedingly complex and is subject to constant change as a result of factors as diverse as global warming and the introduction of exotic species. The CALFED agencies will need to adapt management of the system as we learn from our actions and as conditions change.

While the CALFED Program generally will not rely on new regulations to implement Program objectives, the Program does recognize that existing regulatory programs will continue to be implemented by the CALFED agencies with jurisdiction over these programs. The CALFED Program represents a unique opportunity to provide high-level coordination of these regulatory programs so that regulatory implementation works in furtherance of CALFED Program goals. The CALFED Program specifically defines incentives and voluntary partnerships to implement many individual actions in the Program. Incentives allow stakeholders to participate in CALFED actions that may not have been economical to them without the incentives. Partnerships allow stakeholders and CALFED agencies to leverage their individual resources by teaming on certain actions.

Some regulations, like those contained in the state and federal Endangered Species Acts (ESAs) and Section 404 of the Clean Water Act, must be satisfied by CALFED as the Program is implemented. Many other regulatory actions can be made more effective and constructive as a result of CALFED actions. For example, water quality regulatory agencies are obligated to develop total maximum daily loads (TMDLs) for certain water quality constituents in the Bay-Delta system. CALFED efforts in monitoring and

research will provide valuable information that will assist regulatory agencies in developing these TMDLs. CALFED incentive-based source control actions will help to reduce the load of these and other pollutants. In this way, many ongoing regulatory requirements will be easier to satisfy in the context of the CALFED Program.

COMMON RESPONSE 2. WATER CONSERVATION

This common response addresses the comments summarized below and describes how the Water Use Efficiency Program is inter-related to the other Program elements.

Many comments concern water conservation and its role in the CALFED Program. Most comments regarding water conservation urge that water conservation or non-structural solutions be given great consideration in water management in California. Other comments state that other water management methods are not necessary if water conservation or non-structural solutions are carried out, water conservation should be fully implemented before new water management facilities are constructed, better water conservation is needed on farms and in cities, the Program needs to assure strong water conservation programs and economic incentives to conserve water, and various water conservation techniques should be used.

Water Use Efficiency Is Important to the Success of the CALFED Program

Purpose of the Water Use Efficiency Program. Water conservation is important in the CALFED Program. The Water Use Efficiency Program Plan is one of the cornerstones of CALFED's Water Management Strategy. Water conservation, along with water recycling, is at the core of the Program's Water Use Efficiency Program Plan. The CALFED policy toward water use efficiency reflects the State's strong public emphasis of a water use efficiency and conservation ethic, as well as the legal requirements for reasonable and beneficial use of water—both existing and new water supplies must be used efficiently.

The Water Use Efficiency Program's definition of efficient water use is the implementation of local water management actions that increase the achievement of CALFED goals and objectives. This definition encompasses improvements in water timing, water quality, and in-stream flows and is therefore broader than traditional definitions of physical efficiency.

Objectives of the Water Use Efficiency Program. The Water Use Efficiency Program has the following objectives: reduce existing irrecoverable losses, achieve multiple benefits, preserve local flexibility, emphasize incentive-based actions over regulatory actions, build on existing water use efficiency programs, and provide assurance of high water use efficiency.

Types of potential reductions include recovered losses with potential for rerouting flows, potential for recovering currently irrecoverable losses, and potential reduction of application. The Program focuses on opportunities that can be implemented at the local water supplier and end-user level. For example, changing the timing of diversion, reducing demand through conservation and recycling, or improving the quality of a return flow are actions related to beneficial use of local diversions that can be implemented at the local, regional, and end-user levels.

In the past two decades, many agricultural and urban water users have significantly improved their water use efficiency. The Program intends to amplify these gains by further expanding the implementation of water use efficiency measures. To stimulate the implementation of these efficiency measures, the Program will work with local, state, and federal government agencies to provide financial, technical, and planning assistance to water providers and water users. The Program also has recommended reporting mechanisms

and processes to track the implementation of water use efficiency measures and to ensure compliance with water use efficiency targets and objectives.

Water Conservation Is the Solution

Role of Water Conservation in Solving Water Problems in California. The CALFED Program's mission 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, not to solve California's water problems. While water conservation is an important part of any Bay-Delta solution, conservation does not represent a complete and comprehensive solution to all of the problems plaguing the Bay-Delta. Water conservation alone will not adequately address the degraded Bay-Delta ecosystem, declining water quality, a levee system vulnerable to failure, or the uncertainty of water supplies to meet beneficial uses. The Bay-Delta's complex problems demand a more comprehensive solution than water conservation alone provides.

Use of Non-Structural Solutions Such as Water Use Efficiency, Conservation, and Reclamation Programs, to Stretch Existing Water Supplies Instead of Building New Dams and Canals. While the Water Use Efficiency Program will help to increase water supply reliability and perhaps reduce the need for or scope of new storage facilities, the program cannot replace the need for new storage facilities.

Water conservation by itself would not allow for reoperation of the Bay-Delta water system in order to achieve multiple benefits. For instance, groundwater or off-stream surface storage south of the Delta could allow the south Delta pumps to divert greater quantities of water from the Delta during times least disruptive to the ecosystem or in-Delta water quality. This stored water would allow the pumps to curtail or cease operations during times when the ecosystem or in-Delta water quality is more sensitive to diversion effects. Water conservation alone also would not provide the level of benefit for aquatic species that storage could through increased seasonal flows upstream of the Delta or through improved water temperature conditions.

Water use efficiency by itself is not enough to improve water quality. The CALFED strategy for improving drinking water quality is to reduce the loads or impacts of bromide, total organic carbon, pathogens, nutrients, salinity, and turbidity through a combination of measures—including storage and conveyance improvements. Surface and groundwater storage along with Delta conveyance improvements can help in managing inflows to and exports from the Delta, which could be used to improve water quality both in the Delta and exported water supplies.

Water Conservation for Managed Wetlands. CALFED proposes implementing cost-effective efficiency measures in each water use sector: urban, agricultural, and managed wetlands. Because of inherent institutional differences between sectors, approaches are somewhat different for each sector. The Program's focus on water diverted for environmental uses has been limited mainly to wildlife refuges and wetlands managed by CALFED agencies. Because water is not diverted or applied to other environmental uses as in the urban and agricultural sector, CALFED does not intend to apply efficiency concepts to environmental uses other than managed wetlands. However, CALFED agencies will take direct action to manage water supplies on refuges, rather than an indirect role as for the urban and agricultural sectors. Three CALFED agencies (the California Department of Fish and Game, U.S. Bureau of Reclamation [Reclamation], and U.S. Fish and Wildlife Service) have been working with the Grasslands Resource Conservation District to develop an Interagency Coordinated Program for optimum water use planning

for wetlands of the Central Valley. A task force representing these entities has recommended a program that includes efficient water management practices for refuges and wetland areas of the valley. The task force report is being reviewed by the sponsoring agencies. CALFED's approach to water use efficiency for managed wetlands will hinge on finalizing and implementing the Interagency Coordinated Program.

Water Conservation for Agriculture. Improved agricultural water conservation can result from management and technical improvements at both the irrigation district and farm level. The potential benefits of conservation include reductions in diversions, percolation to salt sinks, evapotranspiration, and/or contaminated runoff. As a water management tool, agricultural water conservation can go beyond improving water supply reliability and also can provide water quality and ecosystem quality improvements.

The CALFED agricultural water use efficiency approach is designed to identify water management techniques that increase the effectiveness of water use management and efficiency at the field, farm, district, and basin level where these are appropriate.

The agricultural component of the Water Use Efficiency Program is structured around four broad elements: (1) incentives; (2) a locally tailored program that incorporates the work of the Agricultural Water Management Council (AWMC), a stakeholder agency that was established pursuant to Assembly Bill 3616 and is devoted to agricultural water management; (3) quantifiable objectives; and (4) assurances.

The Water Use Efficiency Program will be implemented by a multi-disciplinary technical team that includes water conservation, water quality, aquatic biology, irrigation engineering and local operations expertise as well as other regional representatives. On a region-by-region basis, the technical team will determine the following components that are consistent with the agricultural water use efficiency objectives, including: targeted benefits, quantifiable objectives, targeted flow path changes, performance indicators, regional implementation strategies, monitoring and performance assessments, and refinement and revision.

Role of Urban Water Conservation

Increasing water use efficiency in urban areas is a fundamental part of the Water Use Efficiency Program. Urban water conservation will provide a direct reduction in total urban demand for water and so is an important component in addressing water supply reliability. Increased water use efficiency also can meet water quality and ecosystem objectives where it reduces pollutant loads or reduces diversions of water.

Urban water suppliers have worked with public and private sector interest groups to create the California Urban Water Conservation Council (CUWCC), a nationally recognized forum for the successful advancement of understanding and implementation of urban water use efficiency measures. Urban areas already have made significant progress toward water use efficiency goals under the 1991 Memorandum of Understanding Regarding Urban Water Conservation in California (Urban MOU).

Improvements in urban water use efficiency could result in reduction of urban per capita use and reduction of existing or projected system losses associated with that use. A large percentage of these reductions could result in a water savings that can be reallocated to meet other water supply demands. Although not all of the reduction generates such savings, reduction in per capita water use could result in benefits to water quality and the ecosystem, and reduced energy needed for water treatment (both potable

processes and wastewater) and home water heating. Potential conservation estimates developed by CALFED are separated into two categories:

- Estimated reduction in total loss (other than the irrecoverable loss portion; most of this reduction is available only to provide water quality and ecosystem benefits, and potentially reduce future demand projections of a particular basin
- Estimated reduction in irrecoverable losses (available to reallocate to other beneficial water supply uses).

Conservation sectors include residential indoor use; urban landscape use; commercial, industrial, and institutional use; and water distribution system loss and leakage.

While making better use of urban water supplies is an important component of CALFED's Water Management Strategy, urban water conservation could result in a long-term negative effect on system flexibility. As more water conservation measures are implemented as part of the normal water use pattern, additional conservation could be more difficult to achieve or more costly, or additional behavioral changes could be required of users to conserve additional water in order to respond to shortages.

A different methodology is applied for each of the urban conservation sectors. These estimates were developed to help understand the potential role of conservation in the larger context of statewide water management, as well as to provide information for the programmatic-level impact analysis. These estimates are not targets or goals and should not be interpreted as such, or used for planning purposes.

CALFED's approach to water recycling is to identify and resolve barriers that have prevented local entities from implementing recycled water projects. The approach to water recycling will include water recycling feasibility planning as part of the urban conservation certification effort. CALFED will help urban water suppliers comply with regulations by assisting local and regional agencies with preparation of water recycling feasibility plans that meet the requirements of the Urban Water Management Planning Act. The CALFED urban certification process proposes additional consequences for inadequate adoption of water use efficiency measures, including monetary fines and water-based sanctions.

Assurances and Incentives in the CALFED Water Use Efficiency Program

Several aspects of the CALFED Program are designed to assure that water use efficiency's full potential to meet CALFED water supply reliability goals is realized. Before water supply benefits from some CALFED actions such as new storage are delivered, a user must show that they have water management plans in place and are in compliance with those plans. Implementation of storage projects also will be predicated on complying with all environmental review and permitting requirements. Finally, Stage 1 includes a significant commitment to fund water use efficiency measures.

Furthermore, CALFED has recognized the need for some incentives as part of the Water Use Efficiency Program. Some potential water use efficiency benefits may not be cost-effective locally but may be so regionally or from a statewide perspective. For one thing, water may be more valuable to an entity outside the immediate local area, and that entity may be willing to fund the efficiency improvement in exchange for transferring the conserved water. Second, water efficiency improvements that also increase water quality could benefit a larger group of water users in the region. Finally, where the water saved through

water use efficiency measures result in increased water dedicated to in-stream or Delta uses on a permanent basis, there may be a public benefit.

Assuring Implementation of Water Use Efficiency Measures by Both Agricultural and Urban Water Users

Assurances play a critical role in the Water Use Efficiency Program. The assurance mechanisms are structured to ensure that urban and agricultural water users and water suppliers implement the appropriate efficiency measures. Assurance of high agricultural water use efficiency will be based on a set of agricultural water use efficiency quantifiable objectives. The quantifiable objectives are currently being developed and will include targeted benefits, measurable indicators, and regional implementation strategies. Assurance of high urban water use efficiency will be based on a certification process that will provide a rigorous peer review of urban implementation of established best management practices (BMPs). As a prerequisite to obtaining some CALFED Program benefits (for example, participating as a buyer or seller in a water transfer; receiving water from a drought water bank; or receiving water made available solely because of supply enhancements such as new, expanded, or reoperated facilities), local water agencies will need to show that they have endorsed or certified water management plans in place and are in compliance with the applicable urban or agricultural council agreements and applicable state law. This requirement will result in careful analysis and implementation of cost-effective conservation measures identified in those agreements.

In addition to an assurance mechanism focused on participation in the Urban MOU, CALFED will work to ensure that more urban suppliers comply with another water planning effort, the Urban Water Management Planning Act (California Water Code Section 10610 et seq.). CALFED will use the work of the agricultural and urban conservation councils (formed under their respective MOU) to contribute to the Water Use Efficiency Program. However, this will not be the extent of the program. The agricultural program will identify and provide grant funding for measures that go beyond those expected from the AWMC.

The Need for Incentives for Agricultural and Urban Water Users to Conserve Water

The Water Use Efficiency Program Plan includes actions to ensure strong water conservation programs and provides economic incentives to cause water conservation implementation. Over the past two decades, agricultural and urban water users have significantly improved their water use efficiency; the Program intends to strengthen water conservation and water recycling programs to achieve greater efficiency. The CALFED Program will extend the progress already made by (1) providing financial and technical support for urban water use efficiency programs; and (2) instituting a process to certify water supplier compliance with the Urban MOU, thus assuring full implementation of cost-effective BMPs. Assurance of high agricultural water use efficiency will be based on a set of agricultural water use efficiency quantifiable objectives.

Diverse stakeholder groups have recognized the importance of, and the need for, appropriate measurement of water deliveries. Measurement will provide better information on statewide and regional water use, will enable water purveyors to charge for water according to the amount used, will allow water users to demonstrate the effects of efficiency measures, and will facilitate a water transfers market. CALFED has initiated a public process to add greater definition to appropriate measurement, by convening an Independent Review Panel on Appropriate Measurement. This panel will provide guidance that will help define appropriate measurement as it relates to surface and groundwater use. The panel will prepare a

consensus definition of appropriate measurement by the end of 2001. At the end of this stakeholder process, CALFED agencies will work with the California State Legislature to develop legislation requiring the appropriate measurement of all water uses in the State of California.

The Water Use Efficiency Program builds on existing water use efficiency programs. Several existing efforts are striving to increase water use efficiency. The CUWCC and AWMC are stakeholder organizations devoted to urban and agricultural water management, respectively. Similarly, CALFED agencies, such as the California Department of Water Resources (DWR), Reclamation, and the Natural Resource Conservation Service, have ongoing water management programs. The State Water Resources Control Board (SWRCB), DWR, and Reclamation also have ongoing water recycling programs. Existing regulatory processes provide necessary assurances of efficient use, as well as mitigation for third-party impacts that may result from incentive-based approaches. CALFED will enhance rather than attempt to recreate the positive momentum established by these existing programs.

The Water Use Efficiency Program will increase the availability of planning assistance, technical assistance, and funding so that more districts can expand their role to include water supply management, not only delivery. The Water Use Efficiency Program Plan discusses ways to more efficiently use water resources by the agricultural, urban, and managed wetland water users. The Water Use Efficiency Program is anticipated to provide the assistance necessary to gain higher levels of efficient water management practice (EWMP) implementation and participation by more agricultural water districts. Incentives, coupled with assurance mechanisms, will encourage more districts to properly examine the benefits of the EWMPs and implement the cost-effective measures. It is assumed that such measures will result in a significant majority of the water suppliers planning, adopting, and implementing feasible, cost-effective efficiency measures.

A key aspect of the Water Use Efficiency Program will be that no water users will have access to CALFED Water Use Efficiency Program benefits without fully implementing their endorsed/certified water management plans. For example, water districts must comply with their applicable water management plan to receive grants under the Water Use Efficiency Program. CALFED will include a more detailed explanation of this linkage between Water Use Efficiency Program benefits and compliance with water management plans in the ROD.

CALFED is also relying on a competitive grant and loan program as the best mechanism to assure cost-effective investments in water use efficiency. Under this program, CALFED investments would 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; however, CALFED anticipates that the competitive grant and loan program would allow participating districts to effectively respond to local conditions. 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, when compared to other water supply reliability options. CALFED's proposed grant and 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.

Local water suppliers will rely on CALFED agencies to provide a high level of technical and financial assistance in order to support increased local conservation and recycling efforts. Adequate funding for assistance programs will be an important assurance for local agencies. CALFED's initial Stage 1 cost estimate for state and federal financial assistance is $700 million, which may be increased as the program is further refined.

CALFED expects to generate water use efficiency incentives through improvements in the water market and through willing-seller water acquisitions for the Ecosystem Restoration Program to augment in-stream flows. In addition, improvements in water quality under the Water Quality Program can assist in meeting water use efficiency goals, by reducing the need for water to meet soil leaching requirements and by enhancing water reclamation opportunities. Similarly, actions taken under the Water Use Efficiency Program are expected to result in ancillary benefits for other CALFED objectives.

References to Relevant Provisions in the Programmatic EIS/EIR. Please consult Chapter 1 in the Programmatic EIS/EIR, "Program Description," for information concerning the objectives and purpose of the CALFED Program. Please refer to Chapter 2 in the Programmatic EIS/EIR, "Alternative Descriptions," for an overview of the Water Use Efficiency Program and Water Transfer Program. Please see Chapters 5, 6, and 7 in the Programmatic EIS/EIR for discussion of environmental consequences related to these programs. Please consult the Phase II Report and the Implementation Plan for more information about Stage 1 actions. For additional information, please consult the following sections of the Water Use Efficiency Program Plan: Section 2.2.2 for the urban certification process; Section 4.7 for the methodology used to estimate agricultural water conservation potential; Section 5.4 for the methodology used to estimate urban water conservation potential; and Section 6.3.1 for information about in-kind technical and planning services.

COMMON RESPONSE 3. RESTORATION EFFORTS

This common response addresses comments related to restoration efforts and their role in the CALFED Program.

Many comments address restoration efforts and their role in the CALFED Program. The majority of the comments support ecosystem restoration goals, with some individuals and groups indicating that the goals do not go far enough to preserve the ecosystem. Other comments focus on the removal of barriers and dams, with Englebright Dam specifically mentioned in numerous comment letters. Many comments, while supporting the Ecosystem Restoration Program, state that the proposed Ecosystem Restoration Program does not go far enough to meet the needs of the ecosystem. Some comments express support for dedication of water to ecosystem restoration purposes.

Ecosystem restoration is important in the CALFED Program. CALFED first identified four problem areas: ecosystem quality, water supply reliability, water quality, and levee system integrity and then developed strategies to restore ecological health, improve water quality, improve water supply reliability, and ensure levee and channel integrity. CALFED has developed eight programs, or categories of actions, that contribute to carrying out these four strategies. The Ecosystem Restoration Program is one of those eight programs.

The Ecosystem Restoration Program is one of the largest, most comprehensive, and most inclusive environmental restoration program in the United States. It provides a new perspective to restoration science by focusing on the rehabilitation, protection, or restoration of ecological processes that create and maintain habitats needed by fish, wildlife, and plant species dependent on the Delta and its tributary systems. This strategy emphasizes solid science, adaptive management, and local participation—an innovative approach that is becoming a model for similar efforts throughout the nation. By restoring the natural processes that create and maintain diverse and vital habitats, CALFED aims to meet the needs of multiple plant and animal species while reducing the amount of human intervention required to maintain habitats.

Comments support restoration goals.

The purpose of the CALFED Program is to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. To practically achieve this Program purpose, CALFED must concurrently and comprehensively address problems of the Bay-Delta system within each of four critical resource categories: ecosystem quality, water quality, levee system integrity, and water supply reliability. Important physical, ecological, and socioeconomic linkages exist between the problems and possible solutions in each of these categories. Accordingly, a solution to problems in one resource category cannot be pursued without addressing problems in the other resource categories. Eliminating other portions of the CALFED Program would violate CALFED's mission, goals, objectives, and solution principles.

Comments support removing fish barriers and removing existing dams.

The Ecosystem Restoration Program is actively evaluating opportunities to remove barriers to fish migration. In most cases, this involves removing small diversion dams. We have removed dams on Butte Creek and will soon remove dams on Battle Creek. We are evaluating additional opportunities on Butte Creek, Clear Creek, and Mill Creek. The potential also exists to eliminate the barrier to fish passage presented by Englebright Dam on the Yuba River.

In general, the Ecosystem Restoration Program recommends the following types of actions for fish passage problems at dams and diversions: upgrade existing fish ladder systems to improve fish passage where needed; construct fish ladders, where appropriate, to minimize blockages of upstream migrating anadromous fish behind weirs; provide adequate fish passage, including fish ladders, for small- to moderate-sized diversion dams; and, where feasible and consistent with other uses, reconstruct diversions or remove dams to allow fish passage.

In all instances, projects will be developed in a collaborative manner with participation by all affected and interested individuals; organizations; and local, state, and federal agencies. Each project will be evaluated on its technical and scientific merits and overall cost. Each site-specific action will be required to comply with state and federal law and universally will include the preparation of the appropriate NEPA and CEQA documentation.

For example, in the "Feather River/Sutter Basin Ecological Management Zone" section in Volume 2 of the Ecosystem Restoration Program Plan, it is recommended that a cooperative study be conducted to determine the feasibility of allowing spring-run chinook salmon and steelhead access to historical spawning and rearing habitats above Englebright Dam on the Yuba River. This collaborative study is guided by the Upper Yuba River Work Group, which is comprised of local business and property owners, environmental groups, and state and federal agencies. This project is in the initial study phase to determine its feasibility. Elements to be evaluated include quantity and quality of anadromous fish habitat upstream and downstream of Englebright Dam, economic consequences, effect on downstream flood control, effect on local water supplies, and evaluation of sediment and contaminants within Lake Englebright. The feasibility study phase will determine whether there is a potential project as defined by NEPA/CEQA for future evaluation or whether there is no feasible option to allow the introduction of salmon and steelhead to the Upper Yuba River watershed.

In every case, alternatives will be thoroughly studied. All potentially significant impacts will be evaluated and documented. Appropriate mitigation will be included in the NEPA and CEQA documentation.

CALFED goals do not go far enough to preserve the ecosystem.

CALFED has designed a restoration program that will meet its ecosystem goals. Since our understanding of ecosystem is incomplete and subject to change, management planning and programs must be sufficiently flexible to respond to new information. Adaptive management will allow CALFED to begin implementation of the Ecosystem Restoration Program and to make adjustments as necessary to meet its goals. Many independent scientists have reviewed and contributed to development of the Ecosystem Restoration Program Plan.

The Strategic Plan for the Ecosystem Restoration Program signals a fundamental shift in the way the ecological resources of the Bay-Delta ecosystem will be managed, because it embodies an ecosystem-based management approach with its attendant emphasis on adaptive management. Traditional management of ecological resources typically has focused on the needs of individual species. Ecosystem-based management, however, is a more integrated, systems approach that attempts to recover and protect multiple species by restoring or mimicking the natural physical processes that help to create and maintain diverse and healthy habitats.

Ecosystem restoration does not entail recreating any particular historical configuration of the Bay-Delta environment; rather, it means reestablishing a balance in ecosystem structure and function to meet the needs of the plant, animal, and human communities while maintaining or stimulating the region's diverse and vital economy. The broad goal of ecosystem restoration, therefore, is to find patterns of human use and interaction with the natural environment that provide greater overall long-term benefits to society as a whole.

CALFED should provide water for ecosystem restoration.

Volume 1 of the Ecosystem Restoration Program Plan includes a section titled "Central Valley Streamflows." In this section, we present the background, the ecological function, the issues and opportunities, and our vision for the restoration of in-streamflows to all of the streams and rivers tributary to the Delta.

There are several mechanisms for additional fresh-water flow through the Delta and Bay. The Central Valley Project Improvement Act (CVPIA) Section 3406(b)(2) water provides for 800,000 acre-feet (800 TAF) of Central Valley Project (CVP) yield for environmental purposes.

In Volume 2 of the Ecosystem Restoration Program Plan, we propose target in-streamflows for each stream or river tributary to the Delta. These targets are organized by ecological management zones. Where sufficient data are available, we are very specific in our targets. Where uncertainty remains, we propose programmatic actions to obtain and analyze the data necessary.

It is estimated that meeting the proposed Central Valley streamflow targets will require as much as 400 TAF of water over and above the existing in-streamflow. In all cases, we intend to obtain this additional water by acquisition from willing sellers or by developing alternative supplies. In addition, the Environmental Water Account (EWA) (see common response 21) will use an average of 380 TAF annually; somewhat higher amounts are anticipated after the first year. Coordination on the use of Ecosystem Restoration Program and Environmental Water Account water will assure multiple use whenever practical.

The Ecosystem Restoration Program will participate in the costs and benefits of water conservation, conjunctive use, groundwater management and development, reoperation of existing facilities, and the yield from new storage.

Water acquired or developed for ecosystem restoration purposes will be protected or guaranteed under California water rights law.

References to Relevant Provisions in the Programmatic EIS/EIR. In addition to the documents listed above, p-lease refer to Chapter 2 in the Programmatic EIS/EIR, "Alternative Descriptions," for an overview of the Ecosystem Restoration Program. Please see Chapters 5, 6, and 7 in the Programmatic EIS/EIR for discussion of the environmental consequences related to this program. Please see the Phase II Report and the Implementation Plan for more information about Stage 1 actions.

COMMON RESPONSE 4. NEW WATER STORAGE IN THE CALFED PROGRAM

Perhaps more than any other subject, the issue of new water storage generated numerous comments from reviewers. This response describes how new water storage has been considered in the CALFED Program.

For the most part, comments express strong views either supporting or opposing water storage as part of the Preferred Program Alternative. For example, those comments supporting water storage express concern about meeting water demands for current and future population levels, providing for future agricultural use for food and fiber production, and for protecting water rights. Some comments support surface water storage by stating that past reservoir construction has produced new biological habitat, enhanced fisheries and water quality, and provided more recreational opportunities. Those comments opposing water storage express concern about continued degradation of environmental resources, including free-flowing rivers; other comments opposing water storage focus on investing in water conservation before new water storage facilities are considered and requesting that CALFED commit to not going forward with building new dams during the 7 years of Stage 1.

The Role of Water Storage in the CALFED Program. CALFED's Preferred Program Alternative includes a groundwater and surface water storage component with potential facility locations in the Sacramento and San Joaquin Valleys and in the Delta. New groundwater storage and conjunctive use projects will be implemented under the principle of local management and control. Surface water storage options include development of new off-stream storage reservoirs or expansion of existing storage reservoirs. Development of new on-stream surface water storage reservoirs is not proposed.

The storage component of the Preferred Program Alternative is part of an overall Water Management Strategy. Storage that is properly managed and integrated with other water management tools can be used to improve water supply reliability, provide water for the environment at times when it is needed most, provide important recreational opportunities, provide flows timed to maintain water quality, and protect levees through coordinated operation with existing flood control reservoirs. Not all water management tools provide the same benefits. While water conservation can make water available for other uses, it may not provide supplies at needed times and locations. Water stored in strategically located surface reservoirs or groundwater basins can improve system operational flexibility by providing opportunities to improve the timing and availability of water for all uses. The value of this improved flexibility has been illustrated through CALFED evaluations that have shown that the EWA is most effective when combined with access to storage. All water management tools must be used wisely and efficiently to meet California's water reliability needs.

The benefits and impacts of surface and groundwater storage vary, depending on the location, size, operational policies, and linkage to other Program elements. Surface storage reservoirs and associated facilities would permanently inundate existing agricultural, wetland, riparian, annual grassland, woodland, and forest communities that support a variety of species, including special-status species. Storage facilities could fragment riparian corridors and wildlife use areas, and disrupt historical wildlife movement patterns. Site-specific evaluations of all storage proposals will be completed, and appropriate mitigation will be identified before any storage project is implemented. Potential impacts also are associated with diversion of water into storage facilities. Operation rules for new storage will be developed and implemented to assure that diversions to and releases from new storage maintain the frequency, magnitude, and duration of flows necessary to maintain and restore downstream riparian habitat.

Storage Evaluation Process. Early in Phase II of the Bay-Delta Program, CALFED conducted preliminary evaluations to determine an appropriate range of storage volumes to be examined during preparation of the Programmatic EIS/EIR. CALFED approximated the utility of various volumes of new Sacramento River off-stream storage and south-of-Delta off-aqueduct storage in providing water supply benefits for agricultural, urban, or environmental flow purposes. This evaluation considered the availability of flows that might be diverted to storage, a range of diversion capacities, and a variety of potential future water use patterns. Economic and financial issues were not considered in this preliminary evaluation. Based on this preliminary evaluation of potential water supply benefits and practical consideration of acceptable levels of impacts and total costs, the range of total new storage considered in the Programmatic EIS/EIR was set at 0 to 6 million acre-feet (MAF). This range was not comprised of specific surface storage project proposals; rather, generic storage capacity within this range was evaluated to estimate the potential effects on flows, available water supply, water quality, and the ecosystem.

Concurrently, CALFED initiated a surface storage screening process to determine specific projects that might be implemented as part of the CALFED Program. As a start, CALFED compiled an inventory of 52 potential new surface storage projects that have been considered in recent decades. Projects in this inventory were evaluated to determine which sites could most likely provide broad benefits for water supply, flood control, water quality, and the ecosystem. Sites that conflicted with CALFED solution principles, objectives, or policies were eliminated. This initial screening reduced the number of potential surface storage projects under consideration by CALFED to 12. See the Phase II Report for a summary of the locations.

In recent months, state and federal representatives considered existing information on the potential benefits, costs, impacts, and implementability of the 12 remaining potential surface storage projects. The representatives agreed to take the necessary steps to pursue expansion of two existing reservoirs and construction of a new off-stream reservoir, with a total capacity of 950 thousand acre-feet (TAF). These projects include: (1) expanding CVP storage in Shasta Lake by approximately 300 TAF, (2) expanding the Los Vaqueros Reservoir by up to 400 TAF, and (3) implementing an in-Delta storage project with a capacity of approximately 250 TAF. CALFED also will pursue a major expansion of locally managed and controlled groundwater storage for an additional 500 TAF to 1 MAF of water supply. In addition, CALFED will study two potential reservoir locations through partnerships with local agencies: (1) Sites Reservoir, with a capacity of up to 1.9 MAF; and (2) additional storage in the upper San Joaquin River watershed with capacity of 250-700 TAF. However, these two projects 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. 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.

CALFED will continue site-specific feasibility studies and initiate site-specific environmental review processes for these projects, as appropriate. These studies will be coordinated under CALFED's Integrated Storage Investigation. These investigations will provide information to help update CALFED's Water Management Strategy as CALFED moves into Program implementation. Throughout implementation, the Water Management Strategy will serve as a framework for determining appropriate levels of investment in a variety of water management tools for attaining CALFED's water supply reliability goals and objectives.

Environmental Water Account. CALFED's proposed EWA is a good example of how to provide fisheries protection and recovery while providing ancillary benefits for water quality and water supply reliability to help achieve CALFED's overall water management goals. The EWA is based on the concept that flexible management of water could achieve fishery and ecosystem benefits more efficiently than a completely prescriptive regulatory approach. By managing EWA "assets" on a real-time basis, the overall cost of environmental protection can be lower than under a purely prescriptive approach. EWA evaluations show the value and need for storage to make the account work. This approach would help to attain water supply reliability objectives for other water users. In addition, by managing the EWA in close coordination with other parts of the Water Management Strategy, multiple benefits can be achieved from the use of EWA assets. For example, the EWA could time water releases to achieve both fishery enhancement and water quality benefits.

The importance of a successful EWA to the overall CALFED Water Management Strategy cannot be overemphasized. Further, Delta improvements may be difficult to implement given the many regulatory permit programs that protect environmental resources. CALFED intends to develop the specific details of an EWA in the immediate future, so that this Water Management Strategy can be operational at the beginning of Stage 1.

See common response 21 for more information about the EWA.

References to Relevant Provisions in the Programmatic EIS/EIR. Please consult Chapter 2 in the Programmatic EIS/EIR, "Alternative Descriptions," for an overview of the Storage element of the Preferred Program Alternative. Please consult Chapters 5, 6, and 7 in the Programmatic EIS/EIR for discussion of environmental consequences related to the Storage element. See Chapter 8 in the Programmatic EIS/EIR, "Compliance with Applicable Laws, Policies, and Plans and Regulatory Framework." Please see the Phase II Report and the Implementation Plan for more information about Stage 1 actions.

COMMON RESPONSE 5. ALTERNATIVES

This common response addresses comments concerning alternatives and explains how the Programmatic EIS/EIR complies with relevant NEPA and CEQA requirements pertaining to the identification and assessment of Program alternatives.

Several comments questioned whether the CALFED Program has considered an adequate range of alternatives. Some comments stated that the CALFED Program should develop new alternatives. For example, there were recommendations that CALFED develop an alternative that would avoid impacts to agricultural lands by minimizing the creation of new fish and wildlife habitat, an alternative that would improve water supply reliability solely through increased water use efficiency, and an alternative that would achieve water quality objectives by capping or reducing exports from the Delta. Some comments questioned whether any of the CALFED Program alternatives would achieve water quality objectives or would improve water supply reliability. And other comments questioned the selection of the Preferred Program Alternative.

The CALFED Program has not considered an adequate range of alternatives.

The Purpose of the CALFED Program. To understand the range of alternatives considered, it is important to bear in mind the purpose of the CALFED Program. In the past two decades, disagreements regarding the use and management of the Delta have increasingly taken the form of protracted litigation and legislative battles. These disagreements have not yielded solutions to the water-related conflicts centering in the Delta. The CALFED Program was established to reduce these conflicts and provide a solution that competing interests could support. Specifically, the mission of the CALFED 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. The CALFED Program evaluated a wide range of alternatives to determine the best way to fulfill this mission. Because both of the purposes composing the CALFED mission are essential to the success of the CALFED Program, only alternatives that would both restore ecological health and improve water management for beneficial uses of the Bay-Delta system were carried forward for detailed consideration. Each alternative (other than the No Action Alternative) considered in detail in the Programmatic EIS/EIR would achieve both of these purposes.

CALFED's Objectives and Solution Principles. To determine the best way to fulfill its mission, CALFED undertook to address the problems of the Bay-Delta system concurrently and comprehensively within each of four resource categories: ecosystem quality, water quality, water supply reliability, and levee system integrity. CALFED's primary objectives are identified below.

- **Ecosystem Quality.** 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.

- **Water Supply.** Reduce the mismatch between Bay-Delta water supplies and the current and projected beneficial uses dependent on the Bay-Delta system.

- **Water Quality.** Provide good water quality for all beneficial uses.

- **Vulnerability of Delta Functions.** Reduce the risk to land use and associated economic activities, water supply, infrastructure, and the ecosystem from catastrophic breaching of Delta levees.

The problems and possible solutions in each of these categories are linked physically, ecologically, and socioeconomically. In the past, most efforts to improve water supply reliability or water quality, improve ecosystem health, or maintain and improve Delta levees focused on a single resource category. A project that focuses on a single problem within the Delta may be more manageable but is likely to have only limited success. Projects designed to solve a problem within one resource category often do so by expending or harming resources in other resource categories. For example, projects to improve water supply reliability may degrade ecosystem health and vice versa. The solution to a problem in one resource category may thus exacerbate problems in others. When this happens, conflicts regarding the use and management of resources within the Delta are not reduced and may actually be intensified. Consequently, independent, narrowly focused projects have been ineffective in addressing conflicts in the Delta.

The CALFED Program took a broader approach. To acknowledge clearly that the problems in the four resource categories within the Bay-Delta system are inter-related and should be addressed concurrently and comprehensively, CALFED developed six solution principles in consultation with cooperating agencies, stakeholders, and interested public members. The solution principles are identified below.

- **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. Improvement 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.

- **Pose 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.

The CALFED mission, the primary objectives, and these solution principles were used to measure the overall acceptability of alternatives for detailed consideration in the Programmatic EIS/EIR.

Development, Review, and Refinement of Alternatives. In Phase I, CALFED initiated a lengthy, inclusive, public process to develop alternatives 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 BDAC, 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—that is, each alternative is a combination of action categories reflecting differing approaches to achieving Program objectives and addressing solution principles.

Given the large number of categories and the range of perspectives on solutions to Bay-Delta problems among stakeholders and CALFED agencies, thousands of potential alternatives could have been identified. A first step for the Program was to devise a methodology that would keep the number of alternatives to a manageable level while still representing the full range of approaches to resolving problems.

The methodology chosen to accomplish this was to define the critical conflicts that exist between beneficial uses and resources in the Bay-Delta and then to define approaches to resolving these conflicts. The conflicts that were identified are listed below.

- **Fisheries and Diversions.** The conflict between fisheries and diversions results primarily from fish mortality attributable to water diversions. This includes direct loss at pumps, reduced survival when young fish are drawn out of river channels into the Delta, and reduced spawning success of adults when migratory cues are altered. The effects of diversions on species of special concern have resulted in regulations that restrict the quantities and timing of diversions.

- **Habitat and Land Use and Flood Protection.** Habitat to support various life stages of aquatic and terrestrial biota in the Bay-Delta has been lost because of land development and construction of flood control facilities to protect developed land. The need for habitat affects land development planning as well as levee maintenance and planning. Efforts to restore the balance often require that land used for agricultural production be dedicated to habitat.

- **Water Supply Availability and Beneficial Uses.** As water use and competition for water have increased during the past several decades, conflict also has increased among users. A major part of this conflict is between the volume of in-stream water needs and out-of-stream water needs, and the timing of those needs within the hydrologic cycle.

- **Water Quality and Land Use.** Water quality can be negatively affected by land use, and ecosystem water quality needs are not always compatible with urban and agricultural water quality needs.

In assessing these conflicts, alternative approaches to conflict resolution and alternative levels of resolution were defined. Approaches for resolving the fisheries and diversions conflict included a fish productivity approach and a diversion modification approach. Approaches for resolving the habitat and land use and flood protection conflict included an existing land use pattern approach and a modified land use pattern approach. Approaches for resolving the water supply availability and beneficial uses conflict included a demand reduction approach and a supply enhancement approach. Approaches for resolving the water quality and land use conflict included managing the quality of Delta inflows and managing in-stream water quality after discharges had occurred. Within each of these approaches, levels of conflict resolution ranging from less intensive to more intensive were identified.

This process produced 32 separate approaches to resolving the four conflicts. At this point, four teams of experts representing a variety of technical disciplines were formed—one team for each conflict area. These teams then were assigned an equal number of the 32 approaches (8 apiece), and directed to develop approximately three preliminary solution alternatives—sets of actions and action categories—for each of the 8 approaches.

This procedure identified 100 preliminary solution alternatives that subsequently served as the foundation for the refinement process that defined the short list of three basic alternatives to be included in the Phase II analysis. In the Program's judgment, these 100 solution alternatives were representative of the larger number of possible combinations of alternatives and bracketed the range of possible solutions to the four conflicts and, therefore, to the key problems facing the Bay-Delta. These "prototypical" alternatives helped to demonstrate the advantages and disadvantages of a wider range of alternatives. In addition, the six previously mentioned solution principles guided the development of alternatives.

The 100 preliminary alternatives were very broad by design. Moreover, they tended to address the four critical conflicts in varying degrees—that is, they were not necessarily balanced in addressing Program objectives and solution principles.

At this point in the process, leadership responsibility for the four teams was moved from the technical experts to Program staff. This change was made to take advantage of staff's specific expertise on Bay-Delta issues and to more systematically include Program team members in the process, in order to ensure maximum sensitivity to the policies and positions of the CALFED agencies and stakeholder groups. The Program teams were instructed to begin balancing their alternatives, and to refine the initial set to approximately 6 to 10 per area by combining those alternatives with similar characteristics. This process produced a refined list of 31 alternatives.

Continued consolidation and balancing of the alternatives brought the number of alternatives to 20. These 20 alternatives were presented at a workshop to stakeholders, BDAC members, and the public. Consolidation and refinement based on input from that workshop produced the 10 alternatives described in the Program's April 1996 Phase I Progress Report.

The makeup of the alternatives during the process of refinement and development used different combinations of water management tools and varied in the level of effort applied to actions related to water use efficiency, water quality, ecosystem quality, and levee system vulnerability components. Levels of effort characterized as modest, moderate, or extensive were applied to these four components. The two components that included distinctly different approaches were Delta conveyance and water storage. For example, one alternative (Alternative A) contained modest efforts in Bay and Delta habitat restoration and water pollutant source control; moderate efforts in system stabilization; and extensive conjunctive use and groundwater storage efforts. This alternative included an in-Delta surface storage component but no isolated conveyance component. Another alternative (Alternative J) contained extensive efforts in Bay and Delta habitat restoration and water pollutant source control; modest efforts in system stabilization; and moderate conjunctive use and groundwater storage efforts. This alternative contained a large isolated conveyance component but no surface storage component.

During April and May 1996, the Program conducted 9 public meetings around the state, a workshop in Sacramento, and a meeting of the BDAC to discuss the 10 alternatives.

The comments received at the meetings and workshop cover a wide range of technical, policy, and financial concerns. Oral comments were generally consistent with comments contained in the over 160 letters received by the Program. Some of the comments prompted consideration of modifying the structure and presentation of the alternatives, and are identified below.

The best possible source water quality is of paramount importance to urban water supplies. Agencies that deliver drinking water are 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 concern 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 values, 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 and many other values in the Delta. This concern argues for a similar level of Delta levee protection in each alternative.

Ecosystem actions at the modest and perhaps the moderate level appear inadequate; 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. This concern suggests that water use efficiency measures should be implemented at an increased level among all the alternatives, where previously some alternatives included efficiency at modest or moderate levels.

The next activity for the Program included additional refinement of alternatives, leading to selection of a set of Phase II alternatives that is large enough to offer a reasonable range of solutions while small enough to allow for analysis. Application of the solution principles to the 10 draft alternatives contributed to alternative refinement and consideration.

The refinement and consolidation of the 10 alternatives proceeded according to these steps:

1. Review how each alternative satisfies the Program's mission statement and primary objectives.

2. Review comments from CALFED, the BDAC, scoping meetings, workshops, stakeholders, and the public on each alternative.

3. Evaluate and document how well each alternative satisfies each solution principle.

4. Determine potential ways to modify each alternative to improve any "low" solution principle ratings.

5. Verify that the alternative, if revised, would still meet the primary objectives and the other solution principles.

6. Review the alternatives and potential modifications to identify improved alternatives.

7. Merge similar improved alternatives into a single alternative.

Staff from CALFED agencies and the Program team evaluated alternatives against solution principles. As the detailed solution principles were applied to the 10 alternatives, and modifications were devised to improve "low" solution principle ratings, a pattern emerged. The results confirmed that the set of Phase II alternatives could be defined by combining the four common programs with the two variable components (storage and conveyance).

The above comments and the evaluation of alternatives against the solution principles supported the conclusion that water use efficiency, water quality, levee system integrity, and ecosystem quality were necessary in each of the alternatives to achieve the Program's purpose—and needed to be composed of the same actions in all alternatives. Although the goal is to implement each of these programs at the highest level to effectively achieve the Program's purpose, the programs will be implemented incrementally, or in stages, over time. This approach will provide flexibility for monitoring and adapting actions in response to the results of the initial actions.

Based on this information, the fundamental structure of the alternatives was simplified. At the end of Phase I, three basic alternative approaches were formed around different configurations of Delta conveyance: (1) existing system conveyance; (2) modified through-Delta conveyance; and (3) dual-Delta conveyance, which is formed around a combination of modified Delta channels and a new canal or pipeline connecting the Sacramento River in the north Delta to the SWP and CVP export facilities in the south Delta. Each alternative included the same set of four programs that are common to all alternatives and involve water use efficiency, water quality, levee system integrity, and ecosystem quality. A range of storage options for each alternative has been evaluated to support these programs and the Delta conveyance, and to seek a balance between attainment of Program objectives and cost effectiveness. Phase I thus identified four essential common program elements and two variable Program elements, storage and conveyance, that composed the Program alternatives.

Identification of the Proposed Preferred Program Alternative. The three basic alternative approaches from Phase I were carried into Phase II. A number of tasks were undertaken during Phase II to further refine the alternatives. Two Program elements were added (Water Transfer evolved as an outgrowth of the Water Use Efficiency Program, and Watershed arose from the Water Quality Program) to each alternative because of their value in helping the Program meet its multiple objectives. Eight program elements thus were considered during Phase II: six common elements (water use efficiency, water quality, levee system integrity, ecosystem quality, water transfers, and watershed management) and two variable program elements (storage and conveyance).

Seventeen variations of the three basic alternative approaches were then developed to further explore potential refinements for the two variable program elements, storage and conveyance. These included three variations for Alternative 1, four variations for Alternative 2, and five variations for Alternative 3. Five variations were eliminated from further consideration due to technical and other considerations. The narrowing process primarily focused on technical deficiencies and the conveyance options used in each alternative. Additionally, if alternatives provided the same conveyance function with similar impacts, the less expensive alternatives were retained. Alternatives with lower costs but higher adverse impacts were eliminated. The impacts of the 12 remaining variations were evaluated in the March 1998 Draft Programmatic EIS/EIR.

Looking simultaneously at all the information on how well the alternatives meet the objectives and how well they satisfy the solution principles would be nearly impossible due to the large amount of information. On the other hand, some aspects differ among the alternatives. These aspects, or distinguishing characteristics, guided the selection of the Preferred Program Alternative. The 18 distinguishing characteristics are: in-Delta water quality, export water quality, diversion effects on fisheries, Delta flow circulation, storage and release of water, water supply opportunities, water transfer opportunities, operational flexibility, south Delta access to water, risk to export water supplies, total cost, assurances difficulty, habitat impacts, land use changes, socioeconomic impacts, consistency with solution principles, ability to phase facilities, and brackish water habitat.

The Preferred Program Alternative process began by examining how each of the 12 alternative variations performed when measured against the 18 distinguishing characteristics. (For additional discussion of the process of developing the Preferred Program Alternative, see the March 1998 Phase II Interim Report.) This assessment revealed the comparative technical advantages of each alternative.

In the assessment, two key distinguishing characteristics were particularly important in identifying how well the alternatives perform. Export water quality and diversion effects on fisheries are highly dependent on the alternative selected. Therefore, irrespective of whether these two characteristics are the most important to selection of the Preferred Program Alternative, they are the characteristics most dependent on that decision.

Some of the 12 variations were eliminated or consolidated. Technical reasons for elimination included possible creation of conditions potentially damaging to the aquatic environment and the lack of a south-Delta conveyance improvements component. The Program has determined that the goals cannot be met without some south Delta conveyance improvements. The Program also determined that a broad range of water management options, including storage, must be evaluated and implemented to achieve the Program's goals. Therefore, each alternative was evaluated as including a range of storage from 0 to 6 MAF, making it possible to consolidate some of the variations into three basic alternative approaches. Public comments on the March 1998 Draft Programmatic EIS/EIR were used to redefine the three basic alternative approaches and develop a Preferred Program Alternative for evaluation in this report.

Initially, the dual-Delta conveyance with an isolated facility appeared to provide greater technical performance than the other alternatives. Some of the scientific and engineering evidence suggests that a dual-Delta conveyance configuration may improve export water quality and achieve fish recovery most effectively. However, other evidence indicates that such a conveyance configuration can cause in-Delta water quality problems. In addition, during scoping and public meetings, some stakeholders and agencies voiced concern that moving water around the Delta instead of through it may:

- Cause difficulty in ensuring the appropriate operation of such a facility.
- Create impacts from construction.
- Increase the amount of land needed for the facility.
- Provide an engineered solution when non-structural modifications and reoperation of existing facilities may provide similar benefits.

For all of these reasons, the strategy of the CALFED Program is initially to select a through-Delta conveyance based on the existing Delta configuration with some channel modifications.

The through-Delta conveyance approach is not without its own concerns. Specifically, there is concern that a through-Delta conveyance approach may not meet future water quality objectives and may adversely affect the recovery of threatened and endangered fish species. Accordingly, if the Program purposes cannot be fully achieved with the proposed through-Delta conveyance, additional actions—including an isolated conveyance facility—may need to be added in the future. Before such a facility is constructed, it must be demonstrated to be the most cost effective and least environmentally damaging alternative, and necessary to fulfill CALFED's commitment to provide good water quality for all beneficial uses.

The way the alternatives are structured, going forward with the through-Delta conveyance does not preclude the Program's ability to undertake additional conveyance actions in the future, subject to appropriate environmental review.

No long-term plan for management of a system as complex as the Bay-Delta can predict exactly how the system will respond to our efforts, or foresee events such as earthquakes, climate change, or the introduction of new species to the system. Adaptive management acknowledges that we will need to adapt the actions that we take to restore ecological health and improve water management. These adaptations will be necessary as conditions change and as we learn more about the system and how it responds to our efforts. Pursuit of the Program's objectives will continue, but our actions may be adjusted over time to assure that the solution is durable. In essence, adaptive management calls for designing and monitoring actions such that they improve the understanding of the system while at the same time improving the system itself. Adaptive management is an essential part of implementing every CALFED Program element.

Staged implementation is central to the adaptive management process. The complexity of the interaction between the various elements of the CALFED Program contributes to the need for staged implementation. Staged implementation involves identifying certain actions for implementation for which there is general agreement and justification, and also identifying actions where uncertainty exists and developing conditions for moving beyond Stage 1. For the Program actions where uncertainty exists, certain predefined conditions would need to be met before action could proceed. The decision to proceed will be guided by a carefully crafted set of pre-defined conditions. Conditional decisions determine how the Program moves from stage to stage as more information on which to base these decisions is developed. "Conditional decisions" on several Program elements may be required at each stage of implementation. See Chapter 2 in the Programmatic EIS/EIR for a description of the Preferred Program Alternative.

CEQA/NEPA Requirements. Both CEQA and NEPA require a lead agency to consider a range of potentially feasible alternatives to a proposed action. (40 CFR Section 1502.14[a]; 14 CCR 15126.6.) Under both laws, the selection of alternatives is governed by a "rule of reason." (*Carmel-by-the-Sea v. United States Department of Transportation*, 123 F.3d 1142, 1155 [9th Cir. 1997]; 14 CCR 15126.6[f].) As explained in the CEQA Guidelines,

> The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only

> the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making. 14CCR15126.6(f)

Similarly, under NEPA, "[An] Environmental Impact Statement need not consider an infinite range of alternatives, only reasonable or feasible ones" (*Carmel*, 123 F.3d at 1155). Neither CEQA nor NEPA requires the consideration of alternatives that are incompatible with the fundamental objectives of the project (*Save San Francisco Bay Ass'n v. San Francisco Bay Conserv. & Dev. Comm'n* 10 Cal.App. 4th 908, 919 [1992]; *National Wildlife Federation v. F.E.R.C.* 912 F.2d 1471, 1484-85 [D.C. Cir. 1990].), or alternatives that would change the basic nature of the project (*Marin Mun. Water Dist. V. KG Land Cal. Corp.* 235 Cal. App. 3d 1652 [1991]; *Trout Unlimited v. Morton* 509 F.2d 1276, 1285-86 [9th Cir. 1974]). And neither CEQA nor NEPA requires the consideration of alternatives that are infeasible (*Citizens of Goleta Valley v. Board of Supervisors* 52 Cal. 3d 553 [1990]; *Save San Francisco Bay* 10 Cal. App. 4th at 922; *Vt. Yankee Nuclear Power v. Natural Res. D. C.* 98 S.Ct. 1197, 1215 [1978]).

As explained above, CALFED considered an extensive range of alternatives that reflect a broad spectrum of views about how to achieve the purposes of the CALFED Program. The alternative development process included participants from a wide range of viewpoints and extensive public involvement. In this open process, CALFED defined the Program's mission and the primary objectives essential to the Program's mission; developed dozens of potential alternatives; refined the list of potential alternatives by identifying the best alternatives and combinations of alternatives; selected a wide range of potentially feasible alternatives; rejected alternatives that did not satisfy the Program purpose, such as meeting only some of the primary objectives; and incorporated into the Preferred Program Alternative the means for reevaluating and adapting actions carried out as part of the CALFED Program. This process fostered meaningful public participation in the development of alternatives and allowed for informed decision making in the refinement of the alternatives. The alternatives considered in the Programmatic EIS/EIR represent a reasonable range of alternatives that will permit a reasoned choice by the CALFED agencies.

> *Many comments suggest alternatives, or suggest that CALFED develop unspecified new alternatives that focus on one primary objective or would disregard or de-emphasize one or more primary objectives.*

These alternatives are not consistent with the purpose of the CALFED Program. Alternatives that would not achieve the primary objectives of the CALFED program for ecosystem quality, water supply, water quality, and vulnerability of Delta functions would not fulfill the CALFED mission and are not required for the consideration of a "reasonable range of alternatives" under CEQA or NEPA.

CALFED's primary objectives are the criteria for its success in fulfilling its mission—they define the indispensable goals of the CALFED Program. CEQA and NEPA require detailed consideration only of CALFED Program alternatives that would achieve these essential objectives. An environmentally superior alternative cannot be rejected because it does not meet all CALFED Program objectives. However, an alternative that would not fulfill the CALFED mission, or would not achieve the primary objectives of the CALFED Program, is incompatible with the purpose of the Program and need not be considered in detail. Alternatives that would improve water management for beneficial uses of the Bay-Delta system but would not restore the ecological health of the Bay-Delta system, and vice versa, are not reasonable given the purpose of the CALFED Program.

Some comments suggest that the Program alternatives are unreasonable because they are similar to one another in many important respects.

The fact that the Program alternatives (other than the No Action Alternative) consist of six common Program elements and only two variable Program elements does not mean that the list of alternatives is not sufficiently long or varied. The common Program elements reflect CALFED's comprehensive approach to resolving the inter-related problems in the Delta; they do not reflect a narrow focus in the selection of alternatives. As described above, the common program elements were distilled from a wide range of potential alternatives. Following extensive scoping, public comment, and agency review, the CALFED agencies concluded that each Program alternative must include a significant core set of Program elements and that these elements must be the same for each alternative. A variable approach to resolving the resource conflicts within the Delta was not tenable, given the need for a comprehensive resolution of the conflicts. These core elements are the six common Program elements. The two elements about which there was less certainty and agreement, storage and conveyance, became the two variable Program elements that define the differences in the alternatives. The development of alternatives based on the six common Program elements and the two variable Program elements is appropriate in light of the extensive and open process used to develop the common Program elements and the unique purpose and nature of the CALFED Program. Neither CEQA nor NEPA requires a lead agency to contrive variations in project alternatives where a wide variation is unnecessary for informed, reasoned decision-making.

Some comments suggest that an alternative be examined that would avoid impacts on agricultural lands by minimizing the creation of new fish and wildlife habitat.

One of the two fundamental purposes of the CALFED Program is to develop a long-term comprehensive plan that will restore ecological health to the Bay-Delta system. A primary objective of the CALFED Program is to improve and increase aquatic and terrestrial habitats and to improve ecological functions in the Bay-Delta in order to support sustainable populations of diverse and valuable plant and animal species. The CALFED objectives that were developed to meet this primary objective are described in Section 1.2 in the Programmatic EIS/EIR. Among these objectives are to increase the amount of shallow riverine, shaded riverine, tidal slough, and estuary entrapment and null zone habitats for aquatic species; to increase the amount of brackish tidal marsh, fresh-water marsh, riparian woodland, waterfowl breeding habitat, wintering range for wildlife, managed permanent pasture and floodplains, and associated riparian habitats for wildlife species; and to contribute to the recovery of threatened and endangered species and species of special concern. These objectives and the alternatives designed to meet these and other CALFED Program objectives are based on the alternatives and Program goals developed during Phase I.

As described above, Phase I comprised a six-step process involving the CALFED agencies, other public agencies, and the BDAC that included numerous workshops with stakeholders and the general public. In Phase I, 100 preliminary alternatives were evaluated. From the 100 preliminary alternatives, teams of technical experts representing each of four critical conflict areas (fisheries and diversions, habitat and land use and flood protection, water supply availability and beneficial uses, and water quality and land use) produced a refined list of 31 alternatives. Among these alternatives were minimal and moderate ecosystem restoration actions with a greatly reduced potential to cause significant effects on agricultural lands. Following six public workshops and eight public CEQA/NEPA scoping meetings, and based on input from the BDAC and the CALFED agencies, CALFED concluded that these actions would not achieve the basic CALFED Program objective of restoring ecological health to the Bay-Delta system. CALFED was impelled to this conclusion largely by the fact that a substantial amount of habitat needed to support

various life stages of aquatic and terrestrial biota in the Bay-Delta system has been lost due to land development for urban and agricultural uses and construction of flood control facilities to protect developed land. The CALFED Program objectives necessarily emphasize the improvement of habitats and ecological functions.

In many instances, Program objectives to increase the amount of certain habitat types can be achieved by enhancing existing natural lands or public lands. In addition, Section 7.1.11 in the Programmatic EIS/EIR contains 23 mitigation strategies to avoid or minimize Program effects on agricultural lands. However, because most land within the Bay-Delta system is currently used for agricultural purposes and because some agricultural lands are located in areas critical to ecosystem recovery, the CALFED Program cannot be successful without some conversion of agricultural lands to meet Program objectives. Alternatives that involve little habitat restoration and, therefore, little conversion of agricultural lands were considered and rejected as ineffective in Phase I. In short, alternatives that avoid effects on agriculture are not included in the Programmatic EIS/EIR for detailed consideration, and are not required by CEQA or NEPA because they would not meet a primary objective of the CALFED Program.

Some comments suggest that an alternative be examined that would improve water supply reliability solely through increased water use efficiency, or would achieve water quality objectives by capping or reducing exports from the Delta.

One of the fundamental purposes of the CALFED Program is to improve water management for beneficial uses of the Bay-Delta system. A primary objective of the CALFED Program is to reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system. The CALFED objectives that were developed to meet this primary objective are described in Section 1.2 in the Programmatic EIS/EIR. Among these objectives are to improve export water supplies to help meet beneficial use needs and to improve the adequacy of Bay-Delta water to meet Delta outflow needs. These objectives and the alternatives designed to meet these and other CALFED Program objectives are based on the alternatives and Program goals developed during Phase I. Among these were alternatives that emphasized water use efficiency and de-emphasized or eliminated actions to improve export water supplies and improve the adequacy of Bay-Delta water to meet Delta outflow needs. Based on input from public workshops, scoping meetings, the BDAC, and the CALFED agencies, CALFED concluded that these actions would not achieve the primary objective for water supply reliability. Water use efficiency is an important element of the CALFED Program. (See the Water Use Efficiency Program Plan.) However, water use efficiency alone will not suffice to reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system. Similarly, an alternative that would achieve water quality objectives by reducing or capping exports would prevent the CALFED Program from achieving its objectives regarding water supply reliability.

Comments support achieving water quality improvements.

Improving and protecting water quality is very important in the CALFED Program and is addressed in detail in the Water Quality Program Plan. The primary water quality objective of the Program is to "[p]rovide good water quality for all beneficial uses." Among the four CALFED Program objectives, problems and solutions related to water quality are perhaps the most varied. Good water quality means different things to different users, and there are different ways to achieve the objective. Some constituents

are of great concern to some water users but of no concern for other users. For example, organic carbon from Delta soils can form carcinogenic treatment by-products in drinking water, but this carbon does not generally pose problems for ecosystem quality.

CALFED is committed to improving and protecting the water quality of the Bay-Delta estuary. The Program's goals are two-fold: minimize ecological, drinking water and other water quality problems; and maintain water quality once achieved. Water quality improvements accomplished to meet these goals also may result in ancillary benefits for other beneficial water uses, such as agricultural water use. For example, as cleaner water with fewer contaminants becomes available through the Water Quality Program, growers will have opportunities to be more flexible in their plantings and to grow higher value crops. The Watershed Program would assist in making adequate, high-quality water available to farmers and may provide higher grazing productivity.

The Program's strategy to achieve the water quality objective is to improve and protect source water quality by reducing or eliminating parameters that degrade water quality. The Program's water quality sub-objectives concentrate on this direct source control approach. At the same time, the Program acknowledges that source control alone may not be the best or only strategy to achieve good water quality for all uses.

The CALFED drinking water objective is to improve source water quality in order to allow municipal water suppliers to deliver safe, reliable, and affordable water that meets and, where feasible, exceeds applicable drinking water standards. The CALFED strategy for improving drinking water quality is to reduce the loads or impacts of bromide, total organic carbon (TOC), pathogens, nutrients, salinity, and turbidity through a combination of measures that include source reduction, alternative water sources, treatment, and storage and conveyance improvements.

Water quality improvement is a key element of the ecosystem restoration strategy. CALFED's environmental water quality goal is to provide water in the Bay-Delta of sufficient quality to protect all ecological beneficial uses of the water. Water use efficiency measures can improve the quality of water entering the Delta by reducing some agricultural and nonagricultural discharges that contain pollutants. Water quality can affect the ability to expand water use efficiency measures such as conservation, water recycling, and conjunctive use. These measures depend on the availability of high quality water to prevent salt damage of irrigated land or groundwater basins, prevent corrosion of industrial equipment, and to achieve blended water salinity objectives. CALFED has developed a Watershed Program that has strong linkages to the water quality improvement strategy. The Watershed Program would assist in improving water quality in the Bay-Delta system by helping to identify and control non-point sources of pollution and identify and implement methods to control or treat contaminants in the upper watersheds. Surface and groundwater storage along with Delta conveyance improvements can help in the management of inflows to and exports from the Delta. These improvements could be used to improve drinking water quality. However, water quality improvements are possible only when dedicating system flexibility to this objective. The Integrated Storage Investigation will include more refinement and analysis of operational concepts for water quality improvement. In the event of a catastrophic levee failure in the Delta, the amount of saline water entering the system could make Delta waters unusable for many months; the saline water could also have a detrimental effect on habitat quality. Therefore, it is difficult to overestimate the importance of a successful Delta levee program to achieving and maintaining good water quality.

The Comprehensive Monitoring, Assessment, and Research Program (CMARP) will be the primary vehicle for measuring the extent to which continuous water quality improvement is achieved. Performance

will be measured by comparing ambient water quality (where appropriate) to specific water quality objectives that have been established for the parameters of concern. For many water quality parameters, numerical or narrative objectives exist in water quality control plans adopted by the SWRCB and the Regional Water Qaulity Control Board. CALFED will use these objectives where appropriate as its targets for water quality improvement. The Water Quality Program Plan lists specific water quality targets to gauge its success; however, the Program will seek to achieve water quality that exceeds these targets where feasible and cost effective. At the same time, it is anticipated the periodic reevaluation of water quality targets will be a feature of adaptive management within this strategy.

Successfully meeting the water quality objectives depends on close coordination and collaboration among the Program, responsible State and Federal agencies and local agencies and interests. The Program will emphasize voluntary, cooperative incentive-based efforts to improve water quality, but the Program also will work with regulatory agencies to assure Program goals are accomplished where voluntary efforts prove insufficient.

Comments supported improving water supply reliability.

The primary water supply reliability objective of the Water Management Strategy is to "Reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system." Sub-objectives collectively increase water supply opportunities and reduce the conflict among beneficial water users, improve the ability to transport water through the system, and reduce the uncertainty of Bay-Delta system water supplies. The CALFED Program has proposed a Water Management Strategy to ensure water supply reliability that recognizes the variability of water supply and demand in California. CALFED's water supply reliability goals are to increase the utility of available water supplies (making water suitable for more uses and reuses); to improve access to existing or new water supplies in an economically efficient manner for environmental, urban, and agricultural beneficial uses; and to improve flexibility of managing water supply and demand in order to reduce conflicts between beneficial uses, improve access to water supplies, and decrease system vulnerability. System improvements, including improved Delta conveyance and new storage, can create new water supply opportunities for all beneficial uses including ecosystem needs and consumptive uses.

The primary water supply reliability objective can be accomplished by addressing defined objectives, which collectively reduce the conflict among beneficial water users, improve the ability to transport water through the Bay-Delta system, and reduce the uncertainty of supplies from the Bay-Delta system. These objectives in summary form are:

1. Maintain an adequate water supply to meet expected in-Delta beneficial use needs.

2. Improve export water supplies to help meet beneficial use needs.

3. Improve the adequacy of Bay-Delta water to meet Delta outflow needs.

4. Reduce the vulnerability of Bay-Delta levees.

5. Improve the predictability of the water supply available from the Bay-Delta system for beneficial use needs.

The Integrated Storage Investigation will provide the analyses necessary for CALFED's determination of the proper mix of groundwater and surface storage facilities. CALFED's Water Management Strategy will rely heavily on these analyses as it identifies an appropriate combination of water management tools for attaining CALFED's water supply reliability goals and objectives.

References to Relevant Provisions in the Programmatic EIS/EIR. Please consult Chapter 1 in the Programmatic EIS/EIR, "Program Description," for information concerning the objectives and purpose of the CALFED Program and a description of the Program alternatives development process. The Program alternatives and the Preferred Program Alternative are described in detail in Chapter 2 in the Programmatic EIS/EIR. Section 2.4 in the Programmatic EIS/EIR discusses the alternative variations that were not carried forward for further evaluation in this Programmatic EIS/EIR. Please consult the Phase II Report and Implementation Plan for more information about Stage 1 actions. Please consult the Implementation Plan and CMARP for a more detailed discussion of adaptive management. Specific drinking water quality targets can be found in the Phase II Report as well as the Water Quality Program Plan. Appendix C in the Water Quality Program Plan lists specific water quality targets to gauge its success. Please refer to the Phase II Report; Section 5.1 in the Programmatic EIS/EIR; and common responses 2, 4, and 6 for a more detailed discussion of CALFED's plan to meet water supply reliability objectives. Please consult common response 1 for a discussion of the programmatic nature of the document, common response 4 for a discussion of water storage in the CALFED Program, common response 14 for a discussion of water quality in the Program, and common response 16 for a discussion of the isolated conveyance facility.

COMMON RESPONSE 6. GROUNDWATER STORAGE

This common response addresses comments about groundwater storage.

Many comments maintain that developing additional groundwater storage is the best alternative way to meet additional water storage needs. Several comments state that development of additional groundwater storage should be maximized before any consideration is given to developing new or expanding existing surface storage facilities.

Groundwater and conjunctive use programs have been given great importance in the CALFED Program. Development of groundwater resources is part of the Preferred Program Alternative in the Programmatic EIS/EIR. Storage of water in groundwater basins is one of a series of Water Management Strategy tools developed to address the water supply reliability problem. Based on projected future needs and estimated economical groundwater storage capacity, development of groundwater resources is an important part of the package of available tools.

Water Supply Reliability. The CALFED Program has proposed a Water Management Strategy to ensure water supply reliability that recognizes the variability of water supply and demand in California. CALFED's water supply reliability goals are to increase the utility of available water supplies (making water suitable for more uses and reuses); to improve access to existing or new water supplies in an economically efficient manner for environmental, urban, and agricultural beneficial uses; and to improve flexibility of managing water supply and demand in order to reduce conflicts between beneficial uses, improve access to water supplies, and decrease system vulnerability.

Several general categories of tools are included in the Water Management Strategy, all of which are being used in California to some degree: water conservation; water recycling; water transfers, both short-term and long-term; storage, both groundwater and surface water; water project operations; Delta conveyance modifications; watershed management; water quality control; and monitoring and real-time diversion management.

As part of its ongoing evaluation of the appropriate role of storage alternatives in the CALFED solution, CALFED has initiated the Integrated Storage Investigation. The Integrated Storage Investigation will coordinate existing storage investigations by individual CALFED agencies, CALFED-initiated storage evaluations, and broader water management strategies and analysis to provide a comprehensive assessment of alternative storage options and their utility to overall water management.

Specifically, the Integrated Storage Investigation will evaluate surface water storage, groundwater storage, power facility reoperation, and the potential for conjunctive operation of these different types of storage.

Water Management Strategy. Storage of water in surface reservoirs or groundwater basins can provide opportunities to improve the timing and availability of water for all uses. The benefits and impacts of surface and groundwater storage vary, depending on the location, size, operational policies, and linkage to other Program elements. By storing water during times of high flow and under conditions of low environmental impact, more water is available for release for environmental, consumptive, and water quality purposes during dry periods when conflicts over water supplies are critical. Storage that is properly managed and integrated with other water management tools can achieve significant improvements for a number of CALFED's water management objectives by reducing conflicts, decreasing drought impacts

on all beneficial uses, increasing supply availability, increasing operational flexibility, and improving water quality. Significant ecosystem benefits also can be achieved.

Groundwater storage is a more cost-effective and more ecosystem-friendly alternative to the water storage concerns of CALFED; not enough emphasis has been placed on this as an alternative to surface water storage.

The particular attributes of storage in CALFED's Water Management Strategy vary by the type and location of storage. Water storage located upstream of the Delta functions differently than storage located south of the Delta in the export area. Generally, groundwater projects are viewed as resulting in more benign on-site environmental and land use impacts than surface water storage. Construction of new surface storage facilities or expansion of existing storage facilities would result in impacts associated with each site-specific location, such as fragmentation of existing habitat corridors on small or ephemeral tributaries—blocking the movement and interchange of populations of some wildlife species from upper to lower watershed locations—and potential for loss of habitat and the resulting direct impacts on special-status species. The potential benefits of a groundwater recharge program include increased water supply reliability; reduced long-term lift costs to extract groundwater; and possible reduction or reversal of the adverse effects of past overdrafting of groundwater, such as land subsidence and water quality degradation. Groundwater supplies normally are used to augment reduced surface supplies during drought periods or other restrictions on the movement of surface water. Surface storage is more suited to rapidly discharging or receiving large volumes of water, an advantage in real-time management of high river flow periods or environmental storage releases.

Considering the magnitude of conflicts over available water in California, CALFED believes that it must continue to evaluate and implement a broad range of water management options to achieve the Program's objectives. Therefore, new storage will be developed and constructed, together with aggressive implementation of water conservation, recycling, and a protective water transfer market, as appropriate to meet CALFED Program goals. Future site-specific evaluations, the environmental review process, and permit applications will be coordinated under CALFED's Integrated Storage Investigation.

Increasing reliance on groundwater and groundwater storage is necessary to meet the Program's objectives of water supply reliability.

Appropriate and effective groundwater management and protection is essential to an effective Water Management Strategy and to the success of a broad range of CALFED programs, including water transfers, groundwater banking, watershed management, and water use efficiency. CALFED recognizes the critical role of local government agencies in protecting and managing groundwater resources, and will actively pursue cooperative partnerships with local agencies to achieve CALFED's objectives for groundwater banking and conjunctive use programs. CALFED is developing guiding principles for conjunctive use programs to ensure that local concerns and potential impacts are fully addressed.

During preparation of the Programmatic EIS/EIR, CALFED considered groundwater banking and conjunctive use opportunities in the Sacramento and San Joaquin Valleys and in southern California. An initial inventory of potential groundwater storage opportunities was completed in 1997. More recently, CALFED formed the Conjunctive Use Advisory Team with staff from the CALFED agencies and stakeholders. An initial task of the team was to ask about local interest for CALFED support on

conjunctive use projects. Positive responses were received throughout the state, including southern California. Based on this information, CALFED initiated a grant program to help implement locally supported conjunctive use programs that follow CALFED's guiding principles.

CALFED is developing guiding principles for conjunctive use programs to ensure that local concerns and potential impacts are fully addressed prior to implementing a conjunctive use operation. CALFED's draft principles include the following:

- Conjunctive use programs will be voluntary.
- Groundwater will first be used to meet area-of-origin needs.
- Transfers outside the basin will involve appropriate compensation for the resource.
- Pilot programs, in addition to computer models, will be used to evaluate local conjunctive use potential.
- Conjunctive use projects will be overseen by a local agency that implements "interest-based negotiation," allowing stakeholder concerns to be addressed.

CALFED's first-stage implementation includes developing cooperative partnerships with local agencies and landowners in establishing locally managed and controlled groundwater and conjunctive use projects in the Sacramento and San Joaquin Valleys. 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 also will support legislation that furthers groundwater management at the basin level and encourages basin-wide groundwater management plans.

References to Relevant Provisions in the Programmatic EIS/EIR. Please consult the Phase II Report for additional information regarding groundwater storage. For information about the environmental consequences to groundwater, please consult Section 5.1, "Water Supply and Water Management," and Section 5.4, "Groundwater Resources," in the Programmatic EIS/EIR. Please consult the Implementation Plan for proposed groundwater banking and conjunctive use actions for Stage 1.

COMMON RESPONSE 7. KEEP RIVERS WILD

This common response addresses comments concerning preserving and restoring rivers.

Several comments address preserving wild and scenic rivers and restoring the free flow of rivers in the CALFED Program study area. Some comments describe the aesthetics of free-flowing streams, while others emphasize the joy of white-water rafting and other recreational activities. Many comments assert that free-flowing rivers should be preserved for future generations. Some comments declare that free-flowing rivers are necessary to maintain our quality of life and that alterations to free-flowing rivers disrupt the wilderness experience. Many comments express opposition to construction of any new dams or raising of dams on free-flowing rivers and streams. Several comments emphasize the importance of restoring free-flowing rivers because of the habitat they provide for flora and fauna.

Value of Free-Flowing Streams. The CALFED Program recognizes the value of free-flowing streams, both to the ecosystem and to the public.

Surface Storage Facility Concerns. CALFED recognizes the value of free-flowing streams. The Program is focusing on off-stream reservoir sites and expansion of existing on-stream reservoirs, such as Shasta Lake, for any new surface water storage. CALFED recognizes California Public Resources Code Section 5093.542, which protects the free-flowing status of the McCloud River, a designated Wild and Scenic River that flows into Lake Shasta. The code allows for evaluation of a potential raise of Shasta Dam.

Strategy for Restoration of River Flows. The restoration of in-streamflows and Delta outflow is one of the focuses of the Ecosystem Restoration Program. The Ecosystem Restoration Program proposes target in-stream flows for each stream or river tributary to the Delta. These targets are organized by ecological management zones.

The Ecosystem Restoration Program will consider removing some small diversion or debris dams. Dams on Butte Creek already have been removed under the Program. The program is evaluating additional opportunities for dam removal on Butte Creek, Battle Creek, Clear Creek, and Mill Creek. The CALFED Integrated Storage Investigation will evaluate the feasibility of modifying or removing some small dams that impede flow and serve as barriers to fish migration. The Upper Yuba River Studies Program also will focus on opportunities for dam removal or modification.

The Program does not intend to remove any of the state's major supply dams. The multiple public benefits provided by most existing dams—water supply, flood storage, hydropower, and recreation—preclude their removal. Dams have reduced the natural variability of flows in Bay-Delta tributaries to the detriment of the ecosystem, but it is possible to reoperate reservoir releases so that they restore or mimic natural flow variability. In this manner, existing reservoirs can still provide water supply, flood storage, hydropower, and recreational benefits; but the reservoirs also can enhance the public benefits of a healthier ecosystem by approximating a more natural flow regime.

References to Relevant Provisions in the Programmatic EIS/EIR. For additional information, please refer to the Ecosystem Restoration Program, Volumes 1 and 2. For information on the Integrated Storage Investigation and Stage 1 actions, please refer to the Phase II Report and the Implementation Plan.

COMMON RESPONSE 8. KEEP BAY FRESH-WATER FLOWS

This common response replies to comments about fresh-water flows in the San Francisco Bay.

Many comments state that the CALFED Program should focus on promoting the health of the San Francisco Bay by restoring and maintaining its fresh-water flows. Some of these comments indicate that the San Francisco Bay should be included in the problem area defined by CALFED. Other comments emphasize the need for restoration of flows to historical levels.

Restoring Fresh-Water Flows. One of the goals of the Program is to rehabilitate natural processes in the Bay-Delta system in order to support, with minimal ongoing human intervention, natural aquatic and associated terrestrial biotic communities—in ways that favor native members of those communities. The Ecosystem Restoration Program will seek to restore the dynamic processes of flow, sediment transport, channel erosion and deposition, and ecological succession that create and maintain natural channel and bank conditions favorable to salmon and other species.

CALFED also is committed to achieving continuous improvement in the quality of waters of the Bay-Delta estuary, with the goal of minimizing ecological, drinking water, and other water quality problems and of maintaining that quality once achieved. This objective extends to the watersheds of the estuary to the extent that water quality problems in these watersheds affect beneficial uses dependent on the estuary.

CALFED is not directly focusing on promoting the health of San Francisco Bay, particularly the Central and South Bay areas.

It is true that the Program has not included San Francisco Bay as part of its defined problem area (which includes the legally defined Delta, Suisun Bay extending to Carquinez Strait, and Suisun Marsh). Nevertheless, because the Bay-Delta system is part of a larger water and biological resource system, solutions to address the problems in the system will include a broader geographic scope, extending both upstream and downstream. This solution scope includes San Pablo Bay, San Francisco Bay, and portions of the Pacific Ocean out to the Farallon Islands. In particular, the Program will address interactions between the Delta and San Francisco Bay, such as flow or sediment, by examining the "inputs" and "outputs" from the defined problem area. In keeping with CALFED's solution principle that solutions should pose no significant redirected impacts, consideration will be given to how Program activities affect the San Francisco Bay region.

Restoring Flows to Historical Levels. The Bay-Delta ecosystem is large, complex, diverse, and variable. It contains California's two largest rivers, the Sacramento River (draining an area of more than 25,000 square miles) and the San Joaquin River (draining more than 14,000 square miles). These two rivers converge in the Delta which, coupled with greater San Francisco Bay, forms the largest estuary on the west coast of North America. Tributaries that drain the Sierra Nevada Mountains, Cascade Range, and Coast Ranges provide fresh-water flow to the Bay-Delta estuary, thus connecting the salty water of the Pacific Ocean with mountain forests and meadows into a vast ecosystem that encompasses most of the Central Valley.

California's semi-arid climate produces pronounced variations in both seasonal and inter-annual precipitation. These variations in precipitation produce highly variable flows of fresh water through the

Delta tributaries and the estuary. Historically, during wet years, much of the Central Valley would flood to form a large inland sea of shallow-water habitat; during prolonged droughts, Bay-Delta tributaries were reduced to trickles confined within narrow low-flow channels.

References to Relevant Provisions in the Programmatic EIS/EIR. The geographic scope of the CALFED Program is presented in Section 1.3 in the Programmatic EIS/EIR. The Ecosystem Restoration Program is the Program component that will most directly affect the ecological health of the Bay-Delta. Information concerning Ecosystem Restoration Program Plan elements can be in found in the program plan. Information concerning the environmental consequences of the Program elements to the Bay Region is contained in Chapters 5, 6, and 7 in the Programmatic EIS/EIR.

COMMON RESPONSE 9. WHO PAYS? BENEFICIARIES SHOULD PAY

This common response addresses who should pay the cost of benefits received.

Numerous comments raise issues related to the CALFED Program, many stating that beneficiaries should pay the costs of benefits received. Some comments state that the Programmatic EIS/EIR fails to address who will pay for CALFED Program actions, while others question who the beneficiaries really are. Several comments specifically address the benefit and cost of surface storage and other water facilities. Many of these comments state that taxpayers should not pay for the cost of surface storage projects, while some comments requested that public funding go toward development of water facilities. Some comments specify that southern California beneficiaries should pay for benefits they receive. Some comments state that CALFED should recognize the impacts and costs that have accrued to CVP users. Several comments state that agricultural water users should not pay for environmental water. Many comments address markets and water pricing. Numerous comments express concern that CALFED Program actions will subsidize agricultural and urban water. Some comments state that funding should be directed at conservation measures, rather than encouraging waste by providing subsidized water. Some comments address the cost effectiveness of CALFED Program actions. Some comments state that CALFED should identify public funding sources for environmental and recreational costs. Several comments address the issue of user fees.

"Beneficiaries Pay" Principle. As noted in the Financing Plan (Section 5 in the Implementation Plan), a fundamental principle for allocation of CALFED Program costs is that beneficiaries should pay the cost of benefits received. Simply put, those who benefit from the Program should help to pay for it. CALFED believes this policy to be equitable, but there are reasons other than equity and fairness that the "beneficiaries pay" principle should be applied to CALFED. Having beneficiaries pay for public programs encourages them to more carefully review their water and power needs and the costs of proposed programs (including mitigation costs) in relation to the benefits they receive. Such a policy also encourages examination of a fuller range of alternatives, including locally funded measures, in order to assure that public funds are spent in the most cost-effective way to meet Program goals. However, many of the decisions on what specific facilities will be built, and how they will be configured and managed, lie in the future. In such cases, the Programmatic EIS/EIR and companion documents cannot state with specificity who the Program beneficiaries are and exactly what dollar amounts will be allocated among users. Nevertheless, the CALFED Program can define principles of financing and cost-sharing that will be used in establishing CALFED cost-sharing agreements.

Some stakeholders have suggested that under a "beneficiaries pay" principle, fees assessed to beneficiaries must be "quantified and explicitly linked to the benefits they receive." The principle that beneficiaries should pay does not require that all benefits be quantified. Many benefits of the CALFED Program, particularly the non-market benefits, are difficult to quantify. During implementation, beneficiaries will be identified for specific projects, and those who benefit will be expected to pay. Exact cost shares will be based on a combination of cost allocation procedures and negotiations. CALFED believes that this approach is one that is both realistic and consistent with the "beneficiaries pay" principle.

During implementation, it is anticipated that Program funding will be achieved through a series of interdependent actions, including legislative appropriations, general obligation bonds, revenue bonds, user fees, and other mechanisms. The Financing Plan and the cost-sharing agreements will serve as the foundation for financing specific projects during implementation of the Program. The Financing Plan and

the cost-sharing agreements will not, in all cases, define cost-sharing responsibilities for the Program by quantifying benefits; however, they will rely on linking benefits to beneficiaries.

Many of the actions under the Preferred Program Alternative could serve multiple benefits, such as protecting agricultural lands; maintaining levee system integrity; and improving water quality, conveyance, and habitat. In some cases, the benefits of implementation will be quantifiable. In others, the benefits will vary depending on the level of implementation and the results of research, planning, and development of solution approaches based on adaptive management. The degree of progress in Stage 1 also will highly depend on the funding that becomes available to support the implementation process. It is expected that funding will come from a variety of sources, including the public (through state and federal appropriations) and general obligation bonds. Other funding sources considered in the Implementation Plan include water and power revenue bonds, user (water district) funding, and user fees, including a broad-based user fee.

Since this is a Programmatic EIS/EIR, the details for designing and financing the specific components of each program have not been finalized; however, principles and strategies are being developed to guide the Program in making sound funding decisions during implementation of the Program. The Implementation Plan contains the initial framework for developing a Program Financing Plan. This plan is a general-plan level document, however, and is designed to highlight key issues and principles that will guide funding decisions over the 30-year life of the Program. CALFED will continue working with federal and state agencies and stakeholders to develop finance agreements and further some of the issues highlighted in the Financing Plan. In addition, CALFED believes that stakeholders will have full opportunities to evaluate the cost-sharing terms for Program participation, as well as the costs and benefits of individual Program components, during the project-level planning phase for each component.

Funding for Storage and Other Water Facilities. CALFED has stated a policy of seeking public funding for the planning and evaluation of storage projects to ensure a comprehensive and fair comparison of storage options. However, when a storage project proceeds to construction, then the public funds used for planning and evaluation will be subject to reimbursement by the project beneficiaries. This financing policy does not foreclose the option of also receiving up-front cost sharing by potential project beneficiaries.

The costs for construction of any storage facilities will be paid for by the project beneficiaries, which could include the public, agricultural and urban water users, and hydropower users. When storage projects move out of the initial planning phase and into site-specific planning and design, beneficiaries will be identified and cost shares should be established to pay for the project, including construction, mitigation, and operation and maintenance. Public funds used to pay for the site-specific planning, design, and construction for specific projects will be reimbursed by project beneficiaries, which will be identified during the site-specific planning phase of construction. In addition, site-specific projects will be subject to further environmental documentation under NEPA/CEQA, and all stakeholders and members of the public will have full opportunities to evaluate the funding for these projects.

CALFED rejects the concept of reparations for damages based on past acts because it is not possible to accurately apportion the blame for the degradation of the Delta on any particular user or group. Second, it is destructive to the solution process. To try to place blame for past acts will lead to conflict, not to fixing the problems in the Delta. The CALFED agencies have determined that solving the problem is their priority, not finding out who caused it.

Some comments question whether farmers, water users, water diverters, the people of California, or fishermen specifically will benefit from the Program.

Clearly, all of the above-mentioned groups could benefit from the CALFED Program. During implementation, specific beneficiaries will be identified for specific projects, and those who benefit will be expected to pay. Any user fees should be paid by the beneficiaries of the CALFED Program. The specifics surrounding user fees also will be worked out during implementation, although some analysis regarding fees is included in the Financing Plan.

Central Valley Project Users. The CALFED agencies believe that the Financing Plan does an adequate job of addressing concerns, as they relate to CALFED, in the discussion on user fees and crediting. For more information on the impacts of the CVP, please refer to the CVPIA Programmatic EIS (PEIS).

The specific details surrounding crediting will be worked out during implementation, but the Financing Plan already includes a discussion on crediting. The CALFED Program has established the principle that financial contributions would be credited toward the ultimate obligations for the CALFED Program. For example, CVPIA Restoration Fund payments for programs that meet the objectives of the CALFED Program could receive credit toward funding obligations for the Program.

Agricultural Water Users and Environmental Water. The SWP and CVP may lose flexibility because of new laws and regulations, as well as increased demand for water. The loss of flexibility due to new laws and regulations (for example, the ESA) is not necessarily a cost that the public should pay for. Water rights are subject to regulation, and project water rights (CVP and SWP) are junior to many other water rights.

The CVPIA involves dedication of water and water user payments to the Restoration Fund. It also involves cost-sharing by the federal government and the state. CALFED agrees with this policy, and similar principles will be part of the CALFED solution. CALFED believes a mix of public money and user funding will be needed to solve these difficult problems.

Markets and Water Pricing. Some market transactions already have occurred in California. A legal framework has been established for them, including protection of the water rights of the selling entity. Therefore, it is likely that water districts and wholesalers already compare, at least to some degree, the cost of potential water purchases with the cost of new storage. Provided that new storage is not publicly subsidized, these comparisons with market signals have the desirable outcome mentioned by the commentor. From the standpoint of public planning, benefit-cost analyses of future storage facilities will be in a position to take into account the cost of water as revealed by market transactions. Also, a number of modeling efforts have been undertaken to estimate the value of water in current uses (for example, agriculture) both with and without a functioning water market in place (CVPIA PEIS). It is expected that these modeling efforts can play a role in future planning decisions.

CALFED will be subsidizing water development projects for agricultural and urban water users.

During implementation of the Program, taxpayer dollars will not be used to fund projects where the sole beneficiaries are agricultural or urban water users. CALFED has chosen a benefits-based approach to allocate the costs of the Program. Simply put, those who benefit from the Program will help pay for it.

Most projects that will be implemented by the CALFED agencies, however, will involve multiple beneficiaries, including the public. This means that a combination of both public and user funds will be needed.

The public will be expected to help pay for the Ecosystem Restoration Program actions, for example, since the public largely benefits from these actions. Significant public funds already have been allocated to Bay-Delta ecosystem restoration through state Proposition 204 funds and through federal agency budget appropriations. Public funds also may be used for the planning and evaluation of storage projects to ensure a comprehensive and fair comparison of storage options. However, should a storage project proceed to construction, then the public funds used for planning and evaluation will be reimbursed by the project beneficiaries.

Conservation Funding. CALFED anticipates that significant additional investments in water use efficiency will be necessary during Stage 1 and beyond to address water supply demands caused by a rapidly increasing population and increased environmental water needs. The Water Management Strategy will be studying all tools of water management, including water conservation and recycling. Storage will not be developed and constructed instead of conservation and recycling but will be developed, together with these tools.

The *Economic Evaluation of Water Management Alternatives Report*, available on the CALFED web page, also provides analysis of water management options, including both water use efficiency measures and storage.

Cost Effectiveness of CALFED Program Actions. CALFED agrees that if urban water users can find solutions for their problems that are more cost effective than CALFED, then water users would seek their own alternative solutions. CALFED believes that the Preferred Program Alternative will be cost effective and to the benefit of all the various stakeholders. The adoption of adaptive management to form decisions during implementation should lead to more cost-effective solutions. It is not up to CALFED, however, to compare the costs and benefits of the CALFED Program with the many possible alternative solutions that urban agencies claim to have. CALFED assumes that urban agencies will make these comparisons themselves and decide whether or not to "buy into" CALFED.

Some comments go on to say that while CALFED may raise the price of water to influence water use behaviors, water agencies cannot do this as a matter of law. Some of the actions in the CALFED Program may result in increased prices for water, but this would more closely reflect market prices than artificially increased prices. Second, mitigation costs (future environmental mitigation costs) are part of water project costs. Third, if laws or regulations require different mitigation or impose additional fees (for example, the CVPIA Restoration Fund), then water agencies can legitimately recover these costs. For example, many agencies are already paying fees levied by the CVPIA and are recovering these costs through their rates.

CALFED should identify public funding sources for environmental and recreational costs.

Ecosystem quality is one of the primary objectives of the CALFED Program. CALFED agrees that adequate funding, including state and federal money, is necessary to successfully meet all of the four primary objectives (ecosystem quality, water supply reliability, water quality, levee system integrity) of the Program.

Significant public funds already have been allocated to Bay-Delta ecosystem restoration through state Proposition 204 funds and through federal agency budget appropriations. The Financing Plan, included as Section 5 in the Implementation Plan, also discusses the possibility of proposing user fees to provide a reliable source of funding for ecosystem actions.

For information regarding funding for recreation, please refer to responses IPF 5.4.1-2 (in Volume II) and IA 7.7.11-3.

User Fees. The Financing Plan raises the possibility of using a broad-based user fee to help fund implementation of the Program. This does not mean, however, that the user fee will be the only source of funding for implementing the Program, as some comments have suggested. CALFED recognizes the need for a mix of funding sources, which might include appropriations of federal and state funds, creation of special funds, imposition of fees to support those funds, and approval of bond acts. Some other comments have argued that only public funding should be used for projects with broad public benefits. CALFED agrees that public funding should be used for projects providing broad benefits, but public funding is not the only source of funding that is appropriate. A broad-based fee, in addition to public funding, could also be used to fund a portion of those Program elements with broad public benefits, such as the Ecosystem Restoration Program and portions of the Watershed and Water Quality Program elements.

The idea behind a broad-based fee is to provide a reliable source of funding for projects with identifiable, but broad-based, benefits. Some stakeholders have suggested that broad-based user fees are inequitable and not consistent with a "beneficiaries pay" principle unless they are linked to quantified benefits. CALFED does not agree with this statement. The principle that beneficiaries should pay does not require that all benefits be quantified. Some projects have benefits that can be quantified, and these projects lend themselves to traditional means of allocating costs to project beneficiaries. Many other projects in the CALFED Program, however, have benefits that are difficult to quantify, particularly the non-market benefits. In some cases, these projects will be funded with public money. In other cases, benefits can be linked to broad groups of beneficiaries, even if the benefits are difficult to quantify. A broad-based user fee, combined with federal and state funding, is one way to pay for these kinds of projects under a "beneficiaries pay" policy. CALFED believes this approach is one that is balanced and consistent with the "beneficiaries pay" principle.

As noted in the Financing Plan, one rationale for a user fee is that impacts on the Delta are related to water use, whether the use be upstream of the Delta or by Delta exports. More generally, it is in the interest of all diverters of water from the Delta and its main tributaries to achieve security in the level of long-term water deliveries. Such security can be achieved only if the environmental goals of the CALFED Program are met. Broad-based user fees are one way in which water users can contribute to the long-term stability and security of their water supplies.

CALFED outlined different possibilities for how a broad-based fee might be structured in the Financing Plan, included as Section 5 in the Implementation Plan. In addition, some projects have benefits that can be quantified. In these cases, cost sharing will be sought from specific beneficiaries during the site-specific planning phase of these projects.

If new legislation for a broad-based fee is introduced the structure for such a fee will be explained in more detail found in the Implementation Plan, and stakeholders and the public will have full opportunities to comment on the specifics surrounding the structure of a fee. Detailed information regarding which users

would be expected to pay a user fee will not be included in the Financing Plan, but will be determined during implementation of the Program.

References to Relevant Provisions in the Programmatic EIS/EIR. Please refer to common response 4 for more information regarding storage. Please refer to common response 2 for more information regarding water use efficiency. For more information regarding an isolated facility/peripheral canal, please see common response 16. Please see the Phase II Report and the Implementation Plan for more information about Stage 1 actions.

COMMON RESPONSE 10. BASELINES, WATER USE, AND CONSERVATION NUMBERS

This common response addresses the issues of numbers used in the technical analyses.

Many comments address issues regarding the validity of numbers used in technical analysis, including: on what baseline were the environmental and water supply reliability analyses based, and on what data were the water use and water conservation numbers developed. Many comments refer to a "baseline" and advise CALFED to establish baselines or suggest how baselines should be set. Other comments refer to a different sort of baseline, one that describes water supply conditions. Several comments express concern about using water use and water conservation numbers from DWR's Bulletin 160-98 "California Water Plan" update. Most comments indicate that CALFED should not have used the Bulletin 160 data for baseline computations or projected water savings estimates.

Environmental Document and Water Supply Analysis Baselines. At least two types of baselines might be established in the context of the CALFED Program. These include baselines of environmental conditions used to identify and analyze environmental impacts of Program implementation, and water supply baselines used to measure improvement in water supply reliability.

In compliance with NEPA and CEQA, the Program described environmental condition baselines for the impact analysis. The No Action Alternative describes the anticipated physical, project operation, and regulatory features that would be in place in 2020 if the Program is not implemented. The No Action Alternative is used as a basis to compare the Program alternatives. The Program is also comparing the Program alternatives to existing conditions, which are referred to as the "affected environment" and are presented in Chapters 5, 6, and 7 in the Programmatic EIS/EIR. These comparisons are made to highlight the changes to the environment that would take place as a result of implementing the Program alternatives. The No Action Alternative and modeling assumptions used in describing the No Action Alternative and existing conditions are described in Attachment A to the Programmatic EIS/EIR.

In the competition for water supplies, stakeholders would like to derive as much benefit from the Program as possible. Stakeholders have suggested that they should receive benefits as measured against a baseline of water supply conditions. To maximize the gain, stakeholders may define their baseline as the set of conditions that existed at some previous time when they enjoyed their highest level of water supply reliability. Thus, each stakeholder group wants to measure the Program's progress according to its own standards.

CALFED has not established a specific baseline for water supply reliability. Instead, the Program has established a goal for water supply reliability that states, "Reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system."

Objectives for water supply reliability refer to water supply and timing needs for all three major water use sectors: urban, agricultural, and environmental. CALFED has amplified its objective for water supply reliability by developing a three-part strategy. To guide the implementation of this strategy, CALFED has identified three primary goals:

- Increase the utility of available water supplies (making water suitable for more uses and reuses).

- Improve the access to existing or new water supplies, in an economically efficient manner, for environmental, urban, and agricultural beneficial uses.

- Improve flexibility of managing water supply and demand in order to reduce conflicts between beneficial uses, improve access to water supplies, and decrease system vulnerability.

CALFED established a principle that beneficiaries should pay for the benefits they receive from Program actions. To apportion costs according to this principle, it may be necessary to establish water supply baselines from which to measure improvements in water supply. Financing provisions for Program implementation are outside the scope of the Programmatic EIS/EIR and likely will be decided after the ROD/CERT.

CALFED developed a regulatory baseline above which the EWA operates. It includes the 1993 winter-run biological opinion; 1995 Delta Water Quality Control Plan; 1995 delta smelt biological opinion; and full use of 800 TAF supply of water pursuant to Section 3406(b)(2) of the CVPIA, in accordance with the Department of the Interior's October 5, 1999 Decision. See the EWA section in the Phase II Report for more detail.

The Water Use Efficiency Program's No Action Alternative significantly underestimates or overestimates water conservation, partly because of its reliance on Bulletin 160-98.

The Water Use Efficiency Program Plan and Attachment A to the Programmatic EIS/EIR explain the role that water use efficiency numbers developed by DWR played in CALFED's program plan. Although the Bulletin 160 series estimates provide a framework, these were not the only set of data used by the CALFED agencies in preparing the water use efficiency estimates. (Chapter 7 in the Water Use Efficiency Program Plan lists the references used in developing that program plan.)

To estimate conservation potential, the Program used a variety of methods that were based on data from several sources. Estimates of agricultural water conservation potential were derived by taking DWR's "normalized" 1995 data for applied water, depletion, and crop evapotranspiration for numerous regions throughout the state. These data were used to calculate losses and conservable water, using various documented assumptions. A more explicit description of the methodology is available in the Water Use Efficiency Program Plan. Conditions are "normalized" to a certain level of development (in this case, 1995) and adjusted to remove unusual conditions affecting water supply and demand in order to facilitate identification of long-term trends. An independent review panel identified many necessary refinements that could be made to CALFED's agricultural estimates but also stated that these programmatic level estimates were "reasonable initial estimates of overall agricultural water conservation potential" (*Summary Report by the Independent Review Panel on Agricultural Water Conservation Potential*, January 1990).

CALFED's estimates were developed for a few basic reasons: to provide information at the programmatic level; to gain a better understanding of the order-of-magnitude role of conservation and recycling in statewide water management; and to aid in designing appropriate incentive programs or assurance mechanisms. The conservation estimates in the Water Use Efficiency Program Plan are not targets, objectives, or goals. CALFED is not mandating that these or any other levels of water savings be achieved. CALFED is, however, requiring that many actions be undertaken by water suppliers and water users that will result in implementing more conservation and more reuse projects, but the actual savings cannot be accurately estimated.

As presented in the Water Use Efficiency Program Plan, CALFED estimates urban water conservation potential for four water use sectors: (1) residential indoor; (2) urban landscape; (3) commercial, industrial, and institutional; and (4) water distribution system loss and leakage. Potential savings for each sector are calculated by establishing a baseline condition (residential indoor water use rates in 2020 given existing actions), assuming a no action condition (residential indoor water use rates in 2020 given implementation of best management practices [BMPs] by more suppliers and users), and assuming a with-project condition that results from CALFED's actions (residential indoor water use rates in 2020 that result from CALFED incentives and assurance mechanisms). This process results in estimates of savings under a no action condition (difference between baseline and no action assumptions), and estimated savings under with-project conditions. There is no double counting.

CALFED's estimate of urban water conservation is not based on full implementation of BMPs under the No Action Alternative. Water savings in each of the four use sectors mentioned above is developed independent of an assumption of "full implementation of the BMPs in the Urban MOU" (Water Use Efficiency Program Plan). For example, residential indoor conservation estimates were made by assuming a baseline 2020 per capita indoor water use rate and comparing that to the rate that is assumed to occur under a no action condition and subsequently to a rate assumed under conditions resulting from the CALFED Program. Full explanation of these assumptions is documented in the Water Use Efficiency Program Plan."Full implementation" of BMPs as used in the Water Use Efficiency Program Plan is the amount of savings determined by DWR's Bulletin 160-98. In that document, DWR calculates savings for "quantifiable BMPS" only—those BMPs for which DWR could make an assumed conservation estimate—and assume a saturation level (not total saturation, but a percentage of total households implementing a quantifiable BMP like ultra low-flow toilets). Their calculations do not represent total saturation of BMPs, nor do they account for savings from nonquantifiable BMPs (for example, No 3. System water audits, leak detection, and repair). CALFED believes that it is inappropriate to assume that the "full implementation" savings estimated by DWR truly represent what can be saved if BMPs were implemented by the majority of retail water agencies and the majority of urban water users. Therefore, CALFED believes that savings in addition to DWR's value and without a CALFED Program are achievable. Furthermore, the Water Use Efficiency Program actions can result in greater water savings resulting from even greater levels of implementation of the current list of BMPs and additional conservation measures that likely will be more commonplace in the next 30 years (for example, recirculating hot water systems and low-water-use appliances).

Finally, implementation of the BMPs included in the Urban MOU are based on a cost-effectiveness test. CALFED assumes that this same cost-effectiveness test will result in more measures implemented because of no action assumptions that likely will change current cost-effectiveness calculations. CALFED has included a list of the factors assumed under the no action condition in Attachment A to the Programmatic EIS/EIR. Included in this list are several factors, such as the CVPIA, which will continue to change the existing water management environment. As such, the cost-effectiveness test applied by water suppliers and others contemplating conservation will continue to evolve, even without the influence of CALFED actions. In addition, existing trends and actions being undertaken by water suppliers and water users will continue to result in water conservation savings that do not exist today but are indicated in many local water supplier's planning studies.

However, to provide a broad evaluation of potential impacts, CALFED used a broad range of potential demands in its modeling. The No Action Alternative and the CALFED alternatives were evaluated with both 1995 and 2020 water demands. Also see response IA-5.1.4-1.

Bulletin 160-98 overestimates water demand. The program's reliance on these demands results is an overstatement of the need for export of Bay-Delta supplies.

There has been considerable debate over the methodologies employed by DWR in estimating water demands for Bulletin 160-98. DWR has taken steps to address these concerns and validate the Bulletin 160-98 estimates. One component of the supplies available to meet current and future demands are Bay-Delta supplies delivered by the CVP and SWP systems. Other components include imports from other sources, local water supplies, water conservation and recycling, and water transfers. Bulletin 160-98 included the assumption that by 2020, full contractual entitlement to CVP and SWP would be requested by CVP and SWP contractors. This maximum annual delivery would be about 600 TAF higher than under existing conditions.

To deal with uncertainty in future statewide demands for water and the resulting uncertainty in future demands for Bay-Delta supplies and to fully describe potential consequences of Program actions, the Program formulated two distinct bookend water management criteria assumption sets. These two sets of assumptions, referred to as Criterion A and Criterion B, serve as boundaries for a range of possible Delta inflow, export, and outflow patterns in this programmatic analysis. Under Criterion A, maximum demands for Bay-Delta water supplies through the CVP and SWP systems are held at existing levels (1995). Under Criterion B, maximum demands for Bay-Delta supplies through the CVP and SWP systems are assumed to increase to full contractual entitlement, or about 600 TAF more than existing levels. All Program alternatives were evaluated under both of these water management criteria.

References to Relevant Provisions in the Programmatic EIS/EIR. Please consult Chapter 1 in the Programmatic EIS/EIR, "Program Description," for information concerning the objectives and purpose of the CALFED Program. Please refer to Chapter 2 in the Programmatic EIS/EIR, "Alternative Descriptions," for an overview of the Water Use Efficiency Program. For additional information, please consult the Water Use Efficiency Program Plan; specifically, Section 4.7 for the methodology used to estimate agricultural water conservation potential and Section 5.4 for the methodology used to estimate urban water conservation potential. Please consult the Phase II Report for other information regarding the Water Use Efficiency Program. Please refer to common response 2 for more information regarding water conservation in the CALFED Program.

COMMON RESPONSE 11. CURRENT AGRICULTURAL PRACTICES

This common response responds to comments concerning agricultural practices.

Numerous comments recommend restrictions to agricultural practices. Some of these comments express support for paying farmers to not grow water-intensive crops in drought years. Some comments suggest installing water meters for agricultural water users and use of technological advances to reduce evaporative water loss as means to improve agricultural water use efficiency. Many comments state that overall water use by agriculture should be reduced. Some comments express support for basing water availability on agricultural practices. Some comments state that agricultural users pay too little for their water and that CALFED should ensure that all users pay the full cost for water.

Crop Selection, Agricultural Practices, and Agricultural Water Use Efficiency. Crop selection and agricultural practices are based on many factors, including soil type, water availability, climate, grower experience, production costs, and expected financial return. Crop selection is a private sector decision, critical to the economic success of farming operations and dependent on the skill and knowledge of the individual grower. CALFED is proposing incentives for changing irrigation practices and is evaluating methods to reduce harmful agricultural drainage. However, no statutes regulate the choice of crops to be grown by farmers. While production costs, which include water costs, influence crop selection, the choices of crops to be grown and the propagation methods are outside the scope of the CALFED Program. Regarding water use measurement, CALFED will develop, after consultation with the CALFED agencies, the Legislature, and stakeholders, state legislation that requires appropriate measurement of water use for all water users in California. In developing this legislation, important technical and stakeholder issues will be addressed to define "appropriate measurement."

Overall Agricultural Water Use. The overall amount of water used by agriculture in the state cannot be measured accurately. Sources include groundwater, large-scale irrigation projects, local riparian-right diversions, and multi-use reservoirs. In some areas, water can be used several times, with portions returned to the system each time. Estimates of agricultural water use vary widely, depending on the source of the numbers. While some comments state that California agriculture uses too much water, other comments state that agriculture has too little water available. The purpose of the CALFED Program is not to reduce water use of any sector in favor of other sectors but to ensure that all beneficial uses of water have a more reliable water supply and good-quality water. CALFED's programs include incentives for agricultural water conservation, as well as programs to conserve urban water and refuge water.

Water Pricing. Costs for water in the state vary tremendously, depending on a large number of factors. Among these factors are the source of water used (groundwater, riparian-right stream water, contract water), location in the state, conveyance costs, electricity costs, and many other factors. For agricultural users, the costs can be very low or very high, depending on these factors. In addition, water contracts between Reclamation and DWR with water wholesalers determine the rates paid by many growers. With the exception of some users serviced by federal projects, agricultural water users in California pay the full costs of obtaining their water. The purpose of CALFED is not to equalize water rates throughout the state but to improve reliability for all users. One method that is proposed for the CALFED Program is to make water more of a market-based commodity, where that water can be sold and transferred to its highest use based on willingness to pay, subject to local area protections. It should also be noted that for new storage facilities, federal law requires that the users pay the full cost of those facilities.

References to Relevant Provisions in the Programmatic EIS/EIR. For information regarding agricultural water use efficiency, please refer to common response 2 and the Water Use Efficiency Program Plan. Regarding concerns that CALFED will be subsidizing agricultural and/or urban water users, please see response IPF 5.5-1 (in Volume II).

COMMON RESPONSE 12. EFFECTS ON AGRICULTURAL LAND

This common response addresses comments related to effects on agricultural land.

A number of comments indicate that the CALFED Program should not use any lands currently in agricultural production for Program purposes. Other related comments express the opinion that the Program should not acquire lands for government ownership that would reduce the tax base of local governments and special districts, express concern about the state's agricultural economy and potential impacts that could result from Program actions, and express the desire that water should be guaranteed to agriculture by CALFED.

The proposed CALFED Program should not use lands currently in agricultural production.

To meet the land needs of the Program, CALFED will first look to use of existing state and federal land. If additional land is required, CALFED will obtain easements where practical and compatible with the intended use. Given the location of agricultural lands in the state, the Program could not be successful without some conversion of agricultural lands to Program purposes. The CALFED Program elements most likely to affect agricultural land are the Ecosystem Restoration Program, the Levee System Integrity Program, Storage and Conveyance, the Water Transfer Program, and the Water Use Efficiency Program. A more developed discussion about the possible effects of these programs on existing land uses, including agricultural land, is found in Chapters 4 and 7 in the Programmatic EIS/EIR.

Section 7.1.11 in the Programmatic EIS/EIR, "Agricultural Land and Water Use - Mitigation Strategies," contains a number of mitigation strategies that are designed to minimize the acres of agriculture that are converted to Program uses, including:

- Focusing habitat restoration efforts on developing new habitat on public lands before converting agricultural land.
- Restoring existing degraded habitat as a priority before converting agricultural land.
- Using farmer-initiated and developed restoration and conservation projects as a means of reaching Program goals.
- Siting and aligning Program features to avoid or minimize impacts on agriculture.

Other strategies in Section 7.1.11 in the Programmatic EIS/EIR provide methods to partially mitigate any conversion of agricultural land that does take place, such as "Supporting the California Farmland Conservancy Program in acquiring easements on agricultural land in order to prevent its conversion to urbanized uses and increase farm viability."

CALFED's proposal to reduce the amount of productive farmland will result in economic and social impacts, especially in terms of reducing the tax base for local governments and special districts.

Section 7.10 in the Programmatic EIS/EIR, "Regional Economics," acknowledges that local government finances could be negatively affected by the Program. The Program contains a number of strategies to

avoid affecting the local tax base. Some Program goals may be met without purchasing agricultural lands, such as flooding croplands on a voluntary basis in winter to provide seasonal wetlands. Also, the Program may purchase conservation easements that allow farming to continue. Mitigation strategies included in Section 7.1.11 in the Programmatic EIS/EIR include involving local governments and citizens in developing appropriate configurations for Program projects, which could include configurations to maximize retention of the tax base.

Section 7.2 in the Programmatic EIS/EIR, "Agricultural Economics," discusses potential effects of the Program on the agricultural economy. Included are the value of California's agricultural economy and worst-case analyses of how it could be affected. Specifically, conversions of agricultural lands to Program purposes, including storage, conveyance, ecosystem restoration, water transfers, and water quality, could reduce agricultural production. In all of these Program areas, the landowner would not suffer financially, as market values must be paid for easements, land, and water. However, sectors of the economy that provide services to agriculture, such as trucking firms, custom harvesters, and equipment companies, could be affected. These sectors are "economic multipliers" generated by agricultural production. Section 7.2 in the Programmatic EIS/EIR discusses potential reductions to agricultural production and effects on other sectors that also could be affected negatively when crop production declines. Section 7.3 in the Programmatic EIS/EIR, "Agricultural Social Issues" discusses effects on farm employees and workers, and their communities, if agricultural production declines.

CALFED proposes to take large amounts of land and water from agricultural users for environmental and urban use instead of meeting new water development.

One of the stated purposes of the CALFED Program is to improve water supply reliability to all users of Bay-Delta water. Given the variability in California's climate, the many sources used for irrigation water, and the wide variances in cost and willingness to pay, CALFED cannot "guarantee" a set amount of water to agriculture in general or to any other sector. Also, there are no firm numbers to account for how much water is used by agriculture in the state. Most agricultural water sources are not metered, so that determining agricultural uses is a matter of estimation. The end use of water is normally within the discretion of an individual user or water district. It is unclear to whom water for agriculture would need to be guaranteed or how a requirement to use the water for agriculture could be enforced. No governmental mechanism exists to control the end uses of water, and no means to track the end use of all water exists. CALFED has proposed programs that will, if fully implemented, result in more reliable water supplies to all beneficial uses. These programs include the Multi-Species Conservation Strategy (MSCS) and the Ecosystem Restoration Program, to avoid future endangered species listings and resulting reductions in agricultural water supplies; the Water Use Efficiency Program, to improve conservation and recycling; conveyance improvements, such as those in the south Delta; the Water Quality Program; the EWA, to improve system flexibility; the Levee System Integrity Program, designed to avoid catastrophic levee failure in the Delta and resulting interruptions in water delivery; and the Storage element, which will investigate the feasibility of adding storage to meet identified water needs. It would be infeasible and outside the scope of the Program, however, to state that a certain number of acre-feet of water are guaranteed to agriculture statewide.

References to Relevant Provisions in the Programmatic EIS/EIR. Please consult Sections 7.1, 7.2, and 7.3 in the Programmatic EIS/EIR for the impact analyses of the CALFED Program on agricultural resources. Please consult Chapter 4 in the Programmatic EIS/EIR for a summary of the potential land use changes that may take place as a result of the CALFED Program. Please consult the

respective program plans for more information about the Ecosystem Restoration Program Plan, the Levee System Integrity Program Plan, the Water Quality Program Plan, and the MSCS. Additional information about Storage and Conveyance can be found in the Phase II Report.

COMMON RESPONSE 13. AREA-OF-ORIGIN AND WATER RIGHTS ISSUES

This common response addresses concerns about area-of-origin and water rights issues.

CALFED received many comments expressing concerns that the CALFED Program actions will result in violations of statutory area-of-origin protections and other water rights law. Many of the commentors feel that the Water Transfer Program and other water management activities will result in adverse impacts on existing water rights holders and "source areas" from which water would be transferred.

The CALFED Program is designed to address a wide variety of problems and concerns affecting the Bay-Delta system. While it focuses on the Delta region, the Program has the potential for affecting resources throughout the vast solution area. CALFED seeks to accomplish its objectives in partnership with landowners, stakeholders, and communities throughout the solution area, being especially mindful of the potential impacts on private property owners and property rights, including water rights.

The Program fully intends to implement its actions in a manner consistent with California water rights, including existing laws and regulations protecting areas of origin. This intention is supported by understanding that the CALFED Program does not have any legal or regulatory jurisdiction over water rights or their application. These authorities are vested in the SWRCB (Board) and in the justice system (the courts). Although the Board is one of the CALFED agencies working to develop a long-term Bay-Delta solution, the Board retains its independent regulatory authority over water rights and water quality protection as authorized in California water law. As such, the Board is regularly involved in water rights decisions and proceedings independent of the CALFED Program. The Board currently is engaged in water right hearings concerning the allocation of responsibilities to water right holders for meeting Bay-Delta water quality standards as part of other state and federal requirements. To the extent that CALFED projects will include changes in water rights that might result in significant adverse consequences, these will be considered in project-specific EIRs for which the Board will be the lead agency, and CALFED or an appropriate CALFED agency will be the applicant.

While the Board has the authority to regulate water rights, the Legislature has the authority to create, refine or change water rights law within Constitutional limits. Recently, Governor Davis signed legislation (Senate Bill [SB] 970) that includes additional water rights protection provisions. The author of this bill, Senator Jim Costa, intended these provisions to assure that the water rights of those who offer their water for sale would not be put at risk by offering water for temporary transfer to other users, including the environment.

The Water Transfer Program Plan has generated many comments about CALFED's impacts on water rights. However, the Water Transfer Program Plan does not propose any changes to the legal structure in which the current water market operates. The program plan does include recommendations and proposals to streamline approval procedures; clarify operational requirements, such as reservoir refill and carriage water requirement; and require additional analysis and disclosure. The program does not propose any change to existing water rights or other California Water Code provisions that regulate water transfers in California.

CALFED also received comments expressing concern that future source area water needs have not been considered. However, impact analyses completed as part of the Programmatic EIS/EIR incorporated projections of future increases in source area demands, as estimated for the year 2020 by DWR's

Bulletin 160-98. These assumptions are described in Section A.3.3 of Attachment A to the Programmatic EIS/EIR. These projected source area demands are assumed to be met as a first priority in all hydrologic modeling studies and analyses conducted for the Programmatic EIS/EIR.

Please consult Chapter 1 in the Programmatic EIS/EIR, "Program Description," for information concerning the objectives and purpose of the CALFED Program. Please refer to Chapter 2 in the Programmatic EIS/EIR, "Alternative Descriptions," for an overview of the Water Transfer Program. Please see Chapters 5, 6, and 7 in the Programmatic EIS/EIR for a discussion of environmental consequences related to this and other programs. For additional information regarding the Water Transfer Program, please consult the Water Transfer Program Plan.

COMMON RESPONSE 14. WATER QUALITY

This common response addresses comments concerning water quality and briefly explains some aspects of the Water Quality Program Plan and how the plan relates to other CALFED Program elements.

Several comments about water quality focus on the need for good-quality water for either drinking water, agricultural water, or ecosystem water. Many comments urge CALFED to improve the Water Quality Program in order to improve water quality primarily through preventing pollution at the source. Other comments either support or oppose the idea of the CALFED Program helping to develop or strengthen water quality standards, and some comments incorporate the topic of how water quality could affect any decision as to whether or not storage proposals would go forward.

Water Quality Program Goals and Objectives. Improving water quality is one of the fundamental goals of the CALFED Program. CALFED is committed to improving and protecting the water quality for beneficial uses within the Bay-Delta estuary and its contributing tributaries. The Program's goal are twofold: (1) minimizing water quality problems for all beneficial uses; and (2) maintaining higher water quality once it is achieved. This objective extends to the watersheds that flow into the estuary, to the extent that water quality problems in these watersheds affect beneficial uses dependent on the estuary. Appendix C in the Water Quality Program Plan lists specific water quality targets to gauge its success; however, the Program will seek to achieve water quality that exceeds these targets where feasible and cost effective. At the same time, it is anticipated that periodic reevaluation of water quality targets will be a feature of adaptive management within this strategy.

> *CALFED must work closely with urban water suppliers to establish standards and promote methods to improve Bay-Delta water.*

Successfully meeting the water quality objective, outlined in the Water Quality Program Plan, depends on close coordination and collaboration among the CALFED agencies, responsible state and federal agencies, and local agencies and interests. The Program will emphasize voluntary, cooperative, incentive-based efforts to improve water quality; but the Program also will work with regulatory agencies to ensure that Program goals are accomplished where voluntary efforts prove insufficient.

Environmental Water Quality Improvement Strategy. CALFED's environmental water quality goal is to provide water in the Bay-Delta of sufficient quality to protect all ecological beneficial uses of the water. For many water quality parameters, numerical or narrative objectives exist in Water Quality Control Plans adopted by the SWRCB and Regional Water Quality Control Boards (RWQCBs). CALFED will use these objectives where appropriate as its targets for water quality improvement.

> *Restoring water quality is an investment in ecosystem and human health; however, other viewpoints contend that water quality improvement must happen before the Ecosystem Restoration Program is carried out.*

Water quality improvement is a key element of the ecosystem restoration strategy. Several water quality constituents in the Delta are at levels that could cause chronic or acute toxicity to aquatic and terrestrial organisms. Toxicity testing in the Delta and its two main tributaries, the San Joaquin River and the

Sacramento River, shows that Bay-Delta water is frequently toxic to some test species. Since state and federal agencies already are required to compile a list of waterbodies that do not meet specific water quality standards, the Program used that list to develop a portion of the Water Quality Program's scope.

