

Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

December 13, 2006



Water Boards
STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Division of Water Rights
December 2006



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STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

WATER QUALITY CONTROL PLAN
FOR THE
**SAN FRANCISCO BAY/
SACRAMENTO-SAN JOAQUIN
DELTA ESTUARY**

DECEMBER 13, 2006

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ACKNOWLEDGEMENTS

We wish to acknowledge the following people and organizations for their contribution to this report:

- Barbara Leidigh in the Office of Chief Counsel, for providing the legal support and editing
- Linda Valin and Jeanice Tipps in the Division of Water Rights, for editing, typing, and formatting the documents
- Sharon Norton, Maria Bozionelos, Chris Whittington, and Dale Oliver in the Division of Water Rights Graphics Unit, for the graphics, maps and charts
- Numerous interested parties that have provided suggestions and input on draft documents

**STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 2006 - 0098**

**ADOPTION OF THE AMENDED WATER QUALITY CONTROL PLAN FOR THE
SAN FRANCISCO BAY/SACRAMENTO-SAN JOAQUIN DELTA ESTUARY**

WHEREAS:

1. The State Water Resources Control Board (State Water Board) is responsible for the regulation of activities and factors that may affect the quality of the waters of the state. (Wat. Code, §§ 13000, 13001.)
2. The State Water Board has undertaken a proceeding under its water quality authority to amend the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan) adopted in 1978 and amended in 1991 and in 1995.
3. The State Water Board commenced this proceeding on September 29, 2006 by issuing a notice of public hearing for Consideration of an Amended Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, to commence on November 13, 2006. The draft amended Bay-Delta Plan and accompanying appendices, including environmental documentation, accompanied the Notice of Public Hearing.
4. Prior to commencing this proceeding, the State Water Board conducted a series of workshops in 2004 and 2005 to receive information on specific topics addressed in the Bay-Delta Plan. The State Water Board sent notice of all workshops to all parties who indicated an interest in receiving notice.
5. The amended Bay-Delta Plan consists of four volumes, including the Plan, Appendix 1 (Plan Amendment Report), Appendix 2 (Referenced Documents), and Appendix 3 (Response to Comments).
6. The amended Bay-Delta Plan was prepared under a program certified at California Code of Regulations, title 14, section 15251(g) as meeting the requirements of Public Resources Code section 21080.5. Accordingly, the amended Bay-Delta Plan with its appendices constitutes adequate environmental analysis to satisfy the requirements of the California Environmental Quality Act (CEQA) at Public Resources Code section 21000, et seq.
7. The State Water Board has considered all of the oral and written comments that were submitted and, in accordance with the State Water Board's regulations (Cal. Code Regs., tit. 23, § 3779), has prepared responses to the comments containing significant environmental points as well as responding to some other comments. The Plan and Appendix 1 of the Plan have been revised in response to the comments received from the interested parties, and Appendix 3 of the Plan has been added to respond to the comments.
8. The Bay-Delta Plan supplements the other water quality control plans that cover the Bay-Delta Estuary. Together they include all necessary elements of water quality control plans in accordance with Water Code sections 13241 and 13242 and federal requirements.

9. The Bay-Delta Plan will be reviewed periodically in compliance with Water Code section 13240 and federal Clean Water Act section 303(c) (33 U.S.C., § 1313(c).).
10. The amended Bay-Delta Plan will become effective after it is approved by the Office of Administrative Law (OAL). The water quality standards (as defined under the federal Clean Water Act) in the Plan also will be submitted to the U. S. Environmental Protection Agency (U.S. EPA) in accordance with the federal Clean Water Act (33 U.S.C., § 1251, et seq.). To the extent that any water quality standards, as defined, are amended, those standards would require U.S. EPA approval before the amended versions go into effect. In the view of the State Water Board, however, there are no substantive amendments to any water quality standards in the amended Bay-Delta Plan. Other portions of the Bay-Delta Plan, such as the program of implementation, are to be submitted to U.S. EPA as part of the continuing planning process, but do not require approval. The State Water Board does not concede that it is required under the federal Clean Water Act to submit all parts of this Plan to the U.S. EPA for approval. In the view of the State Water Board, the objectives for flow and operations are not subject to U.S. EPA approval, and are provided to U.S. EPA for its consideration as a matter of state/federal comity.

THEREFORE BE IT RESOLVED THAT THE STATE WATER BOARD:

1. Adopts the amended Bay-Delta Plan in accordance with Water Code section 13170, including Appendices 1, 2, and 3.
2. Authorizes the State Water Board staff to submit the amended Bay-Delta Plan to OAL and to U.S. EPA.

CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on December 13, 2006.

AYE: Tam M. Doduc
Arthur G. Baggett, Jr.
Charles R. Hoppin
Gary Wolff, P.E., Ph.D.

NO: None

ABSENT: None

ABSTAIN: None



Song Her
Clerk to the Board

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- Appendix 2: Referenced Documents, Appendix 2 to the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (bound separately)
- Appendix 3: Response to Comments, Appendix 3 to the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (bound separately)

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ACRONYMS AND ABBREVIATIONS

AFRP	Anadromous Fish Restoration Program
Board	State Water Resources Control Board
BOD	Biochemical Oxygen Demand
BPA	Basin Plan Amendment
CALFED	aka California Bay Delta Authority
CALFED OPS	CALFED Water Operations Management Team
CBDA	California Bay Delta Authority
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
DBP	Disinfection by-product
DCC	Delta Cross Channel
DFG	California Department of Fish and Game
DO	Dissolved Oxygen
DWR	California Department of Water Resources
DWSC	Deep Water Ship Channel
EC	electrical conductivity
EMP	Environmental Monitoring Program
IEP	Interagency Ecological Program
MAF	million acre-feet
mg/L	milligram(s) per liter
mmhos/cm	millimhos per centimeter
NDOI	Net Delta Outflow Index
NOAA Fisheries	National Marine Fisheries Service
POD	Pelagic Organism Decline
ppt	parts per thousand
Regional Water Board	Regional Water Quality Control Board
ROD	Record of Decision
SDIP	South Delta Improvements Program
SDWA	South Delta Water Agency
SFSU	San Francisco State University
SJRA	San Joaquin River Agreement
SJRGA	San Joaquin River Group Authority
SLDMWA	San Luis Delta-Mendota Water Authority
SMCG	Suisun Marsh Charter Group
SMPA	Suisun Marsh Preservation Agreement
SMSCP	Suisun Marsh Salinity Control Project
SRCD	Suisun Resource Conservation District
SWC	State Water Contractors
SWP	State Water Project
State Water Board	State Water Resources Control Board
TAF	thousand acre-feet
TMDL	Total Maximum Daily Load

UC DAVIS	University of California Davis
UDWA	Urban Drinking Water Agency
USBR	United States Bureau of Reclamation
USCOE	United States Army Corps of Engineers
USDOI	United States Department of the Interior
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VAMP	Vernalis Adaptive Management Plan
WQCP	Water Quality Control Plan

References within the text use the above acronyms and abbreviations.

BAY-DELTA PLAN

Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

Chapter I. Introduction

A. Background

The San Francisco Bay/Sacramento-San Joaquin River Delta Estuary (Bay-Delta Estuary or Estuary) (Figure 1) is important to the natural environment and economy of California. The watershed of the Bay-Delta Estuary provides drinking water to two-thirds of the State's population and water for a multitude of other urban uses, and it supplies some of the State's most productive agricultural areas, both inside and outside of the Estuary. The Bay-Delta Estuary itself is one of the largest ecosystems for fish and wildlife habitat and production in the United States. Historical and current human activities (e.g., water development, land use, wastewater discharges, introduced species, and harvesting), exacerbated by variations in natural conditions, have degraded the beneficial uses of the Bay-Delta Estuary, as evidenced by the declines in populations of many biological resources of the Estuary. Most recently, populations of Delta smelt and other pelagic organisms have exhibited significant declines, leading to investigations as to the possible causes of the degradation of the health of the Delta.

The State Water Resources Control Board (State Water Board) has previously adopted water quality control plans and policies to protect the water quality and to control the water resources that affect the beneficial uses of the Bay-Delta Estuary. These plans and policies were adopted consistent with section 13000 et seq. of the California Water Code and pursuant to the authority contained in section 13170. This plan supersedes the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary adopted in May 1995 (1995 Bay-Delta Plan or 1995 Plan) as well as the preceding plans that the 1995 Plan superseded. The State Water Board periodically will review this plan pursuant to Water Code section 13240 to ensure that it provides reasonable protection for the designated beneficial uses.¹ The State Water Board's measures to implement this plan will consist of the regulation of existing water rights, regulatory measures to protect water quality, and recommendations to other entities.

Appendix 1 of this plan, titled "Plan Amendment Report," explains the State Water Board's considerations in developing this Water Quality Control Plan. Appendix 1 provides the reasoning for any changes to the 1995 Plan, as well the environmental

¹ The federal Clean Water Act, at section 303 (c), also requires a review of federal "standards," as defined in the Act, contained in state water quality control plans. (33 U.S.C. § 1313 (c).) The review under section 13240 ordinarily is combined with a review of any federal standards in a state water quality control plan.

**FIGURE 1
BAY-DELTA ESTUARY**



analysis for those changes. Documents used to develop this amendment of the 1995 Plan are listed in Appendix 2, titled “Referenced Documents”. Appendix 3, titled “Responses to Comments,” contains the State Water Board’s responses to comments received in conjunction with the public hearing held to solicit feedback on this plan.

B. Purpose and Applicability

This plan establishes water quality objectives for which implementation can be fully accomplished only if the State Water Board assigns some measure of responsibility to water right holders and water users to mitigate for the effects on the designated beneficial uses of their diversions and use of water. Like all water quality control plans, this plan consists of: (1) beneficial uses to be protected; (2) water quality objectives for the reasonable protection of beneficial uses; and (3) a program of implementation for achieving the water quality objectives. Together, the beneficial uses and the water quality objectives established to reasonably protect the beneficial uses are called water quality standards under the terminology of the federal Clean Water Act.

For the geographic area of the Bay-Delta Estuary, this plan is complementary to the other water quality control plans adopted by the State and Regional Water Quality Control Boards (Regional Water Boards) and State policies for water quality control adopted by the State Water Board. This plan provides reasonable protection for the Estuary’s beneficial uses that require control of salinity (caused by saltwater intrusion, municipal discharges, and agricultural drainage) and water project operations (flows and diversions). This plan supersedes the regional water quality control plans to the extent of any conflict between this plan and the regional water quality control plans. The other plans and policies establish water quality objectives and requirements for parameters such as toxic chemicals, bacterial contamination, and other parameters which have the potential to impair beneficial uses or cause nuisance.

Most of the objectives in this plan are being implemented by assigning responsibilities to water right holders because the parameters to be controlled are primarily impacted by flows and diversions. This plan, however, is not to be construed as establishing the responsibilities of water right holders. Nor is this plan to be construed as establishing the quantities of water that any particular water right holder or group of water right holders may be required to release or forego to meet the objectives in this plan. The State Water Board will consider, in a future water rights proceeding or proceedings, the nature and extent of water right holders’ responsibilities to meet these objectives. If necessary after a water rights proceeding, this plan will be amended to reflect any changes that may be needed to ensure consistency between the plan and the water right decision.

C. Legal Authority

The State Water Board has prepared this Water Quality Control Plan under the Porter-Cologne Water Quality Control Act. The Regional Water Boards have primary responsibility for formulating and adopting water quality control plans for their respective regions (Wat. Code § 13240), but the State Water Board also is authorized, under Water Code section 13170, to adopt water quality control plans in accordance with the provisions of section 13240 *et seq*². When the State Water Board adopts a water quality control plan, it supersedes regional water quality control plans for the same waters to the extent of any conflict. (Wat. Code § 13170.)

This plan includes an environmental report prepared in compliance with Public Resources Code section 21080.5. The Secretary for Resources has certified the State Water Board's basin planning program as meeting the requirements of Public Resources Code section 21080.5. (Cal. Code Regs. tit. 14, § 15251(g).) Section 21080.5 authorizes state agencies acting under a certified program to assess the environmental effects of their actions within the decision-making document instead of in a separate environmental impact report or negative declaration.

a. Program of Implementation. A program of implementation for achieving water quality objectives shall include, but not be limited to: (1) a description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private; (2) a time schedule for the actions to be taken; and (3) a description of surveillance to be undertaken to determine compliance with the objectives. (Wat. Code, § 13242.)

b. U.S. Environmental Protection Agency Approval of This Plan. After adopting this Water Quality Control Plan, the State Water Board will submit this plan to the U.S. Environmental Protection Agency (USEPA) for approval under the federal Clean Water Act. (33 U.S.C. section 1251 *et seq*.) To the extent that this plan addresses matters outside the scope of the Clean Water Act, this plan will be provided to the USEPA for its consideration as a matter of State/federal comity. The State Water Board does not concede that it is required under the Clean Water Act to submit all parts of this plan to the USEPA. Assuming the USEPA has authority under the Clean Water Act to approve the objectives for flow and operations, the State Water Board believes that the USEPA could not adopt standards for these parameters under the Clean Water Act.³ If the USEPA attempted to adopt such standards, it could fundamentally interfere with the State's water allocation authority under section 101(g) of the Clean Water Act.⁴

² The State Water Board also has authority to adopt State policy for water quality control under Water Code section 13140.

³ The State Water Board reserves its arguments regarding the USEPA's authority to adopt standards for flow and operations, including standards for salinity intrusion. The State Water Board's legal comments regarding the USEPA's authority are set forth in the State Water Board's comments on the USEPA's January 6, 1994 draft standards, which were provided to the USEPA on March 11, 1994.

⁴ The Supreme Court, in *PUD No. 1 of Jefferson County v. Washington Dep't of Ecology* (1994) 114 S.Ct. 1900, upheld a state's ability to impose an instream flow requirement under Clean Water Act section 401 to protect fish habitat which had been designated as a beneficial use in a water quality standard under Clean Water Act section 303. In reaching this result, the

D. Emerging Issues

This Water Quality Control Plan is primarily a planning document that serves to identify the water quality objectives and the beneficial uses to be protected. At the time of this 2006 update to the Plan there are a number of emerging issues that this Plan either does not currently regulate or may not fully regulate because circumstances and scientific knowledge are changing. Those emerging issues are identified here. In addition to the activities described in the *Program of Implementation Chapter*, the State Water Board will immediately begin a process to evaluate and prioritize water quality control planning activities to address the following emerging issues:

1. Pelagic Organism Decline (POD)
2. Climate Change
3. Delta and Central Valley Salinity
4. San Joaquin River Flows

The State Water Board will conduct these planning activities in conjunction with the Delta Vision Process to develop a sustainable use and protection plan for the Delta, Suisun Bay, and Suisun Marsh. The Delta Vision Process, an interagency effort and outgrowth of the Little Hoover Commission's review of CALFED, was just commencing at the time of this Bay-Delta Plan update. Consistent with this process, the State Water Board recognizes that planning for and management of the Delta's multiple uses, resources, and ecosystem should occur in cooperation with elected officials, government agencies, stakeholders, academia, and affected Delta and California communities.

1. Pelagic Organism Decline

There is a marked decline in numerous pelagic fishes in the Sacramento-San Joaquin Delta Estuary and Suisun Bay. Currently, the Interagency Ecological Program (IEP), through its POD work team, is conducting studies to evaluate the potential causes of these declines. Some of the possible causes that are being considered include invasive species, water project operations, and toxins. The results of the POD studies will be available in 2007. At that time, the State Water Board will review the study results and may amend portions of this Plan to improve habitat conditions in the Estuary.

2. Climate Change

A growing body of information suggests that climate change could result in: (1) sea level rise that would adversely impact levees, water quality, and conveyance of water supplies through the Delta; (2) decreased snowmelt in the Sierra Nevada that

Supreme Court rejected arguments based on Clean Water Act section 101(g) that water quantities could not be regulated under the Clean Water Act. The Supreme Court pointed out that insufficient flows can cause water quality violations, and that reduced habitat caused by low flows may constitute pollution. The Court's narrow interpretation of section 101(g) allows regulation of water users by a state to prevent their having an adverse effect on water quality, but does not go so far as to allow a fundamental interference by the USEPA with a state's water allocation authority.

would reduce effectiveness of existing water storage facilities; (3) increased rainfall that could exacerbate flooding; and (4) adverse biological effects from changes in flow and water quality. Water quality control planning must begin to address these possible effects. Future State Water Board activities therefore should be responsive to the impacts of climate change and provide timely response and guidance to water resources agencies, consistent with the Water Quality Control Plan, as they submit plans and requests to process applications for water conveyance facilities and flow control structures such as the current South Delta Improvements Project or potential future conveyance structures such as a Delta peripheral canal.

3. Delta and Central Valley Salinity

A joint State and Regional Board Workshop on Central Valley salinity issues held in January 2006 resulted in broad stakeholder support for development of a Salinity Management Plan for the Central Valley and Delta (Salinity Management Plan) to protect beneficial uses of both surface waters and ground waters. Development and full implementation of the Salinity Management Plan is expected to take 40 to 50 years and to reduce economic hardship related to managing salinity. The State Water Board will develop regulations and provide regulatory encouragement to ensure that infrastructure is developed that improves and maintains Central Valley and Delta salinity while providing certainty to local and regional planners, municipalities, agriculture, water suppliers, food processors, and others.

The State Water Board will continue to coordinate updates of the Bay-Delta Plan with on-going development of this comprehensive Salinity Management Plan. As part of this larger planning effort, the State Water Board has issued a public notice of a workshop to be held in January 2007 to review: (1) the salinity requirements of the beneficial uses of water in the southern Delta; (2) the causes of salt loading in the southern Delta; (3) practices that could reduce salt loading from Delta sources; (4) flow and salt load reduction measures to implement the salinity objectives; and (5) the timeline for implementation of these measures. The State Water Board intends to develop and manage a study of salinity in the southern Delta as part of this effort. This process could result in amendments to the Bay-Delta Plan, further changes in water rights, or changes in both the Bay-Delta Plan and water rights.

4. San Joaquin River Flows

Data submitted by fisheries agencies suggest that various fish species within the Delta and San Joaquin River basin have not shown significant signs of recovery since adoption of the San Joaquin River Spring Flow and Pulse Flow objectives in the 1995 Plan and the implementation of the Spring Flow objectives in D-1641. Some species have shown significant declines. The San Joaquin River flow objectives are not changed in the 2006 Plan due to a lack of scientific information on which to base any changes.⁵ While the Department of Fish and Game (DFG)

⁵ The Program of Implementation for the Pulse Flow Objectives is amended in the 2006 Plan to allow for staged implementation of the objectives by conducting the Vernalis Adaptive Management Plan (VAMP) until 2011. These changes are consistent with the current implementation of the objectives since 2000 pursuant to D-1641.

recommended changes to the objectives, those recommendations were based on modeling that had not yet been completed. In addition, other parties also recommended changes to the objectives that were not substantiated by sufficient scientific information. In recognition of the species recovery concerns within the San Joaquin River basin and the Delta, the State Water Board will schedule a workshop after revisions are completed to DFG's San Joaquin River salmon escapement model in response to peer review (anticipated for summer of 2007) to receive additional information concerning the model and its findings and other scientific information concerning the San Joaquin River flow objectives. The State Water Board may receive additional information concerning implementation of the objectives in response to concerns raised by the Department of Interior (DOI) and others. Based on information received during the workshop, the State Water Board may amend the Bay-Delta Plan objectives, the Program of Implementation for those objectives, and/or make changes in water rights. If adequate information is not available to support changes to the objectives, the State Water Board may direct the completion of additional studies and analyses.

In response to concerns raised by DFG and others concerning the interim San Joaquin River Pulse Flow objectives being implemented as part of the Vernalis Adaptive Management Plan (VAMP) experiments, prior to the workshop, the State Water Board recommends that parties to the San Joaquin River Agreement (SJRA) conduct a peer review of the VAMP study design. The State Water Board requests that the peer review analyze whether the experimental flows are providing adequate protection for San Joaquin River and Delta species and whether changes should be made to the experimental design to ensure that adequate information is obtained from the experiment on which to base long term objectives. The State Water Board requests that the parties to the SJRA present the findings of the peer review to the State Water Board during its workshop.

Chapter II. Beneficial Uses

A water quality control plan must establish beneficial uses. (Wat. Code § 13050(j).) Beneficial uses serve as a basis for establishing water quality objectives. The beneficial uses to be protected were established in the 1978 Delta Plan and the 1991 Bay-Delta Plan. Since all of the beneficial uses exist and there were no requests for changes in the beneficial uses, these uses are carried over in this plan from earlier plans, including the 1995 Plan. The beneficial uses protected by this plan are presented below.

Municipal and Domestic Supply (MUN) – Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.

Industrial Service Supply (IND) – Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.

Industrial Process Supply (PRO) – Uses of water for industrial activities that depend primarily on water quality.

Agricultural Supply (AGR) – Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.

Ground Water Recharge (GWR) – Uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.

Navigation (NAV) – Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.

Water Contact Recreation (REC-1) – Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.

Non-Contact Water Recreation (REC-2) – Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion is reasonably possible. These include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

Shellfish Harvesting (SHELL) – Uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g. clams, oysters, and mussels) for human consumption, commercial or sports purposes.

Commercial and Sport Fishing (COMM) – Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.

Warm Freshwater Habitat (WARM) – Uses of water that support warm water ecosystems including, but not limited to, preservation of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Cold Freshwater Habitat (COLD) – Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancements of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Migration of Aquatic Organisms (MIGR) – Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.

Spawning, Reproduction, and/or Early Development (SPWN) – Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

Estuarine Habitat (EST) – Uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g. estuarine mammals, waterfowl, shorebirds).

Wildlife Habitat (WILD) – Uses of water that support estuarine ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

Rare, Threatened, or Endangered Species (RARE) – Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under State or federal law as being rare, threatened, or endangered.

Chapter III. Water Quality Objectives

A water quality control plan must contain such water quality objectives as are needed to ensure the reasonable protection of beneficial uses and the prevention of nuisance. (Wat. Code, § 13241.) The State Water Board must consider, in establishing water quality objectives:

- The past, present, and probable future beneficial uses of water;
- The environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto;
- The water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality in the area;
- Economic considerations;
- The need for developing housing within the region;
- The need to develop and use recycled water. (Wat. Code, § 13241.)

Flow and water project operations are within the scope of objectives that can be adopted in a water quality control plan under the Porter-Cologne Water Quality Control Act.

This chapter establishes water quality objectives which, in conjunction with the water quality objectives for the Bay-Delta Estuary that are included in other State Water Board adopted water quality control plans and in water quality control plans for the Central Valley and San Francisco Bay Basins, when implemented, will: (1) provide for reasonable protection of municipal, industrial, and agricultural beneficial uses; (2) provide reasonable protection of fish and wildlife beneficial uses at a level which stabilizes or enhances the conditions of aquatic resources; and (3) prevent nuisance. These water quality objectives are established to attain the highest quality of water that is reasonable, considering all the demands being made on waters in the Estuary.

The water quality objectives in this plan apply to waters of the San Francisco Bay system and the legal Sacramento-San Joaquin Delta, as specified in the objectives. Unless otherwise indicated, water quality objectives cited for a general area, such as for the southern Delta, are applicable for all locations in that general area and compliance locations will be used to determine compliance with the cited objectives. Tables 1, 2, and 3 contain the water quality objectives for the protection of municipal and industrial, agricultural, and fish and wildlife beneficial uses, respectively.

A. Water Quality Objectives for Municipal and Industrial Beneficial Uses

The water quality objectives in Table 1 provide reasonable protection of the beneficial uses MUN, IND, and PRO, from the effects of salinity intrusion. These municipal and industrial objectives also provide protection for the beneficial uses of REC-1, REC-2, and GWR. These objectives are unchanged from the 1995 Bay-Delta Plan.

B. Water Quality Objectives for Agricultural Beneficial Uses

The water quality objectives in Table 2 provide reasonable protection of the beneficial use AGR, from the effects of salinity intrusion and agricultural drainage in the western, interior, and southern Delta. These objectives are unchanged from the 1991 Bay-Delta Plan.

C. Water Quality Objectives for Fish and Wildlife Beneficial Uses

The water quality objectives in Table 3 provide reasonable protection of fish and wildlife beneficial uses in the Bay-Delta Estuary including EST, COLD, WARM, MIGR, SPWN, WILD, and RARE. Protection of these fish and wildlife beneficial uses also provides protection for the beneficial uses of SHELL, COMM, and NAV. The parameters to be regulated under Table 3 are dissolved oxygen, salinity (expressed as electrical conductivity), Delta outflow, river flows, export limits, and Delta Cross Channel gate operation. Information available in 1995 indicated that, unlike water quality objectives for parameters such as dissolved oxygen, temperature, and toxic chemicals, which have threshold levels beyond which adverse impacts to the beneficial uses occur, there were no defined threshold conditions that could be used to set objectives for flows and project operations. Instead, available information indicated that a continuum of protection exists. Based on that information, higher flows and lower exports provided greater protection for the bulk of estuarine resources up to the limit of unimpaired conditions. Therefore, these objectives were set based on a subjective determination of the reasonable needs of all the consumptive and nonconsumptive demands on the waters of the Estuary. After completion of the POD studies, the State Board will review the study results and may consider amending this Plan to improve water quality protections for fish and wildlife in the Estuary.

Table 1
Water Quality Objectives For Municipal and Industrial Beneficial Uses

COMPLIANCE LOCATIONS	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT)	WATER YEAR TYPE [2]	TIME PERIOD	VALUE
Contra Costa Canal at Pumping Plant #1 -or- San Joaquin River at Antioch Water Works Intake	C-5 (CHCCC06) D12 (near) (RSAN007)	Chloride (Cl)	Maximum mean daily 150 mg/L Cl for at least the number of days shown during the calendar year. Must be provided in intervals of not less than two weeks duration. (Percentage of calendar year shown in parenthesis)	W AN BN D C		No. of days each calendar year ≤150 mg/L Cl 240 (66%) 190 (52%) 175 (48%) 165 (45%) 155 (42%)
Contra Costa Canal at Pumping Plant #1 -and- West Canal at mouth of Clifton Court Forebay -and- Delta-Mendota Canal at Tracy Pumping Plant -and- Barker Slough at North Bay Aqueduct Intake -and- Cache Slough at City of Vallejo Intake [3]	C-5 (CHCCC06) C-9 (CHWST0) DMC-1 CHDMC004 --- (SLSAR3) C-19 (SLCCH16)	Chloride (Cl)	Maximum mean daily (mg/L)	All	Oct-Sep	250

Table 1 Footnotes:

- [1] River Kilometer Index station number.
- [2] The Sacramento Valley 40-30-30 water year hydrologic classification index (see Figure 2) applies for determinations of water year type.
- [3] Cache Slough objective to be effective only when water is being diverted from this location.

Table 2
Water Quality Objectives For Agricultural Beneficial Uses

COMPLIANCE LOCATIONS	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
WESTERN DELTA						
Sacramento River at Emmaton	D-22 (RSAC092)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC	EC from date shown to Aug 15 [4]
					April 1 to date shown	Aug 15
				W	Aug 15	----
				AN	Jul 1	0.63
				BN	Jun 20	1.14
				D	Jun 15	1.67
				C	----	2.78
San Joaquin River at Jersey Point	D-15 (RSAN018)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC	EC from date shown to Aug 15 [4]
					April 1 to date shown	Aug 15
				W	Aug 15	----
				AN	Aug 15	----
				BN	Jun 20	0.74
				D	Jun 15	1.35
				C	----	2.20
INTERIOR DELTA						
South Fork Mokelumne River at Terminous	C-13 (RSMKL08)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC	EC from date shown to Aug 15 [4]
					April 1 to date shown	Aug 15
				W	Aug 15	----
				AN	Aug 15	----
				BN	Aug 15	----
				D	Aug 15	----
				C	----	0.54
San Joaquin River at San Andreas Landing	C-4 (RSAN032)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC	EC from date shown to Aug 15 [4]
					April 1 to date shown	Aug 15
				W	Aug 15	----
				AN	Aug 15	----
				BN	Aug 15	----
				D	Jun 25	0.58
				C	----	0.87
SOUTHERN DELTA						
San Joaquin River at Airport Way Bridge, Vernalis	C-10 (RSAN112)	Electrical Conductivity (EC)	Maximum 30-day running average of mean daily EC (mmhos/cm)	All	Apr-Aug	0.7
						1.0
-and-						
San Joaquin River at Brandt Bridge site	C-6 (RSAN073)	Electrical Conductivity (EC)	Maximum 30-day running average of mean daily EC (mmhos/cm)	All	Apr-Aug	0.7
						1.0
-and-						
Old River near Middle River	C-8 (ROLD69)	Electrical Conductivity (EC)	Maximum 30-day running average of mean daily EC (mmhos/cm)	All	Apr-Aug	0.7
						1.0
-and-						
Old River at Tracy Road Bridge	P-12 (ROLD59)	Electrical Conductivity (EC)	Maximum 30-day running average of mean daily EC (mmhos/cm)	All	Apr-Aug	0.7
						1.0
EXPORT AREA						
West Canal at mouth of Clifton Court Forebay	C-9 (CHWST0)	Electrical Conductivity (EC)	Maximum monthly average of mean daily EC (mmhos/cm)	All	Oct-Sep	1.0
-and-						
Delta-Mendota Canal at Tracy Pumping Plant	DMC-1 (CHDMC004)	Electrical Conductivity (EC)	Maximum monthly average of mean daily EC (mmhos/cm)	All	Oct-Sep	1.0

Table 2 Footnotes:

- [1] River Kilometer Index station number.
- [2] Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. The averaging period commences with the first day of the time period for the applicable objective. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.
- [3] The Sacramento Valley 40-30-30 water year hydrologic classification index (see Figure 2) applies for determinations of water year type.
- [4] When no date is shown, EC limit continues from April 1.

Table 3
WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

COMPLIANCE LOCATIONS	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
DISSOLVED OXYGEN San Joaquin River between Turner Cut & Stockton	(RSAN050-RSAN061)	Dissolved Oxygen (DO)	Minimum DO (mg/L)	All	Sep-Nov	6.0
SALMON PROTECTION			narrative	Water quality conditions shall be maintained, together with other measures in the watershed, sufficient to achieve a doubling of natural production of chinook salmon from the average production of 1967-1991, consistent with the provisions of State and federal law.		
SAN JOAQUIN RIVER SALINITY San Joaquin River at and between Jersey Point and Prisoners Point [4]	D-15 (RSAN018) -and- D-29 (RSAN038)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC(mmhos/cm)	W,AN,BN, D	Apr-May	0.44 [5]
EASTERN SUISUN MARSH SALINITY[6] Sacramento River at Collinsville -and- Montezuma Slough at National Steel -and- Montezuma Slough near Beldon Landing	C-2 (RSAC081) S-64 (SLMZU25) S-49 (SLMZU11)	Electrical Conductivity (EC)	Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location	All	Oct Nov-Dec Jan Feb-Mar Apr-May	19.0 15.5 12.5 8.0 11.0
WESTERN SUISUN MARSH SALINITY[6] Chadbourne Slough at Sunrise Duck Club -and- Suisun Slough, 300 feet south of Volanti Slough -and- Cordelia Slough at Ibis Club -and- Goodyear Slough at Morrow Island Clubhouse -and- Water supply intakes for waterfowl management areas on Van Sickle and Chipps islands	S-21 (SLCBN1) S-42 (SLSUS12) S-97 (SLCRD06) S-35 (SLGYR03) No locations specified	Electrical Conductivity (EC)	Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location	All but deficiency period Deficiency period [7]	Oct Nov Dec Jan Feb-Mar Apr-May Oct Nov Dec-Mar Apr May	19.0 16.5 15.5 12.5 8.0 11.0 19.0 16.5 15.6 14.0 12.5
BRACKISH TIDAL MARSHES OF SUISUN BAY			narrative	Water quality conditions sufficient to support a natural gradient in species composition and wildlife habitat characteristic of a brackish marsh throughout all elevations of the tidal marshes bordering Suisun Bay shall be maintained. Water quality conditions shall be maintained so that none of the following occurs: (a) loss of diversity; (b) conversion of brackish marsh to salt marsh; (c) for animals, decreased population abundance of those species vulnerable to increased mortality and loss of habitat from increased water salinity; or (d) for plants, significant reduction in stature or percent cover from increased water or soil salinity or other water quality parameters.		

Table 3 (continued)
WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

COMPLIANCE LOCATIONS	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
DELTA OUTFLOW						
		Net Delta Outflow Index (NDOI) [8]	Minimum monthly average [9] NDOI(cfs)	All All W,AN BN D C W,AN,BN D C All W,AN,BN,D C W,AN,BN,D C	Jan Feb-Jun Jul Aug Sep Oct Nov-Dec	4,500 [10] [11] 8,000 6,500 5,000 4,000 4,000 3,500 3,000 3,000 4,000 3,000 4,500 3,500
RIVER FLOWS						
Sacramento River at Rio Vista	D-24 (RSAC101)	Flow rate	Minimum monthly average [12] flow rate (cfs)	All W,AN,BN,D C W,AN,BN,D C	Sep Oct Nov-Dec	3,000 4,000 3,000 4,500 3,500
San Joaquin River at Airport Way Bridge, Vernalis	C-10 (RSAN112)	Flow rate	Minimum monthly average [13] flow rate (cfs) [14]	W,AN BN,D C W AN BN D C All	Feb-Apr 14 and May 16-Jun Apr 15- May 15 [15] Oct	2,130 or 3,420 1,420 or 2,280 710 or 1,140 7,330 or 8,620 5,730 or 7,020 4,620 or 5,480 4,020 or 4,880 3,110 or 3,540 1,000 [16]
EXPORT LIMITS						
		Combined export rate [17]	Maximum 3-day running average (cfs) Maximum percent of Delta inflow diverted [20] [21]	All All All	Apr 15- May 15 [18] Feb-Jun Jul-Jan	[19] 35% Delta inflow [22] 65% Delta inflow
DELTA CROSS CHANNEL GATES CLOSURE						
Delta Cross Channel at Walnut Grove	—	Closure of gates	Closed gates	All	Nov-Jan Feb-May 20 May 21- Jun 15	[23] ---- [24]

Table 3 Footnotes:

[1] River Kilometer Index station number.

[2] Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. The averaging period commences with the first day of the time period of the applicable objective. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.

[3] The Sacramento Valley 40-30-30 Water Year Hydrologic Classification Index (see Figure 2) applies unless otherwise specified.

[4] Compliance will be determined at Jersey Point (station D15) and Prisoners Point (station D29).

[5] This standard does not apply in May when the best available May estimate of the Sacramento River Index for the water year is less than 8.1 MAF at the 90% exceedance level. [Note: The Sacramento River Index refers to the sum of the unimpaired runoff in the water year as published in the California Department of Water Resources' (DWR) Bulletin 120 for

the following locations: Sacramento River above Bend Bridge, near Red Bluff; Feather River, total unimpaired inflow to Oroville Reservoir; Yuba River at Smartville; and American River, total unimpaired inflow to Folsom Reservoir.]

- [6] An exceedance of any of these objectives at a time when it is established through certification by the entity operating the Suisun Marsh Salinity Control Gates that the Gates are being operated to the maximum extent shall not be considered a violation of the objective.
- [7] A deficiency period is: (1) the second consecutive dry water year following a critical year; (2) a dry water year following a year in which the Sacramento River Index (described in footnote 5) was less than 11.35; or (3) a critical water year following a dry or critical water year. The determination of a deficiency period is made using the prior year's final Water Year Type determination and a forecast of the current year's Water Year Type; and remains in effect until a subsequent water year is other than a Dry or Critical water year as announced on May 31 by DWR and U.S. Bureau of Reclamation (USBR) as the final water year determination.
- [8] Net Delta Outflow Index (NDOI) is defined in Figure 4.
- [9] For the May-January objectives, if the value is less than or equal to 5,000 cfs, the 7-day running average shall not be less than 1,000 cfs below the value; if the value is greater than 5,000 cfs, the 7-day running average shall not be less than 80% of the value.
- [10] The objective is increased to 6,000 cfs if the best available estimate of the Eight River Index for December is greater than 800 TAF. [Note: The Eight River Index refers to the sum of the unimpaired runoff as published in the DWR Bulletin 120 for the following locations: Sacramento River flow at Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River flow at Smartville; American River, total inflow to Folsom Reservoir; Stanislaus River, total inflow to New Melones Reservoir; Tuolumne River, total inflow to Don Pedro Reservoir; Merced River, total inflow to Exchequer Reservoir; and San Joaquin River, total inflow to Millerton Lake.]
- [11] The minimum daily Delta outflow shall be 7,100 cfs for this period, calculated as a 3-day running average. This requirement is also met if either the daily average or 14-day running average EC at the confluence of the Sacramento and the San Joaquin rivers is less than or equal to 2.64 mmhos/cm (Collinsville station C2). If the best available estimate of the Eight River Index (described in footnote 10) for January is more than 900 TAF, the daily average or 14-day running average EC at station C2 shall be less than or equal to 2.64 mmhos/cm for at least one day between February 1 and February 14; however, if the best available estimate of the Eight River Index for January is between 650 TAF and 900 TAF, the Executive Director of the State Water Board shall decide whether this requirement applies. If the best available estimate of the Eight River Index for February is less than 500 TAF, the standard may be further relaxed in March upon the request of the DWR and the USBR, subject to the approval of the Executive Director of the State Water Board. The standard does not apply in May and June if the best available May estimate of the Sacramento River Index (described in footnote 5) for the water year is less than 8.1 MAF at the 90% exceedance level. Under this circumstance, a minimum 14-day running average flow of 4,000 cfs is required in May and June. Additional Delta outflow objectives are contained in Table 4.
- [12] The 7-day running average shall not be less than 1,000 cfs below the monthly objective.
- [13] Partial months are averaged for that period. For example, the flow rate for April 1-14 would be averaged over 14 days. The 7-day running average shall not be less than 20% below the flow rate objective, with the exception of the April 15-May 15 pulse flow period when this restriction does not apply.
- [14] The water year classification will be established using the best available estimate of the 60-20-20 San Joaquin Valley Water Year Hydrologic Classification (see Figure 3) at the 75% exceedance level. The higher flow objective applies when the 2-ppt isohaline (measured as 2.64 mmhos/cm surface salinity) is required to be at or west of Chippis Island.
- [15] This time period may be varied based on real-time monitoring. One pulse, or two separate pulses of combined duration equal to the single pulse, should be scheduled to coincide with fish migration in San Joaquin River tributaries and the Delta. The USBR will schedule the time period of the pulse or pulses in consultation with the USFWS, the NOAA Fisheries, and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement. The schedule is subject to the approval of the Executive Director of the State Water Board.
- [16] Plus up to an additional 28 TAF pulse/attraction flow during all water year types. The amount of additional water will be limited to that amount necessary to provide a monthly average flow of 2,000 cfs. The additional 28 TAF is not required in a critical year following a critical year. The pulse flow will be scheduled by the DWR and the USBR in consultation with the USFWS, the NOAA Fisheries and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.

- [17] Combined export rate for this objective is defined as the Clifton Court Forebay inflow rate (minus actual Byron-Bethany Irrigation District diversions from Clifton Court Forebay) and the export rate of the Tracy pumping plant.
- [18] This time period may be varied based on real-time monitoring and will coincide with the San Joaquin River pulse flow described in footnote 15. The DWR and the USBR, in consultation with the USFWS, the NOAA Fisheries and the DFG, will determine the time period for this 31-day export limit. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.
- [19] Maximum export rate is 1,500 cfs or 100% of the 3-day running average of San Joaquin River flow at Vernalis, whichever is greater. Variations to this maximum export rate may be authorized if agreed to by the USFWS, the NOAA Fisheries and the DFG. This flexibility is intended to result in no net water supply cost annually within the limits of the water quality and operational requirements of this plan. Variations may result from recommendations of agencies for protection of fish resources, including actions taken pursuant to the State and federal Endangered Species Act. Any variations will be effective immediately upon notice to the Executive Director of the State Water Board. If the Executive Director does not object to the variations within 10 days, the variations will remain in effect. The Executive Director of the State Water Board is also authorized to grant short-term exemptions to export limits for the purpose of facilitating a study of the feasibility of recirculating export water into the San Joaquin River to meet flow objectives.
- [20] Percent of Delta inflow diverted is defined in Figure 4. For the calculation of maximum percent Delta inflow diverted, the export rate is a 3-day running average and the Delta inflow is a 14-day running average, except when the Central Valley Project or the State Water Project (SWP) is making storage withdrawals for export, in which case both the export rate and the Delta inflow are 3-day running averages.
- [21] The percent Delta inflow diverted values can be varied either up or down. Variations are authorized subject to the process described in footnote 19.
- [22] If the best available estimate of the Eight River Index (described in footnote 10) for January is less than or equal to 1.0 MAF, the export limit for February is 45% of Delta inflow. If the best available estimate of the Eight River Index for January is greater than 1.5 MAF, the February export limit is 35% of Delta inflow. If the best available estimate of the Eight River Index for January is between 1.0 MAF and 1.5 MAF, the DWR and the USBR will set the export limit for February within the range of 35% to 45%, after consultation with the USFWS, the NOAA Fisheries and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.
- [23] For the November-January period, close Delta Cross Channel gates for a total of up to 45 days. The USBR will determine the timing and duration of the gate closure after consultation with the USFWS, the NOAA Fisheries and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.
- [24] For the May 21-June 15 period, close the Delta Cross Channel gates for a total of 14 days. The USBR will determine the timing and duration of the gate closure after consultation with the USFWS, the NOAA Fisheries and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement. Gate closures shall be based on the need for the protection of fish. The process for approval of variations shall be similar to that described in footnote 19.

FIGURE 2

Sacramento Valley Water Year Hydrologic Classification

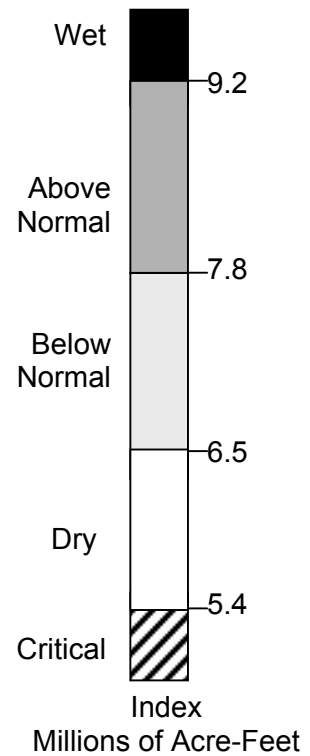
Year classification shall be determined by computation of the following equation:

$$\text{INDEX} = 0.4 * X + 0.3 * Y + 0.3 * Z$$

- Where:
- X = Current year's April – July Sacramento Valley unimpaired runoff
 - Y = Current October – March Sacramento Valley unimpaired runoff
 - Z = Previous year's index¹

The Sacramento Valley unimpaired runoff for the current water year (October 1 of the preceding calendar year through September 30 of the current calendar year), as published in California Department of Water Resources Bulletin 120, is a forecast of the sum of the following locations: Sacramento River above Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River at Smartville; American River, total inflow to Folsom Reservoir. Preliminary determinations of year classification shall be made in February, March, and April with final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff assuming normal precipitation for the remainder of the water year.

YEAR TYPE ²
All Years for All Objectives



<u>Classification</u>	<u>Index Millions of Acre-Feet (MAF)</u>
Wet	Equal to or greater than 9.2
Above Normal	Greater than 7.8 and less than 9.2
Below Normal	Equal to or less than 7.8 and greater than 6.5
Dry	Equal to or less than 6.5 and greater than 5.4
Critical	Equal to or less than 5.4

1 A cap of 10.0 MAF is put on the previous year's index (Z) to account for required flood control reservoir releases during wet years.
 2 The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current water year is available.

FIGURE 3

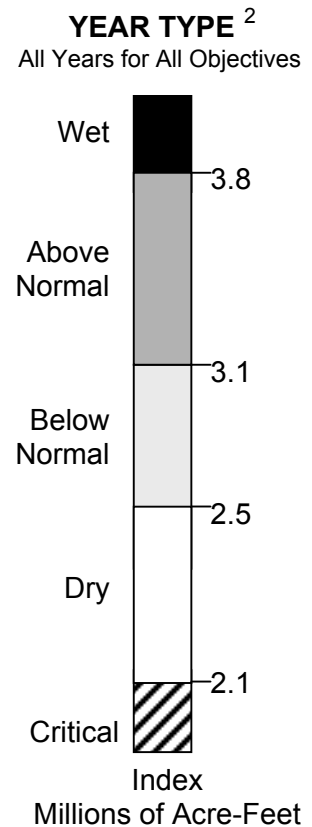
San Joaquin Valley Water Year Hydrologic Classification

Year classification shall be determined by computation of the following equation:

$$\text{INDEX} = 0.6 * X + 0.2 * Y + 0.2 * Z$$

- Where: X = Current year's April – July San Joaquin Valley unimpaired runoff
- Y = Current October – March San Joaquin Valley unimpaired runoff
- Z = Previous year's index¹

The San Joaquin Valley unimpaired runoff for the current water year (October 1 of the preceding calendar year through September 30 of the current calendar year), as published in California Department of Water Resources Bulletin 120, is a forecast of the sum of the following locations: Stanislaus River, total flow to New Melones Reservoir; Tuolumne River, total inflow to Don Pedro Reservoir; Merced River, total flow to Exchequer Reservoir; San Joaquin River, total inflow to Millerton Lake. Preliminary determinations of year classification shall be made in February, March, and April with final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff assuming normal precipitation for the remainder of the water year.



<u>Classification</u>	<u>Index Millions of Acre-Feet (MAF)</u>
Wet	Equal to or greater than 3.8
Above Normal	Greater than 3.1 and less than 3.8
Below Normal	Equal to or less than 3.1 and greater than 2.5
Dry	Equal to or less than 2.5 and greater than 2.1
Critical	Equal to or less than 2.1

1 A cap of 4.5 MAF is put on the previous year's index (Z) to account for required flood control reservoir releases during wet years.

2 The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current water year is available.

FIGURE 4

NDOI and PERCENT INFLOW DIVERTED ¹

The NDOI and the percent inflow diverted, as described in this figure, shall be computed daily by the DWR and the USBR using the following formulas (all flows are in cfs):

$$\text{NDOI} = \text{DELTA INFLOW} - \text{NET DELTA CONSUMPTIVE USE} - \text{DELTA EXPORTS}$$

$$\text{PERCENT INFLOW DIVERTED} = (\text{CCF} + \text{TPP}) \div \text{DELTA INFLOW}$$

where $\text{DELTA INFLOW} = \text{SAC} + \text{SRTP} + \text{YOLO} + \text{EAST} + \text{MISC} + \text{SJR}$

- SAC** = Sacramento River at Freeport mean daily flow for the previous day; the 25-hour tidal cycle measurements from 12:00 midnight to 1:00 a.m. may be used instead.
- SRTP** = Sacramento Regional Treatment Plant average daily discharge for the previous week.
- YOLO** = Yolo Bypass mean daily flow for the previous day, which is equal to the flows from the Sacramento Weir, Fremont Weir, Cache Creek at Rumsey, and the South Fork of Putah Creek.
- EAST** = Eastside Streams mean daily flow for the previous day from the Mokelumne River at Woodbridge, Cosumnes River at Michigan Bar, and Calaveras River at Bellota.
- MISC** = Combined mean daily flow for the previous day of Bear Creek, Dry Creek, Stockton Diverting Canal, French Camp Slough, Marsh Creek, and Morrison Creek.
- SJR** = San Joaquin River flow at Vernalis, mean daily flow for the previous day.

where $\text{NET DELTA CONSUMPTIVE USE} = \text{GDEPL} - \text{PREC}$

- GDEPL** = Delta gross channel depletion for the previous day based on water year type using the DWR's latest Delta land use study.²
- PREC** = Real-time Delta precipitation runoff for the previous day estimated from stations within the Delta.

and where $\text{DELTA EXPORTS}^3 = \text{CCF} + \text{TPP} + \text{CCC} + \text{NBA}$

- CCF** = Clifton Court Forebay inflow for the current day.⁴
- TPP** = Tracy Pumping Plant pumping for the current day.
- CCC** = Contra Costa Canal pumping for the current day.
- NBA** = North Bay Aqueduct pumping for the current day.

1 Not all of the Delta tributary streams are gaged and telemetered. When appropriate, other methods of estimating stream flows, such as correlations with precipitation or runoff from nearby streams, may be used instead.

2 If up to date channel depletion estimates are available they shall be used. If these estimates are not available, DAYFLOW channel depletion estimates shall be used.

3 The term "Delta Exports" is used only to calculate the NDOI. It is not intended to distinguish among the listed diversions with respect to eligibility for protection under the area of origin provisions of the California Water Code.

4 Actual Byron-Bethany Irrigation District withdrawals from Clifton Court Forebay shall be subtracted from Clifton Court Forebay inflow. (Byron-Bethany Irrigation District water use is incorporated into the GDEPL term.)

Table 4. Number of Days When Maximum Daily Average Electrical Conductivity of 2.64 mmhos/cm Must Be Maintained at Specified Location

Number of Days When Maximum Daily Average Electrical Conductivity of 2.64 mmhos/cm Must Be Maintained at Specified Location ^[a]																	
PMI ^[b] (TAF)	Chippis Island (Chippis Island Station D10)					PMI ^[b] (TAF)	Port Chicago (Port Chicago Station C14) ^[d]					PMI ^[b] (TAF)	Port Chicago (Port Chicago Station C14) ^[d]				
	FEB	MAR	APR	MAY	JUN		FEB	MAR	APR	MAY	JUN		FEB	MAR	APR	MAY	JUN
≤ 500	0	0	0	0	0	0	0	0	0	0	0	5250	27	29	25	26	6
750	0	0	0	0	0	250	1	0	0	0	0	5500	27	29	26	28	9
1000	28 ^[c]	12	2	0	0	500	4	1	0	0	0	5750	27	29	27	28	13
1250	28	31	6	0	0	750	8	2	0	0	0	6000	27	29	27	29	16
1500	28	31	13	0	0	1000	12	4	0	0	0	6250	27	30	27	29	19
1750	28	31	20	0	0	1250	15	6	1	0	0	6500	27	30	28	30	22
2000	28	31	25	1	0	1500	18	9	1	0	0	6750	27	30	28	30	24
2250	28	31	27	3	0	1750	20	12	2	0	0	7000	27	30	28	30	26
2500	28	31	29	11	1	2000	21	15	4	0	0	7250	27	30	28	30	27
2750	28	31	29	20	2	2250	22	17	5	1	0	7500	27	30	29	30	28
3000	28	31	30	27	4	2500	23	19	8	1	0	7750	27	30	29	31	28
3250	28	31	30	29	8	2750	24	21	10	2	0	8000	27	30	29	31	29
3500	28	31	30	30	13	3000	25	23	12	4	0	8250	28	30	29	31	29
3750	28	31	30	31	18	3250	25	24	14	6	0	8500	28	30	29	31	29
4000	28	31	30	31	23	3500	25	25	16	9	0	8750	28	30	29	31	30
4250	28	31	30	31	25	3750	26	26	18	12	0	9000	28	30	29	31	30
4500	28	31	30	31	27	4000	26	27	20	15	0	9250	28	30	29	31	30
4750	28	31	30	31	28	4250	26	27	21	18	1	9500	28	31	29	31	30
5000	28	31	30	31	29	4500	26	28	23	21	2	9750	28	31	29	31	30
5250	28	31	30	31	29	4750	27	28	24	23	3	10000	28	31	30	31	30
≤ 5500	28	31	30	31	30	5000	27	28	25	25	4	>10000	28	31	30	31	30

- [a] The requirement for number of days the maximum daily average EC (EC) of 2.64 mmhos per centimeter (mmhos/cm) must be maintained at Chippis Island and Port Chicago can also be met with maximum 14-day running average EC of 2.64 mmhos/cm, or 3-day running average NDOIs of 11,400 cfs and 29,200 cfs, respectively. If salinity/flow objectives are met for a greater number of days than the requirements for any month, the excess days shall be applied to meeting the requirements for the following month. The number of days for values of the PMI between those specified in this table shall be determined by linear interpolation.
- [b] PMI is the best available estimate of the previous month's Eight River Index. (Refer to Footnote 10 for Table 3 for a description of the Eight River Index.)
- [c] When the PMI is between 800 TAF and 1000 TAF, the number of days the maximum daily average EC of 2.64 mmhos/cm (or maximum 14-day running average EC of 2.64 mmhos/cm, or 3-day running average NDOI of 11,400 cfs) must be maintained at Chippis Island in February is determined by linear interpolation between 0 and 28 days.
- [d] This standard applies only in months when the average EC at Port Chicago during the 14 days immediately prior to the first day of the month is less than or equal to 2.64 mmhos/cm.

Chapter IV. Program of Implementation

The Porter-Cologne Water Quality Control Act states that a water quality control plan consists of a designation or establishment of beneficial uses to be protected, water quality objectives, and program of implementation needed for achieving water quality objectives. (Wat. Code, § 13050(j).) The implementation program shall include, but not be limited to:

1. A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private;
2. A time schedule for the actions to be taken; and
3. A description of surveillance to be undertaken to determine compliance with the objectives. (Wat. Code, § 13242.)

This program of implementation for the Water Quality Control Plan for the Bay Delta Estuary consists of five general components: (1) implementation measures within State Water Board authority; (2) measures requiring a combination of State Water Board authorities and actions by other agencies; (3) recommendations to other agencies; (4) a monitoring and special studies program; and (5) other studies that are being conducted by other entities but may provide information relevant to future proceedings. The specific actions identified within these components include time schedules for implementation, if appropriate. No time schedule is included for actions that have already been implemented.

Currently, the water right permits of the DWR and USBR include terms and conditions that define their responsibilities to implement the municipal and industrial, agricultural, and fish and wildlife objectives. In the future, the State Water Board may amend this program of implementation, take action in a water right proceeding or proceedings to change the water right responsibilities of the DWR, the USBR, and other water right holders to implement these objectives, or take other actions that implement the objectives.

A. Implementation Measures within State Water Board Authority

Under its water rights and water quality authority, the State Water Board will continue, as necessary and appropriate, to determine the contributions from water right permit and license holders needed to implement the objectives in this Plan. Water right responsibilities may be assigned by conducting a water right proceeding at which the Board will take into consideration the requirements of the Public Trust Doctrine and the California Constitution, article X, section 2. The State Water Board will also continue, as necessary and appropriate, to use its Clean Water Act section 401 water quality certification authority to implement objectives in this Plan, and may take other actions under its water quality authority to implement objectives in this Plan. The following water quality objectives are currently, or may in the future be, implemented in whole or in part using water rights authority:

1. Delta Outflow
2. River Flows: Sacramento River at Rio Vista
3. River Flows: San Joaquin River at Airport Way Bridge, Vernalis
4. Export Limits
5. Delta Cross Channel Gates Operation
6. Salinity

The first five are flow-based objectives that rely upon water rights authorities to implement. Salinity, though a water quality objective, is still implemented, in part, through the State Water Board's water rights authority.

The State Water Board may require compliance with these objectives in stages or may shift responsibility for meeting an objective among water right holders and other entities based on evidence it receives in a water right proceeding or in a water quality proceeding.

1. Delta Outflow Objective

The Delta Outflow Objective is to be implemented through water right actions. It requires a minimum amount of outflow, measured in cubic feet per second (cfs) as defined in footnote 11 of Table 3. The permits and license of the DWR and the USBR are conditioned to establish responsibilities to ensure that the Delta Outflow Objective is met on an interim basis until the State Water Board adopts a water right decision or order that assigns permanent responsibility for meeting the Delta Outflow Objective. This water right decision or order would follow a water right proceeding after a request for such a proceeding by the DWR or USBR.

2. River Flows: Sacramento River at Rio Vista

This objective is to be implemented through water right actions. The permits and license of the DWR and the USBR are conditioned to establish responsibilities to ensure that the flow objectives at Rio Vista on the Sacramento River are met on an interim basis until the State Water Board adopts a decision that assigns permanent responsibility for meeting the Sacramento River at Rio Vista flow objectives. This water right decision would follow a water right proceeding after a request for such a proceeding by the DWR or USBR.

3. River Flows: San Joaquin River at Airport Way Bridge, Vernalis

This objective is to be implemented through water right actions. This plan includes a time schedule for completing implementation. Flow objectives for the San Joaquin River at the Airport Way Bridge near Vernalis have been established for three time periods:

- Spring flow objectives, February through April 14 and May 16 through June;
- Spring pulse flow objectives, April 15 through May 15; and
- Fall pulse flow objectives in October

The USBR is assigned responsibility under its water right permits, on an interim basis until the Board assigns permanent responsibility, to ensure that all of these objectives are met. During the Spring pulse flow period in April and May while the SJRA⁶ is in effect, however, the experimental target flows in the VAMP will be implemented in lieu of the Spring flow objectives for the April-May period. After the SJRA terminates or adequate information is otherwise received, the State Water Board may review or consider amending the objectives in a water quality proceeding or may immediately conduct a water right proceeding to decide how to assign responsibility for implementing these objectives.

Additional data and scientific analyses are needed to either support or modify the current spring flow objectives. These data and analyses are described in the 'Recommendations to Other Agencies' section of this chapter. In addition, as indicated in the Emerging Issues section of Chapter 1, the State Water Board will conduct a workshop after revisions are made in response to peer review of DFG's San Joaquin River salmon escapement model (anticipated for summer of 2007) to receive information and conduct detailed discussions regarding the various San Joaquin River flow objectives. Following the workshop, the State Water Board may make changes to the objectives, the program of implementation for the objectives, and/or water rights. The State Water Board may also direct additional studies to determine flow needs on the San Joaquin River.

The staged implementation of the Spring pulse flow objectives, with the first stage consisting of variations on the objectives, allows additional scientific investigation into flow needs on the San Joaquin River during the pulse flow period. In the first stage of implementation, the USBR and other parties are conducting a 12-year study referred to as the Vernalis Adaptive Management Plan (VAMP). The VAMP is designed to protect juvenile chinook salmon migrating down the San Joaquin River and to evaluate the effects of varying the San Joaquin River flow and the State Water Project (SWP) and Central Valley Project (CVP) water exports at times when the head of Old River flow barrier⁷ is restricting the flow of water into Old River, on the survival of marked juvenile chinook salmon migrating through the Sacramento-San Joaquin Delta.

The VAMP study has been ongoing for seven years, but the study has not yet yielded conclusive results regarding needed changes to the Spring pulse flow objectives. The completed study will provide critical data about flow needs on the San Joaquin River during the Spring pulse flow period.

Until no later than December 31, 2011, or until the SJRA is terminated or adequate information is otherwise received, if earlier, the following interim Spring pulse flows may be implemented on the San Joaquin River at Vernalis during the 31-day April

⁶ The SJRA is a settlement agreement among numerous parties to the water rights hearing resulting in D-1641 to meet the San Joaquin River portions of various flow-dependent water quality objectives in the 1995 Plan.

⁷ The purpose of the head of Old River barrier is to reduce the downstream movement of juvenile San Joaquin River chinook salmon into the southern Delta via Old River where fish mortality increases due to predation and higher levels of exposure to export facilities and agricultural diversions.

and May⁸ pulse period in order to obtain additional scientific information concerning flow needs on the San Joaquin River during the pulse flow period. The target flow should be based on the existing flow, as defined in table 5.

Table 5. Interim San Joaquin River Pulse Flows

Existing Flow ⁹ (cfs)	Target Flow (cfs)
0-1999	2,000
2,000-3,199	3,200
3,200-4,449	4,450
4,450-5,699	5,700
5,700-6,999	7,000
7,000 or greater	Existing Flow

Table 6 contains the numeric indicators for the San Joaquin Valley 60-20-20 Water Year Hydrologic Classification.¹⁰ During years when the sum of the current year's 60-20-20 numeric indicator and the previous year's 60-20-20 numeric indicator is seven (7) or greater, target flows should be one step higher than those required in table 5. The licensee is not required to meet the target flow during years when the sum of the numeric indicators for the current year and the previous two years is four (4) or less.

Table 6. San Joaquin Valley 60-20-20 Water Year Hydrologic Classification Numeric Indicators

SJR Basin 60-20-20 Classification	60-20-20 Indicator
Wet	5
Above Normal	4
Below Normal	3
Dry	2
Critical	1

Certain water right holders in the San Joaquin Basin are authorized under their water right licenses to provide the experimental flows specified in the SJRA until

⁸ The timing of the 31-day pulse flow is to be determined by the San Joaquin River Technical Committee (SJRTC). The SJRTC is composed of technical experts appointed by the parties to the SJRA to implement the VAMP experiment and other technical activities that its members deem appropriate to meet the goals of the SJRA.

⁹ "Existing flows" will be determined by the SJRTC. Existing flow is defined as the forecasted flows in the San Joaquin River at Vernalis during the pulse flow period that would exist absent the SJRA or water acquisitions, including but not limited to the following:

- Tributary minimum instream flows pursuant to Davis-Grunsky, Federal Energy Regulatory Commission, or other regulatory agency orders existing on the date of this agreement;
- Water quality or scheduled fishery releases from New Melones Reservoir;
- Flood control releases from any non-federal storage facility required to be made during the pulse flow period pursuant to its operating protocol with the U.S. Army Corps of Engineers in effect when the SJRA is executed;
- Uncontrolled spills not otherwise recaptured pursuant to water right accretions (less natural depletions) to the system; and/or
- Local runoff.

¹⁰ The classification method for the 60-20-20 San Joaquin Valley Water Year Classification Index is provided in Figure 3.

December 31, 2011, or until the SJRA is terminated, whichever occurs first. After the SJRA terminates or adequate information is otherwise received to support changes, the State Water Board will use the information gained from the VAMP study and other pertinent information to determine what, if any, changes are needed to the pulse flow objectives. The State Water Board will then make any appropriate changes to the Water Quality Control Plan and after a water right proceeding will assign, as appropriate, long-term responsibility for meeting the pulse flow objectives to water right holders whose water diversions impact the flow of water.

4. Export Limits

These objectives are to be implemented through water right actions. The water right permits and licenses of the DWR and the USBR are conditioned upon meeting the objectives for export pumping.

5. Delta Cross Channel Gates Operation

This objective is to be implemented through water right actions. The USBR, as the owner and operator of the Gates, is solely responsible under its water right permits and licenses for implementing the Delta Cross Channel Gates Closure objectives.

6. Salinity Control

Salinity objectives are implemented through a mix of water right actions (flow) and salinity control measures depending on the location and beneficial use affected.

Salinity objectives and their implementation fall into the following broad categories:

- i. Municipal and Industrial Uses: This objective is to be implemented through a combination of water right actions and other actions, depending on the location at which the objective applies. The water right permits and licenses of the DWR and the USBR currently are conditioned upon implementation of chloride objectives to protect municipal and industrial uses. The salinity objectives at Contra Costa Water District's Pumping Plan No. 1 on Rock Slough, however, are being implemented in part through flows provided by the DWR and the USBR on Old River at the head of Rock Slough and in part through infrastructure improvements that reduce water quality degradation caused by localized drainage into Rock Slough.
- ii. Fish and Wildlife in Suisun Marsh: This objective is to be implemented through water right actions because the salinity levels are determined by flows and control structure operations. The water right permits and licenses of the DWR and the USBR currently are conditioned upon implementation of the numeric salinity objectives for Suisun Marsh at stations S-21, and S-42 (Figure 5). Due to evidence showing a potential for the objectives at stations S-97 and S-35 to cause harm to the beneficial uses they are intended to protect, the State Water Board in Decision 1641 (D-1641) did not require that DWR and USBR attain the objectives at stations S-97 and S-35. Implementation of the salinity objectives at these two stations is discussed in section B.5.

- iii. Fish and Wildlife in the San Joaquin River: This objective is to be implemented through water right actions. The water right permits and licenses of the DWR and the USBR currently are conditioned upon implementation of the San Joaquin River salinity objective to protect fish and wildlife uses.
- iv. Agriculture in the Western Delta, Interior Delta, and Export Area: These objectives are to be implemented through water right actions. The water right permits and licenses of the DWR and the USBR currently are conditioned upon implementation of the Western Delta, Interior Delta, and Export Area salinity objectives to protect agricultural uses.
- v. Agriculture in the Southern Delta: The water rights of the DWR and the USBR are conditioned upon implementation of the southern Delta salinity objectives to protect agricultural beneficial uses. Implementation of salinity objectives in the southern Delta requires a mix of salt load control and flow related measures. It is therefore discussed in section B of the Program of Implementation: 'Measures Requiring a Combination of State Water Board Authorities and Actions by Other Agencies.'

B. Measures Requiring a Combination of State Water Board Authorities and Actions by Other Agencies

Implementation of the following water quality objectives will require water rights and water quality measures by the State Water Board, in concert with actions taken by other agencies:

Implementation of these objectives can be accomplished through a combination of the following: dilution flows, regulation of water diversions, pollutant discharge controls, best management practices to control the amount of waste produced, and improvements in water circulation. In addition to describing the actions taken, or to be taken, by the State Water Board, this section describes the actions taken, and that should be taken, by other agencies to implement these objectives. The State Water Board will use its authority, as needed and appropriate, under section 13165 of the California Water Code to require that studies are conducted.

1. Southern Delta Agricultural Salinity Objectives

Elevated salinity in the southern Delta is caused by various factors, including low flows; salts imported to the San Joaquin Basin in irrigation water; municipal discharges; subsurface accretions from groundwater; tidal actions; diversions of water by the SWP, CVP, and local water users; channel capacity; and discharges from land-derived salts, primarily from agricultural drainage. These salinity objectives currently are implemented through a mix of water right actions and salinity control. The water rights of the USBR are conditioned upon implementation of the salinity objectives on the San Joaquin River at Vernalis and the water rights of DWR

and USBR are conditioned upon implementation of the salinity objectives at the other three southern Delta stations (San Joaquin River at Brandt Bridge, Old River at Middle River and Old River at Tracy Road Bridge (interior southern Delta stations)). Salinity objectives on the San Joaquin River at Vernalis are also being implemented through non-water right actions, including the San Joaquin River Salinity Control Program in the Central Valley Regional Water Quality Control Board's (Regional Water Board) Water Quality Control Plan for the Sacramento and San Joaquin River Basins. In October of 2005, the State Water Board approved an Amendment to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. The amendment consists of a Control Program for Salt and Boron Discharges into the Lower San Joaquin River and other actions to implement salinity objectives in the SJR at Vernalis. The salt and boron basin plan amendment includes implementation measures and a timeline for implementation of salt load allocations.

The salinity objectives at Vernalis can be attained by releasing dilution water from New Melones and other sources, completing a drain to remove the salts generated by agricultural drainage and municipal discharges from the San Joaquin Valley, and conducting measures in the San Joaquin Valley such as the measures discussed below for controlling salinity in the interior southern Delta. The salinity objectives for the interior southern Delta can be implemented by measures that include state regulatory actions, state funding of projects and studies, regulation of water diversions, pollutant discharge controls, improvements in water circulation, and long-term implementation of best management practices to control saline discharges.

State Regulatory Actions

- i. The State Water Board has conditioned the water rights of some water right holders on the presence of dilution flows. Currently, the water rights of USBR are conditioned upon implementation of the Vernalis objectives, and the water rights of USBR and DWR are conditioned upon implementation of the interior southern Delta objectives. The State Water Board could also require releases from other non-SWP/CVP reservoirs after notice and an opportunity for a hearing. In lieu of some water releases, water right holders such as USBR and DWR could use measures that affect circulation of water in the southern Delta (including permanent operational gates).
- ii. The Central Valley Regional Water Board shall impose discharge controls on in-Delta discharges of salts by agricultural, domestic, and municipal dischargers.
- iii. The Central Valley Regional Board shall implement the Total Maximum Daily Load (TMDL) for the San Joaquin River at Vernalis, develop and adopt a basin plan amendment and TMDL for areas upstream of Vernalis, and implement the TMDL and Water Quality Control Plan to reduce salinity and other pollutants reaching the southern Delta.

- iv. The State Water Board will conduct a workshop in January 2007 to commence proceedings to receive information and conduct detailed discussions regarding the southern Delta salinity objectives, the causes of salinity in the southern Delta, measures to implement salinity objectives for southern Delta agriculture, and other factors. The proceedings following the workshop may result in water right and/or water quality actions.

State Funding of Programs

- i. The State Water Board has various financial assistance programs under which it can contribute funding for programs that will help meet the salinity objectives or to improving understanding about salinity conditions in the southern Delta (primarily the San Joaquin River upstream of Vernalis). To date, it has funded tens of millions of dollars worth of projects and studies for such programs. The State Water Board provides funds through the State Revolving Fund Loan Program, the Agricultural Drainage Loan Program, the Agricultural Drainage Management Loan Program, Proposition 13, 40, and 50 grant funding through the Nonpoint Source Pollution Control Programs and Watershed Protection Programs.

Current Projects and Actions by Other Agencies

The following projects may assist in meeting the southern Delta salinity objectives by reducing high salinity drainage to the San Joaquin River; improving circulation in the southern Delta; and supplementing flows through recirculation. All or a portion of these projects are being funded through the above referenced programs. Each of these projects, described below, should be pursued by the identified agencies. If successful, these projects and the actions they contain could make additional regulatory measures by the State Water Board and the Central Valley Regional Water Board unnecessary.

- i. Grasslands Bypass Project: The Grasslands Bypass Project manages discharges of agricultural drainage water from 97,000 acres in the Grasslands Watershed. The purpose of the project is to prevent discharges of water containing high levels of selenium to wildlife refuges and wetlands in the San Joaquin Valley, but it has reduced the load of salts by 39 percent (from 187,300 tons to 113,600 tons) from pre-project conditions through various management measures including sump management, recycled tail and tile water programs, on-farm tile and tail water management, and various source control measures. The Grassland Areas farmers, USBR, the Central Valley Regional Water Board, and other agencies should continue to evaluate the various management measures in the Grasslands Bypass Project and should continue to implement those measures that are effective in reducing salinity and selenium discharges to the San Joaquin River.

- ii. West Side Regional Drainage Plan: The West Side Regional Drainage Plan evolved from the Grasslands Bypass Project as a long-term solution to eliminate discharges to the San Joaquin River of drainage water from irrigated agriculture containing high amounts of selenium, salt and other constituents. The plan uses the following practices:
- a) Reduction of drainage volumes by using source control/efficient water management techniques such as replacing furrow irrigation with micro-irrigation technology and lining unlined delivery canals;
 - b) Recirculation of tailwater on primary irrigation lands;
 - c) Collection and reuse of tile drainage water on halophytic croplands to concentrate drainage;
 - d) Installation and pumping of groundwater wells in strategic locations to eliminate groundwater infiltration into tile drains; and
 - e) Treatment and disposal of remaining drainage water through reverse osmosis, evaporation and disposal or reuse of salts.

When fully implemented, the parties implementing the plan expect to assure achievement of the salinity objectives at Vernalis and reduce the frequency of exceedances of objectives at Brandt Bridge by 71 percent over a 73-year hydrology. They expect to complete the plan by 2010. Stakeholder parties to the Westside Regional Drainage Plan should continue work to implement the various practices discussed above to achieve the goal of zero discharges to the San Joaquin River from the Grasslands area by 2010.

- iii. San Luis Unit Feature Reevaluation Project: USBR currently is evaluating seven alternatives as part of the San Luis Unit Feature Reevaluation Project to provide drainage service to the San Luis Unit of the CVP. This project would reduce discharges to the San Joaquin River and sustain long-term agricultural production on drainage-impacted lands. The alternatives under consideration include: on-farm, in-district drainage reduction actions; federal facilities to collect and convey drain water to regional reuse facilities; and some level of land retirement. Additional options under consideration include options for in-valley disposal of drain water, ocean disposal, and Delta disposal. USBR's preferred alternative is an in-valley/land retirement alternative, and would involve treatment of drain water through reverse osmosis and selenium biotreatment before disposal in evaporation basins. USBR expects implementation to help reduce saline discharges to the lower San Joaquin River.

- iv. Central Valley Project Improvement Act (CVPIA) Land Retirement Program: USBR and Westland's Water District are implementing land retirement projects under the CVPIA Land Retirement Program and under settlement agreements in drainage-impacted areas of the San Luis Unit of the Joaquin Valley. The projects will reduce the volume of subsurface drain water discharged to the San Joaquin River.

- v. San Joaquin River Real-time Water Quality Management Program: The San Joaquin River Real-time Water Quality Management Program is a project by DWR, USBR, and United States Geological Survey (USGS) that uses telemetered stream stage and salinity data and computer models to simulate and forecast water quality conditions along the lower San Joaquin River. The main objective of the project is to control and time the releases of wetland and agricultural drainage to coincide with periods when dilution flow is sufficient to meet Vernalis salinity objectives.

DWR, DFG, University of California Davis (UC Davis), and other parties are undertaking various projects to determine whether there are wetlands management practices that can improve water quality in the San Joaquin River and conditions for wildlife. Wetlands discharges may account for more than nine percent of the total salt load in the San Joaquin River at Vernalis. The research is focused on coordinating the release of high salinity wetlands discharges to the river at times when assimilative capacity is available. DFG, USFWS, and USBR in coordination with CALFED, DWR, UC Davis, and other appropriate parties should diligently pursue completion of research to determine opportunities for improving wetlands management for the benefit of wildlife and water quality. Any cost effective and reasonable opportunities to improve water quality through improved wetlands management without adversely impacting fish and wildlife should be implemented as soon as practicable.

- vi. South Delta Improvements Program: DWR and USBR propose to construct permanent tidal gates in the southern Delta as part of the South Delta Improvements Program (SDIP). DWR and USBR expect that the gates project will assist in achieving the salinity objectives at the two Old River compliance measurement locations by improving water circulation in the southern Delta. Currently, DWR and USBR expect the project to be operational in the spring of 2009.
- vii. Delta-Mendota Canal Recirculation: Several agencies and water districts are considering releasing water from the Delta-Mendota Canal to the San Joaquin River to meet water quality objectives at Vernalis. Water Right D-1641 requires USBR to conduct such a study. However, other agencies including DWR have also been involved in assessing this alternative. USBR in coordination with other agencies should complete the recirculation analyses and assess the feasibility of using recirculation to meet southern Delta salinity objectives. If recirculation is cost effective and does not have significant unavoidable impacts to water quality, fish and wildlife, water supplies, and other beneficial uses of water, USBR and/or other agencies should implement a recirculation project to meet and/or supplement the southern Delta salinity objectives.

Recommended Projects, Studies, and Actions:

The following recommended projects, studies, and actions will provide information that can be used during subsequent updates of the Water Quality Control Plan and water rights proceedings to implement the Plan:

- i. Central Valley Salinity Committee and Salinity Study Task Force: At a January of 2006 joint workshop, the State Water Board and Central Valley Regional Water Board established a Salinity Committee to address salinity issues in the Central Valley. The Committee will establish a Salinity Study Task Force to evaluate the impact of salinity on water resources and develop a viable salinity management plan; sponsor a follow-up joint State Water Board/Regional Water Board salinity workshop to receive comments on the salinity management plan; conduct meetings to gather additional public input; contract for preparation of an economic study of salinity impacts and the social and economic consequences of not implementing a viable salinity management program; and sponsor a conference that will highlight the major salinity-related issues and their statewide impacts.
- ii. Southern Delta Salinity Objectives: There is a need for an updated independent scientific investigation of irrigation salinity needs in the southern Delta (similar to the investigation on which the current objectives are based). The scientific investigation should address whether the agricultural beneficial uses in the southern Delta would be reasonably protected at different salinity levels, whether management practices are available that would allow for protection of the beneficial uses at a higher salinity level in the channels of the southern Delta, and whether such management practices are technically and financially feasible. The investigation could address the feasibility of providing an alternative method of delivering fresh water to agricultural water users in the southern Delta. The scientific investigation must be specific to the southern Delta. The State Water Board will conduct a workshop to discuss this subject in January 2007.

2. San Joaquin River Dissolved Oxygen Objective

D-1641 directs the Central Valley Regional Water Board to establish a TMDL to address the dissolved oxygen (DO) impairment in the San Joaquin River. In November of 2005, the State Water Board approved an Amendment to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. The amendment, approved by the Office of Administrative Law in August 2006, consists of a Control Program for Factors Contributing to the DO impairment in the Stockton Deep Water Ship Channel (DWSC) and other actions to implement DO objectives in the DWSC portion of the San Joaquin River. The DO basin plan amendment includes implementation measures and a timeline for implementation for both the 1995 Plan DO objective and the DO objective in the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin.

The Central Valley Regional Water Board should continue to implement the recently adopted DO TMDL. Further, the United States Army Corps of Engineers (USCOE) and other agencies and parties that contribute to the DO impairment should complete the measures recommended by the Central Valley Regional Water Board in the basin plan amendment. In addition, the responsible entities should complete their investigations into the feasibility of operating an aeration facility in the Stockton DWSC to assist in achieving the objectives. If the pilot project and other information demonstrates that permanent installation and operation of aeration devices is feasible and would not have immitigable adverse impacts on fish, wildlife, water quality and other resources, DWR, CALFED, and the other implementing agencies should pursue operation of such a facility with operating assistance from the State Water Contractors (SWC), the Port of Stockton, San Luis Delta-Mendota Water Authority (SLDMWA), the San Joaquin River Group Authority (SJRGA), and other appropriate agencies.

DWR and USBR should continue to expeditiously pursue installation of a permanent operable gate (barrier) at the head of Old River or equivalent measures to assist in achieving the DO objective.

3. Narrative Objective for Salmon Protection

D-1641 assigned responsibility to the USBR and DWR to comply with the river flow and operational objectives for fish and wildlife. These objectives help protect salmon migration through the Bay-Delta Estuary. D-1641 did not require separate actions to implement the narrative objective for salmon because the State Water Board expects that implementation of the numeric flow-dependent objectives and other non-flow measures will implement this objective.

The narrative objective for salmon protection in the Delta is consistent with the anadromous fish doubling goals of the CVPIA. Under the Anadromous Fish Restoration Program (AFRP), State, federal and local entities are continuing to implement programs within and outside the Delta geared towards achieving the CVPIA anadromous fish doubling goals.

The State Water Board intends to invite DFG, NOAA Fisheries, and other agencies monitoring the progress of the salmon doubling effort to present to the Board the results from ongoing studies, fishery improvement programs, and any recommendations for a specific numeric objective at subsequent workshops every two years starting from the date of the adoption of this Plan. The State Water Board will consider monitoring results when determining whether numeric objectives either should replace or augment the narrative objective. The Board may use the information it receives to modify the objective in future proceedings.

Actions by parties other than the State Water Board are required to implement the narrative objective for salmon protection if implementation of the flow-dependent objectives does not achieve the objective. Other agencies are implementing the

following actions. These actions not only benefit the salmonids while they are in the Estuary, but also help improve habitat for other species.

- i. Through the CVPIA, Section 3406 (b) 21, Anadromous Fish Screen Program, the USBR, USFWS, and other participating agencies should continue to work towards the implementation of new screening facilities on diversions in the Bay-Delta Estuary to reduce losses of fish in all life stages to unscreened water diversions. In evaluating Delta diversions, these agencies should: (1) decide where screens are needed; (2) consider whether diversion points should be relocated or consolidated; and (3) provide their recommendations on changes in points of diversion to the State Water Board for consideration in a water rights proceeding.
- ii. The DWR and the USBR, in consultation with the DFG, USFWS, and NOAA Fisheries, should continue to evaluate and implement all feasible measures and programs to reduce entrainment and mortality of fish salvaged at the Skinner Fish Protection Facility (Banks Pumping Plant) and the Tracy Fish Collection Facility (Tracy Pumping Plant). These measures should include: (1) monitoring entrainment on a real-time basis to identify periods of peak susceptibility of various species; (2) coordinating operations of the two diversions, including interchangeable pumping, to reduce combined losses; (3) increasing screening efficiency; (4) improving fish salvage and handling; and (5) controlling predators at the SWP and CVP intakes.

4. Narrative Objective for Brackish Tidal Marshes of Suisun Bay

In the 1995 Plan, the State Water Board recommended that DWR convene a Suisun Marsh Ecological Work group (SEW) consisting of representatives from various State, federal and private agencies and other interested parties. The SEW was assigned eight tasks, one of which was to determine a numeric objective to replace the narrative objective for tidal brackish marshes of Suisun Bay. However, the SEW was unable to determine a single numeric objective for the tidal marshes. In 2001 the Suisun Marsh Charter Group (SMCG¹¹) was formed to develop a plan to balance the competing needs in Suisun Marsh. The SMCG is currently preparing a Programmatic Environmental Impact Statement/Environmental Impact Report (PEIS/EIR) for the Habitat Management, Preservation, and Restoration Plan for the Suisun Marsh (Suisun Marsh Plan). In the preparation of the Suisun Marsh Plan, the principal Suisun Marsh agencies are evaluating Plan alternatives with a tidal wetland habitat restoration component ranging from 3,000 to 36,000 acres.

State Water Board staff will use the results of the final PEIS/EIR and the resulting Suisun Marsh Plan during the next Water Quality Control Plan update to determine whether and how to convert the narrative objective to a numeric objective for the Brackish Tidal Marshes.

¹¹ The SMCG Principle Agencies include Suisun Resource Conservation District, DFG, DWR, USBR, CBDA, NMFS and USFWS.

5. Numeric Objectives for Suisun Marsh

State Water Board staff will use the results of the final PEIS/EIR and the resulting Suisun Marsh Plan currently being prepared by the Suisun Marsh Charter Group (SMCG), to determine in a future plan amendment whether the objectives at stations S-97 and S-35 should be amended or deleted. The objectives at stations S-97 and S-35 may be amended and/or implemented in stages, as appropriate, and shall be implemented no later than either January 1, 2015, or an earlier date, if a further review of these objectives does not determine that they are not needed.

The objectives for water supply intakes for waterfowl management areas on Van Sickle and Chipps islands, which have no locations specified, may be amended and/or implemented in stages, and shall be implemented no later than January 1, 2015 if a further review of these objectives does not determine that they are not needed. Other measures to control Suisun Marsh soil and channel water salinities are discussed in section C9.

C. Recommendations to Other Agencies

Consistent with the Porter-Cologne Water Quality Control Act, this Water Quality Control Plan identifies control actions recommended for implementation by agencies other than the State Water Board. Actions are recommended both for the attainment of water quality objectives and to obtain additional information on the effects of flow and water quality on beneficial uses.

Numerous actions can be taken, in addition to establishing and implementing water quality objectives for the Bay-Delta Estuary, to improve fish and wildlife beneficial uses in the Estuary. These actions involve improvements to habitat conditions both inside and outside of the Estuary, many of which are under the authorities of other agencies, as well as studies needed to better understand the effects of flow and water quality on beneficial uses.

There is an ongoing effort by State agencies, the federal government, and agricultural, urban, and environmental interests to identify, fund, and implement, as warranted, measures to address the broader non-flow-related range of factors potentially affecting water quality and habitat in the Bay-Delta Estuary. Potential measures under consideration by these entities include those that would be implemented outside of the Estuary itself. These efforts, in connection with the other measures to implement the objectives in this plan, are among the ongoing programs to provide better protection for the beneficial uses that depend on the Bay-Delta Estuary.

The State Water Board will use its authority, as needed and appropriate, under section 13165 of the California Water Code to require that the following actions and studies be conducted.

1. Review and modify, if necessary, existing commercial and sport fishing regulations

Current levels of sport and commercial fishing may be contributing to reduced fish populations in the Bay-Delta Estuary. Since the implementation of the 1995 Plan, the Fish and Game Commission was granted authority over all state managed bottom trawl fisheries not managed under a federal fishery management plan or state fishery management plan. (Fish & Game Code, § 8841.) This authority ensures the sustainable management of resources, protects the health of ecosystems, and assists in the orderly transition to sustainable gear types when bottom trawling is incompatible with these goals.

The DFG, California Fish and Game Commission, Pacific Fisheries Management Council, and NOAA Fisheries should take the following actions within their respective authorities: (1) develop and implement a fisheries management program to provide short-term protection for aquatic species of concern through seasonal and area closures, gear restrictions to reduce capture and mortality of sub-legal fish, and other appropriate means; and (2) review immediately, and then at least every two years, and modify, if necessary, existing harvest regulations to ensure that they adequately protect aquatic species.

2. Reduce illegal harvesting

Illegal harvesting has a certain but un-quantified impact on fisheries of the Bay-Delta Estuary. The DWR and the DFG should expand the current illegal harvest enforcement program. Additionally, the DFG should continue to develop and implement educational programs to curb poaching of fishery resources.

3. Reduce the impacts of introduced species on native species in the Estuary

The intentional and accidental introduction of non-native species has caused major changes in the composition of aquatic resources in the Bay-Delta Estuary; however, the exact impacts of existing introduced species on native species in the Estuary are not clear. The impact of introduced species is being investigated as a potential cause of the POD. The results of the ongoing POD studies may provide insight into the reasons for the decline, and provide the scientific basis for actions that can be taken to reverse the trend.

Until the results from the POD studies are made available, other programs are being implemented by other agencies to lessen the propagation of invasive species. The National Invasive Species Act of 1996 established various programs intended to decrease the propagation of invasive species into waters of the U.S. and to prevent the spread of aquatic nuisance species. These programs include the Ballast Water Management Demonstration Program and the Aquatic Nuisance Species Program and allows for State Invasive Species Management Plans to be created independent of federal action. Under the National Invasive Species Act of 1996, the DFG, USFWS, and NOAA Fisheries should continue to pursue programs to determine the impacts of introduced species, including striped bass, on the native aquatic resources of the Estuary, and the potential benefits of control measures. The DFG

should also continue its efforts under the Fish and Game Code sections 6430-6439, enacted in 1992, concerning introduced species.. Additionally, the California Fish and Game Commission should deny all requests for the introduction of new aquatic species into the watershed of the Bay-Delta Estuary unless it finds, based on strong, reliable evidence, that an introduction will not have deleterious effects on native species.

4. Improve hatchery programs for species of concern

Existing fish hatcheries are operated in order to provide mitigation for the loss of stream spawning and rearing habitat due to the construction of large dams. As noted by NOAA Fisheries in the Biological Opinion on the Long-Term Central Valley Project and State Water Project Operations Criteria and Plan (OCAP), the viability of natural fish populations has been compromised due to the operation of hatcheries, as the hatchery fish are not isolated from the natural systems. Hatchery fish, while increasing the abundance of fish numbers, often result in increased harvesting pressure on natural fish stocks. Additionally the hybridization between hatchery and natural fish stocks has caused deterioration of the natural population.

To assist in the management of natural fish stocks, Congress has mandated that all federal and federally funded salmon and steelhead hatcheries implement a marking program on the fish they release to visually distinguish between hatchery and natural stock. DFG, NOAA Fisheries, and USFWS should continue to: (1) carefully examine and periodically re-examine the role and contribution of existing hatchery production for various fish species (e.g., chinook salmon, steelhead trout), including a consideration of the need for genetic diversity and maintaining the integrity of different salmon runs and (2) evaluate strategies for improving the survival of hatchery fish, before and after release, including diet and pre-release conditioning, selection of the life stage and size of fish to be released, timing releases relative to the presence or absence of other species, and using multiple release locations.

5. Expand the gravel replacement and maintenance programs for salmonid spawning habitat

The presence of dams on the major tributaries of the Delta blocks the movement of gravel eroding from upstream areas and causes fine sediments to infiltrate the remaining gravels. Reduction in the riverbed gravels required for salmonid spawning limits the success of chinook salmon and steelhead trout reproduction in the watershed of the Bay-Delta Estuary.

Under the AFRP, and other gravel replacement and maintenance programs, the DWR, the USBR, and other agencies that currently conduct gravel replacement and spawning habitat improvement programs on the Sacramento and San Joaquin River systems should continue and, where possible, increase their efforts in the reaches where salmonids are likely to spawn.

6. Evaluate alternative water conveyance and storage facilities of the SWP and CVP in the Delta

The current water diversion facilities of the CVP and the SWP in the southern Delta adversely impact fish populations. These facilities or alternative facilities are needed to meet water supply demands in areas south and west of the Delta. Various alternatives have been identified to minimize impacts to fish while meeting water supply demands. The proposed alternatives include construction of a water diversion intake on the Sacramento River equipped with state-of-the-art fish screens, isolated and through-Delta water conveyance facilities, and new water storage facilities within and south of the Delta. The DWR and USBR should continue their efforts to develop alternative water conveyance and storage facilities in the Delta, and should evaluate these alternatives and their feasibility and take action as necessary to minimize impacts to fish.

7. Develop an experimental study program on the effects of pulse flows on fish eggs and larvae in the Delta

The magnitude of freshwater outflow passing through the Delta affects the geographic distribution of many planktonic fish eggs and larvae. The egg and larval stages of many fish species occur in the Delta during a relatively short period of time in the spring (April-June). When there is high freshwater outflow, the planktonic eggs and larvae are moved downstream into Suisun Bay where they are less susceptible to entrainment at the SWP and CVP diversions and at other diversion points within the Delta. Absent high freshwater flows, pulse flows can be used to move the eggs and larvae downstream into Suisun Bay. To improve the efficiency of water used for this purpose, it would be helpful to experimentally quantify the magnitude and duration of pulse flows needed to move a substantial proportion of fish eggs and larvae into Suisun Bay.

DWR and USBR should conduct experiments to investigate and evaluate the biological benefits of pulse flows to move planktonic fish eggs and larvae into Suisun Bay. These experiments, which should be conducted as soon as feasible, should: (1) include flows from both the Sacramento and San Joaquin Rivers; (2) include real-time biological monitoring to determine the most favorable times for the pulse flows and the effects of the pulse flows on the eggs and larvae; (3) determine whether short-term pulse flows have a lasting benefit or whether, when outflows are reduced after a pulse flow, the larval fish are drawn back into interior Delta areas; and (4) take into account base flows and availability of water supplies. The experiments should be designed so that they can be used to refine potential pulse flow requirements in the future.

8. Implement actions needed to restore and preserve marsh, riparian, and upland habitat in the Delta

Most of the historical fish and wildlife habitat in the Delta has been eliminated or disturbed. In the Delta, less than 100,000 acres of the total 738,000 acres remains as marsh, riparian, and upland habitat. The remainder of the area is highly altered due to conversion to agricultural land, industrial and urban development, and actions

for flood control and navigation, such as dredging channels and riprapping banks. Furthermore, many of the alterations that have already occurred require extensive ongoing maintenance, which also disrupts fish and wildlife habitat. Restoration of fish and wildlife habitat in the Delta would benefit many species of the Bay-Delta Estuary.

State and federal agencies should require, to the extent of their authorities, habitat restoration in the Delta as a condition of approving projects. For example, the Delta Protection Commission, in all of its actions under the Delta Protection Act of 1992 (Pub. Resources Code § 29700 *et seq.*) that provide for the coordination of local land use decisions in the Delta, should continue to implement and support programs such as the Delta Mercury TMDL Collaborative (AB 2901), the Lower Bypass Collaborative/Management Plan and the Delta-wide Conservation Easement Concept. The DFG, when it considers approving stream alterations, and the DFG, USFWS, and NOAA Fisheries, when they consider projects that affect endangered species, should consider habitat requirements. The USCOE should consider habitat requirements in connection with applications for permits under Clean Water Act section 404. Within their authorities, these agencies should provide for: (1) levee setback requirements; (2) reductions in the depth of selected Delta channels, by using either dredge material from navigational channels or natural infill, to restore more productive shallows and shoals; (3) conversion of low-lying Delta islands to habitat areas; and (4) other habitat enhancement measures. The State Water Board will consider habitat requirements where needed to meet water quality standards under the Clean Water Act when approving section 401 certifications.