CALFED has identified several constituents of concern for which individual actions and studies have been proposed. Similar to the drinking water quality improvement strategy (discussed below), the individual strategies for the environmental constituents of concern contain actions such as source reduction and mine remediation. Topics of the studies proposed include source identification, interaction with the environment, and bioavailability. Each strategy will be developed and implemented under the scrutiny of a public advisory group. Both the studies and actions require continuous monitoring and assessment. The major areas that have been identified for action and the basic programmatic actions are:

- Low dissolved oxygen and oxygen-depleting substances (in the lower San Joaquin River, south Delta, and elsewhere).
- Mercury (in the Sacramento River, Cache Creek, the Delta, and the Bay).
- Pesticides (from urban and agricultural uses of current pesticides).
- Organochlorine compounds (compounds like DDT and PCBs).
- Salinity (concentrated mostly in the San Joaquin Valley).
- Selenium (a naturally occurring salt in the San Joaquin Valley that becomes concentrated in agricultural drainage and a component of Suisun and San Pablo Bay petroleum refinery discharges).
- Trace metals (from mines, agriculture, and urban areas).
- Turbidity and sedimentation (predominantly in the watershed).
- Toxicity of unknown origin (predominantly in the Delta).

Drinking Water Quality Improvement Strategy. The CALFED drinking water quality objective is to improve source water quality that allows for municipal water suppliers to deliver safe, reliable, and affordable drinking water that meets and, where feasible, exceeds applicable drinking water standards. The CALFED strategy for improving drinking water quality is to reduce the loads or impacts of bromide and other constituents of concern through a combination of measures, including source reduction, alternative water sources, treatment, and storage and conveyance improvements.

It does not appear that water quality enhancements will occur as a result of CALFED Program efforts.

Drinking water supplies from the Delta contain higher bromide concentrations than are found in the drinking water supplies of about 90% of the nation. Bromide reacts with disinfection chemicals to form harmful chemical by-products that have increasingly raised health concerns for consumers. Most of this bromide comes from the ocean as a result of its connection with the Sacramento-San Joaquin Bay-Delta estuary. Additional constituents of concern for drinking water include organic carbon, which also

contributes to the formation of disinfection by-products, pathogens, nutrients, total dissolved solids (TDS), salinity, and turbidity.

CALFED's specific 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(CCFB) and other south and central Delta drinking water intakes of 50 micrograms per liter bromide and 3.0 milligrams per liter TOC; or (b) an equivalent level of public health protection, using a cost-effective combination of alternative source waters, source control, and treatment technologies. CALFED has not adopted a specific numeric target for salinity (other than meeting existing Delta standards) but does have a preliminary objective of reducing the salinity of Delta supplies. The drinking water quality improvement strategy is composed of a combination of actions and studies developed and performed under the scrutiny of a public advisory group (the Delta Drinking Water Council, comprised of urban water agency, environmental group, business, Delta, and public health agency representatives). Interim milestones may be developed in consultation with the Delta Drinking Water Council to help measure progress toward achieving CALFED's public health protection objectives. The actions and studies to be performed as components of the strategy are:

- Source control
- Conveyance improvements
- Storage and operations
- Monitoring and assessment
- Constituent studies
- Treatment
- Health effects
- Alternative sources

Various actions require project-level specific infrastructure changes. Changes range from structures for monitoring, to plumbing for alternative sources, to creating or expanding storage.

CALFED's Role in Setting Water Quality Standards. CALFED is a cooperative, inter-agency effort involving many state and federal agencies with management or regulatory responsibilities for the Bay-Delta. Each participating agency bears its respective authorities and responsibilities, independent of CALFED efforts. One primary purpose of CALFED is to facilitate the collaborative and cooperative use of these authorities and responsibilities, as well as CALFED resources, to better address the range of problems facing the Bay-Delta. CALFED does not possess independent, regulatory authority over water quality. However, CALFED does recognize the need for participating agencies to exercise their responsibilities with regard to water quality. CALFED will work with all entities in support of achieving its water quality goals.

> *Protecting and improving drinking water is paramount, and the task of protecting and improving drinking water quality can be achieved by CALFED promoting and enhancing advanced drinking water treatment. Establishing a Delta Drinking Water Council is a good start in achieving the water quality goals and objectives.*

State and federal agencies with water quality jurisdiction, as well as local agencies, will continue to be responsible for establishing and achieving water quality standards. For example, the SWRCB establishes Bay-Delta water quality salinity standards and will continue to do so regardless of CALFED Water

Quality Program implementation. Success in achieving the CALFED water quality objectives will depend on close coordination and collaboration among agencies with jurisdiction over water quality and stakeholders with an interest in water quality. The following agencies are identified as having key roles: the U.S. Environmental Protection Agency; USFWS; U.S. Department of Agriculture; California Department of Food and Agriculture; California Department of Health Services; California Department of Pesticide Regulation; SWRCB; Central Valley RWQCB; and San Francisco Bay RWQCB.

Water quality actions generally fall into four categories based on the targeted activity or source of pollution. These categories are mine drainage, urban and industrial sources, agricultural drainage, and sources of drinking water quality degradation. Technical teams from the Water Quality Technical Group will be organized in each of the Water Quality Program action categories to receive input for developing implementation plans. A Delta Drinking Water Council has been formed to advise the CALFED Program and the CALFED Policy Group through the BDAC on necessary studies and actions to meet CALFED's drinking water objectives. Some actions are sufficiently developed for early implementation; while others rely on comprehensive monitoring, pilot studies, and research to improve the information needed for effective water quality management.

Water quality improvements for Delta exports may depend on decisions regarding storage and conveyance options.

Bromide, organic carbon, and salts are constituents of major concern for drinking water; salts are of importance to agricultural uses of Delta waters. Concentrations and loadings of these constituents will be affected by actions in the Water Quality Program and by the choice of storage and conveyance options. Since bromide is a constituent of the total salt load, the analysis in the Water Quality Program Plan also can serve as a preliminary model for the effects of the Water Quality Program on total salt in the system.

Surface water and groundwater storage, along with Delta conveyance improvements, can help in the management of inflows to and exports from the Delta. These improvements could be used to improve drinking water quality, as well as to provide additional ecosystem protection and enhance water supply reliability. Adaptive management principles will be used to balance operations to meet these objectives. A cooperative study led by CALFED and several urban stakeholders recently was initiated to explore the potential for water quality improvements through management of water project operations. As a starting place, the group considered the potential for water quality improvements using the system flexibility provided by the Delta conveyance improvements that are expected during Stage 1 of implementation of the CALFED Program.

Typically, April through July are the most favorable months to use the Delta as a source of drinking water. Outflow from natural runoff is usually high enough to push sea water out of the Delta, and the period is outside the peak TOC loading from agricultural drainage. Water supply needs are greatest in these months because of direct demand requirements (which are supplemented by San Luis Reservoir releases). However, fishery concerns have resulted in a shift in exports from these higher water quality spring months to the lower water quality fall months, with a corresponding degradation in delivered water quality. In recent years, for example, Delta smelt take at the export pumps has been elevated in May and June. Given these special circumstances, several operational strategies could be adopted to improve water quality delivered from the Delta for drinking water, including outflow management and export management. The effectiveness of these strategies could be enhanced by constructing additional storage facilities.

Outflow Management. Increasing Delta outflow in fall months through reservoir releases could reduce peak bromide and salinity concentrations in south Delta drinking water diversions. (Delta outflow has less influence on water quality at the North Bay Aqueduct's Barker Slough intake.) Preliminary modeling studies conducted by CALFED suggest that, depending on the amount of outflow enhancement and assuming some Delta conveyance improvements, peak reduction of bromide and salinity in the south Delta in fall months could range from 20 to 30%. Such an operation would entail a water supply risk, as the filling of San Luis Reservoir would be delayed. However, the availability of conveyance improvements (that is, south Delta improvements and the joint point of diversion), along with the ability to recover some storage losses through runoff capture, could significantly reduce water supply losses. With additional storage facilities north or south of the Delta, peak fall bromide concentrations could be lowered by as much as 30-50% in many years, including the driest ones.

Export Management. Quality of delivered and stored water south of the Delta could be improved by shifting diversions to periods with better Delta water quality. When operating to meet water supply reliability and ecosystem objectives, the least risky operation is to begin filling San Luis Reservoir as soon as water and export capacity are available. This typically occurs in fall of most years. However, if outflow has been low throughout summer and fall months, sea-water intrusion will occur in the south Delta, and bromide and salinity concentrations will be elevated. If hydrologic conditions improve as the water year develops, outflows will increase and salinity will be pushed out of the Delta. Under these hydrologic conditions, it would be beneficial to postpone exports to fill San Luis Reservoir until Delta water quality has improved. However, there is no guarantee that fish conditions will be favorable and that surplus water will be available in the Delta for export.

Conveyance improvements such as south Delta improvements and the joint point of diversion could offset the risk associated with selectively filling San Luis Reservoir. Additional storage south of the Delta also could offset the risk associated with selectively filling San Luis Reservoir. Preliminary modeling studies conducted by CALFED suggest that the most efficient role of additional south-of-Delta storage for drinking water quality purposes would be to make releases for direct delivery when foregone exports in the Delta are not recovered later in winter. Filling of south-of-Delta storage would be restricted to the periods when conveyance and pumping capacity were available and water quality in the Delta was relatively good. These conditions likely would overlap in late winter and spring.

While the preceding discussion has focused on export management for bromide and salinity reduction, export management strategies also could be implemented to reduce organic carbon loads in drinking water diversions. Export reductions during periods of peak organic carbon loading (typically in February and March) would benefit Delta fisheries in most years as was shown in recent CALFED EWA gaming studies. The EWA gaming exercises allowed project operators, fishery agency biologists, and stakeholders to work together as they reacted to the constant change in hydrological and biological conditions that is typical of the Delta. Risk to water supply reliability would depend on which assets are available for supply recovery.

Although the effects of additional upstream storage may differ, depending on its location and operations, additional upstream storage generally would increase the flexibility to provide for additional fresh-water releases and Delta inflows that will improve Delta water quality. These benefits would be most apparent in dry months and seasons when additional water would be needed to meet consumptive and environmental demands. Upstream storage releases also could benefit export water quality during dry years.

Reducing Point Source Pollution to Drinking Water

Pollution prevention programs, along with water conservation, should be the central approach to achieving water quality and water reliability goals.

Safe drinking water is not a fixed target. Its definition changes continually as new scientific information becomes available, as understanding of water quality and human health impacts improves, and as regulatory developments reflect new scientific findings. The CALFED drinking water improvement strategy must, therefore, be a continually evolving process to achieve the vision not only of providing drinking water that meets standards for public health protection but also of continually striving toward excellence in drinking water quality. This section identifies the initial features of this strategy, with the understanding that this constitutes only the beginning of a continuing process. Evolution of the strategy will be through the full involvement of the CALFED agencies, stakeholders, and the public.

There is no clear schedule with a quantifiable deadline in the Programmatic EIS/EIR regarding achieving water quality goals.

Several source water constituents create difficulties for the production of a safe drinking water supply from Delta sources. These include bromide, natural organic matter, microbial pathogens, nutrients, TDS, salinity, and turbidity. All these constituents are naturally occurring, to one degree or another, and some are magnified by anthropogenic actions. Changes in treating drinking water and reducing sources of contaminants can improve the quality and safety of drinking water from the Delta. Future drinking water regulations may, however, require improvements beyond those that can be gained through the actions specified in the Water Quality Program Plan. The priority actions listed in the plan are those that can be implemented in the nearer term with the potential to improve water quality. The degree to which taking these actions may correct the problems is not addressed.

The reader is reminded that Water Quality Program actions are intended to be implemented irrespective of the storage and conveyance alternative selected. Actions focus on source control and prevention that should be undertaken in addition to any water quality improvements that may result from selection of storage and conveyance options. Priorities for action were identified based on the apparent potential of an action to improve water quality and its capability for nearer term implementation. The perception is growing that CALFED alternatives should be decided on in a phased approach over several years. Near-term drinking water regulations will be promulgated prior to implementation of storage and conveyance options and realization of associated water quality benefits (Stage 1 of the Disinfectants/Disinfection By-Product Rule was promulgated in December 1998, and Stage 2 of the regulation is targeted for May 2002).

The general approach to shorter term drinking water quality improvement was to reduce loadings of constituents of concern, reduce variability of source water quality, and enhance treatment flexibility—rather than rely on source replacement with higher quality waters or relocation of intakes to attain higher-quality source waters. However, these latter options were discussed and developed as appropriate. This is a general list and not all items will apply to each withdrawal point or to each delivery system using Delta source waters.

Relationship to Other CALFED Program Elements

CALFED's strategy is founded on reducing or eliminating constituents that degrade water quality at their source. However, other components of the CALFED Program can affect water quality. Watershed activities can improve water quality in the Bay-Delta system by helping to identify and control non-point sources of pollution, and identify and implement methods to control or treat contaminants in the upper watersheds. CALFED has developed a Watershed Program with strong linkages to both the water quality improvement strategy and the ecosystem restoration strategy.

Surface water and groundwater storage, along with Delta conveyance improvements, can help in the management of inflows to and exports from the Delta. These improvements could be used to improve drinking water quality, as well as to provide additional ecosystem protection and enhance water supply reliability. Adaptive management principles will be used to balance operations to meet these objectives. A cooperative study led by CALFED and several urban stakeholders recently was initiated to explore the potential for water quality improvements through management of water project operations. The Integrated Storage Investigation will include more refinement and analysis of operational concepts for water quality improvement.

Water use efficiency measures can improve water quality entering the Delta by reducing some agricultural and nonagricultural discharges that contain pollutants. Ecosystem restoration actions may degrade drinking water quality by increasing organic carbon loads; therefore, these actions will need to be structured to minimize adverse water quality impacts while meeting the environmental restoration project objectives.

Water quality can affect the ability to expand water use efficiency measures, such as conservation, water recycling, and conjunctive use. These measures depend on the availability of high-quality water to prevent salt damage of irrigated land or groundwater basins, prevent corrosion of industrial equipment and domestic plumbing and appliances, and achieve blended water salinity objectives. In the event of a catastrophic levee failure in the Delta, the amount of saline water entering the system could make Delta waters unusable for many months; the saline water also could result in a detrimental effect on habitat quality. Therefore, it is difficult to overestimate the importance of a successful Delta levee program to achieving and maintaining good water quality for the beneficial uses of Delta waters.

The CMARP is the primary vehicle for measuring the extent to which water quality improvement is achieved. Performance will be measured by comparing ambient water quality (where appropriate) to specific water quality objectives that have been established for the parameters of concern.

References to Relevant Provisions in the Programmatic EIS/EIR. Please consult the Water Quality Program Plan for detailed information about the program and its inter-related activities with the rest of the CALFED Program. Specific drinking water quality targets can be found in the Phase II Report as well as in the Water Quality Program Plan. The Water Quality Program Plan presents an analysis of the capacity of Water Quality Program actions to affect concentrations of bromide and organic carbon in drinking water supplies taken from the Delta. Please consult the Water Quality Program Plan for a list of potential near-term action items developed by the Drinking Water Work Group. Additional information about the Water Quality Program element is in Section 5.3 in the Programmatic EIS/EIR. Please consult the Phase II Report and the Implementation Plan for more information about Stage 1 actions.

COMMON RESPONSE 15. EXPORTING WATER TO SOUTHERN CALIFORNIA

This common response replies to comments concerning exporting water to southern California.

Many comments indicate that the export of Bay-Delta water to southern California should not be included as part of the Preferred Program Alternative. Some of these comments express concern that water exports to southern California endanger the health of the Bay-Delta system. Some comments state that water should not be diverted beyond current levels, while others state that current export levels are excessive. Some individuals feel that water exports to southern California should not be included in the Preferred Program Alternative without implementation of water conservation or water quality improvement measures.

CALFED is trying to balance the needs of the Bay-Delta with the need for water exports.

Two of the CALFED objectives are to provide good-quality water for all beneficial uses and to reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system. The CALFED Program is trying to balance the needs of the Bay-Delta ecosystem and in-Delta water quality with the need for water exports. In this manner, the Program is focusing on reducing the impacts of water diversions rather than focusing on reducing the volume of export of Bay-Delta water. Many of the impacts associated with water diversions—such as in-Delta water quality and Delta outflow—are a function of when the water is diverted; consequently, the Program is proposing to manage the timing of diversions in a way that minimizes their impacts.

The Water Use Efficiency and Water Quality Programs are integral elements of the CALFED Program.

No single water management tool or CALFED Program element can adequately address all the needs for improving water supply reliability. The primary tools CALFED will use to achieve the goals and objectives of the Water Management Strategy include the Water Use Efficiency Program; Water Transfer Program; Conveyance, including south Delta improvements; Storage; and operational strategies, such as real-time diversion management. In addition to these primary tools, the Water Management Strategy will rely on additional CALFED Program tools, including the Watershed Program, Water Quality Program, and real-time monitoring through the CMARP. In evaluating and developing the appropriate mix of water management tools, CALFED's Water Management Strategy will consider the relative ability of the tools individually and in combinations to satisfy the CALFED solution principles.

One consideration is that the various water management tools differ in their flexibility—that is, their adaptability to varying hydrologic conditions and management objectives. For example, many water conservation measures result in substantial benefits in reducing overall demand but, once implemented, do not provide flexibility to react to changes in hydrologic circumstances. Also, as more conservation measures are implemented as part of the normal use pattern, additional conservation will be more difficult to achieve or more costly, or behavioral changes will be required of users to conserve more water in order to respond to shortages. Water recycling also can help to attain CALFED's water utility and water access goals, but the cost can be quite high. Therefore, it is important to evaluate not only individual tools but also combinations of tools for flexibility.

Storage and Conveyance elements may enhance the flexibility of system operations to help manage the impacts of diversions. For instance, new or expanded storage facilities located near the Delta could allow increased diversions from the Bay-Delta system during times that are less disruptive to the ecosystem and in-Delta water quality. Exporters then could draw on this stored water supply when the needs of the ecosystem or in-Delta water quality require the south Delta pumping facilities to curtail or cease operations. In this manner, the needs of the Bay-Delta ecosystem are balanced with in-Delta water quality and water supply reliability for exporters.

Linkages and assurances are critical to the process of evaluating and constructing new storage in the CALFED Program. All aspects of the CALFED Program are inter-related and interdependent. Ecosystem restoration is dependent on supply and conservation. Supply is dependent on water use efficiency and consistency in regulation. Water quality is dependent on improved conveyance and healthy watersheds. The success of all CALFED Program elements depends on expanded and more strategically managed storage. All of the CALFED Program actions will need to comply with applicable regulatory programs. Most potential surface water storage projects being evaluated by CALFED will need to comply with, among other things, the requirements of the state and federal ESAs, the SWRCB's Clean Water Act Section 401 certification program, and the U.S. Army Corps of Engineers' Section 404 permit program.

References to Relevant Provisions in the Programmatic EIS/EIR. Please consult Chapter 1 in the Programmatic EIS/EIR, "Program Description," and common response 1 for information concerning the objectives and purpose of the CALFED Program and a description of the Program alternatives development process. Please refer to Chapter 2 in the Programmatic EIS/EIR, "Alternative Descriptions," for descriptions of the alternatives. Please refer to Section 5.1 in the Programmatic EIS/EIR, "Water Supply and Water Management," for a discussion of water supply and management issues. Please consult common response 2 and the Water Use Efficiency Program Plan for information regarding water conservation measures, and common response 14 and the Water Quality Program Plan for information regarding water quality issues. Please refer to common response 5 for a discussion of how the Program will improve water supply reliability. Please see the Phase II Report and the Implementation Plan for more information about Stage 1 actions.

COMMON RESPONSE 16. ISOLATED FACILITY/PERIPHERAL CANAL

This common response responds to comments that focus on whether or not to build an isolated facility (peripheral canal) and the contingent diversion facility near Hood. These comments do not focus on other aspects of water conveyance.

Individual comments are either in support of building an isolated facility as soon as possible or of never constructing an isolated facility. Some comments identify the contingent diversion facility near Hood on the Sacramento River as simply the first phase of an isolated facility and therefore feel it should not be considered as part of the Preferred Program Alternative.

CALFED evaluated an isolated facility as a feature of Alternative 3. In some cases, the comments compare this facility to the peripheral canal, which sparked a divisive confrontation in a 1982 state ballot initiative. While the isolated facility shares some of the same objectives of the peripheral canal, there are significant differences between the two projects. The scope of the two projects is significantly different. The peripheral canal proposed in 1982 was designed to transport 23,000 cubic feet per second (cfs) of water. In Alternative 3, CALFED evaluated an isolated facility in the range of 5,000-15,000 cfs as part of a comprehensive program designed to solve multiple problems in the Bay-Delta. The peripheral canal was a stand-alone project, to be operated as an extension of the SWP, principally for the purpose of increasing the state's developed water supply to meet future needs. Unlike the peripheral canal, under Alternative 3, exports from the south Delta would continue. The amount of those exports would depend on the size of the isolated facility selected.

CALFED's Delta Conveyance Strategy. CALFED's strategy is to develop a through-Delta conveyance alternative based on the existing Delta configuration with some modifications, evaluate its effectiveness, and add additional conveyance and/or other water management actions if necessary to achieve CALFED goals and objectives. The Preferred Program Alternative does not include an isolated facility.

Because of the many complex interactions within the Bay-Delta system, successfully implementing a through-Delta strategy requires careful balancing of actions to address a wide range of concerns, including water quality, flood control, fisheries, water levels, circulation patterns, channel scour, and sediment deposition. Actions that improve water quality and flow direction in one region of concern, for example, may in turn create adverse impacts elsewhere. Because the understanding of these complex hydrodynamic, biological, and chemical interactions is still incomplete, it will be necessary to approach the optimization of CALFED's strategy with a high degree of cooperation, rigorous monitoring, scientific analysis, and an open mind to solution options. It also will be essential that the implementation of proposed solution actions be linked so that the appropriate balance of benefits and impacts is maintained throughout the implementation period.

As part of the Preferred Program Alternative, CALFED will study and evaluate the need for a screened diversion through-Delta facility on the Sacramento River, with a range of diversion capacities up to 4,000 cfs as a measure to improve drinking water quality. The historical emphasis has been on a screened diversion at Hood on the Sacramento River. This and other potential sites will be considered as part of this evaluation. The study will determine whether the facility is needed to improve water quality in the Delta and at the export facilities and whether the facility can be constructed and operated without adverse effects on fish in the Sacramento and Mokelumne Rivers. The CALFED Program has committed to a

target for drinking water quality of either (1) average concentrations at the south and central Delta water intakes of 50 micrograms per liter bromide and 3.0 milligrams per liter TOC; or (2) an equivalent level of public health protection, using a cost-effective combination of alternative source waters, source control, and treatment technologies. The diversion facility on the Sacramento River is being evaluated as part of the Preferred Program Alternative because of concerns that increased closures of the Delta Cross Channel (DCC) for fish protection will result in adverse impacts on water quality in the central and south Delta. Modeling performed during evaluation of CALFED alternatives suggests that fish-friendly reoperation of the DCC may result in increases in TDS and in total bromides. The diversion facility on the Sacramento River was chosen because it provides a good balance of physical features that minimizes effects on delta smelt migration, reduces diversion of sediment from the river, and reduces tidal influences on fish screen effectiveness—while providing topographic and geologic conditions that would allow a diversion structure to be constructed near sea level, on mineral soils, and through mostly agricultural lands. The diversion facility on the Sacramento River likely would include a fish screen, pumps, and a channel between the Sacramento and Mokelumne Rivers.

Fishery concerns are associated with a diversion facility on the Sacramento River. These concerns center on possible disruption to migration of salmon, smelt, splittail, sturgeon, steelhead, other native fish, and striped bass. Although a screened diversion on the Sacramento River would keep out migrating salmon in the Sacramento River, flows from the Sacramento River into the Mokelumne River system may attract adult returning salmon to the downstream side of the screens. This "back of the screen" phenomenon could result in stranding or potential increased mortality associated with a fish passage structure. More broadly, the concern exists that the negative fisheries impacts associated with the diversion facility may actually be greater than the positive benefits associated with the DCC closure that may produce the water quality degradation. Fishery impacts will be a key factor, together with water quality benefits, in the evaluation of the diversion.

A diversion facility on the Sacramento River, if ultimately constructed, would be located in the same corridor that has been identified as the best route for an isolated facility. This suggests that the design of the diversion facility should be compatible with a future isolated facility, should an isolated facility be required in the future. It is important to reiterate that an isolated facility is not part of the CALFED Preferred Program Alternative.

The CALFED Program proposes significant improvements in the water conveyance facilities in the Delta in Stage 1, which will be pursued through site-specific environmental review and permitting. These improvements include:

- Construction of a new screened intake at CCFB 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 CCFB to meet the Tracy Pumping Plant export capacity.
- Implementation of the joint point of diversion 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.

- Implementation of actions to ensure availability of water of adequate quantity and quality for agricultural diverters within the south Delta, and improvement of the aquatic resources in the lower San Joaquin River and south Delta. Actions may include channel dredging, extension and screening of agricultural intakes, construction and operation of operable barriers, and levee setbacks and levee improvements. Actions will be staged, with appropriate monitoring and testing, to guide the implementation process.

- Operational changes to the SWP operating rules to allow export pumping up to the current physical capacity of the SWP export facilities.

- Study and evaluation of a contingent 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. The contingent diversion facility likely would include a fish screen, pumps, and a channel between the Sacramento and Mokelumne Rivers. As mentioned above, the diversion facility is a contingent action to be considered only after assessments are satisfactorily completed. If these evaluations demonstrate that a diversion facility is necessary to address drinking water quality concerns and can be constructed without adversely affecting fish populations, it will be constructed as a part of the Preferred Program Alternative late in Stage 1.

- Construct 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 also includes a process for determining the conditions under which any additional conveyance facilities and/or other water management actions would be taken in the future. 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 bromide and 3 parts per million TOC.

- An evaluation based on two independent expert panels' reports—one on CALFED'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.

References to Relevant Provisions in the Programmatic EIS/EIR. Please refer to Chapter 2 in the Programmatic EIS/EIR, "Alternative Descriptions," for an overview of conveyance by alternative. Please see Chapters 5, 6, and 7 in the Programmatic EIS/EIR for a discussion of environmental consequences related to the differences in conveyance by alternative. Please see the Phase II Report and the Implementation Plan for more information about Stage 1 actions.

COMMON RESPONSE 17. GROWTH/PLANNING ISSUES

This common response responds to comments about growth and planning issues.

Several comments urge that population growth and planning issues be given consideration in California water management and the CALFED Program. Some comments express concern that the limited water resources of California cannot keep being developed to support continual population growth. Many comments express support for population growth control and urban development restrictions. Other comments state that rather than restricting population growth and urban development, the focus should be on fair and efficient water management that limits growth in water consumption. Many comments address growth-inducing impacts, some expressing concern that new storage facilities will lead to increased urban sprawl, with no incentives to facilitate water conservation.

Population Growth Management and Development Regulation Is Beyond the Mandate of the CALFED Program. It is correct that if trends in population growth continue, many areas in California face more severe water shortages by 2020. The issue of population growth and the demands that new population places on natural resources are certainly relevant to the problems the CALFED Program is facing. It is important to note that the Program is not charged with the mission of satisfying the state's future water needs (please see common response 22); the Program's mission 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. Accordingly, population growth management and development regulation, such as controlling the rate and location of housing development in California, is beyond the mandate of the CALFED Program. Local and regional government entities—such as city councils, county boards of supervisors, city and county planning commissions, and regional planning agencies establish the policies that manage population growth-related development, controlling and managing population growth.

Growth-Inducing Impacts. Resource planners have long debated the role of water in population growth. Water is an example of a resource that may be considered growth-inducing, since development of a region cannot occur without ample water supplies and supply reliability. However, a shortage of water resources in a region can be overcome by technology such as storage, transfer, and desalination projects. Regional growth is therefore dependent, in part, on the cost of developing necessary resources in a region.

Growth-inducing impacts are the ways in which the proposed project could foster, either directly or indirectly, economic or population growth, or the construction of additional housing in the surrounding environment. At the programmatic level, growth-inducing impacts on resources can be described only broadly. For the purposes of this Programmatic EIS/EIR, any increase in water supply or water supply reliability was assumed to be growth inducing. Without additional specific information concerning the geographic area where increases in water supply or water supply reliability could occur, it is difficult to assess the impacts on any particular region. Such necessary specific information includes cost and availability of other water supplies or other factors that could induce or inhibit growth. Therefore, under NEPA and CEQA criteria, we must assume that the CALFED objective to improve water supply reliability could induce growth, with subsequent environmental consequences. By doing so, the Programmatic EIS/EIR presents the full range of possible environmental consequences related to the CALFED Program. Growth-inducing impacts will be analyzed in greater detail in future site-specific NEPA/CEQA documents that are tiered from this document. Please refer to Chapters 5, 6, and 7 in the

Programmatic EIS/EIR for more detailed discussions of potential growth-inducing impacts of Program actions.

Program Measures to Reduce the Impact of an Expanding Population on the Bay-Delta System. While the Program has no authority over population growth, the Preferred Program Alternative contains components that will reduce the impact of an expanding population and development on Bay-Delta resources. The Water Use Efficiency Program will increase water supply reliability by more efficient use and reuse of existing water supplies. This program will allow cities and counties to stretch their existing water supplies in order to service an expanding population through an increase in the exchange of water conservation and recycling technical information and by providing financial incentives to urban and agricultural water users. Regarding concerns that new water storage facilities will precipitate a belief in unlimited water resources with no incentives for water conservation, a high level of water use efficiency will be developed concurrently with new surface storage projects.

The Water Transfer Program may facilitate an increase in water supplies to some urban areas by better enabling water to move between regions, thus allowing already developed water to be reallocated rather than requiring new supplies to be developed. Through water quality improvements, the Water Quality Program may reduce demands for certain beneficial uses, thereby increasing the available water supply. Improvements from the Conveyance element may allow more water to be exported from the Delta while meeting in-Delta needs. Additional water supply achieved under the Storage element may be used for municipal, agricultural, and environmental purposes. Such measures will reduce, and perhaps preclude, the need for additional diversions of Bay-Delta water, thereby reducing the impacts of an expanding population on the Bay-Delta system.

References to Relevant Provisions in the Programmatic EIS/EIR. Please consult Chapter 1 in the Programmatic EIS/EIR, "Program Description," for information concerning the objectives and purpose of the CALFED Program. Please see Section 3.2 in the Programmatic EIS/EIR for a summary of potential growth-inducing impacts of Program actions. Please refer to Chapters 5, 6, and 7 in the Programmatic EIS/EIR for more detailed discussions of potential growth-inducing impacts of Program actions. For additional information, please see the Phase II Report.

COMMON RESPONSE 18. DESALINATION

This common response addresses comments about desalination.

Many comments address the fact that desalination was not considered as part of the CALFED Program. These individuals feel that desalination should be part of the solution and should be part of the Preferred Program Alternative. It was especially noted that desalination should be considered as a means to meet southern California demands versus exporting any additional water from the Delta. Some comments, however, state that desalination plants are too costly to maintain, even when not being used in "wet" years. Many comments state that CALFED should include funding for desalination technology research and development.

Introduction. Desalination of wastewater or sea water is already in use on a modest scale in Southern California. Technological improvements are significantly reducing treatment costs. The costs remain high relative to the costs of other options, however, and are unlikely to contribute to a major portion of the available water supply for the region.

Desalination versus Delta Exports. In evaluating potential impacts of Program alternatives, CALFED considered potential future levels of exports from the Bay-Delta system that are both above and below current levels. If Bay-Delta exports are reduced, a variety of additional demand reduction and alternative supply measures would be required to replace the reduced Bay-Delta water supply. These measures could include desalination.

Cost Effectiveness of Desalination. CALFED has included the potential for local desalination of wastewater or sea water in its economic evaluation of water quality and water supply reliability options. CALFED's analysis of the cost effectiveness of different combinations of water management options to help meet California's anticipated water demands for 2020 is documented in the draft June 1999 CALFED report, *Economic Evaluation of Water Management Alternatives, Screening Analysis and Scenario Development.* Although not part of the Programmatic EIS/EIR due to its specialized content, the report has undergone stakeholder review and is available on request.

In conducting this preliminary screening of water management alternatives, the report considers a range of potential demand reduction, recycling, and sea water desalination options, as well as the economic costs of not meeting incremental water demands. The screening analysis links supply measures with demand regions and adjusts for costs at the place of use. The cost adjustments, either cost savings or additional costs, include the cost of transporting the water to its destination for use, the cost for reapplication and water quality, and the cost of treatment and distribution.

Desalination Research and Development. With further technological advances, the mix of local water supply options is likely to change. The role of desalination is likely to increase as the relative costs of reverse osmosis and micro-filtration processes continue to decline. As documented in CALFED's Implementation Plan (Section 2.2) and in the June 1999 Water Quality Program Plan (Table 4), CALFED recommends actions to advance practical desalination technology, both as a means for addressing agricultural drainage and for meeting urban water quality and water supply reliability needs.

Adaptive Management. No long-term plan for management of a system as complex as the Bay-Delta can predict exactly how the system will respond to Program efforts or foresee events such as technological improvements, earthquakes, climate change, or the introduction of new species to the

system. Adaptive management, as an essential Program concept, acknowledges the need to constantly monitor the system and adapt the actions that are taken to restore ecological health and improve water management. These adaptations will be necessary as conditions change and as more is learned about the system and how it responds. The Program's objectives will remain fixed over time, but the actions may be adjusted to ensure that the solution is durable. The concept of adaptive management is also an essential part of every CALFED Program element.

COMMON RESPONSE 19. ASSURANCES

This common response replies to comments requesting assurances.

Several comments centered on the concept of "assurances," or a level of certainty that the Program will take place in a specific manner or way. These comments expressed a need for assurances ranging from guaranteeing that the Program would be implemented as described in the Final Programmatic EIS/EIR to asking for assurances that specific streamflows would be met. A number of reviewers expressed concern about having assurances that local control would be protecting local interests as the Program is carried out. Some reviewers insisted that specific assurances elements, such as legislative action, must precede the signing of the ROD for the Programmatic EIS/EIR.

Given the billions of dollars that will be spent over the next decade on CALFED programs, it is reasonable to expect that funds will be spent based on accountability and measurable progress being made on all elements of the Program. Progress will be measured in an annual report issued by the CALFED governing body. This report will contain status reports on all actions taken to meet CALFED objectives in Stage 1, including goals, actions, schedules, and financing agreements. The California State Secretary of Resources and the Secretary of the Interior will review this annual report to determine adherence to the schedule and objectives established in the final ROD. If necessary, a revised schedule will be prepared to ensure that balanced solutions in all problem areas are achieved consistent with the intent of the final ROD. Funding will not be made available in subsequent budget years if a revised schedule has not been developed within 6 months after the Secretaries determine that the previous schedule had not been substantially adhered to.

A high level of stakeholder participation will be incorporated during the Program's implementation. Central to implementation will be a science-based adaptive management component as the Program includes a strong commitment to assure that its decisions and actions are based on well-grounded science. A comprehensive monitoring and data collection feature, as well as continuous and comprehensive scientific review of actions and decisions, are included as part of the Program. The highest quality and credibility of science-based decision making will be assured through an independent panel of scientific experts. The Program will hire a nationally recognized scientist to coordinate the science effort, including related scientific studies conducted by the CALFED agencies.

The Program is designed to be implemented in stages, with adaptive management as the tool for modifying how the Program is carried out based on scientific data and what is learned at each stage. It would be impractical to develop project level approaches and an assurances package that could anticipate all the possible combinations of actions and their effects, and guarantee that all these outcomes would meet the stated criteria. Many other examples of assurances in the individual programs include the groundwater principles (see common response 6) and the commitment that there will be no reduction in CVP/SWP deliveries during the first 4 years of Stage 1 (see common response 21). Site-specific environmental documentation of individual projects will provide an additional level of review that will result in site-specific assurances.

Some other recurring topics regarding assurances are addressed below.

Balanced Program Progress and Implementation. It is essential that balanced progress be made in all program areas. Actions for Stage 1 and Stage 1a (the first 2 years) provide for balanced implementation through a proposed staged decision process which incorporates new scientific information

as it is developed, impartial scientific review, and broad-based policy considerations. Providing adequate time for the process, scientific evaluations, and working accurately and completely must be implementation priorities. Stage 1 is estimated to be completed in 7 years; these time estimates were based on the assumption that no major technical, logistical, financial, or political issues hinder progress. Program linkages, as addressed in the Programmatic EIS/EIR and in language of Proposition 204, provides that progress will occur in all areas. Other linkages may be developed that bind Program elements together, such as agreements among implementing agencies.

Determining a long-term governance structure is another essential element in assuring balanced Program progress and implementation. Stakeholders, whose active support is necessary to maintain funding and programs, as well as the CALFED agencies, strongly believe that a new public agency must be created to oversee the long-term implementation of the CALFED Preferred Program Alternative.

The CALFED agencies will develop an interim governance structure similar to what currently is in place until appropriate legislation can be completed to establish a permanent structure. This interim structure will be set forth in a new "Framework Agreement," which the agencies will develop and execute by September 2000. CALFED proposes that a joint federal-state commission with shared power to appoint commission members is the best permanent governance structure for the Program. The legislative charge to this new commission should be to provide direction and oversight to the Program as described in the Final Programmatic EIS/EIR.

Major responsibilities of this commission would include reviewing and approving Program priorities and budget proposals; assessing and reporting about the progress toward Program goals; coordinating within CALFED and related programs to best use resources and reduce conflicts; resolving disputes between the CALFED agencies; and maintaining communications with the public, the media, and elected state and federal officials. The overarching mandate of the commission will be to assure effective, balanced, and coordinated implementation in all Program areas.

Regulatory Assurances. The current proposal for CALFED governance includes an oversight entity that would help assure that all Program elements are properly coordinated with local regulations and jurisdictions as well as with the federal and state ESAs. The MSCS provides a framework for compliance with the federal and state ESAs, which in turn provides a measure of certainty that implementation will occur and anticipated Program benefits will be provided.

CALFED will comply with the federal ESA for adoption of the CALFED Program through programmatic Section 7 consultations with the USFWS and NMFS. The MSCS will serve as the biological assessment of the CALFED Program in support of the Section 7 consultations and will be submitted to DFG for approval as a programmatic Natural Community Conservation Plan (NCCP). Neither the programmatic biological opinions nor the programmatic Natural Community Conservation Planning Act (NCCPA) determination will fully comply with the ESAs for individual Program actions or authorize take of the species covered in the MSCS. Instead, federal and state ESA and NCCPA compliance, including any required take authorization for Program actions, will follow through a streamlined, action-specific consultation process that tiers from the MSCS and the programmatic consultations, or will be covered under existing biological opinions.

In addition, the MSCS provides the framework for assuring cooperating landowners that they will not be prevented from continuing their existing land uses because of the implementation of CALFED Program actions or MSCS conservation measures. Many landowners may be concerned that if the number of

threatened and endangered species within the focus area increases, the use of land or water in or near the species habitat will be restricted by the federal and state ESAs. Cooperating landowner programs are intended to address this concern and to preserve compatible land uses within the focus area.

Other comments suggested regulatory assurances were needed to help carry out or achieve standards set by such Program elements as water use efficiency or water quality. CALFED agrees that in some instances regulatory measures may be needed to ensure that Program elements achieved; however, CALFED is not proposing to change any regulations, water rights, or standards. Individual CALFED agencies will continue to exercise their authority. Water rights, for example, are under the jurisdiction of the SWRCB The Board currently is determining how to meet Delta water quality standards.

Assurances Regarding Water Distribution and the EWA. Some people expressed their desire to see assurances that water gained through conservation, reclamation, recycling, or water associated with the EWA primarily be used for environmental uses. See common response 21 for more details. The Water Management Strategy will seek to improve water supply reliability for all water users. Additional review and analysis of new demands and new infrastructure are needed to determine the impacts of Water Management Strategy actions and will be completed in site-specific documentation tiering from this Programmatic EIS/EIR. Existing programs, such as those under CVPIA Section 3406(b)(1), (b)(2), and (b)(3), are coordinated with the Water Management Strategy and the EWA.

The amount of water available to the EWA depends on many factors, including the amount of funding for voluntary water purchases, water supplies developed from various sources such as recycling, and access to storage and conveyance facilities. Regardless of how water for the EWA is derived, the underlying guidance for water supply distribution under the Water Management Strategy will be the many water rights and environmental laws with which CALFED and its participating agencies must comply in achieving the CALFED objective of restoring the Bay-Delta ecosystem.

Please see common response 1 for a discussion about the inter-related nature of CALFED Program elements and common response 22 for a discussion of whether CALFED is supposed to solve all of California's water problems.

COMMON RESPONSE 20. SOLUTION PRINCIPLES

This common response addresses comments about the CALFED solution principles.

Many comments indicate that the CALFED Program is not following the solution principles that it developed in conjunction with its mission statement and objectives. Most comments focus on the principle of "Pose no significant redirected impacts." Others mention "Reduce conflicts in the systems" and "Be equitable."

Introduction. Given the history of conflict in the Bay-Delta system, CALFED recognizes that any proposed program to address this broad spectrum of resources will be controversial. Stakeholders participating in the CALFED process already have identified significant concerns about virtually every component of the Program. Carrying out the mission, achieving the objectives, and adhering to the solution principles will ensure that CALFED fulfills its commitment to continuous improvement in the four identified problem areas: ecosystem quality, water quality, water supply reliability, and levee system integrity.

CALFED Solution Principles. The solution principles were developed early in the planning process as a means to achieve the Program's objectives in the context of a multi-purpose mission and a history of competing and contentious environmental, political, and institutional influences on the affected resources. The solution principles provide an overall measure of the acceptability of alternatives to different constituencies and guide the design of the institutional part of each alternative.

In the past, most efforts to improve water supply reliability or water quality, improve ecosystem health, or maintain or improve the Delta levees were single-purpose projects. Single-purpose projects have the potential to solve one problem but create other problems, thereby engendering opposition to future actions.

The CALFED Program has taken a different approach, recognizing that many of the problems in the Bay-Delta system are inter-related. Problems in one resource problem area cannot be resolved effectively without simultaneously addressing problems in all four problem areas. As a result, the Program as a whole needs to be evaluated against the solution principles. Solution principles are not intended to be applied to individual components of the Program.

No Significant Redirected Impacts. The "Pose no significant redirected impacts" solution principle states that "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." To address the primary objectives of the CALFED Program, all stakeholders/users will experience some impacts. When the Program is viewed in its entirety, solutions do not simply redirect impacts from one area to another. The solutions are a broad range of actions that are designed to meet the Program objectives and result in benefits to all stakeholders and users, as well as impacts. Looking at individual portions of the Program does not provide the view of the entire Program and how the Program conforms to meet the solution principles.

Reduce Conflicts. This principle states that solutions will reduce major conflict among beneficial uses of water. As an example, the goal for water supply reliability is to reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system. This can be accomplished by the water supply reliability objectives: maintain an adequate water supply to meet

expected in-Delta beneficial use needs, improve export water supplies to help meet beneficial use needs, improve the adequacy of Bay-Delta water to meet Delta outflow needs, reduce the vulnerability of Bay-Delta levees, and improve the predictability of the water supply available from the Bay-Delta system for beneficial use needs.

These objectives collectively reduce the conflict among beneficial water users, improve the ability to transport water through the Bay-Delta system, and reduce the uncertainty of supplies from the Bay-Delta system.

Equitable Solutions. This principle states that solutions will focus on solving problems in all four problem areas. Improvement for some problems will not be made without corresponding improvements for other problems. To determine the best way to fulfill its mission, CALFED undertook to address the four identified problems concurrently and comprehensively. To simultaneously address the four problem areas, actions will need to be taken throughout all of the Program problem and solution areas. While on an individual or site-specific basis it may appear that CALFED is not following this solution principle, at the Program scale, all four problem areas are being addressed concurrently.

References to Relevant Provisions in the Programmatic EIS/EIR. Please refer to common response 5 for more information on the alternative development process. Please see Chapter 1 in the Programmatic EIS/EIR, "Program Description," for a description of the Program. Please refer to Chapter 2 in the Programmatic EIS/EIR, "Alternative Descriptions," for a description of the alternatives evaluated.

COMMON RESPONSE 21. ENVIRONMENTAL WATER ACCOUNT

This common response addresses comments about the Environmental Water Account (EWA).

Most of the comments on the requested more detail on the Account. These included questions on how the water would be managed and who will pay. Major concerns included potential impacts, the need to coordinate the EWA with the Ecosystem Restoration Program and the Central Valley Project Improvement Act (CVPIA), and the need for regulatory relief and assurances. Based on extensive planning and analyses since the June 1999 Draft Programmatic EIS/EIR, CALFED has refined how the EWA will work during the initial part of Stage 1.

The EWA is part of CALFED's Water Management Strategy, designed to improve fisheries protection and recovery while providing improvements in water quality and water supply reliability. The EWA will rely on more flexible management of water based on real-time needs of the fishery resources. The EWA functions primarily by changing the timing of some flow releases from storage and the timing of water exports from the south Delta pumping plants to coincide with periods of greater or lessor vulnerability of various fish to Delta conditions. The EWA will be established to provide water for protection and recovery of fish beyond water available through existing regulatory actions related to project operations.

EWA and Prescriptive Standards. The EWA is based upon the concept that flexible management of water will achieve fishery and ecosystem benefits more efficiently and to a greater degree than a completely prescriptive regulatory approach. By managing EWA "assets" (water, storage, money, operation rights) on a real-time basis, the overall cost of environmental protection can be lower than under a purely prescriptive approach and enhanced environmental benefits (i.e., restoration and recovery) can be realized. This would help attain water supply reliability objectives for water users and improve fisheries conditions. In addition, by managing the EWA in close coordination with other parts of the water management strategy, multiple benefits may sometimes be achieved from the use of EWA assets. For example, at times EWA water to achieve a fishery purpose also may provide water quality benefits.

EWA Development. To gain insight into whether and how an EWA could improve fish conditions while protecting water quality and water supply benefits, a group including CALFED Agency staff and stakeholders have simulated numerous EWA /CVPIA operations scenarios. These EWA "gaming" exercises allowed project operators, fishery agency biologists and stakeholders to work together to simulate operational decisions to react to the changing hydrological and biological conditions typical of the Sacramento-San Joaquin watersheds and the Delta. The simulations allowed them to see how the system may respond to potential configurations and applications EWA of assets.

The group conducted a number of simulations to better understand how an EWA might have been operated in "real time" if it had existed during the 1981 through 1994 water years. This period included a variable hydrologic sequence of wet years and dry years to test the EWA, but does not reflect all the variation that EWA management could encounter. In each simulation, the EWA had access to a different collection of facilities, contracts, rights, and income. Differing assumptions were also made about the application of CVPIA Section 3406b(1) and b(2). In some simulations, the EWA had access to new storage and/or new export pumping capacity. In all simulations the EWA had access to unused project capacity and the ability to allow variances in application of the Export/Inflow standard in order to generate environmental water. In some simulations, the EWA had a budget for water purchases. One simulation was run solely to determine how much water would be required to achieve "adequate" biological protection from the point of view of the fishery agencies.

Changes in operations were simulated using a set of assumed EWA and historical hydrology and fish salvage records, starting from a model representation of project operations with current regulatory conditions. The group then evaluated the effects of their decisions on fish resources, water quality, water supply reliability, and the EWA account.

EWA Structure. During Stage 1, the EWA would work from a foundation of the existing regulatory regime. The EWA would not be a substitute for existing prescriptive standards but would avoid potential new standards. The EWA will be established to provide water for the protection and recovery of fish beyond water available through existing regulatory actions related to project operations. The EWA will benefit water users by providing additional water for fish without the need to reduce project deliveries. The EWA will be authorized to acquire, bank, transfer and borrow water and arrange for its conveyance. EWA assets will be managed by the federal and state fishery agencies (U.S. Fish and Wildlife Service [USFWS], National Marine Fisheries Service [NMFS], and California Department of Fish and Game [DFG]) in coordination with project operators and stakeholders, through the CALFED Operations Group. Initial acquisition of assets for the EWA will be made and funded by Federal and State agencies (U.S. Bureau of Reclamation and California Department of Water Resources). Subsequently, it is anticipated that acquisitions and cost allocations among beneficiaries will be made pursuant to a public process that could involve other agencies and other potentially affected parties in asset acquisition.

To provide regulatory stability during the initial period of Stage 1, the CALFED agencies will provide a commitment, subject to legal requirements, that for the first four years of Stage 1, there will be no reductions, beyond existing regulatory levels, in CVP or SWP deliveries from the Delta resulting from measures to protect fish under the federal and state Endangered Species Acts (ESAs). This commitment will be based on the availability of three tiers of assets. Tier 1 is baseline environmental protection, provided by existing regulation and operational flexibility. The regulatory baseline consists of the biological opinions on winter-run chinook salmon and delta smelt, 1995 Delta Water Quality Control Plan, and 800,000 acre-feet (800 TAF) of CVP yield pursuant to CVPIA Section 3406(b)(2). See the EWA section in the Phase II Report for more detail on the regulatory baseline.

Tier 2 consists of the assets in the EWA combined with the benefits of the Ecosystem Restoration Program and is an insurance mechanism that will allow water to be provided for fish when needed without reducing deliveries to water users. 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. 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, a third tier will be provided. Tier 3 is based upon the commitment and ability of the CALFED agencies to make additional water available should it be needed. In considering the need for Tier 3 assets, the fishery agencies will consider the views of an independent science panel. Tier 3 assets may include additional purchases from willing sellers or consensual "borrowing" of water beyond the collateral-based borrowing which is allowed as part of the EWA (Tier 2).

The ESA commitment will be in effect for four years based on Ecosystem Restoration Program implementation and all of the agreed upon assets being available in that period. It is anticipated that sufficient assets, either from existing sources or from supply augmentation, will be available for the protection of fish beyond the first four years, and that the commitment will be extended. The only exception to this commitment would arise in the extremely unlikely event that, despite the utilization of all measures available in the three tiers, a determination is made that a situation of jeopardy to a listed species nevertheless is likely.

The EWA would make use of all of the water management tools as shown in the previous table. Especially in its first few years of operation, a substantial portion of the assets needed for the EWA will come from access to existing Project flexibility, new changes in project flexibility (for example, joint point of diversion and export/inflow ratio flexibility) and through voluntary purchases (estimated at $50 million annually) on the water transfer market. Given these market based water transfers, the EWA will have an effect on the cost and availability of water transfer capacity. See the EWA section in the Phase II Report for more detail on EWA assets.

CALFED's analysis of the EWA shows that the EWA "performance" increases as the EWA's access to surface and groundwater storage increases. Flexibility in project operations and improvements in conveyance facilities can both help deliver environmental water at the desired place and time and can help create new EWA "assets." This flexibility is essential for the EWA for it must be operated in tandem with 3406b(1), b(2), and b(3) water provided under the CVPIA. Finally, the EWA cannot function without the comprehensive monitoring program envisioned in CALFED's Science Program.

Water quality concerns must also be considered in managing the EWA. Operational changes to enhance the protection of aquatic resources and maintain export supplies have the potential to affect water quality, either positively or negatively. Management of the EWA must be coordinated closely with operation of the State and Federal water projects and the CALFED Water Quality Program.

The EWA will provide fisheries protection and recovery while providing improvements in water supply reliability primarily by changing the timing of some flow releases from storage and the timing of water exports from the south Delta pumping plants. These real-time operational changes will be dependent on assessment of and response to varying conditions. For example, water exports from the Delta may be reduced at times when certain fish species are most vulnerable to this pumping and may be increased when the fish are less vulnerable. The timing of operational changes would vary from year to year depending on many factors such as hydrology and real-time monitoring that shows the movement and presence of fish. Examples of how the EWA may use its assets follows:

- If additional export reductions are needed to protect Delta smelt during late May and June, the EWA compensates for the quantity of export foregone by turning over to State and Federal Project water users EWA water previously pumped and now stored in San Luis Reservoir. If the EWA had not previously stored water in San Luis Reservoir it would temporarily borrow stored State and/or Federal water in San Luis Reservoir.

- Since the EWA is not allowed to cause any new delivery reductions, it must pay back most or all of the borrowed water in time to avoid impact on current year's deliveries or the following year's allocations.

- The EWA would repay the loan using various available assets. It might:

  - Use EWA groundwater supplies in the export area.

  - Invoke water purchase contracts in the export area.

  - Invoke agreements with local agencies in the export area whereby the agencies have agreed to meet some part of their water use from local sources(groundwater or surface storage) until after the low point in San Luis Reservoir storage is passed.

  - Relax the E/I standard to move more water to the export area.

- If the San Luis low point could be passed without the repayment of all the debt, the EWA might carry the debt into the next winter in the hopes that high Delta inflows would allow San Luis Reservoir to refill without additional EWA expenditures.

- The EWA water held upstream can later be released to improve instream conditions below the reservoirs and then either (1) be pumped from the Delta to pay off an EWA debt in San Luis Reservoir or add to EWA water stored there, or (2) left to provide increased Delta outflow.

The CALFED Program will coordinate with EWA implementing agencies (DFG, USFWS, and NMFS) to ensure CALFED objectives are being met. Coordination and consultation efforts among the CALFED Operations Group, project operations, ESA management agencies, the program manager of the Ecosystem Restoration Program, and stakeholder groups are intended to ensure that the environmental water acquisitions are consistent with the CALFED Program goals and objectives and that conflicts with ESA requirements and project operations are minimized or avoided.

CALFED expects that the regulatory assurances provided during the first 4 years of Stage 1 will be extended throughout Stage 1. CALFED will develop rules for storing, conveying, and borrowing of EWA water. At the same time, CALFED will develop an accounting process to track the EWA water. Like other parts of the CALFED Program, the EWA will be adaptively managed as experience is gained with its use and effectiveness. In the future, the EWA may gain additional assets as new facilities are implemented or operational changes are made. How EWA will share in the use of these facilities will be determined as these are developed.

COMMON RESPONSE 22. WILL CALFED SOLVE CALIFORNIA'S WATER PROBLEMS?

This common response addresses comments about CALFED's relationship to California's overall water problems and meeting future demands.

Many comments express the concern that the CALFED Program (Program) will reduce water supply reliability in the state. Other comments express the opinion that the CALFED Program should assure that all future water demands in the state are met.

All CALFED solutions, including the Preferred Program Alternative, will improve water supply reliability in the state. However, CALFED solutions will not solve all of California's water problems or meet all future water demands.

The CALFED mission 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. As part of that mission, one broad objective is to "Reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system." CALFED has amplified this objective by developing a three-part strategy to improve water supply reliability. To guide the implementation of this multi-part strategy, CALFED has identified three primary goals:

- Increase the utility of available water supplies (making water suitable for more uses and reuses).
- Improve access to existing or new water supplies, in an economically efficient manner, for environmental, urban, and agricultural beneficial uses.
- Improve flexibility of managing water supply and demand in order to reduce conflicts between beneficial uses, improve access to water supplies, and decrease system vulnerability.

The Program is striving to balance multiple objectives in the Bay-Delta system in order to accomplish the CALFED mission. CALFED's Water Management Strategy will improve water supply reliability in the state through conveyance and storage actions and ecosystem restoration activities that will improve the resiliency of the Bay-Delta ecosystem, reduce demand by encouraging implementation of water use efficiency and recycling measures, and improve the transfer of water supplies to more effectively move water between users on a voluntary and compensated basis.

CALFED assessed potential water supply reliability improvements associated with the various Program alternatives as part of the Programmatic EIS/EIR. To provide a basis for this assessment, a No Action Alternative was defined. While existing conditions often provide an adequate basis for assessing the consequences of future actions, implementation of the Program is expected to occur over 30 or more years. Demands for water supplies, ecosystem health, and water quality conditions are not expected to remain constant over this extended time period. To account for this uncertainty, the No Action Alternative was defined to include a range of future water demands and constraints to Bay-Delta exports. When evaluated through system operations modeling, these competing assumptions result, in turn, in a range of possible future Bay-Delta exports. In Section 5.1 in the Programmatic EIS/EIR, the effects of actions included in the various Program alternatives on water supply reliability are evaluated and compared to both ends of the No Action Alternative range.

To illustrate how Program actions are expected to effect water supply reliability, consider one key element of the state's water supply mix—Delta deliveries. Average annual water deliveries from the Delta are approximately 5.4 MAF under existing conditions. In the absence of a Bay-Delta Program, increases in population likely will drive demand for Delta water supplies higher, while continued degradation of the health of the Bay-Delta ecosystem could further constrain Delta exports. As evaluated in the Program's No Action Alternative, these two opposing forces could drive average annual water deliveries from the Delta as low as 4.8 MAF or as high as 5.8 MAF over the next 30 or more years. Deliveries at the low end of the range could result from additional protective Delta water management criteria. Deliveries at the high end of the range could result from higher Bay-Delta system demands and generally would take place in above-normal and wet years, when unallocated flows are available for export in the Delta. This No Action Alternative range (4.8-5.8 MAF) serves as the basis for assessing Delta water supply reliability improvements of the various Program alternatives.

Continuing the illustration, now consider water supply reliability improvements provided by CALFED's Preferred Program Alternative. Under the Preferred Program Alternative, conveyance improvements and possible new storage would increase the reliability of Delta water supplies. The amount of this increase depends on assumptions regarding future population and constraints to Delta exports. To provide a consistent basis of comparison, the same range of assumptions used under the No Action Alternative to describe future demands for Delta water supplies and constraints to Delta exports were applied to the Preferred Program Alternative. As described in Section 5.1 in the Programmatic EIS/EIR, the range of average annual water deliveries from the Delta under these assumptions ranges from 5.1 to 6.7 MAF. Therefore, the Preferred Program Alternative would increase average annual Delta deliveries by as little as 300 TAF (5.1 MAF minus 4.8 MAF) or by as much as 900 TAF (6.7 MAF minus 5.8 MAF) relative to the No Action Alternative. Deliveries at the low end of the range could occur if new storage is not constructed and Delta exports are further constrained. Deliveries at the high end of the range could take place if new storage is added and new constraints to Delta exports are not necessary. These Program benefits are in addition to any water supply reliability gains due to water use efficiency measures, water conservation measures, and additional water transfers.

Similar to the Preferred Program Alternative, all Program alternatives would improve statewide water supply reliability when measured against the No Action Alternative. Because of the uncertainty in future population and Delta conditions, it is inappropriate to measure Program performance against existing conditions.

Conversion of Delta land use from agriculture to wetlands and marshes under the Ecosystem Restoration Program could result in increased water use and potential negative impacts on agriculture and urban water supply reliability. At present, a high level of uncertainty is associated with the acreage of land that may be converted or the incremental water requirements of such conversions. Monitoring and adaptive management principles will be part of any CALFED land use conversion project. CALFED is committed to mitigating impacts that would compromise the Program's overall water supply reliability objective. The combined beneficial effect on water supply reliability from actions under the Preferred Program Alternative, including the Water Quality Program, Water Use Efficiency Program, Water Transfer Program, conveyance improvements, and potential new water storage facilities, is expected to offset this potential loss of water supply—resulting in no significant adverse impacts.

All CALFED solutions will improve water supply reliability in the state. However, CALFED solutions will not solve all of California's water problems or meet all future water demands. Many regions of the state are not served by the Bay-Delta system and are outside the Program's solution area. Future demands

for water in severe dry conditions likely will result in the need for some rationing or water supplies and some degree of economic hardship. Program studies indicate that, given the current knowledge of the Bay-Delta system, it is not possible to safely develop enough additional supply from the Bay-Delta system—while meeting all Program objectives–to eliminate all future shortfalls. While California water managers must continue to consider and compare the economic, environmental, and social consequences of developing alternative supplies in other water management planning forums, a likely conclusion will be that some level of shortage must be accepted in some years.

COMMON RESPONSE 23. PUBLIC TRUST DOCTRINE

This common response addresses comments about the Public Trust Doctrine.

Many comments suggest that the CALFED Program is ignoring or improperly incorporating the Public Trust Doctrine with respect to proposed management of water resources and ecological resources. Still others suggest that CALFED could more fully address the Public Trust Doctrine.

The Public Trust Doctrine. The Public Trust Doctrine incorporates two ideas: (1) that the state holds title "in trust" to certain properties within the state for the beneficial use of the public, and (2) that public rights of access to and use of tidelands and navigable waters are inalienable. Traditional public trust rights include navigation, commerce, and fishing. California law expanded the traditional public trust uses to include protecting fish and wildlife and preserving trust lands in their natural condition for scientific study, scenic enjoyment, and related open-space uses.

In the 1980s, the Public Trust Doctrine was used by courts to limit traditional water rights. The California Supreme Court, in its 1983 decision in *National Audubon Society v. Superior Court of Alpine County*, held that public trust uses must be considered and balanced when rights to divert water away from navigable water bodies are considered. The court also held that California's appropriative rights system and the Public Trust Doctrine embody important precepts that "... make the law more responsive to the diverse needs and interests involved in planning and allocation of water resources." Consequently, in issuing or reconsidering any rights to appropriate and divert water, the State must balance public trust needs with the needs for other beneficial uses of water.

In *United States v. State Water Resources Control Board* (commonly referred to as the Racanelli Decision), the State Court of Appeal reiterated that the Public Trust Doctrine is a significant limitation on water rights. In that 1986 case, the appellate court broadly interpreted the SWRCB's authority and obligation to establish water quality objectives, as well as its authority to set water rights permit terms and conditions that provide reasonable protection of beneficial uses of Delta water and of San Francisco Bay. The court stated that SWRCB needed to separate its water quality planning and water rights functions. SWRCB needs to maintain a "global perspective" in identifying beneficial uses to be protected (not limited to water rights) and in allocating responsibility for implementing water quality objectives (not only to the SWP and CVP, or only through the SWRCB's own water rights processes). The court recognized the SWRCB's authority to look to all water rights holders to implement water quality standards and advised the SWRCB to consider the effects of all Delta and upstream water users in setting and implementing water quality standards in the Delta, as well as those of the SWP and the CVP.

Restoring and Protecting Public Trust Resources. The CALFED Program seeks to restore the Delta ecosystem as one of its four co-equal Program purposes. CALFED is proposing the Ecosystem Restoration Program as a means of restoring and protecting public trust resources. This program includes the proposal to acquire additional water, from willing sellers, to augment streamflows in order to benefit fish and other aquatic resources, as well as to acquire interests in land, from willing sellers, and cooperative agreements in order to support ecosystem restoration efforts. CALFED recognizes that the decline of ecological resources are the result of multiple causes throughout the ecosystem, including land use changes, introduction of exotic species, toxic materials, water diversions, dams, canals, highways, and intensified human use of virtually all aspects of the environment. CALFED's Ecosystem Restoration Program proposes to address many of these issues through cooperative, not regulatory, means. Within that

framework, CALFED seeks to augment streamflows in key stream reaches on a voluntary and compensated basis, with appropriate protections for third parties that may be affected by reallocation of water by these means. Similarly, proposed land use changes will take place on a voluntary, compensated basis in order to respect private property rights and local economic concerns. Protecting public trust resources in this manner is entirely consistent with the California Supreme Court's direction to protect public trust resources where feasible.

Impact Analysis Document

Responses to Comments

C-027586

IA-Preface-1

Please see common response 1. The comments arise from a discussion to help the reader understand the meaning of a programmatic impact analysis. The first comment relates to a sentence in the Preface to the June 1999 Draft Programmatic Environmental Impact Statement/Environmental Impact Report (EIS/EIR) that states, "This document provides a broad overview (underlined for emphasis) of the potential actions that could be taken by the Program." These potential actions are described broadly in Chapter 2 and in each of the program plans, because of the early nature of the CALFED Bay-Delta Program (Program) planning. As the Program has moved forward, these actions have been described more specifically. The consequences of the more specific actions will be described in future project-specific environmental documents.

The second comment is answered in the sentence from which the comment arises. The sentence states, "It [the Programmatic EIS/EIR] describes, in a broad sense, the environmental consequences of proposed actions and enables decisions to be made regarding Program direction and content." (underlined for emphasis)

The last comment is also answered in the sentence from which it arises along with the succeeding sentence. "The Preferred Program Alternative will not (emphasis added), in itself, enact any changes in law, regulation, or policy, or allow project construction. Instead, the Preferred Program Alternative describes programmatic actions that set the long-term overall direction of the Program."

IA-Preface-2

With a program as broad as the CALFED Program, a programmatic analysis was prepared to adequately reflect the potential overall and long-term environmental consequences associated with all of the proposed actions (please see common response 1). Because a programmatic analysis was done, the details of the individual actions that will eventually be contained within the Program are not specifically analyzed. Consequently, before actions that are part of CALFED's programmatic decision can be implemented, they will need to be studied on a project- or site-specific level. Using both the Programmatic EIS/EIR and the project-level review, any potential environmental consequences will be thoroughly analyzed and disclosed.

A wide variety of environmental and cultural resource laws, Executive Orders, and regional and local land use plans may be applicable to project-level actions. These include, but are not limited to, those identified in Chapter 8 in the Programmatic EIS/EIR, such as the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), state and federal Endangered Species Acts (ESAs), the Clean Water Act (CWA), the National Historic Preservation Act (NHPA), the Environmental Justice Executive Order, and the Farmland Protection Policy Act of 1981 (FPPA). Applicability to project-level actions of each of these regulatory requirements will be determined and, as appropriate, efforts will be undertaken to ensure compliance with these requirements.

With respect to NEPA and CEQA, an initial effort will be made to determine the appropriate level of NEPA and/or CEQA compliance (Is the action one that meets the criteria for a categorical exclusion? Is it appropriate to prepare a negative declaration or environmental assessment? Is an EIS and/or EIR needed?). If it is determined, for example, that the proposed project-level action would significantly affect the quality of the human environment, an EIS and/or EIR would be prepared. If there is uncertainty with respect to the significance of the

consequences of a project-level action, an initial study and/or environmental assessment would be prepared—leading either to a negative declaration and/or finding of no significant impact, or an EIS and/or EIR.

Attempting to set documentation requirements for specific actions prior to defining specific actions and an initial assessment of potential consequences would be premature, and may lead to erroneous conclusions—resulting in substantial delays in implementation. In all likelihood, however, an action involving the construction of major new facilities will require preparation of an EIS/EIR.

IA-Preface-3

The Programmatic EIS/EIR provides a broad overview of the potential actions that could be taken by the Program. It describes, in a broad sense, the environmental consequences of proposed actions and enables decisions to be made regarding Program direction and content. Information from the Programmatic EIS/EIR will be incorporated by reference into subsequent tiered environmental documents for specific projects.

1. Program Description

0. General Responses

IA-1-0.0-1

Please see common response 1. The document translates objectives to goals. The goals can be found in the various program plans, including the Phase II Report. For example, the first sentence in Section 2.1 in the June 1999 Long-Term Levee Protection Plan states the goal for the Delta Levee Base Level Protection Plan. Similarly, the first sentence in Section 2.2 in the same document identifies the goal for the Delta Levee Special Improvement Projects. What is not available at this time in the planning process (Phase II) are the very specific goals that will ultimately be met by each program. As the Program moves into and through Phase III, the specific goals for individual programs will be identified.

The Programmatic EIS/EIR evaluates the consequences of alternatives designed to meet the overall programmatic objectives and goals that are outlined in Chapter 2 in the Programmatic EIS/EIR. The programmatic evaluation will enable decisions to be made regarding broad Program direction, allowing organizations and agencies to move forward on a comprehensive approach to managing San Francisco Bay/Sacramento-San Joaquin Delta estuary (Bay-Delta) resources.

IA-1-0.0-2

Public and agency involvement has been a part of the Program since its inception. These efforts have helped to shape the Program as well as develop the Programmatic EIS/EIR. Participants representing rural, agricultural, and municipal and industrial (M&I) water users; fishing interests; environmental organizations; businesses; and the general public have helped to define problems and evaluate alternatives in order to solve the challenges confronting the Bay-Delta system.

IA-1-0.0-3

Please see common responses 1, 4, and 22. As Program development has continued beyond the programmatic level of detail evaluated in the Programmatic EIS/EIR, actions have begun to be defined more specifically. For example, the Ecosystem Restoration Program has identified potential in-stream flow needs for many of the Central Valley streams. Refinement of these in-stream flow needs will need to be completed over an extensive period of time, in concert with local and regional governments, conservancies, and landowners. Because of the preliminary nature of development, the source of the water that would be used to meet these flow needs has not been identified. However, the water probably would come from existing storage, new storage coming out of the Program, or willing sellers via transfers. The consequences of these actions—obtaining water from existing storage, building and obtaining water from new storage facilities, and transferring water—would be subject to specific environmental documentation.

IA-1-0.0-5

The Preferred Program Alternative will increase certainty in the availability of irrigation water. As lands and waters are restored to their natural functions, the recovery of endangered species that might otherwise become threatened will result in a stable flow of water to the state's growers. As cleaner water with fewer contaminants becomes available through the Water Quality Program, growers will have opportunities to be more flexible in

their plantings and to grow higher value crops. The Watershed Program will assist in making adequate, high-quality water available to farmers and may provide higher grazing productivity. The Levee System Integrity Program will (1) lower the risk of disastrous flooding of agricultural lands on Delta islands, and (2) lower the risk of salt-water intrusion and the associated contamination of irrigation water that island flooding could cause. The Water Use Efficiency Program will allow farmers to update aging and inefficient irrigation systems, resulting in increased yields and new crop opportunities. The Water Transfer Program may result in additional water becoming available at times and locations where irrigation water may not otherwise be available. The Storage and Conveyance elements will improve the reliability and delivery of irrigation water.

IA-1-0.0-6

Please see common response 1. Also see responses IP-1.1-6; IP-1.1-2; and IP-3.0-1. The Program's initial focus in Phase I of the planning process was to define Bay-Delta problems and Program objectives, and to identify actions that would resolve those problems and meet the objectives. This effort was undertaken in a series of public workshops attended by agencies, stakeholders, and the public. The proposed Preferred Program Alternative identifies programmatic actions that will meet the Program's mission to develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. The Program's intent in Phases I and II was to identify programmatic problems, objectives, and actions to support the selection of a Preferred Program Alternative rather than the selection of specific actions. The Preferred Program Alternative describes a set of actions that should be taken by a variety of organizations to move forward on a comprehensive approach to managing Bay-Delta resources. As the Program moves into implementation in Phase III, the actions and environmental documentation will be described more specifically.

The Programmatic EIS/EIR provides a broad overview of the consequences of implementing all of the potential CALFED actions throughout the state over a period of 30 or more years. The analysis of consequences and the range of operating conditions that were analyzed were never intended to be used in order to allow implementation of actions. It has always been assumed that subsequent environmental documentation will be needed before specific actions with relevant operating conditions are implemented. Since the EIS/EIR serves to illuminate the cumulative consequences of the overall Program, documents tiered from the Programmatic EIS/EIR will be able to reference the overall consequences of the Program and focus on the consequences of the specific action. Given the uncertainty with respect to specific actions that might come out of the Program (which lead only to speculation about what the impacts might be), the Programmatic EIS/EIR identifies resource areas that might cause growth-inducing impacts. The resource information will serve as a reminder as well as a focus to preparers of documents tiering from the Programmatic EIS/EIR to consider impacts on resources resulting from growth. Please refer to response IA-3.2-1 for additional information concerning growth.

Socioeconomic impacts are discussed in Chapter 7 in the Programmatic EIS/EIR in Section 7.2, "Agricultural Economics"; Section 7.3, "Agricultural Social Issues"; Section 7.5, "Urban Water Supply Economics"; Section 7.7, "Recreation Resources"; Section 7.9, "Power Production and Energy"; and Section 7.10, "Regional Economics."

The Programmatic EIS/EIR evaluates the consequences of each alternative in Chapters 5, 6, and 7. A summary of these evaluations can be found in Chapter 3. The Program is to be implemented in a staged manner, and mechanisms are being established to obtain the necessary additional information in order to guide the next stage of decision making. The way the Preferred Program Alternative is structured, going forward does not preclude the Program's ability to undertake additional or modify currently proposed actions in the future, subject to appropriate environmental review.

A-1-0.0-7

While not a CALFED agency, the State Lands Commission has been involved in the Program, particularly in helping to identify regulatory requirement responsibilities and in establishing priority actions for the Ecosystem Restoration Program.

IA-1-0.0-8

The Corps and the EPA are working with CALFED agencies to draft a Memorandum of Understanding (MOU) regarding the Clean Water Act (CWA) Section 404 permitting process. The MOU will outline helpful information necessary in pursuing a Section 404 permit. The understanding will outline what the Corps believes to be key factors that the Corps will consider in its permit decision-making process. The MOU will outline factors for demonstration of need for new or expanded surface storage for water supply reliability. The factors will include such measures as water conservation and water recycling.

The Multi-Species Conservation Strategy (MSCS) provides a framework for compliance with laws such as the state and federal endangered species acts (ESAs). This strategy will provide a measure of certainty that implementation will occur and that anticipated Program benefits will be provided.

IA-1-0.0-9

Please see common response 4. The Programmatic EIS/EIR provides a broad discussion of the types of consequences associated with construction of surface storage reservoirs. The consequences noted in your comment are identified in this description. Should a surface reservoir ever be proposed by the Program, project-specific environmental documents prepared for such an action will clearly disclose alternatives to such a course of action, as well as the consequences associated with such an action.

IA-1-0.0-10

The Program is not involved in the contract negotiations. CALFED makes no assumption about any specific result of that proceeding with respect to water allocations. The program (Water Transfers) assumes only that a voluntary, willing seller-willing buyer water transfer market is part of the water management landscape in California and that water transfers will continue to be an important tool for water management in the future. It is true that, to the extent water rights are reallocated or diminished through independent legal or regulatory processes, a negative effect on the water transfer market may result, simply because there will be less water held under private water rights to transfer in the open market. The Program also acknowledges that water transfers in and of themselves do not create additional water supply, but they do play a role in a complete solution to the long-term water management problems of the state.

IA-1-0.0-11

CALFED is evaluating the broad programmatic actions that can be taken to improve water supply reliability. The ongoing Integrated Storage Investigation will help to determine the role of new groundwater and surface water storage in the overall Water Management Strategy. New storage could serve a role in banking water for following year use. Comments surrounding the U.S. Bureau of Reclamation's (Reclamation's) method of allocating water would be best taken to Reclamation.

IA-0.0-12

The impact analysis addresses impacts of water transfers on both groundwater and surface water storage options. For example, Section 5.4.7.3 addresses the potential impacts of the Water Transfer Program in the Sacramento River Region if the transfers from a basin exceeded inflows, including adverse impacts on vegetation dependent on groundwater. See also Section 6.2.7, which addresses the impacts of both the Water Transfer Program and Storage on riparian habitats. Many of these impacts are potentially significant, but mitigation strategies are available to mitigate these impacts to a less-than-significant level.

CALFED agrees that where mitigation measures cause additional adverse impacts, those impacts must also be analyzed. However, as this Programmatic EIS/EIR is a general planning-level document that does not approve site-specific projects or evaluate their project-level impacts, a series of mitigation strategies are used to guide the implementation of mitigation measures at the project level of approval. Therefore, it would be speculative to attempt to presently predict what additional impacts will need to be addressed at the project level. When the project-level environmental review for future projects takes place, additional impacts created by the application of mitigation measures will be analyzed.

IA-0.0-13

CALFED does not plan to take any action that is contrary to state law. Each of the alternatives is designed to comply with the existing regulatory requirements, including the Delta Protection Act. CALFED seeks to achieve its water supply reliability goals in a number of differing ways. None presumes a reallocation of existing water rights or modification of the water rights statutes. Pages 53-54 in the June 1999 Revised Phase II Report describe CALFED's broad objective for water supply reliability. The report defines the goal of "reducing the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system" to mean: (1) increasing the utility of available water supplies (making water suitable for more uses and reuses); (2) improving access to existing or new water supplies in an economically efficient manner for environmental, urban, and agricultural beneficial uses; and (3) improving the flexibility of managing water supply and demand in order to reduce conflicts between beneficial uses, improve access to water supplies, and decrease system vulnerability. None of these goals or the Program elements designed to achieve them present a conflict with the Delta Protection Act. During implementation of the Program, any project-level proposal will undergo environmental review prior to implementation.

IA-1-0.0-14

Please see common response 13. CALFED's focus on acquiring water from willing sellers or developing water is not a bias at the expense of water rights. Water rights are under the jurisdiction of the State Water Resources Control Board (SWRCB). Currently, the SWRCB is in a process to decide how to meet Delta water quality standards, including considering the responsibility of all water diverters.

IA-1-0.0-15

This response has been consolidated with response IA-1-0.0-14. Please refer to this response for the answer to your comment.

IA-1-0.0-16

Please see common response 1. The management plans provide more site-specific detail than can be used in this programmatic analysis. Also see common responses 2, 17, and 22.

IA-1-0.0-17

For funding under the Ecosystem Restoration Program, projects must generally be within the CALFED Ecosystem Restoration Program area, which includes the Bay-Delta and its tributaries. The Trinity River and Lower Klamath watersheds are not within the scope of the Ecosystem Restoration Program. However, proposals may be considered if the applicant can demonstrate a direct benefit to the CALFED priorities as described in the proposal solicitation. The watershed element of the Program is interested in supporting locally advocated actions in those watersheds that are linked to the Bay-Delta system. Specifically, the Watershed Program is reviewing potential actions in the Trinity River watershed upstream from Trinity Dam.

IA-1-0.0-18

CALFED is conducting an Economic Evaluation of Water Management Alternatives that looks at the array of water management tools available to each region and places them in order from least to most expensive. New storage is one of the water management tools included in the array. The CALFED agencies believe that storage is necessary to meet Program objectives. However, since opinions vary so widely on the need for additional storage, the CALFED agencies believe that linkages with other parts of the Program and additional evaluations are needed. The Integrated Storage Investigation (please see common response 5) will better define the role of storage (groundwater and surface storage) in an overall Water Management Strategy (see the Phase II Report). Alternative 3 is the dual-Delta conveyance alternative. Its impacts, both positive and negative, are evaluated in Chapters 5 through 7 in the Programmatic EIS/EIR.

IA-1-0.0-19

Volume II of the Ecosystem Restoration Program : Ecological Management Zone Visions presents the visions for the 14 ecological management zones and their respective ecological management units. Each individual ecological management zone vision contains a brief description of the management zone and units, important ecological functions associated with the zone, important habitats, species that use the habitats, and stressors that impair the functioning or utilization of the processes and habitats. Volume II also contains strategic objectives, targets, and programmatic actions that describe the Ecosystem Restoration Program approach to improving the ecological health of the zone and its contribution to the health of the Delta. Rationales are also contained in Volume II that clarify, justify, or support the targets and programmatic actions. An important component of CALFED is interaction with stakeholders throughout the implementation phase. The interaction will better public, as well as CALFED, understanding of local and regional needs, such as the feasibility and compatibility of ecosystem restoration efforts with other proposed water management uses, thereby improving management decisions. Upon agreement regarding a course of actions, environmental documents will be prepared that clearly spell out alternative courses of action; describe the status of the existing environment, including agriculture; and array the consequences of taking such actions before a decision is made to move forward.

IA-1-0.0-20

Risks are associated with implementing the Program—risks to agriculture, risks to urban and rural communities, and risks to the ecosystems. However, the risk of not going forward with a long-range comprehensive program to fix the Bay-Delta is much greater to all of California, as evidenced by the signing of the Bay-Delta Accord (Accord) in 1994. CALFED is working to manage the risks by electing to stage implementation of the Program, thus ensuring that only those actions that are clearly ready to go forward are undertaken while actions needing additional work undergo additional planning and investigations prior to their implementation. Further, CALFED intends to monitor its actions, as well as implement mitigation measures, to ensure that actions are meeting the objectives originally set while minimizing consequences to affected resources. With respect to the Levee System

Integrity Program, CALFED intends to perform a risk management analysis: (1) to quantify all major risks and the severity of their consequences; and (2) to develop an appropriate risk management strategy that can be implemented to mitigate the risks to, among other things, the primary water delivery systems. Lastly, an important component of CALFED is interaction with stakeholders throughout the implementation phase. The interaction will better public, as well as CALFED, understanding of local and regional needs, such as the feasibility and compatibility of ecosystem restoration efforts with other proposed water management uses, thereby improving management decisions. Upon agreement regarding a course of actions, environmental documents will be prepared that clearly spell out alternative courses of action; describe the status of the existing environment, including agriculture; and array the consequences of taking such actions before a decision is made to move forward.

IA-1-0.0-21

NEPA and CEQA require that the proposed action alternatives be compared to current conditions as well as to future conditions in the absence of the proposed action alternatives (No Action Alternative). In describing current conditions, we have provided some historical context as to how conditions have reached their current state.

IA-1-0.0-23

The geographic scope of analysis and actions for the Program evolved through technical, public, and agency forum discussions during the first couple of months of the Program. As a result of those efforts, it was decided that the problem definition area would focus on the Suisun Bay, Suisun Marsh, and Delta, while solution generation would come from a much broader area.

IA-1-0.0-24

The Programmatic EIS/EIR evaluates the overall Program's consequences on water supplies in the CVP and SWP service areas. Given the programmatic nature of the EIS/EIR (please see common response 1), the impacts are not site or project specific and therefore do not specifically address consequences in Orange County. The EIS/EIR also addresses the cumulative effects to water supplies in the CVP and SWP service areas by displaying the incremental impact of the Preferred Program Alternative when added to other actions. Again, because of the programmatic nature of the document, this information does not specifically address cumulative consequences in Orange County.

IA-1-0.0-25

This response has been consolidated with response IA-1-0.0-13. Please refer to this response for the answer to your comment.

IA-1-0.0-26

The Programmatic EIS/EIR evaluates the overall impacts of three alternatives, including the Preferred Program Alternative. The alternatives broadly describe the range of actions that collectively will meet the Program's goals and objectives, and set the framework for future decisions on these actions. Information from this document will be incorporated by reference into subsequent tiered environmental documents for specific projects. The EIS/EIR serves to illuminate the cumulative consequences regionally as well as for the overall Program. Documents tiered from the Programmatic EIS/EIR therefore will be able to reference the regional and overall consequences of the CALFED Program and focus on the consequences of the specific action.

The Programmatic EIS/EIR evaluates the regional and overall impacts (direct, indirect, and cumulative) of implementing these broadly described actions. The decision on the Program is not designed to approve specific facilities or their locations, but to provide a general plan for long-term implementation. The approval of the Record of Decision (ROD)/certification will not, in itself, enact any changes in law or regulation and will not authorize construction of specific projects. Instead, this programmatic decision describes the range of actions that collectively will meet the Program's goals and objectives and sets the framework for future decisions on these actions. Some of these actions may require new legislation, some may require changes in operation of water facilities, some may require acquisition of land or water rights, and others could require the construction of new facilities. Although the decision affects a much broader geographic area, the decision in the ROD/certification will be similar to the approval of a general plan for a city or county. General plans set the policies that guide future land use decisions within the plan area.

IA-1-0.0-27

CALFED developed its mission statement in concert with the public, including the Bay-Delta Advisory Council (BDAC) and the agencies. This task was one of the first tasks that CALFED completed. The mission statement is not open for modification. Subsequently, the CALFED Program developed primary objectives and solution principles that support the mission statement and, in concert with the mission statement, fully express the Program's mission. Two of the primary objectives speak to your proposed additions, as does one of the solution principles. The two primary objectives are "Reduce the mismatch between Bay-Delta water supplies and the current and projected beneficial uses dependent on the Bay-Delta system" and "Provide good water quality for all beneficial uses." The solution principle is "Be affordable"—solutions will be implementable and maintainable within the foreseeable resources of the Program and stakeholders.

IA-1-0.0-28

The Delta Protection Act is recognized in Chapter 8 in the Programmatic EIS/EIR. CALFED actions will be in accord with the Delta Protection Act. Please see responses IA-1-0.0-13 and IA-5.0-7.

IA-1-0.0-29

The Programmatic EIS/EIR identifies ecosystem restoration actions throughout the CALFED problem and solution areas, which include the north Delta. A description of the consequences associated with implementing ecosystem restoration actions and other CALFED actions is presented in the Programmatic EIS/EIR. Because of the programmatic nature of the EIS/EIR, the environmental consequences of the proposed actions, as well as measures to offset these consequences, are described in a broad sense. As such, it is premature to speculate on the absolute consequences to any area. Subsequent environmental review will be undertaken to examine the impacts of specific projects and their alternatives before the CALFED agencies commit to a definite course of action. The environmental review process will include substantial public outreach at the local and regional levels.

1.1.2 Development of the CALFED Bay-Delta Program

IA-1.1.2-1

Please see common response 1. Given the programmatic nature of the document, the broad geographic scope, and the large number of potential actions, a specific listing of agencies, organizations, and conservancies that will implement different aspects of the Program and use the Programmatic EIS/EIR in their decision making is premature. Similarly, a list of specific permits and approvals is premature. Section 1.5.1 in the Programmatic EIS/EIR notes that it is anticipated that future lead agencies, responsible agencies, and stakeholder local agencies

(such as water districts) will rely on the Programmatic EIS/EIR as they consider subsequent actions. The section further notes that, as appropriate, any decisions will also depend on subsequent environmental documents prepared for specific actions that tier from the Programmatic EIS/EIR. Chapter 8 in the Programmatic EIS/EIR lists the various environmental regulatory compliance requirements for the Preferred Program Alternative and indicates the proposed compliance approach. This list will serve as a reference for site-specific project planning, permit processing, and environmental documentation requirements that will take place throughout Program implementation. The Program is also setting up a long-term framework to help facilitate the process of obtaining project-specific permits and approvals, as well as complying with environmental review and consultation requirements.

IA-1.1.2-2

The Council of Environmental Quality's implementing regulations for NEPA indicate that lead agencies should request participation by other agencies in the preparation of environmental documents. Those agencies agreeing to participate are called "cooperating agencies." Cooperating agencies were identified by the lead agencies early on in the Program. The California Department of Food and Agriculture was not identified as a cooperating agency by the lead agencies.

IA-1.1.2-3

CEQA Guidelines Section 15086 (a) requires that lead agencies solicit comments from trustee agencies with resources affected by the project and any other state, federal, and local agency that has jurisdiction by law with respect to the project or that exercises authority over resources that may be affected by the project. CALFED discharged this CEQA requirement by inviting comment from agencies that appeared to meet the criteria in Section 15086 (a). Trustee agencies are clearly defined in CEQA as the State Lands Commission, the California Department of Fish and Game (DFG) and, for some lands, the Department of Parks and Recreation and the University of California. Appendix B of the CEQA Guidelines identifies the California Department of Food and Agriculture as having some authorities for areas that could be affected by CALFED actions. Thus, the invitation to comment was specifically requested under the California Department of Food and Agriculture's exercise of authority over resources that could be affected by the project and not as a trustee agency. Under CEQA, a responsible agency is a public agency that proposes to carry out or approve a project for which a lead agency is preparing or has prepared an EIR. For the purposes of CEQA, the term "responsible agency" includes all public agencies other than the lead agency with discretionary approval power over the project. CALFED cannot designate any agency as a responsible agency.

IA-1.1.2-4

The names and titles of individuals responsible for approving the Programmatic EIS/EIR will be included in the ROD/certification of the environmental document. Their addresses are a matter of public record.

1.1.3 Structure of the Program

IA-1.1.3-1

This response has been consolidated with response IA-5.3.1-6. Please refer to this response for the answer to your comment.

IA-1.1.3-2

The Programmatic EIS/EIR describes the consequences that are expected to occur when the Program is completely in place. For analysis purposes, this was assumed to be 2020. However, full implementation depends on many factors, including adequate funding. The section referenced by the commentor is discussing what occurred in phases of the Program. The sentence preceding the sentence in question indicates that Phase II is ongoing and will culminate in an ROD/CERT of the Programmatic EIS/EIR in 2000. The sentence in question indicates that the Preferred Program Alternative is being developed in Phase II. It also indicates that an Implementation Plan focusing on the first 7 years is being prepared in Phase II. The commentor must have misinterpreted this second statement to mean that the Programmatic EIS/EIR was assessing the consequences of the actions only in the first 7 years rather than the whole of the Program.

IA-1.1.3-3

This response has been consolidated with responses IA-7.1.4-4 and IA-2.1-7. Please refer to these responses for the answer to your comment.

IA-1.1.3-4

The Program defined project objectives, and they will be met by the actions being proposed. The Program's initial focus in Phase I of the planning process was to define Bay-Delta problems and Program objectives, and to identify actions in order to resolve those problems and meet the objectives. This effort was undertaken in a series of public workshops attended by agencies, stakeholders, and the public. The objectives are listed in Chapter 1 in the Programmatic EIS/EIR and in the various program plans. The proposed Preferred Program Alternative identifies programmatic actions that will meet the Program's mission to develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. The Program's intent in Phases I and II was to identify programmatic problems, objectives, and actions to support the selection of a Preferred Program Alternative, rather than the selection of specific actions. The Preferred Program Alternative describes a set of actions that should be taken by a variety of organizations to move forward on a comprehensive approach to managing Bay-Delta resources.

IA-1.1.3-5

Please see common response 22. CALFED agencies never committed to recovering lost water supplies and increasing water supply beyond the pre-Accord level. CALFED established its mission statement and four primary objectives early in the Program. The primary objective for water supply reliability is to reduce the mismatch between Bay-Delta water supplies and the current and projected beneficial uses dependent on the Bay-Delta system. See Phase II Report for three goals that accompany this objective.

Please see common response 2. While it is not CALFED's goal to ensure California's water supply, CALFED does agree that many other tools are needed to help water supply reliability. The CALFED Water Management Strategy (see Section 3.6 in the Phase II Report) includes water conservation; water reclamation; water transfers; water quality improvements; conveyance improvements; and potential storage, including groundwater.

IA-1.1.3-6

Please see common response 1. NEPA and CEQA are intended to inform decision makers and the public of the environmental consequences of the proposed action, provide an analysis of alternatives, and ensure consideration of mitigation options. The governance, financing (including cost-sharing), and assurance structures do not cause

physical changes to the environment or affect the analysis of anticipated impacts, alternatives, or mitigation options. These structures therefore are not analyzed in the Programmatic EIS/EIR. However, CALFED is continuing work on these issues.

IA-1.1.3-7

Please see common response 1. The document discusses the consequences of operating, constructing, and maintaining potential new storage facilities. Given the uncertainty of where new storage facilities might be built and if they ever will be built, the document presents representative consequences largely from a worst-case perspective. The whole of the analysis, across the many resource areas, presents the overall consequences (cumulative) of the Program. The cumulative impacts resulting from implementation of the Program and other projects are presented in Section 3.5 and Table 3.8 in the Programmatic EIS/EIR. The discussions in Section 3.5 are purposefully brief and general due to the uncertainty associated with the future Program actions as well as the related actions. Again, the document presents a worst-case analysis in identifying for decision makers that the cumulative effects could result in potentially significant consequences on a large number of resources. The consequences of not implementing the Ecosystem Restoration Program, as well as any other of the CALFED programs, is described under the No Action Alternative.

1.2 Project Description and Program Purpose and Need

IA-1.2-1

The language on page 1-6, paragraph 1, in Section 1.2 in the June 1999 Draft Programmatic EIS/EIR has been revised as follows:

> Approval of the ROD/CERT of this Programmatic EIS/EIR provides the general direction for long-term implementation of the CALFED Program. The Program includes a range of balanced actions that can be taken to move forward on a comprehensive, multi-agency approach to managing Bay-Delta resources. The Programmatic EIS/EIR allows the decision makers and the public to evaluate the consequences of the alternative approaches to accomplishing the goals and objectives of the Program at a programmatic planning stage. Thus the "project" as an element of the California Environmental Quality Act (CEQA) is a decision to approve the long-term, multi-stage plan as described in this Programmatic EIS/EIR.
>
> Additional specific information will be necessary for subsequent decisions during implementation of the Program over the next 30 or more years. Thus, the project is the approved planning road map for achieving the CALFED Program purpose: to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. Although the decision affects a broader geographical area, the decision in the ROD/CERT of this Programmatic EIS/EIR is similar to the approval of a general plan on a local level for a city or county. The general plan sets the broad policy direction for a wide range of possible future actions while allowing the opportunity for flexibility to changing needs. Each of the four primary objectives for the Program set forth on page 1-5 must be met to achieve the project purpose. Each alternative examined, including the Preferred Program Alternative, is designed to meet these objectives in a comprehensive, integrated manner.

As a description of the long-term planning framework and strategy for implementing the plan with future, staged decision making, the project description is appropriately detailed for the initial planning-level document in a tiered sequence of environmental documents. (Please see Public Resources Code Section 21068.5, "coverage of general

matters and environmental effects in an EIR prepared for a policy, plan, program or ordinance followed by narrower or site-specific EIRs which incorporate by reference the discussion in any prior EIR..." and 40 CFR 1502.20, "Use of tiered EISs for broader activities such as programs or policy statements or for initial stages of actions.") The statement of objectives expands on the project description and further explains how the purpose will be achieved within each of the four resource categories critical to the Bay-Delta system.

Both CEQA and NEPA require that an agency consider the environmental impacts of their actions at the earliest point in time when that analysis is meaningful. In such a large, long-term, and complex process as the CALFED Program, not all the specifics of the Program can be identified or analyzed at the outset. During an extensive scoping process with stakeholders and other interested members of the public, it was determined that moving forward with the programmatic-level environmental review (please see common response 1), rather than waiting until individual parts of the project were ready for approval, would allow fuller disclosure and improve the opportunity for decision makers and the public to consider alternatives. As a programmatic planning-level document, this Programmatic EIS/EIR is more like the approval of a general plan for a city or county, which sets the broad policy direction for a wide range of possible future actions over a long-term planning horizon and at the same time allows the opportunity for flexibility as circumstances change over time. This first environmental document in the "tiered" sequence will be used as the basis for subsequent environmental review to examine the impacts of anticipated projects, their specific locations, and alternatives before the CALFED agencies commit to a definite course of action with respect to those projects. Please see the Phase II Report for further information on Program development.

The Program alternatives, including the Preferred Program Alternative, are described in Section 2.1 in the Programmatic EIS/EIR (please see common response 5). The descriptions of the alternatives begin with a summary indicating that each alternative is made up of eight Program elements and, except for Conveyance, all the elements are exactly the same for each alternative. The summary is then followed by a description of each of the elements, including a discussion of the conveyance differences between alternatives. The description of the eight elements then is followed by the description of each alternative. Mitigation measures are noted following each resource section in Chapters 5, 6, and 7 in the Programmatic EIS/EIR.

The text box on page 1-3 in the June 1999 Draft Programmatic EIS/EIR identifies the lead agencies responsible for preparing this document. As lead agencies, the federal agencies will sign the ROD, and the Resource Agency will certify that the document complies with CEQA.

IA-1.2-2

The purpose of the Program is to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. To practically achieve this Program purpose, CALFED has concurrently and comprehensively addressed problems of the Bay-Delta system within each of four critical resource categories: ecosystem quality, water quality, water supply reliability, and levee system integrity. Important physical, ecological, and socioeconomic linkages exist between the problems and possible solutions in each of these categories. Accordingly, a solution to problems in one resource category cannot be pursued without addressing problems in other resource categories. The Preferred Program Alternative in the Programmatic EIS/EIR broadly defines an integrated, interrelated, long-term comprehensive solution to the fish and wildlife, water quality, water reliability, and levee system integrity problems mentioned in the Framework Agreement. CALFED has identified numerous measures (please see Sections 7.1, 7.2, and 7.3 in the Programmatic EIS/EIR) to minimize impacts on agricultural lands. Chief among those measures is the CALFED policy to complete its work on public land rather than on private land, to acquire easements from willing landowners and, as a last resort, to acquire land from willing sellers. Please see common responses 4 and 22 for CALFED's proposals for water storage.

IA-1.2-3

Please see common response 22. Given the programmatic nature of the Program, the evaluations are mainly broad comparisons between existing conditions, the No Action Alternative, and the CALFED alternatives. Early Program objectives such as "maintain an adequate water supply" provide general direction for the Program. As part of the development of the Water Management Strategy, CALFED has attempted to define objectives for water supply reliability that are more measurable. The CALFED agencies believe that to improve water supply reliability, the strategy must: (1) increase the utility of available water supplies (making water suitable for more uses and reuses); (2) improve access to existing or new water supplies in an economically efficient manner for environmental, urban, and agricultural beneficial uses; and (3) improve the flexibility of managing water supply and demand in order to reduce conflicts between beneficial uses, improve access to water supplies, and decrease system vulnerability. These objectives will help to design a Water Management Strategy that improves overall water supply reliability.

IA-1.2-4

Please see common responses 1, 5, and 22. Given the programmatic nature of the document, the objectives for water supply reliability, water quality, ecosystem restoration, and levee system integrity are adequately described and proved very useful in developing the programmatic alternatives.

IA-1.2-5

The list of objectives on page 1-7 in the June 1999 Draft Programmatic EIS/EIR summarizes the more extensive list of objectives in the Ecosystem Restoration Program Plan. The reduction of entrainment losses is included as part of summary objective 2: "Improve in-Delta, upstream, and downstream movement of larval, juvenile, and adult life stages of aquatic species" and is more specifically described in Volume I of the Ecosystem Restoration Program Plan (please see "Vision for Reducing or Eliminating Stressors - Water Diversions"). In addition, CALFED is working on an Environmental Water Account that is designed to reduce entrainment losses at the pumps.

IA-1.2-6

During Phase I, the Program worked with the public; local, state, and federal agencies; and numerous stakeholder groups to define the Program's mission, goals, and objectives. The goal established for water supply reliability was to reduce the mismatch between Bay-Delta water supplies and current projected beneficial uses dependent on the Bay-Delta system. This goal is accomplished by the CALFED Preferred Program Alternative through addressing the objectives that collectively reduce the conflict among beneficial water users, improve the ability to transport water through the Bay-Delta system, and reduce the uncertainty of supplies from the Bay-Delta system.

The watershed element of the Program will facilitate the development of locally appropriate, community-based strategies to maintain and improve watershed conditions in order to achieve the objectives of CALFED. These actions will help to improve water supply reliability in the source areas.

IA-1.2-7

The existing statement of need identifies factors affecting fish and wildlife resources. The factors are described quite broadly and there is no intent to tie them to any particular user. As the Program moves to implementation and begins to prepare environmental documents for specific projects, the descriptions of need will be written more specifically.

IA-1.2-8

The second sentence of the statement clarifies that the drafters are talking about drinking water or "consumptive human use of water."

IA-1.2-9

The NEPA/CEQA analysis is adequate for a programmatic EIS/EIR. Further, when complete, the ROD will be supported and signed by the lead federal agencies.

IA-1.2-10

The cause of the Bay-Delta problems are presented in the need statements on pages 1-8 through 1-10 in the June 1999 Draft Programmatic EIS/EIR. The potential costs associated with fixing the problem are described in response IPF 5.4-1.

IA-1.2-11

All objectives have equal weight.

IA-1.2-12

Water use efficiency issues, as with many aspects of the Program, can be controversial in nature. The Water Use Efficiency Program seeks to maximize conservation benefits to the Bay-Delta in the most equitable manner possible.

IA-1.2-13

Please see responses IA-1.2-1; IA-1-0.0-6; and IA 2.1-7; and common responses 1 and 5. Given the programmatic nature of the alternative actions and the type of decision to be made, the assessment of impacts is appropriate. The solution principles provide an overall measure of the acceptability of alternatives and guide the design of the institutional part of each alternative. The acceptance and guidance afforded by the solution principles will help to ensure that the Program achieves its overall purpose and objectives.

IA-1.2-14

This response has been consolidated with response IA-1.2-13. Please refer to this response for the answer to your comment.

IA-1.2-15

Please see response to IA-1.2-1. As presented in Section 1.1.2 in the Programmatic EIS/EIR, the Principles for Agreement on Bay-Delta Standards between the State of California and the Federal Government (also called the Bay-Delta Accord) is the basis of the lead agencies' authorization for the Program. The need for the Program is clearly spelled out in the purpose and need section in the Programmatic EIS/EIR.

IA-1.2-16

This response has been consolidated with response IA-1-0.0-20. Please refer to this response for the answer to your comment.

IA-1.2-17

This response has been consolidated with response IA-1-0.0-20. Please refer to this response for the answer to your comment.

1.3.1 CALFED Problem and Solution Areas

IA-1.3.1-1

Please see common response 13. CALFED supports the area-of-origin concept and is developing the Program consistent with the laws and regulations protecting areas of origin. A discussion of the area-of-origin concept has been added to Chapter 8, "Compliance with Applicable Laws, Policies, and Plans, and Regulatory Framework." The Preferred Program Alternative, as well as each of the other alternatives, touches on areas of origin. The consequences of implementing the Preferred Program Alternative on areas of origin are described in the Programmatic EIS/EIR.

IA-1.3.1-2

The geographic scope of the problem and solution areas evolved through both technical and public forum discussions. The Program is addressing problems that have been identified in or closely linked to the Suisun Bay/Suisun Marsh and Delta area. The scope of possible solutions to these problems (solution area) encompasses any action that can be implemented by local or CALFED agencies to address the problems.

The map depicted in Figure 1-3 in the June 1999 Draft Programmatic EIS/EIR purposefully does not delineate a specific solution area by property line. Rather, the map depicts the solution area quite broadly to impart to the reader that solutions for the problems in the problem area can come from many areas in California, and that the Program is in a broad planning phase and has not settled on the locations of specific actions. The figure has been removed from the Final Programmatic EIS/EIR and has been replaced with the narrative description presented on page 1 in the June 1999 Revised Phase II Report.

Some watersheds in Mendocino County are linked to the Bay-Delta system. The watershed element of the Program is interested in supporting locally advocated actions in those watersheds that are linked to the Bay-Delta system. In addition to the watershed element, the water quality element seeks to improve the quality of water flowing from these watersheds into the problem area through voluntary, cooperative, and incentive-based efforts. The band along Mendocino's coast line that runs from Point Concepcion to the Oregon border was included in the Program's geographic scope to cover anadromous fish.

Portions of the Central Coast are served by water delivered from the State Water Project (SWP) and the Central Valley Project (CVP). As such, actions contemplated in the Water Transfer and Water Use Efficiency Programs would be applicable in these areas. Additionally, this tie will allow these areas to benefit from the Program's improvements in water supply reliability and water quality. The CALFED Bay-Delta encompasses the entire Bay-Delta watershed, which includes not only the Bay-Delta, but also the tributaries to the Delta and the near-shore ocean (please see common response 8).

Storage is discussed in common response 4.

IA-1.3.1-3

This response has been consolidated with response ERP II 5.0-1. Please refer to this response for the answer to your comment.

1.3.2 Description of the Study Area

IA-1.3.2-1

Section 1.3.2 has been modified as follows: El Dorado and Sacramento Counties have been added to the list of counties in the Sacramento River Region. Additionally, the San Joaquin River Region description has been expanded to include a list of the counties in that region: Calaveras, Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin, Stanislaus, Tulare, and Tuolumne.

1.4 Program Alternatives Development Process

IA-1.4-1

NEPA regulations require that an EIS briefly specify the purpose and need to which the agency is responding in proposing the various alternatives. Similarly, CEQA requires that each EIR include a statement of the objectives sought by the proposing entity. The statement of purpose and need and the objectives are intended to help develop a reasonable range of alternatives. The Program developed a purpose and need statement along with objectives to help guide alternatives development.

Four alternatives are evaluated in the Programmatic EIS/EIR (please see common response 5). Each of the four alternatives result in similar impacts, except for Conveyance. Because of the programmatic nature of the analysis, impacts are described quite broadly (please see common response 1). On the basis of our programmatic analysis, it would appear that the other alternatives result in either similar or more potentially significant impacts than those described for the Preferred Program Alternative. While scientific and engineering evidence suggests that a dual-Delta conveyance configuration (Alternative 3 as opposed to the Preferred Program Alternative) may improve export water quality and achieve fish recovery more effectively, other evidence indicates that such a conveyance configuration can cause in-Delta water quality problems and result in greater construction impacts. CALFED did not rule out the possibility of constructing dual-Delta conveyance facilities in the future (Alternative 3). In light of the uncertainties, however, the CALFED agencies propose to begin with through-Delta modifications.

IA-1.4-2

The numbers for the alternatives reviewed in the March 1998 Draft Programmatic EIS/EIR were used to help those readers familiar with the previous document understand the similarities between those alternatives and the ones analyzed in the June 1999 Draft Programmatic EIS/EIR. The three alternatives that were analyzed in the June 1999 Draft Programmatic EIS/EIR are clearly described along with the differences (page 1-18) between them and the previous alternatives. Accordingly, there is no need to repeat the descriptions in this document.

1.6 Relationship with Other Ongoing Programs

IA-1.6-1

The Metropolitan Water District of Southern California's (MWD's) maximum Delta contract amount was examined in the analysis prepared for the Programmatic EIS/EIR. MWD's additional demands should not result in additional impacts unless the request exceeds current contract amounts.

IA-1.6-2

This section entitled "Relationship with Other Programs" is meant to provide the reader a sense of ongoing or upcoming activities that could be affected by the Program. There is no attempt, nor is this the place, to identify actions used in the cumulative impact analysis (please see Attachment A), activities under existing conditions (please see Chapters 5 through 7), or activities under the No Action Alternative (please see Chapter 2 and Attachment A).

IA-1.6-3

The section offers assumptions about what might happen if the SWRCB decides to increase the amount of water from other than CVP and SWP water rights holders to meet Bay-Delta water quality standards. The assumptions disclose to the reader some sense of how additional water might be used by the Program. The suggested replacement language does not provide the reader with any sense of the possible relationship between the SWRCB process and the Program. However, it is not an incorrect statement, and it has been added to the end of the current language.

IA-1.6-4

This response has been consolidated with responses WQ 12.7.5-1 and WQ 12.7.5-2. Please refer to these responses for the answer to your comment.

IA-1.6-5

The amount of water diverted is inherent in any decision made by the SWRCB.

IA-1.6-6

The low end of the demand range, used with Criterion A, was year 1995 water demands. The source of that data was DWR's Bulletin 160-98 for 1995. The suggested changes to the text on the draft 4.4 million acre-feet (MAF) plan for use of Colorado River water have been made in the Final Programmatic EIS/EIR.

IA-1.6-7

It was not CALFED's intent to imply that the CVP and SWP may not benefit from the SWRCB process to allocate responsibilities for the 1995 Water Quality Control Plan (WQCP) flows. The sentence, "It may also reduce the amount of water that the Program needs to develop or may allow for the developed water to be used more effectively in meeting Program objectives" (please see Section 1.6 under "Water Rights Process for CVP and SWP"), was intended to address the CVP and SWP benefits. This statement has been clarified by adding a new sentence in Section 1.6:

"Likewise, the CVP and SWP also may gain water if more of the responsibility for meeting the WQCP flows are allocated to water rights holders."

IA-1.6-8

Changes have been made to the document.

IA-1.6-9

This response has been consolidated with response IA-6.1.6.11-1. Please refer to this response for the answer to your question.

IA-1.6-10

Changes have been made to the document.

2. Alternative Descriptions

0. General Responses

IA-2-0.0-1

Several potential reservoir sites have been identified in the Delta. If constructed, up to 15,000 acres of land could be affected. The Delta includes about 538,000 acres of irrigated agricultural land.

IA-2-0.0-2

This response has been consolidated with response IA-5.2.8-1. Please refer to this response for the answer to your comment.

IA-2-0.0-3

This response has been consolidated with response WUE 1.4-4. Please refer to this response for the answer to your comment.

IA-2-0.0-4

Please see common responses 1 and 5. At present, future environmental water requirements are highly uncertain. Therefore, CALFED modeled a range of conditions that could lead to lower or higher Delta exports. The Criterion A assumption set (please see Attachment A to the Programmatic EIS/EIR) defines the highest environmental water requirements and lowest Delta exports considered in this analysis. For example, modeling using Criterion A and without new reservoirs resulted in lower Delta exports than under existing conditions. The impact analysis includes the effects of this reduced Delta export. The CALFED agencies believe that the impacts from the combination of all CALFED actions have been portrayed with a level of detail sufficient for a programmatic assessment.

IA-2-0.0-5

Please see common response 5. The Programmatic EIS/EIR assumes that improvements in the diversion facility, fish screens, point of diversion, and mode of operations will reduce fishery impacts. To reduce diversions during periods of fish vulnerability, it will be desirable and equitable to the SWP/CVP contractors for diversions to be increased during safe periods. This approach will reduce or eliminate adverse impacts on the water users. Accomplishment of the diversionary increases needed for this approach will require relaxation of the current U.S. Army Corps of Engineers' restrictions on pumping rates.

IA-2-0.0-6

This response has been consolidated with response WQ 7.5.3-2. Please refer to this response for the answer to your comment.

IA-2-0.0-7

The Programmatic EIS/EIR provides a broad overview of the consequences of implementing all of the potential CALFED actions throughout the state over a period of 30 years (please see common response 1). The analysis of consequences and the range of operating conditions that were analyzed were never intended for use to allow implementation of actions. It has always been assumed that subsequent environmental documentation will be needed before specific actions with relevant operating conditions are implemented. Since the Programmatic EIS/EIR serves to illuminate the overall consequences of the whole Program and compare programmatic alternatives, documents tiered from the Programmatic EIS/EIR will be able to reference the overall consequences of the Program and focus on the consequences of the specific action. Given the uncertainty with respect to specific actions that might come out of the Program, the best possible discussion of growth-inducing impacts would be pure speculation. Accordingly, the Programmatic EIS/EIR identifies resource areas that might cause growth-inducing impacts. The resource information will serve as a reminder as well as a focus to preparers of documents tiering from the Programmatic EIS/EIR to consider impacts on resources resulting from growth. Please refer to response IA-3.2-1 for additional information concerning growth.

IA-2-0.0-8

The summary tables in Chapter 3 in the Programmatic EIS/EIR describe the various consequences, including potentially significant impacts, for each alternative. Similarly, the summary description preceding the discussion of each resource in Chapters 5, 6, and 7 discloses the differences in consequences, including potentially significant impacts, between the various alternatives. One of the tables in Chapter 3 identifies potentially significant impacts for the Preferred Program Alternative.

IA-2-0.0-10

Please see common response 22. The Water Use Efficiency Program is one of many tools in the Water Management Strategy that will prove useful in reducing the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system.

IA-2-0.0-11

Meeting all four Program goals is the very foundation of the Program. If the Program is going to be successful, each of the elements in question will need to be realized. If they are not, the Program will not meet its overall mission to develop a comprehensive plan that will restore the ecological health and improve water management for the beneficial uses of the Bay-Delta system.

We assume that your comment regarding an alternative providing "greater technical performance" refers to Alternative 3 in the March 1998 Phase II Report. If this assumption is correct, the March 1998 report also indicates that Alternative 3 presents the most serious challenges in terms of assurances and implementability. Further, the June 1999 Revised Phase II Report indicates that CALFED needs to obtain better scientific information plus information on an array of water supply options in order to assess the need for dual-Delta conveyance. The Programmatic EIS/EIR evaluates an alternative that includes the features of Alternative 3 in the March 1998 Phase II Report. It is identified as Alternative 3 in the Programmatic EIS/EIR. For a variety of reasons, this alternative was not selected as the Preferred Program Alternative. However, the Preferred Program Alternative does include all of the features described for Alternative 3 except for Delta conveyance.

The CALFED agencies propose to begin with through-Delta conveyance modifications. In the event that the through-Delta conveyance facilities in the Preferred Program Alternative cannot meet the Program

objectives—particularly for water quality and fisheries, the Preferred Program Alternative includes a process for determining the conditions under which any future additional conveyance facility actions, including those in Alternative 3, would be taken. 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/objectives.

IA-2-0.0-12

Under CEQA, the EIS/EIR must consider a reasonable range of alternatives that could feasibly attain most of the basic objectives of the project and that would avoid or substantially lessen one or more of the significant effects of the project (CEQA Guidelines, Section 15126.6). Under NEPA, the lead agency must consider a range of alternatives that achieve the purpose of the proposed action and permit a reasoned choice (42 U.S.C. Section 4332[C], [E]). The CALFED Program involves multiple objectives, with many potential conflicts in achieving its purpose of developing a plan to restore ecological health and improve water management for beneficial uses of the Bay-Delta system. No one alternative can achieve all of the Program's objectives completely. Differing environmental impacts are associated with each alternative, particularly with regard to the effects of conveyance on affected resources. These various impacts are summarized in Chapter 3 in the Programmatic EIS/EIR.

IA-2-0.0-13

Development of the Preferred Program Alternative incorporated seismic vulnerability information presented in CALFED's December 1998 report entitled Seismic Vulnerability of the Sacramento-San Joaquin Delta Levees.

CALFED intends to perform a risk management analysis to quantify all major risks and the severity of their consequences, and to develop an appropriate risk management strategy that can be implemented to mitigate the risks to, among other things, the primary water delivery systems. This is consistent with CALFED's adaptive management strategy in the implementation of the Preferred Program Alternative. CALFED invites public input on the upcoming risk management analysis.

IA-2-0.0-14

The Levee System Integrity Program will reduce the risk to the ecosystem of catastrophic breeching of Delta levees from static loading, such as floods, but not from dynamic loading, such as earthquakes—which could cause liquefaction of the levee foundation.

IA-2-0.0-15

Five potential CALFED surface storage sites are located in the Sacramento River Region, all toward the west side of the region. These include Shasta Lake enlargement (onstream) and four potential off-stream storage locations: Thomes-Newville, Sites, Schoenfield, and Colusa. These reservoirs could be used to capture periodic high winter flows. This water could be returned to the river to meet downstream needs or delivered directly to Sacramento Valley users to reduce other diversions and related fish entrainment. Environmental releases could provide pulse flows.

Cooperative conjunctive use projects with local entities can improve water supply reliability within the region and in other basins. These projects could allow users to switch more flexibly between surface water and

groundwater supplies and could provide fisheries diversion benefits, drought-year supplies, and greater transfer capacity.

Programmatic actions in the Sacramento River Region include:

- Sacramento River habitat restoration.
- Tributary habitat restoration (for example, Butte, Deer, and Battle Creeks).
- Mercury source remediation.
- Water use efficiency for multiple benefits.
- Water transfers clearinghouse and related procedures.
- Cooperative conjunctive use projects.
- Potential surface storage projects (enlarged Shasta, Thomes-Newville, Sites, Schoenfield, and Colusa).
- Watershed management.

Regional CALFED benefits in the Sacramento River Region include:

- Improved water supply reliability from conjunctive use, water transfers, water use efficiency, and potential surface storage.
- Improved flood control from watershed management and potential surface storage.
- Improved water quality from source control, mine remediation, and water use efficiency.
- Improved ecosystem health from habitat restoration, barrier removal, hatchery management, water management, and potential surface storage.

IA-2-0.0-16

CALFED will generally not rely on new regulations to implement Program objectives. The Program does recognize that existing regulatory programs will continue to be implemented by CALFED agencies. CALFED represents a unique opportunity to provide high-level coordination of these regulatory programs so that regulatory implementation works in furtherance of Program goals. The Program specifically defines incentives and voluntary partnerships to implement many individual actions in the Program. Incentives allow stakeholders to participate in CALFED actions that may not have been economical to them without the incentives. Partnerships allow stakeholders and CALFED agencies to leverage their individual resources by teaming on certain actions.

Some regulations, like those contained in the state and federal ESAs and Section 404 of the CWA, must be satisfied by CALFED as the Program is implemented. Many other regulatory actions can be made more effective and constructive as a result of CALFED actions. For example, water quality regulatory agencies are obligated to develop total maximum daily loads (TMDLs) for certain water quality constituents in the Bay-Delta system. CALFED efforts in monitoring and research will provide valuable information that will assist regulatory agencies

in developing these TMDLs. CALFED incentive-based source control actions will help to reduce the load of these and other pollutants. In this way, many ongoing regulatory requirements will be easier to satisfy in the context of the Program.

IA-2-0.0-17

The concept of time value of water continues to guide development of the CALFED Water Management Strategy and the flow portions of the Ecosystem Restoration Program. For example, the ecosystem strategy calls for restoring the timing and magnitude of critical in-stream flows, providing periodic high flows for channel forming in Bay-Delta tributaries, and increasing Delta outflow during key spring periods. The details of when and where the flows are most valuable are still being worked out in evaluations and strategies for the Ecosystem Restoration Program and the Environmental Water Account (EWA). Some of these flows will be better defined as experience is gained with actual changes in flow patterns and adaptive management for further refining the flow needs.

IA-2-0.0-18

This response has been consolidated with response IA-1-0.0-13. Please refer to this response for the reply to your comment.

IA-2-0.0-21

There are several mechanisms for additional fresh-water flow through the Delta and Bay. The Central Valley Project Improvement Act (CVPIA) Section 3406(b)(2) water provides for 800,000 acre-feet of CVP yield for environmental purposes. CALFED has not yet specifically detailed environmental water needs or how and when the water will be acquired (or developed). However, the Ecosystem Restoration Program has identified flow targets for environmental flows, and the evaluations for the EWA could lead to additional Delta outflow. Monitoring and research with actual flows and modifications using adaptive management will be required before actual environmental flow needs are known. Since the CALFED evaluations are at a programmatic level of detail, system modeling assumed a range of potential conditions. The Criterion A (please see Attachment A to the Programmatic EIS/EIR) assumption set defines the highest environmental water requirements and lowest Delta water exports considered in the analysis. The Criterion B assumptions set defines the lowest environmental water requirements and highest Delta exports considered in the analysis. In addition, the range of Program alternatives provides for differences in Delta conveyance that result in different flows through the Delta and Bay. Please also see responses PH 2-3.6.6-32; PH 2-3.6.6-35; PH 2-3.6.6-45; PH 2-3.6.6-47; PH 2-3.6.6-70; and PH 2-3.6.6-72.

IA-2-0.0-22

CALFED considered a range of conditions for modeling and for impact analyses. Table 5.1-2 shows the combinations of criteria used. The impact analysis in the Main Document evaluates the impacts of this range of conditions.

IA-2-0.0-23

The approach to water recycling will include water recycling feasibility planning as part of the urban conservation certification effort (please see Section 2.2.2, "Urban Water Use Efficiency Approach"). Presently, all urban water agencies that are required to prepare Urban Water Management Plans under California Water Code Section 10610 *et seq.* also must prepare a water recycling feasibility plan as part of the process (Cal. Water Code Section 10631). CALFED will help urban water suppliers comply with these regulations by assisting local and regional agencies

with preparation of water recycling feasibility plans (that meet the requirements of the Urban Water Management Planning Act).