9. Suisun Marsh soil and channel water salinity objectives

In addition to the formation of the SEW discussed above, the 1995 Plan recommended three measures to be implemented to control Suisun Marsh soil and channel water salinities. The first measure, calling for continuation of the actions identified for implementation in the Suisun Marsh Preservation Agreement (SMPA), is included in the Revised Suisun Marsh Preservation Agreement executed on June 25, 2005. The Suisun Marsh Charter Group is evaluating two additional actions that may be added to the SMPA in a future amendment. The second measure, calling for a study to determine the relationship between channel water salinity and soil water salinity under alternative management practices, was completed in 2001 by DWR as part of the Comprehensive Review of Suisun Marsh Monitoring Data, 1985-1995. The third measure, requiring that DWR, USBR, DFG, and Suisun Resource Conservation District (SRCD), together with the property owners in Suisun Marsh, to employ a watermaster, has been accomplished through implementation of the Water Manager Program under the Revised SMPA.

In June of 2005, SRCD, DWR, USBR, and DFG signed the Revised SMPA. This agreement funded the Water Manager Program to help coordinate and improve water management practices on individual private managed wetlands throughout the Marsh. The duties of the Water Managers include:

- promote and encourage wetland management activities, including flooding, draining and circulation, so that they occur at the appropriate critical times of the year to produce desired wildlife habitats.
- provide technical support in the field to answer questions and educate landowners on beneficial management techniques.
- protect and enhance endangered species habitat, manage water application, and provide new scientific information pertaining to common management activities.
- supervise and coordinate the portable pump program to ensure proper maintenance and operation of the pumps.
- assist landowners in planning yearly maintenance and enhancement projects.
- additional activities may include assisting DFG on water management of State owned property, assisting in yearly salt marsh harvest mouse monitoring, California clapper rail surveys, and inspections of levees during storms to identify damages and assist in flood fight coordination.

10. San Joaquin River Spring Flow Objectives

The DFG, USFWS, and NOAA Fisheries, in coordination with the IEP and other interested parties, should compile information and conduct specific studies to determine whether and what changes should be made to the Spring Flow Objectives to protect San Joaquin River chinook salmon and steelhead, pelagic organisms (see the POD section for additional information concerning these studies) and other applicable fish and wildlife species. These entities also should conduct analyses to determine whether it is appropriate to revise the methodology for determining when the higher spring flow objectives apply, to better reflect hydrological conditions within the San Joaquin River Basin. In addition, these entities should conduct modeling to determine the water costs of the various flow proposals and the sustainability of such proposals given current water storage capacities and consumptive use needs within the San Joaquin River Basin. These entities should present any available information from such studies during the State Water Board's workshop on the San Joaquin River flow issues.

11. San Joaquin River Pulse Flow Objectives

DWR, in cooperation with parties to the SJRA, should establish procedures to install the head of Old River barrier at flows in excess of 5,000 cfs during the pulse flow period to further increase the survival of out-migrating San Joaquin River chinook salmon smolts and to provide additional data for the VAMP experiment.

In addition, parties to the SJRA should conduct a peer review of the VAMP study design to determine whether changes may be needed to the study to obtain

necessary data points and to ensure the protection of San Joaquin River and Delta species. This peer review should be conducted prior to the State Water Board's workshop on San Joaquin River flow issues, anticipated for summer of 2007. Conclusions from the peer review should be presented during the workshop. If the findings of the peer review indicate that changes may be needed to water rights implementing the VAMP study, parties to the SJRA may file a petition to change their water rights with the State Water Board.¹² Alternatively, the State Water Board could undertake its own proceeding to make changes to water rights, the objectives, and/or the program of implementation for the objectives.

D. Monitoring and Special Studies Program

This Plan requires, and the permits and license of the DWR and the USBR include conditions for, a monitoring program to provide baseline information and determine compliance with water quality objectives. This Plan also requires, and the permits of DWR and USBR include conditions for, special studies that will (1) evaluate the response of the aquatic habitat and organisms to the objectives; and (2) increase understanding of the large-scale characteristics and functions of the Estuary ecosystem to better predict system-wide responses to management options.

The monitoring and special studies program, also known as the Environmental Monitoring Program (EMP) is predicated on the ongoing monitoring efforts of the IEP. IEP member agencies include the State Water Board, DFG, USGS, NOAA Fisheries, USCOE, USEPA, DWR, and the USBR. The program is coordinated with the CBDA and UC Davis to minimize duplication and facilitate the exchange of data.

Table 4 of the 1995 Plan (now Table 7), established a preliminary compliance and baseline monitoring program. Condition 11 (e) on page 149 of D-1641 required the DWR and the USBR to complete an assessment of the EMP every three years to evaluate whether the goals of the monitoring program were being attained. This review was completed in 2003 and based on the conclusions of the review, several changes to the EMP were proposed that were considered to be functionally equivalent to the existing program. IEP participants developed a more appropriate compliance and baseline monitoring program. The new program contains Geographic Information System (GIS) coordinates for each monitoring and baseline station. In addition the modifications will: 1) enhance continuous monitoring at key locations to better measure the temporal variability in the system; 2) enhance shallow water monitoring to better measure the spatial variability in the system; 3) reduce the tidal spring-neap bias that occurs in the current program; 4) improve the quality assurance and quality control of the program by providing continuous monitoring data that can be used as crosschecks against discrete or periodic sampling data; and 5) improve employee safety.

¹² The State Water Board could then determine whether changes would also be needed to the Plan and undertake proceedings to make any necessary changes.

Prior to the release of the 1995 Plan, the IEP had been conducting a special studies program including the 20mm delta smelt survey and the juvenile salmon and delta fishes abundance and distribution sampling. These studies emphasize understanding the ecological responses of species of special concern to water project operations resulting from implementation of this Plan. Other ongoing studies, such as the Bay shrimp and crab abundance and distribution sampling, and the Bay salinity monitoring, enhance knowledge of how the Estuary responds to factors other than the operational impacts of water development facilities.

Since the release of the 1995 Plan, various State and federal agencies and interested parties developed a near-real-time monitoring program managed by the Water Operations Management Team (WOMT) to assist the CALFED Ops group acting pursuant to the Principles for Agreement. The State and federal agencies should continue to conduct a process like the CALFED Ops process to ensure that the SWP and CVP operations developed to comply with the Plan are as efficient as possible.

Table 7. Water Quality Compliance and Baseline Monitoring

Station Number ¹	Station Description ²	Latitude ³	Longitude ³	Cont. Rec. ⁴	Cont. Multi-parameter ⁵	Disc. Physical Chemical ⁶	Disc. Phytoplankton ⁷	Discr. Zooplankton ⁸	Discrete Benthos ⁹
C2	■ Sacramento River @ Collinsville	38.07395	-121.85010	*					
C3A	▲ Sacramento River @ Hood	38.36772	-121.52051		*	*	*	*	
C4	■ San Joaquin River @ San Andreas Ldg.	38.10319	-121.59128	*					
C5	■ Contra Costa Canal @ Pumping #1	37.99520	-121.70244	*					
C6	■ San Joaquin River @ Brandt Bridge site	37.86454	-121.32270	*					
C7	▲ San Joaquin River @ Mossdale Bridge	37.78604	-121.30666		*				
C8	■ Old River near Middle River	37.82208	-121.37517	*					
C9	● West Canal at mouth of CCForebay Intake	37.8218	-121.55275						*
		37.83075	-121.55703		*	*	*	*	
C10	● San Joaquin River near Vernalis	37.67575	-121.26500						
		37.69734	-121.26472		*	*	*	*	
C13	■ Mokelumne River @ Terminus	38.11691	-121.49888	*					
C14	■ Sacramento River @ Port Chicago	38.05881	-122.02607	*					
C19	■ Cache Slough @ City of Vallejo Intake	38.29687	-121.74784	*					
D4	▲ Sacramento River above Point Sacramento	38.06214	-121.81792			*	*	*	*
D6	▲ Suisun Bay @ Bulls Head Pt. near Martinez	38.04427	-122.11764			*	*	*	*
D6A	▲ Suisun Bay @ Martinez	38.02762	-122.14052		*				
D7	▲ Grizzly Bay @ Dolphin near Suisun Slough	38.11708	-122.03972	*		*	*	*	*
D8	▲ Suisun Bay off Middle Point near Nichols	38.05992	-121.98996			*	*	*	
D9	▲ Honker Bay near Wheeler Point	38.07245	-121.93923	*		*	*		
D10	● Sacramento River @ Chipps Island	38.04288	-121.92011		*	*			
		38.04631	-121.91829					*	
D11	▲ Sherman Island near Antioch	38.04228	-121.79951	*		*	*		
D12	● San Joaquin River @ Antioch Ship Canal	38.01770	-121.80273		*	*			
		38.02162	-121.80638					*	
D15	■ San Joaquin River @ Jersey Point	38.05190	-121.68927	*					
D16	▲ San Joaquin River @ Twitchell Island	38.09690	-121.66912					*	*
D19	▲ Frank's Tract near Russo's Landing	38.04376	-121.61477	*		*	*	*	
D22	● Sacramento River @ Emmaton	38.08406	-121.73912	*					
		38.08453	-121.73914					*	
D24	● Sacramento River below Rio Vista Bridge	38.15891	-121.68721		*	*			
		38.15550	-121.68113						*
D26	▲ San Joaquin River @ Potato Point	38.07667	-121.56696			*	*	*	
D28A	▲ Old River near Rancho Del Rio	37.97038	-121.57271			*	*	*	*
		37.96980	-121.57210	*					

D29	■	San Joaquin River @ Prisoners Point	38.05793	-121.55736	*				
.....	▲		38.05793	-121.55736			*	*	*
D41	▲	San Pablo Bay near Pinole Point	38.03016	122.37287			*	*	*
D41A	▲	San Pablo Bay near mouth of Petaluma R.	38.08472	-122.39067			*	*	*
DMC1	●	Delta-Mendota Canal at Tracy Pump. Plt.	37.78165	-121.59050		*			
P8	▲	San Joaquin River @ Buckley Cove	37.97815	-121.38242			*	*	*
P8A	▲	San Joaquin River @ Rough and Ready Island	37.96277	-121.36587		*			
P12	■	Old River @ Tracy Road Bridge	37.80493	-121.44929	*				
MD10	▲	Disappointment Slough near Bishop Cut	38.04229	-121.41935			*	*	*
S21	■	Chadbourne Slough @ Sunrise Duck Club	38.18476	-122.08315	*				
S35	▲	Goodyear Slough @Morrow Island Clubhouse	38.1181	-112.09580	*				
S42	●	Suisun Slough 300' south of Volanti Slough	38.18053	-122.04696	*		*	*	
			38.18027	-122.04779				*	
S49	■	Montezuma Slough near Beldon Landing	38.18686	-121.97080	*				
S64	■	Montezuma Slough @ National Steel	38.12223	-121.88800	*				
S97	▲	Cordelia Slough @ Ibis Club	38.15703	-122.11378	*				
NZ032	▲	Montezuma Slough, 2nd bend from mouth	38.16990	-122.02112					*
SLBAR3	■	Barker Sl. at No. Bay Aqueduct (SLBAR3)	38.27474	-121.79499	*				
---	■	Sacramento R. (I St. Bridge to Freeport) (RSAC155)	38.589 to 38.45585	-121.504 to -121.50302	*				
---	▲	San Joaquin R. (Turner Cut to Stockton) (RSAN050-RSAN061)	37.99746 to 37.95242	-121.44435 to -121.31750	*				
---	▲	Water supply intakes for waterfowl management areas on Van Sickle Island and Chipps Island			*				

■ Compliance monitoring station

▲ Baseline monitoring station

● Compliance and baseline monitoring station

Footnotes for Table 7

- ¹ All stations with compliance monitoring component are identified by historical "interagency" station numbers as given in State Water Board D-1641 (2000) and Water Right Decision 1485 (1978). Modified station ID numbers (e.g. C3A) identify baseline stations near historical stations.
- ² All stations with a compliance monitoring component retain their historical "interagency" station descriptions as given in State Water Board D-1641 (2000) and D-1485 (1978). Baseline stations with modified station ID numbers (e.g. C3A) have modified station descriptions.
- ³ Coordinates are geographic North American Datum 1983 and have been verified to be accurate for 1:24,000 scale mapping.
- ⁴ Continuous recording (every 15 minutes) of water temperature, electrical conductivity (EC), and/or dissolved oxygen. For municipal and industrial intake chloride objectives, EC can be monitored and converted to chloride concentration.
- ⁵ Continuous, multi-parameter monitoring (recording every 1 to 15 minutes with telemetry capabilities) includes the following variables: water temperature, EC, pH, dissolved oxygen, turbidity, chlorophyll a fluorescence, tidal elevation, and meteorological data (air temperature, wind speed and direction, solar radiation).
- ⁶ Discrete physical/chemical monitoring is conducted on a year-round, near-monthly basis that alternates between spring and neap tides and includes the following variables: macronutrients (inorganic forms of nitrogen, phosphorus and silicon), total suspended solids, total dissolved solids, total particulate and dissolved organic nitrogen and carbon, chlorophyll a, pH, dissolved DO, EC (specific conductance), turbidity, secchi depth, and water temperature. In addition, on-board continuous recording is conducted intermittently for the following variables: water temperature, dissolved oxygen, electrical conductivity, turbidity, and chlorophyll a fluorescence.
- ⁷ Discrete sampling for phytoplankton enumeration or algal pigment analysis is conducted on a year-round, near-monthly basis that alternates between spring and neap tides.
- ⁸ Tow or pump sampling for zooplankton, mysids, and amphipods is conducted on a year-round, near-monthly basis that alternates between spring and neap tides.
- ⁹ In water years 2004 and 2005, replicated benthos and sediment grab samples are taken quarterly (every three months) and during special studies; more frequent monitoring sampling resumes in water year 2006.

E. Other Studies conducted by agencies that may provide information relevant to future proceedings

The following studies are currently in progress and are being completed by other agencies independent of State Water Board action. Upon completion, the State Water Board may use the information provided by these studies to amend portions of this Plan.

1. Delta Cross Channel Gate

In the fall of 2000, the CALFED Bay Delta Program and the IEP began investigating the costs and benefits associated with re-operating the Delta Cross Channel (DCC) gate to address water quality and fisheries concerns. These studies have been delayed due to lack of funding and staffing problems. When completed, the Board expects the CALFED Bay Delta Program multidisciplinary studies to address the multi-purpose aspects of DCC gate operation (balancing the beneficial uses of fisheries, water quality, water supply and flood control), and provide evidence for future amendments to the DCC objective.

2. Potential New Municipal and Industrial Objectives

Further understanding of the chemical reactions which form disinfection by-products (DBPs) is required before water quality objectives for bromides and organic carbon can be set. However, USEPA may require compliance with new federal drinking water standards as soon as 2012. The preferred methods for developing this information are collaborative processes such as the CALFED Drinking Water Quality Program (DWQP), which includes the Central Valley Drinking Water Policy. DWR, CALFED, and the Central Valley Regional Water Board are planning to complete development of the Central Valley Drinking Water Policy by 2009. This work may include development of bromide objectives and other constituents for the Central Valley Drinking Water Policy. After the Drinking Water Policy is completed, the State Water Board may convene a workshop to receive comments as to whether there is a need for objectives in the Bay-Delta Plan for bromides and organic carbon.

3. Pelagic Organism Decline

The IEP formed a POD work team to evaluate the potential causes of the marked declines in numerous pelagic fishes in the Sacramento-San Joaquin Delta Estuary and Suisun Bay. This multi-agency effort has produced a work plan that provides an overview of the problem, and a description of the studies used to examine some of the suspected causes of the decline.

In order to better understand the results of the POD studies, the IEP has created a conceptual model of the decline. The model is based on three general factors that may be acting individually or in concert to lower pelagic productivity. The three main suspected factors are: toxins, invasive species and water project operations. The POD studies were designed to provide insight into the reasons for the decline and to set the scientific basis for future work, with the eventual goal of narrowing down the causes of the decline and determining what actions can be taken to reverse the

trend. The proposed studies represent an interdisciplinary, multi-agency effort including staff from DFG, DWR, USBR, USEPA, USGS, CBDA, San Francisco State University and UC Davis. The proposed work falls into three general types: (1) an expansion of existing monitoring (five expanded surveys); (2) ongoing studies (19 studies); and (3) new studies (15 studies).

The program will be run by the existing IEP Pelagic Organisms Decline Project Work Team to develop, direct, review and analyze the results of the effort. The program will yield a range of products and deliverables including management briefs, publications and reports, web-based monitoring data, and presentations at conferences, workshops and meetings.

In February 2006, the CBDA provided an independent review of the initial results of the 2005 IEP POD Workplan and the 2005 IEP POD Synthesis Report entitled *Review Panel Report: San Francisco Estuary Sacramento-San Joaquin Delta Interagency Ecological Program on Pelagic Organism Decline*. The report provides perspectives on data synthesis presented and makes recommendations for improvements in analyzing, interpreting and defining appropriate context for future IEP POD-oriented investigations.

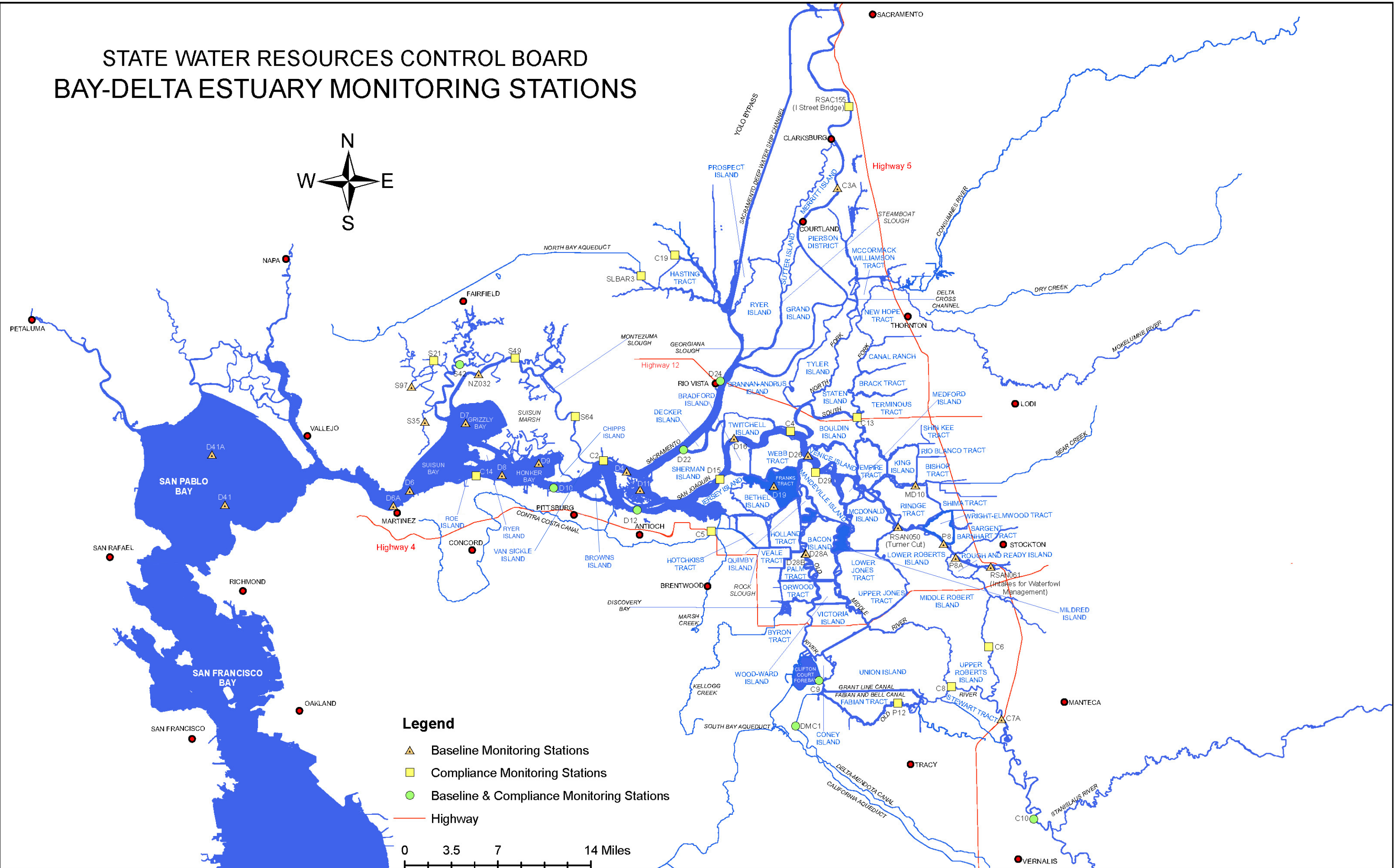
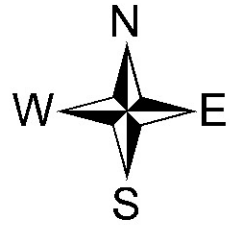
The expected completion date for the POD studies is 2007. Once the study results have been compiled; the State Water Board will ask the IEP to make a presentation of findings to the State Water Board at a subsequent workshop. Study results will be considered in the ongoing Plan review, and may be used to determine whether changes should be made to existing Water Quality Objectives, i.e. adding flexibility to the Delta Outflow Objective or the Delta Export Limits Objective. After the initial presentation to the State Water Board, the IEP shall give the State Water Board updates of current studies and new findings at subsequent workshops on an annual basis. The IEP presentations to the State Water Board shall continue until the next review of this Plan. The information collected by the State Water Board may be used to modify the water quality objectives in this Plan in the future.

4. Suisun Marsh

In 2001, the SMCG was formed to resolve issues of amending the SMPA, obtain a Regional General Permit, implement the Suisun Marsh Levee Program, and recover endangered species. The broader purpose of the SMCG is to develop and agree on a long-term implementation plan. The SMCG principal agencies are USFWS, USBR, DFG, DWR, Suisun Resource Conservation District, and NOAA Fisheries. The proposed Suisun Marsh Plan would be consistent with the goals and objectives of the Resources Agency's Bay-Delta Program, and would balance them with the SMPA, federal and State Endangered Species Acts and other management and restoration programs within the Suisun Marsh in a manner responsive to the concerns of all stakeholders and based upon voluntary participation of private landowners. In March 2006, the Plan was undergoing California Environmental Quality Act (CEQA)/National Environmental Policy Act review. The final CEQA document will be released in December 2008. The State Water Board will use the

final Suisun Marsh Plan and the analysis in the final CEQA document in its next periodic review to determine what amendments, if any, to make to Suisun Marsh soil and channel water salinity objectives, and the narrative objective for brackish tidal marshes of Suisun Bay.

STATE WATER RESOURCES CONTROL BOARD BAY-DELTA ESTUARY MONITORING STATIONS



Legend

- ▲ Baseline Monitoring Stations
- Compliance Monitoring Stations
- Baseline & Compliance Monitoring Stations
- Highway

0 3.5 7 14 Miles



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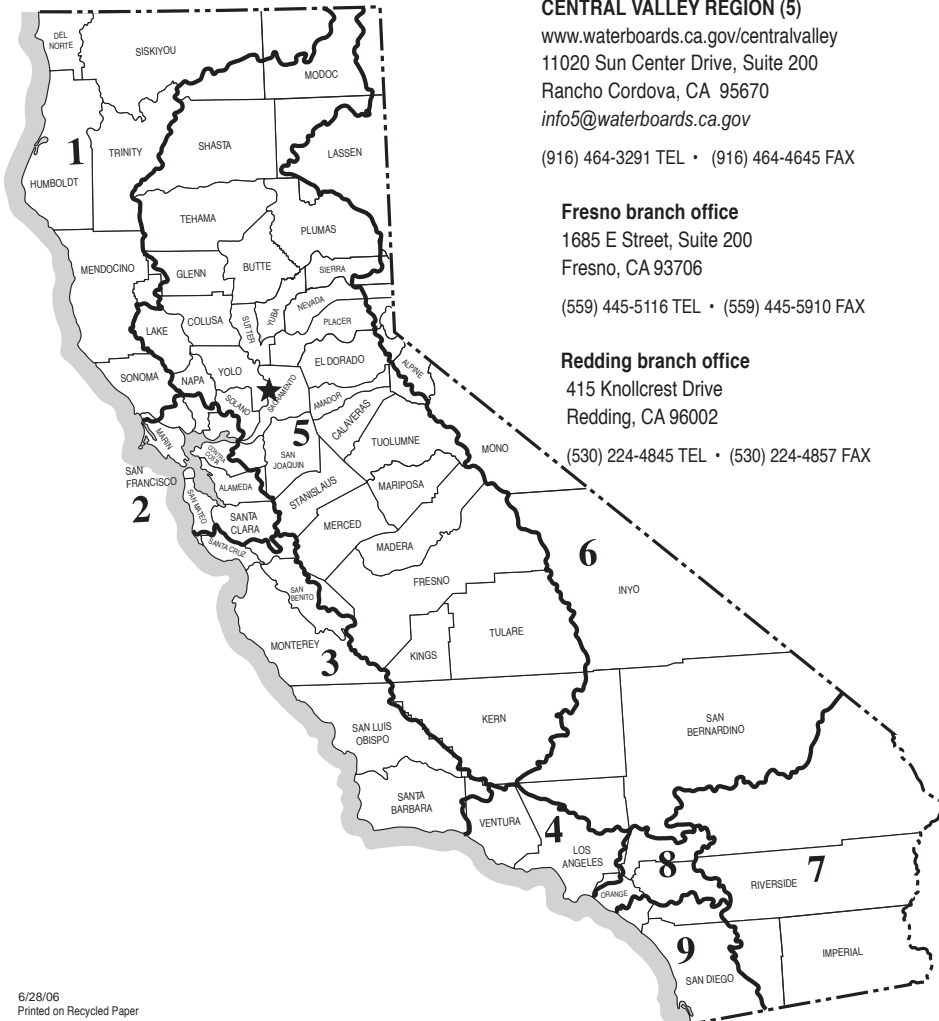
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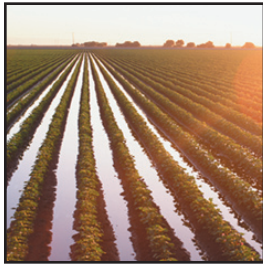
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California Environmental Protection Agency
Linda S. Adams, Secretary

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Plan Amendment Report, Appendix 1 to the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

December 13, 2006



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Division of Water Rights
December 2006



STATE OF CALIFORNIA

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**PLAN AMENDMENT REPORT,
APPENDIX 1 TO THE
2006 WATER QUALITY CONTROL PLAN
FOR THE
SAN FRANCISCO BAY/
SACRAMENTO-SAN JOAQUIN
DELTA ESTUARY**

DECEMBER 13, 2006

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ACKNOWLEDGEMENTS

We wish to acknowledge the following people and organizations for their contribution to this report:

- Barbara Leidigh in the Office of Chief Counsel, for providing the legal support and editing
- Linda Valin and Jeanice Tipps in the Division of Water Rights, for editing, typing, and formatting the documents
- Sharon Norton, Maria Bozionelos, Chris Whittington, and Dale Oliver in the Division of Water Rights Graphics Unit, for the graphics, maps and charts
- Numerous interested parties that have provided suggestions and input on draft documents

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ACRONYMS AND ABBREVIATIONS

AFRP	Anadromous Fish Restoration Program
AFS	American Fisheries Society
BI	Bay Institute
Board	State Water Resources Control Board
CALFED	aka California Bay Delta Authority
CCWD	Contra Costa Water District
CDWA	Central Delta Water Agency
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
D-1641	Water Rights Decision 1641
D/DBPR	Disinfectants/Disinfection Byproducts Rule
DCC	Delta Cross Channel
DBP	Disinfection by-product
Deltakeeper et. al.	Deltakeeper, California Sportfishing Protection Alliance, San Joaquin Audubon, and Committee to Save the Mokelumne
DFG	California Department of Fish and Game
DO	Dissolved Oxygen
DWR	California Department of Water Resources
DWSC	Deep Water Ship Channel
EC	electrical conductivity
ELPH	Equivalent level of public health
FFF	Northern California/Nevada Federation of Fly Fishers
IEP	Interagency Ecological Program
MAF	million acre-feet
MCL	Maximum contaminant level
mg/L	milligram(s) per liter
mmhos/cm	millimhos per centimeter
NCWA	Northern California Water Association
NDOI	Net Delta Outflow Index
NOAA Fisheries	National Marine Fisheries Service
POD	Pelagic Organism Decline
ppt	parts per thousand
Projects	The Department of Water Resources and the United States Bureau of Reclamation (when acting collectively)
Regional Water Board	Regional Water Quality Control Board
SDIP	South Delta Improvements Program
SDWA	South Delta Water Agency
SEWD	Stockton East Water District
SJEC	San Joaquin River Water Authority, Exchange Contractors
SJRA	San Joaquin River Agreement
SJRG	San Joaquin River Group Authority

SLDMWA	San Luis Delta-Mendota Water Authority
SWC	State Water Contractors
SWP	State Water Project
State Water Board	State Water Resources Control Board
TAF	thousand acre-feet
TMDL	Total Maximum Daily Load
TOC	total organic carbon
µg/l	microgram(s) per liter
USBR	United States Bureau of Reclamation
USCOE	United States Army Corps of Engineers
USDOI	United States Department of the Interior
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VAMP	Vernalis Adaptive Management Plan
WOMT	Water Operations Management Team

References within the text use the above acronyms and abbreviations.

Executive Summary

Following a review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (1995 Plan) pursuant to California Water Code sections 13170 and 13240 and federal Clean Water Act section 303(c)(1) (33 USC § 1313(c)(1)) the State Water Resources Control Board (State Water Board) conducted a workshop to evaluate new information for consideration of new water quality objectives or changes to the objectives specified in the 1995 Plan. Based on the information provided in that workshop and other pertinent information, only minor changes should be made to the 1995 Plan. The changes to the 1995 Plan are contained in the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (2006 Plan). This report summarizes the information and recommendations received by the State Water Board during the review workshop for the 1995 Plan and describes the rationale behind the State Water Board's decision to adopt the 2006 Plan. In addition, this report includes an analysis of the potential environmental impacts of adopting the 2006 Plan, which meets the requirements of section 21080.5 of the California Environmental Quality Act.

The 2006 Plan makes only minor changes to the 1995 Plan. No changes have been made to the beneficial uses. Water quality objective footnotes containing implementation dates have been moved to the program of implementation or, if obsolete, have been deleted. Other water quality objective footnotes have been edited to be consistent with the footnotes in D-1641. Any new implementation dates in the 2006 Plan are specified in the program of implementation with reference to the affected objective. Due to deletions of some footnotes in the 1995 Plan, some of the footnotes in the 2006 Plan have been renumbered.

Because the State Water Board has already implemented the southern Delta electrical conductivity objectives by amending water right permits and licenses pursuant to Decision 1641 (D-1641), footnote 5 of Table 2 of the 1995 Plan (stating that the objectives will be implemented at certain locations by December 31, 1997) is deleted, and the note in Table 2 of the 1995 Plan addressing the southern Delta electrical conductivity objectives (stating that if certain parties have implemented a contract, the Board may revise the objectives) is deleted as well. Footnote 4 of Table 3 applying to the dissolved oxygen objective has been deleted, and the program of implementation has been revised to represent existing regulatory conditions. Additionally, the State Water Board has partially implemented the Western Suisun Marsh salinity objectives pursuant to D-1641. Footnote 7 of Table 3 (stating that the effective date for implementing the salinity objective at Station S-21 (Chadbourne Slough at Sunrise Duck Club) is October 1, 1995) is deleted because the objective has already been implemented at this site pursuant to D-1641. In addition, footnote 8 of Table 3 (stating that the effective date for implementing salinity objectives at Station S-42 (Suisun Slough, 300 feet south of Volanti Slough), Station S-97 (Cordelia Slough at Ibis Club), and Station S-35 (Goodyear Slough at Morrow Island Clubhouse) is also deleted. The salinity objective at Station S-42 has already been implemented pursuant to D-1641. The program of implementation for

the salinity objectives at Stations S-97 and S-35 is revised to allow additional time to investigate the appropriateness of the objectives prior to the objectives becoming effective.

Other changes to the program of implementation include changes to the implementation of the April 15 through May 15 San Joaquin River pulse flow objectives for the protection of fish and wildlife beneficial uses (pulse flow objectives) in Table 3 and changes to the Water Quality and Baseline Monitoring Program (Monitoring Program) in Table 4 of the 1995 Plan (Table 7 of the 2006 Plan). The changes to the implementation of the pulse flow objectives authorize a staged implementation of the objectives to allow for scientific experimentation by conducting the Vernalis Adaptive Management Plan (VAMP) experiment pursuant to the San Joaquin River Agreement to assess whether the pulse flow objectives or alternate objectives are more appropriate. These changes are consistent with the current implementation of the objectives per D-1641.

The changes to the Monitoring Program are changes proposed by the Department of Water Resources and U.S. Bureau of Reclamation to:

- (1) improve the scientific basis for the Monitoring Program and the usefulness of the resulting data by enhancing continuous, comprehensive, and shallow water monitoring , and reducing the spring-neap tidal bias;
- (2) improve Quality Assurance/Quality Control;
- (3) improve monitoring efficiency by consolidating neighboring stations; and
- (4) improve safety.

The changes to the Monitoring Program modify the existing program set forth in Table 4 of the 1995 Plan (Table 7 of the 2006 Plan) and Figure 2 of the 1995 Plan (Figure 7 of the 2006 Plan) to:

- (1) add, reestablish, or move baseline monitoring elements at one compliance monitoring station (D29), seven compliance and baseline stations (C9, C10, D10, D12, D22, D24, and S42), and six baseline monitoring stations (C3, D7, D9, D11, D19, and D41A);
- (2) remove one baseline station (NZ080);
- (3) modify station numbers and descriptions for four baseline monitoring stations (C3, D6, D28A, and P8);
- (4) modify sampling interval description in footnotes to Table 4 of the 1995 Plan (Table 7 of the 2006 Plan) to avoid the spring-neap tide sampling bias; and
- (5) modify the layout in Table 4 of the 1995 Plan (Table 7 of the 2006 Plan) to include geographic coordinates and rearrange table columns to group the continuous monitoring and discrete monitoring activities.

Additional changes to the program of implementation include: (1) a description of upcoming activities by the State Water Board; (2) direction to the Central Valley Regional Water Quality Control Board (Regional Water Board) to carry out certain activities; and (3) recommendations to other agencies regarding performing activities

to assist in achieving the objectives. Further changes include recommendations for studies and other activities to establish adequate scientific information in order to determine if future modifications should be made to the objectives to ensure the protection of the various beneficial uses, and/or to determine how to address certain water quality issues.

The following list summarizes these other changes to the 1995 Plan:

1. The State Water Board recommends additional measures that should be taken by the State Water Board, Central Valley Regional Water Board, and other agencies to assist in achieving the southern Delta salinity objectives. In addition, the State Water Board intends to convene a workshop to discuss undertaking an independent scientific investigation of irrigation salinity needs in the southern Delta (similar to the investigation on which the objectives are based) to provide a current foundation for supporting the objectives or making changes to the objectives in the future based on studies specific to the southern Delta.
2. The State Water Board directs the Central Valley Regional Water Board to continue implementation of the recently adopted *Total Maximum Daily Load for the Sacramento River and San Joaquin River Basins to Control Factors Contributing to Dissolved Oxygen Impairment in the Stockton Deep Water Ship Channel*. In addition, the State Water Board recommends (1) completion of various studies to better understand the sources of oxygen demanding substances and their precursors in the San Joaquin River and (2) completion of a proposed pilot aeration project to increase dissolved oxygen in the Stockton Deep Water Ship Channel.
3. The State Water Board recommends that various agencies continue efforts to meet the narrative salmon protection objective. In addition, the State Water Board will consider ongoing monitoring results to determine what existing and potential measures will achieve the objective and whether the objective should be replaced with a numeric objective in the future.
4. The State Water Board intends to review the Suisun Marsh soil and channel water salinity objectives and the narrative objective for brackish tidal marshes of Suisun Bay following completion of environmental documentation for the Suisun Marsh Plan.
5. The State Water Board recommends that various agencies complete investigations into the pelagic organism decline in the Delta. Following completion of these studies, the State Water Board intends to review any objectives that may be associated with this decline, including but not limited to: Delta outflow objectives, river flow objectives, export limits, and potential new objectives. Under Water Code section 13165, the State Water Board will require state and local agencies to investigate and report on technical factors affecting attainment of these objectives.
6. The State Water Board intends to conduct a workshop on the San Joaquin River spring flow and pulse flow objectives after revisions are made in response to peer review of modeling work by the Department of Fish and Game (DFG) regarding the flow objectives. At that time, the State Water

Board will receive additional scientific information concerning the flow needs on the San Joaquin River and implementation of the flow objectives. Based on that information, the State Water Board may make changes to the objectives, the program of implementation for the objectives, and/or water rights implementing the objectives. In order to provide information during the workshop and future proceedings, the State Water Board recommends that the fisheries agencies (including DFG, the U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NOAA Fisheries), in coordination with the Interagency Ecological Program and other interested parties, compile information and conduct studies to determine whether changes should be made to the February through April 14 and May 16 through June San Joaquin River flow objectives to ensure the protection of fish and wildlife beneficial uses. The State Water Board also recommends that the parties to the San Joaquin River Agreement conduct a peer review of the VAMP prior to the workshop discussed below to determine whether changes may be needed to the study design to protect fish and wildlife and to obtain necessary data points.

7. The State Water Board recommends that the CALFED Bay-Delta Program and the Interagency Ecological Program complete studies necessary to determine the appropriateness of re-operating the Delta Cross Channel gate. Once these studies are completed, the State Water Board may undertake proceedings to consider changes to the Delta Cross Channel gate closure objectives.
8. Numerous updates are made to the Recommendations to Improve Habitat Conditions in the program of implementation.

This report is prepared under a regulatory program that has been certified exempt from the requirement for preparing separate environmental documentation, pursuant to Public Resources Code section 21080.5. (See Cal. Code Regs., tit.14, § 15251(g).) This report contains environmental analysis and is a substitute for an Initial Study and Negative Declaration pursuant to the California Environmental Quality Act. This report concludes that none of the changes discussed above has the potential to significantly impact the environment.

I. Introduction

The San Francisco Bay/Sacramento-San Joaquin Delta Estuary and Suisun Marsh (hereinafter collectively referred to as “the Bay-Delta” or “the Delta”) (Figure 1) are located at the confluence of California’s two major river systems, the Sacramento River and San Joaquin River, and the San Francisco Bay. The Delta (as defined in Water Code section 12220) encompasses a combined total of approximately 851,000 acres (of which approximately 135,000 acres consist of waterway, marshland, or other water surfaces) and is one of the country’s largest and most important estuarine systems for fish and waterfowl production on the Pacific Coast. Additionally, the Delta is one of California’s most fertile and important agricultural regions, and its tributary watersheds provide water for about two-thirds of California’s municipal and industrial water users and for some of its most productive agricultural areas statewide.

The State Water Resources Control Board (State Water Board) is responsible for the regulation of activities and factors that may affect the quality of the waters of the State. (Wat. Code, §§13000, 13001.) Pursuant to this authority, on May 22, 1995, the State Water Board adopted the *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (1995 Plan). The State Water Board adopted the 1995 Plan to establish water quality control measures that contribute to the protection of beneficial uses in the Delta.

The California Water Code and the federal Clean Water Act require, respectively, a periodic and a triennial review of water quality objectives or standards under Water Code sections 13170 and 13240 and under section 303(c)(1) of the federal Clean Water Act (33 USC § 1313(c)(1)). In December of 2003 the State Water Board began a review of the objectives included in the 1995 Plan, and in September of 2004 the State Water Board adopted a staff report titled *2004 Staff Report Regarding Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (2004 Staff Report). The 2004 Staff Report described the review of the 1995 Plan and identified eleven issues the State Water Board intended to address during a multi-day workshop.

Between October of 2004 and August of 2005, the State Water Board held the multi-day workshop regarding the eleven issues identified in the 2004 Staff Report (Plan Workshop). The State Water Board received a large volume of comments, technical information, and recommendations during the Plan Workshop. Based on the comments, technical information and recommendations received and other available information, the State Water Board has prepared an amended water quality control plan for the Delta.

The amended water quality control plan is referred to as the *2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (2006 Plan). It makes only minor changes to some of the footnotes of the objectives in the 1995 Plan and moves some footnotes to the program of implementation. Please note that these changes resulted in renumbering of footnotes from those in

**FIGURE 1
BAY-DELTA ESTUARY**



the 1995 Plan, and making the footnotes consistent with D-1641, the Decision implementing the 1995 Plan. It also updates the program of implementation in the 1995 Plan, including adding direction and recommendations to other agencies regarding activities that the agencies should take to assist in achieving the objectives. During the Plan Workshop, it became clear that adequate scientific information is not currently available to determine whether changes should be made to the objectives in order to ensure the protection of the various beneficial uses, or to determine how to address certain water quality issues. Accordingly, the program of implementation for the 2006 Plan includes several commitments and recommendations for studies and other activities.

This report contains a brief summary of relevant background information regarding the water quality control planning process, a summary and analysis of the information and recommendations received by the State Water Board regarding each of the eleven issues identified in the 2004 Staff Report, and a description of the rationale behind the State Water Board's decision to adopt the 2006 Plan. The environmental effects of adopting the 2006 Plan are also addressed in this report.

II. Background

A. Relevant Statutory and Regulatory Provisions

The State Water Board is authorized, under Water Code section 13170, to adopt water quality control plans in accordance with the provisions of section 13240 et seq¹. The State Water Board's authority includes, but is not limited to, waters for which water quality standards are required by the federal Clean Water Act. (Wat. Code, § 13170.) Before adopting a water quality control plan pursuant to section 13170, the State Water Board must consider all relevant management agency agreements that are intended to protect a specific beneficial use of water. (Wat. Code, § 13170.1.)

Water quality control policies and plans relevant to the protection of beneficial uses of the Bay-Delta Estuary include: (1) Statement of Policy with Respect to Maintaining High Quality Waters in California (State Water Board Resolution No. 68-16); (2) State Policy for Water Quality Control (adopted by motion on July 6, 1972); (3) Water Quality Control Policy for Enclosed Bays and Estuaries (State Water Board Resolution No. 74-43); (4) Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (State Water Board Resolution No. 75-58); (5) Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (adopted by the State Water Board on September 18, 1975); (6) Policy with Respect to Water Reclamation in California (State Water Board Resolution No. 77-1); (7) Sources of Drinking Water Policy (State Water Board Resolution No. 88-63); (8) Pollutant Policy Document for the San Francisco Bay/Sacramento-San Joaquin Delta (State Water Board Resolution No. 90-67); (9) Water Quality Control Plan, San Francisco Bay Basin (including future changes to this plan as the changes take effect); and (10) Water Quality Control Plans, Central Valley Basin (including future changes to these plans as the changes take effect).

Fundamentally, a water quality control plan consists of establishment, for the waters within a specified area, of the beneficial uses to be protected, water quality objectives, and a program of implementation (Wat. Code § 13050(j)). Pursuant to Water Code section 13241, factors to be considered in establishing water quality objectives include (but are not limited to) all of the following:

- a) Past, present and future beneficial uses of water;
- b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto;
- c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality in the area;
- d) Economic considerations;
- e) The need for developing housing within the region; and
- f) The need to develop and use recycled water.

¹ The State Water Board also has authority to adopt State policy for water quality control under Water Code section 13140.

After a water quality control plan is adopted, the California Water Code and the federal Clean Water Act require, respectively, a periodic and a triennial review of water quality objectives or standards under Water Code sections 13170 and 13240 and under section 303(c)(1) of the federal Clean Water Act (33 USC § 1313(c)(1)). The Secretary for Resources has certified the State Water Board's process for adopting or amending water quality control plans as meeting the requirements of Public Resources Code section 21080.5. (Cal. Code Regs., tit. 14, § 15251(g).) Section 21080.5 authorizes State agencies acting under a certified program to assess the environmental effects of their actions within the decision-making document instead of in a separate environmental impact report or negative declaration. This report contains the information required by section 21080.5. The environmental effects of adopting the 2006 Plan are discussed in Chapter IV of this report.

B. Previous State Water Board Actions

In February 1961, the State Water Rights Board (predecessor to the State Water Board) adopted Water Right Decision 990, which approved water rights for much of the U.S. Bureau of Reclamation's (USBR) Central Valley Project (CVP). The State Water Board did not impose specific water quality requirements as terms and conditions of the CVP permits; however, it did reserve jurisdiction to impose such requirements in the future.

The State Water Board first established water quality requirements for the Delta in May 1967 by setting maximum agricultural salinity levels as terms and conditions in Water Right Decision 1275, which approved water rights for California Department of Water Resources' (DWR) State Water Project (SWP). In response to the concern by the Secretary of the Interior that existing protections for the Delta did not adequately protect municipal, industrial, agricultural, and fishery uses, the State Water Board (newly created by the amalgamation of the State Water Rights Board and the State Water Quality Control Board) adopted a water quality control policy for the Delta through Resolution 68-17 in 1968. This policy supplemented a water quality control policy for the Delta that had been developed by the Central Valley Regional Water Board and adopted by the State Water Board in June 1967. In accordance with a commitment made in Resolution 68-17 to supplement the salinity requirements, the State Water Board adopted Water Right Decision 1379 (D-1379) in July 1971. D-1379, which required the CVP and the SWP to meet standards for non-consumptive fish and wildlife uses in addition to agricultural, municipal, and industrial consumptive uses, was stayed by a court in October 1971 as a result of litigation challenging D-1379.

In 1971, the Regional Water Boards adopted, and the State Water Board approved, interim water quality control plans for the 16 planning basins in the State, including the Delta and Suisun Marsh. These regional water quality control plans marked the completion of the first phase of a comprehensive statewide planning effort. Subsequently, long-term standards for the Delta and Suisun Marsh were established in the regional plans for the Sacramento-San Joaquin Delta Basin and the

San Francisco Bay Basin, which the State Water Board approved in 1975 and 1976, respectively. Meanwhile, in April 1973 the State Water Board adopted a water quality control plan, through Resolution 73-16, which supplemented the State water quality control policies for the Delta.

In August 1978, the State Water Board exercised its reservation of jurisdiction over the water right permits for the CVP and the SWP by adopting Water Right Decision 1485 (D-1485). At the same time, the State Water Board adopted the 1978 Delta Plan. Together the 1978 Delta Plan and D-1485 revised existing standards for flow and salinity in the Delta's channels and ordered USBR and DWR to meet these standards by either reducing pumping, releasing water stored in upstream reservoirs, or both. To address the uncertainty associated with possible future project facilities and the need for additional information on the Bay-Delta Estuary's ecosystem, the State Water Board committed to review the Delta Plan in 10 years.

In 1987, the State Water Board began proceedings to reexamine water quality objectives for the Delta and consider how water right permits would be modified to meet the new objectives for salinity, dissolved oxygen (DO), and temperature. This proceeding ended with the State Water Board's withdrawal of an amended draft water quality control plan. The State Water Board then commenced a new proceeding to address only amendments to the water quality control plan and subsequently adopted the 1991 Plan and submitted it to the U.S. Environmental Protection Agency (USEPA) for approval. In September 1991, the USEPA approved all of the salinity objectives for municipal, industrial, and agricultural beneficial uses, and the DO objective for fish and wildlife beneficial uses. The USEPA disapproved the other fish and wildlife objectives because USEPA found that they would not adequately protect estuarine habitat and other fish and wildlife beneficial uses. As required under federal regulations (40 CFR 131.22), the USEPA initiated promulgation of water quality standards for the Bay-Delta Estuary. In January 1994, the USEPA published draft standards for the Estuary in the Federal Register.

In the summer of 1994, the State and federal agencies with responsibility for management of Bay-Delta resources signed a Framework Agreement to coordinate the parallel State and federal Bay-Delta resource management activities, the Governor's Water Policy Council of the State of California (Council) and the Federal Ecosystem Directorate (FED), comprised of State and federal resource agencies collectively referred to as CALFED². The purpose of the agreement was to establish a comprehensive program for coordination and communication between the Council and the FED regarding environmental protection and water supply dependability in the Bay-Delta Estuary and its watershed.

² In 2000 several State and federal agencies (referred to as the CALFED Agencies) entered into a memorandum of understanding to establish a cooperative mechanism for implementing the CALFED Bay-Delta Program as defined in the CALFED Record of Decision. The state agencies that are CALFED implementing agencies are the State Water Board, the California Environmental Protection Agency, the Resources Agency, DWR, the Department of Fish and Game, and the California Department of Food and Agriculture. The federal CALFED implementing agencies are the Department of Interior, the Department of Agriculture, USBR, the United States Fish and Wildlife Service, the United States Geological Service, the Bureau of Land Management, the National Marine Fisheries Service, the United States Environmental Protection Agency, the Army Corps of Engineers, the Natural Resources Conservation Service, the Forest Service, and the Western Area Power Administration.

In December of 1994, representatives of the State and federal governments and urban, agricultural, and environmental interests agreed on water quality control plan objectives that they would support before the State Water Board and agreed that DWR and USBR would carry out certain implementation measures. This agreement is set forth in the Principles for Agreement on Bay-Delta Standards between the State of California and the Federal Government (Principles Agreement). Because the State Water Board is the regulatory entity responsible for adopting both the water quality control plan and water right changes necessary to implement the water quality control plan, the State Water Board was not a signatory of the Principles Agreement.

Meanwhile, in March of 1994, the State Water Board announced a series of workshops to review the 1991 Plan. After conducting a hearing on February 23, 1995, the State Water Board adopted the 1995 Plan on May 22, 1995. The 1995 Plan is consistent with, but not exactly the same as the contents of the Principles Agreement. In response to a water right change petition filed by DWR and USBR, the State Water Board then adopted Water Right Order 95-6 and subsequently Water Right Order 98-09 that temporarily amended DWR's and USBR's water rights for the SWP and the CVP to be consistent with the 1995 Plan. These orders allowed DWR and USBR to operate the SWP and CVP in accordance with the 1995 Plan while the State Water Board conducted water right proceedings for a water right decision that would implement the 1995 Plan.

The USEPA published its final rule regarding water quality standards for the Bay-Delta Estuary in January of 1995. However, the USEPA agreed in the Principles Agreement that it would withdraw the rule if the State Water Board adopted approvable water quality objectives. In September 1995, the USEPA approved the 1995 Plan based on its determination that the 1995 Plan protects the beneficial uses of the Bay-Delta Estuary and complies with the requirements of the Clean Water Act. By approving the 1995 Plan, the USEPA supplanted its own water quality standards with the standards in the 1995 Plan. (*State Water Resources Control Board Cases* (2006) 136 Cal.App.4th 674,774-775 [39 Cal.Rptr.3d 189]; 33 U.S.C. § 1313(c)(2)(A), (c)(3).)

The State Water Board held a hearing extending over 80 days on the responsibilities of water right holders to implement the objectives in the 1995 Plan and on water right change petitions filed by DWR and USBR. During the period leading up to the hearing and during the hearing, DWR and USBR and their water supply contractors conducted negotiations with a number of parties regarding implementation of the 1995 Plan objectives. Based on the hearing record, the State Water Board adopted Decision 1641 (D-1641) in December of 1999 and subsequently revised D-1641 pursuant to Order WR 2000-02 in March of 2000. D-1641 accepts the contribution that certain parties, through their agreements, will make to meet the flow-dependent water quality objectives in the 1995 Plan, and continues the responsibility of DWR and USBR for the remaining measures to meet the flow-dependent objectives. The decision also expands upon the responsibility of DWR and USBR by requiring implementation of some objectives that were not addressed in orders 95-06 and

98-09. In addition, D-1641 recognizes the San Joaquin River Agreement (SJRA) and approves, for a period of twelve years, the conduct of the VAMP under the SJRA instead of meeting the pulse flow objectives in the 1995 Plan. The decision approves, subject to terms and conditions, the petitioned water right changes needed to conduct the VAMP. In addition, D-1641 acts on DWR's and USBR's change petitions. Since it adopted D-1641, the State Water Board has adopted three additional orders assigning responsibility for meeting the 1995 Plan objectives. These are Order WR 2000-10, assigning responsibility to Bear River water right holders, and Orders WR 2001-05 and 2002-0012, amending Conditions 1 and 2 on page 146 of D-1641, as revised, and staying and then dismissing Phase 8 of the Bay-Delta Hearing.

C. 2004 Periodic Review

The State Water Board began its periodic review of the 1995 Plan on December 10, 2003, by issuing a notice of a public workshop to receive comments from agencies and members of the public regarding any elements of the 1995 Plan that the State Water Board should consider amending. The notice included a list of potential issues prepared by staff. The State Water Board held the public workshop on January 8, 2004 and accepted written comments regarding potential amendments to the 1995 Plan through February 5, 2004.

In September of 2004, the State Water Board adopted the 2004 Staff Report describing the periodic review of the 1995 Plan. The 2004 Staff Report compiled the oral and written comments received during the periodic review into sixteen issues for potential change to the 1995 Plan. These sixteen issues identified potential changes to the objectives contained in Tables I, II, III, and IV and the program of implementation of the 1995 Plan. Of the sixteen issues initially identified, the following issues were found by the State Water Board to merit further review:

- Changes to the Water Quality Compliance and Baseline Monitoring Program
- Delta Cross Channel gates closure
- Salmon protection
- Chloride Objectives, Compliance Location at Contra Costa Canal at Pumping Plant #1, and Potential New Objectives
- Delta Outflow
- Export limits
- River Flows: Sacramento River at Rio Vista
- River Flows: San Joaquin River at Airport Way Bridge, Vernalis: February-April 14 and May 16-June
- San Joaquin River at Airport Way Bridge, Vernalis: 31 day Pulse Flow April 15 – May 15
- Southern Delta electrical conductivity

The 2004 Staff Report stated that the State Water Board would hold a multi-day workshop to receive additional information regarding the aforementioned issues and prepare draft plan amendments or a draft revised plan (as appropriate) for public review. A copy of the 2004 Staff Report is available on the Division of Water Rights' website at www.waterrights.ca.gov/baydelta/final-staff-report_9-30-04.pdf.

III. Plan Amendment Workshop

The State Water Board issued a revised public notice of the Plan Workshop (a multi-day workshop to receive additional information regarding the issues identified in the 2004 Staff Report) on September 17, 2004 and held the workshop between October 27, 2004 and August 31, 2005. Water quality control planning is a quasi-legislative function of the State Water Board, resulting in requirements that are in the nature of regulations. Information received by the State Water Board was posted on the Division of Water Rights' website during the Plan Workshop.

The information submitted in the Plan Workshop has been compiled and is included in the administrative record to the 2006 Plan. During the review of information submitted during the Plan Workshop, State Water Board staff identified additional materials relevant to the issues identified in the 2004 Staff Report. This additional information is also included in the administrative record of the 2006 Plan.

The State Water Board has reviewed the comments, technical information and recommendations received during the Plan Workshop and other available information, and has prepared an amended water quality control plan for the Bay-Delta. Provided below are the versions of Tables 1, 2, 3, and 4 (including footnotes) of the 2006 Plan with changes from the 1995 Plan shown on these tables in strikeout/underline format. Following the tables is an analysis of each of the issues identified for review in the 2004 Staff Report. The analysis of each issue includes a description of the objective associated with the subject issue, background information regarding the subject issue, a summary of the comments and recommendations received regarding the subject issue during the Plan Workshop, and the State Water Board's analysis of and conclusion(s) regarding the subject issue. For the convenience of the readers, rather than standard references, references are specific to the commenting parties' exhibits. These were submitted during the Plan Workshop and can be found at www.waterrights.ca.gov/baydelta/app2_refdocs.html. During the Plan Review, it became evident that certain objectives, other than those identified during the Periodic Review process, warranted updating at this time. The updates to those objectives are also shown in the Tables in strikeout/underline format.

A. Plan Comparison (1995 Plan vs. 2006 Plan)

The following summary is provided to help the reader see at a glance the changes that have been made to the 2006 Plan. The general reason for the change is also noted parenthetically. A number of changes were made for *readability* and to reduce the bulk of the document by moving historical background and detailed explanations to the supporting staff report. These readability changes include changes in numbering of footnotes and tables. *Consistency* changes were made to assure that sections reflect the current physical condition or current regulation.

Chapter I. Introduction

This chapter was revised, summarized, and reorganized. The background section has been streamlined by deleting detailed information from this section of the 1995 Plan and placing it into the amendment report (readability).

A new section D was added describing emerging water quality issues and what the State Water Board plans to do about them: Pelagic Organism Decline; Climate Change; Delta and Central Valley Salinity; and San Joaquin River Flows.

Chapter II. Beneficial Uses

There were no changes to the Beneficial Uses from the 1995 Plan to the 2006 Plan.

Chapter III. Water Quality Objectives

This chapter was edited to make minor changes to the Water Quality Objectives. There are no new water quality objectives to be adopted in the 2006 Plan. The following specific changes have been made:

- Applicability of water quality objectives to specific areas in the Delta has been clarified.
- Section C has been condensed by moving discussion of rationale and implementation of the objectives to the Program of Implementation chapter (readability).
- Table 2 - Footnote 5 and three-party contract notation have been deleted (consistency).
- Table 3 - Footnotes 4, 7, and 8 have been deleted. Footnote 10 (narrative) was moved into the body of Table 3. Footnote 6 was inserted. Most footnotes were renumbered due to the insertion and deletions (consistency and readability).
- Footnote 2 for Table 1 and Footnote 3 for Tables 2 and 3 were renamed as Figure 2 (readability).
- Footnote 17 for Table 3 was renamed as Figure 3 (readability).
- Footnotes 11 and 23 for Table 3 was renamed as Figure 4 (readability).
- Footnote 14 for Table 3 was renamed as Table 4 (readability).

Chapter IV. Program of Implementation

Information in this chapter was updated to make changes in implementation in the 2006 Plan, including but not limited to, implementation measures imposed in D-1641, and Board recommendations to other agencies for the protection of habitat.

Section A – Measures within State Water Board Authority

This section was expanded to include specific implementation measures for the water quality objectives established in the 2006 Plan over which the State Water

Board has direct authority. Many of these objectives are implemented through permit and license terms imposed through D-1641 (consistency).

Section B – Measures Requiring State Water Board Authorities and Actions by Other Agencies.

This section was revised to make current recommendations on other agency programs to reach water quality objectives. State Water Board authority to require that studies are conducted is cited (consistency).

Section C – Recommendations to Improve Habitat Conditions

This section was renamed Recommendations to Other Agencies. Most of the recommendations have been updated to discuss new developments since the release of the 1995 Plan. The sections regarding unscreened water diversions and fish survival at the SWP and CVP export facilities have been moved to the Narrative Objective for Salmon Protection. The section regarding the effectiveness of barriers as a means of improving fish survival in the Delta has been updated and moved to Section E, Other Studies, and can be found under the Delta Cross Channel gate heading. The recommendation regarding temperature control measures to reduce adverse impacts on salmon and steelhead has been deleted. Additional recommendations regarding the San Joaquin River spring flow objective and the San Joaquin River at Airport Way Bridge, Vernalis, River Flow Objective have been added. State Water Board authority to require that recommended studies are conducted is cited (consistency).

Section D – Monitoring and Special Studies Program

Table 4 in 1995 Plan was renamed as Table 7 (readability).

This section was updated to make changes to the Water Quality Compliance and Baseline Monitoring Program. Changes to Table 4 include the addition of GIS coordinates for each location, addition and deletion of stations, and any other changes as proposed by DWR (consistency).

Section E – Other Studies Conducted by Agencies That May Provide Information Relevant to Future Proceedings

This section is new to the Plan. It describes various programs by other agencies that are geared towards obtaining information that may be relevant to future Bay-Delta Water Quality proceedings.

B. Revised Water Quality Objectives

The revised plan clarifies the applicability of water quality objectives to specific areas in the Delta. Per section 13050(h) of the California Water Code, “water quality objectives means the limits or levels of water quality constituents or characteristics

which are established for the reasonable protection of water or the prevention of nuisance *within a specific area* (emphasis added).” Per section 13242, Basin Plans must contain a program of implementation for achieving these water quality objectives that includes, among other things, “a description of the surveillance to be undertaken to determine *compliance* (emphasis added) with objectives.”

Tables 1, 2, and 3 in the Plan provide the water quality objectives applicable to waters of the San Francisco Bay system and the legal Sacramento-San Joaquin Delta. Unless otherwise indicated, water quality objectives for a general area, such as the southern Delta, are applicable for all locations in that general area. The compliance locations indicated in the tables will be used to determine compliance with the objectives. Tables 1, 2, and 3 contain the water quality objectives for the protection of municipal and industrial, agricultural, and fish and wildlife beneficial uses, respectively. Changes to the water quality objectives in the 1995 Plan are shown in the following tables in strikeout/underline format.

Table 1
Water Quality Objectives For Municipal and Industrial Beneficial Uses

COMPLIANCE LOCATIONS	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT)	WATER YEAR TYPE [2]	TIME PERIOD	VALUE
Contra Costa Canal at Pumping Plant #1 -or- San Joaquin River at Antioch Water Works Intake	C-5 (CHCCC06) D12 (near) (RSAN007)	Chloride (Cl)	Maximum mean daily 150 mg/l Cl for at least the number of days shown during the calendar year. Must be provided in intervals of not less than two weeks duration. (Percentage of calendar year shown in parenthesis)			No. of days each calendar year ≤150 mg/l Cl
				W		240 (66%)
				AN		190 (52%)
				BN		175 (48%)
				D		165 (45%)
C		155 (42%)				
Contra Costa Canal at Pumping Plant #1 -and- West Canal at mouth of Clifton Court Forebay -and- Delta-Mendota Canal at Tracy Pumping Plant -and- Barker Slough at North Bay Aqueduct Intake -and- Cache Slough at City of Vallejo Intake [3]	C-5 (CHCCC06) C-9 (CHWST0) DMC-1 CHDMC004 --- (SLSAR3) C-19 (SLCCH16)	Chloride (Cl)	Maximum mean daily (mg/l)	All	Oct-Sep	250

Table 1 Footnotes:

- [1] River Kilometer Index station number.
- [2] The Sacramento Valley 40-30-30 water year hydrologic classification index (see [Figure 2 page 23](#)) applies for determinations of water year type.
- [3] Cache Slough objective to be effective only when water is being diverted from this location

Table 2
Water Quality Objectives For Agricultural Beneficial Uses

COMPLIANCE LOCATIONS	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
WESTERN DELTA						
Sacramento River at Emmaton	D-22 (RSAC092)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC	EC from date shown to Aug 15 [4]
					April 1 to date shown	---
					Aug 15	0.63
					Jul 1	1.14
					Jun 20	1.67
					Jun 15	2.78

San Joaquin River at Jersey Point	D-15 (RSAN018)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC	EC from date shown to Aug 15 [4]
					April 1 to date shown	---
					Aug 15	---
					Aug 15	0.74
					Jun 20	1.35
					Jun 15	2.20

INTERIOR DELTA						
South Fork Mokelumne River at Terminus	C-13 (RSMKL08)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC	EC from date shown to Aug 15 [4]
					April 1 to date shown	---
					Aug 15	---
					Aug 15	---
					Aug 15	---
					Aug 15	0.54

San Joaquin River at San Andreas Landing	C-4 (RSAN032)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC	EC from date shown to Aug 15 [4]
					April 1 to date shown	---
					Aug 15	---
					Aug 15	---
					Aug 15	0.58
					Jun 25	0.87

SOUTHERN DELTA						
San Joaquin River at Airport Way Bridge, Vernalis	C-10 (RSAN112)	Electrical Conductivity (EC)	Maximum 30-day running average of mean daily EC (mmhos/cm)	All	Apr-Aug	0.7
					Sep-Mar	1.0
San Joaquin River at Brandt Bridge site	C-6 (RSAN073)				or	
Old River near Middle River [5]	C-8 (ROLD69)					
Old River at Tracy Road Bridge [5]	P-12 (ROLD59)					
EXPORT AREA						
West Canal at mouth of Clifton Court Forebay	C-9 (CHWST0)	Electrical Conductivity (EC)	Maximum monthly average of mean daily EC (mmhos/cm)	All	Oct-Sep	1.0
Delta-Mendota Canal at Tracy Pumping Plant	DMC-1 (CHDMC004)					

Table 2 Footnotes:

[1] River Kilometer Index station number.

[2] Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. The averaging period commences with the first day of the time period for the applicable objective. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.

[3] The Sacramento Valley 40-30-30 water year hydrologic classification index (see Figure 2 page 23) applies for determinations of water year type.

[4] When no date is shown, EC limit continues from April 1.

[5] The EC objectives shall be implemented at this location by December 31, 1997.

Table 3
WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

COMPLIANCE LOCATIONS	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE	
DISSOLVED OXYGEN							
San Joaquin River between Turner Cut & Stockton	(RSAN050-RSAN061)	Dissolved Oxygen (DO)	Minimum DO (mg/l)	All	Sep-Nov	6.0 [4]	
SALMON PROTECTION							
			narrative			Water quality conditions shall be maintained, together with other measures in the watershed, sufficient to achieve a doubling of natural production of chinook salmon from the average production of 1967-1991, consistent with the provisions of State and federal law.	
SAN JOAQUIN RIVER							
SALINITY							
San Joaquin River at and between Jersey Point and Prisoners Point [45]	D-15 (RSAN018) -and- D-29 (RSAN038)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)	W,AN,BN, D	Apr-May	0.44 [56]	
EASTERN SUISUN MARSH							
SALINITY [6]							
Sacramento River at Collinsville	C-2 (RSAC081)	Electrical Conductivity (EC)	Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location	All	Oct	19.0	
-and- Montezuma Slough at National Steel	S-64 (SLMZU25)				Nov-Dec	15.5	
-and- Montezuma Slough near Beldon Landing	S-49 (SLMZU11)				Jan	12.5	
					Feb-Mar	8.0	
					Apr-May	11.0	
WESTERN SUISUN MARSH							
SALINITY [6]							
Chadbourne Slough at Sunrise Duck Club	S-21 [7] (SLCBN1)	Electrical Conductivity (EC)	Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location	All but deficiency period	Oct	19.0	
-and- Suisun Slough, 300 feet south of Volanti Slough	S-42 [8] (SLSUS12)				Nov	16.5	
-and- Cordelia Slough at Ibis Club	S-97 [8] (SLCRD06)				Dec	15.5	
-and- Goodyear Slough at Morrow Island Clubhouse	S-35 [8] (SLGYR03)				Jan	12.5	
-and- Water supply intakes for waterfowl management areas on Van Sickle and Chipps islands	No locations specified				Feb-Mar	8.0	
					Apr-May	11.0	
					Deficiency period [79]	Oct	19.0
						Nov	16.5
						Dec-Mar	15.6
						Apr	14.0
				May	12.5		
BRACKISH TIDAL MARSHES OF SUISUN BAY							
			narrative			[40] Water quality conditions sufficient to support a natural gradient in species composition and wildlife habitat characteristic of a brackish marsh throughout all elevations of the tidal marshes bordering Suisun Bay shall be maintained. Water quality conditions shall be maintained so that none of the following occurs: (a) loss of diversity; (b) conversion of brackish marsh to salt marsh; (c) for animals, decreased population abundance of those species vulnerable to increased mortality and loss of habitat from increased water salinity; or (d) for plants, significant reduction in stature or percent cover from increased water or soil salinity or other water quality parameters.	

Table 3 (continued)
WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

COMPLIANCE LOCATIONS	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
DELTA OUTFLOW						
		Net Delta Outflow Index (NDOI) [844]	Minimum monthly average [942] NDOI (cfs)	All	Jan	4,500 [1043]
				All	Feb-Jun	[1144]
				W,AN	Jul	8,000
				BN		6,500
				D		5,000
				C		4,000
				W,AN,BN	Aug	4,000
				D		3,500
				C		3,000
				All	Sep	3,000
				W,AN,BN,D	Oct	4,000
				C		3,000
				W,AN,BN,D	Nov-Dec	4,500
				C		3,500
RIVER FLOWS						
Sacramento River at Rio Vista	D-24 (RSAC101)	Flow rate	Minimum monthly average [1245] flow rate (cfs)	All	Sep	3,000
				W,AN,BN,D	Oct	4,000
				C		3,000
				W,AN,BN,D	Nov-Dec	4,500
				C		3,500
San Joaquin River at Airport Way Bridge, Vernalis	C-10 (RSAN112)	Flow rate	Minimum monthly average [1346] flow rate (cfs) [1447]	W,AN	Feb-Apr 14	2,130 or 3,420
				BN,D	and	1,420 or 2,280
				C	May 16-Jun	710 or 1,140
				W	Apr 15-	7,330 or 8,620
				AN	May 15 [1548]	5,730 or 7,020
				BN		4,620 or 5,480
				D		4,020 or 4,880
				C		3,110 or 3,540
				All	Oct	1,000 [1649]
EXPORT LIMITS						
		Combined export rate [1720]	Maximum 3-day running average (cfs)	All	Apr 15- May 15 [1824]	[1922]
			Maximum percent of Delta inflow diverted [2023] [2124]	All	Feb-Jun	35% Delta inflow [2225]
				All	Jul-Jan	65% Delta inflow
DELTA CROSS CHANNEL GATES CLOSURE						
Delta Cross Channel at Walnut Grove	—	Closure of gates	Closed gates	All	Nov-Jan Feb-May 20 May 21- Jun 15	[2326] ---- [2427]

Table 3 Footnotes:

[1] River Kilometer Index station number.

[2] Determination of compliance with an objective expressed as a running average begins on the last day of the averaging period. The averaging period commences with the first day of the time period of the applicable objective. If the objective is not met on the last day of the averaging period, all days in the averaging period are considered out of compliance.

[3] The Sacramento Valley 40-30-30 Water Year Hydrologic Classification Index (see ~~page 23~~ Figure 2) applies unless otherwise specified.

[4] ~~If it is infeasible for a waste discharger to meet this objective immediately, a time extension or schedule of compliance may be granted, but this objective must be met no later than September 1, 2005.~~

[45] Compliance will be determined at Jersey Point (station D15) and Prisoners Point (station D29).

- [56] This standard does not apply in May when the best available May estimate of the Sacramento River Index for the water year is less than 8.1 MAF at the 90% exceedance level. [Note: The Sacramento River Index refers to the sum of the unimpaired runoff in the water year as published in the DWR Bulletin 120 for the following locations: Sacramento River above Bend Bridge, near Red Bluff; Feather River, total unimpaired inflow to Oroville Reservoir; Yuba River at Smartville; and American River, total unimpaired inflow to Folsom Reservoir.]
- [6] An exceedance of any of these objectives at a time when it is established through certification by the entity operating the Suisun Marsh Salinity Control Gates that the Gates are being operated to the maximum extent shall not be considered a violation of the objective.
- [7] ~~The effective date for objectives for this station is October 1, 1995.~~
- [8] ~~The effective date for objectives for this station is October 1, 1997.~~
- [79] A deficiency period is: (1) the second consecutive dry water year following a critical year; (2) a dry water year following a year in which the Sacramento River Index (described in footnote 56) was less than 11.35; or (3) a critical water year following a dry or critical water year. The determination of a deficiency period is made using the prior year's final Water Year Type determination and a forecast of the current year's Water Year Type; and remains in effect until a subsequent water year is other than a Dry or Critical water year as announced on May 31 by DWR and USBR as the final water year determination.
- [10] ~~Water quality conditions sufficient to support a natural gradient in species composition and wildlife habitat characteristic of a brackish marsh throughout all elevations of the tidal marshes bordering Suisun Bay shall be maintained. Water quality conditions shall be maintained so that none of the following occurs: (a) loss of diversity; (b) conversion of brackish marsh to salt marsh; (c) for animals, decreased population abundance of those species vulnerable to increased mortality and loss of habitat from increased water salinity; or (d) for plants, significant reduction in stature or percent cover from increased water or soil salinity or other water quality parameters.~~
- [844] Net Delta Outflow Index (NDOI) is defined ~~on page 25 in Figure 4.~~
- [942] For the May-January objectives, if the value is less than or equal to 5,000 cfs, the 7-day running average shall not be less than 1,000 cfs below the value; if the value is greater than 5,000 cfs, the 7-day running average shall not be less than 80% of the value.
- [1043] The objective is increased to 6,000 cfs if the best available estimate of the Eight River Index for December is greater than 800 TAF. [Note: The Eight River Index refers to the sum of the unimpaired runoff as published in the DWR Bulletin 120 for the following locations: Sacramento River flow at Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River flow at Smartville; American River, total inflow to Folsom Reservoir; Stanislaus River, total inflow to New Melones Reservoir; Tuolumne River, total inflow to Don Pedro Reservoir; Merced River, total inflow to Exchequer Reservoir; and San Joaquin River, total inflow to Millerton Lake.]
- [1144] The minimum daily Delta outflow shall be 7,100 cfs for this period, calculated as a 3-day running average. This requirement is also met if either the daily average or 14-day running average EC at the confluence of the Sacramento and the San Joaquin rivers is less than or equal to 2.64 mmhos/cm (Collinsville station C2). If the best available estimate of the Eight River Index (described in footnote 1043) for January is more than 900 TAF, the daily average or 14-day running average EC at station C2 shall be less than or equal to 2.64 mmhos/cm for at least one day between February 1 and February 14; however, if the best available estimate of the Eight River Index for January is between 650 TAF and 900 TAF, ~~the operations group established under the Framework Agreement~~ Executive Director of the State Water Board shall decide whether this requirement will apply, with any disputes resolved by the CALFED policy group applies. If the best available estimate of the Eight River Index for February is less than 500 TAF, the standard may be further relaxed in March upon the ~~recommendation of the operations group established under the Framework Agreement, with any disputes resolved by the CALFED policy group request of the DWR and the USBR, subject to the approval of the Executive Director of the State Water Board.~~ The standard does not apply in May and June if the best available May estimate of the Sacramento River Index (described in footnote 56) for the water year is less than 8.1 MAF at the 90% exceedance level. Under this circumstance, a minimum 14-day running average flow of 4,000 cfs is required in May and June. Additional Delta outflow objectives are contained in Table ~~4-4.~~
- [1245] The 7-day running average shall not be less than 1,000 cfs below the monthly objective.
- [1346] Partial months are averaged for that period. For example, the flow rate for April 1-14 would be averaged over 14 days. The 7-day running average shall not be less than 20% below the flow rate objective, with the exception of the April 15-May 15 pulse flow period when this restriction does not apply.
- [1447] The water year classification will be established using the best available estimate of the 60-20-20 San Joaquin Valley Water Year Hydrologic Classification (see Figure 3 ~~4-2~~) at the 75% exceedance level. The higher flow objective applies when the 2-ppt isohaline (measured as 2.64 mmhos/cm surface salinity) is required to be at or west of Chipps Island.

- [1548] This time period may be varied based on real-time monitoring. One pulse, or two separate pulses of combined duration equal to the single pulse, should be scheduled to coincide with fish migration in San Joaquin River tributaries and the Delta. ~~The time period for this 31-day flow requirement will be determined by the operations group USBR will schedule the time period of the pulse or pulses in consultation with the USFWS, the NOAA Fisheries, and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement. The schedule is subject to the approval of the Executive Director of the State Water Board.~~
- [1649] Plus up to an additional 28 TAF pulse/attraction flow during all water year types. The amount of additional water will be limited to that amount necessary to provide a monthly average flow of 2,000 cfs. The additional 28 TAF is not required in a critical year following a critical year. The pulse flow will be scheduled by the ~~operations group established under the Framework Agreement.~~ DWR and the USBR in consultation with the USFWS, the NOAA Fisheries and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.
- [1720] Combined export rate for this objective is defined as the Clifton Court Forebay inflow rate (minus actual Byron-Bethany Irrigation District diversions from Clifton Court Forebay) and the export rate of the Tracy pumping plant.
- [1824] This time period may be varied based on real-time monitoring and will coincide with the San Joaquin River pulse flow described in footnote 1518. ~~The operations group established under the Framework Agreement will determine the time period for this 31-day export limit. The DWR and the USBR, in consultation with the USFWS, the NOAA Fisheries and the DFG, will determine the time period for this 31-day export limit. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement~~
- [1922] Maximum export rate is 1,500 cfs or 100% of ~~the~~ 3-day running average of San Joaquin River flow at Vernalis, whichever is greater. Variations to this maximum export rate ~~are may be~~ authorized if agreed to by the ~~operations group established under the Framework Agreement.~~ USFWS, the NOAA Fisheries and the DFG. This flexibility is intended to result in no net water supply cost annually within the limits of the water quality and operational requirements of this plan. Variations may result from recommendations of agencies for protection of fish resources, including actions taken pursuant to the State and federal Endangered Species Act. ~~Disputes within the operations group will be resolved by the CALFED policy group.~~ Any agreement on variations will be effective immediately and ~~will be presented upon notice~~ to the Executive Director of the State Water Board SWRCB. If the Executive Director does not object to the variations within 10 days, the variations will remain in effect. The Executive Director of the State Water Board is also authorized to grant short-term exemptions to export limits for the purpose of facilitating a study of the feasibility of recirculating export water into the San Joaquin River to meet flow objectives.
- [2023] Percent of Delta inflow diverted is defined in Figure 4-3. For the calculation of maximum percent Delta inflow diverted, the export rate is a 3-day running average and the Delta inflow is a 14-day running average, except when the CVP or the SWP is making storage withdrawals for export, in which case both the export rate and the Delta inflow are 3-day running averages.
- [2124] The percent Delta inflow diverted values can be varied either up or down. Variations are authorized subject to the process described in footnote 1922.
- [2225] If the best available estimate of the Eight River Index (described in footnote 1043) for January is less than or equal to 1.0 MAF, the export limit for February is 45% of Delta inflow. If the best available estimate of the Eight River Index for January is greater than 1.5 MAF, the February export limit is 35% of Delta inflow. If the best available estimate of the Eight River Index for January is between 1.0 MAF and 1.5 MAF, the ~~DWR and the USBR will set the export limit for February will be set by the operations group within the range of 35% to 45%, after consultation with the USFWS, the NOAA Fisheries and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement within the range of 35% to 45%. The CALFED policy group will resolve disputes within the operations group will satisfy the consultation requirement.~~
- [2326] For the November-January period, close Delta Cross Channel gates for a total of up to 45 days. ~~The USBR will determine the timing and duration of the gate closure will be determined by the operations group after consultation with the USFWS, the NOAA Fisheries and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement.~~
- [2427] For the May 21-June 15 period, close ~~the~~ Delta Cross Channel gates for a total of 14 days. ~~The USBR will determine the timing and duration of the gate closure after consultation with the USFWS, the NOAA Fisheries and the DFG. Consultation with the CALFED Operations Group established under the Framework Agreement will satisfy the consultation requirement. Gate closures shall be based on the need for the protection of fish and will be determined by the operations group established under the Framework Agreement. Variations in the number of days of gate closure are authorized if agreed to by the operations group established under the Framework Agreement. Variations shall result from recommendations from agencies for the protection of fish resources, including actions taken pursuant to the State and federal Endangered Species Acts. The process for approval of variations shall be similar to that described in footnote 1922.~~

FIGURE 2.

~~FOOTNOTE 2 FOR TABLE 1 AND FOOTNOTE 3 FOR TABLES 2 AND 3~~

Sacramento Valley Water Year Hydrologic Classification

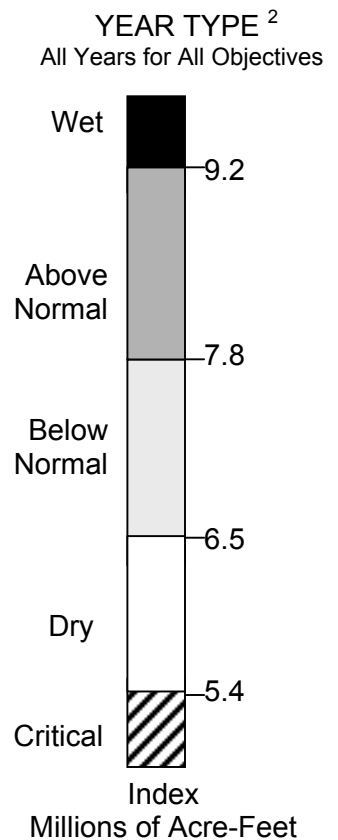
Year classification shall be determined by computation of the following equation:

$$\text{INDEX} = 0.4 * X + 0.3 * Y + 0.3 * Z$$

- Where:
- X = Current year's April – July Sacramento Valley unimpaired runoff
 - Y = Current October – March Sacramento Valley unimpaired runoff
 - Z = Previous year's index¹

The Sacramento Valley unimpaired runoff for the current water year (October 1 of the preceding calendar year through September 30 of the current calendar year), as published in California Department of Water Resources Bulletin 120, is a forecast of the sum of the following locations: Sacramento River above Bend Bridge, near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River at Smartville; American River, total inflow to Folsom Reservoir. Preliminary determinations of year classification shall be made in February, March, and April with final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff assuming normal precipitation for the remainder of the water year.

<u>Classification</u>	<u>Index Millions of Acre-Feet (MAF)</u>
Wet	Equal to or greater than 9.2
Above Normal	Greater than 7.8 and less than 9.2
Below Normal	Equal to or less than 7.8 and greater than 6.5
Dry	Equal to or less than 6.5 and greater than 5.4
Critical	Equal to or less than 5.4



¹ A cap of 10.0 MAF is put on the previous year's index (Z) to account for required flood control reservoir releases during wet years.
² The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current water year is available.

FIGURE 3.

FOOTNOTE 17 FOR TABLE 3

San Joaquin Valley Water Year Hydrologic Classification

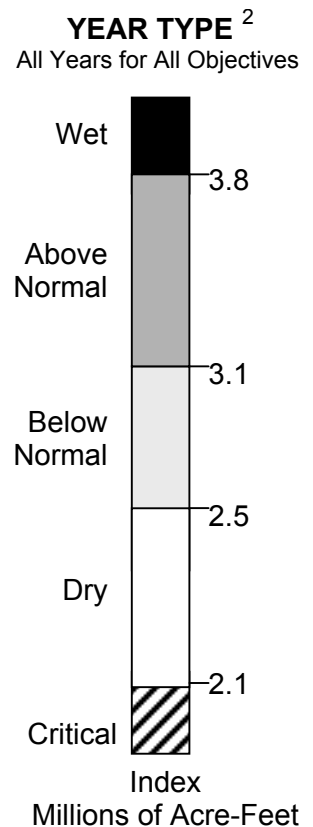
Year classification shall be determined by computation of the following equation:

$$\text{INDEX} = 0.6 * X + 0.2 * Y + 0.2 * Z$$

- Where: X = Current year's April – July
San Joaquin Valley unimpaired runoff
- Y = Current October – March
San Joaquin Valley unimpaired runoff
- Z = Previous year's index¹

The San Joaquin Valley unimpaired runoff for the current water year (October 1 of the preceding calendar year through September 30 of the current calendar year), as published in California Department of Water Resources Bulletin 120, is a forecast of the sum of the following locations: Stanislaus River, total flow to New Melones Reservoir; Tuolumne River, total inflow to Don Pedro Reservoir; Merced River, total flow to Exchequer Reservoir; San Joaquin River, total inflow to Millerton Lake. Preliminary determinations of year classification shall be made in February, March, and April with final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff assuming normal precipitation for the remainder of the water year.

<u>Classification</u>	<u>Index Millions of Acre-Feet (MAF)</u>
Wet	Equal to or greater than 3.8
Above Normal	Greater than 3.1 and less than 3.8
Below Normal	Equal to or less than 3.1 and greater than 2.5
Dry	Equal to or less than 2.5 and greater than 2.1
Critical	Equal to or less than 2.1



¹ A cap of 4.5 MAF is put on the previous year's index (Z) to account for required flood control reservoir releases during wet years.

² The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current water year is available.

FIGURE 4.

FOOTNOTES 11 AND 23 FOR TABLE 3

NDOI and PERCENT INFLOW DIVERTED ¹

The NDOI and the percent inflow diverted, as described in this figure, shall be computed daily by the DWR and the USBR using the following formulas (all flows are in cfs):

$$\text{NDOI} = \text{DELTA INFLOW} - \text{NET DELTA CONSUMPTIVE USE} - \text{DELTA EXPORTS}$$

$$\text{PERCENT INFLOW DIVERTED} = (\text{CCF} + \text{TPP}) \div \text{DELTA INFLOW}$$

where $\text{DELTA INFLOW} = \text{SAC} + \text{SRTP} + \text{YOLO} + \text{EAST} + \text{MISC} + \text{SJR}$

- SAC** = Sacramento River at Freeport mean daily flow for the previous day; the 25-hour tidal cycle measurements from 12:00 midnight to 1:00 a.m. may be used instead.
- SRTP** = Sacramento Regional Treatment Plant average daily discharge for the previous week.
- YOLO** = Yolo Bypass mean daily flow for the previous day, which is equal to the flows from the Sacramento Weir, Fremont Weir, Cache Creek at Rumsey, and the South Fork of Putah Creek.
- EAST** = Eastside Streams mean daily flow for the previous day from the Mokelumne River at Woodbridge, Cosumnes River at Michigan Bar, and Calaveras River at Bellota.
- MISC** = Combined mean daily flow for the previous day of Bear Creek, Dry Creek, Stockton Diverting Canal, French Camp Slough, Marsh Creek, and Morrison Creek.
- SJR** = San Joaquin River flow at Vernalis, mean daily flow for the previous day.

where $\text{NET DELTA CONSUMPTIVE USE} = \text{GDEPL} - \text{PREC}$

- GDEPL** = Delta gross channel depletion for the previous day based on water year type using the DWR's latest Delta land use study.²
- PREC** = Real-time Delta precipitation runoff for the previous day estimated from stations within the Delta.

and where $\text{DELTA EXPORTS}^3 = \text{CCF} + \text{TPP} + \text{CCC} + \text{NBA}$

- CCF** = Clifton Court Forebay inflow for the current day.⁴
- TPP** = Tracy Pumping Plant pumping for the current day.
- CCC** = Contra Costa Canal pumping for the current day.
- NBA** = North Bay Aqueduct pumping for the current day.

1 Not all of the Delta tributary streams are gaged and telemetered. When appropriate, other methods of estimating stream flows, such as correlations with precipitation or runoff from nearby streams, may be used instead.

2 ~~The DWR is currently developing new channel depletion estimates. If up to date channel depletion estimates are available they shall be used.~~ If these new estimates are not available, DAYFLOW channel depletion estimates shall be used.

3 The term "Delta Exports" is used only to calculate the NDOI. It is not intended to distinguish among the listed diversions with respect to eligibility for protection under the area of origin provisions of the California Water Code.

4 Actual Byron-Bethany Irrigation District withdrawals from Clifton Court Forebay shall be subtracted from Clifton Court Forebay inflow. (Byron-Bethany Irrigation District water use is incorporated into the GDEPL term.)

Table 4. Number of Days When Maximum Daily Average Electrical Conductivity of 2.64 mmhos/cm Must Be Maintained at Specified Location.

FOOTNOTE 14 FOR TABLE 3

TABLE A																	
Number of Days When Maximum Daily Average Electrical Conductivity of 2.64 mmhos/cm Must Be Maintained at Specified Location ^[a]																	
PMI^[b] (TAF)	Chippis Island (Chippis Island Station D10)					PMI^[b] (TAF)	Port Chicago (Port Chicago Station C14) ^[d]					PMI^[b] (TAF)	Port Chicago (Port Chicago Station C14) ^[d]				
	FEB	MAR	APR	MAY	JUN		FEB	MAR	APR	MAY	JUN		FEB	MAR	APR	MAY	JUN
≤ 500	0	0	0	0	0	0	0	0	0	0	0	5250	27	29	25	26	6
750	0	0	0	0	0	250	1	0	0	0	0	5500	27	29	26	28	9
1000	28 ^[c]	12	2	0	0	500	4	1	0	0	0	5750	27	29	27	28	13
1250	28	31	6	0	0	750	8	2	0	0	0	6000	27	29	27	29	16
1500	28	31	13	0	0	1000	12	4	0	0	0	6250	27	30	27	29	19
1750	28	31	20	0	0	1250	15	6	1	0	0	6500	27	30	28	30	22
2000	28	31	25	1	0	1500	18	9	1	0	0	6750	27	30	28	30	24
2250	28	31	27	3	0	1750	20	12	2	0	0	7000	27	30	28	30	26
2500	28	31	29	11	1	2000	21	15	4	0	0	7250	27	30	28	30	27
2750	28	31	29	20	2	2250	22	17	5	1	0	7500	27	30	29	30	28
3000	28	31	30	27	4	2500	23	19	8	1	0	7750	27	30	29	31	28
3250	28	31	30	29	8	2750	24	21	10	2	0	8000	27	30	29	31	29
3500	28	31	30	30	13	3000	25	23	12	4	0	8250	28	30	29	31	29
3750	28	31	30	31	18	3250	25	24	14	6	0	8500	28	30	29	31	29
4000	28	31	30	31	23	3500	25	25	16	9	0	8750	28	30	29	31	30
4250	28	31	30	31	25	3750	26	26	18	12	0	9000	28	30	29	31	30
4500	28	31	30	31	27	4000	26	27	20	15	0	9250	28	30	29	31	30
4750	28	31	30	31	28	4250	26	27	21	18	1	9500	28	31	29	31	30
5000	28	31	30	31	29	4500	26	28	23	21	2	9750	28	31	29	31	30
5250	28	31	30	31	29	4750	27	28	24	23	3	10000	28	31	30	31	30
≤ 5500	28	31	30	31	30	5000	27	28	25	25	4	>10000	28	31	30	31	30

- [a] The requirement for number of days the maximum daily average EC (EC) of 2.64 mmhos per centimeter (mmhos/cm) must be maintained at Chippis Island and Port Chicago can also be met with maximum 14-day running average EC of 2.64 mmhos/cm, or 3-day running average NDOIs of 11,400 cfs and 29,200 cfs, respectively. If salinity/flow objectives are met for a greater number of days than the requirements for any month, the excess days shall be applied to meeting the requirements for the following month. The number of days for values of the PMI between those specified in this table shall be determined by linear interpolation.
- [b] PMI is the best available estimate of the previous month's Eight River Index. (Refer to footnote 10 43 for Table 3 for a description of the Eight River Index.)
- [c] When the PMI is between 800 TAF and 1000 TAF, the number of days the maximum daily average EC of 2.64 mmhos/cm (or maximum 14-day running average EC of 2.64 mmhos/cm, or 3-day running average NDOI of 11,400 cfs) must be maintained at Chippis Island in February is determined by linear interpolation between 0 and 28 days.
- [d] This standard applies only in months when the average EC at Port Chicago during the 14 days immediately prior to the first day of the month is less than or equal to 2.64 mmhos/cm.

C. Issue Analysis

1. Changes to Water Quality and Baseline Monitoring Program

The 1995 Plan includes a Water Quality and Baseline Monitoring Program (also referred to as the Environmental Monitoring Program (EMP)), which is found in the program of implementation and is described in Table 4 of the 1995 Plan (Table 7 in the 2006 Plan). The program currently consists of 47 monitoring and baseline stations in the upper San Francisco Bay-Delta Estuary extending from the Sacramento River at Hood to the San Joaquin River at Vernalis and west to San Pablo Bay. The 1995 Plan states that this is a preliminary compliance program that may be modified by the Interagency Ecological Program (IEP) once the participating agencies and interested parties have fully assessed the new program requirements. Condition 11 (e) on page 149 of D-1641 required the DWR and the USBR to complete an assessment of the EMP every three years to evaluate whether the goals of the monitoring program were being attained. This review was completed in 2003, and based on that review, DWR and the USBR proposed amendments to the EMP due to address issues including safety, tidal bias of sampling, and better identification of monitoring station locations. These changes were considered to be functionally equivalent to the existing program.

Discussion

California Department of Fish and Game (DFG), IEP, and the State Water Contractors (SWC) supported the amendments to the EMP. The SWC stated they rely on the data and therefore it is important that it be as scientifically sound and efficient as possible. The SWC also recommended that the State Water Board approve and implement the proposed changes to Table 4 of the 1995 Plan separate from the rest of the 2006 Plan, and without comprehensive California Environmental Quality Act (CEQA) review. As discussed in this report, there will be no significant impact to the environment by making this change. Therefore, no further CEQA review is necessary for the proposed amendments to the EMP.

South Delta Water Agency (SDWA) did not comment on the proposed amendments to the Water Quality and Baseline Monitoring Program, but did recommend the addition of a compliance and monitoring station in the southern Delta to better protect agricultural beneficial uses in the area. SDWA stated that the additional station is necessary because the current stations provide no data for the area around the east end of Grant Line Canal at the intersection with Salmon Slough and Doughty Cut. The State Water Board may in the future consider adding the proposed station if SDWA submits documentation in support of the station.

At the Plan Workshop, DWR's representative stated that members of the public and various private, federal and State agencies, including the University of California Davis, have completed a comprehensive review of the proposed changes. The DWR stated the changes would benefit the EMP by improving the scientific basis of the information produced.

The proposed amendments will:

- 1.) Enhance continuous monitoring at key locations to better measure the temporal variability in the system,
- 2.) Enhance shallow water monitoring to better measure the spatial variability in the system,
- 3.) Reduce the tidal spring-neap bias that occurs in the current program,
- 4.) Improve the quality assurance and quality control of the program by providing continuous monitoring data that can be used as crosschecks against discrete or periodic sampling data, and
- 5.) Improve employee safety (DWR-03).

Conclusion

Based on the information, materials and comments submitted to the State Water Board during the Plan Workshop, the 2006 Plan makes changes to the Water Quality and Baseline Monitoring Program. Accordingly, Table 4 of the 1995 Plan is updated in the 2006 Plan as follows:

Table 7. Water Quality Compliance and Baseline Monitoring Program

Station Number ¹	Station Description ²	Latitude ³	Longitude ³	Cont. Rec. ^{4a}	Cont. Multi-parameter ^{4b}	Disc. Physical Chemical ^{4c}	Disc. Phytoplankton ^{4d}	Discr. Zooplankton ^{4e}	Discrete Ben-thos ^{4f}
C2 ■	Sacramento River @ Collinsville	<u>38.07395</u>	<u>-121.85010</u>	*					
C3 ▲	Sacramento River @ Hood								
C3A ▲	Sacramento River @ Hood	<u>38.36772</u>	<u>-121.52051</u>		*	*	*	*	
C4 ■	San Joaquin River @ San Andreas Ldg.	<u>38.10319</u>	<u>-121.59128</u>	*					
C5 ■	Contra Costa Canal @ Pumping #1	<u>37.99520</u>	<u>-121.70244</u>	*					
C6 ■	San Joaquin River @ Brandt Bridge site	<u>37.86454</u>	<u>-121.32270</u>	*					
C7 ▲	San Joaquin River @ Mossdale Bridge	<u>37.78604</u>	<u>-121.30666</u>		*				
C8 ■	Old River near Middle River	<u>37.82208</u>	<u>-121.37517</u>	*					
C9 ●	West Canal at mouth of CCForebay Intake	<u>37.8218</u>	<u>-121.55275</u>						*
		<u>37.83075</u>	<u>-121.55703</u>		*	*	*	*	
C10 ●	San Joaquin River near Vernalis	<u>37.67575</u>	<u>-121.26500</u>						
		<u>37.69734</u>	<u>-121.26472</u>		*	*	*	*	
C13 ■	Mokelumne River @ Terminous	<u>38.11691</u>	<u>-121.49888</u>	*					
C14 ■	Sacramento River @ Port Chicago	<u>38.05881</u>	<u>-122.02607</u>	*					
C19 ■	Cache Slough @ City of Vallejo Intake	<u>38.29687</u>	<u>-121.74784</u>	*					
D4 ▲	Sacramento River above Point Sacramento	<u>38.06214</u>	<u>-121.81792</u>			*	*	*	*
D6 ▲	Suisun Bay @ Bulls Head Pt. near Martinez	<u>38.04427</u>	<u>-122.11764</u>			*	*	*	*
D6A ▲	Suisun Bay @ Martinez	<u>38.02762</u>	<u>-122.14052</u>		-				
D7 ▲	Grizzly Bay @ Dolphin near Suisun Slough	<u>38.11708</u>	<u>-122.03972</u>	*		*	*	*	*
D8 ▲	Suisun Bay off Middle Point near Nichols	<u>38.05992</u>	<u>-121.98996</u>			*	*	*	
D9 ▲	Honker Bay near Wheeler Point	<u>38.07245</u>	<u>-121.93923</u>	-		-	-		
D10 ●	Sacramento River @ Chipps Island	<u>38.04288</u>	<u>-121.92011</u>		*	*			
		<u>38.04631</u>	<u>-121.91829</u>					*	
D11 ▲	Sherman Island near Antioch	<u>38.04228</u>	<u>-121.79951</u>	-		-	-		
D12 ●	San Joaquin River @ Antioch Ship Canal	<u>38.01770</u>	<u>-121.80273</u>		*	*			
		<u>38.02162</u>	<u>-121.80638</u>					*	
D15 ■	San Joaquin River @ Jersey Point	<u>38.05190</u>	<u>-121.68927</u>	*					
D16 ▲	San Joaquin River @ Twitchell Island	<u>38.09690</u>	<u>-121.66912</u>					*	*
D19 ▲	Frank's Tract near Russo's Landing	<u>38.04376</u>	<u>-121.61477</u>	-		-	-	-	
D22 ●	Sacramento River @ Emmaton	<u>38.08406</u>	<u>-121.73912</u>	*					
		<u>38.08453</u>	<u>-121.73914</u>					*	
D24 ●	Sacramento River below Rio Vista Bridge	<u>38.15891</u>	<u>-121.68721</u>		*	*			
		<u>38.15550</u>	<u>-121.68113</u>						*
D26 ▲	San Joaquin River @ Potato Point	<u>38.07667</u>	<u>-121.56696</u>			*	*	*	

D28A ▲	Old River near Rancho Del Rio	<u>37.97038</u>	<u>-121.57271</u>			*	*	*	*
		<u>37.96980</u>	<u>-121.57210</u>	*					
D29 ■	San Joaquin River @ Prisoners Point	<u>38.05793</u>	<u>-121.55736</u>	*					
..... ▲		<u>38.05793</u>	<u>-121.55736</u>			*	*	*	
D41 ▲	San Pablo Bay near Pinole Point	<u>38.03016</u>	<u>122.37287</u>			*	*	*	*
D41A ▲	San Pablo Bay near mouth of Petaluma R.	<u>38.08472</u>	<u>-122.39067</u>			*	*	*	*
DMC1 ●	Delta-Mendota Canal at Tracy Pump. Plt.	<u>37.78165</u>	<u>-121.59050</u>		*				
P8 ▲	San Joaquin River @ Buckley Cove	<u>37.97815</u>	<u>-121.38242</u>			*	*	*	*
P8A ▲	San Joaquin River @ Rough and Ready Island	<u>37.96277</u>	<u>-121.36587</u>			*			
P12 ■	Old River @ Tracy Road Bridge	<u>37.80493</u>	<u>-121.44929</u>	*					
MD10 ▲	Disappointment Slough near Bishop Cut	<u>38.04229</u>	<u>-121.41935</u>			*	*	*	
S21 ■	Chadbourne Slough @ Sunrise Duck Club	<u>38.18476</u>	<u>-122.08315</u>	*					
S35 ■▲	Goodyear Slough @Morrow Island Clubhouse	<u>38.1181</u>	<u>-112.09580</u>	*					
S42 ●	Suisun Slough 300' south of Volanti Slough	<u>38.18053</u>	<u>-122.04696</u>	*		*	*		
		<u>38.18027</u>	<u>-122.04779</u>					*	
S49 ■	Montezuma Slough near Beldon Landing	<u>38.18686</u>	<u>-121.97080</u>	*					
S64 ■	Montezuma Slough @ National Steel	<u>38.12223</u>	<u>-121.88800</u>	*					
S97 ■▲	Cordelia Slough @ Ibis Club	<u>38.15703</u>	<u>-122.11378</u>	*					
NZ032 ▲	Montezuma Slough, 2nd bend from mouth	<u>38.16990</u>	<u>-122.02112</u>					*	
NZ080 ▲	San Joaquin River, 549 meters upstream of light-26								
SLBAR3 ■	Barker Sl. at No. Bay Aqueduct (SLBAR3)	<u>38.27474</u>	<u>-121.79499</u>	*					
■	Sacramento R. (I St. Bridge to Freeport) (RSAC155)	<u>38.589 to 38.45585</u>	<u>-121.504 to -121.50302</u>	*					
- ■▲	San Joaquin R. (Turner Cut to Stockton) (RSAN050-RSAN061)	<u>37.99746 to 37.95242</u>	<u>-121.44435 to -121.31750</u>	*					
--- ■▲	Water supply intakes for waterfowl management areas on Van Sickle Island and Chipps Island			*					

■Compliance monitoring station

▲Baseline monitoring station

●Compliance and baseline monitoring station

Footnotes for Table 4.

¹Continuous recorder only (EC, dissolved oxygen, and or temperature) for purpose of compliance. For municipal and industrial intake chlorides objectives, EC can be monitored and converted to chlorides.

²Physical/chemical monitoring is conducted monthly at discrete sites and includes the following parameters: water column depth, secchi, nutrient series (inorganic and organic N-P), water temperature, dissolved oxygen, electrical conductivity, turbidity, and chlorophyll a. In addition, on board recording for vertical and horizontal profiles is conducted intermittently for the following parameters: water temperature, dissolved oxygen, electrical conductivity, turbidity, and chlorophyll a.

³Multi-parameter monitoring is conducted continuously and provides telemetered data on the following parameters: water temperature, pH, dissolved oxygen, electrical conductivity, turbidity, chlorophyll a, wind speed and direction, solar radiation, air temperature and tidal elevation.

⁴Sampling occurs at discrete sites.

¹ All stations with a compliance monitoring component are identified by historical "interagency" station numbers specified in SWRCB D-1641 (2000) and D-1485 (1978). Modified station ID numbers (e.g. C3A) identify baseline stations near historical stations.

² All stations with a compliance monitoring component retain their historical "interagency" station descriptions specified in SWRCB D-1641 (2000) and D-1485 (1978). Baseline stations with modified station ID numbers (e.g. C3A) have modified station descriptions.

³ Coordinates are geographic North American Datum 1983 and have been verified to be accurate for 1:24,000 scale mapping.

⁴ Continuous recording (every 15 minutes) of water temperature, electrical conductivity (EC), and/or dissolved oxygen. For municipal and industrial intake chloride objectives, EC can be monitored and converted to chloride concentration.

⁵ Continuous, multi-parameter monitoring (recording every 1 to 15 minutes with telemetry capabilities) includes the following variables: water temperature, EC, pH, dissolved oxygen, turbidity, chlorophyll a fluorescence, tidal elevation, and meteorological data (air temperature, wind speed and direction, solar radiation).

⁶ Discrete physical/chemical monitoring is conducted on a year-round, near-monthly basis that alternates between spring and neap tides and includes the following variables: macronutrients (inorganic forms of nitrogen, phosphorus and silicon), total suspended solids, total dissolved solids, total particulate and dissolved organic nitrogen and carbon, chlorophyll a, pH, dissolved oxygen (DO), EC (specific conductance), turbidity, secchi depth, and water temperature. In addition, on-board continuous recording is conducted intermittently for the following variables: water temperature, dissolved oxygen, electrical conductivity, turbidity, and chlorophyll a fluorescence.

⁷ Discrete sampling for phytoplankton enumeration or algal pigment analysis is conducted on a year-round, near-monthly basis that alternates between spring and neap tides.

⁸ Tow or pump sampling for zooplankton, mysids, and amphipods is conducted on a year-round, near-monthly basis that alternates between spring and neap tides.

⁹ In water years 2004 and 2005, replicated benthos and sediment grab samples were taken quarterly (every three months) and during special studies; more frequent monitoring sampling resumed in water year 2006.

2. Delta Cross Channel Gate Closure

The current objective states that the Delta Cross Channel (DCC) gate at Walnut Grove shall be closed November through January of the succeeding year, and May 21 through June 15 in all water year types. The objective is fully set forth in Table 3 of the Water Quality Objectives for Fish and Wildlife Beneficial Uses in the Plan. Interested parties proposed that the State Water Board amend the DCC gate closure objective based on new information concerning the effects of gate closure on fisheries.

There are several regulatory requirements governing DCC gate operations. The purpose of these requirements is to balance the needs for fresh water exports and the needs of salmon migrating through the Delta. In 2000, CALFED and the IEP began a three-year study of the benefits and impacts of various gate operations. The goal of the study was to determine the best operational scenario that benefits both fisheries and water quality. A summary of the incomplete work was released at the CALFED Science Conference in October 2004.

Discussion

Contra Costa Water District (CCWD) recommended not amending the current objective for the DCC gate if the amendment would result in degradation of water quality at the municipal intakes in the central and southern Delta. CCWD recommended closure of the DCC gate for fish and flood protection purposes only if there is clear evidence that migrating fish are present in the vicinity of the DCC gate. Additionally CCWD recommended that the State Water Board require any new DCC gate closures to be accompanied by other actions to prevent water quality degradation, and include additional conditions under which the DCC gate must be reopened or remain open to protect water quality. (CCWD-01)

CCWD recommended amending footnote 26 of the 1995 Plan to allow no more than 45 days of DCC gate closures during November through January, other than for flood control when Sacramento River flows reach and remain above 20,000 cfs. CCWD also recommended amending the 1995 Plan to state that the State Water Board's intent has always been to require that the DCC remain open at least 50% of the time to protect interior Delta water quality for drinking water and other beneficial uses. CCWD also recommended continuing to use the CALFED Operations Group (CALFED OPS), which includes the Water Operations Management Team³ (WOMT) and the Salmon Decision Process, when determining closure dates of the DCC gate. (CCWD-01)

DWR does not recommend changing the current DCC gate objective, as it would upset the balance established by the State Water Board whereby DCC gate operations provide reasonable protection for both water quality and fish. At the workshop, DWR presented evidence that it is not necessary to increase the number

³ The WOMT includes the Department of Water Resources, the U.S. Bureau of Reclamation, the Department of Fish and Game, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service.

of days the DCC gate be closed for fish protection. DWR argued that the Salmon Decision Process helps protect endangered salmon. DWR also stated that the CALFED and IEP studies addressing the re-operation of the DCC gate have been delayed due to lack of funding and staffing problems. Until the studies are completed, DWR recommends not making changes to the DCC gate closure objective. (DWR-04)

NOAA Fisheries stated that peer reviewed literature and several informal publications and professional presentations summarizing the preliminary findings of the CALFED and IEP studies begun in 2000 have been issued regarding the DCC gate. NOAA Fisheries staff participates in the Data Assessment Team (DAT), WOMT, and the CALFED OPS which applies the Salmon Decision Process as a means of determining DCC gate closures in accordance with the Long Term Central Valley Project and State Water Project Operations Criteria and Plan (OCAP). The staff finds the existing DCC gate closure objective to be an effective tool for protecting winter-run and spring-run chinook salmon and Central Valley steelhead. NOAA Fisheries, therefore, does not recommend changing the DCC gate closure objective and encourages the State Water Board to consider new science regarding listed fish in support of existing closure criteria. (NOAA-01)

The SWC and U.S. Department of the Interior (USDOI) both do not recommend changing the current DCC gate objectives as no credible information was provided during Periodic Review demonstrating that changes are necessary or reasonable. Further, USDOI recommends the current requirements should remain in effect while USDOI continues to work on information that will allow them to make future recommendations regarding long-term changes to DCC gate operations. (SWC-04, October 28, 2004 Workshop Transcripts, p. 90)

In combination with maintaining operational flexibility and real-time management of the DCC gate, Bay Institute (BI) recommended allowing up to 15 additional days of closure of the DCC gate between November 1 and January 31 in order to improve survival of winter-run chinook salmon and other juvenile fish in the Delta. BI recommended that, in most years in which Sacramento River flows are greater than 20,000 cfs, the DCC gate remain open some or all of the month of December. BI stated that given the 45-day limitation, closures are usually reserved for later in the season. The additional days will allow for more complete protection throughout December and January, when risks to juvenile fish are higher. (BAY-03)

The State Water Board did not receive adequate information during the technical workshop to support amending the current objective for the DCC gate. When completed, the State Water Board expects the CALFED Bay Delta Program multidisciplinary studies that were begun in 2000 to address the multi-purpose aspects of DCC gate operation (balancing the beneficial uses of fisheries, water quality, water supply and flood control), and provide information for future amendments to the Delta Cross Channel gate closure objective.

In addition, in 2005, scientists began investigating the declines in the populations of several Delta fish species and some of their important food sources. This phenomenon has been termed the Pelagic Organism Decline (POD). The reasons for the decline are unknown at this time. However, some of the suspected reasons include: toxics, competition from introduced species, and a shift in Delta pumping from spring to summer. Studies are ongoing to determine the possible causes of the decline, with results expected in 2007. In light of this decline in Delta species, the State Water Board will not change the DCC gate closure objective until the POD studies are completed or the Board receives other reliable technical information that warrants a change.

Conclusion

There is inadequate information to warrant a change. In the absence of better information as to the benefits and impacts of amending the DCC gate closure objective, including information regarding the causes of the critical declines in Delta fish and zooplankton species, the 2006 Plan does not amend the DCC gate closure objective. Additional information from the CALFED Bay Delta multidisciplinary studies is needed to provide adequate support for future amendments of this objective.

3. Salmon Protection

The State Water Board received information as to whether it should modify the value and/or description of the narrative salmon protection objective in the Water Quality Objectives for Fish and Wildlife Beneficial Uses described in Table 3 of the 1995 Plan. The 1995 Plan objective states “Water quality conditions shall be maintained, together with other measures in the watershed, sufficient to achieve a doubling of natural production of chinook salmon from the average production of 1967-1991, consistent with the provisions of State and federal law.”

The purpose of the narrative objective for salmon protection is to promote water quality conditions in the Delta that will contribute to the doubling of the natural production of Chinook salmon from average 1967-1991 levels in accordance with the goals set by the Central Valley Project Improvement Act (CVPIA). The Anadromous Fish Restoration Program (AFRP) was created under section 3406 (b)(1) of the CVPIA. This program is a statewide partnership of State, federal and local entities, whose focus is the restoration of anadromous fish and associated habitat.

Discussion

BI, American Fisheries Society (AFS), and NOAA Fisheries recommended the conversion of the current narrative objective into a fixed numeric value, the addition of a steelhead trout doubling goal and the expansion of the scope of the objective to include the watersheds and tributaries that feed into the Delta. Both BI and NOAA Fisheries argued that the effectiveness of any restoration efforts depends on the

scope of the project implementation, and that in the case of the salmon doubling it should be implemented at the watershed level. BI recommended the use of salmonid escapement data from each river and stream tributary to the Delta over a three-year running average to determine compliance with a predetermined numeric value based on AFRP targets. NOAA Fisheries suggested that the current salmon doubling narrative could be replaced with a numeric value based on the Viable Salmonid Population (VSP) Concept. (BAY-01, BAY-03, BAY-10, AFS-01, NOAA-14)

DFG recommended not changing the narrative objective to a numeric value. DFG did, however, recommend the addition of steelhead trout to the objective. (DFG-01, DFG-02)

Stockton East Water District (SEWD) recommended not changing the narrative objective to a numeric value, but recommended a change in the language of the objective so that, in accordance with Fish and Game Code section 6911, the "current" (as of 1988-1989) natural production level of salmon would be doubled. (SEWD-03)

USDOJ, DWR, Northern California Water Association (NCWA), San Luis Delta-Mendota Water Authority (SLDMWA), and SWC recommended not changing the salmon protection objective at this time, in order for current salmon doubling programs to be fully implemented. They argued that once the studies are completed, the resulting data will be analyzed and a determination can be made regarding the effectiveness of current doubling efforts. Three of these entities also submitted additional recommendations. The USDOJ recommended that the narrative objective be addressed through a multi-agency interactive and collaborative process. The DWR and NCWA both recommended that changes to the objective be discussed in a further proceeding. (DOI-22, DWR-12A, NCWA-01, SLDM-03, SWC-11)

The scope of the salmon narrative objective will not be expanded in the Plan to include the watersheds and tributaries that feed into the Delta. As stated in the 2004 Staff Report, the objectives of the 1995 Plan are limited to the waters of the Sacramento-San Joaquin Delta. This geographic limitation in the Plan does not preclude the Regional Water Boards from establishing objectives, as needed, to protect salmon in the upstream areas.

Some parties recommended expanding the objective to include steelhead trout. Insufficient information is available to establish minimum criteria for the doubling of steelhead trout at this time. Although years of historical data are available for the chinook salmon population, the record is comparatively incomplete for steelhead trout.

Likewise, there is not enough information available at this time to determine whether setting a numeric objective would add anything to current actions for the restoration of salmonid populations. In its Technical Memorandum NMFS-NWFSC-42, Viable

Salmonid Populations and the Recovery of Evolutionarily Significant Units (NOAA-12), NOAA Fisheries states that a main concern in translating the VSP guidelines into specific criteria will be the degree of uncertainty in much of the relevant information, and that applications of VSP should employ both a precautionary approach and adaptive management. As a result, the State Water Board is recommending as part of the program of implementation that NOAA Fisheries provide regular updates towards determining a numeric goal for salmon restoration.

Conclusion

There is insufficient information available at this time to support any changes to the narrative salmon protection objective. Therefore, the narrative salmon protection objective remains unchanged in the 2006 Plan. The program of implementation has been updated to express the State Water Board's intent to provide NOAA Fisheries and DFG an opportunity to give regular updates to the Board on the status of ongoing fishery studies, fishery improvements programs and any recommendations for the establishment of a specific numeric objective.

4. Chloride Objectives

Proposed changes to the Chloride Objectives were discussed as three different categories

a. Calendar Year Calculation of Compliance with the 150 mg/L Chloride Objective

The 150 mg/L chloride objective is set forth in Table 1 of the Water Quality Objectives for Municipal and Industrial Beneficial Uses in the Plan. The issue was raised whether the State Water Board should change the accounting method for determining compliance from the calendar year to the water year.

The Water Quality Objectives for Municipal and Industrial Beneficial Uses require that the chloride concentration at either the Contra Costa Canal at Pumping Plant #1 (PP#1) or the San Joaquin River at Antioch Water Works Intake (Antioch) be less than 150 mg/L for at least a specified number of days based on the water year type (hereinafter referred to as the 150mg/L chloride objective). The purpose of the 150 mg/L chloride objective is to maintain the water quality at CCWD's southern Delta diversion facilities at a level consistent with historical conditions. The objective requires that the chloride concentration at either PP#1 or Antioch be less than 150 mg/L for a minimum number of days each year, based on the water year type. The number of days varies from 240 days (66% of the year) for wet years to 155 days (42% of the year) for critical years. The current accounting method for calculating the number of days is based on a calendar year.

Discussion

CCWD provided general information regarding the 150mg/L objective and compared calendar year versus water year accounting over the period from 1979 through 2004. CCWD's information indicates that since 1979 (the year the objective first took effect), the 150mg/L chloride objective has been met in each year except for 1992 (the final year of a six-year dry cycle). With the exception of the 1987-1992 drought cycle, the DWR and the USBR have met the 150mg/L chloride objective for longer periods than required by the objective. In most years, they have met the 150mg/L chloride objective for more than 100 days in excess of the requirement, while in 1999, 2001, and 2002 they met it for 30 to 75 days more than the applicable requirement. CCWD's comparison of the two accounting methods concludes that there is little difference between the number of days less than 150 mg/L chloride calculated using either accounting method. CCWD concludes that, in most years, the accounting method does not influence whether the objective is met. Based on this information, CCWD concludes that there is no compelling reason to change the accounting method used to calculate compliance with the 150mg/L chloride objective. (CCWD-04) The City of Antioch submitted comments in support of CCWD's position and recommends no change to the 150mg/L chloride objective. (ANT-01)

A change in the accounting method for the 150mg/L chloride objective from calendar-year to water-year accounting would have little impact on whether the objective is met. No party recommended during the workshop that the objective be changed. Accordingly, the 2006 Plan does not change the accounting method for the 150 mg/L chloride objective.

Conclusion

The 2006 Plan does not amend the Water Quality Objectives for Municipal and Industrial beneficial uses set forth in Table 1.

b. Chloride Objectives Compliance Location

The Water Quality Objectives for Municipal and Industrial Beneficial Uses include a year-round requirement for the maximum chloride concentration at the locations of five Delta pumping facilities (including PP#1) of 250 mg/L. The Plan requires that the chloride concentration at either PP#1 or the Antioch Water Works Intake be less than 150 mg/L for a minimum number of days each year, based on the water year type. The number of days varies from 240 days (66% of the year) for wet years to 155 days (42% of the year) for critical years. In D-1641, the State Water Board assigned responsibility for implementation of the aforementioned chloride objectives to DWR and the USBR (also collectively referred to as the Projects).

PP#1 is located at the western terminus of the Contra Costa Canal, which extends generally east-west from PP#1 to Rock Slough (just south of Veale Tract) and thence the Old River. PP#1 is used by the CCWD to divert a portion of its water

supply. Though a majority of CCWD's customers receive water that is blended with water from other sources, some CCWD customers receive water directly from PP#1. (CCWD-07)

During periods of relatively high flow in the Contra Costa Canal, water quality at PP#1 can be correlated to water quality in the Old River, at the Holland Tract electrical conductivity (EC) monitoring station located north of the confluence of Rock Slough and Old River (Holland Tract). During these periods, a relatively predictable relationship exists between the chloride concentration at Holland Tract and PP#1, and relatively slight degradation of water quality occurs during conveyance of water through Rock Slough and the Contra Costa Canal. (CCWD-14, DWR-13)

However, during periods of relatively low flow in the Contra Costa Canal, significant water quality degradation occurs between the Old River and PP#1 due to local groundwater seepage to the Contra Costa Canal and surface water drainage to Rock Slough. This degradation limits the ability of the Projects to meet the 250 mg/L chloride objective at the PP#1 compliance location during periods of low pumping (typically, the 150 mg/L objective is met during the winter and spring months when flow in the Contra Costa Canal is relatively high). (CCWD-14, DWR-13) During such low-flow periods in December 1999, October 2001, and October 2002, water quality at PP#1 has exceeded the 250mg/L chloride objective. The State Water Board was notified of these water quality exceedances but did not take enforcement action. (CCWD-14)

CCWD has undertaken two water quality improvement projects to address local sources of water quality degradation within Rock Slough. The first project involves redirection of surface drainage from Veale Tract away from Rock Slough to eliminate the source of degradation within Rock Slough. The Veale Tract project was completed in February of 2006. The second project, intended for completion in 2007, involves lining the unlined portions of the Contra Costa Canal to address groundwater infiltration. This project is currently in the planning stages, and its completion will require continued funding. DWR, USBR, and CCWD indicated that the completion of these projects should address the issue of water quality degradation between Old River and PP#1 during periods of low pumping at PP#1. (CCWD-14)

Discussion

The Projects (the DWR and USBR when acting collectively) submitted joint comments and technical information regarding this issue. CCWD also submitted comments and technical information regarding this issue. The SWC and the SLDMWA (Export Water Users) submitted comments regarding this issue but did not include any additional technical information.

The Projects initially recommended the relocation of the compliance location at PP#1 to a point on the Old River at the Holland Tract EC monitoring station. The

export water users generally supported the Projects position on this issue. The Projects subsequently modified their position and recommended that the compliance location remain the same and that the State Water Board amend the Projects' water right permits to allow alternate compliance with the 250 mg/L chloride objective during periods of low flow in Rock Slough. (DWR-13) CCWD also recommended that the compliance location at PP#1 remain unchanged and that the State Water Board consider in a water right proceeding whether to allow alternate compliance with the 250 mg/L chloride objective. (CCWD-14) Both the Projects and CCWD state that the completion of the Veale Tract project and the projected completion of the Contra Costa Canal project should address the issue of water quality degradation between Old River and PP#1 during periods of low pumping at PP#1. (CCWD-14, DWR-13)

CCWD and the Projects agree that during periods of low flow in the Contra Costa Canal the Projects have limited ability to control the chloride concentration at PP#1. Both parties also agree that during these periods the Projects should be allowed to meet the existing chloride objective at PP#1 by maintaining an alternate chloride concentration at Holland Tract. The parties differ, however, on the specific flow magnitudes and alternate chloride concentrations that should be required.

Some CCWD customers receive water directly from the Contra Costa Canal. The 250 mg/L and the 150 mg/L components of the chloride objective measured at PP#1 are necessary for the protection of this beneficial use.

The State Water Board has not received adequate documentation, including documentation that would form the basis for an environmental analysis, to justify moving the objective to Holland Tract during certain periods. Any parties wishing to amend the objective or its implementation may submit adequate documentation, including environmental analysis, to support amending the Plan and request that the State Water Board amend the Plan to specify a different compliance point during certain periods or to specify alternative implementation measures.

The objective at PP#1 currently can be implemented by including terms and conditions in water right permits and licenses. At this time, only the Projects have terms and conditions in their water rights requiring them to meet the objective at PP #1. If the Projects wish to seek a change in their water right obligations without amending the objective or the program of implementation, they must file a petition to change their water right permits and also provide a basis for assigning some responsibility for the objective to another entity.

Conclusion

In the absence of adequate information to prepare an environmental analysis, the 2006 Plan does not amend the Water Quality Objectives for Municipal and Industrial beneficial uses by moving the compliance location away from C-5 at the Contra Costa Canal at PP#1.

c. Potential New Municipal and Industrial Objectives

CCWD proposed that the State Water Board add a new objective for constituents such as bromides and total organic carbons or other precursors to disinfection byproducts to the Water Quality Objectives for Municipal and Industrial beneficial uses in Table 1 of the 1995 Plan.

Surface water used for municipal purposes must be disinfected prior to delivery to control waterborne disease-causing microbes (e.g. *Cryptosporidium*, *Giardia*). Standard disinfection processes (chlorine, chloramine, ozone, and chlorine dioxide) have been found to react with naturally occurring organic substances (humic and fulvic acids) and inorganic substances (bromide ions) present in some surface waters to produce byproducts (referred to as disinfection byproducts or DBPs) identified as being potentially harmful to humans. These byproducts are suspected to be carcinogenic or to cause birth defects. Examples of DBPs are trihalomethanes, haloacetic acids, and bromates, however, over 500 DBPs have been identified. Since DBPs were first identified in 1974, less than half of the known DBPs have been chemically identified. Additionally, relatively little is known regarding the exact mechanisms responsible for DBP production and the relative rates of DBP production by known or suspected DBP precursors. (CCWD-05) Regulation of DBPs by the USEPA has been developed to balance the need for removal of disease-causing microbes (disinfection) from municipal water supplies with the need to control the formation of DBPs within these municipal water systems. Between 1992 and 1993 the USEPA developed recommendations for Maximum Contaminant Levels (MCLs) for DBPs utilizing a negotiated rulemaking process. These recommendations included requirements for information collection, interim requirements for disinfection (to ensure that attempts to control DBPs do not compromise disinfection needs), and a two-stage rule that included MCLs for several DBPs and resulted in the development of the current USEPA requirements for DBPs. (CCWD-05)

The information collection process resulted in the finalization in 1998 of the Stage 1 Disinfectants/Disinfection Byproducts Rule (Stage 1 D/DBPR). As of 2004, all public water systems that use chemical disinfectant for either primary or residual treatment are required to comply with the Stage 1 D/DBPR. The Stage 1 D/DBPR lowered existing requirements for trihalomethanes and established requirements for five haloacetic acids, bromate, and chlorite. Compliance with Stage 1 D/DBPR requirements is calculated using a running annual average of quarterly averages of all samples collected throughout the distribution system. The final Stage 2 Disinfectants/Disinfection Byproducts Rule (Stage 2 D/DBPR) was published in the Federal Register in January of 2006. The Stage 2 D/DBPR requires that compliance with annual running average maximums must be met at each compliance location. Municipal water systems will have until between 2012 and 2016 to initiate monitoring for the Stage 2 D/DBPR and will be required to comply with the Stage 2 D/DBPR requirements the next year. Information regarding the USEPA's Stage Two Disinfectant Rule is available at the following website:
www.epa.gov/safewater/disinfection/stage2/index.html

The two main DBP precursors of concern within Delta waters are bromide ions and organic carbons. Though numerous other DBP precursors are present within Delta waters, bromide ions and organic carbon (measured as total organic carbon or TOC) are generally agreed upon as the best indicators of the potential of Delta waters to create DBPs and also are the water quality parameters that are the most easily manipulated with water management tools. The majority of bromide ions within Delta waters come from the ocean. Groundwater accretions to the San Joaquin River have also been found to contain bromide ions. In general, the concentration of bromide ions in Delta water may be correlated to the chloride concentration. Additionally, as with chloride concentration, the mechanisms for controlling the bromide ion concentration in the Delta include upstream releases, export modifications, and Delta Cross Channel gate operations.

The State Water Board considered information regarding potential new objectives for DBP precursors during its preparation of the 1991 Water Quality Control Plan for Salinity (1991 Plan). At the time there was not sufficient scientific information to set new objectives. However, the 1991 Plan did provide that the 150mg/L chloride objective (initially intended for the protection of paper processing facilities within CCWD which were no longer present in 1991) be maintained because it provides benefits for other municipal and industrial uses in the absence of objectives for trihalomethanes and other DBPs. The State Water Board stated that if drinking water standards for DBPs are revised, it will consider modifying existing salinity requirements. The State Water Board did not however, amend the objectives for Municipal and Industrial beneficial uses in the 1995 Plan.

One of the four main goals of the CALFED program is to improve drinking water quality for municipal users of Delta waters. The CALFED Record of Decision, issued in 2000, identifies the following goals for the CALFED Water Quality Program:

- a. average concentrations at Clifton Court Forebay and other southern and central Delta drinking water intakes of 50 micrograms per liter ($\mu\text{g/L}$) bromide and 3.0 mg/L TOC, or
- b. an equivalent level of public health protection (ELPH) using a cost-effective combination of alternative source water, source control and treatment technologies

By including the ELPH option, the CALFED Record of Decision implicitly recognizes that given existing Delta facilities and operations, it may not be physically possible or economical to meet the water quality goal identified in a., above during all hydrologic conditions. Accordingly, the CALFED Water Quality Program is pursuing the ELPH approach and has initiated numerous studies to determine the most cost-effective combination of source control, water quality improvement, advanced treatment technologies, and alternative source water required to meet anticipated future drinking water standards. With the guidance and support of the Bay-Delta Public Advisory Committee's Drinking Water Subcommittee and the CALFED agencies, the Drinking Water Program has held numerous public workshops and working group sessions (including facilitated sessions) to develop an implementation strategy. The

major result of these efforts was the determination that an effective implementation strategy required a much better understanding of the options for the ELPH approach (the most cost-effective combination of source control, water quality improvement, advanced treatment technologies, and alternative source water) at local and regional levels. As of May 2006, the CALFED Water Quality Program had initiated development of a framework for regional ELPH plans to assist in informing major decisions about the future of the Delta. The Drinking Water Program has also, as of May 2006, initiated a process to synthesize the information available regarding salinity in the Delta. (SWRCB-17)

In a parallel effort the Central Valley Regional Water Board is sponsoring development of a Central Valley Drinking Water Policy. The Central Valley Drinking Water Policy Program is a technical and administrative process to establish either numeric or modified narrative objectives for drinking water constituents as elements of an overall drinking water policy for the Central Valley. The Central Valley Drinking Water Policy Workgroup has been defined in staff reports to the Central Valley Regional Water Board, and its task, goal, and milestones are documented in several workplans. Initial constituent prioritization efforts of the Central Valley Drinking Water Policy identified total dissolved solids, salinity, bromide, TOC, nutrients, and pathogens as constituents for further study; however, the Central Valley Drinking Water Policy Workgroup has concentrated its efforts on TOC, nutrients, and pathogens. The Central Valley Drinking Water Policy Workgroup is scheduled to complete its technical work and develop appropriate standards by 2009.

Discussion

CCWD initially recommended that the State Water Board adopt an objective that protects drinking water quality by, at a minimum, imposing a limitation of 50 micrograms/liter ($\mu\text{g/L}$) bromide and 3.0 mg/L TOC at all drinking water intakes in the southern and central Delta. CCWD's final comments include a recommendation that a 300 $\mu\text{g/L}$ bromide objective be added to the existing objectives for the protection of Municipal and Industrial beneficial uses.

Numerous parties including DWR, USDOJ, the California Department of Health Services, USEPA, the Central Valley Regional Water Board, the Bay-Delta Public Advisory Committee, California Bay Delta Authority, SLDMWA, and the SWC opposed establishing a new objective until completion of the CALFED Water Quality Program and the Central Valley Drinking Water Policy.

The complexity of the chemical reactions which form DBPs from the DBP precursors makes the correlation between source water quality standards and delivered water quality standards difficult. The rate of formation of bromide DBPs (typically bromate) from bromide ions is dependent on pH, temperature, and other factors in addition to the bromide ion concentration. Since the State Water Board is limited to creating objectives for the DBP precursors, further understanding of these chemical reactions and the effectiveness of available drinking water treatment and delivery methods is

required before water quality objectives for bromides, TOC, or other DBPs can be proposed, evaluated and established.

Conclusion

The Water Quality Objectives for Municipal and Industrial beneficial uses are not amended in the 2006 Plan at this time to adopt new water quality objectives for constituents such as bromides and TOCs or other precursors of DBPs.

The State Water Board recognizes that the development of information regarding drinking water within the State is of vital importance for municipal water systems to meet the Stage 2 D/DBPR. The State Water Board has determined that the preferred methods for developing this information are collaborative processes such as the CALFED Water Quality Program and the Central Valley Drinking Water Policy. The State Water Board will consider amending the 2006 Plan or taking other action when these processes are complete.

5. Delta Outflow

This objective is set forth in Table 3 of the Water Quality Objectives for Fish and Wildlife Beneficial Uses in the Plan. Delta Outflow is the calculated amount of fresh water that flows past the confluence of the Sacramento and San Joaquin Rivers into Suisun Bay. The Delta Outflow rate has major implications on water quality, migration/transport flows for estuarine species, and the location and the amount of low salinity habitat in the Estuary. The Net Delta Outflow Index (NDOI) is the basis for the Delta Outflow Objective and is calculated by measuring inflow, net Delta consumptive uses, and Delta exports. Alternatively, the Projects can comply with the NDOI by positioning the upstream edge of the fresh water/salt water interface where the salinity concentration is two parts per thousand one meter from the bottom of the channel. This location is referred to as the X2 location and has a specific conductance of 2.64 mmhos/cm (at 25°C) at the surface.

The ability to meet the Delta Outflow objective has been of particular concern during the months of February through June in all water year types, even though the 1995 Plan allows some flexibility in the requirement to meet the objective during the months of February and March.

Discussion

Originally, the WOMT and the export water users⁴ were in favor of adding flexibility to the objective under certain conditions. During an additional workshop, scheduled specifically to discuss this issue to receive information regarding proposed limits and guidelines for the implementation of any flexibility, and in subsequent comments, the WOMT withdrew its previous recommendation to add flexibility to the objective due to concerns regarding the Pelagic Organism Decline (POD). The WOMT agencies

⁴ State Water Contractors, San Luis and Delta Mendota Water Authority (SLDMWA), and Kern County Water Agency (KCWA)

now recommend postponing a flexibility proposal until the causes of the POD are better understood. The WOMT agencies also recommended adding a footnote to the objective and adding language to the program of implementation recognizing the potential for a future flexibility proposal. (DWR-27, DFG-11, NOAA-18)

SWC and SLDMWA both argued in favor of increasing the flexibility of the objective. SWC argued that the program of implementation of the objective could be modified to allow for real-time flexing of standards when conditions prevail that will enhance multiple beneficial uses. SLDMWA argued that flexible implementation of the objective is needed to more accurately represent real-time location of fish in the estuary, the effect of in-Delta actions on upstream fishery needs, and the balance between water resources expended and fishery benefits derived. Comments included proposed guidelines for the implementation of additional flexibility to the Delta Outflow Objective. The proposal of the export water users to modify the objective would prevent over-compliance and would add flexibility when certain conditions are met. Specifically, the export water users' proposal would modify the objective to allow for minor under-compliance in any month to be made up the following month. The export water users propose to allow the agencies to flex the objectives if all of the WOMT agencies agree to the flex, the Executive Director of the State Water Board does not veto the flex, and the flex meets specified thresholds for flows and exports. (SWC-11, SLDM-18)

BI, CCWD, Deltakeeper, California Sportfishing Protection Alliance, San Joaquin Audubon, and Committee to Save the Mokelumne (Deltakeeper et. al.), USEPA, the Water Forum and the Northern California/Nevada Council Federation of Fly Fishers all opposed making any changes to the current objective and argued that because the exact mechanism by which the Delta Outflow Objective provides protection is not fully understood, the objective should not be modified, especially given the declining status of pelagic species in the Delta. In addition, these parties contend that it would not be prudent to add flexibility to the objective for the protection of relatively healthy upstream fisheries at the expense of declining pelagic species in the Delta. The parties opposed to adding flexibility further argued that by taking advantage of the flexibility in the current objective, plus operational modifications, the SWP and CVP could meet the current objective and protect upstream fisheries without needing any changes. (BI-16, CCWD-23, CCWD-24, DK-19, FFF-01)

Before making changes to the Delta Outflow Objective the State Water Board will require the following information and analyses: (1) an analysis that meets the criteria in State Water Board Resolution No. 68-16 and demonstrates that the proposed revised objective will protect the beneficial uses as well as the current objective; (2) additional studies and modeling; and (3) an environmental analysis of the impacts of the change.

In addition, the reasons for the POD are still unknown, and water project operations are included in the conceptual model for many of the POD studies as a possible factor/cause for the decline. The study results are expected in 2007, and may have an impact on the Delta Outflow objective and its implementation. The study results

could help staff assess when the current Delta outflow objective must be met to protect the beneficial uses and whether the objective can be relaxed without causing an additional negative impact to sensitive species. In light of this, the State Water Board did not change this objective in the 2006 Plan. The State Water Board will not consider changing the Delta Outflow objective until the POD studies are completed or the Board receives other reliable technical information, warranting a change.

Conclusion

The 2006 Plan does not amend the numeric values established for the Delta Outflow Objective nor implement further flexibility in the value of, or application of the objective by modifying footnote 14 of Table 3 of the 1995 Plan (now footnote 11 of the 2006 Plan). The program of implementation in the 2006 Plan describes how, the State Water Board may add flexibility to the objective in the future. This result is consistent with the recommendation by the California Bay-Delta Authority's WOMT not to allow for flexibility at this time due to the decline of pelagic organisms in the Delta.

6. Export Limits

The export limits objective is intended to protect the habitat of estuarine-dependent species by reducing the entrainment of various life stages by the State and federal export pumps located in the southern Delta. The objective limits exports of water from the southern Delta (Delta exports) to a specific percentage (which varies by hydrologic conditions and time of year) of Delta inflow. Delta inflow is defined as the combined daily average flow in the Sacramento River at Freeport, the Sacramento Regional Wastewater Treatment Plant, the Yolo Bypass, the San Joaquin River at Vernalis, the eastside streams (the Mokelumne River, the Cosumnes River and the Calaveras River) and other miscellaneous streams that flow into the Delta. For the purposes of this objective only, Delta exports are defined as the sum of the daily inflow to Clifton Court Forebay (minus any withdrawals from Clifton Court Forebay by the Byron-Bethany Irrigation District), the daily amount of water pumped from the Tracy Pumping Plant, the daily pumping from the Contra Costa Canal, and the daily pumping from the North Bay Aqueduct. The export limits objective is set forth in Table 3 of the Water Quality Objectives for Fish and Wildlife Beneficial Uses in the Plan.

The "percentage of Delta Inflow diverted" is calculated by dividing Delta export by the Delta inflow. From July through January the maximum allowable percentage of Delta inflow diverted is 65 percent. From February through June (excluding the San Joaquin River April/May 31-day pulse flow period) the maximum allowable percentage of Delta inflow diverted is 35 percent. For the purposes of compliance with this objective, inflow and export rates are defined by running averages, with a 14-day running average used for uncontrolled inflow, and a 3-day running average used for exports. When hydrologic conditions are such that the Projects are releasing water from storage for export (i.e. controlled flow), the inflow rate parameter is calculated using a 3-day running average.

During the San Joaquin River April-May 31-day pulse flow period, exports are further limited to 1,500 cfs or 100% of the 3-day running average flow in the San Joaquin River. At the time the export limits objective was developed, no definitive studies or analyses had been completed to support the specific values required by the objective. The required percentage of Delta inflow diverted was developed to shift periods of high exports to less biologically sensitive times of the year. Accordingly, variations in any of the export limits are allowed if recommended by the California Bay-Delta Authority's Operations Group, approved by the WOMT, and approved by the Executive Director of the State Water Board. In D-1641, the State Water Board assigned responsibility for implementation of the export limits objective to DWR and USBR.

The Periodic Review of the 1995 Plan identified three specific potential modifications to the export limits objective: (1) change the manner in which in-Delta releases are accounted for by the export/ inflow accounting, (2) modify footnote 23 to increase the flexibility in selecting the accounting standard to follow when determining export/ inflow ratio, and (3) modify the San Joaquin River April-May 31-day pulse flow period export limits contained in footnote 22. Comments and information regarding each of these potential modifications was received during the Plan review.

Discussion

Delta Wetlands Properties (Delta Wetlands) requested that the manner in which the export limits objective is calculated pursuant to footnote 23 of the objective in the 1995 Plan be modified to address in-Delta releases. Delta Wetlands proposed that in-Delta releases be included in the calculation of Delta inflow. Specifically, Delta Wetlands proposed that the mean daily flow from the previous day's in-Delta releases would be included with the inflow components (described above) that are added together to calculate Delta inflow. (DW-01) NOAA Fisheries addresses this issue in its comments and recommends that footnote 23 of the export limits objective remain unchanged. NOAA Fisheries asserts that in-Delta releases are not equivalent to tributary inflow into the Delta for the protective purposes of this objective. NOAA Fisheries does not support including in-Delta releases as Delta inflow. (NOAA-16)

The Projects recommend that footnote 23 of Table 3 of the 1995 Plan be changed to accommodate project operations. Currently, the objective requires the State and federal water projects to switch from using a 14-day running average of inflow in export/inflow ratio calculations, to a 3-day running average when they begin releasing water from storage for export. The intent of the switch to a 3-day average is to allow the Projects to export storage releases immediately. However, when inflow to storage reservoirs drops below releases and the Projects start releasing water from storage to meet other obligations, the Projects are required to change to the 3-day running average even though the purpose of the storage withdrawals is not to export the stored water. Changing to the 3-day average could cause the Projects to curtail exports sooner than if they were operating to the 14-day objective.

In these situations, the Projects assert that it would benefit their operations to choose either the 14-day or the 3-day average, and result in no adverse impacts to Delta fishery resources. (DWR-17, DWR-18.)

DFG and NOAA Fisheries address the Projects' recommendation regarding footnote 23 and the flexibility proposed by the Projects. Both DFG and NOAA Fisheries oppose any change to footnote 23 of the 1995 Plan and state that the Projects' recommendation regarding additional flexibility in footnote 23 would result in adverse impacts to listed species. (NOAA-16, DFG-05.)

SDWA recommended that the third sentence in footnote 22 of Table 3 of the 1995 Plan be deleted. This sentence states that the flexibility incorporated into the export limits objective is intended to result in no net water supply cost annually within the limits of the water quality and operational requirements of the 1995 Plan. SDWA's proposed deletion was not accompanied by scientific evidence disclosing its impacts on other beneficial uses so no change is proposed. (SDWA-02.)

BI submitted comments regarding the export limits objective. BI states that the variation currently allowed in the export limits objective is sufficient to allow for variations in operations to protect water supply. BI also proposes the following modifications to the export limits objective for time periods between March 15 and April 15 and May 16 to June 15:

Time Period	Value
March 15-31	200% of Vernalis Flow
April 1-15	200% of Vernalis Flow
May 16 – May 31	100% of Vernalis Flow
June 1- June 15	200% of Vernalis Flow

(BAY-06, BAY-11)

The SWC state that that BI's recommendation will result in significant water supply impacts and the SWC do not support changing the Export Limits objective. The SLDMWA states that BI's recommendation is not supported by adequate information and the SLDMWA asserts that entrainment losses for salmon and Delta smelt at the export facilities are trivial when compared to other causes of mortality. The SLDMWA proposes that the Export Limits objective be made more flexible to avoid wasting water during times when relatively small changes to the Export Limits objective could be made with little or no change in the level of protection for fish and wildlife. (SWC-11) (SLDM-07)

During an additional workshop, scheduled to receive information regarding proposed flexibility of the Delta Outflow objective, the WOMT withdrew its previous recommendation to add flexibility to the Delta Outflow objective due to concerns regarding the POD. While the WOMT letter did not address the Export Limits objective specifically, the POD studies include estuarine-dependent species which the Export Limits objective intends to protect. Additionally, the POD studies are

considering the impacts of exports on these species and whether exports are playing a role in the POD. As stated above, the POD study results are expected in 2007 and could help staff assess what (if any) changes to the Export Limits objective may be appropriate. In light of this, the State Water Board did not change this objective in the 2006 Plan. (WOMT-01) (SWRCB-11)

Conclusion

The 2006 Plan does not amend the export limit objective. Upon completion of the POD studies in 2007 the State Water Board may consider amending the Export Limits objective.

7. River Flows: Sacramento River at Rio Vista

The Sacramento River at Rio Vista flow objective in Table 3 of the Plan is for the protection of Fish and Wildlife beneficial uses. This objective requires flows to protect estuarine habitat for anadromous fish and other estuarine-dependent species. This objective requires attraction and transport flows and suitable habitat for various life stages of aquatic organisms, including Delta smelt and chinook salmon.

The Sacramento River at Rio Vista flow objective requires minimum monthly average flows of: 3,000 cubic per second (cfs) during September of all year types, 4,000 cfs during October of all year types except critical years when flows of 3,000 cfs are required, and 4,500 cfs during November through December of all year types except critical years when flows of 3,500 cfs are required. The objective also requires that the 7-day running average flows are not less than 1,000 cfs below the monthly objective.

Discussion

The issue was raised whether the State Water Board should add flexibility to the flow objective for the Sacramento River at Rio Vista. BI, DFG, NOAA Fisheries, and SWC opposed increasing the flexibility of the objective. Additional information is necessary to determine if the species targeted for protection under the objective would be harmed or benefited by an increase of flexibility. BI emphasized that flexing the objective, especially when exports are near, at, or exceed the export/inflow ratio, could result in significant adverse impacts to fish and to habitat conditions in the Delta. DFG pointed out that the objective already included flexibility. (SWC-11, BAY-10, NOAA-16, DFG-06)

USDOJ recommended that more flexibility be added to the objective by implementing a real-time adaptive management approach. Claiming that the operation of upstream projects to meet flow objectives in the Delta is negatively impacting upstream fishery resources, USDOJ argued that flexibility is needed so real-time changes to address the competing needs for the water can be implemented and specific operational plans can be developed. The USDOJ argument for adding

flexibility to the objectives is based on the potential for avoiding certain impacts to fish due to USBR operations in upper tributary reaches. USDOl did not submit any information indicating that real-time management of the objectives would improve in-Delta conditions, or how and when the flexibility would be implemented. (DOI-25)

SLDMWA neither endorsed nor opposed adding flexibility to the values of the objectives but requested that the effects of added flexibility on water quality and beneficial uses be evaluated before allowing any variation in meeting the objectives. (SLDM-18)

Conclusion

There is not enough new scientific evidence at this time to support any changes to the current objective. In order to revise the river flow objectives, it is necessary to determine the impacts on Delta resources. However, there is insufficient information to determine whether adding flexibility in implementing the objectives might cause impacts to Delta fishery resources, and to determine whether upstream resources can be protected through operational modifications without changing the river flow objectives. Therefore the objective remains unchanged in the 2006 Plan.

8. February-April 14 and May 16-June San Joaquin River Flow Objectives (Spring Flow Objectives)

During the Plan Review, the State Water Board received information as to whether it should modify the San Joaquin River spring flow objectives for Fish and Wildlife Beneficial Uses set forth in Table 3 of the Plan.

The State Water Board established the spring flow objectives for the San Joaquin River at Vernalis in the 1995 Plan in response to poor habitat conditions in the lower San Joaquin River. Hydrologic modifications in the San Joaquin River watershed beginning in the late 1800s substantially reduced spring flows in the San Joaquin River and led to degraded water quality from agricultural return flows and other sources. The purpose of the spring flow objectives is to provide minimum net downstream fresh water flows to the San Joaquin River to address some of the habitat concerns from the reduced flows and water quality degradation. Specifically, the objectives are intended to benefit; juvenile fall-run chinook salmon; downstream migrating steelhead; and spawning, larval, and juvenile Delta smelt. The spring flows provide habitat, water quality, and temperature benefits to these and other aquatic and terrestrial species. In addition, the spring flow objectives also contribute a portion of the flows needed to meet the Delta outflow objectives and support the various habitat benefits of those objectives in the Delta.

The State Water Board based the spring flow objectives on the historical placement of the two parts per thousand isohaline (measured as 2.64 mmhos/cm surface salinity) and the historic relative proportion of flow provided by the San Joaquin River to Delta outflow (approximately 20 percent). Depending on water year type, the objectives are set at 10, 20, or 30 percent of the operative Delta outflow requirement

(7,100 cfs or 11,400 cfs). The objectives measured at Vernalis on the San Joaquin River range from 710 cfs to 3,420 cfs. The required flow objectives are determined both by water year type and by the required Delta outflow objective. The Plan designates the water year classification based on the best available estimate of the 60-20-20 San Joaquin Valley Water Year Hydrologic Classification at the 75% exceedance level. (Footnote 17 for Table 3 of 1995 Plan; Figure 3 of the 2006 Plan.) For each year type, the Plan includes two alternative spring flow objectives. The higher alternative flow is required during wetter year types. The higher of the two flow objectives applies when the 2 parts per thousand isohaline is required to be at or west of Chipps Island pursuant to the Delta outflow objective, with the lower flow objectives applying at all other times. The Plan designates the Delta outflow objectives based on the Eight River index, which is the calculated sum of the unimpaired runoff of the Sacramento, Feather, Yuba, American, Tuolumne, Stanislaus, Merced, and San Joaquin Rivers.

Although the water year type for the spring flow objectives is determined entirely by conditions in the San Joaquin River watershed, conditions within the Sacramento River watershed often dictate whether the higher or the lower flows for each year type apply. The Sacramento River and its tributaries contribute the majority of the flow comprising the Eight River index and as a result determine the required Delta outflow. Because the San Joaquin River watershed experiences snow-melt dominated runoff and the Sacramento River experiences both rain-fall and snow-melt runoff, and since the watersheds are situated in different geographical regions, the two watersheds may produce very different hydrological conditions. As a result, the higher spring flow objectives may be triggered by wetter conditions in the Sacramento River watershed even when conditions in the San Joaquin River watershed are much drier, and vice versa.

The State Water Board implemented the spring flow objectives in D-1641 and required USBR to meet the objectives. USBR has not consistently met the objectives from 2002 through 2004, with violations primarily occurring during February. USBR has stated that the reason for noncompliance has been a need to maintain water in storage in New Melones Reservoir so that it is available to meet other water quality and water supply needs of the project. USBR is not required by its water right permits to use New Melones Reservoir to meet the spring flow objectives, but USBR has not attempted to use other methods for meeting the objectives. Even if other methods were employed, however, water supplies in the San Joaquin River watershed are limited during drier hydrological conditions and are subject to a number of competing needs.

Discussion

During the Plan Review, several parties submitted recommendations regarding the spring flow objectives. Different parties made various recommendations including: reducing or eliminating the objectives; increasing the objectives at certain times to increase the pulse flow window; and increasing the objectives throughout the period. Other parties recommended that no changes be made to the objectives at this time.

Certain parties also recommended flexibility in the implementation of the objectives and others recommended that flexibility not be allowed.

The San Joaquin River Group Authority (SJRGA) recommended that the State Water Board eliminate the spring flow objectives. The SJRGA argued that the objectives are not based on sound science and are not necessary for the protection of salmon or endangered species. The SJRGA stated that the spring flow objectives were based on an agreement rather than science and are not based on hydrological conditions in the San Joaquin River watershed. The SJRGA argued that there is little correlation between flows at Vernalis and factors affecting salmon survival due to tidal effects. The SJRGA also argued that the objectives are unreasonable because when the objectives were adopted they could not be met with the tools available at the time.

The SJRGA commented that if the State Water Board decides to retain the spring flow objectives it should not consider increasing the objectives and should eliminate the objectives in February and from May 16 through June. The SJRGA stated that increasing the objectives would lead to termination of the SJRA and the VAMP⁵ if water right holders on upstream tributaries subsequently were required to meet any portion of the objectives. The SJRGA argued that the May 16 through June flow objectives are not needed at that time of year to protect outmigrating salmon smolts or other aquatic species in the Delta. The SJRGA stated that higher water temperatures at this time of year cannot be lowered by reservoir releases except at a tremendous cost in water supplies. In addition, the SJRGA provided information indicating that most salmon smolts have left the system by late May. The SJRGA also stated that the flow objectives are not needed after May 15 to transport Delta smelt larvae into Suisun Bay because most of the smelt have already moved out of the southern Delta by this time. (SJRGA-19.)

The SJRGA recommended the following flows, developed with the new CALSIM II model and based on the existing New Melones Index and San Joaquin River Basin Index, to replace the current objectives during February through June:

San Joaquin River Basin Index	Vernalis Flow Objective (cfs)	
	NM Index <2,500 TAF	NM Index >2,500TAF
1-W	2,000	2,500
2-AN	2,000	2,500
3-BN	1,250	1,750
4-D	1,250	1,750
5-C	700	1,000

(SJRGA-19.)

⁵ In D-1641, the State Water Board approved conducting the VAMP experiment proposed in the SJRA in lieu of meeting the 1995 Plan objectives for the April-May 31-day pulse flow on an interim basis. The VAMP is a 12 year study designed to protect juvenile Chinook salmon and to evaluate the relationship between San Joaquin River flow and State Water Project and Central Valley Project water exports with the Head of Old River Barrier installed, on the survival of marked juvenile Chinook salmon migrating through the Sacramento-San Joaquin Delta.

The SJRGA also presented testimony and exhibits in opposition to recommendations made by DFG, BI, NOAA Fisheries, and the USFWS. The SJRGA submitted analyses of DFG's and BI's flow recommendations that indicate that the recommendations may not be scientifically or technically sound for various reasons. Instead of increasing flows as recommended by DFG and BI, or leaving the objectives as they are, as recommended by NOAA Fisheries and the USFWS, the SJRGA proposed that the State Water Board instead focus on the Delta. The SJRGA recommended that the State Water Board require parties to conduct studies focused on the Delta to determine the flow and non-flow components affecting salmon smolt survival. Regardless of what the flow objectives are, the SJRGA recommended institution of real time monitoring, an operable Head of Old River Barrier, export reductions whenever fish of concern are likely to be unreasonably impacted, and short-duration pulse flows designed to maximize the effects of group migration, tidal cycles, and pumping restrictions. (SJRGA-23.)

SEWD commented that the spring flow objectives should be eliminated because they have no scientific basis. SEWD argued that at the least the higher flow objectives required when the 2 parts per thousand isohaline is at or west of Chipps Island should be eliminated because this objective is largely determined by hydrologic conditions in the Sacramento River watershed. SEWD stated that if additional flow is needed to meet the Delta outflow objectives it should be provided from the Sacramento River watershed. SEWD stated that if the State Water Board is going to continue to require spring flow objectives, it should change the objectives to the flows contained in the USFWS's February 4, 2004 Biological Opinion for Delta Smelt (2,000 cfs in wet and above normal years, 1,500 cfs in below normal years, 1,200 cfs in dry years, and 800 cfs in critical years). SEWD stated that these flows have the most scientific basis. Alternatively, SEWD recommended elimination of the higher of the two San Joaquin River flow objectives (with an objective of 2,130 cfs in wet and above normal years, 1,420 cfs in below normal and dry years, and 710 cfs in critically dry years). (SEWD-01.)

SEWD further commented that the State Water Board must take Public Law 108-361 into consideration in the program of implementation for the spring flow objectives. Public Law 108-361 requires the Secretary of Interior to develop and initiate implementation of a program to meet all existing water quality standards and objectives for which the CVP has responsibility. The program is to include the acquisition of water to provide water quality flows in the San Joaquin River and to reduce the reliance on New Melones Reservoir for meeting water quality and fishery flow objectives. (SEWD-03.)

USDOJ recommended that the State Water Board sponsor a cooperative evaluation of the spring flow objectives by federal and State agencies and interested parties to determine the appropriate flow objectives and how to achieve them. Pending completion of an evaluation, USDOJ recommended adding flexibility to the objectives to allow real-time responses to competing needs for water. (DOI-42.)

USBR presented its own comments during the workshop in addition to those presented by USDOl. USBR expressed concern about the link between the spring flow objectives and Delta outflow objectives. In addition, USBR asked the State Water Board to use the new CALSIM II model because USBR believes it better represents flow and water quality conditions in the San Joaquin River Basin. USBR also provided additional comments regarding implementation of the flow objectives in D-1641. USBR has typically relied on supplies from New Melones to meet the objectives. However, USBR stated that New Melones supplies are often insufficient to meet the flow objectives and the other obligations placed on New Melones due to a lack of supply. For example, USBR commented that there are potential fisheries management conflicts between upstream operations on the Stanislaus River and downstream management on the mainstem San Joaquin River where compliance is measured (e.g. flow fluctuations in the tributaries and reduced storage with subsequent temperature and flow impacts). (DOI-41 and R.T. March 21, 2005, p. 1342-1374.)

The USFWS provided written comments following the workshop to supplement USDOl's comments. The USFWS submitted information indicating that the Delta smelt population has experienced a significant decline in the last 20 years, and stated that Delta smelt are in danger of becoming extinct. The USFWS stated that the spring flow objectives provide an important source of fresh water to the ecosystem and provide important environmental cues that are essential to achieving species recovery. In addition, the USFWS indicated that higher late winter and spring flows provide: attractive conditions for adult Delta smelt moving upstream to spawn; favorable Delta smelt spawning and juvenile rearing conditions; increased dispersal of young; decreased loss of Delta smelt at the Delta pumping facilities; increased habitat availability; increased nutrients; and potentially increased food production. In addition, the USFWS stated that higher outflow conditions are associated with more turbid conditions and cooler temperatures that seem to favor native fishes over non-native species. The USFWS stated that while the spring flow objectives do not address all the needs of Delta smelt and San Joaquin River chinook salmon and steelhead, the objectives do provide a minimum flow level and some level of protection. Consequently, the USFWS does not recommend any weakening of the objectives. (DOI-43.)

DFG presented information indicating that chinook salmon populations in the tributaries to the San Joaquin River have been declining below levels established to measure salmon doubling pursuant to the AFRP doubling goals (based on average 1967-1991 population estimates). Based on these population declines, DFG expressed concern with whether the current San Joaquin River flow objectives for the entire February through June period (including the pulse flow period) are providing adequate protection for chinook salmon in the San Joaquin River. DFG recommended that the State Water Board make the flow objectives more protective in order to protect and reverse the trend in decreasing San Joaquin River chinook salmon populations. DFG's specific comments primarily concerned changes it recommends to the San Joaquin River pulse flow objectives and implementation of the objectives in D-1641 through the VAMP. DFG provided specific

recommendations for expanding the pulse flow period (up to 90 days) into the spring flow period and increasing the associated flows (up to 20,000 cfs) and frequency of higher flows to provide additional protection for migrating steelhead and salmon smolts. However, DFG did not provide any specific recommendations for periods outside of the proposed expanded pulse flow period. For additional information concerning DFG's recommendations, please see the section regarding the pulse flow objectives. (DFG-08 and 10.)

DFG provided information to show that expanding the pulse flow period by providing higher flows prior to April 15 and following May 15 (the current pulse flow period) would provide additional protection to both chinook salmon and steelhead trout and would help to address most of the San Joaquin River water quality issues, including temperature concerns. DFG stated that by increasing the magnitude and duration of the pulse flow and the frequency of flows above the minimum flow would likely result in compounding adult salmon production due to increased numbers of eggs, fry, and out-migrating smolts resulting from increased survival of out-migrating smolts and returning adults. DFG stated that these actions would also provide additional protection to steelhead, increasing the level of protection for all out-migrating steelhead. (DFG-08.)

Regarding whether the methodology for determining the applicable San Joaquin River flow (higher or lower) should be modified, DFG stated that spring flows appear to be inadequate to protect beneficial uses for salmon in the San Joaquin River, and that this is leading to declining abundance trends. DFG had no specific recommendations for modifying the present methodology for determining the required spring flow objectives aside from its recommendations for the pulse flow objectives. However, DFG recommended that any revised spring flow objective not be less than the current higher flow objectives for the San Joaquin River. (DFG-08.)

BI commented that the spring flow objectives should be made more protective. BI stated that flow conditions in the lower San Joaquin River during spring are directly related to salmon population abundance, population growth, and diversity. BI recommended modifying the pulse flow objectives by extending the pulse flow period into the spring flow period and ensuring that Vernalis flows exceed exports. BI stated that because salmonids migrate from April through July, that limiting the pulse flow period when flow conditions are acceptable for salmon emigration is limiting the phenotypic and genotypic diversity of the San Joaquin River salmon population by artificially promoting survival of the fish that migrate during the pulse flow window and limiting the survival of fish that emigrate before and after the pulse flow period. BI further argued that the ratio of Vernalis flow to exports is a limiting factor for salmon when the combined export rate at the Delta pumping facilities is greater than the flow at Vernalis. In addition, BI also submitted information indicating that low flows in the San Joaquin basin are a limiting factor for steelhead. (BAY-08.)

BI provided recommendations for changing the spring flow objectives for the San Joaquin River based on several criteria from the AFRP and the VAMP experimental design. BI based its flow recommendations on the following criteria: flows should

represent variation in annual and monthly hydrology in the upper watershed; San Joaquin River flows should contribute a minimum of 20 percent to Delta outflow during normal, dry, and critically dry water years and a minimum of 10 percent during all other year types (wet, above normal, and below normal); average flows of 5,000 cfs should be provided in a minimum of 2 to 3 consecutive months; flows during all months should be greater than or equal to 1,500 cfs to ensure adequate DO conditions in the Stockton Deep Water Ship Channel (DWSC); minimum flow levels in wet and above normal years should be limited to 7,000 cfs to allow for installation of the head of Old River barrier to protect outmigrating salmon; and flows should be linked to maximum Delta export rates to ensure that exports do not exceed Vernalis flows. Following are the flow objectives recommended by BI based on these criteria:

Month	Water Year Type				
	W	AN	BN	D	C
February	3,420	3,420	2,280	2,280	1,500
March	5,000	5,000	3,420	2,280	1,500
April 1-14	7,000	5,000	5,000	5,000	2,000
April 15-May 15	31-day flow objective as determined by VAMP experiment				
May 16-31	7,000	5,000	5,000	3,420	2,000
June	5,000	5,000	3,420	2,280	1,500

(BAY-08.)

BI submitted additional comments refuting comments made by the SJRGA and SEWD that the spring flow objectives should be eliminated because they were not based on sound science. BI stated that the objectives are based on science and represent a reasonable attempt to balance the scientific information available at the time with the needs of multiple beneficial uses of water in the area. BI stated that the conclusions reached by the SJRGA are based on incomplete studies and limited information. BI further argued that the alternative flows recommended by the SJRGA are not based on science and fail to consider the needs of fish and wildlife and their habitat. (BAY-10.)

At a minimum, NOAA Fisheries recommended that the spring flow objectives remain unchanged because San Joaquin River Basin chinook salmon and steelhead populations are not showing signs of improvement and continue to require the protection of the spring flow objectives. NOAA Fisheries did not recommend adding any flexibility to the objectives as recommended by USDOT. NOAA Fisheries stated that it is concerned that the current objectives are too low and recommended that the State Water Board consider increasing the objectives. NOAA Fisheries recommended that the State Water Board establish an independent scientific peer review panel to address potential changes to the objectives. (NOAA-17 and R.T. March 21, 2005, p. 1392-1399.)

Deltakeeper submitted general comments and information from proceedings on other matters indicating that increased flow is needed on the San Joaquin River to

address water quality concerns in the San Joaquin River and in the southern Delta. However, Deltakeeper did not provide any specific flow recommendations.

SLDMWA presented comments refuting comments made by DFG and BI. In addition, SLDMWA stated that the State Water Board should not consider linking maximum Delta export rates to flow levels at Vernalis because fish and wildlife will be reasonably protected without the link and that such a link could cause significant adverse impacts to other beneficial uses. (R.T. March 21, 2005, p. 1536-1541 and SLDM-7.)

The Central Valley Regional Water Board submitted comments relating to the effects of San Joaquin River flows on DO in the lower San Joaquin River (the Stockton DWSC). The Regional Water Board recommended that before the State Water Board makes any changes to the flow objectives, it first consider the potential impacts to DO in the DWSC. (RB5-02 and 03.)

SWC commented that the State Water Board should not require increased flows on the San Joaquin River to address the DO impairment in the Stockton DWSC. SWC argued that the problem is not caused by reduced flows, but by the artificially deepened ship channel and discharges to the river. (SWC-11.)

The AFS stated that recent population trends and habitat conditions indicate that current conditions within the San Joaquin River Basin are having significant impacts on fishery resources and their habitat. Accordingly, AFS recommended that the State Water Board consider options to increase protection for San Joaquin River fish and that the Board not consider adding any flexibility to the spring flow objectives. (AFS-02.)

Although the SJRGA and SEWD submitted information in support of eliminating or, at a minimum, reducing the San Joaquin River spring flow objectives based on the assertion that the objectives are not based on science, neither the SJRGA nor SEWD submitted adequate scientific information demonstrating that the objectives could be eliminated or reduced while reasonably protecting the fish and wildlife beneficial uses. Proponents for reducing or relaxing the spring flow objectives recommended the relaxation or reduction primarily for water supply reasons. While parties argued that adequate flows may not be available from New Melones reservoir to meet the flow objectives in all years in addition to other uses of water, USBR is not required to meet the flow objectives from New Melones Reservoir exclusively. In addition, this issue does not speak to whether the objectives are necessary for the protection of fish and wildlife beneficial uses. Given the declining status of various San Joaquin River Basin species and Delta species and the conclusions by the fisheries agencies (DFG, USFWS, and NOAA Fisheries) of the importance of minimum San Joaquin River flows in providing protection for these species, it is not appropriate to reduce or eliminate the objectives without more information. In addition, it is not appropriate to include flexibility in the objectives as recommended by USBR.

Adequate scientific information also does not exist to support the adoption of the higher flows recommend by BI or DFG without more information and scientific review. Further, additional information is needed to determine whether these flow recommendations are achievable and what the short-term and long-term water supply costs would be to all beneficial uses of water. DFG, the other fisheries agencies, and BI should coordinate to conduct additional studies to provide a scientific basis for any flow recommendations. Analyses should also be conducted to determine whether it is appropriate to revise the methodology for determining when the higher spring flow objectives apply to better represent hydrological conditions within the San Joaquin River Basin. In addition, modeling should be conducted to determine the water costs of the various proposals and the sustainability of such proposals given current water storage capacities and consumptive use needs within the San Joaquin River Basin. The above information should be presented to the State Water Board during its upcoming workshop on San Joaquin River flow issues and/or during future proceedings before the State Water Board.

Conclusion

The 2006 Plan makes no changes to the spring flow objectives. Currently, adequate scientific peer reviewed information does not exist on which to base either a reduction or an increase in the spring flow objectives as recommended by various parties. In addition, given the declining status of various San Joaquin River Basin and Delta fisheries, the State Water Board does not believe that adding flexibility to the objectives is warranted at this time. However, as indicated in the Emerging Issues section of Chapter 1 of the 2006 Plan, the State Water Board will hold a workshop after revisions are made in response to peer review of DFG's salmon escapement model (anticipated for summer of 2007) to receive additional scientific information concerning the San Joaquin River spring flow and pulse flow objectives. At that time, the State Water Board will hear any additional information that has been developed regarding the above recommendations and concerns. Following the workshop, the State Water Board may make changes to the objectives, the Program of Implementation, and/or water rights in response to information received during the workshop. In addition, the State Water Board may direct that additional scientific analyses be conducted to provide necessary scientific information concerning flow needs in the San Joaquin River basin.

In order to assure that the State Water Board has adequate scientific information on which to consider changes to the objectives at the workshop discussed above and in future proceedings, the State Water Board recommends that the fisheries agencies and other parties continue to develop information on flow needs in the San Joaquin River for the protection of fish and wildlife within the river and the Delta. Specifically, the State Water Board recommends an investigation of whether changes are justified in the objectives to better represent hydrological conditions in the San Joaquin River Basin, including what the potential effects of any change would be on the Delta outflow objectives.

9. 31-Day April 15-May 15 San Joaquin River Pulse Flow Objectives (Pulse Flow Objectives)

During the review of the Plan, the State Water Board received information as to whether it should modify the pulse flow objectives for Fish and Wildlife Beneficial Uses set forth in Table 3 of the 1995 Plan.

The pulse flow objectives in the 1995 Plan ranged from 3,110 to 8,620 cfs based on water year type and the required location of the 2 parts per thousand isohaline (X2). For each year type the objective included two flow objectives. The higher flow objective applies when X2 is required to be at or west of Chipps Island. The flow objective applies from April 15 to May 15. However, footnote 18 specifies that the time period may be modified based on real-time monitoring to coincide with fish migration. In addition, based on evidence that short-duration flow fluctuations, adequately separated in time, are effective in cueing smolts into outmigration, footnote 18 allows for one pulse, or two separate pulses of combined duration equal to the single pulse. The purpose of the pulse flow objectives is to aid in cueing chinook salmon smolt outmigration from the San Joaquin River. San Joaquin River fall-run chinook salmon principally migrate down the river in April and May, with some migration also occurring in June.

In D-1641, the State Water Board approved conducting the VAMP experiment proposed in the SJRA in lieu of meeting the 1995 Plan objectives for the April-May pulse flow, on an interim basis. Pursuant to the SJRA, signatories to the agreement agreed to provide flows for a period of 12 years. In return, USBR agreed to meet the San Joaquin River water quality objectives (including the flow objectives for the period outside of the pulse flow period and the salinity objectives). The VAMP experiment is designed to protect juvenile chinook salmon and to evaluate the relationship between San Joaquin River flow and SWP and CVP water exports with the Head of Old River Barrier⁶ installed, on the survival of marked juvenile chinook salmon migrating through the Sacramento-San Joaquin Delta. Experimental flows at Vernalis on the San Joaquin River range from 3,200 cfs to 7,000 cfs. The VAMP prescribes flows that are sometimes lower than the flow objectives in the 1995 Plan, while the export limits are equal or more restrictive than those in the 1995 Plan. However, the State Water Board did not impose the VAMP export limits on the water rights of DWR and USBR. Instead, the State Water Board urged DWR and USBR to comply with the export pumping limits in the VAMP. The State Water Board found that conducting the experiment would provide valuable information concerning the relationship between river flows and export rates and could provide the basis for future changes to the objectives during future review of the flow objectives.

In recent litigation over D-1641, the California Court of Appeal found that the State Water Board erred in allowing for a staged implementation of the pulse flow

⁶ The purpose of the head of Old River barrier is to reduce the downstream movement of juvenile San Joaquin River chinook salmon into the southern Delta via the head of Old River where fish mortality increases due to predation and higher levels of exposure to export facilities and agricultural diversions.

objectives in D-1641 because the 1995 Plan did not specifically provide for a staged implementation.

Discussion

During the Plan Review no parties specifically recommended changes in the pulse flow objectives. However, following the workshop DFG changed its position and recommended that the objectives be modified. Several parties commented that implementation of the pulse flow objectives through the SJRA and the VAMP should be investigated and changed. Other parties commented that no changes to the objectives should be made until the VAMP study is completed.

The USFWS, USDOJ, SJRGA, DWR, and SWC specifically recommended that no changes be made to the pulse flow objectives at this time. USDOJ commented that the objectives provide important protection for emigrating juvenile chinook salmon with concurrent benefits to federally listed Delta smelt. BI commented that it believes the pulse flow objectives are protective of fish and wildlife. However, BI also stated that it would support changing the objectives to the VAMP target flows if the State Water Board also changes the export limits to be consistent with the VAMP export limits. SDWA presented comments opposing substitution of the VAMP flows for the pulse flow objectives. Central Delta Water Agency (CDWA) commented that the pulse flow objectives should be based on science rather than agreements and should be designed to protect beneficial uses. However, CDWA did not comment on any specific changes it recommends to the pulse flow objectives or what those changes should be based on. (DOI-26; R.T. January 24, 2005, p. 1033-1034, 1049-1051, 1057-1061, 1061-1065; SJRG-13; DWR-20; and SWC-11.)

The USFWS and USDOJ stated that no changes should be made to the implementation of the objectives through the SJRA and the VAMP. (DOI-26; R.T. January 24, 2005, p. 1033-1034.) DFG, NOAA Fisheries, and Deltakeeper specifically recommended changes to the VAMP study design. DFG, Deltakeeper, and NOAA Fisheries recommended that the State Water Board direct and oversee an analytical peer review of the VAMP study design to ensure that adequate information is obtained from the study to establish new objectives and to protect fisheries in the San Joaquin River and its tributaries during the study. (DFG-07; R.T. January 24, 2005, p. 1052-1054; NOAA-17.) The SJRGA stated that the State Water Board should not be involved in any review of the VAMP study design since the State Water Board is not a signatory to the SJRA. (SJRG-13.) The SJRGA and DWR recommended only minor changes to the program of implementation to address the then-pending litigation regarding implementation of the objectives. (SJRG-13 and DWR-20.) CDWA and SDWA also made general comments about issues that should be considered in reviewing the VAMP study. (R.T. January 24, 2005, p. 1057-1061 and 1061-1065.)

Following the workshop, DFG modified its position and submitted specific recommendations for increasing and expanding the pulse flow objectives. DFG

recommends extending the pulse flow period up to 90 days (with May 1 being the center of the period) and modifying the pulse flow objectives as follows:

Water Year Type	Flow Level (daily average cfs)	Window Duration (days)
Wet	20,000	90
Above Normal	15,000	75
Below Normal	10,000	60
Dry	7,000	45
Critical	5,000	30

DFG stated that its flow recommendations remain preliminary subject to further internal and external review and are primarily intended to point out the seriousness and urgency of the problem with salmon protection on the San Joaquin River. DFG stated that it continues to support implementation of the pulse flow objectives through the VAMP only as long as the VAMP can be adapted (including target flows and exports) to improve protection of natural salmon and improve the scientific protocols and design of the VAMP to provide reliable results. Other parties submitted comments opposed to DFG's recommendations on the basis that the recommended changes are not scientifically sound or realistic.

No changes should be made to the pulse flow objectives at this time due to inadequate scientific information on which to base any changes to the objectives. While DFG submitted recommended changes to the pulse flow objectives, those recommendations are very preliminary. The objectives in the 1995 Plan were based on an agreement and not on adequate scientific information. While the 1995 Plan did not specifically allow staged implementation, D-1641 authorized the parties to conduct the VAMP experiment as part of a staged implementation of the objectives. The purpose of staging the implementation and conducting the VAMP in lieu of meeting the objectives is to provide additional scientific information concerning flow needs on the San Joaquin River during the pulse flow period before final implementation of the objectives. The 12-year study has not yet been completed, and in the first six years of the study all of the experimental data points have not yet occurred, and the experiment has not yet yielded conclusive results. Additional data points will likely yield more conclusive results. Prior to adopting D-1641, the State Water Board received a significant amount of testimony and evidence on the VAMP experiment and prepared an Environmental Impact Report which included an evaluation of both the flows contained in the 1995 Plan and the proposed VAMP flows. Based on this information the State Water Board determined that conducting the VAMP experiment will provide better information than is currently available on how large a pulse flow is needed to protect chinook salmon and could provide a basis for changes in the objectives at a future review of the 1995 Plan. Accordingly, the program of implementation has been modified in the 2006 Plan to provide for the completion of the VAMP experiment prior to the staged implementation of the pulse flow objectives or alternate objectives that the State Water Board may adopt based on the results of the VAMP experiment. The data from the experimental flows will help ensure the reasonable protection of beneficial uses by assisting the State

Water Board in determining the optimal flows necessary to promote the survival of San Joaquin River chinook salmon.

The State Water Board requests that the parties to the SJRA consider conducting a peer review of the VAMP study design to determine whether changes may be needed to the study design to obtain necessary data points and to ensure the protection of fish and wildlife. Following any peer review process to consider changes to the VAMP, the members of the SJRA could file a water right change petition if the water right conditions included in D-1641 need to be amended to implement the revised study flows. In response to continuing species declines in the San Joaquin River basin, the State Water Board will also hold a workshop on San Joaquin River flow issues after revisions are made in response to peer review of DFG's San Joaquin River salmon escapement model (anticipated for summer of 2007). At that time, the State Water Board will consider additional scientific information concerning flow needs during the February through June period, including the pulse flow period. The State Water Board requests that the SJRGA parties complete a peer review of the VAMP prior to that workshop in order to provide the State Water Board with its findings. Following the workshop, the State Water Board will determine whether adequate scientific information exists on which to base changes to the objectives or their implementation and may make appropriate changes to the objectives, the program of implementation, and/or water rights.

Conclusion

The 2006 Plan changes the program of implementation to allow for the ongoing staged implementation of the pulse flow objectives. In addition, the State Water Board commits to hold a workshop on San Joaquin River flow issues after revisions are made in response to DFG's salmon escapement model to determine if changes may be needed in San Joaquin River spring flow or pulse flow objectives and/or their implementation. The conclusion of the State Water Board is based on an analysis of the most recent comments and recommendations submitted by the interested parties.

Adequate scientific peer-reviewed information does not exist on which to base changes to the pulse flow objectives included in the 1995 Plan at this time and, therefore, these objectives remain unchanged in the 2006 Plan. The target flow should be based on the existing flow, as defined in table 5.

Table 5. Interim San Joaquin River Pulse Flow Objectives

Existing Flow ⁷ (cfs)	Target Flow (cfs)
0-1999	2,000
2,000-3,199	3,200
3,200-4,449	4,450
4,450-5,699	5,700
5,700-6,999	7,000
7,000 or greater	Existing Flow

Table 6 contains the numeric indicators for the San Joaquin Valley 60-20-20 Water Year Hydrologic Classification⁸. During years when the sum of the current year's 60-20-20 numeric indicator and the previous year's 60-20-20 numeric indicator is seven (7) or greater, target flows should be one step higher than those required in table 5. The licensee is not required to meet the target flow during years when the sum of the numeric indicators for the current year and the previous two years is four (4) or less.

Table 6. San Joaquin Valley 60-20-20 Water Year Hydrologic Classification Numeric Indicators

SJR Basin 60-20-20 Classification	60-20-20 Indicator
Wet	5
Above Normal	4
Below Normal	3
Dry	2
Critical	1

The VAMP study should be completed to determine whether any changes should be made to the pulse flow objectives. Accordingly, and to conform with the California Court of Appeals, the program of implementation has been modified to allow for a staged implementation of the objectives that will not result in full implementation until 2012. The process is as follows: (1) The VAMP study will be conducted until 2012 to provide additional scientific information concerning flow needs in the San Joaquin River during the pulse flow period. Water right holders in the San Joaquin River Basin should continue to provide the experimental flows as provided for in the SJRA and D-1641 until December 31, 2011, or until the SJRA is terminated; (2) Once the

⁷ "Existing flows" will be determined by the SJRTC. Existing flow is defined as the forecasted flows in the San Joaquin River at Vernalis during the pulse flow period that would exist absent the SJRA or water acquisitions, including but not limited to the following:

- Tributary minimum instream flows pursuant to Davis-Grunsky, Federal Energy Regulatory Commission, or other regulatory agency orders existing on the date of this agreement;
- Water quality or scheduled fishery releases from New Melones Reservoir;
- Flood control releases from any non-federal storage facility required to be made during the pulse flow period pursuant to its operating protocol with the U.S. Army Corps of Engineers in effect when the SJRA is executed;
- Uncontrolled spills not otherwise recaptured pursuant to water right accretions (less natural depletions) to the system; and/or
- Local runoff.

⁸ The classification method for the 60-20-20 San Joaquin Valley Water Year Classification Index is provided in Figure 3.

SJRA terminates or expires, the State Water Board may use the information gained from the VAMP study and other pertinent information to determine whether any changes are needed to the pulse flow objectives and to make changes to the Plan. The State Water Board may conduct a water right hearing to assign long-term responsibility for meeting the pulse flow objectives following the completion of any changes to the Plan.

The State Water Board requests that the parties to the SJRA convene a proceeding to review the VAMP study design. The State Water Board recommends that this peer review take place prior to the workshop the State Water Board intends to hold regarding San Joaquin River flow issues in order for this information to be presented during the workshop. Based on the finding of the peer review, the parties to the SJRA could file a petition to change their water rights regarding implementation of the VAMP if necessary.⁹ Alternatively, the State Water Board could undertake its own proceeding to make changes to the objectives, the program of implementation for the objectives, and/or water rights.

10. Southern Delta Electrical Conductivity Objectives for the Protection of Agricultural Beneficial Uses

During the Plan Review, the State Water Board received information as to whether it should modify the Southern Delta Electrical Conductivity Objectives for the Protection of Agricultural Beneficial Uses set forth in Table 2 of the Plan, and whether the program of implementation should be amended.

Elevated salinity (measured as EC) in the southern Delta is caused by a multitude of factors including: low flows; salts imported to the San Joaquin Basin in irrigation water; municipal discharges; subsurface accretions from groundwater; tidal actions; diversions of water by the SWP, CVP, and local water users; channel capacity; and local discharges of land-derived salts, primarily from agricultural drainage. Some of the factors listed above contribute to salinity at each of the four Southern Delta compliance locations to varying degrees depending on location, flow conditions, and other factors. The southern Delta EC objectives are intended to protect southern Delta agricultural uses from these effects.

The State Water Board established the current southern Delta EC objectives for the protection of agricultural beneficial uses in the 1978 Delta Plan. The approach used in developing the objectives involved an initial determination of the water quality needs of significant crops grown in the area, the predominant soil type, and irrigation practices in the area. In addition, the extent to which these water quality needs would be satisfied under “without project” (without the SWP and CVP) conditions was also considered. The State Water Board based the southern Delta EC objectives on the calculated maximum salinity of applied water which sustains 100 percent yields of two important salt sensitive crops grown in the southern Delta (beans and alfalfa) in conditions typical of the southern Delta (surface irrigation of

⁹ The State Water Board could then determine whether changes are needed to the 2006 Plan.

mineral soils) per the University of California Guidelines and Irrigation and Drainage Paper 29 of the Food and Agriculture Organization of the United Nations (page VI-16 – VI-19, 1978 Delta Plan). The State Water Board set an objective of 0.7 mmhos/cm EC during the summer irrigation season (April 1 through August 31) based on the salt sensitivity and growing season of beans and an objective of 1.0 mmhos/cm EC during the winter irrigation season (September 1 through March 31) based on the growing season and salt sensitivity of alfalfa during the seedling stage.

The State Water Board delayed implementation of the objectives pending negotiations by DWR, USBR, and SDWA concerning construction of physical facilities to protect agriculture in the southern Delta (permanent barriers or other devices). Because the negotiations were never completed, the 1991 Plan provided for a staged implementation of the objectives. The 1991 Plan called for implementation of the objectives at Vernalis and Brandt Bridge by 1994 and implementation of the objectives at the two Old River sites by 1996 unless a three-party agreement was reached between DWR, USBR, and SDWA. In the 1995 Plan, the State Water Board further delayed implementation of the EC objectives for the two Old River sites until December 31, 1997.

In D-1641, the State Water Board authorized a staged implementation of the southern Delta EC objectives. Pursuant to D-1641, USBR is required to meet the Vernalis EC objectives using any measures available to it. DWR and USBR also are required to meet an EC objective of 1.0 mmhos/cm at Brandt Bridge on the San Joaquin River, Old River near Middle River, and Old River at Tracy Road Bridge (the interior southern Delta stations) from March to September until April 1, 2005. As of April 1, 2005, D-1641 requires through their water right permits and license, that DWR and USBR meet an EC objective of 0.7 EC from April through August at the interior southern Delta stations.

In addition to the actions of the USBR and DWR to meet the southern Delta salinity objectives, additional actions required by the State and Regional Water Board have contributed to or are expected to contribute to attainment of the southern Delta salinity objectives. Releases from reservoirs on tributaries to the San Joaquin for fish and wildlife protection pursuant to the flow requirements on the San Joaquin River at Vernalis currently contribute to achieving the salinity objectives in the southern Delta. In addition, the State Water Board recently approved an amendment to the Water Quality Control Plan for the Central Valley Region to incorporate a Total Maximum Daily Load (TMDL) for the control of salt and boron discharges into the lower San Joaquin River to assist in ensuring compliance with the salinity objectives at Vernalis. Further, the Central Valley Regional Water Board is currently developing a proposed Basin Plan Amendment to establish new salinity and boron water quality objectives in the lower San Joaquin River upstream of Vernalis and a TMDL to implement the salinity and boron water quality objectives that when completed is expected to reduce saline discharges in the San Joaquin River. The Central Valley Regional Water Board also implemented its Conditional Waiver Program for Irrigated Lands in 2004 to reduce or eliminate discharges of pollutants to surface water bodies from Central Valley agricultural return flows and

stormwater runoff that currently contribute salt and other pollution to tributaries to the southern Delta.

The State Water Board provides funds through the State Revolving Fund Loan Program, the Agricultural Drainage Loan Program, the Agricultural Drainage Management Loan Program, Propositions 13, 40, and 50 grant funding through the Nonpoint Source Pollution Control Programs and Watershed Protection Programs that in part fund measures to reduce discharge of salt.

The Federal Water Pollution Control Act (Clean Water Act), as amended in 1987, provides for establishment of a State Revolving Fund loan program. The program is funded by federal grants and State bond funds. The purpose of the State Revolving Fund loan program is to implement the Clean Water Act and various State laws by providing financial assistance for the construction of facilities or implementation of measures necessary to address water quality problems and to prevent pollution of the waters of the State.