IA-2-0.0-24

This response has been consolidated with response WQ 12.8-22. Please refer to this response for the answer to your comment.

IA-2-0.0-25

Please see common responses 1 and 16. The isolated facility is evaluated as part of Alternative 3 in the Programmatic EIS/EIR. The CALFED agencies propose to begin with through-Delta modifications. In the event that the through-Delta conveyance facilities in the Preferred Program Alternative cannot meet the Program objectives—particularly for water quality and fisheries, the Preferred Program Alternative includes a process for determining the conditions under which any future additional conveyance facility actions, including an isolated facility, would be taken. 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/objectives.

IA-2-0.0-26

This response has been consolidated with response PH2.3.6.1-9. Please refer to this response for the reply to your comment.

IA-2-0.0-27

This response has been consolidated with response IA-3.5-3. Please refer to this response for the reply to your comment.

IA-2-0.0-28

The Program was established to resolve problems in the Bay-Delta system. Solutions to those problems can be found in all the watersheds tributary to the Delta. The Ecosystem Restoration Program Plan looks at 14 ecological zones that cover the Central Valley watersheds tributary to the Delta. Work in watersheds not tributary to the Delta will not resolve problems in the Delta.

IA-2-0.0-29

An important component of CALFED is interaction with stakeholders throughout the implementation phase. The interaction will allow better public, as well as CALFED, understanding of local and regional needs (for example, the feasibility and compatibility of ecosystem restoration efforts with other proposed water management uses), thereby improving management decisions. Upon agreement regarding a course of actions, environmental documents will be prepared that clearly spell out alternative courses of action; describe the status of the existing environment, including agriculture; and array the consequences of taking such actions—before a decision is made to move forward.

CALFED's Water Management Strategy will evaluate and compare the many actions and approaches for addressing the issue of water supply reliability. The menu of actions that will be used to achieve the goals and

objectives of the Water Management Strategy include water use efficiency, water transfers, conveyance, storage, and operational strategies. Early on in the planning for implementation of these actions, CALFED will necessarily need to inventory existing resources and their current level of use, as well as make projections about the relationship between current use and total need, in order to set forth a strategy that will attain the objective of improving water supply reliability.

IA-2-0.0-30

The commentor needs to review all the documents making up the Programmatic EIS/EIR, including later sections of the June 1999 Revised Phase II Report wherein information regarding benefits and detriments of storage can be found—as well as throughout the many resource sections in the impact analysis document.

Please see common responses 4 and 10. CALFED formed the Conjunctive Use Advisory Team to ask about local interests for CALFED support on conjunctive use projects. Positive responses have been received throughout California. Opportunities described in public responses received as of publication of this document are shown in the Phase II Report. CALFED will continue to evaluate these as well as other opportunities presented by the public. For purposes of the Programmatic EIS/EIR evaluation, an inventory of 52 potential new surface storage projects was compiled. Those projects that appeared most feasible are described in the Phase II Report. A more complete screening process for surface storage opportunities will proceed over the coming months. CALFED encourages local entities to submit their ideas for potential storage sites.

CALFED prepared a Programmatic EIS/EIR (please see common response 1) to broadly array the long-term consequences of the overall Program. The Programmatic EIS/EIR points out the beneficial and detrimental consequences to all resources, including those in the watersheds, that might be affected by the construction of groundwater or surface water storage reservoirs. CALFED prepared a Programmatic EIS/EIR because of the uncertainty with regard to the types of actions that might be undertaken, their location, and the timing of their implementation. As decisions are made on specific actions, they will be subject to the appropriate specific environmental review.

Concurrent with the preparation of the document that broadly describes the potential CALFED actions and their consequences, CALFED is undertaking the Integrated Storage Investigation. The Integrated Storage Investigation is a more detailed effort in the planning process to coordinate existing storage investigations by various CALFED agencies, CALFED-initiated storage evaluations, and broader water management strategies and analysis in order to provide a comprehensive assessment of storage options. As decisions are made on specific actions, they will be subject to the appropriate specific environmental review.

Based on a programmatic evaluation of potential water supply benefits and practical consideration of acceptable levels of impacts and total costs, the range of total new storage considered for evaluation in Phase II was from 0 to 6 MAF. This range was considered reasonable for study purposes and impact analysis; more detailed study and significant interaction with stakeholders will be required before specific locations and sizes of new storage are proposed. However, most water supply benefits of Sacramento River off-stream or enlarged on-stream surface storage are achieved with about 3 MAF of storage, while most water supply benefits of south-of-Delta off-aqueduct surface storage are attained with about 2 MAF of storage. Other types of surface storage considered in Phase II include San Joaquin River tributary storage and in-Delta storage. In addition, there may be significant opportunities for enhanced surface water and groundwater storage within service areas dependent on Delta water for some or all of their supplies.

The Watershed Program emphasizes community-led watershed planning and management. Local governments are key elements in such a strategy. Program principles include the involvement of local leadership; and the

program plan specifically identifies local planning, ordinances, and other regulations as a necessary element of projects that the program will support. Projects and programs supported by the Watershed Program will be locally led and locally supported, thereby addressing and ensuring that the significant issues of consumptive uses and needs in the watersheds will be addressed on a project-by-project basis.

IA-2-0.0-31

Please see common response 13. The Program fully intends to implement its actions in a manner consistent with California water rights, including existing laws and regulations protecting areas of origin. This intention is supported by understanding that the Program has no legal or regulatory jurisdiction over water rights or their application. These authorities are vested in the SWRCB and in the justice system (the courts). Although the SWRCB is one of the CALFED agencies working to develop a long-term Bay-Delta solution, the SWRCB retains its independent regulatory authority over water rights and water quality protection as authorized in California water law. As such, the SWRCB is regularly involved in water rights decisions and proceedings independent of the Program. The SWRCB is currently engaged in water rights hearings concerning the allocation of responsibilities to water rights holders for meeting Bay-Delta water quality standards as part of other state and federal requirements. To the extent that CALFED projects will include changes in water rights with potentially significant adverse consequences, these projects will be considered in project-specific EIRs for which the SWRCB will be the lead agency and CALFED or an appropriate CALFED agency will be the applicant. Please also see responses IA-5.1.4-14 and IP-2.8-2.

IA-2-0.0-32

The ROD will signal the lead agencies' intent to move forward with implementation of the whole of CALFED's long-term comprehensive plan for the Program. The ROD will recognize the programmatic nature of the proposed Program as well as recognizing that no action, including the proposed Stage 1 actions, can be taken until substantial additional planning and environmental review are completed. These specific actions will be the subjects individually and collectively of subsequent RODs. Please also see response IA-2-0.0-31.

IA-2-0.0-33

Please see common responses 5 and 16. Please see responses IA-1-0.0-13; IA-1.4-1; IA-2-0.0-22; IA-2-0.0-31; IA-2.1-7; IA-2.1-20; IA-2.2-5; IA-2.2-15; and IP-2.8-2. The consequences of the Program's proposed storage, conjunctive use, and water transfers are spelled out in a programmatic level of detail (please see common response 1) in the June 1999 Draft Programmatic EIS/EIR. All of these actions are part of CALFED's Water Management Strategy. CALFED has developed four strategies for dealing with each of the four Bay-Delta problem areas. Implementing these four strategies in an integrated manner will allow CALFED to meet its mission of developing a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. The Water Management Strategy addresses the issue of water supply reliability in the Bay-Delta system.

IA-2-0.0-34

To fully describe potential consequences of the isolated facility, as well as other Delta conveyance options and CALFED actions, we incorporated a reasonable range of uncertainty into the programmatic analysis. This range of uncertainty was quantified by formulating two distinct "bookend" water management criteria assumption sets. These two sets of assumptions, referred to as Criteria A and B, serve as boundaries for a range of possible Delta inflow, export, and outflow patterns in the programmatic analysis. The primary assumptions that differentiate the bookend operation assumption sets from each other and from existing conditions are Bay-Delta system water

demands and various Delta management criteria that regulate system operations. The specific assumptions in Criterion A and Criterion B are not requirements or proposals for implementation, nor are they intended to imply the outcome of future project-specific decisions. Extensive operation evaluations will be required in the future before any decision can be made on the specific operation of an isolated facility.

IA-2-0.0-35

The consequences of a diversion facility on the Sacramento River, for both Alternative 2 and the Preferred Program Alternative, are presented in each resource section in Chapters 5, 6, and 7 in the Programmatic EIS/EIR. Please see common response 16.

IA-2-0.0-36

CALFED recognizes that water quality can be affected as a result of the interaction of surface water and groundwater. The Programmatic EIS/EIR includes in Section 5.3.11 programmatic mitigation strategies to address water quality. However, the programs evaluated in the Programmatic EIS/EIR contain hundreds of actions that could affect water quality. Any action or project that will potentially affect water quality will be evaluated as part of the site-specific environmental review process.

CALFED agrees that mitigation strategies should be evaluated to demonstrate their effectiveness. Section 5.4.11 contains a list of possible mitigation strategies that will be considered during project planning and development. However, specific mitigation measures will be adopted to address potential impacts of site-specific projects, consistent with CALFED goals and objectives. Consistent with the adaptive management approach, these measures will be evaluated for their effectiveness during the course of the project. Additionally, existing mitigation strategies that have been proven effective will be integrated into specific actions.

2.1.1 Summary

IA-2.1-1

Please see common responses 5 and 16. The dual-Delta conveyance feature is analyzed as part of Alternative 3 in the June 1999 Draft Programmatic EIS/EIR. The ROD will address a full range of alternatives (please see common response 5).

IA-2.1-2

CALFED did not consider alternatives that would only reduce exports because CALFED must look for a solution that balances all needs of all water users depending on the Delta. However, the impact analysis description in the Programatic EIS/EIR discusses the effects of reduced Delta export.

Eliminating or significantly reducing Delta exports would violate CALFED's own purpose, solution principles, and water supply reliability objective. At present, a high level of uncertainty is associated with future environmental water requirements. Therefore, CALFED modeled a range of conditions that could lead to lower or higher Delta exports. The Criterion A assumption set (please see Attachment A to the Programmatic EIS/EIR) defines the highest environmental water requirements and lowest Delta exports considered in this analysis. For example, modeling using Criterion A without new reservoirs resulted in lower Delta exports than under existing conditions.

The purpose of the Program is to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. To practically achieve this Program purpose, CALFED must concurrently and comprehensively address problems of the Bay-Delta system within each of four critical resource categories: ecosystem quality, water quality, levee system integrity, and water supply reliability. Important physical, ecological, and socioeconomic linkages exist between the problems and possible solutions in each of these categories. Accordingly, a solution to problems in one resource category cannot be pursued without addressing problems in the other resource categories. The goal for water supply reliability is to reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system. Objectives for water supply reliability include increasing reliability of water for Bay-Delta beneficial uses and increasing reliability of exported water for beneficial uses. Please see common responses 4, 5, 16, and 22. Please also see response IA-2.1-20.

IA-2.1-3

The beneficial and detrimental consequences or weaknesses of Alternatives 2 and 3 are presented in Chapters 5, 6, and 7 in the Programmatic EIS/EIR. An effort undertaken to improve alternatives during Phase II in late 1997 was reported on to the Bay-Delta Advisory Council (BDAC) (October, November, and December BDAC packages) and in the March 1998 Phase II Report. The Preferred Program Alternative represents the optimal solution given the information at hand. The Program is to be implemented in a staged manner, and mechanisms are being established to obtain the necessary additional information to guide the next stage of decision making. The way the Preferred Program Alternative is structured, going forward does not preclude the Program's ability to undertake additional or modify currently proposed actions in the future, subject to appropriate environmental review.

IA-2.1-5

The Program has selected an alternative other than Alternative 3 as the Preferred Program Alternative. The Preferred Program Alternative is similar in most respects to Alternative 3. They differ with respect to their proposed Delta conveyance facilities. The CALFED agencies propose to begin with through-Delta modifications. In the event that the through-Delta conveyance facilities in the Preferred Program Alternative cannot meet the Program objectives—particularly for water quality and fisheries, the Preferred Program Alternative includes a process for determining the conditions under which any future additional conveyance facility actions, including those in Alternative 3, would be taken. 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/objectives.

IA-2.1-6

Please see common response 5. The four alternatives are described in Chapter 2 in the Programmatic EIS/EIR. The description begins with a summary, indicating that each alternative is made up of eight Program elements and, except for Conveyance, all the elements are essentially the same for each alternative. The summary is then followed by a description of each of the elements, including a discussion of the conveyance differences between alternatives. The description of the eight elements then is followed by the description of each alternative. As noted in your comments (on page 2-1 in Section 2.1.2.), the eight program elements are adequately described.

Please see common response 5.

Both CEQA and NEPA require a lead agency to consider a range of potentially feasible alternatives to a proposed action (40 CFR Section 1502.14[a]; 14 CCR 15126.6.) Under both laws, the selection of alternatives is governed by a "rule of reason" (*Carmel-by-the-Sea v. United States Department of Transportation*, 123 F.3d 1142, 1155 [9th Cir. 1997]; 14 CCR 15126.6[f].) As explained in the State CEQA Guidelines:

> The range of alternatives required in an EIR is governed by a 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making. (14 CCR 15126.6[f].)

Similarly, under NEPA: "[An] Environmental Impact Statement need not consider an infinite range of alternatives, only reasonable or feasible ones." (*Carmel*, 123 F.3d at 1155.) Alternatives that would not achieve the basic objectives of a project or that are infeasible are not regarded as reasonable alternatives under CEQA or NEPA and need not be considered in detail.

The basic objectives of the Program are described in Section 1.2 in the Programmatic EIS/EIR. Among these objectives are to: (1) increase the amount of shallow riverine, shaded riverine, tidal slough, and estuary entrapment and null zone habitats for aquatic species; (2) increase the amount of brackish tidal marsh, fresh-water marsh, riparian woodland, waterfowl breeding habitat, wintering range for wildlife, managed permanent pasture and floodplains, and associated riparian habitats for wildlife species; and (3) contribute to the recovery of threatened and endangered species and species of special concern. These objectives, and the alternatives designed to meet these and other Program objectives, are based on the alternatives and Program goals developed during Phase I.

Phase I comprised a six-step process that involved CALFED agencies, other public agencies, and the BDAC, as well as numerous workshops with stakeholders and the general public. For further discussion of this process, please see Section 1.4 in the Programmatic EIS/EIR and common response 5. In Phase I, 100 preliminary alternatives were evaluated. From the 100 preliminary alternatives, teams of technical experts representing each of four critical conflict areas (fisheries and diversions, habitat and land use and flood protection, water supply availability and beneficial uses, and water quality and land use) produced a refined list of 31 alternatives. Among these alternatives were minimal and moderate ecosystem restoration actions with a greatly reduced potential to cause potentially significant effects to agricultural lands. However, following six public workshops and eight public CEQA/NEPA scoping meetings, and based on input from the BDAC and the CALFED agencies, CALFED concluded that these actions would not achieve the basic Program objective of restoring ecological health to the Bay-Delta system. CALFED was impelled to this conclusion largely by the fact that habitat needed to support various life stages of aquatic and terrestrial biota in the Bay-Delta system has been lost due to land development for urban and agricultural uses and construction of flood control facilities to protect developed land. The Program objectives necessarily emphasize the improvement of habitats and ecological functions.

In many instances, Program objectives to increase the amount of certain habitat types can be achieved by enhancing existing natural lands or public lands. In addition, Section 7.1.11 in the Programmatic EIS/EIR contains 23 mitigation strategies to reduce Program effects on agricultural lands. However, because most land within the Bay-Delta system is used for agricultural purposes and because some agricultural lands are located in areas critical

to ecosystem recovery, the Program cannot be successful without some conversion of agricultural lands to meet Program objectives. Alternatives that involve little habitat restoration and, therefore, little conversion of agricultural lands were considered and dismissed as ineffective in Phase I. In short, alternatives that avoid effects on agriculture are not included in the Programmatic EIS/EIR after detailed consideration and are not required by CEQA or NEPA because these alternatives would not meet basic Program objectives.

Please see response IP-4.0-2. Mitigation strategies to minimize the consequences of the proposed CALFED actions on agricultural resources are listed in Sections 7.1, 7.2, and 7.3 in the Programmatic EIS/EIR.

At a programmatic level, CALFED has developed mitigation strategies or a list of options for mitigation measures to address the Program's impacts on environmental resources. As part of subsequent environmental review for implementation of CALFED project-level actions, CALFED will consider those strategies that are applicable to the proposed actions. Also, CALFED may develop and consider additional site-specific mitigation measures prior to approval of subsequent projects.

At the project level of environmental review, CALFED will review the site characteristics, size, nature, and timing of proposed actions to determine whether the impacts of the specific project are significant or may be mitigated to a less-than-significant level. Since it is not possible to precisely assess the site-specific impacts or potential for mitigation of project-level impacts at this time, this document treats such impacts at a programmatic level as potentially significant. Where it is anticipated that feasible mitigation measures may not be available to reduce these impacts to a less-than-significant level, this document treats such impacts at a programmatic level as potentially significant and unavoidable. Future environmental review will be needed to determine the impacts of specific actions and appropriate mitigation for project-specific actions.

A programmatic description (please see common response 1) of the existing or affected environment is presented in Chapters 5, 6, and 7 in the Programmatic EIS/EIR. Similarly, the consequences (true costs) of implementing the various alternatives are presented in the same chapters. Sections 7.1, 7.2, and 7.3 are specifically devoted to describing the agricultural resources affected environment and illuminating the consequences to agricultural resources that are associated with implementing the various alternatives.

Ecosystem Restoration Program actions are described more specifically in the Ecosystem Restoration Program Plan than in the programmatic impact analysis document. As the programmatic impact analysis document was prepared, work continued on developing a collection of more specific actions for the program plans. The program plans include more details because these plans represent the efforts of CALFED and the stakeholders to keep the Program moving forward while the programmatic impact analysis document was being completed. Prior to implementing specific actions, appropriate environmental documents will be prepared that contain a specific description of the affected environment, a reasonable range of feasible alternatives, and the consequences of those alternatives.

IA-2.1-8

CALFED is continuing work on the Water Management Strategy and more detailed evaluation criteria for each Program element, including water quality. The Preferred Program Alternative includes 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 (TOC). The most important part of CALFED's drinking water strategy (please see Section 3.4 in the June 1999 Revised Phase II Report) is the goal of "continuous" improvement in source water quality to meet public health needs. Section 3.4 points out that cost effectiveness is a necessary part of developing this criteria:

CALFED's specific 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 south 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 has not adopted a specific numeric target for salinity (other than meeting existing Delta standards) but does have a preliminary objective of reducing the salinity of Delta supplies.

IA-2.1-9

This response has been consolidated with response IP 1.1-6. Please refer to this response for the answer to your comment.

IA-2.1-10

Please see common response 13. CALFED supports the area-of-origin concept and is developing the Program consistent with the laws and regulations protecting areas of origin. The Preferred Program Alternative and each of the other alternatives touch on areas of origin. The consequences on areas of origin associated with implementing the Preferred Program Alternative are described in the Programmatic EIS/EIR.

IA-2.1-11

Please see common response 12. The Program does not include land retirement for demand reduction. The Water Quality Program includes land retirement in the drainage problem area on the west side of the San Joaquin Valley as a measure to improve water quality in the San Joaquin River. This action may result in secondary impacts on water demands.

IA-2.1-12

Section 2.4 in the Programmatic EIS/EIR describes the efforts/analysis used to eliminate alternatives from further consideration. CALFED undertook an elaborate open process to define the Program alternatives. This process is noted in common response 5. Please also see response IA-2.1-7.

CALFED's estimate of urban water conservation is not based on full implementation of best management practices (BMPs) under the No Action Alternative. As described in the subsections following Section 5.4 in the June 1999 Water Use Efficiency Program Plan, water savings for each water use sector ([1] residential indoor; [2] urban landscape; [3] commercial, industrial, and institutional; and [4] water distribution system loss and leakage) is developed independent of an assumption of "full implementation of the BMPs in the Urban MOU [Memorandum of Understanding]." For instance, residential indoor conservation estimates were made by assuming a baseline 2020 per capita indoor water use rate, then comparing that amount to the rate that is assumed to occur under a no action condition, and subsequently to a rate assumed under conditions resulting from Program implementation. A full explanation of these assumptions is documented in the Water Use Efficiency Program Plan.

Furthermore, implementation of the BMPs included in the Urban MOU are based on a cost-effectiveness test. CALFED assumes that this same cost-effectiveness test will result in more measures implemented because of No Action Alternative assumptions that will likely change current cost-effectiveness calculations (please see Attachment A to the Programmatic EIS/EIR for a description of No Action Alternative features). Consequently, more Urban MOU BMPs are likely to be implemented by more water suppliers by 2020 without a Program than are currently anticipated by urban water suppliers today. CALFED's baseline and No Action Alternative

assumptions in the Water Use Efficiency Program Plan account for this in an effort to determine programmatic-level impacts and to understand the order-of-magnitude role of conservation in meeting CALFED's objectives. Finally, "full implementation" of BMPs, as defined in the CALFED Water Use Efficiency Program Plan, is the amount of savings determined by the California Department of Water Resources (DWR) in Bulletin 160-98, California Water Plan Update, November 1998. In their document, DWR calculates savings for "quantifiable BMPs" only—those BMPs for which DWR could assume a conservation estimate—and assumes a saturation level (for example, percentage of total households implementing quantifiable BMPs like ultra low-flow toilets). DWR's calculations do not represent total saturation of BMPs nor do they account for savings from nonquantifiable BMPs (for example, BMP No. 3, system water audits, leak detection, and repair). The CALFED agencies believe that it is inappropriate to assume that the "full implementation" savings estimated by DWR represent what can be saved if BMPs were implemented by the majority of retail water agencies and the majority of urban water users. The CALFED agencies believe that savings in addition to DWR's value and without a Program are achievable. Furthermore, the Water Use Efficiency Program actions can result in greater water savings due to even greater levels of implementation of the current list of BMPs and additional conservation measures that will likely be more commonplace in the next 20 years (for example, recirculating hot water systems and low-water-use appliances).

If a federal action is part of the proposed action alternative, the No Action Alternative would not include that specific federal action. This contrast between the action and no action alternatives allows for a determination of the consequences of the action alternatives and the relative differences between the various action alternatives. The No Action Alternative may include other reasonably foreseeable future federal actions. Please also see responses IA-2.2-2 and IA-2.1-5.

IA-2.1-13

Please see common responses 1 and 16. The isolated facility is evaluated as part of Alternative 3 in the Programmatic EIS/EIR. The Preferred Program Alternative is similar in most respects to Alternative 3. They differ with respect to their proposed Delta conveyance facilities. The CALFED agencies propose to begin with through-Delta modifications. In the event that the through-Delta conveyance facilities in the Preferred Program Alternative cannot meet the Program objectives—particularly for water quality and fisheries, the Preferred Program Alternative includes a process for determining the conditions under which any future additional conveyance facility actions, including those in Alternative 3, would be taken. 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/objectives.

IA-2.1-14

CALFED has implemented an extensive public involvement process that attempts to obtain input from all interested parties (please see Chapter 10 in the Programmatic EIS/EIR). Delta interests have participated as a member of the BDAC and in many of the BDAC workgroups. In addition, many public meetings were held within the Delta. CALFED must consider all public input in developing its Preferred Program Alternative. The Delta interests have strongly influenced the character of the Preferred Program Alternative, especially in maintaining the through-Delta channel configuration, the Levee System Integrity Program plan, the north Delta channel improvements, and the south Delta improvements. CALFED continues to encourage all interested parties to become involved as the Program progresses. This continued involvement will be even more important as parts of the Program move toward implementation. Please also see response IA-10.0-1.

IA-2.1-15

Please see common responses 13, 15, and 22. The DWR system operational model (DWRSIM) modeling does assume that future water demands upstream of the Delta are fully met. The input water flows (hydrology) that are used in the operations modeling are adjusted downward to account for estimates of higher water demand upstream of the Delta in 2020.

IA-2.1-16

Please see common response 16. The isolated facility is not part of the Preferred Program Alternative. Extensive evaluations are required in the future before any decision can be made on how to best provide improved drinking water quality. The Revised Phase II Report provides for these evaluations during Stage 1 (the first 7 years of Program implementation). Details of this study process will be more fully developed as the Program progresses.

IA-2.1-17

Please see common responses 1 and 16. Because of the programmatic nature of the Programmatic EIS/EIR, the diversion facility on the Sacramento River is described conceptually. CALFED does not presume that the diversion facility is a necessity in Stage 1. The plan for the north Delta is to study and evaluate a screened diversion facility on the Sacramento River with a range of diversion capacities up to 4,000 cubic feet per second (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. The Program has committed to a target for drinking water quality of either average concentrations at the south and central Delta drinking water intakes of 50 micrograms per liter (ug/L) bromide and 3.0 milligrams per liter (mg/L) TOC or an equivalent level of public health protection, using a cost-effective combination of alternative source waters, source control, and treatment technologies. The diversion facility on the Sacramento River is being evaluated as part of the Preferred Program Alternative because of concerns that increased closures of the Delta Cross Channel (DCC) for fish protection will cause adverse impacts on water quality in the central and south Delta. Modeling performed during evaluation of CALFED alternatives suggests that fish-friendly reoperation of the DCC may result in increases in total dissolved solids (TDS) and in total bromides. The diversion site on the Sacramento River was chosen because it provides a good balance of physical features, which minimizes effects on delta smelt migration, reduces diversion of sediment from the river, and reduces tidal influences on fish screen effectiveness—while providing topographic and geologic conditions that would allow a diversion structure to be constructed near sea level, on mineral soils, and through mostly agricultural lands. The diversion facility likely would include a fish screen, pumps, and a channel between the Sacramento and Mokelumne Rivers.

Fishery concerns are related to a diversion facility on the Sacramento River. These concerns center on possible disruption to migration patterns of salmon, smelt, splittail sturgeon, steelhead, other native fish, and striped bass. Although a screened diversion on the Sacramento River would keep out-migrating salmon in the Sacramento River, flows from the Sacramento River into the Mokelumne River system may attract adult returning salmon to the downstream side of the screens. This "back of the screen" phenomenon could result in stranding or potential increased mortality associated with a fish passage structure. More broadly, the concern exists that the negative fisheries impacts associated with the diversion facility may actually be greater than the positive benefits associated with the DCC closure that may produce the water quality degradation. Consequently, we have structured the diversion facility as a contingent action to be considered only after three separate assessments are satisfactorily completed: (1) a thorough assessment of DCC operation strategies and confirmation of continued concern over water quality impacts from DCC operations, (2) a thorough evaluation of the technical viability of a diversion facility on the Ssacramento River, and (3) satisfactory resolution of the fisheries impacts concerns

described above. We anticipate that these three assessments will be shared with the Delta Drinking Water Council or its successor and the expert panel evaluating fish impacts of Delta conveyance.

IA-2.1-18

Please see common response 5. CALFED undertook an exhaustive review of all potential water supply alternatives during the early phases of the Program. Only the alternatives with the best chance to meet all Program objectives were retained for further consideration.

IA-2.1-19

Weirs, operable gates, and groins are examples of structures that can provide many of the same benefits as barriers without fully obstructing the channel to downstream flows. Other features that might meet the same goal but that are not structurally similar are extending screened intakes into deeper water, performing more extensive dredging, consolidating diversions, or providing water from alternative sources.

IA-2.1-20

Please see common response 5. The purpose of the Program is to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. To practically achieve this Program purpose, CALFED must concurrently and comprehensively address problems of the Bay-Delta system within each of four critical resource categories: ecosystem quality, water quality, levee system integrity, and water supply reliability. CALFED must look for a solution that balances all needs of water users depending on the Delta. Eliminating or reducing diversions would violate CALFED's own purpose, solution principles, and water supply objectives. However, CALFED did evaluate a range of conditions (Criteria A and B in Attachment A to the Programmatic EIS/EIR) that did include impacts of potential reduced exports compared with existing conditions (but not the No Action Alternative). A number of actions, including Ecosystem Restoration Program actions, proposed by CALFED will result in potentially significant and unavoidable impacts under all alternatives. The purpose of the Programmatic EIS/EIR is to disclose the impacts of these actions along with mitigation strategies so that decision makers understand the full consequences of implementing the Program. Please also see response IA-2.1-2.

IA-2.1-21

There are a number of tools for implementing the Water Management Strategy. The Water Use Efficiency Program is one of the cornerstones of the strategy. CALFED has made an affirmative commitment to implement a robust, incentive-based Water Use Efficiency Program that will ensure that water will be efficiently used throughout the solution area. Assurance mechanisms are structured to ensure that urban and agricultural water users implement the appropriate efficiency measures. For example, as a prerequisite for obtaining Program benefits, a buyer or seller in a water transfer or someone receiving water from a drought water bank will need to show that they are in compliance with the applicable urban or agricultural council agreements and applicable state law.

CALFED is committed to achieving continuous improvement in the quality of waters of the Delta. CALFED's environmental water quality goal is to provide water in the Delta that is of sufficient quality to protect all ecological beneficial uses of water. Major areas that have been identified for action include low dissolved oxygen, mercury, pesticides, organochlorines, salinity, selenium, and trace metals. CALFED's drinking water goal is to continuously improve source water quality. The strategy for improving drinking water quality is to reduce the loads and/or impacts of bromide, TOC, pathogens, nutrients, salinity, and turbidity.

The Water Transfer Program describes a strategic plan of actions, policies, and processes that collectively encourage the development of a more effective water transfer market in order to facilitate water transfers and streamline the approval process, while protecting water rights, environmental conditions, and local economic interests.

NEPA and CEQA are intended to inform decision makers and the public of the environmental consequences of the proposed action, provide an analysis of alternatives, and ensure consideration of mitigation options. The governance structure does not cause physical changes to the environment or affect the analysis of anticipated impacts, alternatives, or mitigation options. The governance structure therefore is not analyzed in the Programmatic EIS/EIR.

The long-term governance plan is under development. Although CALFED will not circulate a draft long-term plan in the Programmatic EIS/EIR, CALFED will work in other public forums with CALFED agencies, stakeholders, and the public to develop the governance proposal. Any decision on long-term governance will require legislative action; therefore, additional opportunities for public input will be provided.

IA-2.1-22

Several times during development of the alternatives, CALFED considered closed conduits or channels separate from the river. For example, a small isolated facility (5,000 cfs primarily for urban uses) about 45 miles long, with three 18-foot-diameter cast-in-place pipes was found to cost over twice as much as an open channel. Extending this concept further upstream to begin at Oroville Dam or Shasta Dam would be well beyond the scope of the Program (Please also see common response 5). Conveyances of larger capacities (for all beneficial uses) in pipelines would be even more difficult and costly due to practical limits on pipe size and large right-of-way requirements. In addition, most of the water in the Sacramento River serves multiple purposes. The portion of the river flow intended for consumptive beneficial uses, such as municipal and irrigation water, also provides environmental flow and water quality benefits. If the water intended for consumptive beneficial uses was put in a pipeline at Shasta Dam, environmental flows would likely need to be revised. The river does carry waste discharges from a variety of uses, but these discharges to the river already are required to meet certain standards for quality by state and federal agencies. CALFED's Water Quality Program will make further water quality improvements by reducing point and nonpoint sources of pollution. Early in the development of the Program, CALFED considered the concept of a structure to control salt intrusion into the Delta. The magnitude of such a structure was thought to be beyond the scope of the Program, and many agencies were concerned about its environmental effects on fish passage and the salinity levels required for many Delta species.

IA-2.1-23

The CALFED agencies agree that improved conveyance is needed. The agencies propose to begin with through-Delta modifications. In the event that the through-Delta conveyance facilities in the Preferred Program Alternative cannot meet the Program objectives—particularly for water quality and fisheries, the Preferred Program Alternative includes a process for determining the conditions under which any future additional conveyance facility actions, including those in Alternative 3, would be taken. 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/objectives.

IA-2.1-24

This response has been consolidated with response IA-2.1-15. Please refer to this response for the answer to your comment.

IA-2.1-25

There appears to be some confusion regarding CALFED's four Program objectives, the eight elements making up each alternative, and the four implementation strategies that utilize the eight Program elements to meet the four Program objectives. It appears some of the confusion stems from similar use of terms in all three instances. Through a public process, the Program identified the need for resolution of problems in the Delta in four areas (ecosystem, water quality, water supply reliability, and levee system integrity). Again, through an open public process, CALFED developed alternatives (please see common response 5) that present solutions for resolving problems in these four areas. The alternatives examined in the Programmatic EIS/EIR, including the Preferred Program Alternative, are made up of eight elements; six are common to all alternatives (ecosystem restoration, water quality, water transfers, water use efficiency, watersheds, and levee system integrity), and two vary among alternatives (storage and conveyance).

CALFED has developed a comprehensive resource management strategy to implement the Preferred Program Alternative. The eight elements noted above will be used to carry out this strategy. The most significant aspect of the CALFED Preferred Program Alternative is its comprehensive nature. The Program is more than a collection of diverse actions to achieve four objectives. The Preferred Program Alternative begins with strategies for solving each of the four Bay-Delta problem areas in an integrated manner. These strategies are interwoven, and each must be viewed in the context of the other strategies. For example, to fully implement the ecosystem restoration strategy, CALFED must also have a successful strategy to provide the improved water quality that is needed by the ecosystem. The levee strategy provides new opportunities for improving levee-associated habitat for Delta species. In addition, water will be more available for environmental uses due to improved water supply reliability. Adaptive management is an essential Program concept— part of each of these strategies. It is necessary to monitor the system continuously and adapt actions that are taken to restore ecological health and improve water management.

As another example, CALFED has proposed a Water Management Strategy that recognizes the variability of water supply and demand in California to ensure water supply reliability. CALFED's water supply reliability goals are to increase the utility of available water supplies (making water suitable for more uses and reuses); improve access to existing or new water supplies in an economically efficient manner for environmental, urban, and agricultural beneficial uses; and improve the flexibility of managing water supply and demand in order to reduce conflicts between beneficial uses, improve access to water supplies, and decrease system vulnerability. Several general categories of tools are included in the Water Management Strategy, all of which are being used in California to some degree: water conservation; water recycling; water transfers, both short-term and long-term; storage, both groundwater and surface water; water project operations; Delta conveyance modifications; watershed management; water quality control; and monitoring and real-time diversion management.

CALFED has not asserted that new storage is needed for ecosystem restoration or that new storage will not affect fish and wildlife resources. We have, however, indicated that new reservoirs could be one of many possible sources of water to help manage the ecosystem. The sum of the targets for streamflow improvements on each of the streams tributary to the Delta is approximately 400,000 acre-feet annually. The water will be derived from a number of sources. In some cases, water will be purchased from willing sellers who have storage in excess of their current annual or long-term needs. Permanent water rights will be purchased from willing sellers, or water rights will be leased for various periods of time. Groundwater exchange programs will be developed with willing

landowners or districts, where seasonal needs exist and a safe yield can be developed. Opportunities exist where water conservation could augment in-stream flows; these opportunities will be pursued. The Ecosystem Restoration Program will share in the use of any new supplies developed through off-stream and groundwater storage.

The Programmatic EIS/EIR points out the detrimental consequences to fish and wildlife resources associated with building reservoirs. Should CALFED eventually decide to move forward with planning for the construction of groundwater or surface water storage, project-specific environmental documents will be prepared.

IA-2.1-26

Please see common response 4. The Integrated Storage Investigation (please see Phase II Report) is considered necessary to better define the role that surface and groundwater storage could play in an overall Water Management Strategy. The Phase II Report indicates that these investigations will continue for several years before a decision is made to build new surface storage. In addition, the Phase II Report lists several conditions, such as demonstrated progress in meeting the Program's water use efficiency targets, that must be met prior to a decision to construct new surface storage. Subject to these conditions and the results of the Integrated Storage Investigation, it is possible that some new surface storage could be under construction prior to the end of Stage 1 of Program implementation. However, storage requires a long lead time to plan, complete environmental documentation, design, and construct.

The Los Banos Grande Project never went forward because of difficulties encountered during project planning. The cost of the facility was too high at that time, considering all construction and operation requirements and the increasing uncertainty with environmental regulations affecting exports of water from the Delta. The project did not have water user support, given the costs and uncertainties. CALFED considered Los Banos Grande again during its initial reservoir screening analysis. The project was not carried forward for additional CALFED evaluation primarily due to environmental concerns with site development.

2.1.2 Overview of the Eight Program Elements

IA-2.1.2-1

Please see common response 16. The Programmatic EIS/EIR evaluates an alternative that includes the features of Alternative 3 in the March 1998 Phase II Report. It is identified as Alternative 3 in the Programmatic EIS/EIR. The Preferred Program Alternative does include all of the features described for Alternative 3 except the dual-Delta conveyance element. The Preferred Program Alternative approaches the Delta conveyance solution largely from a nonstructural perspective initially while information is being developed. If, after implementing elements of the Program and assessing their effects, it is determined that additional conveyance facilities are required, the facilities will be considered in a later Program phase.

IA-2.1.2-2

Please see common response 1. The information on the alternatives in the Programmatic EIS/EIR is sufficient to permit a programmatic assessment of consequences and identification of potentially significant environmental impacts as called for by CEQA Guidelines at Section 15147. Collectively, the expanded versions of the various alternative elements run on for a number of pages. Adding those to the descriptions in the Programmatic EIS/EIR would have made it difficult for the reader to follow/understand the alternatives and would not have been any more helpful in permitting an assessment of potentially significant environmental impacts.

IA-2.1.2-3

Please see common responses 1 and 4. Given the programmatic nature of the Program, there has been no decision about going forward with any of the surface storage reservoirs. Accordingly, the June 1999 Draft Programmatic EIS/EIR did not evaluate the consequences of specific reservoir sites. The impact analysis document evaluated the physical, ecological, and socioeconomic consequences of generic reservoir sites to impart to the reader and decision makers an adequate understanding of the expected magnitude of the consequences, as well as the potentially significant impacts. The June 1999 Draft Programmatic EIS/EIR discloses the overall consequences of the complete Program. The locations of potential reservoir sites are noted in the Phase II Report. The staged implementation of actions will take place following additional environmental review to ensure full public disclosure of consequences of specific actions.

IA-2.1.2-4

CALFED used the term "carriage water" in the most broad sense when describing actions to clarify the term. CALFED recognizes that several conditions may govern the amount of carriage water need to ensure no impacts to other legal users of water. These conditions may be driven by salinity constraints, the export/import (E/I) ratio, biological requirements, or other Delta operational constraints. The intent of this action is to clarify a standard method (or set of tools) that will be used to: (1) analyze what condition is most likely to be governing during a proposed cross-Delta transfer; and (2) approximate the quantity of water needed to meet requirements, if any.

The purpose of this action is to provide transfer proponents with a tool, or at least knowledge of what tools will be used by approving agencies, to assess carriage water requirements. This knowledge should allow the seller to appropriately include necessary limits, conditions, or other language in contracts with the buyer. Currently, little information is provided up-front to the proponent to enable a reasonable assessment of this important portion of their water transaction.

IA-2.1.2-5

Please see common response 4. The existing water supply system must be operated to meet water needs subject to certain rules and standards such as flood control and water quality. Delta salinity standards are one of these requirements. At times, reservoir releases are required to meet these standards. Additional storage is one of the options identified in the Preferred Program Alternative that could help to meet these requirements.

IA-2.1.2-6

CALFED is continuing work to better define "demonstrated progress." Please see common responses 2 and 4. Need under CWA Section 404 is expected to be demonstrated according to the terms of an agreement now being drafted among CALFED agencies and expected to be signed at the time of the ROD.

The Corps and the EPA are working with CALFED agencies to draft an MOU regarding the CWA Section 404 permitting process. The MOU will outline helpful information necessary in pursuing a Section 404 permit. The understanding will outline what the Corps considers to be key factors that the Corps will consider in its permit decision-making process. The MOU will outline factors for demonstration of need for new or expanded surface storage for water supply reliability. The factors will include such measures as water conservation and water recycling.

The Program's proposal to condition the construction of new storage on making improvements in the structure of the water transfer market is likely to be satisfied by implementing the actions described in the June 1999 Water Transfer Program Plan. There are no target quantities in this proposed condition. The condition could be satisfied, for instance, by implementing the water transfer information clearinghouse, clarifying definitions of transferable water, and having agencies adopt additional disclosure requirements or achieving milestones.

IA-2.1.2-7

The operation to increase the permitted pumping capacity of the SWP does not affect senior upstream water rights. At this increased permitted capacity, Delta exports can be made when flows in the Delta are in excess of the standards or from water released from storage for export.

IA-2.1.2-8

The description has been added to that section.

IA-2.1.2-9

This response has been consolidated with response IA-2.0.0-13. Please refer to this response for the answer to your comment.

IA-2.1.2- 10

Please see common responses 1, 4, and 16. Since evaluations have been at a programmatic level of detail, specific storage and conveyance sizes and configurations have not been determined. The Programmatic EIS/EIR uses broad ranges of sizes for storage and conveyance to evaluate potential impacts. More site-specific studies are continuing as part of Program implementation. Specific storage and conveyance actions will require additional environmental evaluation before a decision can be made to go forward with the actions. A number of studies and evaluations will need to be undertaken prior to any determination that an isolated facility may be necessary. These studies and evaluations are described at the end of the description of the Conveyance element of the Preferred Program Alternative in the Programmatic EIS/EIR

IA-2.1.2-11

Extension of the Tehama-Colusa Canal remains a potential option that could be developed together with a storage-like Sites Reservoir. However, the Integrated Storage Investigation (common response 5) needs to progress further before the role of storage and a potential extension are known. Please also see common response 1.

IA-2.1.2-13

Please see common response 5. The remainder of this paragraph(excerpted from common response 5) describes how many of the Program components became fixed for each alternative. During the process of refinement and development, the makeup of the alternatives varied in the level of effort applied to actions related to ecosystem quality, water quality, system vulnerability, and water use efficiency. Levels of effort characterized as modest, moderate, or extensive were applied to these components. After extensive public and agency interaction, it was determined that water use efficiency, water quality, levee system integrity, and ecosystem quality were necessary in each of the alternatives to achieve the Program's purpose and needed to be composed of the same actions in all alternatives. Although the goal is to implement each of these programs at the highest level to effectively achieve

the Program's purpose, the elements will be implemented incrementally, or in stages, over time. This will provide flexibility for monitoring and adapting actions in response to the results of the initial actions.

Alternative 3 has not been abandoned. The Programmatic EIS/EIR evaluates Alternative 3. The Preferred Program Alternative does include all of the features described for Alternative 3 except for the dual-Delta conveyance element. The Preferred Program Alternative initially approaches the Delta conveyance solution largely from a nonstructural perspective while information is being developed. If, after implementing elements of the Program and assessing their effects, it is determined that additional conveyance facilities are required, the facilities will be considered in a later Program phase.

IA-2.1.2-14

Please see common response 5. It was not our intent to describe the consequences of CVPIA (b)2 but to describe the consequences of the overall Program. CVPIA (b)2 criteria are part of the modeling assumptions used to assess the changes in exports that will result from implementing the different Program alternatives. The bookend analysis was used to model a range of conditions (Criterion A and Criterion B), including different export demands or regulatory restrictions on the Delta. One end of the range uses 1995 demands and assumes that any increase in water demands will be met from other non-Delta sources such as water conservation and water recycling. This has the effect of evaluating the effects of water use efficiency back to the Delta. The Criterion A assumption set (please see Attachment A to the Programmatic EIS/EIR) defines the highest environmental water requirements and lowest Delta exports considered in this analysis. For example, modeling using Criterion A without new reservoirs resulted in lower Delta exports than under existing conditions. The impact analysis includes the effects of this reduced Delta export. The modeled range of conditions does bracket the impacts of the proposed Program actions operating together. The impact analysis shows, at a programmatic level of detail, the impacts for each set of modeling assumptions.

IA-2.1.2-16

The head of Old River barrier will be operated to help fish migration and manage dissolved oxygen. Opportunities may also occur that would allow the head of Old River barrier to be used to help manage San Joaquin River salts as long as no adverse impacts on fish resulted. The agricultural barriers will help manage circulation, water quality, and water depths in the south Delta channels. While CALFED's current plan is to attempt to manage south Delta conditions without the Grant Line Canal Barrier, the CALFED plan includes provision to add the barrier in the future if it proves to be needed (please see Section 3.6, "CALFED's Delta Conveyance Strategy," in the Phase II Report). CALFED's plans call for a Barrier Operations Coordinating Team to operate the barrier. The team will include representatives from the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), DFG, DWR, Reclamation, and stakeholders. Other features that might meet the same goal but are not structurally similar include performing more extensive dredging, extending screened intakes into deeper water, consolidating diversion, or providing alternative water sources.

IA-2.1.2-17

Please see common response 16. The Preferred Program Alternative explicitly selects a through-Delta approach for conveyance and excludes the selection of an isolated conveyance facility. In fact, the description of the Preferred Program Alternative addresses this very issue: if fishery restoration or water quality objectives cannot be attained with the existing Preferred Program Alternative, other options will be examined. The Preferred Program Alternative does not predetermine that an isolated conveyance facility will be built. The water quality provisions, for example, describe an isolated conveyance facility as but one alternative to examine. Other options include alternative treatment technologies or sources, and so on.

IA-2.1.2-18

CALFED has selected a conveyance approach in its Preferred Program Alternative that accounts for current uncertainties. Please see common response 16.

2.2 No Action Alternative

IA-2.2-1

If a federal action is part of the proposed action alternative, the No Action Alternative would not include that specific federal action. This contrast between the action and no action alternatives allows for a determination of the consequences of the action alternatives and the relative differences between the various action alternatives. The No Action Alternative may include other reasonably foreseeable future federal actions.

IA-2.2-2

CALFED does not believe that Criterion A and Criterion B represent additional project alternatives. At present, a high level of uncertainty is associated with future environmental water requirements. Therefore, CALFED modeled a range of conditions with the CALFED alternatives and the No Action Alternative that could lead to lower or higher Delta exports. The Criterion A assumption set (please see Attachment A to the Programmatic EIS/EIR) defines the highest environmental water needs and lowest Delta exports considered in this analysis. The criteria are for the purpose of evaluating the various impacts for a range of operating conditions. The specific assumptions in Criterion A and Criterion B are not requirements nor a proposal to implement any assumption. The purpose of Criterion A and Criterion B is to create a range of Delta exports for evaluation purposes. A different set of assumptions could accomplish the same thing. Therefore, the 1995 water demands on the Delta with Criterion A are intended to cover the possibility that future 2020 water demands will be lower, for whatever reason, than expected in Bulletin 160-98. These lower demands on the Delta could occur from new water sources or new technology that make conservation and recycling much more economical than currently expected. CALFED is simply creating a range of Delta exports to see how the range could affect the comparison of alternatives and the decision on the Preferred Program Alternative. The CALFED agencies believe that the No Action Alternative is captured within the range of analysis. MWD believes that the proper definition of the No Action Alternative should be the continuation of the existing facilities and standards under increasing water demands. This is nearly the same as the Criterion B assumption set.

IA-2.2-3

NEPA indicates that the action alternatives should be contrasted with the No Action Alternative to determine the consequences of the action alternatives. CEQA indicates that the alternatives, including the No Action Alternative, normally should be compared to existing conditions in order to help discern the consequences of each alternative. To comply with both requirements (and as stated on page 2-19 in the June 1999 Draft Programmatic EIS/EIR), the action alternatives have been contrasted with the No Action Alternative, and all the alternatives have been contrasted with existing conditions.

For certain resource areas, there is no difference between no action and existing conditions; for other areas, there is a difference. The document identifies both situations as appropriate.

IA-2.2-4

The date in question, June 1995, was not used as an endpoint for the description of existing conditions. The description of existing conditions in Chapters 5, 6, and 7 in the June 1999 Draft Programmatic EIS/EIR uses the most recent data available. The June 1995 date refers to the time by which the physical facilities for the No Action Alternative were identified.

IA-2.2-5

The Program used a rigorous screening approach to determine which future actions were clearly definable and highly likely to occur and consequently would be included in the No Action Alternative. It is important to remember that the No Action Alternative is only a tool to illuminate the potential consequences of implementing the alternatives. Including or excluding an action from the No Action Alternative is in no way intended as a judgment regarding the merits of the action or an assessment that the action will be implemented in the future. The Monterey Agreement has been in place for several years, and the SWP has been operated in accord with the Agreement. While it is possible that sometime in the future the Agreement may be changed, when the No Action Alternative was defined, the Monterey Agreement met the screening criteria as an action that should be included in the No Action Alternative. The decision to include the Agreement in the No Action Alternative appears to be justified given that the Agreement is in place and is part of the SWP operating requirements. Even if the Monterey Agreement needed to be removed from the Program in the future, its removal would not change the conclusions drawn in the Programmatic EIS/EIR. The Monterey Agreement has only minor influence on the programmatic nature of the modeling conducted; some water allocations and operation of terminal reservoirs may change. This difference would not change the conclusions in the Programmatic EIS/EIR. In addition, the Monterey Agreement does not significantly affect potential water demands. The CALFED agencies believe that the modeling with Criterion A and Criterion B adequately brackets the potential differences that may occur with or without the Monterey Agreement.

IA-2.2-6

The Vernalis Adaptive Management Plan (VAMP) or a similar adaptive management plan will continue to play a role in meeting the San Joaquin River flow requirements. Both the SWP and CVP are being operated in accord with VAMP. Similarly, the CVPIA in Section 3406 (b)(2), has identified the attributes incorporated within VAMP as one of its fish protection actions. While it is possible that the plan may be changed at some future time, when the No Action Alternative was defined, VAMP was an action that met the screening criteria to be included and therefore was included in the No Action Alternative. The decision to include VAMP in the No Action Alternative appears to be justified, given that the plan is in place, is part of the SWP and CVP operating requirements, and is one of the CVPIA (b)(2) fish protection actions.

IA-2.2-7

This response has been consolidated with response IA-5.0-2. Please refer to this response for the answer to your comment. Please also see response IA-2.2-5.

IA-2.2-8

At present, a high level of uncertainty is associated with future environmental water requirements. Therefore, CALFED modeled a range of conditions with the CALFED alternatives and the No Action Alternative that could lead to lower or higher Delta exports. The Criterion A assumption set (please see Attachment A to the Programmatic EIS/EIR) defines the highest environmental water requirements and lowest Delta exports

considered in this analysis. These are not requirements but are for the purpose of evaluating the various impacts for a range of operating conditions. For example, there is no requirement for measure of net flow in the lower San Joaquin River and other smaller Delta channels (QWEST) in the Program. QWEST simply was used as one component of a set of operating conditions to simulate higher environmental water requirements. CALFED is continuing work on the Water Management Strategy that seeks to improve water supply reliability for all water users, including the environment. The continued work on the EWA will provide fisheries protection and recovery, while providing ancillary benefits for water quality and water supply reliability to help achieve CALFED's overall water management goals. The EWA is based on the concept that flexible management of water could achieve fishery and ecosystem benefits more efficiently than a completely prescriptive regulatory approach. By managing EWA "assets" on a real-time basis, the overall cost of environmental protection can be lower than under a purely prescriptive approach. This would help to attain water supply reliability objectives for other water users.

The Program recognizes that drinking water quality standards probably will change. The new standards are unknown. Rather than speculate on what the new standards might be, the Program assumed a continuation of current standards.

IA-2.2-9

In developing Criterion A and Criterion B (described in Attachment A, Section A.3 in the Programmatic EIS/EIR) CALFED created a range for modeling. Each criterion is a combination of assumptions that includes the 1995 WQCP, CVPIA's Section 3406 (b)(2), and endangered species listings. The CALFED agencies do not believe that it was necessary to separately show the impacts of each parameter. The CALFED agencies believe that the modeled range of conditions does bracket the impacts of the parameters operating together. The impact analysis shows, at a programmatic level of detail, the impacts for each set of modeling assumptions. The Program recognizes that the 1995 WQCP is in place and that additional species might be listed as endangered prior to 2020. However, it is uncertain how the CVP or SWP projects would be operated when the 1995 WQCP standards are fully implemented or if new species are listed. To deal with this uncertainty in the programmatic evaluation, a range of future environmental water needs were considered. This approach is described in more detail in Attachment A, Section A.3. Operational assumptions regarding CVPIA's 3406 (b)(2) are also part of the range of modeling assumptions. Assumptions relative to the additional water needed to meet the fish doubling criteria are part of the assumptions described for the action alternatives. Compliance with VAMP means that the Vernalis standard will be met by the flows called for in the San Joaquin River Agreement. The modeling assumptions for VAMP can also be found in Attachment A, Section A.3.

IA-2.2-10

As noted in common response 5, the Program underwent an extensive public process to develop the alternatives evaluated in the Programmatic EIS/EIR. The process included consideration of preliminary alternatives that included substantial manipulation and acquisition of Delta land. These alternatives were rejected for a number of reasons; primarily, they were rejected because other alternatives existed that would meet the Program's purpose and objectives with less environmental damage.

IA-2.2-12

The No Action Alternative will not achieve the Programs goals and purposes (that is, the Bay-Delta will deteriorate more under the No Action Alternative than any of the other alternatives).

IA-2.2-13

CALFED evaluated a range of conditions. Relative to the No Action Alternative, the water supply reliability under the Preferred Program Alternative will be improved for the majority of the modeled conditions.

IA-2.2-14

We agree that improvements will occur with or without CALFED. The VAMP is one such improvement, and it is part of the CALFED No Action Alternative. Had other improvements been identified that met our screening criteria they, too, would have been part of the No Action Alternative. It is important to remember that the No Action Alternative is only a tool to illuminate the potential consequences of implementing the alternatives. As such, including or excluding an action from the No Action Alternative is in no way intended to be a judgment regarding the merits of the action.

IA-2.2-15

This response has been consolidated with response IA-5.1.6-1. Please refer to this response for the answer to your comment.

IA-2.2-16

The No Action Alternative describes facilities that will be implemented independent of CALFED actions. In other words, the No Action Alternative attempts to describe what will happen in the future in the absence of the CALFED Program. Our assumption that the Los Vaqueros Project would be built/implemented independent of CALFED actions was correct.

2.3 Environmentally Preferable Alternative

IA-2.3-1

As the title implies, this section describes the Environmentally Preferable Alternative and is not meant to include a comparison of impacts. As noted later in your comments, this detailed comparison of consequences is made in Chapter 3, "Summary Comparison of Environmental Consequences." A summary table comparing the consequences of each alternative is often provided at the end of the alternative descriptions chapter in environmental documents. In an effort to make this document easier to read, all consequences identified throughout the document are presented in Chapter 3 rather than presenting some impacts at the end of Chapter 2 and noting others, such as growth-inducing impacts or cumulative impacts, in other sections of the document. Please also see response IA-2.3-3.

IA-2.3-2

CALFED solutions will not solve all of California's water problems or meet all future water needs. Please see common response 22. The Integrated Storage Investigation (please see common response 4) will better define the role of storage (groundwater and surface water storage) in an overall Water Management Strategy.

IA-2.3-3

The environmentally preferred alternative is described in Section 2.3 in the Programmatic EIS/EIR. As noted there, when compared to the No Action Alternative, the Preferred Program Alternative provides significant

improvements in terms of both its water quality and ecosystem health effects. Under the No Action Alternative, each of the four areas of critical concern—ecosystem quality, water quality, levee system integrity, and water supply reliability—would continue to deteriorate, with resultant potentially significant adverse impacts on fisheries, endangered species, and species of concern and their habitats. In addition, the quality of both in-Delta and export water likely would decline under the No Action Alternative. This decline in water quality could result in potentially significant adverse impacts on fisheries, ecosystem health, and drinking water quality. With the continued decline of the ecosystem, interruptions of water deliveries also are likely to 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 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 also establishing a process for obtaining additional information.

With respect to new water development facilities, decisions to construct groundwater or surface water storage will be predicated on complying with all Program linkages, including:

- An assessment of groundwater storage, surface storage, reoperation of power facilities, and a fish barrier as part of the Integrated Storage Investigation.
- Demonstrated progress in meeting the Program's water use efficiency, water reclamation, and water transfer program targets under the Water Management Strategy.
- Implementation of groundwater monitoring and modeling programs.
- Compliance with all environmental review and permitting requirements.

Subject to the above conditions, new groundwater and/or surface water storage would be developed and constructed, together with aggressive implementation of water conservation, recycling, and a protective water transfer market, as appropriate to meet Program goals. When implementing the Water Management Strategy (including the Integrated Storage Investigation) during Phase I, the Program will evaluate and determine the appropriate mix of surface water and groundwater storage, identify acceptable projects, and initiate permitting and construction if Program linkages and conditions are satisfied.

IA-2.3-4

The description of the environmentally preferred alternative is a summary of the information contained throughout the Programmatic EIS/EIR. It is not necessary to repeat the analysis for every alternative in this section. In addition, the level of detail of the comparisons are broad and fairly general because the programmatic decision that is being made is likewise broad and somewhat general. The Preferred Program Alternative addresses environmental concerns with limited new structures.

IA-2.3-5

Section 2.3 in the Main Document presents the environmentally preferred alternative. This alternative, and all other alternatives, include the common programs. The common programs are not intended to be evaluated by themselves since they do not stand alone. The main difference between the alternatives is the method of conveyance for Delta water. Given future uncertainties, the need for additional evaluation, and the fact that the

Program may take 30 years or more to implement, the CALFED agencies believe that the environmentally preferred alternative has been identified. The common programs and the Delta water conveyance must be evaluated as a unit.

2.4 Alternatives Not Carried Forward for Further Evaluation

IA-2.4-1

NEPA and CEQA require consideration of a reasonable range of alternative but not every possible variation of an alternative. With a Program of such a broad scope and wide range of potential actions, no alternative can avoid all significant adverse impacts. The rejected alternatives were eliminated for technical reasons or they were consolidated into other alternatives that were evaluated in the Programmatic EIS/EIR. One or more undesirable adverse impacts were associated with other alternatives, such as greater fish entrainment or greater impacts on Delta agriculture. Features or benefits of some alternatives could be achieved with fewer in-Delta construction impacts and lower costs. A more concise description of reasons for rejecting alternatives can be found in Chapters 3 and 4 in the March 1998 Phase II Interim Report.

IA-2.4-2

The Programmatic EIS/EIR did not look in detail at the potential irrigation service from the isolated facility. As part of Criterion A, however, CALFED assumed that Level 2 Delta agricultural diversions (about 2,000 cfs peak flow in June) are delivered from the 15,000-cfs isolated facility. For this analysis, these agricultural diversions did reduce the capacity available to the south Delta pumping plants. CALFED does not intend Criterion A as a proposal for the isolated facility. Due to uncertainty on a number of parameters, Criterion A provides one end of a modeling range. Criterion B provides another set of assumptions that results in higher Delta exports than Criterion A. Criterion B did not include potential diversions from the isolated facility and did not reduce the capacity available to the south Delta pumping plants. The range created by the Criterion A and Criterion B analyses does demonstrate the full range of potential benefits of a 15,000-cfs isolated facility. Criterion A demonstrates the highest potential export water quality associated with the isolated facility. Criterion B demonstrates the highest potential export water quantity from the dual-Delta facility (isolated facility and through Delta). CALFED specifically designed Criterion A and Criterion B to create a range that would bracket the potential solution rather than needing to model each specific possible solution. Irrigation service from the isolated facility upstream of the south Delta pumping facilities is a concept that would need more study if there are future evaluations for an isolated facility. The isolated facility would need to be sized for some export capacity (5,000 to 15,000 cfs) and the irrigation service, if any.

IA-2.4-3

This response has been consolidated with response IA-2.4-2. Please refer to this response for the answer to your comment.

IA-2.4-4

Alternatives were either eliminated because they were not able to meet the integrated, interrelated project purposes; they resulted in greater environmental consequences than those evaluated; or they were consolidated into other alternatives that were evaluated. The comment about developing the reasoning behind fish recovery not meeting goals is unclear. Perhaps the comment refers to a statement in the description of the environmentally preferred alternative on page 2-23 in the June 1999 Draft Programmatic EIS/EIR: "Until additional information is available to determine whether water quality and fish recovery goals can be met ...". Assuming that this is the

referenced statement, the statement does not pertain to meeting fishery goals but rather that information will need to be developed to help understand whether fishery goals can be met by the Preferred Program Alternative.

IA-2.4-5

A number of storage options are included in the Preferred Program Alternative, including in-Delta surface storage. Table 4.3 and Table 4.4 in Chapter 4 in the Programmatic EIS/EIR indicate that up to 15,000 acres of land could be affected by storage in the Delta. Chapters 5 through 7 identify consequences associated with construction of storage in the Delta.

IA-2.4-6

Alternatives 2D and 2E were eliminated for the same reasons. Both alternatives included habitat development within the main water conveyance path. The Program determined that the main water conveyance path needed to be separated from major new habitat. Locating major habitat away from the main water conveyance path would provide less chance of fish being carried to the south Delta export pumps. Further, separating the conveyance path and major new habitat is preferable for water quality because separation keeps the organic carbon that originates in the wildlife habitat out of the main water conveyance path. The habitat objectives of the alternatives are met by the Ecosystem Restoration Program element of the Preferred Program Alternative.

IA-2.4-7

This response has two parts. Please read the entire response for the answer to your comment.

Please see common response 14. The CALFED Bay-Delta encompasses the entire Bay-Delta watershed, which includes not only the Bay-Delta but also the tributaries to the Delta and the near-shore ocean. CALFED's approach to resolve water quality problems is consistent with this comment.

An earlier response to this comment has been consolidated with response IA-2.4-8. Please refer to this response for the answer to your comment if it was not answered above.

IA-2.4-8

The October 1998 paper, *An Environmental Optimal Alternative for the Bay-Delta*, proposed an alternative for the Bay-Delta system. CALFED has continued work on refining the Program since originally receiving the paper. The CALFED Preferred Program Alternative includes many of the concepts from the paper but generally includes them at a smaller scale than those in the paper. The CALFED alternative uses natural processes, groundwater and conjunctive use, pilot projects to restore island elevation, levee system improvements, tidal marsh, conserved water, water transfers, improved diversion with reduced fish take, adaptive management, and many other concepts proposed in the paper. The alternative proposed in the October 1998 paper requires much more extensive and significant land use changes than those in the CALFED Preferred Program Alternative. The CALFED agencies believe that the Ecosystem Restoration Program, together with adaptive management, will accomplish the CALFED Program's ecosystem restoration goals without the extensive land use changes proposed in the October 1998 paper. In addition, the Preferred Program Alternative must reduce conflicts and solve the four problem areas: ecosystem quality, water quality, water supply reliability, and levee system integrity. Given the CALFED solution principles, the changes proposed in the October 1998 paper are too extensive and would create too many redirected impacts within the Delta.

3. Summary Comparison of Environmental Consequences

3.1 Environmental Resource Impacts and Economic and Social Effects

IA-3.1-1

The Programmatic EIS/EIR complies with the provisions of NEPA and CEQA. This section summarizes and presents the information contained in the Programmatic EIS/EIR. For a discussion of the programmatic nature of the document, please see common response 1. For a discussion of how Program alternatives were developed, please see common response 5.

IA-3.1-2

Table 3-1 has been revised to note a decline in water supply reliability under the No Action Alternative.

IA-3.1-3

Table 3-1 summarizes the environmental consequences presented in each of the resource categories analyzed in Chapters 5, 6, and 7. Environmental consequences related to the area of origin were not identified. Please see common response 13 for information concerning water rights/area of origin.

IA-3.1-4

CALFED water quality actions will reduce inputs of pollutants into Delta waters and will result in continual improvements in the quality of these waters as actions proceed, as compared to the situation that would exist in the absence of the Program. From this perspective, therefore, protection of Delta water quality could be considered to be substantially improved and the benefit would pass to users of the water. However, the extent of the improvement cannot be predicted with certainty, nor would the degree of improvement necessarily be identical for all users. The word "substantial" has been deleted from the table because data are not available to determine whether the 10% significance criterion in the Programmatic EIS/EIR would be met. Ongoing assessments will be made of the results of CALFED actions and, through the adaptive management process, CALFED will identify the need for additional actions to accomplish its long-term water quality objectives. Adaptive management will be accomplished through ongoing participation of interested stakeholders.

IA-3.1-5

Table 3-1 summarizes the environmental consequences presented in each of the resource categories analyzed in Chapters 5, 6, and 7. Section 7.9 discusses energy use for on-site pumping and water treatment by M&I users under the Preferred Program Alternative and notes that similar impacts/effects will be seen under the other alternatives. Although energy use may be lower under Alternative 3, under significance criteria presented in Section 7.9, differences are not considered potentially significant.

IA-3.1-6

Table 3-1 summarizes the environmental consequences of Chapters 5, 6 and 7. Section 7.12, "Public Health and Environmental Hazards," notes that public health and environmental hazards resulting from poor water quality, disinfection by-products, or trihalomethanes are addressed in the water quality impact analysis (Section 5.3). In

the "Water Quality" category in Table 3-1, under Alternative 3, the statement is made that the "Quality of water exported to south-of-Delta SWP and CVP service areas improves substantially with [the] isolated facility because water is taken from the Sacramento River instead of [the] Delta."

IA-3.1-7

Table 3-1 summarizes the environmental consequences presented in each of the resource categories analyzed in Chapters 5, 6, and 7. Water management information is presented in Section 5.1. One of the four CALFED Program objectives is to improve water supply reliability. This section of the table uses terms such as "improvements"relative to meeting Program objectives. The table is not measuring "success" based on the amount of water diverted at Delta export pumps but rather is reporting information to show the range of effects of the CALFED Program alternatives on the reliability of Delta water exports.

IA-3.1-8

Table 3-1 summarizes information developed in Section 7.4 concerning urban land use. At the programmatic level of analysis, specific locations of future projects are not known. Therefore, Section 7.4 recognizes that certain locations for future projects could be inconsistent with local general plan land use designations or zoning. The significance criteria for determining potentially significant impacts includes "conflict with city or county general plan designations or zoning." Therefore, there is a possibility that future projects could conflict with local plans; and this potentially significant land use effect is disclosed. Amending local plans to accommodate the changed land use is a local government agency decision.

IA-3.1-9

CALFED is working on developing an Environmental Water Account that may, among other issues, help to define acceptable conditions for make-up pumping.

3.1.2 Summary of Beneficial Impacts

IA-3.1.2-1

Table 3-2 summarizes the beneficial impacts presented in each of the resource categories analyzed in Chapters 5, 6, and 7. The impacts on agricultural land and water use are presented and discussed in Section 7.1. Also see response IA-3.1.4-1.

IA-3.1.2-2

Levee setback projects and proposed riparian habitat projects may protect some of the lower-lying urban areas in the Delta. Some projects also may protect other developed areas outside the Delta. The CALFED Program is not a regulatory or land use planning agency. Therefore, CALFED will not impose requirements for stormwater treatment or control. CALFED may participate with local and state agencies to promote use of stormwater treatment facilities where these facilities can benefit water quality, both locally and in the Bay-Delta. CALFED participation will be varied and may include actions such as funding studies on the effectiveness of treatment systems or cost sharing the installation of such systems. CALFED activities do not preclude local entities from implementing flood protection projects within their respective jurisdictions.

IA-3.1.2-3

A sentence was added to this section to note that, at the programmatic level of analysis presented in this document, the benefits of other action alternatives are similar to those of the Preferred Program Alternative. Please see common response 5 for more information concerning alternative development.

3.1.3 Summary of Potentially Significant Adverse Environmental Impacts

IA-3.1.3-1

This section presents a table that summarizes the potentially significant adverse environmental impacts identified in Chapters 5, 6, and 7 in the Programmatic EIS/EIR. This section refers to mitigation strategies that are discussed in the impact analysis chapters as means to avoid, minimize, rectify, restore, replace, or compensate for significant adverse impacts caused by Program implementation when actual projects or activities are carried out. These mitigation strategies contain a variety of mitigation actions that address programmatic actions. When specific projects undergo planning, design, and environmental analysis, these strategies will be considered and specific feasible mitigation measures will be selected to address specific impacts of the project.

As explained in Chapter 1, the CALFED Program is a consortium of 16 state and federal agencies with management or regulatory responsibilities or expertise in the Bay-Delta estuary. Each of these agencies may carry out a second-tier project or be affected by the Program as it is implemented. At this programmatic level, it is unknown which agency will bear the principal responsibility for carrying out or approving second-tier projects. It is likely that either the CALFED agencies with the appropriate legislative authority for each project would implement them; or a new federal, state, or joint federal and state agency, created through legislation, would implement them. Since the proposed CALFED Program actions are evaluated in the Programmatic EIS/EIR, the analysis may be utilized by any agency with authority to carry out parts of the Program in second-tier projects.

As a programmatic planning-level document, the Programmatic EIS/EIR does not analyze site-specific impacts of future projects at proposed locations. Therefore, the document cannot predict with certainty which impacts will occur and what site-specific mitigation measures are appropriate for second-tier projects. Consequently, the Programmatic EIS/EIR identifies mitigation strategies, approaches tailored to the type of impacts anticipated as a result of CALFED Program projects, that will provide the basis to structure more specific mitigation measures. For each potentially significant environmental impact, one or more mitigation strategies are identified. These mitigation strategies will be considered as part of second-tier environmental review by any agency proposing to undertake projects that are within the scope of the Programmatic EIS/EIR. Where a second-tier project involves impacts that are addressed in the Programmatic EIS/EIR, the applicable mitigation strategies can be used to formulate site-specific mitigation measures and enforcement programs. The commitment to consider mitigation strategies, and to apply and enforce mitigation measures pursuant to those strategies, will be included in the ROD for the federal lead agencies and the findings adopted by the California Resources Agency. In addition, any state or federal project funded through legislation that provides for projects to be consistent with, or in accord with, the CALFED Program, would need to demonstrate compliance with the mitigation monitoring program as set forth in the Mitigation Monitoring Plan adopted at the time of the ROD and certification of the Programmatic EIS/EIR.

Chapter 9 in the Programmatic EIS/EIR has been revised to provide a process that will ensure NEPA/CEQA compliance in future project-level tiered environmental documents by considering the information and issues developed during this Programmatic EIS/EIR process.

IA-3.1.3-2

Table 3-3 summarizes the potentially significant adverse impacts presented in each of the resource categories analyzed in Chapters 5, 6, and 7. Section 5.1 found potential long-term adverse effects to water supply reliability but did not find these effects, given all of the Program, as a potentially significant adverse impact. Section 7.1, discussing agricultural land and water use, did not identify effects to water supply reliability as a potentially significant avoidable or unavoidable environmental impact.

A sentence was added to this section to note that, at the programmatic level of analysis presented in this document, the potentially significant adverse environmental impacts of other action alternatives are similar to those of the Preferred Program Alternative. Please see common response 5 for more information concerning alternative development.

IA-3.1.3-3

This comment has been consolidated with response A-3.1.3-1. Please refer to this response for the answer to your comment.

IA-3.1.3-4

The tables in this document were deliberately kept simple to avoid confusion. Table 3-3 summarizes and presents the potentially significant adverse avoidable and unavoidable impacts associated with the Preferred Program Alternative. At the programmatic level of analysis presented in this document, the potentially significant adverse avoidable and unavoidable impacts of other action alternatives are similar to those of the Preferred Program Alternative. Table 3-3 identifies unavoidable impacts in **bold type**. As presented in Section 3.1.3, at the programmatic level of this document, it is likely that unavoidable impacts cannot be mitigated to levels that are less than significant. Avoidable impacts listed in the table can be mitigated to less-than-significant levels. Mitigation strategies are presented in each resource category in Chapters 5, 6, and 7. Second-tier, site-specific environmental documents will determine whether specific impacts are, in fact, unavoidable. The second-tier documents also will present specific mitigation measures for each significant adverse impact identified.

3.1.4 Summary of Social and Economic Effects

IA-3.1.4-1

Table 3-4 lists summaries of economic and social issues. Neither CEQA nor NEPA requires an evaluation or assessment of economic benefits of a proposed project. The statements concerning economic and social effects to agriculture are derived from Sections 7.2 and 7.3. Statements represent the CALFED lead agencies' conclusions that are based on the analysis in the Programmatic EIS/EIR. Preparers of the sections are found in Chapter 11. Both Sections 7.2. and 7.3 contain "Areas of Controversy" sections that discuss these issues.

IA-3.1.4-2

Table 3-4 has been changed to read,

"Generally benefits regional economics but may cause localized economic adverse effects in the Delta, Sacramento, and San Joaquin River Regions. The amounts and allocation of costs and benefits are currently uncertain."

IA-3.1.4-3

The table summarizes the economic and social effects that were discussed in Sections 7.2, 7.3, 7.5, 7.10, 7.14, and 7.15. Each of these sections discusses how these effects were determined, including significance criteria.

IA-3.1.4-4

A sentence has been added to this section to note that, at the programmatic level of analysis presented in this document, the economic and social effects of other action alternatives are similar to those of the Preferred Program Alternative. Please see common response 5 for more information concerning alternative development. The table summarizes the economic and social effects that were discussed in Sections 7.2, 7.3, 7.5, 7.10, 7.14, and 7.15. More specific information is found in these sections.

3.2 Summary of Growth-Inducing Impacts

IA-3.2-1

Growth-inducing impacts are the ways in which the proposed project could foster, either directly or indirectly, economic or population growth or the construction of additional housing in the surrounding environment. To analyze the growth-inducing impacts of the CALFED Program, the growth-inducing effects of actions were evaluated within each resource category, and the collective effects were presented in Chapter 3. Growth-inducing effects caused by increases in water supply reliability are presented in Section 5.1. The effects of Program actions within resource categories for other potential growth-inducing effects also were analyzed. For example, CALFED actions could benefit recreational resources. Improved recreational opportunities could potentially cause, either directly or indirectly, economic or population growth or the construction of additional housing in the surrounding environment.

Growth-inducing impacts are analyzed in greater detail in environmental documents with more specific purposes or needs. Typically, growth-inducing impacts result from actions that supply a resource in response to a need for that resource in a specific location. Supplying a limited resource to an area in need of that resource usually fosters, either directly or indirectly, economic or population growth or the construction of additional housing in the surrounding environment.

For the Programmatic EIS/EIR, it was assumed that any increased water supplies and/or improved supply reliability associated with Program alternatives could stimulate growth and remove barriers to growth. This assumption was made because, at the programmatic level, growth-inducing impacts to resources can be described only broadly. To ensure full disclosure of environmental consequences and to comply with NEPA and CEQA, this assumption must be made because adequate information is not available to eliminate the possibility that a growth-inducing effect could be caused by Program implementation. Whether an increase in water supply or in water supply reliability may cause growth in a specific area depends on factors that are specific to that area. These factors include the availability of land and infrastructure; local land use policies and regulations; economic factors that influence growth; and the availability and quality of other water resources of the area, which could be supplemented or displaced by new water supplies or increased water supply reliability.

The results of modeling analysis for water supply reflect a broad range of assumptions. The results show that under future scenarios with CALFED Program actions, water supply delivered from the Bay-Delta system could increase or decrease relative to existing conditions but would increase compared to the No Action Alternative. To present the growth-inducing effects, scenarios were evaluated that included increased exports from the Delta. The results of the evaluation were presented for each resource category in the Programmatic EIS/EIR in the context of "If

improvements in water supply are caused by the Preferred Program Alternative, growth could occur with the following environmental consequences." Additionally, it was assumed that an increase in water supply reliability could lead to a greater amount of water supply, which in turn could induce growth. Water resource managers and water users are very resourceful in maximizing the value of the water used. Increased water supply reliability related to CALFED actions could enable expansion in an area's water supply through alternate management of other water sources or through use of other water management techniques, such as conservation or reclamation. At this programmatic level of analysis, it is not possible to evaluate every possible case where CALFED could improve water supply or water supply reliability. More detailed growth-inducing impact analyses will be presented in future tiered CEQA/NEPA documents.

Persuasive arguments can be made that CALFED water supplies are not likely to induce growth because: (1) some water supplies have decreased in recent years due to environmental protection or allocation to other uses, (2) some CALFED supplies would be used to increase reliability for existing uses in dry years, and (3) the CALFED supplies would merely replace other supplies that would be used instead to accommodate growth. Without CALFED, the next most expensive increment of water supply (or demand reduction) would be taken and the amount of growth would be unaffected. Additionally, improved water supply reliability to agricultural areas where water supplies are chronically short of demands could improve the likelihood of agricultural lands remaining in agricultural use and not being used for urban development. One scenario where CALFED supplies might induce growth is if a local government passes an ordinance prohibiting growth without new water supplies, and no other supplies are available. This scenario seems unlikely because the M&I users who would receive the CALFED supplies have access to major conveyance systems. The potential for water transfers from other water users means that some other supply is potentially available. Growth also could be caused if CALFED supplies are less expensive than the alternate source, and this lower expense encourages urbanization. The counter-argument to this exception is that the cost of water is not an important part of the cost of home development, cost of ownership, or the cost of living. Therefore, the cost of any CALFED supplies is likely to be an insignificant influence on urban growth.

The evaluation of growth-inducing effects of projects and the subsequent evaluation of environmental consequences is a subject that generates substantial debate and numerous opinions. For example, some would argue that population or economic growth is caused by the availability of resources, while others would argue that the development of resources is caused by population or economic growth. Chapter 4 has been revised to note that the issue of growth and growth-related environmental impacts is an area of controversy as used in CEQA. Experts in the field disagree on this subject. Text in Chapters 3, 5, 6, and 7 has been revised to simplify the presentation of growth-inducing impacts. The summary table about growth-inducing impacts was deleted from Chapter 3.

IA-3.2-2

Model predictions provided in Tables 5.3-4a and b indicate that the Preferred Program Alternative may potentially lower salinity at the export pumps. The degree of improvement would depend on the storage options and the annual hydrology.

3.3 Summary of Short- and Long-Term Relationships

IA-3.3-1

A sentence has been added to this section to note that, at the programmatic level of analysis presented in this document, the short-term and long-term relationships of other action alternatives are similar to those of the Preferred Program Alternative. See common response 5 for more information concerning alternative development.

3.4 Summary of Irreversible and Irretrievable Commitments

IA-3.4-1

The table summarizes the irreversible and irretrievable commitments of resources presented in each of the resource categories analyzed in Chapters 5, 6, and 7. Section 7.1 did not identify agricultural water as an irreversible or irretrievable commitment of resources. Agricultural water is covered under the "Water supply and water management" category of the table that notes "Displacement of water supplies from one region or use to another region or use." Section 7.1 did identify agricultural lands in this category.

IA-3.4-2

A sentence has been added to this section to note that, at the programmatic level of analysis presented in this document, the irreversible and irretrievable commitments of other action alternatives are similar to those of the Preferred Program Alternative. See common response 5 for more information concerning alternative development.

3.5 Summary of Cumulative Impacts

IA-3.5-1

The Programmatic EIS/EIR contains a cumulative impact analysis in compliance with NEPA and CEQA. Section 3.5 provides the summary of the cumulative impact analysis, and Section 3.6 presents mitigation strategies for cumulative impacts. A discussion of cumulative impacts for each resource category evaluated is presented in the section entitled "Additional Impact Analysis" in Chapters 5, 6, and 7 in the Programmatic EIS/EIR. These sections have been revised to better explain the cumulative impact analysis. For most resource categories, the analysis and conclusion regarding the significance of the Program's contribution to cumulative impacts is similar to the analysis and conclusion regarding the CALFED Program's long-term impacts. The long-term impacts of the Program are discussed in the "Environmental Consequences" sections for each resource category presented in Chapters 5, 6, and 7. Section 7.1.10 presents the cumulative impact analysis for agricultural land and water use.

The CALFED Program involves the approval of a program to restore ecological health and improve water management for beneficial uses of the Bay-Delta system. The Program is a general description of a range of actions that will be further refined, considered, and analyzed for site-specific environmental impacts as part of second- and third-tier environmental documents prior to making a decision to carry out these later actions. The Programmatic EIS/EIR focuses on a general overview of cumulative impacts and associated mitigation measures. Because this Programmatic EIS/EIR does not analyze the site-specific impacts of any projects, it is not possible, within the scope of this program-level document, to provide a detailed analysis of the Program's contribution to cumulative impacts and the methods to mitigate the cumulative impacts of second-tier projects for most resource categories.

Future site-specific EIRs and EISs will be able to incorporate the cumulative impact analyses of this programmatic document and add detail about specific projects and their contribution to cumulative impacts. Any new significant environmental impacts, including cumulative impacts, that the Programmatic EIS/EIR did not address must be evaluated in subsequent environmental review.

Section 4.3, "Estimated Land Use Changes due to the Program," presents estimated amounts of land that could be affected by the Ecosystem Restoration, Water Quality, Levee System Integrity, Storage, and Conveyance elements of the CALFED Program. The section provides explanations of how the estimates of land use change were derived and how some of these estimates overlap with other programs, and information on what steps would be taken to reduce effects on farmlands.

Attachment A at Section A.5 provides the list of programs, projects, and actions that were evaluated in the cumulative impact analysis. Attachment A includes water management and restoration programs and projects, and urbanization—which represent the range of probable future projects producing related or cumulative impacts. The evaluation of the environmental consequences contained in Chapters 5, 6, and 7 include descriptions of the "Environmental Setting/Existing Conditions" for each resource. These sections present the past and present factors that have established the current state of each resource category discussed.

To date, CALFED has funded more than $200 million for early implementation of ecosystem restoration projects through its Category III grant program, pursuant to Proposition 204 and the Bay-Delta Act. Both the state and federal authorization for these grants contemplated that the initial phases of ecosystem restoration would begin before the completion of a Final Programmatic EIS/EIR for the Program. As a condition of funding, all grant agreements require that the project comply with all applicable laws and regulations, including NEPA, CEQA, and other environmental permitting requirements. All ecosystem restoration projects approved for early implementation have been consistent with the objectives of the Ecosystem Restoration Plan. Thus, the land uses in these ecosystem projects are included in the land conversion estimates provided for the Ecosystem Restoration Plan in Chapter 4. Further, the impacts of these projects are addressed, at a programmatic level, in the "Environmental Consequences" sections in the Programmatic EIS/EIR. These early implementation and other restoration projects identified in Attachment A, such as the CVPIA, have been considered as part of the Program's cumulative impacts analysis, as well as other land conversion activities such as urbanization. Where other public or private programs that are outside CALFED or are not identified in Attachment A advance the goals or targets of the Ecosystem Restoration Plan, these programs will be counted and attributed toward ecosystem restoration.

Please see responses IA-3.5-4 and IA-3.5-8 below for additional information concerning cumulative effects.

The Multi-Species Conservation Strategy does not permit CALFED agencies to excuse themselves from the requirements of NEPA or CEQA. The MSCS provides a framework for entities or individuals implementing CALFED Program actions to comply with state and federal endangered species laws. Most CALFED Program actions will require site-specific, tiered environmental documentation under NEPA and CEQA. The tiered environmental documentation will address the impacts of the actions on the species and habitats addressed in the MSCS. The tiered documents also will address the impacts associated with implementing conservation measures specified in the MSCS. Notably, the conservation measures contained in the MSCS do not create new or different impacts from those discussed programmatically in the Programmatic EIS/EIR. Rather, the MSCS conservation measures are encompassed within either existing Program actions, particularly the Ecosystem Restoration Plan, or existing mitigation strategies that are analyzed and discussed in the Programmatic EIS/EIR.

IA-3.5-2

Section 5.2.10 discusses the cumulative effects related to Bay-Delta hydrodynamics and riverine hydraulics. Table 3-7 notes that potentially significant cumulative impacts could be associated with this resource category. Impacts on other resource categories, such as fisheries and water quality, that are related to Bay-Delta hydrodynamics and riverine hydraulics also are discussed in those resource categories.

IA-3.5-3

Table 3-7 summarizes the potentially significant adverse cumulative impacts presented in each of the resource categories analyzed in Chapters 5, 6, and 7. These chapters and Chapter 3 have been revised to better explain the cumulative impact analysis. The list of projects analyzed for cumulative impacts (see Attachment A in the Programmatic EIS/EIR) included water management projects that could result in adverse effects caused by water diversions. The environmental consequences sections in Chapters 5, 6, and 7 present various environmental effects

associated with the CALFED Program alternatives related to the diversion of water. Therefore, the cumulative impact analysis found numerous resource categories (for example, water supply and management, water quality, fisheries and aquatic resources, and power production and energy) for which potential cumulative effects were identified. Please see response IA-3.5-4 below for information concerning the time frame used in the cumulative impact analysis.

IA-3.5-4

CALFED analyzed and presented conclusions of the environmental consequences of the CALFED Program in the Programmatic EIS/EIR, including effects to agricultural resources. The results of the analysis regarding environmental consequences, including the cumulative impacts, of the CALFED Program to agricultural resources are presented in Sections 7.1, 7.2, and 7.3. Mitigation strategies are presented in those sections for potentially significant environmental consequences of CALFED actions. For most resource categories, the analysis and conclusion regarding the significance of the Program's contribution to cumulative impacts is similar to the analysis and conclusion regarding the CALFED Program's long-term impacts. General physical mitigation strategies are presented for each resource category in Chapters 5, 6, and 7 in the Programmatic EIS/EIR. Safeguards by law, regulations, water rights standards, and mitigation methods developed in water management programs also will serve to reduce potential impacts in future projects.

At this programmatic level of analysis, it is not possible to define the exact extent of the cumulative impact on agricultural or other resources. A 30-year period was used as the time frame for the cumulative impact analysis. But the uncertainty of what future projects or actions may occur that could contribute to cumulative impacts increases relative to how far into the future the analysis attempts to evaluate projects. The list of projects and actions considered in the cumulative analysis included urbanization. Given population predictions, urbanization seems likely to continue as a factor that could contribute to cumulative impacts in most resource categories.

The cumulative impact analysis evaluated the environmental consequences of the CALFED Program combined with environmental consequences of the projects and actions on the list presented in Attachment A. Where the CALFED Program caused potentially significant environmental consequences and other projects and activities also caused potentially significant adverse impacts on the same resource, it was concluded that a potentially significant cumulative impact could occur, even though mitigation strategies were available for impacts associated with CALFED or other projects and actions. At this programmatic level of analysis, mitigation strategies for cumulative impacts are similar to the mitigation strategies presented for long-term impacts in each resource category of Chapters 5, 6, and 7 in the Programmatic EIS/EIR. Lacking more specific information concerning specific projects to be implemented through the CALFED Program, their level of cumulative contribution to a particular environmental impact, and the availability of mitigation measures to avoid or reduce their contributions to impacts, it is not feasible to more specifically spell out mitigation strategies for cumulative impacts. It is also not feasible to develop specific cumulative impact assessment protocols or mitigation protocols.

Through the NEPA/CEQA monitoring process described in revised Chapter 9, CALFED will monitor the implementation of its actions. This process will ensure that the environmental effects of projects, including cumulative impacts, are appropriately considered during the preparation of tiered environmental documents for site-specific projects in the implementation stage of the Program. As a project's cumulative impacts are identified in the project-level environmental documents, specific mitigation will be developed and implemented.

Some environmental impacts that will occur in the future because of population growth and its consequent demands on environmental resources can be managed only through governmental action. For example, continuing urbanization could cause significant loss of prime agriculture lands. This type of environmental impact is primarily within the jurisdiction of local government.

IA-3.5-5

Table 3-8 summarizes the potentially significant adverse cumulative impacts presented in each of the resource categories analyzed in Chapters 5, 6, and 7. Section 7.1 did not find that a change in agricultural water use constituted a potentially significant adverse environmental impact and therefore would not contribute to a cumulative effect. Please see response IA-7.1.7-11 for additional information.

IA-3.5-6

Table 3-8 summarizes the potentially significant cumulative impacts derived from the analysis of cumulative impacts for each resource category presented in Chapters 5, 6, and 7. The table does not indicate that the Preferred Program Alternative adversely affects the Delta in all 19 resource categories. The table depicts that potentially significant adverse cumulative impacts may result from CALFED actions and actions of other programs, projects, and activities presented in Attachment A to the Programmatic EIS/EIR. Implementation of the CALFED Program will improve resources of the Bay-Delta system in accordance with it its mission (please see Section 3.5.1-1 below). CALFED's objective with regard to water supply is to improve water supply reliability, which may result in increased water exports from the Delta under certain scenarios. Water supply environmental consequences are presented in Section 5.1. The CALFED Program contains other objectives, such as levee system integrity, ecosystem restoration, and so on. All of these actions were considered in the cumulative impact analysis. The impacts of these activities along with other activities were combined to determine cumulative effects. Please see common response 1 for additional information about the CALFED Program.

IA-3.5-8

A sentence has been added to this section to note that, at the programmatic level of analysis presented in this document, the cumulative impacts of other action alternatives are similar to those of the Preferred Program Alternative. See common response 5 for more information concerning alternative development.

The cumulative impact analysis followed the State CEQA Guidelines. The programmatic level of this document, however, necessitated that the analysis be qualitative. Section 3.5 has been revised and complies with Section 15130(a). Section 15130(a) uses the term "incremental effects" as the level of project effect that needs to be added to the effects of other projects in order to determine the significance of cumulative impacts.

Given the qualitative nature of the analysis, it was not possible to quantify increments of environmental impact. Impacts either exceeded thresholds of significance listed for each resource category or they did not. Therefore, the analysis used only those impacts found potentially significant in the Programmatic EIS/EIR as the threshold for identifying potentially significant cumulative effects.

The CALFED Programmatic EIS/EIR is a general discussion and analysis of resource categories that are all potentially affected by some level of environmental impact and, therefore, would cause some degree of incremental impact. However, identifying potential cumulative impacts in all resource categories would not be useful in disclosing environmental consequences and providing a framework for more specific cumulative impact analysis in future second-tier environmental documents. Future second-tier, project-specific environmental documents will be able to more specifically identify and quantify increments of impacts, and will provide more precise analysis of cumulative effects.

Each of the resource sections in Chapters 5, 6, and 7 discusses cumulative impacts. The discussions differentiate between those potentially significant adverse cumulative impacts for which the Program's contribution could be avoided or mitigated to a less than cumulatively considerable level and those impacts that remain unavoidable,

regardless of efforts to avoid, reduce, or mitigate them. It should be noted that even though the Program's contribution to a cumulative impact is considered unavoidable at the programmatic level of analysis, it is possible that the individual project's contribution to cumulative impacts may be considered less than significant or cumulatively considerable at the project level of review. An individual project's contribution to cumulative impacts may be reduced to a less-than-significant or cumulatively considerable level through avoidance of impacts; application of the mitigation strategies presented in the Programmatic EIS/EIR; or implementation of new, site-specific mitigation measures.

If implementing the Preferred Program Alternative would not result in a potentially significant adverse impact on a resource, potentially significant adverse cumulative effects for that resource are not noted in the narratives in Chapters 5, 6, and 7 or in Table 3-7 in Chapter 3—even if Attachment A actions (non-CALFED Program actions) would result in potentially significant adverse impacts on the resource. If implementing the Preferred Program Alternative would result in a potentially significant adverse impact but no similar impacts are associated with the Attachment A actions, potentially significant adverse cumulative effects for that resource also are not identified.

Due to the programmatic level of information considered, the analysis and conclusion regarding the significance of the Program's contribution to cumulative impacts (and the ability to avoid, reduce, or mitigate them) are essentially the same as the analysis and conclusion regarding the CALFED Program's long-term impacts. This similarly is primarily due to the long-term nature of the Program and the wide range of actions that fall within the scope of the Program's potential future actions.

IA-3.5-9

Social and economic changes resulting from a project are treated somewhat differently under CEQA and NEPA. Neither Act requires an analysis of "environmental implications of cumulative costs." Section 7.2, "Agricultural Economics," Section 7.5, "Urban Water Supply Economics," and Section 7.10, "Regional Economics," present discussions of cumulative impacts in terms of effects to these economic sectors. At this programmatic level of analysis, little cost information is available. Specific cost information will be developed during the planning of implementation projects.

IA-3.5-10

This Programmatic EIS/EIR does not evaluate site-specific projects. Before approval of project-level actions in the implementation phase of the Program, more specific analysis of environmental consequences and specific mitigation measures will be proposed for any environmental impacts, including cumulative impact mitigation. Please see response IA-3.1.3-1 and common response 1 for additional information.

3.5.1 Delta Region

IA-3.5.1-1

The overall effect of each action alternative is to meet the CALFED mission. The mission is to develop a long-term comprehensive plan that will restore ecological health and improve water management of the Bay-Delta system. The CALFED mission contains the following four objectives:

- 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.

All the Program elements described in the Programmatic EIS/EIR are designed to achieve these objectives. Each action alternative contains actions that would operate to meet these objectives. Therefore, each action alternative has the overall effect of benefitting resources as described in the objectives. Please see common response 5 for additional information on alternatives development. Adverse impacts may result from individual projects and actions carried out to meet these objectives. Adverse impacts also may result from the projects and activities considered in the cumulative impact analysis. Cumulative impacts were analyzed on a regional basis. Where the CALFED Program, in combination with other non-CALFED projects, could cause potentially significant adverse effects, it was concluded that potential cumulative effects could result. Mitigation strategies for cumulative impacts are discussed in the Programmatic EIS/EIR. There is simply not adequate or specific information at this early stage of analysis to present more detailed conclusions regarding the significance and ability to mitigate cumulative impacts. Please see responses IA-3.5-4 and IA-3.5-8.

3.5.3 Sacramento River and San Joaquin River Regions

IA-3.5.3-1

The CALFED Program is not a regulatory agency and is not a land use planning agency. Therefore, CALFED will not impose requirements for stormwater treatment or control. CALFED may participate with local and state agencies to promote use of stormwater treatment facilities where these facilities can benefit water quality, both locally and in the Bay-Delta. CALFED participation will be varied and may be include actions such as funding studies on the effectiveness of treatment systems or cost sharing the installation of such systems. Section 4.3.2 in the Programmatic EIS/EIR states that facilities to control and treat various discharge effluents would directly affect current land uses. This statement is made in the context of Section 4.3, "Estimated Land Use Changes due to the Program," and does not mean that a potentially significant adverse impact on land use was identified. Section 7.4, "Urban Land Use," evaluates changes in urban land use and did not identify a potentially significant adverse impact on urban land use in the Sacramento River and San Joaquin River Regions. Therefore, a cumulative impact resulting from the CALFED Program in concert with other projects is not expected.

IA-3.5.3-2

Section 3.5.3 has been changed to note, "In the Sacramento River and San Joaquin River Regions, potentially significant adverse cumulative impacts could occur due to development of water management projects, environmental restoration projects, and urbanization listed in Attachment A, in concert with implementation of the Program." Table 3.7 lists cumulative impacts for the San Joaquin River Region, and the region was considered in the cumulative impact analysis presented in Chapters 5, 6, and 7.

3.5.4 Other SWP and CVP Service Areas

IA-3.5.4-1

The CALFED Program is not proposing any new water quality or environmental regulations, or regulatory changes in the law. The commentor is describing a trend of increasingly stringent environmental regulations that are part of the range of assumptions used in forecasting the water supply conditions under a No Action Alternative scenario. These regulations are not part of CALFED's proposed actions. Neither water demands nor regulatory requirements can be predicted with certainty. The uncertainty in projections of population, land use, implementation of water use efficiency measures, and how the effects of water marketing affect water demand projections, as well as the uncertainty related to implementation of federal and state ESAs and future SWRCB decisions, affect the future regulatory constraints. Consequently, in its assessment of Program alternatives, the Program used a formulation of reasonable assumptions that reflect the range of the state and federal project operations and Delta hydrodynamic modeling to predict the likely consequences of present and future water management decisions. These assumptions and the uncertainties associated with predicting water demand and supply are further described in Attachment A in Section A.3.2 and in Section 5.1.

The modeling based on these assumptions showed that the CALFED Preferred Program Alternative is expected to increase water supply reliability over no action conditions by improving the ability to store and transport water, improving the conveyance of water through the Delta, improving the quality of Bay-Delta supplies, managing demands through conservation and recycling, facilitating water transfer markets, and managing environmental water need through an Environmental Water Account. At this programmatic level of analysis, it is unknown whether any particular locality will experience adverse water supply impacts, but the water supply reliability for overall agricultural and urban uses from Bay-Delta sources is expected to be improved.

3.6 Mitigation Strategies for Cumulative Impacts

IA-3.6-1

This section has been revised to clarify that, for most resource categories, the analysis and conclusion regarding the significance of the Program's contribution to cumulative impacts is similar to the analysis and conclusion regarding the CALFED Program's long-term impacts. General physical mitigation strategies are presented for each resource category in Chapters 5, 6, and 7 in the Programmatic EIS/EIR. Safeguards by law, regulations, water rights standards, and mitigation methods developed in water management programs also will serve to reduce potential impacts in future projects. The list on page 3-7 in the June 1999 Draft Programmatic EIS/EIR was not intended to be all inclusive and has been deleted.

IA-3.6-2

The discussion of cumulative impacts in Sections 3.5 and 3.6 in Chapter 3 has been revised. The list of laws and management programs identified as cumulative impact mitigation strategies has been deleted in Section 3.6.

The CALFED Program involves the approval of a program to restore ecological health and improve water management for beneficial uses of the Bay-Delta system. The Program is a general description of a range of actions that will be further refined, considered, and analyzed for site-specific environmental impacts as part of second- and third-tier environmental documents prior to making a decision to carry out these later actions.

The Programmatic EIS/EIR focuses on a general overview of cumulative impacts and associated mitigation strategies. As a programmatic planning-level document, the Programmatic EIS/EIR does not analyze site-specific impacts of future projects at proposed locations. Therefore, the document cannot predict with certainty which impacts will occur and what site-specific mitigation measures will be imposed. Similarly, a detailed analysis of the Program's contributions to cumulative impacts and the methods to mitigate those cumulative impacts cannot be analyzed with certainty at the programmatic level. Consequently, based on the type of information considered at the programmatic level, this document identifies those cumulative impacts to which the Program actions likely will contribute. The document also includes mitigation strategies that, when applied to an individual project, will serve to avoid, reduce, or mitigate the project's contribution to cumulative impacts.

Later EIRs and EISs will be able to incorporate the cumulative and long-term impact analyses of this programmatic document and add detail about specific projects and their contribution to cumulative impacts. Similarly, subsequent project-level studies also will address the individual project's cumulative impacts and consider proposed strategies and mitigation measures to avoid, reduce, or mitigate the project's contribution to cumulative impacts, where appropriate.

Text in Section 3.5 and Table 3-7 (at the end of Chapter 3) identifies by region the resource categories where potentially significant (whether they are avoidable or unavoidable) cumulative adverse impacts are anticipated from the Preferred Program Alternative, when added to the impacts of applicable projects and activities listed in Attachment A to the Programmatic EIS/EIR. The discussion of cumulative impacts in each of the resource sections in Chapters 5, 6, and 7 presents those impacts. The discussions differentiate between those potentially significant adverse cumulative impacts for which the Program's contribution could be avoided or mitigated to a less than cumulatively considerable level and those impacts that will remain unavoidable, regardless of efforts to avoid, reduce, or mitigate them. It should be noted that even though the Program's contribution to a cumulative impact is considered unavoidable at the programmatic level of analysis, it is possible that the individual project's contribution to cumulative impacts may be considered less than significant or cumulatively considerable at the project level of review. An individual project's contribution to cumulative impacts may be reduced to a less-than-significant or cumulatively considerable level through avoidance of impacts; application of the mitigation strategies presented in the Programmatic EIS/EIR; or implementation of new, site-specific mitigation measures.

Due to the programmatic level of information considered, the analysis and conclusion regarding the significance of the Program's contribution to cumulative impacts are essentially the same as the analysis and conclusion regarding the CALFED Program's long-term impacts. This similarity is primarily due to the long-term nature of the Program and the wide range of actions that fall within the scope of the Program's potential future actions. The potentially significant adverse long-term impacts and the mitigation strategies that can be used to avoid, reduce, or mitigate these impacts are listed in summary form at the beginning of each resource section in Chapters 5, 6, and 7. Those impacts that cannot be avoided or mitigated to a less-than-significant level are noted on the list in **bold type**. The long-term impacts are elaborated on in the body of each resource section.

CALFED intends that adverse environmental consequences be avoided and mitigated during Program implementation. The NEPA/CEQA monitoring process described in Chapter 9 in the Programmatic EIS/EIR will ensure that (1) projects that require environmental documents and tier from this Programmatic EIS/EIR adequately consider and mitigate environmental consequences as more information becomes available, and (2) adequate environmental information is presented in the site-specific documents to minimize significant adverse environmental impacts. As required by NEPA and CEQA, cumulative impacts must be presented in these documents. Mitigation strategies developed in the Programmatic EIS/EIR must be considered, and specific mitigation measures proposed, for significant adverse impacts identified in the tiered environmental documents.

IA-3.6-3

At the programmatic level of analysis presented in this document, the beneficial impacts of other action alternatives are similar to those of the Preferred Program Alternative. See common response 5 for more information concerning alternative development.

IA-3.6-4

This response has been consolidated with response IA-3.1.3-4. Please refer to this response for the answer to your comment.

IA-3.6-5

At the programmatic level of analysis presented in this document, the growth-inducing impacts of other action alternatives are similar to those of the Preferred Program Alternative. See common response 5 for more information concerning alternative development.

IA-3.6-6

At the programmatic level of analysis presented in this document, the cumulative impacts of other action alternatives are similar to those of the Preferred Program Alternative. See common response 5 for more information concerning alternative development.

4. Guide to Impact Analyses and Description of Land Use Assumptions

4.1 Guide to Impact Analyses

IA-4.1-1

Because the Programmatic EIS/EIR does not evaluate site-specific actions, no specific mitigation measures or monitoring plans are presented. Instead, general mitigation strategies are identified as ways to avoid, minimize, restore, or compensate for potentially significant adverse impacts. Another essential part of the implementation strategy of any Program element is adaptive management, which will allow necessary adjustments as conditions change in future stages of implementation and as more is learned about the system and how it responds to restoration efforts. Decisions regarding individual program actions will not be made until additional information, including the need for mitigation, is available and action alternatives and potential mitigation measures have undergone environmental review. These actions may be modified as a result of second-tier environmental review and the mitigation measures imposed as a part of that review. Where the impacts from actions have been included in the Programmatic EIS/EIR, however, the subsequent environmental documents can tier off the programmatic document for cumulative and long-range impacts of the programmatic decision.

Potential mitigation strategies for groundwater resources are listed in Section 5.4 in the Programmatic EIS/EIR. As noted above, these strategies are among the mitigation actions that could be used to alleviate potentially significant adverse impacts of the Program in order to reduce the impacts to less-than-significant levels. The lead agency for any project ultimately is responsible for incorporating, developing, and carrying out specific mitigation actions for site-specific projects. The proposed mitigation strategies for groundwater resources can be carried out in accordance with existing law.

Agricultural resources are an important feature of the existing environment of the state, and are recognized and protected under CEQA and state policy. It is Program policy that adverse environmental effects on agricultural resources resulting from CALFED programs, projects, and actions will be fully assessed and disclosed, and avoided or mitigated if feasible. At a programmatic level, CALFED has developed mitigation strategies, or a list of options for mitigation measures, to address the Program's impacts on environmental resources. As part of subsequent environmental review for implementation of CALFED project-level actions. CALFED will consider those strategies that are applicable to the proposed actions. Also, CALFED may develop and consider additional site-specific mitigation measures prior to approval of subsequent projects. Avoidance, compensation, or minimization strategies for effects on agricultural resources are listed in Sections 7.1, 7.2, and 7.3 in the Programmatic EIS/EIR.

At the project level of environmental review, agencies responsible for the implementation of the CALFED Program will, as required by NEPA and CEQA, review the site characteristics, size, nature, and timing of proposed actions to determine whether the impacts of the specific project are potentially significant or can be mitigated to a less-than-significant level. Since it is not possible to precisely assess the site-specific impacts or potential for mitigation of project-level impacts at this time, the Programmatic EIS/EIR treats these impacts at a programmatic level as potentially significant. Where it is anticipated that feasible mitigation measures may not be available to reduce these impacts to a less-than-significant level, this document treats these impacts at a programmatic level as potentially significant and unavoidable. Future environmental review will be needed to determine the impacts of specific actions and appropriate mitigation for project-specific actions.

Please also see response IA-9.0-2 for information concerning monitoring implementation of mitigation strategies.

IA-4.1-2

The growth-inducing potential associated with the Preferred Program Alternative is addressed in several places in the document. A summary of the growth-inducing impacts associated with the Program can be found in Section 3.2 in the Programmatic EIS/EIR. Section 4.1 has been revised to better explain the approach to analyzing growth-inducing impacts. The section for each resource category titled "Additional Impact Analysis" in Chapters 5, 6, and 7 also has been revised. Please also see response IA-3.2-1.

IA-4.1-3

The economic and social information analyses (agricultural economics, agricultural social issues, urban water supply economics, regional economics, and environmental justice) identify possible methods to alleviate potential adverse effects on these resources in the discussion of potential effects in the Programmatic EIS/EIR, specifically in Sections 7.2, 7.3, 7.5, 7.10, and 7.14. Because of the programmatic level of the analysis and the uncertainty of where Program projects will be sited, social effects cannot be predicted for specific cities or counties. Consequently, regions rather than specific jurisdictions were used to describe effects. The authors acknowledge that adverse social effects likely would occur in certain jurisdictions within a region, and that reliance on regional numbers for employment and other job-related statistics does not reflect the potential adverse social effects that may be experienced by a particular city or county. While socioeconomic effects in a region may be relatively minor, these same effects concentrated in a particular jurisdiction may be substantial. Additional assessment of social effects from individual project components on specific localities will be carried out during the environmental review process for the individual projects.

IA-4.1-4

Cumulative impacts are defined as impacts on the environment that result from the incremental impact of the proposed action, when added to other past, present, and reasonably foreseeable future actions undertaken by the same or other agencies or persons. Program actions may be implemented in an inter-active manner with other concurrent and subsequent projects. The non-Program actions implemented concurrently with the Program may affect the results of implementing the Program and may result in impacts different than those associated with implementing only Program actions. A description of the programs and projects considered in the cumulative impact analysis is provided in Attachment A to the Programmatic EIS/EIR.

Section 3.5, "Summary of Cumulative Impacts," provides a summary of the cumulative impact analysis. A discussion of cumulative impacts for each resource category evaluated is presented in the section "Additional Impact Analysis," in Chapters 5, 6, and 7 in the Programmatic EIS/EIR. Section A.5 in Attachment A lists the programs, projects, and actions that were evaluated in the cumulative impact analysis. The cumulative impact analysis sections in each of the resource categories have been revised to identify where Program actions also could contribute to significant cumulative impacts on those resource categories. In doing so, those significant adverse cumulative impacts for which the Program's incremental contribution could be avoided or mitigated to a less than cumulatively considerable level are identified, as well as those impacts that—regardless of efforts to avoid, reduce, or mitigate them—will remain unavoidable.

IA-4.1-5

Areas of controversy are identified in the impact analysis portion of the Programmatic EIS/EIR in Chapters 5, 6, and 7. As stated in the lead sentence to Chapter 4, "This chapter is included to help readers understand how the impact analyses are presented...". The paragraph concerning areas of controversy describes the kinds of information the reader would find under that heading in the respective impact analysis chapter.

IA-4.1-6

The purpose of Section 4.1 is to explain the kinds of information the reader could find under those headings in the impact analyses presented in Chapters 5, 6, and 7. Because the Programmatic EIS/EIR does not evaluate site-specific actions, no specific mitigation measures or monitoring plans are presented. Instead, general mitigation strategies are identified as ways to avoid, minimize, restore, or compensate for potentially significant adverse impacts. For some resources, specific mitigation measures are provided to display the array of techniques available in order to carry out the strategy. For example, construction activities can cause erosion of soils that leads to adverse impacts on water quality. A mitigation strategy would be to avoid and minimize the impact. Mitigation measures available to carry out this strategy include conducting work during dry periods and using erosion-control fencing or straw bales, water detention basins, and so forth. The specific mitigation measures provided in some resource categories are *examples*, as stated above, to show the range of techniques that can be used to implement the strategy.

IA-4.1-7

As stated in Section 3.2 in the Programmatic EIS/EIR, it was assumed that any increased water supplies or improved water supply reliability associated with the Program would stimulate growth and remove barriers to growth in the water service area. At this time, growth-inducing impacts on resources are described only broadly. Growth-inducing impacts will be analyzed in greater detail in future project-specific NEPA/CEQA documents that are tiered from this document.

There are differences of opinion concerning whether additional water supplies and/or improvements in water supply reliability stimulate growth. Discussions of growth-inducing impacts often cause differences of opinion among technical experts and is considered an area of controversy as used in CEQA.

The Programmatic EIS/EIR assumes that any increased water supplies or improved supply reliability associated with the Program's alternatives will stimulate growth and remove barriers to growth because this may occur in some cases. This assumption also ensures that the document discloses the environmental consequences associated with growth in the event that Program actions ultimately lead to this type of change. Whether an increase in water supply or water supply reliability may cause growth in a specific area depends on factors that are specific to that area. These factors include the availability of land to support certain types of growth; economic factors that influence growth; and the availability and quality of other water resources of the area, which could be supplemented or displaced by new water supplies or increased water supply reliability. Specific information concerning where, how, and other factors influencing how water is used is not available at this programmatic level of analysis. Please also see response IA-3.2-1.

IA-4.1-8

The No Action Alternative analysis presented in the Programmatic EIS/EIR is consistent with the CEQA definition of a No Action Alternative. CEQA Guidelines, Section 15126.6(e)(1), state that the no project alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant, *unless* [emphasis added] it is identical to the existing environmental setting analysis which does establish that baseline (please see Section 15125). As stated in the Programmatic EIS/EIR, at the programmatic general-level planning stage, the No Action Alternative was designed to represent a reasonable range of uncertainty in the pre-implementation condition. This range was quantified in two distinct bookend water management criteria assumptions sets, described in detail in Attachment A to the Main Document. Existing conditions fall within these bookends. Consequently, the environmental impacts of the actions included in the Program alternatives when compared to existing conditions are described as being very similar to the impacts of those

alternatives when compared to what is expected to happen under a future no-action scenario. Please see common response 5 for additional information regarding the development of Program alternatives.

IA-4.1-9

In compliance with NEPA and CEQA, the Program describes environmental condition baselines for the impact analysis. The description of the affected environment as it existed at the time of the Notice of Preparation is contained in the technical reports initially written for the March 1998 Draft Programmatic EIS/EIR and presented in the June 1999 Draft Programmatic EIS/EIR. Because the impacts of the alternatives described in the June 1999 Draft Programmatic EIS/EIR are similar to those presented in the March 1998 Draft Programmatic EIS/EIR, information in the technical reports—including the description of the affected environment—was verified and used in the Programmatic EIS/EIR, along with additional modeling runs for the operations and water supply. The text in Chapter 4 has been revised to reflect this information.

IA-4.1-10

The paragraph in question generally states that the analysis of cumulative impacts is qualitative. Impacts were identified based on (1) information extracted from available environmental documents or studies for the resource categories potentially affected by each project, and (2) knowledge of expected effects of similar projects in the study area. Because of the preliminary phase of most of the projects considered (environmental reviews have not been initiated, drafted, or finalized), comparable environmental information for identifying cumulative impacts was sparse. Section 4.1 also states that the assumptions and information used in preparing the impact analyses can be found in the technical reports and in Attachment A.

IA-4.1-11

The existence of the technical reports are disclosed in the first paragraph in Chapter 4 in the June 1999 Draft Programmatic EIS/EIR; Chapter 12 lists the technical reports. Regarding the significance criteria, other than a few minor editorial changes, the significance criteria in the technical reports and those presented in the June 1999 Draft Programmatic EIS/EIR are essentially the same. For two chapters, "Cultural Resources" and "Power Production and Energy," the significance criteria were expanded in the June 1999 Draft Programmatic EIS/EIR from those presented in the technical reports.

IA-4.1-12

Please see common response 1. As a programmatic plan-level document, the Programmatic EIS/EIR does not analyze site-specific impacts of future projects at specific locations and therefore cannot predict with certainty which impacts will occur and what site-specific mitigation measures are appropriate for second-tier projects. Consequently, the Programmatic EIS/EIR identifies mitigation strategies, approaches tailored to the type of impacts anticipated as a result of CALFED Program projects, that will provide the basis to structure more specific mitigation measures. For each potentially significant environmental impact, one or more mitigation strategies were identified. Please also see responses IA-4.1-1 and IA-4.1-6.

4.2 CEQA Document Requirements

IA-4.2-1

The discussion of mitigation strategies in the Programmatic EIS/EIR is adequate for a programmatic impact assessment. Please see common response 1. Because the Programmatic EIS/EIR does not evaluate site-specific

actions, no specific mitigation measures or monitoring plans are presented. CALFED prepared a Programmatic EIS/EIR document that describes in broad terms the range of environmental consequences of programs to carry out the CALFED mission. The programs evaluated in the Programmatic EIS/EIR contain hundreds of possible actions and projects that could be constructed and operated over a lengthy time period. Environmental consequences and economic and social effects are presented to disclose the maximum range of effects. Mitigation strategies are proposed to address potentially significant adverse environmental consequences and discussion of cumulative impacts is general, corresponding to the level of analysis of the Programmatic EIS/EIR. General mitigation strategies are identified as ways to avoid, minimize, restore, or compensate for potentially significant adverse impacts. For some resources, specific mitigation measures are provided to display the array of techniques available in order to carry out the strategy. For example, construction activities can cause erosion of soils that leads to adverse impacts on water quality. A mitigation strategy would be to avoid and minimize the impact. Mitigation measures available to carry out this strategy include conducting work during dry periods and using erosion-control fencing or straw bales, water detention basins, and so forth. Please also see response IA-9.0-2 for information concerning monitoring implementation of mitigation strategies.

The economic and social information analyses (agricultural economics, agricultural social issues, urban water supply economics, regional economics, and environmental justice) do not contain a mitigation strategies section. However, the Program has presented possible methods to alleviate potential adverse effects on these resources in the discussion of potential effects.

IA-4.2-2

Sufficient information is not available to analyze essential programmatic-level decisions 30 years into the future.

The CALFED Programmatic EIS/EIR describes in broad terms the range of environmental consequences of programs to carry out the CALFED mission. The programs evaluated in the Programmatic EIS/EIR contain hundreds of possible actions and projects that could be constructed and operated over a lengthy time period, in this case 30 or more years. NEPA and CEQA do not place time limits on a ROD, providing it remains valid. Also under NEPA and CEQA, supplemental programmatic documentation can be developed to address changed conditions or changes in program plans, or to recognize successes under the adaptive management process. Substantial changes to the Program would require new environmental documentation, including a new ROD.

4.3 Estimated Land Use Changes due to the Program

IA-4.3-1

The commentor does not indicate where in the text the impact analysis was understood to indicate that it was assessing Phase I actions. On page 2-14 in the June 1999 Draft Programmatic EIS/EIR, however, the text mistakenly reads "During *Phase I* [emphasis added], through the Water Management Strategy (including the Integrated Storage Investigation), the Program will evaluate and determine the appropriate mix of surface and groundwater storage, identify acceptable projects, and initiate permitting and construction if Program linkages and conditions are satisfied."

The text has been corrected to read:

> Subject to the above conditions, new groundwater and/or surface water storage would be developed and constructed, together with aggressive implementation of water conservation, recycling, and a protective water transfer market, as appropriate to meet Program goals. Throughout Stage 1, the Program will continue to refine the Water Management Strategy

(including the Integrated Storage Investigation), and determine the appropriate surface water and groundwater storage projects for site-specific investigations. During Stage 1, the Program will identify acceptable projects and initiate permitting, NEPA and CEQA documentation, and construction—if Program linkages and conditions are satisfied.

This mistake may have added to the confusion. Please also see response IA-1.1.3-2.

IA-4.3-2

Under the Preferred Program Alternative, there are no plans to acquire any central coast land for Ecosystem Restoration Program or other projects. Water acquisitions, such as voluntary water transfers, are currently undetermined.

IA-4.3-3

Section 7.4.7.3 in the June 1999 Draft Programmatic EIS/EIR states, "The Program alternatives are unlikely to result in potentially significant adverse direct or indirect impacts on urban land uses in the Other SWP and CVP Service Areas. Please see Section 7.4.10 regarding potential growth-inducing impacts." Section 6.5 in the Water Use Efficiency Program Plan discusses the upper limit of the water recycling potential. As water use efficiency programs are developed, if the local or responsible agency determines that additional storage or conveyance systems are necessary, land use impacts will be dealt with in the site-specific, second-tier documentation.

IA-4.3-4

Potentially significant indirect environmental effects associated with the alternatives are listed in the Programmatic EIS/EIR in Chapters 5, 6, and 7.

IA-4.3-5

CALFED agencies and other entities implementing CALFED Program actions will conduct the appropriate level of environmental review for the actions under NEPA and CEQA. The environmental documentation for individual Program actions will discuss whether the action will cause a significant adverse impact on the environment, either direct or indirect, and how any such impacts will be mitigated. Mitigation measures for potentially significant and significant impacts will be assured through mitigation monitoring plans, as required by NEPA and CEQA.

As a programmatic plan-level document, the Programmatic EIS/EIR does not analyze site-specific impacts of future projects at proposed locations and therefore cannot predict with certainty which impacts will occur and what site-specific mitigation measures are appropriate for second-tier projects. Consequently, the Programmatic EIS/EIR identifies mitigation strategies, approaches tailored to the type of impacts anticipated as a result of CALFED Program projects, that will provide the basis to structure more specific mitigation measures. For each potentially significant environmental impact, one or more mitigation strategies are identified. These mitigation strategies will be considered as part of second-tier environmental review by any agency proposing to undertake projects that are within the scope of this Programmatic EIS/EIR. Where a second-tier project involves impacts that are addressed in the Programmatic EIS/EIR, the applicable mitigation strategies can be used to formulate site-specific mitigation measures and enforcement programs. The commitment to consider mitigation strategies, and to apply and enforce mitigation measures pursuant to those strategies, will be included in the ROD for the federal lead agencies and the findings adopted by the California Resources Agency. In addition, any state or federal project funded through legislation that provides for projects to be consistent with, or in accord with, the CALFED

Program will need to demonstrate compliance with this mitigation monitoring program—as set forth in the Mitigation Monitoring Plan adopted at the time of the ROD and Certification of the Programmatic EIS/EIR.