The State Revolving Fund Loan Program provides low-interest loan funding for construction of publicly-owned wastewater treatment facilities, local sewers, sewer interceptors, water reclamation facilities, as well as expanded use projects such as implementation of nonpoint source projects or programs, development and implementation of estuary Comprehensive Conservation and Management Plans, and stormwater treatment.

The Agricultural Drainage Loan Program was created by the Water Conservation and Water Quality Bond Act of 1986, to address treatment, storage, conveyance, or disposal of agricultural drainage water that threatens waters of the State. There is a funding cap of \$20 million for implementation projects and \$100,000 for feasibility studies. Loan repayments are for a period of up to 20 years.

The Agricultural Drainage Management Loan Program provides loan and grant funding for Drainage Water Management Units. Drainage Water Management Units are land and facilities for the treatment, storage, conveyance, reduction or disposal of agricultural drainage water that, if discharged untreated, would pollute or threaten to pollute the waters of the state. This program is available to any city, county, district, joint power authority, or other political subdivision of the state involved with water management.

The Prop. 13 Nonpoint Source Pollution Control Program provides grant funding for projects that protect the beneficial uses of water throughout the state through the control of nonpoint source pollution. Loans are available to local public agencies and nonprofit organizations formed by landowners to prepare and implement local nonpoint source plans. Sixty percent of the funds will be allocated to projects in the Counties of Los Angeles, Orange, Riverside, San Diego, San Bernardino, and Ventura. Forty percent of the funds are to be allocated to projects in the remaining counties.

Discussion

The State Water Board received information from several parties concerning the southern Delta agricultural salinity objectives. Some of that information concerned potential changes to the objectives or the program of implementation, while much of the information was related to other matters or proceedings outside of the scope of the review of the objectives. The SJRGA advocated increasing the salinity objectives at Vernalis to 1.0 mmhos/cm throughout the year and eliminating the objectives during August, September, and October of below normal, dry, and critically dry years. The San Joaquin River Water Authority Exchange Contractors (SJEC) also argued for increasing the 0.7 mmhos/cm southern Delta EC objectives to 1.0 mmhos/cm or higher. DWR and SWC did not recommend any specific changes to the salinity objectives; however, they did recommend that additional analyses be conducted to determine the appropriateness of the objectives. DWR also recommended various changes to the program of implementation to delay implementation of the 0.7 EC objective at the interior southern Delta sites until various actions occur. SWC also recommended a review of DWR's responsibility for implementing the objectives at Brandt Bridge. SDWA opposed increasing the salinity objectives and advocated increasing the effective period of the 0.7 EC objective from March 1 through September 30. CCWD, the Central Valley Regional Water Board, and the USEPA recommended that no changes be made to the southern Delta agricultural EC objectives.

The SJRGA provided a variety of scientific, economic, and policy testimony and exhibits in support of its recommendations to change the salinity objective at Vernalis.¹⁰ The SJRGA submitted evidence indicating that the current Vernalis water quality objective of 0.7 mmhos/cm EC during the irrigation season is not necessary to protect agricultural beneficial uses at Vernalis (including irrigation for beans, alfalfa, and corn). The SJRGA presented evidence that when considering rainfall, irrigation water salinities of 1.1 EC are adequate to provide 100 percent crop yields of beans and other crops grown in the southern Delta and thus a year round EC objective of 1.0 would conservatively protect all crops. The SJRGA pointed out that the original studies upon which the objectives were based, were conducted in pots without considering natural leaching by rainfall, using sub-irrigation of organic soils, which are rare in the southern Delta. The SJRGA argued that poor soil conditions, shallow water tables, and poor groundwater quality in the southern Delta along with other conditions affect crop yields in the southern Delta far more than the quality of the irrigation water supply within the ranges discussed (0.7 mmhos/cm-1.1 mmhos/cm). The SJRGA further stated that the current objectives are not applicable to southern Delta agriculture because there is no established economic link between southern Delta crop yields and Vernalis salinity, and there are very few salt sensitive crops (beans) grown in the area.

The SJRGA also argued, based on new CALSIM II Delta hydrodynamic modeling studies, that changing the Vernalis salinity objective would not substantially affect

¹⁰ The SJRGA did not comment specifically regarding the objectives at the other three southern Delta locations.

water quality due to the need to meet other regulatory requirements. The SJRGA stated that even if changes in salinity were to impact crop yields, the economic impacts would be minimal. The SJRGA further argued that there should be no salinity objectives at all at Vernalis during August, September, and October in below normal, dry, and critical years because few if any diverters have the right to divert high quality water at those times of year. (SJRGA-4, 5, 6, 7, 8, 34.)

The SJEC argued that the current 0.7 EC objective is detrimental to beneficial uses because it is unnecessarily low and thus prevents needed discharges to the San Joaquin River of higher salinity water. The SJEC argued that higher objectives are necessary to allow discharges to the San Joaquin River until a drainage solution is arrived at for discharging high salinity agricultural drainage water outside of the San Joaquin Valley in order to avoid salt accumulation in the San Joaquin Valley and the resulting destruction of productive farmland. The SJEC submitted evidence that 100 percent crop yields could be achieved for beans with irrigation water salinities as high as 2.0 mmhos/cm EC if the appropriate leaching fraction is used (the fraction of applied water that must deep percolate) and even higher salinity water if frequent irrigation occurs and rainfall is considered. In addition, the SJEC presented testimony that while the State Water Board based the 0.7 mmhos/cm EC objective on the salt sensitivity of beans, beans currently only represent about 5 percent of the crops grown downstream of Vernalis. (SJEC-1 and 2.)

DWR recommended that the State Water Board not change the salinity objectives at this time. DWR did request that the State Water Board modify footnote 5 of Table 2 (requiring implementation of the Old River objectives by December 31, 1997) to provide that the 0.7 EC objective at the interior southern Delta sites need not be implemented until the end of 2008. DWR also recommended that the State Water Board include a provision in the program of implementation that states that the 0.7 EC objective would not be required at the three interior Southern Delta stations until: (1) permanent operable barriers are constructed; and (2) more information is obtained to determine if the 0.7 EC objective is needed for crops in the southern Delta. DWR stated that the current installation of temporary rock barriers is not adequate to meet the 0.7 EC objective at the interior southern Delta sites during drier years. While modeling for the permanent operable barriers shows that operations of the permanent barriers will meet the interior southern Delta objectives under most conditions except at Brandt Bridge, modeling shows that the 0.7 EC objective will not be met at Brandt Bridge during the summer and when the EC at Vernalis is either at or above the objectives due to local degradation. As a result, DWR requested a delay in the effective date of the 0.7 EC objective in order to allow time to complete the environmental review and construction of the South Delta Barriers Project (part of the South Delta Improvements Program or SDIP). (DWR-21, 22, and 26.)

The SWC advocated a reexamination of the 0.7 southern Delta EC objective to determine if the objective is reasonable and necessary to protect crops. In addition, the SWC requested that the State Water Board specify in the program of implementation that the SWP is not responsible for meeting the Vernalis salinity

objectives because the SWP does not have any facilities or water users who impact water quality upstream of Vernalis. Further, the SWC stated that DWR should not be responsible for the objectives at Brandt Bridge and, instead, the objectives should be met by cleaning up the source of degradation. The SWC argued that there are discharges to the San Joaquin River downstream of Vernalis and upstream of Old River that result in degradation to water quality between 0.1 and 0.2 mmhos/cm EC that make it impossible to meet the objectives at Brandt Bridge if Vernalis water quality is near the objectives. The SWC further argued that because the majority of the water quality degradation occurs upstream of Old River, reducing the flow split into Old River by reducing pumping at DWR's Banks Pumping Plant or closing the Head of Old River Barrier provides minimal benefits because any increased flows would also violate the objectives. Accordingly, the SWC stated that Brandt Bridge should be considered a San Joaquin River station for which DWR is not responsible rather than a Delta station because there is no means by which either the SWP or barrier operations can alter water quality at the site. (SWC-11)

SDWA submitted testimony opposing any increase in the southern Delta EC objectives, and advocated increasing the effective period of the 0.7 EC objective from March 1 through September 30. In addition, SDWA stated that the State Water Board should add additional water quality compliance locations in the southern Delta after the range of barrier operations and circulation regimes has been determined for the SDIP. SDWA argued that the current objectives are necessary to protect crops grown in the southern Delta given the soil conditions in the area. SDWA stated that there are various mineral and other soil types (more than 70) in the southern Delta with different permeability rates that support the need for low salinity irrigation water. SDWA claimed that farmers in the southern Delta have experienced yield reductions related to salt accumulation in the soil. SDWA stated that the fact that USBR and DWR state that they cannot meet certain southern Delta water quality objectives is not a reason to change the objectives since USBR and DWR have not employed all available methods for meeting the objectives, including those recommended by SDWA that would not degrade water quality or reduce supplies for any other party. SDWA also submitted evidence and testimony to refute recommendations by the SJRGA and the SJEC. SDWA stated that there has been no long-term change in crop patterns or in irrigation methodology that affects crop tolerance to irrigation salinity. SDWA pointed out that the previous analyses on which the State Water Board based its objectives did not consider complicating factors such as variations in salinity tolerance at different stages of plant growth, cultural soil compaction, commercially necessary departures from "as needed" irrigation, variations in leach fraction with time during the crop season, root aeration problems which occur when soaking for high leach, soil variations within fields, or soil damage by precipitation. SDWA submitted evidence indicating that southern Delta soils have very low permeability and achieve low leach fractions. SDWA explained that there are numerous complicating factors associated with leaching salts from various crops including: harvesting practices that prevent irrigation or cause soil compaction on wet soils; limited precipitation during most of the growing season for many crops; seedling salinity sensitivity; difficulty in achieving leaching throughout the entire root

zone of deep rooted plants in Delta soils; weed and pest control activities that limit irrigation practices; and risk of drowning to tree crops from prolonged soaking.

SDWA specifically responded to the report submitted by the SJRGA and referenced by the SJEC titled *An Approach to Develop Site-Specific Criteria for Electrical Conductivity to Protect Agricultural Beneficial Uses that Accounts for Rainfall* authored by Isidoro-Ramirez, et. al., which concludes that an EC of 1.1 mmhos/cm is protective of beans (and consequently all other crops) in the Davis area where the analyses were conducted. SDWA pointed out that the report does not cite any new field tests or laboratory tests not previously reported, but instead relies on a mathematical relationship to develop a recommendation to avoid yield losses for beans. SDWA stated that the report was based on hypothetical conditions in the Davis area, and that various parameters would need to be revised in order to apply the report to southern Delta conditions. SDWA stated that the southern Delta area is substantially different than the Putah Creek area of Davis for which the report was prepared, including soil types, permeability of those soils, rainfall and climate, and the existence of high water tables in the southern Delta that cause upward movement of salts and prevent effective leaching. (SDWA-4, 5, 6, 7, 8, and 9A.)

CCWD stated that it strongly opposes changing, back to 1.0 EC, the April through August 0.7 EC objective that became effective April 1, 2005. CCWD asserted that the current drinking water quality objectives in the Delta are inadequate to protect drinking water supplies and that the current southern Delta agricultural EC objectives provide incidental protection for drinking water quality. CCWD argued that increasing the 0.7 EC objective would constitute backsliding in contradiction to the State Water Board's and the federal government's anti-degradation (backsliding) policies. CCWD asserted that such a change would result in direct adverse impacts to drinking water quality for CCWD and CVP and SWP customers. CCWD further argued that relaxing the existing objective would, at certain times, dramatically increase Delta salinity up to 85 mg/L chloride and increase the concentration of bromides at Delta drinking water intakes. (CCWD-20.)

The Central Valley Regional Water Board recommended that the State Water Board not make any changes to the southern Delta EC objectives at this time. The Central Valley Regional Water Board refuted the statement by the SJEC that an objective of as high as 2.5 mmhos/cm is reasonable within historic cropping patterns. The Central Valley Regional Water Board stated that southern Delta cropping patterns demonstrate that agricultural uses are likely impaired in the area due to high saline irrigation water. In response to the argument by various witnesses that higher levels of irrigation water salinity can be tolerated if additional water is applied to increase the leaching fraction, the Central Valley Regional Water Board stated that none of the information presented during the workshop adequately refutes the State Water Board's previous findings that an EC of 0.7 is protective of all crops on all soil types in the southern Delta. The Central Valley Regional Water Board stated that the conclusions reached by the various witnesses would require special cropping or water management, which would shift the costs from the dischargers to the water users. Regarding the paper titled *An Approach to Develop Site-Specific Criteria for*

Electrical Conductivity to Protect Agricultural Beneficial Uses that Accounts for Rainfall submitted by the SJRGA (SJRG-03), the Central Valley Regional Water Board pointed out that the study only covers soil, rainfall, and other conditions specific to the Davis area. The Central Valley Regional Water Board stated that there is no new science to justify changing the objectives or to discount the science on which the objectives were originally based. (RB5-02 and 03.)

The USEPA commented that they do not believe there is sufficient scientific or technical evidence at this time to support changes in the EC objectives because, in addition to other reasons, information from the crop studies is not specific to conditions in the Delta. (USEPA-04.)

While the SJRGA and the SJEC submitted evidence to indicate that a salinity objective of 0.7 EC is not necessary to protect southern Delta agriculture, that information was not specific to the southern Delta. Given the unique soil conditions in the southern Delta and other complicating factors discussed by SDWA, the scientific analyses of irrigation crop salinity needs presented by various parties cannot be correlated to conditions in the southern Delta without further field studies to verify such results. Further, other factors may also alter irrigation salinity needs such as irrigation practices and depth to water table that would need to be investigated before considering changes to the objectives. In addition, adequate information is not available to support expanding the effective period of the 0.7 mmhos/cm EC objectives to apply during March and September at this time. As a result, additional field analyses are needed to confirm any recommendations for changes in the salinity objectives before any modifications are made to the objectives. As discussed, the State Water Board recommends conducting an independent scientific investigation (similar to the investigation on which the objectives are based) to review the issues raised during this review in greater detail. While parties recommended changes to the objectives based on testimony and evidence from various sources, that evidence was not specific to conditions for crops grown in the southern Delta. However, the State Water Board may consider making changes to the southern Delta EC objectives in the future based on additional analyses concerning the irrigation water quality needs of crops grown in the southern Delta. The State Water Board will convene a series of workshops beginning in January 2007 to discuss, among other topics, undertaking an independent scientific investigation of irrigation salinity needs in the southern Delta (similar to the investigation on which the objectives are based). The purpose of the scientific investigation will be to review the issues raised during this review in greater detail and to provide a foundation for supporting the objectives or making changes to the objectives in the future based on studies specific to the southern Delta.

The State Water Board recognizes that permanent barriers (or operational gates) have not been installed in the southern Delta to assist in achieving the southern Delta EC objectives and that even when the barriers are installed, they may not always be adequate to fully meet the objectives at the Old River sites and will not assist in achieving the objectives at Brandt Bridge on the San Joaquin River. Accordingly, additional implementation measures may be needed to achieve full

implementation. The State Water Board considered these issues when it issued D-1641 and when it conditioned the water rights of DWR and USBR on implementation of the southern Delta EC objectives, the State Water Board established a procedure for the Executive Director of the State Water Board to evaluate any exceedance of the objectives at stations C-6, C-8, or P-12 before recommending whether enforcement action is appropriate or the exceedance is the result of actions beyond the reasonable control of DWR or USBR. If DWR or USBR believes that changes in its water rights are warranted it may petition to change its water rights or petition to add other responsible parties to share in the responsibility for implementing the objectives.

Central Valley Salinity

As a result of a joint State Water Board and Regional Water Board workshop on salinity issues in the Central Valley in January of 2006, the State Water Board directed creation of a joint panel of Regional and State Water Board staff to develop a plan to address salinity issues in the Central Valley. The panel is currently preparing a report for the State Water Board with its findings and recommendations.

Conclusion

The State Water Board does not have adequate evidence on which to base substantive changes to the southern Delta EC (salinity) objectives for the protection of agricultural beneficial uses at this time. Therefore, these objectives remain unchanged in the 2006 Plan. The State Water Board will receive additional information on the objectives and their implementation beginning in January 2007.

Footnote 5 of Table 2 of the 1995 Plan states that the 0.7 mmhos/cm EC objective will be implemented at the two Old River sites by December 31, 1997. The 2006 Plan deletes this footnote because it is obsolete. Currently, DWR and USBR are responsible for meeting both the 1.0 and the 0.7 EC objectives at these sites. The 2006 Plan also deletes the statement in Table 2 of the 1995 Plan regarding a three-party contract, since the objectives have already been implemented. As necessary, the State Water Board may review the southern Delta EC objectives or their implementation in the future as conditions warrant.

The State Water Board may consider additional measures for meeting the southern Delta salinity objectives through both its water rights and water quality authorities. The State Water Board will provide adequate notice and opportunity for hearing as appropriate before adopting additional measures. The Regional Water Board shall continue to implement the recently adopted TMDL for the control of salt and boron discharges into the lower San Joaquin River to assist in ensuring compliance with the salinity objectives at Vernalis. Further, the Regional Water Board shall continue to develop a proposed basin plan amendment to establish new salinity and boron water quality objectives in the lower San Joaquin River upstream of Vernalis and a TMDL to implement the salinity and boron water quality objectives. In addition, the Regional Water Board should use the Conditional Waiver Program for Irrigated

Lands adopted in 2004 to eliminate high salinity discharges to the southern Delta to the extent feasible. Other agencies also should act, as discussed in the program of implementation, to assist in achieving the southern Delta salinity objectives. In addition, any measures recommended by the joint State and Regional Water Board's recently convened panel on addressing salinity issues in the southern Delta should also be pursued as appropriate.

11. Additional issues regarding the 1995 Plan

The two following issues, though not considered during the periodic review, were addressed in the 1995 Plan: Narrative Objective for Brackish Tidal Marshes of Suisun Bay; and Dissolved Oxygen Objective for the San Joaquin River between Turner Cut & Stockton.

a. Narrative Objective for Brackish Tidal Marshes of Suisun Bay

The purpose of the narrative objective is to provide water quality conditions necessary to achieve a brackish marsh throughout all elevations of tidal marsh bordering Suisun Bay. The brackish tidal marsh provides critical habitat to a number of species listed under the State and federal Endangered Species acts.

Table 3 of the Plan states that the salinity objectives for the Suisun Marsh can be implemented either by ensuring that salinity does not exceed the numerical salinity values, or by providing equivalent or better protection for fish and wildlife at the locations of the compliance stations. The program of implementation of the 1995 Plan recommended the formation of a Suisun Marsh Ecological Workgroup (Workgroup) consisting of representatives of various State, federal, and private agencies as well as other interested parties. The 1995 Plan states that the Workgroup will conduct various tasks, including identifying specific measures to implement the narrative objective and making recommendations to the State Water Board regarding achievement of this objective and whether numeric objectives should replace it.

The Workgroup's study results were published in the November 2001 Suisun Ecological Workgroup Final Report to the State Water Board. Due to the varying salinity requirements of the different beneficial uses in the Suisun Marsh ecosystem, the Workgroup was unable to develop a single recommendation for a numeric objective.

In 2001 the Suisun Marsh Charter Group¹¹ was formed to resolve the issues of amending the SMPA and recover endangered species. The broader purpose of the Suisun Marsh Charter Group is to develop and agree on a long-term implementation plan. The Suisun Marsh Charter Group Principals¹² are currently preparing a

¹¹ The Suisun Marsh Charter Group member agencies include USFWS, USBR, DFG, DWR, State Water Board, CBDA and NOAA Fisheries.

¹² The Suisun Marsh Charter Group Principals agencies include Suisun Resource Conservation District, DFG, DWR, USBR, CBDA, NOAA Fisheries, and USFWS.

Programmatic Environmental Impact Statement/Environmental Impact Report (PEIS/EIR) for the Habitat Management, Preservation, and Restoration Plan for the Suisun Marsh (Suisun Marsh Plan). The proposed Suisun Marsh Plan would be consistent with the goals and objectives of the Bay-Delta Program, and would balance them with the SMPA, federal and State Endangered Species Acts and other management and restoration programs within the Suisun Marsh in a manner responsive to the concerns of all stakeholders and based upon voluntary participation of private landowners. In the preparation of the Suisun Marsh Plan, the Principal Suisun Marsh agencies are evaluating Plan alternatives with a tidal wetland habitat restoration component ranging from 3,000 to 36,000 acres.

State Water Board staff will use the results of the final PEIS/EIR and the resulting Suisun Marsh Plan to determine what, if any, changes need to be made in the numeric salinity objectives and time periods for meeting the objectives. The target date for meeting the objective shall be January 1, 2012. However, the objectives can be changed before that date as the result of the Suisun Marsh Plan being prepared by the Suisun Marsh Charter Group.

b. Dissolved Oxygen Objective (San Joaquin River between Turner Cut & Stockton)

The dissolved oxygen (DO) objective in Table 3 of the Plan requires a dissolved oxygen level of 6.0 mg/l from September through November in the San Joaquin River between Turner Cut and Stockton.

The purpose of the DO objective is to protect migrating fall-run chinook salmon in the San Joaquin River. Reduced DO levels can cause physiological stress and increased mortality to fish in addition to delaying or blocking upstream migration. Factors which contribute to low DO levels in the lower San Joaquin River include: the Stockton Wastewater Treatment Plant; upstream sources of biochemical oxygen demand (BOD); the deepened Stockton Deep Water Ship Channel (DWSC); the enlarged turning basin at the Port of Stockton; and low river flows in the fall.

The State Water Board initially adopted the current DO objective as part of the 1991 Plan. The objective was unchanged in the 1995 Plan except for the addition of footnote 4. Footnote 4 states, "If it is infeasible for a waste discharger to meet this objective immediately, a time extension or schedule of compliance may be granted, but this objective must be met no later than September 1, 2005." The program of implementation for the 1995 Plan identifies several feasible measures to implement the DO objective including: regulating the effluent discharged from the Stockton Wastewater Treatment Plan and other upstream discharges that contribute to the BOD load; providing adequate flows in the San Joaquin River; and installing barriers at locations (head of Old River) to increase flows in the river past Stockton. The program of implementation of the 1995 Plan states that the San Joaquin River flow objectives are expected to assist in meeting the DO objective and that additional flow-related measures will be considered by the State Water Board during a water rights proceeding.

In D-1641, the State Water Board directed the Central Valley Regional Water Board to establish a TMDL to address the DO impairment in the San Joaquin River. In November of 2005, the State Water Board approved the Amendment to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins to Control Factors Contributing to DO Impairment in the Stockton DWSC (DO basin plan amendment), which includes a TMDL. The DO basin plan amendment addresses both the 1995 Plan DO objective and the DO objective included in the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin. The DO basin plan amendment identifies the following three main factors contributing to the DO impairment. First, upstream releases of oxygen-demanding substances react by various mechanisms in the Stockton DWSC to reduce DO concentrations. Second, the Stockton DWSC geometry intensifies the impact of these various reaction mechanisms such that net oxygen demand exerted in the Stockton DWSC is increased. Third, the reduced flow through the Stockton DWSC increases the residence time for these various reaction mechanisms, further increasing net oxygen demand exerted in the Stockton DWSC. The basin plan amendment assigns 100 percent responsibility to each of these factors and establishes a phased approach to corrective actions to address each factor.

To address sources of oxygen demanding substances and their precursors, the basin plan amendment requires completion of scientific studies needed to obtain information for more detailed allocation and eventual implementation of alternate measures by those responsible for the various sources and phased implementation of discharge requirements. The basin plan amendment prohibits the discharge of oxygen demanding substances or their precursors into waters tributary to the Stockton DWSC portion of the San Joaquin River after December 31, 2011, when flows in the Stockton DWSC portion of the San Joaquin River are less than 3,000 cfs, unless DO objectives are being met. The basin plan amendment also prohibits any increase in the discharge of oxygen demanding substances or their precursors into waters tributary to the Stockton DWSC portion of the San Joaquin River after the effective date of the basin plan amendment. The prohibitions do not apply however, if the discharge is regulated by a waiver of waste discharge requirement, or individual or general waste discharge requirements, or NPDES permits which implement the Control Program for Factors Contributing to the DO Impairment in the Stockton DWSC (or there is a finding that the discharge will not contribute to the DO impairment). The basin plan amendment requires parties responsible for point and non-point sources of oxygen demanding substances and their precursors to perform studies by December of 2008 to identify and quantify the sources, growth or degradation mechanisms, and impacts of oxygen demanding substances in the area of concern in order to determine allocation and implementation provisions.

To address DO impacts caused by the geometry of the Stockton DWSC, the basin plan amendment: requires future projects that increase the cross-sectional area of the Stockton DWSC geometry to evaluate and fully mitigate for potential impacts on DO; requires the U.S. Army Corps of Engineers (USCOE) to evaluate the impacts of the Stockton DWSC on DO concentrations; and recommends that the USCOE

mitigate for these impacts. To address the impacts of reduced flows on DO, the TMDL recommends: that the State Water Board consider amending current water right permits and conditioning future water right permits or transfers to mitigate for impacts of reduced flows on DO; and that agencies responsible for existing or future projects that may reduce flow through the Stockton DWSC mitigate impacts on DO. The basin plan amendment states that development of alternative measures to address non-load related factors will be required by December 31, 2011. (SWRCB-03)

In order to allow additional time for studies to be completed pursuant to the Central Valley Regional Water Board's basin plan and for various measures specified in the basin plan to be implemented, footnote 4, which requires the objective to be met by September 1, 2005, should be deleted. Currently, there is inadequate scientific understanding to support detailed load allocations to sources of oxygen demanding substances and their precursors. Instead of the footnote, the program of implementation in the 2006 Plan requires that the objective be met by January 1, 2012. However, if adequate progress on addressing the DO impairment is not being made, the State Water Board may require additional measures to ensure implementation of the objective. After the studies are completed in December of 2008, the State Water Board may also reevaluate this timeline.

The 2006 Plan makes several new recommendations to other agencies in the program of implementation. The other agencies should assist in implementing the measures in the basin plan amendment and other projects to help achieve the DO objective.

The DO objective was not identified as an issue upon which to receive evidence during the review workshop for the 1995 Plan. The 2006 Plan requires in the program of implementation that the objective be met by January 1, 2012.

V. California Environmental Quality Act Review

A. Overview

The Secretary for Resources has certified the basin planning process of the State Water Board under Water Code sections 13240 et seq., as meeting the requirements of Public Resources Code section 21080.5. Accordingly, documentation in the basin plan may be used in lieu of an environmental impact report or negative declaration. A substitute document under section 21080.5 must include either alternatives to the activity and mitigation measures to reduce any significant or potentially significant effect that the project may have on the environment or a statement that the project would not have a significant impact on the environment. A checklist or other documentation that shows the possible effects that were considered when reaching the decision must support this statement.

The following environmental checklist form was prepared in compliance with CEQA requirements and to assist in identifying potential impacts and outlining mitigation measures. The checklist is followed by discussion of each of the 17 categories of impact.

B. Environmental Checklist Form

1. Project Title

2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

2. Lead Agency Name and Address

State Water Resources Control Board
Division of Water Rights
P.O. Box 2000
Sacramento, CA 95812

3. Contact Person and Phone Number

Gita Kapahi, Chief, Bay-Delta and Special Projects Unit
(916) 341-5289
gkapahi@waterboards.ca.gov

4. Project Location

San Francisco Bay/Sacramento-San Joaquin Delta Estuary, California

5. General Plan Designation

Not Applicable

6. Zoning

Not Applicable

7. Introduction

Following a review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (1995 Plan) the State Water Board conducted a workshop to evaluate new information for consideration of new water quality objectives or changes to the objectives specified in the 1995 Plan. Based on that review, the State Water Board determined that only minor changes should be made to the 1995 Plan. The proposed changes to the 1995 Plan are incorporated in the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (2006 Plan) and discussed below.

8. Environmental Setting

The San Francisco Bay/Sacramento-San Joaquin Delta Estuary and Suisun Marsh (herein after collectively referred to as 'the Delta') are located at the confluence of California's two major river systems, the Sacramento River and San Joaquin River, and the San Francisco Bay. The Delta (as defined in Water Code section 12220) encompasses a combined total of approximately 851,000 acres (of which approximately 135,000 acres consist of waterway, marshland, or other water surfaces) and is one of the country's largest and most important estuarine systems for fish and waterfowl production on the Pacific Coast. Additionally, the Delta is one of California's most fertile and important agricultural regions, and its tributary watersheds provide water for about two-thirds of California's municipal, industrial, and agricultural water users. Land uses within and surrounding the Delta include agricultural, industrial, and municipal uses. For additional information regarding the environmental setting for this project, please see Chapter III of the November 1999 *Final Environmental Impact Report for Implementation of the 1995 Water Quality Control Plan*. (SWRCB-18)

9. Project Description

The proposed project is adoption of the 2006 Plan following a review of the 1995 Plan. The purpose of adopting the 2006 Plan is to update and make other changes to the measures in the 1995 Plan based on recent information. The 2006 Plan establishes water quality control measures that contribute to the protection of beneficial uses in the Bay-Delta Estuary. The plan consists of: (1) beneficial uses to be protected; (2) water quality objectives for the reasonable protection of beneficial

uses; and (3) a program of implementation for achieving the water quality objectives. Together, the beneficial uses and the water quality objectives established to protect them constitute water quality standards under the terminology of the federal Clean Water Act.

Where any inconsistencies exist, the 2006 Plan supersedes the 1995 Plan and all other preceding plans. The 2006 Plan makes only minor changes to the 1995 Plan, as described below. No changes have been made to the beneficial uses. Minor changes have been made to notes in Table 2 for the EC objectives for agricultural beneficial uses for the southern Delta (see Table 2) and in Table 3 for the Water Quality objectives for Fish and Wildlife Beneficial Uses for DO and western Suisun Marsh salinity (see Table 3). The footnotes for Table 3 have been changed to be consistent with the footnotes for Table 3 on pages 185-187 of D-1641. Likewise, other changes have been made for consistency with D-1641. These changes represent existing conditions. The environmental effects of these changes were analyzed in the Final Environmental Impact Report for Implementation of the 1995 Bay/Delta Water Quality Control Plan.

Because the State Water Board already has implemented the southern Delta EC objectives by amending water right permits and licenses pursuant to D-1641, footnote 5 of Table 2 of the 1995 Plan (stating that the objectives will be implemented at certain locations by December 31, 1997) is deleted, as is the note in Table 2 of the 1995 Plan addressing the southern Delta EC objectives (stating that if DWR, USBR, and SDWA have implemented a contract, the Board may respond by revising the objectives and compliance monitoring locations) is deleted. Similarly, footnote 7 of Table 3 (stating that the effective date for implementing salinity objectives at Chadbourne Slough at Sunrise Duck Club (Station S-21) is October 1, 1995) is deleted because the objectives already have been implemented at this site pursuant to D-1641.

Footnote 4 of Table 3 applying the dissolved oxygen objective in the 1995 Plan states that, "If it is infeasible for a waste discharger to meet this objective immediately, a time extension or schedule of compliance may be granted, but this objective must be met no later than September 1, 2005." The 1995 Plan program of implementation lists feasible measures to meet the objective and states that the State Water Board will consider additional flow related measures during the water rights proceeding. In D-1641, however, the State Water Board decided that it should not take any further action to implement the DO objective until the Central Valley Regional Board establishes a TMDL for the DO impairment on the San Joaquin River and implements it. In November of 2005, the State Water Board approved the Central Valley Regional Water Board's basin plan amendment and TMDL to address the DO impairment on the San Joaquin River.¹³ The DO basin plan amendment prohibits the discharge of oxygen demanding substances or their precursors into specified portions of the San Joaquin River after December 31, 2011. The TMDL also establishes interim requirements to establish additional information concerning

¹³ The DO basin plan amendment addresses both the 1995 Plan DO objective and the DO objective in the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin.

the causes of the DO impairment and recommendations and requirements of other parties to ultimately meet the DO objectives. To make it consistent with the existing regulatory conditions concerning implementation of the DO objective, the 2006 Plan deletes the September 1, 2005 date in footnote 4 of the 1995 Plan for meeting the DO objective and substitutes a target date of January 1, 2012 in the program of implementation. The potential environmental effects of these changes are discussed in this section.

In addition, footnote 8 of Table 3 is deleted. The timeline for compliance with the objective is revised as it applies to Station S-97 (Cordelia Slough at Ibis Club) and Station S-35 (Goodyear Slough at Morrow Island Clubhouse) to allow additional time to investigate the appropriateness of the objectives. The Suisun Marsh Charter Group, consisting of private landowners and various state and federal agencies, has formulated a Restoration Plan that includes the regulation of the salinity in the channels of the Suisun Marsh. The Restoration Plan is currently being reviewed under the National Environmental Policy Act (NEPA) and CEQA in a report entitled *Programmatic Environmental Impact Statement/Environmental Impact Report (PEIS/EIR) for the Habitat Management, Preservation, and Restoration Plan for the Suisun Marsh*. When the environmental documentation is complete, the State Water Board will use the PEIS/EIR to determine whether changes should be made to the EC water quality objectives for the timeline for compliance with the EC objectives at stations S-35 and S-97 is amended in the 2006 Plan. Compliance with the EC objective at stations S-21 and S-42 is required as a condition of the water rights permits and licenses of the CVP and SWP.

The deletions update the plan to make it consistent with existing regulatory conditions and do not constitute substantive changes. In addition to the above changes to the footnotes in the objectives, the 2006 Plan makes several additional changes to the program of implementation in the 1995 Plan. Many of the changes result from updates to the information that was available for development of the 1995 Plan. Other changes add directions and recommendations to other agencies for activities that the other agencies should undertake to assist in achieving the objectives. The program of implementation for the 2006 Plan also contains several recommendations for studies and other activities. During the Plan Review workshop, it became clear that adequate scientific information is not currently available to determine whether changes should be made to the objectives in order to ensure the protection of the various beneficial uses, or to determine how to address certain water quality issues. Accordingly, the State Water Board makes several recommendations and plans for conducting proceedings to compile additional information on which to review various objectives in the future or to base implementation actions. As necessary, separate environmental documentation is being, or will be, carried out for these activities by the appropriate lead agencies.

More significantly, the program of implementation for the 2006 Plan makes changes to the implementation of the April 15 through May 15 San Joaquin River pulse flow objectives (pulse flow objectives) and changes to the Environmental Monitoring Program. These changes are the only changes to the program of implementation

from the 1995 Plan to the 2006 Plan that may have the potential to lead to a change in the environment. Accordingly, these issues and potential impacts are discussed in this section. Because these changes are consistent with current conditions, however, there will be no significant effects on the environment due to these changes.

The changes to the implementation of the pulse flow objectives authorize a staged implementation of the objectives to allow for scientific experimentation to determine whether the objectives are appropriate prior to final implementation. The first stage of implementation is to conduct the VAMP experiments through the SJRA until the end of 2011 in order to gather additional scientific information concerning flow needs under various conditions during the pulse flow period. The VAMP experiments will help to determine whether changes should be made to the pulse flow objectives. After 2011, the program of implementation specifies that the State Water Board should use the information obtained from the VAMP experiment to determine what if any changes to make to the pulse flow objectives. Following the determination of what if any changes should be made to the pulse flow objectives, the program of implementation specifies that the State Water Board will hold a water right hearing to assign long-term responsibility for meeting the flow objectives during the pulse flow period. These changes to the program of implementation for these objectives are consistent with the current implementation of the objectives in D-1641. Changes to the implementation of the pulse flow objectives are discussed in more detail in the program of implementation for the pulse flow objectives in the 2006 Plan and in the Issue Analysis in Part III of this report.

The 2006 Plan changes the Environmental Monitoring Program by modifying the existing program set forth in Table 4 of the 1995 Plan (Table 7 of the 2006 Plan) and Figure 2 of the 1995 Plan (Figure 5 of the 2006 Plan). The Environmental Monitoring Program specified in the 1995 Plan consists of 43 monitoring stations in the upper San Francisco Bay-Delta Estuary, extending from the Sacramento River at Hood to the San Joaquin River at Vernalis and west into San Pablo Bay. Of these, 20 stations are "Compliance Monitoring Stations", to measure compliance with the water quality objectives. Fifteen stations are "Baseline Monitoring Stations" operated to identify changes in the estuary. The remaining eight are "Compliance and Baseline Monitoring Stations", which perform both compliance and baseline monitoring functions.

The changes to the Environmental Monitoring Program in the 2006 Plan were proposed by USBR and DWR and have been reviewed by staff from various State and federal agencies, a science advisory group of independent scientists, and participants in three public meetings that included members of several consulting firms. The proposed amendments are as follows:

- (1) Add, reestablish, or move baseline monitoring elements at one compliance monitoring station (D29), seven compliance and baseline stations (C9, C10, D10, D12, D22, D24, and S42), and six baseline monitoring stations (C3, D7, D9, D11, D19, D41A);

- (2) Remove one baseline station (NZ080);
- (3) Modify station numbers and descriptions for four baseline monitoring stations (C3, D6, D28A, and P8);
- (4) Modify sampling interval description in footnotes to Table 4 of the 1995 Plan (Table 7 of the 2006 Plan) to avoid the spring-neap tide sampling bias; and
- (5) Modify the Table 4 of the 1995 Plan (Table 7 of the 2006 Plan) layout to include geographic coordinates and rearrange table columns to group the continuous monitoring and discrete monitoring activities.

USBR and DWR proposed the amendments to: (1) improve the scientific basis for the Environmental Monitoring Program and the usefulness of the resulting data by enhancing continuous, comprehensive, and shallow water monitoring reducing the spring-neap tidal bias; (2) improve Quality Assurance/Quality Control; (3) improve monitoring efficiency by consolidating neighboring stations; and (4) improve worker safety.

10. Earlier Analyses

Two environmental documents were previously prepared that address the proposed changes to the program of implementation for the pulse flow objectives through implementation of the VAMP by the SJRA. Those documents are the *Final Environmental Impact Report for Implementation of the 1995 Water Quality Control Plan* and the January 1999 *Final Environmental Impact Statement and Environmental Impact Report for Meeting Flow Objectives for the San Joaquin River Agreement 1999-2010* (SJRA EIS/EIR). Both of these documents are available for review at the State Water Resources Control Board, Division of Water Rights offices at 1001 I Street, Sacramento, CA 95812. In addition, the *Final Environmental Impact Report for Implementation of the 1995 Water Quality Control Plan* is available at <http://www.waterrights.ca.gov/baydelta/eir/> and the SJRA EIS/EIR is available at <http://www.sjrg.org/EIR/contents.htm>.

11. Other Public Agencies Whose Approval is Required

Water quality control plans and amendments to water quality control plans are regulatory and must be approved by the Office of Administrative Law before they are effective under California law. (Gov. Code, § 11353.) Additionally, newly adopted water quality standards and water quality standards that have been revised are subject to approval under the federal Clean Water Act and are to be submitted to the USEPA for approval.

12. Environmental Factors Potentially Affected

The environmental resource categories identified below are analyzed herein to determine whether the proposed project would result in adverse impacts to any of these resources. None of the categories below are checked because the proposed project is not expected to result in significant or potentially significant impacts to any of these resources. See the checklist on the following pages for more details.

- | | | | | | |
|--------------------------|----------------------|--------------------------|------------------------------------|--------------------------|------------------------|
| <input type="checkbox"/> | Aesthetics | <input type="checkbox"/> | Agriculture Resources | <input type="checkbox"/> | Air Quality |
| <input type="checkbox"/> | Biological Resources | <input type="checkbox"/> | Cultural Resources | <input type="checkbox"/> | Geology/Soils |
| <input type="checkbox"/> | Hazards | <input type="checkbox"/> | Hydrology/ Water Quality | <input type="checkbox"/> | Land Use/ Planning |
| <input type="checkbox"/> | Mineral Resources | <input type="checkbox"/> | Noise | <input type="checkbox"/> | Population and Housing |
| <input type="checkbox"/> | Public Services | <input type="checkbox"/> | Recreation | <input type="checkbox"/> | Transportation |
| <input type="checkbox"/> | Utilities | <input type="checkbox"/> | Mandatory Findings of Significance | | |

On the basis of this initial evaluation

I find that the proposed project COULD NOT have a significant effect on the environment, and a FUNCTIONAL EQUIVALENT of a NEGATIVE DECLARATION will be prepared.

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

No potential significant impacts from this proposed action were identified

Reviewed By:

 Leslie F. Grober, Chief
 Hearings and Special Projects Section

 Date

13. Evaluation of Environmental Impacts

This Environmental Checklist has been prepared in compliance with the requirements of CEQA relating to certified regulatory programs.

1. AESTHETICS. Would the project:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The deletion of footnote 4 of Table 3 of the 1995 Plan and the addition of the revised date to the program of implementation of the 2006 Plan concerning the date by which the DO objective must be met are not expected to have any impacts on aesthetics. The objective has not yet been attained, and consequently the changes represent the current implementation of the objective and do not constitute a change in the environment. In addition, changing the date by which compliance with the DO objective is required does not involve any issues related to aesthetic resources.

The proposed change to move the substance of footnote 8 of Table 3 of the 1995 Plan to the program of implementation and extend the time for attainment of the EC objective is not expected to have any impacts on aesthetics. The objectives have not been attained. The State Water Board extended the date of required compliance at these locations by orders dated October 30, 1997, August 14, 1998, April 14, 1998, April 30, 1999 and November 1, 1999. Therefore, the proposed change does not constitute a change in the environment and does not involve any potential impacts related to aesthetic resources.

The proposed changes to the program of implementation for the pulse flow objectives are not expected to have any impacts on aesthetics. Pursuant to D-1641, the interim VAMP target flows have been implemented through the SJRA since 2000. D-1641 implements the pulse flow objectives upon expiration or termination of the SJRA. Since the changes to the program of implementation ratify the staged implementation of the objectives that has been in place since 2000, there will be no change in the environment due to the proposed changes to the program of implementation for the pulse flow objectives. Further, implementation of the VAMP target flows through the SJRA was previously adequately analyzed in the *Final Environmental Impact Report for Implementation of the 1995 Water Quality Control Plan* and in the SJRA EIS/EIR. In addition, both the range of flows included in the pulse flow objectives and the range of flows included in the VAMP are well within the historic range of flows experienced on the San Joaquin River. Accordingly, there is no potential for any significant impacts to visual resources.

The changes to the program of implementation for the Environmental Monitoring Program are not expected to have any effects on aesthetics. The changes already implemented by DWR and USBR include: movement of the baseline monitoring stations an insignificant distance from their original locations; changes in the sampling interval for discrete sampling; modification of station numbers; removal of one baseline station not mandated by D-1641; modification of Table 4 of the 1995 Plan (Table 7 of the 2006 Plan) to include geographic coordinates and rearrange table columns; and updates to Figure 2 of the 1995 Plan (Figure 5 of the 2006 Plan).

2. **AGRICULTURAL RESOURCES.** In determining whether impacts to agricultural resources are significant environmental impacts, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping & Monitoring Program of the California Resources Agency, to non-agricultural uses?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?

The deletion of footnote 4 of Table 3 of the 1995 Plan and the addition of the revised date to the program of implementation of the 2006 Plan concerning the date by which the DO objective must be met is not expected to have any impacts on agricultural resources. As discussed above, the change represents the current implementation of the objective and does not constitute a change in the environment. In addition, changing the effective date of the DO objective will not result in conversion of any farmland to non-agricultural uses.

The proposed change that moves footnote 8 of Table 3 of the 1995 Plan to the program of implementation is not expected to have any impacts on agricultural resources. As discussed above, the objectives have not been implemented, and therefore the delay in implementation does not constitute a change in the environment. In addition, changing the effective date of these EC objectives will not result in conversion of any farmland to non-agricultural uses.

There is no potential for the proposed changes to the program of implementation for the pulse flow objectives to significantly impact agriculture. As discussed above, the changes to the program of implementation for the pulse flow objectives represent current environmental conditions that have been previously adequately analyzed pursuant to CEQA. In addition, there is no potential for the proposed project to convert any farmland to non-agricultural uses or to conflict with existing zoning for agricultural use, or a Williamson Act contract. Further, the pulse flow objectives are intended to protect fish and wildlife beneficial uses. Additional implementation measures are included in the 2006 Plan for the protection of agricultural beneficial uses.

There is no potential for the proposed changes to the program of implementation for the Environmental Monitoring Program to significantly impact agriculture. As discussed above, these changes to the program of implementation will not affect the physical environment through the movement of baseline monitoring stations an insignificant distance. The other changes - the modification of the sampling interval and station numbers, the addition of GIS coordinates and the arrangement of table columns - are clerical in nature. Therefore, these changes will have no impact on agricultural resources.

3. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The deletion of footnote 4 of Table 3 of the 1995 Plan and the addition of the revised date to the program of implementation of the 2006 Plan concerning the date by which the DO objective must be met are not expected to have any impacts on air quality. As discussed above, the change represents the current implementation of the objective and does not constitute a change in the environment. In addition, changing the effective date of the DO objective does not involve any air quality issues.

The proposed change that moves footnote 8 of Table 3 of the 1995 Plan to the program of implementation is not expected to have any impacts on air quality. As discussed above, the change does not constitute a change in the environment. In addition, changing the effective date of these EC objectives does not involve any air quality issues.

There is no potential for the proposed changes to the program of implementation for the pulse flow objectives to significantly impact air quality. As discussed above, the changes to the program of implementation represent current environmental

conditions that have been previously adequately analyzed pursuant to CEQA. In addition, the proposed changes involve water flows on the San Joaquin River for fish and wildlife protection. Accordingly, the proposed changes do not have any air quality effects.

There is no potential for the proposed changes to the program of implementation for the Environmental Monitoring Program to significantly impact air quality. As discussed above, the changes to the program of implementation involve the movement of some baseline monitoring stations insignificant distances as well as additional clerical changes. Therefore, the proposed changes will not have any air quality effects.

4. BIOLOGICAL RESOURCES. Would the project:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the DFG or USFWS?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the DFG or USFWS?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally-protected wetlands as defined by Section 404 of the federal Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory corridors, or impede the use of native wildlife nursery sites? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

The deletion of footnote 4 of Table 3 of the 1995 Plan and the addition of the revised date to the program of implementation of the 2006 Plan concerning the date by which the DO objective must be met are not expected to have any impacts on biological resources. As discussed above, the change represents the current implementation of the objective and does not constitute a change in the environment. Once the objective is implemented, the objective is expected to benefit biological resources. However, additional time is needed to develop information prior to full implementation of the objective.

The proposed change that moves footnote 8 of Table 3 of the 1995 Plan to the program of implementation is not expected to have any significant impact on biological resources. As discussed above, the change concerning the date by which the EC objective must be met at S-35 and S-97 does not constitute a change in the environment.

There is no potential for the proposed changes to the program of implementation for the pulse flow objectives to significantly impact biological resources. As discussed above, the changes to the program of implementation represent current environmental conditions. Accordingly, there is no change to the environment due to changing the program of implementation to describe those conditions. While the pulse flow objectives were included in the 1995 Plan, those objectives have not been implemented. Instead, in D-1641 the State Water Board implemented the VAMP study target flows through the SJRA on an interim basis. Pursuant to the SJRA, signatories to the agreement agreed to provide flows for a period of 12 years. The State Water Board also conditioned USBR's storage permits for New Melones Reservoir for the term of the SJRA to provide backstops adequate to allow the conduct of the VAMP pursuant to the provisions of the SJRA. The proposed changes to the program of implementation conform to the timeline for implementation of the objectives that was authorized in D-1641 and that has been

conducted since 2000. Accordingly, there is no change in the environment. In addition, as mentioned above, implementation of the VAMP study flows through the SJRA was previously adequately analyzed pursuant to CEQA. Further, completion of the VAMP study is expected to improve scientific understanding regarding flow needs on the San Joaquin River during the pulse flow period. As such, conduct of the VAMP will likely benefit biological resources, specifically fall-run chinook salmon in the San Joaquin River, by providing more conclusive information on which to base flow and export objectives during the pulse flow window.

There is no potential for the proposed changes to the program of implementation for the Environmental Monitoring Program to significantly impact biological resources. As discussed above, the changes to the program of implementation involve the movement of some baseline monitoring stations insignificant distances as well as additional clerical changes. Therefore, the proposed changes will not significantly impact biological resources.

5. CULTURAL RESOURCES. Would the project:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The deletion of footnote 4 of Table 3 of the 1995 Plan and the addition of the revised date to the program of implementation of the 2006 Plan concerning the date by which the DO objective must be met are not expected to have any impact on cultural resources. As discussed above, the change reflects the current implementation of the objective and does not constitute a change in the environment. In addition, changing the effective date of the DO objective does not involve any cultural resource issues.

The proposed change that moves footnote 8 of Table 3 of the 1995 Plan to the program of implementation is not expected to have any impact on cultural resources. As discussed above, the change does not constitute a change in the environment. In addition, changing the effective date of the EC objective does not involve any cultural resource issues.

There is no potential for the proposed changes to the program of implementation for the pulse flow objectives to significantly impact cultural resources. As discussed above, the changes to the program of implementation represent current environmental conditions that have existed since 2000 and have been previously adequately analyzed pursuant to CEQA. In addition, both the range of flows included in the pulse flow objectives and the range of flows included in the VAMP are well within the historic range of flows experienced on the San Joaquin River. Accordingly, there is no potential for changes in flows to either inundate or expose additional cultural resources, or otherwise impact cultural resources.

There is no potential for the proposed changes to the program of implementation for the Environmental Monitoring Program to significantly impact cultural resources. As discussed above, the changes to the program of implementation involve the movement of some baseline monitoring stations insignificant distances as well as additional clerical changes. Therefore, the proposed changes will not significantly impact cultural resources.

6. GEOLOGY and SOILS. Would the project:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated in the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines & Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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| iii) Seismic-related ground failure, including liquefaction? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| iv) Landslides? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Result in substantial soil erosion or the loss of topsoil? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Be located on expansive soils, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternate wastewater disposal systems where sewers are not available for the disposal of wastewater? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

The deletion of footnote 4 of Table 3 of the 1995 Plan and the addition of the revised date to the program of implementation of the 2006 Plan concerning the date by which the DO objective must be met are not expected to have any impact on geology and soils. As discussed above, the change reflects the current implementation of the objective and does not constitute a change in the environment. In addition, changing the effective date of the DO objective does not involve geology and soil issues.

The proposed change that moves footnote 8 of Table 4 of the 1995 Plan to the program of implementation is not expected to have any impacts on geology and soils. As discussed above, the proposed change does not constitute a change in the environment. In addition, changing the effective date of the EC objective does not involve geology and soil issues.

There is no potential for the proposed changes to the program of implementation for the pulse flow objectives to significantly impact geology and soils. As discussed above, the changes to the program of implementation represent current environmental conditions that have existed since 2000 and have been previously adequately analyzed pursuant to CEQA. In addition, both the range of flows included in the pulse flow objectives and the range of flows included in the VAMP are well within the historic range of flows experienced on the San Joaquin River. Accordingly, there is no potential for changes in flows to result in significant impacts to geology and soils.

There is no potential for the proposed changes to the program of implementation for the Environmental Monitoring Program to significantly impact geology and soils. As discussed above, the changes to the program of implementation involve the movement of some baseline monitoring stations insignificant distances as well as additional clerical changes. Therefore, the proposed changes will not significantly impact geology and soils.

7. HAZARDS and HAZARDOUS MATERIALS. Would the project:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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| f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

The proposed project does not involve any hazardous elements, including any of the hazards discussed above. Accordingly, there is no potential for significant impacts related to hazards. In addition, as discussed above, there is no change in the environment from existing conditions.

8. HYDROLOGY & WATER QUALITY. Would the project:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- c) Substantially alter the existing drainage pattern of the site, including through alteration of the course of a stream or river, or substantially increase the rate or volume of surface runoff in a manner that would:
- i) result in flooding on- or off-site
 - ii) create or contribute runoff water that would exceed the capacity of existing or planned stormwater discharge
 - iii) provide substantial additional sources of polluted runoff
 - iv) result in substantial erosion or siltation on-or off-site?
- d) Otherwise substantially degrade water quality?
- e) Place housing or other structures which would impede or re-direct flood flows within a 100-yr. flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?
- f) Expose people or structures to a significant risk of loss, injury, or death involving flooding:
- i) as a result of the failure of a dam or levee?
 - ii) from inundation by seiche, tsunami, or mudflow?
- g) Would the change in the water volume and/or the pattern of seasonal flows in the affected watercourse result in:
- i) a significant cumulative reduction in the water supply downstream of the diversion?

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| ii) a significant reduction in water supply, either on an annual or seasonal basis, to senior water right holders downstream of the diversion? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| iii) a significant reduction in the available aquatic habitat or riparian habitat for native species of plants and animals? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| iv) a significant change in seasonal water temperatures due to changes in the patterns of water flow in the stream? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| v) a substantial increase or threat from invasive, non-native plants and wildlife | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| j) Inundation by seiche, tsunami, or mudflow? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

The deletion of footnote 4 of Table 3 of the 1995 Plan and the addition of the revised date to the program of implementation of the 2006 Plan concerning the date by which the DO objective must be met are not expected to have any impacts on hydrology and water quality. As discussed above, the change reflects the current implementation of the objective and does not constitute a change in the environment. Once the objective is implemented, the objective is expected to benefit water quality. However, additional time is needed to develop information prior to full implementation of the objective.

As discussed in the program of implementation, the proposed change to the content of footnote 8 of Table 3 of the 1995 Plan, by changing the date by which the EC objective must be met at S-35 and S-97 and moving the substance of footnote 8 to the program of implementation, is not expected to have any impacts on hydrology and water quality. The change does not constitute a change in the environment.

There is no potential for the proposed changes to the program of implementation for the pulse flow objectives to significantly impact hydrology and water quality. As discussed above, the changes to the program of implementation represent current environmental conditions. Accordingly, there is no change to the environment from changing the program of implementation to reflect those conditions. In addition, as mentioned above, implementation of the VAMP study flows through the SJRA was previously adequately analyzed pursuant to CEQA. Further, both the range of flows included in the pulse flow objectives and the range of flows included in the VAMP are well within the historic range of flows experienced on the San Joaquin River and are well below levels of flood concern. Issues concerning changes in the water volume and/or the pattern of seasonal flows in the affected watercourse were adequately analyzed in the *Final Environmental Impact Report for Implementation of the 1995 Water Quality Control Plan* and the SJRA EIS/EIR.

There is no potential for the proposed changes to the program of implementation for the Environmental Monitoring Program to significantly impact hydrology and water quality. As discussed above, the changes to the program of implementation involve the movement of some baseline monitoring stations insignificant distances as well as additional clerical changes. Therefore, the proposed changes will not impact hydrology and water quality.

9. LAND USE AND PLANNING. Would the project:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The deletion of footnote 4 of Table 3 of the 1995 Plan and the addition of the revised date to the program of implementation of the 2006 Plan concerning the date by

which the DO objective must be met is not expected to have any impacts on land use and planning. As discussed above, the change represents the current implementation of the objective and does not constitute a change in the environment. In addition, changing the effective date of the DO objective does not involve any land use or planning issues.

As discussed in the program of implementation, the proposed change in the date of implementation of the EC objective at S-35 and S-97 addressed in footnote 8 of Table 3 of the 1995 Plan and moving the implementation date to the program of implementation, is not expected to have any impacts on land use and planning. The change does not constitute a change in the environment. In addition, changing the effective date of the EC objective does not involve any land use or planning issues.

There is no potential for the proposed changes to the program of implementation for the pulse flow objectives to significantly impact land use and planning. As discussed above, the changes to the program of implementation represent current environmental conditions. Accordingly, there is no change to the environment from changing the program of implementation to authorize those conditions. In addition, as mentioned above, implementation of the VAMP study flows through the SJRA was previously adequately analyzed pursuant to CEQA. Further, changes to the implementation of the pulse flow objectives do not involve any land use issues.

There is no potential for the proposed changes to the program of implementation for the Environmental Monitoring Program to significantly impact land use and planning. As discussed above, the changes to the program of implementation involve the movement of some baseline monitoring stations insignificant distances as well as additional clerical changes. Therefore, the proposed changes will not impact land use and planning.

10. MINERAL RESOURCES. Would the project:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project does not involve mineral resources, including the issues discussed in a. and b. above. Accordingly, there is no potential for significant impacts to mineral resources. In addition, as discussed above, there is no change in the environment from existing conditions.

11. NOISE. Would the project result in:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing in or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) For a project within the vicinity of a private airstrip, would the project expose people residing in or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

The deletion of footnote 4 of Table 3 of the 1995 Plan and the addition of the revised date to the program of implementation of the 2006 Plan concerning the date by which the DO objective must be met are not expected to have any noise impacts. As discussed above, the change represents the current implementation of the objective and does not constitute a change in the environment. In addition, changing the timeline for meeting the DO objective does not involve the generation of any noise.

The proposed change of adding to the program of implementation and revising the implementation date that was in footnote 8 of Table 3 of the 1995 Plan is not expected to result in any noise impacts. As discussed above, the change does not constitute a change in the environment. In addition, changing the effective date of the EC objective does not involve the generation of any noise.

The proposed changes to the program of implementation for the pulse flow objectives will not result in any noise related impacts. In addition, as discussed above, there is no change in the environment from existing conditions.

There is no potential for the proposed changes to the program of implementation for the Environmental Monitoring Program to result in any noise related impacts. As discussed above, the changes to the program of implementation involve the movement of some baseline monitoring stations insignificant distances as well as additional clerical changes. Therefore, there will not be any noise related impacts as a result of the proposed changes.

12. POPULATION AND HOUSING. Would the project:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There are no potentially significant impacts related to population and housing from the proposed project. The proposed project does not involve population or housing or any elements that could potentially affect these issues. In addition, as discussed above, there is no change in the environment from existing conditions.

13. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service rations, response times or other performance objectives for any of the public services:

a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed changes to the program of implementation do not have any bearing on fire protection, police protection, schools, parks, or other public facilities. Accordingly, there is no potential for the proposed project to result in potentially

significant impacts to public services. In addition, as discussed above, there is no change in the environment from existing conditions.

14. RECREATION. Would the project:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The deletion of footnote 4 of Table 3 of the 1995 Plan and the addition of the revised date to the program of implementation of the 2006 Plan concerning the date by which the DO objective must be met is not expected to have any impacts on recreation. As discussed above, the change represents the current implementation of the objective and does not constitute a change in the environment. In addition, changing the effective date of the DO objective does not involve any recreation issues.

The proposed change of adding to the program of implementation and revising the implementation date that was in footnote 8 of Table 3 of the 1995 Plan is not expected to have any impacts on recreation. As discussed above, the change does not constitute a change in the environment. In addition, changing the effective date of the EC objective does not involve any recreation issues.

The proposed changes to the program of implementation for the pulse flow objectives would not have any potentially significant impacts on recreation. As discussed above, there is no change in the environment from existing conditions. In addition, both the range of flows included in the pulse flow objectives and the range of flows included in the VAMP are well within the historic range of flows experienced on the San Joaquin River. Accordingly, there is no potential for changes in flows to result in significant impacts to recreational facilities, boating, fishing, and other recreational activities.

There is no potential for the proposed changes to the program of implementation for the Environmental Monitoring Program to significantly impact recreation. As discussed above, the changes to the program of implementation involve the movement of some baseline monitoring stations insignificant distances as well as additional clerical changes. Therefore, the proposed changes will not significantly impact recreational facilities, boating, fishing, or other recreational activities.

15. TRANSPORTATION / CIRCULATION. Would the project:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (<i>i.e.</i> , result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially increase hazards due to a design feature (<i>e.g.</i> , sharp curves or dangerous intersections) or incompatible uses (<i>e.g.</i> , farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Exceed, either individually or cumulatively, a level-of-service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies supporting alternative transportation (<i>e.g.</i> , bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There are no potentially significant impacts related to transportation and circulation from the proposed project. The proposed project does not involve transportation or circulation or any elements that could potentially affect these issues. In addition, as discussed above, there is no change in the environment from existing conditions.

16. UTILITIES AND SERVICE SYSTEMS. Would the project:

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Comply with federal, state, and local statutes and regulations related to solid waste? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

There are no potentially significant impacts related to utilities and service systems from the proposed project. The proposed project does not involve utilities or service systems or any elements that could potentially affect these issues. In addition, as discussed above, there is no change in the environment from existing conditions.

17. MANDATORY FINDINGS OF SIGNIFICANCE

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

a) The proposed changes to the footnotes in Table 3 and changes to the program of implementation for the pulse flow objectives and the Environmental Monitoring Program do not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. As discussed above, the changes to the footnotes in Table 3 represent existing regulatory conditions and allow additional time for information to be developed before final implementation of the DO and specified western Suisun Marsh salinity objectives.

The changes to the implementation of the pulse flow objectives represent existing conditions as they have existed since 2000 pursuant to the implementation of the pulse flow objectives in D-1641. Further, the changes to the Environmental Monitoring Program are unsubstantial and primarily clerical in nature.

Therefore, there is no significant change to current environmental conditions from making the proposed changes. The quality of the environment, habitat for fish and wildlife species, population and other effects on fish and wildlife species and the other factors discussed above will not change as a result of adopting the changes to the footnotes in Table 3, the program of implementation for the pulse flow objectives, or the Environmental Monitoring Program.

b) Changes to the footnotes in Table 3, the program of implementation for the pulse flow objectives, and the Environmental Monitoring Program do not have impacts that are individually limited, but cumulatively considerable. As discussed above, the proposed changes to the footnotes in Table 3 reflect existing regulatory conditions and allow additional time for information to be developed before final compliance with the DO and specified western Suisun Marsh salinity objectives are required. The proposed changes to the program of implementation for the pulse flow objectives conform to existing conditions pursuant to the implementation of the objectives in 2000 in D-1641. Further, the changes to the Environmental Monitoring Program are unsubstantial and primarily clerical in nature. Therefore, there are no additional cumulative impacts due to approval of the proposed changes. Cumulative impacts of the original implementation of the VAMP through the SJRA are discussed in section A of Chapter XII of the *Final Environmental Impact Report for*

Implementation of the 1995 Water Quality Control Plan and Chapter 4.12 of the SJRA EIS/EIR.

- c) Changes to the footnotes in Table 3, the program of implementation for the pulse flow objectives, and the Environmental Monitoring Program will not have environmental effects that will cause substantial adverse effects on human beings. Changes in the footnotes in Table 3, the implementation of the pulse flow objectives and the Environmental Monitoring Program, will not cause any change in the existing environment. In addition, both the VAMP flow objectives and the pulse flow objectives are well within historic flow patterns on the San Joaquin River and consequently will not lead to any associated impacts to people from increased or decreased flows.



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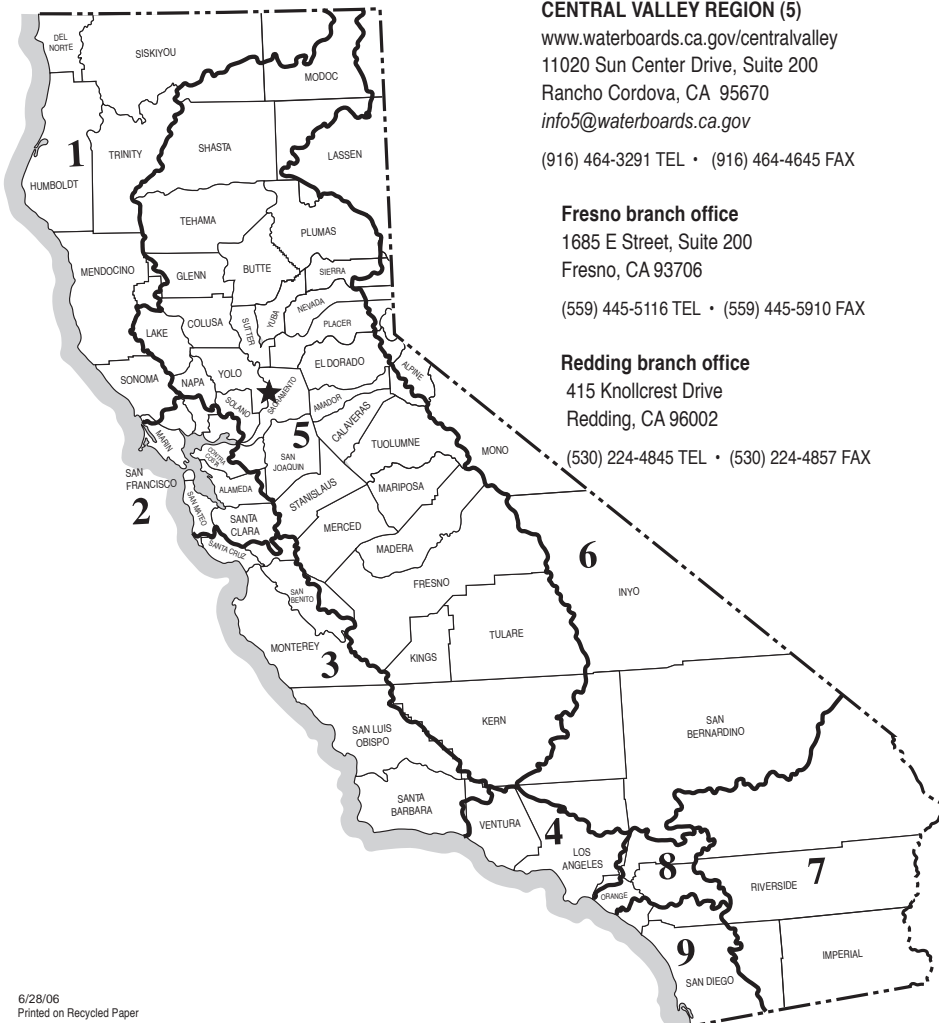
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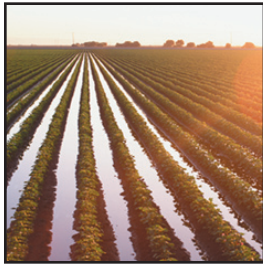


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Arnold Schwarzenegger, Governor

California Environmental Protection Agency
Linda S. Adams, Secretary

State Water Resources Control Board
Tam M. Doduc, Chair
Celeste Cantú, Executive Director



Referenced Documents, Appendix 2 to the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

December 13, 2006



Water Boards
STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Division of Water Rights
December 2006



STATE OF CALIFORNIA

Arnold Schwarzenegger, Governor

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Linda S. Adams, Secretary

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STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

REFERENCED DOCUMENTS,
APPENDIX 2 TO THE
2006 WATER QUALITY CONTROL PLAN
FOR THE
SAN FRANCISCO BAY/
SACRAMENTO-SAN JOAQUIN
DELTA ESTUARY

DECEMBER 13, 2006

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ACKNOWLEDGEMENTS

We wish to acknowledge the following people and organizations for their contribution to this report:

- Barbara Leidigh in the Office of Chief Counsel, for providing the legal support and editing
- Linda Valin and Jeanice Tipps in the Division of Water Rights, for editing, typing, and formatting the documents
- Sharon Norton, Maria Bozionelos, Chris Whittington, and Dale Oliver in the Division of Water Rights Graphics Unit, for the graphics, maps and charts
- Numerous interested parties that have provided suggestions and input on draft documents

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Introduction

In December of 2003, the State Water Board began a review of the objectives included in the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (1995 Plan) pursuant to California Water Code sections 13170 and 13240 and federal Clean Water Act section 303(c)(1) (33 USC § 1313(c)(1)). In September of 2004, the State Water Board adopted a staff report titled *2004 Staff Report Regarding Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (2004 Staff Report). The 2004 Staff Report described the review of the 1995 Plan and identified eleven issues the State Water Board intended to address during a multi-day workshop.

Between October of 2004 and August of 2005, the State Water Board held a multi-day workshop (Plan Workshop) regarding the eleven issues identified in the 2004 Staff Report. The State Water Board received a significant amount of comments, technical information, and recommendations during the Plan Workshop. The State Water Board used the comments, technical information, and recommendations received, and other available information, to prepare an amended water quality control plan for the Delta. This appendix contains a listing of the comments, technical information, and recommendations received during the Plan Workshop and other available information used by the State Water Board. These documents (or directions to access copies of some larger documents) are available for viewing on the State Water Board's website at: http://www.waterrights.ca.gov/baydelta/revised_app2_refdocs.html.

DRAFT

Water Quality Control Plan for the
San Francisco Bay/Sacramento – San Joaquin Delta Estuary

Referenced Documents

Links to these documents are available at:
http://www.waterrights.ca.gov/baydelta/revised_app2_refdocs.html

American Fisheries Society

Exhibit Number	Description	Date Received
AFS-01	Letter, RE: Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin River Delta Estuary (12/16/04)	12/21/04
AFS-02	Letter, RE: Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin River Delta Estuary (6/3/05)	6/3/05

City of Antioch

Exhibit Number	Description	Date Received
ANT-01	Letter, RE: Periodic Review of the 1995 Water Quality Control Plan (1/4/05)	1/6/05

Bay Institute

Exhibit Number	Description	Date Received
BAY-01	Letter, Opening comments of the Bay Institute on the Delta Cross Channel Gates Closure and Salmon Protective Objective (10/27/04)	10/27/04
BAY-02	Power Point Presentation, 1995 Bay-Delta WQCP SWRCB Periodic Review, Salmon Protection and Delta Cross Channel Gate Closure (11/15/04)	11/15/04
BAY-03	Letter, Bay-Delta Plan Periodic Review Topics 2 and 3 (12/14/04)	12/16/04
BAY-04	Letter, RE: Bay-Delta Plan Periodic Review/Delta Outflow (1/12/05)	1/12/05
BAY-05	Power Point Presentation, Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary - Comments of The Bay Institute on the Delta Outflow Objective (1/12/05)	1/12/05
BAY-06	Letter, RE: Bay-Delta Plan Periodic Review/Export Limits (1/18/05)	1/18/05
BAY-07A	Power Point Presentation, Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary - Comments of The Bay Institute on Export Limits (1/18/05)	1/18/05
BAY-07B	Power Point Presentation, Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary - Additional Figures (1/18/05)	1/18/05

Bay Institute (continued)		
Exhibit Number	Description	Date Received
BAY-08	Letter, RE: Bay-Delta Plan Periodic Review/Vernalis Flows (3/21/05)	3/21/05
BAY-09	Power Point Presentation, Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/ Sacramento-San Joaquin Delta Estuary - Comments of The Bay Institute on Vernalis Flow Objective February-April 14 and May 16-June 30 (3/21/05)	3/21/05
BAY-10	Letter, RE: Bay-Delta Plan Periodic Review (6/3/05)	6/3/05
BAY-11	Table, Attachment A, proposed modifications to Table 3 of the 1995 WQCP (6/3/05)	6/3/05
BAY-12	Report, Attachment B, Port Chicago Decision Tree - 1/26/05 version with modifications and comments by Gary Bobker, TBI	6/3/05
BAY-13	Report, Summary notes (David Fullerton) from the April 2005 X2-flex gaming exercise (5/2/05)	6/3/05
BAY-14	Letter, Correction of Bay Institute Vernalis flow recommendation (8/25/05)	8/25/05
BAY-15	Power Point Presentation, Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/ Sacramento-San Joaquin Delta Estuary - Comments of The Bay Institute on Flexing the Delta Outflow Objective (8/31/05)	8/31/05
BAY-16	Letter, Re: Delta Outflow Objective Flexibility (9/16/05)	9/16/05
Bay – Delta Public Advisory Committee		
Exhibit Number	Description	Date Received
BDP-01	Letter, RE: Support for CALFED Drinking Water Quality Program (1/7/05)	1/10/05
BDP-02	Power Point Presentation, Bay-Delta Public Advisory Committee, Drinking Water Subcommittee, SWRCB Periodic Review Presentation (January 2005)	1/10/05
BDP-03	Letter, Follow up on January 10 letter, Information regarding Drinking water policy (6/3/05)	6/3/05
California Bay-Delta Authority		
Exhibit Number	Description	Date Received
CBDA-01	Power Point Presentation, Clarifying Information on the Municipal & Industrial Objectives (1/12/05)	1/12/05
Contra Costa Water District		
Exhibit Number	Description	Date Received
CCWD-01	Letter, Water Quality Impacts of Delta Cross Channel Closures (11/15/04)	11/15/04
CCWD-02	Power Point Presentation, Adverse Impacts of Delta Cross Channel Gate Closures on Delta Water Quality (11/15/04)	11/16/04
CCWD-03	Letter, Additional Information on water quality impacts of Delta Cross Channel Closures (12/16/04)	1/10/05
CCWD-04	Letter, RE: Issue 4a 150 mg/L M&I Chloride Objectives (1/10/05)	1/10/05

Contra Costa Water District (continued)		
Exhibit Number	Description	Date Received
CCWD-05	Technical Memorandum, Disinfection Byproducts, Public Health, and the Role of Delta Water Quality (12/10/04)	1/10/05
CCWD-06	Power Point Presentation, Issue 4a, 150 mg/L M&I Chloride Objective (1/10/05)	1/10/05
CCWD-07	Power Point Presentation, Issue 4b Compliance location at Contra Costa Canal at Pumping Plant #1 - Addressing Local Degradation (1/10-12/05)	1/10/05
CCWD-08	Power Point Presentation, Issue 4b Compliance location at Contra Costa Canal at Pumping Plant #1 - Proposed Solution (1/10-12/05)	1/10/05
CCWD-09	Power Point Presentation, Issue 4c New Objectives (1/10-12/05)	1/10/05
CCWD-10	Power Point Presentation, Delta Water Quality: Implications for Utility Compliance with the Safe Drinking Water Act	1/10/05
CCWD-11	Power Point Presentation, Potential New Objectives CCWD Compliance with Treated Water Regulations (Presentation not given at workshop)	1/10/05
CCWD-12	Letter, RE: Issue 5a: Delta Outflow Objective – Development of the X2 Estuarine Habitat Objective (1/12/05)	1/12/05
CCWD-13	Power Point Presentation, Issue 5 Delta Outflow Objective X2 Estuarine Habitat Objective (February-June) (1/12/05)	1/12/05
CCWD-14	Letter, RE: Issue 4b Rock Slough Compliance Location (2/14/05)	2/14/05
CCWD-15	Letter, RE: Issue 4c New Objectives to Protect Drinking Water Quality (2/14/05)	2/14/05
CCWD-16	Letter, RE: Documents Related to Periodic Review Issues 4 and 5 (2/7/05)	2/9/05
CCWD-16A	Plan, Water Quality Control Plan for Salinity for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (May 1991)	2/9/05
CCWD-16B	Plan, Technical Appendix: Water Quality Control Plan for Salinity for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (May 1991)	2/9/05
CCWD-16C	Report, Bay-Delta Water Quality Evaluation Draft Final Report (June 1998)	2/9/05
CCWD-16D	Report, Report from the Delta Municipal and Industrial Water Quality Workgroup to the California State Water Resources Control Board for the Proceedings on the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (10/17/89)	2/9/05
CCWD-16E	Report, Appendix A: Report from the Delta Municipal and Industrial Water Quality Workgroup to the California State Water Resources Control Board for the Proceedings on the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (10/17/89)	2/9/05
CCWD-16F	Report, Bay-Delta Drinking Water Quality: Bromide Ion (Br-) and Formation of Brominated Disinfection By-Products (DBPs) Final Draft (November 1998)	2/9/05
CCWD-16G	Report, Isohaline Position as a Habitat Indicator for Estuarine Populations (2/5/94) Note: This document is the same as a Department of Interior exhibit (DOI-33G)	2/9/05
CCWD-17	Letter, RE: Issue 5a: Delta Outflow Objective (2/18/05)	2/18/05
CCWD-18	Letter, RE: Clarification of CCWD's Comments on Issue 4c, New Objectives to Protect Drinking Water Quality (3/7/05)	3/8/05

Contra Costa Water District (continued)		
Exhibit Number	Description	Date Received
CCWD-19	Letter, RE: Response to State Water Contractors' February 14 comments on Issue 4b (3/8/05)	3/8/05
CCWD-20	Letter, CCWD Comments on Issue 10, Southern Delta Electrical Conductivity (4/15/05)	4/15/05
CCWD-21	Letter, CCWD's final comments on the Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin River Delta Estuary (6/3/05)	6/3/05
CCWD-22	Letter, Response to State Water Contractors' June 4 Closing Statements on Issue 4b, 150 mg/L and 250 mg/L Chloride Objectives (7/14/05)	7/14/05
CCWD-23	Letter, Consideration of Potential Flexing of the Port Chicago X2 Objective (8/16/05)	8/16/05
CCWD-24	Letter, CCWD Comments on the August 31 Workshop on Flexing X2 (9/16/05)	9/16/05
Central Delta Water Agency		
Exhibit Number	Description	Date Received
CDWA-01	Letter, Workshop – Periodic Review Water Quality Control Plan for the San Francisco Bay/Sacramento – San Joaquin Delta Estuary (11/18/2004)	11/19/04
CDWA-02	Table, Index of Exhibits submitted to the SWRCB in 1992	11/19/04
CDWA-03	Report, Screening Agricultural Diversions in the Sacramento – San Joaquin Delta	11/19/04
CDWA-04	Report, Loss of Striped Bass (<i>Morone saxatilis</i>) Eggs and Young Through Small, Agricultural Diversion in the Sacramento – San Joaquin Delta	11/19/04
CDWA-05	Report, Irrigation Diversion Study Summary	11/19/04
CDWA-06	Report, Screening Existing Agricultural Diversion in the Sacramento – San Joaquin Estuary and its Tributaries, A Review of the Problem (4/3/81)	11/19/04
CDWA-07	Map, Water Districts and Agencies	11/19/04
CDWA-08	Figure, Lakos IPC Series Self-Cleaning Pump Intake Screens	11/19/04
CDWA-09	Figure, Application Sketch – Slow Moving Irrigation Canal	11/19/04
CDWA-10	Resume, Dante John Nomellini	11/19/04
CDWA-11	Testimony, Interim Hearing of the Bay Delta Proceeding, Dante John Nomellini (August 1992)	11/19/04
CDWA-12	Report, A Survey of Anadromous Fish Losses in Irrigation Diversions from the Sacramento and San Joaquin Rivers (October 1959), Note: First page of document is illegible due to limitations in scanning.	11/19/04
CDWA-13	Attachment B, Letter - California Department of Water Resources to Central Delta Water Agency (12/28/92)	11/19/04
CDWA-14	Attachment C, Letter - Central Delta Water Agency to California Department of Water Resources (12/17/93)	11/19/04

California Striped Bass Association		
Exhibit Number	Description	Date Received
CSBA-01	Email correspondence, Comments of California Striped Bass Association (11/13/04)	11/13/04
CSBA-02	Report, Status and Protection Of The San Francisco Bay-Sacramento-San Joaquin Delta Striped Bass Population (October 2004)	11/13/04
CSBA-03	Executive Summary (9/11/04)	11/13/04
CSBA-04	Letter, California Striped Bass Association to California Department of Fish and Game and California Department of Water Resources	11/13/04
California Urban Water Agencies		
Exhibit Number	Description	Date Received
CUWA-01	Letter, RE: Periodic Review of M & I Chloride Objectives (1/06/05)	1/13/05
CUWA-02	Letter, Response to SWRCB July 18, 2005 notice regarding August 31, 2005 workshop – Flexing Delta Outflow Objective (8/17/05)	8/17/05
California Department of Fish and Game		
Exhibit Number	Description	Date Received
DFG-01	Workshop Comments – Salmon Narrative Objective (10/28/04)	10/28/04
DFG-02	Workshop Comments (Supplemental) – Salmon Narrative Objective (11/15/04)	11/16/04
DFG-03	Comments, Topic 5 Delta Outflow Comments of the California Department of Fish and Game (1/12/05)	1/12/05
DFG-04	Power Point Presentation, X2 Correlation Graphs	1/12/05
DFG-05	Comments, California Department of Fish and Game Statement before the State Water Resources Control Board Topic #6 Export Limits (1/24/05)	1/24/05
DFG-06	Comments, California Department of Fish and Game Statement before the State Water Resources Control Board Topic #7 Sacramento River at Rio Vista Flow Objective (1/24/05)	1/24/05
DFG-07	Comments, California Department of Fish and Game Public Workshop Comments Issue #9 (VAMP) (1/24/05)	1/24/05
DFG-08	Statement, Public Workshop Comments Issue #8 River Flows: San Joaquin River at Airport Way Bridge, Vernalis: February - April 14 and May 16 – June Comments of the California Department of Fish and Game (3/21-23/05)	3/21/05
DFG-09	Power Point Presentation, Issue #8 CDFG Comments	3/21/05
DFG-10	Comments, Department of Fish and Game Supplemental Comments and Recommendations on the Vernalis Flow and Salmon Doubling Objectives in the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin River Estuary (6/30/05)	7/12/05
DFG-11	Letter, Comments regarding proposed revisions to the Delta Outflow Objective (9/21/05) Note: These comments were submitted jointly by the California Department of Fish and Game, the United States Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration – Fisheries Service	9/22/05

California Department of Health Services		
Exhibit Number	Description	Date Received
DHS-01	Letter, Bay-Delta Plan Periodic Review (1/7/05)	1/10/05
Deltakeeper, et al.		
Exhibit Number	Description	Date Received
DK-01	Letter, Consideration of Potential Amendments or Revisions of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (1/5/2005)	1/6/05
DK-02	Report, Overview of Sacramento-San Joaquin River Delta Water Quality Issues, (2004)	1/6/05
DK-03	Report, Results of the August 5, 2003, Tour of the South Delta Channels, (February 2004)	1/6/05
DK-04	Report, Summary of Results from the July 17, 2003, and September 17, 2003, Tours of the Central Delta Channels (2004)	1/6/05
DK-05	Letter, Comments on the CBDA Delta Improvements Package (June 2004)	1/6/05
DK-06	Report, Impact of State and Federal Delta Water Export Projects on Delta Water Quality and Aquatic Resources: Issues that need to be addressed (10/1/04)	1/6/05
DK-07	Report, Issues that Need to be Considered in Evaluating the Sources and Potential Control of TOC that Leads to THMs for Water Utilities that Use Delta Water as a Water Supply Source (5/27/03)	1/6/05
DK-08	Report, Synthesis and Discussion of Findings on the Causes and Factors Influencing Low DO in the San Joaquin River Deep Water Ship Channel near Stockton, CA: Including 2002 Data (March 2003)	1/6/05
DK-09	Report, Supplement to Synthesis Report on the Low-DO Problem in the SJR DWSC (June 2004)	1/6/05
DK-10	Report, Impact of San Joaquin River Deep Water Ship Channel Watershed and South Delta Flow Manipulations on the Low-DO Problem in the Deep Water Ship Channel (July 10, 2003)	1/6/05
DK-11	Report, SJR DWSC Flow and RRI DO Data for 2003 (December 2003)	1/6/05
DK-12	Report, SJR DWSC Flow and RRI DO for 2004 (1/5/05)	1/6/05
DK-13	Report, Updated Recommended Approach for Controlling the Low-DO Problem in the SJR DWSC (June 2004)	1/6/05
DK-14	Report, Comments on Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control Program for Factors Contributing to the Dissolved Oxygen Impairment in the Stockton Ship Channel, Draft Final Staff Report, December 13, 2004 (1/5/05)	1/6/05
DK-15	Report, SJR Deep Water Ship Channel Water Not SJR Watershed Water below Columbia Cut (October 2003)	1/6/05
DK-16	Letter, Comments on Scope of South Delta EIS/EIR (10/30/02)	1/6/05
DK-17	Report, 2004 VAMP Hydrologic Summary (9/21/04)	1/6/05
DK-18	Power Point Presentation, DeltaKeeper a project of WaterKeepers Northern California	1/12/05
DK-19	Comments, DeltaKeeper a project of WaterKeepers Northern California Before the State Water Resources Control Board Bay-Delta Workshops 24 January 2005 (1/24/05)	1/24/05

Deltakeeper, et al. (continued)		
Exhibit Number	Description	Date Received
DK-20	Power Point Presentation, Historical CVP and SWP Salvage and OCAP Loss Estimates	1/24/05
DK-21	Power Point Presentation, A Simple Spreadsheet Model for Chinook Salmon in the San Francisco Bay Estuary	1/24/05
DK-22	Power Point Presentation, San Joaquin River near Vernalis, APRIL – MAY 2004 With Lagged Contributions from Primary Sources (9/21/04)	1/24/05
DK-23	Power Point Presentation, Impact of SJR & South Delta Flow Diversions on Water Quality (January 2005)	1/24/05
DK-24	Power Point Presentation, Triennial Basin Plan Review Presented by Tom Stokely Principal Planner Trinity County Planning Department Natural Resources Division For Deltakeeper (3/21/05)	3/21/05
DK-25	Power Point Presentation, Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary: Deltakeeper Chapter of Baykeeper, California Sportfishing Protection Alliance, San Joaquin Audubon Committee to Save the Mokelumne (3/21/05)	3/21/05
DK-26	Power Point Presentation, Other Changes for the Program of Implementation (Issue 11) SWRCB D-1641 Workshop (March 2005)	3/22/05
DK-27	Power Point Presentation, Need for Reliable Water Quality Monitoring/Evaluation of Impact of Water Exports on Water Quality in the Delta & Its Tributaries (3/22/05)	3/22/05
DK-28	Report, Need for Reliable Water Quality Monitoring/ Evaluation of Impact of Delta Water Exports on Water Quality in the Delta & Its Tributaries (3/20/05)	3/22/05
DK-29	Figure, Central Valley Chinook Salmon and Steelhead Sacramento San Joaquin River Systems (1997)	3/22/05
United States Department of the Interior		
Exhibit Number	Description	Date Received
DOI-01	Exhibit List (10/27/04)	10/27/04
DOI-01A	Letter, from SWRCB to DWR/USBR: Review of the Environmental Management Program (4/7/04)	10/27/04
DOI-02	Letter, from DWR/USBR to SWRCB (2/5/04)	10/27/04
DOI-03	Letter, from SWRCB to DWR/USBR: Review of the Environmental Management Program (8/11/04)	10/27/04
DOI-04	Letter, from DWR/USBR to SWRCB (3/25/03)	10/27/04
DOI-05	Report, Summary of IEP Environmental Monitoring Program Review and Recommendations (3/25/2003)	10/27/04
DOI-06	Power Point presentation, "Delta Cross Channel Operations – The Four Seasons" (10/27/04)	10/27/04
DOI-07	Table, Delta Cross Channel Operations – history, United States Bureau of Reclamation	10/27/04
DOI-08	Power Point presentation, "Summary of Delta Cross Channel Studies" (10/27/04)*	10/27/04
DOI-09	Statement of the DOI Regarding Narrative Salmon Protection Objective (October, 2004)	10/27/04
DOI-10	Report, Bureau of Reclamation CVP/SWP OCAP (6/30/04)	10/27/04

United States Department of the Interior (continued)		
Exhibit Number	Description	Date Received
DOI-10A	Report, Biological Opinion on the Long Term Central Valley Project and State Water Project Operations Criteria and Plan (10/20/04)	10/27/04
DOI-10B	Report, NOAA Fisheries Biological Opinion on OCAP (10/22/04)	10/27/04
DOI-11	Report, DRAFT CVPIA 10-Year Report (June 2003)	10/27/04
DOI-12	Report, Comprehensive Assessment and Monitoring Program Annual Report 2000 (September 2002)	10/27/04
DOI-13	Report, Comprehensive Assessment and Monitoring Program Annual Report 1999 (February 2001)	10/27/04
DOI-14	Report, Comprehensive Assessment and Monitoring Program Annual Report 1998 (December 1999)	10/27/04
DOI-15	Report, Comprehensive Assessment and Monitoring Program Annual Report 1995-1997 (August 1998)	10/27/04
DOI-16	Report, Delta Juvenile Salmon Telemetry Final Report 2002 – 2003*	10/27/04
DOI-16A	Table of files on Exhibits 11 and 16 CD	10/27/04
DOI-16B	Report, Final Restoration Plan for the Anadromous Fish Restoration Program; A Plan to Increase Natural Production of Anadromous Fish in the Central Valley of California (1/9/2001)	10/27/04
DOI-16C	Report, Working Paper on Restoration Needs; Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California, Volume 1 (5/9/95)	10/27/04
DOI-16D	Report, Working Paper on Restoration Needs; Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California, Volume 2 (5/9/95)	10/27/04
DOI-16E	Report, Working Paper on Restoration Needs; Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California, Volume 3 (5/9/95)	10/27/04
DOI-16F	Report, The Use of the Environmental Water Account for the Protection of Anadromous Salmonids in the Sacramento/San Joaquin Delta in 2002-2003 (October 2003)	10/27/04
DOI-16G	Report, 2003 Annual Technical Report on Implementation and Monitoring of the San Joaquin River Agreement and the Vernalis Adaptive Management Plan (January 2004)*	10/27/04
DOI-16H	Report, The Environmental Water Account: Reducing Conflict Between Fishery Management and Water Supply (1/22/03)	10/27/04
DOI-16I	Report, Statistical Procedures for Detecting the CVPIA Natural Chinook Salmon Production Doubling Goal and Determining Sustainability of Production Increases (6/21/04)	10/27/04
DOI-16J	Bibliography of salmon reports; Central Valley, Sacramento River, San Joaquin River, and other salmon reports	10/27/04
DOI-17A	Table of files on Exhibit 17 CD (10/25/04)	10/27/04
DOI-17B	Graph, Unimpaired and actual flow (1941 – 2004), AFRP recommended yearly flows, and natural production estimates of adult Chinook salmon for the Tuolumne River at Modesto (1952 – 2003)	10/27/04
DOI-17C	Graph, Unimpaired and actual flow (1941 – 2004), AFRP recommended yearly flows, and natural production estimates of adult Chinook salmon for the Stanislaus River at Ripon (1952 – 2003)	10/27/04
DOI-17D	Graph, Unimpaired and actual flow (1986 – 2004), AFRP recommended yearly flows, and natural production estimates of adult Chinook salmon for the Calaveras-River at Bellota and New Hogan (1952 – 2003)	10/27/04

United States Department of the Interior (continued)		
Exhibit Number	Description	Date Received
DOI-17E	Graph, Actual yearly flows (1941 – 2004), and natural production estimates of adult Chinook salmon for the Cosumnes River at Michigan Bar (1952 – 2003)	10/27/04
DOI-17F	Graph, Unimpaired and actual flow (1984 – 2004), AFRP recommended yearly flows for the San Joaquin River at Vernalis and dissolved oxygen in the Stockton Ship Channel (1984 – 2003)	10/27/04
DOI-17G	Graph showing both adult Chinook salmon escapement and natural production estimates for the Sacramento and San Joaquin river systems.	10/27/04
DOI-17H	Notes and Caveats	10/27/04
DOI-17I	Report, “Statistical procedures for defining and detecting the CVPIA natural Chinook salmon production doubling goal.” Newman, K.B. and Hankin, D.G. (2004)	10/27/04
DOI-17J	Information Sources and Methods	10/27/04
DOI-17K	Spreadsheet used to generate adult Chinook salmon production estimates using both in-river and hatchery escapement numbers from Grand Tab (Contact DOI for access to this document)	10/27/04
DOI-17L	Spreadsheet for adult Chinook salmon escapements	10/27/04
DOI-17M	Plan, Final Restoration Plan for the Anadromous Fish Restoration Program (January 9, 2001)	10/27/04
DOI-17N	Paper, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California, Volume 1 (May 9, 1995)	10/27/04
DOI-17O	Paper, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California, Volume 1 (May 9, 1995)	10/27/04
DOI-17P	Paper, Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California, Volume 1 (May 9, 1995)	10/27/04
DOI-17Q	Maps, Maps of the Cosumnes, Calaveras, Stanislaus, Tuolumne, Merced, and San Joaquin rivers, showing the locations of CDEC and USGS gauging stations	10/27/04
DOI-18	Bibliography of Salmon Reports from USFWS (10/25/04)	10/27/04
DOI-19	Power Point presentation, Delta Cross Channel Studies – Status Report (11/15/04)	11/15/04
DOI-20	Power Point presentation, Interior’s recommendations to the SWRCB re: DCC Gate Operations (11/15/04)	11/15/04
DOI-21	Power Point presentation, CVP Operations Criteria and Plan and Biological Assessment (11/16/04)	11/16/04
DOI-22	Power Point presentation, DOI Statement to the SWRCB regarding the Narrative Salmon Doubling Objective (11/15/04)	11/16/04
DOI-23	Letter, Statement Before the State Water Resources Control Board Review of 1995 Delta Water Quality Control Plan Topic #5: Delta Outflow (1/12/05)	1/12/05
DOI-24	Power Point Presentation, Statement Before the State Water Resources Control Board Review of 1995 Delta Water Quality Control Plan Topic #5: Delta Outflow (1/12/05)	1/12/05
DOI-25	Letter, Statement Before the State Water Resources Control Board Review of 1995 Delta Water Quality Control Plan Topic #7: Sacramento River at Rio Vista Flow Objective (1/24/05)	1/24/05