To date, CALFED has funded more than $200 million for early implementation of ecosystem restoration projects through its Category III grant program pursuant to Proposition 204 and the Bay-Delta Act. All grant agreements require, as a condition of funding, that the project comply with all applicable laws and regulations—including NEPA, CEQA, and other environmental permitting requirements. In some instances, CALFED grants have included funding for preparation of environmental documents that must be completed before undertaking changes with potentially significant environmental impacts. The applicability of CEQA and NEPA depends on the nature of the proposal for grant funds. Many CALFED grants have funded education, planning, and research activities that do not trigger full-scale CEQA or NEPA review. Other proposals receiving grant funding, such as fish screens, land acquisitions, and physical restorations, have used negative declarations/findings of no significant impact ("FONSI"s), or have prepared EIRs or EISs independently of the CALFED Programmatic EIS/EIR. Other actions also may have been eligible for categorical exemptions/categorical exclusions. Please also see responses IPG 4.3-1; ERP 0-35; and ERP 0-36 (in Volume II of the Response to Comment document).

4.3.2 Water Quality Program

IA-4.3.2-1

Chapter 4 explains some of the approaches used in assembling the range of land use changes that may occur as a result of CALFED Program implementation. Because of the general and programmatic nature of this document, it is premature to evalute specific land use changes that may result from implementing the Program. The design and specific locations of the Program actions have yet to be decided. Consequently, to evaluate the environmental consequences of Program actions at a programmatic level, it is necessary to estimate the amount of land that could be disturbed by Program actions. The Program identified the maximum ranges of acreage that could be affected by the various Program elements to give decision makers and the public a sense of the "worst-case" land use impact.

Land retirement along the west side of the San Joaquin River watershed is included in the CALFED No Action Alternative to reflect actions planned by the federal government under the Central Valley Project Improvement Act (CVPIA). These actions would occur irrespective of the CALFED Program. As outlined in the Water Quality Program Plan, other water quality management tools will be used to their fullest extent before any land retirement is initiated under the CALFED Program.

Land retirement is not a specific objective of the Water Quality Program. However, it is a tool available to help meet the program's water quality objectives in the San Joaquin Valley that are aimed at controlling degradation from selenium associated with agricultural drainage. Should land retirement still be deemed necessary, CALFED would consider implementing a program to retire lands in order to help meet water quality objectives for selenium under a tiered approach. The tiered approach to land retirement is intended to limit the need for land retirement to the least amount necessary in order to meet the water quality objectives. If that approach is taken, the second-tier environmental documentation will analyze the impacts and benefits of any proposed action at a specific site. That documentation also would include mitigation measures for any significant impacts that can be mitigated to less-than-significant level. Section 7.1.7.5 discusses the environmental impact of retiring up to 37,000 acres of drainage-impaired lands for water quality purposes. Sections 7.2 and 7.3 include the agricultural economic and agricultural social impacts, respectively, of potential land retirement. These sections also include mitigation strategies to reduce environmental impacts and measures that may be taken to reduce social and economic effects.

4.3.4 Storage

IA-4.3.4-1

Chapter 4 provides a road map for the impact analyses. It also explains some of the approaches used in assembling the range of land use changes that may occur as a result of CALFED Program implementation. Table 4-3 shows preliminary calculations of land that could be affected by the footprint of new storage facilities. The CALFED Program has restricted its consideration of surface water storage sites to off-stream reservoirs and expansion of existing reservoirs (please see the Phase II Report). Several representative storage sites were examined to provide a better perspective on the potential magnitude of land use changes, as well as other storage-related consequences. It is likely that land use impacts would extend beyond the reservoir site itself. The actual areas and land uses that would be affected depend on the siting, design, and operation of the reservoir. This information will be developed in subsequent project-specific environmental documents.

Because of the general and programmatic nature of this document, it is premature to evaluate specific land use changes that may result from implementing specific Program actions. The design and specific locations of the Program actions have yet to be decided. To evaluate the environmental consequences of Program actions at a programmatic level, it is necessary to estimate the amount of land that could be disturbed by Program actions. The Program identified the maximum ranges of acreage that could be affected by the various Program elements to give decision makers and the public a sense of the "worst-case" land use impact.

The Ecosystem Restoration Program has the most potential to influence land use changes. Other Program elements most likely to influence land use changes are water quality, levee system integrity, storage, and conveyance. The extent of these potential changes are not known presently. Water Use Efficiency and Watershed Program measures are not expected to directly affect current land uses; therefore, no estimates of land use changes relating to these programs are presented in Chapter 4.

IA-4.3.4-2

Los Vaqueros Reservoir was one of the reservoirs used as an example of potential land use changes due to Program actions. However, the design and specific locations of the Program actions have yet to be decided. The potential reservoir sites mentioned in Chapter 4 were used as examples to help readers understand the environmental consequences of Program actions at a programmatic level; to accomplish this, it was necessary to estimate the amount of land that could be disturbed by Program actions. Several representative storage sites were examined to provide a better perspective on the potential magnitude of land use changes, as well as other storage-related consequences. It is likely that land use impacts would extend beyond any actual reservoir site. The actual areas and land uses that would be affected depend on the siting, design, and operation of the reservoir. This information will be developed in subsequent project-specific environmental documents. Please also see response PH2:4.1-14 (please see Volume II of the Response to Comments document).

IA-4.3.4-3

Table 4-4 shows the estimates of area (in acres) of important farmland affected by Program elements. As noted in footnote 3, the estimates outside the Delta assume that potential storage reservoirs sites are typically foothill grasslands and do not contain significant amounts of important farmland. Small amounts of important farmland could be affected if reservoirs are sited in valleys containing alluvial deposits that support important agricultural farmland. Table 4-3 does list the estimates of land area affected by storage and conveyance in the San Joaquin River Region to range between 0 and 16,600 acres.

4.3.5 Conveyance

IA-4.3.5-1

The land use acreages were derived from existing land use information, such as county agricultural commissioner reports, state and federal land use reports, and reports by or conversations with private individuals or organizations. The results of this research first appeared in the March 1998 technical reports for agricultural resources, recreation resources, urban resources, and vegetation and wildlife resources. Section 4.1 explains that these technical reports form the basis for the affected environment and environmental consequences descriptions in the March 1998 Draft Programmatic EIS/EIR and in Chapters 5, 6, and 7 in the June 1999 Draft Programmatic EIS/EIR.

Please see common response 5 for additional information about the alternative selection process. Sections 2.1 and 2.4, respectively, explain the differences between the Preferred Program Alternative and the other alternatives and those alternatives not carried forward for further evaluation. The alternatives not carried forward were analyzed in the March 1998 Draft Programmatic EIS/EIR. The land use tables in Chapter 4 in the June 1999 Draft Programmatic EIS/EIR deal only with those alternatives analyzed in the June 1999 document.

Please see common response 5 for additional information about the alternative selection process. As stated in Section 4.3, the Program identified the maximum ranges of acreage that could be affected by the various Program elements to give decision makers and the public a sense of the "worst-case" land use impact. The extent and specific locations of the Program actions have yet to be decided. Although these acreage estimates are possible, the affected acreage likely would be considerably less, depending on the measures to avoid, minimize, or mitigate these actions.

IA-4.3.5-2

There is no inconsistency between Table 4-3 in the Programmatic EIS/EIR and the Phase II Report. The context of Table 4-3 is to present the range of land that may be affected by Program storage and conveyance actions in the Delta; adding the two columns gives a total of 19,500 acres at most, not 30,000 acres. The context of the in-Delta storage presented in the Phase II Report is potential storage as a Water Management Strategy tool. In the context of a water management tool, the potential in-Delta storage is measured in acre-feet, not in acres. In-Delta storage could be roughly 30 feet deep; therefore, a footprint of 15,000 acres would be sufficient to store 230 TAF of water.

5.1 Water Supply and Water Management

0. General Responses

IA-5.0-1

Total dissolved solids (TDS) of 500 milligrams per liter (mg/L) is the recommended secondary maximum contaminant level (MCL) for TDS and is a water quality goal of the CALFED Program. The current secondary MCL remains at 1,000 mg/L TDS (1,500 mg/L for the short term). Since Colorado River water presently runs in the 700-800 mg/L TDS range, it is not likely that the current secondary limits would be exceeded. If higher Delta diversions were needed to meet the CALFED goal of 500 mg/L in The Metropolitan Water District of Southern California's (MWD's) service area, increased diversions would need to be weighed against other means of achieving the same result, such as treatment or alternative sources.

The CALFED Drinking Water Quality Program actions will help to reduce the salt load exported to MWD's service area. These actions will in turn reduce the demand for additional Delta water to help meet the secondary MCL of 500 mg/L. Through the Water Quality Program, the CALFED Water Management Program also is working on methods to reduce drinking water constituents of concern, in addition to providing more reliable sources of water.

Also see response IA-1.6-1. Even without increased Delta diversions, Water Quality Program actions will help to reduce the salt load exported to MWD's service area. These actions will in turn reduce the demand for additional Delta water to help meet the secondary standard. Example actions are discussed in the Water Quality Program Plan and in the Phase II Report. Water quality impacts are discussed in Section 5.3 in the Programmatic EIS/EIR.

IA-5.0-2

Please see common response 10. Also see responses IA-2.2.2 and IA-2.2-5.

IA-5.0-3

This response has been consolidated with response IA-5.1-4-1. Please see this response for the answer to your comment.

IA-5.0-4

Please see common response 13. CALFED's focus on acquiring water from willing sellers or developing water is not a bias at the expense of water rights. Water rights are under the jurisdiction of the State Water Resources Control Board (SWRCB). Currently, the Board is in a process to decide how to meet Delta water quality standards, including considering the responsibility of all water diverters. Also see response IA-5.0-5.

IA-5.0-5

CALFED is not planning, and has no authority, to change any regulations, water rights, or standards. Individual CALFED agencies continue to retain their individual authority. Water rights are under the jurisdiction of the SWRCB. Currently, the Board is in a process to decide how to meet Delta water quality standards, including considering the responsibility of all water diverters. Also see response IA-5.0-4.

IA-5.0-6

CALFED is evaluating the broad programmatic actions that can be taken to improve water supply reliability. Future site-specific evaluations, environmental review processes, and permit applications will be coordinated under CALFED's Integrated Storage Investigation. New storage could serve a role in banking water for following-year use. Comments surrounding the U.S. Bureau of Reclamation's (Reclamation's) method of allocating water should be taken to Reclamation.

IA-5.0-7

CALFED does not plan to take any action which is contrary to State law.

CALFED seeks to achieve its water supply reliability goals in a number of differing ways. None presumes a reallocation of existing water rights or modification in the water rights statutes. Pages 53-54 in the June 1999 Revised Phase II Report describe CALFED's broad objective for water supply reliability. The report defines the goal of "reducing the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system" to mean: (1) increasing the utility of available water supplies (making water suitable for more uses and reuses); (2) improving access to existing or new water supplies, in an economically efficient manner, for environmental, urban, and agricultural beneficial uses; and (3) improving the flexibility of managing water supply and demand in order to reduce conflicts between beneficial uses, improve access to water supplies, and decrease system vulnerability. None of these goals or the Program elements designed to achieve them represents a conflict with the Delta Protection Act. Each of the alternatives is designed to comply with the existing regulatory requirements, including the Delta Protection Act. During implementation of the Program, any project-level proposal will undergo environmental review prior to implementation. Also see response IA-5.1-30.

IA-5.0-8

The Drinking Water Quality Improvement Strategy in the Phase II Report contains CALFED's specific target for providing safe, reliable, and affordable drinking water. The Stage 1 water quality actions are designed to proceed in a timely manner, given the scheduled date for the drinking water quality regulations. Interim milestones will be developed in Stage 1 to help measure progress toward achieving the public health protection objectives. Monitoring and adaptive management will be key factors in meeting the schedule expected for the water quality regulations. The information generated by the Stage 1 actions, including studies, will serve as the basis of reviews by panels of independent experts in 2003 and 2007. Also see responses IA-1.1.3-5; IA-1.0.0-18; and PH2:5.3-4.

IA-5.0-9

Please see common responses 4 and 6. The Programmatic EIS/EIR considered a range of storage that ultimately may be built and portrayed the respective range of potential impacts. The impact analysis in the Programmatic EIS/EIR (see Section 2.1.2) uses up to 6 million acre-feet (MAF) of surface water and groundwater storage. This amount was thought to be near an upper limit of storage potential for the Program based on modeling results. The CALFED agencies believe that the range from 0 to 6 MAF is considered a reasonable range of storage options for this programmatic document. More detailed information, with ample opportunity for public review and comment, will be developed before any specific amounts of storage are implemented. Future site-specific evaluations, environmental review processes, and permit applications will be coordinated under CALFED's Integrated Storage Investigation.

IA-5.1-1

Since the Environmental Water Account (EWA) initially would be filled with water purchased from willing sellers and developed by the Program, others users should not experience potentially adverse impacts. See common response 21. Also, please see the Phase II Report for a description of how the EWA would be implemented.

IA-5.1-2

This response has been consolidated with response IA-5.1.4-1. Please see this response for the answer to your comment.

IA-5.1-3

Please see common response 2. The statement quoted from page 5.1-35 in the June 1999 Programmatic EIS/EIR is intended to apply more generally to the entire Central Valley rather than to only the Sacramento Valley. For example, water conserved in the San Joaquin Valley or saved from export to southern California could result in more water becoming available for use by other users, possibly for environmental or other purposes, or in other regions of the state. CALFED does not intend to fallow land in the Sacramento Valley. However, some farmers may choose to fallow land—for example, in order to provide water for transfers.

IA-5.1-4

CALFED intends to assemble a Barrier Operations Coordinating Team, consisting of representatives from the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), California Department of Fish and Game (DFG), California Department of Water Resources (DWR), Reclamation, and stakeholders (including local officials), to operate the barriers. The recommendation regarding governance will be considered for adoption during the implementation phase. Other south Delta improvements that might meet the same goal as barriers, but that are not structurally similar, include more extensive dredging, extending screened intakes into deeper water, consolidating diversions, and providing water from alternate sources.

IA-5.1-5

CALFED plans to further evaluate this concept during Stage 1 (see the Phase II Report).

IA-5.1-6

See responses IA-5.1-109; IA-5.2.3-1; IA-5.1.4-4; IA-Att.A-3-25; IA-5.1-179; and IA-5.1-100.

IA-5.1-7

Groundwater storage projects potentially could be funded to benefit the area of origin. However, groundwater development potential is generally relatively small within many of the area-of-origin watersheds.

IA-5.1-8

The No Action Alternative evaluated in the Programmatic EIS/EIR would result in adverse impacts on water supply reliability. These impacts are evaluated in Section 5.1 and other sections dealing with resources that depend on a reliable source of water from the Delta. Relative to the No Action Alternative, water supply reliability would be improved under the Preferred Program Alternative. The low end of the range evaluated for Delta exports

under the various alternatives represents a set of worst-case reliability conditions. The purpose of the Preferred Program Alternative is to improve water supply reliability by reducing conflicts among competing uses of Bay-Delta supplies. The progress that implementation of the Preferred Program Alternative would achieve and the benefits of that progress also are described in Section 5.1 and the other dependent resource sections. Due to uncertainty, CALFED modeled a range of conditions (Criteria A and B in Attachment A to the Programmatic EIS/EIR).

IA-5.1-9

The evaluation in the Programmatic EIS/EIR of the No Action Alternative and Criterion A (representing low Delta exports) does analyze the statewide consequences of not meeting water quality and supply reliability objectives. An analysis of the impact on any one city or water district is beyond the scope of this programmatic document. Adverse impacts on water supply reliability are evaluated in Section 5.1 and other sections dealing with resources that are dependent on a reliable source of water from the Delta. The purpose of the Preferred Program Alternative is to improve water supply reliability by reducing conflicts among competing uses of Bay-Delta supplies. The progress that implementation of the Preferred Program Alternative would achieve and the benefits of that progress also are described in Section 5.1 and the other dependent resource sections. Also see common response 22 and response IA-1.2-3.

IA-5.1-10

Even though the period for implementation of physical conveyance measures would extend beyond Stage 1, other measures, notably the EWA, can be implemented sooner. Flexible operations under the EWA should markedly improve water supply delivery reliability and reduce conflicts between pumping and biological productivity (especially threatened and endangered species populations) that currently jeopardize deliveries of water supplies. See common response 21. Stage 1 includes evaluations that will aid decisions about the need for additional water supply reliability actions (see the Phase II Report). The Water Management Strategy (see the Phase II Report) and the Stage 1 actions (see the Phase II Report) cover storage, conveyance, water use efficiency, water transfers, water quality, and watershed actions to improve water supply reliability. Future site-specific evaluations, environmental review processes, and permit applications will be coordinated under CALFED's Integrated Storage Investigation.

IA-5.1-11

Please see common response 16 and response IA-2.1-5. The criteria that would trigger reconsideration of conveyance alternatives are described in Section 1.1 in the Programmatic EIS/EIR.

IA-5.1-12

This response has been consolidated with response IA-5.1-4-1. Please see this response for the answer to your comment.

IA-5.1-13

Please see common responses 2 and 6. The comment is consistent with the CALFED objectives stated in the Programmatic EIS/EIR. Also see the Ecosystem Restoration Program Plan.

IA-5.1-14

A major effort by the Interagency Ecological Program has been under way for many years to obtain accurate Delta hydraulics and channel geometry data on which to base the latest generation of numerical models for evaluation of Delta alternatives. Model runs and analysis undertaken by CALFED are based on these most recent data so that model simulations and scientific analyses are and will be sound. Also see response IA-5.1-179.

IA-5.1-15

CALFED's goals and plans for the Water Management Strategy and Integrated Storage Investigation are consistent with the comment.

IA-5.1-16

The information provided in the March 24-25, 1999 meeting packet shows about 42.5 MAF of water used for agricultural and urban purposes. This amount includes some groundwater overdraft, imports from the Colorado River, and some reuse of water. Section 5.1.3 states that less than one-half of the State's 71 MAF of runoff is depleted by urban and agricultural use. This depletion is not the same as the total water used (42.5 MAF).

IA-5.1 -17

This response has been consolidated with response IA-5.1-4-1. Please see this response for the answer to your comment.

IA-5.1-18

Please see common responses 4 and 6, and response PH2:3.6.1-13.

IA-5.1-19

A consistent theme of the CALFED Program and Programmatic EIS/EIR documentation has been the need to repair the "broken" system and to provide explanations of the severity of the problems. Each of the individual CALFED programs is directed toward solving an aspect of the overall problem. CALFED will continue to seek ways to stress these issues and work with stakeholders toward developing solutions.

IA-5.1-20

Please see common responses 2 and 4, and response PH2:3.6.5-42.

IA-5.1-21

Please see common response 4. Many stakeholders believe that the State can make do with no new water supplies. The zero end of the scale is intended to encompass the lowest possible end of the range to ensure that the extremes in the range of possibilities are bracketed.

IA-5.1-22

Please see common responses 4 and 6. Neither the Central Valley Project Improvement Act (CVPIA) nor reduction of Trinity River diversions are CALFED actions. CALFED's Water Management Strategy (see the

Phase II Report) is designed to improve the water supply reliability of surface water and groundwater supplies. CALFED's principles for implementation of conjunctive use programs emphasize local control and voluntary implementation.

IA-5.1-23

Please see common responses 2 and 10. DWR's Bulletin 160-based water use projections already account for substantial quantities of water conservation. The CALFED Water Management Program may use water conservation quantities, measures, and credits beyond the Bulletin 160-98 content and projections.

IA-5.1-24

This response has been consolidated with response IA 2.1-22. Please see this response for the answer to your comment.

IA-5.1-25

Please see common response 16. A closed conduit for consumptive use only (either a canal or pipeline) still may be considered as a variation of Alternative 3 if CALFED's water quality objectives are not met using through-Delta conveyance. A salt intrusion structure at the Carquinez Strait (similar to the Reber Plan) was ruled out many years ago due to its potential to cause disastrous impacts on estuarine productivity and fisheries. Such a structure was briefly reconsidered in the early screening of CALFED alternatives and rejected from further consideration for the same reasons.

IA-5.1-26

This response has been consolidated with response PH2:3.6.5-25. Please see this response for the answer to your comment.

IA-5.1-27

Please see common response 2. Also see response IA-5.1-23.

IA-5.1-28

This response has been consolidated with response IA-5.1-39. Please see this response for the answer to your comment.

IA-5.1-29

This response has been consolidated with response IA-5.1-39. Please see this response for the answer to your comment.

IA-5.1-30

Only water shown to be surplus to in-Delta needs would be exported. This governing constraint has been a central principle of the CALFED Program and is clearly inherent to the operational assumptions contained in the Programmatic EIS/EIR. Also see response IA-5.0-7.

IA-5.1-31

In general, environmental water for CALFED actions will be obtained from willing sellers or will be developed as part of the Program. The Programmatic EIS/EIR includes the general impacts. It is not possible to quantify the specific effects at this time because of insufficient data and knowledge on location and quantity. Please see common response 22. More detailed information will be prepared and presented during the project-level investigations.

IA-5.1-32

The Programmatic EIS/EIR does in fact recognize the potential for increased consumption of water resulting from the conversion of agricultural lands to wetlands. The potential for this impact to occur is cited in all affected geographic areas (beginning on page 5.1-32 in the June 1999 Draft Programmatic EIS/EIR) as a set of Program consequences common to all alternatives. This impact also is discussed in the water quality impacts sections in the Programmatic EIS/EIR. Further research will be undertaken during Stage 1 to quantify the potential for such effects to occur, and to estimate the actual water losses and associated effects before any such projects are approved. Adaptive management would ensure that measures were developed to avoid or mitigate any potential adverse effects.

In this Programmatic EIS/EIR, the uncertainty is acknowledged, and the range of possible losses is described as falling within the "bookends" bounding potential water use and losses. The report states that no existing water rights would be impaired. Also see common response 22.

IA-5.1-33

The information provided on page 10 in the June 1999 Revised Phase II Report is intended to provide a broad perspective for a typical average year. The figures on pages 20 and 21 (in the June 1999 Revised Phase II Report) show a little more detail, including Delta outflow for long-term and drought conditions. Also see response IA-5.2.8-3.

IA-5.1-34

These numbers are not easily derived due to the extensive intermingling and recycling of drainage waters from applied groundwater and from surface water imports to the San Joaquin Valley, the large contribution of imports to groundwater volumes and water surface elevations (especially on the west side of the valley), and the complexity of the interactions among the many groundwater sub-units in the valley. What is evident is that—except during very wet weather, the spring snowmelt seasons, and periods when releases from New Melones Reservoir reach Vernalis—most of the flow of the San Joaquin River reaching the Delta consists of agricultural drainage and small discharges of sewage treatment plant effluent. The highest-quality drainage originates from the Sierra, and the worst-quality drainage originates from the watersheds west of the San Joaquin River (the water quality implications of these facts are discussed in Section 5.3 and in the Water Quality Program Plan).

The CALFED Program specifically defers most of the agricultural drainage issues to the San Joaquin Valley Drainage Implementation Program (SJVDIP) because these issues are beyond the defined scope of the CALFED Program. These questions should be redirected to the SJVDIP for answers.

IA-5.1-35

The minimum pools on the existing larger reservoirs depend on their multiple uses, such as submergence of intakes, sediment pool, temperature control, and water supply—including environmental flows. The minimum pool also affects flood control.

IA-5.1-36

CALFED goals and objectives are consistent with this comment.

IA-5.1-37

Please see common responses 10 and 5. Also see responses IA-5.1.4-1 and PH2:3.6.5-42.

IA-5.1-38

This paragraph has been revised.

IA-5.1-39

CALFED agrees that the Head of Old River barrier can be operated primarily for multiple purposes, including helping fish migration and helping to manage dissolved oxygen (DO). But the barrier also would provide secondary benefits of helping to manage San Joaquin River salts. The agricultural barriers will help to manage circulation, water quality, and water depths in the south Delta channels. See "CALFED's Delta Conveyance Strategy" in the Phase II Report. CALFED intends to assemble a Barrier Operations Coordinating Team, consisting of USFWS, NMFS, DFG, DWR, Reclamation, and stakeholder representatives (which can include the City of Stockton), to operate the barriers. Also see response IA-5.1-4.

IA-5.1-40

This response has been consolidated with response PH2:3.6.5-20. Please see this response for the answer to your comment. CALFED is well aware of the lack of options and difficulties in San Joaquin County, especially the eastern part. CALFED will cooperate with the County in its efforts to deal with its local water shortages.

IA-5.1-41

Please see common response 4. CALFED views these measures as demand reduction actions that decrease the conflicts among competing needs for Delta water supplies rather than actions that create sources of new water. Also see response PH2:3.6.5-42.

IA-5.1-42

Please see common response 4, and responses IA-5.1.4-10 and PH2:3.6.5-42.

IA-5.1-43

See responses IA-Att.A3-6 and PH2:3.6.5-35.

IA-5.1-44

CALFED modeling and analysis account for these agricultural return flows.

IA-5.1-45

Please see common responses 4 and 22, and response IA-5.1.4-10.

IA-5.1-46

The Integrated Storage Investigation offers the best approach to and opportunity for the resolution of environmental issues that would be needed prior to construction of any additional storage facilities. The Integrated Storage Investigation does not in itself reduce reliance on groundwater storage but is the vital next step needed in the process. Also see response IA-5.1-ST-40. Future site-specific evaluations, environmental review processes, and permit applications will be coordinated under CALFED's Integrated Storage Investigation.

IA-5.1-47

This proposed feature is part of the Preferred Program Alternative and other alternatives.

IA-5.1-48

Several of the storage sites retained for further study during the Integrated Storage Investigation fit these criteria. Also see common response 4 and "Storage" in the Phase II Report.

IA-5.1-49

The level of detail used in Section 5.1.3 to describe hydrologic characteristics, water supply facilities, and all watersheds addressed in the section is considered appropriate for the programmatic document. More detail is available, if desired, in the technical reports prepared for each resource category during production of the March 1998 Draft Programmatic EIS/EIR.

Although area-of-origin water rights are respected as a governing principle in the CALFED Program, these rights fall within the exclusive jurisdiction of the SWRCB and are subject to the Board's interpretation and protections. Neither CALFED's interpretation of area-of-origin water rights nor the detailed aspects of other provisions of water rights law are considered appropriate to include in this section. Any questions on this subject should be addressed to the SWRCB. Also see common responses 10 and 13.

IA-5.1-50

These topics are discussed at a general level that is considered appropriate for a programmatic document covering a range of possible actions. Impacts would depend on the groundwater storage site selected, its size, and how it is operated conjunctively with other facilities. The range of possibilities is covered in the Programmatic EIS/EIR. In general, the intent would be to replace any groundwater used during dry periods with diversions to storage during wet periods when excess flows are available. CALFED's grant application process for conjunctive use projects has identified prospective projects (see the Phase II Report). More detailed investigations and reports will be included in site-specific evaluations prior to undertaking these groundwater projects.

IA-5.1-51

Potential decreases in water supplies due to future drinking water quality requirements under the No Action Alternative most likely would result from some sources, especially the Delta, being rendered unusable due to the inability to meet standards using available technology. One example would be the inability to provide sufficient disinfection of Delta waters without producing excessive concentrations of disinfection by-products (DBPs) such as bromate. If such a decrease were to happen, one strategy would be to study building an isolated facility or alternative water sources, to avoid diverting the ocean-derived bromides from the Delta. Another strategy would be to perfect new treatment technologies capable of reliably treating bromide-containing source waters without forming DBPs.

For the purpose of modeling a range of potential future unknown conditions, CALFED assumed that the increase in demands under Criterion A would be met from other non-Delta sources, such as water conservation and recycling. This assumption is for modeling only and not a policy decision. Also see responses IA-5.1-100 and PH2:3.6.1-8. Section 7.5 in the Programmatic EIS/EIR also includes a discussion of economic efficiency.

IA-5.1-52

This response has been consolidated with response IA-5.1-4-1. Please see this response for the answer to your comment.

IA-5.1-53

This response has been consolidated with response IA-3.2-1. Please see this response for the answer to your comment.

IA-5.1-54

This response has been consolidated with response PH2:3.6.1-8. Please see this response for the answer to your comment.

IA-5.1-55

The CALFED impact assessment has been conducted in a manner that is consistent with this comment. CALFED will continue to respect these concerns. Also see common response 10.

IA-5.1-56

Meeting California's future water needs are beyond the scope of the CALFED Program. Please see common response 22. The objectives of the Program include balancing competing needs for Delta water supplies by improving water supply reliability.

IA-5.1-57

The Program lacks the authority to grant full State Water Project (SWP) entitlements in wet years; however, CALFED has designed its Water Management Strategy to improve overall water supply reliability. See response IA-1.2-3 and common response 22.

IA-5.1-58

The Preferred Program Alternative would result in increased average Delta water supplies compared to the No Action Alternative, especially if storage is implemented.

IA-5.1-59

The bookends on the ranges of supply are intended to encompass the realm of possibilities. While it is not possible to predict their effects with certainty, the potential impacts of future droughts and global warming will receive more consideration in the ongoing and future planning phases. See Section 8.1.14, "Climate Change," in the Programmatic EIS/EIR. Also see response IA-5.1-179.

IA-5.1-60

The goals of the Program include reducing conflicts among competing beneficial uses of Delta water supplies and restoring Delta-dependent environmental resources. See responses PH2:3.6.1-11, WSH 3.5-2, and IA-5.2.8-3.

IA-5.1-61

Please see common response 2.

IA-5.1-62

Please see common response 1. The analysis has been conducted consistent with the requirements for a programmatic document. No decisions have been made on how the Clifton Court intake would operate. Model assumptions used as the basis for this analysis were developed to frame a range of operations within "bookends," to characterize a range of potential impacts. Completion of the South Delta Improvement Project, with its detailed modeling and analysis, as well as other investigations, will be necessary before project-level facility and operational decisions such as those cited can be made.

IA-5.1-63

The CALFED/DWR modeling staff are aware of the components of the models and the assumptions that would benefit from additional development and data collection/analysis. Since models always will be subject to further refinement and some independent variables are not yet fully defined (for example, subsurface agricultural return flows), CALFED's approach was to (1) use the best models and data available as appropriate for a programmatic document; and (2) encompass areas of uncertainty within the ranges of conditions, facilities, and operations that were simulated. Also see response IA-5.1-179.

IA-5.1-64

CALFED's Water Management Strategy (see the Phase II Report) includes a description of how groundwater and surface water storage can benefit water supply reliability. New storage could significantly improve water supply reliability, as evidenced by the CALFED modeling. Future site-specific evaluations, environmental review processes, and permit applications will be coordinated under CALFED's Integrated Storage Investigation. Also see response PH2:3.6.1-13.

IA-5.1-65

The level of detail contained in the Programmatic EIS/EIR is considered appropriate for a programmatic document. The reference has been added to Section 12.1. Also see common response 22 and response IA-5.1.4-15. Section 5.1 contains additional clarification of water supply reliability under the Preferred Program Alternative.

IA-5.1-66

This area of controversy has been added to Section 5.1-2.

IA-5.1-67

The Water Management Strategy was developed to reduce conflicts among competing beneficial uses of the Bay-Delta system and improve beneficial uses wherever possible. CALFED will continue to develop the strategy.

IA-5.1-68

This response has been consolidated with response IA-5.1.6-1. Please see this response for the answer to your comment.

IA-5.1-69

Please see common response 10

IA-5.1-70

Water saved in one region and used in other regions may occur with or without the cited Agreements. Such uses have occurred historically. However, the assumptions have been clarified by adding the requested references. The Monterey Agreement and associated impacts were analyzed in a programmatic EIR that has been challenged in a court proceeding. However, the Agreement is in place until set aside by a court. Also see responses IA-2.2-5 and PH2:4.1-5.

IA-5.1-71

An extensive section of text in Section 5.1.3.3 describes the importance of the Feather River watershed as a water source of statewide significance.

IA-5.1-72

Receipt of the references, methods, and assumptions used to derive this quantity would be helpful. CALFED's Water Management Program was designed to assist local groups in implementing watershed actions that contribute to meeting CALFED goals and objectives.

IA-5.1-73

Please see common responses 4 and 16. CALFED will conduct more detailed studies of new storage as part of its Integrated Storage Investigation. Also see response PH2:3.6.1-13. However, the concerns of those opposed to the concept of any new storage must be addressed to an equal degree. The MOU for the Clean Water Act Section 404 permitting includes commitments for water use efficiency and other alternatives to storage. The choice of

conveyance systems is equally controversial and will be the subject of similarly rigorous studies during follow-up engineering and environmental investigations. Also see response IA-5.1.4-10.

IA-5.1-74

Please see common response 4. CALFED recognizes the high value of storage near to and south of the Delta, in addition to implementation of the Water Use Efficiency and other CALFED common programs.

IA-5.1-75

CALFED expects lower water supply reliability under the No Action Alternative than under existing conditions. See response IA-5.1.6-1. However, all CALFED alternatives would improve water supply reliability relative to the No Action Alternative. Solving all of California's water problems is beyond the scope of CALFED responsibility. Also see common response 22.

IA-5.1-76

Water that is evapo-transpired by native vegetation is not a factor in the CALFED water use efficiency equation.

IA-5.1-77

Please see common response 6. Also see Sections 5.1 and 5.4. The impact evaluations that were performed are considered consistent with the programmatic level of the Programmatic EIS/EIR. Most of the impacts of concern to the commentor are covered in Section 5.4, "Groundwater Resources."

IA-5.1-78

Exports could be reduced or increased under the Preferred Program Alternative compared to existing conditions, depending on many factors but would be increased relative to the No Action Alternative. Under the No Action Alternative, however, exports certainly would be reduced. Please see Section 5.1.8.4, which assesses, at the programmatic level, how much the Preferred Program Alternative could increase Delta water deliveries relative to the No Action Alternative. A critical goal of the Water Management Strategy being developed is to balance the use of the Delta water supply among all of the dependent beneficial uses, including consumptive uses.

IA-5.1-79

The Integrated Storage Investigation (see the Phase II Report) is looking at projects with the potential to supplement yield by storing water at times of high flow and delivering it when export would not cause adverse environmental impacts. The EWA (see the Phase II Report and common response 21) is being investigated for its potential to compensate for reductions in Delta deliveries caused by ecological constraints, by delivering water when its export does not adversely affect Delta fish populations. Also see response PH2:3.6.5-42.

IA-5.1-80

Please see common response 4. The Red Bank project, as originally configured with the Dippingvat Reservoir, is not supported by CALFED. CALFED has retained the Schoenfield Reservoir component of the Red Bank project in its list of potential reservoir sites (see the Phase II Report), since its operation could be coordinated with operation of Red Bluff Diversion Dam gates to benefit anadromous fish passage. However, Schoenfield Reservoir is not a reservoir that will be pursued in Stage 1.

IA-5.1-81

This response has been consolidated with response PH2:3.6.5-25. Please see this response for the answer to your comment.

IA-5.1-82

CALFED goals and objectives are consistent with this comment. Also see responses PH2:3.6.5-30 and PH2:3.6.5-35.

IA-5.1-83

This project is still being retained for further consideration (as shown on page 91 in the June 1999 Revised Phase II Report) due in part to its strategic location and existing diversion works. Also see response PH2:3.6.4-6.

IA-5.1-84

Please see common response 10.

IA-5.1-85

Changes to water rights and contracts are beyond the scope of the CALFED Program. See response IA-5.0-4.

IA-5.1-86

CALFED will continue to evaluate the concept of recirculating water through the Delta-Mendota Canal to the San Joaquin River in Stage 1 (see "Conveyance" in the Phase II Report), in the development of its Water Management Strategy and Water Quality Program Plan. The San Joaquin Valley and local drainage investigations also are looking at this idea as a potential project or action.

IA-5.1-87

CALFED cannot regulate nor does it include actions for reallocation of water between agricultural and municipal and industrial use. However, a more active water market may lead to some shifting in use. Also see response IA-5.1.8-2.

IA-5.1-88

This response has been consolidated with response IA-5.1.8-2. Please see this response for the answer to your comment.

IA-5.1-89

The adjective has been changed to "moderate."

IA-5.1-90

CALFED goals and objectives and the current priorities of the Program are consistent with this comment. CALFED is moving ahead on an aggressive schedule.

IA-5.1-91

Please see common response 1. This water allocation issue falls in the area of responsibility of the SWRCB (which sets outflow standards). See response IA-5.0-4.

IA-5.1-92

This response has been consolidated with response IA-5.1.9-1. Please see this response for the answer to your comment.

IA-5.1-93

Please see common response 2. Water conservation is an important part of water supply reliability. The programmatic nature of the CALFED Program does not include the detail required for demand calculations. Demand calculations vary, depending on local conditions. Also see common response 22.

IA-5.1-94

These topics are adequately addressed, considering the programmatic nature of the Programmatic EIS/EIR. Please see common response 1. The Programmatic EIS/EIR discusses potential losses of base flows resulting from water conservation and transfers of the potential water savings from willing sellers to other users. Increased reservoir releases are more likely to allow increased exports than to cause reduced exports. Both may occur, however, depending on what the transfer water is used for. Some existing environmental water transfers stipulate export reductions and may result in less reservoir releases late in the season. As specific project proposals are made during and after Stage 1, environmental analyses will be performed that include an analysis of any changes in base flows and/or changes in exports.

IA-5.1-95

CALFED agrees that these limitations exist. CALFED's Water Management Strategy seeks to increase overall water supply reliability. The EWA is looking at more flexible operation of the Delta export facilities. CALFED's focus on south Delta improvements also will help to relieve conveyance limitations.

IA-5.1-96

See response IA-1.2-3. Additional evaluations of costs will be undertaken during Stage 1 to reduce the level of uncertainty.

IA-5.1-97

This response has been consolidated with response IA-5.1.4-9. Please see this response for the answer to your comment.

IA-5.1-98

The Preferred Program Alternative may result in the export of more or less water than under existing conditions within the ranges shown. If more storage is built and more water could be exported, more water also will be available to serve Delta outflow needs at those times determined to be most beneficial—as well as upstream ecological function needs that also could benefit the Bay ecosystem. The Ecosystem Restoration Program provides

many ecosystem benefits, including restored habitat and improved flow timing. The EWA should improve system operational flexibility, which will allow exporting less water when fish are most vulnerable and exporting more water when fish are less vulnerable. Other facilities also could help flow timing to benefit the ecosystem and water supplies.

IA-5.1-99

Actions to improve water supply reliability are part of the proposed Program; therefore, controversy over their effectiveness does not need to be included in Section 5.1.2 per CEQA. This controversy, as controversy associated with any proposed action that is part of the Program, is discussed and handled in the impact assessment and the ongoing comment/response process.

IA-5.1-100

The CALFED agencies believe that the cumulative benefits were handled correctly. Also see response IA-7.1.4-1.

The programmatic impact analysis was based on all Program actions in place in 2020. The analysis did not include estimates of impacts at shorter time intervals. It is not practical to provide programmatic impacts for different time periods during implementation, since the rate of implementation could vary depending on available funding and need for changes using adaptive management. The purpose of the analyses was to show the ultimate potential impact differences between existing conditions, the No Action Alternative, and the CALFED Program alternatives—assuming that all actions are implemented. Site-specific environmental documentation could consider other time increments if necessary. Given the programmatic level of analysis, CALFED does not know precisely how much more water wetlands in the Delta may use over that currently used by agriculture. The amount of additional water required by wetlands is expected to be relatively small compared to the amount used by agriculture (see response IA-5.1.7.1). Any additional water needed for Delta wetlands will not affect Delta water rights. CALFED expects benefits to water supply to be realized before the 7- to 15-year lag mentioned in the comment. For example, groundwater projects can be implemented early in Stage 1, and the EWA will provide additional flexibility in system operations. Also see common responses 21 and 22.

IA-5.1-101

Please see common responses 2, 4, and 6. The magnitude and degree of opposition to storage is such that realization of Water Use Efficiency Program targets, or a determination that they cannot be met, are prerequisite to a decision to proceed with storage. Also see responses IA-5.1.4-10 and PH2:3.6.1-8.

IA-5.1-102

This response has been consolidated with response IA-5.1-101. Please see this response for the answer to your comment.

IA-5.1-103

These hydroelectric facilities were omitted from the river inventories because they are believed to be primarily of local significance. However, CALFED is aware of their ability to re-regulate the upstream reaches, which may provide additional environmental benefits. CALFED conducted an evaluation (as part of the Integrated Storage Investigation) of potential reoperation of the PG&E hydroelectric facilities. This evaluation found that the hydroelectric facilities would have little system water supply potential but may have some potential to provide

environmental flows. CALFED may conduct additional evaluations during Phase III implementation, depending on the needs of the EWA.

IA-5.1-104

Please see common response 10. Many commentors believe that future water demands are a major uncertainty. Therefore, CALFED modeled a range of conditions. Also see response IA-5.1.4-1.

IA-5.1-105

As they affect the objectives of the Program to improve water management for beneficial uses of the Bay-Delta system, these measurements apply to the total solution area.

IA-5.1-106

Modeling was based on the assumption that area-of-origin water needs are met in the future. See Attachment A to the Programmatic EIS/EIR. Also see common response 13 and response PH2:3.6.1-9.

IA-5.1-107

See responses IA-5.4.1-6 and IA-5.4.1-8.

IA-5.1-108

The competing needs for water for these two purposes will be balanced. It may be possible to release the water from storage at times that will be even more effective in restoring meander belts. These considerations will be included in the Integrated Storage Investigation for specific projects. Also please see responses PH2:3.6.5-35 and PH2:3.6.5-39.

IA-5.1-109

The purpose of the writeup on existing conditions is to show the existing conditions, not necessarily provide the history leading to those conditions. However, the Phase II Report does provide some of that historical perspective. Existing conditions and the No Action Alternative include facilities in place approximately in June 1995. Facilities such as Diamond Valley Lake and the Coastal Aqueduct do not qualify for existing conditions or inclusion in the No Action Alternative because of their dates of first operation. Comparison of modeling results among existing conditions, the No Action Alternative, and CALFED alternatives shows how conditions may change from existing conditions and the No Action Alternative. CALFED is conducting additional modeling to better define the potential range of CVPIA Section 3406(b)(2) accounting. Also see common response 22 and response IA-5.1.4-3.

The 74 km in the text refers to the distance from the Golden Gate Bridge to Chipps Island, not from the Golden Gate Bridge to Collinsville or to the Sacramento-San Joaquin confluence. The Programmatic EIS/EIR includes analysis on existing conditions (or the affected environment), the No Action Alternative, and the four CALFED Program alternatives. The existing conditions represent conditions at the beginning of Program. Modeling for the existing conditions was based on year 1995. Actual system changes after this time are included in the CALFED Program alternatives. The regulations for the primary water quality constraints will not be in place for several more years. CALFED modeling used the Fairbairn location for the EBMUD American River diversion of 115 thousand acre-feet (TAF)/year. At this time, it appears that dissolved organic carbon will be

regulated. Like other elements of the CALFED Program, the Watershed Program Plan was developed at a programmatic level of detail. Fire management and harvest management opportunities fit within the overall coordination and assistance outlined in the plan. Additional flows needed for the Ecosystem Restoration Program Plan will be acquired from willing sellers or from development of water under the CALFED Program. Also see responses PH:3.6.1-8; IA-5.1.4-9; IA-5.1.4-12; IA-2-0.0-4; IA-5.1-100; and WT-4.5.2-1; and common responses 10 and 13.

IA-5.1-110

Some environmental water can be used for more than one purpose. The Ecosystem Restoration Program does not call for a specific amount of water, but CALFED modeling shows that (in the average year) about 400 TAF of additional water (not 700 TAF) could flow into the Delta during non-flow times due to Ecosystem Restoration Program actions. This water is intended to be acquired from willing sellers or from development of water under the CALFED Program (for example, changing the timing of flows). The CALFED agencies believe that the range of impacts on agriculture from the combination of all CALFED actions have been adequately portrayed, considering the programmatic nature of the Program. See Sections 7.1, 7.2, and 7.3. Also see common response 20.

IA-5.1-111

Please see common responses 4, 5, and 16.

IA-5.1-112

Please see common response 1. The urban management plans provide more site-specific detail than is needed in this programmatic, general-plan level analysis. The Programmatic EIS/EIR is intended to provide the information necessary to understand the general differences in the Program alternatives. Also see common response 22.

IA-5.1-113

The caution exercised in the current wording reflects the degree of uncertainty involved in relating potential impacts on fish to changes in the availability of water supplies rather than less parity. Impacts on water supplies are relatively simple to identify and quantify. It is much more difficult to establish significance criteria for fish impacts because so many additional factors control fish populations—all to varying, usually unknown degrees. At the programmatic level of detail, the CALFED agencies believe that they have done the best possible job of ensuring parity.

IA-5.1-114

CALFED staff understand and share the concern over the adverse impacts associated with the San Joaquin River, in its present state, on Delta inflows, circulation, water quality, and aquatic biota. Except for the following constraints, all of the recommended principles have been incorporated fully into CALFED's Delta restoration objectives and Watershed Management Program. While CALFED is encouraging and supporting development of comprehensive plans to restore the San Joaquin River, CALFED must rely on in-place programs and responsible agencies to implement these plans (for example, the San Joaquin River Interagency and DO TMDL Task Forces, the San Joaquin Valley Drainage Implementation Program (SJVDIP) (successor to the San Joaquin Valley Drainage Program), Vernalis Adaptive Management Plan (VAMP), SWRCB Water Quality Control Plan (WQCP), and RWQCB Basin Plans). Also see response IA-5.1.4-5. CALFED will take actions to reduce the quantities of drainage entering the San Joaquin River (see the Water Quality Program Plan) and will proceed with

plans to build the south Delta barriers or implement other south Delta improvements. Also see the description of the Preferred Program Alternative in Chapter 2.

IA-5.1-115

Without the CALFED Program, water deliveries could be reduced even lower than the bottom end of the range used in the Programmatic EIS/EIR. For example, new threatened and endangered species listings could produce this result. The EWA includes the assurance that CVP/SWP water deliveries will not be reduced during the first 4 years of Stage 1 (see common response 21). This assurance would improve reliability. At the other end of the scale, CALFED's goal would be to increase deliveries and reliability, consistent with ecosystem protection. CALFED's Water Management Strategy is being developed to improve water supply reliability. See the Phase II Report for a discussion of the Water Management Strategy objective of improved operational flexibility. The CALFED agencies believe that water supply reliability can be increased by implementing all of the Program's water management tools.

IA-5.1-116

Implementation of parts of the CVPIA is part of the No Action Alternative. Some CVPIA actions do not qualify for the No Action Alternative based on the screening criteria. Impacts associated with the No Action Alternative are described in comparison to existing conditions in Section 5.1.6. A complete discussion of CVPIA impacts on growers is contained in the CVPIA PEIS, which is referenced by CALFED. Thus, CALFED has an ample basis from which to judge these impacts.

IA-5.1-117

The fundamental concept behind the EWA is the flexibility that can be gained with export pumping. Effective use of the EWA will prevent additional prescriptive flows. The EWA flow changes are in addition to existing prescriptive flows. See the Phase II Report for a description of the EWA.

IA-5.1-118

Please see common response 22. CALFED has properly recognized and made clear in its scope that it cannot solve all of California's future water supply need problems. The Program is focusing on improving water supply reliability, consistent with other Program objectives; however, reliability often can be measured in terms of the consistency in the ability to meet specific but reasonable water supply targets.

IA-5.1-119

The discussion of the impacts of the No Action Alternative contains an analysis of the consequences of not meeting CALFED's water supply reliability objectives at the level of detail deemed appropriate for the programmatic document. Water supply shortfall costs are discussed in the economics impact analysis sections in the Programmatic EIS/EIR, again at the programmatic level. The feasibility/effectiveness of these alternatives is described in general terms. More specific levels of detail will be developed and disclosed during project-level planning and accompanying project-specific environmental documents/review and documentation. Please see common response 22.

IA-5.1-120

Please see common response 4. CALFED is encouraging continuation of the San Joaquin River Restoration Program and will cooperate and help to facilitate implementation of its recommendations. The potential raising of Millerton Dam is one of the 12 potential surface storage reservoirs remaining on CALFED's list for additional consideration. CALFED recognizes the limitations of water transfers, as well as their ability (given adequate storage and conveyance capacities) to transfer water from one area to another according to the principles of the time value of water. Also see response WT 1.2-4 (in Water Transfer Program Plan Responses to Comments in Volume II) and response IA-2.2-5.

IA-5.1-121

One of CALFED's objectives is to improve water supply reliability, in part by reducing the magnitude and frequency of unanticipated pumping plant shutdowns.

IA-5.1-122

The Programmatic EIS/EIR considers the resources at two times—existing conditions and year 2020. The process was not designed to look at other time steps or consequences of CALFED actions being delayed. All CALFED actions depend on funding, which could vary with economic and political conditions.

As described in Section 5.5, "Geology and Soils," under the Levee System Integrity Program, resistance to predictable earthquakes potentially affecting the Delta would be improved under the Preferred Program Alternative and even more so under Alternative 3. By their nature, through-Delta alternatives are less capable of withstanding earthquakes and the water supply provided is consequently less reliable. Earthquake hazards are described in the Environmental Consequences section for geology and soils in the Programmatic EIS/EIR, and supporting technical reports, including a special study of Delta seismicity commissioned by DWR/CALFED.

IA-5.1-123

The ability of the State and Federal Governments to deliver water always has depended on yearly variations in hydrology and long-term climatic trends. Stakeholder cautions expressed over proposed new storage and conveyance options, makes it impossible to set water supply delivery standards at this time. Also see response IA-2.0.0-31.

On the other hand, protection of threatened and endangered species in accord with species recovery plans is mandated and enforced by State and Federal laws, even if it requires the shutting down of export pumps, or other extreme measures. Non-compliance with measures prescribed or agreed to by the responsible State and Federal wildlife agencies is a criminal offense.

IA-5.1-124

These impacts are described at the programmatic level for existing conditions, the No Action Alternative, and CALFED Program alternatives for the regions outside the Bay-Delta watershed that are served by the SWP and/or CVP. This subject, along with technical performance standards, will be covered in a great deal more detail during project-level planning and feasibility studies and the accompanying project-specific EIRs and EISs.

IA-5.1-125

Many factors complicate the choice of amounts and locations of surface and groundwater storage needed to achieve the reliability objective. Among them are the configuration and size of conveyance facilities, amounts of water conservation and recycling achieved, Delta fish protection requirements, Bay outflow requirements, and a changing climate. Because of these factors, and considering the programmatic nature of this document, the CALFED agencies decided to evaluate general locations for storage in which the mode of use and water availability would be similar, and the ranges of sizes within which combinations of storage would be most likely to fall. The upper ends of the size ranges for each region were selected to represent the maximum feasible storage volume that could be beneficially used without causing excessive significant unavoidable adverse impacts. The lower ends of the ranges for each region were set at zero in case no new storage facilities were found to be feasible or acceptable to stakeholders and the voters. Thus, the full range of storage outcomes was represented at the programmatic level. *Please also see common response 4 and response IA-5.1.4-10.*

IA-5.1-126

CALFED has no objective that endorses the redirection of agricultural water to other uses. On the contrary, CALFED's objectives include protection of all beneficial uses of water and preclude the granting of any priorities of use (other than those mandated by existing laws). The Water Transfer Program will facilitate water transfers based on willing sellers and buyers. Likewise, water acquired for the EWA will be from willing sellers. Also see response IA-7.1.7-15.

IA-5.1-127

CALFED already has reviewed the document and incorporated some of the ideas expressed in it. Also see response PH2-3.6.5-44.

IA-5.1-128

The No Action Alternative is not intended to meet CALFED goals. It represents an estimate of future conditions without any CALFED actions. Because the common programs are proposed CALFED actions, they are not appropriate to include in the No Action Alternative. However, CALFED's Alternative 1 is primarily comprised of the common programs. The common programs are designed to resolve many of the shortcomings of the No Action Alternative.

As explained in the Programmatic EIS/EIR, the ability of the SWP/CVP facilities to meet demands is used as a surrogate for the ability to meet all demands on the Delta. This method is appropriate at the programmatic level since (1) the SWP/CVP represent most of the Delta demand, and (2) separating out each individual demand would further complicate the already complex set of modeling studies that have been performed. More detailed modeling can be undertaken for project-specific EISs and EIRs.

The assumption that water saved from Delta demand in one part of the state would become available in other parts has a broader logical basis than simply the Monterey Agreement. Also see responses IA-2.2-5 and IA-2.2-2. The basis for this assumption is that statewide demands exceed supplies by such a wide margin that, absent an environmental water entitlement, flow standard, or flow-dependent water quality standard, any excess water would be put to beneficial use as long as storage and/or conveyance capacity was available. The EWA could provide a means to dedicate saved water for future beneficial uses; therefore, the Program allows for and encourages this type of flexibility.

Modeling assumptions that are used as the basis for comparing alternatives are spelled out in Attachment A.

IA-5.1-129

CALFED is not proposing any changes in the operations or beneficial uses of water from New Don Pedro Reservoir.

IA-5.1-130

CALFED seeks to meet its resource goals in the best way, with minimum impacts on stakeholders. CALFED must consider many stakeholders with competing needs. CALFED seeks a balanced solution that considers the wide variety of needs and also is guided by the CALFED solution principles (see common response 20).

CALFED modeling was conducted at a programmatic level of detail to evaluate impacts on Delta operations. The differences are not significant at the programmatic level but will be dealt with at the project level of analysis.

IA-5.1-131

The many suggestions provided by the District will be especially helpful during site-specific evaluations. At the programmatic level of detail, however, these suggestions are not likely to alter modeling conclusions or impacts in the Delta.

IA-5.1-132

This response has been consolidated with response IA-2.1-14. Please see this response for the answer to your comment.

IA-5.1-133

Measured solely by volume, increased water exports will not help to restore the estuary and its fishery resources. However, improving the timing of exports or, better still, supporting the exports with increased releases from new storage can help to restore the estuary and its fishery resources. These actions, coupled with those of the Ecosystem Restoration Program and the Water Quality Program Plan, provide great potential for improvement from the Program-wide perspective. Also see response IA-5.1-98.

IA-5.1-134

Please see common response 16. Alternative 3 received full consideration at the programmatic level. Also see response IA-2.1-5.

IA-5.1-135

Water recycling can cause significant adverse impacts on the usability of surface and groundwater supplies of downstream water purveyors due to increased salt content. Water recycling also can reduce the capacity for and amount of subsequent local recycling, thus effectively reducing supplies. The Environmental Consequences discussion in Section 5.3, "Water Quality," and the Water Use Efficiency Program Plan evaluation both describe how supply reduction would be avoided. Please refer to these sources for further discussion of this issue.

IA-5.1-136

Please see common response 22.

IA-5.1-137

The CALFED agencies do believe that conjunctive use has an important potential role in an overall water management plan for the Central Valley, particularly in the San Joaquin Valley. However, the agencies also are well aware of its pitfalls and limitations. The CALFED agencies intend to fully consider these potential problems, as well as third-party impacts, before proceeding with any further planning. CALFED has conducted a Groundwater Outreach Program over the past several years and compiled a set of guiding principles for implementation of conjunctive use programs. These principles emphasize local control and voluntary implementation of conjunctive use programs and adequate protection for third parties. CALFED plans call for constructing, in partnership with local entities, groundwater banking facilities with a total target volume of 500 TAF to 1 MAF. The actual volume will depend on local interest. Project-level EIS/EIRs would be required that analyze and discuss the details of any and all impacts prior to approval and implementation. Also see common response 6.

IA-5.1-138

CALFED will strive to achieve balance in recommending the allocation of new water supplies. The EWA (see the Phase II Report) is one way to achieve balance.

IA-5.1-139

A definitive Operating Agreement cannot be developed until the CALFED Program is made more definitive during Stage 1, including specification of the facilities and sizes to be constructed, needs of the EWA and Water Management Strategy, and completion of project-level feasibility studies and environmental documentation.

IA-5.1-140

Please see common response 1. Specific new water delivery goals would be inappropriate to set at this stage of the Program since neither new storage facilities, sizes, and locations nor Delta facilities have been selected. However, a Program goal is to increase water supply and reliability. DWR and Reclamation have authority over SWP and CVP contracts. The CALFED Program will improve overall water supply reliability, including for the SWP and CVP. Nevertheless, CALFED is not responsible for meeting all water needs. Please see common response 22. Although quantification of area-of-origin water rights falls exclusively within the purview of the SWRCB, CALFED recognizes and supports area-of-origin rights. Also see common response 13 and response PH2:3.6.1-9.

IA-5.1-141

This response has been consolidated with response IA-5.1-139. Please see this response for the answer to your question.

IA-5.1-142

The Phase II Report contains the analysis of the progress the proposed Preferred Program Alternative will make toward solving the stated problems. The role of the Programmatic EIS/EIR is to analyze the environmental

impacts of the proposed Program, including the Preferred Program Alternative and the other Program alternatives.

IA-5.1-143

CALFED has shown a range of water supply conditions in the Programmatic EIS/EIR. Since "new water" is not necessarily a CALFED objective, CALFED does not account for water that way. Rather, CALFED proposes a set of water management tools to improve water supply reliability. It is beyond CALFED's scope to account separately for effects of the Water Bond. However, many aspects of the Water Bond do contribute similarly to some of CALFED's proposed actions.

IA-5.1-144

Please see responses IA-2.1-17 and IA-5.1-4-17; and common responses 2, 3, 4, 8, and 9.

IA-5.1-145

The impacts of fresh-water diversions from San Francisco Bay are extensively monitored and will continue to be monitored and analyzed by the Interagency Ecological Program. In addition, the CALFED Program includes an extensive program (the Comprehensive Monitoring, Assessment and Research Program [CMARP]) to monitor conditions that will affect implementation of the CALFED Program. The CMARP is an essential component in the adaptive management approach.

IA-5.1-146

With regard to the questions:

(1) Although a responsible agency has not yet been selected, it is likely that at least DWR, the affected counties, the USGS, and the SWRCB would be involved.

(2) Although premature to make a final recommendation, a management program would be most effective if it applied to all users.

(3) It is likely that some requirements, or at least incentives, would be imposed to ensure participation.

IA-5.1-147

CALFED staff will continue their efforts to work with farmers and other users dependent on negotiated water contracts and water rights, while protecting the environment. CALFED will accomplish this effort through its Technical Working Groups, public hearings and workshops, an advisory group such as the BDAC or its successor, individual meetings and consultations, the open Policy Group meetings, and other groups. CALFED specifically will address operational shutdowns and the need to avoid them in its Operations Group meetings, and in further development and testing of the EWA. The CALFED agencies also will strive to increase water supply reliability and achieve increases in deliveries within the range assessed, rather than decreases. The efforts to achieve balance and equity among all users so as to avoid a crisis for any one group will continue be a priority for CALFED.

IA-5.1-148

Please see common response 2. The primary accounting and modeling entailed evaluations of the ability of each alternative to deliver water from the Delta in order to meet Delta water demand (whatever the demand may be), as well as many other important factors—such as water stages, flows, and velocities in the Delta. Water conservation simulations evaluated the effectiveness of various strategies to reduce water demands by the local users, especially in southern California.

IA-5.1-149

During Stage 1, CALFED plans, in partnership with local entities, to construct groundwater banking facilities with a total target volume of 500 TAF to 1 MAF. Based on the success of these facilities and available funding, target volumes could be increased. Early in 2000, CALFED began its grant application process to offer technical assistance to locally sponsored conjunctive use pilot programs.

IA-5.1-150

This response has been consolidated with response PH2:3.6.5-25. Please refer to this response for the answer to your comment.

IA-5.1-151

This response has been consolidated with response PH2:3.6.1-9. Please refer to this response for the answer to your comment.

IA-5.1-152

Please see common responses 4 and 22. Also see response IA-5.1-140.

IA-5.1-153

Reliability goals, rather than hard numbers, were considered to be most appropriate for the Programmatic EIS/EIR. These numbers can be firmed up during Stage 1. CALFED cannot control regulations that have the force of law; however, the CALFED agencies can work toward making the laws more reasonable, eliminating existing stressors on biota that lead to closures, and mitigating present and future water diversion impacts—as well as taking other steps that will improve the reliability of supplies. CALFED plans call for the expansion of the Banks Pumping Plant capacity to 10,300 cfs—if regulatory issues can be addressed—resulting in improved reliability of water deliveries to customers. The CALFED Program cannot guarantee specific amounts to specific agencies. This issue can best be addressed at the project level and through contractual arrangements with DWR, and through water rights negotiations and legal proceedings. Also see response PH2:4.1-5.

IA-5.1-154

Please see common responses 13 and 17. CALFED recognizes this inherent risk, but water transfers will include safeguards (see the Water Transfer Program Plan). Specific water transfers will need environmental documentation to define potential impacts and needed mitigation improve the flexibility inherent in the use of water in the State, considering the high levels of demand and resistance to new water development.

IA-5.1-155

Please see common response 4. CALFED has no plans to reduce inflows to the Tehama-Colusa Canal nor to increase groundwater pumping while reducing recharge. Reductions in inflows to the Tehama-Colusa Canal are the result of the CVPIA and/or Trinity River decisions, both of which are beyond the scope of the CALFED Program. The Integrated Storage Investigation will investigate the potential for construction of new storage projects and the extent and nature of any environmental or other constraints.

IA-5.1-156

Please see common responses 2 and 10. The CALFED agencies believes that appropriate methods were used to consider the effects and benefits of water conservation. Bulletin 160 projections include estimates of water conservation. CALFED's Water Use Efficiency Program includes actions to achieve additional conservation.

IA-5.1-157

The Trinity River Program is an adequately funded, separate effort that was deliberately excluded from the CALFED Program at its outset. CALFED has coordinated with the Trinity River Program, however, both providing input and making use of its results. Also see response IA-5.1.4-3.

IA-5.1-158

(1) Mitigating the impact of the SWP/CVP on the San Joaquin River watershed is the responsibility of the San Joaquin River Restoration Program. CALFED will closely coordinate its San Joaquin Valley actions with that program. The Tulare Basin is a separate watershed from the San Joaquin and the Delta, except during extremely rare and exceptionally severe flood events—when some spillage into the upper San Joaquin River may occur.

(2) Raising Friant Dam (Millerton) is one potential storage project remaining for additional CALFED consideration (see the Phase II Report).

(3) The Kings River watershed is in the Tulare Basin, outside the area directly tributary to the Delta. This watershed does not contain any Integrated Storage Investigation candidate sites.

(4) Building the San Joaquin Valley drain to the ocean would fall within the purview of the SJVDIP and is outside the defined scope of the CALFED Program.

(5) CALFED plans to build the barriers in the south Delta when an acceptable agreement has been reached based on the technical work being performed. Also see response IA-5.1-4.

IA-5.1-159

Generally, reservoirs are not built to control silting in rivers. However, special cases such as Englebright Reservoir were built specifically to control mining debris. Erosion and siltation are natural fluvial processes that help to maintain the ecological health of the stream. Upstream reservoirs can cause problems over the long term because they accumulate excessive deposits of sediments that are difficult to remove. Upstream reservoirs also can starve downstream channels of sand and gravel, leading to erosion and loss of spawning beds. In addition, much sediment enters the storm channels downstream of the dams. Sometimes, dredging is the only practical way to keep channels in the lower watershed serviceable.

IA-5.1-160

See responses PH2:3.6.1-8 and PH2:3.6.5-37. More detailed cost studies will be conducted as the various elements move toward implementation.

IA-5.1-161

Uncertainties, which include future population size, amounts of conservation, lack of knowledge of environmental needs, and potential climate changes (see Section 8.1.14 in the Programmatic EIS/EIR), make exact predictions nearly impossible. Good planning requires us to operate in this realm of uncertainty; consequently, CALFED chose to work with ranges rather than exact predictions of demands and water availability. Also see response IA-5.1-179.

IA-5.1-162

CALFED recognizes the important potential of south-of-Delta storage. Water quality benefits are a consideration in the Integrated Storage Investigation for locating and sizing new storage. However, the SJVDIP is primarily responsible for solving drainage problems in this region.

IA-5.1-163

This comment appears to endorse Alternative 3. The impacts of not meeting delivery reliability goals are addressed under the No Action Alternative. CALFED recognizes that Alternative 3 would be less vulnerable to earthquakes, but because of other uncertainties associated with that alternative has chosen a through-Delta conveyance as part of the Preferred Program Alternative. Also see response IA-2.1-5.

IA-5.1-164

Please see common response 17. The CALFED alternatives will improve water supply compared to conditions that would occur under the No Action Alternative. However, the addition of new storage would further increase water supplies. New water supplies are considered growth inducing to the degree that they remove existing constraints on growth, even though the constraints are often ineffective.

IA-5.1-165

Please see common response 20. Water transfers, conservation, and reclamation also receive full consideration and programmatic analysis; there is no bias against them as solutions. Alternately, new storage—although desirable from a water supply standpoint—is not listed as a Program objective. That solution would be too specific for a programmatic document and may entail new redirected impacts. It is appropriate to deal with the issue of new storage in the Integrated Storage Investigation and project-level studies. CALFED's Water Management Strategy includes use of all water management tools. See the Phase II Report for the three goals of the Water Management Strategy.

IA-5.1-166

This response has been consolidated with response IA-10.0-2. Please refer to this response for the answer to your comment.

IA-5.1-167

This correction has been made.

IA-5.1-168

CALFED seeks to improve overall water supply reliability, not to provide specific quantities of new water. Improved system flexibility, access to water supplies, and water utility (see the Phase II Report) will improve water supply reliability. CALFED modeled a range of conditions that could result in lower or higher water supplies. The lower end of the range could be more likely if storage is not built. The South Delta Improvement Program is a part of the actions CALFED plans for implementation during Stage 1.

IA-5.1-169

Before the Ecosystem Restoration Program goes forward with its individual flow augmentation projects, project-level feasibility studies, design, and environmental documentation will be required. This documentation will contain the necessary scientific justification for the flows. Also see response IA-5.1.4-11.

IA-5.1-170

This recommendation will be considered for implementation during Stage 1. See the Phase II Report.

IA-5.1-171

CALFED acknowledges that neither Criterion A nor Criterion B represents true no action conditions; however, the range between them encompasses possible outcomes and is therefore as representative as is possible (given the uncertainty that would really prevail if the Program did not proceed) at the programmatic level. This factor, and the need to make the No Action Alternative directly comparable to the Program alternatives, are the reasons why the range approach was selected.

IA-5.1-172

Providing for the total needs of the Delta exporters is not a defined project purpose. Increasing water supply reliability from the Delta is a defined project purpose. Implementation of the CALFED Program will accomplish increased water supply reliability in ways refined in the Water Management Strategy. The low Delta export end of the No Action Alternative range (Criterion A) addresses the impacts of reductions in Delta exports.

IA-5.1-173

Please see common response 10. Attachment A includes the assumptions used for modeling.

IA-5.1-174

The derivation of the "A" and "B" criteria is described in the Programmatic EIS/EIR (see Attachment A), but the extremes of these bookends are less important than the fact that they straddle the full range of possibilities. The intent of their use in the document was to ensure that the true No Action Alternative base case fell somewhere within that range. This level of detail provides the necessary programmatic information to make the decision on the alternative.

IA-5.1-175

Please see common response 10.

IA-5.1-176

The level of detail being requested exceeds that necessary for a programmatic document. Many of the details remain to be worked out in the Water Management Strategy and Stage 1. The intent of the Programmatic EIS/EIR is to represent the range of possible operating assumptions of facilities in the Delta watershed so as to focus more specifically on Delta facilities and their potential range of operations. The details for potential changes in operations are still being worked out; some will require more detailed scientific evaluation, and some will be refined only by evaluating actual flows and modifying with adaptive management. Also see response IA-5.1.4-11.

IA-5.1-177

This comment is consistent with CALFED objectives.

IA-5.1-178

Please see common response 10. Also see responses WUE 00-8 (in the Water Use Efficiency Responses to Comments in Volume II) and IA-5.1.4-1.

IA-5.1-179

The DSM2 and DWRSIM models have been used by DWR for many years for water planning. The models are periodically modified to better represent physical and regulatory conditions as they develop. Many stakeholders have participated in workshops on the modeling assumptions and programmatic results, and the models generally are accepted as appropriate models for planning. Most of the detail on model development assumptions, sensitivity analysis, calibration, and other detailed information is contained in backup information of the modeling development over the past two decades for DWRSIM and since 1993 for DSM2. Much of the requested information is at a level more detailed than that required for this programmatic evaluation (also see common response 1). Criterion A and Criterion B, modeled by CALFED, do provide a degree of sensitivity analysis for the uncertainty of conditions under which the CALFED Program alternatives may need to operate. The following paragraphs provide summary information on the development and use of the models. Further details about DSM2 are available in the annual progress reports mentioned below, and at the web site: **http://wwwdelmod.water.ca.gov/**. Descriptions of the DWRSIM model and the hydrology development process for the model have been prepared by DWR in several reports, and also are presented at the web site: **http://wwwhydro.water.ca.gov/**. Additional questions on the details of the assumptions, sensitivity analyses, calibration runs, and other information on the models should be directed to the DWR staff who maintain the models.

DSM2 is a physically based river and estuary modeling system, consisting of three major components: hydrodynamics, water quality, and particle tracking. *Hydro*, the hydrodynamics module, is derived from the U.S. Geological Survey's (USGS's) FourPt model. *Hydro* has been modified by the DWR to include reservoirs and gates, and the original matrix solver was replaced by the SPARSE matrix solver written by the University of California at Berkeley. *Qual*, the water quality module, is derived from the USGS's Branched Lagrangian Transport Model. *Qual* has been extensively modified to handle multiple, non-conservative constituents and water temperature. The Particle Tracking Module (PTM) was developed by DWR, with basic theory and initial code provided by Dr. Gilbert Bogle of Water Engineering and Modeling (WEM). All three modules have been modified

to read and write time-series data using the Hydrologic Engineering Center's Data Storage System. DSM2 development began in 1993. DSM2 has been documented in a series of annual reports to the SWRCB from the Delta Modeling Section, DWR, entitled *Methodology for Flow and Salinity Estimates in the Sacramento-San Joaquin Delta and Suisun Marsh*. The current calibration and validation of the model was finished in July 1997. DSM2 calibration and verification is documented in the *Eighteenth Annual Progress Report to the State Water Resources Control Board*, June 1997.

DSM2 is used in two modes: realtide and planning. Realtide runs are historically based and typically use historical boundary stages and inflows, with different runs using either historical or planned gate operations, pumping schedules, and Delta configurations. These runs allow greater detail for a wider range of time scales and a direct comparison to historical conditions but are slow to run. Planning runs use a 19-year mean stage and monthly averaged inflows, with different runs using base and planned gate operations, pumping schedules, and Delta configurations. These runs are usually not directly compared to historical conditions, because of the averaged stage and flow inputs, but since they run relatively quickly, the runs can cover a much longer time span—allowing for a wide range of hydrologic conditions. Usually the period from 1975 to 1991 is used, with a 1-year warmup (1974). This period covers a wide range of hydrologic conditions from droughts to floods. In both modes, the recommended use of the model output is to compare differences between base and plan runs, rather than examining the raw output. For calibration and verification, the different runs are compared to measured stage, flow, and salinity data.

DWRSIM is a generalized planning model for California's Central Valley and the SWP/CVP project systems, used since the early 1980s. The model is designed to simulate the river and reservoir system upstream of the Delta, Delta export operations, and the SWP/CVP conveyance systems in the export areas. The model accounts for system operational objectives, physical constraints, legal requirements, and institutional agreements. These parameters include requirements for flood control storage, in-stream flows for fish and navigation, allocation of storage among system reservoirs, hydropower production, pumping plant capacities and limitations, the Coordinated Operations Agreement between the SWP and the CVP, and required minimum Delta operations to meet Delta water quality and outflow objectives. DWRSIM models most of the river systems and downstream reservoirs in the Central Valley. In the Sacramento Basin, the model includes the Sacramento River upstream to Shasta Lake, the Feather River upstream to Oroville, and the American River upstream to Folsom Lake. In the San Joaquin Basin, the model includes the San Joaquin river upstream to Millerton Lake; the Chowchilla and Fresno Rivers upstream to Eastman and Hensley Lakes, respectively; the Merced River upstream to Lake McClure; the Tuolumne River upstream to New Don Pedro Reservoir; and the Stanislaus River upstream to New Melones Reservoir. The model also includes Trinity River diversions into the Sacramento Basin from Clair Engle and Lewiston Lakes. The remaining river and reservoir systems in the Central Valley are incorporated into a depletion analysis, which is an input to DWRSIM. The following export-related facilities also are modeled: the Delta-Mendota Canal, the South Bay Aqueduct, the Coastal Aqueduct, and the California Aqueduct—including (1) the SWP/CVP Joint Reach; (2) San Luis Reservoir; and (3) Pyramid, Castaic, Silverwood, and Perris Lakes.

DWRSIM's known limitations include:

1. Monthly time step. Assumptions must be made to model any standard that is not formulated on a monthly basis. Peak storm flows, which are usually considerably higher than monthly average flows, cannot be modeled.

2. The Depletion Analysis model, which provides hydrologic input to DWRSIM, accounts for use of groundwater, but groundwater transport processes are not modeled.

3. DWRSIM is not capable of analyzing the water supply impacts of water quality objectives for the interior stations in the south Delta because of a lack of adequate understanding of relationships between the San Joaquin River flow and south Delta water quality.

For any DWRSIM modeling study, the modeled conditions in a particular year will not conform with the observed conditions for the same year. This is because the purpose of the model is not to recreate historical conditions but to predict potential conditions for planning purposes. The model uses unimpaired streamflows based on historical hydrology, but the consumptive use of water specified in the model is based on current or future demand level. Thus, superimposing current or future water demand on historical hydrology produces modeled exports and reservoir operations that are different from historical conditions. This is true even for recent years because the model optimizes reservoir and export operations for the entire period of record.

IA-5.1-180

The purpose of the writeup on existing conditions is to show the existing conditions, not necessarily provide the history leading to those conditions. However, the Phase II Report does provide some of that historical perspective. The May 1995 WQCP contained water quality and flow objectives pertaining to the San Joaquin River Basin. In an effort to refine the science for the flow objective, the San Joaquin River interests collaborated to identify feasible actions that would protect the river's fish resources and implement the SWRCB's flow objectives. While the existing VAMP may currently be a short-term program, CALFED assumes that a longer term VAMP will be continued. The CALFED modeling assumes that the VAMP, in terms of flow at Vernalis, would be met.

IA-5.1-181

This response has been consolidated with response IA-5.1-183. Please see this response for the answer to your comment.

IA5.1-182

Due to the programmatic nature of the environmental documentation, CALFED has not yet completed detailed cost studies or determined who pays for what. Economic analysis is continuing as part of the development of the Water Management Strategy. Implementation of substantive CALFED actions will require project-specific environmental documents that will provide detailed analysis. Also see common response 1.

IA5.1-183

This response has been consolidated with response IA-5.1-131. Please see this response for the answer to your question.

IA5.1-184

In Criterion A and Criterion B, CALFED has evaluated a range of potential conditions, not added operating restrictions. Also see response IA ATT.A.3-4.

IA5.1-185

Attachment A includes a range of operating assumptions for analysis and comparison purposes. These operating assumptions are not requirements or policy. They are programmatic-level assumptions that will be refined and

revised during subsequent project phases. CALFED believes that the assumptions are adequate for the programmatic level of analysis.

IA-5.1-186

When it is necessary to meet flow targets above regulatory baseline flows, CALFED will pursue the acquisition of water from willing sellers (see the Phase II Report). In addition, environmental water could be developed by other CALFED actions. Also see common response 21.

IA-5.1-187

The text has been corrected. Also see response IA-5.1-109.

IA5.1-188

The Finance Plan includes options on the beneficiaries pay principle at a programmatic level of detail. These are by no means firm proposals or decisions on how the Program will be financed. More detailed financing analysis will be conducted as parts of the Program moves toward implementation.

IA5.1-189

The Program is expecting an overall improvement in water supply reliability relative to the No Action Alternative. Also see response IA-1.2-3 and common response 22.

IA5.1-190

A key component of the CALFED Program looks for ways to improve water supply reliability for all users. See the Phase II Report and response PH2:3.6.1-21. CALFED also recognizes the existing important environmental values provided on many farms and ranches and has considered ways to improve these values by such means as encouraging crop types. See "Agricultural Lands" in Volume 1 of the Ecosystem Restoration Program Plan.

IA5.1-191

California already has an extensive array of agency and private cloud-seeding programs in place. CALFED briefly considered cloud seeding and concluded the potential to further increase yield would be small, especially during droughts (due to the lack of seedable cloud cover).

IA5.1-192

The X2 standard, which controls estuary inflows (equivalent to outflows to the Bay), is already in place and has been subject to testing over a number of years. The X2 standard is subject to continued evaluations, which will be fully considered during future CALFED phases. The SWRCB also imposes other flow and outflow pulse standards that CALFED must adhere to. Bay modeling conducted by both DWR and the USGS is used extensively to support the evaluations.

CALFED has been and will continue to be very concerned with the problem of passing upstream migratory fish, especially salmonids. Prevention of this potential problem will be a major consideration during evaluations for the diversion facility on the Sacramento River.

IA5.1-193

These considerations are and will continue to be important factors in CALFED's analysis as projects move toward implementation. CALFED's Integrated Storage Investigation is looking at the role of storage (groundwater and surface) in an overall Water Management Strategy.

IA5.1-194

CALFED has no plans or proposals to draw down water tables by 200 feet as a result of Program actions. Section 5.4.1 in the Programmatic EIS/EIR lists increased groundwater overdraft as a potentially significant adverse impact but also lists many mitigation strategies that can reduce this impact to a less-than-significant level. While the Program is expecting an overall improvement in groundwater resources relative to the No Action Alternative, the potential remains that groundwater conditions could be worse than those currently existing. This potential primarily is possible because of changes in population levels and demand that would occur under the No Action Alternative and CALFED Program alternatives but that are not considered under the existing conditions. The amount of drawdown, if any, will be more thoroughly investigated and mitigated on a project-level basis for proposed groundwater projects. Counties are primarily responsible for groundwater regulation.

IA5.1-195

Please see common response 19 and response IA-1.2-3.

IA5.1-196

CALFED is developing a Water Management Strategy to improve overall water supply reliability for the Bay-Delta system. Also see responses IA-5.1-115 and IA-1.1.3.5.

IA5.1-197

Solving the problems of the San Joaquin River upstream from the Delta is primarily within the purview of a separate program, as is that of building a San Joaquin Valley agricultural drain. CALFED is coordinating extensively with both of these programs. CALFED is actively working on a plan for the south Delta. In preparing the inventory of potential storage sites, CALFED was looking for sites with the potential to significantly contribute to the Program's objective of improving water supply reliability in the Bay-Delta system. To qualify for the inventory, a site needed to be in a location to benefit the Bay-Delta system and improve operational flexibility of the water resources system. No sites on the Kings River qualified for the inventory. Also see response PH2:4.1-15.

IA5.1-198

The section quantifies construction impacts to the extent possible for a programmatic document and emphasizes the fact that any significant impacts would need to be mitigated to a less-than-significant level. Further detail of construction impacts is not possible until the project is defined more precisely. The requested documentation will be provided in the project-level EISs and EIRs.

IA-5.1-199

Studies would be conducted in conjunction with field experiments to determine the requisite flows needed in order to create and maintain meander belts. The Preferred Program Alternative would provide for maintenance

of the necessary flows, which would consist primarily of the high wet season flows that cause the river to meander. Also see responses PH2:3.6.5-28 and PH2:3.6.5-35.

IA5.1-200

Reallocation of water supplies falls outside CALFED's authority but is within the purview of the SWRCB—this agency is currently engaged in the latest round of Delta water rights hearings that could lead to significant re-allocations of tributary water. Water to meet CALFED's ecosystem needs will be obtained by purchases from willing sellers and/or water developed by the Program. Please see the Phase II Report and response IA-5.1.4-11.

The objective of the Preferred Program Alternative is to provide the required flows at the right time, in the right quantities, and of suitable qualities. The environmental consequences to the estuary of not providing the required flows at the right time, in the right quantities, and of suitable qualities are described in the No Action Alternative impact assessments for each resource category.

Although the details remain to be worked out, the principles suggested for the EWA are generally consistent with those of the CALFED Program and the conceptual operation of the EWA (see common response 21). CALFED's Water Quality Program is aimed at improving water quality for all uses, including the environment. CALFED actions to improve water quality focus on source control, improving the quality of water that flows through the Bay-Delta systems. See the Phase II Report for Phase I water quality actions. Adaptive management will help to guide additional studies and implementation.

IA-5.1-201

Comment made on March 1998 Programmatic EIS/EIR. Section was revised. No longer applies to revised Draft Programmatic EIS/EIR.

IA-5.1-202

The figure has been revised.

IA-5.1-203

The suggested language has been included in the Final Programmatic EIS/EIR.

IA-5.1-204

Unlike some other states, California water law does not cover both surface and groundwater. CALFED has no authority to regulate groundwater. However, CALFED has developed guiding principles and mitigation strategies for groundwater resources. Also see responses IA-5.4.1-1 and IA-5.4.1-2.

5.1 Storage

IA-5.1-ST-1

Please see common responses 1 and 4. The requested level of specificity for such impacts is appropriate only in the project-level documents that would be prepared prior to implementation. Future site-specific evaluations, environmental review processes, and permit applications will be coordinated under CALFED's Integrated Storage Investigation.

IA-5.1-ST-2

Please see common response 6. CALFED will consider the institutional issues as part of the Water Management Program and associated governance assurances. CALFED developed guiding principles for conjunctive use programs to ensure that local concerns and potential impacts are fully addressed. See "Water Management Tools: Storage" in the Phase II Report. Formal agreements will be required and prepared for the implementation of each conjunctive use/groundwater banking development.

IA-5.1-ST-3

Please see common responses 4 and 6. This response has been consolidated with response PH2:3.6.5-36. Please see this response for the answer to your comment.

IA-5.1-ST-4

Please see common responses 4 and 16. The CALFED agencies determined that the Preferred Program Alternative would best meet Program goals for the next 7 years, during which time its performance would be evaluated. Further alternative development, including possible dual conveyance, also would be considered at the end of that period—if there is insufficient progress or likelihood of progress toward meeting Program goals.

IA-5.1-ST-5

Please see common responses 4, 6, and 13. The CALFED Program will not trespass on the rights of local entities, or encroach on matters or properties under the lawful control of or subject to the rights of local entities. In addition, CALFED developed guiding principles for conjunctive use programs to ensure that local concerns and potential impacts on groundwater are fully addressed. See "Water Management Tools: Storage" in the Phase II Report. Formal agreements will be required and prepared for the implementation of each conjunctive use/groundwater banking development project.

IA-5.1-ST-6

Please see common response 22. Please also see the mission statement of CALFED in Section 1.1 in the Programmatic EIS/EIR and the Program purpose and objectives in Section 1.2.

IA-5.1-ST-7

Please see common responses 4, 6, and 22. Also see PH2:3.6.1-8 and PH2:3.6.1-16.

IA-5.1-ST-8

As stated in the Programmatic EIS/EIR, development and operation of Delta conveyance facilities by CALFED will be consistent with applicable federal and state laws. CALFED has developed mitigation strategies to address potential impacts. Section 3.6 in the Programmatic EIS/EIR identifies mitigation strategies for cumulative impacts. Mitigation strategies can be found in the summaries and text for each resource in Chapters 5, 6, and 7. The CEPA/NEPA monitoring is included in Chapter 9.

IA-5.1-ST-9

Please see common response 4. The CALFED agencies believe that the level of specificity is appropriate for the Programmatic EIS/EIR but continue to develop refined information through the Integrated Storage Investigation.

Please see common response 16. The isolated facility is not part of the Preferred Program Alternative. The dual system alternative is defined to a level of detail that is appropriate for its contingency status at the programmatic level. Also see response IA-2.1.5.

The Integrated Storage Investigation will investigate storage options and the potential for multi-purpose projects in conjunction with other agencies. Reallocation of flood control capacity could be considered. CALFED's responsibility to address flood control is restricted to the Delta Region, although the required storage capacity would almost certainly be located upstream. However, this fact does not preclude joint projects with other programs.

IA-5.1-ST-10

Please see common response 4. The Program will balance beneficial and adverse effects to a degree; however, the legal requirement to avoid or mitigate adverse impacts will carry overriding weight. Benefits can be best used to offset adverse impacts when they are in-kind benefits. For example, losses of wetlands can, in some cases, be offset by gains in wetlands in adjacent or different regions. However, adverse environmental impacts may not be mitigated by economic benefits.

IA-5.1-ST-11

Please see common response 4. The Program will balance beneficial and adverse effects of groundwater and conjunctive use versus surface water storage to the maximum degree possible. However, by their nature, the differences between the two types of storage must be considered. The differences will vary according to the actual sites being compared. CALFED recognizes the constraints on groundwater storage in the Sacramento Valley.

IA-5.1-ST-12

Although CALFED has no jurisdiction over future actions of regulatory water agencies, these agencies are member CALFED agencies and they subscribe to the goals of the Program. These goals include and are consistent with providing protections against potential adverse effects associated with any future additional uncertain requirements.

IA-5.1-ST-13

Please see common responses 4, 6, and 13. Also see responses IA-5.1-ST-5 and IA-5.1-ST-10. CALFED Program goals are consistent with this comment.

IA-5.1-ST-14

These comments are consistent with CALFED Program objectives. CALFED understands the importance of conjunctive use and locating any new storage adjacent to or south of the Delta. All of the viable storage and operational options will be evaluated more specifically and in greater detail during continuing Integrated Storage Investigation work.

IA-5.1-ST-15

It is consistent with CALFED's Watershed Management Plan objectives. However, CALFED believes that additional ways to increase storage capacity in a sound and environmentally acceptable framework also should be considered. Please see the Phase II Report.

IA-5.1-ST-16

CALFED is well aware of the potential for this outcome. If the pumping increases, it would also account for ramifications covered in other resource sections (for example, fish and water quality).

IA-5.1-ST-17

Please see common responses 4 and 6. As a matter of policy, CALFED will focus on off-stream reservoir sites for new surface storage but will consider expansion of existing on-stream reservoirs. CALFED will not pursue storage at new on-stream reservoir sites due to environmental impacts and implementability issues. Off-stream storage generally results in fewer environmental impacts then new on-stream storage. On-stream storage generally has much higher impacts on the aquatic environment than off-stream storage. For example, on-stream storage changes free-flowing stream habitat to still reservoir habitat, blocks fish movement, and blocks sediment and nutrient transport to downstream areas. The off-stream sites, filled primarily by diversion, are generally located on small or intermittent stream channels where the impacts on the aquatic environment are much smaller than those associated with on-stream reservoirs located on major rivers or tributaries. The CALFED agencies believe that mitigation costs will be substantially less with the off-stream reservoirs, which will make the on-stream reservoirs infeasible based on cost in the Section 404(b)(1) Guidelines. In addition, the CALFED agencies believe that most on-stream sites will have sufficiently high aquatic environmental impacts, that cannot be mitigated, to prevent developing the sites. This constraint would make the sites infeasible based on logistics, as defined in the Section 404(b)(1) Guidelines. Any off-stream reservoir or expanded existing reservoir proposed for implementation will need to undergo site-specific environmental documentation. Future site-specific evaluations, environmental review processes, and permit applications will be coordinated under CALFED's Integrated Storage Investigation.

IA-5.1-ST-18

Please see common responses 1 and 22. The Preferred Program Alternative cannot be approved, designed, and built quickly enough to solve California's Delta water supply and delivery system problems during the next 7 years, nor will the Preferred Program Alternative solve these problems in the ensuing 7 years. Decades of actions and operations are required to reverse the problems that have developed and compounded over the last 150 years. By the end of 7 years, however, the Preferred Program Alternative solution will have been reviewed very carefully for indications of likely success. If necessary, modifications can be made. Adaptive management will be practiced throughout the term of the Program and its implementation. In time, this approach will enable us to solve the Delta's problems.

IA-5.1-ST-19

Please see common responses 1 and 4. The studies needed to enable south Delta improvements are continuing. The studies will include detailed project-level impact assessments prior to implementation. Also see response IA-5.1-168.

IA-5.1-ST-20

Please see common response 16 and response IA-2.1-5. The programmatic conditions are contained in description of the Preferred Program Alternative (see the Phase II Report). The conditions depend on the outcome of evaluations of fishery resources and water quality during Stage 1.

IA-5.1-ST-21

Please see common responses 4 and 6, and response PH2:3.6.5-38.

IA-5.1-ST-22

The comment correctly identifies the existence of impacts and benefits associated with storage, which include environmental costs and benefits that lead to controversies. Also see responses IA-2-0.0-4; PH2:3.6.5-28; and PH2-3.6.5-35.

IA-5.1-ST-23

At the programmatic level of detail, the Integrated Storage Investigation does consider these items. However, more detailed evaluations will be required if specific storage projects move toward implementation.

IA-5.1-ST-24

The Integrated Storage Investigation will investigate these potential conflicts and adverse impacts for storage and releases for all beneficial uses. Storage can benefit agriculture, urban, and environmental uses, including both in-stream flows and Delta outflows needed to meet Ecosystem Restoration Program goals. The Integrated Storage Investigation also will look to reducing the potential for adverse impacts. Future site-specific evaluations, environmental review processes, and permit applications will be coordinated under CALFED's Integrated Storage Investigation.

IA-5.1-ST-25

The CALFED agencies believe that the level of detail in the assessments of each of these issues is adequate and appropriate for a Programmatic EIS/EIR. Operations in terms of triggers and timing and changes in X2 will be addressed, and associated impacts will be assessed in greater detail during the course of the Integrated Storage Investigation and subsequent project-level EIS/EIRs.

IA-5.1-ST-26

The CALFED agencies believe that the discussion is appropriate for making a decision on the Preferred Program Alternative. Flood control reservations are set by the U.S. Army Corps of Engineers (Corps). Recent flooding could suggest that the reservations need to be larger, not smaller. Moreover, reducing flood control reservations in upstream reservoirs would run counter to CALFED's goal and its commitment to Delta interests— to propose no action that would worsen current levels of flood control protection and to improve flood protection in the Delta as much as possible. This issue will be addressed, and the potential benefits assessed and weighed, during the course of the Integrated Storage Investigation. The results will be reported to the public and there will be ample opportunities for public discussion.

IA-5.1-ST-27

The CALFED agencies believe that the discussion is appropriate for making a decision on the Preferred Program Alternative. This issue will be addressed, and the comparative impacts will be assessed in more detail, during the course of the Integrated Storage Investigation and site-specific environmental documentation.

IA-5.1-ST-28

The inventory that was conducted was based on information in reports prepared over the last 40 years by federal, state, and local agencies. The inventory included facilities with the potential to significantly contribute to the Program's objective of improving water supply reliability in the Bay-Delta system by increasing water supply and/or improving operational flexibility. Smaller reservoirs (less than 100 TAF) were not included in the inventory. Later screening eliminated those sites less than 200 TAF since these smaller reservoirs do not significantly contribute to meeting CALFED objectives. The CALFED agencies believe that the smaller reservoirs are best left as candidates for potential development by local entities to meet specific local needs. CALFED considered reservoirs, such as Deer Creek, that would be filled with diversions from the American River. During its initial reservoir screening, CALFED concluded that Deer Creek Reservoir should not be carried forward since diversion off the river could jeopardize the opportunity to provide cold water to the lower American River and could conflict with the CALFED ecosystem objectives. Also see response PH2.3.6.1-8.

IA-5.1-ST-29

This response has been consolidated with response WT-1.2-4. Please see that response for the answer to your comment.

IA-5.1-ST-30

Please see response IA-2.1.2-17. CALFED is not in the process of designing the isolated facility. During Stage 1 of Program implementation, CALFED does plan 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 bromide and 3 parts per million TOC. This evaluation will include an equivalent level of investigation and studies on all of the actions that could be used to achieve CALFED's targets. CALFED has evaluated many different through-Delta conveyance configurations, including the South Fork Mokelumne conveyance configuration and closure of Georgiana Slough and Delta Cross Channel options proposed by Mr. Hilderbrand. These options have been suitably evaluated for the programmatic phase of evaluation. For example, the simulated salinities from the modeling runs indicate that the choice of the North Fork Mokelumne or the South Fork Mokelumne River makes little difference in export water quality. Also see responses IA-0.0-13; IA-5.0-7; and common responses 13 and 16.

IA-5.1-ST-31

CALFED is seeking to improve water supply reliability, not necessarily increase the yield of the system. However, modeling comparisons in Section 5.1 do show overall improvement in water deliveries with new storage. CALFED evaluated a range of conditions that could result in somewhat higher or lower water yields when compared to existing conditions but would result in higher yields when compared to the No Action Alternative. CALFED has outlined (see the Phase II Report) the programmatic conditions for new storage to be implemented.

IA-5.1-ST-32

The barriers could be part of the CALFED action in the south Delta. CALFED also is considering other solutions such as dredging and consolidation of diversions. CALFED agrees that the barriers should be operated for multiple purposes. The Head of Old River barrier can be operated to help fish migration and address dissolved oxygen problems near Stockton. The agricultural barriers will help to manage circulation, water quality, and water depths in the south Delta channels. CALFED intends to assemble a Barrier Operations Coordinating Team, consisting of USFWS, NMFS, DFG, DWR, Reclamation, and stakeholder representatives (which can include the City of Stockton), to operate the barriers.

IA-5.1-ST-33

As for other resource areas, CALFED conducted programmatic analyses for hydropower (see Section 7.9). More detailed analyses will be included in site-specific environmental documentation for specific projects. Please see response IA-7.9.4-9.

IA-5.1-ST-34

CALFED is looking first to solutions that do not require these types of facilities. Only after alternative solutions have been implemented and tested in full, will CALFED turn to large-scale structural modifications and additions to the system. If any such facilities are selected for construction, they will be subject to earthquake engineering safety standards. Evaporation losses are one issue for consideration, along with others, in the evaluation of surface storage. Please also see common response 4.

IA-5.1-ST-35

The short-term focus of Stage 1 of the Preferred Program Alternative is to identify and resolve problems that can be resolved relatively quickly. This approach does not detract from the focus on resolving long-term problems, including those associated with conjunctive use.

IA-5.1-ST-36

Please see common response 4. CALFED prepared an inventory of potential storage in the March 7, 1997 report, *CALFED Bay-Delta Program Storage and Conveyance Component Inventories*. The inventory was based on information in reports prepared over the last 40 years by federal, state, and local agencies. The inventory included facilities with the potential to significantly contribute to the Program's objective of improving water supply reliability in the Bay-Delta system by increasing water supply and/or improving operational flexibility. Smaller reservoirs (less than 100 TAF) were not included in the inventory. Later screening eliminated those sites less than 200 TAF since these smaller reservoirs do not significantly contribute to meeting CALFED objectives. The CALFED agencies believe that the smaller reservoirs are best left as candidates for potential development by local entities to meet specific local needs.

IA-5.1-ST-37

The CALFED agencies have concluded that the Preferred Program Alternative is the best, considering existing understanding. The Preferred Program Alternative does provide for more in-depth evaluations and pilot studies that may lead to additional modifications. If by the end of Stage 1 it is apparent that the Program's goals cannot be achieved with the Preferred Program Alternative, then elements of Alternative 3 or other modifications will

be considered. The need for new storage will be evaluated during the Integrated Storage Investigation. Also see common responses 4 and 6.

IA-5.1-ST-38

The new water from storage (0-6 MAF) will be used to reduce conflicts between competing beneficial uses and improve water supply reliability for all users, including Delta farmers.

IA-5.1-ST-39

If the diversion facility on the Sacramento River is implemented, potentially adverse impacts on Delta water users will be avoided or mitigated. The primary purposes of the diversion facility will be to reduce the impacts of Delta diversions on fish populations, improve cross-Delta flows, and improve water quality. All of these improvements would benefit Delta farmers as well as the exporters. The facility will be independent in its utility and will not commit CALFED to a fully isolated diversion facility—about which Delta interests are currently suspicious. If evaluations suggest that the diversion facility should be built for Delta and export water quality, the facility will be subject to a project-level EIS/EIR; there will be ample opportunity for public review, discussion, and negotiations.

IA-5.1-ST-40

Like all parts of the CALFED Program, studies and implementation of storage depends on adequate funding. See the Finance Plan in the Phase II Report for revised budgets. These budgets are higher than those in the June 1999 Revised Phase II Report, since construction costs now are included. Additional funding will be required for storage improvements in Stage 2. Please see response PH2:3.6.5-27. In the initial screening of reservoir sites, the smaller ones were omitted because the CALFED agencies believe that they are best left as candidates for local development to meet specific local needs.

IA-5.1-ST-41

Please see common responses 4 and 6. Future site-specific evaluations, environmental review processes, and permit applications will be coordinated under CALFED's Integrated Storage Investigation. Local reliance on groundwater will be fully considered, and potential adverse third party effects will be avoided or mitigated. Also see response IA-5.4.7-1.

IA-5.1-ST-42

CALFED has considered this potential and believes the reoperation potential is relatively small (see CALFED's *Hydroelectric Facility Reoperation Investigation*). CALFED would support local efforts to secure rights to local hydroelectric facilities if reoperation does not negatively affect CALFED's ability to meet its goals and objectives.

IA-5.1-ST-43

CALFED developed guiding principles for conjunctive use programs to ensure that local concerns and potential impacts are fully addressed. See "Water Management Tools: Storage" in the Phase II Report. Formal agreements will be required and prepared for the implementation of each conjunctive use/groundwater banking development. CALFED goals for these programs are consistent with the comment.

IA-5.1-ST-44

Please see common response 4. The environmental gauntlet is a necessary prelude to approval and construction of any new storage, due to the amount and degree of opposition.

IA-5.1-ST-45

Please see common responses 2 and 12.

IA-5.1-ST-46

Please see common response 4. Multiple use with attendant flood control features can be considered in site-specific evaluations. CALFED's responsibility to address flood control is restricted to the Delta Region, although the required storage capacity would almost certainly be located upstream.

IA-5.1-ST-47

Please see common response 4. CALFED will consider this recommendation during the conduct of the Integrated Storage Investigation and other studies.

IA-5.1-ST-48

This response has been consolidated with response IA-2.1.2-11. Please see this response for the answer to your comment.

IA-5.1-ST-49

The isolated facility is not part of the current Preferred Program Alternative. It may be considered only if the elements and operations proposed for Stage 1 are shown not to be effective. Deciding on the design details of an isolated facility is premature since such decisions would be based on the outcome of Stage 1 studies and operational results.

IA-5.1-ST-50

Please see common responses 4 and 6. Conservation and recycling measures will be implemented together with storage (see the Phase II Report). Both storage, if approved, and watershed management also would benefit the northern part of the state—from improved water supply reliability, better water quality, and improved ecosystem conditions.

IA-5.1-ST-51

Please see common response 19. CALFED developed guiding principles for conjunctive use programs to ensure that local concerns and potential impacts are fully addressed. See "Water Management Tools: Storage" in the Phase II Report. Formal agreements will be required and prepared for the implementation of each conjunctive use/groundwater banking development proposal. Also, water transfers will need environmental review.

IA-5.1-ST-52

Please see common response 4. The CALFED agencies believe that aggressive water conservation and recycling measures and new storage need to be implemented together as part of the solution.

IA-5.1-ST-53

Please see response IA-5.1-ST-52.

IA-5.1-ST-54

Please see common responses 2 and 13. Use of any local water or capacity will be consistent with reasonable needs and protection of local resources. Local reliance on groundwater will be fully considered, and potential adverse third-party effects will be avoided or mitigated. Water rights, county ordinances, and area-of-origin protections will be fully complied with. The CALFED Program will not trespass on the rights of local entities, or encroach on matters or properties under the lawful control of or subject to the rights of local entities. In addition, CALFED developed guiding principles for conjunctive use programs to ensure that local concerns and potential impacts on groundwater are fully addressed. See "Water Management Tools: Storage" in the Phase II Report. Formal agreements will be required and prepared for the implementation of each conjunctive use/groundwater banking development project.

IA-5.1-ST-55

Please see response IA-5.1-ST-46.

IA-5.1-ST-56

This impact would be mitigated by limiting the time periods during the repair season during which the high releases would be made. Most of the optimum release periods would fall outside the prime repair season. Also see response IA-5.2.9-1.

IA-5.1-ST-57

Flood control reservations in reservoirs are set by the Corps. There may be opportunities to allocate some space to flood control outside the Delta, in existing or expanded storage facilities. The Integrated Storage Investigation will investigate storage options and the potential for multi-purpose projects in conjunction with other agencies during site-specific evaluations. Reallocation of flood control capacity also could be considered. CALFED's responsibility to address flood control is restricted to the Delta Region, although the required storage capacity almost certainly would be located upstream. However, this fact does not preclude joint projects.

IA-5.1-ST-58

Please see response IA-2.1.2-11.

CALFED developed guiding principles for conjunctive use programs to ensure that local concerns and potential impacts on groundwater are fully addressed. See "Water Management Tools: Storage" in the Phase II Report. Formal agreements will be required and prepared prior to the implementation of any conjunctive use/groundwater banking development project.

IA-5.1-ST-59

Environmental mitigation and benefits will need to be considered for any storage proposed for implementation. The best way to include environmental mitigation has not yet been determined.

IA-5.1-ST-60

Please see common response 4. The impact analysis, in Section 5.1 shows a range of potential water supply increases and decreases with implementation of the Program. The lower end of the range is without new storage.

IA-5.1-ST-61

The comments are fully consistent with the CALFED Program approach for Stage 1 and will be evaluated more specifically during the Integrated Storage Investigation of site-specific projects.

IA-5.1-ST-62

The bottom end of the range of storage considered (zero new storage) allows for full consideration of the option of going forward without storage, at the programmatic level.

IA-5.1-ST-63

Please see common response 4. Sites Reservoir and raising Shasta Dam remain on CALFED's list (see the Phase II Report) of potential surface storage sites for additional consideration. Implementation of any projects would require project-specific EIS/EIR analysis and documentation, along with all feasible mitigation measures. Also see responses PH2:3.6.5-25; PH2:3.6.5-28; and PH2:3.6.5-35.

IA-5.1-ST-64

Any such potential impacts would be fully mitigated through the use of appropriate pond liners, soil sealants, and appropriate levee construction and leak prevention design criteria.

IA-5.1-ST-65

Please see common response 4. While the Integrated Storage Investigation itself will not reduce reliance on overburdened groundwater basins, the investigation is the critical next step that is prerequisite to making any progress toward agreement on and approval of any new storage facilities, no matter how critically they are needed. Also see response PH2:3.6.5-16.

IA-5.1-ST-66

Please see common response 4. CALFED prepared an inventory of potential storage in the March 7, 1997 report, *CALFED Bay-Delta Program Storage and Conveyance Component Inventories*. The inventory was based on information in reports prepared over the last 40 years by federal, state, and local agencies. The inventory included facilities with the potential to significantly contribute to the Program's objective of improving water supply reliability in the Bay-Delta system by increasing water supply and/or improving operational flexibility.

Smaller reservoirs (less than 100 TAF) were not included in the inventory. Later screening eliminated those sites less than 200 TAF in size since these smaller reservoirs do not significantly contribute to meeting CALFED

objectives. The CALFED agencies believe that the smaller reservoirs are best left as candidates for potential development by local entities to meet specific local needs. The main factors that weigh against choosing the Cosumnes River as a potential reservoir site include the preference for off-stream reservoir sites, the high environmental values present on this un-dammed river, and the fact that providing flood protection outside the Delta is not a CALFED objective (flood protection falls within the jurisdiction of the Corps, DWR, and local flood control agencies).

IA-5.1-ST-67

This response has been consolidated with response IA-5.2-4. Please see this response for the answer to your comment.

IA-5.1-ST-68

Please see common response 4. See the Finance Plan in the Phase II Report for revised budgets. These budgets are higher than those in the June 1999 Revised Phase II Report since construction costs are now included.

IA-5.1-ST-69

All of these potential reservoir sites are merely under consideration for screening purposes; many or all of them may drop out. Also see response PH2:3.6.5-25.

IA-5.1-ST-70

Gains in water use efficiency determined to be achievable by the Program under the Water Use Efficiency Program Plan were used as one method to reduce the minimum amounts of new storage required. Further analysis will be conducted to determine the costs and environmental impacts/benefits of additional new storage that may be required in future project-level environmental analyses.

Also see responses PH2:3.6.1-8; IA-7.5.12-2; and IA-7.5.12-10 and common response 22.

Determining the value of new water supplies needed to replace those saved by practicing water conservation is one method of performing the economic analysis. Additional use and reporting of results will take place during the conduct of the Integrated Storage Investigation and site-specific analyses.

IA-5.1-ST-71

Please see common responses 2 and 4. A mechanism for the incorporation of new information regarding storage will be developed during the course of the Integrated Storage Investigation (which may or may not include an interim sensitivity analysis continuing into Stage 1).

IA-5.1-ST-72

Please see response IA-5.1-ST-70. CALFED modeled a range of conditions providing for future uncertainties, including the amount of conservation. Criterion A (see Attachment A to the Programmatic EIS/EIR) uses 1995 water demands for year 2020 analyses. Also see response IA-5.1.4-1.

IA-5.1-ST-73

The south Delta barriers or other south Delta improvements are receiving priority attention by CALFED. CALFED is coordinating with another inter-agency program, examining problems and solutions on the mainstem San Joaquin River. Also see responses IA-5.2-11 and IA-5.1-115.

IA-5.1-ST-74

CALFED developed guiding principles for conjunctive use programs to ensure that local concerns and potential impacts are fully addressed. See "Water Management Tools: Storage" in the Phase II Report. Formal agreements will be required and prepared for implementation of each conjunctive use/groundwater banking development. Please see responses PH2:3.6.5-36 and IA-5.4.1-10.

IA-5.1-ST-75

This comment is consistent with CALFED's intended approach to the Integrated Storage Investigation. Also see response IA-1-0.0-18.

IA-5.1-ST-76

CALFED is aware of the water quality concerns associated with water storage on peat soils. More site-specific investigations will be conducted as part of potential implementation of in-Delta storage. Project-specific environmental documents will provide this detailed scientific analysis, including avoidance or mitigation measures if necessary.

IA-5.1-ST-77

The operating assumptions in Appendix A are not CALFED policy. The assumptions represent a range of potential conditions for the purpose of testing how uncertain future conditions could affect the CALFED alternatives. See responses IA-2.2-2 and IA-3.6.5-35.

IA-5.1-ST-78

Each dam in the state has operating criteria that depend on its role for flood control, water supply, hydroelectric power production or other purpose, and on regulatory requirements such as in-stream flows. The Dam Safety Office of the California Department of Water Resources requires that all dams have adequate spillways.

IA-5.1-ST-79

CALFED is aware of the Diamond Valley Lake costs. Due to the programmatic level of detail, CALFED has not yet prepared detailed cost estimates for potential facilities. Any projects that move toward implementation will require detailed cost studies.

IA-5.1-ST-80

Investigations on groundwater storage and conjunctive management are part of the Integrated Storage Investigation. However, the detail of project-specific development, such as local conveyance and recharge sites, must be left for project-specific feasibility studies and environmental documentation following the Programmatic EIS/EIR.

IA-5.1-ST-81

Specific water supply benefits will be identified during subsequent project feasibility studies and environmental documentation, and as part of the analysis supporting bond measures proposed to support implementation. At the programmatic level of detail in the Programmatic EIS/EIR, CALFED cannot determine specific water quantities. CALFED did model a range of conditions that would result in "new" water deliveries compared with the No Action Alternative. Subsequent project feasibility studies and project-specific environmental documentation will provide more detail on a project's effect on water supply reliability. However, some of these effects will be in terms of increased operational flexibility and not specifically "new" water.

IA-5.1-ST-82

The Programmatic EIS/EIR is broad enough to include the potential of interconnected in-Delta storages.

5.1.4 Assessment Methods

IA-5.1.4-1

CALFED recognizes that estimates of water demand can vary widely. Therefore, its modeling assumptions do not use a single water demand (DWR's or others) but uses a range from 1995 demands to estimated 2020 demands. The modeling using the 1995 demands assumes that water demands do not increase over existing levels, even in 2020. Using the 1995 water demands requires assuming that any increase in water demands will be met from other non-Delta sources, such as water conservation and water recycling. This assumption is not a policy decision but is for the purpose of modeling a range of potential conditions. Due to uncertainty, the modeling assumptions also included a range of environmental assumptions that would lead to different flow requirements. While the Ecosystem Restoration Program estimated flows required for environmental restoration, work continues to define how the EWA can best be used for environmental enhancement/protection in a balanced way with other water uses. Also see common responses 10 and 21, and response IA-2.2-2..

IA-5.1.4-2

CALFED modeled a range of conditions (Criterion A and Criterion B). One end of the range used 1995 demands and assumes that any increase in water demands will be met from other non-Delta sources, such as water conservation and water recycling. This assumption is not a policy decision but is for the purpose of modeling a range of potential conditions. Flows for the Ecosystem Restoration Program will be acquired from willing sellers or developed from new supply due to Program actions.

IA-5.1.4-3

The CALFED Criterion A for operation modeling included the estimates of Trinity River flows that were available at the time of the CALFED modeling. Subsequent to the June 1999 Draft Programmatic EIS/EIR, Reclamation completed its Trinity River Flow Evaluation Study. The recommended flows in the Flow Evaluation Study were slightly higher than those available to CALFED during the modeling. The recommended flows range from 369 TAF in critically dry water years to 815 TAF in extremely wet water years. In the CALFED modeling, flows were assumed to range from 340 to 754 TAF, depending on water-year type and water management criteria. CALFED has conducted an evaluation with the recommended numbers and concluded that the Trinity River Flow Evaluation flows do not alter conclusions drawn from the CALFED programmatic evaluation for water supply reliability. For example, under the flow evaluation criteria, long-term average annual CVP/SWP deliveries decrease by an additional 11 TAF, when compared to CALFED Criterion A. In critical years, deliveries decrease

by 15 TAF. If the flow evaluation flows are compared to CALFED Criterion B, long-term average annual deliveries decrease by 39 TAF; and in critical years, deliveries decrease by 82 TAF.

IA-5.1.4-4

Please see common response 13. The modeling does not define water supply reliability as full deliveries of contract water to CVP and SWP contractors. These water demands are not the same as deliveries. Although the DWRSIM modeling attempts to meet future CVP and SWP water demands, modeled deliveries are highly variable depending on the year, and the demands are seldom fully met. However, the model does assume that future water demands upstream of the Delta are fully met. The input water flows (hydrology) that are used in the operations modeling are adjusted downward to account for estimates of higher water demand upstream of the Delta in 2020. Two sets of modeling parameters were used to bracket a range of uncertainty with some of the parameters (see response IA-5.1.4-9). The CALFED agencies do not believe that it is necessary to separately show impacts of each parameter. On the other hand, the CALFED agencies believe that the modeled range of conditions fairly brackets the impacts of the parameters operating together.

IA-5.1.4-5

Please see common response 1. Under current law and congressional mandate, the flows released below Friant Dam are insufficient to contribute to ecological health of the Bay-Delta system. This issue is under litigation. If the courts decide to re-water the San Joaquin River, CALFED will prepare and implement the appropriate restoration program. The Friant Water Users Association and NRDC have been working toward a solution.

IA-5.1.4-6

Criterion A does not represent a change in the No Action Alternative or existing conditions but is a set of conditions that, with Criterion B, defines a range for modeling purposes. Also see Attachment A to the Programmatic EIS/EIR.

IA-5.1.4-7

Please see common response 10. The purpose of Criterion A and Criterion B is to form a modeling range rather than using one set of parameters that are uncertain. The range simply provides a way of looking at the impacts of conditions that lead to a range of Delta exports. The criteria are not intended to be proposals for any given alternative. For the purpose of this analysis, CALFED assumed that the Program is fully implemented by 2020. For this programmatic analysis, there was no reason to consider demands higher than those estimated for 2020. The CALFED agencies believe that higher demands would not alter the conclusions drawn in the Programmatic EIS/EIR.

IA-5.1.4-8

Water released from a reservoir serves multiple purposes. Delta outflow is one variable that is modeled in the impact analysis. However, the Program does not have the level of detail specifically to track water released from New Melones Reservoir. Also see common response 1.

IA-5.1.4-9

The modeling does not define water supply reliability as full deliveries of contract water to CVP and SWP contractors. These water demands are not the same as deliveries. Although the DWRSIM modeling attempts to

meet future CVP and SWP water demands, modeled deliveries are highly variable depending on the year, and the demands are seldom fully met. However, the model does assume that future water demands upstream of the Delta are fully met. The input water flows (hydrology) that are used in the operations modeling are adjusted downward to account for estimates of higher water demand upstream of the Delta in 2020. Also see common response 13. CALFED modeled a range of conditions (Criterion A and Criterion B) including different export demands on the Delta. One end of the range used 1995 demands and assumes that any increase in water demands will be met from other non-Delta sources, such as water conservation and water recycling. This assumption in effect translates the effects of water use efficiency back to the Delta. The Criterion A assumption set (see Attachment A to the Programmatic EIS/EIR) defines the highest environmental water requirements and lowest Delta exports considered in this analysis. For example, modeling using Criterion A without new reservoirs resulted in lower Delta exports than under existing conditions. The impact analysis includes the effects of this reduced Delta export. The range of modeling results with Criterion A and Criterion B are not intended to be proposals but serve the purpose of evaluating the various impacts for a range of operating conditions. The comment also suggests that CALFED needs to evaluate the No Action Alternative with the common programs. The No Action Alternative is intended to represent conditions without the CALFED Program, and the common programs consist of new actions that are part of the CALFED Program. Combining the No Action Alternative with the common programs would not represent a realistic situation, since many of the features of the common programs are intended to resolve shortcomings of the No Action Alternative. Also see response IA-2.2-5.

IA-5.1.4-10

The isolated facility is not part of the Preferred Program Alternative. Extensive evaluations are required in the future before any decision can be made on how to best provide improved drinking water quality. See "Conveyance" in the Phase II Report. Evaluations on the need for an isolated facility or alternatives will continue during Stage 1. CALFED has evaluated, at a programmatic level of detail, the water supply reliability for each of the alternatives. CALFED is in the process of refining its Water Management Strategy. However, the overall objective of improving water supply reliability does not include commitments for systemwide water targets or specific water deliveries to any water district or region. CALFED is looking to increase the flexibility of delivering water through the Delta. Also see common responses 1 and 16.

IA-5.1.4-11

At present, a high level of uncertainty is associated with future environmental water requirements. Therefore, CALFED modeled a range of conditions that could lead to lower or higher Delta exports. The Criterion A assumption set (see Attachment A to the Programmatic EIS/EIR) defines the highest environmental water requirements and lowest Delta exports considered in this analysis. These assumptions are not requirements but serve the purpose of evaluating the various impacts for a range of operating conditions. For example, there is no requirement for QWEST in the CALFED Program. QWEST was used simply as one component of a set of operating conditions to simulate higher environmental water requirements. CALFED is continuing work on the Water Management Strategy that seeks to improve water supply reliability for all water users, including the environment. The continued work on the EWA will provide fisheries protection and recovery, while providing ancillary benefits for water quality and water supply reliability to help achieve CALFED's overall water management goals. The EWA is based on the concept that flexible management of water could achieve fishery and ecosystem benefits more efficiently than a completely prescriptive regulatory approach. See common response 21. By managing EWA "assets" on a real-time basis, the overall cost of environmental protection can be lower than under a purely prescriptive approach. This approach would help to attain water supply reliability objectives for other water users.

IA-5.1.4-12

The CALFED agencies believe that the conditions represented in the July 15, 1999 Proposed Decision are contained within the range of modeling assumptions used for the impact analysis and do not alter the results of the impact analysis. CALFED cannot anticipate all the potential results of court actions that may take place. However, CALFED is conducting additional modeling to better define the potential range of CVPIA Section 3406(b)(2) accounting and will refine analysis if new conditions develop.

Any reduction in operational flexibility does affect the ability to operate with regard to future listed species. One focus of the CALFED Water Management Strategy is to increase the operational flexibility of the Bay-Delta system. See responses IA-5.1.4-1; IA-Att.A.3-7; and IA-5.1.4-17.

IA-5.1.4-13

The DWRSIM modeling used the 73-year hydrologic sequence for water years 1922 through 1994. While the results of the modeling could be shown in a number of ways, the impact analysis is based on a relative comparison between alternatives. Similar conclusions about the alternatives could be drawn using the method in the Programmatic EIS/EIR or an alternate method. The evaluations and comparisons were based on a broad, programmatic level of detail. Average annual project deliveries during dry and critical years provide a valid comparison of which alternative is better or worse for water supply.

IA-5.1.4-14

The CALFED Program includes a large number of potential actions (not currently in place) that are intended to contribute to meeting CALFED objectives. Some of these actions are being considered separately by CALFED agencies. Joint point of diversion happens to be one action that the CALFED agencies believe is necessary to further operational flexibility and improve water supply reliability.

IA-5.1.4-15

No public policy decision was made to use water acquisitions rather than other water management tools. CALFED continues to work on the Water Management Strategy, which will better define the role of various water management tools in improving overall water supply reliability—including water conservation, water reclamation, water quality improvements, water transfers, operational changes, conveyance, and storage. Future site-specific evaluations, environmental review processes, and permit applications will be coordinated under CALFED's Integrated Storage Investigation. CALFED plans, in partnership with local entities, to construct groundwater banking facilities with a total target volume of 500 TAF to 1 MAF during Stage 1. The CALFED agencies believe that, at the programmatic level, the evaluations and the documentation are adequate. Also see common response 1.

IA-5.1.4-16

The Economic Evaluation of Water Management Alternatives (EEWMA)considered some preference sets with no restrictions on transfers and some preference sets that limited transfers (land retirement) to 5%. This range does provide some perspective on what would happen if transfers were limited. The CALFED agencies believe that the range provides a fair representation of potential transfers. The 5% was set to approximate the level of historical transfers. The CALFED agencies do not believe that conditions should be limited to no transfers, since historically transfers have occurred, and some transfers will continue to occur in the future. The information from the EEWMA helped CALFED's development of the Water Management Strategy.