United States Department of the Interior (continued)		
Exhibit Number	Description	Date Received
DOI-26	Letter, Statement Before the State Water Resources Control Board Review of 1995 Delta Water Quality Control Plan Topic #9: Flow Objectives in the San Joaquin River at Airport Way Bridge, Vernalis: 31-day pulse flow April 15 – May 15 (1/24/05)	1/24/05
DOI-27	Statement, Response to Dr. Chuck Hanson's 10/24/04 Presentation Regarding the Salmon Protection Objective (2/23/05)	2/24/05
DOI-28	Statement, Response to Dr. Chuck Hanson's 1/14/05 Presentation Regarding the Delta Outflow Objective (2/23/05)	2/24/05
DOI-29	Power Point presentation, Trends in Central Valley Chinook Salmon In-River Escapement (October 2004) Note: This exhibit was originally presented to the SWRCB by the State Water Contractors as SWC-02	2/24/05
DOI-30	Power Point presentation, Review of the 1995 Water Quality Control Plan For the San Francisco Bay/Sacramento San Joaquin Delta Estuary (X2 Standard) Note: This exhibit was originally presented to the SWRCB by the State Water Contractors as SWC -06	2/24/05
DOI-31	Annotated Bibliography on Aquatic Fish Resources in the Sacramento San-Joaquin Bay-Delta in reference to Export Limit objectives, Delta outflow objectives, and River Flow Objectives at Rio Vista (2/23/05)	2/24/05
DOI-32A	Report, Summary of Federal and State Water Project Environmental Impacts in the San Francisco Bay-Delta Estuary, California (1996)	2/24/05
DOI-32B	Memorandum, Biological Opinion for Delta Smelt (3/6/95)	2/24/05
DOI-32C	Report, Juvenile Chinook Salmon Abundance, Distribution, and Survival in the Sacramento-San Joaquin Estuary (2001)	2/24/05
DOI-32D	Report, Fish Communities and their Associations with Environmental Variables, Lower San Joaquin River Drainage, California (2000)	2/24/05
DOI-32E	Report, An Assessment of the Likely Mechanisms Underlying the "Fish-X2" Relationships, Technical Report 52 (January 1997)	2/24/05
DOI-32F	Report, Life History and Status of Delta Smelt in the Sacramento – San Joaquin Estuary, California (1989)	2/24/05
DOI-32G	Article, Environmental Factors Influencing the Distribution and Salvage of Young Delta Smelt: A Comparison of Factors Occurring in 1996 and 1999 (2000)	2/24/05
DOI-32H	Article, Spring 2000 Delta smelt salvage and delta hydrodynamics and an introduction to the Delta smelt decision tree (2001)	2/24/05
DOI-32I	Memorandum, OCAP Biological Opinion for Delta Smelt (2/16/05)	2/24/05
DOI-32J	SWRCB Document, Staff Report: Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento – San Joaquin Delta Estuary (9/30/04)	2/24/05
DOI-32K	Report, 5-year review. <i>Hypomesus transpacificus</i> (delta smelt) (3/31/04)	2/24/05
DOI-32L	Report, Report to the Fish and Game Commission: A Status Review of the Delta Smelt (<i>Hypomesus transpacificus</i>) in California (May 1993)	2/24/05
DOI-32M	Report, Working Paper on Restoration Needs: Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California Volume 1 (5/9/95)	2/24/05

United States Department of the Interior (continued)		
Exhibit Number	Description	Date Received
DOI-32N	Report, Working Paper on Restoration Needs: Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California Volume 2 (5/9/95)	2/24/05
DOI-32O	Report, Working Paper on Restoration Needs: Habitat Restoration Actions to Double Natural Production of Anadromous Fish in the Central Valley of California Volume 3 (5/9/95)	2/24/05
DOI-32P	Report, Recovery Plan for the Sacramento San Joaquin Delta Native Fishes (11/26/96)	2/24/05
DOI-32Q	Report, A Plan to Increase Natural Production of Anadromous Fish in the Central Valley of California (1/9/01)	2/24/05
DOI-32R	SWRCB Document, Water Quality Control Plan for Salinity: San Francisco Bay/Sacramento San Joaquin Delta Estuary (May 1991)	2/24/05
DOI-32S	SWRCB Document, Draft Water Right Decision 1630 (April 1993)	2/24/05
DOI-32T	SWRCB Document, Revised Water Right Decision 1641 (March 15, 2000)	2/24/05
DOI-33A	Report, Juvenile Delta Smelt Use of Shallow-Water and Channel Habitats in California's Sacramento-San Joaquin Estuary (1999)	2/24/05
DOI-33B	Report, Effect of Outflow on Spring and Summertime Distribution and Abundance of Larval and Juvenile Fishes in the Upper San Francisco Estuary (2004)	2/24/05
DOI-33C	Report, The Influence of Flow an Central Valley Salmon (July 1987)	2/24/05
DOI-33D	Report, Ecological Segregation of Native and Alien Larval Fish Assemblages in the Southern Sacramento-San Joaquin Delta (2004)	2/24/05
DOI-33E	Report, Structure, Sampling Gear and Environmental Associations, and Historical Changes in the Fish Assemblage in the Southern Sacramento-San Joaquin Delta (2002)	2/24/05
DOI-33F	Report, Fish community structure and environmental correlates in the highly altered southern Sacramento-San Joaquin Delta (2003)	2/24/05
DOI-33G	Report, Isohaline Position as a Habitat Indicator for Estuarine Populations (February 1995)	2/24/05
DOI-33H	Report, Physical, Biological, and Management Responses to Variable Freshwater Flow into the San Francisco Estuary (December 2002)	2/24/05
DOI-33I	Report, Effects of freshwater flow on abundance of estuarine organisms: physical effects or trophic linkages? (11/13/02)	2/24/05
DOI-33J	Report, Open Water Processes of the San Francisco Estuary: From Physical Forcing to Biological Responses (2003)	2/24/05
DOI-33K	Report, The Use of Smolt Survival Estimates to Quantify the Effects of Habitat Changes on Salmonid Stocks in the Sacramento-San Joaquin Rivers Pages 100-115 (1989)	2/24/05
DOI-33L	Report, Influences of Freshwater Inflow on Chinook Salmon (<i>Oncorhynchus Tshawytscha</i>) in the Sacramento-San Joaquin Estuary (1982)	2/24/05
DOI-33M	Report, Quantifying Salinity Habitat of Estuarine Species (Autumn 1994)	2/24/05
DOI-34	Annotated Bibliography on Aquatic Fish Resources in the Sacramento San-Joaquin Bay-Delta in reference to River Flow Objectives at Vernalis (2/23/05)	2/24/05
DOI-35A	Report, 2003 Annual Technical Report on Implementing and Monitoring of the San Joaquin River Agreement and the Vernalis Adaptive Management Plan (January 2004)	2/24/05

United States Department of the Interior (continued)		
Exhibit Number	Description	Date Received
DOI-35B	Report, The Use of the Environmental Water Account for the Protection of Anadromous Salmonids in the Sacramento/San Joaquin Delta in 2002 – 2003 (October 2003)	2/24/05
DOI-35C	Report, California Water Plan Update Bulletin 160-98 (November 1998)	2/24/05
DOI-35D	Report, Management of the California State Water Project Bulletin 132-03 (December 2004)	2/24/05
DOI-35E	Report, Juvenile Chinook Salmon Radio-Telemetry Studies in the Northern and Central Sacramento - San Joaquin Delta 2002 – 2003 (January 2004)	2/24/05
DOI-35F	Various tables and figures	2/24/05
DOI-35G	Project's Bay-Delta Standards Chart - Footnotes	2/24/05
DOI-35H	Project's Bay-Delta Standards Chart	2/24/05
DOI-36A	Paper, The Environmental Water Account: Reducing Conflict Between Fishery Management and Water Supply	2/24/05
DOI-36B	Report, Statistical Procedures for detecting the CVPIA natural Chinook salmon production doubling goal and determining sustainability of production increases (6/21/2004)	2/24/05
DOI-37	Report, Trinity River Fishery Restoration Supplemental Environmental Impact Statement/Environmental Impact Report (April 2004)	2/24/05
DOI-38	Letter from DOI to State Water Board, Subject: Scope of Review of 1995 Water Quality Control Plan (12/21/03)	2/24/05
DOI-39	Statement, United States Department of the Interior Comments on Process for Periodic Review of 1995 Bay-Delta Water Quality Control Plan (9/14/04)	2/24/05
DOI-40	Power Point presentation, Review of the 1995 Delta Water Quality Control Plan Topic #8: San Joaquin River at Airport Way Bridge, Vernalis Flow Objectives: February – April 14 and May 16- June: Statement to the State Water Resources Control Board from U.S. Fish and Wildlife Service (3/21/05)	3/21/05
DOI-41	Power Point presentation, Presentation to SWRCB Periodic Review Topic #8	3/21/05
DOI-42	Statement, United States Department of the Interior Statement Before the State Water Resources Control Board Review of 1995 Delta Water Quality Control Plan Topic #8: (Part 1) San Joaquin River at Airport Way Bridge, Vernalis Flow Objectives: February – April 14 and May 16- June (3/21/05)	3/21/05
DOI-43	Statement, United States Fish and Wildlife Service Statement Before the State Water Resources Control Board Review of 1995 Delta Water Quality Control Plan Topic #8: (Part 2) San Joaquin River at Airport Way Bridge, Vernalis Flow Objectives: February – April 14 and May 16- June (3/21/05)	3/21/05
DOI-44	Power Point presentation, New Melones Reservoir and Stanislaus River Water Year 2005 Operations (3/22/2005)	3/22/05
DOI-45	Table of Contents for May 24, 2005 submittals	5/24/05
DOI-45A	Article, Genetic Influence of Hatchery-Oriented Fish to Natural Populations of Rainbow Trout in the Santa Inez River, California (2/21/05)	5/24/05
DOI-45B	Article, Genetic Influence of Hatchery-Oriented Fish to Natural Populations of Rainbow Trout in the Santa Inez River (2/21/05)	5/24/05

United States Department of the Interior (continued)		
Exhibit Number	Description	Date Received
DOI-45C	Article, Estimating Absolute Age Composition of Salmon Landings (1963)	5/24/05
DOI-45D	Report, Factors Contributing to the Decline of Chinook Salmon (June 1998)	5/24/05
DOI-45E	Report, Population Genetic Structure of Santa Ynez Rainbow Trout (11/11/03)	5/24/05
DOI-45F	Report, Pacific Coast Salmon Plan for Commerical and Recreational Fisheries off the Coast of California, Oregon and Washington (September 2003)	5/24/05
DOI-45G	Report, Historical and Present Distribution of Salmon in the Central Valley Drainage of California (2003)	5/24/05
DOI-45H	Report, Spring Run Chinook Salmon Annual Report Prepared for the Fish and Game Commission (March 2001)	5/24/05
DOI-45I	Report, In-stream Flow needs for Steelhead in the Carmel River (6/3/02)	5/24/05
DOI-45J	Report, Preseason Report III, Analysis of Council Adopted Management Measures for 2004 Ocean Salmon Fisheries (April 2004)	5/24/05
DOI-45K	Report, Summary of the Ninth Pacific Coast Steelhead Management Meeting (3/9/04)	5/24/05
DOI-45L	Report, Application of a 2D Hydrodynamic Model to Design of Reach Scale Spawning Gravel Replenishment on the Mokelumne River, California (2004)	5/24/05
DOI-45M	Report, Restoring Central Valley Streams: A Plan for Action (11/10/93)	5/24/05
DOI-45N	Report, Napa River Basin Limiting Factors Analysis (6/14/02)	5/24/05
DOI-46A	Article, Integrating Geomorphic Process Approach in Riparian an Stream Restoration: Past Experience and Future Opportunities (2001)	5/24/05
DOI-46B	Report, Status Review Update for Deferred ESU of West Coast Chinook Salmon (7/16/99)	5/24/05
DOI-46C	Report, Sacramento River Spring-Run Chinook Salmon 2001 Annual Report (October 2002)	5/24/05
DOI-46D	Report, Sacramento River Winter-Run Chinook Salmon 2000-2001 Biennial Report (March 2002)	5/24/05
DOI-46E	Report, Sacramento River Spring-Run Chinook Salmon 2002-2003 Biennial Report (June 2004)	5/24/05
DOI-46F	Report, Sacramento River Winter-Run Chinook Salmon 2002-2003 Biennial Report (June 2004)	5/24/05
DOI-46G	Article, 1998 Fall Dissolved Oxygen Conditions in the Stockton Ship Channel (1998)	5/24/05
DOI-46H	Report, Evaluation of a Spawning Habitat Enhancement Site for Chinook Salmon in a Regulated California River (6/16/03)	5/24/05
DOI-46I	Panel Summary, 1998 Interagency Ecological Program and Bay Delta Modeling Forum Sponsored Workshop on W2 (3/11/98) Research Article, A Summary of the Current State of X2 Relationships (1998)	5/24/05
DOI-46J	Report, The Effects of Summer Dams on Salmon and Steelhead in California Coastal Watersheds and Recommendations for Mitigating their Impacts (7/23/01)	5/24/05
DOI-46K	Report, Chinook Salmon Catch and Escapement (1999)	5/24/05

United States Department of the Interior (continued)		
Exhibit Number	Description	Date Received
DOI-46L	Report, Chinook Salmon Catch and Escapement (2002)	5/24/05
DOI-46M	Report, Migrations of Adult King Salmon In the San Joaquin Delta As Demonstrated by the Use of Sonic Tags (March 1970)	5/24/05
DOI-46N	Article, Juvenile Chinook Salmon Relative Abundance and Real Time Protection (2000)	5/24/05
DOI-47A	Article, Juvenile Fall Run and Winter Run Chinook Salmon Abundance (1999)	5/24/05
DOI-47B	Survey, Upper Sacramento River Winter-run Chinook Salmon Escapement Survey May-August 2000 (April 2001)	5/24/05
DOI-47C	Report, Environmental Assessment for the Annual Management Measures for the 2004 West Coast Ocean Salmon Fisheries (4/30/04)	5/24/05
DOI-47D	Power Point Presentation, Graphs Comparing Chinook and Estimated Yearly Natural Production (2003)	5/24/05
DOI-47E	Table, Annual Report of Statewide Fish Landings Conducted by the Department of Fish and Game (2003)	5/24/05
DOI-47F	Table, Poundage and Value of Landings of Commercial Fish into California by Area (2003)	5/24/05
DOI-47G	Table, Poundage and Value of Landings by Port, Monterey Area during 2003 (2003)	5/24/05
DOI-47H	Table, Poundage and Value of Landings by Port, San Francisco Area during 2003 (2003)	5/24/05
DOI-47I	Power Point Presentation, The Economic Benefits to Freshwater Anglers (1/3/03)	5/24/05
DOI-47J	Table, NMFS Landings Query Results from 1967 to 2003 (2003)	5/24/05
DOI-47K	Report, Review of 2004 Ocean Salmon Fisheries (February 2005)	5/24/05
DOI-47L	Review Selection, Socioeconomic Assessment of the 2004 Ocean Salmon Fisheries (February 2005)	5/24/05
DOI-48A	Report, Delta Smelt in the San Joaquin Delta Bay Estuary in Reference to Export Limit Objectives; Delta Outflow Objectives; and River Flow Objectives at Rio Vista and Vernalis (5/3/05)	5/24/05
DOI-48B	Selection from Fish Declines in the Estuary, Interactive Factors Producing Fish Declines in the Sacramento-San Joaquin Bay Estuary (1994)	5/24/05
DOI-48C	Section of Newsletter, Interagency Ecological Program for the San Francisco Estuary Newsletter; Section on Summer Towntnet Survey and Fall Midwater Trawl Survey Status and Trends (Spring 2004)	5/24/05
DOI-48D	Section of Newsletter, Interagency Ecological Program for the San Francisco Estuary Newsletter (Spring 2003)	5/24/05
DOI-48E	Section of Newsletter, Interagency Ecological Program for the San Francisco Estuary Newsletter; Section on Fish Salvage at the State Water Project and Central Valley Project Fish Facilities (Spring 2004)	5/24/05
DOI-48F	Newsletter Table of Contents, Interagency Ecological Program Autumn 97 (Fall 1997)	5/24/05
DOI-48G	Report, Phytoplankton Regulation in a Eutrophic Tidal River (San Joaquin River), (March 2005)	5/24/05
DOI-48H	Section of Newsletter, Interagency Ecological Program for the San Francisco Estuary Newsletter; Section on Exposure of Delta Smelt to Dissolved Pesticides in 2000 (Spring 2003)	5/24/05
DOI-48I	Report, Potential Exposure of Larval and Juvenile Delta Smelt to Dissolved Pesticides in the Sacramento-San Joaquin Delta (2004)	5/24/05

United States Department of the Interior (continued)		
Exhibit Number	Description	Date Received
DOI-48J	Report, Effects of Screening Diversions on Fish Populations in the Central Valley: What Do We Know? (January 2002)	5/24/05
DOI-48K	Newsletter Article, Delta Smelt Concerns Result in Changes in SWP and CVP Operations (1999)	5/24/05
DOI-48L	Section of Newsletter, Evaluating Entrainment Vulnerability to Agricultural Irrigation Diversions: A Comparison Among Open Water Fishes (2004)	5/24/05
DOI-49A	Section of Newsletter, Interagency Ecological Program for the San Francisco Estuary Newsletter; Section on Why We Do A "Post-VAMP Shoulder" for Delta Smelt (Spring 2004)	5/24/05
DOI-49B	Article in Newsletter, Temperature and Salinity Tolerances of Delta Smelt (Fall 1995)	5/24/05
DOI-49C	Report, Comparative Environmental Tolerances of Threatened Delta Smelt and Introduced Wakasagi in an Altered California Estuary (8/25/05)	5/24/05
DOI-49D	Report, Status of Delta Smelt in the Sacramento San-Joaquin Estuary (1999)	5/24/05
DOI-49E	Article in Newsletter, Delta Smelt Investigations (Spring 1997)	5/24/05
DOI-49F	Memorandum, Formal Consultation on the 1994 Operation of the Central Valley Project and the State Valley Project: Effects on Delta Smelt (02/04/94)	5/24/05
DOI-50	Statement, Supplemental Comments to the SWRCB by the United States Bureau of Reclamation, Issues No. 4, No. 9, and No. 10, Proposed Revision to the 1995 Bay-Delta Water Quality Control Plan (6/3/05)	6/3/05
DOI-50A	Letter, Transmittal letter for information contained in DOI-50, 50B, and 50C (6/8/05)	6/13/05
DOI-50B	Notice, Draft EIS Released for San Luis Drainage Feature Re-Evaluation; Public Hearings Scheduled (6/2/05)	6/13/05
DOI-50C	Draft Environmental Impact Statement, San Luis Drainage Feature Re-evaluation (May 2005) Note: This document is available for viewing at: http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=61	6/13/05
Delta Wetlands		
Exhibit Number	Description	Date Received
DW-01	Letter, Bay-Delta Water Quality Control Plan Triennial Review, Topic #6 (1/18/05)	1/18/05
DW-02	Power Point Presentation, 1995 WQCP Triennial Review Issue #6 E/I Ratio (1/18/05)	1/18/05
DW-03	Letter, Bay-Delta Water Quality Control Plan Triennial Review, Topic #6 (2/24/05)	2/26/05
Diablo Water District		
Exhibit Number	Description	Date Received
DWD-01	Letter, Periodic Review of 1995 Water Quality Control Plan (12/2/04)	12/10/04

California Department of Water Resources		
Exhibit Number	Description	Date Received
DWR-01	Letter, Comments on Workshop Topic 1 Regarding Amendments to the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento – San Joaquin Delta Estuary (10/26/04)	10/27/04
DWR-02	Statement, Amendment of the Bay-Delta Water Quality Control Plan's Compliance and Baseline Monitoring Program (10/27/04)	10/27/24
DWR-03	Power Point Presentation, Changes to the Water Quality Compliance and Baseline Monitoring Program (10/27/04)	10/27/24
DWR-04	Letter, Workshops Regarding Revisions to the 1995 Bay-Delta Water Quality Control Plan (11/15/04)	11/15/04
DWR-05	Report, Study Plan to Evaluate Improved Operational Procedures for the Delta Cross Channel and a Screened Through-Delta Facility (11/28/00)	11/15/04
DWR-06	Report, Evaluation of the Feasibility of Protecting Downstream Migrant Chinook Salmon Smolts in the Sacramento River and San Joaquin River With Physical Facilities (7/15/91)	11/15/04
DWR-07	Presentation, EWA Salmon Decision Process (11/15/04)	11/15/04
DWR-08	Presentation, Delta Cross Channel Gate Operations for Water Quality (11/15/04)	11/15/04
DWR-09	Letter, Workshop Revisions to the 1995 Bay-Delta Water Quality Control Plan <u>Topic 1 Environmental Monitoring Program</u> (11/30/04)	11/30/04
DWR-10	Attachment A, Proposed revised Table 4	11/30/04
DWR-11	Attachment B, Errata to "Amendment of the Bay-Delta Water Quality Control Plan's Compliance and Baseline Monitoring Program" (10/27/04)	11/30/04
DWR-12	Attachment C, Revised Comments on Proposed Amendments of the Bay-Delta Water Quality Control Plan's Compliance and Baseline Monitoring Program (11/30/04)	11/30/04
DWR-12A	Letter, Workshops Regarding Revisions to the 1995 Bay-Delta Water Quality Control Plan, Delta Cross Channel Gate and Salmon Doubling Narrative (12/17/04)	12/17/04
DWR-13	Letter, SWRCB Workshop on Amending the 1995 WQCP Comments on Topic 4 by Department of Water Resources and U.S. Bureau of Reclamation (1/10/05) NOTE: These are joint comments by the California Department of Water Resources and the United States Department of the Interior.	1/10/05
DWR-14	Power Point Presentation, Compliance Location at the Contra Costa Canal at the Contra Costa Canal Pumping Plant No. 1 (1/10/05) NOTE: This is a joint presentation by the California Department of Water Resources and the United States Department of the Interior.	1/10/05
DWR-14A	Letter, Workshops Regarding Revisions to the 1995 Bay-Delta Water Quality Control Plan, Topic 4 Chlorides and Compliance Monitoring Location (1/11/05) NOTE: This is a cover letter for DWR-13 and DWR-14	1/12/05
DWR-15	Letter, SWRCB Workshop on Amending the 1995 WQCP Comments on Topic 5 by Department of Water Resources (1/12/05)	1/12/05
DWR-16	Power Point Presentation, Compliance at Port Chicago and the costs to the State Water Project (January 2005)	1/12/05

California Department of Water Resources (continued)		
Exhibit Number	Description	Date Received
DWR-17	Letter, SWRCB Workshop on Amending the 1995 WQCP Comments on Topic 6 by Department of Water Resources and Bureau of Reclamation (1/18/05) NOTE: These are joint comments by the California Department of Water Resources and the United States Department of the Interior.	1/18/05
DWR-18	Power Point Presentation, Topic Six: Export Limits (January 2005)	1/18/05
DWR-19	Letter, Comments on Workshop Regarding Revisions to the Bay-Delta Water Quality Control Plan, Topic 4 (2/16/05) NOTE: These are joint comments by the California Department of Water Resources and the United States Department of the Interior.	2/16/05
DWR-20	Letter, Workshop Regarding Revisions to the 1995 Bay-Delta Water Quality Control Plan, Topics 9 (San Joaquin River Flow and VAMP) and 11 (Program of Implementation (3/3/05)	3/5/05
DWR-21	Letter, Workshop Regarding Revisions to the 1995 Bay-Delta Water Quality Control Plan, Southern Delta Salinity Objectives (3/14/05)	3/14/05
DWR-22	Statement, Testimony of the Department of Water Resources on Southern Delta Salinity Objectives and Dissolved Oxygen Objectives in the San Joaquin River	3/14/05
DWR-23	Power Point Presentation, South Delta Barriers	3/14/05
DWR-24	Power Point Presentation, Changes to the 1995 Water Quality Control Plan Program of Implementation	3/22/05
DWR-25	Letter, Re: Workshop Regarding Revisions to the 1995 Bay-Delta Water Quality Control Plan, Program of Implementation (3/22/05)	3/22/05
DWR-26	Statement, Department of Water Resources Comments to the State Water Resources Control Board Potential Revisions of the 1995 Bay-Delta Water Quality Control Plan (6/3/05)	6/3/05
DWR-27	Letter, Board Workshop regarding Delta Outflow and X2 Objective (9/21/05) NOTE: These are joint comments by the California Department of Water Resources and the United States Bureau of Reclamation.	9/21/05
United States Environmental Protection Agency		
Exhibit Number	Description	Date Received
EPA-01	Letter, RE: Bay Delta Plan Periodic Review (1/7/05)	1/10/05
EPA-02	Letter, RE: Bay Delta Plan Periodic Review - X2 IEP (1/7/05)	1/10/05
EPA-03	Power Point Presentation, X2 and Delta Outflow Recommendations	1/12/05
EPA-04	Letter, RE: Periodic Review of the 1995 Water Quality Control Plan (6/21/05)	6/27/05
EPA-05	Letter, EPA's comments on the Delta Outflow Objective (8/30/05)	8/30/05
Federation of Fly Fishers (Northern California/Nevada Council)		
Exhibit Number	Description	Date Received
FFF-01	Letter, Comments on Issue #5 Delta Outflow Objective (5/30/05)	6/2/05

Northern California Water Association		
Exhibit Number	Description	Date Received
NCWA-01	Letter, Comments on Progress Toward Meeting the Narrative Salmon Protection Objective in the 1995 Bay Delta Plan (10/26/04)	10/26/04
NCWA-02	Report, Status of Fishery Programs in the Sacramento Valley	10/26/04
NCWA-03	Letter, Periodic Review of 1995 Water Quality Control Plan – Issue 1: Proposed New Objectives (1/10/05)	1/10/05
National Marine Fisheries Service		
Exhibit Number	Description	Date Received
NOAA-01	Letter, Comments of the National Marine Fisheries Service, Delta Cross Channel Gates Closure (10/26/04)	10/27/04
NOAA-02	Article, Scrutinizing the Delta Cross Channel (June 2001)	10/27/04
NOAA-03	Report, Juvenile Chinook salmon abundance, distribution, and survival in the Sacramento-San Joaquin Estuary	10/27/04
NOAA-04	Report, A Status Review of the Spring-Run Chinook Salmon in the Sacramento River Drainage (June 1998)	10/27/04
NOAA-05	Report, Population Structure of Threatened and Endangered Chinook Salmon ESUs in California's Central Valley Basin (April 2004)	10/27/04
NOAA-06	Report, Comparison of Relative Abundance of Adult Chinook Salmon (<i>Oncorhynchus tshawytscha</i>) in the Delta Cross Channel, Georgiana Slough, and Sacramento River, California 2001 (6/30/04)	10/27/04
NOAA-07	Power Point Presentation, Adult Anadromous Fish – Acoustic Investigations	10/27/04
NOAA-08	Power Point Presentation, Delta Cross Channel Adult Salmon Fyke Trapping	10/27/04
NOAA-09	Report, Abundance and Survival of Juvenile Chinook Salmon in the Sacramento – San Joaquin Estuary, 1999 Annual Progress Report (February 2003)	10/27/04
NOAA-10	Report, Abundance and Survival of Juvenile Chinook Salmon in the Sacramento – San Joaquin Estuary, 1997 and 1998 Annual Progress Reports (December 2001)	10/27/04
NOAA-11	Report, Relationship of Delta Cross Channel Gate Operations to Loss of Juvenile Winter-run Chinook Salmon at the CVP/SWP Delta Facilities	10/27/04
NOAA-12	Report, Viable Salmonid Populations and the Recovery of Evolutionary Significant Units (June 2004)	10/27/04
NOAA-13	Power Point Presentation, 1995 Water Quality Control Plan Periodic Review (11/15/04)	11/15/04
NOAA-14	Letter, Comments from the National Marine Fisheries Service concerning periodic review of the 1995 Water Quality Control Plan (12/15/04)	12/16/04
NOAA-15	Letter, Comments from the National Marine Fisheries Service concerning periodic review of the 1995 Water Quality Control Plan – Delta Outflow Objective (1/10/05)	1/12/05
NOAA-16	Letter, Comments from the National Marine Fisheries Service concerning periodic review of the 1995 Water Quality Control Plan – Export Limits and Rio Vista Flow Objectives (1/26/05)	1/26/05

National Marine Fisheries Service (continued)		
Exhibit Number	Description	Date Received
NOAA-17	Power Point Presentation, 1995 Water Quality Control Plan Periodic Review Topic 8 San Joaquin River at Airport Way Bridge Vernalis (3/21/05)	3/21/05
NOAA-18	Letter, Comments from the National Marine Fisheries Service concerning potential amendments to the Delta Outflow Objective (8/29/05)	8/30/05
Regional Water Quality Control Board (Region 5)		
Exhibit Number	Description	Date Received
RB5-01	Power Point presentation, Regional Board TMDL's and Water Quality Control Programs (11/15/04)	11/15/04
RB5-02	Memorandum, Bay-Delta 1995 Water Quality Control Plan Periodic Review Comments (6/3/05)	6/3/05
RB5-03	Attachment 1: Regional Board Staff Comments on Material Presented to State Board During the Periodic Review Workshops for the 1995 Bay-Delta Water Quality Control Plan (6/3/05)	6/3/05
South Delta Water Agency		
Exhibit Number	Description	Date Received
SDWA-01	Letter, South Delta Water Agency's Recommendations Regarding the Water Quality Compliance and Baseline Monitoring Program	10/27/04
SDWA-02	Letter, Comments by the South Delta Water Agency Regarding Export Limits for the Protection of Fish and Wildlife Beneficial Uses Periodic Review of the 1995 Water Quality Control Plan	1/18/05
SDWA-03	Letter, Re: <u>1995 WQCP Periodic Review; Issue 10</u> (03/11/05)	3/14/05
SDWA-04	Statement, Testimony by South Delta Water Agency At 2005 SWRCB Workshops Regarding Southern Delta Electrical Conductivity	3/14/05
SDWA-05	Letter, Re: Water Considerations for the South Delta Water Agency (03/10/05)	3/14/05
SDWA-06	Report, Impact of San Joaquin River Quality On Crop Yields in the South Delta (05/23/87)	3/14/05
SDWA-07	Statement, Outline of Testimony Of Alexander Hildebrand On Southern Delta Agriculture	3/14/05
SDWA-08	Report, Water Quality Considerations for the South Delta Water Agency (12/22/81)	3/14/05
SDWA-09	Power Point presentation, Issue 10: Southern Delta Electrical Conductivity South Delta Water Agency (March 2005)	3/15/05
SDWA-09A	Written presentation, Issue 10: Southern Delta Electrical Conductivity South Delta Water Agency (March 2005) Note: This is a written version of the Power Point presentation and includes additional materials.	3/15/05
SDWA-09B	Letter, Cover letter for materials contained in exhibit SDWA-09A (3/11/05)	3/15/05
SDWA-10	Letter, Re: Comments to Periodic Review of the 1995 Water Quality Control Plan (6/3/05)	6/3/05
SDWA-11	Report, Chapter VII Effects of Operation of CVP and SWP Export[s] Pumps Near Tracy	6/3/05

South Delta Water Agency (continued)		
Exhibit Number	Description	Date Received
SDWA-12	Report, Water Quality Considerations for the South Delta Water Agency	6/3/05
SDWA-13	Statement, Outline of Testimony of Alexander Hildebrand on South Delta Agriculture	6/3/05
SDWA-14	Report, Regulation of the Agricultural Drainage to the San Joaquin River (August 1987)	6/3/05
SDWA-15	Letter, Re: Periodic Review of the Bay-Delta 1995 Water Quality Control Plan(3/1/06)	3/1/06
SDWA-16	SDWA submitted numerous exhibits and documents from the State Water Board's Delta Salinity CDO and WQRP hearing. These documents are available for viewing at: http://www.waterrights.ca.gov/Hearings/usbr_dwr_cdo_hearing.html	3/1/06
Stockton East Water District		
Exhibit Number	Description	Date Received
SEWD-01	Letter, RE: Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento – San Joaquin Delta Estuary and Attachments (3/21/05)	3/21/05
SEWD-02	Letter, RE: Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento – San Joaquin Delta Estuary (6/3/05)	6/3/05
SEWD-03	Attachment, Final Written Comments of Stockton East Water District (6/3/05)	6/3/05
SEWD-04	Attachment, Public Law 108-361	6/3/05
San Joaquin River Exchange Contractors Water Authority		
Exhibit Number	Description	Date Received
SJEC-01	Statement, Testimony of the San Joaquin River Exchange Contractors: Testimony of Charles Burt on Issue 2: Southern Delta Electrical Conductivity (3/14/05)	3/14/05
SJEC-02	Statement, Testimony of the San Joaquin River Exchange Contractors: Testimony of Chris White, P.E. on Issue 2: Southern Delta Electrical Conductivity (3/14/05)	3/15/05
SJEC-03	Power Point presentation, Searching for <u>Reasonable</u> Solutions to an Imperfect Situation (3/14/05)	3/15/05
San Joaquin River Group Authority		
Exhibit Number	Description	Date Received
SJRG-01	Letter, Transmittal Letter (3/9/05)	3/9/05
SJRG-02	Article, Irrigation Water Salinity and Crop Production (2002)	3/9/05
SJRG-03	Article, An Approach to Develop Site-Specific Criteria for Electrical Conductivity to Protect Agricultural Beneficial Uses that Accounts for Rainfall (July 2004)	3/9/05
SJRG-04	Article, Evaluation of Revised Salinity Standard at Vernalis	3/9/05
SJRG-05	Article, The Economic Impacts of Reducing Corn and Dry Bean Yields in a Portion of San Joaquin County, California	3/9/05

San Joaquin River Group Authority (continued)		
Exhibit Number	Description	Date Received
SJRG-06	Statement, Presentation of James R. Brownell, PhD (2005)	3/9/05
SJRG-07	Statement, Presentation of Daniel B. Steiner Concerning San Joaquin River Hydrology and Alternative Flow and Quality Objectives at Vernalis (March 2005)	3/9/05
SJRG-08	Statement, Presentation of William R. Johnston, P. E. Concerning Southern Delta Electrical Conductivity Water Quality Objectives (March 2005)	3/9/05
SJRG-09	Power Point presentation, Southern Delta Electrical Conductivity Water Quality Objectives (3/14/05)	3/9/05
SJRG-10	Letter, Re: Comments on DO - TMDL (1/26/05)	3/9/05
SJRG-11	Power Point presentation, Draft Recommendations of the San Joaquin Water Quality Management Group (3/14/05)	3/9/05
SJRG-12	Statement, Draft Summary Recommendations of the San Joaquin River Water Quality Management Group for Meeting the Water Quality Objectives for Salinity Measured at Vernalis and Dissolved Oxygen in the Stockton Deep Water Ship Channel (Draft dated 2/22/05)	3/9/05
SJRG-13	Power Point presentation, CALSIM II - San Joaquin River Basin Refinements and Results (3/14/05)	3/14/05
SJRG-14	Spreadsheet, Vernalis Flows under SJRGA proposed alternative Water Quality Objective (3/15/05)	3/15/05
SJRG-15	Statement, Public Workshop Comments Issue 9 (VAMP) (3/11/05)	3/14/05
SJRG-16	Power Point presentation, Summary of Presentations by Tim O'Laughlin (3/30/05)	3/15/05
SJRG-17	Table, Simulated Flow Change at Vernalis	3/15/05
SJRG-18	Table, Reduced Vernalis Flows and Do Exceedances at SDWSC (3/14/05)	3/15/05
SJRG-19	Statement, San Joaquin River Group Authority Recommendations on the River Flows: San Joaquin River at Airport Way Bridge, Vernalis: February - April 14 and May 16 - June	3/17/05
SJRG-20	Various Figures and Tables	3/17/05
SJRG-21	Various Figures and Tables	3/17/05
SJRG-21A	Letter, Re: San Joaquin River Group Authority (3/17/05) Note: This is a cover letter for SJRG-19, SJRG-20, and SJRG-21	3/17/05
SJRG-22	Power Point presentation, Recommendations of the San Joaquin River Group Authority: San Joaquin River Flows Airport Way Bridge, Vernalis February—April 14 And May 16—June (3/21/05)	3/21/05
SJRG-23	Statement, Comments and Recommendations Regarding Feb-June Flow Objectives (Issue #8) Of The State Water Resources Control Board Water Quality Control Plan For The San Francisco Bay/Sacramento-San Joaquin Delta Estuary (6/3/05)	6/3/05
SJRG-24	Report, Fischer Delta Model Study, Fate of a Conservative Tracer During Water Years 2000-2001 (6/2/05)	6/3/05
SJRG-25	Report, The Effect of Delta Hydrodynamic Conditions on San Joaquin River Juvenile Salmon (May 2005)	6/3/05
SJRG-26	Statement, Response to the Bay Institute March 21, 2005 Submittal: Bay Delta Plan Periodic Review/Vernalis Flows (5/31/05)	6/3/05
SJRG-27	Report, Evaluation of the Fate of San Joaquin River Flow Water Years 1964 and 1988 (6/2/05)	6/3/05

San Joaquin River Group Authority (continued)		
Exhibit Number	Description	Date Received
SJRG-28	Memorandum, Preliminary Review of Statistical Analysis Presented in "Issue 8. River Flows San Joaquin River at Airport Way Bridge...Comments of the California Department of Fish and Game (5/27/05)	6/3/05
SJRG-29	Report, AFRP Working Paper Flows Are Not AFRP Recommended Flows and Are Not Reasonable	6/3/05
SJRG-30	Memorandum, Analysis of Bay Institute Proposed Flows (5/3/05)	6/3/05
SJRG-31	Statement, San Joaquin River Group Authority Observations and Comments on Salmon Narrative Objective (May 2005)	6/3/05
SJRG-32	Report, Juvenile Chinook Salmon Abundance, Distribution, and Survival in the Sacramento-San Joaquin Estuary (2001)	6/3/05
SJRG-33	Qualifications of SJRGA expert witnesses	6/3/05
SJRG-34	Statement, Comments and Recommendations Regarding South Delta Electrical Conductivity Objectives (Issue #10) Of The State Water Resources Control Board Water Quality Control Plan For The San Francisco Bay/Sacramento-San Joaquin Delta Estuary (6/3/05)	6/3/05
SJRG-34A	Title Page, Appendix I (6/3/05)	6/3/05
SJRG-34B	Title Page, Appendix II (6/3/05)	6/3/05
SJRG-35	Statement, Appendix A, Terminology	6/3/05
SJRG-36	Tables, Appendix B, Complied Crop Data	6/3/05
SJRG-37	Figures and Tables, Appendix C, Vernalis Flow And Quality Data	6/3/05
SJRG-38	Memorandum, San Joaquin River Basin Operations – Goodwin "No Relax" Simulation (5/11/05)	6/3/05
SJRG-39	Figures, Appendix G, Fischer Delta Model Simulated Flow Split Percentages	6/3/05
SJRG-40	Figure, Hydric Soil Lists USDA Soil Conservation Service (March 1992)	3/9/05
SJRG-41	Figure, District Crop Production Reports for 2003 and 2004 Banta Carbona Irrigation District	3/9/05
SJRG-42	Figure, Department of Water Resources Land Use Survey (1996) San Joaquin County, California	3/9/05
SJRG-43	Figure, USDA Soil Conservation Service. Soil Survey Maps for San Joaquin County, Sheets 1 - 37	3/9/05
SJRG-44	Figure, USDA Soil Conservation Service Soil Survey of San Joaquin County	3/9/05
SJRG-45	Letter, Re: Periodic Review Related Proceeding Since June 2005 (2/27/06)	3/2/06
SJRG-46	Plan, Water Quality Control Plan for Salinity for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (May 1991) Note: This document is the same as CCWD-16A	3/2/06
SJRG-47	Report, Review Panel Report San Joaquin River Valley Calsim II Model Review (1/12/06)	3/2/06
SJRG-48	Report, Comments and Recommendations Regarding California's 2006 Clean Water Act § 303 (d) List of Water Quality Limited Segments (1/30/06)	3/2/06
SJRG-49	Photos, South Delta Bean Fields (various dates)	3/2/06

San Joaquin River Group Authority (continued)		
Exhibit Number	Description	Date Received
SJRG-50	Report, Peer Review of Water Temperature Objectives Used as Evaluation Criteria for the Stanislaus – Lower San Joaquin River Water Temperature Modeling and Analysis (7/29/04)	3/2/06
SJRG-51	Map, Department of Water Resources Land Use Survey Tracy Quadrangle(1996)	3/2/06
SJRG-52	Map, Department of Water Resources Land Use Survey Vernalis Quadrangle (1996)	3/2/06
SJRG-53	Report, San Joaquin River Agreement 2000 Technical Report Vernalis Adaptive Management Plan (VAMP)	3/2/06
SJRG-53A	Report, San Joaquin River Agreement 2000 Technical Report Vernalis Adaptive Management Plan (VAMP), Appendix A VAMP Hydrology and Operational Information	3/2/06
SJRG-53B	Report, San Joaquin River Agreement 2000 Technical Report Vernalis Adaptive Management Plan (VAMP), Appendix B Fall Water Transfer and Delivery Information	3/2/06
SJRG-53C	Report, San Joaquin River Agreement 2000 Technical Report Vernalis Adaptive Management Plan (VAMP), Chinook Salmon Survival Investigations	3/2/06
SJRG-54	Report, 2001 Annual Technical Report, San Joaquin River Group Authority	3/2/06
SJRG-54A	Report, 2001 Annual Technical Report, Appendicies	3/2/06
SJRG-55	Report, 2002 Annual Technical Report, San Joaquin River Group Authority	3/2/06
SJRG-56	Report, 2003 Annual Technical Report, San Joaquin River Group Authority Note: This document is the same as DOI-35A	3/2/06
SJRG-56A	Report, 2004 Annual Technical Report, Executive Summary	3/2/06
SJRG-56B	Report, 2004 Annual Technical Report, Chapter 1	3/2/06
SJRG-56C	Report, 2004 Annual Technical Report, Chapter 2	3/2/06
SJRG-56D	Report, 2004 Annual Technical Report, Chapter 3	3/2/06
SJRG-56E	Report, 2004 Annual Technical Report, Chapter 4	3/2/06
SJRG-56F	Report, 2004 Annual Technical Report, Chapter 5	3/2/06
SJRG-56G	Report, 2004 Annual Technical Report, Chapter 6	3/2/06
SJRG-56H	Report, 2004 Annual Technical Report, Chapter 7	3/2/06
SJRG-56I	Report, 2004 Annual Technical Report, References	3/2/06
SJRG-56J	Report, 2004 Annual Technical Report, Appendix Table of Contents	3/2/06
SJRG-56K	Report, 2004 Annual Technical Report, Appendix A	3/2/06
SJRG-56L	Report, 2004 Annual Technical Report, Appendix B	3/2/06
SJRG-56M	Report, 2004 Annual Technical Report, Appendix C	3/2/06
SJRG-56N	Report, 2004 Annual Technical Report, Appendix D	3/2/06
SJRG-57A	Report, 2005 Annual Technical Report, Executive Summary	3/2/06
SJRG-57B	Report, 2005 Annual Technical Report, Chapter 1	3/2/06
SJRG-57C	Report, 2005 Annual Technical Report, Chapter 2	3/2/06
SJRG-57D	Report, 2005 Annual Technical Report, Chapter 3	3/2/06
SJRG-57E	Report, 2005 Annual Technical Report, Chapter 4	3/2/06

San Joaquin River Group Authority (continued)		
Exhibit Number	Description	Date Received
SJRG-57F	Report, 2005 Annual Technical Report, Chapter 5	3/2/06
SJRG-57G	Report, 2005 Annual Technical Report, Chapter 6	3/2/06
SJRG-57H	Report, 2005 Annual Technical Report, Chapter 7	3/2/06
SJRG-57I	Report, 2005 Annual Technical Report, References	3/2/06
SJRG-57J	Report, 2005 Annual Technical Report, Appendix Table of Contents	3/2/06
SJRG-57K	Report, 2005 Annual Technical Report, Appendix A	3/2/06
SJRG-57L	Report, 2005 Annual Technical Report, Appendix B	3/2/06
SJRG-57M	Report, 2005 Annual Technical Report, Appendix C	3/2/06
SJRG-57N	Report, 2005 Annual Technical Report, Appendix D	3/2/06
SJRG-58A	Figure, 1980 Report Methodology	3/2/06
SJRG-58B	Letter, Re: Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for The Control Program for Factors Contributing to the Dissolved Oxygen Impairment in the Stockton Deep Water Ship Channel, Draft Final Staff Report, 24 May 2004 (6/24/04)	3/2/06
SJRG-58C	Letter, Re: Comments on the Central Valley Regional Water Quality Control Board Basin Plan Amendments for the Dissolved Oxygen the Stockton Deep Water (10/28/05)	3/2/06
SJRG-58D	Figure, Comparison of Dry Years: Today and Pre-Project	3/2/06
SJRG-58E	Presentation, Dissolved Oxygen TMDL (10/6/05)	3/2/06
SJRG-58F	Figure, Stockton Deep Water Ship Channel Dissolved Oxygen Objective Violations and Magnitude of Compliance	3/2/06
SJRG-58G	Petition, Petition for Reconsideration of SWRCB Resolution 2005-0086 (12/5/05)	3/2/06
SJRG-58H	Figures, 1980 Report Methodology	3/2/06
SJRG-58I	Table, Unimpaired Runoff at Vernalis - DWR	3/2/06
SJRG-58J	Figures, Flow at Vernalis	3/2/06
SJRG-59A	SJREC-03	3/2/06
SJRG-59B	Central Valley Regional Board Notice, Notice of Public Workshop for the Development of a Proposed Basin Plan Amendment to Establish New Salinity and Boron Water Quality Objectives in the Lower San Joaquin River (LSJR) upstream of Vernalis and a Total Maximum Daily Load (TMDL) to implement Salinity and Boron Water Quality Objectives (12/20/05) http://www.waterboards.ca.gov/centralvalley/programs/tmdl/upstream-salt-boron/public-notice20Dec05.pdf	3/2/06
SJRG-59C	DWR-21	3/2/06
SJRG-59D	DWR-22	3/2/06
SJRG-59E	State Water Board Notice, Salinity Issues in the Central Valley (10/21/05)	3/2/06
SJRG-59F	SJEC-1	3/2/06
SJRG-59G	SJEC-2	3/2/06
SJRG-59H	Letter, RE: Comments of the San Joaquin River Tributaries Association on the Proposed Amendments to the Water Quality Control Plan for the Control of Salt and Boron Discharges Into the San Joaquin River (1/24/04)	3/2/06

San Joaquin River Group Authority (continued)		
Exhibit Number	Description	Date Received
SJRG-59I	Presentation, Salt & Boron TMDL (11/15/05)	3/2/06
SJRG-60	SDWA submitted numerous exhibits and documents from the State Water Board's Delta Salinity CDO and WQRP hearing. These documents are available for viewing at: http://www.waterrights.ca.gov/Hearings/usbr_dwr_cdo_hearing.html	3/2/06
SJRG-61	Letter, Re: Periodic Review – Updated Proceedings (3/13/06)	3/15/06
SJRG-61A	Report, A Review of the Administrative Record for the Central Valley's Water Quality Control Plan (September 2003)	3/15/06
SJRG-61B	Report, South Delta Improvements Program Draft Environmental Impact Statement/Environmental Impact Report, Volume I (October 2005)	3/15/06
SJRG-61C	Report, South Delta Improvements Program Draft Environmental Impact Statement/Environmental Impact Report, Volume II (October 2005)	3/15/06
San Luis Delta Mendota Water Authority		
Exhibit Number	Description	Date Received
SLDM-01	Power Point presentation, SWRCB Workshop on DCC and Salmon - Joint SWP & CVP Presentation (11/15/04)	11/16/04
SLDM-02	Power Point presentation, Photographs of the Delta Cross Channel	11/16/04
SLDM-03	Memorandum, Supplementing Information and Providing Additional Comments on the Delta Cross Channel Gates Operation and Salmon Protection Objective (12/16/04)	12/20/04
SLDM-03A	Report, Georgiana Slough Acoustic Barrier Applied Research Project: Results of 1994 Phase II Field Tests (11/96)	12/20/04
SLDM-03B	Report, Central Valley Project Improvement Act – 10 Years of Progress, DRAFT (1993 – 2002)	12/20/04
SLDM-03C	Report, California Bay-Delta Authority – 2003 Annual Report	12/20/04
SLDM-03D	Report, CALFED Bay-Delta Program Ecosystem Restoration Program Multi-Year Program Plan (Years 5-8) (July 2004)	12/20/04
SLDM-03E	Presentation, Salmon Conceptual Model and Basis for EWA Decisions (9/8/04)	12/20/04
SLDM-03F	Brief Curriculum Vitae, Bryan F.J. Manly (11/24/04)	12/20/04
SLDM-03G	Report, Analysis of Data From the Salmon Smolt Survival Experiments (11/24/04)	12/20/04
SLDM-03H	Report, Modeling paired release-recovery data in the presence of survival and capture heterogeneity with application to marked juvenile salmon (1/16/03)	12/20/04
SLDM-03I	Report, Modeling the Survival of Chinook Salmon Smolts Outmigrating Through the Lower Sacramento River System (December 2002)	12/20/04
SLDM-03J	Report, Central Valley Project, Delta-Mendota Canal, Designers' Operating Criteria (September 1951)	12/20/04
SLDM-04	Letter, Memorandum Supplementing Information and Providing Additional Comments on the Delta Cross Channel Gates Operations and Salmon Protection Objectives, filed on behalf of the San Luis & Delta – Mendota Water Authority (12/20/04)	12/20/04
SLDM-05	Power Point presentation, Recommendations on export limits	1/18/05

San Luis Delta Mendota Water Authority (continued)		
Exhibit Number	Description	Date Received
SLDM-06	Power Point presentation, Delta Smelt, Managing Juvenile Entrainment	1/18/05
SLDM-06A	Letter, Memorandum Supplementing Information and Providing Additional Comments on the Chloride Objectives, Compliance Location at Contra Costa Canal at Pumping Plant No. 1, and Potential New Objectives	2/14/05
SLDM-06B	Report, California Urban Water Agencies, Bay-Delta Water Quality Evaluation Draft Final Report	2/14/05
SLDM-06C	California Bay-Delta Program, Drinking Water Quality Program Multi-Year Program Plan (Years 5 - 8)	2/14/05
SLDM-06D	California Bay-Delta Public Advisory Committee, CALFED Drinking Water Quality Conceptual Framework	2/14/05
SLDM-06E	Flow Chart, CALFED Drinking Water Subcommittee Equivalent Level of Public Health Protection Draft Decision Tree. Last updated 8/28/02	2/14/05
SLDM-07	Memorandum, Memorandum Supplementing Information and Providing Final Comments on the Materials Presented in the Workshop Regarding Consideration of Potential Amendments or Revisions of the Water Quality Control Plan For The San Francisco Bay/Sacramento-San Joaquin Delta Estuary (6/3/05)	6/3/05
SLDM-08	Report, Westside Integrated Resources Management Plan (October 2003)	6/3/05
SLDM-09	Table, 2004 Estimated Farm Gate Value of Westside Crops Irrigated With Imported CVP Water	6/3/05
SLDM-10	Report, San Francisco Estuary Project, Conclusions and Recommendations of Members of the Scientific, Policy, and Management Communities of the Bay/Delta Estuary (1993)	6/3/05
SLDM-11	Table, <u>Percent</u> of All Tagged Salmon Smolts Released During 1993-8 That Suffered Direct Mortality at Export Pumps	6/3/05
SLDM-12	Report, Modeling paired-release recovery data in the presence of survival and capture heterogeneity with application to marked juvenile salmon (1/16/03)	6/3/05
SLDM-13	Report, Review of Papers Pertaining to Salmon Survival in Relationship to the Closing of the Delta Cross Channel Gates and Export Pumping (12/29/04)	6/3/05
SLDM-14	Various figures relating to fish abundance	6/3/05
SLDM-15	Memorandum, Joint Memorandum filed with the State Water Contractors regarding the Delta Outflow Objective (8/24/05) Note: These are joint comments filed by both the San Luis Delta Mendota Water Users Authority and The State Water Contractors	8/25/05
SLDM-15A	Joint Memorandum Exhibit A, Proposed Plan Amendment regarding the Delta Outflow Objective	8/25/05
SLDM-15B	Joint Memorandum Exhibit B, Proposed Plan Amendment regarding the Delta Outflow Objective	8/25/05
SLDM-15C	Joint Memorandum Exhibit C, Proposed Plan Amendment regarding the Delta Outflow Objective	8/25/05
SLDM-15D	Joint Memorandum Exhibit D, Proposed Decision Tree regarding the Delta Outflow Objective	8/25/05
SLDM-15E	Joint Memorandum Exhibit E, Draft Technical Memorandum, Summary of Flexible D-1641 X2 Standard Gaming Scenarios – Common Scenarios (8/23/05)	8/25/05

San Luis Delta Mendota Water Authority (continued)		
Exhibit Number	Description	Date Received
SLDM-15F	Joint Memorandum Exhibit F, Draft Technical Memorandum, Summary of Flexible D-1641 X2 Standard Gaming Scenarios – Water Agency Scenarios (8/23/05)	8/25/05
SLDM-16A	Power Point presentation, Introduction (Joint presentation by the San Luis Delta Mendota Water Authority and the State Water Contractors regarding Flexing the Delta Outflow Objective) Note: These are joint comments filed by both the San Luis Delta Mendota Water Users Authority and The State Water Contractors	8/31/05
SLDM-16B	Power Point presentation, Gaming to Study Flexing the X2 Standard (8/31/05) Note: These are joint comments filed by both the San Luis Delta Mendota Water Users Authority and The State Water Contractors	8/31/05
SLDM-16C	Power Point presentation, Conclusion (Joint presentation by the San Luis Delta Mendota Water Authority and the State Water Contractors regarding Flexing the Delta Outflow Objective) Note: These are joint comments filed by both the San Luis Delta Mendota Water Users Authority and The State Water Contractors	8/31/05
SLDM-17	Cover Letter, Re: August 31, 2005 Workshop Regarding Amendments or Revisions to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (9/19/05) Note: These are joint comments filed by the San Luis Delta Mendota Water Users Authority, State Water Contractors and the Kern County Water Agency	9/19/05
SLDM-18	Memorandum, Closing Memorandum on Flexing (9/19/05) Note: These are joint comments filed by the San Luis Delta Mendota Water Users Authority, State Water Contractors and the Kern County Water Agency	9/19/05
SLDM-19	Figure, “gaming model schematic” Note: These are joint comments filed by the San Luis Delta Mendota Water Users Authority, State Water Contractors and the Kern County Water Agency	9/19/05
SLDM-20	Power Point Presentation, Interface of Policy and Science The evolving dynamic between prescriptive standards and flexible tools (11/9/2004) Note: These are joint comments filed by the San Luis Delta Mendota Water Users Authority, State Water Contractors and the Kern County Water Agency	9/19/05
SLDM-21	Power Point Presentation, An Introduction to the Delta Smelt Risk Assessment Matrix Note: These are joint comments filed by the San Luis Delta Mendota Water Users Authority, State Water Contractors and the Kern County Water Agency	9/19/05
SLDM-22	Article, Water Conservation Efforts in Sacramento, Calif. Area Kill Thousands of Fish (3/5/03) Note: These are joint comments filed by the San Luis Delta Mendota Water Users Authority, State Water Contractors and the Kern County Water Agency	9/19/05

San Luis Delta Mendota Water Authority (continued)		
Exhibit Number	Description	Date Received
SLDM-23	Article, Federal Officials Revisit Sacramento, Calif. -Area Habitat Protections (3/6/03) Note: These are joint comments filed by the San Luis Delta Mendota Water Users Authority, State Water Contractors and the Kern County Water Agency	9/19/05
State Water Contractors		
Exhibit Number	Description	Date Received
SWC-01	Power Point presentation, Salmon Narrative Objective, Position of the State Water Contractors (10/27/04)	10/28/04
SWC-02	Power Point presentation, Trends in Central Valley Chinook Salmon In-River Escapement (October 2004)	10/28/04
SWC-03	Report, Georgiana Slough Acoustic Barrier Applied Research Project: Results of 1994 Phase II Field Tests (5/96)	11/16/04
SWC-04	Letter, Supplemental Information and Comments by Kern County Water Agency and State Water Contractors (12/16/04)	12/16/04
SWC-05	Table, Flows Required to Meet Various Chloride Levels in Old River Near Rock Slough	1/12/05
SWC-06	Power Point presentation, Review of the 1995 Water Quality Control Plan For the San Francisco Bay/Sacramento San Joaquin Delta Estuary (X2 Standard)	1/18/05
SWC-07	Power Point Presentation, Flexing the X2 Standard: SWRCB Workshop on X2 (1/17/05)	1/18/05
SWC-08	Letter, Supplemental Comments of the State Water Contractors on Workshop Topic 4 (2/15/05)	2/14/05
SWC-09	Table, Various tables including Vernalis Flow tables from SJRGA	3/21/05
SWC-10	Letter, Cover letter for materials contained in SWC-11 (6/3/05)	6/3/05
SWC-11	Statement, Closing Statement and Recommendations of the State Water Contractors Regarding the Periodic Review of the Water Quality Control Plan for the Sacramento-San Joaquin River Delta (6/4/05)	6/3/05
State Water Resources Control Board		
Exhibit Number	Description	Date Received
SWRCB-01	List of Ongoing Studies Related to the Dissolved Oxygen Control Program from the Central Valley Regional Water Quality Control Board (May 15, 2006)	N/A
SWRCB-02	DWR Actions to Control Salinity in the San Joaquin River Upstream of Vernalis (April 5, 2006)	N/A
SWRCB-03	Central Valley Regional Water Quality Control Board Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control Program for Factors Contributing to the Dissolved Oxygen Impairment in the Stockton Deep Water Ship Channel Final Staff Report (February 28, 2005)	N/A
SWRCB-04	Central Valley Regional Water Quality Control Board Resolution No. R5-2005-0005, with Attachment 1	N/A

State Water Resources Control Board (continued)		
Exhibit Number	Description	Date Received
SWRCB-05	State Water Board Resolution 2005-0086 Approving an Amendment to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins to Control Factors Contributing to Dissolved Oxygen Impairment in the Stockton Deep Water Ship Channel	N/A
SWRCB-06	Attachment 1 to State Water Board Resolution 2005-0086	N/A
SWRCB-07	Attachment 2 to State Water Board Resolution 2005-0086	N/A
SWRCB-08	State Water Board Resolution 2005-0087 Approving an Amendment to the Water Quality Control Plan for the Central Valley Region to Incorporate a Total Maximum Daily Load (TMDL) for the Control Of Salt And Boron Discharges into the Lower San Joaquin River	N/A
SWRCB-09	Attachment 1 to State Water Board Resolution 2005-0087	N/A
SWRCB-09A	Attachment 2 to State Water Board Resolution 2005-0087	N/A
SWRCB-10	San Luis Unit Feature Reevaluation Draft EIS (May 2005)	N/A
SWRCB-11	Report, Interagency Ecological Program Synthesis of 2005 Work to Evaluate the Pelagic Organism Decline (POD) in the Upper San Francisco Estuary	N/A
SWRCB-12	Report, Digest of Federal Resource Laws of Interest to the U.S. Fish and Wildlife Service. Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990	N/A
SWRCB-13	Report, Annual Report to the Governor and the Legislature on the Significant Accomplishments of the Delta Protection Commission for the Year 2005	N/A
SWRCB-14	Code, California Fish and Game Code	N/A
SWRCB-15	Code, National Invasive Species Act of 1996	N/A
SWRCB-16	Report, Delta Region Drinking Water Quality Management Plan Draft Final (June 2005)	N/A
SWRCB-17	Report, A Framework for Regional "Equivalent Level of Public Health Protection" (ELPH) Plans, Draft, (12/20/05)	N/A
SWRCB-18	Report, Final Environmental Impact Report for Implementation of the 1995 Bay/Delta Water Quality Control Plan (November 1999) http://www.waterrights.ca.gov/baydelta/eir/	N/A
SWRCB-19	Report, Meeting Flow Objectives for the San Joaquin River Agreement 1999-2010 Environmental Impact Statement and Environmental Impact Report, Final (January 28, 1999) http://www.sjrg.org/EIR/eiseir.htm	N/A
Water Forum		
Exhibit Number	Description	Date Received
WF-01	Report, Impacts on Lower American River Salmonids and Recommendations Associated with Folsom Reservoir Operations to meet Delta Water Quality Objectives and Demands (January 2005)	1/12/05
WF-02	Power Point presentation, Impacts on Lower American River Salmonids and Recommendations Associated with Folsom Reservoir Operations to meet Delta Water Quality Objectives and Demands (January 2005)	1/12/05

Water Forum, (continued)		
Exhibit Number	Description	Date Received
WF-03	Cover Letter and Report, Addendum to the Report Titled Impacts on the Lower American River Salmonids and Recommendations Associated with Folsom Reservoir Operations to meet Delta Water Quality Objectives and Demands (September 2005)	9/15/05
Wim Kimmerer		
Exhibit Number	Description	Date Received
WK-01	Power Point presentation, Population Trends and the influence of restoration actions on winter-run Chinook salmon	11/15/04
Water Operations Management Team (CalFED)		
Exhibit Number	Description	Date Received
WOMT-01	Statement, Water Operations Management Team, Comments to the State Water Resources Control Board Regarding Flexing the Outflow Objective at Port Chicago, Proposed Revision to the 1995 Bay Delta Water Quality Control Plan (6/3/05)	6/7/05
WOMT-02	Statement, Water Operations Management Team, Comments to the State Water Resources Control Board Regarding Flexing the Outflow Objective at Port Chicago, Proposed Revision to the 1995 Bay Delta Water Quality Control Plan (8/29/05)	8/30/05
Westlands Water District		
Exhibit Number	Description	Date Received
WWD-01	Memorandum, Westlands Water District Memorandum Providing Comments On The Materials Presented In The Public Workshops Re: Consideration of Potential Amendments or Revisions of the Water Quality Control Plan For The San Francisco Bay/Sacramento-San Joaquin Delta Estuary (6/3/05)	6/3/05
WWD-02	Brief, Reply Brief of Westlands Water District for Phases Two through Seven (7/12/99)	6/3/05
WWD-03	Report, A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley (September 1990)	6/3/05
* Additional files containing supporting information were submitted with these exhibits. These additional supporting files are not posted. Parties wishing to obtain copies of these additional supporting files should contact the agency that submitted the exhibit.		



Water Boards

STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

P.O. Box 100, Sacramento, CA 95812-0100 • www.waterboards.ca.gov
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Office of Public Affairs: (916) 341-5254
Office of Legislative Affairs: (916) 341-5251

Financial Assistance information: (916) 341-5700
Water Quality information: (916) 341-5455
Water Rights information: (916) 341-5300

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARDS

NORTH COAST REGION (1)

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5550 Skylane Blvd., Suite A
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CENTRAL COAST REGION (3)

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SAN FRANCISCO BAY REGION (2)

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11020 Sun Center Drive, Suite 200
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COLORADO RIVER BASIN REGION (7)

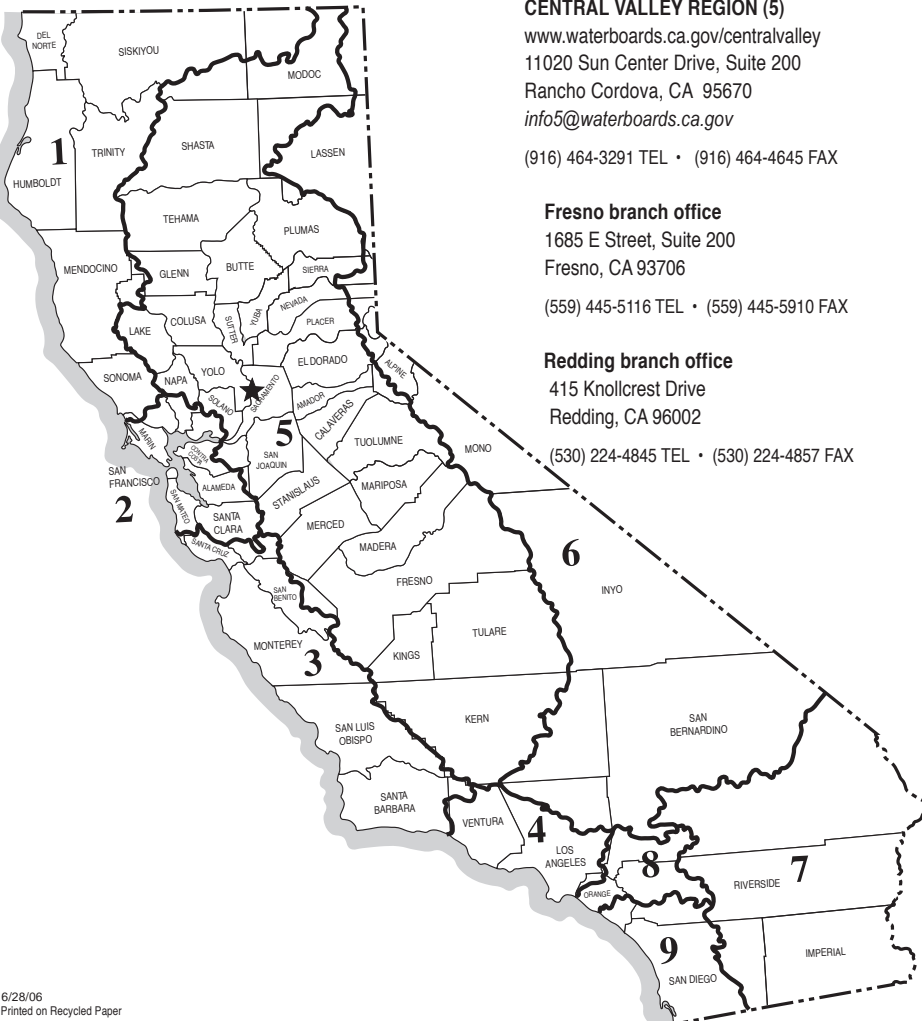
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SANTA ANA REGION (8)

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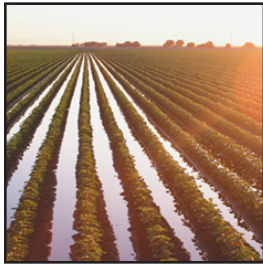


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Response to Comments, Appendix 3 to the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

December 13, 2006



Water Boards
STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Division of Water Rights
December 2006



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Arnold Schwarzenegger, *Governor*

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STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

RESPONSE TO COMMENTS,
APPENDIX 3 TO THE
2006 WATER QUALITY CONTROL PLAN
FOR THE
SAN FRANCISCO BAY/
SACRAMENTO-SAN JOAQUIN
DELTA ESTUARY

DECEMBER 13, 2006

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ACKNOWLEDGEMENTS

We wish to acknowledge the following people and organizations for their contribution to this report:

- Barbara Leidigh in the Office of Chief Counsel, for providing the legal support and editing
- Linda Valin and Jeanice Tipps in the Division of Water Rights, for editing, typing, and formatting the documents
- Sharon Norton, Maria Bozionelos, Chris Whittington, and Dale Oliver in the Division of Water Rights Graphics Unit, for the graphics, maps and charts
- Numerous interested parties that have provided suggestions and input on draft documents

Introduction

On September 29, 2006, the State Water Resources Control Board (State Water Board) released for public review, a draft amended version of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (draft 2006 Plan). The draft 2006 Plan was developed after the State Water Board held a public workshop to receive information regarding amendment of the current Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, adopted in May of 1995 (1995 Plan).

The State Water Board's water quality planning process is an exempt regulatory program under the California Environmental Quality Act. The State Water Board, however, is required to prepare a written report that identifies the proposed activity, reasonable alternatives, and any mitigation to minimize significant effects of the activity. (Cal. Code Regs., tit. 23, § 3777.) The Plan Amendment Report, Appendix 1, satisfies the requirement of a written report. The State Water Board also is required to prepare written responses to any comments it receives on the report that raise significant environmental points. (Cal. Code Regs., tit. 23, § 3779.)

On November 13, 2006, the State Water Board held a hearing to consider adoption of the draft 2006 Plan, and interested parties submitted oral and written comments regarding the draft 2006 Plan. The State Water Board has reviewed these comments, prepared responses to the comments on the draft 2006 Plan, and, where appropriate, made revisions to the draft 2006 Plan and its appendices. The revisions to the draft 2006 Plan and its appendices are hereinafter referred to as the revised draft 2006 Plan. This appendix to the 2006 Plan contains the State Water Board's responses to comments received regarding the draft 2006 Plan.

Comments

Most parties submitted both oral and written comments. Two parties, the Committee to Save the Mokelumne and the California Sport Fishing Alliance, submitted only oral comments. Parties that submitted both oral and written comments generally summarized their written comments, and accordingly, the State Water Board has responded to these parties' written comments. Where parties only submitted oral comments, the State Water Board has responded to the oral comments. Additionally, the Department of Fish and Game submitted two comment letters, and these comments are addressed separately. For reference, the comment letters and oral comments have been numbered as follows:

1. Contra Costa Water District
2. Delta Wetlands
3. Environmental Defense
4. National Marine Fisheries Service
5. Northern California Water Association
6. South Delta Water Agency / Central Delta Water Agency
7. California Department of Fish and Game (November 8 letter)
8. California Department of Water Resources

9. County of San Joaquin
10. Glenn-Colusa Irrigation District
11. Kern County /State Water Contractors
12. United States Department of the Interior
13. San Luis Delta Mendota Water Authority
14. Bay Institute
15. Stockton East Water District
16. Suisun Resource Conservation District
17. San Joaquin River Group Authority
18. San Joaquin Audubon Society
19. California Urban Water Agency
20. California Department of Fish and Game (November 17 letter)
21. Committee to Save the Mokelumne*
22. California Sport Fishing Protection Alliance*

* Oral comments only.

Responses to Comments

This appendix includes copies of each of the comment letters reproduced in their entirety, except for attachments and enclosures included with comment letters. Attachments and enclosures are available on the web at:

<http://www.waterrights.ca.gov/baydelta/2006wqcpcomments.html>

Comment letters in this appendix are annotated with comment numbers. Written responses to comments refer to these numbered comments. Comment 3-4, for example refers to the fourth comment in comment letter three.

As described in the September 29, 2006 Notice of Public Hearing to consider this amendment of the 1995 Plan, the purpose of the hearing was to receive comments and recommendations regarding the draft 2006 Plan, specifically the timeline to address emerging issues and the changes from the 1995 Plan. Many of the comments recommended changes to provisions of the 1995 Plan that are not changed in this update. These comments will, however, be considered in future updates to the Plan. Interested parties are encouraged to update and resubmit these comments particularly during the upcoming series of workshops scheduled for 2007 and described in the draft 2006 Plan. To be of greatest use to the Board, comments should, when resubmitted, include specific proposed amendments to objectives and be accompanied by substantial evidence to support the proposed amendment. For this Plan update, however, response to such comments in many cases is limited to "comment noted-- this comment does not address the environmental effects of a change in the Plan; the comment and any recommendations will be considered during future updates to the Plan." Page numbers in the response to comments refer to pages in the November 29, 2006 revised draft Plan and revised draft Plan Amendment Report.

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
1-1	CCWD	Drinking water protections	Comment noted-- this comment does not address the environmental effects of a change in the Plan; the comment and any recommendations will be considered during future updates to the Plan. The State Water Board is actively involved in the Central Valley Drinking Water Policy (CVDWP) and (through its Division of Water Quality) has commented on its development. The CALFED Drinking Water Quality Program has initiated a process that may result in suggested numerical salinity objectives. That process, however, is in its initial stages developing a conceptual model for salinity in the Delta. The State Water Board is actively monitoring these processes and may, depending on the information developed, hold future public workshops to consider proposed amendments (or additions) to the objectives for the protection of municipal and industrial beneficial uses.			x
2-1	Delta Wetlands	Export limits	Comment noted-- this comment does not address the environmental effects of a change in the Plan; the comment and any recommendations will be considered during future updates to the Plan. The State Water Board intends to schedule a public workshop in response to the pelagic organism decline (POD) in Spring 2007. During this workshop the State Water Board will receive information regarding the POD and recommendations for amendment of objectives to protect fish and wildlife beneficial uses. The State Water Board will consider proposed amendments to the Export Limits objective at this public workshop.			x
3-1	Environmental Defense	Policy	Comment noted-- this comment does not address the environmental effects of a change in the Plan; the comment and any recommendations will be considered during future updates to the Plan. The State Water Board has not received any information to support the addition of new objectives to provide a level of protection equivalent to the programs mentioned, and has not conducted appropriate environmental review to support mandating these protections.			x
3-2	Environmental Defense	Delta outflow	The State Water Board intends to schedule a public workshop in response to the POD in Spring 2007. During this workshop the State Water Board will receive information regarding the POD and recommendations for amendment of objectives to protect fish and wildlife beneficial uses. The State Water Board will consider proposed amendments to the Delta Outflow objective at this public workshop.			x

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
3-3	Environmental Defense	Salmon Objective	As stated in the 2004 Staff Report and the draft 2006 Plan Amendment Report, the geographic scope of the salmon narrative objective has not at this time been expanded to include the watersheds and tributaries that feed into the Delta. This geographic limitation in the Plan could be changed in a future update to the plan.			x
3-4	Environmental Defense	San Joaquin River Flow objectives	Per Chapter IV, Section A3 of the draft Plan, "Certain water right holders in the San Joaquin Basin are authorized under their water rights licenses to provide the experimental flows specified in the SJRA until December 31, 2011, or until the SJRA is terminated, whichever occurs first. After the SJRA terminates, the State Water Board will use the information gained from the VAMP study and other pertinent information to determine what, if any, changes are needed to the pulse flow objectives. The State Water Board will hold a workshop likely in summer of 2007 in order to further evaluate the San Joaquin River Spring Flow and Pulse Flow Objectives (p. 6 of the draft Plan). At that time, the State Water Board will evaluate DFG's San Joaquin River salmon escapement model and DFG's recommended changes to the objectives and any other recommendations. Following the workshop, the State Water Board will determine what if any changes should be made to the objectives. Also see response to DFG Comment 7-1.	x	x	
4-1	NMFS	Fisheries	The State Water Board requests that NOAA Fisheries provide more information to the Board regarding the water quality requirements for the listed Green Sturgeon and Steelhead species. This item will be reviewed at the upcoming emerging issue workshop for the POD and during the requested biennial meetings to receive current fishery information.			x
4-2	NMFS	Fisheries	The State Water Board requests that NOAA Fisheries, DFG and other interested parties increase population-sampling studies in order to provide the State Water Board the information needed to establish in-Delta water quality requirements for the protection of these species, and to assist in determining a reachable goal for estimating population goals. This information should be provided to the State Water Board at one of the upcoming workshops for the narrative objective for salmon doubling.			x
4-3	NMFS	San Joaquin River flow objectives	See response to DFG comment 7-1.	x	x	

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
5-1	NCWA	Program of Implementation	Comment noted. The State Water Board acknowledges NCWAs efforts on these programs.			x
5-2	NCWA	Program of Implementation	Comment noted. The State Water Board cannot prejudge potential actions to assign water right responsibilities prior to holding a water rights hearing on a matter. Accordingly, the program of implementation for the 2006 Plan will not be changed.			x
6-1	SDWA/CDWA	Salinity	The SDWA states that it agrees with the State Water Board conclusion that there is at present time insufficient evidence to change the salinity objectives in the southern Delta. The State Water Board will commence a workshop in January 2007 to gather additional information pertaining to this matter and to initiate new studies regarding salinity in the southern Delta. As stated in the Notice for the workshop, the State Water Board may, upon submission of adequate information, develop and manage a thorough study or studies of the sources, concentrations, loads, and effects of salinity, and methods for its control in the southern Delta. Results from these studies could be used by the State Water Board to consider changing the agricultural salinity objectives for the southern Delta, or the program of implementation of these objectives.			x
6-2	SDWA/CDWA	Export limits	SDWA submitted similar comments requesting the deletion of the third sentence from footnote 18 of Table 3 of the 2006 Plan during the Periodic Review and Plan Review Workshops. SDWA did not provide substantial evidence supporting the change. Accordingly, the third sentence from footnote 18 of Table 3 of the 2006 Plan was not deleted. See also response to comment 2-1.			x
6-3	SDWA/CDWA	Salinity	Comment noted, see also response to comment 6-1.			x
7-1	DFG	SJR Spring Flow and Pulse Flow objectives	The State Water Board agrees that the Spring Flow and Pulse Flow Objectives for the San Joaquin River should be added to the list of emerging issues and scheduled for workshop later in 2007. The State Water Board will schedule a workshop after revisions are made in response to the peer review of DFG's salmon escapement model (see p. 6 of the draft Plan, and pgs. 57 & 62 of Appx. 1). Upon completion of the workshop, the State Water Board will determine what, if any, additional changes may be needed	x	x	

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
			to the objectives or their implementation. The State Water Board may determine that changes in the objectives are not appropriate until completion of the Vernalis Adaptive Management Plan (VAMP) experiments have been completed. However, it is still important to begin gathering new information now in order to facilitate the review process.			
7-2	DFG	Suisun Marsh	Comment noted.			x
7-3	DFG	Recommendations to Other agencies	Comment noted. The recommendation in the Program of Implementation is to review existing regulations; it does not suggest that greater regulation is necessary. The State Water Board recognizes that harvest regulation is one factor which affects salmon abundance. These recommendations have been carried over from the 1995 Plan. The State Water Board recognizes its obligation to regulate water quality and water use.			x
7-4	DFG	Recommendations to Other agencies	Comment noted; the State Water Board encourages DFG to continue to carefully evaluate the impact of its hatchery operations.			x
7-5	DFG	San Joaquin River Pulse Flow	The State Water Board agrees that hydrodynamic/particle tracking models are useful for evaluating the effects of pulse flows on the movement of fish eggs and very small larvae. Field experiments, however, are useful in evaluating the impact of pulse flows on larger larval forms that exhibit positive behavior with respect to these pulse flows.			x
7-6	DFG	Suisun Marsh	Comment noted.			x
7-7	DFG	San Joaquin River Pulse Flow Objectives	See response to comment 7-1, above. The competing demands of Delta fisheries (POD) and anadromous fish on barrier operation and flows will be considered at the upcoming workshops on emerging issues.	x	x	

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
7-8	DFG	San Joaquin River Pulse Flow Objectives	Comment noted. The State Water Board is aware of this problem. Issues regarding San Joaquin River flows will be addressed at the upcoming workshop described in the response to comment 7-1, above.	x		
8-1	DWR	Plan Review Process	The State Water Board has scheduled a workshop to be held January 16, 2007 regarding southern Delta salinity. Workshops are also planned for 2007 regarding climate change, the POD, and San Joaquin River flows. These workshops may result in focused amendments to the 2006 Plan, as appropriate.			x
8-2	DWR	Municipal & Industrial	Page 26 of the draft 2006 Plan and Page 39 of Appendix I to the draft 2006 Plan have been modified in response to this comment.	x	x	
8-3	DWR	Salinity	The State Water Board has added language to the Program of Implementation concerning the January 2007 workshop. This language is to be found most prominently under the heading State Regulatory Action, Chapter IV as well as numerous other places.	x	x	
8-4	DWR	Salinity	The Program of Implementation is revised in response to this comment.	x		
8-5	DWR	Salinity	The Program of Implementation is revised in response to this comment. The upcoming January 2007 workshop could result in focused amendments to the 2006 Plan, which could include the concept of phased implementation.	x	x	
8-6	DWR	Salinity	The State Water Board discusses the need for such a study under the heading Recommended Projects, Studies and Action, section ii. This subject will be considered in the January 2007 workshop.			x
8-7	DWR	Salinity	The State Water Board will commence a workshop in January 2007 to gather additional information regarding salinity in the southern Delta. As stated in the Notice for the workshop, the State Water Board will, upon submission of adequate information, develop and manage a thorough study or studies of the sources, concentrations, loads, and effects of salinity, and methods for its control in the southern Delta. Results from these studies could be used by the State Water Board to consider changing the	x	x	

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
			agricultural salinity objectives for the southern Delta, or the program of implementation of these objectives. Additional language to this effect has been added (as subsection iv) in Section B.1 of the Program of Implementation. Information received during and subsequent to the January 2007 workshop could be used to support reallocation of responsibility for the southern Delta salinity objectives.			
8-8	DWR	Salinity	The draft Plan is revised on p. 31 in response to the comment.	x		
8-9	DWR	Salinity	The draft Plan is revised in response to the comment.	x	x	
8-10	DWR	Salinity	The draft Plan is revised in response to the comment.	x		
8-11	DWR	Salinity	This comment will be addressed at the January 2007 workshop.			x
8-12	DWR	Salinity	Appendix 1 is revised on p. 72 in response to the comment.		x	
8-13	DWR	Salinity	Appendix 1 is revised on p. 72 in response to the comment.		x	
8-14	DWR	Proposed Plan language	The draft Plan is revised on pages 27 and 36.	x		
8-15	DWR	Proposed Plan language	The objective was not deleted in D-1641, but no responsibility was assigned for achieving the objective. The monitoring stations are a condition of DWR's and USBR's water rights as provided in Table 5 of D-1641, on page 193. A time schedule in the program of implementation, Chapter IV in Section B.5 "Numeric Objectives for Suisun Marsh" is added for implementation of the objective. The draft Plan is revised on page 36.	x		
8-16	DWR	Proposed Plan language	The draft Plan is revised on page 36.	x		
8-17	DWR	Proposed Plan language	The draft Plan is revised on page 36.	x		

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
8-18	DWR	Proposed Plan language	The draft Plan is revised on page 36.	x		
8-19	DWR	Suisun Marsh	The draft plan is revised on p. 15 in response to the comment by adding a footnote to the objectives for the Eastern Suisun Marsh and for the Western Suisun Marsh. Appendix 1 is revised on p. 21.	x	x	
8-20	DWR	Proposed Plan language	The draft plan is revised on pages 40-41.	x		
8-21	DWR	Delta Outflow/ temporary change	The findings required for approval of a petition for temporary change are delineated in Water Code sections 1435 through 1442 and in sections 1725 through 1732. These findings may not be changed by modifications to the program of implementation for a water quality control plan. The objectives currently include some flexibility within the averaging provisions, reducing the potential need for temporary changes. Additionally, the State Water Board must base its approval of petitions for temporary change on the circumstances present at the time the petition is filed and must not prejudice potential actions. Accordingly, no changes are made in the program of implementation for the 2006 Plan.			x
8-22	DWR	Pulse Flow	The suggested footnote is not necessary. Implementation issues for the Pulse Flow objective are adequately discussed in the Program of Implementation.			x
8-23	DWR	Format	Table 7 has been revised on p. 44 of the draft Plan in response to the comment.	x	x	
9-1	Co. of San Joaquin	Salinity	The State Water Board intends to hold a proceeding commencing January 16, 2007 to consider the southern Delta salinity objectives. The current objectives were developed as part of the 1978 water quality planning process and were based on certain assumptions as to cropping patterns in the region. The State Water Board has no information on current cropping patterns and will revisit the issue. Depending on the information it receives or develops as a result of future studies, the State Water Board could elect			x

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
			to change the agricultural salinity objectives for the southern Delta or the program of implementation for these objectives.			
9-2	Co. of San Joaquin	Salinity	In the upcoming proceeding, the State Water Board needs to consider all possible means for meeting the objectives.			x
9-3	Co. of San Joaquin	Salinity	Design, construction and operation of infrastructure to control salinity is a difficult and expensive process, and it is likely to take many decades. It would be desirable for this to be accomplished in a shorter period of time.			x
9-4	Co. of San Joaquin	Salinity	The State Water Board will review the need for an updated independent investigation of irrigation salinity needs in the Delta during the January 2007 salinity workshop.			x
9-5	Co. of San Joaquin	Export limits	The State Water Board intends to hold a public workshop in response to the POD in Spring of 2007. During this workshop the State Water Board will: 1) receive information regarding the POD; and 2) consider recommendations to amend objectives to protect fish and wildlife beneficial uses. The State Water Board will also consider information received on recommended amendments to the Export Limits objective at this public workshop.			x
9-6	Co. of San Joaquin	Salinity	Comment noted. This issue should be raised in a future proceeding such as the upcoming salinity workshop.			x
9-7	Co. of San Joaquin	Flow and Water level objectives for agriculture	Comment noted-- this comment does not address the environmental effects of a change in the Plan; the comment and any recommendations will be considered during future updates to the Plan. This issue was addressed in the Staff Report on Periodic Review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary adopted by State Water Board Resolution 2004-0062 (see pages 31 and 32). That report stated that the State Water Board would not consider setting minimum flow or water level objectives for agriculture at that time and that a more appropriate forum to address these types of issues would be a water right proceeding. Accordingly, the State Water Board did not consider this issue during the Plan amendment workshop and did not receive any information on this subject on which to base changes to any such objectives			x

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
			or program of implementation to attain the objectives.			
10-1	GCID	Joins in NCWA comments	Comment noted.			x
10-2	GCID	Support of draft Plan	Comment noted.			x
11-1	Kern County/ State Water Contractors	Suggested Plan revisions	The State Water Board has reviewed Kern County/State Water Contractors proposed language. Where appropriate, changes were made to the 2006 Plan on pages 1, 3, 5, 6, 11, and 23 through 30; and to Appendix I of the 2006 Plan on pages 64, 67, 71 and 72.	x	x	
12-1	DOI	Fisheries	The Board will continue to work towards reaching the goal of the salmon narrative objective. Board staff recommends that NOAA Fisheries, DFG and other interested parties conduct additional population-sampling studies in order to provide the Board the information needed to establish a numeric objective for salmon, and in-Delta requirements for the protection of listed Green Sturgeon and Steelhead, and to assist in determining a reachable goal for estimating population goals. This information should be provided to the Board at one of the upcoming workshops for the narrative objective for salmon doubling. Additionally, the State Water Board intends to hold a workshop on the San Joaquin River Spring Flow and Pulse Flow objectives following completion of DFG's salmon escapement model. This workshop will be focused on San Joaquin River flow issues, but will consider the interaction of other objectives, including the salmon doubling objective and the southern Delta salinity objectives. The State Water Board will use the information it receives in the workshop to consider what, if any, changes may be needed to the objectives and the Program of Implementation for these objectives.			x
12-2	DOI	Chlorides	Page 26 of the draft 2006 Plan and Page 39 of Appendix I to the draft 2006 Plan have been modified in response to this comment.	x	x	
12-3	DOI	Delta Outflow	The scope of a water quality control plan does not typically include restatement of the procedures that may be used to initiate and conduct a			x

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
			water right proceeding to obtain relief from a condition in a water right. Permit or license. The findings required for approval of a petition for temporary change are delineated in Water Code sections 1435 through 1442 and in sections 1725 through 1732. These findings may not be changed by modifications to the program of implementation for a water quality control plan. The objective currently includes some flexibility within the averaging provisions, reducing the potential need for temporary changes. Additionally, the State Water Board must base its approval of petitions for temporary change on the circumstances existing at the time the petition is filed and must not prejudge potential actions. Accordingly, so as not to prejudge potential actions, the program of implementation for the 2006 Plan will not include the language proposed by DOI.			
12-4	DOI	Rio Vista Flow	The scope of a water quality control plan does not typically include restatement of the procedures that may be used to initiate and conduct a water right proceeding to obtain relief from a condition in a water right. Permit or license. The findings required for approval of a petition for temporary change are delineated in Water Code sections 1435 through 1442 and in sections 1725 through 1732. These findings may not be changed by modifications to the program of implementation for a water quality control plan. Additionally, the State Water Board must base its approval of petitions for temporary change on the circumstances existing at the time the petition is filed and must not prejudge potential actions. Accordingly, so as not to prejudge potential actions, the program of implementation for the 2006 Plan will not include the language proposed by DOI.			x
12-5	DOI	San Joaquin River Spring Flows	The scope of a water quality control plan does not typically include restatement of the procedures that may be used to initiate and conduct a water right proceeding to obtain relief from a condition in a water right. Permit or license. The State Water Board intends to schedule a workshop to receive additional evidence on the San Joaquin River Flow and Pulse Flow Objectives following completion and peer review of the San Joaquin River salmon escapement model anticipated for summer of 2007. However, the State Water Board has not modified the Program of Implementation to include the recommended language regarding the filing of a temporary urgency change petition. The findings required for approval of a petition for	x		

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
			temporary urgency change are delineated in Water Code sections 1435 through 1442. These findings may not be changed by modifications to the program of implementation of a water quality control plan. USBR and DWR may petition the State Water Board for a temporary urgency change regarding the San Joaquin River Spring Flow Objective (or any other objective in the 2006 Plan) regardless of any statement in the program of implementation for the 2006 Plan. Additionally, the State Water Board must base its approval of petitions for temporary change on the circumstances existing at the time the petition is filed and must not prejudge potential actions. Accordingly, so as not to prejudge potential actions, the program of implementation for the 2006 Plan will not include the language proposed by DOI.			
12-6	DOI	San Joaquin River Pulse Flow	The State Water Board does not agree that supplemental environmental analyses are necessary for the changes made to the Program of Implementation for the Pulse Flow Objectives. The changes reflect current environmental conditions. Consequently, there is no physical change in the environment requiring environmental review.			x
12-7	DOI	Southern Delta salinity	The State Water Board does not intend to supplement the environmental analysis in the D-1641 EIR as suggested. The State Water Board will commence a workshop in January 2007 to further address southern Delta salinity issues. In this proceeding, the State Water Board will consider phased implementation of the objectives and the possibility of assigning partial responsibility to parties who contribute to the problem other than the CVP and SWP. The workshop could result in focused Plan amendments. If this is the case, detailed CEQA analysis will be required at that time. Numerous changes have been made to the draft Plan in response to the DWR and others, many of which will address Interior's concerns.			x
12-8	DOI	Suisun Marsh	See response to DWR comments 8-1, 8-2, 8-3, and 8-4. The draft Plan, on pages 36 and 40, is revised in response to these comments.	x		
12-9	DOI	DO	The Program of Implementation for the Dissolved Oxygen (DO) objective does address aeration as an alternative to address the DO in the San Joaquin River. The Plan states "...the responsible entities should complete their investigations into the feasibility of operating an aeration facility in the Stockton DWSC [Deep Water Ship Channel] to assist in achieving the			x

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
			objectives. If the pilot project and other information demonstrates that permanent installation and operation of aeration devices is feasible and would not have immitigable adverse impacts on fish, wildlife, water quality and other resources, DWR, CALFED, and the other implementing agencies should pursue operation of such a facility with operation assistance from the State Water Contractors (SWC), the Port of Stockton, San Luis Delta-Mendota Water Authority, the San Joaquin River Group Authority (SJRGA), and other appropriate agencies.” (Draft 2006 Plan, p. 31.)			
13-1	SLDMWA	Process	The draft Plan on page 11 is revised to remove unnecessary verbiage and correct the noted statements. The comment suggests that the objectives must be readopted in each plan. This is not correct. The applicable laws require that objectives that were adopted in the 1995 Plan or earlier remain in effect in each successive Plan unless the State Water Board specifically changes the objectives based on the evidence and after an extensive analysis. In the absence of an evidentiary basis for changing the objectives, the objectives are not changed.	x		
13-2	SLDMWA	Process	The Program of Implementation in the draft Plan is revised to remove unnecessary information. It continues, however, to report on the status of implementation and identifies the entities that have been assigned responsibilities through other proceedings. It is appropriate in a program of implementation to report on the current implementation as well as planning for future changes in implementation.	x		
13-3	SLDMWA	Chloride	Page 26 of the draft 2006 Plan and Page 39 of Appendix I to the draft 2006 Plan have been modified in response to this comment.	x	x	
13-4.1	SLDMWA	Delta outflow	Comment noted. This recommendation will be considered during a future update to the Plan. At the State Water Board workshop on the POD planned for Spring, 2007, the State Water Board will consider proposed amendments to the Delta Outflow objective. Proposed amendments to objectives should be accompanied by substantial evidence to support the proposed amendment and to disclose its impacts to other beneficial uses.			x
13-4.2	SLDMWA	Delta outflow	The State Water Board appreciates the detail of SLDMWA’s proposal on adding flexibility to the Delta Outflow objective. However, as stated in Appendix I, the WOMT has withdrawn its recommendation to add flexibility			x

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
			to the Delta Outflow objective due to concerns regarding the POD. The State Water Board intends to schedule a public workshop in response to the POD in Spring 2007. During this workshop the State Water Board will receive information regarding the POD and recommendations for amendment of objectives to protect fish and wildlife beneficial uses. The State Water Board will consider proposed amendments to the Delta Outflow objective at this public workshop. Proposed amendments to objectives should be accompanied by substantial evidence to support the proposed amendment and to disclose its impacts to other beneficial uses.			
13-5	SLDMWA	Salinity	The Program of Implementation makes clear that the southern Delta salinity objectives will be implemented through a combination of water rights and water quality authorities. Though these objectives are currently assigned to the DWR and the USBR, this assignment could change in the future as a result of a future proceeding.			x
14-1	Bay Institute	Numeric & Narrative objectives	Comment noted.			x
14-2	Bay Institute	Export limits	Comment noted-- this comment does not address the environmental effects of a change in the Plan; the recommendation will be considered during future updates to the Plan. The State Water Board intends to schedule a public workshop in response to the POD in Spring 2007. During this workshop the State Water Board will receive information regarding the POD and recommendations for amendment of objectives to protect fish and wildlife beneficial uses. The State Water Board will consider information received on amendment to the Export Limits objective at this public workshop. Proposed amendments to objectives should be accompanied by substantial evidence to support the proposed amendment and to disclose its impacts to other beneficial uses.			x
14-3	Bay Institute	Process	Comment noted. The Board cannot require any additional water right user fees without appropriate review and fiscal analysis. The procedure the State Water Board must follow to obtain information is determined by the California Water Code and the California Code of Regulations.			x

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
14-4	Bay Institute	Process	As part of a continuing review of the Water Quality Control Plan, the State Water Board has a workshop scheduled to begin on January 16, 2007 to review the southern Delta water quality objectives for salinity. Other workshops scheduled for 2007 include workshops on the Pelagic Organism Decline and climate change. The State Water Board will identify specific information needs at these workshops and determine if revisions to the Plan should be considered.			x
15-1	SEWD	San Joaquin River Flows	<p>The State Water Board acknowledges that coupling San Joaquin River flow to X2 position can potentially harm the San Joaquin basin when local conditions are dry and the Sacramento basin is experiencing a wet year. The State Water Board will add the San Joaquin flow and fishery problems as an emerging issue and schedule a workshop to consider potential Water Quality Control Plan amendments.</p> <p>See response to DFG's comment 1 (7-1). As indicated in the response to DFG, the State Water Board will hold a further workshop to consider whether there should be changes to the San Joaquin River Spring Flow and Pulse Flow Objectives. At that time, the State Water Board will consider any proposals for modification of the San Joaquin River Flow objectives, including the association with the Delta Outflow Objectives.</p>	x	x	
15-2	SEWD	Salinity	See response to County of San Joaquin, 9-3.			x
16-1	Suisun RCD	Suisun Marsh	Page 35, Section B.4 of the draft 2006 Water Quality Control Plan was revised.	x		
16-2	Suisun RCD	Suisun Marsh	Comment noted.			x
16-3	Suisun RCD	Delta Outflow	The Draft 2006 Plan proposes no changes to the Delta outflow objectives. Should such changes be proposed in the future, the potential impacts on Suisun Marsh will be analyzed.			x
16-4	Suisun RCD	Suisun Marsh	Item 4, page 44, of the draft 2006 Plan does not state that a complete set of environmental documents for the Suisun Marsh Plan have been issued. On page 44, the draft Plan states "In March 2006 the Plan was undergoing			x

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
			California Environmental Quality Act (CEQA)/National Environmental Policy Act review. The final CEQA document will be released in December 2008.”			
16-5	Suisun RCD	Suisun Marsh	Footnote 12 on page 74 of Appendix 1 was revised as follows: The Suisun Marsh Charter Group Principals agencies include Suisun Resource Conservation District, DFG, DWR, USBR, CBDA, NMFS, and USFWS.		x	
17-1	SJRGGA	Salmon Protection	Comment noted-- this comment does not address the environmental effects of a change in the Plan; the recommendation will be considered during future updates to the Plan.			x
17-2	SJRGGA	Dissolved Oxygen	SJRGGA comments about the DO objective during the July through August period. However, the Draft Plan does not include a DO objective during that time frame. The comments appear to pertain to the Central Valley Regional Water Quality Control Board's recent Basin Plan Amendment for the Sacramento River and San Joaquin River Basins. This issue should be addressed in that forum.			x
18-1	Audubon		Comment noted. Commencing in the Spring of 2007 the Board will conduct a more detailed workshop geared specifically towards investigating the causes and action that can be implemented to reduce the decline of Pelagic Organisms in the Delta. The procedure the State Water Board must follow to obtain this information is determined by the California Water Code, the California Code of Regulations, and the California Environmental Quality Act.			x
18-2	Audubon	SJR Pulse Flow Objectives	The flow objectives have not been changed. The Program of Implementation allows for the staged implementation of the San Joaquin River Pulse Flow Objectives through conduct of the Vernalis Adaptive Management Plan (VAMP) until 2011. The State Water Board has not received sufficient evidence that: 1) supports making changes to the VAMP experiment at this time; or 2) VAMP flows are causing species declines in the San Joaquin River. The State Water Board believes that completion of the VAMP experiment will lead to a strengthening of the objectives by providing additional scientific information on which to base long term objectives. However, as indicated in the response to DFG comment 1 (7-1), the State Water Board will hold a workshop after the San Joaquin River	x		

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
			salmon escapement model has been completed and validated. During that workshop, the State Water Board will receive information on the San Joaquin River Spring Flow and Pulse Flow Objectives and what if any changes may be needed to those objectives to ensure the protection of San Joaquin River salmon and other species. At that time, the State Water Board will consider recommendations by the Department of Fish and Game and other parties. The State Water Board believes that it is premature to consider adoption of DFG's recommendations prior to completion of improvements to DFG's salmon escapement model.			
18-3	Audubon	Export limits	<p>Comment noted. This recommendation will be considered during future updates to the Bay/Delta Plan.</p> <p>The State Water Board intends to schedule a public workshop in response to the POD in Spring 2007. During this workshop the State Water board will receive information regarding the POD and recommendations for amendment of objectives to protect fish and wildlife beneficial uses. The State Water Board will consider information received on amendment to the Export Limits objective at this public workshop. Proposed amendments to objectives should be accompanied by substantial evidence to support the proposed amendment and to disclose its impacts other beneficial uses.</p>			x
19-1	CUWA	Salinity	The State Water Board has scheduled a public workshop to receive information regarding Delta/Central Valley Salinity on January 16, 2007. The recommendation to amend the program of implementation for the 2006 Plan, accompanied by substantial evidence to support the proposed amendment and to disclose its impacts on other beneficial uses should be presented at this workshop.			x
20-1	DFG-2	Clarification	Comment noted.			x
21-1	Committee to Save the Mokelumne	Clarification	**Please note that this commenter, and the one that follows, did not provide written comments, but provided oral comments at the November 13 State Water Board hearing on the draft 2006 Plan. The comments can be viewed in the transcripts for this proceeding and are summarized here along with the Board's response.			x

Letter - Comment Number	Commenter	Topic	Response	Change(s) Needed		
				Draft Plan	Draft amendment report	Neither
			<p>Line 20, page 68 of the transcript:</p> <p>Comment: Workshop comments submitted under Deltakeeper are also submitted under CSPA, Committee to Save the Mokelumne and San Joaquin Audubon.</p> <p>Response: Comment noted</p>			
21-2	Committee to Save the Mokelumne	VAMP	<p>Lines 10-17, page 73 of the transcript:</p> <p>Comment: Commenter urges the State Water Board to conduct an environmental review of the VAMP before putting it into a Water Quality Control Plan.</p> <p>Response: The State Water Board conducted an environmental review of the VAMP prior to authorizing it in D-1641. The VAMP is the current condition and therefore no further environmental review is necessary.</p>			x
22-1	CSPA	Clarification	<p>Lines 11-13, page 77 of the transcript:</p> <p>Comment: Commenter confirms that the evidence listed in Appendix 2 is also the evidence for CSPA.</p> <p>Response: Comment noted. Appendix 2 will be amended to reflect this comment.</p>		x	



**CONTRA COSTA
WATER DISTRICT**

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ORIGINAL

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2006 Delta Plan
Deadline: 11/13/06

November 6, 2006

Directors

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Vice President

Bette Boatman
John A. Burgh
Karl L. Wandry

Walter J. Bishop
General Manager

Song Her, Clerk to the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812



Subject: Comments on the Amended Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

Dear Ms. Her:

The Contra Costa Water District (CCWD) appreciates the opportunity to provide comments to the State Water Resources Control Board (State Water Board) regarding the amended Water Quality Control Plan (the Plan) for the San Francisco Bay / Sacramento-San Joaquin Delta Estuary (September 2006). CCWD played an active role in the development, implementation, and review of the 1995 Plan and will continue to actively engage in issues to protect water quality in the Delta.