IA-5.1.4-17

At a programmatic level of detail, the Ecosystem Restoration Program has estimated the water that may be needed for environmental flows, but the Ecosystem Restoration Program is not the final determination of how water will flow. Throughout the Ecosystem Restoration Program, the need to determine streamflow for ecological process, habitats, and species is repeated. The issues of supplemental flows are complex in terms of ecosystem improvements. The frequency, magnitude, duration, timing, and rate of change of streamflows that form channels, create and maintain riparian habitat (including all species of vegetation), and promote all life stages of the various aquatic species dependent on a particular stream will never occur in a single year. A flow regime will need to vary, perhaps significantly, from year to year. The supplemental flow recommendations will be an intensive exercise in adaptive management and must be based on credible scientific underpinnings. The Ecosystem Restoration Program does not propose to acquire additional flows until the Programmatic EIS/EIR is final. Water acquisitions after that time will be based on the best scientific information available and will be modified by adaptive management as the effects of the real world flows are learned. In addition, the analyses for the Programmatic EIS/EIR used a range of modeling assumptions. These assumptions are not requirements but serve the purpose of evaluating the various impacts for a range of operating conditions. For example, there is no requirement for QWEST in the CALFED Program. QWEST was used simply as one component of a set of operating conditions to simulate higher environmental water requirements. QWEST was not included as an index of fish protection (smolt survival) but as one surrogate for generally higher Delta outflows. The Criterion A and Criterion B simply result in a range for modeling purposes. Basically, the Criterion A assumption set defines the highest environmental water requirements and lowest Delta exports considered in this analysis. The Criterion B assumption set defines the lowest environmental water requirements and highest Delta exports considered in this analysis.

IA-5.1.4-18

CALFED has evaluated, at a programmatic level of detail, the water supply reliability for each of the alternatives. CALFED is in the process of refining its Water Management Strategy. However, the overall objective of improving water supply reliability does not include commitments for systemwide water targets or specific water deliveries to any water district or region. CALFED is looking to increase the flexibility of delivering water through the Delta, the access to water supplies, and the utility of water (see the Phase II Report). See common response 22.

IA-5.1.4-19

This response has been consolidated with response PH2:4.1-50. Please refer to this response for the answer to your comments.

5.1.6 No Action Alternative

IA-5.1.6-1

The No Action Alternative is a description of the anticipated physical, project operation, and regulatory features that would be in place in 2020 if the Program is not approved. It is CALFED's best estimate of future conditions and includes anticipated growth in state population. The No Action Alternative was used as a basis for comparison of the Program alternatives. CALFED modeled a range of conditions (Criterion A and Criterion B), including different export demands on the Delta. One end of the range used 1995 demands and assumes that any increase in water demands will be met from other non-Delta sources, such as water conservation and water recycling. The Criterion A assumption set (see Attachment A to the Programmatic EIS/EIR) defines the highest

environmental water requirements and lowest Delta exports considered in this analysis. For example, modeling using Criterion A without new reservoirs resulted in lower Delta exports than under existing conditions. However, water supply reliability under the Preferred Program Alternative is improved compared to the No Action Alternative. The impact analysis includes the effects of this reduced Delta export. The range of modeling results with Criterion A and Criterion B are not intended to be proposals but serve the purpose of evaluating the various impacts for a range of operating conditions. Also see common response 22.

5.1.8 Consequences: Program Elements That Differ Among Alternatives

IA-5.1.8-1

While the text does refer to comparison based on the peak average monthly value for February, CALFED looked at different periods (for example, monthly, dry, and critical), peaks, and averages as shown graphically in Section 5.1.8 in the Programmatic EIS/EIR.

IA-5.1.8-2

The CALFED Program does not result in a loss of water. The Program improves water supply reliability (and water deliveries) compared with conditions that would occur under the No Action Alternative. CALFED is creating no deficit that needs to be made up. CALFED is in the process of refining its Water Management Strategy. However, the overall objective of improving water supply reliability does not include commitments for systemwide water targets or specific water deliveries to any water district or region. CALFED is looking to increase the flexibility of delivering water through the Delta. CALFED has no regulatory authority. Please allso see common responses 1 and 22. The Programmatic EIS/EIR acknowledges some adverse impacts on specific regional agricultural and urban water supplies as a result of the Program, particularly from increased water transfers; however, these adverse impacts can be mitigated to a less-than-significant level. Overall, the Program is expected to improve water supply reliability relative to the No Action Alternative. The results of the modeling in Section 5.1 show more water delivery under the Preferred Program Alternative than under the No Action Alternative. Because of uncertainty in how future environmental conditions would affect the No Acton Alternative and the CALFED Preferred Program Alternative, CALFED evaluated a range (Criteria A and B) in its modeling (see response IA-5.1.6-1). The potential impacts of water transfers on groundwater resources and proposed mitigation strategies to address those impacts are included in Section 5.4. Because site-specific projects are not being approved as a result of this Programmatic EIS/EIR, it is unknown which, if any, geographic areas will be affected. When specific sites are identified for proposed projects, these mitigation strategies will be used to formulate mitigation measures appropriate for the conditions at the particular site before those projects are approved. Potential impacts from water transfers on agricultural social issues and regional economics are discussed in Sections 7.3 and 7.10, respectively. Impacts from possible new surface or groundwater storage sites are addressed in each chapter for affected resources, in the section addressing impacts from storage. Also see response IA-5.1-ST-8.

This is unlike the situation in *Stanislaus Natural Heritage Project v. County of Stanislaus* (1996) 48 Cal.App. 4th 182, where the county approved a specific plan and rezoning that designated specific sites for development of a 29,000-acre planned destination resort, including a hotel and conference center, 5,000 residential units, and six golf courses. The EIR concluded that one of the known and predictable impacts of this approval would be the need for a new source of off-site water for almost 13,000 acre-feet per year, but the project had an approved source of water for only the first 5 years of the project. The county approved the project without addressing the impacts from the acknowledged need for development of a new source of water supply; and the county deferred any environmental analysis, even at a general level, of the impacts of development of future water supplies. By contrast, the CALFED Programmatic EIS/EIR is a planning-level document that sets a basic direction for future

decisions but does not authorize any site-specific entitlements. More importantly, the Programmatic EIS/EIR addresses the potential impacts and mitigation strategies of potential decreases in water supply in some regions at a programmatic level. The Programmatic EIS/EIR also addresses potential impacts from development of new water storage projects at a programmatic level, although no specific projects are approved as part of this Programmatic EIS/EIR. More specific impacts cannot be identified, or mitigated, until the sites where the impacts will occur are known. Neither CEQA nor NEPA require speculation concerning impacts about an uncertain future project. *Pala Band of Mission Indians v. County of San Diego* (1998) 68 Cal.App.4th 556, 577. Also see Chapter 9, "NEPA/CEQA Monitoring."

5.1.8.4 Preferred Program Alternative

IA-5.1.8.4-1

CALFED's goals are to balance human and environmental needs, and reduce beneficial use conflicts over Delta water supplies. The Preferred Program Alternative will increase average Delta water deliveries to human users, as shown in Section 5.1.8.4 in the Programmatic EIS/EIR. Also see response IA-5.1.8-2.

5.1.11 Mitigation Strategies

IA-5.1.11-1

Please see response IA-5.1.8.-2. The CALFED agencies believe that, at the programmatic level of detail in the Program, documentation is adequate. CALFED continues to work on the Water Management Strategy, which will better define the use of the various water management tools in improving overall water supply reliability. The Water Management Strategy will be updated periodically through adaptive management during Program implementation. Many competing needs for water will need to be balanced. When specific sites are identified for projects, the mitigation strategies in this Programmatic EIS/EIR will be used to formulate mitigation measures appropriate for the conditions at the particular site before these future projects are approved. Also see response IA-5.1.8-2, and common responses 4 and 22.

IA-5.1.11-2

This response has been consolidated with response IA-1-0.0-12. Please refer to this response for the answer to your comment.

5.2 Bay-Delta Hydrodynamics and Riverine Hydraulics

0. General Responses

IA-5.2-1

The Calaveras River is tributary to the Delta and does contribute tributary flows to the Delta during part of most years. It also receives return flows that reach the Delta, at least in its lowest segments. While CALFED has not made a final determination of when environmental water will flow, water in spring does help fish migration. Historically, spring flows were significantly higher than under existing conditions; and the fish have evolved under these historical conditions. Please see responses IA-5.1.4-17 and IA-5.1-6.

IA-5.2-2

The increased flows would be substantially less than natural peak flows during these periods. The flows are projected to result in beneficial rather than adverse effects on hydraulic and fluvial geomorphologic conditions. The flow releases can be timed to avoid or mitigate any adverse impacts on Delta water use and exports due to flows in excess of requirements and compensatory water withholding to storage. Please also see response IA-5.1.4-17.

IA-5.2-3

Please see common response 2.

IA-5.2-4

Please see common response 4. At the programmatic level of detail, the Programmatic EIS/EIR provides for filling reservoirs and also for higher spring-time environmental flows. Final determinations have not been made for either how reservoirs will be filled or when environmental flow will be required. Coordination of these issues will be required under real-world operating conditions so they do not conflict with each other. Please also see responses IA-5.1.4-17; PH2-3.6.5-39; and PH2-3.6.5-35.

IA-5.2-5

Please see common response 6. The Programmatic EIS/EIR includes estimates of the impacts of storage. Cumulative impacts of new storage are discussed at the programmatic level in Section 5.1.10. Impacts could range from negligible to potentially significant, depending on the amount, type, and location of new storage and how facilities would be operated. CALFED has not determined which, if any, storage sites will be developed. Please also see response PH2:3.6.5-35.

IA-5.2-6

From Section 5.2, it can be seen that about 10% of the Delta inflow (the important component of Central Valley runoff from the perspective of the CALFED Program) is depleted for local use, 30% is exported, 20% is used for salinity control, and 40% provides additional outflow to San Francisco Bay.

IA-5.2-7

CALFED is actively working to develop the plan with south Delta interests. The agricultural barriers would help to manage circulation, water quality, and water depths in the south Delta channels. Other options, such as extensive dredging or consolidation of diversions, are also possible solutions.

IA-5.2-8

Evaluations of flow were the initial basis from which all CALFED modeling and projections were made. Please also see response IA-5.1-179.

IA-5.2-9

This response has been consolidated with response IA-5.2-7. Please see this response for the answer to your comment.

IA-5.2-10

This response has been consolidated with response IA-5.2-7. Please see this response for the answer to your comment.

IA-5.2-11

The necessary studies for the south Delta improvements are being undertaken as part of the CALFED's technical analysis and would be followed by detailed project-level impact assessments prior to implementation. CALFED is specifically evaluating the question of the number and locations of barriers that are needed and is looking at other options, such as more extensive dredging and consolidation of diversions. No project would go forward that would cause significant adverse and unmitigable impacts in the south Delta without including feasible mitigation measures. More definitive policies to be followed in crafting an acceptable solution to south Delta problems will be clarified as part of the South Delta Program.

IA-5.2-12

The water supply and hydrodynamic effects of this range of possibilities are analyzed at the programmatic level (for example, the potential effects on fisheries and aquatic ecosystems are addressed in Section 6.1). Any additional exports would be derived from new yield from new storage at the upper end are addressed of the bookend range, improved system flexibility, or other water management actions. Secondary impacts of the flow changes could include geomorphologic, ecological, and water quality effects. These impacts will be addressed in detail in project-specific environmental documents when the details of specific projects are known. Please see common response 22.

IA-5.2-13

The "Delta Region" subsection of the Affected Environment in Section 5.2 contains a general description of Delta flow conditions, including the San Joaquin River, that includes the results of operations of the Delta export facilities. This level of detail is adequate to allow a programmatic assessment of these effects. More detailed information is available if desired, including comparisons with historical, pre-project conditions, in the March 1998 Draft Programmatic EIS/EIR and its supporting technical report on hydrology and hydrodynamics. Please also see response IA-5.1-109.

IA-5.2-14

Please see responses PH2:4.1-9 and IA-5.1-86.

IA-5.2-15

This response has been consolidated with response IA-5.1-179. Please see this response for the answer to your comment.

IA-5.2-16

The findings of the paper have been compared to the situation in the Bay-Delta system and were found not to be directly applicable. The rates of diversion as a result of Soviet water development on the Dneiper and Dneister—and comparable rivers draining into the Black, Caspian, and Azov Seas—were found to exceed those that presently occur from the Bay-Delta system (except for the San Joaquin River) and any that are being seriously contemplated as part of the CALFED Preferred Program Alternative. Please also see response IA-5.1.4-5. Dr. Rozengurt also appears to overestimate the rates of diversion that do or would occur from the Bay -Delta system as a whole.

Other important differences between the California and Soviet systems Dr. Rozengurt compares include the following:

- Very different, contrasting climate and hydrological systems.
- The Soviet rivers that are compared discharge to a sequence of semi-enclosed seas that are very different from the San Francisco Bay-Pacific Ocean outlet.
- The Soviet rivers are grossly polluted by municipal and industrial contaminants and lack the water pollution control measures that are exercised in California. Ambient conditions are far worse than any that occur in the Bay-Delta system.
- The Black, Caspian, and Azov Seas are known for their serious water quality and circulation problems that exceed any that occur in the Bay-Delta system.

Finally, Dr. Rozengurt does not account for any of the beneficial effects of the state and federal water projects on the Bay-Delta system (such as the increased summer flows enabled by reservoir releases) nor those that are part of the Preferred Program Alternative (such as the Ecosystem Restoration Program and the Environmental Water Account [EWA]).

IA-5.2-17

An isolated facility is not currently proposed as part of the Preferred Program Alternative; however, the potential effects of an isolated facility would be studied, including those associated with the peripheral canal (a similar facility with very different dimensions and operational mode that was proposed 30 years ago). Additional analyses of potential impacts associated with Alternative 3, the CALFED alternative most similar to a peripheral canal, will be undertaken during Stage 1 of the Program. Results of studies of salt-water intrusion and circulation will be reported at that time.

IA-5.2-18

This response has been consolidated with response IA-5.2-16. Please see this response for the answer to your comment.

IA-5.2-19

Mitigation through releases from storage as well as reduced export pumping will be considered if significant ecological or water quality impacts are predicted as a result of induced shifts in the location of X2. The ability to make releases at the appropriate times will be enhanced if additional new storage is built. The Integrated Storage Investigation will consider this usage of any new storage and weigh the benefits and costs compared to those of meeting other competing demands. Please also see responses IA-6.1.1-12 and IA-6.1.8-2. The Water Management Strategy in the Phase II Report will help to resolve this concern.

The impacts are shown at a programmatic level of detail in the Programmatic EIS/EIR. However, CALFED staff did not select net Delta outflows as a hydrologic evaluation criterion since they believe that the net outflows are overwhelmed by tidal flows in the western Delta. Instead CALFED staff selected X2 (the position of the 2,000-ppm salinity isohaline) as the net outflow-determined parameter of primary importance because of its direct bearing on estuarine hydrodynamics and ecological functions, and the fact that the SWRCB selected it as the primary basis for a Delta outflow index in its Bay-Delta standards-setting process. Checks were performed on the modeling results for all alternatives to ensure that minimum flow standards were met where and when they exist. These minimum outflows are specified in the SWRCB's Bay-Delta Water Quality Control Plan and water rights decision. Impacts on X2 are discussed and compared for each of the alternatives in the impact section of the Programmatic EIS/EIR.

CALFED has and will continue to ensure that all alternatives advanced for consideration comply with all existing Bay-Delta standards.

The Bay falls outside the Problem Area as defined by CALFED. The Bay's inclusion within the solution area is not sufficient reason for the Program to undertake the definition of problems within the Bay or selection of solutions.

IA-5.2-20

The requested level of detail is not available. The Programmatic EIS/EIR evaluates a range of potential release flows to establish a programmatic assessment. The impacts of specific operational conditions or releases from new storage, if any, will be addressed in project-specific environmental analyses. Please also see common responses 1 and 4, and the Phase II Report.

IA-5.2-21

CALFED Program goals are consistent with this comment. The goals, mechanisms, and relative abilities of the Preferred Program Alternative and alternatives to meet these goals are presented and discussed in the Section 6.1 in the Programmatic EIS/EIR.

IA-5.2-22

Although our understanding of the complexity of tidal flows in the Delta has improved, the hydrodynamics cannot be reduced to a simple concept such as QWEST. QWEST reduces spatial and temporal variations in tidal

flows to a series of single-channel cross section-averaged net flows in the western San Joaquin River. Nevertheless, QWEST is still a useful single indicator of net tidal transport in the southwest Delta. Net tidal transport strongly influences the net movement of dissolved and non-motile particulates, such as ocean salts, and some neutrally buoyant fish eggs—as well as tidal exchange with San Francisco Bay. QWEST is appropriate to use, as one basis for comparison in this programmatic document, for characterizing complex hydrodynamic effects in terms that are understandable to the lay reader. The alternative would be to attempt to portray extremely complex pictures of tidal circulation and its effects that even the estuarine scientists do not yet fully understand. Evaluations of the full effects of changes in west Delta hydrodynamics will be more appropriate at the project Programmatic EIS/EIR level in the future. At that time, the knowledge base will be more complete, and a higher level of detail will be required. Please also see the discussion of range of conditions modeled due to uncertainty in response IA-5.1.4-110.

IA 5.2-23

This response has been consolidated with response IA-6.1-12. Please refer to this response for the answer to your comment.

IA-5.2-24

The assumptions used in the CALFED modeling include required flows for navigability and are consistent with this comment.

IA-5.2-25

Section 5.2 in the Programmatic EIS/EIR addresses these potential impacts adequately to allow programmatic evaluation. Modeling assumptions include measures (operating constraints) to avoid or minimize potential impacts on hydrology and hydrodynamics, and resultant impacts on other resources. When specific sites are identified for projects, the mitigation strategies in the Programmatic EIS/EIR will be used to formulate mitigation measures appropriate for the conditions at the particular site before these projects are approved.

Although mitigation strategies have been developed at the programmatic level, the strategies will need to be further defined at the project level, when more detailed proposals and mitigation measures have been developed.

5.2.3 Affected Environment/Existing Conditions

IA-5.2.3-1

The Calaveras River watershed is tributary to the Delta and does contribute water at least part of the year. The Millerton Lake enlargement remains on CALFED's list for additional consideration. Reservoirs smaller than 200,000 acre-feet are left for local development. For the sole purpose of modeling the entire system, some reservoirs were assigned water supply and some were assigned environmental roles. This assignment should not be interpreted to mean that San Joaquin Valley storage will be used for environmental purposes. At the programmatic level of evaluation, selecting one reservoir for environmental water operation facilitated modeling. Please also see responses PH2:3.6.4-6 and PH2:3.6.5-40. Montgomery Reservoir happened to be assigned an environmental role, which resulted in primarily spring flows. CALFED does not yet know the distribution of environmental and water supply from the potential reservoirs. If Montgomery Reservoir is carried forward to construction, its best use will be determined. The analyses included a range of potential conditions with and without new storage.

5.2.6 No Action Alternative

IA-5.2.6-1

In Criterion A and Criterion B, CALFED created a range for modeling. Each criterion is a combination of assumptions. Together, the assumptions in each criterion are intended to provide bookends that result in a range of Delta exports. Year 2020 demands are used with Criterion A, and year 1995 demands are used with Criterion B. Since a given year can be wetter or drier than normal, the 1995 estimate is not the actual demand in 1995 but is a "normalized" number that is not affected by a single water-year type.

Bulletin 160-98's year 2020 demands represent the maximum demands that could feasibly be met from the Delta, given competing demands and constraints. Thus, these demands were selected to represent the upper end of the range. Please also see common response 10.

5.2.8 Consequences: Program Elements That Differ Among Alternatives

IA-5.2.8-1

Please see common response 1. CALFED provided the "water balance" figures in the Phase II report as a broad, general view of water flow under existing conditions for both average and dry conditions. Section 5.1 in the Programmatic EIS/EIR shows how key flows such as Delta outflow or exports could vary between the alternatives. Due to uncertainty on future conditions, CALFED modeled the system with Criterion A and Criterion B (please see Attachment A for details). Due to uncertainty within this range, a definite "water balance" could not be prepared at this time. The range of flow changes and the impacts are shown in Section 5.1. Considering the programmatic nature of the EIS/EIR, the CALFED agencies believe that the document adequately presents these impacts for purposes of a programmatic evaluation. The impact analysis was set up to compare and contrast the alternatives. Please also see response PH2:3.6.5-44 and common response 13.

IA-5.2.8-2

Due to uncertainty, the modeling looked at a range of potential conditions (see Attachment A). Some of the modeling showed a decrease in water supply, and some showed an increase. The CALFED agencies believe that the evaluations adequately show the range of conditions that may occur. Continuing efforts on the Integrated Storage Investigation, the EWA, and the overall Water Management Strategy are working toward improved water supply reliability.

IA-5.2.8-3

The Preferred Program Alternative does not include a larger Delta export facility but does include allowing increased exports up to the existing State Water Project facility's capacity of 10,300 cfs, some channel enlargements in the south Delta to improve conveyance, and possible barriers to help circulation and water stages. The CALFED agencies believe that these features, combined with the other Program elements (such as ecosystem restoration actions and levee improvements), will improve conditions for all water users in the Delta—including the ecosystem. The information on a range of anticipated changes in Delta outflow is shown in the Programmatic EIS/EIR. Operational parameters are still under evaluation. Please also see common response 1.

IA-5.2.8-4

In Criterion A and Criterion B, CALFED created a range for modeling. Each is a combination of assumptions including the joint point of diversion. It is not necessary to separately show the impacts of each parameter. On the other hand, the modeled range of conditions fairly brackets the impacts of the parameters operating together. The impact analysis does show, at a programmatic level of detail, impacts for each set of modeling assumptions. The south Delta channel improvements and the south Delta barriers are CALFED actions intended to improve hydraulic conditions in the south Delta. CALFED anticipates developing operating conditions for the 8,500-cfs Banks Pumping Plant permit within the next few years. CALFED will develop revised operating conditions once all south Delta improvements are in place for the 10,300-cfs Banks Pumping Plant permit.

IA-5.2.8-5

Please see common response 1. Two sets of modeling parameters were used to bracket a range of conditions due to uncertainty with some of the parameters. It is not necessary to separately show the impacts of each parameter. The modeled range of conditions does bracket the impacts of the parameters operating together. The impact analysis does show programmatic impacts for each set of modeling assumptions. The CALFED agencies believe that a change in any given parameter is unlikely to change the conclusions drawn from the programmatic analysis.

IA-5.2.8-6

The CALFED plan for the south Delta includes a combination of channel dredging and barriers to improve flow conditions and water stages. Options also may include more extensive dredging and consolidation of diversions. The designs will need to account for the range of anticipated operating conditions. CALFED's plan calls for a Barrier Operations Coordinating Team (consisting of representatives from the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the California Department of Fish and Game, the California Department of Water Resources, the U.S. Bureau of Reclamation, and stakeholders) to operate the barriers. Please also see common response 10.

IA-5.2.8-7

Restoring 10% of leveed lands to tidal action is a programmatic target. The potential for salinity impacts associated with reopening some islands depends on the locations of specific restoration actions. As specific locations are proposed for restoration in the future, CALFED will perform detailed studies to evaluate the site-specific impacts and will avoid sites that would result in intrusion of salt water for in-Delta uses and for export purposes.

5.2.8.4 Preferred Program Alternative

IA- 5.2.8.4-1

The impacts of Program implementation are not projected to be large enough to significantly affect the magnitude of storm event flows that transport sediments out of the Delta, through the Bay, and into the Pacific Ocean. Please see Section 5.5.8.1 in the Programmatic EIS/EIR, which concludes that the Preferred Program Alternative would not cause any significant impacts on fluvial geomorphologic processes in the Bay-Delta system. CALFED used the state-of-the-art mathematical models DWRSIM and DSM2 to project impacts of the alternatives because these models are superior to the U.S. Army Corps of Engineers' physical model and other tools presently available for Program purposes. More intensive modeling and evaluation of effects on flood flows and sediment transport through the system would be performed as part of future project-level EIS/EIRs prior to construction of any projects.

IA-5.2.8.4-2

The SWRCB has used the X2 standards to regulate inflows to the San Francisco Bay estuary for many years. These standards control minimum Delta outflows to the Bay over time by restricting the distance upstream from the Golden Gate that the 2,000-ppm salinity isohaline can intrude at various times of the year under various hydrologic conditions. Compliance with this set of standards by alternatives was tested using Program models, and no violations were predicted. Projected variations in X2 resulting from implementation of the Preferred Program Alternative are discussed in Section 5.2.8.4 in the Programmatic EIS/EIR; please refer to this section for the programmatic impact assessment.

IA-5.2.8.4-3

Please see common response 4. Also see Section 5.2.8.4 in the Programmatic EIS/EIR for a discussion of flow changes projected for the Preferred Program Alternative and Section 5.2.7.1 for a discussion of the contribution of the Ecosystem Restoration Program to these flows. The EWA would allow for further allocation and management of flows for fish (see the Phase II Report and common response 21).

5.2.9 Program Alternatives Compared to Existing Conditions

IA-5.2.9-1

CALFED does not propose major changes in high river or bypass flows that will damage river banks. Moving different increments of water for consumptive uses or environmental uses will cause some changes in river flow and stage, but these changes are relatively small compared with high flood flows that could super saturate banks. CALFED is not proposing to increase the frequency or duration of spills to the Sutter or Yolo Bypasses. Diversion to new storage during high river flow periods could marginally reduce river stage.

5.3 Water Quality

0. General Responses

IA-5.3.General-2

The alternatives were chosen to include a range of actions that would address the various needs for improving the Bay-Delta system and respond to the needs of all the stakeholders. The screened diversion facility on the Sacramento River in the Preferred Program Alternative is intended to help provide better quality water to the central Delta and various drinking water diversions, while utilizing state-of-the-art screening technology to minimize potential adverse effects on fish and other aquatic resources. Under the Preferred Program Alternative, the diversion facility will be evaluated and may be implemented, if necessary. CALFED may proceed with a screened diversion facility on the Sacramento River after feasibility studies, environmental documentation, and successful resolution of project-level fishery impact issues. The actual magnitude of the diversion would be determined as part of a project design. At that time, the diversion would be subject to project-specific NEPA/CEQA evaluation and permitting.

IA-5.3.General-3

The elements of CALFED's drinking water strategy are summarized in the Phase II Report. The strategy includes a combination of actions and studies developed and performed under the scrutiny of a public advisory group called the Delta Drinking Water Council. A broad range of actions and studies are planned that address source control, conveyance, storage and operations, monitoring and assessment, treatment, health effects, and alternative sources. Participation by stakeholders in the Delta Drinking Water Council is intended to ensure that a comprehensive approach is taken in providing for adequate drinking water quality. Also see response IA 5.3.2-1.

IA-5.3-General-5

Although some of its constituent agencies do have regulatory authority, CALFED has no authority as a non-regulatory entity to impose its water quality targets as mandatory standards or to enforce any such standards. Water quality regulations are formulated through processes that are external to the CALFED process. CALFED has followed a practice of adopting, as its objectives, appropriate standards as they are established by the regulatory agencies. The total maximum daily load (TMDL) process, involving the U.S. Environmental Protection Agency (EPA), the State Water Resources Control Board (SWRCB), and the Regional Water Quality Control Boards (RWQCBs), is an example of a separate regulatory activity that can influence CALFED Program objectives. CALFED recommends that interested parties become involved with these regulatory processes, as public involvement is incorporated into these processes.

CALFED does hold the philosophy that eliminating pollution at its source is preferable to controlling it after it enters the waters of the Bay-Delta estuary. CALFED intends to gear Program actions according to that emphasis.

IA-5.3.General-6

Nonpoint pollution associated with urban growth in both the export area and the upstream areas will be regulated under the existing EPA stormwater management regulations that require states to permit selected urban areas that discharge pollutants to water bodies. On October 29, 1999 those regulations (referred to as Phase II National

Pollutant Discharge Elimination System [NPDES] Stormwater Regulations) were signed by EPA. These regulations cover smaller cities (the Phase I program covered urban areas with population greater than 100,000) and require such cities to obtain permits by February 2003. These national requirements are not mandated by CALFED. The requirements are included in the Water Quality Program Plan (WQPP) because that plan incorporates existing regulatory tools where appropriate.

Consistent with the principle that CALFED actions not result in significant redirected impacts, any impacts of the Water Quality Program will be subject to mitigation. It is not clear, however, how road maintenance activities would be affected by the Water Quality Program. Also see common response 17.

IA-5.3.General-7

Model predictions provided in Tables 5.3-4a and 5.3-4b indicate that the Preferred Program Alternative may potentially reduce salinity at the export pumps; the improvement would depend on the storage options and the annual hydrology. Also see common response 17.

IA-5.3-General-11

The CALFED Program proposes an incremental approach to improving water quality in the Delta. Near-term actions will be implemented and their effectiveness will be determined with respect to the CALFED drinking water quality objective of providing safe, affordable drinking water from the Delta. Actions to be taken at later stages of the Program will depend on the results of the near-term actions, consistent with CALFED's adaptive management philosophy. While facilities could be considered if earlier actions fail to address drinking water quality requirements, other approaches—including advanced treatment, alternative source water, and source control actions—may be sufficient. Also see common response 16.

IA- 5.3.General-12

The commentor accurately notes that if the Stage 1 actions fail to produce satisfactory water quality at the export pumps, construction of a diversion facility on the Sacramento River will be considered. A screened diversion facility will be evaluated and may be implemented, if necessary. CALFED may proceed with a screened diversion facility on the Sacramento River after feasibility studies, environmental documentation, and successful resolution of project-level fishery impact issues.

IA-5.3.General-14

The Programmatic EIS/EIR is a programmatic document for which detailed information on schedules, costs, and financing mechanisms have not yet been developed. However, affordability is a key CALFED solution principle that must be satisfied. CALFED recently has formed a Delta Drinking Water Council that is comprised of interested stakeholders, including suppliers of drinking water taken from the Delta. The Council, supported by a committee of stakeholder technical experts and by independent scientists as needed, will advise CALFED management on implementation of effective drinking water quality actions and can be asked to consider affordability. Also see common response 1.

A-5.3.General-16

The source control actions planned for Stage 1 certainly will reduce inputs of pollutants into Delta waters and will result in continual improvement in the quality of these waters as the actions proceed, compared to conditions that would exist in the absence of the Program. CALFED ecosystem restoration actions may have the potential to

degrade water quality, at least over the near term. Pilot-scale evaluations of project impacts will be performed prior to full-scale implementation of projects. Also, the monitoring and assessment that will accompany each of these actions will determine whether any negative water quality impacts are occurring. If this should prove to be the case, mitigation measures will be employed to reduce the impact(s) to a less-than-significant level. Potential mitigation measures might include such actions as impounding water to reduce impacts of turbidity and treating discharges to remove metals, organic carbon, or other undesirable constituents. While the CALFED Program is intended to reduce conflicts among beneficial uses of the waters of the Bay-Delta estuary, it has been acknowledged from the outset that not all problems associated with water supply, water quality, and water management in California can be solved through the CALFED Program. The Program can, however, exert leadership toward the goal of management of the state's water resources.

IA-5.3.General-17

This response has been consolidated with response IA-5.3.General-7. Please refer to this response for the answer to your comment.

Add IA-5.3 General-20

The assessment of project-specific impacts and alternatives associated with any CALFED project requires full environmental documentation. Project-specific environmental documentation will include all applicable CEQA and NEPA components. The project-specific questions have been passed on to the project manager in anticipation of future CEQA/NEPA documentation of south Delta channel enlargement.

Add 5.3 General-21

As part of its Integrated Storage Investigation, CALFED is examining a wide range of potential benefits of increased surface water and groundwater storage, including improving water quality in the Delta. For the Programmatic EIS/EIR, CALFED has not examined changes in operating rules to improve water quality. This analysis will be performed later as part of a more detailed examination for a particular facility. CALFED has adopted a preliminary objective of improving the quality of Delta drinking water supplies through a variety of means, including source reduction, alternative sources of water, and storage and conveyance.

IA-5.3.General-22

The drainage issues on Veale Tract and Byron Tract are moving forward in the south Delta early implementation actions. A work group has been formed and is working toward a series of steps to improve water quality in the Veale and Byron Tract area. The work group is working on projects that may have multiple benefits in addition to improving drinking water quality at CCWD's intake.

IA-5.3.General-23

The NBA is not affected significantly by any of the alternatives. The NBA intake at Barker Slough is most predominantly affected by watershed activities in the Barker Slough watershed. Therefore, wetland construction in the Delta, downstream from Barker Slough, also would have little or no effect on water quality (TOC production). Additionally, CALFED is initiating studies to determine what, if any, impacts wetland construction would have on TOC levels in exported Delta waters. More importantly, the studies will determine the relative impact of TOC from constructed wetlands on DBP formation.

IA-5.3.General-24

It is true that water releases to improve water quality is not the best solution. This method should be utilized where a specific water buyer is willing to purchase water for such a use. It should be noted that this existing practice is outside the CALFED solutions. CALFED is proposing different solutions that would reduce or eliminate these existing dilution practices.

IA-5.3.General-25

Dairies and feedlots have been added tot he list of pollutant sources in Section 5.3.

IA-5.3.General-26

The Programmatic EIS/EIR has been revised to reflect that drinking water standards for some constituents, such as TOC and pathogens, have no corresponding environmental objectives.

IA-5.3.General-27

The statement in Section 5.3.3.1 in the Programmatic EIS/EIR has been changed to correct the error regarding seasons of high and low flows in the Delta.

IA-5.3.General-28

The change has been made to Table 5.3-1 for nutrient constituents.

IA-5.3.General-29

The change has been made in the WQPP under "water quality issues in the Delta" to include potential degradation in Delta water quality as a result of population growth.

IA-5.3.General-30

The WQPP has been changed to fix the editing error.

IA-5.3.General-31

Total dissolved solids (TDS) has been deleted from the document summary.

IA-5.3.General-32

The paragraph in Section 3 in the WQPP describing the sources of pollutants in the Delta has been revised to incorporate recommended changes, such as including a statement that mass loading analyses have not been conducted to quantify the relative amounts of pollutants from each sources.

IA-5.3.General-33

The last sentence under the problem statement in Section 3 in the WQPP has been revised to include protection of public health.

IA-5.3.General-34

The WQPP has been revised to incorporate recommended changes, such as deleting the comparison of Delta waters pathogen levels to national averages and including emerging technologies such as UV and chlorine dioxide in the discussion of treatment processes.

IA-5.3.General-35

The WQPP has been revised to incorporate corrections on the Stage 1 D/DBP Rule.

IA-5.3.General-36

The statement in the WQPP has been revised to clarify health impacts on pregnant women related to brominated by-products.

IA-5.3.General-37

The table in the WQPP has been revised to incorporate the recommended change by adding "release drainage during ebb flows."

IA-5.3.General-38

A paragraph has been added in Section 3.6 in the WQPP to explain Stage 1 and Stage 1A actions. Please also see response WQ 3.6-6.

IA-5.3.General-39

The WQPP has been revised to incorporate the recommended changes, such as including development of a comprehensive watershed protection program to minimize the impacts of increasing wastewater discharge into the Delta and its tributaries.

IA-5.3.General-40

The WQPP has been revised to incorporate developing technologies as alternatives to the current advance treatment processes.

IA-5.3.General-41

The WQPP has been revised to include a statement that CALFED plans to develop a close working relationship with utilities producing drinking water from the Delta in order to coordinate planning efforts.

IA-5.3.General-42

The WQPP has been revised to include the Byron Tract drainage and management program and CCWD's ongoing efforts to model water quality intakes.

IA-5.3.General-43

The WQPP has been revised to acknowledge other agencies' participation in conducting the studies listed under "Existing Activities."

IA-5.3.General-44

The statements regarding CCWD's rerouting of Veale Tract agricultural drain and discharges of drainage have been revised as recommended.

IA-5.3.General-45

The statement regarding reducing agricultural drainage has been corrected.

IA-5.3.General-46

The WQPP has been revised to include dairies and other confined animal feeding operations as potential sources of pathogens, TOC, nutrients, and TDS.

IA-5.3.General-47

The WQPP has been revised to include turbidity as a pollutant of concern and the correct name of the Tehama-Colusa Canal.

IA-5.3.General-48

The WQPP has been revised to include the new Mountain House Community as an example of impacts associated with population expansion in the Delta.

IA-5.3.General-49

The WQPP has been revised to include other forms of management and reduction of agricultural drainage, and Proposition 204 funding of the CCWD proposal has been deleted.

IA-5.3.General-50

The WQPP has been revised to include the impacts of the new Mountain House Community.

IA-5.3.General-51

Figures 4 and 5 in the WQPP have been revised to include the No Action Alternative case.

IA-5.3.General-52

The WQPP has been revised to clarify that the data are historical.

IA-5.3.General-53

Section 3.7.1 in the WQPP provides a good description of the sources of bromide in the Delta. Please also see response WQ 3.7.1-1.

IA-5.3.General-54

A statement has been added to the WQPP to acknowledge that the 1985-94 period included an unusual number of dry years and therefore may not be representative of general conditions.

IA-5.3.General-55

The 25% irrigated land limit has been deleted from the WQPP.

IA-5.3.General-56

The entries "continue use of temporary barriers to reduce sea water intrusion at CCFB" and "bromide and salt from San Joaquin River is kept at a minimum based on constraint of proposal" have been deleted from the WQPP.

5.3 Water Quality

IA-5.3-1

Please see response WQ 1.5-1 for the WQPP (in Volume II of the Response to Comments document).

IA-5.3-2

The Preferred Program Alternative approach includes a balanced mix of tools, including watershed management, water use efficiency, wastewater recycling, water exchanges and transfers, and local water supply reliability—as well as storage and conveyance.

IA-5.3-3

The section in the Programmatic EIS/EIR describing the Preferred Program Alternative has been modified to clarify that the modeled version of the Preferred Program Alternative presented in the tables and graphs contains a diversion facility on the Sacramento River.

5.3.1 Summary

IA-5.3.1-1

(i) It is important to note that, under existing conditions, 20-50% of the trihalomethane (THM) precursors to Delta waters originate from drainage water from peat soil on Delta islands (Amy et al. 1990). CALFED electrical conductivity (EC) modeling results do indeed demonstrate that none of the alternatives will significantly affect water quality at the Barker Slough (North Bay Aqueduct [NBA]) Pumping Plant intake and that the Preferred Program Alternative is not likely to significantly improve NBA water quality for EC. The Ecosystem Restoration Program's wetlands creation have the potential to discharge methyl mercury and total organic carbon (TOC), and cause yet unknown impacts on NBA water quality. These uncertainties are acknowledged in the document,

and specific mitigation language will be included in any subsequent site-specific environmental documentation. Specific mitigation may include avoidance or on-site treatment/management.

(ii) The document has been amended to include total dissolved solids (TDS) as a constituent of concern that could be addressed through improved salt management in wastewater systems.

(iii) Section 3.7.2 in the WQPP contains information on organic carbon concentrations at selected Delta locations (pages 3-43 to 3-46 in the June 1999 WQPP). The plan also contains additional information on research studies that are being conducted or that were proposed in the Organic Carbon Drinking Water Quality Workshop Proceedings (August 26 and 27, 1999). The commentor is correct in stating that additional analysis of TOC for the various alternatives would be helpful. Several studies already have been funded by CALFED, including:

- "Dissolved Organic Carbon Release from Delta Wetlands–Fluxes and Loads from Tidal and Non-Tidal Wetlands and from Agricultural Operations" (Roger Fujii, U.S. Geological Survey [USGS]).

- "Dissolved Organic Carbon Release from Delta Wetlands–Compositional Characteristics" (Brian Bergamaschi, USGS).

In addition, the Drinking Water Program has identified several actions to address TOC during the early WQPP implementation phase of the Program. The preliminary information on TOC used in the WQPP was adequate to perform a programmatic level of analysis in order to determine the potential range of impacts related to TOC.

(iv) These constituents are not of concern regarding environmental beneficial uses. Environmental concerns regarding TDS in fresh-water environments may be triggered by a drastic increase in TDS (10 times higher than the Delta water TDS value) in areas that are not estuarine in nature. No such increases are expected in the CALFED Program.

(v) The footnote at the bottom of the table lists all the constituents included under "Nutrients." The footnote includes all nutrients listed in the comment.

(vi) The text has been revised to indicate the maximum concentrations of TOC that have been observed at the NBA intake.

(vii) Ecosystem Restoration Program actions may have the potential to degrade water quality by increasing methyl mercury and TOC. The site-specific and ambient monitoring and assessment that will accompany each of these actions will determine whether any negative water quality impacts are occurring. If this should prove to be the case, mitigation measures will be implemented to avoid or reduce the impact(s) to a less-than- significant level. Potential mitigation measures might include such actions as avoiding the site; impounding water to reduce impacts of turbidity; treating discharges to remove metals, organic carbon, and other undesirable constituents; and relocating the NBA intake, if that should become necessary.

(viii) See response (vii) above. CALFED wetland development projects that potentially will affect drinking water intakes will be subject to site-specific evaluation before being sited in order to determine any potential impacts. As with any CALFED project that may affect water quality, site-specific and ambient monitoring will be conducted to determine impacts, as well as to determine the appropriate mitigation measures if negative impacts should occur.

(ix) Table 4 at the end of the WQPP indicates that relocation of the Barker Slough Pumping Plant intake would be conducted as part of the Stage 1 actions (see bottom of page 12-23 in the June 1999 WQPP). The stakeholders

determined, even before CALFED, that relocation of the Barker Slough intake would result in better drinking water quality for the NBA. The relocation of the Barker Slough intake would help to meet the objectives of the Water Quality Program (common program), regardless of any storage and conveyance alternatives.

(x) The commentor is correct in stating that the model predictions for the NBA do not show any improvement. One of the difficulties in the analysis is that the California Department of Water Resources (DWR) model is considered less reliable in the area around the NBA. In any case, the text has been revised to indicate that model predictions, although somewhat more uncertain in this area, show no improvements in salinity at the NBA Barker Slough intake.

(xi) Connection of the Tehama-Colusa Canal with the NBA intake would result in a higher proportion of canal water in the NBA, with an associated reduction in flow through the channels leading to the NBA intake and reduced capacity to dilute pollutants entering these waterways. A reduction in water quality therefore could occur in these channels.

IA-5.3.1-3

One of CALFED's solution principles is to avoid significant redirected negative impacts of its actions. Prior to implementation, proposed CALFED actions must be studied in detail and their environmental consequences disclosed. The Preferred Program Alternative would improve water supply reliability in dry and critically dry years, with the added advantage of improving water quality at the south Delta drinking water intakes.

IA-5.3.1-4

It is expected that the Preferred Program Alternative will result in a net beneficial effect on dissolved organic carbon (DOC) concentrations at the export pumps in the south Delta, but the Preferred Program Alternative may not improve water quality sufficiently to avoid requiring treatment to remove DOC. Text in the Programmatic EIS/EIR has been revised to reflect this information.

IA-5.3.1-5

The Programmatic EIS/EIR has been revised to delete the reference to ultrafiltration.

IA 5.3.1-6

CALFED supports ongoing studies being conducted by partnership agencies: The DHS and the EPA, key agencies involved in setting public health protection levels for drinking water. Health effects concerns pivot around the carcinogenic and reproductive/ developmental effects associated with disinfection by-products (DBPs) in treated drinking water, as well as concern over risk of infection from pathogens potentially present in sources of drinking water. As indicated in the water quality improvement strategy in the Phase II Report, CALFED will convene with expert panels on a periodic basis to assess the results of drinking water studies, including health risk assessment studies. Based on the recommendations of these expert panels, CALFED and the Legislature will make decisions on which additional measures are most appropriate to meet CALFED's public health protection objectives.

IA-5.3.1-7

CALFED's long-term water quality objectives for drinking water include a TOC concentration of 3.0 mg/L and a bromide level of 50 ug/L, or an equivalent level of public health protection. The WQPP provides evidence to

suggest that the Pacific Ocean is the primary source of bromide and salinity in Delta drinking water supplies, and that the importance of this source is not likely to be substantially affected by CALFED Stage 1 actions. Similarly, the WQPP casts doubt on the feasibility of controlling organic carbon generated within the Delta. Because significant public health, treatment technology, and regulatory questions remain unresolved, it is also unclear what level of reduction of bromide and salts from the ocean and organic carbon from the Delta will prove necessary to adequately meet the CALFED goal of protecting public health. CALFED is committed to working with agencies and stakeholders to make these determinations as the Program moves into its implementation phase.

Because we do not know what parameters ultimately will be relevant to and necessary for public health protection, we cannot make an unequivocal commitment to achieving numerical objectives for drinking water protection. Nor is it possible at this time to quantify the cost of failure to attain adequate public health protection, if that should happen, or to quantify the costs that would be involved in protecting public health in other ways. CALFED is, however, committed to protecting public health through a cost-effective combination of source control, alternate sources, and treatment actions.

Stage 1 water quality actions are expected to continuously reduce inputs of constituents that adversely affect drinking water supply. The effects of a number of the planned CALFED water quality actions will be measurable in terms of reduced loadings of pollutants entering the waters of the Delta estuary, as compared to existing conditions. Whether these improvements always will be measurable at diversion points, or whether they will be sufficient to fully meet the CALFED goal of protecting public health with regard to drinking water supplies taken from the Delta, cannot be determined at this time. Even in the absence of quantitative estimates of the effects of these actions on drinking water supply diversions, taking such actions is clearly consistent with the concept of employing source prevention and source control measures as part of a multiple-barrier approach to drinking water protection.

Future water quality needs will be identified based on the results of ongoing health effects research and regulatory developments. Adverse impacts of other CALFED actions, such as those that may result from habitat restoration, will be determined through monitoring and assessment. If these assessments indicate that Stage 1 water quality actions are inadequate to protect public health, or that other CALFED actions are causing negative effects on water quality, additional actions will be taken to protect public health and reduce negative impacts to a less-than-significant level. This approach is consistent with the CALFED adaptive management philosophy. The Delta Drinking Water Council or its successor will participate in evaluating CALFED actions and recommending needed changes to the Program on an ongoing basis to ensure that Program goals are met. The CALFED environmental assessment documents have been amended as appropriate to acknowledge that Stage 1 water quality actions, taken by themselves, have limited capacity to improve drinking water quality.

IA-5.3.1-12

Increased discharges and associated pollutants from increased population growth are not the result of CALFED actions. However, increased population is included in the evaluations for the No Action Alternative and the CALFED Program alternatives. The Water Quality Program includes actions for improving water quality with respect to the No Action Alternative.

The goal of the CALFED Program is to reduce conflicts over water supply reliability, water supply system integrity, water quality, and ecosystem health in the Bay-Delta estuary. Program plans in each of these areas provide a blueprint for actions that will reduce conflict in the system. It is true that the CALFED Program will not resolve all problems associated with quantity, quality, and reliability of water supplies throughout California—especially as the population of the state continues to grow rapidly. The CALFED Program is intended to improve the quality of municipal water supplies taken from the Delta to the extent consistent with ecosystem, agricultural,

recreational, and other uses of Delta waters. Because the Program will fall short of solving all drinking water quality problems, it probably will not result in solutions that eliminate the need for any future investments on the part of drinking water utilities to continue protecting public health.

IA-5.3.1-13

In addition to source control actions, storage and conveyance facilities, advanced drinking water treatment and water exchanges have significant potential for helping to meet the CALFED goal of protecting public health related to drinking water supplies taken from the Delta. Because advanced treatment technologies that might overcome the limitations of Delta water quality are not yet sufficiently developed, it is presently not possible to perform meaningful analyses of the feasibility and cost effectiveness of these technologies compared to other actions. Similarly, at the current programmatic level of detail, specific water exchange projects have not been identified. Consequently, the relative merits of such projects cannot be compared presently. As research and development of drinking water technologies reach the stage where comparisons can be made, and as specific water exchange projects are proposed during the implementation phase of the Program, these technologies and projects will be evaluated—along with all other potentially workable solutions. Also see common response 5.

IA-5.3.1-16

Dredged sediments from the Bay offer undoubted possibilities for levee reconstruction and habitat creation; however, it is not possible at the programmatic level of detail to fully evaluate their potential use in the CALFED Program. While estuarine sediments are readily available as a result of dredging activities in the Bay Area, each source must be tested to determine concentrations of toxic agents, such as metals and petroleum derivatives, and must be used in a manner to avoid mobilizing any toxicants present in the sediment. The presence of salt in marine and estuarine sediments necessitates either cleansing the sediments or using them in applications that do not degrade beneficial uses of the waters. This issue particularly relates to drinking water uses, as marine sediments contain bromide of sea-water origin that produces harmful chemical byproducts when drinking water from the Delta is disinfected. Problems with salt and toxicants in sediment sources often can be overcome for certain uses when project-specific evaluations support acquisition of the necessary permits from the Regional Water Quality Control Boards and other regulatory entities.

IA 5.3.1-17

The WQPP summarizes much of the available information on the existence of water quality problems in the Bay-Delta estuary and its tributaries, and identifies categories of actions that should be further evaluated and developed into projects to prevent and control pollution. This level of detail is appropriate to a programmatic document that is intended to establish the overall scope and broad connections of a comprehensive program to reduce conflicts in the system. The water quality information contained in the document also is constrained by lack of data. In the next phase of the Program (Phase III), additional information will be developed as the result of further study. This information can be used to design second-tier projects, which will be analyzed in site-specific environmental review.

The Programmatic EIS/EIR indicates that safe drinking water will be assured through the CALFED Program by a cost-effective combination of source control, alternative sources, and treatment. Stage 1 of the Program is directed primarily at source control activities, as these will prevent pollution and thus improve water quality for all beneficial uses—not least of which are fishery and wildlife resources. The potential for alternate drinking water sources also are included in the scope of the Program. The possibility of relocating intakes is primarily applicable to individual water intakes, such as the intake to the NBA, which is subject to water quality degradation from local

local watershed influences. A peripheral canal could, however, be considered as a larger scale relocation that would affect all or most drinking water intakes in the Delta. Advanced treatment is another major category of activity envisioned for the Water Quality Program that will play a significant role in comprehensive solutions to the water quality problems of the Delta.

Ecosystem restoration activities may improve or, in some cases, degrade the quality of drinking water supplies. As part of the required planning for ecosystem projects, pilot and field investigations will be conducted to evaluate the impacts of such projects; plans will be formulated to mitigate any negative impacts to a less-than-significant level as a condition of proceeding with projects. Flows designed to benefit the ecosystem may be useful in improving the quality of drinking water supplies taken from the Delta and will be utilized for that purpose, consistent with the need to realize ecosystem benefits.

IA-5.3.1-18

The development of Program alternatives to meet CALFED's purpose and objectives was a lengthy and consensus-based process. The Preferred Program Alternative and three alternatives are a result of extensive environmental, technical, and economic evaluation with input from stakeholders and the public. The development of alternatives evolved from identifying problems and defining objectives, to developing solution strategies, to assembling and refining alternatives guided by solution principles. The makeup of the alternatives during the process of refinement and development utilized different combinations of water management tools and varied in the level of effort applied to actions related to water use efficiency, water quality, ecosystem quality, and levee system vulnerability components. The public comments, the refinement of alternatives, and the evaluation of alternatives against the solution principles supported the conclusion that water use efficiency, water quality, levee system integrity, and ecosystem quality were necessary in each of the alternatives to achieve the Program's purpose. Each alternative needed to include the same actions for each of these focus areas. Based on this information, three basic alternative approaches and twelve variations were formed around different configurations of Delta conveyance: existing system conveyance, modified through-Delta conveyance, and dual-Delta conveyance. A range of storage options also has been evaluated for each alternative.

The selection of the Preferred Program Alternative was guided by distinguishing or differing characteristics among the alternatives. These distinguishing characteristics include in-Delta water quality, export water quality, total cost, diversion effects on fisheries, habitat impacts, and Delta flow circulation, among others. Based on technical advantages, the dual-Delta conveyance with an isolated facility appeared to provide greater technical performance than the other alternatives. Although some of the scientific and engineering evidence suggests that a dual-Delta conveyance configuration may improve export water quality and achieve fish recovery more effectively, other evidence indicates that such a conveyance configuration can cause in-Delta water quality problems. Other important concerns were voiced by some stakeholders and agencies. For these reasons, CALFED selected as its Preferred Program Alternative a through-Delta conveyance that is based on the existing Delta configuration, with some channel modifications. However, there is concern whether a through-Delta conveyance approach can meet future water quality objectives and not adversely affect the recovery of threatened and endangered species. Accordingly, if the Program purposes cannot be fully achieved with the proposed through-Delta conveyance, additional actions—including an isolated facility—may need to be considered in the future.

Although cost analyses are not required in the Programmatic EIS/EIR, affordability is a key solution principle. Cost will be analyzed as the implementation phase of the Program gets under way, and as project-level detail is developed to support the necessary environmental documentation. Generalized cost analyses and willingness to pay studies completed for CALFED's Water Management Strategy are documented in a report titled "Economic Evaluation of Water Management Alternatives" (October 1999). Additional analyses building on these efforts are ongoing, as documented in CALFED's "Draft Water Management Strategy Evaluation Framework"

(December 1999). These efforts are intended to provide general guidance regarding financial issues related to various water management tools as CALFED refines its Water Management Strategy. Project costs and benefits will be accurately described at the project-specific level. Also see common response 5.

IA-5.3.1-19

As one of its solution principles, CALFED is pledged to avoid significant redirected impacts of its actions. A number of actions contemplated within the CALFED Program could have the potential to affect the quality, quantity, and cost of water supplies. Prior to implementation, proposed CALFED actions must be studied in detail and their environmental consequences fully disclosed. In the event that significant environmental impacts were redirected to users of Delta waters, these impacts would need to be avoided or mitigated, if feasible, as a condition of proceeding with the project.

IA-5.3.1-20

CALFED is committed to continuously improving water quality for all beneficial uses of Delta waters and to avoiding significant redirected impacts of its actions. Therefore, inherent in CALFED planning is the need to avoid water quality degradation as a condition of being able to proceed with Program implementation. CALFED analyses indicate that, when the Program is implemented, the mineral quality of water diverted from the Delta will be at least as good as in the absence of the Program. CALFED water quality actions will be geared toward maximizing this improvement. Therefore, long-term negative water quality impacts on diverters of Delta waters should not result from CALFED actions, although short-term impacts are possible as a result of such factors as construction activities and the effects of normal year-to-year hydrologic variations on CALFED actions. Impacts of this nature resulting from CALFED activities would be subject to disclosure in project-specific environmental documentation and subject to mitigation.

CALFED ecosystem restoration actions may have the potential to degrade water quality, at least over the near term. The pilot-scale testing, monitoring, and assessment that will accompany these actions will determine whether any negative water quality impacts are expected. If this should prove to be the case, mitigation measures will be implemented to reduce the impact, if feasible, as a condition of proceeding with projects. Potential mitigation measures might include such actions as impounding water to reduce impacts of turbidity; treating discharges to remove metals, organic carbon, salts, and other undesirable constituents; and relocating the NBA intake, if that should become necessary.

IA-5.3.1-21

CALFED water quality actions planned for the first phase of Program implementation focus primarily on source prevention and control, in recognition that preventing pollution is an inherently superior and cost-effective approach to solving water quality problems. CALFED's drinking water quality plan envisions protecting public health by employing a cost-effective combination of alternate source water, source control, and treatment. Actions in these categories will receive priority for implementation as resources become available and with continuing involvement of stakeholders. The Ecosystem Water Quality Program and the Drinking Water Quality Program will be implemented as energetically as available resources permit. For example, if sufficient resources become available, CALFED could assume a leadership role in fostering development of advanced treatment technologies. If constructed, storage primarily would enhance ecosystem flows and water supply reliability—although incidental water quality benefits might be realized, depending on how the system would be operated. CALFED will work with stakeholders to evaluate and maximize water quality benefits that could result from improved storage capacity as part of a broad program directed at all aspects of water quality improvement.

5.3.2 Areas of Controversy

IA-5.3.2-1

Although the NEPA/CEQA guidelines do not require preparation of a cost analysis or financing plan for alternatives, affordability is one of the six guiding solution principles of the CALFED Program. The WQPP envisions investment in advanced treatment methods, along with source control and alternative sources, as approaches to protect the health of persons consuming water from the Delta. The level of investment in these activities will depend on available resources and on how these investments are apportioned among the various approaches. The Delta Drinking Water Council or its successor is one forum through which stakeholders can affect these determinations.

IA-5.3.2-3

The Programmatic EIS/EIR has been revised to incorporate this comment.

IA-5.3.2-5

The recommended changes have been made in the document.

5.3.3 Affected Environment/Existing Conditions

IA-5.3.3-1

To make the document more readable, CALFED made the determination to not provide detailed citations for information contained in its documents but instead to cumulatively list the sources of information that were used. Persons interested in these details are requested to obtain the appropriate technical report or contact the appropriate CALFED Program Manager.

5.3.3.1 Delta Region

IA-5.3.3.1-3

The predicted changes in water levels and water quality under the Preferred Program Alternative reflect the combined effects of all elements considered as part of the Preferred Program Alternative, including the south Delta improvements, north Delta improvements, and through-Delta conveyance improvements (as described in the Phase II Report). The modeling was not conducted to isolate the effects of the South Delta Barrier Program. Other options to the barriers include more extensive dredging and consolidation of diversions.

IA-5.3.3.1-4

(i) While it is correct that municipal and industrial discharges are not regulated for TOC and pathogens, they are regulated for biochemical oxygen demand (BOD) and total coliforms, which can serve as surrogates or indicators for most types of municipal and industrial wastewater. TOC is a measure of organic carbon content, and BOD predicts the oxygen demand that will be exerted on a receiving water from a discharge. Total coliforms are used as an indicator organism for pathogens.

(ii) The Programmatic EIS/EIR has been revised to incorporate this comment.

(iii) The Programmatic EIS/EIR has been revised to incorporate this comment.

iv) The commentor is correct. Water quality improvements produced by the Water Quality Program are likely to be less than the adverse water quality effects of growth. The Programmatic EIS/EIR has been revised to reflect this information.

IA-5.3.3.1-5

The Programmatic EIS/EIR has been revised to incorporate this comment.

IA-5.3.3.1-13

Although EC is not a perfect surrogate for TDS, its use in the Programmatic EIS/EIR is acceptable. In the modeling conducted by CALFED, EC is assigned to certain sources of water and is modeled as a conservative parameter. In doing so, the model demonstrates relative changes in source water contributions for water at a given point in the Delta. Therefore, where changes in EC are less than significant (less than 10%), the source water has changed very little. Decreases in EC usually indicate that more Sacramento River water (one of the lowest EC contributors to the Delta) is present. The discussion on EC as a surrogate for TDS has been revised to include this information, along with a disclaimer that calculated TDS from model results is not advisable.

5.3.4 Assessment Methods

IA-5.3.4-1

To make the document more readable, CALFED made the determination to not cite all references to the information contained in the documents but to cumulatively list the sources of information that were used. Persons interested in greater details are requested to contact the appropriate CALFED Program manager, who will be available to answer questions and provide detailed supporting documents and calculations on request. A list of references relied on is contained in Appendix G in the WQPP and in Chapter 12 in the Programmatic EIS/EIR. The impact analysis provides a description of modeling assumptions. Contact information is listed on the CALFED web site at **http://calfed.ca.gov/**. Also see response IA-5.1-179.

IA-5.3.4-2

The response has been consolidated with response IA-5.3.7.7-1. Please refer to this response for the answer to your comment.

IA-5.3.4-3

The No Action Alternative was used as a basis for comparison of the Program alternatives. The assumptions used in the No Action Alternative include compliance with Delta standard export limits and water quality objectives, as specified in the SWRCB's May 1995 Water Quality Control Plan. Each of the alternatives in the Programmatic EIS/EIR is designed to comply with the existing regulatory requirements, including the Delta Protection Act.

5.3.5 Significance Criteria

IA-5.3.5-1

(i) The Programmatic EIS/EIR has been revised to incorporate this comment.

(ii) For purposes of the Programmatic EIS/EIR, a salinity impact was considered significant if the change was measurable. The selection of 10% as the significance threshold relates to the accuracy of the mathematical modeling tools used to make the predictions. Therefore, while in some cases a salinity change of less than 10% could be significant with respect to a public health protection objective, such a change would not be accurately predicted using available analytical tools. It would be desirable to establish water quality significance thresholds at levels with actual significance to beneficial uses of the water. This task will be undertaken when analytical tools are developed that are sufficiently sensitive to enable smaller differences to be resolved.

IA-5.3.5-2

The response has been consolidated with response WQ 1.5-1 in the WQPP (in Volume II of the Response to Comments document). Please refer to this response for the answer to your comment.

IA-5.3.5-3

The response has been consolidated with response WQ 1.5-1 in the WQPP (in Volume II of the Response to Comments document). Please refer to this response for the answer to your comment.

IA-5.3.5-4

The Programmatic EIS/EIR has been amended to add substantial additional detail of prospective future drinking water standards. CALFED plans to meet these standards and protect public health by a cost-effective combination of source control, alternate sources of supply, and advanced treatment. Due to the numerous technical uncertainties surrounding the issue of new drinking water standards, it is unlikely that the EPA or DHS, the entities with regulatory authority over drinking water in California, would be prepared to make clear commitments to a particular course of regulatory action at this time. If Program actions indicate that CALFED is not achieving its goals and objectives using the through-Delta alternative, a number of water management options would be further evaluated—including an isolated facility. Also see common response 16.

5.3.6 No Action Alternative

IA-5.3.6-1

(i) The Programmatic EIS/EIR has been revised to incorporate this comment.

(ii)The Programmatic EIS/EIR has been revised to incorporate this comment.

(iii) The Programmatic EIS/EIR has been revised to incorporate this comment.

IA-5.3.6-3

The wording in Section 5.3.6 in the June 1999 Draft Programmatic EIS/EIR is in error and has been changed to read:

> "A change between ± percent is considered within the margin of error of the model analysis and is defined as less than significant."

The accuracy of CALFED model results is estimated because there is presently no generally agreed upon method to scientifically determine confidence limits for the model estimates made for CALFED. CALFED model results assume future scenarios, including physical changes in the Delta. Because there is no certain means of verifying predictions of the water quality consequences of future changes in the system, it has not been possible to develop a better error estimate than the 10% value used in our analyses of environmental impact. This value was based on expert judgement, not on quantitative computations. CALFED has, however, performed its modeling with the best analytical tools currently available and with full involvement of expert stakeholders. The Delta Modeling Forum is one venue that has been used to develop CALFED modeling approaches, and CALFED has held a number of technical workshops to enable the best collective expert judgement to be brought to bear on its modeling challenges. CALFED will continue to actively solicit expert assistance to refine analytical approaches as the Program evolves into its implementation phase. For the present, while considerable analytical uncertainties remain, modeling work has been accomplished with the strongest possible technical foundation.

IA-5.3.6-4

It is true that uncertainties multiply when alternatives are compared. Mathematically quantifying the expected error between alternatives would be very complex because of the potential errors in a given model study. Some errors would be very similar between alternatives, tending to cancel each other, while other errors would not be similar and would not cancel. Informed expert judgment holds that changes between alternatives of less than 10% are not significant. During the implementation phase of the Program, detailed environmental assessments will be performed for projects that are developed pursuant to the framework established by the CALFED Programmatic EIS/EIR. The level of detail of these assessments will be improved, reflecting the greater specificity of planned projects. To the extent that quantitative error estimates for later modeling results can be computed scientifically, the combined error of estimates also will be quantified.

5.3.7 Consequences: Program Elements Common To All Alternatives

IA-5.3.7-1

This response has been consolidated with response IA-5.3.7.1-1. Please refer to this response for the answer to your comment.

5.3.7.1 Ecosystem Restoration Program

IA-5.3.7.1-1

Implementation of Ecosystem Restoration Program actions has the potential to change land and water use patterns, and could potentially cause impacts such as increased evaporation and increased salinity levels in some areas and at some times. In addition, the Ecosystem Restoration Program could potentially cause some alteration in the ability to control salinity intrusion from the ocean. At the current programmatic level of detail, it is not possible to define CALFED ecosystem restoration projects with sufficient clarity to enable a quantitative analysis

of salinity effects. Through its adaptive management process, CALFED will develop and apply analytical tools, such as mathematical modeling, to thoroughly assess projects as they are developed, to prepare the necessary environmental impact documentation, and to implement appropriate mitigation measures as a condition of going forward with projects. Examples of possible mitigation measures might include funding alternative water sources, and funding treatment and/or prevention measures to reduce water quality impacts to a less-than-significant level.

IA-5.3.7.1-2

CALFED ecosystem restoration actions may have the potential to degrade water quality, at least over the near term. The pilot-scale testing, monitoring, and assessment that will accompany each of these actions will determine whether any negative water quality impacts are occurring. If this should prove to be the case, mitigation measures will be implemented to avoid or reduce the impact(s) to a less-than-significant level. Potential mitigation measures might include such actions as impounding water to reduce impacts of turbidity; treating discharges to remove metals, organic carbon, and other undesirable constituents; and relocating the NBA intake, if that should become necessary.

IA-5.3.7.1-3

This response has been consolidated with response IA-5.3.7.1-2. Please refer to this response for the answer to your comment.

IA-5.3.7.1-4

This response has been consolidated with response IA-5.3.7.1-1. Please refer to this response for the answer to your comment.

5.3.7.2 Water Quality Program

IA-5.3.7.2-1

This response has been consolidated with response IA-5.3.7.1-1. Please refer to this response for the answer to your comment.

IA-5.3.7.2-2

Several points are raised in this comment. The commentor states that the discussion of salinity changes resulting from the Ecosystem Restoration Program that is contained in the WQPP is not reflected in the Programmatic EIS/EIR. Section 5.3.7.2 in the Programmatic EIS/EIR discusses the effects of the Ecosystem Restoration Program on water salinity.

The commentor asks whether water will need to be released from upstream reservoirs to compensate for the increase in salinity produced by the Ecosystem Restoration Program. It is expected that any adverse change in salinity attributable to the Ecosystem Restoration Program will be small compared to the beneficial changes in salinity produced by other elements of the Preferred Program Alternative. The net effect of the Preferred Program Alternative on salinity in the Delta as a whole would be beneficial; therefore, no mitigation measures such as increased releases from reservoirs would be necessary. The Ecosystem Restoration Program could adversely affect salinity in the San Joaquin River, which could be mitigated by releases from upstream reservoirs. The Programmatic EIS/EIR has been revised to incorporate this information.

The portions of the Ecosystem Restoration Program with the greatest potential to affect salinity in the San Joaquin River are projects that convert irrigated agriculture to wetlands in the San Joaquin River drainage.

The commentor expresses the view that no actions should be taken that increase the salinity of San Joaquin River waters. The CALFED Program alternatives are intended to achieve a better balance between competing uses of Delta water. The Preferred Program Alternative produces a net reduction in salinity in the Delta, primarily by conveyance improvements and for the benefit of most municipal and agricultural water users. The Ecosystem Restoration Program is needed to protect environmental values. It may be desirable to locate Ecosystem Restoration Program projects in the Delta and Sacramento River watershed rather than the San Joaquin River watershed if it is not feasible to offset salinity increases in the San Joaquin River by releases from reservoirs or other mitigation measures.

The commentor expresses the view that the responsibility for diluting pollution in the San Joaquin River should belong to those causing the pollution. Poor water quality in the San Joaquin River results from a combination of agricultural and municipal discharges and stream flow changes that benefit agriculture and municipal water suppliers; the responsibility for its current condition is, therefore, shared by many.

IA-5.3.7.2-5

The Water Quality Program would decrease the discharge of a variety of contaminants to the Sacramento and San Joaquin Rivers and their tributaries relative to the No Action Alternative. It is logical to believe that any diminution of contaminants in the system would benefit water suppliers. The commentor is correct in observing that the effectiveness of the Water Quality Program is unknown and there are reasons to believe that source control alone might produce only modest changes in water quality.

5.3.7.7 Impacts Related to Construction for Storage and Conveyance

IA-5.3.7.7-1

CALFED has performed extensive mathematical modeling to predict the water quality consequences of increased storage, increased environmental flows, and increased diversions that would result from the CALFED Program. The results of this work are posted on the CALFED web site at **http://calfed.ca.gov/**. CALFED is continuing to perform this work, with extensive stakeholder involvement to assist in Program development. The results of completed work are publicly available and will continue to be made available. Stakeholders will continue to be invited to public workshops and other venues through which they may participate in these developments. The ability to perform detailed analysis is constrained by the lack of certainty concerning where storage might be constructed, the capacity of such new storage, what conveyance improvements might occur, what regulatory constraints might be placed on the system, and how the system would be operated. CALFED has approached this problem by predicting ranges of consequences based on different assumptions that, while not providing all answers, do indicate the range of potential consequences resulting from the given assumptions. Project-specific impacts will be evaluated and made available in project-specific environmental documentation.

IA-5.3.7.7-2

CALFED will initiate a process to define preliminary assumptions regarding potential in-Delta storage. In consultation with agency and stakeholder representatives, CALFED will develop several sets of parameter estimates under various assumptions regarding constraints to implementation. An evaluation of environmental impacts will be conducted during this stage and also at the project-specific level.

5.3.8 Consequences: Program Elements That Differ Among Alternatives

IA-5.3.8-2

All official CALFED documents are available for inspection by the public. Also see response IA 5.3.4-1.

IA-5.3.8-4

CALFED is committed to protecting public health by employing a strategic combination of source control, alternative sources, and advanced drinking water treatment actions. Because of the lack of scientific knowledge and changing drinking water regulations, it is not clear what combination of these actions will be necessary to meet CALFED's drinking water goal. Because of these unknown elements, it has not been possible to identify or quantify the impacts and mitigation measures that may be needed if planned actions fall short of adequately protecting public health. If it is not possible to meet CALFED drinking water objectives through the Water Quality Program under the Preferred Program Alternative, the Program includes studying and evaluating a screened diversion facility on the Sacramento River (or equivalent water quality actions). This evaluation would consider how to operate the Delta Cross Channel (DCC) in conjunction with the new diversion facility in order to improve drinking water quality, while maintaining fish recovery.

If the Water Quality Program measures are consistently not achieving drinking water quality goals, and the evaluation demonstrates that a screened diversion of up to 4,000 cfs would help to achieve those goals without adversely affecting fish populations, a diversion facility would be constructed. This facility likely would include a fish screen, pumps, and a channel between the Sacramento and Mokelumne Rivers. The design, size, and operating rules for the diversion facility would include an analysis of impacts on upstream and downstream migrating fish, as well as impacts on Delta species from habitat shifts resulting from increased flows in the east Delta. Following evaluation of the diversion facility operations, a final decision would be made on whether the diversion channel and structure should continue to be used and, if so, what the operational roles and optimum size of the diversion should be.

5.3.8.1 Preferred Program Alternative

IA-5.3.8.1-2

This response has been consolidated with response IA-5.3.3.1-3. Please refer to this response for the answer to your comment.

IA-5.3.8.1-6

Please see response IA 2.1-5 and common response 16.The CALFED Program must simultaneously address ecosystem, water supply reliability, levee system integrity, and water quality problems. While facilities to avoid negative influences on the quality of drinking water supplies diverted from the Delta would have definite advantages for the quality of the water, it is not presently clear that such facilities would produce the best overall solutions to the problems of the Bay-Delta estuary, and CALFED must address all these problems simultaneously. The scope of the Program includes a process to consider additional facilities, including an isolated facility, if further investigation determines that such facilities are necessary to accomplish CALFED water quality goals.

IA-5.3.8.1-8

CALFED is committed to developing the Drinking Water Program with the continuing assistance and participation of stakeholders, particularly through the Delta Drinking Water Council and its technical support groups of stakeholders. Water quality actions have not yet been developed to the point of making an absolute commitment to implementation in Stage 1A or Stage 1; therefore, there is some lack of clarity concerning the difference between planned actions, identification of information needs, and assignment of priorities for action. Work on developing the actions will proceed at a high pace, consistent with the need for continual involvement of stakeholders. Also see response WQ 1.5-1 (in Volume II of the Response to Comments document).

IA-5.3.8.1-11

Please see response IA-5.3.8.1-9. Salinity changes that are attributable to the Preferred Program Alternative were estimated in the West Delta and Suisun Bay, as well as for other alternatives considered. (See Table 5.3-4 in the Programmatic EIS/EIR.) Both beneficial and adverse changes in salinity that are attributable to the Preferred Program Alternative were estimated to be less than 2% and therefore considered less than significant. The salinity control gates in Suisun Marsh will contribute to controlling salinity within the marsh and bays. Other water quality changes are anticipated to be beneficial. Since installation of the salinity control gates in the Suisun Marsh in 1989, salinity has dropped. The degree to which any action will affect the environment will be determined in site-specific environmental reviews in compliance with applicable environmental regulations. Changes in habitat resulting from small salinity changes likely would be minimal.

IA-5.3.8.1-12

This response has been consolidated with response IA-5.3.1-7. Please refer to this response for the answer to your comment.

IA-5.3.8.1-15

CALFED has performed extensive mathematical modeling to predict the water quality consequences of the CALFED Program. CALFED continues to perform this work, with extensive stakeholder involvement, as the Program evolves and additional project detail is developed. The results of completed work are publicly available and will continue to be made available. Stakeholders will continue to be invited to public workshops and other venues through which they may participate in these developments. If the publicly available information is inadequate to answer technical questions, stakeholders are encouraged to contact the responsible CALFED Program Manager. The CALFED web site at **http://calfed.ca.gov/** contains the results of completed studies and lists contact information for Program staff. The analytical work that has been done indicates that the Preferred Program Alternative, even with the diversion facility on the Sacramento River, would not result in bromide concentrations as low as 50 ug/L. This body of work also indicates that the degree of improvement in Delta water quality would considerably depend on how the system would be operated. The diversion facility would be constructed only if further investigation demonstrated that the ecological impacts of the facility were acceptable.

Of the fresh-water inflows to the Delta, the Sacramento River is the largest source of good-quality inflow. Diversion of part of this flow out of Delta channels would benefit users of the water by avoiding a number of adverse water quality influences in the Delta, the most important of which would be saline ocean water mixing with the fresh-water supply. However, such a diversion also would deprive the Delta of some good-quality inflow and would tend to reduce the dilution of pollutants and circulation in south Delta channels. CALFED studies have shown that the impact on Delta water quality of an upstream diversion of Sacramento River water could be considerably reduced by maintaining some diversion from south Delta channels and perhaps by constructing

barriers at strategic locations to direct Delta channel flows. Through these approaches, it may be possible to significantly improve the quality of diversions from the Delta while maintaining Delta water quality. Also see response IA 2.1-5 and common response 16.

IA-5.3.8.1-16

The ranges of salinity for Rock Slough in Figure 5.3-6 were calculated at the eastern end of Rock Slough, at the junction with Old River.

IA-5.3.8.1-17

The Preferred Program Alternative is similar to Alternative 1 without the diversion facility on the Sacramento River. This statement is made in Chapters 1 and 2 in the Programmatic EIS/EIR. Section 5.3 explains that Alternative 1 potentially would degrade overall in-Delta and export water quality and dependent beneficial uses because of resultant increases in sea-water intrusion. Section 5.3 clearly states that Figures 5.3-2 through 5.3-5 represent the predicted salinities associated with the Preferred Program Alternative with a diversion facility.

The legend to Figure 5.3-2 has been corrected.

5.3.8.2 Alternative 1

IA-5.3.8.2-1

A considerable amount of baseline water quality data for the major water sources to the Bay-Delta has been collected over many years. As the commentor notes, the northern Sacramento Valley basins presently enjoy good-quality water. This baseline has been recorded. Impacts resulting from change can be predicted using the ample knowledge related to processes that may cause water quality deterioration, and mitigation measures will be implemented to minimize deterioration. Although an analysis of costs is not required as part of the Programmatic EIS/EIR, affordability is one of the solution principles upon which CALFED solutions must be based. Rigorous analysis and pilot-scale testing will be conducted in advance of full-scale implementation of projects. The results will be detailed in project-specific environmental documentation that will be required in the implementation phase of the CALFED Program. CALFED also is developing guiding principles for conjunctive use programs, as part of the Integrated Storage Investigation, to ensure that local concerns and potential impacts are fully addressed. The adaptive management component of the Program will be used to avoid over-pumping from groundwater aquifers so that irreversible salinization of the aquifers and other impacts are prevented. Groundwater recharge plans are included in Stage 1 of the Program.

IA-5.3.8.2-2

CALFED intends to focus equally on environmental and drinking water quality issues. Recent studies indicate that there is reason for increased concern about health effects of some DBPs. Further studies will be conducted over the next few years, and drinking water regulations will be re-evaluated to ensure that they adequately protect the health of consumers. CALFED actions to improve water quality, and the choice among CALFED alternatives, have the potential to improve the quality of drinking water supplies from the Delta. According to CALFED's solution principles, this and other CALFED objectives must be accomplished without significantly redirecting impacts to others.

Under the Preferred Program Alternative, overall water quality would improve by reducing the loadings of many constituents of concern that enter the Delta tributaries from point and nonpoint sources. Actions under these

Program elements would reduce concentrations of key contaminants contained in receiving waters, especially the Bay-Delta system. Precursors of DBPs, including bromide and organic carbon, are among the principal targeted constituents. Research and development of approaches to reducing organic carbon and bromide will receive appropriate emphasis in the CALFED Program.

5.3.8.4 Alternative 3

IA-5.3.8.4-2

The detailed modeling assumptions requested are routinely reviewed at the CALFED Modeling Workshop. Any questions regarding model results or assumptions, as well as future modeling efforts, are discussed in these workshops. Decision makers in CALFED are briefed on assumptions made in modeling analysis. Operational modeling also has been discussed in the Modeling Workshops. In addition, operational modeling is a discussion subject for the CALFED Environmental Water Account operations scenarios. In these scenarios, operational parameters are assumed, and the results are analyzed by various groups for the protection of specific interests—such as fish protection and enhancement, and water deliveries. The commentor and any interested party is invited to attend modeling workshops for a full briefing on modeling results.

5.3.10 Additional Impact Analysis

IA-5.3.10-2

The "Growth-Inducing Impacts" section has been revised significantly. We agree that improved water quality resulting from Water Quality Program actions is not likely to induce growth. It is evident that growth takes place in some areas regardless of water quality. Also see response IA 3.2-1.

IA-5.3.10-4

The commentor is correct that there is more regulatory authority than what was implied in the June 1999 Draft Programmatic EIS/EIR. The "Growth-Inducing Impacts" section has been revised significantly. It is important to note that improved water quality resulting from Water Quality Program actions is not likely to induce growth. It is evident that growth takes place in some areas regardless of water quality. Nonpoint source pollution from areas that do experience growth can increase. However, significant regulation is on the horizon for urban nonpoint source pollution. CALFED is participating in the TMDL process for some parameters of concern. The CALFED role in TMDL development is rather limited and is more accurately described as supportive. CALFED is committed to assisting regulatory agencies in developing technically defensible TMDLs. In doing so, CALFED has funded studies of sources and causes of different water quality impairments. CALFED also is funding development of best management practices and other tools that will contribute to reducing water quality impairment.

IA-5.3.10-5

The Programmatic EIS/EIR is a general planning-level document. The document describes the long-term framework and strategy for implementation, and presents the environmental consequences of alternatives to meet Program objectives. The document does not discuss environmental consequences of specific projects. Upon issuance of the Record of Decision/Notice of Determination, specific projects are not approved. The comments submitted by Contra Costa Water District (CCWD) to DWR, the U.S. Bureau of Reclamation, and the U.S. Army Corp of Engineers on the DWR Interim South Delta Program (Attachment G to CCWD's comments on the CALFED Programmatic EIS/EIR) are at a project level of specificity and beyond the scope of this

programmatic document. Therefore, these comments are not responded to in this document. If south Delta actions as described in the Programmatic EIS/EIR are pursued as part of the CALFED Program Stage 1 implementation, additional environmental documents and public review will be provided as required by NEPA/CEQA. Please see common response 1 and response IA-1.2-1 for additional information.

5.3.12 Potentially Significant Unavoidable Impacts

IA-5.3.12-1

The commentor states that fresh water from the Delta is not needed to "flush" San Francisco Bay. State water quality standards at Chipps Island require the release of fresh water into the Bay, in recognition of the need for fresh-water outflows to support conditions upon which many sensitive estuarine species depend.

5.4 Groundwater Resources

0. General Responses

IA-5.4-1

Bulletin 160-98 provides a comprehensive overview of California surface and groundwater supplies and infrastructure. DWR also published Bulletin 118 (in the process of being updated), which provides information of the State's groundwater, including an estimate of the storage capacities and yields of groundwater basins. Copies of these bulletins can be requested by calling DWR at (916) 653-1097. Groundwater provides about 30% of California's urban and agricultural demand in an average year.

5.4.1 Summary

IA-5.4.1-1

At the project level of environmental review, CALFED will review the site characteristics, size, nature, and timing of proposed actions to determine whether the impacts of the specific project are significant and can be mitigated to a less-than-significant level. Since it is not possible to precisely assess the site-specific impacts or potential for mitigation of project-level impacts at this time, the Programmatic EIS/EIR treats these impacts at a programmatic level as potentially significant. Where it is anticipated that feasible mitigation measures may not be available to reduce these impacts to a less-than-significant level, the Programmatic EIS/EIR treats these impacts at a programmatic level as potentially significant and unavoidable. Future environmental review will be needed to determine the impacts of specific actions and appropriate mitigation for project-specific actions.

At a programmatic level, CALFED has developed mitigation strategies, or a list of options for mitigation measures, to address the Program's impacts on environmental resources, including groundwater resources. As part of subsequent environmental review for implementation of CALFED project-level actions, CALFED will consider those strategies that are applicable to the proposed actions, such as those in the Water Transfer Program. Also, CALFED may develop and consider additional site-specific mitigation measures prior to approval of subsequent projects.

IA-5.4.1-2

(a) CALFED recognizes the concerns listed in Section 5.4.2. The development of guiding principles for conjunctive use is a framework to help address these concerns and questions. Prior to the implementation of any conjunctive use operation, local concerns and potential impacts will be fully addressed. Participation of stakeholders and local official will help to address these impacts.

(b) The Programmatic EIS/EIR has been changed to recognize the additional strategies that could be considered to reduce potentially significant adverse impacts to a less-than-significant level.

(c) In the last full paragraph on page 5.4.39 in the June 1999 Draft Programmatic EIS/EIR, "long-term decrease" in the second sentence has been changed to "long-term increase."

(d) In the first full paragraph on page 5.4.40 in the June 1999 Draft Programmatic EIS/EIR, the following text in the second sentence has been deleted: "in-lieu recharge does this through deep percolation of applied irrigation water."

IA-5.4.1-3

Recharging vulnerable aquifers through injection wells is one of many potential mitigation strategies that will be evaluated in more detail in Phase III. For further information, see common response 1.

IA-5.4.1.4

The Programmatic EIS/EIR acknowledges the numerous concerns over conjunctive use programs (see Section 5.4.2). The potential beneficial and adverse impacts of conjunctive use are described at a programmatic level in Section 5.4.7 and are anticipated to occur in the Sacramento River and San Joaquin River Regions. Mitigation strategies that would reduce potentially significant adverse impacts associated with conjunctive use include conservation measures, importing water from other basins, and purchasing water rights.

IA-5.4.1-5

The Programmatic EIS/EIR acknowledges the potential for overdrafting that could be associated with implementation of the Water Transfer Program. The Programmatic EIS/EIR also acknowledges the potential for benefits to groundwater resources, through reductions in the potential for overdrafting, that could result from the Ecosystem Restoration Program, Levee Program, Water Use Efficiency Program, Watershed Program, and Storage and Conveyance elements. An evaluation of the extent to which the CVP and SWP succeeded in solving groundwater problems in the Central Valley is beyond the scope of the Programmatic EIS/EIR. Although California does not have a statewide regulatory authority over groundwater extractions, there are regulatory controls over activities that potentially affect groundwater quality. Although many districts and agencies have developed and implemented effective local groundwater management plans, many of the groundwater problems in the Central Valley are due to inadequate groundwater management.

Section 5.4.11 lists the mitigation strategies that will be used during implementation to gain additional information, improve groundwater management, and reduce impacts on groundwater resources. Included in these strategies are monitoring and testing groundwater wells and aquifers, and developing groundwater basin management plans. A more detailed evaluation of the adequacy of existing groundwater information will be performed during Stage 1 activities as part of the site-specific project planning and environmental review process.

IA-5.4.1-6

Section 5.4.11 lists the mitigation strategies that will be used during implementation to reduce adverse impacts on groundwater resources, including potential adverse impacts from pumping groundwater in areas that may be subject to overdraft. Development of groundwater basin management plans is one such measure. In addition, the Water Transfer Program Plan includes as one criterion for guiding selection of water transfers projects that transfers not cause overdraft or degradation of groundwater basins, or impair correlative rights of overlying users. The criteria for water transfers are contained in Section 4.1 in the Water Transfer Program Plan.

IA-5.4.1-7

The Programmatic EIS/EIR recognizes the correlative rights of overlying landowners to use groundwater for beneficial purposes. In addition, the Programmatic EIS/EIR discloses the potential for significant adverse impacts

to third-party groundwater users, particularly with respect to the Water Transfer Program and the Storage element. The mitigation strategies in Section 5.4.11 will be evaluated during implementation of Program actions to determine which strategies would address potential third-party impacts for each action.

IA-5.4.1-8

CALFED acknowledges the potential for adverse impacts that could be associated with implementation of the Water Transfer Program or groundwater export. As stated in Section 5.4.1, these potentially significant impacts include increased groundwater pumping in areas where it previously had not occurred, reduced amount of water available for groundwater recharge, and lower groundwater levels. These potential adverse impacts can indirectly affect wildlife and wetlands by affecting surface water supply and surface quality, which in turn affect wildlife and wetlands. Sections 5.1.7 and 5.3.7 address impacts on surface water supply and quality, respectively. Impacts from all elements of the CALFED Program on fisheries and aquatic resources are described in Section 6.1 in the Programmatic EIS/EIR. Impacts on vegetation and wildlife resources are described in Section 6.2.

IA-5.4.1-9

CALFED agrees that long-term needs should be assessed when considering programs and alternatives affecting groundwater availability. CALFED's assessments are conducted using estimates of water needs in the year 2020 in Sacramento Valley. This estimated 2020 water need was based on the most recent water demand estimates prepared for Bulletin 160-98.

IA-5.4.1-10

The evaluation of site-specific impacts caused by groundwater pumping will be conducted in Phase III of the Program. The programs evaluated in the Programmatic EIS/EIR contain hundreds of possible actions and projects that could be constructed over a lengthy time period. A Programmatic EIS/EIR, also referred to as a first-tier document, typically is prepared for a series of actions that can be characterized as one large project. At this level, CALFED has developed mitigation strategies, or a list of options for mitigation measures, to address the Program's impacts on environmental resources. As part of subsequent environmental review for implementation of CALFED project-level actions, CALFED will consider those strategies that are applicable to the proposed actions. Also, CALFED may develop and consider additional site-specific mitigation measures prior to approval of subsequent projects. A more detailed discussion of mitigation strategies is found in Chapter 9.

When Phase III implementation begins, it will involve actions and projects that will cause physical disturbance of the environment and , therefore, may cause significant adverse environmental impacts. For any CALFED project or action that may cause a significant adverse environmental impact, additional compliance with CEQA and NEPA is required. CALFED will review the site characteristics, size, nature, and timing of proposed actions to determine whether the impacts of the specific project are significant and can be mitigated to a less-than-significant level. Since it is not possible to precisely assess the site-specific impacts or potential for mitigation of project-level impacts at this time, the Programmatic EIS/EIR treats these impacts at a programmatic level as potentially significant. Where it is anticipated that feasible mitigation measures may not be available to reduce these impacts to a less-than-significant level, this document treats these impacts at a programmatic level as potentially significant and unavoidable. Future environmental review will be needed to determine the impacts of specific actions and appropriate mitigation for project-specific actions.

IA-5.4.1-11

This statement is true and is discussed in Section 5.4.7.3, under "Water Use Efficiency Program." The Programmatic EIS/EIR acknowledges that agricultural water conservation, including a reduction in deep percolation of applied irrigation or reduction in seepage from irrigation conveyance facilities, can result in local reductions in groundwater recharge.

IA-5.4.1-12

In Section 5.4.1, the Programmatic EIS/EIR summarizes the possible adverse impacts on groundwater resources that are associated with the Preferred Program Alternative and Alternatives 1, 2, and 3 for the Delta, Bay, and all other areas within the scope of the CALFED Program. More detailed discussion is presented in Sections 5.4.7 and 5.4.8 about how the Storage and Conveyance elements may affect groundwater resources. Section 5.4.7.3 addresses third-party impacts. When Phase III implementation begins, it will involve actions and projects that will cause physical disturbance of the environment and, therefore, may cause significant adverse environmental impacts. For any project or action that may cause a significant adverse environmental impact, additional compliance with CEQA and NEPA is required. This will include site-specific environmental review and preparation of additional environmental documents. In Section 5.3.11, the Programmatic EIS/EIR includes mitigation strategies to address impacts on water quality. The Water Transfer Program includes elements to minimize the social and economic impacts of water transfers that may be fostered under CALFED. Section 5.4.11 includes additional measures to reduce the Program's impacts on groundwater resources.

IA-5.4.1-13

CALFED understands that the degradation of surface water quality affects the health of the entire basin, including groundwater resources. The evaluation of site-specific impacts on groundwater caused by the degradation of surface water quality will be conducted in Phase III of the Program. The programs evaluated in the Programmatic EIS/EIR contain hundreds of possible actions and projects that could be constructed over a lengthy time period. Any action or project that will potentially affect surface water quality will be evaluated with respect to its impact on groundwater as part of site-specific environmental review during Program implementation.

IA-5.4.1-14

CALFED understands that water transfers can affect the local aquifer and other overlying groundwater users. Section 5.4.7.3 discusses water transfers in the Sacramento River Region and the possible associated risks and adverse impacts. Sections 3.3.1.2 and 3.3.1.3 in the Water Transfer Program Plan provide a detailed discussion of third-party impacts, groundwater protection, and area-of-origin priorities. The discussion in Section 5.4.2 acknowledges area-of-origin protection as an important issue.

IA-5.4.1-15

The CALFED Program has developed implementation principles for all CALFED-supported groundwater projects. These principles include evaluation and mitigation of third-party impacts, such as lowering of water levels in wells. For example, groundwater projects in areas of overdrafted basins will first include a recharge component to minimize the impact of groundwater pumping. Recharging the basin will result in *higher* water levels.

The Water Transfer Program is designed to create an increase in the utility of the supply. However, transfers must not cause adverse effects, such as overdraft or degradation of quality of groundwater. Section 4.1 in the

Water Transfer Program Plan describes the criteria necessary to initiate a water transfer. With other programs, mitigation strategies listed in Section 5.4.1 have been designed to minimize situations of groundwater overdraft and are intended to counter the increased demand for groundwater supplies. Prior to implementation of any groundwater projects, CALFED will address all local concerns and will work with local authorities responsible for regulating groundwater resources.

IA-5.4.1-16

It is correct that groundwater pumping likely will increase as a result of reduced Delta deliveries. CALFED's Integrated Storage Investigation will address this issue by evaluating the role of both surface storage and groundwater storage to help reduce overdraft. Additionally, the mitigation strategies listed in Section 5.4.1 are designed to reduce the demand for groundwater and alleviate overdraft.

IA-5.4.1-17

Storage is a component of the Preferred Program Alternative. As described in Section 5.4.1, "The storage element could benefit groundwater resources by increasing water supply reliability, increasing groundwater levels and thereby decreasing pumping costs."

IA-5.4.1-18

At the project level of environmental review, CALFED will review the site characteristics, size, nature, and timing of proposed actions to determine whether the impacts of the specific project are significant and can be mitigated to a less-than-significant level. Since it is not possible to precisely assess the site-specific impacts or potential for mitigation of project-level impacts at this time, the Programmatic EIS/EIR treats these impacts at a programmatic level as potentially significant. Where it is anticipated that feasible mitigation measures may not be available to reduce these impacts to a less-than-significant level, the Programmatic EIS/EIR treats these impacts at a programmatic level as potentially significant and unavoidable. Future environmental review will be needed to determine the impacts of specific actions and appropriate mitigation for project-specific actions.

At a programmatic level, CALFED has developed mitigation strategies, or a list of options for mitigation measures, to address the Program's impacts on environmental resources, including groundwater resources. As part of subsequent environmental review for implementation of CALFED project-level actions, CALFED will consider those strategies that are applicable to the proposed actions, such as those in the Water Transfer Program. Also, CALFED may develop and consider additional site-specific mitigation measures prior to approval of subsequent projects.

IA-5.4.1-19

The distinction between shallow and deep aquifers is an important issue when evaluating site-specific projects that affect groundwater. In Phase III of the Program, an evaluation and description of the hydrogeology of the area in question will be performed if groundwater is relevant to the specific project. Given the programmatic nature of this Programmatic EIS/EIR, groundwater impacts of different aquifers, such as shallow and deep, are not considered due to the extreme variability of hydrogeologic characteristics, such as location and thicknesses of clay lenses.

IA-5.4.1-20

Due to the programmatic nature of this Programmatic EIS/EIR, it is not possible to list specific programs that could occur in the Butte Basin. The mission of CALFED is to find solutions that reduce conflicts in the system; that are equitable, affordable, durable, and implementable; and that pose no significant redirected impacts. As site-specific programs are evaluated in Phase III of the Program, the intent is for programs to complement one another in order to meet CALFED's goals and minimize the multiplicity of programs. CALFED intends to ultimately facilitate potential conjunctive use projects and leave control of such projects to local agencies and interests.

IA-5.4.1-21

CALFED is committed to continuous improvement in water quality for all beneficial uses of Delta waters, and to avoiding significant redirected impacts of its actions. Therefore, inherent in CALFED planning is the need to avoid water quality degradation as a condition of being able to proceed with Program implementation. CALFED analyses indicate that, when the Program is implemented, the mineral quality of water diverted from the Delta will be at least as good as would be the case in the absence of the CALFED Program. CALFED water quality actions will be geared toward maximizing this improvement. Therefore, long-term negative water quality impacts on diverters of Delta waters should not result from CALFED actions, although short-term adverse impacts are possible as a result of such factors as construction activities and the effects of normal year-to-year hydrologic variations on CALFED actions. Impacts of this nature resulting from CALFED activities would be subject to disclosure in project-specific environmental documentation and subject to mitigation.

IA-5.4.1-22

The CALFED Program assigns great importance to groundwater and conjunctive use programs. Groundwater projects are considered to result in more benign on-site environmental and land use impacts than surface water storage. Development of groundwater resources is part of the CALFED Preferred Program Alternative presented in the Programmatic EIS/EIR. Storage of water in groundwater basins is one of a series of water management strategy tools developed to address the water supply reliability problem. Based on projected future needs and estimated economical groundwater storage capacity, development of groundwater resources is an important part of the package of available tools.

IA-5.4.1-23

Generally, only groundwater that is surplus to the needs of the overlying landowners can be transferred to another basin. The term "surplus" is used here in a relative sense. Criteria could include market forces, hydrologic factors, or any criteria that support moving water from one location to another. Section 5.4.7.3 discusses water transfers in more detail. Importing water from other basins is only one of 20 mitigation strategies in place to address the potentially significant adverse impacts on groundwater resources that could result from CALFED Program elements.

5.4.2 Areas of Controversy

IA-5.4.2-1

Sections 5.4.2 and 5.4.3 disclose technical, legal, and institutional aspects of groundwater management and conjunctive use in general terms. In addition, the Water Transfer Program Plan discusses these points in Section 2-4. Detailed discussion of these aspects will be provided in Phase III at a project-specific level.

IA-5.4.2-2

CALFED encourages effective groundwater management through the conjunctive use element of its Integrated Storage Investigation program. CALFED-supported conjunctive use programs will require adherence to CALFED's principles of implementation so that potential third-party impacts, such as changes in stream flow, are adequately addressed. While demand management and conservation practices are important elements of the CALFED Program, properly designed and implemented conjunctive use programs, in and of themselves, will result in increased water use efficiency and water supply reliability.

IA 5.4.2-3

CALFED recognizes the need to consider conjunctive use and management in more detail; this level of analysis will take place as part of possible project-specific EIS/EIRs. The CALFED Conjunctive Use Advisory Team has developed principles of implementation for conjunctive use projects and has developed a grant program to support local conjunctive use efforts. CALFED is planning to further the efforts of the Conjunctive Use Advisory Team, to continue to support local efforts at groundwater management and conjunctive use.

IA-5.4.2-4

CALFED identified potentially significant adverse impacts associated with conjunctive use programs, including changes in groundwater levels (which includes increased pumping costs) and impacts from groundwater recharge and storage system operations (which includes vector control issues). Mitigation measures include the development of operations and maintenance specifications and procedures for recharge basins that would provide for vector control. CALFED principles for implementation of conjunctive use projects assure that potential third-party impacts, such as increased pumping costs and potential increased mosquito control costs will be addressed for specific projects.

IA-5.4.2-6

All the potentially significant adverse impacts on groundwater resources that are associated with the Preferred Program Alternative are summarized in Section 5.4.1. The summary list includes all of the expected adverse physical impacts that could affect groundwater resources. All impacts are considered avoidable based on the programmatic level of analysis and the mitigation strategies presented. The mitigation strategies will be included in individual projects during Phase III, as discussed in Chapter 9 in the Programmatic EIS/EIR.

IA-5.4.2-7

CALFED recognizes the need to provide assurances that negative impacts resulting from proposed programs will be mitigated. The development of guiding principles for conjunctive use is a framework to help address these concerns and questions. Prior to the implementation of any conjunctive use operation, local concerns and potential impacts will be fully addressed. Participation of stakeholders and local officials will help to address these impacts.

5.4.3 Affected Environment/Existing Conditions

IA-5.4.3-1

The Programmatic EIS/EIR has been modified to better reflect the groundwater characteristics of the upper watershed areas (based on material provided in the comment).

IA-5.4.3-2

This response has been combined with response IA-5.4.6.3-1. Please refer to response IA-5.4.5.3-1 for a reply to the comment.

IA-5.4.3-3

A detailed analysis and evaluation of California groundwater law and rights is beyond the scope of the CALFED Program. The Water Transfer Program Plan summarizes the legal and regulatory context for groundwater pumping. Text has been added to this section to better explain current California groundwater law. Additionally, all CALFED-supported groundwater programs must comply with existing water law and groundwater rights.

IA-5.4.3-4

CALFED supports locally administered groundwater projects and has developed principles of implementation for conjunctive use and groundwater banking projects. CALFED agrees that local demand must be met before implementing groundwater projects that involve water transfers. The CALFED agencies believe that local conjunctive use and groundwater banking projects, when operated in accordance with CALFED's principles of implementation, can improve long-term water supply reliability. CALFED will not support groundwater projects in areas that are not conducive to long-term sustainability.

IA-5.4.3-5

CALFED's Integrated Storage Investigation is evaluating the role of groundwater as part of its Water Management Strategy. Efforts include an evaluation of how local groundwater programs could be integrated with other programs. Voluntary local groundwater programs initially will be supported by CALFED to help meet current and future local demands. Meeting local demands through improved water management, such as a conjunctive use program, will help to ease the burden on the water supply system as a whole. Additionally, if these programs generate new water supplies that exceed local needs, these supplies could be integrated into a more comprehensive or regional water management strategy.

IA-5.4.3-6

CALFED recognizes that new surface storage facilities provide increased water management flexibility and that, ideally, surface storage and groundwater storage would be used conjunctively to maximize water supplies. CALFED is evaluating the role of both surface storage and groundwater storage through its Integrated Storage Investigation. However, surface storage reservoirs take many years or decades to design, permit, and construct. In the meantime, CALFED is supporting voluntary, conjunctive use projects to help increase local water supply reliability.

5.4.3.3 Sacramento River Region

IA-5.4.3.3-1

To report regional groundwater conditions in the study area, the Central Valley was divided into three regions. By this definition, San Joaquin County is located in the Sacramento River Region. The significant groundwater overdraft conditions in eastern San Joaquin County are shown in Figure 5.4-2 in Section 5.4.3.3 in the Programmatic EIS/EIR.

CALFED is aware of the unique circumstances concerning saline intrusion in the Eastern San Joaquin County groundwater basin. Additional discussion of this condition has been added to the groundwater "Affected Environment" section. The mitigation strategies in Section 5.4.1 in the Programmatic EIS/EIR, together with CALFED's Integrated Storage Investigation and the Water Transfer Program, will help to alleviate overdrafted groundwater basins.

IA-5.4.3.3-2

See response IA-5.4.7.3-7. Additional discussion regarding the historical groundwater conditions in the Tehama-Colusa Canal service area and the recent changes has been added to the groundwater "Affected Environment" section.

Potential impacts related to proposed additional groundwater storage in the Sacramento River Region is discussed qualitatively in the Programmatic EIS/EIR, in Section 5.4.7.3. The groundwater storage component has many parameters that vary, depending on the physical locations in question. As a result, a quantitative analysis is beyond the programmatic scope of this document. Instead, extensive effort has been expended to identify potential impacts and stakeholder concerns through public outreach efforts. This topic is discussed further in Section 5.4.7.3 in the Programmatic EIS/EIR.

5.4.3.4 San Joaquin River Region

IA-5.4.3.4-1

This information was obtained during conversations with water users in the south Delta area. Sufficient data does not exist to prove or disprove this potential cause-and-effect relationship. However, it is true that flood control operations result in significantly higher flows than spring pulse flows and therefore contribute more significantly to seepage problems. The text has been modified to address these two causes separately. Furthermore, the discussion of effects of spring pulse flows now suggests that the contribution is likely small in comparison to flood control operations.

IA-5.4.3.4-2

We agree with the comment. The error was inadvertent; the text has been corrected in the final document.

5.4.4.1 Tools

IA-5.4.4-1

Section 5.4.4 discusses the approach used to evaluate groundwater resources. The first paragraph indicates that quantitative methods (groundwater modeling) were used to assess impacts on groundwater resources in the San Joaquin Valley. This approach was undertaken because the changes in SWP and CVP deliveries under the various alternatives were greatest in the San Joaquin River Region, hence the greatest change in groundwater pumping also would occur. In addition, the programmatic nature of the Programmatic EIS/EIR does not warrant the development of detailed information regarding conjunctive use management of surface water and groundwater in the Sacramento Valley, thus limiting the ability to assess this type of program quantitatively. Currently, efforts to develop a Water Management Strategy include more detailed groundwater modeling for several different locations. These model studies are performed using a regional groundwater model for programmatic screening. Site-specific modeling will be necessary to aid in implementation and design of specific facilities, and to evaluate potential groundwater impacts.

5.4.4.3 Modeling Assumptions

IA-5.4.4.3-1

Additional information regarding the modeling assumptions is available upon request. The fundamental assumptions described in this section are generally consistent with those defined for the CVPIA PEIS. This effort also used CVGSM and documented the modeling assumptions in the CVGSM Modeling/Methodology Technical Appendix. This document also is available upon request.

5.4.6 No Action Alternative

IA-5.4.6-1

The Program's potential economic and social effects are described in Sections 7.2 (agricultural economics), 7.3 (agricultural social issues), 7.5 (urban water supply economics), 7.7 (recreation), 7.9 (power production and energy), and 7.10 (regional economics). Each of these sections includes a discussion about the No Action Alternative. Health impacts are discussed in Section 7.12.

IA-5.4.6.1-2

The reference to the Watershed Program Plan does not pertain here. Page 5.4-29, paragraph 2, in the June 1999 Draft Programmatic EIS/EIR is discussing the groundwater conditions of upper watersheds under the No Action Alternative—not conditions under CALFED alternatives that would include common programs (such as the Watershed Program). Under the No Action Alternative, continued development in upper watershed likely will reduce (not improve) groundwater recharge, thus reducing subsurface flows and possibly reducing the portion of these subsurface flows that contribute to base flows.

5.4.6.3 Sacramento River Region

IA-5.4.6.3-1

Increased water demand in the upper watersheds may have affect local surface water and/or groundwater resources, depending on the specific area of the watershed and the amount of increased demand. CALFED agrees that other demands for water resources can result in increased overdraft of groundwater in the Sacramento River Region if appropriate water management strategies are not employed. The text has been changed to reflect this concern.

5.4.7 Consequences: Program Elements Common to All Alternatives

IA-5.4.7-1

Conjunctive use is just one of many tools described in the Programmatic EIS/EIR. The evaluation of site-specific programs, including conjunctive use, will be conducted in Phase III of the Program. For any project or action including conjunctive use that may cause a significant adverse environmental impact, additional compliance with CEQA and NEPA is required, including site-specific environmental review and preparation of additional environmental documents. Environmental permits also will be necessary for most contemplated actions and projects.

5.4.7.3 Sacramento River Region

IA-5.4.7.3-1

CALFED-sponsored projects that involve groundwater pumping in the Sacramento Valley would include a recharge component to ensure that no significant adverse impacts would result. CALFED is considering groundwater pumping only in the context of conjunctive use programs that are voluntary and locally supported.

IA-5.4.7.3-2

As discussed in Section 5.4.7.3, water transfers do have the potential for resulting in adverse impacts on groundwater supplies. Prior to implementation of any groundwater transfers, safeguards would need to be implemented to prevent third-party impacts. These safeguards are an integral part of the Water Transfer Program.

IA-5.4.7.3-3

Potential impacts related to proposed additional groundwater storage in the Sacramento River Region are discussed qualitatively in the Programmatic EIS/EIR, in Section 5.4.7.3. The groundwater storage component has many variables, depending on where and how a program like this is implemented. Consequently, a quantitative analysis is beyond the programmatic level of detail. Instead, extensive effort has been expended to identify potential impacts and stakeholder concerns, which also are reflected in Section 5.4.7.3.

IA-5.4.7.3-4

Groundwater banking is one of many approaches available for potentially increasing storage and potentially improving water supply reliability. This type of storage is part of the groundwater storage component (see the discussion of storage in Section 5.4.7.3 in the Programmatic EIS/EIR).

IA-5.4.7.3-5

For the purposes of the Programmatic EIS/EIR, regional estimates of possible groundwater storage were used to provide a range of possible impacts and benefits. The Programmatic EIS/EIR acknowledges that the success of a groundwater storage program would depend on size, location, operation, and monitoring of the specific project, and that these factors would be evaluated in a project-level EIS/EIR (see Section 5.4.7.3 in the Programmatic EIS/EIR).

IA-5.4.7.3-6

CALFED has developed principles for implementation as parts of its groundwater outreach program. These principles include a local planning process, local control of proposed projects, and voluntary implementation. CALFED's Integrated Storage Investigation is cooperating with local agencies to identify potential projects that could be voluntarily implemented.

IA-5.4.7.3-7

Impacts on groundwater in the Sacramento River Region resulting from the Water Use Efficiency Program are discussed in Section 5.4.7.3 in the Programmatic EIS/EIR. With respect to the impacts on groundwater recharge resulting from CVPIA actions, the CVPIA is represented in the No Action Alternative (see discussion in Section 1.6 in the Programmatic EIS/EIR under the discussion of the CVPIA). Hence, impacts from CVPIA

actions are represented in the No Action Alternative and the Program alternatives. In general, no additional impacts would occur under the alternatives related to the CVPIA. Conversely, CVPIA actions actually may result in regional increases in groundwater recharge on the west side of the Sacramento Valley due to increased refuge supplies.

IA-5.4.7.3-8

Groundwater banking is one of many approaches available for potentially increasing storage and potentially improving water supply reliability. This type of storage is part of the groundwater storage component (see the Programmatic EIS/EIR discussion of storage in Section 5.4.7.3). CALFED recognizes that groundwater and surface water systems are interconnected and that a decline in groundwater levels from increased pumping can result in greater stream losses (that is, recharge to underlying groundwater). Thus, the increase in real water supply is not simply equal to the increased amount of groundwater pumping. However, conjunctive water management can provide seasonal benefits as a result of shifting from surface water to groundwater during months that are critical to in-stream flow needs, and also can provide dry year supplies that could later be replenished during wetter conditions. These real water supply benefits could be accomplished with some success with existing surface storage systems. Additional surface storage possibly could increase these benefits. However, distinguishing the possible range of benefits quantitatively is beyond the scope of the Programmatic EIS/EIR. Further evaluation will be conducted in site-specific EIS/EIRs, following completion of the Programmatic EIS/EIR.

IA-5.4.7.3-9

The Programmatic EIS/EIR (in Section 5.4.7.3, under "Storage") provides a discussion of the role that CALFED would seek in regard to the groundwater management program. This role is designed as a facilitator of a proposed program. Local legal and technical issues would be considered during the assessment of potential conjunctive use programs. This issue is intended to be handled also as part of outreach efforts, specifically the need to address local conditions and local stakeholder concerns (see Section 5.4).

IA-5.4.7.3-10

It is true that reductions in applied water on agricultural lands generally result in reduced groundwater recharge. However, the Ecosystem Restoration Program also could result in a reduction of groundwater pumping as some agricultural lands are converted to riparian habitat—resulting in an overall minor effect on groundwater quantity and quality. Some of the ecosystem restoration projects also could include increasing water supply to existing wetlands or converting agricultural lands into wetlands, which would contribute to additional recharge to groundwater. Site-specific evaluations and groundwater monitoring will be a component of Ecosystem Restoration Program water acquisitions in order to evaluate potential impacts on groundwater storage or quality.

The impacts of the Ecosystem Restoration Program are discussed in Section 5.4.7.3, as quoted below:

> The Ecosystem Restoration Program could convert agricultural lands to riparian habitat. Conversion of agricultural land could result in a reduction in groundwater pumping for drainage or for irrigation. This effect on groundwater resources is expected to be negligible. Groundwater extracted from agricultural lands to depress a high water table may contain farm chemicals that are pumped with the drain water into the adjacent stream channel. A decrease in pumping for farm drainage could result in a small decrease in loading of these chemicals in the stream waters. This reduction in chemical loading would benefit surface water quality.

IA-5.4.7.3-11

CALFED strives to use reliable data for its analysis of water transfers. CALFED understands that water transfers can affect the local aquifer and other overlying groundwater users. Section 5.4.7.3 discusses water transfers in the Sacramento River Region and the possible associated risks and adverse impacts. Section 3.3.2 in the Water Transfer Program Plan provides a detailed discussion of water transfers and potential solutions. Bulletin 118 is not intended to serve as a baseline for project-specific water transfers. The Water Transfer Program proposes a framework of actions, policies, and mechanisms to provide protection from third-party impacts. Key among those mechanisms is a detailed monitoring program in order to establish baseline conditions prior to implementing a water transfer.

IA-5.4.7.3-12

CALFED has developed principles for implementation as part of its groundwater outreach program. These principles include a local planning process, local control of proposed projects, voluntary implementation, and compliance and coordination with local ordinances and regulations—including groundwater management plans.

IA 5.4.7.3-13

The document has been revised to correct the statement that groundwater storage programs "should in fact increase groundwater storage."

IA 5.4.7.3-14

The document has been revised regarding in-lieu recharge.

5.4.7.4 San Joaquin River Region

IA-5.4.7.4-1

CALFED has developed programs that help to reduce the overdraft situation in the San Joaquin Valley. Programs such as the Water Use Efficiency Program described in Section 5.4.7.4, the Water Transfer Program, and groundwater storage will give more flexibility and ultimately more water during the time of need. Furthermore, mitigation strategies listed in Section 5.4.11 have been designed to minimize situations of groundwater overdraft and are intended to counter the increased demand for groundwater supplies.

IA-5.4.7.4-3

Potentially significant adverse impacts associated with increased groundwater pumping due to diminished surface water deliveries will be addressed through the mitigation strategies described in Section 5.4.11. Like the "Principles for Implementation" in the Water Transfer Program Plan, the mitigation strategies for groundwater resources are intended to protect against lowering groundwater levels in areas of overdraft. Methods include monitoring, recharge, conservation, and complying with local groundwater plans.

IA-5.4.7.4-4

Agree that the paragraph should recognize this source of recharge as a major contributor to groundwater recharge in some basins within the San Joaquin River Region. The paragraph will be modified as such.

5.4.7.5 Other SWP and CVP Service Areas

IA-5.4.7.5-1

It is not CALFED's intent to adversely affect agricultural users in the Central Coast area. Mitigation strategies listed in Section 5.4.1 have been designed to minimize situations of groundwater overdraft and are intended to counter the increased demand for groundwater supplies. Discussion of potential adverse and beneficial impacts are discussed in Sections 5.4.7.5 and 5.4.8.

IA-5.4.7.5-2

Groundwater quality and conjunctive use opportunities may be affected as a result of reduced surface water supplies from the Delta. CALFED's Integrated Storage Investigation will address this issue in Phase III by evaluating the role of both surface and groundwater storage in the Sacramento and San Joaquin Valleys. In addition, the mitigation strategies in Section 5.4.11 address impacts on groundwater quality that are associated with CALFED actions.

IA-5.4.7.5-3

Fallowing marginal land is not part of the CALFED Program. CALFED is considering land retirement as a mitigation strategy for water quality impacts, but not for obtaining an increased water supply. Accordingly, fallowing and retiring marginal lands are not included in the list of mitigation strategies in Section 5.4.11. Urban growth limits are outside the purview of the CALFED agencies to implement or control and therefore are not included in Section 5.4.11.

5.4.10 Additional Impact Analysis

IA-5.4.10-1

The Program's potential economic and social effects are described in Sections 7.2 (agricultural economics), 7.3 (agricultural social issues), 7.5 (urban water supply economics), 7.7 (recreation), 7.9 (power production and energy), and 7.10 (regional economics). Health impacts are discussed in Section 7.12. These discussions include the potential indirect effects that can be associated with an adverse change in groundwater resources resulting from implementation of the CALFED Program.

IA-5.4.10-2

Section 7.3 provides an assessment of potential social impacts resulting from physical changes in the environment (including groundwater resources) caused by the alternatives. Because of the programmatic level of the Programmatic EIS/EIR and the uncertainty of where the Program projects will be sited, social effects and affected populations cannot be predicted for specific cities or counties.

CALFED is approaching its water transfer and groundwater storage Program elements cautiously, keeping in mind the potential for unintended third-party impacts. To this end, a list of potential solution options are described in Section 3.3.1 in the Water Transfer Program Plan and in Section 3.6.3 in the Phase II Report.

IA-5.4.10-3

Mitigation strategies listed on page 5-4-3 in the June 1999 Draft Programmatic EIS/EIR, such as the monitoring and testing of groundwater wells and aquifers and the development of groundwater basin management plans, are associated with preventing the degradation of groundwater quality—including the accumulation of salts due to groundwater The evaluation of site-specific impacts caused by groundwater recharge will be conducted in Phase III of this the Program.

IA-5.4.10-4

Because of the programmatic nature of the Programmatic EIS/EIR and the uncertainty of where the Program projects will be sited, the irreversible and irretrievable impacts cannot be identified explicitly The evaluation of site-specific impacts caused by groundwater recharge will be conducted in Phase III of the Program. Concerning mitigation, mitigation strategies designed to address these potential impacts are discussed in Section 5.4.11. The application of these strategies during Phase III is discussed in Chapter 9.

IA-5.4.10-5

While correcting overdraft is beyond the scope of the CALFED Program, CALFED encourages effective groundwater management through the conjunctive use element of its Integrated Storage Investigation. This program includes the evaluation of surface water and groundwater storage in the San Joaquin Valley. Additionally, the mitigation strategies in Section 5.4.1 in the Programmatic EIS/EIR, together with the Integrated Storage Investigation and Water Transfer Program, will help to alleviate overdrafted groundwater basins. Increased urbanization and the consequent loss of farmland is addressed in Section 7.1 in the Programmatic EIS/EIR.

5.4.11 Mitigation Strategies

IA-5.4.11-1

The development of groundwater basin management plans as mitigation for CALFED actions can be used in areas without current groundwater management plans in place. In areas where groundwater management plans have been adopted, CALFED will implement other mitigation strategies, if necessary, to address groundwater impacts associated with specific Program actions. CALFED's Integrated Storage Investigation is evaluating the role of surface storage and groundwater storage through locally supported projects that comply with existing groundwater management plans, in order to help increase local water supply reliability.

IA-5.4.11-2

The mitigation strategies are designed to minimize groundwater impacts—which would occur, in part, as a result of enhanced monitoring (see Section 5.4.11 in the Programmatic EIS/EIR).

IA-5.4.11-4

CALFED has not targeted any specific region for the Environmental Water Account. Additionally, CALFED has developed principles for implementation of locally supported, voluntary conjunctive use projects to ensure that potential groundwater impacts will be addressed.

5.5.3.1 Delta Region

IA-5.5.3.1-1

Section 5.5.3.1 in the Programmatic EIS/EIR identifies the seismic risk to Delta levees at the appropriate level of detail for a programmatic document. Earthquake risk is not mentioned as a potentially significant adverse impact because the CALFED alternatives are not expected to significantly change the existing seismic risk. Levee improvements implemented under the CALFED Levee Program are expected to slightly decrease the seismic risk. However, CALFED is concerned that the consequences of seismic shaking and other risks could affect some assets created or enhanced by the CALFED Program in the Delta.

While the Seismic Vulnerability Report quantifies the magnitude of the current seismic vulnerability of Delta levees, CALFED agrees that the seismic risk problem has not been defined. CALFED continues to seek knowledge and solutions to the seismic risk problem. To address these concerns, two teams have been formed. One team of geotechnical engineers is developing recommendations for seismic upgrades and other measures to reduce levee failures. Another team has been tasked to perform a risk assessment of factors that contribute to levee failure, evaluate the consequences of failure, and develop risk management options. Once these two studies are completed during Stage 1 of the CALFED Implementation Plan, the seismic risk problem should be better understood and an effective risk management strategy can be implemented.

The Coast Range Sierra Nevada Boundary Zone in Figure 5.5-4 in the Programmatic EIS/EIR can be considered to be the same as the Coast Range-Central Valley Blind Thrust Fault.

Technical suggestions from your letter have been passed on to the authors of the Seismic Vulnerability Report. An earthquake return period of 100 years was not selected for levee analysis in the Seismic Vulnerability Report. The graphs in the report plot levee failures on the y-axis versus return period on the x-axis; therefore, an infinite number of return periods are analyzed.

5.5.7.1 Delta Region

IA-5.5.7.1-1

Water quality consequences of not improving levees are discussed in Section 5.3.7.3 in the Programmatic EIS/EIR:

> If the levees are not improved, the risk of failure during earthquakes and floods or as a result of gradual structural deterioration is considerable. A catastrophic levee failure could cause saline waters from the Bay to penetrate deep into the Delta. This would be most pronounced in dry or critically dry years when the fresh-water flow from the Central Valley is insufficient to repel saline waters. Intrusion of sea water would result in a potentially significant adverse impact on beneficial uses of Delta waters, including municipal and agricultural water supply and possibly the protection of aquatic life. Water customers in the Central Valley and in the other SWP and CVP Service areas could be deprived of water from the Delta for months or years. The Levee System Integrity Program would reduce the risk of catastrophic levee failure and consequently the risk of a sudden deterioration in water quality.

5.6 Noise

5.6.1 Summary

IA-5.6.1-1

Storage and conveyance projects, including the diversion facility on the Sacramento River, could contribute to short-term, construction-related noise. Noise related to temporary highway or roadway relocations is considered to be construction related and is not addressed in the analysis of construction-related noise impacts. However, construction of the diversion facility could require the permanent relocation of roadways, which could result in potentially significant, long-term, adverse noise impacts that can be mitigated to less-than-significant levels. Noise impacts associated with proposed CALFED Program actions are discussed in Section 5.6 in the Programmatic EIS/EIR. Transportation impacts are discussed in Section 5.7.

5.7 Transportation

5.7.1 Summary

IA-5.7.1-1

Because the Programmatic EIS/EIR is a programmatic document, proposed actions and potential impacts are broadly described. We are unable to identify at the programmatic level which transportation facilities will be affected. As specific Program plans are proposed, however, detailed analyses of the impacts on highways, bridges, and local roads will be conducted and submitted with proposed mitigations to the California Department of Transportation (CalTrans), other affected organizations, and the public. The Program will also comply with CalTrans permitting regulations, as appropriate.

5.7.7 Consequences: Program Elements Common to All Alternatives

IA-5.7.7-1

New off-stream storage could provide additional recreational resources, which could result in an increase in local traffic flows as the public accesses those resources. The increase is considered a potentially significant adverse impact, but mitigations strategies are available to reduce the impact to a less-than-significant level. One such strategy would be expanding public transportation to accomodate the increased traffic flows. This impact and mitigations strategies have been added to the transportation impact analysis. As this is a programmatic document, we are unable to provide information on local noise ordinances and restrictions, or on the effectiveness of certain types of mitigations measures such as mufflers and sound walls. Also, specific impacts cannot be analyzed at the programmatic level due to uncertainties over whether there will be new storage and where it would be located. Detailed, site-specific analysis of transportation impacts will be conducted as specific programs are proposed. The impact of storage on transportation resources is analyzed in Section 5.7 in the Programmatic EIS/EIR. The impact on recreation resources is analyzed in Section 7.7 in the same document.

5.7.7.3 Sacramento River and Joaquin River Regions

IA-5.7.7.3-1

The Water Quality Program calls for a range of actions that would reduce the discharge of contaminants to waterways. Research and monitoring programs will be undertaken to improve understanding of the significance of various contaminants in water and the effectiveness of remedial actions. The Programmatic EIS/EIR describes programmatic actions that set the long-term, overall direction for the Water Quality Program. The Programmatic EIS/EIR, in itself, will not enact any changes in law, regulations, or policy. As this is a programmatic document, we are unable to determine whether local sediment restrictions or restrictions on the use of herbicides will be influenced by Program actions. The impacts of the Water Quality Program on transportation resources are analyzed and mitigation strategies are presented in Section 5.7. Detailed transportation impact analyses will be presented in future tiered CEQA/NEPA documents for specific projects.

5.8 AIR QUALITY

5.8.1 Summary

IA-5.8.1-1

The potential impacts on air quality are programmatically analyzed in Section 5.8 in the Programmatic EIS/EIR. Additionally, mitigation strategies are presented that are expected to reduce all potentially significant impacts to less-than-significant levels. More detailed air quality impact analyses will be presented in future tiered NEPA/CEQA documents for site-specific projects.

IA-5.8.1-2

CALFED used the following criteria to determine the significance of potential air quality impacts: Emissions on their own or combined with existing emissions that could result in a violation of ambient air quality standards, could cause a lowering of attainment status, or could conflict with adopted air quality management plan policies or programs. At the programmatic level, it is impossible to determine site-specific locations and intensity of potential emissions resulting from CALFED Program actions. It is also impossible to determine where growth impacts might occur as a result of the CALFED Program. Subsequent tiered NEPA/CEQA documents for site-specific projects will more closely analyze short-term, construction-related air quality impacts, as well as air quality impacts that could result from project-specific induced growth. It is anticipated that short-term air quality impacts associated with CALFED Program construction projects can be mitigated to less-than-significant levels through commonly utilized mitigation strategies provided in Section 5.8 in the Programmatic EIS/EIR.

5.8.10 Additional Impact Analysis

IA-5.8.10-1

At the programmatic level, it cannot be determined where growth and/or possible land use conversions might occur; therefore, it is impossible to analyze specific impacts and/or propose specific mitigation strategies. Project-specific, tiered environmental analyses for subsequent projects will analyze potential project-induced growth impacts and will present specific mitigation measures.

0. General Responses

IA-6.1-1

CALFED agrees that decisions must be based on good scientific data and analysis. As indicated in Section 6.1.2, several ongoing CALFED Program activities will increase understanding of natural physical and biological processes and species habitats. Activities include the Strategic Plan for the Ecosystem Restoration Program (Strategic Plan), the Comprehensive Monitoring, Assessment, and Research Program (CMARP), and the Multi-Species Conservation Strategy (MSCS). Implementation of substantive CALFED actions will include project-specific environmental documents that will provide detailed scientific analysis and implementation of an adaptive management strategy. The adaptive management strategy entails making decisions based on the best available analyses and modeling, being clear about restoration objectives relative to the ecosystem and species, designing actions that help distinguish between alternative relationships that link potential species responses to implementation of Program elements, and monitoring and evaluating the effects of Program actions (Section 6.1.2). In addition, CALFED has committed to implementing detailed mitigation strategies that will minimize potentially significant adverse impacts prior to construction and operation of Program elements. Also see response IA-5.1-179. The commitment to consider mitigation strategies, and to apply and enforce mitigation measures pursuant to those strategies, will be included in the ROD for the federal lead agencies and the findings adopted by the California Resources Agency. Chapter 9 in the Programmatic EIS/EIR contains the NEPA/CEQA monitoring approach.

IA-6.1-2

The Programmatic EIS/EIR recognizes that creation of shallow-water habitats could increase abundance and distribution of non-native species that could compete with or prey on native species (Section 6.1.7.1). The following sentence has been added to the paragraph: "Although shallow-water environments will be constructed to provide habitat for native and other desirable fish species, colonization by non-native aquatic plants, such as *Egeria densa*, may alter the structure and reduce habitat value." The Strategic Plan will guide implementation of the Ecosystem Restoration Program Plan and ensure that clear and measurable goals and objectives are met (Section 6.1.2). Mitigation may include control of undesirable non-native species.

IA-6.1-3

Introduced species are recognized as having a substantial effect on the ecosystem. As stated in Section 6.1.3:

> Introduced fish and macro-invertebrate species currently dominate the biological community of the Delta. Along with changes in sources, composition, and amounts of nutrients, introduced species have substantially modified Delta food webs relative to historical conditions. Although extremely difficult to substantiate, changes in the food web have undoubtably reduced the productivity of some species.

IA-6.1-4

CALFED agrees that a discussion of disagreements among experts is required; the issue of disagreement is addressed in Section 6.1.2, "Areas of Controversy." Because project specificity is absent, the programmatic document does not present a detailed discussion of areas of disagreement. The programmatic document applies

a broad range of assessment methods, reflecting the range of factors that may affect fish abundance and distribution and aquatic habitat conditions. A broad range of potential impacts and broad mitigation strategies are identified, allowing comparison of the programmatic alternatives, while reflecting the uncertainty of available information.

The Programmatic EIS/EIR identifies increased abundance of non-native species as a potentially significant adverse impact (Section 6.1.7.1) and discusses trophic effects of introduced fish and aquatic invertebrates (Section 6.1.2). Whether striped bass are responsible for the loss of more out-migrating chinook salmon than any other factor has not been documented in the available literature. The adaptive management process, discussed in Section 6.1.2, will aid the CALFED process in designing actions that clearly address restoration objectives.

IA-6.1-5

The Programmatic EIS/EIR provides a programmatic-level discussion of factors potentially contributing to declines of resident and anadromous fish (Section 6.1.3, "Affected Environment/Existing Conditions"). Predation is one of many factors considered as part of the assessment relationships in Section 6.1.4. The relationship between diversion facilities and predation is identified in Section 6.1.4. Predation is identified as a factor under "Water Surface-Level Relationships" and under "Species Interactions." The Ecosystem Restoration Program Plan (Volumes 1, 2, and 3), the MSCS, and the March 1998 Affected Environment Technical Report for Fisheries & Aquatic Resources provide additional, more detailed information. CALFED has not excluded predator control as a Program element, and the feasibility and appropriateness will be considered during implementation of the Ecosystem Restoration Program. Mitigation strategies addressing predation are identified (Section 6.1.11, "Mitigation Strategies,"), including creating additional habitat for desired species, controlling undesirable non-native species, controlling predators in diversion facilities, and constructing a barrier to fish movement on Georgiana Slough.

IA-6.1-6

This response has several parts. Please read the entire response for the answer to your comment.

The inclusion of the eastside tributaries in the San Joaquin River Region does not diminish the adequacy of the impact assessment. The Programmatic EIS/EIR recognizes differences between eastside tributaries and the San Joaquin River relative to Delta channel effects. In addition, the Programmatic EIS/EIR recognizes that the eastside tributaries have watershed-level differences: "The Mokelumne, Cosumnes, and Calaveras Rivers are considered in this region, although these rivers could more appropriately be considered as independent Delta tributaries. The March 1998 Affected Environment Technical Report for Fisheries & Aquatic Resources describes each of the streams and reservoirs in the San Joaquin River Region" (Section 6.1.4). The Programmatic EIS/EIR uses the best available information relative to effects of changes in the Mokelumne River channels in the Delta on chinook salmon. Available information indicates that survival of juvenile chinook salmon originating from the Sacramento River is lower for fish moving in the Mokelumne River channels (Section 6.1.8.1). The cause of lower survival is unclear; however, warmer water temperature, predation, and export levels have been hypothesized to increase mortality.

The assessment in the Programmatic EIS/EIR indicates that Sacramento River fish could benefit from closure of the DCC because closure would reduce the proportion of Sacramento River fish entering the Mokelumne River channels (Section 6.1.8.1). However, juvenile Mokelumne River chinook salmon would not benefit from the additional closure because migration through the Delta occurs primarily between February and May—outside the period of additional reoperations of the DCC during October-January and May 20-June 30. The additional DCC closure would have little effect on juvenile chinook salmon from the Mokelumne River relative to existing

conditions. Potential effects of the Hood to Mokelumne River channel on adult chinook salmon in the Mokelumne River are discussed in Section 6.1.8.1. The following text has been added:

> The addition of Sacramento River flow to the Mokelumne River channels could confuse adult chinook salmon returning to the Mokelumne River to spawn and could delay outmigration of juveniles to the ocean. Although available information has not indicated responses of adult and juvenile chinook salmon to flow changes in the Mokelumne River channels, reduced survival of adults and juveniles could adversely affect the Mokelumne River chinook salmon population. CALFED recognizes the necessity to develop knowledge of species needs and understanding of the effects of Program elements relative to migration of adult and juvenile chinook salmon. Strategies to address this uncertainty are discussed in Section 6.1.2, "Areas of Controversy." Strategies will be identified in project-specific environmental documents that will provide detailed scientific analysis and implementation of an adaptive management strategy.

In general, impacts are presented based on the combination of CALFED actions. Significant adverse impacts on chinook salmon are identified for changes in channel capacity in Old River and south Delta flow barriers (Section 6.1.8.1). Implementation of substantive CALFED actions will include project-specific environmental documents that will provide detailed scientific analysis and implementation of an adaptive management strategy. As described in the Programmatic EIS/EIR, the adaptive management strategy entails making decisions based on the best available analyses and modeling, being clear about restoration objectives relative to the ecosystem and species, designing actions that help distinguish between alternative relationships that link potential species responses to implementation of Program elements, and monitoring and evaluating the effects of Program actions (Section 6.1.2). In addition, CALFED has committed to implementing detailed mitigation strategies that will minimize potentially significant adverse impacts prior to construction and operation of Program elements. Through the mitigation actions proposed, impacts on Mokelumne River chinook salmon can be mitigated to less-than-significant levels.

The Programmatic EIS/EIR recognizes that creation of shallow-water habitats could increase abundance and distribution of non-native species that could compete with or prey on native species (Section 6.1.7.1). The following sentence has been added in Section 6.1.8.1:

> Habitat created by levee setbacks also may increase the abundance and distribution of carp, inland silverside, or other non-native species that compete with or prey on native species, as well as species with higher economic and social value (for example, chinook salmon, delta smelt, and striped bass)."

Although it is hoped that habitat creation will provide benefits to target species, this potentially significant impact may be unavoidable. The second sentence in the referenced paragraph has been modified to read:

> "Channel enlargement with setback levees could benefit the aquatic ecosystem and Delta species."

The following text has been added in Section 6.1.8.1:

> Focused studies and monitoring of pilot projects, however, are needed prior to project implementation in order to provide additional information on potential changes in entrainment risk, predation, and habitat use by Delta species. Strategies to address this uncertainty are discussed in Section 6.1.2, "Areas of Controversy." Strategies will be identified in project-specific environmental documents that will provide detailed scientific analysis and implementation of an adaptive management strategy.

Programmatic mitigation strategies applicable to predation are identified in the Programmatic EIS/EIR (see Section 6.1.1 and Section 6.1.11, "Mitigation Strategies"). Strategies include creating additional habitat for desired species and controlling undesirable non-native species.

IA-6.1-7

This response has several parts. Please read the entire response for the answer to your comment.

The CVP and SWP export facilities clearly entrain substantial numbers of fish every year (Section 6.1.3). The information on annual losses is readily available to the public and is one factor that led to the establishment of the CALFED Program (see Section 1.1.2). As stated in Section 1.2: "The purpose of the CALFED Program is to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system." Primary Program elements address water conveyance and losses of fish attributable to exports (Section 6.1.8.1). The elements include reoperation of the DCC, changes to south Delta intake facilities to reduce entrainment of fish, south Delta flow control barriers or equivalent, and potential changes in conveyance of Sacramento River water across the Delta from near Hood to the Mokelumne River channel). Future consideration of an isolated facility could allow a change in the point of diversion for the CVP and SWP. CALFED is committed to implementation of actions through adaptive management that will meet restoration objectives for fish species, including species entrained at the CVP and SWP export facilities.

Specifics of Delta export operations, such as diverting only during daylight hours, or avoiding new moon periods in spring and fall, are beyond the programmatic scope of the CALFED Program. Please note, however, that Section 6.1.11, "Mitigation Strategies," lists measures that encompass some of your suggestions:

- Operating new and existing diversions to avoid and minimize effects on fish (that is, avoiding facility operations during periods of high species vulnerability). The operational changes could reduce water availability for other beneficial uses identified in Section 5.1, "Water Supply and Water Management."

- Relocating the diversion point to avoid primary distribution of desired species.

- Controlling predators in the diversion facility (screen bays) and modifying diversion facility structure and operations to minimize predator habitat.

- Constructing a barrier to fish movement on Georgiana Slough. Adverse impacts of a flow barrier, however, would need to be considered (that is, reduced flow in the lower San Joaquin River), although benefits could occur if implemented concurrent with reduced south Delta exports. To date, effective fish barriers that could reduce the impact of increased movement from the Sacramento River with minimal flow effects have not been developed.

- Coordinating and maximizing water supply system operations flexibility consistent with seasonal flow and water temperature needs of desired species.

One of CALFED's goals for water supply reliability is to improve flexibility of managing water supply and demand. Improved flexibility would allow modification of export schedules in order to reduce the conflicts between water supply and ecosystem restoration. The EWA being developed by CALFED can help increase flexibility and may be used to reduce fish entrainment. Relative to the comment on spreading diversions over the Delta, one alternative previously considered by CALFED included three diversion points in the south and central

Delta and diversion from an isolated facility in the north Delta. The alternative was rejected (see the discussion in Section 2.4, "Alternatives Not Carried Forward for Further Evaluation").

IA-6.1-8

The Programmatic EIS/EIR describes the existing conditions for fisheries and aquatic resources. The level of detail is sufficient for determining whether the Program will result in potentially significant adverse changes at a programmatic level of analysis (see common response 1). The description of existing conditions in Section 6.1.3 generally describes the types of special-status species and habitats known to occur in each of the CALFED regions, as well as the existing stressors. More detailed information is contained in the March 1998 Affected Environment Technical Report for Fisheries & Aquatic Resources, which is referenced in Section 6.1. Detailed information about specific populations of special-status species and the precise locations of habitat will be further delineated in project-specific environmental documentation. The Ecosystem Restoration Program Plan (Volumes 1, 2, and 3) and the MSCS provide additional, more detailed information.

IA-6.1-11

The purpose of the assessment is to describe, in a broad sense, the environmental impacts of proposed Program actions (see common response 1). The level of detail is consistent with the programmatic nature of the document and will enable decisions to be made regarding Program direction and content. Any subsequent actions or facility construction stemming from the Preferred Program Alternative discussed in this document must be developed in compliance with NEPA, CEQA, and other applicable laws and regulatory processes.

With the construction and operation of the Hood to Mokelumne River channel, flow from the Sacramento River would enter the Mokelumne River channels. Based on existing relationships, reduced flow in the Sacramento River (from flow exiting through the diversion near Hood) causes an increase in the proportion of flow entering Georgiana Slough (March 1998 Affected Environment and Environmental Consequences Technical Reports for Fisheries & Aquatic Resources). Chinook salmon outmigration primarily occurs during February-May. The proportion of juveniles moving from the Sacramento River and into Georgiana Slough, therefore, is expected to increase with increased flow diverted through the Hood to Mokelumne River channel. As discussed under "Assessment Methods" in Section 6.1.4, survival of chinook salmon that move into the DCC and Georgiana Slough is less than survival of fish that continue down the Sacramento River toward Rio Vista. Adverse impacts on chinook salmon and other species are identified in Section 6.1.8. Potential benefits also are described.

Expansion of the diversion facility on the Sacramento River beyond the 4,000-cfs capacity (discussed under Alternative 2) would worsen the impacts on anadromous fish in the Sacramento River. Mortality at the screens would increase because of the increased facility size. Mortality of juvenile chinook salmon, and possibly other species, would increase for fish continuing down the Sacramento River because of a greater proportion of fish entering Georgiana Slough. Increased flow into the Mokelumne River channels could cause additional straying and increased impacts through loss of fitness of natural spawning and rearing populations, increased adult fish mortality, and reduced fecundity. The effects of reduced flow in the Sacramento River below Hood could further adversely affect habitat conditions, potentially reducing survival of chinook salmon, striped bass, and other species.

Increased diversions under Alternative 1 are identified, by reference to the Preferred Program Alternative, as having potentially significant adverse impacts (in Section 6.1.8.2, see the reference to "Delta channel capacity"; also see description of potential adverse effects of increased diversion). Under the No Action Alternative, impacts are assumed to be similar to impacts under existing conditions (Section 6.1.6.1, "Delta Region"). As described, operations rules and hydrologic variation would limit the ability to alter flow patterns, the associated salinity distribution in the Delta, and effects on ESA-listed species. In addition, possible ESA protection criteria, which

may change under future biological opinions, could reduce annual SWP and CVP south-of-Delta deliveries relative to existing conditions. In other words, the simulated increase in diversions may not occur if ESA-listed species are adversely affected.

IA-6.1-12

Miller et al. 1999 (IEP Newsletter, spring 1999 pp. 48-53) was published after the issuance of the Programmatic EIS/EIR. Other documented fish/X2 relationships for the Bay-Delta system are discussed in Kimmerer 1998 (IEP Newsletter 11[4], fall 1998), Monosmith 1998 (IEP Newsletter 11[4], fall 1998), and San Francisco Estuary Project 1993 (Managing freshwater discharge to the San Francisco Bay/Sacramento-San Joaquin Delta estuary). Fish/X2 relationships are widely recognized as being insufficient as a predictive tool for individual species abundance; however, X2 is an indicator of estuarine response to flow. As stated in Monosmith 1998, "X2 represents a single indicator for many factors averaged over many scales." The mechanism of X2 importance varies by species, depending on the habitat needs, distribution, and occurrence of each species. The Programmatic EIS/EIR recognizes the uncertainty of relationships, including fish/X2 relationships.

As stated in Section 6.1.1:

> Key to implementation of the Preferred Program Alternative is a strategy to address the uncertainty of species and ecosystem responses to Program elements. Ongoing activities to increase understanding of natural physical and biological processes and species habitats include the Strategic Plan for the Ecosystem Restoration Program (Strategic Plan); the Comprehensive Monitoring, Assessment, and Research Program (CMARP); and the Multi-Species Conservation Strategy (MSCS).

IA-6.1-13

Striped bass is considered an important species by CALFED (Section 6.1):

> The CALFED Bay-Delta Program is expected to achieve recovery of the listed and proposed fish species found in the Delta, and to support and enhance sustainable populations of diverse and valuable aquatic species (such as chinook salmon, steelhead, delta smelt, splittail, striped bass, and sturgeon) through actions that improve and increase aquatic habitat and improve ecological processes in the Bay-Delta.

The flow needs of striped bass are recognized (Section 6.1.3): "Flow that emulates natural patterns was assumed to improve survival during downstream movement of juvenile chinook salmon and steelhead; striped bass eggs and larvae; sturgeon larvae and juveniles; and American shad eggs, larvae, and juveniles."

6.1.2 Areas of Controversy

IA-6.1.2-1

The Strategic Plan goes on to say: "All manipulations within the Ecosystem Restoration Program should be based on careful and creative design to enhance the opportunity for learning and an analytical program that will allow as much distinction between confounded effects as possible." The purpose of adaptive management is to generate information about the system when the long-term value clearly outweighs the short-term costs of obtaining information. Properly designed, adaptive management experiments can provide important insights into potential solutions. The Strategic Plan also indicates that when uncertainty is high, research may be needed prior to

implementing pilot projects and restoration. The adaptive management approach entails making management decisions based on the best available analysis and clear statement of what management intervention is expected to achieve. Adaptive management, as defined by CALFED, does not entail providing ever-increasing Delta outflow in the hope of increasing fish abundance. As stated in the Strategic Plan, "CALFED will not initiate large-scale ecological restoration unless there is a reasonable expectation of success." As stated in Section 6.1.1, "Key to implementation of the Preferred Program Alternative is a strategy to address the uncertainty of species and ecosystem responses to Program elements." The Strategic Plan and adaptive management are integral components of Program implementation.

6.1.3 Affected Environment/Existing Conditions

IA-6.1.3-1

Non-native species effects, including fish predation, are identified in Section 6.1.3.2. Off-shore commercial fishing is recognized as a factor affecting the abundance of chinook salmon under "Harvest" in Section 6.1.4). The Programmatic EIS/EIR provides a programmatic-level discussion of factors potentially contributing to declines of resident and anadromous fish (see Section 6.1.3, "Affected Environment/Existing Conditions"). The Ecosystem Restoration Program Plan (Volumes 1, 2, and 3), the MSCS, and the March 1998 Affected Environment Technical Report for Fisheries & Aquatic Resources provide additional, more detailed information.

IA-6.1.3-2

The Programmatic EIS/EIR provides a programmatic-level discussion of fish and aquatic resources. The Ecosystem Restoration Program Plan (Volumes 1, 2, and 3), the MSCS, and the March 1998 Affected Environment Technical Report for Fisheries & Aquatic Resources provide additional, more detailed information. The following sentence has been added to Section 6.1.3:

> Information can also can be found in Volume 1 of the Ecosystem Restoration Program Plan under "Ecosystem Processes," "Habitats," "Species and Species Groups," and "Stressors." Information by location is presented in Volume 2 of the Ecosystem Restoration Program Plan. For species listed under the ESA, the MSCS provides detailed information by species.

6.1.3.2 Bay Region

IA-6.1.3.2-1

The statements that "annual outflow in many years has been reduced by 30-60%" and "winter and spring flows through the Delta are substantially reduced relative to natural conditions" are based on discussions in From the Sierra to the Sea (The Bay Institute 1998). Although Fox et al. 1990 demonstrated that there has been no reduction in annual fresh-water inflow to the Bay over the 1921-1986 period, depletions data (the difference between unimpaired and actual Delta outflow) they presented indicate that substantial fresh water is removed from the basin that would otherwise flow to the Bay during January-June. With removal of wet water-year types from the analysis, comparison of annual Delta outflow shows a reduction of from 30 to 60% (The Bay Institute 1998). Estimated natural flows and salinity patterns, although inaccurate and imprecise, are known.

6.1.3.3 Sacramento River Region

IA-6.1.3.3-1

The following text has been added to Section 6.1.3.3:

> Existing Central Valley reservoirs do support sport fisheries. The species supported by reservoirs and targeted by anglers are primarily non-native (such as largemouth bass, spotted bass, red-ear sunfish, crappie, and catfish) or hatchery-supplemented fish populations (such as rainbow trout).

6.1.4 Assessment Methods

IA-6.1.4-1

Additional information on the relationships discussed under Section 6.1.4,"Assessment Methods," including references, is provided in the March 1998 Affected Environment and Environmental Consequences Technical Reports for Fisheries & Aquatic Resources. Although the list of references provided by the reviewer includes information useful for describing the affected environment and for assessment at the project-specific level, the information would not substantially alter the programmatic assessment included in the Programmatic EIS/EIR or resolve the substantial areas of controversy surrounding relationships between fish species abundance and environmental variables. The information provided in the Programmatic EIS/EIR is at a programmatic level. Required project-specific environmental documents will provide detailed and up-to-date information focused on project-level issues.

IA-6.1.4-2

Information supporting the relationships discussed in Section 6.1.4, "Assessment Methods," including references, is provided in the March 1998 Affected Environment and Environmental Consequences Technical Reports for Fisheries & Aquatic Resources. The information provided in the Programmatic EIS/EIR is at a programmatic level. Required project-specific environmental documents will provide detailed and up-to-date information focused on project-level issues.

IA-6.1.4-3

The purpose of the assessment is to describe, in a broad sense, the environmental impacts of proposed Program actions. The level of detail is consistent with the programmatic nature of the document and will enable decisions to be made regarding Program direction and content (see common response 1). Any subsequent actions or facility construction stemming from the Preferred Program Alternative discussed in this document must be developed in compliance with NEPA, CEQA, and other applicable laws and regulatory processes.

Given the programmatic nature of this document, substantial areas of controversy surrounding relationships between fish species abundance and environmental variables will be addressed in detail in subsequent project-specific environmental analysis. The relationships discussed and used in this impact assessment are based on theoretical approaches generally accepted in the scientific community and attempt to err toward the conservative. Where adverse impacts may occur, they are identified. Although not discussed in detail, disagreements among experts are recognized. Because project specificity is absent, the Programmatic document does not present discussion of the areas of disagreement. The Programmatic document applies a broad range of assessment methods, reflecting the range of factors that may affect fish abundance and distribution and aquatic habitat conditions. A broad range of potential impacts and broad mitigation strategies are identified, allowing comparison

of the programmatic alternatives, while reflecting the uncertainty of available information. A description of Program activities addressing disagreement among experts is provided in Section 6.1.2, "Areas of Controversy." Additional information relative to factors potentially affecting fish and aquatic resources will be developed to help make future decisions in Phase III.

Additional information on the relationships discussed in Section 6.1.4, "Assessment Methods," including references, is provided in the Ecosystem Restoration Program Plan (Volumes 1, 2, and 3), the MSCS, and the March 1998 Affected Environment and Environmental Consequences Technical Reports for Fisheries & Aquatic Resources.

IA-6.1.4-5

Although the relationships discussed and used in this impact assessment have a high degree of uncertainty relative to action and response mechanisms, they are based on theoretical approaches generally accepted in the scientific community and attempt to err toward the conservative. Where adverse impacts may occur, they are identified. The Programmatic EIS/EIR provides a broad overview of the potential actions that could be taken by the project. The assessment describes, in a broad sense, the environmental consequences of proposed actions and enables decisions to be made regarding Program direction and content (see the Preface in the Programmatic EIS/EIR). Please see response IA-6.1.4-3.

IA-6.1.4-8

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 achieve the goals in the MSCS. The programmatic level of detail does not allow assessment of recovery. The Strategic Plan is intended to guide implementation of the Ecosystem Restoration Program for rehabilitation of the Bay-Delta, including the recovery and maintenance of native species.

IA-6.1.4-9

The assessment relationship for flow assumes that reestablishing flow that approximates the natural seasonal flow variability reactivates and maintains ecological processes and structures that sustain healthy fish, wildlife, and plant populations. Natural pattern and magnitude refer to the unimpaired hydrograph. However, the key concept is "approximates." In the absence of detailed, project-specific information, changes that generally move toward the natural condition are assumed beneficial. It is recognized, however, that flow magnitude approaching the unimpaired hydrograph may be detrimental given the existing structure of the ecosystem. For example, the natural hydrograph in rivers constrained between levees will have substantially different hydraulics and effects on species and their habitat than would the same flow prior to channelization. The analysis in the Programmatic EIS/EIR indicates the direction of potential flow-related effects. The uncertainty of the relationships is recognized (Section 6.1.2), and the strategy for addressing the uncertainty is described.

IA-6.1.4-10

Pre-1944 salinity intrusion is neither envisioned nor proposed. As with flow, the assessment relationship for salinity assumes that reestablishing the salinity regime that approximates the natural seasonal salinity variability reactivates and maintains ecological processes and structures that sustain healthy fish, wildlife, and plant populations. Natural pattern and magnitude refer to the expected salinity under the unimpaired hydrograph. However, the key concept is "approximates." In the absence of detailed, project-specific information, changes that generally move toward the natural condition are assumed beneficial. It is recognized, however, that salinity

approaching the "natural condition" may be detrimental given the existing structure of the ecosystem. For example, Delta habitats are currently constrained between levees. Salinity intrusion would result in substantially different effects on species and their habitat than would the same level of salinity intrusion prior to channelization. The analysis in the Programmatic EIS/EIR indicates the direction of potential salinity-related effects. The uncertainty of the relationships is recognized (Section 6.1.2), and the strategy for addressing the uncertainty is described.

IA-6.1.4-11

The Water Quality Program actions are aimed at controlling organic carbon, a precursor to disinfection by-products (DBPs) (Section 5.3.2, "Total Organic Carbon Drinking Water Concerns"). Controversy exists concerning the contribution of natural or developed wetlands to total organic compound (TOC) concentrations found in Delta waters at drinking water intakes. Please see Section 5.3, "Water Quality," for CALFED's perspective on this issue.

IA-6.1.4-12

The statement is relative to other avenues for reducing contaminant effects, not other ecosystem processes. Other avenues rely on dilution flows that may not coincide with flow needs associated with other processes or with species needs. Only reduced input affects the amount of contaminants. The other avenues listed in Section 6.1.4 affect the timing, location, and concentration of contaminants but not the amount.

IA-6.1.4-13

The bullet in Section 6.1.4 has been changed to read:

> "Locating diversions to avoid the primary distribution of a species, including geographical location and position in the water column."

IA-6.1.4-14

The bullet in Section 6.1.4 has been changed to read:

> "Reoperating diversions to avoid periods when species are present and when the life stages present are vulnerable to entrainment-related mortality (for example, larvae)."

Relative to reduced reverse flow and effects on entrainment, relationships between reverse flow and entrainment rates are weakly supported by existing data. However, reverse flow effects on entrainment are addressed by two bullets in the Programmatic EIS/EIR text, including "redistribution of species populations to Suisun Bay," and the revised bullet "reoperation of diversions to avoid periods when species are present and the life stages present are vulnerable to entrainment related mortality."

IA-6.1.4-15

Fitness is the ability of a population to survive under variable environmental conditions and the capacity to reestablish pre-disturbance abundance and distribution.

IA-6.1.4-16

Harvest that reduces the ability of a population to survive or the capacity of the population to increase in abundance following natural disturbances would be considered too high (that is, it would adversely affect fitness) and would affect recovery of listed species. Harvest is identified as a stressor adversely affecting chinook salmon and other species (Section 6.1.4). The Ecosystem Restoration Program Plan discusses the effects of harvest and potential actions that could be implemented to reduce adverse effects on fish populations. Specific actions, however, are not identified at the programmatic level and will be identified as additional information is developed in Phase III of the Program.

IA-6.1.4-17

The purpose of the assessment is to describe, in a broad sense, the environmental impacts of proposed Program actions. The level of detail is consistent with the programmatic nature of the document and will enable decisions to be made regarding Program direction and content (see common response 1). The programmatic document identifies a broad range of potential impacts and broad mitigation strategies.

The ecosystem relationships are consistent with the ecosystem level of management considered by the CALFED Program (that is, a primary CALFED objective is restoration of ecosystem health). Performance of individual species is imbedded in the ecosystem context; conditions that sustain the ecosystem will sustain individual species (Meyer et al. 1999). Needs of species are variable, and environmental conditions that benefit one species may be detrimental to another. A single optimum environmental condition does not exist for all species in the ecosystem; therefore, assessment at the ecosystem level that captures the shifting balance of favorable and unfavorable environmental conditions is required. Species assessment is included because fish species are key factors in conflicts over beneficial uses of water in the Delta-Bay ecosystem. Effects of Program actions on species are not any less clear or certain than effects on ecosystem processes and structure.

Additional information on the relationships discussed in Section 6.1.4, "Assessment Methods," including references, is provided in the Ecosystem Restoration Program Plan (Volumes 1, 2, and 3), the MSCS, and the March 1998 Affected Environment and Environmental Consequences Technical Reports for Fisheries & Aquatic Resources. Reorganization of the methods and consequences sections was previously considered, but the current format was considered more readable. The modeling discussed in Section 5.2, "Bay-Delta Hydrodynamics and Riverine Hydraulics," formed the basis of the assessment of flow effects and is discussed in detail in the March 1998 Affected Environment and Environmental Consequences Technical Reports for Fisheries & Aquatic Resources.

IA-6.1.4-18

Productivity and structure were determined to be clear and important concepts and should remain in the impact assessment. Habitat is applicable to individual species, whereas structure encompasses the broader picture of the ecosystem.

The Programmatic EIS/EIR provides the information needed for assessment at the programmatic level. Species-specific information essential to the assessment is discussed in Section 6.1.4, "Assessment Methods," under "Species-Specific Analysis." Additional species information, including habitat requirements, is discussed in the documents identified in the preceding response (IA-6.1.4-17). Given the programmatic nature of the CALFED actions currently identified, additional quantification of changes in habitat abundance is not appropriate.

IA-6.1.4-19

The following text has been added to Section 6.1.4:

> Sediment input and movement affects fish spawning and rearing habitat, including turbidity effects on feeding and changes in the composition of the channel bottom. In general, streams with gravel-cobble substrates support greater diversity and abundance of invertebrates important as food for stream fish, including chinook salmon and steelhead (Waters 1995). In addition, gravel substrates are needed to support spawning of chinook salmon, steelhead, and other species. Adult steelhead and chinook salmon require relatively clean gravels in which to lay their eggs. A high proportion of sand and silt in gravel substrates reduces production of invertebrates and reduces spawning success for steelhead, chinook salmon, and other fish species. The smaller spaces between gravel particles are filled with silt and sand, limiting the available space and reducing the flow of water and oxygen to eggs, larvae, and aquatic invertebrates in the gravel. Fine sediments also can reduce or prevent young fish from emerging after they have hatched. As discussed under 'Sediment and Nutrient Input and Movement,' reestablishing natural levels of sediment delivery and movement will help to sustain healthy fish populations.

The level of detail provided is consistent with the programmatic nature of the document (see common response 1). Sediment mobilization, effects of sedimentation, and time required for aquatic communities to recover from dredging disturbance requires specific information that will be provided in project-specific environmental documents. The project-specific documents will identify location, extent, and timing of specific project activities potentially affecting sediments. Please see response IA-6.1.7-2 for a programmatic-level description of potential sediment-related impacts.

IA-6.1.4-20

To clarify the use of unimpaired and natural flow, the following text has been added to Section 6.1.4:

> Natural pattern and magnitude refer to the unimpaired hydrograph. However, the key concept is 'approximates.' In the absence of detailed, project-specific information, changes that generally move toward the natural condition are assumed to be beneficial. It is recognized, however, that flow magnitude approaching the unimpaired hydrograph may be detrimental, given the existing structure of the ecosystem. For example, the natural hydrograph in rivers constrained between levees will result in substantially different hydraulics and effects on species and their habitat than would the same flow prior to channelization. Also, Delta habitats currently are constrained between levees; salinity intrusion would result in substantially different effects on species and their habitat than would the same level of intrusion prior to channelization.

IA-6.1.4-21

The Programmatic EIS/EIR (Section 6.1.4) briefly discusses the limited understanding of productivity:

> The complexity and magnitude of energy and material transfer through the ecosystem have limited the understanding of cause-and-effect productivity relationships to relatively simple controlled studies. Pathways of energy and material transfer through the Bay-Delta river ecosystem eventually may be described in qualitative terms; but quantifying rates of food consumption, assimilation, respiration, growth, and production through all trophic pathways in the ecosystem is not possible. Although results will be speculative, impacts of project actions on

productivity of the Bay-Delta river system warrants consideration because human activities substantially affect production, including changes in species abundance.

Given the limited understanding of productivity, the assessment applied relatively narrow energy and material transfer mechanisms that are described in the bulleted list in Section 6.1.4. The Programmatic EIS/EIR recognizes the uncertainty of relationships, including productivity relationships. As stated in Section 6.1.1:

> Key to implementation of the Preferred Program Alternative is a strategy to address the uncertainty of species and ecosystem responses to Program elements. Ongoing activities to increase understanding of natural physical and biological processes and species habitats include the Strategic Plan for the Ecosystem Restoration Program (Strategic Plan); the Comprehensive Monitoring, Assessment, and Research Program (CMARP); and the Multi-Species Conservation Strategy (MSCS).

Improved understanding of productivity will be one aspect of the implementation strategy.

IA-6.1.4-22

As stated in Section 6.1.1:

> Key to implementation of the Preferred Program Alternative is a strategy to address the uncertainty of species and ecosystem responses to Program elements. Ongoing activities to increase understanding of natural physical and biological processes and species habitats include the Strategic Plan for the Ecosystem Restoration Program (Strategic Plan); the Comprehensive Monitoring, Assessment, and Research Program (CMARP); and the Multi-Species Conservation Strategy (MSCS).

Additional discussion of areas of controversy and addressing uncertainty is provided in Section 6.1.2.

IA-6.1.4-23

The flow needs of juvenile chinook salmon are recognized (in Section 6.1.4): "Flow that emulates natural patterns was assumed to improve survival during downstream movement of juvenile chinook salmon and steelhead; striped bass eggs and larvae; sturgeon larvae and juveniles; and American shad eggs, larvae, and juveniles." Stronger assumptions are unwarranted because relationships between reverse flow and juvenile chinook salmon survival are weakly supported by existing data.

IA-6.1.4-24

The last sentence in Section 6.1.4, "Contaminant Input and Movement," recognizes that dilution would result in limited benefits because contaminants continue to enter the ecosystem. The bullet in Section 6.1.4 has been changed from "Discharge during periods of high dilution" to:

> "Providing dilution flows during periods of high biological sensitivity."

This text is consistent with the discussion of dilution and places dilution in proper perspective where (1) contaminants are an existing condition, and (2) flows could be provided to minimize any adverse biological effects and are not provided as a solution to discharge of contaminants.

6.1.5 Significance Criteria

IA-6.1.5-1

The significance criterion cited in the comment is for delineating beneficial impacts of the CALFED Program. The purpose of the criterion is to measure benefits as compared to baseline, existing conditions. This is consistent with the objective of the CALFED Program to recover or contribute to the recovery of threatened and endangered species. The significance criteria for beneficial impacts are applied to all the alternatives, including the No Action Alternative. The text in Section 6.1.6 discloses that aquatic species may benefit under the No Action Alternative.

IA-6.1.5-2

As stated at the beginning of Section 6.1.5, "Significance Criteria," thresholds are phrased in qualitative terms, indicating potential changes from either existing conditions or conditions under the No Action Alternative. A substantial change, therefore, is a change that would likely be detectable given expected natural variability. Degradation of ecosystem processes occurs whenever the trend is away from the natural condition. Degradation of conditions affecting abundance or range of a species refers to loss of habitat or increase in stressors adversely affecting species survival, reproduction, migration, or growth. Response IA-6.1.4-8 discusses recovery goals. Incidental take is part of endangered species consultation and is more appropriately discussed in the MSCS.

IA-6.1.5-3

The ecosystem criteria are consistent with the ecosystem level of management considered by the CALFED Program. Performance of individual species is imbedded in the ecosystem context; conditions that sustain the ecosystem will sustain individual species (Meyer et al. 1999). Needs of species are variable, and environmental conditions that benefit one species may be detrimental to another. A single optimum environmental condition does not exist for all species in the ecosystem; therefore, ecosystem-level criteria that capture the shifting balance of favorable and unfavorable environmental conditions are required.

The suggested criteria are encompassed by the criteria in Section 6.1.5:

> Adverse impacts are considered potentially significant when Program actions cause or contribute to substantial short- or long-term reductions in aquatic ecosystem characteristics, and *degrade conditions that potentially reduce abundance and distribution of species populations* [emphasis added]. An adverse effect is considered potentially significant if it substantially degrades aquatic ecosystem processes; substantially reduces the structural characteristics of the aquatic ecosystem; or *substantially degrades the conditions affecting or potentially affecting the abundance or range of a species with economic or social value; harms a rare, threatened, and endangered species or its habitat; or has considerable effects when viewed with past, current, and reasonably foreseeable future projects* [emphasis added].

Effects on movement or migration of fish are implicitly encompassed by the criteria (i.e., "substantially degrades the conditions affecting or potentially affecting the abundance or range of a species").

6.1.6 No Action Alternative

IA-6.1.6-1

The effects under the No Action Alternative, determined through comparison with existing conditions, are identified to place the impacts of the Program alternatives in context. Determinations of significance are not required.

IA-6.1.6-2

Further deterioration is based on an expected increase in water supply needs and on increased contaminant input caused by ongoing population growth and urban expansion. The ongoing actions of the SWRCB, Central Valley Regional Water Quality Control Board (CVRWQCB), CVPIA, and others definitely will lessen the deterioration; nevertheless, it is anticipated that deterioration will occur. CALFED modeling with increased future water demands indicates that an increase in Delta salinity is likely. However, whether actions being considered by the SWRCB, the CVRWQCB, and the CVPIA would improve water quality and increase fisheries relative to existing conditions has not been determined. The CALFED Program implements actions to meet objectives beyond those programs ongoing under the No Action Alternative. As stated in the project description, CALFED objectives include improvements to ecological functions in the Bay-Delta and to aquatic and terrestrial habitats, reduction in the mismatch between Bay-Delta water supplies and the current and projected beneficial uses dependent on the Bay-Delta system, provision of good water quality for all beneficial uses, and reduction in the risk of catastrophic breaching of Delta levees.

6.1.6.4 San Joaquin River Region

IA-6.1.6.4-1

The VAMP will meet restoration goals in response to flow provided in the San Joaquin River during May and June. The change in water management could potentially change reservoir operations and reservoir storage in some months. However, the water for the VAMP flows is intended to be provided through reduced diversion. The volume of water affected, when apportioned among the Stanislaus, Tuolumne, and Merced Rivers, would unlikely result in substantial adverse effects on flow and water temperature conditions and is not expected to adversely affect chinook salmon or steelhead. Section 6.1.4, therefore, has been modified to read:

> Flow provided for the VAMP could affect reservoir storage. However, the change in storage volume, when apportioned among the Stanislaus, Tuolumne, and Merced Rivers, would not result in a substantial effect on flow and water temperature conditions and is not expected to adversely affect chinook salmon or steelhead.

IA-6.1.6.4-2

Although fall-run chinook salmon are present every year, VAMP flows may not be provided every year (that is, in critically dry years). Detailed water temperature effects require project-specific analysis as provided in the final EIS/EIR for the San Joaquin River Agreement. The final EIS/EIR for the San Joaquin River Agreement was not available prior to completion of the Programmatic EIS/EIR. See the change made in response IA-6.1.6.4-1.

The ESA listing for steelhead (63 FR 13347, March 19, 1998) indicates their potential occurrence in the San Joaquin River and its major tributaries. Section 6.1.6.4 has been changed to read:

> The retirement of 35,000-45,000 acres of agricultural land could reduce input of contaminants to the San Joaquin River Region and improve the survival and spawning success of aquatic species, including chinook salmon and splittail, in the San Joaquin River.

6.1.6.5 Other SWP and CVP Service Areas

IA-6.1.6.5-1

The following sentences have been added to Section 6.1.6.5:

> "The San Joaquin River agreement (VAMP), however, is applicable for 12 years. No extension of the agreement has been negotiated."

6.1.7 Consequences: Program Elements Common to All Alternatives

IA-6.1.7-1

The programmatic document identifies a broad range of potential impacts and broad mitigation strategies. Although additional information is provided in the Ecosystem Restoration Program Plan (Volumes 1, 2, and 3) and the MSCS, specific project descriptions have not been developed. The specificity of Program actions does not enable assessment of redirected species effects of beneficial actions. Please see common response 1.

IA-6.1.7-2

Information relative to the benefits of habitat restoration to native species and the potential adverse impacts caused by increased abundance of non-native species is being developed through focused studies that are part of ongoing CALFED programs, including the Ecosystem Restoration Program and the CMARP (see Section 6.1.2, "Areas of Controversy," in the Programmatic EIS/EIR). The information will be provided as part of the analysis in project-specific environmental documents. Please see common response 1.

The following text has been added in Section 6.1.7.1:

> Sediment and contaminants may enter the Delta during in-water construction, erosion of disturbed soils during rain events, and direct discharge of construction-related materials. Substantial sediment input could degrade aquatic habitat conditions and bury fish eggs and less mobile organisms that serve as fish food. The extent that fish species are harmed by sedimentation depends partially on the extent that post-construction substrate conditions differ from pre-construction conditions. Elevated levels of turbidity (suspended particulate matter) may result when fine sediment is suspended in the water column. The duration and concentration of the turbidity depend on the extent of the activities and the efforts undertaken to eliminate and minimize activities within the waterway. Turbidity may cause indirect harm, injury, or mortality to fish species in the vicinity and downstream of the project area. High turbidity concentration can cause fish mortality, reduce fish feeding efficiency, and decrease food availability.

IA-6.1.7-3

Compared to the natural variation in outflow, the change in outflow attributable to management activities is small and would minimally affect Bay conditions. Striped bass and delta smelt may be more sensitive to relatively small changes in outflow because of their relatively narrow salinity preference during early life stages and their occurrence near the fresh-salt water interface (that is, near the 2-ppm isohaline). Flow effects on salinity distribution are less apparent as one moves downstream. Populations of species distributed in more saline estuarine locations and marine habitats appear to respond to relatively large changes in outflow that are caused by natural variation in hydrology. Based on available information, it seems unlikely that the small changes in outflow attributable to flow management would affect marine species. As indicated previously, implementation of substantive CALFED actions affecting flow will require project-specific environmental documents that will provide detailed scientific analysis. Please see common response 1.

The following sentence has been added to the end of the first paragraph in both Section 6.1.7 and Section 6.1.8:

> "Changes in flow discussed in the following analysis are based on simulations used in Section 5.2, 'Bay-Delta Hydrodynamics and Riverine Hydraulics'."

Text concerning the creation of reservoir habitat for non-native species has been added to Section 6.1.7 (see response IA-6.1.3.3-1). Although reservoirs would provide habitat for non-native species, the species already occur in the Sacramento-San Joaquin River system, including existing reservoirs (see response IA-6.1.7.1-3). The fish populations in any new reservoirs likely would minimally affect the native species populations. As described in Section 6.1.7.3, habitat loss and operations effects on downstream habitat are the primary factors affecting native fish populations.

IA-6.1.7-4

Adverse effects of new storage are identified in Sections 6.1.7.1 and 6.1.7.2. Adverse effects include increased entrainment related losses, reduced productivity, and impaired species movement. As noted, however, new storage would be constructed and operated only afer information clearly confirms that potentially significant adverse impacts on fish and aquatic species populations can be avoided. While not quantified at this programmatic level of analysis, storage does provide the opportunity for additional flow management (such as the Environmental Water Account) for environmental benefit. Project-specific environmental documents will be completed for any new storage and will include detailed information related to shifts in salinity and potential organism response in the Bay. In addition, Program activities to increase understanding of Delta outflow effects, and the related location of X2, on Bay species are included in the Strategic Plan and the CMARP.

6.1.7.1 Delta Region

IA-6.1.7.1-1

Please note that the discussion applies only to new storage in the Delta and effects on biological resources. Use of water impoundment for other uses is discussed in other sections, including Section 5.1, "Water Supply and Water Management," and Section 5.3, "Water Quality." Because operation of Delta storage is expected to entail nearly complete drainage, reservoir fish habitat would be minimal and reservoir fisheries are not identified. Please see Section 6.1.7.3, where the creation of additional aquatic reservoir habitat is noted for surface storage created upstream of the Delta.

IA-6.1.7.1-2

Adverse flow-related impacts on salmonids are identified in Section 6.1.7.1. Applicable mitigation strategies are identified in Section 6.1.11and include operating new and existing diversions to avoid and minimize adverse effects on fish, relocating diversion points, controlling predators in the diversion facilities, and coordinating water supply system operations flexibility consistent with seasonal flow needs of desired species. Implementation of new storage will require project-specific environmental documents that will provide detailed scientific analysis. Please see common response 1.

IA-6.1.7.1-3

Please note that the discussion applies only to new storage in the Delta. Because operation of Delta storage is expected to entail nearly complete drainage, reservoir fish habitat would be minimal and reservoir fisheries are not identified. The following text has been added to Section 6.1.7.3 for the Sacramento River and San Joaquin River Regions:

> New reservoirs would support sport fisheries. The species supported by reservoirs and targeted by anglers are primarily non-native (such as largemouth bass, spotted bass, red-ear sunfish, crappie, and catfish) or hatchery-supplemented fish populations (such as rainbow trout). Increased non-native species abundance in new reservoirs would result in less-than-significant impacts on native species because the non-native species that inhabit reservoirs currently are well established and the new reservoirs are relatively isolated from river and Delta habitats.

6.1.7.2 Bay Region

IA-6.1.7.2-1

A discussion of potential storage effects on Bay species is provided in Section 6.1.7.2 New storage is discussed at a programmatic level; the detailed effects of new storage on Delta outflow are not precisely known. Project-specific environmental documents will be completed for any new storage and will include detailed information related to shifts in salinity and potential organism response in the Bay. In addition, Program activities to increase understanding of Delta outflow effects, and the related location of X2, on Bay species are included in the Strategic Plan and the CMARP. Also see responses IA-6.1.8-1 and IA-6.1.8.1-14.

6.1.7.3 Sacramento River and San Joaquin River Regions

IA-6.1.7.3-1

CALFED will develop balanced river and reservoir regulation programs in cooperation with the existing responsible agencies. Please see Chapter 9, which explains how mitigation strategies in the Programmatic EIS/EIR will be revised and applied; also see the Strategic Plan.

6.1.8 Consequences: Program Elements That Differ Among Alternatives

IA-6.1.8-1

The purpose of the assessment is to describe, in a broad sense, the environmental impacts of proposed Program actions. The analysis has not separated the impacts of specific actions but has considered impacts of the Program as a whole. Please see common response 1. The level of detail is consistent with the programmatic nature of the

document and will enable decisions to be made regarding Program direction and content. Any subsequent actions or facility construction stemming from the Preferred Program Alternative discussed in the Programmatic EIS/EIR must be developed in compliance with NEPA, CEQA, and other applicable laws and regulatory processes.

Some of the species included in the assessment are identified in Section 6.1.8.1, including winter-, spring-, fall-, and late fall-run chinook salmon; delta smelt; steelhead; splittail; striped bass; and American shad. These species are described in greater detail in the March 1998 Affected Environment and Environmental Consequences Technical Reports for Fisheries & Aquatic Resources. Significance criteria are described in Section 6.1.5; additional discussion of significance is provided in response IA-6.1.5-3. The acreage affected by conveyance structures under each alternative is described in Table 4-3 in the Programmatic EIS/EIR. All Delta species could be expected to use the habitat, depending on season (March 1998 Affected Environment and Environmental Consequences Technical Reports for Fisheries & Aquatic Resources). Impacts of specific dredging projects will be minimized by seasonal restrictions identified by DFG, NMFS, and the USFWS.

Critical habitat is relevant to consultation under the federal ESA but is not specifically an issue for the Programmatic EIS/EIR, other than indicating the probable occurrence of listed species in the project area. All the project elements that differ among alternatives would affect ESA-listed species in the Delta (delta smelt, splittail, steelhead, and winter-run and spring-run chinook salmon).

Importance of habitat area to species population abundance is an issue of substantial uncertainty for most fish species. Uncertainty will be addressed by Program activities that will develop increased understanding of the natural physical and biological processes and species habitats (see Section 6.1.2). Program activities include the Strategic Plan, the CMARP, and the MSCS.

South Delta improvements may or may not include barriers. Other options could include more extensive channel dredging and consolidation. As described in the Programmatic EIS/EIR, the area directly affected by the barriers includes the south and central Delta. Channel flows down the San Joaquin River and in Old and Middle Rivers also are affected. Barriers are expected to affect water quality because circulation would be reduced for the area bounded by the barriers. Reduced circulation could change stratification patterns that potentially affects dissolved oxygen and water temperature. Changes in stratification, subsequent effects on dissolved oxygen and water temperature, and subsequent effects on fish species will require project-specific analysis.

The following text has been added to Section 6.1.7.1 and applies to construction-related impacts discussed in Section 6.1.8.1:

> Sediment and contaminants may enter the Delta during in-water construction, erosion of disturbed soils during rain events, and direct discharge of construction-related materials. Substantial sediment input could degrade aquatic habitat conditions and bury fish eggs and less mobile organisms that serve as fish food. The extent that fish species are harmed by sedimentation depends partially on the extent that post-construction substrate conditions differ from pre-construction conditions. Elevated levels of turbidity (suspended particulate matter) may result when fine sediment is suspended in the water column. The duration and concentration of the turbidity depend on the extent of the activities and the efforts undertaken to eliminate and minimize activities within the waterway. Turbidity may cause indirect harm, injury, or mortality to fish species in the vicinity and downstream of the project area. High turbidity concentration can cause fish mortality, reduce fish feeding efficiency, and decrease food availability.

The location, size, and operation criteria of the facilities are not precisely defined. Given the uncertainties and conceptual nature of the proposed actions, the programmatic level of assessment is appropriate. Please see

common response 1. Contaminant issues are also discussed at a programmatic level. Project-specific documents will provide detailed assessment of impact significance.

Under no action conditions, the DCC would be closed at least from February through March 20, reducing flow from the Sacramento River into the Mokelumne River channels. With the construction and operation of the Hood to Mokelumne River channel, flow from the Sacramento River would again enter the Mokelumne River channels. Based on existing relationships, reduced flow in the Sacramento River (from flow exiting through the diversion facility on the Sacramento River) causes an increase in the proportion of flow entering Georgiana Slough (March 1998 Affected Environment and Environmental Consequences Technical Reports for Fisheries & Aquatic Resources). Chinook salmon outmigration primarily occurs during February-May. The proportion of juveniles moving from the Sacramento River and into Georgiana Slough, therefore, is expected to increase with increased flow diverted through the Hood to Mokelumne River channel. As discussed in Section 6.1.4, "Assessment Methods," the survival of chinook salmon that move into the DCC and Georgiana Slough is less than the survival of fish that continue down the Sacramento River toward Rio Vista. Based on USFWS studies, survival of fish following the Sacramento River route toward Rio Vista may be several times higher than survival of fish entering the DCC and Georgiana Slough. The actual magnitude of survival, however, is uncertain and depends on other factors, including water temperature and flow or salinity.

As stated in Section 6.1.8.1, levee setback increases the aquatic habitat area and, if associated with increased riparian and tidal marsh communities, may reestablish natural structural features that could increase productivity. As discussed in Section 6.1.4, "Assessment Methods," restoring marshes and riparian forests would increase primary production by emergent vascular plants, and greater open water area could increase phytoplankton production. The potential effects of increased depth on habitat values is discussed in Section 6.1.8.1 Dredging removes benthic communities and mobilizes fine sediments, primarily causing short-term impacts. Dredging also may lead to maintenance activities that remove tidal marsh communities and riparian vegetation, reducing primary production along the channel. Detailed analysis of dredging or channel setback impacts will be provided in project-specific documents that will include information on acreage affected and expected maintenance practices. The magnitude of the effect of habitat area on species population abundance is an issue of substantial uncertainty for most fish species. Uncertainty will be addressed by Program activities that will develop increased under-standing of the natural physical and biological processes and species habitats (see Section 6.1.2).

The conclusion that impacts of Delta outflow changes on the Bay ecosystem caused by operations of conveyance elements are less than significant is based on several factors, including the following:

- Operations criteria are in place that will maintain minimum Delta outflow during the critical February through May period (see Section 5.1, "Water Supply and Water Management").
- The change in outflow is small relative to the variability in outflow from month to month and year to year.
- The change in outflow is partially attributable to capture of flow during high-flow conditions that will minimize the effect on ecosystem processes.

Uncertainty of the hydrodynamics modeling, as described in Section 5.1.4.2, did not affect the conclusion.

The effects of new storage on Delta outflow are identified as a potentially significant adverse impact, and mitigation strategies are identified (Section 6.1.7.3 and Section 6.1.11, respectively). It is suggested in a comment, however, that (1) the Final Programmatic EIS/EIR include a more quantitative analysis of the high, average, and minimum flows needed to restore and maintain Bay resources and (2) identification of these flows then should be

used to evaluate the impacts under the Preferred Program Alternative. Flow is clearly important to the health of Bay resources, but variable hydrology and the variability in species response to hydrology limit the current understanding of specific flow needs. Flow has been identified in the Ecosystem Restoration Program Plan as a factor affecting the health of the Bay-Delta. Program activities to increase understanding of the effects of Delta outflow and the related shifts in salinity on organisms in the Delta and Bay are included in the Strategic Plan and the CMARP. More detailed and any new information related to shifts in salinity and organism response will be incorporated into project-specific documents for actions implemented by the CALFED Program.

The unavoidable impacts are identified in Section 6.1.12, "Potentially Significant Unavoidable Impacts." The CALFED agencies believe that the Preferred Program Alternative is the best alternative. An Alternative 1 that includes the implementation strategy of the Preferred Program Alternative becomes essentially the same as phases of the Preferred Program Alternative that would not include change in DCC operations or the construction of a diversion facility on the Sacramento River. As under the Preferred Program Alternative, most potentially significant adverse impacts could be reduced to a less-than-significant level through avoidance, minimization, and mitigation measures incorporated into the implementation strategy. Please see common response 5 for additional information on the alternatives. Conveyance is the primary difference between alternatives. However, going forward with one Program element does not preclude the Program's ability to undertake additional conveyance actions in the future, subject to appropriate environmental review. Each of the Program alternatives would be implemented incrementally, or in stages over time. This approach allows for the need to adapt actions that will improve water management and restore ecological health (see common response 19).

Please see information presented under Section 6.1.8.1, "Preferred Program Alternative," and revisions to Section 6.1.8.3, "Alternative 2." Expansion of the diversion facility on the Sacramento River beyond the 4,000-cfs capacity would worsen the impacts on anadromous fish in the Sacramento River. Mortality at the screens would increase because of the increased facility size. Mortality of juvenile chinook salmon, and possibly other species, would increase for fish continuing down the Sacramento River because of a greater proportion of fish entering Georgiana Slough. Increased flow into the Mokelumne River channels could cause additional straying and increased impacts through loss of fitness of natural spawning and rearing populations, increased adult fish mortality, and reduced fecundity. The effects of reduced flow in the Sacramento River below Hood could further adversely affect habitat conditions, potentially reducing the survival of chinook salmon, striped bass, and other species. Each of the Program alternatives would be implemented incrementally, or in stages over time. This approach allows for the need to adapt actions that will improve water management and restore ecological health (see common response 19).

Please see revisions to Section 6.1.8.4, "Alternative 3," including the revised text below:

> **Delta Cross Channel.** Under Alternative 3, the DCC may be closed from September through July and possibly during all months. Flexible operations would be considered, depending on demonstrated benefits. Based on DCC operations under the No Action Alternative, potential operations for Alternative 3 would increase juvenile salmon survival entering the Delta from the Sacramento River during October-January and May 20-June 30. Closure could benefit winter-, spring-, late fall-, and fall-run chinook salmon; although peak migration of juvenile chinook from the Sacramento River generally occurs after October, depending on the occurrence of storm events.
>
> Closure of the DCC could increase the frequency and magnitude of net reverse flow conditions in the lower San Joaquin River relative to conditions under the No Action Alternative. Improved flow conditions associated with the isolated diversion channel near Hood, however, would

override the effects of DCC closure. As discussed below for the isolated facility, net flow conditions are likely to improve under Alternative 3.

Delta Channel Capacity. Old River north of CCFB may be enlarged to reduce channel velocity. The enlarged channel potentially allows use of the full capacity of the SWP Delta export facility when all Bay-Delta standards are met. Simulated operations indicate that full use of the SWP pump capacity could increase the total annual exports by approximately 4%. In the absence of the other elements of Alternative 3, increased exports could increase the magnitude of net reverse flow conditions in Old and Middle Rivers, and possibly in the lower San Joaquin River. Improved flow conditions associated with the isolated diversion channel near Hood, however, could override the effects of enlarged channel capacity. As discussed below for the isolated facility, net flow conditions are likely to improve in all Delta channels under Alternative 3.

South Delta Flow Control. An operable barrier may be constructed on the head of Old River at the confluence with the San Joaquin River near Mossdale. When closed, the barrier would direct San Joaquin River flow down the main San Joaquin River channel and past Stockton. The barrier potentially benefits juvenile chinook salmon from the San Joaquin River, by directing their movement along the San Joaquin River pathway and away from the CVP and SWP south Delta export intakes. The barrier also may benefit adult chinook salmon because of the improved dissolved oxygen and water temperature conditions that result from increased net flow past Stockton.

Closure of the barrier, without a concomitant reduction in exports, would increase net flow toward the CVP and SWP south Delta export intakes, primarily through Turner Cut, Middle River, and Old River. Improved flow conditions associated with the isolated diversion channel near Hood, however, would override the adverse effects of a barrier at the head of Old River. As discussed below for the isolated facility, net flow conditions are likely to improve in all Delta channels under Alternative 3.

Impacts on fish and aquatic resources associated with overland irrigation facilities primarily relate to the change in diversion point described for the isolated facility in Section 6.1.8.4. Effects on vegetation and wildlife are discussed in Section 6.2.

Alternatives 1, 2, and 3 that include the implementation strategy of the Preferred Program Alternative become essentially the same as phases of the Preferred Program Alternative. As under the Preferred Program Alternative, most potentially significant adverse impacts could be reduced to a less-than-significant level through avoidance, minimization, and mitigation measures incorporated into the implementation strategy. Please see common response 5 for additional information on the alternatives. Conveyance is the primary difference between alternatives. However, going forward with one Program element does not preclude the Program's ability to undertake additional conveyance actions in the future, subject to appropriate environmental review. Each of the Program alternatives would be implemented incrementally, or in stages over time. This approach allows for the need to adapt actions that will improve water management and restore ecological health (see common response 19).

IA-6.1.8-2

This response has been consolidated with response IA-6.1.8.1-14. Please refer to this response for the answer to your comment.

IA-6.1.8-3

Increase in non-native species abundance and distribution is identified in Section 6.1.12 as a potentially significant and unavoidable adverse impact. Mitigation strategies are identified to address the issue of non-native species through creation of additional habitat for desired species and controlling undesirable species (see Section 6.1.11). Program activities to improve understanding of non-native species populations and potential effects on native species are part of the Ecosystem Restoration Program and the CMARP. Chapter 9 discusses how mitigation strategies will be applied to individual CALFED programs.

6.1.8.1 Preferred Program Alternative

IA-6.1.8.1-1

The discussion of Alternative 3 effects presented in Section 6.1.8.4 identifies the benefits of increased QWEST (that is, intensified natural flow conditions). The isolated facility would clearly reduce the occurrence of negative QWEST, but operations and size of the isolated facility, in combination with changes in DCC operations, would determine the magnitude of change in QWEST relative to the No Action Alternative. Section 6.1.8.1 describes the Preferred Program Alternative and indicates that QWEST could become more negative, resulting in potential adverse effects on Delta species. Section 5.2 (Figures 5.2-62 and 5.2-63) presents average QWEST conditions for monthly operations. Please note that under Criterion A, QWEST is reduced during July-September. With daily operations, QWEST would be reduced during parts of October-January. A smaller reduction in QWEST could occur for some flow conditions under Criterion B, as indicated by August in Figure 5.2-63.

IA-6.1.8.1-2

Statements in Section 6.1.8.1 regarding dredging have been changed to read:

> 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. All potentially significant impacts can be mitigated to a less-than-significant level.

IA-6.1.8.1-3

Mitigation strategies are identified in Sections 6.1.1 and 6.1.11, and include implementing BMPs, limiting construction windows, creating additional habitat for desired species, and controlling undesirable non-native species. Chapter 9 discusses how mitigation strategies will be applied to individual CALFED programs. Where mitigation measures cause additional adverse impacts, those impacts must also be analyzed. However, as this Programmatic EIS/EIR is a general planning-level document that does not approve site-specific projects or evaluate their project-level impacts, a series of mitigation strategies are used to guide the implementation of mitigation measures at the project level of approval. Therefore, it would be speculative to attempt to predict at this time what additional impacts will need to be addressed at the project level. When the project-level environmental review for future projects takes place, additional impacts created by the application of mitigation measures will be analyzed, and mitigation measures added, if needed.

IA-6.1.8.1-4

This response has been consolidated with response IA-6.1.8.1-3. Please see this response for the answer to your comment.

IA-6.1.8.1-5

Mitigation strategies are identified in Section 6.1.11 and include implementing BMPs, limiting construction windows, creating additional habitat for desired species, and controlling undesirable non-native species. Mitigation for the flow impacts also are identified and include operating new and existing diversions to avoid and minimize effects on fish. Chapter 9 discusses how mitigation strategies will be applied to individual CALFED programs. Where mitigation measures cause additional adverse impacts, those impacts also must be analyzed. However, as this Programmatic EIS/EIR is a general planning-level document that does not approve site-specific projects or evaluate their project-level impacts, a series of mitigation strategies are used to guide the implementation of mitigation measures at the project level of approval. Therefore, it would be speculative to attempt to predict at this time what additional impacts will need to be addressed at the project level. When the project-level environmental review for future projects takes place, additional impacts created by the application of mitigation measures will be analyzed, and mitigation measures added, if needed.

IA-6.1.8.1-6

As presented in Section 6.1.4 under "Entrainment Relationships," other factors could include impingement on fish screens or other diversion structures, stress as a result of handling, and movement to inappropriate habitat.

IA-6.1.8.1-7

In Section 6.1.8.1, "to the contrary" has been deleted. The sentence now reads:

> "Diversion of Sacramento River water at the diversion facility on the Sacramento River would reduce the magnitude of natural net channel flow in the Sacramento River below Hood, primarily during February to June."

The following sentence has been added immediately after the preceding sentence to clarify the impact:

> "The effects of reduced flow in the Sacramento River below Hood could adversely affect habitat conditions, potentially reducing survival of chinook salmon, striped bass, and other species."

Substantial uncertainty exists relative to significance and, as stated in Section 6.1.8.4, implementation will be contingent on development of operations criteria that have been demonstrated, through monitoring and focused studies, to avoid adverse effects of a diversion facility on the Sacramento River. Diversion facility effects under Alternative 3 are discussed in Section 6.1.8.4.

IA-6.1.8.1-8

Under the No Action Alternative conditions, the DCC would be closed at least from February through May 20, reducing flow from the Sacramento River into the Mokelumne River channels and increasing flow in the Sacramento River. With the construction and operation of the new diversion facility, diversion of flow from the Sacramento River could occur during February through May 20, increasing Sacramento River flow entering the Mokelumne River channels relative to the No Action Alternative. Flow in the Sacramento River would be reduced. Based on existing relationships, reduced flow in the Sacramento River (from flow exiting through the diversion facility on the Sacramento River) causes an increase in the proportion of Sacramento River flow entering Georgiana Slough (March 1998 Affected Environment and Environmental Consequences Technical Reports for Fisheries & Aquatic Resources). Chinook salmon outmigration down the Sacramento River occurs primarily

during February-May. Assuming that juvenile chinook salmon move with Sacramento River flow, the proportion of juveniles moving from the Sacramento River and into Georgiana Slough, therefore, is expected to also increase.

DWR has indicated that the existing flow-split relationship for Georgiana Slough may not be representative of conditions if a diversion near Hood to the Mokelumne River of Sacramento River flow increases net flow in the Mokelumne River channels. The additional net flow in the Mokelumne River channels may increase water surface elevation, reducing the hydraulic gradient in Georgiana Slough and the proportion of Sacramento River flow diverted. If subsequent studies show this relationship to be true, the diversion effect on chinook salmon identified for Georgiana Slough would be minimized or avoided.

IA-6.1.8.1-9

Mitigation strategies that address the issues (Section 6.1.11) include creating additional habitat for desired species and controlling undesirable non-native species. Program activities to improve understanding of non-native species populations and potential effects on native species are part of the Ecosystem Restoration Program and the CMARP. Chapter 9 discusses how mitigation strategies will be applied to individual CALFED programs.

IA-6.1.8.1-10

Mitigation strategies are identified in Section 6.1.11 and include implementing BMPs, limiting construction windows, creating additional habitat for desired species, and controlling undesirable non-native species. Chapter 9 discusses how mitigation strategies will be applied to individual CALFED programs. Where mitigation measures cause additional adverse impacts, those impacts must also be analyzed. However, as this Programmatic EIS/EIR is a general planning-level document that does not approve site-specific projects or evaluate their project-level impacts, a series of mitigation strategies are used to guide the implementation of mitigation measures at the project level of approval. Therefore, it would be speculative to attempt to predict at this time what additional impacts will need to be addressed at the project level. When the project-level environmental review for future projects takes place, additional impacts created by the application of mitigation measures will be analyzed, and mitigation measures added, if needed. Please also see common response 1.

IA-6.1.8.1-11

The paragraph indicates short-term and long-term effects. Long-term effects may result from maintenance dredging and actions needed to address levee instability. Information on the natural depth of the Mokelumne River channels is not readily available.

IA-6.1.8.1-12

The adverse impacts of the screened channel between the Sacramento and Mokelumne Rivers are identified in Sections 6.1.8.1 and 6.1.12.

IA-6.1.8.1-13

The analysis addresses the impacts of the Preferred Program Alternative on fisheries of eastside tributaries at a level consistent with available information. The Programmatic EIS/EIR uses the best available information relative to effects of changes in the Mokelumne River channels in the Delta on chinook salmon. Although available information indicates that survival of juvenile chinook salmon originating from the Sacramento River is lower for fish moving in the Mokelumne River channels (Section 6.1.4, "Assessment Methods"), the cause of lower survival is unclear. Warmer water temperature, predation, and export levels have been hypothesized to increase

mortality. The assessment in the Programmatic EIS/EIR indicates that Sacramento River fish could benefit from closure of the DCC because closure would reduce the proportion of Sacramento River fish entering the Mokelumne River channels (Section 6.1.8.1). Juvenile Mokelumne River chinook salmon are not likely to be affected from the additional closure because migration of juvenile Mokelumne River salmon through the Delta occurs primarily between February and May, outside the period of additional reoperations of the DCC during October-January and May 20-June 30. The additional DCC closure would have little effect on juvenile chinook salmon from the Mokelumne River relative to existing conditions. Potential effects of the Hood to Mokelumne River channel on adult chinook salmon in the Mokelumne River are discussed in Section 6.1.8.1.

The following text has been added in Section 6.1.8.1 (see response IA-6.1-6):

> The addition of Sacramento River flow to the Mokelumne River channels could confuse adult chinook salmon returning to the Mokelumne River to spawn and could delay outmigration of juveniles to the ocean. Although available information has not indicated responses of adult and juvenile chinook salmon to flow changes in the Mokelumne River channels, reduced survival of adults and juveniles could adversely affect the Mokelumne River chinook salmon population. CALFED recognizes the necessity to develop knowledge of species needs and understanding of the effects of Program elements relative to migration of adult and juvenile chinook salmon. Strategies to address this uncertainty are discussed in Section 6.1.2, "Areas of Controversy." Strategies will be identified in project-specific environmental documents that will provide detailed scientific analysis and implementation of an adaptive management strategy.

IA-6.1.8.1-14

Text in Section 5.2.8.4 describes an upstream shift of 0.3-0.6 km, not 3 km. It is not certain that a 3-km shift in salinity would occur. Salinity is indicated as an important factor affecting species habitat and entrainment (Section 6.1.4). Possible adverse effects of a shift in salinity are noted for the Delta and Bay Regions (Section 6.1.1 under "Storage," Section 6.1.7.1, Section 6.1.7.2, and Section 6.1.8.1 under "Delta Region - Delta Channel Capacity"). The conclusion that impacts of a shift in salinity caused by conveyance elements (Section 6.1.8.1 under "Bay Region") are less than significant for the Bay Region is based on several factors, including:

- Operations criteria are in place that will maintain minimum Delta outflow during the critical February through May period.
- The change in outflow is small relative to the variability in outflow from month to month and year to year.
- The change in outflow is partially attributable to capture of flow during high flow conditions that will minimize the effect on ecosystem processes.

At the programmatic level, effects on salinity were simulated for a range of storage and conveyance facilities and operations. Assumptions used in the simulation are presented in Attachment A to the Programmatic EIS/EIR. The broad impact of potential changes in Delta outflow, and appropriate mitigation strategies, are identified in Section 6.1 in the Programmatic EIS/EIR. An evaluation of detailed biological effects requires more specific and detailed simulations of the seasonal timing, duration, and magnitude of changes in Bay salinity. This information will be available when specific implementation of CALFED Program actions occur and the location and operating criteria of projects are known. Analysis of specific project information will allow its integration with the seasonal occurrence, distribution, and sensitivity of life stages of affected organisms and permit better biological impact prediction. Project-specific environmental documents will be completed for any new storage and facilities, and will

biological impact prediction. Project-specific environmental documents will be completed for any new storage and facilities, and will include detailed information related to shifts in salinity and potential organism response in the Delta and Bay. Program activities to increase understanding of Delta outflow effects and the related shifts in salinity on organisms in the Delta and Bay are included in the Strategic Plan and the CMARP. Detailed and any new information related to shifts in salinity and organism response will be incorporated into project-specific documents for actions implemented by the CALFED Program.

6.1.8.4 Alternative 3

IA-6.1.8.4-1

An Alternative 3 that includes the implementation strategy of the Preferred Program Alternative becomes essentially the same as phases of the Preferred Program Alternative until construction of the Hood to Mokelumne River channel as an isolated facility. Alternative 3 that includes the implementation strategy of the Preferred Program Alternative could better avoid and minimize potentially significant adverse impacts. Also see response IA-2.1-5.

IA-6.1.8.4-2

Section 6.1.8.4 has been modified to read:

> "Impacts of modified south Delta intake facilities would be similar to those described for the Preferred Program Alternative."

The following text has been added after the paragraph with the preceding revision:

> **Delta Cross Channel.** Under Alternative 3, the DCC may be closed from September through July and possibly all months. Flexible operations would be considered, depending on demonstrated benefits. Based on DCC operations under the No Action Alternative, potential operations for Alternative 3 would increase juvenile salmon survival entering the Delta from the Sacramento River during October-January and May 20-June 30. Closure could benefit winter-, spring-, late fall-, and fall-run chinook salmon; although peak migration of juvenile chinook from the Sacramento River generally occurs after October, depending on occurrence of storm events.
>
> Closure of the DCC could increase the frequency and magnitude of net reverse flow conditions in the lower San Joaquin River relative to conditions under the No Action Alternative. Improved flow conditions associated with the isolated diversion channel near Hood, however, would override the effects of DCC closure. As discussed below for the isolated facility, net flow conditions are likely to improve under Alternative 3.
>
> **Delta Channel Capacity.** Old River north of CCFB may be enlarged to reduce channel velocity. The enlarged channel potentially allows use of the full capacity of the SWP Delta export facility when all Bay-Delta standards are met. Simulated operations indicate that full use of the SWP pump capacity could increase the total annual exports by approximately 4%. In the absence of the other elements of Alternative 3, increased exports could increase the magnitude of net reverse flow conditions in Old and Middle Rivers, and possibly in the lower San Joaquin River. Improved flow conditions associated with the isolated diversion channel near Hood, however, could override the effects of an enlarged channel. As discussed below for the isolated facility, net flow conditions are likely to improve in all Delta channels under Alternative 3.

South Delta Flow Control. An operable barrier may be constructed on the head of Old River at the confluence with the San Joaquin River near Mossdale. When closed, the barrier would direct San Joaquin River flow down the main San Joaquin River channel and past Stockton. The barrier potentially benefits juvenile chinook salmon from the San Joaquin River, by directing their movement along the San Joaquin River pathway and away from the CVP and SWP south Delta export intakes. The barrier also may benefit adult chinook salmon through the improved dissolved oxygen and water temperature conditions that result from increased net flow past Stockton.

Closure of the barrier, without a concomitant reduction in exports, would increase net flow toward the CVP and SWP south Delta export intakes, primarily through Turner Cut, Middle River, and Old River. Improved flow conditions associated with the isolated diversion channel near Hood, however, would override the adverse effects of a barrier at the head of Old River. As discussed below for the isolated facility, net flow conditions are likely to improve in all Delta channels under Alternative 3.

IA-6.1.8.4-3

Please see revisions to the text in Section 6.1.8.4, "Alternative 3." Impacts of modified south Delta intake facilities would be similar to those described for the Preferred Program Alternative.

Going forward with one Program element does not preclude the Program's ability to undertake additional conveyance actions in the future, subject to appropriate environmental review. Each of the Program alternatives would be implemented incrementally, or in stages over time. This approach allows for the need to adapt actions that will improve water management and restore ecological health (see common response 19).

IA-6.1.8.4-4

As indicated in Section 5.2, the shift in X2 would be greater than 1 km and would be similar to shifts described for comparison of the Program alternatives with the No Action Alternative (Section 5.2.9). The shift in X2, however, is not the only impact mechanism. Reduced flow may also adversely affect transport of striped bass eggs and movement of other species. As indicated, adverse effects are similar to those described for the comparison of the Program alternatives with the No Action Alternative. The mitigation strategies are as described in Section 6.1.11. Chapter 9 discusses how mitigation strategies will be applied to individual CALFED programs.

As indicated in Section 6.1.4, productivity is an issue of substantial complexity and uncertainty. Uncertainty will be addressed by Program activities that will develop increased understanding of the natural physical and biological processes and species habitats. Program activities include monitoring, research, and adaptive management as described in the Strategic Plan, the CMARP, and the MSCS.

IA-6.1.8.4-5

The sentence has been changed to read:

"Effects on Sacramento River flow below Hood would increase with an increase in the capacity of the isolated facility."

IA-6.1.8.4-7

Please see the discussion of potentially significant and unavoidable impacts in Section 6.1.12. The potentially significant and unavoidable impacts may be avoided through adherence to the Program implementation strategy discussed in Section 6.1.2, "Areas of Controversy," and in Chapter 9. For the purposes of full disclosure and out of an abundance of caution, the impacts are assumed to be unavoidable.

IA-6.1.8.4-8

An overall comparison of Program alternatives relative to potentially significant impacts is provided in Section 6.1.1, "Summary." Although it could be argued that the synergistic effects are appropriately addressed in the programmatic document, the complexity and magnitude of the ecosystem limit understanding and identification of synergistic effects. Synergistic differences identified are limited to relatively simple physical ecosystem changes described in the Programmatic EIS/EIR. Description of synergistic differences relative to biological responses is not possible.

Please see common response 5 for additional information on the alternatives. Going forward with one Program element does not preclude the Program's ability to undertake additional conveyance actions in the future, subject to appropriate environmental review. The approach may obscure differences between alternatives, but each of the Program alternatives would be implemented incrementally, or in stages over time. This approach allows for the need to adapt actions that will improve water management and restore ecological health (see common response 19).

6.1.9 Program Alternatives Compared to Existing Conditions

IA-6.1.9-1

The available information does not indicate that the CALFED Program, although it includes the Water Use Efficiency Program, would cause the fate of wastewater to differ from its fate under the No Action Alternative. Simulated export volume for the Program alternatives exceeds the volume exported under the No Action Alternative. In addition, the Water Transfer Program could increase availability of water for transfer. The CALFED Program would increase wastewater management flexibility relative to wastewater reuse and changes in discharge to southern California streams. The following text has been inserted in Section 6.1.7.4 under "Other SWP and CVP Service Areas":

> "Improved water use efficiency also may reduce the contribution of wastewater to southern California streams."

Aquatic communities dependent on wastewater-augmented flows would be adversely affected. Adverse impacts will be addressed by project-specific environmental documents (see common response 1).

IA-6.1.9-2

The inclusion of the implementation strategy of the Preferred Program Alternative for Alternatives 1, 2, and 3 is possible and would reduce most of the potentially significant adverse impacts to less-than-significant levels through avoidance, minimization, and mitigation measures incorporated into the implementation strategy.

6.1.10 Additional Impact Analysis

IA-6.1.10-1

Please see common response 1. The text for "Cumulative Impacts" has been replaced with the following:

> This section identifies where Program actions could contribute to potentially significant adverse cumulative impacts. In doing so, those potentially significant adverse cumulative impacts for which the Program's contribution could be avoided or mitigated to a less than cumulatively considerable level are identified. If identified in the analysis, this section also presents any potentially significant adverse cumulative impacts that remain unavoidable regardless of efforts to avoid, reduce, or mitigate them. Refer to Chapter 3 for a summary of cumulative impacts. Refer to Attachment A for a list and description of the projects and programs considered in concert with the Preferred Program Alternative in this cumulative analysis.
>
> For fisheries and aquatic resources, the analysis and conclusions regarding the significance of the Preferred Program Alternative's contribution to cumulative impacts are essentially the same as the analysis and conclusions regarding the Preferred Program Alternative's long-term impacts. This similarity is in part due to the long-term nature of the Program and the wide range of actions that falls within the scope of the Program's potential future actions. Section 6.1.1 lists in summary form the potentially significant adverse long-term impacts and the mitigation strategies that can be used to avoid, reduce, or mitigate them. At the programmatic level, the impact that cannot be avoided, reduced, or mitigated to a less-than significant level is noted on the list in bold type. Sections 6.1.7 and 6.1.8 elaborate on the long-term impacts.
>
> The impact of the Preferred Program Alternative, when added to the potential impacts of the following projects, would result in potentially significant adverse cumulative impacts on fisheries and aquatic resources in the Delta, Bay, Sacramento River, and San Joaquin River Regions: American River Watershed Project, American River Water Resource Investigation, CVPIA Anadromous Fish Restoration Program and other CVPIA actions not yet fully implemented, Delta Wetlands Project, Pardee Reservoir Enlargement Project, Sacramento Water Forum Process, Supplemental Water Supply Project, Sacramento County Municipal and Industrial Water Supply Contracts, and urbanization. At the programmatic level of analysis, the CALFED Program's contribution to cumulative impacts resulting from environmental consequences listed in Section 6.1.1 are expected to be avoided, reduced, or mitigated to a less than cumulatively considerable level. The exception is the potential increase in non-native species to levels detrimental to native species. This outcome may result from the reestablishment of aquatic areas in the Delta and Bay Regions, as discussed in Section 6.1.12. Mitigation strategies for this impact are identified (see Section 6.1.11) and will be implemented (see Chapter 9). However, this programmatic-level analysis cannot determine whether the Program's contribution to the potential increase in non-native species can be avoided, reduced, or mitigated to a less than cumulatively considerable level. Therefore, this analysis concludes that the impact is cumulatively significant and unavoidable. This conclusion is based on currently available information and the high level of uncertainty as to whether this impact can be avoided, mitigated, or reduced to a level that is less than cumulatively considerable.

Regarding the discussion of short- and long-term relationships, the increase in intensity is misstated and should refer to Alternatives 2 and 3, where larger facilities and greater changes in Delta channel structure are proposed. Section 6.1.10 has been changed to read:

> Flow conveyance facilities and operations can result in potentially significant adverse short- and long-term impacts. The possibility of adverse impacts increases from Alternative 1 to the Preferred Program Alternative and from the Preferred Program Alternative to Alternatives 2 and 3. The difference in impact intensity is due to reliance on larger facilities, greater changes in Delta channel structure, and change in facility location. The increasing structural and operational changes under Alternatives 2 and 3 and possibly under the Preferred Program Alternative, however, provide the increased opportunity for enhancement of long-term productivity relative to Alternative 1.

6.1.11 Mitigation Strategies

IA-6.1.11-1

The potentially significant impacts identified for Alternatives 1 through 3 are encompassed by the impacts in the summary table for the Preferred Program Alternative (Section 6.1.1). The intensity, timing, and geographical location of impacts will differ, but the mitigation strategies are the same. Each mitigation strategy is tied to specific potentially significant impacts. Reducing the impacts to less-than-significant levels depends on specific measures that will be defined and applied during implementation of individual CALFED Program actions (see Chapter 9 and common response 19).

6.1.12 Potentially Significant Unavoidable Impacts

IA-6.1.12-1

Avoiding, minimizing, and mitigating potentially significant adverse impacts depends on developing knowledge of species needs and understanding the response to specific actions. Where knowledge of species needs is incomplete and the species response to specific actions uncertain, potentially significant adverse impacts may be unavoidable. A cautious approach is taken (that is, impacts are identified as unavoidable) where the outcome of a mitigation strategy is uncertain relative to minimizing the impact. Specific measures will be defined and applied during implementation of individual CALFED Program actions (see Chapter 9).

6.2 Vegetation and Wildlife

0. General Responses

IA 6.2.0-1

Section 6.2.3 provides an adequate discussion of the existing conditions for habitats and special-status species by region. The discussion is general and commensurate with the programmatic level of detail provided in the Programmatic EIS/EIR. Additional detail can be found in the March 1998 Affected Environment Technical Report for Vegetation & Wildlife. Significance criteria are clearly identified in Section 6.2.5. When impacts are considered potentially significant, the impact is stated in language that can be cross-referenced to significance criteria. Potentially significant impacts and corresponding mitigation strategies are summarized in Section 6.2.1.

6.2.1 Summary

IA 6.2.1-1

The referenced terms in Section 6.2.1 have been changed to "Preferred Program Alternative." We do know that some temporary impacts would occur; therefore, no change has been made to the last sentence in the paragraph.

IA 6.2.1-2

CEQA and NEPA require that an EIR/EIS discuss both direct and indirect effects of a project or program. It is not necessary, however, to categorize impacts as direct or indirect. The text in Sections 6.2.7 and 6.2.8 provide more detail on the Program's direct and indirect impacts on vegetation and wildlife.

IA 6.2.1-3

The table in Section 6.2.1 provides a summary of the mitigation strategies for vegetation and wildlife. The discussion in Section 6.2.11 provides a more detailed description of the types of mitigation strategies in the table. All mitigation strategies will become more specific as they are applied to individual Program actions. Also see response IA-6.2.7-1.

IA 6.2.1-4

This measure, like others, is programmatic. As BMPs are identified for specific projects, they will be detailed.

6.2.2 Areas of Controversy

IA 6.2.2-1

The reference to short-term impacts that could result from the Ecosystem Restoration Program is found in Section 6.2.7.1. See the change to text regarding fuel loads. Many groups have already commented on elements of the Ecosystem Restoration Program.

IA 6.2.2-2

Potential impacts to biological resources resulting from changes in salinity are not addressed in detail in this document; therefore, the impact is pointed out in this section. The need for subsequent environmental documentation has been highlighted in several locations throughout this section.

IA 6.2.2-3

As noted in Section 6.2.2, salinity standards set by the SWRCB will be met. These standards require Delta outflows to be maintained at levels intended to keep the entrapment zone from moving into the Delta from within Suisun Bay. During average to above-average water years, Suisun Bay brackish marshes therefore should not experience appreciable changes in salinity. As pointed out by the commentor, these standards vary based on the water year; in dry water years, these standards may allow some shifting of the entrapment zone toward the Delta. However, it is not possible to predict the frequency or duration of these shifts. It is also difficult to accurately predict the response of brackish tidal wetlands to varying periods of increased salinity. It is likely, however, that species composition of brackish marsh would not change appreciably because this vegetation is already adapted to a relatively wide range of salinity. Given this uncertainty and lack of current available data, this issue has been identified as an area of controversy that cannot be resolved at a programmatic level. Subsequent project-specific environmental analysis will be required. These project-specific analyses would include consideration of size, location, and operational criteria of the project. This information would allow more precise modeling of hydrology and more accurate prediction of salinity effects, thus permitting better evaluation of impacts on vegetative communities. As information is gathered during the implementation phase, monitoring and adaptive management also will provide information to evaluate environmental effects, and allow the Program to adjust actions to prevent or mitigate impacts on valuable environmental resources.

6.2.3 Affected Environment/Existing Conditions

IA 6.2.3-1

Section 6.2.3 contains a general description of the types of special-status species and habitats known to occur in each of the CALFED regions under existing conditions. All important resources have been considered at a programmatic level. The section also describes existing stressors to special-status species. The level of detail provided is sufficient for determining the nature and significance of the Program's impacts on vegetation and wildlife at a programmatic level of analysis. Statistical analysis is not appropriate at the programmatic level. More information about species populations and habitat acreages is contained in the March 1998 Affected Environment Technical Report for Vegetation & Wildlife, which is referenced in Section 6.2. Detailed information about specific populations of special-status species and the precise location of habitat will be further delineated in project-specific environmental documentation.

IA 6.2.3-2

The Programmatic EIS/EIR contains a programmatic discussion of the expected impacts of the Program on special-status species and significant natural areas (SNAs). Special-status species, SNAs, and rare natural communities are discussed in more detail in the March 1998 Affected Environment Technical Report for Vegetation & Wildlife. The MSCS contains additional detail regarding mitigation strategies, referred to as conservation measures, that will be applied during implementation of individual Program actions.

IA 6.2.3-3

It is correct that waterfowl and shorebirds are relevant to the types of land use changes expected in the study area. Other species important to the biology of the region are discussed in the Technical Report for Vegetation & Wildlife. Special-status species are defined in the March 1998 Affected Environment Technical Report for Vegetation & Wildlife. Information in the technical report is based on the CVPIA PEIS and printed and electronic (database) versions of DFG's Natural Diversity Database (NDDB). Categories include federally and state-listed and proposed species and candidates (now species of concern). Additional detail requested by the commentor is contained in the MSCS and technical report. Species associations with habitat and proposed CALFED actions evaluated in the MSCS are listed in the MSCS. Legal status is shown in Table 2-2 in the MSCS.

6.2.3.1 Delta Region

IA-6.2.3.1-1

The detail requested and references are contained in the March 1998 Technical Reports for Vegetation & Wildlife. The technical reports are referenced in Chapters 4 and 12.

IA 6.2.3.1-2

Other habitats will not be affected to the extent that wetlands and open water will be. Other habitats are discussed in the March 1998 Affected Environment Technical Report for Vegetation & Wildlife. Seasonal, tidal, and non-tidal marsh are distinguished by reference to species present, location, and portion of the year with water present. It is unclear what the reference to consistency in the comment means. Scientific names are provided at the first reference to a species. Thereafter, common names are sufficient.

IA 6.2.3.1-3

Please see response IA-6.2.3.1-1.

IA 6.2.3.1-4

Listing the species does not allow more specific impact analysis.

6.2.3.2 Bay Region

IA 6.2.3.2-1

The text has been modified to read "proposed actions associated with the Program." "Productive wetlands" is a general term that refers to the biological productivity of historical wetlands.

IA 6.2.3.2-2

The comment is unclear. In paragraph 1, species are identified by scientific names. General groups (for example, shorebirds) are not. Under the heading "Special-Status Species," the species discussed are only examples. Refer to the March 1998 Affected Environment Technical Report for Vegetation & Wildlife and the MSCS for complete listings of species scientific names. The statement regarding loss of wetlands is general. Refer to the technical report for more details and citations. See change to text for the status of the peregrine falcon.

6.2.3.3 Sacramento River Region

IA 6.2.3.3-1

See change to text in the definition of the Sacramento River Region. The term "productive" is used as described above in response IA-6.2.3.2-1. The difference between dams, agricultural, and fuel needs seems apparent. "Construction needs" has been deleted. Would residential areas depend on regular floods? No change has been made to paragraphs 4, 5, or 6. Proposed wording changes do not add substantially to the content of the document. Unfavorable conditions are explained more fully in the technical reports. Waterfowl and shorebirds also are described more in the technical reports.

6.2.3.4 San Joaquin River Region

IA 6.2.3.4-1

Please refer to the March 1998 Affected Environment Technical Report for Vegetation & Wildlife for more detail.

6.2.3.5 Other SWP and CVP Service Areas

IA 6.2.3.5-1

As pointed out throughout the document, further evaluation will be required as Program actions in other service areas are identified. The species listed in the last paragraph are examples as stated in the text.

6.2.4 Assessment Methods

IA-6.2.4-1a

The context of the section shows that the assessment methods are impact assessment methods; therefore, no change in the title of the section is necessary.

IA-6.2.4-1b

A definition of rare natural communities that include wetlands, riparian habitats and other rare communities tracked by DFG's NDDB has been added to the "Affected Environment/Existing Conditions" section.

IA-6.2.4-1c

The word "living" has been deleted from the paragraph because foraging and breeding areas include the "living" areas.

IA-6.2.4-1d

Indirect impacts can be assessed and, in some cases, may need to be used to differentiate between alternatives. However, the two examples given in the section "noise and human disturbance" can indeed not be used to differentiate between alternatives. Please note that the discussion in Section 6.2.8 is much more focused on direct impacts, whereas the discussion in Section 6.2.7 deals with both direct and indirect impacts.

IA-6.2.4-2a

As noted in the Programmatic EIS/EIR, this information is available in the March 1998 Affected Environment Technical Report for Vegetation & Wildlife.

IA-6.2.4-2b

Geographic extent is the extent (size) of the spatial units (for example, habitat polygons); spatial configuration is the arrangement of the spatial units.

IA-6.2.4-2c

The document has been modified to combine the first two paragraphs. The first sentence of the referenced paragraph has been rewritten as follows:

> Approximate impact footprints corresponding to proposed alternatives were generated using GIS. Lists of special-status plant and animal species were generated for these footprints with the DFG's NDDB location data on special-status species. The NDDB provides the best available data for an analysis of this scale.

IA-6.2.4-2d

The term "RAREFIND" has been changed in the document to "Natural Diversity Database."

IA-6.2.4-2e

The March 1998 Technical Reports for Vegetation & Wildlife are available by written request to CALFED.

6.2.5 Significance Criteria

IA-6.2.5-1

The significance criteria are defined at a level commensurate with a programmatic-level assessment. Some of the significance criteria listed in Section 6.2.5 have been modified to clarify the intent of the criteria. The application of the criteria has been modified in Section 6.2.7, "Consequences: Program Elements Common to All Alternatives," and in Section 6.2.8, "Consequences: Program Elements That Differ Among Alternatives."

IA-6.2.5-2a

Use of the word "would" in the subject paragraph is appropriate because the variety of the environmental settings in which the assessed actions occur suggests a definite variation in significance.

IA-6.2.5-2b

The referenced sentence has been deleted .

IA-6.2.5-3a

The commentor is correct. Individual Program actions will be subject to further environmental analysis prior to their implementation. This point has been explained in the preface to the Programmatic EIS/EIR and in Chapter 1 of that document.

IA-6.2.5-3b

In the document, the term "thresholds of significance" has been replaced by "significance criteria."

IA-6.2.5-3c

The measurements could be quantitative or qualitative. The criteria are qualitative in the sense that specific acreages of removal, fill, grading, or disturbance do not need to be defined for these criteria.

IA-6.2.5-4a

The significance criterion has been modified to clarify that the criterion applies to upland habitats in the upper watersheds of the Sacramento River and San Joaquin River watersheds. Wildlife use areas refer to traditional habitat areas used by some species. An example of an important wildlife use area is DFG-designated critical deer winter range and fawning habitat. Important wildlife habitat areas refer to native upland habitats that are generally declining in California, such as oak woodlands, and that are important to maintaining some species' populations. This significance criterion also has been modified to include a definition of important wildlife use areas and important wildlife habitat areas.

IA-6.2.5-4b

Forage from agricultural lands is an important source of food for waterfowl; a substantial reduction in this forage would result in a potentially significant impact. This significance criterion has been modified to indicate that a substantial decrease in the availability of waterfowl forage would be considered potentially significant.

IA-6.2.5-4c

The significance criterion has been modified to indicate that a substantial increase in the potential for outbreaks of wildlife diseases would be considered potentially significant. A discussion of the potential for increases in the incidence of wildlife disease outbreaks as a result of implementing the Program has been added to Section 6.2.7, "Consequences: Program Elements Common to All Alternatives."

IA-6.2.5-4d

The significance criterion has been modified to indicate that temporary or permanent loss of occupied special-status species habitat or indirect or direct mortality of special-status species would be considered potentially significant. Temporary impacts on occupied habitat was included in this significance criterion because although the renewed occupation of an affected site by displaced special-status species that is implied by temporary loss of *occupied* habitat indicates that the species' survival has not been impeded at an affected site, the reproduction of the species may have been reduced by temporary reduction of its habitat.

IA-6.2.5-4e

The significance criterion has been clarified to indicate that a reduction in the geographic range of rare natural communities would be considered potentially significant.

6.2.6 No Action Alternative

IA-6.2.6-1a

In Section 6.2.6, use of the term "would" to indicate that actions under the No Action Alternative would be implemented is appropriate because there is a high level of certainty that the actions considered in the No Action Alternative will be implemented (see Attachment A to the Programmatic EIS/EIR for criteria used to select actions considered in the No Action Alternative). Use of the word "would" to describe the likely outcome of implementing an action is appropriate where there is a high degree of certainty of the outcome (for example, construction of surface storage reservoirs *would* create open water habitat). Use of such words as "would likely," "could," or "may" when describing a likely outcome of an action is appropriate in instances where the outcome of an action is less certain (for example, construction of surface storage reservoirs *could* fragment riparian habitat corridors, depending on where reservoirs are located).

IA-6.2.6-1b

Section 6.2.6 has been modified to reference Attachment A.

IA-6.2.6-1c

Seismic susceptibility of levees to failure is addressed in Section 5.5.6. The biological consequences of potential levee failure would likely be short term because any new open-water habitat would not remain after levees are repaired. The issue of population growth is addressed in common response 17.

6.2.6.1 Delta Region

IA-6.2.6.1-1a

The third sentence in paragraph 1 in this section has been changed to: "The quantity and quality of wetland and riparian vegetation in the Delta would probably mostly diminish over time as non-Program projects (see Attachment A) are implemented, in spite of small increases in wetland and riparian vegetation due to increased productivity that could occur."

IA-6.2.6.1-1b

Presently, the precise designation of the land that will be retired cannot be determined, but the land will be taken out of agricultural production. See Attachment A for additional description of what projects may involve land retirement. Only lands from willing sellers will be utilized to meet habitat goals.

IA-6.2.6.1-1c

Based on the available information that is presented in Attachment A, Section 6.2.6 provides, to the extent feasible, a discussion of what is expected to occur for species and habitats without CALFED. This evaluation does not

include specific changes in quantity and quality because the changes cannot be predicted at a programmatic level. Subsequent project-specific documents will be required for this detail.

IA-6.2.6.1-1d

The paragraph has been changed to indicate that the paragraph topic refers to biological productivity.

6.2.6.3 Sacramento River Region

IA-6.2.6.3-1

This section has not been revised because the statement regarding structural characteristics is needed for context in the section.

6.2.6.4 San Joaquin River Region

IA-6.2.6.4-1

The reference has been deleted in Section 6.2.6.4.

IA-6.2.6.4-2

The terms "retirement" and "drainage problem area" are used in context with the rest of the sentence. Retirement means that agricultural drainage would end. This seems clear in the text as it is written. Level 4 and Level 2 are defined in the existing text. As stated in the text, Level 4 water supplies would allow greater flexibility and consistency in providing for full development of wetlands and water to support waterfowl and other species on refuge habitat. Decisions on how to use this water and resultant habitat changes would be up to resource managers. Predicting these decisions is speculative.

6.2.6.5 Other SWP and CVP Service Areas

IA-6.2.6.5-1

Projects listed are given as examples. A reference to Attachment A has been added to the document.

IA-6.2.6.5-2

Population growth management is beyond the mandate of the CALFED Program. Please refer to common response 17 for further discussion. The last sentence in Section 6.2.6.5 refers to groundwater banking projects in general.

6.2.7 Consequences: Program Elements Common to All Alternatives

IA-6.2.7-1a

Section 6.2.7, "Consequences: Program Elements Common to All Alternatives," has been modified to include estimated changes in habitat area that are expected with implementation of the Ecosystem Restoration Program where such changes can be reasonably predicted. Generally, the types and area of habitat that could be affected

with implementation of Program elements cannot be quantified because locations where actions may be implemented are largely unknown.

IA-6.2.7-1b

Section 6.2.7, "Consequences: Program Elements Common to All Alternatives," has been reorganized to clarify the relationship between impact statements, cause, significance conclusion, and applicable mitigation strategies.

IA-6.2.7-1c

All required assessments of impacts and mitigation are contained in the Programmatic EIS/EIR. Section 6.2.7 references the MSCS as a source of detailed discussion of potential impacts on over 240 special-status species and more detailed information on how general mitigation strategies in the Programmatic EIS/EIR apply at the individual species level. The MSCS does not supplement the CEQA/NEPA analyses per se but adds a level of detail as required for compliance with the ESA and NCCP Acts.

All potential impacts of the Program on special-status species and their habitats are considered potentially significant based on the significance criteria listed in Section 6.2.5. Section 6.2.7, "Consequences: Program Elements Common to All Alternatives," has been revised to indicate that: (1) all potential impacts on special-status species are considered potentially significant, (2) detailed descriptions of potential impacts on special-status species are presented in the MSCS, (3) detailed descriptions of mitigation strategies (i.e., MSCS conservation measures) to address impacts are presented in the MSCS, and (4) MSCS conservation measures, including avoidance of impacts on special-status species, are designed to reduce impacts to a less-than-significant level.

6.2.7.1 Delta Region

IA-6.2.7.1-1

The potential effects of converting agricultural lands in the Delta to natural habitats under the Ecosystem Restoration Program on the Swainson's hawk, greater sandhill crane, and wintering waterfowl are described in Section 6.2.7, in the MSCS, and in technical reports to the MSCS. Restoration of natural habitats used by these species and enhancement of forage values for these species on 40,000 to 75,000 acres of agricultural lands in the Delta with implementation of the Ecosystem Restoration Program, combined with implementation of mitigation strategies, are expected to reduce this potentially significant impact to a less-than-significant level.

IA-6.2.7.1-2a

The first paragraph of this section summarizes Ecosystem Restoration Program objectives.

IA-6.2.7.1-2b

The term "target habitats" in Section 6.2.7.1 has been changed to "natural habitats." The last sentence in the same paragraph has been changed to indicate that Ecosystem Restoration Program actions also include provisions to protect existing natural habitats.

IA-6.2.7.1-2c

Throughout Section 6.2.7, "Consequences: Program Elements Common to All Alternatives," use of the term "would" to indicate that Program actions will be implemented is appropriate because the impact analysis assumes that actions proposed under the Program are intended to be implemented. Use of the term "would" to describe the likely outcome of implementing an action is appropriate where there is a high degree of certainty of the outcome (for example, construction of surface storage reservoirs *would* create open water habitat). Use of words, such as "would likely," "could," or "may" when describing a likely outcome of an action is appropriate in instances where the outcome of an action is less certain (for example, construction of surface storage reservoirs *could* fragment riparian habitat corridors, depending on where reservoirs are located).

Temporary and permanent impacts are now discussed in separate paragraphs. A reference has been added to guide the reader to Sections 6.2 and 6.2.11 where impacts are tied to specific mitigation strategies. The affected agricultural lands refers to Program effects common to all alternatives. The paragraph discussing agricultural lands refers to Section 6.2.11 for specific mitigation strategies to reduce potentially significant impacts.

IA-6.2.7.1-2d

The last paragraph in this section indicates that the formation of methyl mercury could increase where wetlands with anaerobic conditions are restored on soils with mercury. The mitigation strategy referenced in this paragraph has been deleted and moved to Section 6.2.11, "Mitigation Strategies," and modified to indicate that implementation of mitigation measures would reduce this potentially significant impact to a less-than-significant level.

IA-6.2.7.1-3a

Section 6.2.7.1 summarizes Water Quality Program objectives.

IA-6.2.7.1-3b

Section 6.2.7.1 has been modified to reference the Water Quality Program Plan for further discussion of BMPs. The revision also indicates that implementation of the Water Quality Program could result in increased invertebrate prey availability for wildlife and could reduce the bioaccumulation of organic and inorganic compounds in the foodweb.

IA-6.2.7.1-3c

Section 6.2.7.1 describes specific actions that could be implemented under the Water Quality Program that could result in the impacts on vegetation and wildlife that are described in the paragraph. Impacts of the actions addressed in this section could result in the loss of agricultural foraging habitat. Impacts of the actions addressed in this section also could result in an increase in the availability of invertebrate prey species. This discussion has been modified to indicate that Water Quality Program actions that cause ground disturbance could result in localized and temporary disturbances to natural habitats and associated wildlife.

IA-6.2.7.1-3d

A reduction in salinity would be achieved (not caused) through increased water use efficiency. Refer to the Water Use Efficiency section for discussion of localized loss of wetlands. The reference to existing levee habitats in Section 6.2.7.1 is intended to indicate the types and relative amounts of levee habitats that could be affected with

implementation of Levee System Integrity Program actions. Impacts discussed under the Levee System Integrity Program are identified as potentially significant. Special-status species are addressed.

IA-6.2.7.1-3e

Section 6.2.7.1 describes potential beneficial affects of the Water Use Efficiency Program on vegetation and wildlife. The discussion indicates that if water saved under the Water Use Efficiency Program is allocated to environmental uses, such as restoration of wetlands, associated plants and wildlife would benefit. The text has been modified to clarify that the paragraph addresses Water Use Efficiency Program actions.

IA-6.2.7.1-3f

Descriptions of potential impacts as either temporary or permanent in Section 6.2.7.1 are appropriate. The text has been modified to indicate that: (1) implementation of the Water Use Efficiency Program could result in adverse impacts on vegetation and wildlife, and (2) temporary loss or degradation of wetland and riparian communities could result from land grading or construction activities adjacent to habitat areas. Incidental habitats are defined in this paragraph to include wetlands at the end of an agricultural field or riparian vegetation in a drainage ditch or channel. These incidental habitats are supported by existing inefficiencies in irrigation and drainage systems, and could be affected by increasing the efficiency of irrigation and drainage.

IA-6.2.7.1-3g

Section 6.2.7.1 describes two different concepts—the potential effects of changing cropping patterns on general wildlife habitat values and on specific special-status species.

IA-6.2.7.1-3h

Section 6.2.7.1 has been modified to indicate that the Water Transfer Program could result in increasing the quantity or quality of habitat for some species. The discussion is directed at potential future reallocation of water from existing uses and is not directed at describing uses of water as currently allocated.

IA-6.2.7.1-3i

Section 6.2.7.1 summarizes potential benefits of implementing the Watershed Program in the Sacramento River and San Joaquin River Regions on habitats and associated species in the Delta Region. As indicated in the text, specific descriptions of the types of Watershed Program actions and how those actions could improve water quality in the Delta Region are described under Section 6.2.7.3, "Sacramento River and San Joaquin River Regions." The text has been modified to: (1) indicate that improvement in water quality expected with implementation of the Watershed Program in the Sacramento River and San Joaquin River Regions could be beneficial for vegetation and wildlife in the Delta Region if loadings of contaminants are sufficiently reduced, and (2) to delete the reference to potential benefits of improved flows for vegetation and wildlife. Although improvements in watershed conditions could result in increased flows to the Delta, it is unlikely that increases in flow generated by implementing the Watershed Program would be sufficient to provide a measurable benefit to vegetation and wildlife in the Delta Region.

IA-6.2.7.1-3j

As indicated in Section 6.2.7.1, open-water habitat would be created if an in-Delta storage facility is constructed. The following paragraph describes potential impacts of constructing an in-Delta storage facility on existing

habitats. This paragraph also indicates the area and types of habitat that could be affected with construction of a storage facility and that the specific area of natural communities that could be affected depends on the size and location of the facility. Impacts associated with construction of an in-Delta storage facility would be covered under separate site-specific environmental documents when facilities are proposed.

IA-6.2.7.1-3k

Section 6.2.7.1 describes two different concepts—the types of habitat potentially affected by construction of an in-Delta storage facility and that the specific types and area of affected habitat types would depend on the location and size of the facility.

IA-6.2.7.1-4

Section 6.2.2 has been modified to be consistent with the MSCS. The text has been changed to indicate that water transfers could beneficially or adversely affect vegetation and wildlife, depending on the nature of the water transfer, and that transfers would not be implemented if potential adverse effects could not be mitigated to a less-than-significant level. (See the Water Transfer Program Plan under "Water Transfer Criteria.")

IA-6.2.7.1-5

Section 6.2.7.1 has been modified to indicate that the Water Transfer Program could result in increasing or decreasing the quantity or quality of habitat for some species, depending on the nature of a particular transfer. Water transfers could result in potential benefits or adverse effects on vegetation and wildlife associated with areas that water is transferred from, as well as areas that water is transferred to.

IA-6.2.7.1-6

Potential adverse effects on vegetation and wildlife associated with implementing the Water Use Efficiency Program are described in Section 6.2.7.1. The Programmatic EIS/EIR acknowledges that the program could result in the loss of habitat for special-status species such as the giant garter snake and that such losses would be potentially significant impacts that could be reduced to a less-than-significant level with implementation of mitigation strategies.

6.2.7.3 Sacramento River and San Joaquin River Regions

6.2.7.3-1

Potential effects of changes in project operations on vegetation and wildlife that could be associated with construction and operation of new or enlarged storage facilities are described in Section 6.2.7.3, in the MSCS, and in technical reports to the MSCS. Changes in project operations, including changes in flows and timing of flows in affected rivers, are not expected to adversely affect vegetation and wildlife and are considered to be less than significant.

IA-6.2.7.3-1a

Associated floodplain habitats referred to in Section 6.2.7.3 include permanent and seasonal wetlands and seasonal open water habitat areas. These associated floodplain habitats are described in the following paragraph.

IA-6.2.7.3b

Habitats potentially affected by implementation of the Ecosystem Restoration Program in the Sacramento River and San Joaquin River Regions are described in Section 6.2.7.3.

IA-6.2.7.3-1c

Section 6.2.7.3 has been modified to indicate that detention of floodwaters in overflow basins could increase the area of seasonal wetland and open-water habitats.

IA-6.2.7.3-1d

The description in Section 6.2.7.3 of Ecosystem Restoration Program actions that improve habitat conditions specifically for wintering greater sandhill cranes is incorrect and has been deleted.

IA-6.2.7.3-1e

The use of the word "program" in the subject paragraph in Section 6.2.7.3 refers to the Ecosystem Restoration Program. The Ecosystem Restoration Program includes actions specific to improving populations of the riparian brush rabbit and is appropriately addressed in this paragraph as an example. This paragraph has been modified to indicate that implementation of Ecosystem Restoration Program actions would result in direct and/or indirect protection, enhancement, or restoration of floodplain habitats.

IA-6.2.7.3-2

"Program" is the acronym for the CALFED Bay-Delta Program and is first referenced in Section 6.2.1.

IA-6.2.7.3-3

As noted in Section 6.2.7.3, this section is intended to provide only a conceptual description of activities that could occur under the Watershed Program. Watershed Program actions could include actions designed to benefit species that are or are not addressed in the Ecosystem Restoration Program or the MSCS.

IA-6.2.7.3-4

Section 6.2.7.3 has been modified to remove assumptions about how habitat restoration projects may be implemented under the Watershed Program.

IA-6.2.7.3-5a

Section 6.2.7.3 has been modified to indicate that removal of existing roadways could benefit vegetation and wildlife. The subject paragraph has been corrected to identify potential impacts on special-status species and significant natural areas, and discusses the significance of impacts. Use of the word "improvements" refers to the structural improvements related to infrastructure and bank protection activities cited in the previous sentence, not to improvements in habitat conditions for vegetation and wildlife.

IA-6.2.7.3-5b

Section 6.2.7.3 summarizes the description of surface water storage facilities that could be constructed in the Sacramento River and San Joaquin River Regions and generally describes the habitats that could be affected with their construction. Specific potential impacts of constructing surface storage facilities on vegetation and wildlife are described in the following two paragraphs.

IA-6.2.7.3-6

The description of potential adverse impacts in the subject paragraph in Section 6.2.7.3 is incorrect. The paragraph has been corrected to indicate that potentially significant adverse impacts could be associated with implementing structural watershed improvements and that these impacts would be reduced to a less-than-significant level with implementation of mitigation strategies.

IA-6.2.7.3-7a

Section 6.2.7.3 incorrectly states "...that some reservoir sites under construction...". This paragraph has been corrected to state "...that some reservoir sites under consideration...". This change also has been made in the sidebar text.

IA-6.2.7.3-7b

The word "they" in the subject paragraph in Section 6.2.7.3 refers to water-spreading grounds. This paragraph has been modified to clarify that mudflats that could be created by water-spreading grounds could provide suitable foraging habitat for shorebirds, but that water-spreading grounds would likely provide low forage values for other species typically associated with wetlands.

IA-6.2.7.3-7c

Changes in project operations referenced in Section 6.2.7.3 refer to changes in CVP and SWP project operations that could occur with construction of enlarged or new storage facilities.

IA-6.2.7.3-8

Potential impacts on wetland and riparian habitats that could be associated with changes in project operations are described at a programmatic level in Section 6.2.7.3. These changes are not expected to be of sufficient magnitude to adversely affect dependent vegetation and wildlife. Additional environmental review would be required as specific changes in operations are proposed.

6.2.7.4 Other SWP and CVP Service Areas

IA-6.2.7.4-1

A reference to future environmental documentation has been added to Section 6.2.7.4.

6.2.8.1 Preferred Program Alternative

IA-6.2.8.1-1a

Section 6.2.8.1 has been corrected to indicate that the impacts described in the subject paragraph are potentially significant and can be reduced to a less-than-significant level with implementation of mitigation strategies.

IA-6.2.8.1-1b

Locations of conveyance features are presented in Chapter 2, "Alternative Descriptions." Section 6.2.3, "Affected Environment/Existing Conditions," describes general vegetation and wildlife resource conditions present in each CALFED region at a programmatic level. As such, the section does not describe vegetation and wildlife resources associated with specific locations within a region.

IA-6.2.8.1-1c

Section 6.2.8.1 has been corrected to indicate that the impacts on vegetation and wildlife that could be associated with setting back levees are potentially significant and can be reduced to a less-than-significant level with implementation of mitigation strategies.

IA-6.2.8.1-1d

The subject paragraph in Section 6.2.8.1 refers to improvements to CVP and SWP facilities in the Delta Region.

IA-6.2.8.1-1e

Section 6.2.8.1 describes both the adverse and beneficial impacts on habitats of setting back levees to improve conveyance. The sidebar text summarizes information presented in the subject paragraph.

6.2.8.2 Alternative 1

IA-6.2.8.2-1

The word "improvements" in the subject paragraph in Section 6.2.8.2 refers to Preferred Program Alternative actions that would improve conveyance capacity and does not refer to Program effects on vegetation and wildlife. This paragraph has been modified to clarify that 4,000-5,000 acres of habitat that could be affected by actions to improve conveyance capacity under the Preferred Program Alternative would not be affected with implementation of Alternative 1.

6.2.8.3 Alternative 2

IA-6.2.8.3-1

This section has been modified to clarify that Alternative 2 would not result in additional potentially significant impacts compared to the Preferred Program Alternative because the construction/operational footprint for canal capacities is the same under both alternatives.

6.2.8.4 Alternative 3

IA-6.2.8.4-1

The word "improvements" in the subject paragraph in Section 6.2.8.4 refers to Alternative 3 actions that would improve channel conveyance and does not refer to potential effects of the alternative on vegetation and wildlife. Section 6.2.8.4 has been modified to indicate that potential impacts described in the subject paragraph are potentially significant but can be reduced to a less-than-significant level with implementation of mitigation strategies.

6.2.9 Program Alternatives Compared to Existing Conditions

IA 6.2.9-1

As noted in Section 6.2.6, there would be small differences in impacts to water quality, flow, sediment supply, and changes to the quantity and quality of habitat when comparing the No Action Alternative to existing conditions. As noted in Section 6.2.9, at a programmatic level, these differences do not result in additional or fewer potentially significant impacts when comparing the Preferred Program Alternative to existing conditions or the No Action Alternative. The Ecosystem Restoration Program is a main focus because the program would improve conditions relative to both the No Action Alternative and existing conditions.