Throughout this review process, CCWD's concern has been to protect water quality. CCWD appreciates the State Water Board's evaluation of the evidence provided by CCWD and other agencies and incorporation of CCWD's recommendations into the amended Plan so that current water quality protections are maintained. In any future consideration of modifications to the Plan, we look forward to working with the State Water Board to ensure that any changes are in accord with the State Water Board's anti-degradation policy and the principle that protecting drinking water quality is of paramount importance.

Although the State Water Board took no direct action, CCWD will continue to advocate the establishment of an objective to protect drinking water and public health. As the CALFED Water Quality Program and the Central Valley Drinking Water Policy develop additional information regarding drinking water protections, CCWD encourages the State Water Board to reconsider amending the Plan with numerical objectives targeting precursors to disinfection byproducts.

With respect to compliance of the chloride objective at the Contra Costa Canal Pumping Plant No. 1, CCWD agrees that adequate information to date has not been provided to warrant changing the objective. As described in CCWD's 2005 letter (CCWD-EXH-021):

1-1

CCWD requests that the compliance location remain at Pumping Plant #1. However, CCWD is willing to entertain the concept of a reasonable monitoring agreement based on Holland Tract EC, as discussed in its January 10, 2005 letter (CCWD-EXH-014):

The Pumping Plant #1 compliance location (C-5) must remain unchanged at the Contra Costa Canal Pumping Plant #1 to ensure water diverted by CCWD from Rock Slough is at or better than the 150 mg/l and 250 mg/l M&I chloride objectives. These objectives provide protection against salinity intrusion to all M&I diversion points in the southern and central Delta, and are necessary to ensure water quality protection at those Delta M&I diversion points, including CCWD's Old River intake.

In the near future, the circumstances in which local degradation leads to exceedances of water quality objectives in Rock Slough will be minimized by three factors, discussed at length during the presentation of Dr. David Briggs on January 10, 2005. (Reporter's Transcript 569:24-585:23; CCWD-EXH-07.) These factors are Veale Tract improvements, Contra Costa Canal Encasement, and in the longer term, increased use of Pumping Plant No. 1 to meet increases in CCWD demands. ... The objective needs to remain where the beneficial uses can best be protected.

However, as stated in CCWD's March 8, 2005 letter (CCWD-EXH-19), in the event that there is an exceedance of either chloride objective and the 3-day running average diversion rate at the Contra Costa Canal is less than 30 cubic feet per second, CCWD would be willing consider such an exceedance beyond the control of the State Water Project and Central Valley Project, provided the the daily EC at Holland Tract, measured three days previously, was 0.94 mS/cm or less (in the case of the 250 mg/l chloride objective) or 0.56 mS/cm or less (in the case of the 150 mg/l chloride objective).

The above description underscores the difference between moving the compliance location and identifying and accounting for conditions that are beyond the responsibility of the State Water Project (SWP) and Central Valley Project (CVP), while maintaining the objective at Pumping Plant #1.

Working collaboratively with other stakeholders, CCWD has made substantial progress in reducing local water quality degradation. The CALFED Rock Slough Water Quality Improvement Project was completed in January 2006, and eliminated drainage from Veale Tract into Rock Slough and reduced the impact of local agricultural drainage. Additionally, CCWD is proceeding with the first phase of the Contra Costa Canal Replacement Project that eliminates the biggest source of salinity in the westernmost

Ms. Song Her, Clerk to the Board
Comments on the Amended Water Quality Control Plan
November 6, 2006
Page 3

part of the Canal. Finally, CCWD and the Department of Water Resources (DWR) are working to secure funding and develop methods to eliminate seepage from the Dutch Slough Property (owned by DWR) into the Canal.

As the progress from these local source water improvement programs is evaluated, CCWD will continue to work collaboratively with other stakeholders on determining when conditions exist that are beyond the control and obligations of the SWP and CVP, with the objective of improving the efficiency of the SWP and CVP while at the same time protecting CCWD's water quality and water quality in the south Delta.

If you have any questions, please call me at (925) 688-8073.

Sincerely,

A handwritten signature in cursive script that reads "David A. Briggs".

David A. Briggs
Water Resources Manager

DAB\DS:wec

cc: Carl Nelson (BPMNJ)

D E L T A W E T L A N D S P R O J E C T



November 6, 2006

Song Her, Clerk to the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Subject: Preliminary Comments on 2006 Bay-Delta Water Quality Control Plan

Dear Ms. Irvin:

At the last periodic review workshop for the Bay-Delta Water Quality Control Plan, Delta Wetlands Properties (Delta Wetlands), the developer of the in-Delta storage project commonly referred to as the Delta Wetlands Project, asked the State Water Resources Control Board to address the application of the E/I ratio to in-Delta storage in the Export Limits objective. Specifically, Delta Wetlands requested that releases from in-Delta storage be included in the Delta inflow calculation of the E/I ratio, because in-Delta storage was not contemplated during preparation of the 1995 WQCP.

Although Delta Wetlands is disappointed that the Board will not consider this recommendation in the 2006 Water Quality Control Plan, we strongly urge the Board to consider this simple addition at the proposed quarterly workshops on emerging issues to commence in January 2007.

2-1

If you have any questions, please contact me at (925) 932-0251.

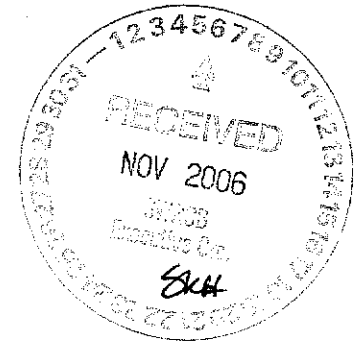
Sincerely,

David A. Forkel
Assistant General Manager
Delta Wetlands Project

cc: Cathy Crothers (DWR)
Steve Roberts (DWR)
Andy Moran (DW)
Peter Kiel (ESH)

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ENVIRONMENTAL DEFENSE
finding the ways that work



November 6, 2006

Tam Doduc, Chair
State Water Resources Control Board
P. O. Box 100
Sacramento, CA 95812-0100

Re: Consideration of an Amended Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

Dear Ms. Doduc:

The current Water Quality Control Plan, adopted in 1995 and enforced by a series of water rights orders, has not provided sufficient protection for estuarine or anadromous fish species. This is illustrated in the recent sharp decline of pelagic organisms in the Delta, which has been well documented¹. Failure to respond quickly to improve Delta conditions may result in the irreversible decline of Delta fisheries and lead to extinction of some species. The plan has also failed to meet its objectives for doubling salmon populations. The State Board should swiftly complete and implement an amended plan that will, at a minimum:

- Guarantee a supply of environmental water equal to Tiers 1, 2 and 3, as described in the CALFED Record of Decision (2000),
- Revise the criteria for implementing X2 standards to prevent upstream impacts, including "three ways to win",
- Assign specific stream-by-stream objectives for doubling the natural production of salmon populations, and
- Broaden the period for springtime San Joaquin River pulse flows, while requiring that the plan's objectives are actually met.

Guarantee a supply of environmental water equal to Tiers 1, 2 and 3, as described in the CALFED Record of Decision (2000).

¹ For example, see *Interagency Ecological Program Synthesis of 2005 Work to Evaluate the Pelagic Organism Decline (POD) in the Upper San Francisco Estuary*, Interagency Ecological Program, 2005.

The San Francisco Bay/Sacramento-San Joaquin Delta Estuary was already in significant decline in the years preceding the adoption of the current Water Quality Control Plan. The current plan was adopted in 1995 after a wide variety of affected parties negotiated and signed the Bay-Delta Accord. The Accord was an agreement with two principle parts. First, the Accord included a set of interim standards for protection of the Bay-Delta estuary that would be in place for only three years as longer-term standards were developed. Second, the Accord established the CALFED Bay-Delta Program to develop a long-term plan for the Delta.

To date, the State Board has implemented only the interim standards and no longer-term standards. Instead, the CALFED Bay-Delta Program completed an Environmental Impact Report/Statement and Record of Decision in 2000 that was intended to provide additional protective criteria. These criteria are designed to provide protection to the estuarine and anadromous fish that depend on the Delta, including but not limited to compliance with obligations of the State and federal water projects under the State and federal Endangered Species Acts. The level of protection provided to the Delta by the CALFED Decision is intended to include:

- o Full use of 800,000 acre-feet supply of water pursuant to Section 3406(b)(2) of the CVPIA in accordance with Interior's October 5, 1999 Decision,
- o An Environmental Water Account with an average annual supply of 380,000 acre-feet, and
- o A "Tier 3" supply to provide additional protection if needed.

Since 2002, much of this water intended for environmental use in the Delta has not been available. Rules governing implementation of B2 supplies have been changed by both federal court and Interior policy. "Operational assets" expected to accrue to the Environmental Water Account have not been available. And funding for the EWA has not been sufficient to supply the amount of water set forth in the CALFED Decision. During the period 2002-2004, the dedication of environmental water for B2 and the EWA was short by 420,000 to 460,000 acre-feet annually. (For documentation of this shortfall, see Attachment 1, *Finding the Water: New Water Supply Opportunities to Revive the San Francisco Bay-Delta Ecosystem*, Environmental Defense, 2005.)

As part of its obligation to provide for the beneficial use of water for fish that live in and depend on the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, the State Board should, at a minimum, mandate the level of protection in an amended Water Quality Control Plan, including the supply of CVPIA B2 water, the Environmental Water Account, and Tier 3 assets, that is described in the CALFED Decision.

It is true that the use of B2 water and the EWA differ from the "prescriptive standards" traditionally implemented by the State Board. B2 and EWA supplies are reserved for use in providing additional flows or export reductions to provide protection for fish when it is

3-1

most needed. Because the estuary is a dynamic and unpredictable ecosystem, it is not known in advance when these environmental supplies will provide the greatest benefit. In contrast, most State Board standards have in the past been designed to provide minimum flow volumes or maximum export rates that are pre-specified. There is no reason, however, that the State Board cannot require water projects to provide environmental water under adaptively managed conditions.²

The simplest way for the State Board to implement additional protections through adaptive management would be to require the Central Valley Project and State Water Project to provide operational flexibility in close cooperation with fishery agencies.³ Environmental Defense suggests that State Water Project be required to provide the 380,000 acre-feet of EWA supplies and the Central Valley Project be required to provide 800,000 acre-feet in B2 supplies, consistent with its 1999 policy, that are included in the CALFED Decision. The accounting for these supplies can still be performed by the Department of the Interior and the Department of Water Resources, but should be overseen by the State Board.

The Central Valley Project and State Water Project, or their contractors, would of course be able to make up for any loss of water by investing in groundwater or water use efficiency, or by buying water on the open market as the Environmental Water Account does currently. Environmental Defense believes that the project agencies and their customers should determine how to meet their own needs rather than to require the Environmental Water Account to make up for forgone supplies that should never have been permitted.

Revise the criteria for implementing X2 standards to prevent upstream impacts, including "three ways to win".

Environmental Defense continues to support X2 objectives from February through June to enhance estuarine habitat. The statistical relationship between Delta outflow during this period and fish and other organisms continues to be strong.⁴

² The Environmental Water Account was in fact developed as a more efficient way of implementing prescriptive standards. In 1999, the U.S. Fish and Wildlife Service considered more protective "prescriptive" standards, but agreed to an Environmental Water Account that was intended to provide the same level of protection while allowing for greater volumes of water to be exported from the estuary. Environmental Defense agrees that the flexibility provided by the Environmental Water Account is an efficient way to provide protection and should be retained.

³ Environmental Defense does believe that the State Board should strongly consider requiring other "local" projects to supply water to protect fisheries that depend on the Bay-Delta. Such requirements should be included under the baseline "prescriptive inflow requirements, such as those in the 1995 Water Quality Control Plan, rather than as part of the Environmental Water Account.

⁴ See letter from The Bay Institute to Chairman Baggett, Re: Bay-Delta Plan Periodic Review/Delta Outflow, January 12, 2005.

3-1 cont.

3-2

3-2 cont.

In two instances, however, upstream actions to meet X2 objectives at Port Chicago have had negative impacts on target fish populations. The most egregious impacts occurred in February 2003, when a sudden decrease in reservoir releases resulted in the stranding of thousands of anadromous fish. While the increased communication between fishery agencies and water project agencies has helped avoid recurrences of this unfortunate event, the State Board should play a role in ensuring that the X2 objective provides the benefits originally intended.

There are several ways that improved implementation of X2 could be achieved. The "three ways to win" criteria could be modified to reduce opportunities for reservoir managers to sharply reduce releases. Alternatively, the State Board could build criteria into the X2 standard, so that any reservoir releases required to meet the Port Chicago objective would ramp down gradually, rather than suddenly, as the objective is relaxed to allow X2 to move upstream.⁵

Assign specific stream-by-stream objectives for doubling the natural production of salmon populations.

The draft plan includes only a "narrative" standard for doubling the natural production of salmon (above 1967-1991 averages). It does not include specific objectives, by run or by stream, or any way to ensure that the objectives are met.

3-3

The California Department of Fish and Game maintains comprehensive estimates of the number of salmon spawning on many Central Valley Rivers and streams. We believe that the State Board should begin by assigning objectives for each salmon run and stream. Additionally, the State Board should assign responsibility for meeting the doubling objectives to both the agencies that manage the streams where spawning takes place, as well as any other projects, upstream or downstream, that significantly affect salmon populations through their operations. For each stream, the State Board should consider criteria that would increase requirements for those agencies to provide reservoir releases and/or funding for habitat restoration if sufficient progress toward meeting the objective is not made over time.

Broaden the period for springtime San Joaquin River pulse flows, while requiring that the plan's objectives are actually met.

3-4

The draft plan again includes a 31-day spring outflow pulse on the San Joaquin River at Vernalis. These flows have not actually been required. Instead, these objectives have been

⁵ See attached letter from Environmental Defense, The Bay Institute and Contra Costa Water District to the Sate Board, Re: Water Quality Control Plan Delta Outflow Objectives in April 2004, April 5, 2004.

partially met by additional flows that have been provided through the Vernalis Adaptive Management Program. It has been necessary to pay water agencies to release water to meet these VAMP objectives, even though those flow levels are significantly less than has been proposed in the Water Quality Control Plan.

Outmigrating San Joaquin River salmon face more challenges than their counterparts in the Sacramento River basin. First, the smolts must pass much closer to the Delta export facilities where they are more likely to be subject to entrainment and predation. Second, for its smaller size, the San Joaquin basin is more heavily developed and its natural hydrology more affected.

Consequently, it has proven more difficult to restore fall-run chinook populations in the San Joaquin basin than on the Sacramento basin. Attachment 3 compares salmon populations for principal San Joaquin basin streams to the 1967-1991 baseline.

Environmental Defense believes State Board flow objectives on the San Joaquin River should be met. Further, the period during which additional San Joaquin River flow is provided to assist outmigrating fall-run salmon should be extended.⁶ With improved outflows and increased opportunities to reduce the effects of the Delta export pumps, it should be possible to reach restoration objectives on San Joaquin River tributaries.

Summary

The State Board has broad responsibility and authority to protect fisheries that live in or depend on San Francisco Bay/Sacramento-San Joaquin Delta Estuary. Given the alarming decline of pelagic species and the lack of progress in restoring salmon, especially in the San Joaquin basin, the State Board must take timely decisive action. Simply reissuing the 1995 Water Quality Control Plan is not sufficient.

Thanks you for the opportunity to provide these comments.



Spreck Rosekrans
Senior Analyst

⁶ See letter from the Bay Institute to Chairman Baggett, Re: Bay-Delta Plan Periodic Review/Vernalis Flows, March 21, 2005.

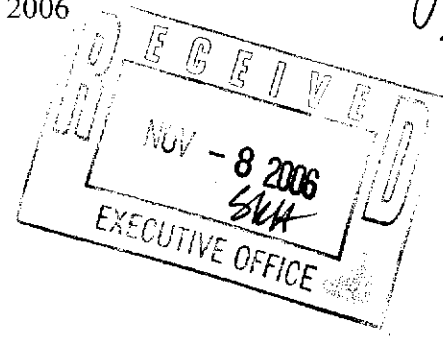
3-4 cont.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Sacramento Area Office
650 Capitol Mall, Suite 8-300
Sacramento, California 95814-4706

November 6, 2006

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Tam M. Doduc
Chair, State Water Resources Control Board
P.O. Box 100
Sacramento, California 95812

Dear Mr. Doduc:

This letter provides comments from NOAA's National Marine Fisheries Service (NMFS) concerning the draft amended 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (WQCP). NMFS was actively involved in the periodic review of the WQCP, providing 18 separate letters or sources of information (see draft Referenced Documents, Appendix 2 to the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, September 2006. State Water Resources Control Board) regarding topics related to Water Quality Objectives for Fish and Wildlife Beneficial Uses. For detailed information concerning NMFS authorities and jurisdiction related to the periodic review, we refer you to previous exhibits submitted by NMFS during the periodic review (NOAA-01, and 14).

Our general comments related to the draft amended WQCP follow:

- Southern Distinct Population Segment of North American Green Sturgeon. NMFS informed you of the proposed listing of the Southern Distinct Population Segment (DPS) of North American green sturgeon during the periodic review and in a submitted letter (NOAA-01). Since this time, NMFS listed the Southern DPS as threatened under the Endangered Species Act (71 FR 17757, April 7, 2006) and are currently in the process of developing take prohibitions. NMFS was prompted to list the species based on a severely reduced range (spawning populations now limited to the Sacramento River only), and the persistence of severe threats impacting the population. Key threats include the presence of impassible barriers such as Keswick and Shasta dams, migration barriers, insufficient instream flows, water diversions, and increased water temperatures. NMFS is available to provide the State Water Resources Control Board (Board) with additional information related to this species if necessary.
- Salmon Doubling Narrative. NMFS is available to provide the Board with updated status information related to Federally listed species under our jurisdiction. We also understand the Board's desire to keep the salmon narrative protection objective consistent with the Federal Central Valley Project Improvement Act. The Federal natural production goals for anadromous fish (DOI-16C) specify production targets for all races of Chinook

4-1

4-2



4-2 cont.

salmon, and for steelhead, American shad, white sturgeon, and green sturgeon. NMFS recommends including Federally listed green sturgeon and steelhead in the narrative objective. The draft Plan Amendment Report indicates the expansion of the objective to include steelhead trout (page 35) is not recommended due to lack of information regarding the population abundance, however, the existing salmon narrative is primarily qualitative, and relies on the Federal doubling effort to determine Chinook doubling. It would be appropriate to also rely on the Federal doubling effort to determine doubling goals of steelhead and sturgeon. In addition, the absence of population abundance information should be indicated and population sampling measures should be recommended in the WQCP, in a similar manner to required sampling for water quality.

4-3

February-April 14 and May 16-June San Joaquin River Flow and 31-day April 15-May 15 San Joaquin River Pulse Flow Objectives. In light of the decline of Chinook salmon and Central Valley steelhead in the San Joaquin basin (DFG-10, NOAA-17), and the additional scientific information indicating the positive relationship between Vernalis flow and adult escapement (DFG-09, DFG-10, NOAA-17), NMFS recommends including these two objectives on the emerging issues list. We believe the evidence relating flow to juvenile salmon survival and resultant escapement and production in the San Joaquin basin provides sufficient evidence warranting revisions to these objectives. We are apprised of California Department of Fish and Game's recent modeling work regarding this topic.

We appreciate the opportunity to provide the Board with comments related to draft WQCP and look forward to future workshops and topics. If you have any questions regarding this correspondence or if NMFS can provide further assistance, please contact Mr. Jeff McLain in our Sacramento Area Office, 650 Capitol Mall, Suite 8-300, Sacramento, CA 95814. Mr. McLain may be reached by telephone at (916) 930-5648, or by Fax at (916) 930-3629.

Sincerely,



Michael E. Aceituno
Supervisor, Sacramento Area Office

cc: Copy to File - #151422SWR2004SA9238
NOAA Fisheries-PRD, Long Beach CA
Joe Dillon - Santa Rosa Area Office, CA
Bruce Herbold, EPA WTR-3, 75 Hawthorne Street, San Francisco, CA 94105
Carloyn Yale, EPA WTR-3, 75 Hawthorne Street, San Francisco, CA 94105



To promote the economic, social and environmental viability of Northern California by enhancing and preserving the water rights, supplies and water quality of our members.

November 6, 2006

Via Electronic and U.S. Mail

Tam Doduc, Chair
Members of the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812
commentletters@waterboards.ca.gov



Subject: Comments Regarding 2006 November 13, 2006 Public Hearing to Consider Amended Bay-Delta WQCP

Dear Chair Doduc and Members of the Board:

Thank you for providing this opportunity to comment on the proposed amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta WQCP). The Northern California Water Association (NCWA)¹ supports the State Water Resources Control Board's (State Board) decision not to establish, through the Bay-Delta WQCP, "the quantities of water that any particular water right holder or group of water right holders may be required to release or forego to meet the objectives in this plan." (Bay-Delta WQCP, p. 3; see also *State Water Resources Control Board Cases* (2006) 136 Cal.App.4th 674.) Further, the State Board appropriately determined that, at this time, there is no need to initiate a water rights

¹ NCWA represents seventy water suppliers and individual landowners that rely upon the waters of the Sacramento, Feather, and Yuba rivers, smaller tributaries, and groundwater to irrigate more than 900,000 acres of farmland in the Sacramento Valley. Many of our members also provide water supplies to state and federal wildlife refuges, and much of this land serves as important seasonal wetlands for migrating wildfowl, shorebirds and other wildlife. Membership also includes local governments and the business leadership in the region.

proceeding to implement the Bay-Delta water quality objectives, particularly in light of all the other activities being undertaken throughout the Central Valley.

NCWA members have played an active role in the activities undertaken to improve water quality and habitat conditions in the upstream tributaries of the Bay-Delta. These efforts have significantly contributed to the high numbers of fish, waterfowl and shorebirds that are now returning to the Sacramento Valley.

More specifically, NCWA was a signatory to the Sacramento Valley Water Management Agreement and, working closely with its members, has been a leader in the numerous efforts to improve fish passage and related habitat. The winter flooding of rice fields and the improvement of other managed wetlands has also created significant habitat for migrating waterfowl and other birds. As the Board knows, the Sacramento Valley Water Management Agreement led to your Order WR 2001-05 dismissing the Phase 8 Bay-Delta water rights proceedings.

5-1
Additionally, the Sacramento Valley Water Quality Coalition ("Coalition") was formed in 2003 to enhance and improve water quality in the Sacramento River. The Coalition's Regional Plan for Action ("Plan") (See <http://www.svwqc.org/pdf/svwqc.pdf>) was submitted to and accepted by the Regional Board to meet the newly adopted water quality requirements associated with discharges from irrigated lands. The Plan and an executed Memorandum of Agreement (MOA) serve as a road map for the Coalition to work with ten subwatershed groups to undertake an aggressive water quality monitoring and reporting program throughout the region. In areas where water quality exceedances are detected, the Coalition and subwatersheds either have management plans or a management practices action plan to address the constituents of concern. The Coalition also has signed a memorandum of agreement with the California Rice Commission to coordinate the respective programs in the Sacramento River Basin and is pursuing partnerships with municipalities and urban areas in the region that are developing stormwater management plans.

To build on these programs, NCWA is working with water right holders, counties, cities, and conservation organizations to further develop and refine an Integrated Regional Water Management Plan (IRWMP) for the Sacramento Valley. (See http://www.norcalwater.org/int_program/irwmp.shtml.) Through the IRWMP, water users have committed to identify water management strategies to enhance and improve water supplies and the ecosystem in this region. This integrated management program centers upon the sustained, long-term commitment to water quality and ecosystem improvements throughout the Sacramento Valley. These efforts are intended to further federal restoration goals (Central Valley Project Improvement Act, § 3405(b), Pub. L. 102-575) and the State Board narrative salmon doubling standard contained in table 3 of the Bay-Delta WQCP.

Tam Doduc, Chair
November 6, 2006
Page 3 of 3

NCWA respectfully suggests that the State Board should recognize the above-described activities within the context of the Bay-Delta WQCP. NCWA supports similar efforts on the San Joaquin River, such as those described in the Bay-Delta WQCP, but urges the State Board to ensure that implementation of the Bay-Delta water quality objectives shall not result in any increased flow objectives for the Sacramento River and its tributaries or any increased allocation of responsibility among water right holders in the Sacramento Valley.²

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cont.
5-2

In closing, NCWA supports the State Board's decision not to change the water quality objectives within the Bay-Delta WQCP for the Sacramento River and its tributaries. NCWA also encourages the State Board to pursue its efforts to find alternative solutions for the Bay-Delta water quality issues. (See e.g., Bay-Delta WQCP, p. 36 [“[i]solated and through-Delta water conveyance and storage facilities in the Delta. . . . The State Water Board will conduct these planning activities in conjunction with the Delta Vision Process to develop a sustainable use and protection plan for the Delta, Suisun Bay, and Suisun Marsh”].)

Thank you for your consideration of these comments.

Sincerely yours,



David J. Guy
Executive Director

² NCWA agrees that, though the United States Environmental Protection Agency (US EPA) has authority to approve of the Bay Delta WQCP and objectives, US EPA does not have authority to adopt flow standards. As stated within the Bay Delta WQCP, the federal promulgation of standards affecting water supply and distribution in the Central Valley would “fundamentally interfere with the State’s water allocation authority under section 101(g) of the Clean Water Act.” (WQCP, p. 4.)

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8 WATER AGENCY and CENTRAL
9 DELTA WATER AGENCY



10 BEFORE THE STATE WATER RESOURCES CONTROL BOARD

11 CONSIDERATION OF AMENDED WATER) SOUTH DELTA WATER AGENCY AND
12 QUALITY CONTROL PLAN FOR THE BAY-) CENTRAL DELTA WATER AGENCY
13 DELTA) COMMENTS TO DRAFT WATER
14) QUALITY CONTROL PLAN SEPTEMBER
15) 2006

16 The South Delta Water Agency ("SDWA") and CENTRAL DELTA WATER AGENCY
17 ("CDWA") submit the following comments to the Draft Water Quality Control Plan for the San
18 Francisco Bay/Sacramento-San Joaquin Delta Estuary ("Draft Plan").

19 The Draft Plan is the result of a review process begun in December of 2003 to determine
20 if there is any basis for changing the 1995 Water Quality Control Plan. Certainly many things
21 have transpired since the adoption of the 1995 Plan; however, the relevant questions pertain to
22 whether there is any basis for changing the objectives previously set to protect identified
23 beneficial uses.

24 As in the past, SDWA's concerns and comments relate to those objectives which affect
25 South Delta agriculture; specifically the salinity objectives and the export limitations under the
26 fish and wildlife objectives.

27 **SALINITY OBJECTIVES**

28 Appendix 1 to the Draft Plan gives a comprehensive overview of the various parties'

1 evidence and recommendations with regard to the Southern Delta salinity objectives. In addition,
2 it provides an accurate analysis of the evidence and testimony submitted, resulting in a
3 recommendation to not make any changes to those objectives. The SDWA fully supports the
4 Staff's recommendations.

5 As discussed in SDWA No. 9, page 15, et seq., the development of the current salinity
6 standards took many years. Literally thousands of man-hours were expended and almost every
7 interested party contributed to the effort. Existing studies and new studies were reviewed, and
8 the Board determined what was necessary to protect the agricultural beneficial uses in the
9 Southern Delta. Once developed (first in 1978) and later adopted, no party objected to these
10 standards or litigated their appropriateness.

11 After numerous false starts, the 1995 Plan sought to immediately implement the Vernalis
12 and Brandt Bridge objectives, and have the Middle River at Old River and Tracy Blvd. Bridge at
13 Old River standards implemented no later than December 31, 1997. Again, no party objected to
14 or litigated these standards or time lines.

15 D-1641 implemented the Vernalis Standard, but the other three were delayed until April
16 of 2005. Again, no party objected to or litigated either the standards or the time frame for
17 implementation.

18 Once 2005 approached, we suddenly heard a hoist of objections. Those objections
19 included: The objectives were not really enforceable against DWR and the Bureau; Salinity needs
20 more study; 0.7 EC was not needed; 1.0 EC or higher was sufficient; Reservoirs would have to
21 be drained to meet the objectives; It was too big a burden to meet these objectives. However, in
22 trying to support these objections, the parties failed to provide any real evidence.

23 DWR presented a report by Mr. John Letey which purported to show that 1.0 EC was
24 protective and thus 0.7 not needed. This evidence/testimony was subject to cross-examination at
25 the Cease and Desist Order hearing. In that cross-examination, we heard:

26 Q. By Mr. Nomellini: Mr. Letey, based on your
27 testimony, am I correct you are not offering any testimony with
28 regard to the impact of salinity in the water on agricultural
operations in the Delta?

1 A. My testimony is generic, not specific to any
2 location. (October 25, 2005 transcript, 167:11-17¹.)

3 Why could Mr. Letey's "study" not be relied upon to support change to the Southern
4 Delta standards? The explanations were given by SDWA's expert witness at the CDO Mr. Terry
5 Prichard who clarified three errors of Mr. Letey. (See CDO transcript, November 21, 2005, 4:6-
6 11; 5:2-12; 22:20-21; and 23:2-11.) First, Mr. Letey assumed a soil permeability associated with
7 a sandy soil whereas the South Delta has over 70 soil types including significant areas of very
8 low permeability. Second, Mr. Letey wrongly assumed different root zones will take in water at
9 different rates. It was clarified that pervious data and studies contradict this new assumption by
10 Mr. Letey.

11 Third, Mr. Letey looked at three possible rainfall scenarios in order to estimate the effect
12 of rainfall on soil leaching without considering the other and numerous variables associated with
13 actual effective rainfall. Again, Mr. Prichard clarified why Mr. Letey's approach did not yield
14 information relative to the situation in the South Delta.

15 Importantly, no party offered any evidence, testimony, or cross-examination to contradict
16 Mr. Prichard's analysis or refute his factual assertions.

17 The other evidence submitted to support changing the South Delta salinity standards was
18 submitted by San Joaquin River Group Authority ("SJRG"), and it was quite voluminous.
19 Tellingly, this evidence was also listed for submittal in the CDO hearing but when the time came,
20 SJRG chose to not submit it or provide its authors for cross-examination. Notwithstanding
21 this, SDWA addressed the SJRG's incorrect assumptions and concerns through its Exhibits 4,
22 5, 6, 7, 8, and 9A. Page 68 of Appendix 1 of the Draft Plan is Staff's brief summary of how
23 SDWA pointed out why some of the SJRG evidence was not supportive of changes to the
24 Southern Delta Salinity objectives. It is important to note that no witness and no evidence was
25 submitted to address the specifics of the situation which exists in the South Delta. That situation
26

27 ¹ The documents for the CDO hearing are found at
28 http://www.waterrights.ca.gov/Hearings/usbr_exhibits.html. SDWA submitted all of its document
in that proceeding as evidence in this review process.

1 is that with the numerous soil types, many of which have extremely low permeability, it is not
2 possible to adequately leach the salts out of the soil profile unless water with a quality of 0.7 EC
3 is available. Again, none of the contrary evidence submitted addressed this low permeability
4 issue as it relates to the ability to remove salts from the soils.

5 SDWA also put on other evidence supporting the current objectives. This evidence
6 included such things as how farming practices limit leaching opportunities (SDWA 7) and the
7 ongoing damage to crops which each year adversely impacts Delta farmers (CDO Testimony of
8 Bill Salmon designed SDWA-3 therein). In addition, SDWA put on extensive evidence at the
9 CDO showing the significant monetary impacts to San Joaquin County and the Delta resulting
10 from changes in the objectives (CDO Testimony of Sean Snaith, PhD, designated SDWA-6
11 therein). None of this was refuted.

12 Hence, we are left with only one conclusion at this time, the conclusion Staff reached
13 which is, "[T]he State Water Board does not have adequate evidence on which to base
14 substantive changes to the Southern Delta EC (salinity) objectives for the protection of
15 agricultural beneficial uses at this time." (See Appendix 1, page 70.)

16 SDWA also supports staff's clarification set forth on page 9 of the draft Plan. That
17 clarification notes that although we have three distinct compliance locations in the Southern
18 Delta, the 0.7/1.0 EC standard applies generally throughout the area. Though helpful, it should
19 go without saying that good water quality is needed throughout the South Delta, not just at
20 certain points.

21 EXPORT LIMITS

22 Table 3 of the Draft Plan sets forth certain water quality objectives for fish and wildlife
23 beneficial uses, and includes "export limits" as one of the measures necessary for protecting
24 those beneficial uses.

25 Footnote 18 of that Table sets a limit on exports during the April 15 - May 15 pulse flow
26 period. That pulse flow is to assist out migrating smolts in their journey to the ocean and is
27 intended to assist them in moving past the effects of the export pumps. Footnote 18's limits on
28 exports during this period are 1,500 CFS or 100 percent of the San Joaquin River flow at

1 Vernalis.

2 First with regard to this, SDWA submits that the purpose of the pulse flow is frustrated if
3 the export projects can export all of the Vernalis pulse flow. That is to say, if all of the flow can
4 be exported, there is no pulse to move the smolts past the export pumps.

5 Second, the footnote also provides that variations in the maximum export rate are
6 authorized and that this "flexibility is intended to result in no net water supply cost annually
7 within the limits of the water quality and operational requirements of this plan."

8 An "intent" to protect net exports may or may not be desirable, but it has nothing to do
9 with protecting fish and wildlife beneficial uses. Not being able to export at times when fisheries
10 can be harmed protects fish, but being allowed additional exports at other times does not address
11 the protection of fisheries. Similarly, the current Biological Opinion for Delta smelt limits
12 exports at this time anyway. SDWA is aware of nothing in the Record which suggests that
13 allowing additional exports during a time when a Biological Opinion precludes them would
14 somehow protect fish and wildlife beneficial uses. There is no reason to allow exports in excess
15 of what current regulations specify as the upper limits of what is necessary to protect those
16 fisheries.

17 The subject footnote should set a limitation on exports which allows for the specific pulse
18 flows of the plan to provide their benefits by transporting out migrating smolts past the pumps
19 and the "no net loss" provision should be removed.

20 **OTHER**

21 As previously provided, SDWA believes that the 0.7 EC standard should be expanded to
22 include other months. We hope that the upcoming workshops beginning in January will examine
23 this issue as well as the other issues specifically described.


24 Also as previously stated, SDWA believes that the protection of agricultural beneficial
25 uses requires minimum flows into the Delta and minimum water levels. The flows are necessary
26 for numerous reasons, such as having sufficient flow for the temporary and permanent barriers to
27 operate and perform efficiently and to provide necessary water levels in those areas no longer
28 affected by the Delta tides.

6-2

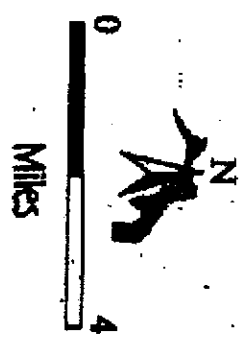
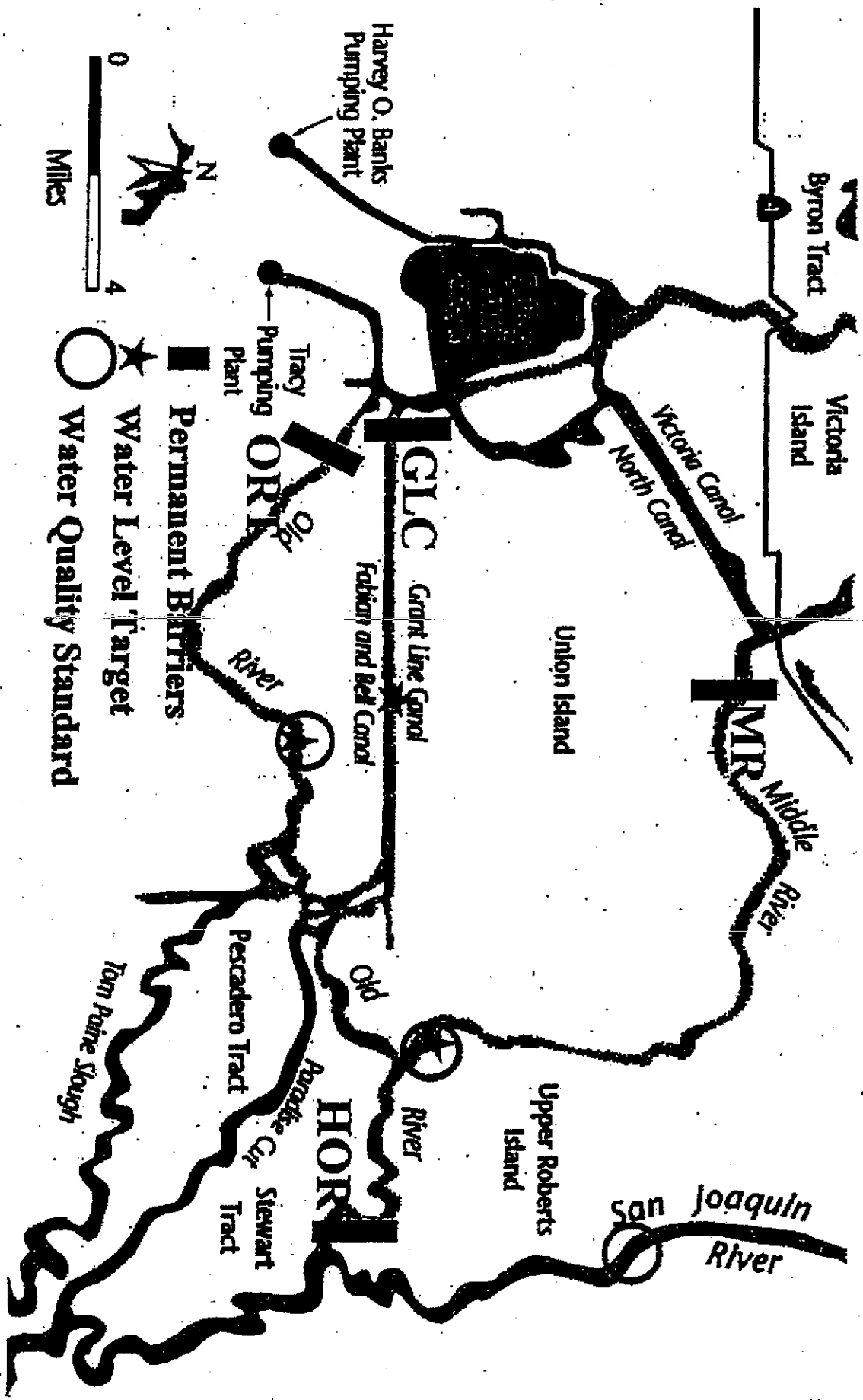
6-3

1 Levels are necessary to allow senior water right holders and parties protected by the Delta
2 Protection and Area of Origin Acts the ability to exercise their rights. Without such minimum
3 levels, portions of the Delta may have only a small flow of good quality but insufficient for
4 agricultural or other uses. For example, at the times when Middle River goes dry in most years,
5 that channel provides not only no water for local agricultural diverters, but also no protection for
6 fish and wildlife beneficial uses. We hope the Board will promptly address these issues.

7 Dated: November 6, 2006

8 
9 JOHN HERRICK, Attorney for SOUTH DELTA
10 WATER AGENCY and CENTRAL DELTA
11 WATER AGENCY
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27 SDWA\Comments\SDWQCP
28



- Permanent Barriers
- ★ Water Level Target
- Water Quality Standard



November 8, 2006

Ms. Tam M. Doduc, Chair
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Subject: Department of Fish and Game’s Comments on the State Water Resources Control Board’s Draft Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.

The Department of Fish and Game has reviewed the 2006 Draft Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Draft 2006 WQCP) and appendices issued by the State Water Resources Control Board (the State Board). In addition, we reviewed Attachment 1 of your transmittal notice identifying three emerging issues which your staff believes warrant further investigation, consultation, and consideration. In accordance with our statutory authority and trustee responsibilities to protect California’s fishery resources, we are providing comments on the Draft Plan, its recommendations, portions of the appended supporting information, and proposed future process. Our recommendations are divided into two areas: San Joaquin River flow objectives and the need to conduct a future workshop on emerging San Joaquin River issues; and, comments on specific sections of the Draft 2006 WQCP.

I. Recommendations Regarding San Joaquin River – Vernalis flow Objectives in the Spring Months

During your 2005 workshops, DFG presented written and oral evidence concerning the status and trends of Chinook salmon populations within the San Joaquin Basin (DFG exhibits 07, 08, 09, 10). We noted, and the Draft Plan acknowledges, that salmon populations in the basin are below State and Federal “population doubling objectives” and, rather than increasing, are in fact declining. Further, the “equivalent fishery protection” standard, assumed to be achieved by the VAMP Agreement and the State Water Board’s adoption, remains unsatisfied. In your workshop, we and others presented substantial science-based evidence that these tributary salmon population long-term declines are directly related to magnitude, frequency, and duration of flow in the San Joaquin River during the spring. We also presented preliminary modeling of the salmon escapement based on spring Vernalis flow conditions. We concluded modification of the objective during the spring months, both in seasonal duration and in magnitude, is needed in order to: (i) remedy the salmon decline, and (ii) gather additional scientific information, particularly at the upper range of flow. We submitted for your record a San Joaquin River Chinook Salmon Population Escapement Model (Model) (DFG 08), and at the Board’s request, appeared again to clarify the relationships between flow and salmon

7-1

escapement and explain the scientific basis for the flow-salmon escapement Model (DFG 10). We also asked for the Board's assistance in obtaining the range of VAMP study flows and durations necessary to obtain the data required to calibrate our population Model at the higher flow ranges.

We acknowledge that the Model presented at the Periodic Review workshops had not yet been subjected to scientific peer review. And while the Department is confident in the scientific validity of the Model and the conclusions we have drawn from it, we recognize the value of peer review. Therefore, we took two steps. First, we held a technical briefing on October 14, 2005 and provided the Model to the San Joaquin River Group and others. Then, we submitted the Model to a formal "blind" peer review process, facilitated through California Bay Delta Authority. We recently received the outcome of that review and are in the process of determining how to modify the Model, as appropriate, based on reviewers' feedback. We expect to complete these improvements and have a revised version of the Model and associated documentation available by mid-summer, 2007.

7-1 cont.

We believe that there are several evolving circumstances related to spring flow objectives for the San Joaquin River that the State Water Board will want to consider in the near term. The State Water Board has used the term "emerging issues" to describe three other topic areas (Pelagic Organism Decline (POD), Climate Change, Central Valley Salinity) for which it intends to regularly solicit information and take further actions as appropriate, including potentially amending the Bay-Delta Water Quality Control Plan. Workshops are scheduled or are planned in 2007. Because new information will be available, and the water management context on the San Joaquin River is changing, we strongly recommend that the State Water Board identify San Joaquin River flows, and related beneficial uses, as a fourth "emerging issue". By doing so, the State Water Board can provide a forum where new information on the following interrelated topics may be presented and the implications for the Bay-Delta Water Quality Control Plan can be discussed and considered publicly by the State Water Board, its staff, and others:

- DFG's peer reviewed salmon escapement/flow model
By the late summer 2007, DFG will be prepared to present this model at a workshop and share our view of its implications for the needs of San Joaquin basin salmon.
- VAMP status
The original intent of VAMP was to first evaluate conditions at the extremes of the experimental design. Yet, with only five years remaining, no salmon survival evaluations have been conducted at the upper range of the original design's flows (7,000 cfs) with a barrier at the head of Old River. Instead, salmon survival has

been evaluated at the low end of the flow range (3,200 cfs) for three years, and at 4,450 cfs and 5,700 cfs in one year each. The last two years were extremely wet and spring flows were greater than 10,000 cfs. Unless several evaluations are completed at 7,000 cfs and at each of the two export pumping rates, it seems certain that the VAMP study results will be inconclusive and, with over 40 million dollars spent, the VAMP will have failed to produce the information VAMP participants and the State Water Board sought to obtain.

- San Joaquin basin salmon smolt survival without a barrier at the head of Old River
The Head of Old River barrier is intended to help improve out-migrating juvenile salmon survival. However, adverse effects on delta smelt due to hydrodynamic conditions in south Delta channels may at times preclude spring operation of this barrier. In the absence of the barrier, more spring Vernalis flow will be necessary to achieve the same level of smolt survival protection as the with-barrier condition.
- Relevance of San Joaquin River inflows for Delta habitat and species
New information from the ongoing investigation into the causes of the Pelagic Organism Decline (POD) suggests several hypotheses linking flow from the San Joaquin River to critical environmental conditions and processes affecting biological productivity and fish survival in the Delta/Estuary.
- Federal Court Settlement Agreement in NRDC v. Rodgers
Implementation of the settlement will cause changes in the lower San Joaquin River and Delta. The presence of other anadromous fish species, (e.g., spring-run Chinook salmon) as well as new water management actions within the basin will need to be integrated into the spring flow planning and the VAMP study program in order to avoid confounding effects on experimental outcomes. Water released from Friant Dam will have to be incorporated into studies of Delta operations and assessment of effects on anadromous fishes targeted for restoration and the species included in the ongoing POD investigations.

We could welcome an opportunity to work with your staff and others collaboratively on emerging San Joaquin River issues including the development and use of the salmon escapement Model and other tools to aid the State Water Board in better understanding the need for, and impacts associated with, changes in the Vernalis water quality and flow objectives.

7-1 cont.

II. Comments Regarding Specific Sections of the Draft 2006 WQCP Program of Implementation

The Department respectfully submits comments on the following portions of the Program of Implementation found in Chapter IV of the Draft 2006 WQCP.

With regard to Section B., "Measures Requiring a Combination of State Water Board Authorities and Actions by Other Agencies," the Department fully supports the State Water Board's following proposed action:

5. Suisun Marsh: Narrative and Numeric objectives (Page 33)

7-2

In particular, we fully support the State Water Board using the results of the final PEIS/EIR and the resulting Suisun Marsh Plan currently being prepared by the Suisun Marsh Charter Group to determine whether and how to convert the narrative objective to a numeric objective for the Brackish Tidal Marshes and to determine the objectives at stations S-97 and S-35.

With regard to the measures listed under Section C, "Actions Recommended to Other Agencies," we concur that actions both within and outside the Estuary are needed on the part of the State Water Board and other agencies in order to recover anadromous fish populations to levels which meet the doubling objective and provide equivalent protection, pursuant to the VAMP agreement. In addition, we are providing the following specific comments, which correspond by number to actions listed under Section C. We consider these recommendations to pertain to programs or actions with a special relationship to the Department's mission, authorities, and expertise:

1. Review, and modify if necessary, existing commercial and sport fishing regulations (Page 34)

7-3

The regulations referred to in this recommendation are reviewed and modified on a regular basis by the entities with jurisdiction. We note that dramatic declines in anadromous fish populations have typically occurred following construction of dams and new water diversions and from habitat degradation related to water quality and other environmental stressors. We note that when specific salmon stocks have been heavily impacted by habitat stressors and their abundance dropped to very low levels, fishery managers have tightened harvest regulations to assist with recovery. Examples include changes in the fishing regulations in the 1990s to reduce the inland and ocean harvest of winter-run Chinook initially and later spring-run Chinook salmon. These regulations remain in place today. Most recently in spring 2006, additional regulation changes were promulgated in

response to depressed abundance of Klamath River salmon stocks caused by in-river habitat problems.

All of these stocks occur together in the ocean and all should experience some reduction in fishing mortality from the stricter regulations. Yet salmon returns to the San Joaquin River tributaries have not increased in recent years, despite these increasing restrictions on ocean harvest put in place to help threatened or endangered salmon stocks from other watersheds. Our analyses indicate this is because adult salmon escapement to the San Joaquin tributaries is being driven primarily by low juvenile salmon production resulting from inadequate magnitude, duration and frequency of spring flow and poor survival of out-migrating juvenile salmon.

The Department shares the responsibility with other agencies to manage fisheries in a responsible manner. We believe that this obligation is being carried out satisfactorily. We discourage the State Water Board from adopting a view progressively diminishing salmon fishing opportunities is the key to restoration where the real problem is degradation of aquatic habitat for spawning, rearing and migration that needs to be addressed through regulation of water quality and water use, among other factors.

4. *Improve hatchery programs for species of concern (Page 35)*

There is a significant body of literature on both sides of the debate over hatchery programs. Much of the literature critical of hatcheries pre-dates the institution of hatchery Genetics Management Plans presently required by the NOAA National Marine Fisheries Service (NMFS) for all anadromous hatchery facilities. These plans incorporate state-of-the-art knowledge and technology to minimize or eliminate effects of hatchery operation on native stock genetics.

From annualized salmon escapement data, it appears that hatchery production is a viable method to maintain individual tributary populations through drought conditions, even in the face of increased water diversions during the dry years. As such, the Department views hatcheries, when they are properly sited and their operations properly managed and regulated, as one important tool for fishery management and restoration.

7-3 cont.

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7-5

7. *Develop an experimental study program on the effects of pulse flows on fish eggs and larvae in the Delta (Page 36)*

Free floating life stages (eggs for some fish species, newly hatched larvae of even more) move with the water and thus are completely vulnerable to the hydrodynamic effects of water management. These effects have been studied using Delta hydrodynamic/particle tracking models. Lower trophic level organisms (phytoplankton, zooplankton) may be similarly affected. Flow patterns also may influence the migration of swimming life stages, however, behavioral preferences come increasingly into play. Sampling eggs and small larvae in the field is challenging and detecting changes in their distribution over time with reasonable levels of effort is problematic. Models may represent our best method for increasing our understanding of how flow pulses may be useful for improving fish survival.

7-6

9. *Suisun Marsh soil and channel water salinity objectives (Page 37)*

The Department believes that the recommendation for a water and soil salinity study has been completed. A comprehensive review of Suisun Marsh monitoring data, including soil salinity, was completed in 2001 by DWR with support from the Suisun Resource Conservation District and technical review by the Department, University of California at Davis, and NMFS. Correlations between channel water salinity and soil salinity were difficult to determine due to the high variability in field conditions and obstacles to collecting samples in a consistent manner. The conclusion was that soil specific conductance (SC) did not appear to be directly tied to the monthly channel water SC values, but the SC of channel water during fall flood-up of the managed wetlands often did influence the soil SC through the rest of the year. Other factors, such as water management, have a more direct and immediate effect on soil SC.

7-7

10. *San Joaquin River Spring Flow Objectives (Page 38)*

This recommendation appears to put the burden of changing the Vernalis objective upon the State and Federal fish agencies by requesting that these agencies, in combination with interested parties, compile information and conduct studies to determine what changes should be made to protect SJR salmon and steelhead as well as POD organisms. In particular, the agencies are asked to conduct analyses to evaluate if it is appropriate to revise the methodologies used to determine when higher spring flow objectives should apply (to better reflect hydrological conditions in the SJR basin) and to determine the water costs of

various flow proposals. We agree we have a key role to play in this process. However, we also believe the State Water Board has ultimate responsibility for ensuring that the water quality objectives for fish and wildlife beneficial uses include sufficient San Joaquin River spring flows.

The Department has presented information that demonstrates the existing spring pulse flow objectives at Vernalis to protect SJR salmon and steelhead are inadequate. We provided to the State Water Board a preliminary spring pulse flow schedule intended to help address the adverse effects of water operations and to protect SJR salmon and steelhead. As stated above, we are now requesting the State Water Board include this as an "emerging issue" and schedule a public workshop focused on the San Joaquin River in order to hear new information, evaluate the science, and determine whether or not to revise the proposed spring Vernalis flow objectives. This approach would enable the VAMP study to be amended to include a revised Vernalis spring flow schedule that allows for i) substantively improved out-migration conditions for juvenile SJR salmon and steelhead; and ii) additional information to be collected regarding the influence of spring pulse flow magnitude, and duration, in combination with Delta exports levels, on juvenile salmon survival.

7-7 cont

11. River Flows: San Joaquin River Flows at Airport Way, Vernalis (Page 39)

This recommendation urges DWR to establish procedures enabling installation of the Head of Old River barrier at flows in excess of 5,000 cfs during the pulse flow period. Presently, flow must be less than 5,000 cfs to safely construct the barrier, although once constructed it can function at higher flow. This flow-related barrier construction constraint has not been a factor so far, however it makes it less likely that the 7,000 cfs VAMP experiments will be accomplished with the barrier in place because a relatively specific and uncommon scenario must occur. Because the 7,000 cfs tests are critical to completing the VAMP program we concur with the intent of this recommendation. However, we must point out that installing/operating southern Delta barriers in the spring is becoming more complicated due to their effect on southern Delta hydrodynamics and adverse impacts on delta smelt. This circumstance raises the question of how suitable out-migration conditions will be provided for salmon when considerations for other species preclude having a barrier at the head of Old River.

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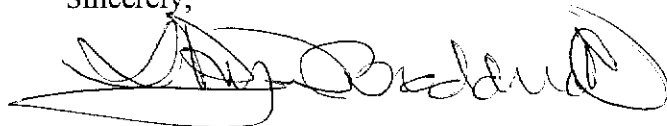
In closing we would like to highlight our interrelated roles: the State Water Board has statutory responsibility to protect Delta Estuary water quality for all beneficial uses, including fish and wildlife, and we have specific statutory responsibility for the fish and wildlife public trust resources that rely on adequate water quality and other features of the

SWRCB Letter
November 8, 2006
Page 8

Delta and San Joaquin River Basin for their survival. As such, we view our role as one of assisting the State Water Board in obtaining the information needed to make effective and scientifically based resource management decisions. We look forward to working with you and your staff on developing the best available information on which to base water quality objectives and other critical resource decisions.

We appreciate this opportunity to provide comments on the Draft 2006 WQCP. If you have any questions, please contact Jim White, Water Branch, Resource Management and Policy Division, 1416 Ninth Street, Sacramento, CA 95814. Mr. White can be reached by phone at (916) 653-3540.

Sincerely,

A handwritten signature in black ink, appearing to read "L. Ryan Broddrick", written over a horizontal line.

L. RYAN BRODDRICK
Director

cc: Bill Loudermilk -Fresno
Chuck Armor - Stockton
Tina Cannon - Legal

M e m o r a n d u m

Date: November 9, 2006

To: Song Her, Clerk to the Board
State Water Resources Control Board
Post Office Box 100
Sacramento, California 95812

Via electronic mail to: commentletters@waterboards.ca.gov

From: Office of the Chief Counsel
Department of Water Resources

Subject: Comments on Draft Amended Bay-Delta Water Quality Control Plan

The Department of Water Resources submits the attached comments on the State Water Resources Control Board Draft Amended Bay-Delta Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.

As requested in the Hearing Notice, DWR also will be submitting 15 paper copies and an original copy with signature and will bring additional copies to the SWRCB hearing on November 13, 2006.

Please contact me at (916) 653-5613 if you have any questions.



Cathy Crothers
Staff Counsel

California Department of Water Resources
Comments on the State Water Resources Control Board
Draft 2006 Water Quality Control Plan
For the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

November 9, 2006

I. INTRODUCTION

The State Water Resources Control Board (SWRCB) has prepared a 2006 Draft Water Quality Control Plan (Draft WQCP) to establish water quality control measures that can be implemented in part or in whole by assigning responsibility to water right holders and water users to mitigate for the effects on the beneficial uses of their diversions and use of water.¹ This Draft WQCP is the result of a three-year review process consisting of many workshops and comments by water right holders and interested parties.²

The Department of Water Resources appreciates the considerable time and effort of the SWRCB and staff in conducting this periodic review and revision of the 1995 Bay-Delta WQCP. DWR notes that the SWRCB recognizes in the Draft WQCP the complexity of the Delta issues and that not all issues will be resolved nor objectives updated at this time, even after the dedicated efforts of many over the last three years. DWR supports the SWRCB plans to conduct future workshops on these issues, such as the January 2007 workshop on the southern Delta agricultural salinity objective.

Process Used to Periodically Review the WQCP

8-1 Consistent with the upcoming process on the southern Delta salinity objectives, DWR recommends that the SWRCB modify its past practice of noticing a periodic update of the entire WQCP and instead notice specific objectives for review and

¹ The SWRCB has described this as the purpose of a water quality control plan, which consists of beneficial uses that are reasonably protected by water quality objectives and implemented through a program of actions by the SWRCB and other entities, public or private. (See Draft WQCP, p. 3; Water Code Section 13240 et seq.)

² In December 2003, the SWRCB first noticed the commencement of a periodic review of the 1995 Bay-Delta Water Quality Control Plan (1995 WQCP). In 2004, the Board held workshops to obtain comments on issues that should be considered in a revision to the 1995 WQCP. On November 30, 2004, the Board adopted the SWRCB Staff Report on Periodic Review of the 1995 WQCP. Based on the Staff Report, the Board commenced workshops, occurring from October 2004 to July 2005, to obtain information on potential changes to some of the objectives in the 1995 WQCP. With the SWRCB September 29, 2006 notice, the Draft 2006 WQCP became available for review and comment.

update. After each narrow review, the SWRCB could amend the WQCP in areas related to only that review, as appropriate. The result of each review would update the WQCP, which SWRCB could submit to the U.S. Environmental Protection Agency as required by the Clean Water Act.

This approach is different from what is suggested in the Draft WQCP that proposes to address the many unresolved issues in the next periodic review of the WQCP. For example, the SWRCB suggests in the Draft Plan to review the Suisun Marsh objectives in a subsequent periodic review after obtaining a report from the Suisun Marsh Charter Group. Instead of waiting for the next periodic review of the entire WQCP, the SWRCB could notice a review on only the Suisun Marsh objectives which could result in a revision to that portion of the WQCP related to the Suisun Marsh.

DWR believes that the SWRCB traditional periodic review process is highly complex with the potentially affected parties having to address multiple issues which requires several years. In this last review, despite the days of workshops attended by many parties, the SWRCB staff found that it did not obtain sufficient facts to support changes to objectives, such as changes to the chloride objectives for M&I beneficial uses. A possible reason for the apparent limited data and unsupportable revisions of the WQCP may be due to having too many issues to address during a process that covered the entire WQCP. Therefore, DWR suggests that a more effective and meaningful review of the Bay-Delta WQCP would be to narrow the focus of each review to a specific objective or separable set of objectives. The review would require potentially affected parties to provide comments and information on possible changes to that portion of the WQCP related to the existing objective, including whether the WQCP provides the most recent description of beneficial uses to be protected and feasible methods of implementing the objective. With a more concentrated effort, the parties and the SWRCB could use their time and resources to have the appropriate in-depth study and analysis of the issues that the SWRCB can use in considering possible changes. DWR proposes this modification in the WQCP periodic review process to improve the timeliness of SWRCB decision-making on critical issues in the Delta.

8-1 cont.

Draft 2006 WQCP and Draft Plan Amendment Report

DWR reviewed the Draft WQCP and Draft Plan Amendment Report (Draft Report) and agrees with many of the suggestions for changes in the WQCP. Below are DWR's general and specific comments on the noticed topics, identified by the WQCP objective or topic heading used during the workshops.

In general, DWR understands that many of the changes to the Program of Implementation (POI) have been made to improve readability and consistency with recent changes in water rights from the Decision 1641 hearing. However, DWR finds that the focus in the POI Section A, describing measures for

implementing objectives over which the SWRCB has direct authority is written too narrowly and has the appearance of a water rights decision rather than a water quality plan for implementing objectives. The content of Section A is generally accurate but the descriptions of implementation should be broader so that the plan may form a basis for considering methods of implementation in future water right hearings. Specific examples of language are provided below to demonstrate how the POI could contemplate future actions and proceedings and avoid the need to update the plan before specific implementation measures are adopted. In addition, DWR suggests changes to the POI to clarify language that may suggest the SWRCB has prematurely determined implementation measures where evidence is not available to support such measures.

Finally, DWR recommends changes in the WQCP to recognize the importance of flexibility in implementing protective objectives. During the last several years, resource management agencies and water project agencies have improved real time monitoring of the Delta ecosystem. This monitoring allows fishery and project agencies to propose alternative operations based on actual conditions, resulting in better protection of fishery resources. Flexibility in implementing Delta objectives should be included as a potential measure by the SWRCB in the POI to better protect Delta beneficial uses.

II. COMMENTS ON DRAFT 2006 WQCP AND DRAFT REPORT

A. OBJECTIVES FOR MUNICIPAL AND INDUSTRIAL USES

1. Chloride Objectives For M&I

General Comments

The Draft 2006 WQCP makes no changes to the water quality objectives for Municipal and Industrial (M&I) beneficial uses found on Table 1. DWR agrees with not changing these objectives at this time. However, DWR recommends that the SWRCB consider holding future workshops to review and possibly update requirements for implementing these objectives after additional monitoring data is collected from Rock Slough and vicinity.

DWR's specific comments on the status of issues raised during the January 2005 workshops and proposed changes to Appendix 1 of the Draft 2006 WQCP are provided below and identified by the topic listed at the workshop.

Specific Comments

a. Description of 150 mg/l Chloride Objective at Rock Slough

The SWRCB has decided to not change the method for calculating compliance with the 150 mg/L chloride objective at Rock Slough from a calendar year basis

to a water year basis in the draft 2006 Plan. DWR believes that both methods have merit. Use of the water year would remove the uncertainty associated with compliance in the fall, which could result in more efficient water management decisions made the previous spring and summer. On the other hand, the fall salinity conditions are probably more connected with the hydrologic conditions in the preceding nine months (as is the case in 2006) than being a driver for conditions for the following nine months. Although DWR feels a change in methodology should be considered in future reviews, it does not feel there is a strong argument to recommend any change at this time.

b. Chloride Objectives Compliance Location - Pumping Plant Number 1

During the January 10, 2005 workshop discussing whether the compliance location for the M&I Chloride objective should be modified, DWR and USBR presented evidence that water quality degradation occurred in Rock Slough and the Contra Costa Water District (CCWD) Canal due to agricultural drainage and ground water seepage. These impacts to water quality are not caused by the SWP or CVP, and DWR and USBR cannot reasonably control water quality at Pumping Plant #1 (PP#1) under low-flow conditions in Rock Slough. DWR, USBR, and CCWD presented proposals on an alternative approach to complying with the Chloride objectives, based on the pumping rate at CCWD PP#1 and on the Electrical Conductivity in Old River at Holland Tract. CCWD did not agree with the values proposed by DWR and USBR, so the agencies did not present a final proposal to the SWRCB.

Since 2005, CCWD, with DWR and the CALFED Program, have implemented source control projects in and near Rock Slough that have reduced the drainage into the Slough. Also, CCWD has begun the first phase of its canal replacement project which will eliminate a main source of salinity in the western part of the system. Future monitoring of the Rock Slough and vicinity should help determine the effect of the drainage control projects on achieving the objectives at PP#1.³ Because these projects are changing conditions in Rock Slough, it is premature at this time to determine the most reasonable method of implementing the objective at PP#1. Therefore DWR requests that SWRCB revisit this objective to include a different compliance location or method of implementation in a future update of the WQCP, after additional monitoring data is obtained.

Although DWR agrees with the SWRCB conclusion to not make changes to the M&I objectives at PP#1 at this time, DWR does recommend changes to the Draft Plan Amendment Report (Appendix 1) to clarify the process on future changes to the WQCP. DWR believes that the SWRCB should assign responsibility for

³ DWR recently installed a new monitoring station at the mouth of Indian Slough to track the "new Veal Tract" drainage and to monitor that a reverse flow would not effect the salinity within Rock Slough. By this spring, DWR should have data to show the effects of the Veal Tract drainage relocation on the Rock Slough. CCWD is monitoring effects of the lining of the Contra Costa Canal. DWR and CCWD are coordinating the collection of monitoring data in the area.

implementing water quality objectives based on a water user's effect on the beneficial uses from their diversion and use of water. The SWRCB should not assign full responsibility to implement an objective to a party where other intervening users cause degradation and interfere with obtaining an objective as this can result in an unreasonable use of water. DWR recommends that the SWRCB include options of identifying other users who impact water quality and propose methods through which these other users can help implement the objectives. The discussion in the Draft Appendix 1 regarding chloride objective compliance location discusses the role of DWR and USBR under their water rights but does not discuss potential means to better implement objectives through other agencies.

DWR recommends revising the language in Append. 1, at page 39, as follows:

8-2

In a water right proceeding, the State Water Board considers the responsibilities of all water right holders who divert water from the watershed when determining responsibility for implementing an objective. ~~cannot partially relieve the Projects of responsibility for implementing the objective without either having changed the objective in a water quality control plan amendment or ensuring that another responsible party will meet the objective. (See Wat. Code, § 13247; State Water Resources Control Board Cases (2006) 136 Cal.App.4th 674, 725-735.)~~ The Board has not identified ~~no other potentially responsible water right holders entity has been identified~~ that should be required to meet the objective at PP#1. Further, the State Water Board has not received adequate documentation, including documentation that would form the basis for an environmental analysis, to justify revising the water quality control plan by moving the objective to Holland Tract during certain periods. Accordingly, ~~if~~ the Projects wish to seek a change in their water right obligations without amending the objective, they must file a petition to change their water right permits and also provide a basis for assigning some responsibility for the objective to another entity ~~for the otherwise unmet part of the responsibility~~. Alternatively, the Projects or other parties could provide adequate documentation to support modifying the water quality control plan and request that to allow the State Water Board to amend the objective or the program of implementation by identifying to specify a different compliance point during certain periods or recommending actions by other agencies to implement the objective.

2. New Water Quality Objectives For M&I

The SWRCB has decided to not amend the M&I objectives for other constituents such as bromide and Total Organic Carbon (TOC) at this time. DWR supports the SWRCB decision not to amend the objectives.

B. WATER QUALITY OBJECTIVES FOR AGRICULTURAL USES

1. Southern Delta Water Quality Objectives

General Comments

A substantial amount of information regarding the numerous factors contributing to southern Delta Salinity, the limited impact of State Water Project (SWP) operations and the narrow range of options currently available to assist in meeting the objectives, particularly in dry and critical years, has been provided to the SWRCB during previous water rights proceedings. These include the review of the 1995 Bay-Delta Water Quality Control Plan, the D-1641 water rights hearings and the recent hearings related to the Cease and Desist Order WRO 2006-006 (CDO). DWR and USBR have proposed constructing permanent operable gates in the south Delta, in lieu of the existing rock barrier program, to provide improvements in water management related to water levels and circulation patterns. This improved water management would assist in meeting the southern Delta salinity objectives. However, the Permanent Operable Gates alone will not be sufficient to meet the objectives in all year types, particularly at the Brandt Bridge compliance location (C-6). The SWRCB recognizes this in D-1641, stating "The construction of the permanent barriers alone is not expected to result in attainment of the water quality objectives." (D1641, p.88). DWR submitted information in the recent hearings on the CDO demonstrating the limited impact of SWP export operations on southern Delta salinity (DWR Exhibit 20-20C). Releases from the SWP reservoir upstream of the Delta, Lake Oroville, and reductions in exports were shown to be unreliable ways to control south Delta salinity. Salinity at south Delta stations is primarily dependent on salinity in the San Joaquin River and local Delta discharges. In the January 2007, at the SWRCB workshops on the southern Delta objectives, DWR intends to present the above information to assist in developing a scope of work for studies needed on the objectives.

The southern Delta salinity objectives in the Draft 2006 WQCP contain no provision for staged implementation or relaxation of the objectives in dryer year types. There is no recognition of the limited capability to meet 0.7 EC or reasonableness of requiring substantial releases during dry and critical years in an attempt to meet the objective. The salinity objectives for the Western and Interior Delta vary by year type and provide for a relaxation in drier year types. The southern Delta salinity objectives should also contain a provision to allow a relaxation to 1.0 EC, the objective in place prior to April 1, 2005, during dry and critical years similar to the flexibility contained in the objectives for the Suisun Marsh and the Interior Delta. Alternatively, a provision should include staged implementation of the standard pending completion of the permanent operable gates, the study of southern Delta salinity requirements, and the completion of water rights hearings to equitably allocate responsibility for implementing the objectives. Even with the gates, additional releases would be required in dry and

critical year types to meet the 0.7 EC objective when available storage is often very limited. In D-1641, the SWRCB considered this an unreasonable use of water (D-1641 p.10).

8-3 | D-1641 contains a provision that replaces the 0.7 EC objective with 1.0 EC at the three southern Delta compliance locations when the Permanent Operable Gates are in place. The draft 2006 WQCP is not consistent with this provision of D-1641. The writ of mandate issued in the Central Delta Case (*Central Delta Water Agency v SWRCB*, Case No. 311502, July 5, 2006) requires that the SWRCB commence proceedings either to assign responsibility for meeting the southern Delta salinity objective of 0.7 EC or to amend the water quality control plan. The SWRCB has the opportunity in these proceedings to modify the POI in the draft 2006 WQCP to include language that is consistent with that contained in D-1641, and allow the flexibility to incorporate any recommendations resulting from the proposed study of southern Delta salinity requirements. The SWRCB should modify the POI, at this time to either provide for a phased implementation of the objective or at a minimum include a discussion of the 2007 workshops and intent to continue review of the objective and reasonable implementation measures.

Specific Comments

a. Program of Implementation, Southern Delta Agricultural Salinity Objectives

i. *Measures Within SWRCB Authority*

8-4 | The SWRCB workshops in January 2007 will provide an opportunity to evaluate and develop appropriate measures to protect southern delta agricultural beneficial uses. In anticipation of the upcoming review, the southern Delta objectives are not revised in the Draft 2006 WQCP. DWR believes, however, that changes in the POI describing implementation by measures within the SWRCB authority should be revised. In this section, the SWRCB discusses implementation of objectives through conditions on licenses and permits of water right holder. DWR believes that the revisions in the POI mischaracterize the implementation of the southern Delta objectives required by DWR under the water rights conditions in D-1641. This description states that implementation of the southern Delta objectives is by DWR and USBR. However, it also states that the implementation requires actions taken by other agencies. The subsequent section then describes many actions taken that help implement the objective. In order to clarify that other measures besides water rights are helping to implement the southern Delta objective, DWR recommends revising the statement on page 25 of the draft WQCP regarding DWR and USBR water rights as follows:

“The DWR and the USBR currently have conditions ~~are responsible~~ under their water right permits and licenses that define their responsibilities for implementation of the Southern Delta objectives to protect agricultural beneficial uses.”

ii. Measures Requiring a Combination of SWRCB Authorities and Actions by Others

DWR recommends changing the POI to recognize phased implementation of the southern delta salinity objectives. The SWRCB could change the POI to include a phased implementation of the southern delta objectives, similar to the phasing proposed for implementing the San Joaquin River fish flow objective through the VAMP and San Joaquin River Agreement. The POI could recognize implementation of the agricultural objectives in an initial phase that requires achieving 1.0 EC at the southern Delta compliance locations. The second phase of implementation would be to achieve the 0.7 EC through actions by the SWRCB, Regional Water Quality Control Board, and other entities to reduce discharges and local drainage that degrades the water quality in the southern Delta. The POI describes programs, as part of the actions taken by other agencies that could implement this second phase (see draft WQCP POI, p. 26-31). The POI should describe as a possible approach to implementing the southern Delta objectives a phased implementation so that any future water right decisions or water quality discharge permits could be made consistent with the Draft 2006 WQCP.

DWR agrees with the discussion in the POI that elevated salinity in the southern Delta is caused by many factors. DWR disagrees, however, with the statement that one of these factors is "salts imported in irrigation water by the State and federal water projects." (Draft WQCP, POI, p. 26). DWR interprets this phrase as describing salinity that comes from irrigation return water from agriculture in the Central Valley. If this interpretation is correct, the SWP should not be included as a source of the irrigation water since an insignificant amount of the water that SWP exports drains into the south Delta or the San Joaquin River.

DWR recommends revising this sentence because pumping SWP water by DWR under its water right permits does not contribute any measurable quantities of salt to the San Joaquin River system. A broader statement that more generally describes the basis for salinity conditions in the southern delta is recommended as more appropriate to a planning document where specific data on sources of salinity has not been identified. Therefore, DWR recommends the first sentence of this section, page 26, be changed as follows (as well as a similar sentence in the last paragraph of Append. 1, page 62):

"Elevated salinity in the southern Delta is caused by low flows; salts imported to the San Joaquin Basin in irrigation water by upstream water users ~~the State and federal water projects~~; municipal discharges; subsurface accretions from groundwater; tidal actions; diversions of water by the SWP, CVP, and local water users; channel capacity; and discharges from land-derived salts, primarily from agricultural drainage."

8-5

iii. State Regulatory Actions (p. 27)

8-8

In the POI, DWR and the USBR are the only parties identified as responsible for implementing the South Delta salinity objectives. The subsection i., on page 27 under "State Regulatory Actions," states that the SWRCB could require releases from other non-SWP/CVP reservoirs. The SWRCB has been provided information demonstrating that DWR has only a minor influence on southern Delta salinity. The POI should contain a commitment by the SWRCB to commission a study of the relative contributions of various parties to southern Delta salinity degradation and to open a water rights hearing to allocate responsibility through measures that can reasonably meet southern Delta salinity by those contributing to the degradation. The POI should be proposing a plan that clarifies that the SWRCB will implement the objectives through mitigation from other entities who cause increased salinity in the southern Delta. As currently written, the POI only identifies responsibility for mitigation from the SWP and CVP, despite the SWRCB's recognition in D-1641 that the USBR and DWR only have partial responsibility for the objective.

DWR supports the SWRCB recommendation in subsection ii, that "The CVRWQCB shall impose discharge controls on In-Delta Discharges of salts by agricultural, domestic, and municipal dischargers." (POI subsection ii, p. 27.).

8-7

DWR recommends that this action can be broadened to include the regulatory actions described in subsection iii. Irrigators within the Delta should implement water management measures as means of controlling salinity within the Delta Channels. In addition, in-Delta dischargers governed by NPDES permits should be required to comply with the 0.7 EC objective. Any relaxation for municipal discharges contributes to in-Delta degradation and could contribute to an exceedence of the objectives requiring the Projects to take additional steps to mitigate those impacts of other parties. The SWRCB should include language in the POI that provides for reallocation of responsibility for meeting the objective following completion of the workshops on South Delta Salinity discussed under Recommended Studies (page 30) to more equitably reflect the other parties that are contributing to salinity problems in the South Delta.

iv. Current Projects and Actions by Other Agencies (p.28)

The last sentence of the first paragraph on page 28 states that the listed projects could make additional regulatory measures by the SWRCB and Regional Water Board unnecessary. The possible benefits to water quality from implementation of the various listed projects and actions may result in improvements in San Joaquin River water quality. To achieve such benefits downstream of Vernalis, the SWRCB should consider mechanisms that will assure that the benefits reach the southern delta. Regardless of effectiveness of listed actions, the SWRCB should initiate water rights proceedings following completion of the salinity

workshops and studies to equitably allocate responsibility for complying with objectives to those contributing to salinity problems. DWR should not be considered to have the full responsibility for the southern delta objective when it has a minor contribution, if any, to degradation and which primarily results from the activities on the San Joaquin River.

Subsection ii., West Side Regional Drainage Plan: The first sentence of the last paragraph is inaccurate in suggesting that all the parties implementing the West Side Drainage Plan are responsible for compliance of a water right objective at Vernalis. The sentence should be revised as follows: "When fully implemented, the parties implementing the plan expect to assure achievement of the compliance with salinity objectives at Vernalis and reduce the frequency of exceedences violations of objectives at Brandt Bridge by 71 percent over a 73-year hydrology."

8-8

Subsection vi., South Delta Improvements Program: Change "barriers" to gates. Any other mention of the permanent "barriers" in the WQCP and appendices should have this change made as well.

Subsection v., San Joaquin River Real-time Water Quality Management Program: Many local, State and Federal agencies have made significant investments in establishing real time monitoring stations to collect flow, salinity, and other data at many key locations within the lower San Joaquin River and its tributaries, and have prepared models that forecast salinity conditions at key stations. DWR recommends that the SWRCB encourage and promote the use of the data to support compliance with established water quality objectives.

vi. Recommended Projects, Studies, and Actions (p.30)

Subsection ii., pages 29-30, of the POI notes the need for an independent scientific investigation of irrigation salinity needs in the southern Delta. The SWRCB noticed a January 2007 workshop regarding the Southern Delta Salinity Objectives. The stated purpose of the workshop is to receive information and conduct discussions on the salinity objectives to determine if there is sufficient justification to develop and manage a study of the salinity requirements for the southern Delta. The POI should note the scheduled workshop and commit to conducting a study of the issues related to southern Delta salinity objectives. The SWRCB currently has sufficient information in its files to support the need for the additional study. As early as January 1982, in the final report of the committee formed to evaluate irrigation water quality requirements for the South Delta, the authors stated that the parties could not decide on an adequate water quality standard in the South Delta and that a more extensive study should be commissioned. (Hoffman, Prichard, Meyer)(SDWA Exhibit 08) Information presented at the upcoming workshop can assist in focusing the proposed study.

8-9

8-9 cont.

An effort should be undertaken to locate, identify, and characterize each diversion and discharge point in the Southern Delta. A plan for monitoring the major discharges should be developed. This could be an element of the salinity study needs noted in subsection ii.

b. Draft Plan Amendment Report, Appendix 1, Southern Delta Electrical Conductivity Objectives for the Protection of Agricultural Beneficial Uses (Section III.C.10.)

The discussion of southern Delta salinity in the Draft Plan Amendment Report, Appendix 1 (Append. 1), attributes elevated salinity in the southern Delta to a number of sources including salts imported by the SWP and diversions by the SWP (Append. 1, p. 62). Some parties point out that the SWP is allowed to convey water for the federal CVP under Joint Point of Diversion (JPOD), and that these CVP agricultural water uses in the Central Valley cause drainage flows into the San Joaquin River. The discussion in this section should be clarified to note that the contribution to southern Delta salinity as a result of return flows from water diverted at the Banks Pumping Plant (SWP facility) are a result of pumping by the USBR utilizing JPOD operations authorized under D-1641 rather than DWR pumping SWP water under its water rights permits (D-1641, 10.2.1.1, 10.2.1.2). Therefore, SWP contractors do not contribute any measurable quantities of salt to the San Joaquin River system. In addition, impacts to southern Delta salinity due to SWP diversions are very limited as was demonstrated in DWR's exhibits presented at the hearings on the Cease and Desist Order, WRO 2006-006 (DWR 20-20C). To avoid misstating the sources of water quality degradation in the southern Delta channels and to recognize that pumping SWP water by DWR under its water rights permits does not contribute any measurable quantities of salt to the San Joaquin River system, DWR recommends changing this description as follows:

8-10

"Elevated salinity in the southern Delta is caused by low flows, salts imported to the San Joaquin Basin in irrigation water by upstream water users ~~the State and federal water projects~~; municipal discharges; subsurface accretions from groundwater; tidal actions; diversions of water by the SWP, CVP, and local water users; channel capacity; and discharges from land-derived salts, primarily from agricultural drainage."
(Id.)

Another listed factor of elevated salinity in the southern Delta is "discharges of land-derived salts, primarily from agricultural drainage." (Append. 1, p. 62). It should be recognized that there are discharges to the San Joaquin River downstream of Vernalis and upstream of Old River that result in degradation to water quality of about eight percent (8%) between Vernalis and Brandt Bridge, that make it impossible to meet the objective at Brandt Bridge if Vernalis water quality is near the objectives (Delta Salinity Draft CDO and WQRP Hearing, DWR Exhibit DWR-20). Consequently, the factor should be revised to insert

"local" in this sentence, as follows: "local discharges of land-derived salts, primarily from agricultural drainage."

8-10
cont.

In the discussion section regarding southern Delta objectives, "the Central Valley Regional Water Board stated that none of the evidence presented during the workshop adequately refutes the State Water Board's previous findings that an EC of 0.7 is protective of all crops on all soil types in the southern Delta." (Append. 1, p. 69.). The CVRWB's statement was purportedly in response to the argument by various witnesses that higher levels of irrigation water salinity can be tolerated if additional water is applied to increase the leaching fraction. The issue is whether 1.0 EC is protective of all crops on all soil types in the southern Delta, not if the more stringent 0.7 EC is protective. Those parties who recommend that a 1.0 EC objective would be sufficiently protective of crops would not dispute the notion that 0.7 EC is protective of all crops on all soil types in the southern Delta. They would assert, however, that 0.7 EC is overly protective of south Delta crops.