The list of impacts in Section 6.2.9 corresponds to the impacts listed in the summary table in Section 6.2.1. See changes to text for consistency between sections and further clarification of impact categories. Refer to new text for definitions of important upland wildlife habitats and use areas, rare natural communities, significant natural areas, and special-status species.

Beneficial impacts are addressed in Section 6.2.9. It is stated that an overall benefit to vegetation and wildlife resources would result when the Program alternatives are compared to existing conditions.

6.2.10 Additional Impact Analysis

IA 6.2.10-1

Chapter 3 and Attachment A supplement the analysis in Section 6.2.10. The level of detail supplied is appropriate for a programmatic impact analysis. The use of the word "related" implies that the projects would directly or indirectly affect the same resources.

IA-6.2.10-2

A review of the Ecosystem Restoration Program actions shows that open-water habitat is only a portion of the proposed actions. Many actions will improve the quantity and quality of other natural communities. It should be clear that conversion of farmland would occur either "purposely" from program actions, or "as the result of other actions." Wetland and riparian communities and important wildlife habitats are discussed in the March 1998 Technical Reports for Vegetation & Wildlife. "Proposed action" refers to the Preferred Program Alternative.

IA 6.2.10-3

More detail on "best practices" and "adaptive management" can be found in the volumes discussing the Ecosystem Restoration Program. The emphasis of the subject paragraph is the Ecosystem Restoration Program. The

sentence beginning with "The overall benefits" has been clarified. Therefore, no changes to wording have been made. "Short-term impacts" is the subject of this section; therefore, emphasis is on short term. Program, by definition, is the CALFED Program. Construction losses are considered short term because disturbed habitat would be restored in the long term. Pre-existing refers to before conversions take place. Further documentation seems obvious here and is referenced elsewhere throughout the document. Paragraph 3 has been clarified to distinguish between the Ecosystem Restoration Program and the overall CALFED Program. As stated in the text, adaptive management is discussed in more detail in the Phase II Report. Adaptive management is not mitigation. Mitigation strategies are contained in Section 6.2.11. The Table of Contents identifies each section heading.

6.2.11 Mitigation Strategies

IA-6.2.11-1

Section 6.2.11 has been modified to: (1) identify mitigation strategies that apply to each impact identified for each Program element (for example, the Water Quality Program) in Section 6.2.7, "Consequences: Program Elements Common to All Alternatives," and Section 6.2.8, "Consequences: Program Elements That Differ Among Alternatives"; and (2) clarify the intent of and eliminate redundancy among mitigation strategies.

The need for additional environmental documentation for specific actions as they are proposed is described in Chapter 1. Also see common response 1.

Mitigation strategies differ in level of detail generally because a greater level of detail can be provided for types of Program actions where there is greater certainty of the nature of potential impacts than for actions with less certainty. Also, details on how mitigation strategies may be implemented are not repeated for subsequent strategies where similar mitigation methods could apply. Project-specific environmental documentation will be required for each project as they are proposed under the Program. Specific methods used to implement appropriate mitigation strategies described in the Programmatic EIS/EIR for specific projects will be required as part of each project's environmental documentation.

Mitigation strategies to reestablish wetland or riparian vegetation onsite following completion of construction is applicable to Program actions that would result in a temporary impact (for example, the temporary removal of vegetation along a temporary construction access road).

Section 6.2.11 has been clarified to indicate that the mitigation strategy applies to important wildlife habitat use areas. Important wildlife use areas refer to traditional habitat areas used by some species (for example, DFG-designated critical deer winter range).

IA-6.2.11-2a

The need to conduct surveys to delineate and define occupied and unoccupied special-status species habitats are implicit in the mitigation strategies. Specific survey requirements are described for each of over 240 special-status species evaluated in the MSCS. The general range, status, and habitat requirements for each MSCS-evaluated species are presented in the MSCS technical report, "Species Accounts."

Direct and indirect impacts on special-status species are considered potentially significant and are implicit in the significance criteria described in Section 6.2.5.

6.2.12 Potentially Significant Unavoidable Impacts

IA-6.2.12-1

This section does acknowledge potentially significant unavoidable impacts to wetlands/riparian areas and fragmentation of habitat, rare natural communities, and significant natural areas. Impacts on special-status species and mitigation are further discussed in Sections 6.2.7.1 and 6.2.7.3. The section acknowledges the ongoing Integrated Storage Investigation and the need for future site-specific information for more detailed impact analysis.

7.1 Agricultural Land and Water Use

7.1.1 Summary

IA7.1.1-1

The technical reports are among the sources used to prepare Section 7.1. While not referenced specifically in Section 7.1, the technical reports are included in Chapter 12, "Bibliography," in the Programmatic EIS/EIR. The comment concerning references is incorrect. For instance, the description of Table 7.1-1 notes that it reflects 1996 Important Farmland acreage from the Department of Conservation's (DOC's) Farmland Mapping and Monitoring Program. The description includes the process used by the DOC and refers readers to the DOC web site for more detailed information. Both Tables 7.1-2 and 7.1-3 identify their sources.

IA7.1.1-2

By definition, summaries are general, while specifics follow.

IA7.1.1-3

This section deals with agriculture; specific CEQA requirements are discussed in Chapter 8. The second sidebar discusses the Program goal of increased water supply reliability, which is supported by analyses in Section 5.1.

IA7.1.1-4

The statement is based on analyses contained in Section 5.1, which show adequate water so that no sectors are adversely affected and Program goals to improve the Bay-Delta ecosystem, which will reduce the likelihood of new species listings and increase operational flexibility.

IA7.1.1-5

The Programmatic EIS/EIR has met the spirit and intent of the policy statement in this section. Agricultural resources are evaluated in Section 7.1, and potentially significant environmental impacts are identified. Section 7.1.11 provides a set of mitigation strategies that were developed at the programmatic level and intended to be applied to site-specific documents, or the second-tier stage, if appropriate to the impacts of a particular project. CALFED has consulted with both the California Department of Food and Agriculture (CDFA) and the DOC in developing mitigation strategies.

IA7.1.1-6

The CEQA Guidelines define "responsible agencies" as those public agencies other than the lead agency with discretionary approval power over the project. The CDFA has no permit or other discretionary approval processes for any actions that may be taken under the CALFED Program. Thus, the CDFA cannot currently be a responsible agency under the provisions of CEQA. Any measure to give the CDFA permitting authority would need to be undertaken by the Legislature, which is outside the scope of CALFED mitigation strategies.

7.1.2 Areas of Controversy

IA7.1.2-1

Under CEQA, areas of controversy are disagreements between experts over technical issues. There is little disagreement regarding the environmental impact of land acquisitions. Differences in the interpretation of CEQA are not "areas of controversy" for the purposes of an EIS/EIR.

7.1.3 Affected Environment/Existing Conditions

IA7.1.3-1

Data are presented for the five study areas because those areas are within the scope of the Program. Water costs for Del Norte County, for instance, would add little to a description of the existing conditions in the Program area. Section 7.1.3 describes existing conditions in the area covered by the project description, not by a statewide or national survey. A discussion of existing conditions is required under CEQA and NEPA. In the context of this Program, the existing conditions discussion included conditions in the five study areas. While it is important for decision makers to have such data as the number of tenant-owned farms available, socioeconomic discussions of why slight drops in ownership have occurred over time are outside the scope of this document. The technical reports are not included as appendices to this section; while they contain some relevant information, they were prepared for a different document. Table 7.1-1 has been revised. Table 7.1-2 contains information from various years; please see response 7.1.3-2.

IA7.1.3-2

The 1995 data were not readily available from either county agricultural commissioners in all the counties in the Program area or from DWR. This table is for information purposes only and does not affect the analysis.

IA7.1.3-3

DWR, the source of the existing figures in the referenced tables, has not updated these numbers to reflect 1995 amounts. This table is for information purposes only and does not affect the analysis.

IA7.1.3-4

The relevant descriptors are described in the document. Comment descriptors include:

- "Acreage served"—presumably, this is acreage served by irrigation water, which is described in Table 7.1-2.
- "Sources, quantity, location, and timing of agricultural water supplies and demands"—much of this request is for information that is not quantified or varies tremendously year-to-year. Section 5.1 discusses supply and timing of water demand.
- "Climatic, hydrologic, drainage and soil conditions"—these factors are included in the DOC's definitions of Important Farmlands, where soils in areas with better quality, drainage, and climate receive higher rankings as quality farmlands. Table 7.1-1 generalizes Important Farmlands in the Central Valley; Table 4-4 estimates Program impacts on each category of farmland; and the

endsheet maps show Important Farmlands, by category, for the Program regions. In addition, Section 5.5 discusses soils, while Section 5.2 discusses hydrology.

IA7.1.3-5

Table 7.1-1 includes Important Farmland acreages, and the end plates illustrate Important Farmlands. Section 7.1.3.1 discusses agricultural water use. Section 7.1.1 includes the combination of factors that contribute to California's agricultural productivity and diversity. Section 7.1.7 discusses county general plans and potential Program conflicts with those plans.

7.1.3.2 Delta Region

IA7.1.3.2-1

During the time frame discussed in the analysis, conversion to habitat was not a major factor in comparison to urbanization losses. Since 1993, it is acknowledged that habitat conversion of agricultural lands has become more significant, although the number of acres converted to habitat is not tracked as well as the urban conversion in the DOC's Farmland Conversion Reports. This issue is discussed under the cumulative impacts portion in Section 7.1.10.

7.1.3.3 Bay Region

IA7.1.3.3-1

Groundwater costs in remote parts of the state are not relevant in a description of the existing environment for the CALFED study area. The text includes the range of average surface water costs in California. Groundwater costs for the Delta and Sacramento River Regions are presented in the respective sections, not in the Bay Region section.

7.1.3.4 Sacramento River Region

IA7.1.3.4-1

Major crops grown in the regions are discussed in Section 7.2.3.

7.1.4 Assessment Methods

IA7.1.4-1

The Chairman's Interim Report of the Senate Select Committee on the CALFED Water Program, dated September 24, 1998, and signed by Senator Johannessen, Committee Chair, referenced a Refuge Water Supply Interagency Coordinated Program (ICP) Task Force report on BMPs for water conservation on wildlife refuges. The Committee report indicated that, based on the figures in the ICP report, habitat water uses would be higher than agricultural water use by a significant margin. However, the ICP water use figures were intended to be optimum water amounts for reduction of avian diseases, not the amounts needed to establish habitat. Research by CALFED staff found few habitat water use studies, and none that were directly correlative to California. This issue is discussed in Section 7.1.4. DWR completed a review of water use for new habitat development on Sherman Island and compared that water use to agricultural water uses. For that particular Delta location, the

difference in water needs between the habitat alternatives and existing agriculture was negligible. Please also see response IA-5.1-100.

Idling agricultural lands to save water is not part of the CALFED Program.

In addition to the analysis in the Programmatic EIS/EIR document, CALFED site-specific projects that affect agricultural lands with state or local lead agencies will evaluate impacts to those lands in second-tier environmental reviews to comply with CEQA.

IA7.1.4-2

Suggestions for easier readership are acknowledged.

IA7.1.4-3

Both CEQA and NEPA require a lead agency to consider a range of potentially feasible alternatives to a proposed action (40 CFR section 1502.14[a]; 14 CCR 15126.6.). Under both laws, the selection of alternatives is governed by a "rule of reason" (*Carmel-by-the-Sea v. United States Department of Transportation*, 123 F.3d 1142, 1155 [9th Cir. 1997]; 14 CCR 15126.6[f]). As explained in the CEQA Guidelines,

> The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making. (14 CCR 15126.6 [f])

Similarly, under NEPA, "[An] Environmental Impact Statement need not consider an infinite range of alternatives, only reasonable or feasible ones." (*Carmel*, 123 F.3d at 1155.) Alternatives that would not achieve the basic objectives of a project, or that are infeasible, are not regarded as reasonable alternatives under CEQA or NEPA and need not be considered in detail.

The basic objectives of the CALFED Program are described in Section 1.2 in the Programmatic EIS/EIR. These objectives include increasing the amount of shallow riverine, shaded riverine, tidal slough, and estuary entrapment and null zone habitats for aquatic species; increasing the amount of brackish tidal marsh, fresh-water marsh, riparian woodland, waterfowl breeding habitat, wintering range for wildlife, managed permanent pasture and floodplains, and associated riparian habitats for wildlife species; and contributing to the recovery of threatened and endangered species and species of special concern. These objectives and the alternatives designed to meet these and other CALFED Program objectives are based on the alternatives and Program goals developed during Phase I.

Phase I comprised a six-step process involving CALFED agencies, other public agencies, and the BDAC that included numerous workshops with stakeholders and the general public. For further discussion of this process, please see Section 1.4 in the Programmatic EIS/EIR and please also see common response 5. In Phase I, 100 preliminary alternatives were evaluated. From the 100 preliminary alternatives, teams of technical experts representing each of four critical conflict areas (fisheries and diversions, habitat and land use and flood protection, water supply availability and beneficial uses, and water quality and land use) produced a refined list of 31 alternatives. Among these alternatives were minimal and moderate ecosystem restoration actions with a greatly reduced potential to cause potentially significant effects to agricultural lands. Following six public workshops and

eight public CEQA/NEPA scoping meetings, however, and based on input from the BDAC and the CALFED agencies, CALFED concluded that these actions would not achieve the basic CALFED Program objective of restoring ecological health to the Bay-Delta system. CALFED was impelled to this conclusion largely by the fact that habitat needed to support various life stages of aquatic and terrestrial biota in the Bay-Delta system has been lost due to land development for urban and agricultural uses, and construction of flood control facilities to protect developed land. The CALFED Program objectives necessarily emphasize the improvement of habitats and ecological functions.

In many instances, Program objectives to increase the amount of certain habitat types can be achieved by enhancing existing natural lands or public lands. In addition, Section 7.1.11 in the Programmatic EIS/EIR contains mitigation strategies to reduce Program effects on agricultural lands. An additional 19 measures to reduce the adverse agricultural economic and social effects of the Program are included in Sections 7.2 and 7.3. However, because most land within the Bay-Delta system is used for agricultural purposes, and because some agricultural lands are located in areas critical to ecosystem recovery, the CALFED Program cannot be successful without conversion of some agricultural lands to meet Program objectives. Alternatives that involve little habitat restoration and, therefore, little conversion of agricultural lands were considered and dismissed as ineffective in Phase I. In short, alternatives that avoid effects on agriculture are not included for detailed consideration in the Programmatic EIS/EIR. These alternatives are not required by CEQA or NEPA, because they would not meet basic CALFED Program objectives.

Mitigation strategies for impacts on agricultural land are contained in Section 7.1.11. Strategies include allowing farmer-proposed and -implemented projects to help meet Program goals, and soliciting community and landowner participation in planning projects.

Please refer to common response 5. We are uncertain as to which section of the report the comment refers. Section 7.2, "Water Transfer Program," on page 7.2-21 in the June 1999 Draft Programmatic EIS/EIR, deals with "make-up"water. This section states, "The Water Transfer Program could result in beneficial effects in the San Joaquin River Region. These benefits likely would occur from the transfer of water into the region that would replace or supplement other supplies." If these are the applicable sentences, the reference is to the potential types of impacts, not to mitigation measures or alternatives. The comment may refer to water needed to "make up" for the reductions in diversions from the Delta in order to protect endangered species or comply with the CVPIA. If that is the case, the Program alternatives and mitigation measures do not identify a specific way to make up for the reductions in diversions (please see common response 22). Rather, the Program has the reduction of the mismatch between Bay-Delta water supplies and the current and projected beneficial uses dependent on the Bay-Delta System as one of its primary objectives. The actions in the Preferred Program Alternative will meet this objective by collectively reducing the conflict among beneficial water users, improving the ability to transport water through the Bay-Delta System, and reducing the uncertainty of supplies from the Bay-Delta System.

IA7.1.4-4

The document has fully discussed alternatives, impacts, and mitigation. Please see Section 7.1.7 for a discussion of Program impacts on agricultural resources, Section 7.1.11 for a discussion of mitigation strategies for potentially significant adverse environmental impacts on agriculture, and response IA7.1.4-3 for a discussion of alternatives. There has been no decision to reallocate natural resources from agriculture.

7.1.5 Significance Criteria

IA7.1.5-1

Section 7.2.4 includes assessment criteria for agricultural economic effects.

IA7.1.5-2

The commentor does not note that economic effects are not in themselves considered environmental impacts under CEQA. In addition, the section in Appendix G that is provided in the comment letter is from an earlier version of the CEQA Guidelines, which has been superseded. Please also see response IA7.1.7-11.

7.1.6 No Action Alternative

IA7.1.6-1

Section 7.1.6.1 discusses the prevention of agricultural land losses due to Delta levee failure under the No Action Alternative. DWR analyses of potential levee flooding were reviewed for this section. Those analyses presented the possibility of flooding in a probabilistic format, rather than describing an acreage amount that could be flooded without levee improvements. Because we have no verifiable data relating to potential acreage losses due to flood- or earthquake-induced levee failure, the potential flooding impact is described but not quantified in the document. Sections 7.1, 7.2, and 7.3 have been revised to include potential farmland idling due to levee failure-caused water quality problems.

IA7.1.6-2

The farmland conversion numbers cited represent only a 2-year period, as presented in the DOC's Farmland Conversion Report - 1995 to 1996. Discussing the percentages of farmland lost in the 2-year period would add little to the report. Further, in assessing the impact of farmland losses, the acreage of the loss determines significance, not the percentage of the remaining farmlands being converted. Urban development interests have often made the case that their project would convert only a tiny fraction of existing farmland. This can lead to the erroneous conclusion that since only a small percentage is being converted, the impact is not significant.

7.1.6.3 Sacramento River and San Joaquin River Regions

IA7.1.6.3-1

The source for the 1 million acre potential conversion figure is an American Farmland Trust study, included in the bibliography for the EIS/EIR. The source for the 45,000-acre retirement figure is DWR. The authors consider both sources reliable.

7.1.6.4 Other SWP and CVP Service Areas

IA7.1.6.4-1

The estimates of land that could be converted by the Program were generated by the various programs that make up the overall Program. These acres are shown in the program plans. Please also see Table 4-4. Note that Section 7.1.7 is entitled "Consequences: Program Elements Common to All Alternatives." Differences between

alternatives are contained in Section 7.1.8, "Consequences: Program Elements That Differ Among Alternatives." The tables in the draft technical report do not reflect the current alternative and thus are not relevant.

7.1.7 Consequences: Program Elements Common to All Alternatives

IA7.1.7-1

Section 7.1 in the Programmatic EIS/EIR identifies the impacts of converting agricultural lands for habitat and other Program purposes. Twenty-seven mitigation strategies are provided in Section 7.1.11 to lessen this impact. An additional 19 measures to reduce the adverse agricultural economic and social effects of the Program are included in Sections 7.2 and 7.3.

IA7.1.7-2

Land retirement for water demand reduction is not part of the Program.

IA7.1.7-3

Land retirement to eliminate certain crops or to reduce water demand is not included in the CALFED Program. Potentially, the Program could retire 37,000 acres of drainage-impaired lands in the San Joaquin River Region through voluntary acquisition for water quality purposes. These lands do not farm one, or predominately one, type of crop. CEQA and NEPA compliance would be required before such a land retirement program could take place. CALFED does not focus on specific crops but on the land on which they are produced with the associated selenium, salinity, or other water quality-associated impairments that create concern. The impacts of this retirement are discussed in Section 7.1.7.5.

IA7.1.7-4

In a worst-case scenario, CALFED could convert up to 243,000 acres of Important Farmland to other Program uses, including water storage, conveyance facilities, and wildlife habitat. At the current programmatic level, it is not possible to state exactly what agricultural lands would be converted or exactly how many acres. However, it is likely that any CALFED acquisitions would target lower value croplands that currently produce crops such as feed corn, alfalfa, or wheat. There is currently a sufficient surplus in the national food system that the market would allow replacement of these crops. Should tree crops such as almonds or pears be converted for Program uses, their relative scarcity would make the conversion more significant but would not be of a sufficient amount that the national food system and the open market could not replace them. No crop types in the study area are irreplaceable on a state or national level.

Any CALFED land or water acquisitions would be conducted on a willing-seller basis, rather than taken involuntarily. Section 7.2 describes agricultural economic effects of the Program.

IA7.1.7-5

The maximum amounts of Important Farmland that could be converted from agricultural to Ecosytem Restoration Program uses is included in Table 4-4. The exact locations where land will be converted is not yet known. As projects are developed under the Program, specific locations will be determined. A mitigation strategy in Section 7.1.11 is to include the local community in any project planning efforts during the implementation phase.

IA7.1.7-6

It should be noted that the number of acres of Important Farmland that CALFED could convert (243,000 acres) is a worst-case scenario that is unlikely to occur. For instance, the number includes a large acreage for seasonal wetlands, which likely will be accomplished through leasing agricultural land for winter flooding. In this type of action, no conversion would take place. The Programmatic EIS/EIR does acknowledge, however, that the impact on agriculture could be potentially significant, both directly and cumulatively. Sections 7.2 and 7.3 discuss agricultural economic and agricultural social issues, respectively. These sections note that economic and social effects could be substantial but, as with conversion numbers, the analysis represents a worst-case that is unlikely to occur. Nonetheless, 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. Twenty-seven mitigation strategies for agricultural impacts are included in Section 7.1.11, and an additional 19 measures to reduce agricultural economic and social effects are included in Sections 7.2 and 7.3.

IA7.1.7-7

The purposes for which CALFED could convert up to 243,000 acres of farmland are listed in Table 4-4. They do not include acquisition of land to obtain water.

IA7.1.7-8

CEQA and NEPA require an analysis of anticipated environmental impacts. At this programmatic planning stage, it is unknown precisely which lands will be affected. Therefore, the analysis of potential agricultural land conversions assumes that all Ecosystem Restoration Program actions would take place on existing Important Farmlands. While this is highly unlikely, it represents the high end of potential scenarios.

IA7.1.7-9

The comments do not give a source for this number, but it may be a compilation of several numbers in the MSCS, including: (1) managed seasonal wetlands - 290,125 to 300,125 acres; (2) upland cropland/seasonally flooded agricultural land - 353,933 to 388,933 acres; and (3) the maximum of 243,000 acres of Important Farmlands that could be converted, as included in Section 7.1. Adding these numbers to derive an acreage figure for agricultural lands affected by the Program is erroneous. The managed seasonal wetlands figures are, for the most part, existing wetlands that would be improved and are not now in agricultural use. The portion of newly created wetlands is already included in the 243,000-acre conversion figure in Section 7.1. The upland cropland/seasonally flooded agricultural land number will affect, but will not convert, agricultural lands. Pages 100-168 in Volume I of the June 1999 Ecosystem Restoration Program Plan, "Ecosystem Restoration Plan - Ecological Attributes of the San Francisco Bay-Delta Watershed," define the uses of these areas. Forced fallowing and forced shifting of crops are not within this program. No decision has been made that the source of water for ecosystem restoration needs will be "agricultural use."

A discussion of effects of the Program on lands used for wildlife-friendly agriculture has been added to Sections 7.1, 7.2, and 7.3. Table 4-4 illustrates the types and locations of Important Farmlands that could be converted to Program uses at a maximum.

IA7.1.7-10

The standard of direct replacement to mitigate farmland conversions has not been previously implemented by local, state, or federal governments in California to mitigate losses due to urbanization, road building, or other projects. 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 impacts. For example, converting dry-farmed or grazed lands to monocultures such as vineyards can cause reduction in habitat for raptors and many other species. The DOC's Farmland Conversion Report - 1994 to 1996 states that most land converted from the Farmland of Local Importance category to the Unique Farmlands category in San Joaquin County were pasturelands planted to vineyards (2,179 acres). Most lands that are best for irrigated crops have already been irrigated. Currently unirrigated lands may have drainage problems or soil problems that could cause even more impacts, such as the need for drains or a limited life due to leaching. Providing infrastructure for irrigation and access would also cause additional environmental impacts. Section 7.1.12 describes farmland conversions caused by the Program as a potentially significant environmental impact at the programmatic level.

IA7.1.7-11

Numerous sections of law, court cases, and the California Constitution are cited in some comments. We agree that conversion of important farmlands may be a potentially significant environmental impact and that the impact is included in CEQA Guidelines Appendix G. Section 7.1 treats the conversion of agricultural land as a potentially significant unavoidable impact of the Program. The change in use of agricultural water apart from its effects on land use or other environmental effects, however, is not included anywhere in the CEQA Guidelines as a significant environmental impact. This is because change in the use of water in itself is not an environmental impact under CEQA. A change in the use of water is an economic effect, for which mitigation measures are not required. The cases cited in the comment are not controlling on this issue. Economic and social effects of water transfers are discussed in Sections 7.2 and 7.3, respectively. Similarly, "impairment in the productivity of agricultural land" is not an environmental impact under CEQA. The CEQA Guidelines sections included in support of this assertion appear to be from an older, superseded version of the Guidelines, as they do not exist in the current version. As stated in the introductions to Sections 7.1, 7.2, and 7.3, CALFED is aware of the importance of California agriculture. As used in CEQA, the "existing environment" contains both natural and human-made features. Section 7.1 describes the existing environment as it pertains to agriculture. Changes to this environment, however, are not necessarily "significant effects on the environment" as used in CEQA. In Section 7.1, potentially significant adverse environmental impacts on agricultural lands are discussed, while Sections 7.2 and 7.3 discuss economic and social effects on agriculture. Please see response IA7.1.7-4 for a discussion of impacts on the food supply. Section 7.1.11 provides mitigation strategies for potentially significant impacts on agricultural lands.

IA7.1.7-12

Since the Program is currently at a programmatic stage with no specific parcels targeted for acquisition, this comment does not appear to address the current document. In addition, water quality is discussed in Section 5.3, and soils are addressed in Section 7.1 (please see response IA7.1.3-4). Water cost is addressed in Section 7.2, while water reliability is discussed in Section 5.1.

IA7.1.7-13

At the current programmatic stage, the locations and sources of additional water needed are not yet decided. Sources of additional water could be urban or agricultural conservation, willing sellers of water, or new storage.

IA7.1.7-14

Section 7.1.7 discusses impacts of the Program on agriculture. "Potentially Significant Unavoidable Impacts" are included in Section 7.1.12. Section 7.1.11 provides mitigation strategies for agricultural impacts. Mitigation monitoring is discussed in Chapter 9. Agricultural economic effects and agricultural social effects are addressed in Sections 7.2 and 7.3, respectively.

IA7.1.7-15

The loss of productive use of agricultural land and water are treated separately under CEQA. In a previous version of the CEQA Guidelines Appendix G, impairment of the productivity of agricultural land was described as normally significant, but that version has been superseded. CEQA does not recognize a change in the use of water by itself as a significant environmental impact. Section 7.1.12 describes the conversion of agricultural lands to Program purposes as a potentially significant impact at the programmatic level. Section 7.1.11 includes a number of mitigation strategies to reduce the impact of agricultural land conversion; however, the loss of agricultural land through conversion to another use is unmitigable. 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. None of the mitigations suggested by the commentor would reduce the loss of agricultural land to a less-than-significant impact. Whether a Statement of Overriding Social or Economic Considerations is adopted for the EIS/EIR will depend on the lead agencies' review of the record before them and cannot be determined until the record is complete.

IA7.1.7-16

A benefit of the Water Transfer Program is that agricultural production could increase in areas receiving transferred water, as stated on page 7.14-9 in the June 1999 Draft Programmatic EIS/EIR. However, increased production is most likely to occur as the result of increasing water supplies to already developed agricultural lands or supplying water to agricultural lands that are currently idle due to lack of water. New lands that can support high-value crops, such as wine grapes, could possibly be irrigated with transferred water, using high-efficiency delivery systems; but the likelihood and extent of such conversions to agriculture are too speculative to analyze at this time. We acknowledge that impacts could occur; but the nature, location, and scope of such indirect impacts are impossible to forecast. Please see response IA7.1.7-10 for a general description of impacts from irrigation of new lands.

IA7.1.7-17

Section 7.1.7 discusses the impacts of converting agricultural lands to Program purposes, including Ecosytem Restoration Program purposes. Section 7.1.11 includes mitigation strategies that can reduce the impacts of converting agricultural land to Program purposes.

IA7.1.7-18

The acreage of farmland analyzed in this document reflects a worst-case analysis of target acreage needed to successfully carry out the Program. It is unlikely that all this acreage will be converted to agricultural land. At this time, it is impossible to predict any Program changes that could result from adaptive management. By its very nature, answers from adaptive management cannot evolve until the Program is well underway. There is no more certainty in stating that additional agricultural lands could be required as a result of adaptive management than stating that much less agricultural land would be required as a result of adaptive management. Thus, any such additional land conversion would be too speculative to evaluate at the current time.

IA7.1.7-19

CEQA contains no requirements related specifically to Program EIRs that require detailed examination of general plans or regional plans. A detailed analysis is appropriate for second-tier documents, when actual site locations are known. For instance, it would add little to the analysis to discuss the Isleton General Plan if no project features are planned within its boundaries. Section 7.1.7 in the Programmatic EIS/EIR discusses general plans in the project area, including agricultural protection policies, and concludes that conflicts with these plans by the Program are a potentially significant impact. This analysis was performed at the programmatic level, as requested by the comment.

IA7.1.7-20

Section 7.1 describes environmental impacts on agricultural resources. The Program does not include fallowing of agricultural land. Any shifts to lower value crops would be voluntary and compensated, thus not "forced." Sections 7.2 and 7.3 discuss agricultural economic and agricultural social effects, respectively.

IA7.1.7-21

The comment does not specify the source of the higher number for agricultural conversion in the Delta. Table 4-4 lists all potential conversions in the Delta from Program actions. The Programmatic EIS/EIR evaluates projects that are part of the CALFED Program. The refuges and area noted in the comment are independent of CALFED and will go forward independently of the CALFED process. The acreage that could be converted by these projects is included in Section 7.1.6.1 and is also discussed under "Cumulative Impacts" in Section 7.1.10. These projects have already undergone, or are currently undergoing, CEQA/NEPA review.

IA7.1.7-22

Decisions have not yet been made as to the sources of any additional water used for CALFED programs. Analysis in Section 5.1 in the Programmatic EIS/EIR concludes that the Program's water goals can be achieved without creating adverse impacts on the agricultural sector. Retirement of agricultural lands, except for 37,000 acres of drainage-impaired lands in the San Joaquin River Region, is not a part of the Program. Please see common response 2 for a discussion of solution principles. National food supplies will not be affected by the Program; please see response IA7.1.7-4. Economic effects on agriculture are analyzed in Section 7.2. The reference to 1 million acres of agricultural land is incorrect. All potential Important Farmland conversions resulting from the Program are included in Table 4-4 and total 243,000 acres. Please also see response IA7.1.7-9.

IA7.1.7-23

The acreages of land cited in the comment are from the March 1998 Draft Programmatic EIS/EIR and are not applicable to the June 1999 Draft Programmatic EIS/EIR. Acreages of Important Farmlands that could potentially be converted for Program uses are included in Table 4-4. The need for conversion of some agricultural lands for Program purposes is discussed in response IA7.1.4-3; mitigation of direct replacement of agricultural lands, analogous to no net loss, is discussed in response IA7.1.7-10. Retirement of drainage-impaired lands on the west side of the San Joaquin Valley, if carried out, would be for water quality purposes not as a water use efficiency tool.

IA7.1.7-24

No decision has been made as to the source of water for Program needs. Water may come from a combination of potential sources, including new storage, conservation, or purchases on the open market. In some localized areas, water transfers could result in fallowing or different crops, if a grower chooses to market his or her water rather than grow other crops. Water transfers will, however, be subject to rules that will be developed to reduce third-party impacts. As with transfers, conservation measures included in the Program will be incentive-based rather than mandatory. Further, wildlife-friendly farming practices will be based on voluntary landowner compensation. Thus, any potential reductions in production will be voluntary. The economic effects of reduced production are discussed in Section 7.2. It is likely that most acquisitions of farmland in the Delta for habitat conversion would include water that goes with the land; therefore, acquisition costs being lower due to a lack of water is unlikely to occur.

IA7.1.7-25

The commentor correctly quotes the maximum amount of farmland that could be converted by the Program in the Sacramento River Region. While it is unlikely that the maximum amount actually would be converted, much of this acreage would be used for stream meander, which would provide flood benefits as well as habitat benefits to the region. Section 7.1.11 provides mitigation strategies to avoid or reduce farmland conversion. The comment also quotes environmental water needs in the region. No decision has been made that environmental water will be acquired from agriculture. A combination of sources, which may include new storage, conservation, and voluntary water transfers, may be used to provide necessary water for environmental purposes. No mandatory reallocation of area-of-origin water is proposed.

7.1.7.1 All Regions

IA7.1.7.1-1

Purchase from willing sellers is a central tenet of the Program. It is not a mitigation. Section 7.1.7.1 acknowledges that conversion of agricultural land may conflict with local and regional policies.

7.1.7.2 Delta Region

IA7.1.7.2-1

The acreage of potential agricultural land conversion in the Delta is listed in Table 4-4 and described in detail in Section 7.1.7.2.

Economic effects on agriculture resulting from proposed Program actions are presented in Section 7.2, while agricultural social effects are described in Section 7.3. As noted in Section 7.2.4, the programmatic nature of this document does not allow for an assessment of economic effects on any particular county; impacts are assessed on a regional basis.

IA7.1.7.2-2

Conflict with local and regional plans is noted as a potentially significant impact in Section 7.1.12 in the Programmatic EIS/EIR.

As documented in the Important Farmland Series Maps published by the DOC, not all the agricultural land in the Delta is Prime Farmland (please see generalized representation of these maps in the end plate of the Programmatic EIS/EIR). In addition, the EIS/EIR boundaries for the Sacramento River Region, the Delta Region, and the San Joaquin River Region do not coincide with the legal Delta boundary. The analysis presented by the commentor is therefore incorrect in its basic assumptions. However, the amount of Delta Important Farmlands that could be converted to Program uses is noted correctly and represents a potentially significant impact, as detailed in Section 7.1. In addition, the conversion numbers cited in the document represent a worst-case scenario that is unlikely to occur.

IA7.1.7.2-3

The numbers referred to in the comment have been revised. As stated in the text, shoal, mid-channel, and perennial grassland habitat would require no additional water; seasonal wetlands are accounted for separately. The remaining types of habitat listed in Table 4-4 (tidal perennial aquatic, nontidal perennial aquatic, tidal sloughs, fresh emergent wetland, riparian, saline emergent wetland, and stream meander corridor) make up the "remaining aquatic and riparian habitat targets" from Table 4-2.

Significant unavoidable environmental impacts on agricultural lands are summarized in Section 7.1.12. As stated in the water transfers discussion in Section 7.1.7.2, the magnitude of any impact depends on individual landowner decisions and many other factors. The location of any potential impacts also is subject to the same factors.

Also refer to responses IA7.1.6.4-1 and IA7.1.6.3-1.

IA7.1.7.2-4

The figures used in this section were from a conjectural project different from Delta Wetlands. Please also see response IA7.1.7-11.

7.1.7.3 Bay Region

IA7.1.7.3-1

The only activities included in the Program that would take place physically on Important Farmlands in the Bay Region are those associated with the Ecosystem Restoration Program. As stated in Section 7.1.7.3, however, it is expected that most Ecosystem Restoration Program actions, along with other Program actions in the Bay Region, would take place on non-Important Farmland sites.

7.1.7.4 Sacramento River Region

IA7.1.7.4-1

This land will not be "fallowed" or temporarily taken out of production but would, in a worst-case scenario, be permanently converted to Program uses. (Refer to Table 4-4 in the Programmatic EIS/EIR.)

IA7.1.7.4-2

Mercury and heavy-metal drainage issues are discussed in Section 5.3, "Water Quality," in the Programmatic EIS/EIR.

IA7.1.7.4-3

Land in the Sacramento River Region that is being considered for storage is not Important Farmland as identified by the DOC. Potential storage areas under study include the Sites project and raising Shasta Dam; neither of these areas are in agricultural production. Table 4-4 illustrates the worst-case scenario for agricultural land conversion, noting a total of 25,600 to 34,000 acres in the Sacramento River Region.

Because the Program will require some agricultural lands 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 would appear to be infeasible. While a very few local governments have adopted replacement as a mitigation policy, 1:1 or greater replacement of agricultural lands for those lands converted has never been implemented in California—by local, state, or federal governments. Please also see response IA7.1.7-10.

7.1.7.5 San Joaquin River Region

IA-7.1.7.5-1

In the 1990 *Management Plan for Subsurface Drainage of the Westside of the San Joaquin Valley* (Rainbow Report), many thousands of acres potentially were slated for retirement. The 45,000 acres reported in the Water Quality Program Plan estimates the acreage that implementation of the 1990 management plan might retire. The Preferred Program Alternative states that CALFED would potentially participate in 37,000 acres, based on limited estimations of the amount of acreage needed to solve the selenium problem. These 37,000 acres are not in addition to the 45,000 acres but are a subset. With the other selenium removal projects within CALFED and other efforts, it was estimated that retirement of the entire 45,000 acres would not be necessary. CALFED intends to meet the selenium reduction goals without redirected impacts, which would include the loss of agricultural land production and revenue. Therefore, land retirement for selenium removal under CALFED would occur only if other options are unsuccessful.

7.1.7.6 Other SWP and CVP Service Areas

IA-7.1.7.6-1

The CALFED Program is not proposing the conversion of agricultural lands in San Luis Obispo County or the central coast region. Please refer to Table 4.4 in the Programmatic EIS/EIR, which details worst-case agricultural land conversions in the Delta, Sacramento River, and San Joaquin River Regions.

IA-7.1.7.6-2

No Program actions from the three programs referenced will take place on agricultural lands in the Other SWP and CVP Service Areas. Thus, no impacts will occur. (Refer to Table 4-4 in the Programmatic EIS/EIR.)

7.1.8 Consequences: Program Elements That Differ Among Alternatives

IA7.1.8-1

Changes in project operations generally refer to water delivered by the SWP or the CVP. Delta users withdraw water upstream from project intakes and are generally not affected by operations. San Joaquin and Other SWP and CVP Service Areas receive water from the projects and would potentially be affected by changes in operation. Operational issues are detailed in Section 5.1, "Water Supply and Management."

The consequences of all alternatives are discussed in Section 7.1.7, while differences in impacts between alternatives are discussed in Section 7.1.8. For a detailed discussion of the Preferred Program Alternative, please see Chapter 2.

Conveyance will not affect agricultural lands in the Bay Region because no conveyance facilities will be located in the Bay Region.

7.1.9 Program Alternatives Compared to Existing Conditions

IA7.1.9-1

The discussion in these sections is necessarily scaled to the differences in the impacts on agriculture among the alternatives.

7.1.10 Additional Impact Analysis

IA-7.1.10-1

Section 7.1.10 in the Programmatic EIS/EIR discusses cumulative impacts on agriculture, including trends dealing with urbanization and other habitat restoration efforts. This section concludes that the Program's proposed actions, in the context of urbanization and other habitat efforts, are cumulatively considerable and potentially significant.

CEQA requires that lead agencies list past, present, and probable future projects producing related or cumulative impacts. Location and project type are important considerations in this review. The type of future projects to be reviewed are generally those that have been funded, have had permits applied for, or appear in an adopted general plan or similar document.

In reviewing the attachment to the commentor's letter, many of the projects listed do not meet the criteria for related projects that are contained in the CEQA Guidelines. The 280,000-acre figure contained in the comment includes many acres of lands that have been wildlife refuges for decades, such as Gray Lodge Wildlife Management Area (WMA); thousands of upland acres that have no effect on Important Farmlands or irrigated farmlands, such as the Daugherty Hill WMA; easements, where irrigated agriculture is continuing; and the bed of the Sacramento River, which has been in State ownership since statehood.

The comment's assertion that 104,000 to 114,000 additional acres of habitat conversion is likely to occur beyond the Program includes areas that do not affect Important Farmlands; areas that are part of the CALFED Program, and are thus already evaluated under Program impacts in the EIS/EIR; and areas for which plans are speculative and unfunded, and thus outside CEQA's parameters for cumulative impacts. Projects that are reasonably foreseeable and would affect Important Farmlands have been added to the cumulative impacts section (7.1.10).

In any event, the purpose of listing related projects is to determine whether the Program's impacts are cumulatively considerable and potentially significant. The Programmatic EIS/EIR states that cumulative impacts on agricultural land are indeed potentially significant.

IA-7.1.10-2

The authors acknowledge that improved levees could induce urban growth pressures in some areas of the Delta. This issue has been added to the growth-inducing impacts discussion in the Programmatic EIS/EIR. Most farmland protection mechanisms in California are either landowner-initiated, such as the Williamson Act, or local government-initiated, such as Ag-Exclusive zoning. These items are outside the scope of CALFED authorities. Included in Section 7.1.11, however, is a mitigation strategy to support the state's California Farmland Conservancy Program, which provides funding to purchase easements on agricultural lands threatened with urbanization. Section 7.1.11 has been revised to include a mitigation strategy recommending that any California Farmland Conservancy Program efforts be directed to the area where the impact of agricultural land conversion took place. Since the Program may convert agricultural lands in the Delta, any mitigation efforts could be directed to islands facing urbanization pressure.

CALFED does not propose to change the level of levee protection from an agricultural to an urban standard. The agricultural lands in the Delta are so designated in the county general plans; urban development is not allowed in the agricultural zones. Changes to county general plans can be appealed to the Delta Protection Commission (DPC), which can deny the proposed general plan amendments. The DPC is a member of the CALFED Policy Group. CALFED will coordinate with the DPC through this forum. In addition, most of the land in the Primary Zone of the Delta is under Williamson Act contract.

The DOC prepares Important Farmland Series maps for the Delta counties, which identifies Prime, Statewide Important, Unique, and Local Importance farmlands. These maps are based on Important Farmland definitions in state law, and are used by the DPC.

IA-7.1.10-3

Other projects similar to CALFED are discussed under cumulative impacts. In addition, to qualify for CALFED early implementation funding, any project must undergo the appropriate environmental review. The CVPIA, Stone Lakes National Wildlife Refuge (NWR), and North Delta NWR have undergone or are preparing appropriate environmental documentation.

IA-7.1.10-4

The analysis of agricultural resources and provision of mitigation strategies were carried out at approximately the same level in the document; refer to response IA7.1.11-10. Mitigation of agricultural impacts will occur at the project level; please see responses IA7.1.11-2 and IA7.1.11-8. Cumulative impacts were addressed according to CEQA and NEPA requirements in the EIS/EIR in Section 7.1.10. It is unclear from the comment what type of "protocol" would be needed to further assess these impacts. An assurance package to be incorporated into the ROD that is unrelated to assessment of environmental impacts is outside the scope of this document.

7.1.11 Mitigation Strategies

IA7.1.11-1

Twenty-seven mitigation strategies are provided in Section 7.1.11 to reduce, avoid, or mitigate impacts on agriculture resulting from Program actions. An additional 19 measures to reduce the adverse agricultural economic and social effects of the Program are included in Sections 7.2 and 7.3. Water supplies to agricultural users in the Delta will not be reduced through Program actions unless the users choose such allocation, either by selling property with water rights attached or voluntarily transferring water.

IA7.1.11-2

Section 7.1.11 in the Programmatic EIS/EIR includes a list of mitigation strategies for reducing or mitigating agricultural land losses in the Delta and other areas affected by Program actions. Two of the strategies are noted by one commentor.

At a programmatic level, CALFED has developed mitigation strategies, or a list of options for mitigation measures, to address the Program's impacts on environmental resources. As part of subsequent environmental review for implementation of CALFED project-level actions, CALFED will consider those strategies that are applicable to the proposed actions. In addition, CALFED may develop and consider additional site-specific mitigation measures prior to approval of subsequent projects.

At the project level of environmental review, CALFED will review the site characteristics, size, nature, and timing of proposed actions to determine whether the impacts of the specific project are potentially significant or may be mitigated to a less-than-significant level. Since it is not possible to precisely assess the site-specific impacts or potential for mitigation of project-level impacts at this time, the Programmatic EIS/EIR treats these impacts at a programmatic level as potentially significant. Where it is anticipated that feasible mitigation measures may not be available to reduce these impacts to a less-than-significant level, the Programmatic EIS/EIR treats these impacts at a programmatic level as potentially significant and unavoidable. Future environmental review will be needed to determine the impacts of specific actions and appropriate mitigation for project-specific actions.

Purchase from "willing sellers" is not included as one of the mitigation strategies for agricultural impacts. However, it is important to note this feature of the Program so that individual farmers do not feel threatened by the possibility of their land being subject to condemnation for ecosystem restoration actions. In addition, no future studies are proposed as mitigation strategies.

CEQA does not require policies or assurances regarding mitigations. Mitigation monitoring is discussed in Chapter 9.

IA7.1.11-3

Section 7.1.11 in the Programmatic EIS/EIR contains mitigation strategies for the conversion of prime and other important farmlands. One of these strategies includes providing support to the California Farmland Conservancy Program, which provides funds to purchase agricultural easements. The mitigation strategies have been revised to include a provision recommending that easements be purchased in the area where the conversion impact occurs. A goal of the Ecosystem Restoration Program is to create seasonal wetlands in the Delta; the program plans to accomplish this goal through the purchase of conservation easements to allow continued agricultural activities compatible with ecosystem restoration activities wherever possible, as suggested in the comment.

IA7.1.11-4

The document includes a number of mitigation strategies in Section 7.1.11 to minimize the effects of agricultural land conversion. Land retirement is not a part of the CALFED Program, except possibly in the case of drainage-impaired land, which is addressed in Section 7.1.7.5. Any impacts of land retirement would be evaluated under CEQA and/or NEPA and mitigated, if appropriate, before land retirement takes place.

IA7.1.11-5

Twenty-seven mitigation strategies are provided in Section 7.1.11 to reduce, avoid, or mitigate impacts on agriculture resulting from Program actions. Sections 7.2 and 7.3 in the Programmatic EIS/EIR analyze, respectively, agricultural economic effects and agricultural social effects. These sections look at the value of agriculture economically, the jobs it supports, and the effects that could result from implementation of the Program—including potential effects to local governments. These sections include 19 additional measures to reduce adverse agricultural economic or social effects that could result from the Program.

IA7.1.11-6

As stated in the comment, this information is included in Section 7.1. There is no reason to duplicate it. The commentor also states that mitigation strategies should be measured against the significance criteria to determine whether impacts are reduced below a level of significance. The mitigation strategies are measures that may be adopted when site-specific projects are proposed and evaluated. Because of the programmatic level of the current EIS/EIR, it is not possible to determine the actual site-specific impacts in order to measure whether they have been mitigated to a less-than-significant level.

IA7.1.11-7

For the most part, the comment is correct. Mitigation strategies for agricultural impacts are discussed in Section 7.1.11, not Section 4.3.1. However there is some overlap between the actions to reduce effects on farmland and the mitigation strategies:

- Local community, landowner, and stakeholder involvement can reduce the amount or quality of agricultural land that could be converted for Program use and is a valid mitigation strategy.
- As a mitigation strategy, stating that public lands would be the initial focus for development of habitat "where appropriate" does not reduce the accountability of the CALFED agencies.
- Acquisition of "point" lands with a high levee mile/acreage ratio could indeed cause additional impacts and could substantially reduce other impacts. These impacts would need to be evaluated on a site-specific basis in second-tier documents.
- Obtaining easements for wildlife-valuable agriculture might or might not create additional impacts, which would need to be evaluated on a site-specific basis. Easements are acquired through landowner compensation.
- Again, the phrase "where appropriate" does not give CALFED agencies discretion to acquire land without accountability.

IA7.1.11-8

Section 7.1.11 includes mitigation strategies for Program impacts on agricultural lands. Section 9.1 discusses the Mitigation Strategies Monitoring Plan.

IA7.1.11-9

No additions are suggested. We disagree with the comment and believe that the strategies are sufficient guidance to formulate measures at the project-specific level. Additional mitigation measures focused on the site, timing, and conditions of a particular second-tier project are likely to be added as part of the environmental review for future projects that tier off this Programmatic EIS/EIR. It is not clear how the mitigation strategies must implement the introductory policy statement.

IA7.1.11-10

Section 6.2.11 provides mitigation strategies for wildlife impacts, listing 14 strategies. Section 7.1.11 provides agricultural impact mitigation strategies, listing 27 strategies; an additional 19 measures to reduce the adverse agricultural economic and social effects of the Program are included in Sections 7.2 and 7.3. The scale of the mitigation strategies appears similar, although the agricultural mitigation strategies provide more programmatic or cumulative mitigation strategies. It appears that this is a similar treatment of impact mitigation strategies.

IA7.1.11-11

Many of the Program actions involve a continuation of agricultural uses and therefore do not result in an adverse impact on agricultural lands. The Program proposes using conservation easements to continue compatible agricultural uses whenever practical. Because the Program will require some agricultural lands 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 would appear to be infeasible; only a very few local governments have adopted payment of an in-lieu fee as a mitigation for protection of an equivalent amount of agricultural land to that which is converted. Replacement as a mitigation policy, such as 1:1 or greater creation of agricultural lands for those lands converted, has never been implemented in California—by local, state, or federal governments. Please also see response IA7.1.7-10. A mitigation strategy addressing Williamson Act lands has been added. 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.

IA7.1.11-12

The Program objectives are clearly stated and include objectives to improve and increase aquatic and terrestrial habitats in order to support sustainable populations of diverse and valuable plant and animal species in the Bay-Delta. Actions intended to achieve these goals are not mitigation measures. At the current programmatic stage, exact locations of Program features, and thus actual on-site impacts, are still unknown. Mitigation strategies will be applied only if needed and if feasible, as defined in the CEQA Guidelines.

IA7.1.11-13

Section 7.1.11 contains 27 mitigation strategies to reduce Program impacts on agricultural lands; these strategies appear adequate and were termed "credible" by the DOC, which has statutory authority for agricultural land conservation. An additional 19 measures to reduce the adverse agricultural economic and social effects of the

Program are included in Sections 7.2 and 7.3. 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. Utilization of public lands for habitat before using private lands is included as a mitigation strategy. Conservation easements are an important feature of the Program; land is to be acquired only from willing sellers. The amount and source of water that will be transferred by willing sellers is not currently quantifiable. These depend on decisions from many owners of water rights around the state as to whether they wish to sell their water. In addition, decisions made by private property owners to participate in Program actions or to sell their land to Program agencies is not within the purview of local governments to regulate. A mitigation strategy included in Section 7.1.11 involves local governments and communities in the planning process for acquisition and development. We agree that the measures referred to from Section 7.2 are not mitigation measures; they are strategies that can reduce the adverse economic effects on growers. Mitigation strategies for potentially significant environmental impacts are included in Section 7.1.11.

IA7.1.11-14

The Ecosystem Restoration Program and other programs were developed over a period of several years, based on information from agencies, scientists, and stakeholders. Many different methods of reaching program goals were evaluated, and those with the highest likelihood of success were chosen. In Section 7.1.11, a mitigation strategy of allowing farmer-initiated projects to meet Program goals would meet the recommendations in the comment. Should farmers change their practices in ways that meet specific Program targets, such as not farming in riparian zones and encouraging native vegetation, the strategy would allow the farmer to participate in incentive programs for dedicating lands and helping to meet Program goals. Please also see response IA7.1.4-3 regarding Program alternatives.

IA7.1.11-15

The commentor attached a draft policy document as part of the comment. The overall objectives and solution principles of the CALFED Program are stated in Section 1.1.3. It should be noted that the CALFED agencies have not adopted the proposed agriculture policies. However, each suggested policy is treated here as a suggested mitigation.

- 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 or NEPA. 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.

- Meet Program goals by maintaining land in private ownership, rather than through government purchase. Mitigation strategies 9, 10, and 14 on page 7.1-3 in the June 1999 Draft Programmatic EIS/EIR address this suggestion.

- Work with local landowners and organizations in planning and developing projects. Mitigation strategies 4, 11, and 21 on page 7.1-3 in the June 1999 Draft Programmatic EIS/EIR address this suggestion.

- Require comprehensive environmental evaluation for projects that will adversely affect agricultural lands, using the NRCS Land Evaluation and Site Assessment (LESA) system. All CALFED second-tier projects will be required to meet the requirements of CEQA and NEPA.

Requiring public agencies to follow legal requirements is not a mitigation measure. LESA may be used by federal agencies, as appropriate for the scale of project, and can optionally be used by state agencies. LESA evaluates various aspects of the agricultural site proposed for development, including the quality of soils and size of parcel. However, LESA is designed to gauge the impacts of urban-type development and may be misleading if used to measure the significance of projects such as wildlife habitat creation. For instance, one of the criterion contained in LESA for measuring the effects of a project is the distance from existing urbanization—the further from an urbanized area, the greater the score for agricultural land impacts. While this is an appropriate measure to judge the impacts of urbanization and to evaluate the growth-inducing potential of a project, it is an inappropriate measure to evaluate the significance of habitat conversion projects. Habitat projects usually are not near existing urbanization but do not contribute to growth inducement. Therefore, the full or partial use of LESA may or may not be appropriate at the site-specific level but should not be required.

- 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, including the Ecosystem Restoration Program. In addition, reaffirming an existing statute is not a mitigation measure.

- Establish an agricultural mitigation oversight entity to oversee implementation of mitigation by CALFED. Chapter 9, as revised, discusses mitigation monitoring. Establishment of new entities is a subject under discussion by the CALFED Governance Program, and is properly addressed there (please see the Implementation Plan). Creation of a new entity is not a mitigation measure and is more properly discussed in the policy arena.

- Protect an equivalent, or up to 3:1 more, agricultural land, water, and services for any farmlands converted by the Program or for lands where uses are restricted. Protection of off-site lands to mitigate conversion of farmlands is addressed in mitigation strategy 8. Exact amounts to be protected would depend on the site-specific impacts of conversion, as measured in the second-tier environmental document, and on whether other mitigations were adopted. While conversion of Important Farmlands to other uses is treated as an environmental impact that must be considered as part of environmental review under CEQA, change in the use of water by itself and changes in practices and level of services are economic effects (please see responses IA7.1.7-11 and IA7.1.7-10).

- Before implementing any action requiring additional water, develop the water source; if water is from former agricultural use, mitigate the significant environmental impact. Water will come from other than agricultural sources. 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. As discussed in response IA7.1.7-11, a change in the use of water by itself is not a significant environmental impact requiring mitigation. The source of water used for CALFED projects is not an environmental impact requiring mitigation.

- Develop an Agricultural Water Account to mitigate for agricultural water directed to CALFED uses. As discussed in response IA7.1.7-11, a change in the use of water is not by itself an environmental impact. The suggestion to develop new sources of water to replace water transferred by willing sellers does not address an environmental impact but may result in economic impacts.

In developing site-specific mitigation measures in second-tier environmental documents, CALFED agencies will continue to consider any measures that meet CEQA and NEPA requirements for mitigation.

IA7.1.11-16

The following responses address the commentor's recommended mitigation:

- 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 to monitor such mitigation. It is unclear what purpose would be served by a second document memorializing these mitigations.

- Require buffers when developing habitat projects adjacent to agricultural uses. This recommendation is addressed by mitigation strategy 19 on page 7.1-3 in the June 1999 Draft Programmatic EIS/EIR. Specifics on buffer design must be developed at the site-specific level.

- Establish an easement or transfer of development rights program. The State of California already has developed such a program, the California Farmland Conservancy Program that is administered by the DOC. This is addressed in mitigation strategy 8.

- Purchase flood easements and repair existing levees rather than developing setback levees. Decisions on how best to increase flood protection for lands behind levees have not yet been made. The Long-Term Levee Protection Plan includes levee strengthening and setback levees as options. Please also see response LS-4.2-1. This comment represents a program preference rather than a mitigation measure.

- Examine and implement structural as well as nonstructural alternatives to achieving Program goals. This recommendation addresses alternatives rather than mitigation strategies. Please see response IA7.1.4-3.

- Implement a Planned Unit Development approach to habitat development. 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.

- Establish Agricultural Exclusive zoning. As the comment notes, this a local responsibility. CALFED has no authority to establish local zoning, even in conjunction with the DPC.

- Phase implementation of specific Program components. This is addressed by mitigation strategy 17. This strategy would allow implementation to proceed as needed, rather than happening all at once.

IA7.1.11-17

The mitigation recommendations are discussed in responses IA7.1.11-15 and IA7.1.11-16 above.

IA7.1.11-18

At the current programmatic level, mitigation strategies have been included in the EIS/EIR. Site-specific mitigation measures will be developed in second-tier environmental documents. The measures suggested are:

- 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. Exact amounts to be protected would depend on the site-specific impacts 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.

- Set aside portions of new water developed through storage to irrigate new lands. Creation of new irrigated areas would likely be infeasible, due to the costs of developing delivery storage systems, the difficulty of justifying this amount of storage through the Section 404 process, the development of mechanisms to fund the storage and delivery infrastructure, and the environmental impacts of the water delivery system. Currently, no such requirement has been developed or implemented by any level of government in California. Please also see response IA7.1.7-10.

- Direct habitat development to poorer quality agricultural soils. We agree that this would be a useful mitigation strategy. However, various types of habitats have specific soil requirements, as do agricultural crops. Therefore, this strategy would not be appropriate in all cases.

- When conversion occurs, remove Class I and II soils from the habitat site to other agricultural locations. Again, 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. Further, additional regulatory hurdles, such as triggering the Surface Mining and Reclamation Act, could make this mitigation even less economically feasible.

Section 7.1.12 concludes that the conversion of agricultural lands by the Program is a potentially significant unavoidable impact.

IA7.1.11-19

Payment of fair market values and scheduling construction activities to allow harvests are not included as mitigation strategies for agricultural land impacts, nor are stronger zoning and tax incentives. These are included in the document as standard Program policies. The recommended mitigation measures—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.

IA7.1.11-20

The options for water transfers are contained in the Water Transfer Program Plan. It is unclear what other options and solutions are referenced in the comment. "Options" can be considered to be alternatives—please see response IA7.1.7-11. "Solutions" may be referring to mitigation strategies, which are contained in Section 7.1.11. Please also see common response 12 for a discussion of Program benefits to the agricultural sector.

IA7.1.11-21

The mitigation measures suggested by the CDFA were evaluated and were either included as mitigation strategies in the EIS/EIR or rejected for reasons stated in responses IA7.1.11-15 and IA7.1.11-16. A number of recommended measures address potential effects that are not considered environmental impacts under CEQA or NEPA (please see response IA7.1.7-11). The Ecosystem Restoration Program Plan includes categories of projects and generalized potential project locations. The plan does not provide site-specific information, such as precise map locations and acreages, that would be required in a project-specific environmental document. Because locations in the Ecosystem Restoration Program Plan (for example, Yolo Bypass) are currently general, impacts cannot be determined (please see response IA7.1.11-2). Likewise, mitigation measures for those impacts cannot be determined. The EIS/EIR contains a large number of mitigation strategies for agricultural impacts. Section 7.1.11 includes 27 mitigation strategies for impacts 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.

IA7.1.11-22

Please see response IA7.1.4-3 for a discussion of alternatives to the common programs. Section 7.11 in the Programmatic EIS/EIR contains mitigation strategies that would keep lands in private ownership and in agricultural production, including "using farmer-initiated and -developed restoration projects as a means of reaching Program goals." Please see response IA7.1.11-14 for a discussion of incentives.

IA7.1.11-23

Please see common response 20 for responses to solution principle issues, including redirected impacts and equitability. The commentor's statement is incomplete regarding mitigation strategy 11 on page 7.1-3 and also on page 7.1-31 in the June 1999 Draft Programmatic EIS/EIR. As can be seen in the context of the entire mitigation strategy, the "economic hardships" referred to also include the statement: "(for example, lands that flood frequently or where levees are too expensive to maintain)." These economic hardships existed before implementation of the Program and thus cannot have been caused by the Program.

7.1.12 Potentially Significant Unavoidable Impacts

IA7.1.12-1

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. The farmland loss figure included in Section 7.1.12 is a worst-case figure, which is appropriate under CEQA and NEPA. It is not expected that 243,000 acres will actually be converted to Program purposes. The commentor does not give a source for the 900,000 acres that would be subject to Ecosystem Restoration Program "purchase, management, and regulation." This number, which may be derived from the MSCS, was apparently added to the potential 1 million acres of potential agricultural land conversion due to urbanization in the Central Valley to equal 2 million acres of conversion. Urbanization is outside the scope of the CALFED Program. Other lands affected by the MSCS or Ecosystem Restoration Program beyond the 243,000-acre conversion figure are not agricultural land conversions and would not be lost to agriculture.

IA7.1.12-2

"Potentially significant" is a term used in CEQA and NEPA that is particularly apt for a programmatic document, where actual on-the-ground impacts cannot yet be determined. Since the document is programmatic, the actual sites, types of land, and land uses have not yet been determined and, therefore, cannot be included in the EIS/EIR. The commentor does not give a source for the 900,000 acres that would be subject to Ecosystem Restoration Program "purchase, management, and regulation." This number, which may be derived from the MSCS, includes existing wetlands and riparian areas that will be improved, as well as agricultural lands where cooperating farmers will be paid to implement more wildlife-friendly practices.

IA7.1.12-3

The commentor misunderstands the analysis of cumulative impacts in the Programmatic EIS/EIR. Under CEQA Guidelines Section 15130, the purpose of a cumulative impact discussion is to determine whether the proposed project's contribution to cumulative impacts is significant. Section 7.1.12 determines that the Program's contribution to the cumulative impact of Important Farmlands conversion is indeed potentially significant. Guidelines Section 15130 defines a cumulative impact as "an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts," which is what the Programmatic EIS/EIR analyzes. Other projects creating related impacts (agricultural land conversion) that are included in Section 7.1.12 are regional-level urbanization and specific habitat projects. The analysis includes the maximum acres of land that would be converted for Program needs, thus including all actions that may result in adverse environmental impacts on agricultural resources. Section 7.1.11 includes mitigation strategies developed at the programmatic level, and Chapter 9 provides the mitigation monitoring plan required by CEQA to assure consideration of the mitigation strategies.

IA7.1.12-4

Both the North Delta NWR and urbanization due to population growth are included in the cumulative impacts portion of Section 7.1.12.

7.2 Agricultural Economics

7.2.1 Summary

IA7.2.1-1

The comment does not specify the type of referenced adverse impacts. Section 7.2 discusses the adverse economic effects that could result from water transfers and includes strategies to reduce these effects. Further, the section notes that the Water Transfer Program includes a recommendation to develop safeguards in order to avoid third-party impacts. The Water Transfer Program identifies local groundwater ordinances as one of the legal mechanisms to protect the environment and local resources. The program further commits to providing assistance to local agencies in the identification of appropriate resources that are necessary in developing their groundwater management programs.

7.2.2 Areas of Controversy

IA7.2.2-1

Sections 7.2 and 7.3 in the EIS/EIR analyze, respectively, agricultural economic effects and agricultural social effects. These sections look at the value of agriculture economically, the jobs it supports, and the effects that could result from implementation of the Program—including potential effects on local governments. Social and economic changes resulting from a project are treated somewhat differently under CEQA and NEPA. CEQA does not treat economic or social changes resulting from a project as significant effects on the environment. If a physical change in the environment is caused by social or economic effects, however, the physical change may be regarded as a significant effect using the same criteria for other physical changes from the project. In addition, economic and social effects of a project may be used to assess the significance of a physical effect (14 CCR Section 15064 [e]). Under NEPA, economic or social effects must be discussed if they are inter-related to the natural or physical environmental effects of a project (40 CFR Section 1508.14). Methods to avoid or reduce adverse social and economic effects must also be addressed.

The document acknowledges that adverse economic and social effects could occur; both Sections 7.2 and 7.3 propose measures to reduce Program effects on farmers, farm workers, and local communities. These measures do not eliminate adverse economic or social effects and are not mitigation measures but may serve to reduce adverse effects. They could be funded by the Program and carried out by the appropriate levels of government. Section 7.1.11 contains mitigation strategies designed to lessen the impacts of the Program on agricultural lands.

Idling or fallowing farmlands to save water is not part of the CALFED Program. The Program includes consideration of fallowing 37,000 acres of drainage-impaired farmlands in the San Joaquin River Region for water quality purposes. Economic effects of this potential fallowing are discussed in Section 7.2.

IA7.2.2-2

Section 7.2.2 acknowledges the differences of opinion regarding agricultural revenue values in the study area. As a result of earlier comments on agricultural revenues, CALFED reevaluated average crop revenues in the regions to arrive at the amounts used in the current document. It is acknowledged that the Program would likely focus acquisitions on lower value lands, but the possibility of using higher value croplands must be evaluated.

IA7.2.2-3

Mitigation measures are not included because, as noted in the comment, socioeconomic effects are not considered significant environmental impacts under CEQA or NEPA. Nineteen measures to reduce adverse agricultural economic or social effects are included in Sections 7.2 and 7.3.

7.2.3 Affected Environment/Existing Conditions

IA-7.2.3-1

Sections 7.1 and 7.2 both acknowledge the high production achieved by California agriculture resulting from sufficient irrigation water. Economically, the value of agricultural water is assessed in two different ways. The willingness to pay for new irrigation water supply is based on the net revenue that growers would receive from the additional water. The economic impacts of agricultural water use on regional income and employment are evaluated in Section 7.10, "Regional Economics."

7.2.3.1 Delta Region

IA-7.2.3.1-1

Table 7.2-1 provides information to policy makers regarding patterns of farm ownership. While further analysis may be interesting, as suggested in the comment, this table is only for information purposes and does not affect the analysis. Escalating the numbers to 1992 dollars is a matter of reader preference. The numbers presented are directly from the cited U.S. Census reports. Escalating them would prevent readers from easily checking the numbers or comparing them, for example, to another state's Census data. Table formatting has been corrected. Some of the terms used in the U.S. Census data tables are different from terms used elsewhere in this report. We have added the following explanatory text:

> "The terms 'agricultural sales,' 'gross revenue,' 'agricultural product value,' and 'production value' are synonymous. Also, 'production costs' and 'production expenses' are synonymous."

7.2.4 Assessment Methods

IA7.2.4-1

The Programmatic EIS/EIR does not list 100,000 acres of San Joaquin County agricultural lands being converted to habitat. Section 7.2 in the document discusses agricultural economic effects on a regional basis. As discussed in Section 7.2.4, the programmatic nature of the document does not allow a discussion of economic effects for individual cities or counties. That type of site-specific information will necessarily be discussed in second-tier, site-specific documents.

IA7.2.4-2

This section has been revised to include the recommendations.

IA-7.2.4-3

The following citation has been added to the sentence quoted in the comment:

"...(see, for example, the 1997 Draft CVPIA Programmatic EIS)."

Information presented in the March 1998 Draft Programmatic EIS/EIR and supporting technical reports is incorporated into the June 1999 Draft Programmatic EIS/EIR. Unfortunately, the analyses used to support the June 1999 Draft Programmatic EIS/EIR are complex and voluminous. Leaving much of the information in supporting documents was necessary to maintain the readability of the current document.

7.2.5 Criteria for Determining Adverse Effects

IA7.2.5-1

Thresholds of significance are applied to determine whether an environmental impact is significant. They do not apply to, nor are they required for, a discussion of economic effects in compliance with NEPA. Social or economic effects may be used under NEPA to assess the significance of a physical effect. Section 7.1 has determined that the loss of agricultural lands is considered a potentially significant impact, and that the cumulative effects are cumulatively considerable. Section 7.2.5 lists the criteria used in the discussion for evaluating adverse economic effects. See response IA7.2.2-1 for a discussion of NEPA and CEQA requirements for economic and social effects.

7.2.6 No Action Alternative

IA-7.2.6-1

This assumption is derived from DWR Bulletin 160-93. The following citation has been added to the text:

"...(see the California Water Plan Update, California Department of Water Resources, 1994)."

7.2.7 Consequences: Program Elements Common to All Alternatives

IA7.2.7-1

Sections 7.2 and 7.3 in the Programmatic EIS/EIR address agricultural economic and agricultural social impacts, respectively. These sections acknowledge multiplier effects to other sectors from agricultural land conversions and water transfers, as well as effects on local governments and farm workers.

IA7.2.7-2

Section 7.2 discusses effects on agricultural economics, including multiplier effects on other sectors of the economy related to agriculture. Idling agricultural lands to save water is not part of the CALFED Program. Section 7.1.10 discusses cumulative impacts associated with farmland conversion, including other government-sponsored habitat programs and local government decisions to allow farmland urbanization.

IA7.2.7-3

Section 7.2 discusses agricultural economic effects due to the Program. Section 7.3 discusses agricultural social impacts. Section 5.1 discusses water supply and models water availability in differing rainfall years, including drought conditions.

IA-7.2.7-4

The intent of CALFED programs is to improve the reliability and dependability of water supply. Increased water supply reliability should reduce financial risk.

IA-7.2.7-5

Section 7.2.7 acknowledges the potential adverse economic effects of water transfers on agricultural service industries. This section also includes measures to reduce this effect. Section 7.1.7 discusses potential third-party impacts from water transfers, and Section 7.1.11 includes mitigation strategies to reduce third-party impacts. Section 7.3.12 acknowledges that Program activities may affect local government services and revenues, while Section 7.3.7 includes measures to reduce these effects.

IA-7.2.7-6

The Programmatic EIS/EIR recognizes that costs would be associated with water quality and water use efficiency components. Details and quantitative estimates of specific costs and potential cost sharing have not been defined. A description of wildlife-friendly agricultural practices, including changes in tillage practices, has been added to Section 7.2.7. Costs of this program also have not been detailed, but a voluntary program is envisioned that includes compensation for direct costs to growers.

7.2.7.1 Delta Region

IA-7.2.7.1-1

Section 7.2.7.1 discusses the economic effects of agricultural land loss in the Delta and concludes that the effects will be substantial. Section 7.1.10 reviews the cumulative effects of CALFED and other actions that would convert agricultural land in the Delta, and concludes that the effects are cumulatively considerable. Defining the "critical mass" of farm acreage needed to keep farm-related businesses, such as processors and parts suppliers, in business depends on many factors and has not yet been answered in the available literature. In particular, events such as corporate takeovers, consolidations, and urbanization can affect business decisions to remain in a community—perhaps more so than the extent of agricultural acreage. It is acknowledged that the Program's actions could contribute to the elimination of an agricultural "critical mass," but the precise extent of that contribution cannot be defined.

7.2.7.2 Bay Region

IA-7.2.7.2-1

The following clarifying text has been added:

> "Agricultural areas in Santa Clara and San Benito Counties, for example, are subject to reductions in CVP supply, yet have relatively high willingness to pay for transferred water (Draft CVPIA Programmatic EIS, 1997)."

7.2.7.3 Sacramento River Region

IA7.2.7.3-1

Section 7.2.7.3 discusses the potential economic effects of Program actions on the Sacramento River Region. Potential adverse effects to production and resulting secondary effects are noted. Potential agricultural social effects resulting from transfers are discussed in Section 7.3.7.3.

IA7.2.7.3-2

The comments do not give a source for this number, but it may be a compilation of several numbers in the MSCS, including: (1) managed seasonal wetlands - 290,125 to 300,125 acres; (2) upland cropland/seasonally flooded agricultural land - 353,933 to 388,933 acres; and (3) the maximum conversion of 243,000 acres included in Section 7.1. Adding these numbers to derive an acreage figure for agricultural lands affected by the Program is erroneous. The managed seasonal wetlands figures are, for the most part, existing wetlands that would be improved and are not now in agricultural use. The portion of newly created wetlands is already included in the 243,000-acre conversion figure in Section 7.1. The upland cropland/seasonally flooded agricultural land number will affect, but will not convert, agricultural lands. Pages 110-168 in Volume I of the June 1999 Ecosystem Restoration Program Plan, "Ecosystem Restoration Program - Ecological Attributes of the San Francisco Bay-Delta Watershed," define the uses of these areas. The Ecosystem Restoration Program goal to cooperatively manage agricultural lands in the Colusa Basin will not drastically reduce productive acreages as the comment states. Implementation of the plan may, in some circumstances, result in a reduction of harvested acres in some areas.

A discussion of effects of the Program on lands used for wildlife-friendly agriculture has been added to Sections 7.1, 7.2, and 7.3.

IA-7.2.7.3-3

Estimates of land converted for setback levees are included in the ranges of total land conversion by region cited in Section 7.1.7.4. Economic effects on lands that would remain agricultural but would fall within setback levees are included in Section 7.2.7.3 in the EIS/EIR because stream meander lands were considered under a worst-case analysis to be land conversions, rather than changes to a lower agricultural use. Section 7.2.7.3 has been revised to discuss changes to lower agricultural uses.

Regarding the second part of the comment, none of the CALFED alternatives proposes to take irrigation water away from agriculture without compensation.

7.2.7.5 Other SWP and CVP Service Areas

IA-7.2.7.5-1

The impact assessment has recognized the potential for irrigation costs and efficiency requirements to affect profitability. For example, page 7.1-18 in the June 1999 Draft Programmatic EIS/EIR states, "Agricultural land may be removed from irrigated production because of increased costs and decreased profitability, which could result from required efficiency improvements or increased district water charges." Projections of lands that could be affected by rate increases would be extremely speculative at this time, dependent on a large number of different factors—such as types and locations of new storage (if built), success of urban and agricultural conservation, and rainfall.

7.2.8 Consequences: Program Elements That Differ Among Alternatives

IA-7.2.8-1

The range of agricultural water supply impacts is described under each alternative. The programmatic nature of water supply and conveyance Program elements prevents detailed quantitative estimates of economic impacts. Data from the technical reports are outdated and refer to different alternatives but still provide information on a range of conditions.

IA-7.2.8-2

CALFED has not made a decision on how costs of storage or other water management components will be allocated, or on how water will be priced. Therefore, the discussion of water supply impacts on agriculture (see Section 7.2.8.1) recognizes that new water may not be affordable to agriculture.

7.2.9 Program Alternatives Compared to Existing Conditions

IA7.2.9-1

The discussion in these sections is necessarily scaled to the differences in the impacts on agriculture economics among the alternatives. Thus, a very detailed analysis is not appropriate when differences are minimal.

7.2.10 Additional Impact Analysis

IA7.2.10-1

Section 7.1.10 discusses potential agricultural impacts at the study-area level, including projected impacts from urbanization and from other reasonably foreseeable habitat programs. Also included are potential effects of water reductions and impacts on Williamson Act-contracted lands. The comment does not state what additional information is required.

7.2.11 Adverse Effects

IA-7.2.11-1

As noted in the EIS/EIR and in the commentor's earlier comments, socioeconomic effects are not considered significant environmental impacts under NEPA or CEQA. See response IA7.2.2-1 for a discussion of CEQA and NEPA treatment of economic and social effects. Effects on the Delta are described in Section 7.2.7.1 and do not need repetition in Section 7.2.11.

7.3 Agricultural Social Issues

7.3.1 Summary

IA7.3.1-1

Section 7.3 discusses the agricultural social effects that could result from the Program.

IA7.3.1-2

Data relating to community stability were not available for the individual regions defined in the EIS/EIR (please see Table 7.3-1); thus, this issue can be discussed only at the program level. As noted in the comment, community stability on the local level will be discussed in greater detail in the second-tier documents.

The years of the data and the sources are clearly indicated in Table 7.3-2. The poverty rate is from Employment Development Department, 1986. While we agree with the comment that the same year for each of the data sets presented would be preferable, only differing years were available from the California Department of Finance and Employment Development Department. The poverty rate figures are based on total population below the established poverty rate.

The "pockets of prosperity" sentence has been revised. Table 7.3-3 and 7.3-4 titles also have been revised.

The materials in the tables provide readers and decision makers with the context of potential social effects. For instance, since the largest percentage of farm workers in the Delta Region are Hispanic, it is likely that any effects related to reduction of farmed acres will be the most severe on the Hispanic population in the region.

As noted in the EIS/EIR and in the commentor's earlier comments, socioeconomic effects are not considered significant environmental impacts in and of themselves under NEPA or CEQA.

7.3.4 Assessment Methods

IA7.3.4-1

It is acknowledged that home ownership is a measure of community stability. There are many such measures, not all of which were used in this analysis. The commentor does not state why this particular measure would be significant in determining agricultural social effects of the Program.

7.3.7 Consequences: Program Elements Common to All Alternatives

IA7.3.7-1

Both statements are correct. Pressurized irrigation systems, usable for many field crops, require less labor to maintain and operate. However, improvements in water reliability, coupled with incentives to reduce use, may lead growers to plant orchards, vineyards, or specialty crops—which are generally more labor-intensive.

IA7.3.7-2

Section 7.3 acknowledges these effects, which are likely to be less serious than the worst-case that is analyzed and which could be further reduced by the application of mitigation strategies contained in Section 7.1.11.

IA7.3.7-3

Please refer to response IA7.2.2-2. Section 7.3 discusses agricultural social issues. Increased jobs due to construction are addressed in Section 7.10, "Regional Economics."

IA7.3.7-4

CEQA and NEPA require environmental impacts to be identified, and NEPA requires a discussion of economic effects. Section 7.2 discusses agricultural economic effects, and Section 7.3 discusses effects to agricultural communities and workers. In addition, Section 7.1.12 identifies conflicts with local land use plans as a potentially significant impact.

IA7.3.7-5

Section 7.3.7 discusses the potential effects on communities from Program actions related to agricultural land and production. Section 7.2 discusses effects on agriculture-related industries from Program actions related to agricultural land and production. The worst-case Important Farmland conversion acreage amount resulting from Program actions is listed in Section 7.1 and Table 4.4 as 243,000 acres. Please also see response IA 7.2.7.3-2.

IA7.3.7-6

It is unclear why restoration of some areas would cause additional services to be needed during periods of high water if those areas are currently being served by the county. The comment offers no further description of the issue. We disagree with the comment.

IA7.3.7-7

One of the goals of the Program is to provide better water supply reliability for all beneficial users. This would allow a more reliable water supply to farmers during all conditions, including droughts. Section 5.1 concludes that no sectors will suffer adverse water supply or reliability effects, Program-wide over the long term. The Program does not intend to eliminate agriculture. Sections 7.2 and 7.3 acknowledge that farm-related businesses and communities may experience adverse economic and social effects as a result of the Program. Seventeen measures to reduce the adverse economic and social effects are included in those sections.

IA7.3.7-8

Neither custom nor culture are treated as significant impacts under CEQA or NEPA. Agricultural social effects of the Program are evaluated in Section 7.3. Section 7.3 acknowledges that adverse agricultural social effects may result from the Program, including effects on local government services and finances, and provides strategies that could be used to lessen those effects.

7.3.7.2 Delta Region

IA7.3.7.2-1

As with mitigation strategies, strategies to reduce economic effects may be adopted, if appropriate, by project-level lead agencies when projects are evaluated under NEPA or CEQA. The recommended measures have been added to the document.

7.3.8 Consequences: Program Elements That Differ Among Alternatives

IA7.3.8-1

Farmland that could be converted by the Program is documented in Section 7.1. Average crop values for farmlands in the Program study area are detailed in Section 7.2. Estimates from the IMPLAN Central Valley database showed that each $20,000 of agricultural production supports one farm worker job. Multiplying acreages that could be converted in each region by the crop values, divided by $20,000, results in an estimate of jobs that could be lost through conversion.

7.3.10 Additional Impact Analysis

IA7.3.10-1

The comment does not state what additional information would be valuable for this analysis. Other foreseeable habitat projects and the impacts of urbanization are discussed in Section 7.1.12, which is referenced. Effects on social issues are very difficult to predict in the context of the Program and other actions, due to the number and extent of externalities that could affect this issue. The analysis states that the effects will be considerable. While much more could be said, it would be highly speculative.

7.3.11 Adverse Effects

IA7.3.11-1

Many of the recommended measures are included in the document:

- Commit to acquire land on a voluntary (willing-seller) basis—this measure is included in Section 4.3.1.
- Develop local participation guidelines and long-term management plans prior to acquisition—local participation is included in Section 7.1.11; long-term management plans cannot be developed until after purchases are completed.
- Provide mitigation for agricultural land conversion—these measures are included in Section 7.1.11.
- Include programs to ensure that local revenues are not affected—this is not an environmental impact and is thus not an issue for mitigation.
- Local government support is included in Section 7.3 as a strategy to reduce economic effects of the Program.

- Assure that water rights remain with a local district or in the area of origin—change in the use of water by itself is not an environmental impact and is thus not an issue for mitigation.

- Use of water rights purchased with land would be determined on a case-by-case basis.

7.4 Urban Land Use

7.4.1 Summary

IA-7.4.1-1

Mitigation strategies are presented on the last page of the summary table in Section 7.4. Additionally, mitigation strategies are presented in Section 7.4.11, "Mitigation Strategies."

IA-7.4.1-2

Section 7.4 analyzes impacts to urban land uses at the programmatic level and presents mitigation strategies that are expected to reduce all potentially significant adverse impacts on urban land uses to less-than-significant levels. Detailed urban land use impact analyses will be presented in future tiered CEQA/NEPA documents for site-specific projects.

IA-7.4.1-3

The impacts of expansion of urban or suburban areas and potential land use change as a result of increased supply reliability are programmatically analyzed in Section 7.4 in the Programmatic EIS/EIR. Growth-inducing impacts are programmatically analyzed in each major subheading of Chapters 5, 6, and 7. At the programmatic level, it cannot be determined where growth and/or possible land use changes might occur; therefore, it is impossible to analyze specific impacts. Project-specific, tiered environmental analyses for subsequent projects will analyze potential project-induced growth impacts.

Increased water supply reliability for all beneficial users is a goal of the CALFED Program. Any increase in supply reliability would benefit urban, suburban, and rural areas alike. County and regional planning agencies are responsible for growth management and the preparation of redevelopment plans for urban core and inner-ring suburbs. Additionally, the distribution of water by local water suppliers and end use of water is beyond the scope of the analysis presented in the Programmatic Draft EIS/EIR.

IA-7.4.1-4

Please refer to common response 17. The commentor seems to have interpreted this section to be an analysis of urban land use impacts on the Bay-Delta system. This section analyzes the impacts of implementing the CALFED Program on urban land use. Additionally, the commentor appears to be looking for the impacts of other programs to be analyzed entirely within the urban land use section. For specifics on impacts addressed in the comment please refer to the following sections: Section 7.5, "Urban Water Supply Economics;" Section 7.10, "Regional Economics;" Section 7.14, "Environmental Justice;" Section 5.1, "Water Supply and Water Management;" and Section 5.3, "Water Quality." It is important to note that CALFED does not assume any land use planning authority; all planning authority will remain with local, county, and regional planning organizations. CALFED actions include working with the CALFED agencies with regulatory authority to enhance the effectiveness of their regulatory work.

At the programmatic level, it cannot be determined where growth and/or possible land use changes might occur; therefore, it is impossible to analyze specific impacts. Similarly, at the programmatic level, it cannot be determined which Program actions might affect which low-income or minority populations. For this reason, no mitigation

strategies have been presented to reduce the impact of potential growth acceleration. Project-specific environmental analyses for subsequent projects will address specific impacts to urban land use and low-income or minority populations and will present mitigation measures to reduce such impacts.

7.4.3 Affected Environment/Existing Conditions

IA-7.4.3-1

The impacts of expansion of urban or suburban areas and potential land use change are programmatically analyzed and mitigation strategies are presented in Section 7.4 in the Programmatic EIS/EIR. Growth-inducing impacts are programmatically analyzed in each major subheading of Chapters 5, 6, and 7. At the programmatic level, it cannot be determined where growth and/or possible land use changes might occur; therefore, it is impossible to analyze specific impacts. Project-specific environmental analyses for subsequent projects will address specific impacts to agricultural lands as a result of project-induced urban or suburban growth and resulting land use change.

7.4.6 No Action Alternative

IA-7.4.6-1

The CALFED Program projects an increase in population of 15 million by 2020. It is reasonable to assume that urban areas will need to expand in order to accommodate this magnitude of population increase. Further, while some California communities are experimenting with growth control measures, it is reasonable to assume that at a statewide level, the necessity to accommodate such growth will require that acres continue to move from other categories to the urban land use category.

7.4.7.2 Sacramento River and San Joaquin River Regions

IA-7.4.7.2-1

The commentor is not specific as to where in the documents it is implied that these programs will create additional constraints to land development. CALFED does not assume any land use planning authority; all planning authority will remain with local, county, and regional planning organizations. CALFED actions include working with the CALFED agencies with regulatory authority to enhance the effectiveness of their regulatory work.

7.4.10 Additional Impact Analysis

IA-7.4.10-1

The discussions of growth-inducing impacts in the Programmatic EIS/EIR, including in Section 7.4.10, have been revised to eliminate inconsistencies and to reflect the differences of opinion concerning whether additional water supplies and/or improvements in water supply reliability would stimulate growth. It was assumed for this programmatic level of analysis that any increase in water supplies and/or improvements in water supply reliability associated with the Program would stimulate growth. This assumption ensures that the document discloses the environmental consequences associated with growth, in the event that Program actions ultimately lead to this type of change. For more information, please see response IA 3.2-1.

The terms "could affect," "would depend on," and "could be implemented" are commonly used in the preparation of programmatic NEPA/CEQA documentation. At the programmatic level, it cannot be determined where growth and/or possible land use changes might occur, or which mitigation strategies might be most effective; therefore, more concrete language is not used. Project-specific environmental analyses for CALFED Program projects will address specific impacts and will present specific mitigation measures to minimize any impacts to land use as a result of the project.

7.5 Urban Water Supply Economics

7.5.1 Summary

IA-7.5.1-1

Potential adverse water quality effects are discussed here (a small change has been made in Section 7.5.1), in Section 7.5.4, and in Section 7.5.7.1.

IA-7.5.1-2

The costs of reverse osmosis, which are annualized costs, are based on information provided by MWD during the Economic Evaluation of Water Management Alternatives (EEWMA) screening analysis. These data suggest an annualized capital cost of around $250 per acre-foot and an annual operating cost of $250 per acre-foot actually treated. Water provided to eliminate shortage during dry periods would not incur the capital cost since this cost would be required to meet the level of demand in all years. No unusual costs are associated with brine removal, except that a share of water supplies are lost with the brine. Ten percent loss was assumed in the economic evaluation study. The brine would be disposed of in the ocean or inland water bodies. The amount of material loading would be unaffected in that the brine includes materials that otherwise would be included in wastewater.

IA-7.5.1-3

Reverse osmosis (RO) might be needed to eliminate microbial contamination without formation of hazardous disinfection by-products (DBPs). Ultra-violet (UV) treatment would accomplish this same goal. It is true that UV is a developing technology, untested on a large scale, and unproven in efficacy and cost. These facts, however, are not inconsistent with the quoted statement, "Ultra-violet (UV) treatment technology may eliminate the need for RO." The chance that UV will play a role in the future is believed to be sufficiently probable to justify the statement. During Stage 1 of implementation of the CALFED Program, studies are planned to investigate control of DBPs at treatment plants (see the Phase II Report).

7.5.2 Areas of Controversy

IA-7.5.2-1

The text about significance has been modified to discuss relationships between physical and economic changes and significance. Social and economic changes resulting from a project are treated somewhat differently under CEQA and NEPA. CEQA does not treat economic or social changes resulting from a project as significant effects on the environment. However, if a physical change in the environment is caused by economic or social effects, the physical change may be regarded as a significant effect when using the same criteria for other physical changes from the project. In addition, economic and social effects of a project may be used to assess the significance of a physical effect. (14 CCR Section 15064[e].) Under NEPA, economic or social effects must be discussed if they are inter-related to the natural or physical environmental effects of a project (40 CFR Section 1508.14). Methods to avoid or reduce adverse social and economic effects are addressed in the text of the chapter.

IA-7.5.2-2

At the programmatic level of analysis of this document, it was assumed that an increase in water supply or water supply reliability could cause growth. This assumption was made to ensure full disclosure under NEPA and CEQA. Please refer to response IA-3.2-1 for additional discussion.

IA-7.5.2-3

The increased costs can be expressed on a consumer basis using information provided in this chapter.

IA-7.5.2-4

CALFED would develop an incentives-based program to identify and implement urban water conservation measures that are supplemental to BMPs in the urban MOU process and are cost effective from a statewide perspective. There is currently not enough information to estimate the costs and benefits from the statewide perspective. Therefore, CALFED's Water Use Efficiency Program would require development of methods to ensure that conservation beyond BMPs is cost effective from the state perspective.

IA-7.5.2-5

It is CALFED's intention that redirected costs will not occur. Where they do occur, mechanisms for compensation will be developed. The particular location of water quality effects and other redirected effects is a site-specific issue that is not considered in this programmatic document.

7.5.3.1 Delta Region

IA-7.5.3.1-1

Text has been added to provide clarification of SEWD's water supplies.

IA-7.5.3.1-2

Text has been revised to note that the former Oakley Water District is now the Diablo Water District and that the "Los Vaqueros Reservoir Project" is an incorrect reference to the Los Vaqueros Project. It is noted that the project includes new intake and conveyance facilities, that Diablo Water District serves Oakley, and that water is treated in the Randall-Bold Treatment Plant.

7.5.3.3 Sacramento River Region

IA-7.5.3.3-1

The text has been modified to show that some areas do not have adequate supplies during drought.

IA-7.5.3.3-2

The data indicate that Carmichael's 1990 usage was 11.5 mgd, not 4. The tables showing the 1990 urban water use were not intended to show peak water use during the year. Text has been added to note that daily usage varies. The data labels "mgd" have been changed to read "mg."

7.5.3.4 San Joaquin River Region

IA-7.5.3.4-4

The text has been changed.

7.5.3.5 Other SWP and CVP Service Areas

IA-7.5.3.5-1

The correction has been made in the document.

7.5.4 Assessment Methods

IA-7.5.4-1

The dry-period analysis estimates an average annual cost over the critical period. Effects could be much more severe than average in the latter part of the period, and the average would still be accurate.

The cited costs are annual costs. The $2,000 cost is likely to be a capital cost, or it represents a project that would not be developed based on economics alone.

IA-7.5.4-2

LCPSIM and CVPM are both economic optimization models that select the least-cost mix of water supplies. Also see response PH2-3.6.5-44.

7.5.6.1 Delta Region

IA-7.5.6.1-1

Minor changes have been made to Table 7.5-17 to reflect better information about water costs in the Sacramento and San Joaquin Valleys.

IA-7.5.6.1-2

The text in Section 7.5.6.1 has been revised to note that the Los Vaqueros Project is completed and provides emergency water supply reliability. The No Action Alternative was developed in 1996, at which time the project was under construction.

7.5.6.4 San Joaquin River Region

IA-7.5.6.4-1

CALFED recognizes area of origin in its planning. See common response 13. The CALFED evaluations are programmatic and cannot resolve site-specific issues between Reclamation and local entities.

7.5.10 Additional Impact Analysis

IA-7.5.10-1

This section has been revised to better explain growth-inducing effects. At the programmatic level of analysis in this document, it was assumed that an increase in water supply or water supply reliability could cause growth. This assumption was made to ensure full disclosure under NEPA and CEQA. Please refer to response IA-3.2-1 for additional discussion.

7.5.11 Adverse Effects

IA-7.5.11-1

The low-income analysis did not identify any potentially significant adverse economic impacts related to water supply economics. Therefore, there is no need for ratepayer analysis.

7.5.12 LCPSIM Urban Water Supply Economics Assessment

IA-7.5.12-1

Demand hardening is discussed in Section 7.5.12 in the Programmatic EIS/EIR. Demand hardening was accepted, conceptually, in the EEWMA process and has been adopted as part of most urban water suppliers plans. There are other conceptual ways to evaluate the effects of demand hardening, but we feel that demand elasticity and hardening have been adequately addressed. The principle of demand hardening is based on the assumed effect of the adoption of conservation measures on water user demand elasticity. Demand hardening was incorporated into the urban reliability benefits analysis to more realistically depict demand elasticity

IA-7.5.12-2

Economic losses due to shortages are measured at the water-consumer level for the LCPSIM urban reliability benefits analysis. The logic of the LCPSIM approach is as follows. As reliability is increased through the incremental adoption of local reliability enhancement options (water use efficiency measures such as conservation and recycling), the incremental benefits of avoiding expected consumer losses is compared to the costs of the adopted options. The point at which the incremental consumer benefits are equal to the incremental option costs is determined to be the most economically efficient level of adoption of those options. Any economic effects on water providers are not considered relevant for purposes of this analysis.

IA-7.5.12-3

The urban LCPSIM reliability benefits analysis approach determines the most economically efficient level of adoption of local water use efficiency measures such as conservation and recycling, based on expected water user losses due to shortages and the costs of adopting those water use efficiency measures to avoid shortages. In this instance, the economically efficient level is lower than the level of adoption envisioned by the CALFED Water Use Efficiency Program. Once a given supply is estimated, LCPSIM determines how conservation and recycling and remaining water needs balance. If new water supply is added, LCPSIM will determine a different balance in conservation, recycling, and water needs. Given that LCPSIM determines how to meet remaining needs once a water supply is estimated, the statements in Section 7.5.8 are considered true.

IA-7.5.12-4

Concerning the use of B-160 information, please see common response 10. LCPSIM was used in the Programmatic EIS/EIR to assess and disclose the economic benefits and costs of increasing water supply reliability associated with the CALFED action alternatives.

IA-7.5.12-5

This response has been consolidated with response IA-7.5.12-1. Please refer to this response for the answer to your comment.

IA-7.5.12-7

As mentioned in the Phase II Report, CALFED is conducting an EEWMA. This evaluation looks at an array of water management tools available to each region and places them in order from least expensive to most expensive. In many cases, some amount of water conservation is the most cost effective tool to use for a given region. However, not all increments of water conservation are equally cost effective. This information will be presented along with other evaluation information as the Integrated Storage Investigation is conducted. Concerning the use of information from B-160, please see common response 10.

IA-7.5.12-8

While UV does address some water quality issues, it is recognized that UV does not address salinity problems. During Stage 1 of implementation of the CALFED Program, studies are planned to investigate control of DBPs at treatment plants (see the Phase II Report).

IA-7.5.12-9

The LCPSIM model assumptions included 350 TAF of carryover storage available through "external banking". As the comment states, this represents the Semitropic agreement with MWD. In accordance with more recent information, the 200 TAF of banking capacity for SWP supplies made available through the Arvin-Edison agreement with MWD has been added for revised model runs.

The comment on the loss function used in LCPSIM arises from a misinterpretation by the commentor of the data shown in Figure 7.5-5 on page 7.5-48 in the June 1999 Programmatic EIS/EIR. The $49 figure represents the willingness to pay to avoid a 5-percent shortage event by a household that uses 0.75 acre-foot per year. The amount of water involved is therefore 5 percent of 0.75 acre-foot, or 0.0375 acre-foot. This results in a unit value of $1,307 per acre-foot, not $49 per acre-foot.

IA-7.5.12-10

CALFED has not made a decision on how costs of storage or other water management components will be allocated, or on how water will be priced. Economic information concerning water management approaches is being developed in the EEWMA study. Also see response PH2-3.6.5-44. The discussion of water supply impacts on agriculture (see Section 7.2.8.1) recognizes that new water may not be affordable to agriculture. The LCPSIM study did identify options to identify the least cost solution, but this information was not reported. This information has been added to the Final Programmatic EIS/EIR.

7.6 Utilities and Public Services

7.6.1 Summary

IA-7.6.1-1

The comment suggests that wastewater treatment agencies benefit from current conservation programs and should help to pay for these programs. The financing for existing conservation programs falls outside the scope of the CALFED Program. The specific beneficiaries from water use efficiency actions implemented by CALFED will be determined during site-specific planning in the implementation phase of the Program. Cost-sharing scenarios for the Water Use Efficiency Program, as well as for the other Program elements, are included in the Financing Plan (Chapter 5 in the Implementation Plan).

Furthermore, NEPA/CEQA require that the potentially significant adverse environmental impacts associated with CALFED Program actions be evaluated in the Programmatic EIS/EIR. The CALFED agencies do not consider it appropriate to evaluate current conservation programs that would occur regardless of CALFED Program actions as part of the Programmatic EIS/EIR for the CALFED Program.

7.6.3 Affected Environment/Existing Conditions

IA-7.6.3-1

The text has been revised. "Million gallons per day" has been changed to "million gallons per year."

7.6.5 Significance Criteria

IA-7.6.5-1

As, discussed in Section 4.1 in the Programmatic EIS/EIR, qualitative thresholds of significance generally are used because of the general nature of the planning process and the broad range of programmatic actions being considered. These qualitative and general criteria provide the basis for establishing more specific or quantitative thresholds that will be used in the project-specific, second-tier environmental documents. When specific actions are identified in Phase III of the Program, significance criteria will be expressed in quantitative terms or measurable performance criteria based on site-specific data.

For this programmatic analysis, impacts on utilities and public services were considered potentially significant if Program actions would create a demand for public services that substantially exceeds the capacity of public service agencies.

As discussed in Section 7.6.7.1 in the Programmatic EIS/EIR, the Ecosystem Restoration Program could require additional public services for new parks and refuges, and could increase the need for public services at existing parks and refuges because increases in recreational fishing stocks and waterfowl could result in a greater number of fisher/hunter days per year. Although the demand for public services is likely to increase under these circumstances, Program actions are not expected to require public services in excess of current regional capacity. The Storage element also has the potential to increase the use of recreation facilities, thereby increasing demand for utilities and public services. However, locations of storage and conveyance facilities have not yet been determined, and site-specific impacts cannot be determined at the programmatic level.

The potential adverse effects of land acquisitions and resulting loss of tax revenue on public finances for county, municipal, and other local jurisdictions—and the possible means for alleviating these effects—are addressed in Section 7.10.7 in the Programmatic EIS/EIR. Possible methods of alleviating the effects of land acquisitions on utilities and public services could include phasing project elements so that local economies could gradually adjust to new conditions; supporting actions to alleviate the proposed removal of private lands from tax and assessment roles by, for example, making in-lieu payments to local governments; minimizing or avoiding fallowing; promoting geographically broad-based ecosystem restoration to ensure that no one localized area is involved in a disproportionately large amount of land conversion; and limiting the amount of acreage that can be fallowed in a given area.

CALFED is developing its strategy for land acquisitions and a budget for payments in lieu of taxes (PILT). The Program is exploring the option of a one-time, lump-sum PILT to be paid when land is acquired. Details of the strategy for land acquisition implementation will be defined in site-specific environmental documentation during Phase III of the Program.

7.6.7 Consequences: Program Elements Common to All Alternatives

IA-7.6.7-1

This issue is dealt with in Section 7.9 in the Programmatic EIS/EIR. Water transfers may increase energy use at pumping and treatment facilities if the transfers require an increase in pumping or treatment requirements. The Preferred Program Alternative could indirectly affect energy use at surface water and groundwater pumping facilities owned by local irrigation districts and municipal utility districts. Due to the programmatic level of detail for the Program alternatives, the impacts presented are general. Exact locations of Program actions have not yet been determined, and site-specific impacts cannot be determined at the programmatic level. Subsequent project-specific analysis is necessary to fully determine the impacts of individual projects on power and energy resources, and the site-specific impacts of actions taken to offset reductions in power and energy resources. Site-specific impacts of Program actions and their level of significance will be evaluated in second-tier environmental documents during Phase III of the Program.

IA-7.6.7-2

Section 7.6 in the Programmatic EIS/EIR states that, although unlikely, a slight possibility exists that some infrastructure would need to be relocated or modified as a result of Program actions. The section lists four proposed mitigation strategies to avoid or reduce the impact of infrastructure relocation to a less-than-significant impact. For this impact analysis, it was assumed that mitigation strategies could successfully relocate facilities to avoid displacement of major infrastructure components, and modifications of existing major utility infrastructure components are not expected to require construction or development of additional utility capacity. Due to the programmatic level of detail for the Program alternatives, the impacts presented are general. Exact locations of Program actions have not yet been determined, and site-specific impacts cannot be determined at the programmatic level. Subsequent project-specific analyses are necessary to fully determine the impacts of individual projects on power and energy resources, and the site-specific impacts of actions taken to offset reductions in power and energy resources. Site-specific impacts of Program actions will be evaluated in second-tier environmental documents during Phase III of the Program.

IA-7.6.7-3

The comment expresses concern that new regulations will encourage water district customers to build outside existing water districts, relying on on-site systems, causing development to be redirected away from existing urban

areas where reliable infrastructure is available, and further causing significant dispersal of infrastructure and urban sprawl impacts. CALFED Program actions involve working with the CALFED agencies with regulatory authority to enhance the effectiveness of their regulatory work. CALFED does not assume any authority in regulation of any sort. CALFED also does not assume any land use planning authority. CALFED's role is a supportive role.

7.7 Recreation Resources

0. General Responses

IA 7.7.0-1

Section 7.7, "Recreation Resources," describes existing recreation conditions and impacts of the Program alternatives on recreation resources.

IA 7.7.0-2

The location of recreation resources affected by the CALFED Program is described in the affected environment section. Overall, the CALFED Program is expected to enhance recreation opportunities, such as sport fishing opportunities, near urban areas in northern California.

7.7.1 Summary

IA 7.7.1-1

Permanent closure of some recreation facilities was identified as a potentially significant impact that is avoidable because it is believed that facilities potentially affected by the Program can be successfully moved to other locations in the Delta.

7.7.3 Affected Environment/Existing Conditions

IA 7.7.3.0-1

The discussion of commercial fisheries was included in the recreation resources section because the information provided is similar in nature to information provided for ocean sport fishing, which also is described in the recreation resources section (Bay Region section). Relevant existing information on commercial salmon fisheries, which is the primary commercial fishery to be affected by the CALFED Program, is presented in the affected environment section. The impacts of the CALFED Program on commercial salmon fisheries, although expected to be positive but with considerable uncertainty about the magnitude, are described in the environmental consequences ("Program Elements Common to All Alternatives") section. Please refer to Chapter 6.1, "Fisheries and Aquatic Ecosystems," for information on potential effects to salmon resources.

7.7.3.1 Delta Region

IA 7.7.3.1-1

The importance of Delta recreation is recognized and described in the affected environment section, including descriptions of the number of visitor days (estimated at 10-40 million annually) and recreation-related spending (estimated at $290 million to $1.1 billion annually). The Programmatic EIS/EIR recognizes the importance of maintaining waterways, water quality, fish and wildlife habitat, and access to Delta recreation by focusing the impact assessment on how changes in these conditions affect recreation resources and opportunities in the Delta.

7.7.3.2 Bay Region

IA-7.7.3.2-1

The Final Programmatic EIS/EIR has been modified to correct this statement. The statement "The abundance of striped bass in the region probably is associated with Delta water diversions, Delta outflows, and water quality" has been replaced with "Delta conditions are believed to affect the early life stages of striped bass."

7.7.3.4 San Joaquin River Region

IA 7.7.3.4-1

Historical populations of salmon in the Merced River presented in the Programmatic EIS/EIR are estimates. As stated in the comment, accurate estimates of salmon populations prior to construction of Lake McClure are not available. The estimates presented in the June 1999 Draft Programmatic EIS/EIR have been deleted from the Final Programmatic EIS/EIR.

7.7.5 Significance Criteria

IA 7.7.5-1

As indicated in Section 4.4 in the Programmatic EIS/EIR, the technical reports were used as the basis for the first draft of the EIS/EIR, which was distributed in March 1998. In response to comments received on the March 1998 Draft Programmatic EIS/EIR, the impact analysis document was revised, but the technical reports were not revised.

Concerning significance criteria for recreation economics, the analysis presented in the Programmatic EIS/EIR does not identify whether potential economic effects were significant because CEQA and NEPA do not require determining the significance of these impacts. Social and economic changes resulting from a project are treated somewhat differently under CEQA and NEPA. CEQA does not treat economic or social changes resulting from a project as significant effects on the environment. However, if a physical change in the environment is caused by economic or social effects, the physical change may be regarded as a significant effect when using the same criteria for other physical changes from the project. In addition, economic and social effects of a project may be used to assess the significance of a physical effect. (14 CCR Section 15064[e].) Under NEPA, economic or social effects must be discussed if they are inter-related to the natural or physical environmental effects of a project (40 CFR Section 1508.14.) Methods to avoid or reduce adverse social and economic effects are addressed in the text of each environmental consequences chapter.

7.7.6.3 Sacramento River Region

IA7.7.6.3-1

The Programmatic EIS/EIR found, at this programmatic level of analysis, that changes in project operations are not anticipated to adversely affect recreational resources in the Sacramento River Region. If reoperation of Lake Almanor, or other reservoirs, is proposed through the Integrated Storage Investigation to meet CALFED Program objectives, site-specific environmental analysis will be conducted to determine and disclose effects to recreation and other resources.

7.7.7 Consequences: Program Elements Common to All Alternatives

IA 7.7.7.0-1

Because the CALFED actions are programmatic, the impact analysis is general in nature. Effects on activity-specific recreation opportunities were identified where these effects could be reasonably anticipated. Concerning impacts that were determined to be less than significant, such as lake-level and flow-related effects, predicted changes in hydrologic conditions were reviewed in making these determinations. The Final EIS/EIR more clearly identifies the basis for these conclusions. Recreation impacts are not quantified because hydrologic and other quantitative information available for the assessment were considered appropriate only for determining the direction and general magnitude of impacts. Because changes in recreation use could not be predicted with an acceptable level of certainty, recreation-related economic effects could not be accurately estimated.

IA 7.7.7.0-2

CALFED recognizes the importance of water quality to recreation resources and opportunities. The relationship between water quality and recreation and the potential effects of CALFED actions on recreation opportunities is described in the region-specific Water Quality Program discussions included in the environmental consequences ("Program Elements Common to All Alternatives") sections.

7.7.7.1 Delta Region

IA 7.7.7.1-1

Even though enhancing recreation opportunities is not a specific program objective of CALFED, the Program's focus on ecosystem restoration and water quality in the Delta is expected to improve overall conditions for recreation in the Delta. Mitigation strategies have been identified to minimize temporary and permanent impacts on recreation resources and activities that could be adversely affected by the Program.

IA 7.7.7.1-2

The impacts of the CALFED Program on recreational boaters in the Delta were evaluated in the environmental consequences ("Program Elements Common to All Alternatives") sections in the Draft EIS/EIR. The types of effects on recreational boaters that were identified include temporary or permanent closures of waterways, piers, and marinas; impacts on boating access and circulation; and reductions in boat traffic and boat speeds. At this stage, CALFED actions are programmatic; potential site-specific effects cannot be determined until Phase III Program implementation. However, CALFED is committed to working with the recreation boating industry to minimize impacts of the Program on recreational boaters in the Delta. Concerning designation as stakeholders to the CALFED process, this designation occurred during Phase I of the Program.

The Delta Protection Commission (DPC), which includes members from the California Department of Boating and Waters and the California Department of Parks and Recreation, has responsibility for managing recreation in the Delta. The DPC is represented on the CALFED Bay-Delta Program Advisory Commission. The DPC has become a member of the CALFED Bay-Delta Program Policy Group.

IA 7.7.7.1-3

CALFED acknowledges the importance of these issues to recreational boaters in the Delta and has attempted to address these issues at a programmatic level in the Programmatic EIS/EIR. Site-specific impacts and mitigation will be addressed during Phase III implementation. CALFED is committed to a process that ensures that these issues are thoroughly evaluated and that appropriate mitigation is implemented.

IA 7.7.7.1-4

The affected environment section in the Final Programmatic EIS/EIR includes additional information on legal authorities for implementing controls on boating in the Delta. Corrections have been made to Delta speed zones identified in the Programmatic EIS/EIR.

7.7.7.3 Sacramento River and San Joaquin River Regions

IA 7.7.7.3-1

The impacts of the Program on recreation at existing CVP and SWP reservoirs in the Sacramento River and San Joaquin River Regions were evaluated by reviewing hydrology modeling results. The impact of changes in reservoir levels on recreation activities at affected reservoirs was assessed, and conclusions were incorporated into the impact analysis ("Consequences: Program Elements Common to All Alternatives"). The Final Programmatic EIS/EIR more clearly documents where results of this evaluation were incorporated into the impact findings.

7.7.10 Additional Impact Analysis

IA 7.7.10-1

The Final Programmatic EIS/EIR includes the findings of additional evaluation of cumulative impacts on recreation resources. Additional information concerning cumulative impacts is found in the responses to comments for Chapter 3 under Section 3.5, "Summary of Cumulative Impacts, and Section 3.6, "Mitigation Strategies for Cumulative Impacts."

7.7.11 Mitigation Strategies

IA 7.7.11-1

Even though enhancing recreation opportunities is not a specific Program objective of CALFED, the Program's focus on ecosystem restoration and water quality in the Delta is expected to improve overall conditions for recreation in the Delta. Mitigation strategies that are identified in the Programmatic EIS/EIR (e.g., providing public information regarding access and facilities) are expected to enhance public awareness about Delta resources and opportunities. In addition, the mitigation strategies in the Programmatic EIS/EIR include strategies for enhancing recreation opportunities and involving local communities in the process.

IA 7.7.11-2

The Final Programmatic EIS/EIR summarizes mitigation strategies for other disciplines that are expected to benefit recreation and refers the reader to the appropriate sections for additional information.

IA 7.7.11-3

CALFED is committed to participating in and providing funding for a recreation master planning effort for the Delta. As identified in comments on the June 1999 Draft Programmatic EIS/EIR, this master planning effort should build on existing and ongoing planning efforts currently being undertaken by the DPC and the Department of Boating and Waterways (DBW). As described in an August 10, 1999 letter to the CALFED Program from the DPC, two important studies have been completed in the last few years that should be used in the planning process, including an inventory of existing public and private recreation facilities in the Delta and a survey of Delta users to determine their needs. In addition to these studies, the DBW is funding a boating traffic study and a boating needs assessment. CALFED agrees that results of these studies should be used in developing a recreation master plan for the Delta.

As described in the Programmatic EIS/EIR, CALFED will participate in the recreation planning process, which is expected to proceed concurrent with CALFED's project-specific implementation planning for Program actions. Although CALFED will support this planning effort by providing financial assistance, it cannot commit at this time to providing a specific amount of funding because funding priorities for Program implementation have not been established. CALFED is committed, however, to participate in funding of this effort in partnership with other state, federal, and local agencies. CALFED also is committed to determining early in the Phase III process the level of funding that would be available for the master planning process.

CALFED will support the DPC and DBW in developing and implementing a recreation master plan for the Delta. In addition to CALFED resources, however, funds are expected to be potentially available from a number of grant programs administered by DBW. These programs include the Local Assistance Boat Launching Facility Grant Program, the S.S. Relief-Floating Restroom Grant Program, the Clean Vessel Grant Program, the Boating Trails Grant Program, and the Boating Infrastructure Grant Program. Potential funding also could be available from DBW's Capital Outlay Program and the Public and Private Local Assistance Loan Program. These programs are described in the August 10 letter from DPC to CALFED reference above.

CALFED recognizes the valuable suggestions made by the Delta recreation ad hoc committee for addressing existing recreation deficiencies in the Delta and ways to enhance recreation opportunities. CALFED is committed to considering these ideas in the master planning process and as possible mitigation for impacts caused by Program actions. CALFED concurs that representatives of this ad hoc committee should participate in the master planning effort.

IA 7.7.11-4

CALFED recognizes that the DBW is funding ongoing studies on vessel traffic and boating needs in the Delta. CALFED is committed to evaluating the results of these studies in developing appropriate mitigation strategies in its implementation phase.

IA 7.7.11-5

CALFED is committed to fully mitigating impacts on recreation and recreation boating. However, as described in Section 7.7.12 in the Programmatic EIS/EIR, some potentially significant impacts on recreation resources may be unavoidable, such as the loss of habitat and on-stream recreation from enlarging surface storage facilities and permanent changes that could affect recreational boaters in the Delta. CALFED is committed to including recreation in planning for project-specific implementation in Phase III. Please see response IA 7.7.11-6 below. CALFED agrees that the evaluation criteria identified by the Delta Ad Hoc Committee should be used in the recreation planning process.

IA 7.7.11-6

As described in Chapter 9 in the Final Programmatic EIS/EIR, CALFED has developed a monitoring process to ensure that the mitigation strategies identified in the Programmatic EIS/EIR are fully considered in subsequent project-specific environmental compliance documents that tier from the Programmatic EIS/EIR. These mitigation strategies will be considered as part of second-tier environmental review by any CALFED agency proposing to undertake projects that are within the scope of this Programmatic EIS/EIR and that are also subject to additional CEQA or NEPA review. Where a second-tier project involves impacts that are addressed in the Programmatic EIS/EIR, the applicable mitigation strategies can be used to formulate site-specific mitigation measures and enforcement programs. The commitment to review all applicable mitigation strategies for the affected resources will be part of the ROD for the federal lead agencies and part of the findings adopted by the California Resources Agency.

In addition, the lead agency for any state or federal project that is required to be consistent with, or in accord with, the CALFED Program would need to demonstrate its compliance with the mitigation monitoring program, as set forth in the Mitigation Monitoring Plan adopted at the time of the ROD and Certification of the Programmatic EIS/EIR. The CALFED Program will provide guidance to each agency proposing second-tier projects concerning which mitigation strategies are applicable and will assist in designing a more specific set of measures appropriate for each second-tier project. If and when a successor CALFED governing agency with authority to carry out CALFED projects and to impose mitigation measures is created by legislation, this policy will be modified for that agency to have an effective mitigation monitoring program for each project tiering from this programmatic document. Greater detail is provided in Chapter 9, "NEPA/CEQA Monitoring."

IA 7.7.11-7

The supervision of restoration activities and the maintenance of new recreation facilities will be described as part of the project-specific actions to be identified in the Phase III implementation process.

IA 7.7.11-8

CALFED acknowledges the relevance of the Davis-Dolwig Act as the primary statement of state policy concerning recreation (and fish and wildlife enhancement) at state-constructed water facilities. The Act declares recreation among the purposes of state water projects. The mitigation strategies section in the Final Programmatic EIS/EIR recognizes the need for project-specific implementation resulting from modifications to state water projects to be in compliance with the Act. Additional information about this Act, as well its federal counterpart—the Federal Water Project Recreation Act—is described in Chapter 8, "Compliance with Applicable Laws, Policies, and Plans and Regulatory Framework."

7.8.3.3 Sacramento River Region

IA-7.8.3.3-1

CALFED is in the process of developing a regulatory compliance facilitation strategy. Governance for CALFED implementation will provide for stakeholder input.

7.8.3.4 San Joaquin River Region

IA-7.8.3.4-1

The bullet has been changed to read "New Don Pedro Lake."

7.8.7.4 Sacramento River Region

IA-7.8.7.4-1

Flood control rule curves for major reservoirs such as Shasta Lake are set by the U.S. Army Corps of Engineers. CALFED has no plans or authority to change the flood operating rules.

IA-7.8.7.4-2

CALFED has no plans for actions that would affect Clear Lake flood management.

7.8.8.1 Preferred Program Alternative

IA-7.8.8.1-1

The removal of aggregate from rivers may benefit flood control but also can jeopardize fish spawning habitat. The flood control in the CALFED Program is focused on the Delta. Flood control actions for the Sacramento River, San Joaquin River, or their tributaries are beyond the scope of the CALFED Program. However, if CALFED proposes changes in aggregate mining operations for other Program purposes, the changes will be evaluated for effects on flood control. These actions will need to be considered on a site-specific basis.

7.9 Power Production and Energy

7.9.1 Summary

IA-7.9.1-1

CALFED provided the summary section for summary purposes only. Detailed discussion on impacts and effects that result from the various alternatives is contained in Section 7.9.7.

7.9.2 Areas of Controversy

IA-7.9.2-1

Western is a cooperating agency for this Programmatic EIS/EIR and is a member of the CALFED Policy Group. CALFED has been coordinating, and will continue to coordinate, with Western to ensure that issues are identified and properly framed, so that consequences and options are clear to stakeholders, the public, and Program decision makers.

7.9.3.1 All Regions

IA-7.9.3.1-1

References for analyses and specific citations are contained in the March 1998 Power Production & Energy Technical Report. CALFED has attempted to minimize citing references in the Programmatic EIS/EIR for the document to be more easily read.

IA-7.9.3.1-2

While a list of CVP customers is not explicitly provided in Section 7.9 in the Programmatic EIS/EIR, CALFED recognizes the status of the City of Redding as one of several CVP customers.

7.9.4 Assessment Methods

IA-7.9.4-1

Identifying customer-specific impacts is not possible until impacts and effects are allocated between the CVP and the SWP. CALFED does not currently have a basis for allocating impacts between the two systems. As noted in Section 7.9.4, allocation decisions have not been made by the agencies that would implement the Program alternatives, nor will those decisions be made until after this programmatic analysis is completed. Also see common response 1.

IA-7.9.4-2

CALFED's analyses capture a range of potential impacts and effects. Since it is not yet known how generation and pumping load impacts will be allocated, all changes in generation and pumping load are attributed to either the CVP or the SWP for purposes of disclosing the potential range of impacts. No allocation is made between the two systems. As noted in Section 7.9.4, allocation decisions have not been made by the agencies that would

implement the Program alternatives, nor will those decisions be made until after this programmatic analysis is completed. Also see common response 1.

IA-7.9.4-3

No significant changes have been made to PROSIM runs that are more recent than those used in the June 1999 Draft Programmatic EIS/EIR. The use of a more recent PROSIM modeling run is unlikely to greatly alter an analysis of impacts or effects at the programmatic level.

IA-7.9.4-4

CALFED does not currently have a basis for allocating impacts between the two systems. As noted in Section 7.9.4 in the Programmatic EIS/EIR, allocation decisions have not been made by the agencies that would implement the Program alternatives, nor will those decisions be made until after this programmatic analysis is completed. Also see common response 1.

IA-7.9.4-5

Water dedication under CVPIA Section 3406(b)(2) is included within the range of operational scenarios noted in Section 7.9.4 in the Programmatic EIS/EIR and is identified in Tables 7.9-1, 7.9-2, and 7.9-3.

IA-7.9.4-6

In identifying impacts and effects, the power analysis undertaken by CALFED in the Programmatic EIS/EIR includes changes in project use that result from changes in operation and new storage facilities. Project use is a fundamental part of the analysis, along with energy generation.

IA-7.9.4-7

The methods used for calculating the value of power are defined in Section 7.9.4 in the Programmatic EIS/EIR. These methods consider the timing and use of off-peak versus on-peak power within the framework of California's deregulated energy market.

IA-7.9.4-8

CALFED does not currently have a basis for allocating impacts to specific facilities. As noted in Section 7.9.4, allocation decisions have not been made by the agencies that would implement the Program alternatives, nor will those decisions be made until after this programmatic analysis is completed. Due to the programmatic nature of this document, a more detailed analysis of effects on the CVP, the SWP, and specific facilities is not possible. When allocation decisions are made, these issues will be considered in project-level studies. Also see common response 1.

IA-7.9.4-9

CALFED does not currently have a basis for allocating impacts to specific facilities. As noted in Section 7.9.4, allocation decisions have not been made by the agencies that would implement the Program alternatives, nor will those decisions be made until after this programmatic analysis is completed. Due to the programmatic nature of this document, a more detailed analysis of effects on the CVP, the SWP, and specific facilities is not possible. When allocation decisions are made, these issues will be addressed in project-level studies. Also see common response 1.

IA-7.9.4-10

CALFED does not currently have a basis for allocating impacts to specific facilities. As noted in Section 7.9.4, allocation decisions have not been made by the agencies that would implement the Program alternatives, nor will those decisions be made until after this programmatic analysis is completed. Due to the programmatic nature of this document, a more detailed analysis of effects on the CVP, the SWP, and specific facilities is not possible. These issues will be addressed through subsequent project-level studies. Also see common response 1.

IA-7.9.4-11

All CVP and SWP facilities were considered in the analysis. The March 1998 Power Production & Energy Technical Report includes a full listing of these facilities.

IA-7.9.4-12

DWRSIM was identified by CALFED as the most appropriate modeling tool for a programmatic analysis. The key consideration was compatibility with water delivery modeling performed for the Programmatic EIS/EIR. More specific analyses that examine individual facilities in greater detail and use a smaller time-step will be considered in subsequent project-level studies.

IA-7.9.4-13

It is premature to state the exact source of replacement power at this time. CALFED recognizes that several sources exist for that power. For purposes of identifying potential rate impacts, however, it was deemed most appropriate to assume that replacement power would come from an open, deregulated energy market (consistent with the long-term planning horizon of the Program). More specific identification of replacement power sources (whether from the open market or new dedicated sources) will appropriately occur during subsequent project-level studies. Also see common response 1.

IA-7.9.4-14

Key assumptions are described in Section 7.9.4 in the Draft Programmatic EIS/EIR. A complete listing of assumptions that include, but are not limited to, the facilities examined, nameplate capacities, changes in system capacity, generation and project use, and the price of energy in a deregulated market is available in the March 1998 Power Production & Energy Technical Report. The applicable time periods for analyses (for example, No Action Alternative conditions present in 2020, dollar values shown in constant 1998 dollars), also are identified in both the March 1998 Power Production & Energy Technical Report and the Programmatic EIS/EIR. Any greater detail that was left out of Section 7.9.4 was omitted in the interest of making the Programmatic EIS/EIR a document that could be read by the general public. Certain assumptions that have been added to the analysis since the March 1998 Power Production & Energy Technical Report, such as air quality and land use impact factors, have been identified in Section 7.9.4 in the Programmatic EIS/EIR.

7.9.5 Criteria for Determining Effects

IA-7.9.5-1

Until project-level studies are undertaken, it is impossible to reasonably quantify the economic effect of CALFED actions on the cost of CVP and SWP power and, subsequently, the cost of power to their customers and those customers' retail customers. In addition, this analysis assumes a "worst-case" scenario to CVP and/or SWP power

systems by identifying the maximum potential adverse effect (from a power production standpoint) that could result from a full range of potential CALFED actions within the Program alternatives. While this programmatic analysis provides readers with a full disclosure of potential effects, it should be noted that it is exceptionally unlikely that the maximum effects identified in the Programmatic EIS/EIR would ever actually be realized as a result of the CALFED Program. CALFED does recognize the potential for adverse effects to wholesale and retail power customers, and anticipates that issue to be more thoroughly addressed during project-level studies.

IA-7.9.5-2

This issue has been addressed in qualitative terms in Section 7.9.5 in the Programmatic EIS/EIR (see bullet 3 labeled "Effects on CVP Restoration Fund Power Revenues"). Due to the programmatic nature of this document, a more detailed analysis of effects on the CVP, the SWP, and specific facilities is not possible. These issues will be addressed through subsequent project-level studies. The level of detail provided in the Programmatic EIS/EIR is appropriate for the programmatic decision on an alternative. In addition, as stated in Section 7.9.2 in the Programmatic EIS/EIR, the Program has no specific objectives for hydropower generation but does seek to minimize negative effects on resources during and after Program implementation. Also see common response 1.

IA-7.9.5-3

Because of the programmatic nature of the Programmatic EIS/EIR, CALFED has deferred analyses of energy use effects (other than pumping load) to subsequent project-level studies. Such effects are not expected to be significant at the project level. Energy use other than pumping load should be minimal at the site of CALFED actions. Energy use is likely to be limited to fuel used during construction for equipment and generators, and minimal electricity during maintenance and operation for lighting and space heating.

IA-7.9.5-3

The economic effects to first preference customers should not differ from those described in the analysis for preference customers. First preference customers do not receive CVP power at a different rate than preference customers nor does first reference status signify a greater reliance on CVP power.

7.9.7.1 Preferred Program Alternative

IA-7.9.7.1-1

The joint point of diversion operational flexibility is included in the range of operational scenarios noted in Section 7.9.4 in the Programmatic EIS/EIR, and is identified in Tables 7.9-1, 7.9-2, and 7.9-3.

IA-7.9.7.1-2

Direct revenues from power users to support CALFED Program costs are not contemplated in this analysis. Funding sources for Program actions have yet to be determined and will be addressed in subsequent project-level studies. Also see common response 9.

IA-7.9.7.1-3

CALFED recognizes this potential adverse effect and has addressed it in Section 7.9.7.4 in the Programmatic EIS/EIR. Effects to the Restoration Fund from specific Program actions will be addressed in subsequent project-level studies.

IA-7.9.7.1-4

CALFED recognizes this potential negative air quality impact and has addressed it in Section 7.9.7.1 in the Programmatic EIS/EIR. Air quality impacts resulting from specific Program actions can be mitigated to a less-than-significant level through implementation of programmatic mitigation strategies. The obtainment of replacement power from non-emitting sources is noted as a potential mitigation strategy in Section 7.9.11.

IA-7.9.7.1-5

Direct revenues from power users to support CALFED Program costs are not contemplated in this analysis. Funding sources for Program actions have yet to be determined and will be addressed in subsequent project-level studies. In addition, CALFED has been coordinating, and will continue to coordinate, with Western to ensure that issues are identified and properly framed so that consequences and options are clear to stakeholders, the public, and Program decision makers. Also see common response 9.

IA-7.9.7.1-6

The quantitative power analysis of the No Action Alternative includes the impacts of all actions listed in Section 2.2 and Attachment A in the Programmatic EIS/EIR, including CVPIA flows and anticipated Trinity River flow increases (as defined in the Draft CVPIA PEIS). CVP and SWP facilities under existing conditions also are operated to meet CVPIA (b)(2) actions, while Trinity River flows are maintained at 340 TAF.

IA-7.9.7.1-7

A revised Power Production & Energy Technical Report is not necessary for Section 7.9 in the Programmatic EIS/EIR. The technical report that was developed in March 1998 provides information on the methods of analysis but is not an official attachment to the Programmatic EIS/EIR. Due to the programmatic nature of the Programmatic EIS/EIR, the addition of new information to the technical report would not change the analysis or the conclusions in any meaningful way for a programmatic planning-level document.

IA-7.9.7.1-8

The level of detail in Section 7.9.7.1 in the Programmatic EIS/EIR that is used to describe energy-related effects that could result from implementation of the Program is consistent with the programmatic nature of the document. The amount of energy saved as a result of water use efficiency measures cannot be quantified at this programmatic level. However, such energy savings are not expected to be significant. A qualitative discussion of potential effects, including implementing the anticipated water use efficiency measures, is appropriate in the section. More detail will be provided in subsequent project-level studies.

IA-7.9.7.1-9

CALFED does not currently have a basis for allocating impacts to specific facilities. As noted in Section 7.9.4 in the Programmatic EIS/EIR, allocation decisions have not been made by the agencies that would implement the Program alternatives. Those decisions will not be made until after the programmatic analysis is completed. Due to the programmatic nature of the document, a more detailed analysis of effects on the CVP, the SWP, and specific facilities is not possible. These issues will be addressed through subsequent project-level studies. Also see common response 1.

IA-7.9.7.1-10

While it is a goal of the Program to avoid re-directed impacts (and effects) and to minimize negative effects on resources, the Program has no specific objectives for hydropower generation. The avoidance or minimization of re-directed impacts and effects will occur as a result of policy decisions made during and after implementation of the Program. CALFED has been working, and will continue to work, with Western to identify impacts and effects, and to develop broad-based avoidance and mitigation strategies. Also, CALFED has identified potential environmental impacts (air quality and land use) associated with the construction and operation of new gas-fired combustion turbines (as described in Section 7.9.4 in the Programmatic EIS/EIR). Potential mitigation strategies also are discussed in Section 7.9.11. Specific impacts cannot be identified and specific mitigation cannot be developed until project-level studies are undertaken. Also see common responses 1 and 9.

IA-7.9.7.1-11

CALFED recognizes the potential adverse effect of these alternatives and has identified the effect as meeting the criteria for identification as an adverse effect.

7.9.10 Additional Impact Analysis

IA-7.9.10-1

CALFED is not considering projects on the American River (see the Phase II Report). The American River Water Resource Investigation is noted as a potential cumulative impact to CALFED actions, should that investigation result in the construction of new storage facilities (not by CALFED).

IA-7.9.10-2

Table 3-1 refers to a comparison of Program alternatives, not cumulative impacts. Other Program elements (within the alternatives, not including Storage and Conveyance elements) are not expected to significantly affect CVP or SWP hydroelectric generation, power production economics, or energy generation. Table 3-7 (Summary of Potentially Significant Adverse Cumulative Impacts) and Section 7.9.10 in the Programmatic EIS/EIR both note correctly that cumulative effects may be significant or adverse.

IA-7.9.10-3

The CALFED existing conditions assume a 340 TAF/year return to the Trinity River. All CALFED alternatives (including the No Action Alternative) assume a maximum 750 TAF/year return to the Trinity River, in accordance with Reclamation's Draft CVPIA PEIS.

7.9.11 Mitigation Strategies

IA-7.9.11-1

Potentially adverse economic and financial effects are identified and discussed, along with avoidance strategies, in Section 7.9.7.1 in the Programmatic EIS/EIR. Also see common response 9.

IA-7.9.11-2

While it is a goal of the Program to avoid re-directed impacts (and effects) and to minimize negative effects on resources, the Program has no specific objectives for hydropower generation. The avoidance or minimization of re-directed impacts and effects will occur as a result of policy decisions made during and after implementation of the Program. CALFED has been working, and will continue to work, with Western to identify impacts and effects, and to develop broad-based avoidance and mitigation strategies. Also, CALFED has identified potential indirect environmental impacts (air quality and land use) associated with the construction and operation of new gas-fired combustion turbines (as described in Section 7.9.4 in the Programmatic EIS/EIR). CALFED is not proposing to construct new fossil fuel-based power plants as part of its Program alternatives. However, public or private entities who do construct fossil fuel-based power plants can avoid or reduce the environmental impacts of construction by using the mitigation strategies proposed in the Programmatic EIS/EIR. Proposed mitigation strategies are discussed in Section 7.9.11. Specific impacts cannot be identified and specific mitigation cannot be developed until project-level studies are undertaken. Also see common responses 1 and 9.

IA-7.9.11-3

While it is a goal of the Program to avoid re-directed impacts (and effects) and to minimize negative effects on resources, the Program has no specific objectives for hydropower generation. The avoidance or minimization of re-directed impacts and effects will occur as a result of policy decisions made during and after implementation of the Program. CALFED has been working, and will continue to work, with Western to identify impacts and effects, and to develop broad-based avoidance and mitigation strategies. Also see common response 9.

IA-7.9.11-4

The obtainment of replacement power from non-emitting sources is noted as a potential mitigation strategy in Section 7.9.11 in the Programmatic EIS/EIR. Also see common responses 1 and 9.

IA-7.9.11-5

While it is a goal of the Program to avoid re-directed impacts (and effects) and to minimize negative effects on resources, the Program has no specific objectives for hydropower generation. The avoidance or minimization of re-directed impacts and effects will occur as a result of policy decisions made during and after implementation of the Program. CALFED has been working, and will continue to work, with Western to identify impacts and effects, and to develop broad-based avoidance and mitigation strategies. Also see common response 9.

IA-7.9.11-6

While it is a goal of the Program to avoid re-directed impacts (and effects) and to minimize negative effects on resources, the Program has no specific objectives for hydropower generation. The avoidance or minimization of re-directed impacts and effects will occur as a result of policy decisions made during and after implementation of the Program. CALFED has been working, and will continue to work, with Western to identify impacts and effects, and to develop broad-based avoidance and mitigation strategies. In addition, Reclamation law (through the Reclamation Act of 1939) requires that energy generated from Reclamation projects be used to first meet project use needs. Purchasing power for CVP project use from the open market, when such power is available from the CVP, would require a change in current Reclamation law. Also see common response 9.

IA-7.9.11-7

CALFED agrees with this assessment. CALFED has been coordinating, and will continue to coordinate, with Western to ensure that issues are identified and properly framed so that consequences and options are clear to stakeholders, the public, and Program decision makers. Specific mitigation, if appropriate, will be defined in subsequent project-level studies.

IA-7.9.11-8

While it is a goal of the Program to avoid re-directed impacts (and effects) and to minimize negative effects on resources, the Program has no specific objectives for hydropower generation. Except for impacts and effects that are identified as requiring mitigation in subsequent project-level studies, upgrades or additions to hydroelectric plants are assumed to be the responsibility of the plant owners.

7.9.12 Potentially Significant Unavoidable Impacts

IA-7.9.12-1

CALFED has not identified any potentially significant unavoidable impacts related to power production and energy. CALFED has identified several potential adverse effects that could result from the Preferred Program Alternative. These effects are discussed in Section 7.9.7.1 in the Programmatic EIS/EIR. All impacts and effects can be avoided or mitigated to a less-than-significant level by implementing programmatic mitigation and avoidance strategies.

7.10 Regional Economics

7.10.1 Summary

IA 7.10.1-1

Chapter 4 explains why no mitigation section is included. Social and economic changes resulting from a project are treated somewhat differently under CEQA and NEPA. CEQA does not treat economic or social changes resulting from a project as significant effects on the environment. However, if a physical change in the environment is caused by economic or social effects, the physical change may be regarded as a significant effect when using the same criteria for other physical changes from the project. In addition, economic and social effects of a project may be used to assess the significance of a physical effect. (14 CCR Section 15064[e].) Under NEPA, economic or social effects must be discussed if they are inter-related to the natural or physical environmental effects of a project (40 CFR Section 1508.14). Methods to avoid or reduce adverse social and economic effects are presented in the text of the chapter. The document was not formatted to present these as "mitigation strategies" in order to reflect the different CEQA and NEPA treatment of these environmental consequences. Text has been added explaining how CEQA and NEPA treat economic effects. Text also has been added to the summary to indicate that measures that might be used to offset or reduce adverse regional effects are discussed for those regional effects deemed substantial.

IA 7.10.1-2

Text has been added to help the reader interpret the table.

7.10.2 Areas of Controversy

IA-7.10.2-1

Text has been added to this section to address this point.

IA-7.10.2-2

Text has been added to address the economics points.

IA-7.10.2-3

Many studies have found that the incremental value of water in urban use exceeds that in agricultural use, although there will always be exceptions. In general, people will use water until its marginal value equals its price. Since the price of water to urban customers usually exceeds the price to agricultural customers, we conclude that its marginal value in the urban use is probably greater.

IA-7.10.2-4

CALFED has adopted a principle that beneficiaries must pay, and impacts to tourism and fishing would be included in any detailed analysis of water supply costs.

7.10.3.3 Sacramento River Region

IA-7.10.3.3-1

The correction has been made, the correct rate is 3%.

7.10.4 Assessment Methods

IA-7.10.4-1

Issues of tax revenues and finance are considered here and in Section 7.10.7.1, among other places in the document.

IA-7-10.4-2

Contrary to the comment, the analysis of regional economics does include linkages between "the agricultural economy of the Central Valley and the service economies of major metropolitan areas...". The number of jobs and amount of income are provided; the residence of the affected persons, distinguishing between rural and urban areas, cannot be known.

IA 7.10.4-3

Text has been added to explain the multiplier effects assumed for output and employment.

IA 7.10.4-4

Potential impacts on aggregate mining operations are site-specific issues that are not discussed at this programmatic level.

IA 7.10.4-5

The regional economic analysis does not extend from employment and income effects to families. This issue will be covered in site-specific social assessments.

IA 7.10.4-6

Ecosystem restoration should provide the recreation-related economic benefits that are discussed in Section 7.10 and Section 7.7 in the Programmatic EIS/EIR. However, more specific cost/benefit analysis is not possible at the programmatic level of this analysis. More specific disclosure of economic effects will be presented in project-level environmental documents prepared in compliance with NEPA/CEQA.

7.10.5 Criteria For Determining Effects

IA 7.10.5-1

Text has been added to explain economic effects according to CEQA/NEPA and to define "substantial."

7.10.6 No Action Alternatives

IA 7.10.6-1

It is reasonable to assume that the size of the economy will grow at the rate of the population. Changes in economic composition and structure, however, are less certain. Therefore, no forecasts of changing composition have been incorporated into the No Action Alternative condition.

7.10.7.1 Delta Region

IA 7.10.7.1-0

Most spending would be used to compensate for lost net income in farming, so it would have no net effect. On the contrary, farm net income that was formerly respent in the region would be more likely to leave the region as landowners would be likely to invest their compensation for farming elsewhere, and the spending on farm inputs that is many times the size of net income would be lost. Some of the Ecosystem Restoration Program payments would be for construction-type payments, but it is believed that the net effect would be very negative. A sentence has been added to accommodate the comment.

IA 7.10.7.1-1

The assumptions behind these numbers were presented in Section 7.10.4. The description of effects does state that they would be substantial. The location of the impacts cannot be determined at any further degree of spatial detail because the spending patterns of Delta agriculture within and outside the Delta are unknown. This issue is especially complicated because several cities—Sacramento, Stockton, and Pittsburg/Antioch—have portions both within and outside the Delta.

Regarding Table 7.10-2, a footnote has been added explaining the source of estimates in the table. The suggested change regarding the water supplies has been made.

IA7.10.7.1-2

The specification of which measures to use will be covered in site-specific documentation.

7.10.7.3 Sacramento River Region

IA-7.10.7.3-1

Some construction actions under the Water Quality Program will generate local jobs and income because costs will not be paid by the local region. It is incorrect to assume that costs will be paid by the local economy. CALFED has contemplated a variety of implementation methods for the Water Quality Program, but none have included uncompensated regulation. CALFED does not possess independent regulatory authority over water quality. However, CALFED does recognize the need for participating agencies to exercise their responsibilities regarding water quality. CALFED will work with all entities in support of achieving the Program's water quality goals. Please also refer to response WQ 1.0.0-2 (see Water Quality Program Plan Responses to Comments in Volume II of the Response to Comments document).

IA-7.10.7.3-2

In general, CALFED alternatives are not expected to decrease the amount or reliability of agricultural water supplies. Text has been added to the assessment methods section to describe some linkages between regional economics and social effects.

IA-7.10.7.3-3

Adverse effects on agriculture have been identified where possible, and the analysis does not infer that agricultural communities can diversify. Diversification of agricultural communities has not been proposed as a mitigation strategy. Diversification of agricultural communities, while a benefit to the community as a whole, may not help those community members who depend on agriculture.

7.10.8.4 Alternative 3

IA 7.10.8.4-1

The regional economics section is not the appropriate place to provide a full description of the alternatives. Chapter 2 provides the descriptions of each alternative at the highest level of detail possible. For Alternatives 1 and 2, note that the text says that results are nearly identical or similar to those for the Preferred Program Alternative. It is not necessary to repeat these impacts here.

7.10.9 Program Alternatives Compared to Existing Conditions

IA-7.10.9-1

There is no need to repeat findings discussed for the Preferred Program Alternative in this section.

7.10.10 Additional Impact Analysis

IA-7.10.10-1

The Section 7.10, "Regional Economics," contains information from other sections with economic information. How and why economic changes could be caused by changes in water supply and recreation are presented in Section 7.2, "Agricultural Economics," Section 7.5, "Urban Water Supply Economics," and Section 7.7, "Recreation."

7.10.11 Adverse Effects

IA-7.10.11-1

Text has been added to expand on the adverse effects that might occur.

7.11 Cultural Resources

7.11.1 Summary

IA-7.11.1-1

The text has been modified to acknowledge that even Program actions that are considered minor impacts may result in a potentially significant impact on historic properties, historic resources, or unique archeological resources. Section 7.11.7 has been revised to include an expanded discussion of minor, moderate, and major impacts with respect to CEQA.

Sentence 2 in the last paragraph in Section 7.11.1, "Summary," (on page 7.11-1 in the June 1999 Draft Programmatic EIS/EIR) has been changed to reflect the probability, but not certainty, that minor construction translates to slight impacts on cultural resources. Please refer to the quote from the March 1998 Cultural Resources Technical Report in response IA-7.11.8.1-1, which acknowledge CALFED's awareness that impacts on cultural resources are not simplistic.

The significance of historic levees is contingent on an evaluation of the eligibility of these features for listing in the National Register of Historic Places (NRHP) under federal regulations and consideration of their importance under state regulations.

IA-7.11.1-2

A sentence has been added to the text to indicate that all impacts—minor, moderate, or major—are assumed to be potentially significant. Section 7.11.7 contains an expanded version of this discussion.

7.11.5 Significance Criteria

IA-7.11.5-1

The text has been expanded considerably to include the proper definition of historic resources and unique archeological resources. The term "historic property" also is included as the federal term that refers to all sites that are eligible for listing or are listed in the NRHP. A section has been added, "Regulatory Context," to describe federal and state laws regarding consideration of historic properties, historic resources, or unique archeological resources.

7.11.7.4 Other SWP and CVP Service Areas

IA-7.11.7.4-1

CALFED agrees with this comment that the delivery of water to nonagricultural areas is not necessarily the cause of growth. The text has been modified to reflect this comment. With respect to the second part of this comment, at this level of analysis, no storage facilities are planned for the Other SWP and CVP Service Area. If for some reason a facility is proposed, impacts for all resources will be evaluated in the planning process for the undertaking.

7.11.8.1 All Alternatives

IA-7.11.8.1-1

The discussion of programmatic impacts is commensurate with the level of information available at this programmatic level of analysis. The commentor is directed to the March 1998 Cultural Resources Technical Report for more information.

The Programmatic EIS/EIR is consistent with your assessment of adverse impacts associated with Alternative 3. On page 7.11-16 in the June 1999 Draft Programmatic EIS/EIR, the document reads, "...Alternative 3 potentially could cause major adverse impacts on cultural resources... ." Large-scale projects have the "potential" to cause greater cultural resources impacts due to the volume of earth moved or modified, but actual impacts will be evaluated through inventory during planning.

The March 1998 Cultural Resources Technical Report, referenced in the Programmatic EIS/EIR, speaks to this comment. Specifically, under "Assessment Methods," the text reads in part that "...it is important to note that projects... with a minor adverse impact could result in significant impacts at a particular site. In addition, placing a project on top of an archeological site could cause considerable harm regardless of the amount of surface disturbance." CALFED is aware that actual impacts on cultural resources will be evaluated during the planning process for specific actions in consultation with the State Historic Preservation Office, Native American groups, and interested members of the public.

7.11.9 Program Alternatives Compared to Existing Conditions

IA-7.11.9-1

The statement in Section 7.11.9 ("Program Alternatives Compared to Existing Conditions") that "No potentially significant unavoidable impacts on cultural resources are associated with the Preferred Program Alternative" and the statement in Section 7.11.10 ("Irreversible and Irretrievable Commitments") that "Cultural resources that are affected during the implementation of any alternative would be lost for posterity" are both correct, given the context and meaning.

The Programmatic EIS/EIR discloses that the Program could result in the permanent loss of cultural resources, thereby preventing future *in situ* research. This disclosure complies with CEQA mandates that an EIR discuss irretrievable commitments of resources. The statement that the Program's impacts on cultural resources can be mitigated acknowledges that mitigation strategies, such as data collection and mapping, may reduce the impacts of the loss of historic properties, historic resources, or unique archeological resources to a less-than-significant level.

7.11.11 Mitigation Strategies

IA-7.11.11-1

Section 7.11.11 describes the range of programmatic mitigation strategies for cultural resources that will be considered during implementation of individual CALFED Program actions. The particular strategy or strategies that will apply depends on the type of cultural resource being affected and the level of the effect. The strategies presented in Section 7.11.11 are consistent with the approaches to mitigation in state and federal law, and represent the range of measures typically applied to mitigate impacts on cultural resources.

7.12 Public Health and Environmental Hazards

0. General

IA-7.12-1

Public health issues related to drinking water quality and supply are addressed in Section 5.3 in the Programmatic EIS/EIR and in the Water Quality Program Plan. Public health issues related to vector control issues, fire hazards, and hazardous materials are addressed in Section 7.12 in the Programmatic EIS/EIR.

7.12.7 Consequences: Program Elements Common to All Alternatives

IA-7.12.7-1

The Programmatic EIS/EIR addresses both the environmental justice and public health concerns related to the Water Quality Program and subsistence fishing in the problem area in Sections 7.14 and 7.12, respectively. Sections 7.1 and 8.1 in the respective chapters discuss the benefits and potential impacts of the Preferred Program Alternative to public health issues, including actions that could result in healthier fish and restored hunting and fishing habitats. Section 5.3 outlines the environmental impacts of water quality actions.

7.13 Visual Resources

No comments were received concerning Section 7.13 in the June 1999 Draft Programmatic EIS/EIR.

7.14 Environmental Justice

7.14.1 Summary

IA-7.14.1-1

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 or environmental impact resulting from CALFED's programs, policies, or actions.

Because the Programmatic EIS/EIR is a programmatic document, proposed actions that set the long-term, overall direction of the Program and the potential effects and benefits of those actions are broadly described. The programmatic nature of the EIS/EIR may cause some reviewers to question whether the Program has adequately addressed potential effects and benefits of the Program on minority and low-income communities. However, the best way to evaluate environmental justice effects is at the project-specific level, when specific plans can be analyzed and specific populations identified to determine whether and how a project could disproportionately affect minorities or low-income populations. As specific Program plans are proposed, more detailed environmental justice impact analyses will be conducted as well as other environmental documentation. The analysis has been revised to address this comment, but the nature of a programmatic analysis limits the type of meaningful information available to address environmental justice effects.

Recognizing that environmental justice issues may arise at any step of the process, CALFED will continue to evaluate and refine our outreach to communities of color and linguistic minorities. The Program urges organizations to continue evaluating these efforts and to provide assistance in identifying environmental justice issues and additional multi-cultural community outreach opportunities.

Sections 7.3 and 7.14 in the Programmatic EIS/EIR describe the effects of the Preferred Program Alternative and the other Program alternatives on minority and low-income populations. The March 1998 Agricultural Resources, Urban Resources, and Recreation Resources Technical Reports also address this topic. Information on CALFED's multi-cultural outreach can be found in Chapter 10 in the Programmatic EIS/EIR.

IA-7.14.1-2

Executive Order 12898 requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of federal programs, policies, and activities on minority and low-income populations. Federal agencies must ensure that federal programs or activities do not directly or indirectly result in discrimination on the basis of race, color, or national origin. Federal agencies must provide opportunities for input into the NEPA process by affected communities and must evaluate the potentially significant and adverse environmental effects of proposed actions on minority and low-income communities during environmental document preparation.

Neither CEQA nor NEPA treats social or economic effects as environmental impacts separate from physical environmental effects. CEQA requires a discussion of environmental and social effects, such as environmental justice effects, if they will lead to environmental impacts. Social and economic factors are also a consideration in evaluating the significance of physical changes. NEPA requires a full discussion of social and environmental effects in an EIS when they are inter-related to natural or physical environmental effects but, as with CEQA, does not require an EIS to be prepared unless there are also physical changes to the environment. Consequently, this

programmatic document fully discusses environmental justice issues and adverse social and economic effects consistent with CEQA and NEPA.

The Program used the Final Guidance for Consideration of Environmental Justice issued by the EPA for direction in identifying and analyzing environmental justice issues and for developing the multi-cultural public outreach plan. According to the guidance, "There is not a standard formula for how environmental justice issues should be identified or addressed." On the issue of public participation, the guidance recommends that agencies develop effective public participation strategies and that they acknowledge and seek to overcome, as appropriate, linguistic, cultural, institutional, geographic, and other barriers to meaningful participation, and incorporate active outreach to affected groups.

In developing the public participation strategy, the Program recognized that the messages about the Program, the methods for dissemination, and the approaches to soliciting involvement and input differed significantly in each cultural and ethnic community. Therefore, the Program developed a separate document detailing the multi-cultural public outreach, in addition to its general outreach program.

The revised Section 7.14 includes criteria to be used in ongoing studies and environmental review for individual projects in order to identify actions with disproportionately high adverse human health or environmental effects. The criteria can be found in Section 7.14.5.

During the life of the Program, staff has met with and interviewed numerous stakeholders representing minority and multi-cultural business, government, agriculture, social services, and industry to discuss the Program and solicit input.

The BDAC, a federally chartered citizens' advisory committee with over 30 members, provides formal comment and advice to the Program at every step of the process. Several minority and low-income communities are represented on the BDAC, including representatives of the California Alliance of Family Farms, the City of Fireaugh, the Big Valley Band of Pomo Indians, the Urban Habitat Program, and the United Farm Workers of America.

A Program overview fact sheet was developed and translated into Spanish, Chinese, Japanese, Korean, and Vietnamese. Notices regarding the availability of translated documents and public meeting notices were sent to statewide media outlets that target multi-cultural communities and to representatives of tribal governments. The fact sheet also was available on the Program's web site. In addition, translated materials were available at most of the public hearings. The CALFED agencies have held numerous meetings during evening hours all over the state in inner city, suburban, and rural communities in order to bring information to a wide variety of communities.

The Program also complied with the Americans with Disabilities Act, Title II Public Sector Services, by notifying the public of the availability of appropriate auxiliary aids and services such as qualified interpreters, notetakers, Braille, and large-print materials and providing such aids upon request. Public meetings were held in facilities that were accessible to persons with disabilities.

Notices about the March 1998 Draft Programmatic EIS/EIR release and the public meetings were placed in several ethnic media outlets, such as Asianweek, Los Angeles Sentinel, Oakland Post, La Opinion, El Sol, and La Voz De La Frantera and mailed to representatives of tribal governments. These efforts were duplicated with the release of the December 1998 Revised Phase II Report and the June 1999 Draft Programmatic EIS/EIR. Notices were also sent to more than 70 multi-cultural organizations statewide. Public involvement in the CALFED process, including the multi-cultural outreach, is described in Chapter 10 in the Programmatic EIS/EIR.

Section 7.14 describes the effects of the Preferred Program Alternative and the other Program alternatives on minority and low-income populations. The March 1998 Agricultural Resources, Urban Resources, and Recreation Resources Technical Reports also address this topic. Additional information on the Program's compliance with applicable laws can be found in Section 8.1 in the Programmatic EIS/EIR.

IA-7.14.1-3

The Preferred Program Alternative generally would improve in-Delta and export water quality and dependent beneficial uses because of increased flows of higher quality water from the Sacramento River and the north Delta, and improved circulation in the Delta channels. The Ecosystem Restoration Program should result in healthier fish, which could benefit those who consume fish. The Water Quality and Watershed Programs could reduce surface water pollution, which could decrease contaminants in fish—also benefitting those who consume the fish.

In addition, CALFED has initiated a study to determine the best methods for reducing the levels of synthetic chemicals (such as pesticides and herbicides) and natural contaminants (such as mercury) in the Bay-Delta. These contaminants have accumulated in sediment in the Delta and have led to the contamination of fish, making them unsafe to eat in all but minimal quantities.

A significant water quality issue that may disproportionately affect minorities who fish for subsistence is the presence of mercury in the Bay-Delta. During the past 150 years, large amounts of mercury coming from mines in the California Coast Ranges, as well as residual mercury from gold and silver mining in the Sierra Nevada, have been and continue to be deposited in Bay-Delta sediments. Methyl mercury is an organic form of mercury that can accumulate in aquatic organisms such as fish. It is toxic to humans when consumed at high levels. Elevated levels of methyl mercury have been found in fish caught in the Bay-Delta. The Office of Environmental Health Hazard Assessment has issued health advisories, warning anglers and their families to limit the amount of fish they eat from affected areas. These advisories include more restricted eating limits for pregnant women, nursing mothers, and children under 6 years of age.

The Ecosystem Restoration and Levee System Integrity Programs will involve the reconstruction of levees or the intentional breaching of existing levees, with subsequent flooding or re-inundation of adjacent areas, to create "restored" wetlands. There is a risk that these activities will increase levels of methyl mercury released to the Bay-Delta ecosystem. The Program has funded a study to examine the effects of Program activities on the production of methyl mercury in the Bay-Delta. The findings from this study will be used in an adaptive management context to develop Program options aimed at minimizing mercury bioaccumulation, both at individual restoration sites and regionally.

At the programmatic level, it appears that Program actions will benefit low-income communities, minority communities, and other anglers who consume fish from the Bay-Delta. Analysis at the project-specific level is needed to fully determine effects related to environmental justice. Detailed environmental justice analysis will be presented in future tiered CEQA/NEPA documents for site-specific projects, using the criteria for determining effects discussed in Section 7.14.5.

The Programmatic EIS/EIR addresses both the environmental justice and public health concerns related to the Water Quality Program and subsistence fishing in the problem area in Sections 7.14 and 7.12, respectively. Sections 7.1 and 8.1 in the respective chapters discuss the benefits and potential impacts of the Preferred Program Alternative to public health, including actions that could result in healthier fish. Section 5.3 outlines the environmental impacts of water quality actions.

IA-7.14.1-4

The Programmatic EIS/EIR evaluated soft path or nonstructural solutions to water management for their effect on environmental justice. For example, Program analysis indicates that the Water Quality Program could result in reduced production costs and create higher crop yields and greater crop selection flexibility in the long term, which could benefit farm workers. (Program analysis of potential environmental justice issues focuses on farm workers and agribusiness workers because they are more likely to be directly affected by Program elements than minority and low-income populations in urban areas.) The Water Use Efficiency Program, to the extent that it could improve water supply reliability, could also result in a beneficial effect on maintaining farm worker employment. Some jobs could be created as a result of this Program element, for example, installing new irrigation technology or low-flow plumbing. Although the Water Use Efficiency Program could increase crop yields for farmers, the Program could also result in job losses for farm workers because improved irrigation technology could require fewer laborers. The loss of farm worker jobs could disproportionately affect minority and low-income populations, including migrant agricultural workers. Possible methods of alleviating this effect could include providing skill training and employment relocation assistance.

At the programmatic level, the CALFED agencies cannot assess beneficial or adverse effects of water management actions on minority or low-income populations. Analysis at the project-specific level is needed to fully determine effects related to environmental justice. Detailed environmental justice analysis will be presented in future tiered CEQA/NEPA documents for site-specific projects, using the criteria for determining effects discussed in Section 7.14.5.

Section 7.14 analyzes the potential adverse effects and benefits of Program actions on environmental justice communities at the programmatic level. Please refer to common response 2 for additional information on the nonstructural solution analysis.

7.14.3 Affected Environment/Existing Conditions

IA-7.14.3-1

The analysis of potential environmental justice issues focused on farm workers and agribusiness workers because they are more likely to be directly affected by Program elements than minority and low-income populations in urban areas. In the Program study area, people living in predominately rural areas tend to have lower incomes, higher poverty rates, and higher unemployment rates than those living in urban areas. Urban centers offer the greatest employment opportunities for all skill levels, while employment opportunities in rural areas tend to involve industries such as agriculture, logging, and fishing. Urban centers also typically contain the social structure and programs to assist minority and low-income populations.

Recognizing that environmental justice issues may arise at any step of the process, CALFED will continue to analyze and evaluate the application of environmental justice principles to urban ethnic communities and linguistic minorities as part of project-specific environmental analysis, using the criteria described in Section 7.14.5.

Section 7.14 in the Programmatic EIS/EIR describes the effects of the Preferred Program Alternative and the other Program alternatives on minority and low-income populations. The March 1998 Agricultural Resources, Urban Resources, and Recreation Resources Technical Reports also address this topic. Additional information on the Program's multi-cultural outreach efforts can be found in Chapter 10 in the Programmatic EIS/EIR.

7.14.8 Consequences: Program Elements That Differ Among Alternatives

IA-7.14.8-1

The Preferred Program Alternative would require the conversion of agricultural land for conveyance system construction. This could result in a potentially adverse effect on employment for minority and low-income farm workers. Possible methods that could be used to alleviate these effects could include providing skill training to help employees transition to jobs in related industries, such as water conservation and water quality. Various programs throughout the state have effectively implemented water conservation programs that have saved water and benefitted low-income and minority communities. We will evaluate these programs to determine whether they can be used as models or whether elements can be adapted that would facilitate Program efforts to alleviate effects on low-income and minority employees.

7.15 Indian Trust Assets

0. General Responses

IA-7.15.0-1

Member agencies of CALFED recognize the sovereignty of Native Americans. The Programmatic EIS/EIR addresses general issues concerning Indian trust assets. Site-specific effects to sovereign rights will be addressed before specific projects are approved. Follow-up environmental documentation for site-specific actions will allow individual tribes an opportunity to comment on and clarify specific actions once they are identified. Language has been added to the document that conveys the federal government's responsibility to protect Indian trust assets. See response IA-7.15.1-1 for information regarding CALFED's tribal consultation efforts.

IA-7.15.0-2

Tribal trust assets will be fully explored and discussed as specific follow-up projects are developed. The goal of the Programmatic EIS/EIR is to provide a framework for considering these assets. See response IA-7.15.1-1 for information regarding CALFED's tribal consultation efforts.

IA-7.15.0-3

There have been efforts to consider Native Americans in the CALFED process. However, CALFED did not consult with specific tribes about specific projects because the Programmatic EIS/EIR is programmatic and does not make site-specific decisions. Once specific actions are proposed and these are linked to specific locations, consultations can take place on a government-to-government basis with the appropriate tribal group. See response IA-7.15.1-1 for information regarding CALFED's tribal consultation efforts.

IA-7.15.0-4

Consultation with Indian tribes will take place on a government-to-government basis as specific projects are identified that might affect Indian trust assets. Compacts and treaties are not necessarily proper instruments for conducting this consultation. The federal government's policy regarding government-to-government relations is spelled out in President Clinton's Executive Memo of April 29, 1994. See response IA-7.15.1-1 for information regarding CALFED's tribal consultation efforts.

7.15.1 Summary

IA-7.15.1-1

The text has been modified to reflect the Federal Government's responsibility to identify, conserve, and protect tribal trust resources. Verbiage has also been added to describe the responsibility for government-to-government consultation in assessing impacts to potential trust resources once specific projects are identified.

There have been efforts to consider Native Americans in the CALFED process. These efforts will continue and expand as site-specific actions are proposed. The Programmatic EIS/EIR does not include specific on-the-ground actions that may affect tribal interests. As future projects are identified for additional planning and implementation, these will require second-tier environmental review—which will trigger Native American consultation.

Given the programmatic character of the Programmatic EIS/EIR, CALFED is meeting tribal consultation requirements. Efforts to communicate with Native Americans for this Program are summarized as follows. Since no federally recognized tribes are within the Delta, Reclamation contacted the California Native American Heritage Commission for input regarding the Native Americans within the Delta who should be contacted for information and consultation. On June 19, 1996, Reclamation sent letters to the 12 individuals identified by the Commission. One person responded and asked that Reclamation provide notice to two additional Native Americans. No other responses were received from this inquiry.

As the scope of the CALFED process evolved and the concept of a solution area developed, additional efforts have been made to communicate with tribal groups. Tribal communication efforts accelerated after the EPA's Regional Tribal Operations Committee (RTOC) discussed the CALFED Program at its 1999 winter meeting. CALFED briefed RTOC members and discussed how to best encourage tribal participation. As a result of this effort, follow-up briefings were conducted at the RTOC 1999 May meeting and with the Bureau of Indian Affairs Central Agency policy committee.

In June 1999, CALFED sent a Phase II Report to all California tribes. CALFED sent letters to all California tribal chairs seeking their participation. A multi-agency and multi-tribal consultation program was held on September 9, 1999; 10 tribal representatives attended. In the following month, a CALFED briefing was held at the EPA Tribal Environmental Conference. This conference was preceded by phone calls to approximately 25 tribes, inviting them to participate. The Assistant Secretary of Interior has appointed RTOC's nominee to the BDAC to help represent tribal interests. Finally, CALFED is providing funds to enhance tribal participation in the identification and analysis of potential impacts from future projects to tribal interests.

IA-7.15.1-2

The Programmatic EIS/EIR does not address specific projects. If projects or activities are proposed for an area that contains a reservation or rancheria or any Indian trust assets, consultation will take place early in the planning process. At the programmatic level, it is not possible to determine whether projects will be proposed for any of the reservations or rancherias identified in this comment. Consultation will include government-to-government consultation, as needed. Impacts on specific tribes, such as the Rumsey, Middletown, Big Valley, Jackson, Table Mountain, and Tule River Rancherias, cannot be identified at this programmatic level of analysis. See response IA-7.15.1-1 for information regarding CALFED's tribal consultation efforts and common response 1 for information regarding the programmatic nature of the Programmatic EIS/EIR.

7.15.5 Significance Criteria

IA-7.15.5-1

This response has been consolidated with response IA-7.15.1-2 above. Please see this response for the answer to your comment.

7.15.7.2 Sacramento River and San Joaquin River Regions

IA-7.15.7.2-1

This response has been consolidated with response IA-7.15.1-2 above. Please see this response for the answer to your comment.

7.15.9 Additional Impact Analysis

IA-7.15.9-1

This response has been consolidated with response IA-7.15.1-2 above. Please see this response for the answer to your comment.

8. Compliance with Applicable Laws, Policies, and Plans and Regulatory Framework

8.1 Environmental Compliance at the Programmatic Level

IA-8.1-1

As explained in Chapter 1 in the Programmatic EIS/EIR, the CALFED Program is a consortium of state and federal agencies with management or regulatory responsibilities or expertise in the Bay-Delta estuary. Chapter 8 lists programmatic-level environmental compliance requirements, the regulatory framework, and other environmental policies and plans to which the Program is subject. This list will be a reference for site-specific project planning, permit processing, and environmental documentation requirements that will take place during Phase III of the Program. The purpose of the Programmatic EIS/EIR is to outline the alternatives that were considered, how the Preferred Program Alternative was selected, and what the potential environmental consequences of those alternatives might be to the various resources. It is a general plan of how to solve the Bay-Delta problems, to be followed by more detailed plans for implementation of the long-term plan. The Programmatic EIS/EIR complies with those sections of the various environmental laws that pertain to programmatic documents; once specific programs are selected, the lead agency is responsible for complying with those sections of laws and regulations that apply to site-specific projects and documentation.

Under NEPA and CEQA, cumulative impacts must be analyzed and discussed. A cumulative impact is created as a result of the combination of the project or program being evaluated together with other projects that may cause related impacts. The cumulative impact analysis is qualitative. Impact analysis was based on (1) information from the Programmatic EIS/EIR, as well as available environmental documents and studies; and (2) knowledge of the generally expected kinds of effects of similar projects in the study area. Because of the preliminary phase of most of the projects (environmental reviews have not been initiated, drafted, or finalized), comparable environmental information for identifying cumulative impacts was not available. A description of the programs and projects considered in the cumulative impact analysis is provided in Attachment A. For the agricultural economics, agricultural social issues, urban water supply economics, regional economics, and environmental justice sections, the section has been titled "Cumulative Effects" because social and economic changes resulting from a project are treated somewhat differently under CEQA and NEPA.

IA-8.1-2

Please see responses MS 7.2.2-1 and MS 7.4.5-1 (in Volume II of the Response to Comments document), describing how potential operating agreements will comply with the endangered species laws and how the wildlife agencies will provide assurances. Like other elements of the CALFED Program, certainty over how Stage 1 CVP and SWP operations will be treated under the endangered species laws will increase as the scope of the operational scenarios develop.

The USFWS and NMFS will not issue a separate Fish and Wildlife Coordination Act (FWCA) report on the CALFED Program for incorporation into the Programmatic EIS/EIR. The Programmatic EIS/EIR for the CALFED Program includes an impacts analysis that was developed in coordination with the USFWS and NMFS. USFWS's and NMFS's recommendations for improving the Program and reducing impacts to fish and wildlife have been incorporated into the Program and the Programmatic EIS/EIR. Because of this extensive coordination, the incorporation of the USFWS's recommendations, and the programmatic nature of the CALFED Program, the USFWS and NMFS believe that the requirements of Section (b)(2) of the FWCA have been fulfilled. However,

future CALFED Program actions that tier from the Programmatic EIS/EIR also will need to fulfill the requirements of Section (b)(2) of the FWCA. Separate FWCA reports also will need to be completed for those Phase III actions. The USFWS and NMFS will complete FWCA reports for appropriate Phase III actions, presenting their agencies' recommendations to avoid, minimize, and mitigate project impacts to fish and wildlife resources. FWCA reports represent the USFWS's and NMFS's recommendations and are not binding conditions. Although FWCA reports are not subject to public review and comment, they will be available for public and stakeholder review following their completion.

IA-8.1-3

The governance and decision-making structure for implementation of the CALFED Preferred Program Alternative is a key feature in assuring successful Program implementation. CALFED is in the process of developing a long-term governance plan for the Program. Once the decision is made, it is expected that the long-term governance structure will not be in place for some time because of the time needed to enact the legislation that is required to make changes to existing laws and authorities. While the long-term structure is being established, an interim governance structure will need to be in place. For the interim, CALFED proposes the continuation of essentially the current structure being used for the planning phase of the Program but adapted to support the implementation phase. The interim structure will be in place for only as long as it takes to establish a long-term structure. A basic principle of the interim governance proposal is that there will be no changes to existing regulatory authorities. Chapter 4 in the Implementation Plan describes how the governance issues are being approached.

Please also see response IA-8.1.4-1 for more information about the CWA 404 memorandum of understanding (MOU).

IA-8.1-4

CALFED, as a cooperative inter-agency effort, must comply with many federal and state laws. Chapter 8 in the Programmatic EIS/EIR provides a brief summary of the legal and regulatory framework that comprises California's water rights system, including the public trust protections for the public's right of access to navigable waters and right to fish in waters of the State. Text has been added to Chapter 8 regarding the Davis-Dolwig Act. No action is necessary under this Act at this time; please see response IA 8.2-2 for more information. The Preferred Program Alternative includes no actions that limit the public's right of access to navigable waters of the State or other recreational abilities recognized by the public trust. In fact, CALFED is an unparalleled effort to restore and protect public trust resources, including recreational resources.

IA-8.1-5

CALFED is not planning, and has no authority, to change any regulations, water rights, or standards. Individual CALFED agencies continue to have their individual authority, as do the respective federal and state elected legislative bodies. Any perceived support or restriction to trade or water subsidies are not within the purview of the CALFED Program. Most water costs are calculated using a complex formula including, but not limited to, fees for pumping water, conveying water through canals, and meeting regulatory requirements.

IA-8.1-6

Section 1.1.2 in the Programmatic EIS/EIR explains how CALFED was developed and the Framework Agreement under which it exists. Under its Framework Agreement, CALFED agencies agreed to proceed under

existing laws. Many CALFED agencies have regulatory authority, and CALFED is not seeking to change that. Please see response IA-8.1-3 regarding the proposed CALFED governance structure.

IA-8.1-7

Please see Chapter 1 in the Watershed Program Plan for information about collaboration between CALFED and stakeholders, and Chapter 10 in the Programmatic EIS/EIR for information about CALFED's public outreach efforts. Watershed work group meeting notices and information are sent to various organizations and governmental agencies, as well as to all federally recognized tribal groups. Public participation has been a cornerstone of the CALFED Program process since its inception, beginning in 1996 with scoping sessions in Oakland, Walnut Grove, Red Bluff, Long Beach, San Diego, Pasadena, Bakersfield, and Sacramento. More than 2,500 people attended the 16 public hearings for the June 1999 Draft Programmatic EIS/EIR, and almost 10,000 written comments were received.

CALFED uses a variety of media to keep the public, its member agencies, and stakeholder representatives informed of the many committee and subcommittee meetings that focus on aspects of the individual program plans. CALFED has acted in good faith by placing the public events calendar on its web site, sending out meeting notices to individuals and organizations on its mailing lists, and providing speakers at meetings when requested. Please also see response IA-10.1.1-1.

IA-8.1-8

Consistency with the Williamson Act is discussed in Section 7.1 in the Programmatic EIS/EIR, and a mitigation strategy has been added (please also see response IA-7.1.11-11). The California Farmland Conservancy Program (CFCP, formerly Agricultural Land Stewardship Program) is administered by the California Department of Conservation (DOC). The program provides grants to local conservancy organizations to purchase agricultural conservation easements on farmlands that in the future could be subject to development pressure. Mitigation Strategy 8 in Section 7.1 incorporates the CFCP.

The Conservation Reserve Program (CRP), administered by the USDA Farm Services Agency with technical assistance from the U.S. Natural Resources Conservation Service (NRCS), provides payments to farmers who voluntarily cease crop activities on erodible soils. While this program is quite large nationally, only a few areas in California are included—usually on the foothill margins of the Central Valley. The CRP would not be inconsistent with CALFED. Most of the areas currently or potentially in the CRP would not fit CALFED's habitat targets.

The Conservation Reserve Enhancement Program (CREP), also administered by the USDA Farm Services Agency with technical assistance from NRCS, has provided an opportunity to plan and implement voluntary land, water, and wildlife conservation activities focusing on a particular region. CALFED is not inconsistent with this approach; please see Mitigation Strategy 12 in Section 7.1. While a CREP project potentially could be used to meet some CALFED goals, the program has not received adequate funding in California to develop a specific Bay-Delta project.

IA-8.1-9

The Safe, Clean, Reliable Water Supply Act, or Proposition 204 (California Water Code Section 78500 et seq.), authorizes $995 million for a variety of water and ecosystem programs. The Act's objectives are broader than the comment acknowledges and include not only providing safe, clean, and reliable water supplies for multiple needs but also restoring the ecological health of native fish and wildlife and their habitats; protecting the state's water

supply system from catastrophic failure due to earthquakes and floods; protecting drinking water quality; and protecting the quality of life in communities by ensuring recreational opportunities and maintaining parks. The Act supports the efforts of the CALFED agencies to develop a program to meet these objectives. The Programmatic EIS/EIR sets forth such a program.

The comment erroneously suggests that the Programmatic EIS/EIR does not meet the requirements set forth in the Act for expenditure of $390 million for ecosystem restoration. California Water Code Section 78684 et seq. authorizes the Resources Agency to expend these funds for the ecosystem restoration part of CALFED upon certification of the Final Programmatic EIS/EIR by the state and federal CALFED agencies and the execution of a cost-sharing agreement for the funds. The comment misinterprets California Water Code Section 78684.12. This section requires the Secretary for Resources to consult with the CALFED agencies regarding adherence to the Program implementation schedule in order to ensure a balanced solution in all identified problem areas. The requirements of this section follow implementation of the ecosystem portions of the Program; they are not a prerequisite. Please also see common response 22.

IA-8.1-10

Soil, water, and air are basic resources to all who live and work in California, not the exclusive concern of the agricultural community. CALFED's purpose is the long-term sustainability of the Bay-Delta ecosystem and all the species that live there. The June 1999 Draft Programmatic EIS/EIR was developed with extensive public participation from a wide array of interests, including agricultural interests. The Programmatic EIS/EIR fosters informed decision making and informed public participation, and sets forth sufficient information for a decision maker to consider the environmental factors of the Preferred Program Alternative and to make a reasoned decision.

Please see response IA-8.1.1-4.

The Programmatic EIS/EIR in form, content, and preparation has and does foster informed decision making and informed public participation. The document sets forth sufficient information for a decision maker to consider the environmental factors and make a reasoned decision.

Consistency with land use planning is a requirement of NEPA and CEQA. Please also see common response 1.

8.1.1 NEPA/CEQA

IA-8.1.1-1

The introduction to Chapter 8 articulates the purpose of a programmatic EIS/EIR. A programmatic EIS/EIR allows agencies to evaluate the potential effects of a program as a whole and simplifies preparation of subsequent project-specific environmental documents. Under this approach, called "tiering," a programmatic EIS/EIR addresses the broad issues relating to a project, and additional environmental documentation for project-specific impacts is prepared when necessary. This approach reduces duplication of broad policy decisions when future individual aspects of the Program are under review. The Programmatic EIS/EIR describes in broad terms the Preferred Program Alternative and the other Program alternatives and their potential impacts. This level of detail is appropriate for a long-term, general planning document. The Programmatic EIS/EIR generally evaluates Program actions, not site-specific actions, and therefore focuses on potential cumulative and long-term impacts rather than actual specific impacts.

IA-8.1.1-2

The analyses presented in the Programmatic EIS/EIR are intended to support the selection of a Preferred Program Alternative at the general planning level, rather than the selection of specific actions. The purpose of the Programmatic EIS/EIR is to outline the alternatives that were considered, how the Preferred Program Alternative was selected, and what the potential environmental consequences of those alternatives might be to the affected resources. It is a general plan of how to solve the Bay-Delta problems and discusses in a broad-brush level of detail the various ways the Program could affect environmental resources. As a programmatic document, therefore, the Programmatic EIS/EIR cannot with any degree of certitude predict whether any action would be consistent or inconsistent with regional or general plans. The intent is for future site-specific documentation to tier from this programmatic document; second-tier documents will be prepared to concentrate on issues specific to the individual project being implemented and site(s) chosen for the action before construction can be initiated. In addition to the site-specific analysis, it is possible that further detailed systemwide, regional, or statewide analyses may be necessary during Phase III to determine the effects of projects or actions with wide-reaching impacts. Please also see common response 1.

IA-8.1.1-3

A programmatic EIS/EIR allows agencies to evaluate the potential effects of a program as a whole and to better evaluate cumulative and long-term impacts. In addition, a programmatic EIS/EIR simplifies preparation of subsequent project-specific environmental documents. The CALFED Programmatic EIS/EIR achieves these purposes. Conversion of important agricultural lands generally is considered a significant impact on the environment, as noted in CEQA Guidelines Appendix G. Section 7.1 in the Programmatic EIS/EIR describes conversion of important agricultural lands as a significant environmental impact of the CALFED Program. The change in use of water, on the other hand, is not in itself a significant impact on the environment under CEQA. A change in use of water is an economic effect that must be evaluated in an EIS/EIR but does not require mitigation. Sections 7.2 and 7.3 describe economic and social effects associated with agriculture. Section 7.1.11 sets forth numerous mitigation strategies to reduce, avoid, or mitigate the Program's impacts on agriculture. These strategies will be considered during implementation of Program actions, as described in Chapter 9 in the Programmatic EIS/EIR. Please also see response 7.1.4-3 for a discussion of alternatives.

IA-8.1.1-4

Section 7.1.10 in the Programmatic EIS/EIR discusses cumulative impacts on agriculture. This section concludes that the Program's proposed actions, in the context of urbanization and other habitat efforts, are cumulatively considerable and significant. Section 7.1.11 in the Programmatic EIS/EIR contains mitigation strategies for the conversion of prime and other important farmlands. Section 9.1 discusses NEPA/CEQA monitoring. The commentor observes that the Ecosystem Restoration Program Plan contains more detail than the Programmatic EIS/EIR. The range of actions discussed in the Programmatic EIS/EIR contains all of the actions described in the Program plans, which are discussed in varying levels of detail. Therefore, the Program plans will not cause any additional environmental consequences outside the range of effects described in the Programmatic EIS/EIR. The commentor appears to misinterpret the purpose of the Ecosystem Restoration Program. The Ecosystem Restoration Program is one of the CALFED common programs designed to help the Program achieve its goals. The Ecosystem Restoration Program does not serve as mitigation for the impacts of other elements of the Program. Please also see common response 1.

IA-8.1.1-5

Storage and conveyance are not separated from the other Program elements. In Chapters 5, 6, and 7 of the impact analysis, Sections .7 and .8 include discussions of storage and conveyance as well as the other Program elements. Brief descriptions of all Program elements, including storage and conveyance, are found in Section 2.1.2 in the Programmatic EIS/EIR and in the Phase II Report. Actions described in Program plans and Attachment A are included in the range of actions analyzed for the Programmatic EIS/EIR; therefore, the Program plans will not cause any additional environmental consequences outside the range of effects described in the Programmatic EIS/EIR.

IA-8.1.1-6

The Final Programmatic EIS/EIR meets NEPA and CEQA requirements for programmatic environmental documentation. Please see response IA-Preface-2 and common response 1. Stage 1 actions have not been, and cannot be, selected until the Final Programmatic EIS/EIR is certified and the Record of Decision (ROD) filed. Therefore, it is not a viable option to pursue only bundled Stage 1 packages.

8.1.2 Federal/State Endangered Species Acts

IA-8.1.2-1

At a minimum, the CVP and SWP will continue to operate under the ESA as they always have. One objective of the MSCS is to provide a forum and streamlined permitting process. However, before any CALFED Program elements are carried out, the assurances that the wildlife agencies' can provide will be limited or qualified. The wildlife agencies will be able to provide increasing assurances over time as implementation proceeds and the goals of the Ecosystem Restoration Program are achieved. Please see Section 6.3.5 in the Final MSCS for more information.

8.1.4 Compliance with Section 404(b)(l) Guidelines

IA-8.1.4-1

CALFED agencies and the U.S. Army Corps of Engineers (Corps) are working toward an MOU regarding the Section 404 permitting process. This MOU will outline information necessary in pursuing a Section 404 permit and will outline what the Corps believes to be key factors in its permit decision-making process. The MOU also will identify factors for demonstrating the need for new or expanded surface storage for water supply reliability. These factors will include such measures as water conservation and water recycling.

Water management alternatives such as water conservation and recycling will be implemented gradually over time as urban areas expand and new customers for recycled water are identified. It would not be necessary to achieve specific acre-foot targets or implement measures for a specified number of years before planning for storage could proceed. Planning for new or expanded storage could commence immediately; however, before a storage project could be permitted, it would be necessary to demonstrate institutional mechanisms in place to support water management alternatives, assurances of continued implementation and continued funding, and willingness for beneficiaries to pay the cost of new supplies.

Please see common response 1 for a discussion about the interrelated nature of the CALFED Program elements.

IA-8.1.4-2

CALFED will not receive any permits under CWA Section 404 based solely on the Programmatic EIS/EIR because the environmental document is programmatic in nature and permits under CWA Section 404 are issued for specific projects or narrowly defined categories of projects. However, the Programmatic EIS/EIR, including Program plans, does provide the information necessary to facilitate the permitting process. Based on information developed for the Programmatic EIS/EIR, CALFED agencies expect that at the time of the ROD they will be able to sign an MOU on implementing CWA Section 404 (b) (1) for activities proposed under the Program. This MOU describes the process by which compliance with the Section 404 (b) (1) Guidelines can be demonstrated for certain actions of the CALFED Program requiring Section 404 permits. The intent of the MOU is to clarify and facilitate the Section 404 permitting process while at the same time ensuring that the supporting documentation demonstrates compliance with the Guidelines and allows the Corps and EPA to make defensible permit decisions for CALFED Actions. Please also see response PH2:5.3-1 regarding demonstration of need under CWA Section 404.

The EIS/EIR's analysis of Program impacts on species is not sufficiently detailed to support the findings required for incidental take authorization based on operating the water projects within "agreed upon limits." The analysis in the EIS/EIR is adequate, however, to assess programmatic-level effects of CALFED actions on species and their habitats. The framework for compliance with endangered species laws is contained in the MSCS, not the EIS/EIR. The MSCS provides a more detailed discussion of the Program's impacts on 243 species and their habitats, which will allow the wildlife agencies to make programmatic findings about whether the Program as a whole will conserve the species evaluated in the MSCS. The parameters for future operation of the CVP and SWP are not currently known; therefore, the MSCS does not contain an analysis of future operations sufficient to support incidental take authorization. When such an analysis becomes possible, the wildlife agencies will prepare a single analysis of how the operations will affect the species evaluated in the MSCS. The single analysis will apply to future applications for incidental take authorization.

IA-8.1.4-3

Many stakeholders are urging that EPA and the Corps issue a "programmatic" Section 404 permit to ensure that the CALFED solution actions could be permitted under a clearly defined process with appropriate decision criteria. Although no site-specific Section 404 permits will be available at the time of the ROD, the Corps, EPA, and CALFED are developing an MOU to facilitate timely consideration on Section 404 permits. The MOU will provide a mechanism for integrating information developed at the programmatic level (including the Programmatic EIS/EIR) into the site-specific decisions on Section 404 permits. The MOU is scheduled to be completed by the time of the ROD.

8.1.7 The Farmland Protection Policy Act and Memoranda on Farmland Preservation

IA-8.1.7-1

The analyses of impacts of the Preferred Program Alternative and the other Program alternatives on agricultural resources were coordinated with the NRCS. Site-specific project planning, permit processing, and appropriate environmental documentation will take place during implementation. Section 7.1.10 in the Programmatic EIS/EIR discusses cumulative impacts to agriculture. This section concludes that the Program's proposed actions, in the context of urbanization and other habitat efforts, are cumulatively considerable and significant. Section 7.1.11 in the Programmatic EIS/EIR contains mitigation strategies for the conversion of prime and other important farmlands. Section 9.1 discusses NEPA/CEQA monitoring. The mitigation strategies are guidelines for formulating measures that may be chosen by CALFED agencies or other implementing agencies in second-tier

environmental reviews, which will be completed before post-ROD project actions occur. Specific mitigation measures will depend on project location, site impacts, size of the project, and other variables that cannot be determined at a programmatic level. Mitigation measures will be included, if a significant impact is identified, in these second-tier environmental documents.

The mitigation strategies are designed to reduce and mitigate the Program-wide impacts on conversion of agricultural land as the Program is implemented through tiered, second-level projects. As the Program is implemented, project-level mitigation measures will be included to address the impacts of conversion of agricultural lands, as applicable to the site-specific conditions of each project. For example, using the CFCP, formerly the Agricultural Land Stewardship Program, to acquire easements on agricultural land will reduce the Program-wide impacts on agricultural land and will be most effective if the easements can be obtained in a geographic area in the vicinity of the agricultural land being converted to non-agricultural ecosystem habitat. Until it is known which sites will be subject to specific ecosystem projects and the proposal for specific locations, it is difficult to identify the most appropriate and effective mitigation measures. Not all mitigation measures will be applicable to all projects because site-specific projects will vary in purpose, location, and timing.

8.1.10 Executive Order 11990 (Protection of Wetlands)

IA-8.1.10-1

CALFED, as a cooperative interagency effort, must comply with many federal and state laws. All applicable laws and regulations will be adhered to as implementation takes place, whether or not specifically cited. Individual agency actions that complement and serve to assist in implementing the CALFED Program will continue, using the agency's regular environmental documentation procedures. Because of the similarity between both the federal and state executive orders, only the federal executive order was included.

8.1.12 Executive Order 13007 (Indian Sacred Sites) and April 29,1994 Executive Memorandum

IA-8.1.12-1

Given the programmatic nature of the Programmatic EIS/EIR, CALFED is meeting its tribal consultation requirements. The Programmatic EIS/EIR does not address specific projects. If projects or activities are proposed for an area that contains a reservation or rancheria or any Indian trust asset, consultation will take place early in the planning process. At the programmatic level, it is not possible to determine whether projects will be proposed for any of the reservations or rancherias in the CALFED solution area. Consultation will be government-to-government, as outlined in the April 29, 1994 Executive Order. Text has been added to Chapter 10 in the Programmatic EIS/EIR, outlining CALFED's outreach to tribal groups. Please also see response IA-7.15.1-1.

8.1.14 Climate Change

IA-8.1.14-1

The purpose of Chapter 8 is to list programmatic-level environmental compliance requirements, the regulatory framework, and other environmental policies and plans to which the Program is subject. This list will be a reference for site-specific project planning, permit processing, and environmental documentation requirements that will take place during Phase III. Regarding the climate change write-up, the intent was to demonstrate that CALFED is aware of both the need to consider climate change as an element in its site-specific analyses and, given the uncertainty of the science, to illustrate the difficulty of addressing this issue at the programmatic level. Climate

change is one of the factors contributing to the need for the adaptive management approach to the CALFED Program.

8.1.15 State, Regional, and Local Plan Consistency

IA-8.1.15-1

CALFED has worked to improve its communication with local land use planning agencies as part of early implementation of ecosystem restoration actions. During Phase III, CALFED will coordinate with the appropriate local jurisdictions regarding implementation of CALFED actions.

8.2 Regulatory Framework

IA-8.2-1

The CALFED Program complies with existing water rights laws, including area-of-origin, county-of-origin, and watershed protection laws in the California Water Code. The Programmatic EIS/EIR has been revised to include a section discussing area-of-origin protection and related laws. Please also see common response 13.

IA-8.2-2

Benefits and impacts to existing recreational facilities and services are addressed in Section 7.7 in the Programmatic EIS/EIR. The Davis-Dolwig Act, passed in 1961, declares that recreation and fish and wildlife enhancement are among the purposes of state water projects. It specifies that costs incurred for these purposes shall not be included in the prices, rates, and charges for water and power to urban and agricultural users but will be paid by the people of California. It also provides for DWR to allocate to recreation and fish and wildlife enhancement a portion of the costs of any facility of the SWP. Under Davis-Dolwig, acquiring real property for recreation and fish and wildlife enhancement must be planned and initiated concurrently with, and as part of, the land acquisition program for other project purposes. The relevancy of the Davis-Dolwig Act will come into play once a decision about any water supply project is made, at which time compliance with the Act may be part of the site-specific documentation.

IA-8.2-3

The Programmatic EIS/EIR provides a brief summary of the legal and regulatory framework that comprises California's water rights system. This chapter has been revised to include additional detail regarding correlative rights for groundwater. Laws pertaining to groundwater in California also are discussed in Chapter 3 in the Water Transfer Program Plan. CALFED will operate within the existing regulatory and statutory water rights framework. In addition, both the water transfer and conjunctive use components of the Program have been developed with input from the public, to identify and address local issues of concern. Site-specific project planning, permit processing, and appropriate environmental documentation will take place during implementation.

IA-8.2-4

Decision-990, adopted by the State Water Resources Control Board (SWRCB) in 1961, approved the water rights for the Central Valley Project (CVP). This decision did not specify water quality standards in the CVP permits but did reserve the right to impose such requirements in the future. Decision-1275, which sets agricultural salinity standards, was adopted by the SWRCB in 1967 as part of water rights for the State Water Project (SWP). The 1978 Decision-1485 revised standards for flow and salinity in the Delta's channels. Hearings are continuing about the

draft Decision-1630, which proposes interim water rights terms and conditions to protect the Bay-Delta estuary. CALFED is not proposing to change any regulations, water rights, or standards. Individual CALFED agencies will continue to exercise their authority. Water rights, for example, are under the jurisdiction of the SWRCB. Currently, the SWRCB is determining how to meet Delta water quality standards.

IA-8.2-5

The SWRCB and individual RWQCBs are responsible for enforcing existing water quality laws. CALFED does not propose to supplant the state and regional boards' responsibilities. Please see the Water Quality Program Plan for additional information regarding proposed measures to improve water quality.

IA-8.2-6

The stated intent of the Watershed Protection Statute (California Water Code Section 12865-12868) deals primarily with financial assistance and cost allocation formulas that will be taken into consideration during Stage 1 actions. Text has been added to Chapter 8 in the Programmatic EIS/EIR to address area-of-origin provisions. Please see response IA-8.2-1 and common response 13 for information about area-of-origin and water rights protection.

IA-8.2-7

Under the Davis-Dolwig Act, the costs of protecting and enhancing wildlife and fisheries associated with state water projects are borne by the people of California. Through various agreements and permits, the SWP and CVP follow measures by which they mitigate for impacts associated with maintenance and operation of the projects. It can easily be confused that the Davis-Dolwig protection and enhancement obligation and the SWP and CVP mitigation measures are the same, but they are not. Regarding the conversion of Delta lands to tidal marsh, historically, tidal marsh and mudflats in the Delta and Suisun, San Pablo, and San Francisco Bays were converted into agricultural and some urban uses—not exclusively from SWP and CVP export pumping. Therefore, restoration of tidal marsh land, which does benefit fish and wildlife, does not circumvent either the Davis-Dolwig or Delta Protection Acts.

Please also see responses IA-8.2-2 and IA-8.2.2-1.

8.2.2 The Delta Protection Act of 1959

IA-8.2.2-1

Chapter 8 lists programmatic-level environmental compliance requirements, the regulatory framework, and other environmental policies and plans to which the Program is subject. This list will be a reference for site-specific project planning, permit processing, and environmental documentation requirements that would take place during Phase III. Because of the programmatic nature of this document, however, not all environmental laws and regulations (or all aspects of those laws and regulations) pertain to the Program at this phase of the process.

Likewise, this list is not an exhaustive list of every state, federal, or local law and regulation that may apply to the Program. Absence of explicit mention of laws and/or regulations does not indicate an intention to "ignore" them. For example, Chapter 8 does not list state and federal constitutional provisions; however, the CALFED Program complies with both constitutions. Please see common response 13 for information about the area of origin and water rights issues.

IA-8.2.2-2

The Programmatic EIS/EIR presents several scenarios, including those in which Delta water exports are reduced and salinity control options are exercised. The assumptions used in creating these scenarios can be found in Attachment A to the Programmatic EIS/EIR. Reduced Delta exports, for example, could result in more protective Delta water management criteria, while temporarily reducing ocean-derived salinity intrusion and bromides into the vicinity of the export pumps. Export and salinity impacts to fish and wildlife, and to other resource areas, are also covered in the Programmatic EIS/EIR. A summary of impacts of reduced Delta exports and salinity control efforts can be found in Chapter 3 and are discussed in Chapters 5, 6, and 7 in the Programmatic EIS/EIR.

IA-8.2.2-3

Attachment A to the Programmatic EIS/EIR presents the assumptions used in modeling the effects of an isolated facility—should a facility ever be built. Within those sets of criteria are included compliance with Delta flow, export, and salinity requirements. These two criteria, Criterion A and Criterion B, represent the range of water management options available to meet Program objectives.

IA-8.2.2-4

As a cooperative interagency effort, the CALFED Program is required to comply with several federal and state environmental laws and regulations, including the Delta Protection Act. As stated in CALFED's Framework Agreement, the Program fully intends to comply with all federal and state laws applicable to the Program. One of the main CALFED objectives is to provide good quality environmental water in the Delta. One such way of doing so is the EWA. The EWA is based on the concept that flexible water will achieve fishery and ecosystem benefits more efficiently than a completely prescriptive regulatory approach. The account depends on monitoring and real-time diversion management and will be funded annually with dollars, water, and rights to storage and conveyance. These assets will be used to enhance upstream and in-Delta fish protection. For example, the EWA could modify export pumping to avoid times more critical for fish species. Please see the Phase II Report for more information about the EWA.

IA-8.2.2-5

The summary of the Delta Protection Act is provided to acknowledge that CALFED will adhere to the provisions of this and the many other existing laws, policies, plans, and regulatory framework under which the Program must operate. The text of the referenced sentence has been changed to:

"The Delta Protection Act of 1959 requires maintenance of adequate water supply for multiple uses (for example, agriculture, municipal and industrial, and recreation) in the Delta. It also provides for Delta water exports under certain conditions that are spelled out in the California Water Code and other regulatory requirements."

Text also has been added to Chapter 8, summarizing the public trust doctrine and area-of-origin, county-of-origin, and watershed protection laws. Please also see common response 13.

The Programmatic EIS/EIR meets NEPA and CEQA requirements for addressing existing laws that assure in-Delta water uses.

8.2.5 1995 Water Quality Control Plan

IA-8.2.5-1

Comment noted. Text has been changed to reflect that X2 is 2 ppt salinity, not a 2-ppt salinity gradient.

8.2.9 Water Rights

IA-8.2.9-1

Please see common response 13 for information about the area of origin and water rights issues. The Program fully intends to implement its actions in a manner consistent with California water rights, including existing laws and regulations protecting areas of origin. CALFED does not have any legal or regulatory jurisdiction over water rights or their application; these authorities are vested in the SWRCB and the judicial system. Authority to create, refine, or change water rights law is within the purview of the State Legislature and the courts; the CALFED Program does not include changes proposed to existing water rights legislation.

IA-8.2.9-2

Please see common response 13 for information about the area of origin and water rights issues. CALFED's focus on acquiring water from willing sellers or developing water is a proposal to obtain water for environmental purposes in a manner respective of existing water rights. Water rights are under the jurisdiction of the SWRCB, the Legislature, and the courts.

IA-8.2.9-3

Member agencies of CALFED recognize the sovereignty of Native Americans. Government-to-government consultations will take place when site-specific projects are proposed that may affect a reservation, rancheria, or Indian trust asset. Tribes with established federal reserved water rights and tribes with unquantified federal reserved water rights will be consulted, to address how their water resources may be affected by the CALFED programs as early in the process as necessary.

8.4 Federal and State Coordination for a Delta Solution

IA-8.4-1

Please see response IA-8.1-1 concerning the summarization issue. CALFED is not planning, and has no authority, to change any regulations, water rights, or water quality standards. Individual CALFED agencies continue to have their respective regulatory authority. The CALFED Program is complex and multi-objective, involves many agencies and programs, and covers a large geographic scope. One way to resolve regulatory conflicts will be through a coordinated governance structure by an oversight entity. In developing a long-term governance structure for the CALFED Program, the implementation principles, functions, and structure/form have been evaluated at two levels—the policy oversight level and the Program element level. Chapter 4 in the Phase II Report summarizes the Implementation Plan, and Section 6.3.1 in the MSCS outlines how individual CALFED projects will be able to comply with the endangered species laws in an efficient manner.

Currently, legal authority for Program decisions rests with the individual state and federal agencies. Formal stakeholder input into the Program has been provided by the BDAC, BDAC work groups, subcommittees, other

technical groups, and informal consultations. As CALFED moves more into Program implementation, new responsibilities will arise and new functions will be required.

IA-8.4-2

Many activities occurring outside the CALFED Program can affect the Program. The Program will need to assure consistency and coordination with these related programs. It is impossible, however, to align all the differing efforts that operate under differing authorities, mandates and timelines and all the affected participants into a single massive effort.

8.4.3 California-Federal Operations Group

IA-8.4.3-1

The CALFED Program seeks to address exactly this kind of conflict: in-stream versus export uses. The ecosystem restoration and water supply reliability components (elements) seek to improve the health of the ecosystem, use existing water supplies and facilities more effectively, and increase the tools and operational flexibility of those tools in order to reduce these conflicts.

CALFED has no regulatory authority.

8.5 Public Trust

IA-8.5-1

The public trust doctrine and requirements were a part of CALFED's analysis of the Program alternatives. In addition, the CALFED Program has consulted with the appropriate state agencies, including trustee agencies, to ensure that the Program adequately protects California's public trust assets. The Programmatic EIS/EIR provides a brief summary of the legal and regulatory framework that make up California's water rights system. Chapter 8 in the Programmatic EIS/EIR has been revised to include additional information about the public trust doctrine. As stated in Section 8.5,

> The State of California must consider the public trust when planning and allocating water resources, and preserve for the public interest the uses protected by the trust. In common law, the public trust doctrine protects navigation, commerce, and fisheries uses in navigable waterways. However, the courts have expanded the doctrine's application to include protecting tideland, wildlife, recreation, and other public trust resources in their natural state for recreational, ecological, and habitat purposes as they affect birds and marine life in navigable waters. In the *National Audubon Society v. Superior Court (1983) 33 Cal* 3d *419,* the California Supreme Court ruled that in administering water rights laws and approving water diversions, the State also has a duty of continuous supervision over the taking and use of appropriated water to protect these public trust uses.

Legal and regulatory compliance, as outlined in Chapter 8 in the Programmatic EIS/EIR, are factored into the Program plans and the impact analyses. The pertinent laws and regulations regarding Delta flow requirements also are incorporated into the modeling tools used for the analysis (please see Attachment A to the Main Document). In addition, the CALFED Program seeks to restore the Delta ecosystem as one of its four co-equal Program purposes. CALFED is proposing its Ecosystem Restoration Program as a means of restoring and protecting public trust resources. This includes the proposal to acquire water from willing sellers in order to augment streamflows

to benefit fish and other aquatic resources, and to acquire interests in land from willing sellers and cooperative agreements in order to support restoration efforts. Protecting public trust resources in this manner is entirely consistent with the California Supreme Court's direction to protect public trust resources whenever feasible.

Finally, the Phase II Report discusses the institutional and organizational framework (including the laws and regulations) to which any CALFED Program is subject.

IA-8.5-2

The CALFED Program has consulted with the appropriate state agencies, including trustee agencies, to ensure that the Program adequately protects California's public trust assets. The California Department of Fish and Game, which has trust responsibility for the fish and wildlife of the state, is a CALFED agency.

9. NEPA/CEQA Monitoring

0. General Responses

IA-9.0-1

A comment states that a mechanism should be developed to mitigate any unforeseen negative impacts of programmatic actions. This mechanism exists in the CALFED Program within the Comprehensive Monitoring, Assessment, and Research Program (CMARP) process. The CMARP process will evaluate certain environmental resources to determine their status and the effects of CALFED programs. The CMARP will provide the information to permit adaptive management. Adaptive management is the concept that the Program changes or implementation priority shifts to adjust to changes in resource status (see the CMARP for additional information).

IA-9.0-2

CALFED elected to prepare this Programmatic EIS/EIR early in development of the Program to fully disclose the general environmental consequences of a complex, long-term program. The Programmatic EIS/EIR presents information at regional and solution area levels. Environmental consequences and economic and social effects are presented to disclose the maximum range of effects. Mitigation strategies are proposed to address potentially significant adverse environmental consequences that can be identified at this early stage. Throughout the Programmatic EIS/EIR, it is noted that to make adequate determinations of project-specific environmental consequences, additional information is required and future NEPA/CEQA review will take place at the site-specific level of analysis. The physical changes to the environment and consequent environmental effects are caused by implementing the actions and projects outlined in the Preferred Program Alternative. The degree of environmental effects will be controlled by the phasing of the projects, the success of the individual projects to avoid and mitigate adverse effects, and the implementation of adaptive management to guide the Program towards a course that succeeds in meeting Program objectives and avoiding or minimizing adverse environmental impacts. Therefore, CALFED is proposing programmatic-level mitigation strategies in a process that will ensure that environmental documents tiering from the Programmatic EIS/EIR present adequate consideration of information developed in the document.

CALFED has revised this chapter to include a NEPA/CEQA monitoring process because it is CALFED's intent that the information, issues, and mitigation strategies developed during the Programmatic EIS/EIR process be used, considered, evaluated, and disclosed in the NEPA/CEQA documents prepared to implement the Preferred Program Alternative. Cumulative and growth-inducing impacts must be presented in these documents as appropriate within the context of the overall CALFED Preferred Program Alternative and site-specific environmental document. Mitigation strategies developed in the Programmatic EIS/EIR must be considered, and specific mitigation measures proposed for potentially significant adverse impacts identified in the tiered environmental documents.

The level of detail of the NEPA/CEQA monitoring process is consistent with the programmatic nature of the Programmatic EIS/EIR. As the June 1999 Draft Programmatic EIS/EIR was prepared, work continued on developing more detail for the program plans The program plans contain more detail than the Programmatic EIS/EIR. However, the range of actions discussed in the Programmatic EIS/EIR includes all of the actions contained in the program plans. Therefore, the program plans will not cause any additional environmental consequences outside the range of effects described in the Programmatic EIS/EIR. The purpose of the Programmatic EIS/EIR is to outline the alternatives that were considered, how the Preferred Program Alternative

was selected, and what the potential environmental consequences of those alternatives might be to the affected resources. It is a general plan of how to solve the Bay-Delta problems and discusses in a broad-brush level of detail the various ways the Program could affect environmental resources. The program plans present a collection of more specific actions that may be carried out to implement the Program in Phase III.

The program plans include more details because these plans represent the efforts of CALFED and the stakeholders to keep the Program moving forward with developing plans, objectives, and strategies without committing to a definite course of action while the Programmatic EIS/EIR is being completed. While the program plans discuss numerous ways or methods of achieving Program objectives, implementation will occur over a long period of time. Some of these projects may be carried out in the near term, and some may never be implemented; but those that are implemented will be carried out only after further evaluation is made as to their feasibility and environmental effects. Because the intent is for future site-specific documentation to tier from this programmatic document, it is beneficial at this programmatic stage to thoroughly describe as many of the ways of realistically achieving the goals of the Program as possible. These program plans serve as guides to those agencies that will be carrying out individual Program elements. These plans were developed and refined through the public hearing (BDAC and others) and committee review process.

As noted, second-tier or site-specific environmental documents will be prepared for individual projects, where potentially significant environmental impacts require such analysis. Second-tier documents will be prepared to concentrate on issues specific to the individual project being implemented and site(s) chosen for the action before construction can be initiated. In addition to the site-specific analysis, it is possible that further detailed systemwide, regional, or statewide analyses may be necessary to determine the effects of projects or actions with wide-reaching impacts.

As a programmatic planning-level document, the Programmatic EIS/EIR does not analyze site-specific impacts of future projects at proposed locations, and therefore cannot predict with certainty which impacts will occur and what site-specific mitigation measures are appropriate for second-tier projects. Consequently, the Programmatic EIS/EIR identifies mitigation strategies, approaches tailored to the type of impacts anticipated as a result of CALFED Program projects, that will provide the basis to structure more specific mitigation measures. For each potentially significant environmental impact, one or more mitigation strategies are identified. These mitigation strategies will be considered as part of second-tier environmental review by any agency proposing to undertake projects that are within the scope of this Programmatic EIS/EIR. Where a second-tier project involves impacts that are addressed in the Programmatic EIS/EIR, the applicable mitigation strategies can be used to formulate site-specific mitigation measures and enforcement programs. The commitment to consider mitigation strategies, and to apply and enforce mitigation measures pursuant to those strategies, will be included in the ROD for the federal lead agencies and the Statement of Findings adopted by the California Resources Agency. In addition, any state or federal project funded through legislation that provides for projects to be consistent or in accord with the CALFED Program, will need to demonstrate compliance with this mitigation monitoring program as set forth in the Mitigation Monitoring Plan adopted at the time of the ROD and Certification of the Programmatic EIS/EIR.

IA-9.0-3

A comment states that this chapter is devoid of facts and does not allow the evaluation of what is contained in the chapter. This chapter describes a process to be used for NEPA/CEQA monitoring and should be used in conjunction with the mitigation strategies for each resource, presented in the chapter for each resource category.

IA-9.0-4

A commentor provided examples on mitigation implementation, reporting, and monitoring, including how CALFED will comply with CEQA provisions and how the monitoring program will be carried out. The NEPA/CEQA monitoring and reporting process is presented in Chapter 9 in the Programmatic EIS/EIR. As noted in this chapter, the CALFED member agencies will commit in the ROD/Statement of Findings to consider mitigation strategies and other information in the Programmatic EIS/EIR as specific implementation projects are developed. This approach is consistent with the nature of this programmatic document that was developed early in the planning process. It is also consistent with the nature and structure of CALFED as representing a group of state and federal agencies, but possessing no regulatory powers itself.

9.1 Introduction

IA-9.1-1

Comments state that nowhere in the Programmatic EIS/EIR is a statement that mitigation strategies or measures will be adopted. Mitigation strategies will be adopted by the CALFED lead agencies in the ROD/Statement of Findings, which is the decision-making act that culminates the NEPA/CEQA process. Specific mitigation measures will be adopted by lead agencies at the time of approval of NEPA/CEQA documents for implementing specific projects or actions. As noted, Chapter 9 has been revised to include a process for monitoring NEPA/CEQA documents that tier from the Programmatic EIS/EIR.

9.2 NEPA/CEQA Monitoring Process

IA-9.2-1

Comments state that tiered NEPA/CEQA documents need to consider information and mitigation strategies developed in the Programmatic EIS/EIR, that mitigation should not be deferred to future site-specific environmental documents, and that the approach used in the Programmatic EIS/EIR does not provide equal treatment for various features of the existing environment. Chapter 9 in the Programmatic EIS/EIR has been revised to address these concerns. Chapter 9 now includes a process to ensure that environmental documents tiering from the Programmatic EIS/EIR present adequate information in order to consider the information developed in the Programmatic EIS/EIR process.

10. Public and Agency Involvement

0. General Responses

IA-10.0-1

CALFED has included agricultural stakeholders in virtually all the planning processes and planning groups that led to the Program evaluated in the EIS/EIR. Their input was included in all Program plans and was key in such programs as Water Use Efficiency and Water Transfers. In addition, comments received from the agricultural community on the March 1998 Draft Programmatic EIS/EIR were carefully evaluated , and all concerns noted were responded to in the current EIS/EIR. Further, the June 1999 Draft Programmatic EIS/EIR was circulated to both the Department of Food and Agriculture and Department of Conservation, to receive their input as state-level departments associated with agricultural production and agricultural land preservation. The Final Programmatic EIS/EIR was modified from the June 1999 draft document as the result of many agricultural stakeholder comments. Responses to comments are provided in this Response to Comments Appendix to the Final Programmatic EIS/EIR. Please also see response IA-2.1-14.

IA-10.0-2

CALFED sent a response a letter on August 23, 1999, stating that the requested information was being compiled. The requested information was sent on September 14, 1999.

IA-10.0-3

Any group is welcome to be a stakeholder and attend the public CALFED meetings. Please see Chapter 10 in the Programmatic EIS/EIR for more information about public involvement and meetings.

10.1.1 Public Workshops

IA-10.1.1-1

CALFED received several comments regarding the perception that "ordinary citizens" have been excluded from the CALFED process and thereby the Program has failed to include those "most affected" by the process. These comments also state that CALFED should develop a process by which "ordinary citizens can involve themselves in a timely and meaningful way in the process that leads to the ultimate result." This response addresses these comments. Additional information is presented in Chapter 10 in the Programmatic EIS/EIR and in Chapter 1 in the Phase II Report.

The CALFED Program is a collaborative effort including representatives of agricultural, urban, environmental, fishery, business, and rural counties who have contributed to the process. The Bay-Delta Advisory Council (BDAC), a federally chartered citizens' advisory committee with over 30 members, provides formal comment and advice to the agencies during regularly scheduled public meetings, which are held in various areas around the state. In addition, the CALFED process has included members of the public in development of every Program component from ecosystem restoration to financing.

The public participation process has been a cornerstone of the CALFED Program since its inception, beginning in 1996 with scoping sessions held in Oakland, Walnut Grove, Red Bluff, Long Beach, San Diego, Pasadena,

Bakersfield, and Sacramento. These sessions were followed by 17 public hearings in 1988 for the March 1998 Draft Programmatic EIS/EIR at which over 400 people spoke and close to 2,000 written comments were submitted. The 16 public hearings for the June 1999 Draft Programmatic EIS/EIR were attended by more than 2,500 people. Almost 800 people spoke at these hearings; almost 10,000 written and oral comments were received concerning the June 1999 Draft Programmatic EIS/EIR. In compliance with public meeting law, these hearings were advertised in local papers within the week before the hearing was held; the meeting schedule and sites were also posted on the CALFED web site at **http://calfed.ca.gov**.

CALFED uses a variety of media to keep the public, as well as its member agencies and stakeholder representatives informed of the many committee and subcommittee meetings that focus on aspects of the individual program plans. CALFED has acted in good faith by placing the public events calendar on its web site, sending out meeting notices to individuals and organizations on its mailing lists, and providing speakers at meetings when requested. In addition to these activities, CALFED also has an active public education program and public information office. CALFED also fully complies with the provisions of the Freedom of Information Act. Individuals or organizations interested in receiving CALFED information are encouraged to use the web site, if that technology is available to them, or to be placed on the appropriate mailing list for their area of interest.

The Program also has worked to involve California's diverse multi-cultural communities by producing fact sheets in five languages (Spanish, Chinese, Japanese, Korean, and Vietnamese); meeting with multi-cultural businesses, media, social service and agricultural organizations; and placing media notices in ethnic media outlets. Increasing awareness and knowledge among the multi-cultural communities is a continued goal of CALFED's public outreach.

10.1.3 Programmatic EIS/EIR Scoping and Comment Meetings

IA-10.1.3-1

The question and answer period was designed to allow individuals to ask specific questions and for CALFED staff to respond with information they had regarding the subject. No restrictions were placed on the type of questions that could be asked. The same procedure was used at all 16 of the CALFED hearing locations.

IA-10.1.3-2

The video was presented as a way of supplying basic information on what the CALFED Program is and its goals and objectives. It was felt that the video provided answers to many questions individuals might have about the Program and thus provided more time for specific versus general questions. The same procedure was used at all 16 of the CALFED hearing locations.

IA-10.1.3-3

CALFED placed no restriction on whether a person could read from a prepared statement or simply voice their comments. Everyone was given exactly the same amount of time regardless of how their comments were presented. CALFED staff remained at each hearing site until everyone who wanted to speak had an opportunity to do so.

IA-10.1.3-4

Sixteen hearings were held in various portions of the state. The sites for the hearings were selected to provide an opportunity for individuals from all affected areas to have an opportunity to attend a hearing. In all instances,

those individuals who lived furthest from the hearing needed to spend more time traveling to the location. To facilitate this number of hearings, it was necessary to hold them over several weeks. It simply was not possible to provide a hearing at every location where people had requested them.

10.1.5 Multi-Cultural Public Outreach

IA-10.1.5-1

Because California's population is so diverse, special attention was paid to reaching minority communities. The Program recognized that in each cultural and ethnic community, the messages about the Program, the methods for dissemination, and the approaches to soliciting involvement and input differed significantly. The Program's outreach was designed with those differences in mind. The Program developed a separate document detailing plans for the multi-cultural public outreach, in addition to its general Outreach Program. Program staff interviewed and met with several stakeholders who represented minority and multi-cultural business, government, agriculture, social services, and industry, to discuss the Program. A Program overview fact sheet was developed and translated into Spanish, Chinese, Japanese, Korean, and Vietnamese. Notices regarding the availability of translated documents and public meeting notices were sent to statewide media outlets that target multi-cultural communities. The fact sheet also was available on the Program's web site. In addition, translated materials were made available at all of the public hearings except San Jose. Due to staff error, the translated materials were not included with the other material transported to the San Jose hearing site.

Notices about the March 1998 Draft Programmatic EIS/EIR release and the public meetings were placed in several ethnic media outlets, such as Asianweek, Los Angeles Sentinel, Oakland Post, La Opinion, El Sol, and La Voz De La Frantera. These efforts were duplicated with the release of the December 1998 Phase II Report and the June 1999 Draft Programmatic EIS/EIR. Notices were also sent to the following organizations for further distribution within each community:

- **Stockton**—Lodi Chamber of Commerce, San Joaquin County Black Chamber of Commerce, Stockton Chamber of Commerce, Stockton Mexican-American Chamber of Commerce
- **San Bernardino**—Asian American Resource Center, Casa Romana, Club Social Espanol, Hispanic Chamber of Commerce, Japanese Community Services, National Association for the Advancement of Colored People, San Bernardino Chamber of Commerce
- **Los Angeles**—Asian American Economic Development Enterprises, Asian Pacific American Legal Center of Southern California, Black Business Association of Los Angeles, Chinese Chamber of Los Angeles, Compton Chamber of Commerce, Cudahy Chamber of Commerce, Greater Los Angeles African American Chamber of Commerce, Japanese Chamber of Commerce, Los Angeles Urban League, Mexicana Movement, Monterey Park Chamber of Commerce, Operation Hope
- **Salinas**—Hispanic Chamber of Commerce, Korean Monterey Chamber of Commerce, League of United Latin American Citizens (Hollister, Monterey, Salinas, Watsonville), Salinas Chamber of Commerce
- **Oakland**—African Heritage Center, American Vietnamese League, California South East Asia Business Council, Hispanic Chamber of Commerce, La Peña Cultural Club, Los Dos Hermanos Community Center, Oakland-Alameda Black Chamber of Commerce, Oakland Chinatown Chamber of Commerce

- **Pasadena**—Alkebulan Cultural Center, Armenian General Benevolent Union, Arcadia Chamber of Commerce, Croatian National Association, Monrovia Chamber of Commerce, National Association for the Advancement of Colored People, Pasadena Chamber of Commerce, Pasadena Junior Chamber of Commerce, Sierra Madre Chamber of Commerce, South Pasadena Chamber of Commerce

- **San Diego**—Council of Philippine American Organizations of San Diego County, Greater San Diego Business Association, Greater San Diego Chamber of Commerce, Hispanic Chamber of Commerce, Japan Society of San Diego, Korean American Association of San Diego, National Association for the Advancement of Colored People, San Diego Black Chamber of Commerce, Union of Pan Asian Communities

- **San Jose**—African American Community Service, All Asian Center, Asian American Friendship Association, Asian Americans for Community, Asian Information Service, Chinese Community Service, Korean American Association, Korean American Community Services, Portuguese Chamber of Commerce, San Jose/Silicon Valley Chamber of Commerce, Sunnyvale Chamber of Commerce, Vietnamese American Community

- **Antioch**—Antioch Chamber of Commerce, Black Families Association (Contra Costa), Black Women Organize, Greater Concord Chamber of Commerce, 100 Black Men of the Bay Area, Pittsburg Chamber of Commerce

- **Santa Rosa**—Hispanic Chamber of Commerce, Mark West Area Chamber of Commerce, 100 Black Men of Sonoma County, Rohnert Park Chamber of Commerce, Santa Rosa Chamber of Commerce, Sonoma Valley Chamber of Commerce, Windsor Chamber of Commerce

- **Visalia**—African American Chamber of Commerce, Central California Hispanic Chamber of Commerce, El Teatro de Terra Inc., Greater Tulare Chamber of Commerce, Hmong American Community Inc., Jan Yin g Association, Sociedad Morelos Mutualista, Tulare-Kings County Builders, Visalians Incorporated, Ying On Association and the Dinuba, Exeter, Fruit Groves Supply, Pixley & Sprayco Chambers of Commerce

- **Chico**—Chico Chamber of Commerce, Gridley Area Chamber of Commerce, Islamic Center Incorporated, Plumas Corporation, Quincy Chamber of Commerce, United Trade Bureau, Valley Contractor's Exchange

- **Redding**—Anderson Chamber of Commerce, Business and Professional Chamber of Commerce of McCloud, Dunsmuir, Weed, Cottonwood, Mt. Shasta, Yreka, and Greater Redding Chambers of Commerce, Superior California Economic Development District, United Trade Bureau

- **Sacramento**—California Black Chamber of Commerce, Greater Sacramento Urban League, Iranian-American Chamber of Commerce, Muslim Mosque Association of America, Sacramento Black Chamber of Commerce, Sacramento Hispanic Chamber of Commerce, Sacramento Metro Chamber of Commerce, Wong Family Benevolent Association

Public involvement in the CALFED process, including the multi-cultural outreach, is described in Chapter 10 in the Programmatic EIS/EIR. Chapter 7.14 in the Programmatic EIS/EIR describes the effects of the Preferred Program Alternative and the other Program alternatives on minority and low-income populations. The March

1998 Agricultural Resources, Urban Resources, and Recreation Resources Technical Reports also address this topic.

10.1.10 Project Public Information Line/Project Web Site

IA-10.1.10-1

The CALFED Program has invested several hundred thousands of dollars in public outreach, both to advertise the CALFED Program generally and to advertise public meetings, workshops, and hearings. CALFED policy makers have participated in editorial board meetings with local and regional newspapers throughout the state. For every meeting, not only public meetings, CALFED advertises in newspapers, radios, and newsletters of various local groups. In multi-cultural communities, CALFED advertises in Spanish and Asian language newspapers.

CALFED will continue to hold public meetings and workshops and participate in the activities of stakeholder groups. For example, the Program held a series of public workshops around the state prior to the release of the Final Programmatic EIS/EIR. CALFED contacted large and small newspapers and provided them with "template" articles on the CALFED Program.

Please refer to Chapter 10 in the Programmatic EIS/EIR for a perspective of past outreach efforts.

IA-10.1.10-2

An Executive Summary has been released that is part of the package of environmental documents for the Final Programmatic EIS/EIR. An Executive Summary also was included with the June 1999 Draft Programmatic EIS/EIR and totaled approximately 26 pages. In addition to the Final Programmatic EIS/EIR, 17 appendices (including the program plans) provide more information and detail of the various CALFED programs. Due to the large amount of information and number of issues being addressed, it is not possible to provide a summary of 10 pages or less. All information released by CALFED is made directly available to the public. Those who have previously contacted CALFED are maintained on a mailing list and will receive notification of the future release of documents, asking which documents they would like to receive. The notification will also tell individuals how to access the CALFED web site to obtain the same information.

IA-10.1.10-3

Prior to the release of the June 1999 Draft Programmatic EIS/EIR, individuals and organizations on all CALFED mailing lists were advised of the upcoming release and the availability of the documents in hard copy, on CD-ROM, and on the CALFED web site. Documents were mailed on the official release date to those who responded and requested documents. Those who did not respond were mailed a notice of release of documents and provided another opportunity to request documents. A notice of release and availability was also published in the Federal Register and in various newspapers throughout the state. Orders were filled as quickly as possible for individuals who requested documents after the release date. Due to the large size of the complete hard-copy set, the documents were shipped via United Parcel Service, which required several days for delivery. Copies of the documents also were made available at over 100 libraries around the state. Copies of the documents also were available at the CALFED office for individuals who walked in. The June 1999 Draft Programmatic EIS/EIR was available for comment on the date of release in June1999.

IA-10.1.10-4

Depending on the type and size of the computer system that individuals own and individual expertise in using systems, some individuals experienced difficulty in accessing and downloading information from the CALFED web site. CALFED is exploring opportunities to improve access to the documents on the web site. It should be noted that due to the very large size of several of the documents, options may be limited.

10.1.13 Public Comment Letters

IA-10.1.13-1

Once the CALFED agencies decided to prepare a new Draft EIS/EIR, the agencies determined that providing a formal response to the comments received on the March 1998 Draft Programmatic EIS/EIR would not be productive due to the substantial changes that would be made to the documents. There is no legal requirement to respond to comments once the decision has been made that a recirculation is needed. CALFED used the comments submitted on the March 1998 Draft Programmatic EIS/EIR to help develop the June 1999 Draft Programmatic EIS/EIR. The comments were not ignored, but no formal response was prepared because the document was going to be recirculated in a substantially different version. A full response to comments section is part of the Final Programmatic EIS/EIR.

IA-10.1.13-2

The public review period for the June 1999 Draft Programmatic EIS/EIR was 90 days, which exceeds the review time requirements under both the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). CALFED made the decision, allowed under both NEPA and CEQA, not to extend the public review period beyond this time. CALFED received very few requests for an extension of time for the public comment period. The public hearing schedule for the June 1999 Draft Programmatic EIS/EIR included 16 public hearings. More than 2,500 people attended these hearings, almost 800 people spoke at them, and nearly 10,000 oral and written comments were received about the June 1999 Draft Programmatic EIS/EIR.

IA-10.1.13-3

CALFED received over 10,000 comments. The sheer volume would have overwhelmed the capacity of any one computer to be able to accept the load that was arriving on a daily basis. The documents needed to be individually coded and then only the pertinent portions were sent to any specific CALFED section. It would have been highly inefficient to forward an entire document to over 20 different responders when, in most cases, only a limited number of pages applied to any one response area. CALFED used what it considered to be the most efficient method available.

10.1.15 Bromide Panel

IA-10.1.15-1

The complete report of the bromide expert panel is included in the Water Quality Program Plan as Appendix E.

10.1.18 BDAC Work Groups

IA-10.1.18-1

Comment noted. Text has been revised to state:

> "These discussions should focus on applying the principal of 'beneficiaries pay,' and of allocating Program costs or investments between the state and federal governments and all users of the Bay-Delta system."

Please see Chapter 5 in the Implementation Plan (Financing Plan) for more information about beneficiaries and finance options.

IA-10.1.18-2

The wording has been changed to reflect that this group was retired and is referred to in the past tense. Although the BDAC Water Use Efficiency Work Group is retired, other work groups have formed to focus on specific areas of water use efficiency. An urban water use efficiency group is established, and plans for a water recycling work group are underway. These groups are not BDAC work groups, but their meetings are open to the public.

IA-10.1.18-3

The full bromide panel report is contained in the Water Quality Program Plan. The Water Quality Program Plan provides information on how drinking water goals were established. This section of the document is used to identify BDAC advisory groups, not to provide information on the results of these work groups. Information on the results of specific panels or advisory groups is contained in appropriate Program plans or the appropriate resource sections in the Final Programmatic EIS/EIR.

IA-10.1.18-4

The wording has been changed to note that it is now the Governance Work Group. This section of the document is used to identify BDAC advisory groups, not to provide information on the results of these work groups. Further information on governance can be found in the Implementation Plan.

11. List of Preparers

No comments were received concerning Chapter 11 in the June 1999 Draft Programmatic EIS/EIR.

12. Bibliography

0. General Responses

IA-12-0-1

Section 4.1 in the Programmatic EIS/EIR describes the technical reports and how they were used in writing the document. Bibliographic information for the technical reports can be found within each of the respective technical reports. The technical reports themselves were not revised. For the June 1999 Draft Programmatic EIS/EIR, preparers verified the information found in the technical reports and used that information in the impact analyses. It is not necessary to reprise the bibliographic information contained in the technical reports in the bibliography for the Programmatic EIS/EIR.

13. Index

No comments were received concerning Chapter 13 in the June 1999 Draft Programmatic EIS/EIR.

A. Information about the No Action Alternative: Modeling Assumptions for Existing Conditions, the No Action Alternative, and the Program Alternatives; and Actions That May Contribute to Cumulative Impacts

A.3.1 Approach

IA-Att.A.3-1

This response has been consolidated with response IA-2.4-2. Please refer to this response for the answer to your comment.

A3.2 Modeling Tools

IA Att.A.3-2

Due to future uncertainties, each of the alternatives (including the No Action Alternative) was modeled with Criterion A and Criterion B. The Trinity River minimum fish flow ranged from 340 thousand acre-feet (TAF) based on the May 1991 letter agreement between the U.S. Bureau of Reclamation (Reclamation) and the U.S. Fish and Wildlife Service (USFWS) and flows in accordance with Reclamation's draft Central Valley Project Improvement Act (CVPIA) Programmatic Environmental Impact Statement (PEIS) (maximum flow requirement 750 TAF/year) . The CALFED agencies believe that it is appropriate to provide the decision makers this understanding. Since the 340 TAF/year minimum Trinity River flow is represented in the modeling, the CALFED agencies consider that California Environmental Quality Act/National Environmental Policy Act guidelines are satisfied. CALFED simply provided additional information to help understanding. Subsequent to the June 1999 Draft Programmatic Environmental Impact Statement/Environmental Impact Report (EIS/EIR), Reclamation completed its Trinity River flow evaluation study. The recommended flows in the flow evaluation study were slightly higher than those available to CALFED during the modeling. The recommended flows ranged from 369 TAF in critically dry water years to 815 TAF in extremely wet water years. In the CALFED modeling, flows were assumed to range from 340 to 754 TAF, depending on water-year type and water management criteria. CALFED has conducted an evaluation with the recommended numbers and concluded that the Trinity River Flow Evaluation flows do not alter conclusions drawn from the CALFED programmatic evaluation.

A.3.3 Modeling Assumptions

IA-Att.A.3-3

CALFED is considering a range of water demands. For the purpose of the analysis, CALFED assumed that the Program is fully implemented by 2020. For this programmatic analysis, there was no reason to consider water demands beyond 2020. The CALFED agencies believe that higher demands would not alter the conclusions drawn in the EIS/EIR. The California Department of Water Resources (DWR) modeling attempts to meet future Central Valley Project (CVP) and State Water Project (SWP) water demands, but modeled deliveries are highly variable depending on the year, and the demands are seldom fully met.

IA-Att.A.3-4

At present, a high level of uncertainty is associated with future environmental water requirements. Therefore, CALFED modeled a range of conditions with the CALFED alternatives and the No Action Alternative that could lead to lower or higher Delta exports. The Criterion A assumption set (see Attachment A to the Main Document) defines the highest environmental water requirements and lowest Delta exports considered in this analysis. These are not actual requirements, but are for the purpose of evaluating the various impacts for a range of operating conditions. For example, there is no requirement for measure of net flow in the lower San Joaquin River and other smaller Delta channels (QWEST) in the CALFED Program. QWEST was simply used as one component of a set of operating conditions to simulate higher environmental water requirements. CALFED is continuing work on the Water Management Strategy that seeks to improve water supply reliability for all water users, including the environment. The continued work on the Environmental Water Account (EWA) will provide fisheries protection and recovery while providing ancillary benefits for water quality and water supply reliability to help achieve CALFED's overall water management goals. The EWA is based on the concept that flexible management of water could achieve fishery and ecosystem benefits more efficiently than a completely prescriptive regulatory approach. By managing EWA "assets" on a real-time basis, the overall cost of environmental protection can be lower than under a purely prescriptive approach. Real-time management would help to attain water supply reliability objectives and better balance water supply for all water users.

IA-Att. A.3-5

This response has been consolidated with response PH2 3.6.6-69. Please refer to this response for the answer to your comment.

IA-Att. A.3-6

Early in the process, CALFED estimated that a flow of 60,000 cubic feet per second (cfs) may be necessary, but work is continuing to define operational guidance for diversions. No modeling with this daily flow has been conducted, since the DWR system operational model (DWRSIM) is a monthly model. CALFED has been working to better define river flows necessary to maintain river processes (fluvial geomorphology). The DWRSIM modeling considered a range of river flow limits (up to 20,000 cfs monthly) before diversion to storage can be made. The modeled range is for evaluation purposes, and no such flow decisions have been made.

IA-Att. A.3-7

Although the historical pattern of natural streamflows can be used as a guideline for establishing streamflow targets, the actual management of flows for each tributary or river segment will require coordination with all agencies and stakeholders. Conflicting interests and priorities will most likely be the rule rather than the exception. Streamflow targets will be developed within the existing multi-purpose water resource management framework for each watershed. Volume 2 of the Ecosystem Restoration Program provides a description of each ecological management zone, including information about flow patterns. Based on information for each zone, CALFED developed restoration targets and programmatic actions, including target flows (see Volume 2 of the Ecosystem Restoration Program).

To fully describe potential consequences of Program actions, CALFED has incorporated a reasonable range of uncertainty into this programmatic analysis. This range of uncertainty was quantified by formulating two distinct "bookend" water management criteria assumption sets. These two sets of assumptions, referred to as Criteria A and B, serve as boundaries for a range of possible Delta inflow, export, and outflow patterns in this programmatic analysis. The primary assumptions that differentiate the bookend assumption sets from each other and from

existing conditions are Bay-Delta system water demands and various Delta management criteria that regulate system operations. The specific assumptions in Criterion A and Criterion B are not requirements or proposals for implementation, nor are the assumptions intended to imply the outcome of future project-specific decisions. The assumptions for diversions associated with the diversion facility on the Sacramento River and diversions associated with the isolated facility were developed to provide the reasonable range of uncertainty.

IA-Att.A.3-8

This response has been consolidated with response IA-Att.A.3-7. Please refer to this response for the answer to your comment.

IA-Att.A.3-9

This response has been consolidated with response IA-Att.A.3-7. Please refer to this response for the answer to your comment.

IA-Att.A.3-10

This response has been consolidated with response IA-Att.A.3-7. Please refer to this response for the answer to your comment.

IA-Att.A.3-11

This response has been consolidated with response IA-5.1.4-12. Please refer to this response for the answer to your comment.

IA-Att.A.3-12

This response has been consolidated with response PH2 3.6.1-13. Please refer to this response for the answer to your comment.

IA-Att. A.3-13

The assumptions listed for "Storage Filling and Discharge Priorities" in Section A.3.3 in Attachment A to the Main Document are intended for new storage and not reoperated existing storage. The text on the assumption begins, "Filling of and discharging from new storage will be made with the following priorities...".

IA-Att. A.3-14

This response has been consolidated with response IA-Att.A-3-31. Please refer to this response for the answer to your comment.

IA-Att. A.3-15

This response has been consolidated with responses IA-2.2-2 and IA-Att.A-3-31. Please refer to these responses for the answer to your comment.

IA-Att. A.3-16

This response has been consolidated with response IA-5.1.4-1. Please refer to this response for the answer to your comment.

IA-Att. A.3-17

This response has been consolidated with response IA-5.1.4-1. Please refer to this response for the answer to your comment.

IA-Att. A-3-18

The "reduced demand" alternative does equate with reduced pumping from the Delta.

IA-Att. A-3-19

The reference has been corrected.

IA-Att. A-3-20

This omission has been added.

IA-Att. A-3-21

This response has been consolidated with response IA-5.1.4-3. Please refer to this response for the answer to your comment.

IA-Att. A-3-22

The name has been corrected.

IA-Att. A-3-23

The Ecosystem Restoration Program and its associated flow is a common program included in all alternatives. Therefore, the Ecosystem Restoration Program flows need to be a part of all model runs. Criterion A and Criterion B include potential conditions outside the CALFED Program actions that could alter how the alternatives perform. The purpose of Criterion A and Criterion B is to provide a modeling range to help evaluate how uncertainty could affect the alternatives, not to add or subtract actions from the alternatives. For example, Criterion B includes operation to meet the State Water Resources Control Board (SWRCB) May 1995 Water Quality Control Plan (WQCP) with CVPIA (b)(2) Delta actions; Criterion A adds additional prescriptive Delta actions. These are not CALFED actions but help to evaluate how the CALFED alternatives would perform under varying conditions. In addition, page A-25 in Attachment A to the June 1999 Draft Programmatic EIS/EIR shows assumptions for modeling the 15,000-cfs isolated facility. Paragraph 3-I correctly shows that the maximum isolated facility diversion is 5,000 cfs in May. Paragraph 3-iv refers to the minimum through-Delta conveyance, not the amount of the isolated facility diversion. This assumption shows that at least 1,000 cfs through-Delta flow is required for October through March and for July through September. Paragraph 3-iv also states that "there is no diversion from April to June." What was actually intended was that "there is no minimum through-Delta conveyance in the April to June period". This has been clarified in Attachment A.

IA-Att. A-3-24

While the 1995 WQCP allows exports in excess of 3,000 cfs, CALFED also is using the CVPIA (b)(2) Delta actions, which are more stringent. The wheeling of up to 128 TAF of Cross Valley Contractors water for the CVP by the SWP was not included in existing conditions since it was a short-term agreement with no obligation to continue. The SWRCB is treating the wheeling as part of the Joint Point of Diversion, which is included in the CALFED alternatives.

IA-Att. A-3-25

CALFED incorporates elements of both the SWRCB May 1995 WQCP and the CVPIA Delta (b)(2) actions into the system operations modeling, with the CVPIA (b)(2) actions taking precedence over 1995 WQCP requirements. Under the CALFED modeling, all the 1995 WQCP requirements are met, except the Vernalis flow objectives, which are modified to reflect the Vernalis Adaptive Management Plan (VAMP) requirements under CVPIA Delta Action 1. VAMP establishes minimum San Joaquin River pulse flow requirements at Vernalis between 2,000 and 7,000 cfs, depending on water-year type. These flow requirements at Vernalis are maintained primarily by releasing additional water from New Melones and supplemental water (up to 110 TAF) from the San Joaquin River Group. No additional Vernalis flow objectives are established beyond the pulse-flow period. The water quality objectives on the San Joaquin River at Vernalis are 0.7 mS/cm in April through August and 1.0 mS/cm electrical conductivity in other months. However, under the VAMP, the salinity requirements may be violated when New Melones drops to minimum storage. Under the 1995 WQCP, Vernalis minimum flows are maintained at 710 to 3,420 cfs from February 1 through June 30 and 3,110 to 8,620 cfs for the pulse-flow period, depending on water-year type. For the month of October, the minimum flow requirement at Vernalis is 1,000 cfs in all years PLUS a 28-TAF pulse flow. Additional water is provided from the San Joaquin River upstream of its confluence with the Stanislaus, if necessary, to meet salinity and pulse-flow objectives at Vernalis. Additional water requirements are shared equally between the Tuolumne (Don Pedro Reservoir) and Merced (Lake McClure) River basins. If these sources are insufficient to meet objectives at Vernalis, nominal deficiencies are applied to upstream demands.

IA-Att.A-3-26

This response has been consolidated with response IA-5.1-181. Please refer to this response for the answer to your comment.

IA-Att.A-3-27

This response has been consolidated with response IA-5.1-181. Please refer to this response for the answer to your comment.

IA-Att.A-3-28

This response has been consolidated with response IA-5.1-181. Please refer to this response for the answer to your comment.

IA-Att. A-3-29

The purpose of the writeup on existing conditions is to show the existing conditions, not necessarily provide the history leading to those conditions. However, the Phase II Report does provide some of that historical perspective. The May 1995 WQCP contained water quality and flow objectives pertaining to the San Joaquin River basin. In an effort to refine the science for the flow objective, the San Joaquin River interests collaborated

to identify feasible actions that would protect the river's fish resources and implement the SWRCB's flow objectives. While the existing VAMP may currently be a short-term program, CALFED assumes that a longer term VAMP will be continued. The CALFED modeling assumed that the VAMP would be met, in terms of flow at Vernalis.

IA-Att. A-3-30

This response has been consolidated with response IA-Att.A-3-25. Please refer to this response for the answer to your comment.

IA-Att. A-3-31

CVPIA(b)(2) water and refuge water supplies were provisions of the CVPIA that were to be implemented "upon enactment" of the Act in 1992. Therefore, both were "existing conditions" for CALFED. CALFED acknowledges that the 340-TAF annual Trinity flow was based on the May 1991 letter agreement between Reclamation and the USFWS, and on Section 3406(b)(23) of the CVPIA. The CVPIA required the 340 TAF of Trinity flows until the Trinity River Flow Evaluation Study is complete. The flow evaluation study was not completed when CALFED began; therefore, the 340 TAF was used for existing conditions. Also, see modeling assumptions in Attachment A in the Main Document.

IA-Att. A-3-32

Please see response IPF-5.4.1-4. It is not policy to meet future increases in demand only with demand management options. The discussion of the assumptions under Criterion A (see Sections A.3.2 and A.3.3 in Attachment A to the Main Document) is one end of a range of conditions to evaluate potential uncertainty. At present, a high level of uncertainty is also associated with future environmental water requirements. Therefore, CALFED modeled a range of conditions with the CALFED alternatives and the No Action Alternative that could lead to lower or higher Delta exports. The Criterion A assumption set (see Attachment A) defines the highest environmental water requirements and lowest Delta exports considered in this analysis. These are not actual requirements, but are for the purpose of evaluating the various impacts for a range of operating conditions. For example, there is no requirement for QWEST in the CALFED Program. QWEST simply was used as one component of a set of operating conditions to simulate higher environmental water requirements. CALFED is continuing work on the Water Management Strategy that seeks to improve water supply reliability for all water users, including the environment. The continued work on the EWA will provide fisheries protection and recovery while providing ancillary benefits for water quality and water supply reliability, to help achieve CALFED's overall water management goals. The EWA is based on the concept that flexible management of water could achieve fishery and ecosystem benefits more efficiently than a completely prescriptive regulatory approach. By managing EWA "assets" on a real-time basis, the overall cost of environmental protection can be lower than under a purely prescriptive approach. Real-time management would help to attain water supply reliability objectives for other water users.

IA Att. A-33

Attachment A has been updated.

IA-Att.A-3-34

The alternatives presented in the Programmatic EIS/EIR present a broad range of potential impacts. The 1,000-cfs minimum through-Delta flow was used as a reasonable minimum for modeling purposes. All the flow moving to

the south Delta pumps in Alternatives 1 and 2 and the Preferred Program Alternative uses through-Delta conveyance. The Preferred Program Alternative does not include an isolated facility. If an isolated facility is ever given further consideration, the amount of through-Delta flow would need additional evaluation.

IA-Att.A-3-35

The CALFED agencies disagree that the operational range represented by Criterion A and Criterion B is too large for the programmatic impact analysis. Criteria A and B are not proposed operating scenarios but are used in the analysis to encompass a wide range of variables because future environmental conditions are uncertain. Also see response IA-5.1.4-11.

A.5 Actions That May Contribute to Cumulative Impacts

IA-Att. A.5-1

The proposed North Delta NWR will help to meet the objectives of the Preferred Program Alternative's Ecosystem Restoration Program. As such, environmental consequences of the action were analyzed in the Programmatic EIS/EIR.

IA-Att. A-5-2

The changes have been made.

B. The CALFED Program Decision

B.1 Overview

IA-Att. B-1

Attachment B has been deleted from the Final Programmatic EIS/EIR. The proposed changes are not precluded by the existing language. However, the level of specificity being sought will need to be developed with the help of all stakeholders' negotiated language.

IA-Att. B-2

Attachment B has been deleted from the Final Programmatic EIS/EIR. The concept of adaptive management applies to all the Program elements making up the Preferred Program Alternative. This approach will be applied wherever and whenever there is a need to adapt actions to meet the Program's integrated, interrelated, and comprehensive objectives. Adaptive management is expected to play a significant role in the implementation of the Water Use Efficiency Program.