The SWRCB states that "the scientific analyses of irrigation crop salinity needs presented by various parties cannot be correlated to conditions in the southern Delta without further field studies to verify such results." (Appendix 1, p. 69.). DWR strongly agrees that there needs to be a study of south Delta salinity, and feels that the SWRCB should lead this effort. There is additional information needed regarding both the sources of the salinity and the appropriateness of the objectives for the protection of agriculture. DWR suggests the following elements be included in a work plan for any south Delta salinity study:

- 1) Install additional electrical conductivity gaging stations to identify sources of salinity along the San Joaquin River, particularly between Vernalis and Brandt Bridge;
- 2) Perform irrigation studies specific to the south Delta area (using south Delta soils and crops), to determine the leaching fraction and maximum EC for the most salt-sensitive stages of crops regularly grown in the south Delta.

8-11

The SWRCB invites DWR and USBR to pursue a petition to change their water right obligations or petition to add other responsible parties to share in the burden of meeting the objectives, if warranted (Append. 1, p. 70). If the Draft 2006 WQCP implementation program provides a broad basis to allow implementation by others during a water rights hearing, then the SWRCB could use the information from the first element listed above to determine how the burden of implementation should reasonably be shared. For example, if data shows identifiable sources of degradation between Vernalis and Brandt Bridge, then the SWRCB could use these facts to determine appropriate responsibility for mitigating the degradation through either a water rights hearing petitioned by

DWR and USBR, or waste discharge requirements issued by the Regional Water Board.

As an option, rather than petition for changes in the objective, DWR believes that the SWRCB could, in this draft WQCP or in a future revision of the WQCP after the 2007 workshop, provide for a staged implementation of the south Delta salinity objectives, similar to the staged implementation of the spring-time pulse flows on the San Joaquin River Flows at Vernalis (VAMP flows). (See POI, p. 61.) As part of the staged implementation, the SWRCB could recognize that DWR and USBR have met their share of responsibility of the objective by achieving 1.0 EC. Others, through additional actions such as reducing salt loads into the southern delta channels, could provide other stages of implementation by reducing south Delta salinity lower than 1.0 EC.

One such additional action could be for the Central Valley Regional Water Quality Control Board (CVRWQCB) to extend the Total Maximum Daily Load (TMDL) requirement for San Joaquin River dischargers downstream of Vernalis at least to Brandt Bridge. The CVRWQCB might even need to consider incorporating a TMDL for Old and Middle Rivers.

Another possible action would be installing drain tiles in south Delta agricultural areas that suffer from poor drainage. SDWA has cited root aeration problems caused by soaking for high leach as justification for lowering the EC objective. Drain tiles have the potential to solve the root soaking problem and reduce the salt build-up on south Delta lands.

The SWRCB discusses the limitations of the operational gates and the assignment of responsibility for meeting the objectives to DWR and the USBR in D-1641 (Append. 1, p. 70 (first paragraph)). The description of DWR responsibility under its water rights condition in D-1641 is missing an important element of the condition and as a result mischaracterizes the scope of the SWP responsibility for the southern Delta salinity objectives. The SWRCB recognized in D-1641 the limited role of the SWP in southern Delta salinity degradation and the limited options available to it for improving salinity. As a result, a special term was included in the condition implementing the southern Delta salinity objectives when the objective is exceeded. If an exceedence occurs, DWR must provide a report to the SWRCB demonstrating that the exceedence was beyond the control of DWR and the SWRCB then considers this information to determine if enforcement is appropriate (D1641, p159, condition 6). To better represent the water right permit condition implementing the southern Delta objectives, DWR recommends changing this description as follows:

8-12

"The State Water Board considered these issues when it issued D-1641 and placed water right responsibility on DWR and USBR for meeting southern Delta EC objectives by including a special enforcement process

that recognizes that at times achieving the objective may be beyond their control and, as such, enforcement may not be warranted."

8-12
cont.

i. Cease and Desist Order

The inclusion of a discussion of the Cease and Desist order adopted February 15, 2005 should be deleted. It is not an appropriate element of the POI for the Water Quality Control Plan and should not be a part of the SWRCB's planning document.

8-13

C. WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE USES

1. Suisun Marsh

General Comments

Table 3 of the Draft 2006 WQCP contains salinity objectives, measured in Electrical Conductivity (EC), for protection of beneficial uses for fish and wildlife in the Eastern and Western Suisun Marsh. It also includes a narrative objective for protection of the Brackish Tidal Marshes of Suisun Bay. For the reasons given below, DWR recommends changes in the POI to more accurately reflect current status of the programs being implemented by DWR, USBR, DFG, and the Suisun Resources Conservation District (SRCD) for protection of beneficial uses in the Suisun Marsh. In addition, DWR recommends deleting the references to the Van Sickle and Chipps Islands water supply intakes from Table 3 and Table 7 because these references are inaccurate and unnecessary.

In 2003, when the SWRCB commenced the periodic review and workshops for revising the Bay-Delta Water Quality Control plan, the parties to the Suisun Marsh Preservation Agreement (SMPA) had not yet signed the proposed amendments to the SMPA. On June 20, 2005 the Revised SMPA and accompanying Mitigation and Monitoring agreements were executed by the DWR, USBR, DFG, and SRCD. These agreements were revised, in part, to address changes resulting from the 1995 SWRCB WQCP and to implement actions that would provide equivalent or better protection than channel water salinity standards at Suisun Marsh stations S-35 (Morrow Island) and S-97 (Ibis). During the hearings on Decision 1641, the SWRCB received evidence on the proposed SMPA amendments and concluded that these revisions would provide equivalent protection. The revisions included establishing a Water Manager Program, Portable Pumps Program, Drought Response Program, funding to improve Roaring River Distribution System Turnouts, and converting S-35 and S-97 from compliance stations to monitoring stations.

DWR notes that existing objectives, such as the Net Delta Outflow Index, in the 1995 WQCP provide ancillary benefits for Suisun Marsh and were, in part, one

reason for changes incorporated in the Revised Suisun Marsh Preservation Agreement. Therefore, any proposed changes to those objectives should consider the potential effects on Suisun Marsh.

Specific Comments

a. Changes to the POI Regarding Salinity Objectives at S-97 and S-35

In the SWRCB September 2004 Staff Report on the Periodic Review of the 1995 WQCP, the staff recommended not changing Table 3 salinity objectives at S-97 and S-35 during the periodic review because the CALFED Suisun Marsh Charter Group evaluation would not be completed in time for the workshops. (See the 2004 Staff Report Issue # 8 for summary and comments on the western marsh salinity objectives at S97 and S-35, p. 40-42.)

8-14

DWR agrees with the SWRCB staff recommendation to not change the S-97 and S-35 western marsh salinity objectives in Table 3 for the reasons given in the Staff Report. However, DWR does object to changes in the POI that suggests that DWR and USBR will be required to meet the existing objectives at S-97 and S-35 if new salinity objectives are not determined by January 1, 2015. DWR believes that the substantial evidence received by the SWRCB during the D-1641 hearings and provided in the 2001 Comprehensive Review of Suisun Marsh Monitoring Data indicate that, under the Revised SMPA, DWR and USBR have mitigated impacts of the SWP and CVP operations on the managed wetlands and that meeting those objectives with outflow would constitute an unreasonable use of water. In 2005, the Revised SMPA was signed and SRCD began implementing actions funded by DWR and USBR that will provide equivalent protection to the western marsh managed wetlands. For the reasons discussed below, it is inappropriate in the POI to assign future responsibility for these numeric objectives to DWR and USBR.

i. Decision 1641

In D-1641, the SWRCB found that substantial evidence in the record showed that the proposed amended SMPA would provide protection equivalent to the numeric objectives for the managed wetlands. (D-1641, p. 54.) During the hearings on D-1641, USFWS expressed concern, however, that the numeric salinity objectives may not protect the full range of biological resources in the Marsh.⁴ USFWS was concerned that implementing the western marsh objectives may freshen the Marsh more than is appropriate for certain species of a brackish marsh. USFWS and the parties of the SMPA recommended that the two western compliance

⁴ During the 1998 hearing for Decision 1641 (D-1641), DWR, DFG, USBR, and Suisun Resources Conservation District (SRCD) presented information to the SWRCB regarding their agreement on solutions to mitigate impacts of the SWP and CVP operations on the managed wetlands in the Suisun Marsh. These solutions are being implemented through the Revised Suisun Marsh Preservation Agreement, signed in June 2005 (Revised SMPA).

stations S35 and S97 not be implemented. (Id. P. 54.) The Board concluded that "implementation of the objectives at these stations using fresh water would require an unreasonable amount of water and might freshen the western part of the Marsh more than is appropriate for certain species that required a brackish marsh." (Id. p.54-55.) The SWRCB deleted the requirement that DWR and USBR implement S-35 and S-97 and instead required that they maintain the locations as monitoring stations. Id. The SWRCB recommended that these objectives be evaluated during future reviews of the Bay-Delta water quality control plan. DWR recommends changes to the Draft 2006 WQCP POI that delete DWR and USBR responsibility for these objectives so the WQCP will be consistent with D-1641.

8-15

ii. Comprehensive Review of SM Monitoring Data

In 2001, DWR with support from the SRCD, and technical review by the DFG, University of California at Davis, and National Marine Fisheries Service, completed the "Comprehensive Review of Suisun Marsh Monitoring Data, 1985-1995" (March 2001). A conclusion from the review was that soil water specific conductance (SC) did not appear to be directly tied to the monthly channel water SC values, but the SC of channel water during fall flood-up of the managed wetlands often did influence the soil water SC throughout the year. Other factors, such as water management, have a more direct and immediate effect on soil water SC. The report is available for review on the internet at:
<http://iep.water.ca.gov/suisun/dataReports/reports/ComprehensiveReview.pdf>

iii. Suisun Marsh Charter Group

In the 1995 WQCP, the SWRCB recommended the establishment of a Suisun Ecological Workgroup (SEW) to evaluate beneficial uses and water quality objectives in the Suisun Bay and Marsh and identify specific measures to implement the narrative objective for the tidal brackish marsh. In 2001, SEW prepared its report to the SWRCB that made various conclusions but no common recommendation for numeric objectives. In 2001, as part of the CALFED Bay Delta Program, a Suisun Marsh Charter Group was established to develop and agree on a long-term plan for the Marsh and tidal wetlands. The SM Charter Group is preparing a Habitat Management, Preservation, and Restoration Plan for Suisun Marsh (Suisun Marsh Plan). The final Suisun Marsh Plan will include recommendations for water quality objectives for salinity and other parameters for Suisun Marsh, as needed. Although current numeric salinity standards include some variation for drought conditions from December through May, the current narrative and numeric standards may need to be revised for the protecting the biodiversity of aquatic and wetland habitat while balancing the salinity requirements of managed wetlands and the SWP and CVP operations. The DFG, the CEQA lead agency, recently executed a contract for preparing the Programmatic Environmental Impact Statement/Report for the Suisun Marsh Plan. The Plan and associated environmental documents will be available for the

8-16

SWRCB to use during a subsequent review of the Bay-Delta WQCP and any determination regarding appropriate objectives and method of implementation. Until the SWRCB reviews the Suisun Marsh Plan, it is premature to assign in the POI responsibility to a specific entity, such as DWR or USBR, to implement objectives that are tentative at this time.

In summary, the actions being funded by DWR and USBR under the Revised SMPA, the SWRCB conclusions made in D-1641, and the future recommendations of the SM Charter Group to be considered in the next periodic review, support DWR's recommendation to delete from the POI a requirement that DWR and USBR implement S-97 and S-35 in 2015. DWR proposes changing two sections in the Draft 2006 WQCP POI as follows:

1) At Page 25, Chapter IV, Section A.6.ii, revise as follows:

ii. Fish and Wildlife in Suisun Marsh: The DWR and the USBR currently ~~are responsible~~ implement as a condition under their water right permits and licenses ~~to meet~~ the numeric salinity objectives for Suisun Marsh at stations C-2, S-64, S-49, S-21, and S-42 (Figure 5). Due to evidence showing that using fresh water would require an unreasonable amount of water that might freshen the western part of the Suisun Marsh more than is appropriate for certain species, a potential for the objectives at stations S-97 and S-35 to cause harm to the beneficial uses they are intended to protect the State Water Board in Decision 1641 (D-1641) did not require of ~~that the DWR and USBR attainment of the objectives at stations S-97 and S-35. these two stations.~~ Implementation of the salinity objectives at these two stations is discussed in section B.5.

2) At Page 33, Chapter IV, Section B.5, revise as follows:

Numeric Objectives for Suisun Marsh

State Water Board staff will use the results of the final PEIS/EIR and the resulting Suisun Marsh Plan currently being prepared by the Suisun Marsh Charter Group (SMCG) in its next periodic review. Information from the Suisun Marsh Plan will be used to evaluate and, to determine the appropriate salinity objectives at stations S-97 and S-35, if needed, and possible numeric objectives for the brackish tidal marshes of Suisun Bay. The objectives at S-97 and S-35 may be amended and/or implemented in stages, as appropriate, and shall be implemented no sooner than either January 1, 2015, or an earlier date, ~~after~~ if a further review of this plan determines that the objectives at S-97 and S-35 are needed, y should be implemented, or amends the objectives. ~~If new salinity objectives at stations S-97 and S-35 are not determined by January 1, 2015, the DWR and USBR will be required to meet the existing objectives.~~ Other measures to control Suisun Marsh soil and channel water salinities are discussed in section C9.

8-17

b. Changes to Table 3 and Table 7.

i. *Delete References to Van Sickle Island and Chipps Island Water Supply Intakes*

Table 3 of the Draft WQCP includes two locations for measuring the Western Suisun Marsh salinity objectives at the water supply intakes for waterfowl management on Van Sickle Island and Chipps Islands. These locations are in the Eastern Marsh near the confluence with the Sacramento River, not the western marsh. As a result of the natural salinity gradient in the marsh, the salinity at these islands would be protected by other existing slough stations further west, downstream, and therefore monitoring is unnecessary on Van Sickle and Chipps Islands. These two stations are listed in Table 4 of the 1995 WQCP as baseline monitoring stations using a continuous recorder, however, no instrumentation was ever established at these locations. The locations are not a site under the Environmental Monitoring Program of the Interagency Ecological Program. These stations are not included in Table 3 of D-1641 (D-1641 p. 183). DWR believes the reference to these stations is not accurate, nor appropriate, and recommends that the SWRCB remove the references to monitoring stations at Van Sickle and Chipps Islands from the draft WQCP in Table 3 and Table 7 (Water Quality Compliance and Baseline Monitoring) to avoid further confusion regarding monitoring at these locations. This deletion would be consistent with D-1641.

8-18

ii. *Variability in Achieving Objective during Full Gate Operation*

The Board reviewed the salinity modeling evidence by DWR and USBR presented during the D-1641 hearing. The modeling showed that even with full operation of the Suisun Marsh Salinity Control Gate, under certain infrequent conditions, small exceedence of the numeric objectives could occur. The Board concluded that some variability in meeting the salinity objectives in the Marsh would be allowed. (Id. p. 55, 154, and 158.) The draft 2006 WQCP should be revised to be consistent with these findings and conclusions made during the D-1641 hearings. DWR recommends adding a new footnote to Table 3 to recognize some variability may occur during full SM Gate operations when meeting the Marsh salinity objectives. Such a footnote could be attached to the values associated with Eastern and Western Suisun Marsh and could state the following:

8-19

“Under certain infrequent conditions, small exceedence of the numeric objectives may occur when the Suisun Marsh Salinity Control Gates are operating to the maximum extent. If any numeric salinity objectives in the Eastern or Western Suisun Marsh are exceeded at a time when the Suisun Marsh Salinity Control Gates are operating to the maximum extent, then permittee implementing the objective should submit a detailed

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operations report to the SWCB Executive Director with a certification that the gates were operated to the maximum extent possible."

c. Other Changes to POI to Update Information on Suisun Marsh Programs.

The Draft 2006 WQCP indicates, two of three recommendations under the POI from the 1995 WQCP have been fulfilled; namely the formation of the SEW and implementation of amended SMPA. The third recommendation for a water and soil salinity study has also been completed with the report on the Comprehensive Review of Suisun Marsh Monitoring Data, 1985-1995. DWR recommends changes to the first paragraph of Section C.9 to provide this update, as follows:

At page 37, Chapter IV, Section C.9, revise as follows:

Suisun Marsh soil and channel water salinity objectives

In addition to the formation of the SEW discussed above, the 1995 Plan recommended three measures to be implemented to control Suisun Marsh soil and channel water salinities (1995 WQCP p. 40). The first ~~two~~ measures, calling for continuation of the actions identified for implementation in the Suisun Marsh Preservation Agreement (SMPA) has been carried forward in the Revised Suisun Marsh Preservation Agreement executed on June 25, 2005. Two additional actions that may be incorporated in a later amended SMPA are being evaluated in the Suisun Marsh Plan by the SM Charter Group. A second measure calling for and conducting of a study to determine the relationship between channel water salinity and soil water salinity under alternative management practices, are being evaluated in the Suisun Marsh Plan was completed in 2001 by DWR with the Comprehensive Review of Suisun Marsh Monitoring Data, 1985-1995. The third action that requires that DWR, USBR, DFG, and Suisun Resource Conservation District (SRCD), together with the property owners in Suisun Marsh, employ a watermaster has been fulfilled through implementation of the Water Manager Program under the Revised SMPA.

8-20

The Department supports the SWRCB's statement that it will use the results of the Suisun Marsh Plan to convert the narrative objective for Brackish Tidal Marsh in Suisun Marsh to a reasonable numeric objective, as appropriate. However, Page 33, Section B.4 implies that the Suisun Marsh Charter Group (SMCG) was initiated as a result of the Suisun Ecological Workgroup effort being unable to recommend a single numeric objective to replace the narrative objective, which is not accurate. The descriptions on page 44, Section E.4 and on page 72 of Appendix 1 provide a more accurate description on the formation of the SMCG.

At page 33, Chapter IV, Section B.4, revise the first paragraph as follows:

Narrative Objective for Brackish Tidal Marshes of Suisun Bay

In the 1995 Plan, the State Water Board recommended that DWR convene a Suisun Marsh Ecological Work group (SEW) consisting of representatives from various State, federal and private agencies and other interested parties. The SEW was assigned eight tasks, one of which was to determine a numeric objective to replace the narrative objective for tidal brackish marshes of Suisun Bay. However, the SEW was unable to determine a single numeric objective for the tidal marshes. ~~As a result the Suisun Marsh Charter Group (SMCG10) was formed to develop a plan to balance the competing needs in Suisun Marsh.~~ In 2001, the SMCG was formed to: resolve issues of amending the SMPA, obtain a Regional General Permit, implement the Suisun Marsh Levee Program, and recover endangered species. The SMCG principal agencies are USFWS, USBR, DFG, DWR, Suisun Resource Conservation District, and NOAA Fisheries. The SMCG is currently preparing a Programmatic Environmental Impact Statement/Environmental Impact Report (PEIS/EIR) for the Habitat Management, Preservation, and Restoration Plan for the Suisun Marsh (Suisun Marsh Plan). The proposed Suisun Marsh Plan would be consistent with the goals and objectives of the Resources Agency's Bay-Delta Program, and would balance them with the SMPA, federal and State Endangered Species Acts and other management and restoration programs within the Suisun Marsh in a manner responsive to the concerns of all stakeholders and based upon voluntary participation of private landowners. In the preparation of the Suisun Marsh Plan, the principal Suisun Marsh agencies are evaluating Plan alternatives with a tidal wetland habitat restoration component ranging from 3,000 to 36,000 acres.

2. Delta Outflow

a. X2 Flexibility

The SWRCB made no changes to the Delta Outflow objective described by X2 in the 2006 Draft WQCP, noting that Water Operations Management Team (WOMT) recommended postponing the X2 flexibility proposal until the causes of the Pelagic Organism Decline (POD) are better understood. (Append 1, p. 44.) The SWRCB noted in the POI that study results of the POD may be used to determine whether flexibility should be made part of the Delta Outflow Objective. (Draft WQCP, p. 44.) DWR and the other WOMT agencies believe, however, that the update to the WQCP should acknowledge that, given the current status of pelagic organisms and ongoing management practices and authorities by both State and Federal agencies, it would be reasonable to find that there may be overlapping and competing needs to protect aquatic species. DWR, therefore, recommends that the SWRCB add to the WQCP POI that, under certain conditions, it would be appropriate for water right holders to request temporary

8-21

urgency changes to their water rights to address protection of aquatic species to permit flexible implementation of the Delta Outflow objective.

An example of this need is demonstrated in the objective governing the movement and location of the two part per thousand isohaline location (the X2 standard) during Spring and Summer months (February through June) and Fall months requirements for minimum Rio Vista flow (September through December).

8-21 cont. It is fairly common for fishery agencies to establish upstream flow requirements on Delta tributaries. Significant fluctuations in upstream flows during spawning and migration periods for sensitive species, and maintenance of upstream minimum storage levels for cold water reserves are actions which may be recommended or mandated for fish protection, even though they may be at odds or in direct competition with water project operational requirements for X2 flows and Rio Vista flows. If in the future when situations arise where water resources face competing fishery needs, DWR and Reclamation would work with Federal and State fishery agencies and submit a flow alternative for SWRCB consideration under a temporary urgency petition (Water Code Section 1435). Prior to forwarding the proposal to the SWRCB, such an alternative would be considered and deemed appropriate by all of the WOMET agencies. If a flow alternative is submitted and approved by WOMET, DWR believes that the SWRCB should give due consideration to the urgency petition describing the alternative given relevant Bay-Delta hydrologic and fishery conditions at that time.

DWR recommends this proposed process be included in the Program of Implementation under Delta Outflow.

3. San Joaquin River Spring Pulse Flow (VAMP April 15-May15)

8-22 DWR recommends that the SWRCB add a new footnote to Table 3 to recognize staged implementation of the spring pulse flows. A footnote 24 could be inserted after Footnote 15 on Table 3. The new footnote would describe the VAMP as a staged implementation of the San Joaquin River Flows at Airport Way Bridge, Vernalis, as follows:

"[24] Stage implementation of this objective under the VAMP replaces these flows with the flows shown in Table 5 of the Program of Implementation."

4. Export Limits

a. Export / Inflow Ratio Calculation

During the workshop on Export Limits, DWR provided information on revising Footnote 23 of Table 3 in the 1995 WQCP, now Footnote 19 of Table 3 in Draft WQCP, to clarify when to use a 14-day average and when to use a 3-day

average to calculate the Export/Inflow Ratio. The SWRCB decided not to make changes to the Footnote at this time, citing the lack of information until POD studies are completed in 2007. Although DWR believes that its arguments in favor of clarification are supportable, this issue may need additional discussion and can be deferred until a later WQCP review on this issue.

b. Delta Inflow Formula

The SWRCB received comments at the January 18, 2005 workshop on modifying the calculation of the Delta inflow formula to add a new term representing In-Delta storage releases. DWR recommends that the SWRCB review this formula in the future, when appropriate.

D. Environmental Monitoring Program

a. Changes to EMP

DWR staff reviewed the Draft WQCP Table 7 and compared it to D-1641 Table 5, which specifies the Environmental Monitoring Program (EMP) required in DWR and USBR water rights. The SWRCB did not add any new water quality objectives to the Draft Plan. The Program of Implementation, Section D (Monitoring and Special Studies Program) was modified to make changes to the Water Quality Compliance and Baseline Monitoring Program as shown in Table 7. Changes to Table 7 of the Draft Plan (which was Table 4 of the 1995 WQCP) include the addition of GIS coordinates for each location, addition and deletion of stations, and other changes proposed by DWR. During the workshops reviewing the 1995 WQCP, DWR recommended additional monitoring elements for a number of stations as part of the EMP (station S-42 is an example). These elements now appear in Table 7 of the 2006 draft plan. However, official approval from the SWRCB was never given for these additional elements, so DWR and USBR have not yet implemented the additional monitoring elements.

Additional information about the EMP, including the report on the EMP Review (2001-2002), may be obtained at the Interagency Ecological Program EMP website: <http://www.iep.water.ca.gov/emp>

b. WQCP Table 7, pages 41 and 42, Typographical Error

The Footnotes 4 and 5 are placed in the incorrect columns of Table 7. These Footnotes should be moved to the right one column.

8-23

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Attorneys for COUNTY OF SAN JOAQUIN

BEFORE THE STATE WATER RESOURCES CONTROL BOARD

CONSIDERATION OF AMENDED WATER) COUNTY OF SAN JOAQUIN COMMENTS
QUALITY CONTROL PLAN FOR THE BAY-) TO DRAFT WATER QUALITY CONTROL
DELTA) PLAN SEPTEMBER 2006

The COUNTY OF SAN JOAQUIN ("County") submits its comments on the Draft Water Quality Control Plan for the San Francisco Bay/ Sacramento-San Joaquin Delta Estuary ("Draft Plan").

The comments of the County of San Joaquin relate to issues of concern to the County as a whole in this proceeding, namely, the southern Delta salinity objectives and export limitations under the water quality objectives for fish and wildlife beneficial uses set forth in the 1995 Bay-Delta Plan.

SALINITY OBJECTIVES

1) Salinity Objectives for the Southern Delta Should Not be Changed. The southern Delta salinity objectives, originally set forth in the 1978 Delta Plan, were developed in order to protect southern Delta agricultural uses from the effects of elevated salinity. The objectives set an electrical conductivity value of 0.7 mmhos/cm electrical conductivity ("EC") for the three interior monitoring sites specifically Brandt Bridge on the San Joaquin River, Old River near Middle River, and Old River at Tracy Road Bridge, as well as Vernalis from April through August.

These objectives are the product of many years of extensive research, in which numerous studies were performed and in which a majority of interested parties were involved. The studies and research determined that a standard of 0.7 EC was needed because the wide variety of soil conditions

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9-1 cont.

1 (more than 70 types) in the region have different permeability qualities and many require low
2 salinity irrigation water to prevent crop damage from salt. The County feels strongly that any
3 relaxation of the current standard of 0.7 EC would adversely affect agricultural practices and
4 production in the southern Delta. Therefore, it is the County's position that the current salinity
5 objectives remain unchanged.

6 2) Salinity Objectives Should be Met By Using Water From Multiple Sources, and Not
7 Overburden New Melones. The Draft Plan indicates that salinity objectives can be met by releasing
8 dilution water from New Melones Reservoir (Draft Plan at p. 27). Releases from New Melones are
9 currently used to meet salinity objectives at Vernalis. San Joaquin County fully supports meeting
10 the current salinity standards for the southern Delta but San Joaquin County strongly objects to the
11 current level, or any increased reliance on New Melones for dilution.

9-2

12 The reason for San Joaquin County's objection to the use of water at the present level or an
13 increased level for dilution is that the use of New Melones water for dilution results in a decrease in
14 the amount of water the Bureau of Reclamation ("Bureau") can furnish to the Central San Joaquin
15 Water Conservation District and the Stockton East Water District under the contracts of those
16 Districts with the Bureau. Much of Eastern San Joaquin County, including the City of Stockton, is
17 located over a severely overdrafted groundwater basin which presently cannot be replenished
18 because of a lack of water supply. The overdraft is critical and results in the movement of saline
19 water from under the Delta into the basin. The inability of the Bureau of Reclamation to deliver
20 water to its two customers Central San Joaquin Water Conservation District and Stockton East Water
21 District directly exacerbates the groundwater overdraft in the eastern San Joaquin County ground
22 water basin.

23 Therefore, it is the County's position that salinity objectives should be met by utilizing
24 numerous sources, and not relying on New Melones water to carry out this responsibility.

25 3) The Time Period Designated for Implementation of the Plan is Excessive.

26 According to the Draft Plan, full implementation of the Salinity Management Plan is expected to
27 take between 40 and 50 years (Draft Plan at p. 6). It is the County's position that the period for
28 implementation is excessive in light of the research already conducted and work already performed

9-3

1 in furtherance of this objective. An implementation schedule that meets a 10 to 20 year time period
2 is more appropriate.

3 4) There is No Need For Additional Research Regarding Salinity Needs in The Southern
4 Delta. The Draft Plan states “[T]here is a need for an updated independent scientific investigation of
5 irrigation salinity needs in the southern Delta. . .” (*Draft Plan* at p. 30). Extensive research
6 regarding water quality needs of significant crops grown in the south Delta has already been
7 performed, which supported the salinity objectives set forth in the 1978 Delta Plan (*Plan Amendment*
8 *Report, Appendix I to the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-*
9 *San Joaquin Delta Estuary* at p. 63). It is the County’s position that any additional research
10 regarding water quality needs of crops in the southern Delta area would be redundant, and cause
11 unnecessary expense and delay in implementing the Salinity Management Plan.

12 EXPORT LIMITS

13 1) Current Export Limits Should Remain Intact or Decrease. The current regulations specify
14 the upper limits for flows and exports that are necessary to protect fisheries. Higher flows and lower
15 exports provide greater protection for fisheries. It is the County’s position that exports should not
16 exceed the existing limits and should decrease.

17 OTHER

18 1) 0.7 EC Salinity Objective Period Should Be Expanded. The County supports expanding
19 the months which the 0.7 EC standard should be imposed. The standard is currently in place April
20 through August. The County is in favor of expanding the period from March 1 through September
21 30.

22 2) Minimum Flows Into the Delta and Minimum Water Levels Should Be Maintained To
23 Protect Agricultural Beneficial Uses. Minimum flows are necessary to maintain sufficient flow to
24 operate temporary and proposed permanent barriers, and to provide necessary water levels in areas
25 no longer subject to Delta tides.

26 Further, minimum water levels are necessary to protect agricultural diverters and fish and
27 wildlife in areas of the Delta, such as the Middle River. Portions of the Delta, including Middle
28 River, have extremely low flows or even go dry at certain times of the year. This precludes senior

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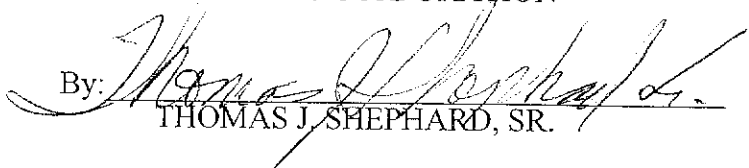
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water right holders and parties protected by the Delta Protection and Area of Origin Acts from exercising their water rights. The County supports the establishment of minimum flows and minimum water levels to protect these water rights, fish and wildlife and all other beneficial uses.

Dated: November 7, 2006

NEUMILLER & BEARDSLEE
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By: 
THOMAS J. SHEPHARD, SR.

Attorneys for County of San Joaquin

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November 8, 2006

Via Electronic and U.S. Mail

Song Her, Clerk to the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812
commentletters@waterboards.ca.gov

Re: Comments Regarding November 13, 2006 Public Hearing to Consider
Amended Bay Delta WQCP

Dear Chairperson Doduc, Members of the Board, and Ms. Her:

As General Counsel for Glenn-Colusa Irrigation District (GCID), we have reviewed the proposed amendments to the Bay Delta Water Quality Control (WQCP) and the comments submitted to you from the Northern California Water Association (NCWA). GCID hereby joins in the NCWA comments.

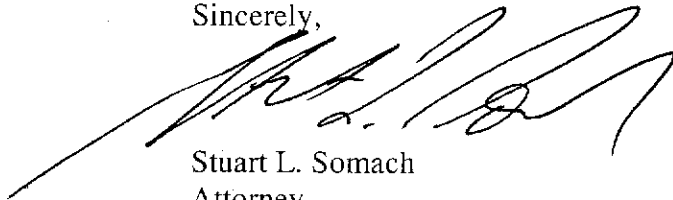
10-1

Summarily, GCID generally supports the proposed Bay Delta WQCP, because the proposed amendments: (1) do not change the water quality objectives within the Bay Delta WQCP for the Sacramento River and its tributaries; (2) do not establish specific quantities of water that any particular water right holder may be required to release or forego to meet the water quality objectives; (3) do not initiate a water rights proceeding to implement the Bay Delta water quality objectives; and (4) encourage efforts to find alternative solutions for Bay Delta water quality issues.

10-2

Thank you for your consideration of these comments.

Sincerely,



Stuart L. Somach
Attorney

cc: Thaddeus Bettner
Donald Bransford
David Guy

ORIGINAL

KRONICK
MOSKOVITZ
& TIEDEMANN
& GIRARD
A PROFESSIONAL CORPORATION

2006 Bay Delta Plan
Deadline: 11/13/06

November 8, 2006



Song Her, Clerk to the Board
State Water Resources Control Board
1001 I Street
Sacramento, CA 95812

Re: State Water Contractors and Kern County Water Agency's Comments on
the Draft 2006 Water Quality Control Plan

Dear Ms. Her:

Enclosed is an original and 15 copies of State Water Contractors' and Kern County Water Agency's Comments on the Draft 2006 Water Quality Control Plan. Should you have any questions, please do not hesitate to contact Clifford W. Schulz at 321-4500.

Very truly yours,

A handwritten signature in cursive script that reads "Lorraine Lippolis".

Lorraine Lippolis
Secretary to Clifford W. Schulz

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Enclosures
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**STATE WATER RESOURCES CONTROL BOARD –
PERIODIC REVIEW OF THE 1995 WATER QUALITY CONTROL PLAN FOR THE
SAN FRANCISCO BAY’S SACRAMENTO-SAN JOAQUIN DELTA ESTUARY**

**COMMENTS BY THE KERN COUNTY WATER AGENCY AND THE STATE WATER
CONTRACTORS ON THE DRAFT 2006 WATER QUALITY CONTROL PLAN**

Throughout the two-year process that preceded public distribution of the State Water Board’s September 2006 draft “Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary,” (“2006 Plan”) representatives of the State Water Contractors organization and individual State Water Project (“SWP”) contractors, including the Kern County Water Agency, presented technical information and policy recommendations related to the proposed 2006 Plan. This paper will summarize our reactions to the draft 2006 Plan and suggest revisions needed to make it more consistent with the current state of the Delta and Judge Robie’s decision in the *State Water Resources Control Board Cases* (2006) 136 Cal.App.4th 674.

For ease of presentation and to assist the Board and its staff in understanding the SWP contractors’ issues, we have attached to this statement pertinent redlined pages of the draft 2006 Plan and Appendix 1 showing the changes we believe should be made before the Plan is approved by the State Water Board. These proposed changes fall into several broad categories, some of which are discussed below.

Purpose and Applicability:

At page three, the draft 2006 Plan states:

The purpose of this plan is to establish water quality control measures that can be implemented in part or in whole by assigning responsibility to water right holders and water users to mitigate for the effects on the beneficial uses of their diversion and use of water.

The SWP contractors support this statement and believe it represents an important policy that should be applied to all aspects of the 2006 Plan’s program of implementation. The SWP contractors have always recognized that the SWP should mitigate the impacts that it has on the Delta water quality needed to reasonably protect beneficial uses. Our consistent position, however, has also been that the SWP should not be required to modify its operations to mitigate for the impacts on water quality caused by local waste dischargers, whether they be municipal or agricultural.

In SWP contractors view, this quoted language does not establish a new policy. We have always believed and argued that this mitigation concept was built into the 1995 Delta Plan and water rights Decision 1641, particularly with respect to the southern Delta agricultural salinity objectives. This was our position in the CDO proceedings and in the workshops that preceded

issuance of this draft 2006 Plan. Many of the SWP contractors' proposed changes are related directly or indirectly to this mitigation of impacts policy, which at various places in the plan and its appendix seems to have been forgotten.

References to Water Rights Decision 1641:

There are many statements in the draft 2006 Plan that infer, if not directly aver, that the SWP "has an ongoing obligation to comply" with various water quality objectives (see, for example, draft 2006 Plan, p. 21). The SWP contractors' proposed changes try to remove all such "responsibility characterizations" that attempt to interpret Decision 1641. In many instances we disagree with these interpretations. Nevertheless, we have not tried to substitute our interpretations, as our basic position is that they are unnecessary in a water quality control plan. They cannot change what Decision 1641 requires and they simply raise unnecessary issues that cloud whether the State Water Board intends to follow the 2006 Plan's mitigation policy set out in the quotation above.

Somewhat related to this responsibility characterization issue, is the inconsistent use of the words "implement" and "meet" in the draft 2006 Plan. The statutory language in the Porter-Cologne Act for Plan objectives is "implement." The two terms are not synonyms and the SWP contractors believe that the statutory terms need to be consistently used, particularly given the decision in the *State Water Resources Control Board Cases*. Directory words and phrases, such as "meet," "comply with," and "shall be maintained," are best left for water rights orders so that there is a clean and clear distinction between what is being done through a quasi-legislative planning document such as the 2006 Plan and what is being ordered in a regulatory, quasi-judicial process such as a water rights hearing. There is no place in the 2006 Plan for language that can be interpreted as ordering language that must await completion of a properly noticed regulatory hearing.

South Delta Salinity Objectives:

All of the concerns broadly described above come starkly into focus when, at pages 25-26 of the draft 2006 Plan and page 70 of the Appendix, the salinity objectives for the protection of South Delta agricultural beneficial uses are discussed. Here the draft 2006 Plan specifically states that the SWP is responsible for "meeting" those objectives, an issue that is related to the CDO dispute, and a topic that is irrelevant to how the southern Delta salinity objectives should be implemented *in the future*.

This water quality control plan revision is being approved by the SWRCB less than two months before the Board begins workshops to consider whether to revise the southern Delta salinity objectives, or whether to implement those objectives in a different matter. A detailed discussion of the CDO hearing, of what happened in the past, and of how the State Water Board's staff interprets the Decision 1641 seems gratuitous and an effort by the Board's staff to create a document that, by its adoption, could be used to support its interpretation of Decision 1641 in other forums. The SWP contractors proposed changes, again, do not substitute our interpretation for that of the Board's staff. They delete what we consider to be inflammatory statements and substitute neutral characterizations that recognize that additional studies and workshops will further consider how to implement southern Delta salinity standards in the future. These changes

are vital to developing a way to best meet the southern Delta objectives outside of a courtroom and through a deliberative process.

Other Issues:

The SWP contractors have worked with the Department of Water Resources in this review of the draft 2006 Plan. We agree with, and incorporate as our comments, those comments of DWR, particularly relating to Suisun Marsh and salinity issues related to Rock Slough and the Contra Costa Canal.

Conclusion:

11-1 | The draft 2006 Plan and Appendix 1 should be significantly modified before the State Water Board is asked to approve it and submit it to EPA. Primarily it needs to be reviewed by Board staff in light of the *State Water Resources Control Board Cases*, the comments made by all parties, and the upcoming proceedings on the southern Delta salinity objectives. Most importantly it needs to become more of a pure water quality control plan and less of a hybrid document that includes regulatory words, concepts, and arguments.

BAY-DELTA PLAN

Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

Chapter I. Introduction

A. Background

The San Francisco Bay/Sacramento-San Joaquin River Delta Estuary (Bay-Delta Estuary or Estuary) (Figure 1) is important to the natural environment and economy of California. The watershed of the Bay-Delta Estuary provides drinking water to two-thirds of the State's population and water for a multitude of other urban uses, and it supplies some of the State's most productive agricultural areas, both inside and outside of the Estuary. The Bay-Delta Estuary itself is one of the largest ecosystems for fish and wildlife habitat and production in the United States. Historical and current human activities (e.g., water development, land use, wastewater discharges, introduced species, and harvesting), exacerbated by variations in natural conditions, have degraded the beneficial uses of the Bay-Delta Estuary, as evidenced by the declines in populations of many biological resources of the Estuary. Most recently, populations of Delta smelt and other pelagic organisms have exhibited significant declines, leading to investigations as to the possible causes of the degradation of the health of the Delta.

The State Water Resources Control Board (State Water Board) has previously adopted water quality control plans and policies to protect the water quality and to control the water resources that affect the beneficial uses of the Bay-Delta Estuary. These plans and policies were adopted consistent with section 13000 et seq. of the California Water Code and pursuant to the authority contained in section 13170. This plan supersedes the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary adopted in May 1995 (1995 Bay-Delta Plan or 1995 Plan) as well as the preceding plans that the 1995 Plan superseded. The State Water Board periodically will review this plan pursuant to Water Code section 13240 to ensure that it provides reasonable protection for the designated ~~adequately~~ ~~protects~~ beneficial uses.¹ The State Water Board's measures to implement this plan primarily will consist of the regulation amendment of existing water rights, but also may include other regulatory measures to protect water quality that are within the Boards jurisdiction, and recommendations to other entities.

Appendix 1 of this plan, titled "Plan Amendment Report," explains the State Water Board's considerations in developing this Water Quality Control Plan. Appendix 1 provides the reasoning for any changes to the 1995 Plan, as well the environmental

¹ The federal Clean Water Act, at section 303 (c), also requires a review of federal "standards," as defined in the Act, contained in state water quality control plans. (33 U.S.C. § 1313 (c).) The review under section 13240 ordinarily is combined with a review of any federal standards in a state water quality control plan.

analysis for those changes. Documents used to develop this amendment of the 1995 Plan are listed in Appendix 2, titled "Referenced Documents". Appendix 3, titled "Responses to Comments," contains the State Water Board's responses to comments received in conjunction with the public hearing held to solicit feedback on this plan.

B. Purpose and Applicability

The purpose of this plan is to establish water quality control measures that can be implemented in part ~~or in whole~~ by assigning responsibility to water right holders and water users to mitigate for the effects on the beneficial uses of their diversions and use of water and in part by other actions. Like all water quality control plans, this plan consists of: (1) beneficial uses to be protected; (2) water quality objectives for the reasonable protection of beneficial uses; and (3) a program of implementation for achieving the water quality objectives. Together, the beneficial uses and the water quality objectives established to reasonably protect the beneficial uses are called water quality standards under the terminology of the federal Clean Water Act.

For the geographic area of the Bay-Delta Estuary, this plan is complementary to the other water quality control plans adopted by the State and Regional Water Quality Control Boards (Regional Water Boards) and State policies for water quality control adopted by the State Water Board. This plan provides reasonable protections for the Estuary's beneficial uses that require control of salinity (caused by saltwater intrusion, municipal discharges, and agricultural drainage) and water project operations (flows and diversions). This plan supersedes the regional water quality control plans to the extent of any conflict between this plan and the regional water quality control plans. The other plans and policies establish water quality objectives and requirements for parameters such as toxic chemicals, bacterial contamination, and other parameters which have the potential to impair beneficial uses or cause nuisance.

Most of the objectives in this plan are being implemented by assigning responsibilities to water right holders because the parameters to be controlled are primarily impacted by flows and diversions. This plan, however, is not to be construed as establishing the responsibilities of water right holders. Nor is this plan to be construed as establishing the quantities of water that any particular water right holder or group of water right holders may be required to release or forego to meet the objectives in this plan. The State Water Board will consider, in a future water rights proceeding or proceedings, the nature and extent of water right holders' responsibilities to meet these objectives. If necessary after a water rights proceeding, this plan will be amended to reflect any changes that may be needed to ensure consistency between the plan and the water right decision.

C. Legal Authority

The State Water Board has prepared this Water Quality Control Plan under the Porter-Cologne Act. The Regional Water Boards have primary responsibility for

D. Emerging Issues

This Water Quality Control Plan is primarily a planning document that serves to identify the water quality objectives and the beneficial uses to be protected. At the time of this 2006 update to the Plan there are a number of emerging issues that this Plan does not currently regulate. Those emerging issues are identified here. In addition to the activities described in *Program of Implementation Chapter*, the State Water Board will immediately begin a process to evaluate and prioritize water quality control planning activities to address the following emerging issues:

1. Pelagic Organism Decline (POD)
2. Climate Change
3. Delta and Central Valley Salinity

The State Water Board will conduct these planning activities in conjunction with the Delta Vision Process to develop a sustainable use and protection plan for the Delta, Suisun Bay, and Suisun Marsh. The Delta Vision Process, an interagency effort and outgrowth of the Little Hoover Commission's review of CALFED, was just commencing at the time of this Bay-Delta Plan update. Consistent with this process, the State Water Board recognizes that planning for and management of the Delta's multiple uses, resources, and ecosystem should occur in cooperation with elected officials, government agencies, stakeholders, academia, and affected Delta and California communities.

1. Pelagic Organism Decline

There is a marked decline in numerous pelagic fishes in the Sacramento-San Joaquin Delta Estuary and Suisun Bay. Currently, the Interagency Ecological Program (IEP), through its POD work team, is conducting studies to evaluate the potential causes of these declines. Some of the possible causes that are being considered include invasive species, water project operations, and toxins. The results of the POD studies will be available in 2007. At that time, the State Water Board will review the study results and may amend portions of this Plan to improve habitat conditions in the Estuary.

2. Climate Change

A growing body of information suggests that climate change could result in: 1) sea level rise that would adversely impact levees, water quality, and conveyance of water supplies through the Delta; 2) decreased snowmelt in the Sierra Nevada that would reduce effectiveness of existing water storage facilities; 3) increased rainfall that could exacerbate flooding; and 4) adverse biological effects from changes in flow and water quality. Water quality control planning must begin to address these possible effects. Future State Water Board activities therefore should consider the impacts of climate change and include requirements and recommendations to implement measures to offset adverse impacts of climate change. In addition, the State Water Board will need to provide timely response and guidance to water resources agencies, consistent with the Water Quality Control Plan, as they submit plans and requests to process

applications for water conveyance facilities and flow control structures such as the current South Delta Improvements Project or future conveyance structures such as a Delta peripheral canal.

3. Delta and Central Valley Salinity

A joint State and Regional Board Workshop on Central Valley Salinity Issues held in January 2006 resulted in broad stakeholder support for development of a Salinity Management Plan for the Central Valley and Delta (Salinity Management Plan) to protect beneficial uses of both surface waters and ground waters. Development and full implementation of the Salinity Management Plan is expected to take 40 to 50 years and to reduce the economic hardship related to managing salinity. The State Water Board will develop regulations and provide regulatory encouragement to ensure that infrastructure is developed that improves and maintains Central Valley and Delta salinity while providing certainty to local and regional planners, municipalities, agriculture, water suppliers, food processors, and others.

The State Water Board will continue to coordinate updates of the Bay-Delta Plan with on-going development of this comprehensive Salinity Management Plan. As part of this larger planning effort, the State Water Board ~~has noticed~~ intends to conduct a workshop and initiate further proceedings commencing in January 2007 to review: 1) the salinity requirements of the beneficial uses of water in the southern Delta; 2) the causes of salt loading in the southern Delta; 3) practices that could reduce salt loading from Delta sources; 4) flow and salt load reduction measures to implement the salinity objectives; and 5) the timeline for implementation of these measures. The State Water Board intends to develop and manage a study of salinity in the southern Delta as part of this effort. This process could result in amendments to the Bay-Delta Plan, further changes in water rights, or changes in both the Plan and water rights.

B. Water Quality Objectives for Agricultural Beneficial Uses

The water quality objectives in Table 2 provide reasonable protection of the beneficial use AGR, from the effects of salinity intrusion and agricultural drainage in the western, interior, and southern Delta. These objectives are unchanged from the 1991 Bay-Delta Plan.

C. Water Quality Objectives for Fish and Wildlife Beneficial Uses

The water quality objectives in Table 3 provide reasonable protection of fish and wildlife beneficial uses in the Bay-Delta Estuary including EST, COLD, WARM, MIGR, SPWN, WILD, and RARE. Protection of these fish and wildlife beneficial uses also provides protection for the beneficial uses of SHELL, COMM, and NAV. The parameters to be regulated under Table 3 are dissolved oxygen, salinity (expressed as electrical conductivity), Delta outflow, river flows, export limits, and Delta Cross Channel gate operation. Information available in 1995 indicated that, Unlike water quality objectives for parameters such as dissolved oxygen, temperature, and toxic chemicals, which have threshold levels beyond which adverse impacts to the beneficial uses occur, there ~~are~~ were no defined threshold conditions that ~~could~~ be used to set objectives for flows and project operations. Instead, available information at that time indicateds that a continuum of protection exists and that. Higher flows and lower exports provided greater protection for the bulk of estuarine resources up to the limit of unimpaired conditions. Therefore, these objectives ~~are~~ were set based on a subjective determination of the reasonable needs of all the consumptive and nonconsumptive demands on the waters of the Estuary. Upon completion of the POD studies, the State Water Board will reevalutate the available information.

Chapter IV. Program of Implementation

The Porter-Cologne Water Quality Control Act states that a water quality control plan consists of a designation or establishment of beneficial uses to be protected, water quality objectives, and program of implementation needed for achieving water quality objectives. [Wat. Code section 13050(j)]. The implementation program shall include, but not be limited to:

1. A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private;
2. A time schedule for the actions to be taken; and
3. A description of surveillance to be undertaken to determine compliance with the objectives (Wat. Code section 13242).

This program of implementation for the Water Quality Control Plan for the Bay Delta Estuary consists of five general components: (1) implementation measures within State Water Board authority; (2) measures requiring a combination of State Water Board authorities and actions by other agencies; (3) recommendations to other agencies; (4) a monitoring and special studies program; and (5) other studies that are being conducted by other entities but may provide information relevant to future proceedings. The specific actions identified within these components include time schedules for implementation, if appropriate. No time schedule is included for actions that have already been implemented.

The DWR's and USBR's have water rights permits contain terms and conditions that define their responsibilities an ongoing responsibility to implement comply with the municipal and industrial, agricultural, and fish and wildlife objectives, pursuant to the terms and conditions in their permits and licenses. As discussed above, these objectives are unchanged in this plan. Under their water right permits and license, the DWR and the USBR currently are required to comply with these objectives on an interim basis until the State Water Board adopts a further decision re-assigning responsibility for meeting these objectives. Based on this program of implementation, the State Water Board will determine whether any changes should be made to the DWR and USBR water rights permits and whether other water rights actions should be taken to implement the objectives.

A. Implementation Measures within State Water Board Authority

Under its water rights and water quality authority, the State Water Board will continue, as necessary and appropriate, to determine the contributions from water right permit and license holders needed to implement the objectives in this Plan that the State Water Board determines should be implemented through water project operations. This may be accomplished by conducting a water right proceeding at which the Board will take into consideration the requirements of the Public Trust Doctrine and the California Constitution, article X, section 2. The State Water Board will also continue, as necessary and appropriate, to use its Clean Water Act section 401 water quality certification authority to implement objectives in this Plan. Specifically, the following water quality objectives are currently, or may in the future be, implemented, in whole or in part, using water rights authority:

1. Delta Outflow
2. River Flows: Sacramento River at Rio Vista
3. River Flows: San Joaquin River at Airport Way Bridge, Vernalis
4. Export Limits
5. Delta Cross Channel Gates Operation
6. Salinity

The first five are flow-based objectives that rely upon water rights authorities to implement. Salinity, though a water quality objective, is still implemented, in part, through the State Water Board's water rights authorityies.

The State Water Board may require compliance with these objectives in stages or may shift responsibility for meeting an objective among water right holders and other entities based on evidence it receives in a water right proceeding or in a water quality proceeding such as the one scheduled to begin in January 2007.

1. Delta Outflow Objective

The Delta Outflow Objective will be implemented through water rights actions. The objective requires a minimum amount of outflow, measured in cubic feet per second (cfs) as defined in footnote 10 of Table 3. Currently, Water Rights Decision 1641 and the so called "Phase 8 Agreement" establish the responsibilities for implementing ~~The DWR and the USBR currently are responsible under their permits and license to meet the Delta Outflow Objective on an interim basis until the State Water Board adopts a water right decision or order that assigns permanent responsibility for meeting the Delta Outflow Objective. This water right decision or order would follow a water right proceeding after a request for such a proceeding by the DWR or USBR.~~

2. River Flows: Sacramento River at Rio Vista

This objective will be implemented through water rights actions. Currently Water Rights Decision 1641 and the Phase 8 Agreement, establish the responsibilities for implementing ~~The DWR and the USBR currently are responsible under their water right permits and license to meet the flow objectives at Rio Vista on the Sacramento River on an interim basis until the State Water Board adopts a decision that assigns permanent responsibility for meeting the Sacramento River at Rio Vista flow objectives. This water right decision would follow a water right proceeding after a request for such a proceeding, by the DWR or USBR.~~

3. River Flows: San Joaquin River at Airport Way Bridge, Vernalis

This objective will be implemented through water rights actions and will include a timetable for implementation. Flow objectives for the San Joaquin River at the Airport Way Bridge near Vernalis have been established for three time periods:

- Spring flow objectives, February through April 14 and May 16 through June;
- Spring pulse flow objectives, April 15 through May 15; and
- Fall pulse flow objectives in October

~~The USBR is assigned responsibility under its water right permits, on an interim basis until the Board assigns permanent responsibility, to comply with all of these objectives. The USBR is authorized, however, d~~During the Spring pulse flow period in

April and May while the San Joaquin River Agreement (SJRA⁵) is in effect, ~~to meet the~~ experimental target flows in the VAMP ~~will be implemented~~ in lieu of ~~meeting the~~ Spring flow objectives for the April-May period. After the SJRA terminates, the State Water Board ~~may review the objectives in a water quality proceeding or immediately will conduct a water right proceeding to decide whether and to what extent how to assign responsibility to various other parties for implementing meeting these objectives, and may review the objectives. In the interim, the State Water Board expects USBR to use all measures available to meet these objectives including reservoir releases, purchased water releases, and recirculation of water if it is found to be environmentally and operationally feasible.~~

Additional data and scientific analyses are needed to either support or modify the current spring flow objectives. These data and analyses are described in the 'Recommendations to Other Agencies' section of this chapter.

~~The USBR is assigned responsibility under its water right permits and license to comply with the Spring pulse flow objectives by no later than December 31, 2011. Before that date, however, the USBR is authorized under its water right permits, while the SJRA is in effect, to meet flow requirements that differ from the pulse flow objectives. This is an interim condition in the USBR's New Melones water storage permits; once the SJRA expires or is terminated, the Board will commence a proceeding to determine the responsibilities of various water right holders for meeting the pulse flow objectives.~~

The staged implementation of the Spring pulse flow objectives, with the first stage consisting of variations on the objectives, allows additional scientific investigation into flow needs on the San Joaquin River during the pulse flow period. In the first stage of implementation, the USBR and other parties are conducting a 12-year study referred to as the Vernalis Adaptive Management Plan (VAMP). The VAMP is designed to protect juvenile chinook salmon migrating down the San Joaquin River and to evaluate the effects of varying the San Joaquin River flow and the State Water Project (SWP) and Central Valley Project (CVP) water exports at times when the head of Old River flow barrier⁶ is restricting the flow of water into Old River, on the survival of marked juvenile chinook salmon migrating through the Sacramento-San Joaquin Delta.

The VAMP study has been ongoing for seven years, but the study has not yet yielded conclusive results regarding needed changes to the Spring pulse flow objectives. The completed study will provide critical data about flow needs on the San Joaquin River during the Spring pulse flow period.

Until no later than December 31, 2011, or until the SJRA is terminated, if earlier, the following interim Spring pulse flow objectives shall be implemented ~~maintained~~ on the San

⁵ The SJRA is a settlement agreement among numerous parties to the water rights hearing resulting in D-1641 to meet the San Joaquin River portions of various flow-dependent water quality objectives in the 1995 Plan.

⁶ The purpose of the head of Old River barrier is to reduce the downstream movement of juvenile San Joaquin River chinook salmon into the southern Delta via Old River where fish mortality increases due to predation and higher levels of exposure to export facilities and agricultural diversions.

Joaquin River at Vernalis during the 31-day April and May⁷ pulse period in order to obtain additional scientific information concerning flow needs on the San Joaquin River during the pulse flow period. The target flow should be based on the existing flow, as defined in table 5.

[Remainder of Page 24 Has Not Been Reproduced]

December 31, 2011, or until the SJRA is terminated, whichever occurs first. After the SJRA terminates, the State Water Board will use the information gained from the VAMP study and other pertinent information to determine what, if any, changes are needed to the pulse flow objectives. The State Water Board will then make any appropriate changes to the Water Quality Control Plan and, through a water rights proceeding, assign, as appropriate, long-term responsibility for meeting the pulse flow objectives to water right holders whose water diversions impact the flow of water.

4. Export Limits

This objective will be implemented through water rights actions. The DWR and the USBR are responsible under their water right permits and licenses to meet the objectives for export pumping as they are only directed towards the CVP and SWP pumping operations.

5. Delta Cross Channel Gates Operation

This objective will be implemented through water rights actions. The USBR, as the owner and operator of the Gates, is solely responsible under its water right permits and licenses for implementing to meet the Delta Cross Channel Gates Closure objectives.

6. Salinity Control

Salinity objectives are implemented through a mix of water rights actions (flow) and salinity control measures depending on the location and beneficial use affected. Salinity objectives and their implementation fall into the following broad categories:

i. Municipal and Industrial Uses: These objectives will be implemented through water rights actions (flow), as the. ~~The DWR and the USBR currently are responsible under their water right permits and licenses for implementation of chloride objectives are primarily to protect municipal and industrial uses from ocean derived chlorides.~~

ii. Fish and Wildlife in Suisun Marsh: This objective will be implemented through water rights actions, as the salinity levels are primarily provided by flows or a combination of flows and control structures. ~~The DWR and the USBR currently are responsible under their water right permits and licenses~~ Water Rights Decision 1641 establishes the current obligations to implement meet the numeric salinity objectives for Suisun Marsh at stations S-21, and S-42 (Figure 5). Due to evidence showing a potential for the objectives at stations S-97 and S-35 to cause harm to the beneficial uses they are intended to protect, the State Water Board in Decision 1641 (D-1641) did not require of the DWR and USBR attainment of the objectives at these two stations. Implementation of the salinity objectives at these two stations is discussed in section B.5.

iii. Fish and Wildlife in The San Joaquin River: This objective will be implemented through water rights actions. ~~The DWR and the USBR currently are~~ D-1641 establishes the current responsibilities under their water right permits and licenses for implementation of the San Joaquin River Salinity objective to protect fish and wildlife uses.

iv. Agriculture in the Western Delta, Interior Delta, and Export Area: These objectives will be implemented through water rights actions. ~~The DWR D1641 establishes the current and the USBR currently are responsibilities under their water right permits and licenses for implementation of the Western Delta, Interior Delta, and Export Area salinity objectives to protect agricultural uses.~~

v. Agriculture in the Southern Delta: DWR and the USBR D1641 establishes the current water ~~rightsly are responsibilities under their water right permits and licenses for implementation of~~

the Southern Delta salinity objectives to protect agricultural beneficial uses. Implementation of salinity objectives in the southern Delta requires a mix of salt load control and flow related measures. It is therefore discussed in section B of the Program of Implementation: 'Measures Requiring a Combination of State Water Board Authorities and Actions by Other Agencies.'

B. Measures Requiring a Combination of State Water Board Authorities and Actions by Other Agencies

Implementation of the following water quality objectives will require water rights and water quality measures by the State Water Board, in concert with actions taken by other agencies:

Implementation of these objectives can be accomplished through a combination ~~by one or all of~~ the following: ~~dedicated water flows for dilution flows~~, regulation of water diversions, pollutant discharge controls, best management practices to control the amount of waste produced, and improvements in water circulation. In addition to describing the actions taken, or to be taken, by the State Water Board, this section describes the actions taken, and that should be taken, by other agencies to implement these objectives. The State Water Board will use its authority, as needed and appropriate, under section 13165 of the California Water Code to require that studies are conducted.

1. Southern Delta Agricultural Salinity Objectives

Elevated salinity in the southern Delta is caused by a variety of factors. ~~Low flows, salts imported in irrigation water by the State and federal water projects, municipal discharges; subsurface accretions from groundwater; tidal actions; diversions of water by the SWP, CVP, and local water users; channel capacity; and discharges from land derived salts, primarily from agricultural drainage have all been considered as causal factors.~~ These salinity objectives currently are implemented through a mix of water right actions ~~permits~~ and salinity control. D1641 establishes the current water rights actions ~~The USBR is responsible under its water rights for implementing meeting the salinity objectives on the San Joaquin River at Vernalis and DWR and USBR are both responsible under their water right permits and license for meeting the salinity objectives at the other three southern Delta stations (San Joaquin River at Brandt Bridge, Old River at Middle River and Old River at Tracy Road Bridge (interior southern Delta stations)).~~ Salinity objectives on the San Joaquin River at Vernalis are also being implemented through through non-water rights actions, including the San Joaquin River Salinity Control Program in the Central Valley Regional Water Quality Control Board's (Regional Water Board) Water Quality Control Plan for the Sacramento and San Joaquin River Basins. In October of 2005, the State Water Board approved an Amendment to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. The amendment consists of a Control Program for Salt and Boron Discharges into the Lower San Joaquin River and other actions to implement salinity objectives in the SJR at Vernalis. The salt and boron basin plan amendment includes implementation measures and a timeline for implementation of salt load allocations.

The salinity objectives at Vernalis can be attained by releasing dilution water from New Melones and other sources, completing a drain to remove the salts generated by agricultural drainage and municipal discharges from the San Joaquin Valley, and conducting measures in the San Joaquin Valley such as the measures discussed below for controlling salinity in the interior southern Delta. The salinity objectives for the interior southern Delta can be implemented by measures that include state regulatory actions, state funding of projects and studies, and long-term implementation of management practices to control saline discharges.

State Regulatory Actions

- i. The State Water Board has allocated responsibility to some water right holders to release dilution flows. Currently, D1641 establishes water right actions directed to USBR to implement USBR is required to meet the Vernalis objectives, and directed to USBR and DWR to implement both are required to meet the interior southern Delta objectives, but ~~the State Water Board could also require releases from other non-SWP/CVP reservoirs after notice and an opportunity for a hearing. In lieu of some water releases, water right holders such as USBR and DWR ~~sh~~ could use measures that affect circulation of water in the southern Delta (including permanent barriers or operational gates).~~
- ii. The Central Valley Regional Water Board shall impose discharge controls on in-Delta discharges of salts by agricultural, domestic, and municipal dischargers.
- iii. The Central Valley Regional Board shall implement the Total Maximum Daily Load (TMDL) for the San Joaquin River at Vernalis, develop and adopt a basin plan amendment and TMDL for areas upstream of Vernalis, and implement the TMDL and Water Quality Control Plan to reduce salinity and other pollutants reaching the southern Delta.

It is the intent of the State Water Board to implement the southern Delta salinity objectives by utilizing water rights actions to the extent needed to mitigate water right holders' effects on salinity in the southern Delta and to utilize water quality actions and recommendation to other entities to reduce saline discharges and other pollutants reaching the southern Delta. The hearings scheduled to begin in January 2007 will provide a forum to receive information related to the impacts of water right holders, discharges, and other factors on southern Delta salinity.

State Funding of Programs

- i. The State Water Board has various financial assistance programs under which it can contribute funding for programs that will help meet the salinity objectives or to improving understanding about salinity conditions in the southern Delta (primarily the San Joaquin River upstream of Vernalis). To date, it has funded tens of millions of dollars worth of projects and studies for such programs. The State Water Board provides funds through the State Revolving Fund Loan Program, the Agricultural Drainage Loan Program, the Agricultural Drainage Management Loan Program, Proposition 13, 40, and 50 grant funding through the Nonpoint Source Pollution Control Programs and Watershed Protection Programs.

APPENDIX 1

10. Southern Delta Electrical Conductivity Objectives for the Protection of Agricultural Beneficial Uses

During the Plan Review, the State Water Board received information as to whether it should modify the Southern Delta Electrical Conductivity Objectives for the Protection of Agricultural Beneficial Uses set forth in Table 2 of the Plan, and whether the program of implementation should be modified. Elevated salinity (measured as EC) in the southern Delta is caused by a multitude of ~~F~~ factors, ~~including:~~ low flows; salts imported in irrigation water by the State and federal water projects; municipal discharges; subsurface accretions from groundwater; tidal actions; diversions of water by the SWP, CVP, and local water users; channel capacity; and discharges of land-derived salts, primarily from agricultural drainage have all been viewed as contributing factors. ~~Some of T~~ Some of the factors listed above contribute to salinity at each of the four Southern Delta compliance locations to varying degrees depending on location, flow conditions, and other factors. The southern Delta EC objectives are intended to protect southern Delta agricultural uses from these effects.

The Prop. 13 Nonpoint Source Pollution Control Program provides grant funding for projects that protect the beneficial uses of water throughout the state through the control of nonpoint source pollution. Loans are available to local public agencies and nonprofit organizations formed by landowners to prepare and implement local nonpoint source plans. Sixty percent of the funds will be allocated to projects in the Counties of Los Angeles, Orange, Riverside, San Diego, San Bernardino, and Ventura. Forty percent of the funds are to be allocated to projects in the remaining counties.

Discussion

The State Water Board received information from several parties concerning the southern Delta agricultural salinity objectives. Some of that information concerned potential changes to the objectives or the program of implementation, while much of the information was related to other matters or proceedings outside of the scope of the review of the objectives. The SJRGA advocated increasing the salinity objectives at Vernalis to 1.0 mmhos/cm throughout the year and eliminating the objectives during August, September, and October of below normal, dry, and critically dry years. The San Joaquin River Water Authority Exchange Contractors (SJEC) also argued for increasing the 0.7 mmhos/cm southern Delta EC objectives to 1.0 mmhos/cm or higher. DWR and SWC did not recommend any specific changes to the salinity objectives; however, they did recommend that additional analyses be conducted to determine the appropriateness of the objectives. DWR also recommended various changes to the program of implementation to delay implementation of the 0.7 EC objective at the interior southern Delta sites until various actions occur. SWC also recommended a review of DWR's responsibility for implementing the objectives at Brandt Bridge. SDWA opposed increasing the salinity objectives and advocated increasing the effective period of the 0.7 EC objective from March 1 through September 30. CCWD, the Central Valley Regional Water Board, and the USEPA recommended that no changes be made to the southern Delta agricultural EC objectives.

The SJRGA provided a variety of scientific, economic, and policy testimony and exhibits in support of its recommendations to change the salinity objective at Vernalis.⁹ The SJRGA submitted evidence indicating that the current Vernalis water quality objective of 0.7 mmhos/cm EC during the irrigation season is not necessary to protect agricultural beneficial uses at Vernalis (including irrigation for beans, alfalfa, and corn). The SJRGA presented evidence that when considering rainfall, irrigation water salinities of 1.1 EC are adequate to provide 100 percent crop yields of beans and other crops grown in the southern Delta and thus a year round EC objective of 1.0 would conservatively protect all crops. The SJRGA pointed out that the original studies upon which the objectives were based, were conducted in pots without considering natural leaching by rainfall, using sub-irrigation of organic soils, which are rare in the southern Delta. The SJRGA argued that poor soil conditions, shallow water tables, and poor groundwater quality in the southern Delta along with

⁹ The SJRGA did not comment specifically regarding the objectives at the other three southern Delta locations.

of irrigation water salinity can be tolerated if additional water is applied to increase the leaching fraction, the Central Valley Regional Water Board stated that none of the information presented during the workshop adequately refutes the State Water Board's previous findings that an EC of 0.7 is protective of all crops on all soil types in the southern Delta. The Central Valley Regional Water Board stated that the conclusions reached by the various witnesses would require special cropping or water management, which would shift the costs from the dischargers to the water users. Regarding the paper titled *An Approach to Develop Site-Specific Criteria for Electrical Conductivity to Protect Agricultural Beneficial Uses that Accounts for Rainfall* submitted by the SJRGA (SJRG-03), the Central Valley Regional Water Board pointed out that the study only covers soil, rainfall, and other conditions specific to the Davis area. The Central Valley Regional Water Board stated that there is no new science to justify changing the objectives or to discount the science on which the objectives were originally based. (RB5-02 and 03.)

The USEPA commented that they do not believe there is sufficient scientific or technical evidence at this time to support changes in the EC objectives because, in addition to other reasons, information from the crop studies is not specific to conditions in the Delta. (USEPA-04.)

While the SJRGA and the SJEC submitted evidence to indicate that a salinity objective of 0.7 EC is not necessary to protect southern Delta agriculture, that information was not specific to the southern Delta. Given the unique soil conditions in the southern Delta and other complicating factors discussed by SDWA, the scientific analyses of irrigation crop salinity needs presented by various parties cannot be correlated to conditions in the southern Delta without further field studies to verify such results. Further, other factors may also alter irrigation salinity needs such as irrigation practices and depth to water table that would need to be investigated before considering changes to the objectives. In addition, adequate information is not available to support expanding the effective period of the 0.7 mmhos/cm EC objectives to apply during March and September at this time. As a result, additional field analyses are needed to confirm any recommendations for changes in the salinity objectives before any modifications are made to the objectives. As discussed, the State Water Board recommends conducting an independent scientific investigation (similar to the investigation on which the objectives are based) to review the issues raised during this review in greater detail. While parties recommended changes to the objectives based on testimony and evidence from various sources, that evidence was not specific to conditions for crops grown in the southern Delta. However, the State Water Board may consider making changes to the southern Delta EC objectives in the future based on additional analyses concerning the irrigation water quality needs of crops grown in the southern Delta. The State Water Board has scheduled will convene a workshops beginning in January 2007 to discuss, among other topics, undertaking an independent scientific investigation of irrigation salinity needs in the southern Delta (similar to the investigation on which the objectives are based). The purpose of the scientific investigation will be to review the issues raised during this review in greater detail and to provide a foundation for supporting the objectives or

making changes to the objectives in the future based on studies specific to the southern Delta.

The State Water Board recognizes that permanent barriers (or operational gates) have not been installed in the southern Delta to assist in achieving the southern Delta EC objectives and that even when the barriers are installed, they may not always be adequate to fully meet the objectives at the Old River sites and will not assist in achieving the objectives at Brandt Bridge on the San Joaquin River. Accordingly, a revised additional program of implementation measures may be needed to achieve full implementation. The State Water Board considered these issues when it issued D-1641 and placed water right responsibility on DWR and USBR for meeting southern Delta EC objectives. If DWR or USBR believe that changes in this responsibility are warranted they may pursue a petition to change their water right obligations or petition to add other responsible parties to share in the burden of meeting the objectives at any time. Some of those revisions may occur through water rights actions, while others may be actions under the Board's water quality authority or by other entities. A revised program of implementation should be incorporated into the Bay-Delta water quality control plan, with time schedules for full implementation, as appropriate; as pursuant to Justice Robie's decision in the State Water Resources Control Board Cases, it is important that any future water rights implementation decision by the State Water Board be consistent with the program of implementation set forth in the water quality control plan. The proceedings scheduled for January 2007 will provide an appropriate forum for considering modifications to the program of implementation for the southern Delta salinity objectives.

Central Valley Salinity

As a result of a joint State Water Board and Regional Water Board workshop on salinity issues in the Central Valley in January of 2006, the State Water Board directed creation of a joint panel of Regional and State Water Board staff to develop a plan to address salinity issues in the Central Valley. The panel is currently preparing a report for the State Water Board with its findings and recommendations.

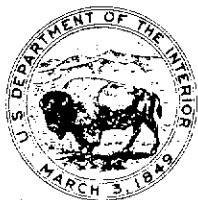
Cease and Desist Order

~~On February 15, 2006, the State Water Board adopted a Cease and Desist Order against DWR and USBR for threatened violation of the 0.7 EC objective at the interior southern Delta compliance locations. The order puts USBR and DWR on a time schedule, with reporting requirements, to implement measures to obviate the threat of non-compliance with the 0.7 southern Delta agricultural EC objective in their permits and license at the three interior southern Delta compliance stations. DWR and USBR have indicated that they will have difficulty meeting the 0.7 EC objective during drier years at the Old River sites without installation of permanent barriers in the southern Delta and that they will have difficulty meeting the 0.7 EC objective at Brandt Bridge without additional measures to reduce saline discharges.~~

Conclusion

The State Water Board does not have adequate evidence on which to base substantive changes to the southern Delta EC (salinity) objectives for the protection of agricultural beneficial uses at this time. Therefore, these objectives remain unchanged in the 2006 Plan. The Board will receive additional evidence on this matter beginning in January 2007 and will also consider modifications to the program of implementation.

Footnote 5 of Table 2 of the 1995 Plan states that the 0.7 mmhos/cm EC objective will be implemented at the two Old River sites by December 31, 1997. The 2006 Plan deletes this footnote because it is obsolete. Currently, DWR and USBR are



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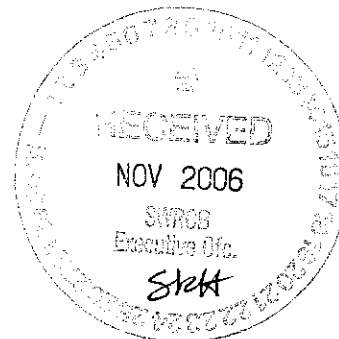
Room E-1712

Sacramento, California 95825-1890

2006 Bay Delta Plan
Deadline: 11/13/06IN REPLY
REFER TO:

November 9, 2006

Song Her
Clerk to the Board
State Water Resources Control Board
1001 "I" Street, 2nd Floor
Sacramento, CA 95814



Subject: 2006 Bay-Delta WQCP Hearing

Dear Ms. Her:

Enclosed please find comments by the U.S. Department of the Interior, regarding the 2006 Bay-Delta WQCP Hearing. We are submitting one electronic copy, one original hard copy, and 15 paper copies as requested in the Notice of Public Hearing.

Please feel free to call either Amy Aufdemberge, (916) 978-5688 or Kaylee Allen, (916) 978-5686 if you have any questions or require any additional information.

Sincerely,

Daniel G. Shillito
Regional Solicitor

Enclosures

cc: Kirk Rodgers, Bureau of Reclamation
David Harlow, U.S. Fish and Wildlife Service
Roger Givinee, U.S. Fish and Wildlife Service
Ron Milligan, Bureau of Reclamation
Ray Sahlberg, Bureau of Reclamation

United States Department of the Interior

**Comments Regarding the California State Water Resources Control Board's
Consideration of an Amended Water Quality Control Plan for the San
Francisco Bay/Sacramento-San Joaquin Delta Estuary**

November 9, 2006

The United States Department of the Interior (Interior) generally supports the State Water Resources Control Board's (SWRCB or "the Board") Draft Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, September 2006 (Draft Plan), with a few key exceptions. Over the last decade, since the 1995 Water Quality Control Plan for the Bay-Delta (1995 Plan) was first adopted, and since the implementation of that plan through Decision 1641 (D-1641) in 2000, Interior's experience in operating the Central Valley Project (CVP) through its Bureau of Reclamation (Reclamation), and in protecting Delta fish and wildlife resources through its Fish and Wildlife Service (FWS), has provided important data, new information, and a valuable perspective on the Delta's water supplies and water quality. The Draft Plan purports to make no substantive changes to the 1995 Plan objectives or beneficial uses. Yet, Interior believes that important facts have changed since the 1995 Plan, especially with respect to salinity in the southern Delta. These changes impact the underlying assumptions of the San Joaquin objectives and the environmental analyses of those objectives. In addition, consistent with Interior's comments to the Board during the 2004-05 workshops for the periodic review of the 1995 Plan, Interior believes that flexibility should be built into some of the objectives and their respective programs of implementation to account for potential conflicts between competing upstream and downstream fishery objectives, and the limited supplies to meet those objectives in some years.

Interior has reviewed the Draft Plan and the Draft Plan Amendment Report, Appendix 1 to the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Draft Plan Report). Interior's new information and experience indicate that while many of the water quality objectives in the 1995 Plan have worked well to achieve a balance of competing demands for fishery and water quality flow needs and other consumptive, beneficial uses of water, there may be problems with the achievability of all of the objectives on the San Joaquin in certain conditions. These problems are exacerbated by the recent developments in the Board's implementation of the Southern Delta Salinity Objectives. However, Interior has reviewed each of the issues outlined in the Draft Plan Report and offers the following more specific comments for the Board's consideration in adopting an amended plan.

1. Changes to Water Quality and Baseline Monitoring Program

Interior believes that the changes made to the Water Quality and Baseline Monitoring Program are appropriate given the evidence that was provided at the workshop. Interior makes

no further recommendations regarding the Water Quality and Baseline Monitoring Program at this time.

2. Delta Cross Channel Gate Closure

Interior makes no further recommendations regarding the Delta Cross Channel Gate Closure at this time.

3. Narrative Objective for Salmon Protection

Interior supports the Board in maintaining the Narrative Objective for Salmon Protection in the 2006 Draft Plan. This objective is important in assisting Interior with meeting the anadromous fish doubling goals included in the Central Valley Project Improvement Act (CVPIA) and the Final Anadromous Fish Restoration Program (AFRP) Plan developed pursuant to CVPIA. Because accomplishment of the Narrative Objective for Salmon Protection requires a watershed or basin-wide approach, efforts in the Delta and upstream must continue to be actively coordinated to ensure that these actions are effective and consistent with the ongoing recovery processes for listed winter-run Chinook salmon, spring-run Chinook salmon and Central Valley steelhead.

In the Program of Implementation for the Narrative Objective for Salmon Protection, the Board notes that actions of other agencies are necessary to meet the Narrative Objective for Salmon Protection if implementation of the flow-dependent objectives does not result in meeting the Narrative Objective for Salmon Protection. While Interior agrees that actions of other agencies are needed, Interior believes that the Board can do more to facilitate the coordination of actions among agencies to ensure that the Narrative Objective for Salmon Protection is met. Interior proposed these actions in testimony presented at the public workshop in October 2004 (Ex. DOI-09, DOI-22¹, incorporated herein) and reiterates the recommendations below.

In order to implement the Narrative Objective for Salmon Protection and provide protection for threatened Central Valley steelhead, Interior recommends, again, that the Board coordinate with state and federal agencies when either Delta or upstream actions, including determination of flow and water quality objectives to address Chinook salmon doubling, are undertaken by the Board regarding the Plan so that such actions meet overall goals and do not conflict with each other. In addition, the Board should consider the overall goal of doubling of Chinook salmon in any other actions that come before the Board, as well as consider the specific protection needs of Central Valley steelhead and the recently listed Green Sturgeon in any actions that the Board undertakes. The Board should also provide the coordination and assistance required to improve water quality and biological monitoring and mitigation for anadromous fish populations in the Sacramento-San Joaquin Rivers/San Francisco Bay-Delta watershed.

¹ Unless otherwise stated, all exhibit references are from the "Draft Referenced Documents, Appendix 3 to the 2006 -Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary" dated September 2006.

Based on current monitoring programs, the natural production of all races of salmon in the Sacramento Valley Basin appears to be stable (and in some notable instances has improved) since the passage of the 1995 Plan. However, Interior is concerned that the natural production of fall-run Chinook salmon in the San Joaquin Basin continues to decline. In the last six years natural production estimates for the Stanislaus, Tuolumne, and Merced rivers (combined) have steadily declined from an estimated 79,000 Chinook in the year 2000 to approximately 12,000 Chinook in 2005 (data from FWS ChinookProd spreadsheet). This does not appear to be a one-year phenomenon; the five-year average production for 2001-2005 is approximately 25,000 Chinook, representing a 69 percent decrease from the year 2000. FWS is concerned because: (1) smolt survival through the south Delta has been low in the past few years; (2) the timing of installation and operation of the Head of Old River barrier is uncertain, and (3) dredging of the Port of Stockton's ship channel may result in increased salmon smolt mortality.

Interior continues to recommend the Narrative Objective for Salmon Protection be addressed through an interactive and collaborative process between state and federal agencies (including the Board) responsible for these public trust resources. The San Joaquin Chinook salmon model developed in 2005 by the California Department of Fish and Game (DFG) has been peer reviewed and revisions/improvements to the model will be incorporated in the spring of 2007. Interior anticipates that this model will prove useful in examining the relationship between San Joaquin spring flows and salmon production in subsequent years.

Interior has made operational changes to New Melones releases in an effort to meet all 1995 Plan requirements (including the Narrative Objective for Salmon Protection) as well as the needs of other beneficial uses. However, under the current regulatory requirements, releases from New Melones alone are not sufficient to meet all the flow and salinity requirements in the 2006 draft Plan. It is Interior's position that the Board should conduct a coordinated review of all the elements of the Plan that relate to the broader realities in the San Joaquin Basin, including the Narrative Objective for Salmon Protection, as well as the Vernalis Spring Flow Objectives, Vernalis Pulse Flow Objectives and Southern Delta Salinity Objectives.

The Board now has access to new information in the form of CALSIM II and the updated San Joaquin basin planning hydrology. The availability of the new information means that the D-1641 FEIR must be supplemented with new environmental analyses of the San Joaquin. The need for a new analysis of the San Joaquin Basin is critical because the Draft Plan fails to recognize the water supply issues with achieving the Vernalis Spring Flow Objectives, and fails to recognize the relationships among the Narrative Objective for Salmon Protection, the Vernalis Spring Flow Objectives, and the Southern Delta Salinity Objectives.

Recommendation. Based on the recent low fry/smolt survival estimates and the continued decline in natural production of Chinook salmon, Interior strongly recommends that the Board re-examine the entire suite of 2006 draft Plan flow and salinity objectives that pertain to the San Joaquin Basin in light of recent developments in San Joaquin Basin hydrology and the newly-revised San Joaquin Chinook salmon model. This recommendation is consistent with Interior's recommendation for a workshop regarding the Vernalis Spring Flow Objective, discussed below. Furthermore, Interior recommends that the Board conduct this workshop in the summer of 2007.

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4. Chloride Objectives

Interior strongly recommends that the Board recognize in the Chloride Objectives Program of Implementation that the Projects can only control and achieve objectives related to ocean based salinity intrusion near the Holland Tract station. The Board heard testimony during the workshops from all parties that the Holland Tract salinity information best represents the Projects' influence on salinity intrusion. In order for the Draft Plan to provide for reasonable and achievable objectives, the Draft Plan should be amended to recognize the fact that the Projects can only have meaningful influence of Chloride Objectives at the Holland Tract station. The Board claims it does not have enough information to change the compliance location from PP#1 to the Holland Tract station. Yet, the Board can provide in its Program of Implementation for the Projects to achieve the Chloride Objectives at the Holland Tract station, while keeping the PP#1 objective in place, and implemented by other reasonable and achievable means.

Interior strongly disagrees with the Board's analysis in the Draft Plan Report, p. 39, that the Projects must petition for a water rights hearing and point to other responsible parties before the Board can provide for partial responsibility of a water quality objective. The Board can make such provisions in a program of implementation for any water quality objective in a water quality control plan, especially in a case such as the Chloride Objectives, where the evidence shows, and the parties agree, that CVP operations can only have a limited influence on chloride concentrations at specific locations. Otherwise, the Board would be implementing objectives through certain water rights that are not achievable through those water rights. Such is the case with the Draft Plan with respect to the Chloride Objectives. The Projects only have meaningful influence over salinity intrusion at the Holland Tract station. The Chloride Objectives in the Draft Plan may well be illusory under the Draft Plan's Program of Implementation.

5. Delta Outflow Objective

Interior supports the determination of the Board in the Draft Plan to not amend the numeric values established for the Delta Outflow Objective in the 1995 Plan. A decade ago, the Board adopted the Delta Outflow Objective to protect beneficial uses of Delta waters by the State's fishery resources. The Delta Outflow Objective formed the foundation for one of the major new concepts in the 1995 Plan. Over the last 10 years, implementation of this Objective has, in general, improved environmental conditions for a number of fish species, particularly those listed as threatened or endangered pursuant to the federal Endangered Species Act (ESA). Compliance with the Delta Outflow Objective provides important protection for the Delta's fishery resources and contributes to maintenance of Delta habitat.

During the 2004-05 periodic review workshops, Interior requested that the Board adopt further flexibility in the implementation of the Delta Outflow Objective. Interior incorporates its exhibits from the workshops by reference (Ex. DOI-23, DOI-24). Interior appreciates the Board's acknowledgement that flexibility may be appropriate and added in the future through the Program of Implementation.

Recommendation. As articulated in exhibits provided for the workshops, under certain circumstances, meeting the Delta Outflow Objective may be in conflict with and create

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operational challenges in meeting upstream reservoir management objectives for fishery purposes, such as maintaining the coldwater pool or reducing reservoir release fluctuations. While the potential for such conflict is fairly limited, Interior believes it is important for the Board to acknowledge the potential for conflict between upstream and downstream fishery objectives and outline a process in the Program of Implementation to address these competing needs and develop specific operational recommendations in a timely manner.

Interior proposes an amendment to the language in the Program of Implementation acknowledging the potential for conflict under specific conditions between meeting the Delta Outflow Objective and upstream reservoir management objectives for fishery purposes. Further, Interior requests that the Board outline the process to be followed in the event such a conflict between upstream and downstream fishery objectives occurs. Interior believes that the appropriate process should be the filing of a temporary urgency change petition with the Board. The petition would contain a proposal to address significant competing needs and develop specific operational recommendations that would be supported by all agencies on the Water Operations Management Team (Reclamation, FWS, National Marine Fisheries Service, California DFG and the California Department of Water Resources).

In order to address the potential for conflict between upstream and downstream fishery objectives, Interior is proposing the following change to the Program of Implementation section of the Draft Plan. This paragraph would follow the existing paragraph under "1. Delta Outflow Objective" on page 22 of the Draft Plan:

The State Water Board recognizes that under certain limited circumstances achieving the Delta Outflow Objective may be in conflict with the Projects' ability to meet upstream fishery objectives for threatened and endangered salmonids in the upper Sacramento River, Feather River and lower American River. If DWR or USBR determines that such a conflict exists and creates an unacceptable risk of harm to threatened or endangered species, DWR or USBR may petition for a temporary urgency change order pursuant to Cal. Water Code § 1435 et seq., and the Board's regulations, to temporarily allow the Projects to implement the Delta Outflow Objective in a flexible manner to address competing needs of upstream and downstream fishery objectives. The temporary urgency change petition, in addition to the requirements for approval set forth under Cal. Water Code § 1435, shall include specific operational alternatives to address the competing needs of upstream and downstream fishery objectives, and shall be supported by all agencies on the Water Operations Management Team (U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game and the California Department of Water Resources). It is the intent of the Board that the Board, or its authorized delegee, will act on such a petition for temporary urgency change within five (5) days of its receipt.

Interior believes that acknowledging the potential for conflicts between upstream and downstream fishery objectives, and the potential need for temporary urgency changes, in the Program of Implementation is essential for reasonable implementation of the Delta Outflow Objective. While the potential for conflict exists, Interior finds that the circumstances of such conflict are sufficiently limited so as to not warrant an amendment to the Delta Outflow

Objective. However, in the event that competing needs between upstream and downstream fishery objectives occur, Interior believes that the statutory temporary urgency change process can be an appropriate tool for flexibility, as originally requested by Interior, provided that Interior has some assurance that such a petition will be acted upon in a timely manner.

Interior supports the Board's decision to not amend the numeric values established for the Delta Outflow Objective. Interior recommends that the Board recognize the potential for conflicts between implementation of the Delta Outflow Objective and upstream reservoir management objectives for fisheries, and provide for timely resolution of such competing needs through the use of a temporary urgency change petition. Recognition of the potential conflicts between upstream and downstream fishery objectives in the Draft Plan will allow the Board to issue a temporary urgency change order, under the appropriate circumstances, consistent with the Program of Implementation for the Delta Outflow Objective.

6. Export Limits

Interior makes no further recommendations regarding the Export Limits Objectives at this time.

7. River Flows: Sacramento at Rio Vista

Interior supports the determination of the Board in the Draft Plan to not amend the numeric values established for the Sacramento River at Rio Vista Flow Objectives in the 1995 Plan. The Sacramento River at Rio Vista Flow Objectives were adopted in the 1995 Plan to protect beneficial uses of river and Delta waters by the State's fishery resources. The Sacramento River at Rio Vista Flow Objectives apply to the fall months and are primarily intended to maintain sufficient net downstream flow in the lower Sacramento River to facilitate adult Chinook salmon upstream migration. The salmon objective reflects the minimum flows that the California DFG believes would be suitable for adult salmon migration (Bay-Delta WQCP, August, 1978). The Sacramento River at Rio Vista Flow Objectives provide concurrent benefits for federally listed adult steelhead during their upstream migration through the Delta to their spawning habitat in several Central Valley streams. Further, federally listed juvenile winter-run, and spring-run Chinook salmon, as well as late fall-run Chinook salmon, migrate downstream toward the ocean in the fall and winter months. The Sacramento River at Rio Vista Flow Objectives contribute flows for these species' downstream migration.

While Interior recognizes the benefits of the Sacramento River at Rio Vista Flow Objectives, under certain circumstances, achieving the Sacramento River at Rio Vista Flow Objectives may be in conflict with other upstream fishery objectives. Evidence of this conflict was presented at the 2004-05 periodic review workshops. Interior incorporates its exhibit from the workshops by reference. (Ex. DOI-25). Under certain dry fall conditions, meeting the Sacramento River at Rio Vista Flow Objectives may result in greater than desired flow fluctuations in the upper Sacramento River, Feather River and lower American River during the fall salmon spawning period. An alternative to meeting the Sacramento River at Rio Vista Flow Objectives by flow releases is to close the Delta Cross Channel gates. However, closure of the gates in dry fall conditions creates other conflicts, primarily a likely increase in salinity in the

Southern Delta. This option could be exercised only for short periods of time and possibly balanced with export reductions to maintain water quality objectives.

The Sacramento River at Rio Vista Flow Objectives may also affect the upstream reservoirs' fall cold-water reserves. Such conflict can arise because in order to meet the Sacramento River at Rio Vista Flow Objective, the Projects may be required to make storage releases, or to bypass flows that would otherwise be diverted into storage. Such releases, or bypasses, may result in the additional depletion of limited cold-water resources during the fall. In extreme circumstances, these releases and lowered reservoir levels may affect the Projects' ability to achieve temperature objectives for anadromous fish in the following year, including threatened or endangered salmon species. These temperature objectives have been set by the Board, and are included in the Biological Opinion issued by the National Marine Fisheries Service regarding the effects of Central Valley Project/State Water Project operations on listed salmonids. Failure to meet the temperature requirements in the Biological Opinion triggers reinitiation of Endangered Species Act (ESA), Section 7, consultation, which allows for NMFS to consider whether the failure to meet temperature requirements will cause jeopardy to the continued existence of listed species or whether additional measures are needed to minimize take. This process provides protection for species when hydrologic conditions are such that it is not possible to meet the operations analyzed in the Biological Opinion for CVP operations.

Recommendation. While the potential for such conflict between upstream and downstream fishery objectives is fairly limited to dry fall conditions, Interior believes it is important for the Board to acknowledge the potential for conflict in the Program of Implementation of the Sacramento River at Rio Vista Flow Objectives. Therefore, Interior proposes an amendment to the language in the Program of Implementation acknowledging the potential for conflict under specific conditions between meeting the Sacramento River at Rio Vista Flow Objective and other upstream fishery objectives, including requirements in the Biological Opinions for CVP operations. Interior requests that the Board outline a process to be followed in the event such a conflict between upstream and downstream fishery objectives occurs. Interior believes that the appropriate process should be the filing of a temporary urgency change petition with the Board. The petition would contain one or more proposals to address the significant competing needs and develops specific operational recommendations that would be supported by all agencies on the Water Operations Management Team (Reclamation, FWS, National Marine Fisheries Service, California DFG and the California Department of Water Resources).

In order to address the potential for conflict between meeting the upstream and downstream fishery objectives, Interior is proposing the following change to the Program of Implementation section of the Draft Plan. This paragraph would follow the existing paragraph under "2. River Flows: Sacramento River at Rio Vista" on page 22 in the Draft Plan:

The Board recognizes that under certain limited circumstances during dry fall conditions, achieving the Sacramento River at Rio Vista Flow Objective may be in conflict with the Projects' ability to meet upstream fishery objectives for threatened and endangered salmonids in the upper Sacramento River, Feather River and lower American River. If USBR, or DWR, determines that such a conflict exists and creates an

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unacceptable risk of harm to threatened or endangered species, USBR, or DWR, may petition for a temporary urgency change order pursuant to Cal. Water Code § 1435 et seq., and the Board's regulations, to temporarily allow the Projects to implement the Sacramento River at Rio Vista Flow Objective in a flexible manner to address competing needs of upstream and downstream fishery objectives. The temporary urgency change petition, in addition to the requirements for approval set forth under Cal. Water Code § 1435, shall include specific operational alternatives to address the competing needs of the upstream and downstream fishery objectives, and shall be supported by all agencies on the Water Operations Management Team (U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game and the California Department of Water Resources). It is the intent of the Board that the Board, or its authorized delegee, will act on such a petition for temporary urgency change within five (5) days of its receipt.

12-4 cont.

Interior believes that acknowledging the potential for conflicts between upstream and downstream fishery objectives, and the potential need for temporary urgency change orders in the Program of Implementation is essential for reasonable implementation of the Sacramento River at Rio Vista Flow Objective. While the potential for conflict between upstream and downstream fishery objectives exists, Interior finds that the circumstances of such conflict are sufficiently limited so as to not warrant an amendment to the Sacramento River at Rio Vista Flow Objectives. However, in the event of those competing needs between upstream and downstream fishery objectives, Interior believes that the statutory temporary urgency change process can be an appropriate tool for flexibility, as originally requested by Interior, provided that Interior has some assurance that such a petition will be acted upon in a timely manner.

Interior supports the Board's decision to not amend the numeric values established for the Sacramento River at Rio Vista Flow Objectives. Interior recommends that the Board recognize the potential for operational challenges and ESA conflicts between implementation of the Rio Vista Flow Objectives and upstream fishery objectives, and provide for timely resolution of such competing needs through the use of a temporary urgency change petition. Recognition of the potential conflicts between upstream and downstream fishery objectives in the Draft Plan will allow the Board to issue a temporary urgency change order, under the appropriate circumstances, consistent with the Program of Implementation for the Sacramento River at Rio Vista Flow Objectives.

8. February-April 14 and May 16-June San Joaquin River Flow Objectives (Spring Flow Objectives);

9. 31-Day April 15-May 15 San Joaquin River Pulse Flow Objectives (Pulse Flow Objectives); and

10. Southern Delta Electrical Conductivity Objectives for the Protection of Agricultural Beneficial Uses (Southern Delta Salinity Objectives)

Interior would like to consolidate its comments on issues 8, 9, and 10 (the San Joaquin Spring Flow and Pulse Flow Objectives, and the Southern Delta Salinity Objectives), because while each merit individual comment, set forth below, the objectives all depend on water from the San Joaquin Basin. Interior believes that the Vernalis Spring and Pulse Flow objectives

provide important protection for emigrating salmonids and federally listed delta smelt. However, as Reclamation and FWS have previously acknowledged, compliance with the San Joaquin flow objectives may create reservoir operational challenges, fishery flow management challenges and potential conflicts with federal ESA obligations. These conflicts can be exacerbated by the fact that the formula for the San Joaquin Spring Flow Objectives is largely influenced by hydrology of the Sacramento Basin, and not the San Joaquin Basin. In addition, these conflicts are exacerbated by the “new” Southern Delta Salinity Objectives being imposed upon the CVP, as further discussed below.

While Interior believes that the Vernalis Spring and Pulse Flow Objectives are necessary to protect fish, the history is that Reclamation has agreed to be responsible, to the best of its ability, for the Vernalis Spring Flow (or baseflow) Objectives, generally for the term of the San Joaquin River Agreement (SJRA). While the Board has interpreted Reclamation’s promise on this point much more broadly than intended,² Reclamation has not challenged the Board’s interpretation in an effort to keep the SJRA in place and to achieve comity in the San Joaquin Basin. However, as originally predicted by Reclamation, there are questions of reasonableness and achievability of the Vernalis Spring Flow Objectives in dry years, in light of the entire responsibility falling on Reclamation, and especially in connection with the “new” Southern Delta Salinity Objectives, discussed below. The Board often cites to the fact that Reclamation is not required to meet either the Spring Flow or Southern Delta Salinity Objectives solely from New Melones storage water. Yet the reality remains: there is not enough water in the Basin, from purchase, from storage, from recirculation, or otherwise, to meet the Vernalis Spring Flow Objectives, and the Southern Delta Salinity Objectives, in all conditions.

Reclamation has sought temporary urgency change orders from the Board in all years from 2002-2005, to get flexibility in implementing the Vernalis Spring Flow Objectives due to dry conditions. In 2005, Reclamation’s temporary urgency change petition was denied. The order denying the petition (Order WRO 2005-0010, at page 6) states, “Delaying until a violation is imminent does not create an urgent need for a change, although it may well create an urgent need to take enforcement action.” This statement does not recognize the need for Reclamation to respond in real-time to operational conditions and conflicts between upstream and downstream fishery objectives that may change daily. Such a statement places the Board and Interior in adversarial positions. Interior believes that such adversarial approaches are not productive.

The Board has often relied on this periodic review process as the appropriate opportunity for Reclamation to achieve flexibility to deal with the operational challenges and difficulties with implementing the Vernalis Spring Flow objectives and upstream fishery objectives, yet the Draft Plan includes no such flexibility. The flexibility requested by Interior during the periodic review workshops has not been seriously considered or analyzed in the Draft Plan Report. The need for flexibility is increased due to the Southern Delta Salinity Objectives. Interior is, therefore, concerned about the future implementation of these three related objectives. However, Interior believes that if the Board acknowledges the potential for certain conflicts between upstream and downstream fishery objectives, and the Southern Delta Salinity Objectives, in the Programs of Implementation and the potential need for temporary urgency change orders, such

²See D-1641, p. 45, footnote 35.

acknowledgment in the Draft Plan will go a long way toward working together to resolve conflicts in the San Joaquin and Southern Delta inherent in the Board's objectives.

A. Vernalis Spring Flow (Baseflow) Objectives. The Board is well aware that Reclamation has a history of not fully achieving the Vernalis Spring Flow Objectives in dry conditions. (Order WRO 2005-0010, p. 4). When the objectives were originally adopted in the 1995 Plan, it was known that the Vernalis Spring Flow Objectives would be difficult for Reclamation to achieve in dry conditions. In the hearings for D-1641, Reclamation testified, as it did before the Board in 1995, that, "it may not be possible or prudent to meet all the standards under all conditions, but we will make our best effort to do so." (See D-1641, p. 45, citing to USDI 4, p. 4, Testimony of Lowell Ploss, citing 1995 testimony of Roger Patterson). Now that Reclamation has over six years of experience implementing the Vernalis Spring Flow Objective, it is clear that Reclamation's initial concerns are coming to bear, as evidenced by the history of requests for temporary urgency change orders seeking flexibility in implementing the Vernalis Spring Flow Objectives filed by Reclamation.

Reclamation sought temporary urgency change orders on March 13, 2002, (DOI Exhibit A, attached hereto and incorporated herein), on May 16, 2003 (DOI Exhibit B, attached hereto and incorporated herein), on January 30, 2004, (DOI Exhibit C, attached hereto and incorporated herein), and again on February 1, 2005 (DOI Exhibit D, attached hereto and incorporated herein). Reclamation sent a letter to the Board's Executive Director on November 18, 2004, detailing Reclamation's difficulties with achieving the Vernalis Spring Flow Objectives during dry conditions. (DOI Exhibit E, attached hereto and incorporated herein). The November 18, 2004, letter also describes Reclamation's difficulties in achieving the Vernalis Spring Flow Objectives through other means than New Melones storage water, including purchases, recirculation, south of Delta storage releases, and finally Reclamation requests flexibility in implementing the objective. In addition, Reclamation has submitted to the Board a "Summary of 1997 Analysis of PROSIM and SANJASM Results Demonstrating Instances of Failure to Meet Vernalis Base Flow Required for X2 Compliance." (DOI Exhibit F, attached hereto and incorporated herein). This document further details Reclamation's experience with implementing the Vernalis Spring Flow Objectives.

However, as previously stated, Interior believes that the Vernalis Spring Flow Objectives are important and necessary to protect fish and wildlife beneficial uses. The Vernalis Spring Flow Objectives benefit juvenile fall-run Chinook salmon, and federally listed adult steelhead during their downstream migration, and federally listed adult delta smelt during spawning, as well as larval and juvenile delta smelt. The fishery benefits afforded by the Vernalis Spring Flow Objectives are especially important in light of the recent pelagic organism decline (POD) in the Delta and the continuing decline in San Joaquin basin salmon production. Therefore, Reclamation stands by its promise to meet the Vernalis Spring Flow Objectives, to the best of its ability. However, neither Interior nor the Board should continue to ignore Reclamation's difficulties in achieving the objectives during dry conditions. Interior believes that providing flexibility in implementing the Vernalis Spring Flow Objectives will prevent further adversarial positions between Interior and the Board. At the very least, Interior believes that the Board should recognize in the Draft Plan that the Vernalis Spring Flow Objectives, during this time that they are implemented solely through water rights for the CVP, may conflict and create

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operational challenges with upstream fishery objectives, and the Southern Delta Salinity Objectives, and may be difficult, if not impossible, to achieve in certain dry conditions.

Recommendation. Interior believes that the language similar to that suggested for the Delta Outflow Objective and the Sacramento River at Rio Vista Flow Objectives will also help with the San Joaquin Spring Flow issue, as follows:

The State Water Board recognizes that under certain limited circumstances during dry conditions, there are limited water resources available in the San Joaquin Basin to achieve the San Joaquin Vernalis Spring Flow Objectives, and the Objectives may be in conflict with upstream fishery objectives, and Southern Delta Salinity Objectives. If USBR determines that such circumstances exist, USBR may file a temporary urgency change petition, pursuant to Cal. Water Code § 1435 et seq., and the Board's regulations, to temporarily allow Reclamation to implement the Vernalis Spring Flow Objectives in a flexible manner to address competing needs of upstream and downstream fishery objectives, or salinity objectives. The temporary urgency petition, in addition to the requirements for approval set forth under Cal. Water Code § 1435, shall include specific operational alternatives to address the competing needs, and shall be supported by all agencies on the Water Operations Management Team (U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game and the California Department of Water Resources). It is the intent of the Board that the Board, or its authorized delegee, will act on such a petition for temporary urgency change within five (5) days of its receipt.

Interior believes that this recognition of the limited water supply of the San Joaquin Basin during dry conditions, and the potential for operational challenges and conflicts between upstream and downstream fishery objectives and the Southern Delta Salinity Objectives in the Program of Implementation for the San Joaquin Spring Flow Objectives is critical to reasonable and achievable implementation of the objectives.

In making the above recommendation, Interior acknowledges that conflicts between the Vernalis Spring Flow Objectives and the Southern Delta Salinity Objectives (further discussed below) may occur only in certain dry conditions, and that the use of a temporary urgency petitions process is appropriate for the short-term. However, there continues to be a need for a long-term solution to the over-allocation of San Joaquin Basin water. Therefore, Interior strongly recommends that the Board re-examine, in a workshop, the Vernalis Spring Flow Objectives in light of recent developments in San Joaquin Basin hydrology, as well as the newly revised San Joaquin Chinook salmon model. Interior recommends that the Board conduct this focused workshop in the summer of 2007, or alternatively, broaden the scope of the January, 2007, workshop on Southern Delta Salinity Objectives recently noticed by the Board.

B. Vernalis Pulse Flow Objectives (April 15-May 15). Interior supports the Draft Plan's changes to the Program of Implementation for the Vernalis Pulse Flow Objectives. The Program of Implementation now has provisions allowing a staged implementation of the Vernalis Pulse Flow Objectives until December 31, 2011. Until that time, the objectives will be implemented as set forth in the Vernalis Adaptive Management Plan (VAMP) experiment, and as

set forth in the SJRA. Interior notes that the Draft Plan commits the Board to holding a water right hearing immediately following the termination of the SJRA. Interior supports this commitment by the Board.

While Interior has no issue with the Draft Plan being made consistent with D-1641 for the Vernalis Pulse Flow Objectives, Interior strongly disagrees that the Board can rely on the *Final Environmental Impact Report for Implementation of the 1995 Water Quality Control Plan* (D-1641 FEIR) as adequate analyses of the environmental impacts of the Vernalis Pulse Flow Objectives. The D-1641 FEIR's analysis with respect to the San Joaquin River flows is fundamentally flawed. The analysis is not based upon accurate hydrologic conditions or supplies of the San Joaquin Basin. The analysis assumes water is added to the basin to meet particular objectives (the "add water" analysis), but does not account for where this water would actually come from in the Basin. The analysis is based on the DWRSIM model. The Board now has access to new information in the form of CALSIM II and the updated San Joaquin basin planning hydrology. The availability of the new information, and the need to correct the faulty assumption of the D-1641 FEIR "add water" analysis, means that the D-1641 FEIR must be supplemented with new environmental analyses of the San Joaquin. The need for new analyses of the San Joaquin Basin is critical because the Draft Plan fails to recognize the water supply issues with meeting the Vernalis Spring Flow Objectives, and fails to recognize the relationship between the Vernalis Spring Flow Objectives and the Southern Delta Salinity Objectives, as discussed below.

Recommendation. While Interior supports the changes in the Program of Implementation for the Vernalis Pulse Flow Objectives, Interior recommends that the Board supplement its analysis in the D-1641 FEIR before relying upon that analysis to support the new Program of Implementation for the Vernalis Pulse Flow Objectives.

C. Southern Delta EC Objectives for Agricultural Uses (Southern Delta Salinity Objectives). Interior fundamentally disagrees with the Board's approach in the Draft Plan that no changes have been made to the Southern Delta Salinity Objectives, or the Program of Implementation, and, therefore, the Draft Plan represents the status quo. Under the Board's "status quo" approach, no additional environmental analysis is required. However, the reality is that much has changed with respect to the Program of Implementation for the Southern Delta Salinity Objectives since the 1995 Plan. When the Southern Delta Salinity Objectives were adopted in the 1995 Plan, it was anticipated that a water rights hearing would set forth the responsibilities of water right holders concerning the objectives. That hearing was held and resulted in D-1641.

In D-1641, because of evidence showing that a permanent operable barrier program could improve salinity conditions in the Southern Delta, but still not achieve full compliance with the Southern Delta Salinity Objectives (D-1641, p. 88), the Board imposed a relaxed objective on the water rights of the CVP and SWP with respect to Southern Delta salinity. The Board found that the projects were "partially" responsible for salinity degradation in the Southern Delta. The Board imposed an objective of 1.0 EC, instead of the 0.7 EC called for in the 1995 Plan. (D-1641, p. 88). This made sense, because of the numerous other causes for salinity degradation in the Southern Delta (D-1641, p. 86), and because the Board had anticipated achieving the 0.7 EC

12-6 cont.

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through its authority over other programs of implementation, such as non-point source regulation and discharge permits. (1995 Plan, pp. 29-33).

However, the Board made clear that it supported the barrier program discussed by DWR during the D-1641 hearings, and, in effect, made the water rights of the CVP and SWP conditioned upon construction of the permanent operable barriers. The Board did not directly require the barrier program, but provided an incentive to DWR and Reclamation to construct the barrier program in footnote 5, of Table 3 in D-1641. In that footnote, the Board linked Reclamation and DWR with a salinity objective of 1.0 EC (consistent with the findings in D-1641, D-1641 p. 88), until April 1, 2005. If, as of April 1, 2005, the barriers were not constructed, Interior and DWR were assigned an objective of 0.7 EC at the three Southern Delta stations below Vernalis. After the barriers are constructed, the objective, as implemented in D-1641, returns to 1.0 EC. In 2000, the Board, DWR, and Interior, were all optimistic that progress could be made on the barrier program and footnote 5 was not an issue, even throughout the 2004-05 workshops for periodic review. However, the barriers were not constructed by April 1, 2005, and now DWR and Reclamation are subject to the "new" 0.7 EC objective. The Board cannot now transform the incentive in footnote 5 into a factual finding of full responsibility on the part of the Projects.

In the D-1641 FEIR, **the Board only analyzed the environmental impacts of achieving the Southern Delta Salinity Objectives in context of the barrier program.**³ **The Board has never analyzed the impacts of the 0.7 EC objective being implemented by Reclamation and DWR without the barriers.** However, as we know the realities of today, the barrier program has experienced delays beyond the control of either DWR or Reclamation (February 14, 2005, Petition to Temporarily Change Effective Date of Condition Imposed in Water Right Decision 1641, pp. 5-7), and the barriers are not yet constructed.⁴

The Board's D-1641 FEIR never analyzed the impacts of DWR and Reclamation being fully responsible for the Southern Delta 0.7 EC objectives. The FEIR analysis assumes that Reclamation achieves the Vernalis salinity objective of 0.7 EC with dilution flows, and then shows that the permanent operable barriers improve salinity at the two Old River stations, but has little impact on the Brandt Bridge station. (D-1641 FEIR, Chapter IX, Figures IX-21 through IX-26). Evidence presented at the Delta Salinity Draft Cease and Desist Order (CDO) and Water Quality Response Plan (WQRP) Hearing shows that the degradation between Vernalis and Brandt Bridge (a distance of approximately 25 river miles) is approximately eight percent (8%) (Delta Salinity Draft CDO and WQRP Hearing, Exhibit DWR-20,⁵ p. 4). Reclamation has no

³ This omission is further complicated by the fact that the analysis for the south Delta salinity objectives in the FEIR is also flawed in that it does not accurately represent the true water supplies of the San Joaquin basin. The analysis adds water to the basin without analysis of where that water may derive.

⁴ In order for Reclamation to comply with a requirement to construct a project as a condition to a water right, it must have Congressional authorization for the project, Congress must fund the project, the project must, among other legal requirements, undergo federal Endangered Species Act consultation, National Environmental Policy Act procedures, as well as achieve all necessary approvals for construction, such as a 404 permit granted by the U.S. Army Corps of Engineers. Reclamation, as a bureau within a single executive branch agency, has little control over each of these processes.

⁵ entitled, "Investigation of the Factors Affecting Water Quality at Brandt Bridge, Middle River at Union Point, and Old River at Tracy, by Tara Smith."

facilities or means of control over water or circumstances between Vernalis and Brandt Bridge. The only feasible means for Reclamation to have a meaningful impact on water quality in the southern Delta, without the permanent operable barriers, is through dilution flow.⁶ Reclamation's only practical reservoir of water for dilution flows, at this time, is New Melones.

Recirculation or use of San Luis water could be problematic because of potential adverse impacts to fishery resources. Reclamation is conducting a feasibility study pursuant to P.L. 106-361, however, early indications are that recirculation could also be problematic due to funding for such a program, redirected impacts to other water supplies and water rights, and because the water quality dilution value of recirculation water is several fold less than the quality of New Melones water and, therefore, would require several fold quantity of water supplies to have similar dilution effectiveness. Purchase of water is difficult because Reclamation would generally need to purchase water only in times of dry conditions, and Reclamation cannot ensure agreement with any willing sellers, or Congressional appropriations to fund those agreements, at any given time.

The Board has relied solely on the barrier program on its analysis of the Southern Delta Salinity Objectives and does not include the Southern Delta Salinity Objectives in its analysis of flow, or water supply-related, objectives in the D-1641 FEIR. (D-1641 FEIR, compare Chapters V, VI, and IX). The D-1641 FEIR includes a faulty analysis of dilution flows to achieve the Vernalis Salinity Objectives, but has never analyzed the water supply impacts of the Southern Delta Salinity Objectives being implemented through dilution flows. Yet, the Board cannot point to a single feasible method of implementation by Reclamation (considering the reality that the permanent barrier program is delayed) other than dilution flows from New Melones storage water. The Board often takes refuge in the fact that it has not required Reclamation to satisfy its Southern Delta salinity obligations solely with dilution flows from New Melones. However, Reclamation has often explained why purchase, recirculation and other conceptual methods of compliance are difficult, controversial, and worse: they do not result in decreased salinity, on a real-time basis, in the southern Delta, especially in dry years. Yet, the Board has yet to acknowledge these realities. (DOI Exhibit E, attached hereto, and WRO 2005-0010).

Because the reality is that the barriers are not constructed, and because the Board cannot currently point to a reasonable, achievable, implementation method other than dilution flows, the Board must analyze this new circumstance in a supplemental analysis of its D-1641 FEIR. The Draft Plan, states at page 27, "The State Water Board has allocated responsibility to some water right holders to release dilution flows." **The Board has never analyzed the environmental impacts of dilution flows for the Southern Delta Salinity Objectives.** (D-1641 FEIR, Chapter IX). In addition, this objective must be analyzed in connection with the other San Joaquin flow objectives. A water rights phase would then be required to determine the responsibility of water right holders in the Basin, for the Southern Delta Salinity Objectives.

At page 63 of the Draft Plan Report, the Board states that, "Releases from reservoirs on tributaries to the San Joaquin for fish and wildlife protection, pursuant to the flow requirements

⁶ Evidence presented at the Delta Salinity Draft CDO and WQRP Hearing shows that export pumping has only negligible impact on salinity in the Southern Delta, and under certain conditions, may actually improve salinity in the Southern Delta. (Delta Salinity Draft CDO and WQRP Hearing, Exhibit DWR-20, pp. 9-13).

12-7 cont.

on the San Joaquin River at Vernalis currently contribute to achieving the salinity objectives in the southern Delta.” This statement reveals a fundamental difference in the views of Interior and the Board on this issue. From Interior’s perspective, the Vernalis Spring Flow Objectives and the Southern Delta Salinity Objectives actually compete. The more flow needed in the spring for the Spring Flow Objective, the less flow available for the April through August Southern Delta Salinity Objectives. Because the Board has not analyzed the Southern Delta Salinity Objectives as a flow objective, in concert with the other demands it has, in fact, made on New Melones, the Board does not have a full understanding of the implications of the Southern Delta Salinity Objectives on the water supplies of the San Joaquin. For example, a preliminary analysis using CALSIM II data shows that a small, incremental change in the salinity objective at Brandt Bridge (as measured by “overshooting” the 0.7 EC objective at Vernalis) can result in a need for approximately double the volume of water required for dilution flows.

The Draft Plan states, at page 22, that, “Salinity, though a water quality objective, is still implemented, **in part**, through the State Water Board’s water rights authorities.” (Emphasis added). In the Draft Plan, the Board continues a Program of Implementation for Southern Delta Salinity Objectives that includes more than just water rights. The Board plans to implement the objectives through water rights, discharge permits, Total Maximum Daily Load (TMDL) programs, funding of financial assistance programs, and other projects and actions implemented by other agencies. (Draft Plan, pp. 27-31). Interior supports this approach. However, the difficulty is that the Board has taken the position in the past that now that the barriers are not constructed, the Southern Delta Salinity Objectives are now fully implemented through Reclamation and DWR’s water rights.

The Board has taken this position despite language in D-1641 that the Projects are only “partially” responsible and language holding Reclamation and DWR responsible only for exceedances within their control (D-1641, pp. 88 and 161). In addition, the Board granted a waiver of the Southern Delta Salinity Objectives to the City of Manteca through Order WQ 2005-0005. The City of Manteca, a discharger, was granted a waiver from its effluent limitation of 0.7 EC to a 1.0 EC in March of 2005, near the same time that Reclamation and DWR were issued a draft CDO, Order WR 2006-0006, for “threatening” to violate Southern Delta Salinity Objectives. There apparently is no incentive to implement the Southern Delta Salinity Objectives through other Board programs, as called for in the Program of Implementation, so long as the Board’s view is that the objectives are fully implemented through the water rights of Reclamation and DWR.

Recommendation. The Board must supplement its analysis in the D-1641 FEIR to sufficiently analyze the impacts, and reasonableness and achievability, of the Southern Delta Salinity Objectives without the barriers. Interior supports the Board’s multi-programmatic approach to implementing the Southern Delta Salinity Objectives. However, Reclamation does not cause, and has little control over salinity degradation below Vernalis. While construction of the operable barriers would improve Delta salinity conditions, they would not consistently achieve a 0.7 EC objective at the three stations below Vernalis. The reality is that the barriers are not constructed. Dilution flows are currently a feasible means of achieving the objectives, but such may cause an unreasonable use of water. (D-1641, p. 10). Therefore, Interior proposes that the Board consider a phased implementation of the 0.7 EC objective in the Southern Delta.

12-7 cont.

The Plan should provide that Reclamation and DWR will not cause or contribute to an exceedance of 1.0 EC year round, consistent with the numerous other causes of salinity degradation below Vernalis, with their "partial" responsibility, and consistent with the Board's findings in D-1641. The April through August 0.7 EC objective should be phased in the Plan until a date that the Board expects other programs in the Draft Plan's Program of Implementation, such as discharge controls and TMDL programs, to be fully implemented.

12-7 cont.

1. Additional issues regarding the 1995 Plan

a. Suisun Objectives

1) Numeric Objectives for Suisun Marsh

The Draft Plan outlines numeric objectives (measured as EC) for protection of fish and wildlife beneficial uses in the eastern and western Suisun Marsh. As outlined below, Interior recommends changes in the Draft Plan to more accurately reflect the current status of actions being implemented by Reclamation, DWR, DFG, and the Suisun Resource Conservation District (SRCD) for protection of beneficial uses in Suisun Marsh. These four agencies are the signatories to the Suisun Marsh Preservation Agreement (SMPA), which was executed in 1987. A Revised SMPA was executed by the agencies in 2005.

During the 2004-05 periodic review workshops for the 1995 Plan, the SMPA signatories were in the process of completing an amendment to the SMPA. On June 20, 2005, the agencies executed the amendment, in the form of a Revised SMPA and its companion Revised Mitigation and Monitoring Agreements. These three agreements were revised, in part, to address changes resulting from the 1995 Plan and to implement actions that would provide equivalent or better protection than channel water salinity standards at Suisun Marsh stations S-35 (Morrow Island) and S-97 (Ibis).

During hearings on D-1641, the Board received information on the then-proposed amendment to the SMPA and concluded that actions identified for the amendment would provide equivalent protection. Such actions were incorporated in the Revised SMPA (June 20, 2005) and include: establishment of a Water Manager Program, Portable Pumps Program, and Drought Response Program; funding to improve Roaring River Distribution System turnouts; and conversion of stations S-35 and S-97 from compliance stations to monitoring stations.

12-8

Interior also recommends revisions to update sections of the draft Plan that describe the Suisun Marsh Charter Group (SMCG), including current efforts of the involved agencies to prepare a programmatic EIS/EIR for the Habitat Management, Preservation, and Restoration Plan for the Suisun Marsh (Suisun Marsh Plan).

The work of the SMCG was originally noted in the Board's September 2004 Staff Report on the Periodic Review of the 1995 Plan. As outlined on page 42 of the 2004 report, the staff recommendation was to defer changes to numeric objectives at stations S-35 and S-97 to the next period review of the Plan, with the expectation that the Suisun Marsh Plan would be completed by that time.

The Suisun Marsh Plan (being developed via the programmatic EIS/EIR) has not been completed. Accordingly, implementation of numeric objectives at S-35 and S-97 should be deferred until completion of the Suisun Marsh Plan. While Interior supports the intent of the Board to use the results of the programmatic EIS/EIR for the Suisun Marsh Plan in its next periodic review, information from the completed Suisun Marsh Plan should be used to evaluate and to determine appropriate objectives at stations S-35 and S-97, if needed.

Interior does not agree that DWR and Reclamation should be required to meet existing objectives at S-35 and S-97 if new salinity objectives at these stations have not been determined by January 1, 2015. The SMPA was revised, in part, to address changes resulting from the 1995 WQCP and to implement actions that would provide equivalent or better protection than channel water salinity standards at stations S-35 and S-97. The Revised SMPA was executed in June 2005, and the SRCO began implementation of actions (funded by DWR and Reclamation) to provide equivalent protection. Based upon implementation of these actions, supported by the substantial evidence received by the SWRCB during the D-1641 hearings and the review provided in the DWR report "Comprehensive Review of Suisun Marsh Monitoring Data, 1985-1995" (March 2001), we believe that DWR and Reclamation have mitigated for the impacts of the SWP and CVP operations on the managed wetlands.

Recommendation. Interior recommends that the second sentence in paragraph 6.ii. on page 25 be revised to read:

Due to evidence showing that implementation of the objectives at S-35 and S-97 would require an unreasonable amount of water and might freshen the western part of the Suisun Marsh more than is appropriate for certain species that require a brackish marsh, the SWRCB in Decision 1641 (D-1641) did not require Reclamation or DWR to meet the objectives at these stations (D-1641, pp. 54-55).

Interior further recommends that the Narrative Objectives for Western Suisun Marsh should be amended to remove S-97 and S-35 as compliance points for measuring EC in the Marsh. This change is consistent with D-1641 and consistent previous evidence presented to the Board. Interior believes that the Board is correct that the results of the Programmatic EIS/EIR are important to this process, and thus Interior recommends that S-97 and S-35 be removed as compliance points until analysis is completed that supports use of those stations as compliance points.

2) Narrative Objective for Brackish Tidal Marshes of Suisun Bay

Interior supports the statement that the Board will use the results of the Suisun Marsh Plan to convert the narrative objective for the brackish tidal marshes of Suisun Bay to a numeric objective, as appropriate. However, Interior believes that any changes must be based on the analysis currently being worked on in the Suisun Marsh Plan. Waiting until the Plan is completed will allow for a comprehensive strategy for addressing water quality in the Suisun Marsh and Brackish Tidal Marshes of Suisun Bay.

12-8 cont.

Recommendation. The first paragraph on page 33 incorrectly states that the Suisun Marsh Charter Group was formed as a result of the inability of Suisun Marsh Ecological Workgroup (SEW) to determine a single numeric objective for the tidal marshes. To help correct this mischaracterization, Interior recommends that the first paragraph end with the sentence: **“However, the SEW was unable to determine a single numeric objective for the tidal marshes.”**

A suggested revision of the balance of the first paragraph is:

The Suisun Marsh Charter Group (SMCG) was formed in 2001 to develop a plan to balance the competing needs in Suisun Marsh. The principal agencies of the SMCG are the U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Bureau of Reclamation, California Bay-Delta Authority, Department of Fish and Game, Department of Water Resources, and Suisun Resource Conservation District. The SMCG is currently preparing a programmatic EIS/EIR for the Habitat Management, Preservation, and Restoration Plan for the Suisun Marsh (Suisun Marsh Plan). In preparation of the programmatic EIS/EIR, the agencies are evaluating plan alternatives with a tidal wetland habitat restoration component ranging from 3,000 to 36,000 acres.

12-8 cont.

b. Dissolved Oxygen Objective (San Joaquin River between Turner Cut & Stockton).

As stated in the Draft Plan Report, the purpose of the Dissolved Oxygen (DO) Objective at 6.0 mg/l is to protect migrating fall-run Chinook salmon in the San Joaquin River. However, all potential solutions and impacts should be evaluated using the best available science with supporting data.

The Draft Plan Report identifies three main factors (upstream nutrient loading, channel geometry, and flow) contributing to the DO impairment and further describes in detail the impacts of each contributing factor. The report did not discuss an alternative solution (such as aeration) to resolve the dissolved oxygen impairment.

A multi-agency public stakeholder process has been ongoing since the initial development of the DO TMDL and the aeration solution is the preferred stakeholder alternative. A pilot aeration study has been funded by CALFED, and construction of the aeration units will be completed by the end of 2006. The evaluation of the effectiveness of the new aeration units should begin in early 2007. Interior believes that the Board should continue to allow the stakeholder process to evaluate the effectiveness of the aeration solution.

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Closing

Thank you for the opportunity to comment on the 2006 Draft Plan. Interior generally supports the Board's 2006 Draft Plan, with the exceptions noted above, and appreciates the opportunity to provide specific recommendations on certain objectives contained in the Plan. Interior looks forward to the opportunity to provide additional comments and evidence at future

workshops on Central Valley Salinity, Pelagic Organism Decline, Climate Change and San Joaquin Basin issues.



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November 13, 2006

Song Her, Clerk
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

*Re: Comments of the San Luis & Delta-Mendota Water Authority on the Draft
2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-
San Joaquin Delta Estuary*

Dear Ms. Her:

On September 29, 2006, the State Water Resources Control Board ("State Water Board" or "SWRCB") issued a Notice of Public Hearing, Consideration of an Amended Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, dated September 2006 ("Draft 2006 Bay-Delta Plan"). The Notice authorized the submittal of written comments on the Draft 2006 Bay-Delta Plan. Pursuant to that authority, the San Luis & Delta-Mendota Water Authority ("Authority"), on behalf of its member agencies, submits this comment letter.

The Authority, formed in 1992, consists of 32 member public agencies,¹ each of which

¹ The member agencies of the Authority are: Banta-Carbona Irrigation District; Broadview Water District; Central California Irrigation District; Centinella Water District; City of Tracy; Columbia Canal Company; Del Puerto Water District; Eagle Field Water District; Firebaugh Canal Water District; Fresno Slough Water District; Grassland Water District; James Irrigation District; Laguna Water District; Mercy Springs Water District; Oro Loma Water District; Pacheco Water District; Pajaro Valley Water Management Agency; Panoche Water District; Patterson Water District; Plain View Water District; Pleasant Valley Water District; Reclamation District 1606; San Benito County Water District; San Luis Canal Company; San Luis Water District; Santa Clara Valley Water District; Tranquility Irrigation District; Turner Island Water District; West Side Irrigation District; West Stanislaus Irrigation District; Westlands Water District; and Widren Water District.

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contracts with the United States Department of the Interior, Bureau of Reclamation ("Reclamation"), for supply of Central Valley Project ("CVP") water. (See Appendix 2 to the Draft Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary ("Appendix 2"), Exhibits SLDM-07.)² The Authority's member agencies are entitled to approximately 2.5 million acre-feet of water for agricultural lands within the western San Joaquin Valley, San Benito County, and Santa Clara County, California. (*Id.*) Authority members also supply water for municipal and industrial uses, including the delivery of approximately 150,000 and 200,000 acre-water to the Silicon Valley, and provide approximately 250,000 to 300,000 acre-feet of water for waterfowl and wildlife habitat in the San Joaquin Valley. (*Id.*) In addition, the Authority operates and maintains certain CVP facilities under contract with Reclamation. (*Id.*) Two such facilities are the Tracy Pumping Plant, located in the southern portion of the Delta, near the city of Tracy, and the Delta-Mendota Canal, which is used to deliver water from the Tracy Pumping Plant to the Authority's member agencies. (*Id.*)

For the past several years, the Authority participated in and presented recommendations during the workshop that followed the periodic review of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary ("1995 Bay-Delta Plan").³ Although the Draft 2006 Bay-Delta Plan reflects some of the Authority's recommendations, several significant proposals made by the Authority were dismissed. With this letter, the Authority presents two general comments on the Draft 2006 Bay-Delta Plan and respectfully requests that the State Water Board reconsider the decisions to dismiss those certain recommendations made by the Authority. These comments are intended to complement, not supplant, prior comments of the Authority.

General Comments

1. Basis For Objectives

13-1 | The Draft 2006 Bay-Delta Plan relies heavily upon statements made and the objectives established in the 1995 Bay-Delta Plan. It, however, provides little support for those statements and few bases for the conclusions that the objectives remain necessary to

² All references to exhibits, unless otherwise noted, are to the exhibits referenced in Appendix 2.

³ The Authority attaches hereto copies of exhibits referenced in Appendix 2 that are most relevant to the comments presented in this letter.

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“ensure the reasonable protection of beneficial uses and the prevention of nuisance.” (Water Code, § 13241.) For example, the Draft 2006 Bay-Delta Plan states:

Unlike water quality objectives for parameters such as dissolved oxygen, temperature, and toxic chemicals, which have threshold levels beyond which adverse impacts to the beneficial uses occur, there are no defined threshold conditions that can be used to set objectives for flows and project operations. Instead, available information indicates that a continuum of protection exists. Higher flows and lower exports provide greater protection for the bulk of estuarine resources up to the limit of unimpaired conditions. Therefore, these objectives are set based on a subjective determination of the reasonable needs of all the consumptive and nonconsumptive demands on the waters of the Estuary.

13-1 cont.

(Draft 2006 Bay-Delta Plan, p.10.) Those statements are taken directly from the 1995 Bay-Delta Plan. (1995 Bay-Delta Plan, pp.14-15.) If those statements are not changed to reflect the fact that they are based on information available in 1995, the administrative record for the Amended Bay-Delta Plan must include information to support them. That is true for all statements made and all objectives adopted in the Amended Bay-Delta Plan. By this comment, the Authority does not suggest data or policy necessarily supports changes. Instead, if the Amended Bay-Delta Plan includes statements or objectives unchanged from those contained in the 1995 Bay-Delta Plan, the State Water Board must explain why those statements and objectives, and presumably data and policy used to support them, remain relevant.

2. Clear Program of Implementation

The Program of Implementation established in the Draft 2006 Bay-Delta Plan contains extensive amounts of superfluous information. In particular, much of the Program of Implementation discusses how the 1995 Bay-Delta Plan has been implemented. (See Draft 2006 Bay-Delta Plan, pp. 21–end.) For example, the Draft 2006 Bay-Delta Plan provides:

13-2

The DWR and USBR have an ongoing responsibility to comply with the municipal and industrial, agricultural, and fish and wildlife objectives pursuant to the terms and conditions in their permits and licenses. . . . Under their water right permits and license, the DWR and the USBR currently are required to comply with these objectives on an interim basis

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until the State Water Board adopts a further decision re-assigning responsibility for meeting these objectives.

13-2 cont.

(Draft 2006 Bay-Delta Plan, p. 21.)⁴ Those types of statements are not relevant to the Program of Implementation and will only cause confusion if and when the Amended Bay-Delta Plan is implemented and/or requires interpretation. As section 13242 of the Water Code provides: "The program of implementation for achieving water quality objectives shall include, but not be limited to: (a) A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private; (b) A time schedule for the actions to be taken; (c) A description of surveillance to be undertaken to determine compliance with objectives." (Water Code, § 13242.) The Program of Implementation in the Amended Bay-Delta Plan should be so focused.

Specific Comments

1. Chloride Objectives

13-3

During the workshop that preceded the Draft 2006 Bay-Delta Plan, the Authority, the State Water Contractors ("SWC"), Reclamation, and the Department of Water Resources ("DWR"), each requested that the State Water Board add a new compliance location in Old River, near Holland Tract.⁵ The Authority did not nor does it here request the addition of a compliance point because it necessarily objects to the chloride objectives established in the 1995 Bay-Delta Plan. Rather, an additional compliance point in Old River, near Holland Tract is proposed to provide greater options to the State Water Board when implementing the Draft 2006 Bay-Delta Plan.

Currently, a compliance point for the chloride objectives exists at the end of Rock Slough, at Pumping Plant No. 1 on the Contra Costa Canal. (Appendix 1 to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary ("Appendix 1", p. 37.) The State Water Board adopted the chloride objectives and established that compliance point in or before 1978. (Exhibit DWR-13, p. 2.) At the time, the Contra Costa Water District ("CCWD") relied heavily on water diverted at Pumping Plant No. 1. (*Id.*) Therefore, water quality at Pumping Plant No. 1 was

⁴ Notwithstanding their relevance, those statements, and others contained in the Draft 2006 Bay-Delta Plan, inaccurately characterize how the State Water Board implemented the 1995 Bay-Delta Plan.

⁵ See Exhibits SLDM-06A, pp. 2-6, and SDLM-07, pp. 41-43, SWC-11, pp. 11-12, and DWR-13, pp. 3-9.

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generally the same as water quality at the confluence of Old River and Rock Slough. Reclamation and DWR were thus assigned responsibility for meeting the chloride objective at the Rock Slough compliance point. (State Water Board Decision 1641 ("D-1641"), p. 146.)

Since 1978, however, many changes have occurred in the Delta. (Exhibit DWR-13, p. 2.) The most relevant change is the construction of the Los Vaqueros Reservoir. (*Id.*; SWC-11, p. 11.) As a result of that action, CCWD changed the way it takes water from the Delta, including water pumped at Pumping Plant No. 1. (Exhibit SWC-11, p. 11.) More specifically, since construction of the Los Vaqueros Reservoir, CCWD has reduced its Rock Slough diversions, such that at times Rock Slough essentially becomes a dead-end channel, and water in the Slough becomes stagnant. (*Id.*; Exhibit DWR-13, pp. 4-5.) The stagnation impairs water quality. That problem is exacerbated by poor quality drainage water entering Rock Slough from Veale Tract and other neighboring Delta islands, and seepage into the Contra Canal that is unrelated to CVP or SWP operations. (Exhibit SWC-11, p. 11.)

When those conditions exist, CVP and SWP operations cannot effectively maintain quality water at the Rock Slough compliance point. (Exhibit DWR-13, pp. 5-6.) Indeed, as reflected in Appendix 1 to the 2006 Draft Bay-Delta Plan, CCWD, Reclamation, and DWR all agreed that during low flow periods in the Rock Slough ("Appendix 1"), DWR and Reclamation have limited ability to control chloride concentration at Pumping Plant No. 1. (Appendix 1, p. 39.) For these reasons, there appears no legal or policy rationale that could explain why Reclamation or DWR should be solely responsible for maintaining the chloride objective at Rock Slough under those conditions.

The Authority recognizes that there are two ways to more equitably allocate responsibility. One approach is the addition of a compliance location in Old River, near Holland Tract. The additional compliance point would allow the State Water Board in a subsequent proceeding to allocate responsibility for compliance (1) at the new location to Reclamation and DWR, and (2) at the Rock Slough compliance point to Reclamation and DWR when they are able to control water quality at that location (sufficient pumping at Pumping Plant No. 1), and to other entities, such as CCWD, whose actions affect water quality between Old River, near Holland Tract and the end of Rock Slough, at Pumping Plant No. 1 on the Contra Costa Canal. The other approach is to not add a compliance point Old River, near Holland Tract, but in a subsequent proceeding allocate the responsibility for compliance with the chloride objectives to more than just Reclamation and DWR – again other entities whose actions contribute to the

13-3 cont.

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degradation in water quality. The Authority recommended that the State Water Board follow the former approach.

Through the issuance of the Draft 2006 Bay-Delta Plan, the Authority's recommendation was rejected. Appendix 1 first explains that the additional compliance point could not be added because the State Water Board had not received adequate documentation, including documentation that would form the basis for environmental analysis. (Appendix 1, p. 39.) Appendix 1 then explains that, even if that documentation were provided, the addition could not be made because no other entity had been identified, which should be required to meet the objective at the existing Rock Slough compliance point. (Appendix 1, p. 39.) Both of these responses are insufficient. It is not the role of the Authority or any other person or entity recommending changes to the 1995 Bay-Delta Plan, to prepare environmental report or analysis required to implement a recommended change, or to identify at this stage other entities that the State Water Board may assign responsible for helping achieve the chloride objectives.

Notwithstanding, if the State Water Board is not inclined to add a compliance point in Old River, near Holland Tract, it should state explicitly in the Program of Implementation that it will review the assignment of responsibility for the chloride objectives either (1) during the water rights proceeding that follows adoption of an amended Bay-Delta Plan or (2) through water quality actions, including possibly allocating responsibility for compliance with the chloride objective measured at the Rock Slough to other entities whose actions contribute to the degradation in water quality in that area of the Delta.⁶ Indeed, such a statement would be consistent with the purpose of the Draft 2006 Bay-Delta Plan of establishing:

[W]ater quality control measures that can be implemented in part or in whole by assigning responsibility to water right holders and water users to mitigate for the effects on the beneficial uses of their diversions and use of water.

(Draft 2006 Bay-Delta Plan, p. 3.)

⁶ As part of the request made by the Authority during the workshop that preceded the Draft 2006 Bay-Delta Plan, the Authority supported a means of allocating responsibility at the Rock Slough compliance point and the recommended new compliance point in Old River, near Holland Tract. (See Exhibits DWR-13, p. 3-9, and CCWD-07, p. 11.) The Authority recognizes that the request on how responsibility should be allocated must be left for the water rights proceeding that will follow.

13-3 cont.

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2. Flexing For Delta Outflow Objectives And Export Limits

A. The Need To Avoid Over-Compliance And Allow For Flexing Of The Delta Outflow Objective

The Authority proposes changes to the Delta outflow objectives that would not require any change in the protections they afforded to fish and wildlife. (Exhibit SLDM-16B; Exhibit SLDM-18, pp. 4-5, 12.)

i. Avoidance of Over-Compliance

The Delta outflow objectives are expressed generally as a number of days in a particular month in which the maximum daily average electrical conductivity of 2.64 mmhos/cm must be maintained at a specified location. (Draft 2006 Bay-Delta Plan, p. 20.) The Delta outflow objectives were established as "habitat indicators", based primarily upon average multi-month data concerning species/outflow relationships. The State Water Board has assigned responsibility for the Delta Outflow objectives to Reclamation and DWR. (D-1641, p. 146.)

The ability of Reclamation and DWR to precisely meet the number of days in a particular month of an electrical conductivity of 2.64 mmhos/cm at the specified location is extremely difficult. (Exhibit SLDM-18, p. 2.) This is so because the electrical conductivity at a specified location is dependant upon numerous variables, including weather conditions, tides, winds, and other natural elements. (*Id.* at 2-3.) Thus, because of the risk of enforcement actions if the Delta outflow objectives are exceeded, Reclamation and DWR operate the CVP and SWP, respectively, very conservatively. (*Id.* at 3.) They often achieve the electrical conductivity of 2.64 mmhos/cm at the specified location on more days in a particular month than required. (*Id.*)

This over-compliance with the Delta outflow objectives cost the CVP and SWP many thousands of acre-feet of stored water, a result that is particularly disturbing given the "indicator" nature of the Delta outflow objectives and the Delta outflow objectives being based upon average multi-month data concerning species/outflow relationships. (*Id.*)⁷ To avoid that unnecessary water cost, the Authority proposes a modification of the

⁷ The waste of water is made more alarming by the fact that since the Delta outflow objective was established in 1995, recent data shows that many of the relationships used to support the objectives were unfound or not as strong as once thought. (See SDLM-07, p. 18.)

13-4.1

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13-4.1
cont.

means in which the Delta outflow objectives are implemented. The Authority proposes that the Amended Bay-Delta Plan provide a compliance buffer that authorizes monthly compliance to occur within the month or within a certain number of days after the end of the month.

ii. Flexing

The Authority also requests that the State Water Board amend the Delta outflow objectives to increase their flexibility. Analyses performed during the workshop that preceded the Draft 2006 Bay-Delta Plan suggest that flexibility, if exercised, could "produce" ten of thousands if not hundreds of thousands of acre-feet of water, with the real potential to increase protections for beneficial uses. (Exhibit SLDM-16B.) And while the 1995 Bay-Delta Plan established the concept that allowed for flexing of the Delta outflow objectives in limited circumstances, the concept was principally applied to the Export Limit objectives. (1995 Bay-Delta Plan, p. 21, fn. 22.) Below, the Authority presents again its proposal for a process to guide flexing of the Delta outflow objectives. The process is designed to allow for flexing only when the United States Fish and Wildlife Service, the National Oceanic and Atmospheric Administration National Marine Fisheries Service, and the California Department of Fish and Game ("federal and state fishery agencies") and the State Water Board find that the flex would not cause significant harm to the intended beneficial uses protected by the Delta outflow objectives.

13-4.2

B. The Need For A Strong Process To Guide Export Limits Flexing

The Draft 2006 Bay-Delta Plan would allow for flexing of the Export Limit objectives similar to the existing authority under the 1995 Bay-Delta Plan. As set forth in footnote 18 to Table 3 in the Draft 2006 Bay-Delta Plan, variations to the export limits could occur if the federal and state fishery agencies agree. Short-term variations would also be authorized for the purpose of facilitating a study of the feasibility of recirculating export water into the San Joaquin River to meet flow objectives. (Draft 2006 Bay-Delta Plan, pp. 15-16.) The conditions imposed on the flexibility would be: (1) an expressed intent that it result in no net water loss supply cost annually within the limits of the water quality and operational requirements of the Draft 2006 Bay-Delta Plan, and (2) the Executive Director of the State Water Board's veto power over any variations. The Authority supports the continued authority to flex, but believes the process could be improved.

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C. Process For Flexing

The Authority proposes that the State Water Board impose a process that guides the consideration of flexing the Delta outflow objectives and Export Limits objectives.⁸ The process is explicitly science-based, and provides a final product that supports a decision to either allow or deny flexing. The ultimate result of the process is more transparency and greater accountability. The process is as follows:

1. The federal and state fishery agencies, Reclamation, and DWR (collectively, the "Agencies") shall meet to determine whether a variation or flex of the Delta outflow or Export Limit objectives should be considered:
 - A. Immediately before the relevant objective begins controlling Delta operations, and
 - B. If, during the time a particular objective is controlling Delta operations, there is a change in the fishery of hydrologic conditions that existed at the time the objective became controlling.

Full consideration of a flex will be initiated if, during any consultation, any one of the Agencies requests it.

2. When full consideration is initiated, the Agencies shall:
 - A. Develop an alternative or alternatives for how the objective could flex ("Action Alternative(s)").
 - B. Consider for each Action Alternative how the water that would otherwise be necessary to meet the objective ("saved water") would be subsequently used. Saved water shall revert to the CVP and SWP for authorized uses, unless the Management Agencies can provide a scientific basis showing a need by fish and/or wildlife for additional water, in which case no more than 50 percent of the saved water can be used for that (those) purpose(s).
 - C. In determining how saved water will be used, provide for multiple use of the saved water whenever possible.
 - D. Provide science-based evaluations of a "no-action" alternative and each Action Alternative developed, including: (i) quantified estimates of population level effects on fishery resources; (ii) quantitative estimates of

⁸ As the Authority previously presented, this process could also apply to the Rio Vista objective.

13-4.2 Cont.

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effects on water supply and water quality; and (ii) quantitative estimates of effects on water supply and water quality; and (iii) quantified estimates of uncertainty for both population level, water supply, and water quality effects.

- E. Not propose an Action Alternative that:
- i. During the February through June period (other than during a VAMP flow/pumping restriction), and for the export objective, would cause an increase in the E/I ratio of more than ten percent (i.e., 35% to 45%).
 - ii. During the VAMP 31-day pulse period, and for export objective, would cause pumping to exceed 200% of 3-day running average of San Joaquin River flow at Vernalis.
 - iii. During the July through January period and for the export objective, would cause an increase in the E/I ratio of more than ten percent (i.e., 65% to 75%).
 - iv. For the outflow objective, would (a) occur when the Port Chicago standard is not triggered, (b) cause Delta overflow to fall below 20,000 cfs, or (c) cause the February through June average location of X2 to move more than one kilometer further upstream from the Golden Gate Bridge.
 - v. For any objective, would impair the ability of Reclamation or DWR to meet their respective contractual obligations.
 - vi. For any objective, would cause a significant adverse environmental effect.

- 13-4.2 cont.
3. If the Agencies agree on a single Action Alternative, the Agencies shall immediately notify the Executive Officer of the State Water Board of the decision. The Agencies shall, within 24 hours of reaching the decision, provide the Executive Officer with a written description of the Action Alternative and the reason for the decision. The Agencies may begin implementing the Action Alternative 24 hours after the Agencies notified the Executive Officer. If the Executive Officer does not object to the decision within 5 days, the decision by the Agencies will remain in effect. If the Action Alternative is implemented 24 hours after the Agencies provided the Executive Officer notice, but the Executive Officer objects to the decision within the 5-day period, the State Water Board shall consider the CVP and SWP in compliance with the objective during any under-compliance that results directly or indirectly from implementing the Action Alternative.

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4. On or before January 1 of each year, the Agencies shall prepare and transmit to the Executive Officer of the State Water Board a report summarizing flexing activities, accounting for the changed water use, describing how the saved water was allocated among beneficial uses of flexing over the course of the prior year, consistent with the requirements under paragraph 2.⁹ The report shall provide the information required under paragraph 2 for each occasion when full consideration of a flex was initiated, whether or not the Agencies agreed on an Action Alternative. For instances when full consideration of a flex was initiated but agreement not reached, a majority and minority report may be included in the report. As soon as possible, the Executive Officer shall make the report available for public review.

5. The Agencies shall include one State Water Board staff member who may participate in, but not vote on, all deliberations required to reach a decision on an Action Alternative. The funding for this staff member shall be provided by the Agencies. The staff member shall:
 - A. Participate in all actions required under paragraphs 2 and 4;
 - B. Assist the Executive Officer of the State Water Board in determining whether or not to object to an Action Alternative; and
 - C. Assist in developing and amendments or supplements to this Decision Tree.

13-4.2 cont.

This process was rejected in the Draft 2006 Bay-Delta Plan for the for the following reasons: (1) a failure to provide analysis that demonstrates a flex will protect the beneficial uses; (2) an unwillingness to accept the process until causes of the pelagic organism decline are understood; and (3) a failure by the proponents of the process to provide sufficient studies, modeling, and environmental analysis of the impacts of the process. (Appendix 1, p. 43.) None of those reasons are sufficient to reject the process.

Inherent in the rationale for rejecting the proposal is the underlying assumption that introducing the ability to flex the Delta outflow objectives and applying a process to guide all flexing decisions (outflow and exports) would somehow lead to further harm of

⁹ The Authority would also support a requirement that the Agencies provide the State Water Board with a report after each flex consideration.

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13-4.2 cont.

pelagic organisms or impair protections currently afforded to fish and wildlife. This is not true. The Authority and others specifically designed the flexing process so that flexing would not occur if the federal and state fishery agencies and the State Water Board believed it was inappropriate. Under the proposal, any one of those agencies has the power to preclude a proposal for flexing. Additionally, the need for additional studies, modeling, and environmental analysis is beyond the scope of the Authority's role in this process and should not form the basis for the proposal being rejected.

In conclusion, the Authority's proposals for flexing would provide a mechanism that could solve several important problems with the current Delta outflow and Export Limits objectives. It would ensure that decisions on flexing were science-based and well reasoned, thus improve both consistency and transparency of decisions. It could also produce water that would be available for subsequent beneficial use, including for fish and wildlife.

4. Southern Delta Agricultural Salinity Objectives

The Authority does not object at this time to the southern Delta objectives. Instead, the Authority objects to the extensive and often times conflicting discussion of the southern Delta objectives, particularly in the Program of Implementation.

13-5

The Draft 2006 Bay-Delta Plan states clearly that concerns for salinity in the southern Delta¹⁰ result from low flows; salts imported in irrigation water by the State and federal water projects; municipal discharges; subsurface accretions from groundwater; tidal actions; diversions of water by the SWP, CVP, and local water users; channel capacity; and discharges from land-derived salts, primarily from agricultural discharge. (Draft 2006 Bay-Delta Plan, p. 26.) Each of those factors affect salinity differently (if at all) at the four southern Delta compliance locations: San Joaquin River at Airport Way Bridge, Vernalis, San Joaquin River at Brandt Bridge, Old River near Middle River, and Old River at Tracy Road Bridge. Thus, the Draft 2006 Bay-Delta Plan should explain (1) if each factor affects salinity at the different compliance location, and (2) when necessary, how the State Water Board will address each of those factors at the different compliance locations to ensure the southern Delta objectives are not exceeded. It fails to do that.

¹⁰ As used in the Draft 2006 Bay-Delta Plan, "southern Delta", includes locations (1) in the San Joaquin River at Airport Way Bridge, Vernalis, (2) in the San Joaquin River at Brandt Bridge, (3) in Old River near Middle River, and (4) in Old River at Tracy Road Bridge. (See e.g., Draft 2006 Bay-Delta Plan, pp. 12, 26.)

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Currently, the Draft 2006 Bay-Delta Plan improperly merges the Program of Implementation for all of the southern Delta objectives, (See Draft 2006 Bay-Delta Plan, p. 27), and relies upon an unlawful interpretation of D-1641 – one which seeks to impose sole responsibility on Reclamation and/or DWR. (See Draft 2006 Bay-Delta Plan, p. 26.) By merging the Program of Implementation for the southern Delta objectives and relying upon an unlawful interpretation of D-1641, the Draft 2006 Bay-Delta Plan presents a Program of Implementation that is unclear and may not result in the State Water Board or other agencies implementing the objectives in a lawful manner.

At a minimum, based on the factors presented above, the Program of Implementation must state clearly and emphatically that the southern Delta objectives will be implemented through the State Water Board's water rights and water quality authorities, including regulation of water diversions, pollutant discharge controls, best management practices to control the amount of waste produced, and improvements in water circulation. (Draft 2006 Bay-Delta Plan, p. 26.) Indeed, such a statement may be required to advance the stated purpose of the Amended Bay-Delta Plan, which, as quoted above, is to achieve the objectives by requiring "water rights holders and water uses to mitigate for the effects on the beneficial uses of their divisions and use of water." (Draft 2006 Bay-Delta Plan.)

For these reasons, the Authority respectfully requests that the State Water Board revise the Draft 2006 Bay-Delta Plan to:

- Include a new compliance point in Old River, near Holland Tract,
- Allow for greater flexibility of the Delta outflow objective,
- Include a process to guide the decision-making for flexing the Delta outflow and Export Limit objectives, and
- Refine the statements concerning the southern Delta salinity objectives to make plain that the State Water Board will implement those objectives, through exercise of water rights and water quality authorities,

13-5 cont.

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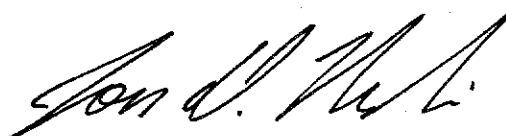
and in a manner that causes those affecting salinity levels because of their divisions and use of water to mitigate for their impacts.

Thank you for your consideration of these comments.

Very truly yours,

DIEPENBROCK HARRISON
A Professional Corporation

By



Jon D. Rubin
Attorneys for the San Luis & Delta-Mendota
Water Authority

cc: Daniel Nelson
Thomas Birmingham

COPY

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by email and hand delivery

November 12, 2006

Tam Doduc, Chair
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95814

RE: DRAFT BAY-DELTA PLAN AMENDMENTS

Dear Chairwoman Doduc,

This letter is submitted as the comments of the Bay Institute regarding the September 2006 draft amended Water Quality Control Plan (WQCP) for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.

We strongly disagree with the Board's findings in the draft Plan Amendment Report that insufficient information exists to revise the numeric objectives in the WQCP. Furthermore, considering the clear evidence that the WQCP's current objectives are failing to protect fish and wildlife beneficial uses – as demonstrated by the recent and ongoing population collapse of Delta pelagic fish species and the fact that a number of salmonid populations in the Central Valley are not on a trajectory to doubling – we are astounded that the Board has failed to take any substantive action to improve the level of protection provided by the WQCP. By adopting the draft WQCP in its current form the Board would plainly and simply be refusing to adequately discharge its federal and state Clean Water Act obligations.

14-1

We urge the Board to reconsider its proposed, minor changes to the WQCP and instead adopt stronger, more protective numeric objectives for Delta outflows, river flows, and export controls, including those described in our earlier submittals. If the Board is not prepared to do so, however, we recommend as an

alternative that it adopt the following measures – which do not involve developing new numeric objectives – in order to improve protection of fish and wildlife beneficial uses:

14-2

1. Delete the “no net water supply impacts” language from Footnote 18 (also referenced in Footnote 20) to Table 3, Water Quality Objectives for Fish and Wildlife Beneficial Uses. The 1995 WQCP replaced an export criterion that has a weak correlation to biological effects (QWEST) with a criterion that has absolutely no correlation at all (the Export/Inflow, or E/I, Ratio). No party seriously argues that the E/I Ratio has any biological basis as an objective for fish and wildlife beneficial uses. Furthermore, both the magnitude of the seasonal shift in Delta export pumping and the magnitude of related effects on Delta fish species was grossly underestimated at the time the 1995 WQCP was adopted. Recent investigations into the collapse of Delta pelagic fish populations indicate significant correlations between export pumping levels during the December – March period and delta smelt take and abundance(see W.A. Bennett, et al; and P.E. Smith et al; in CALFED, 2006). The ability to reduce export pumping levels during this period is likely to be critical to the survival of delta smelt and other pelagic species. To date, tragically, export modifications of the scale necessary to protect the beneficial use have been constrained by the language in the third sentence of Footnote 18 (referenced in the second sentence of Footnote 20) which is generally interpreted as a prohibition on variations in the E/I ratio that result in net annual water supply impacts. The Central Valley Project and the State Water Project currently modify export operations to the extent that the CALFED Environmental Water Account (EWA) is able to provide replacement water supplies. Unfortunately, the EWA has been consistently under-resourced and under-utilized since its inception. More importantly, the primary source of EWA assets is export pumping to south-of-Delta storage, which may be contributing to the very decline of the species the EWA is intended to benefit. Deleting the third sentence of Footnote 18 would allow more frequent, larger and experimental variations in the E/I ratio in order to respond to emergency conditions for Delta pelagic fish species even if such variations result in net annual water supply impacts. Clearly, the CVP and SWP would modify operations to offset and reduce these impacts, but they should not be constrained from causing such impacts in the first place, in order to ensure that beneficial uses are not degraded beyond repair. Adopting this proposed amendment would not involve the development of any new numeric objectives.

14-3

2. Establish a Bay-Delta Protection Fund. In lieu of adopting new numeric objectives, the Board could require water rights permit holders to make payments into a special Bay-Delta Protection Fund to support adaptive management actions to increase protection of beneficial uses. Actions

implemented using the Fund could include water acquisitions, habitat restoration, invasive species control, toxics loading reductions, and other projects, to be administered by the Board or a designated resource agency such as the California Department of Fish and Game. Payments by CVP water users into the CVPIA Restoration Fund could be credited against new Bay-Delta Protection Fund requirements. A description of such a fund should be included in the Plan of Implementation, Section A, Implementation Measures within State Water Board Authority.

14-3 cont.

3. Require that data collection efforts and analyses necessary to improve WQCP protection are conducted. In a number of places, the draft Plan Amendment Report states that insufficient information exists to revise specific objectives. Our disagreement with these findings notwithstanding, surely the Board must recognize that sufficient information exists to show that fish and wildlife beneficial uses are not being adequately protected, and that additional protections should be developed and adopted. Rather than simply inviting other regulatory agencies and water rights permit holders to present information on a voluntary basis, the Board should require that specific information needs are addressed on a set schedule as part of a continuing review of the WQCP, with the aim of revising particular objectives by a date certain. We recommend that Board consider the use of a neutral institution, such as the University of California or the U.S. Geological Survey, to conduct and coordinate these investigations, in conjunction with and funded by relevant agencies and permit holders. In the Plan of Implementation, Section A, Implementation Measures within State Water Board Authority, the Board should more fully describe its specific information needs, most importantly for revisions to the WQCP's current export criteria and San Joaquin River flow objectives, and numeric criteria to complement the narrative salmon protection objective.

14-4

In conclusion, we urge the Board to adopt more protective numeric water quality objectives, or, failing that, the alternative WQCP amendments recommended above that will allow the Board to more adequately fulfill its obligation to protect fish and wildlife beneficial uses. Please contact me if you have any questions regarding these comments.

Sincerely,



Gary Bobker
Program Director
415-506-0150
bobker@bay.org

Reference:

CALFED Bay-Delta Program. 2006. Making sense of complexity: science for a changing environment. Abstracts and presentations for the 4th biennial CALFED Science Conference.

COMMENTS OF STOCKTON EAST WATER DISTRICT

CONSIDERATION OF AN AMENDED WATER QUALITY CONTROL PLAN FOR THE SAN FRANCISCO BAY/SACRAMENTO-SAN JOAQUIN DELTA ESTUARY

Stockton East Water District (SEWD) submits the following comments on the State Water Resources Control Board's (State Water Board) Consideration of an Amended Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. SEWD will address two issues: (1) San Joaquin River Flows, Vernalis: February – April 14 and May 16 – June, and (2) Emerging Issues identified by the State Water Board.

San Joaquin River Flows, Vernalis: February - April 14 and May 16 – June

The State Water Board accepted considerable testimony regarding the San Joaquin River at Airport Way Bridge, Vernalis, for February through April 14 and May 16 through June (collectively referred to as "San Joaquin River Flow Objective") in the Water Quality Objectives for Fish and Wildlife Beneficial Uses (Table 3 of the 1995 Plan). The Plan Amendment Report – Appendix 1 provides a comprehensive summary of the evidence submitted. Unfortunately, the State Water Board has effectively ignored the evidence submitted supporting revisions to the San Joaquin River Flow Objective in favor of additional study. SEWD believes based on the evidence submitted that elimination or modification of the San Joaquin River Flow Objective is required as there is no scientific or biological basis for the existing objectives.

Stockton East Water District supports modification of the San Joaquin River Flow Objective because it is not supported by any scientific or biological basis.

The San Joaquin River Flow Objective should be eliminated because there is no scientific or biological basis for the established objectives. The existing objective is a negotiated political solution via the Principles for Agreement, not an objective based on sound scientific documentation. Both the San Joaquin River Group Authority and SEWD submitted evidence supporting eliminating or, at a minimum, reducing the San Joaquin River Flow Objectives.

15-1

In developing the San Joaquin River Flow Objective, which is the San Joaquin River contribution to the Delta Outflow, the parties to the negotiated agreement arbitrarily set the San Joaquin Flow Objective at either 10%, 20% or 30% of the surrogate X2 Delta Outflow at either Collinsville or Chipps Island. No biological assessment or other scientific justification supported these figures; the parties simply picked a percentage.

Significant information since adoption of the 1995 Plan, all of which supports elimination of the San Joaquin River Flow Objective for the following reasons:

- The required San Joaquin River flows contribute little to Delta outflow. The majority of San Joaquin River flow is exported by the SWP and CVP at the pumps with 0.1% of San Joaquin River flow making up Delta Outflow at Martinez.
- Tidal flows overwhelm net flows in the Delta and more strongly affect Delta smelt movements and distribution, so only very high Vernalis flows are likely to affect Delta smelt transit times significantly. This significantly reduces the value of making San Joaquin River flows for the protection of Delta smelt.
- Recent evidence suggests that intermediate to high late winter and spring flows in the San Joaquin River attract spawning adult Delta smelt into the South Delta, potentially leading to increased entrainment.
- Evidence supports elimination of the May 16 through June flow objectives as these flows are not needed for the protection of out-migrating salmon smolts as most salmon smolts have left the San Joaquin River system by late May and the temperature levels in the San Joaquin River may be lethal at times.
(See SEWD-01, SJRG-19)

Instead of considering this evidence, the State Water Board has requested Federal, State and interested agencies to conduct specific studies to determine whether and what changes should be made to the Spring Flow Objectives, including the San Joaquin River Objective. What is completely ironic, frustrating and frankly nonsensical about this request is that there are no such similar studies done originally to justify these objectives, but instead

15-1 cont.

were established by negotiated agreement, but now, the State Water Board will not modify these objectives until adequate study has been completed.

The State Board should not tie the San Joaquin Flow Objective to Delta Outflow Objectives

The San Joaquin River Flow Objective during February through April 14 and May 16 through June is improperly tied to hydrologic conditions in the Sacramento River basin. While, Table 3 – Footnote 13 states that the water year classification for the San Joaquin River flow objectives are established based on San Joaquin Valley Water Year Hydrologic Classification at the 75% exceedence level, a higher level of flow is triggered if X2 is at or west of Chipps Island. Location of X2 is highly dependent on Sacramento River flow conditions.

Two of the past four years illustrate why a change is needed. In both 2003 and 2004, the higher flow value was triggered because of Sacramento River flow moving X2 west of Chipps Island, while conditions in the San Joaquin River Basin were dry.

There is no scientific or biological justification for the flow objectives on the San Joaquin River, let alone the higher flows triggered by the placement of X2. Moreover, there is insufficient justification for the higher flow objectives on the San Joaquin River and tying it to Sacramento River hydrology. The State Water Board recognized this dilemma, but made no changes and instead recommended additional investigation of whether changes are justified to better represent hydrological conditions in the San Joaquin River Basin.

(Appendix 1, page 57) We disagree with the State Water Board recommendation. SEWD believes the lower flow value currently contained in the 1995 Plan should be the controlling flow objective during the February through June period and the reference to X2 in Footnote 13 deleted. Any additional flow necessary to meet the existing X2 objective should be borne by the Sacramento River Basin.

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15-1 cont.

We recommend Table 3 be modified as follows:

Table 3 Water Quality for Fish and Wildlife Beneficial Uses
San Joaquin River flow at Airport Way Bridge, Vernalis:

Outflow/ Water-Year Type	Wet	Above Normal	Below Normal	Dry	Critical Dry
San Joaquin River at Airport Way Bridge, Vernalis	2130 cfs	2130 cfs	1420 cfs	1420 cfs	710 cfs

Emerging Issue #3 – Central Valley Salinity

As a result of a joint State and Regional Board workshop on Central Valley Salinity issues held in January 2006, the State Water Board supports development of a Salinity Management Plan for the Central Valley and Delta to protect the beneficial uses of both surface water and groundwater. While SEWD is supportive of such a plan, SEWD does not believe that it will take 40 to 50 years to implement. Salinity issues in the Central Valley and in particular in the San Joaquin River are not new issues. There have been dozens of studies prepared over the years that illustrate the problem and offer solutions; unfortunately, the only solution that has been implemented to date regarding salinity in the San Joaquin River has been to require releases of high quality dilution water from New Melones Reservoir, which has significantly impacted water deliveries to SEWD. We suggest that the stakeholder group take a hard look at the existing studies, findings and reports to develop the plan which can and should be implemented in short order.

Finally, SEWD wants to ensure that on-going processes will not be postponed or delayed awaiting the Salinity Management Plan. In specific, the State Water Board since 1995 has directed the Central Valley Regional Water Quality Control Board to adopt salinity objectives upstream of Vernalis on the San Joaquin River. In D-1641, the State Water Board once again directed the Regional Board to adopt salinity objectives upstream of Vernalis. And, most recently, at the January 2006 workshop, the State Water Board again directed the Regional Board to adopt objectives upstream of Vernalis and return these

objectives to the State Water Board by November of this year. The Regional Board has failed all of these mandates by the State Water Board and is now projecting salinity objectives by September 2007. We respectfully request the State Water Board not allow development of the Salinity Management Plan to slow down in any way development and adoption of salinity objectives upstream of Vernalis.

Conclusion

We appreciate the opportunity to provide written comments on the Consideration of an Amended Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.

Respectfully Submitted,

HERUM CRABTREE BROWN
A Professional Corporation


KARNA E. HARRIGFELD
Attorney for Stockton East Water District

ORIGINAL

16 GK



November 6, 2006

2006 NOV -9 PM 12:28

Via Facsimile and U.S. Mail

Re: Comments on Draft Water Quality Control Plan for San Francisco Bay /Sacramento-San Joaquin Delta Estuary and Draft Plan Amendment Report, Appendix 1 to the 2006 Water Quality Control Plan for San Francisco Bay/Sacramento San Joaquin Delta Estuary.

Dear Chairman Doduc and Honorable Board Members:

Suisun Resource Conservation District (SRCD) is a conservation district created by special legislation (Public Resources Code §§ 9962 et seq.), and has the primary responsibility for regulating and improving water management practices on privately owned lands within Suisun Marsh. SRCD actively participated in the development of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (1995 Plan), and is party to the Suisun Marsh Preservation Agreement (SMPA) and related agreements. SRCD is also a principal agency in the formation of the Habitat Management, Preservation and Restoration Plan for Suisun Marsh (Suisun Marsh Plan).

This letter provides SRCD's comments on the Draft 2006 Water Quality Control Plan for San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Draft 2006 Plan) and its companion document Draft Plan Amendment Report, Appendix 1 to the 2006 Water Quality Control Plan for San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Appendix).

1. SRCD supports the SWRCB's intention to use the Suisun Marsh Plan and its associated environmental documents to address the narrative objective for Brackish Tidal Marsh in Suisun Marsh, as appropriate. However, page 33, Section B.4 implies that the Suisun Marsh Charter Group (SMCG) was initiated as a result of the Suisun Ecological Workgroup effort being unable to recommend a single numeric standard to replace the narrative standard. This characterization of the reasons for forming the SMCG is inaccurate, and the descriptions on page 44, Section E.4 and on page 72 of the Appendix provide more accurate descriptions of SMCG's formation. SRCD requests that the SWRCB amend the Appendix to include only the more accurate description of SMCG's formation.

2. SRCD supports the course of action described on page 33 of the Draft 2006 Plan regarding "Numeric Objectives for Suisun Marsh." In particular, SRCD supports the approach of allowing until

16-1
16-2

Directors

- Timothy Egan
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srcd@direcway.com

16e-2 cont.

2015 to implement the suite of actions necessary to achieve "equivalent or better" protection to the water quality of the Suisun Marsh as measured at the S-35 and S-97 stations. Setting a deadline of 2015 allows sufficient time for implementation of the necessary actions, but also provides an added incentive to perform these actions in a timely manner. Many of the actions to address Suisun Marsh water quality have already been planned or committed to in the Revised SMPA and related agreements. Key actions remain outstanding, however, SRCD and the other parties are committed to their inclusion in the final Suisun Marsh Plan. Again, the 2015 compliance date provides a deadline that will encourage all parties to proceed with planning and implementing the Suisun Marsh Plan.

16e-3

3. The Draft 2006 Plan proposes changes to Delta outflow. Existing objectives, such as the net Delta outflow index found in the 1995 Plan, provide ancillary benefits for the Suisun Marsh and were, in part, one reason for changes incorporated in the Revised SMPA. SRCD requests, therefore, that any proposed changes to Delta outflow objectives should consider the potential effects on Suisun Marsh.

16e-4

4. There is an error in Item 4, page 44, of the Draft 2006 Plan. Item 4 suggests that a complete set of environmental compliance documents for the Suisun Marsh Plan has been issued. This is incorrect. To date, only the scoping report has been issued. The parties are now preparing the Programmatic Environmental Impact Statement/Programmatic Environmental Impact Report for the Suisun Marsh Plan.

16e-5

5. On page 72 of the Appendix, the Principal Agencies in the SMCG are listed as two conflicting footnotes, 10 and 11. The SMCG includes an extensive array of agencies; all of which have interests (regulatory or other) in Suisun Marsh. An accurate list of the Principal Agencies is: SRCD, Department of Fish and Game, Department of Water Resources, U.S. Bureau of Reclamation, California Bay Delta Authority, National Marine Fisheries Service, and U.S. Fish and Wildlife Service.

SRCD appreciates your consideration of these comments. Please do not hesitate to contact me if you have any questions.

Yours Very Truly,



Steven Chappell
Executive Director

ORIGINAL

2006 Delta Plan
Deadline: 11/13/06

17



O'Laughlin & Paris LLP

Attorneys at Law

November 11, 2006

Tam Doduc, Chairperson
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814



Dear Chairperson Doduc:

These comments are submitted on behalf of the San Joaquin River Group Authority.
Our comments will follow the Draft Staff Report.

3. **Salmon Protection.**

The SJRGA suggests the SWRCB require CDFG to tag all fish released from CDFG hatcheries.

17-1

4. **Dissolved Oxygen Objective.**

The timing and duration of the DO objective should be addressed by CDFG, NOAA, USFWS and interested shareholders. The standard is set to protect Fall Run Salmon. Fall Run Chinook Salmon are not present at the DWSC in July and August. There may be a need for a DO standard in that time period, but it would not be for migrating adult SJR Fall Run Chinook Salmon.

17-2

CONCLUSION:

We appreciate the Board's consideration of the South Delta EC standard, the February – June flow objectives and the April – May pulse objective. The SJRGA reserves its rights to challenge these standards when the VAMP experiment is completed. The SJRGA agrees with the SWRCB to take a cautious approach to setting standards based on sound science. The SJRGA will therefore not renew its lawsuit against the SWRCB on the 1995 Bay-Delta WQCP at this time.

Very truly yours,

O'LAUGHLIN & PARIS LLP

By: Tim O'Laughlin
TIM O'LAUGHLIN

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2006 Delta Plan
Deadline: 11/13/06



**Public Workshop Comments
Draft Water Quality Control Plan
for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary
State Water Resources Control Board
November 13-14, 2006**

**Comments of San Joaquin Audubon Society,
Marin Audubon Society and Golden Gate Audubon Society**

INTRODUCTION

San Joaquin Audubon Society, Marin Audubon Society and Golden Gate Audubon Society appreciate the opportunity to provide input to the State Water Resources Control Board's Board review of its Draft Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary dated September 2006. These three Audubon Society chapters have participated in the Board's water quality and water rights allocation reviews for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary for more than twenty years. Most recently, these Audubon Society chapters sought and secured judicial review of the Board's Water Right Decision 1641 (D-1641) in order to assure that water rights to the San Joaquin River were allocated in a manner consistent with the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary adopted in May 1995 (1995 Plan).

That litigation resulted in a ruling from the Third District Court of Appeal overturning D-1641 because it failed to implement the Vernalis Pulse Flow Objective in the 1995 Plan while the San Joaquin River Agreement (SJRA) is in effect, and failed to implement the 1995 Plan's southern Delta salinity objectives. *State Water Resources Control Board Cases* (2006) 136 Cal.App.4th 674, 777, 844. The Court of Appeal remanded D-1641 to this Board to conduct further proceedings to "either assign responsibility for meeting the Vernalis Pulse Flow Objective and the southern Delta salinity objectives or to modify those objectives." 136 Cal.App.4th at 844. In response, the Board has circulated its Draft Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Draft Plan) for public review. Accordingly, the Audubon Society chapters submit these comments.

The Draft Plan falls far short of achieving the salmon doubling objective required by state and federal law. We respectfully object to the Draft Plan, and request significant strengthening of its water quality standards, in the following respects:

DISCUSSION

I. The Draft Plan Fails to Acknowledge the Impending Collapse of the Bay-Delta Ecosystem, and the Utter Failure of Existing Regulatory Controls.

As required by state and federal law, the 1995 Plan directed, in its Salmon Protection Table 3 Water Quality Objectives, that "[w]ater quality conditions shall be maintained together with other measures in the watershed, sufficient to achieve a doubling of natural production of chinook salmon from the average production of 1967-1991, consistent with the provisions [of] State and Federal law." Contrary to this primary water quality objective, after adoption of the 1995 Plan the average escapement of fall-run chinook salmon in the San Joaquin River has continued to plummet. The average escapement from 1967 to 1991 was 18,211, yielding a doubling goal of 36,000 salmon. But instead of moving salmon production upward toward this goal, the Board's weak and ineffective resource management policies have caused the average escapement to fall. Between 1992 and 2004, escapement averaged only 13,855 fall run chinook salmon, a 24 percent decline in escapement from 1967-1991 levels.

18-1

Instead of acknowledging the utter failure of its regulatory programs, and resolving to adopt the substantial reforms necessary to reverse the impending collapse of the Bay-Delta ecosystem, the Draft Plan proposes more of the same failed policies. Accordingly, we recommend the following improvements.

II. The Draft Plan's Substitution of VAMP Target Flows for the Substantial Flow Increases Necessary to Restore Salmon Populations Must Be Rejected.

The Draft Plan proposes to further relax the already deficient Plan Flow Standards by supplanting the Spring Pulse Flow Requirements of the 1995 Plan with the less stringent VAMP experimental target flows through December 31, 2011 (or the termination of the SJRA, whichever occurs first). Draft Plan at 21-25. By thus further weakening, rather than strengthening, spring pulse flow objectives for the San Joaquin River, the Draft Plan becomes the problem rather than its solution, driving a final nail in the fall run Chinook's coffin.

Instead the State Water Board should institute the flow reform measures recommended by the Department of Fish and Game in its March 2005 Public Workshop Comments on Issue 8 (Spring Pulse Flows in the San Joaquin River at Vernalis). The Board should also adopt the recommendation of hydrologist Arve R. Sjovald (attached, and discussed separately by the California Sportfishing Protection Alliance and others) documenting the need to substantially **reduce exports** from the Banks pumping facility during the months of December, January, February and March. These recommendations are summarized below.

III. The Magnitude and Duration of the VAMP Target Flows Are Too Low.

In its March 2005 Public Workshop Comments on Issue 8, the California Department of Fish and Game (CDFG) noted that "even with the flow objectives in the 1995 Plan, SJR [San Joaquin River] salmon populations are showing a declining trend." *Id.* at p. 2. CDFG concluded that the 1995 Plan's Spring Pulse Flow Objectives were inadequate because their duration was too short and their minimum flows were too low. *Id.* at p. 3. CDFG observed that "about 50% of salmon smolts out-migrate before Mid-April or after Mid-May and thus do not receive protection from conditions provided during the VAMP window." *Id.* at p. 6. CDFG concluded that "prolonging the VAMP window of protection from April 1 to May 31, and changing the frequency of Standard Minimum Flow Levels" would result in "substantial gains in adult salmon escapement."

In particular, CDFG's review of applicable data demonstrated that "if the Delta Inflow Standard target flow levels to protect SJR salmon . . . were changed in terms of **increased magnitude, prolonged duration, and reduction in re-occurrence interval of the lowest Standard Year Type, then substantial gains in SJR adult salmon are possible.**" *Id.* at p. 20. For example, CDFG estimated that these improvements could increase SJR chinook salmon

18-2

escapement to nearly 32,000 salmon, just 4,000 salmon short of the 1995 Plan's Narrative Salmon Doubling Goal of 36,000 SJR adult fall-run Chinook salmon. *Id.* CDFG pointed out that its recommended increase in the duration and minimum flow during the spring pulse period would also result in a substantial increase in steelhead trout smolt populations. *Id.* at p. 25.

IV. Increasing Spring Pulse Flows Will Reduce Excessively Warm Water Temperatures for Salmon and Steelhead Smolts.

CDFG's comments also noted that "excessively warm water temperatures for salmon and steelhead smolts after the VAMP window time period (e.g., after May 15)" were due to substantial drops in post-VAMP flows at Vernalis. This reduction in flows in late May resulted in a significant increase in water temperature at Vernalis, approaching the 68 degrees Fahrenheit daily average lethal limit for salmon smolts. *Id.* at p. 26. CDFG pointed out that "[d]ata collected in the last 10 years suggest that **if flows at Vernalis remain elevated (e.g., to approximately 4,000 cfs) during the May 16 through May 31 time frame,** . . . then water temperatures from Vernalis to Jersey Point (e.g., interior Delta) should remain **under the lethal limit** (68 degrees Fahrenheit daily average) for salmon smolts outmigrating past Mossdale during the warmer air temperature time periods." *Id.* at p. 26. Noting that "the existing body of scientific evidence . . . suggests that there is a strong correlation between the number of outmigrating smolts passing Mossdale and subsequent returns of adult salmon," CDFG recommended "an expanded window with higher Vernalis flow objectives for increased protection of fry." *Id.* at p. 27.

V. The Draft Plan Should Substantially Reduce Pumping from the Banks Facility During December, January, February and March.

Substantially increased State Water Project pumping during the winter appears to be a primary cause of the Bay-Delta's ecological collapse. Winter pumping at the Banks pumping facility during the last four years of the 1990's averaged only 573,000 acre feet. During the next five years, average State Water Project diversions during these four winter months more than **doubled**, to 1,331,000 acre feet. Non-Table-A diversions likewise **increased** dramatically from the late 1990's to the early 2000's. From 1996 through 1999, non-Table-A diversions averaged 257,000 acre feet. During the next five years, the non-Table-A diversions nearly doubled, to 473,000 acre feet.

Yet State Water Project releases from the Oroville dam **decreased** dramatically from the late 1990's to the early 2000's. Between 1996 and 1999, Oroville releases during these four winter months averaged 2,132,000 acre feet. During the following five years, from 2000 to 2004, however, Oroville releases averaged only 855,000 acre feet, less than half the pre-2000 level of releases.

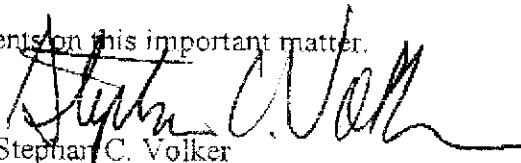
This severe disparity between State Water Project **inflow** at the Oroville dam, and **outflow** at the Banks pumping facility, looms as the single most significant and fundamental change in management of the Bay-Delta system during the past decade. This dramatic increase in winter diversions relative to inflow appears to be a significant factor in the ongoing collapse of the Bay-Delta ecosystem. Accordingly, we strongly urge the Board to curtail Delta diversions during the winter months in order to restore much-needed balance to this obviously over-taxed ecosystem.

14-3 cont.

CONCLUSION

For the foregoing reasons, we urge the Board to reject the Draft Plan and to make the significant modifications we outline above.

Thank you for considering our comments on this important matter.



Stephen C. Volker
Attorney for San Joaquin Audubon Society,
Marin Audubon Society and Golden Gate
Audubon Society

Enclosure: Supplemental Information on SWP Pumping Regimens in the Delta, 1996-2004
(by Arve R. Sjøvold, dated September 18, 2006)

ORIGINAL

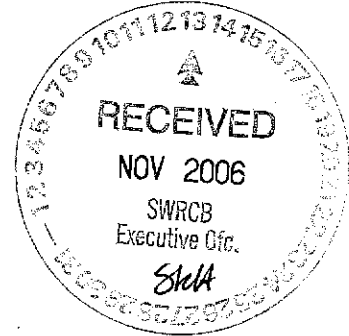
2006 Delta Plan
Deadline: 11/13/06 19



CALIFORNIA URBAN WATER AGENCIES

November 13, 2006

Song Her, Clerk to the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812



(Sent via email to: sher@swrcb.ca.gov)

These comments are in reply to the September 29, 2006 Draft Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. California Urban Water Agencies (CUWA) has been engaged in the Bay-Delta Water Quality Control Plan and related activities for many years. CUWA represents major statewide drinking water utilities that support progressive water management, protection of drinking water quality, and support for credible and sound science as a basis for addressing difficult water issues. Our comments on this proposed amendment to the existing Water Quality Control Plan relate to several emerging issues noted in the draft.

We appreciate the detailed attention the draft gives to the Pelagic Organism Decline (POD), climate change and Central Valley salinity. All three are important in the context of the Bay-Delta estuary, and activities in each area could have implications in the future to provisions of the Water Quality Control Plan. It is important to stay current on the state of scientific understanding on the POD and climate change studies, particularly since both areas are subject to a great deal of scientific study and investigations. We appreciate the leadership that the State Water Resources Control Board and the Central Valley Regional Board have taken to provide greater attention to salinity in the Central Valley.

CUWA is pleased the Board has acknowledged the Central Valley Drinking Water Policy in Chapter IV, Section E.2. of the Draft Water Quality Control Plan, as an important collaborative process that will provide information on the development of potential new water quality objectives to protect the municipal and industrial beneficial use. CUWA urges the Board staff to remain engaged in the Central Valley Drinking Water Policy process, and supports the Board's plan to convene a workshop to consider new water quality objectives that may be adopted as part of the Central Valley Drinking Water Policy.

CUWA is working closely with the Central Valley Regional Water Quality Control Board, U.S. Environmental Protection Agency, California Department of Health Services, California Bay-Delta Authority and interested stakeholders on the development of the drinking water policy. Current work to support drinking water policy development includes conducting technical studies on sources of drinking water constituents of concern and evaluation of potential control strategies to protect drinking water quality. To support the development of the drinking water policy, there is a need for additional monitoring in the Delta of both the volume of agricultural discharges from Delta islands and the concentrations of drinking water constituents of concern (i.e., organic carbon, salinity, bromide and nutrients) in Delta agricultural discharges. This


19-1

19-1 cont.

information is needed to better understand the effects of discharge volume and quality on the municipal and industrial beneficial use. CUWA requests that the SWRCB consider including this monitoring need in Section C. Recommendations to Other Agencies, as a recommendation to the Central Valley RWQCB to include monitoring of volume and quality of Delta agricultural discharges in the implementation of the Irrigated Lands Conditional Waiver Program.

Thank you for the opportunity to provide comments. Please call me at (916) 552-2929 if there are any questions regarding our comments.

Sincerely,



Steve Macaulay
Executive Director



DEPARTMENT OF FISH AND GAME
OFFICE OF THE GENERAL COUNSEL
1416 Ninth Street
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<http://www.dfg.ca.gov>
(916) 654-3821



November 17, 2006

Ms. Tam M. Doduc, Chair
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Subject: Department of Fish and Game clarification regarding its position on the proposed flexing of the Delta Outflow Objective presented to the Board during the hearing on the draft 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

Dear Chair Doduc:

I appeared before the Board during the November 13, 2006, hearing on the Water Quality Control Plan. I am submitting this letter in order to clarify an issue which was raised with reference to the Department during that hearing. It concerns both potential flexing of the Delta Outflow Objective, commonly referred to as "X2," and potential flexing of the flow objective for the Sacramento River at Rio Vista in the fall months.

On June 3, 2005, the CALFED Bay Delta Program Water Operations Management Agencies (WOMT) sent a joint letter to the State Water Board regarding a suggested revision to the 1995 Water Quality Control Plan (1995 WQCP) to consider "implementing the Delta Outflow objective at Port Chicago in a flexible manner to provide equivalent overall fishery protection benefits." (WOMT Comments on X2 Delta Outflow at p. 2.) The WOMT agencies are: the Department; the Department of Water Resources; the U.S. Fish and Wildlife Service (USFWS); the NOAA National Marine Fisheries Service (NMFS); and, the U.S. Department of the Interior, Bureau of Reclamation. Most importantly, the joint WOMT proposal suggested a "flexing" of X2 which would incorporate all of the following considerations: It would be 1) limited to the objective at Port Chicago;¹ 2) *only* for the purpose of balancing overall benefits/impacts between downstream and upstream fish; 3) requested through a process which guaranteed that Department, USFWS and NMFS were already in agreement that such flexing would benefit fish; and, 4) only allowed to create assets used later for ecosystem and fishery benefits.

20-1

¹ At a January 18, 2005 workshop, the Department objected to adding flexibility to the Sacramento River at Rio Vista flow objective. The objective is minimally protective for upstream migrating adult salmon and already specifies a substantially lower flow objective in October - December following critically dry years.

As the WOMT letter states in part:

"If full consensus of WOMT agencies is that upstream ecosystem concerns must be addressed, then formulate and implement alternative project operations to balance fish needs and determine how water that is saved would be used later for delta ecosystem and upstream fishery beneficial uses."

(WOMT June 3, 2005 letter at p. 3.)

Thereafter, with the precipitous decline of pelagic organisms in the Bay Delta Estuary, the WOMT agencies sent a follow up letter advising "the WOMT agencies now recommend that the SWRCB postpone final development of the proposal for flexibility for the X2 objective until the scientists working in the Bay-Delta have a better understanding of the pelagic organism decline." (WOMT letter to the State Water Board (August 29, 2005) at p. 1.) Instead, the WOMT suggested the State Water Board add "a footnote to Table A of the WQCP, indicating the intent to further consider flex of X2 when a better understanding of the cause(s) of the fish decline emerges from the ongoing intensified Pelagic Organism Decline investigations and if the WOMT agencies conclude it is appropriate to again pursue the flex." (WOMT August 29, 2005 letter at p. 2.)

Because some of the "WOMT" agencies approached the State Water Board during the November 13, 2006 to suggest various flexing proposals, the Department would like to clarify that such flexing proposals do not necessarily have the support of the Department and therefore are not being made after WOMT consensus. Moreover, it is unclear if such proposals were drafted to be clearly consistent with the principles articulated above.

In conclusion, the Department reiterates its intention to oppose any proposal for flexing the flow objective at Rio Vista. If the State Water Board were to consider a flexing proposal related to X2 on a case by case basis under a temporary urgency change petition, the only concept that could be supported by the Department is one that is wholly consistent with the principles outlined in the WOMT letter of June 3, 2005.

Thank you for your consideration.

Sincerely,



TINA R. CANNON
Staff Counsel

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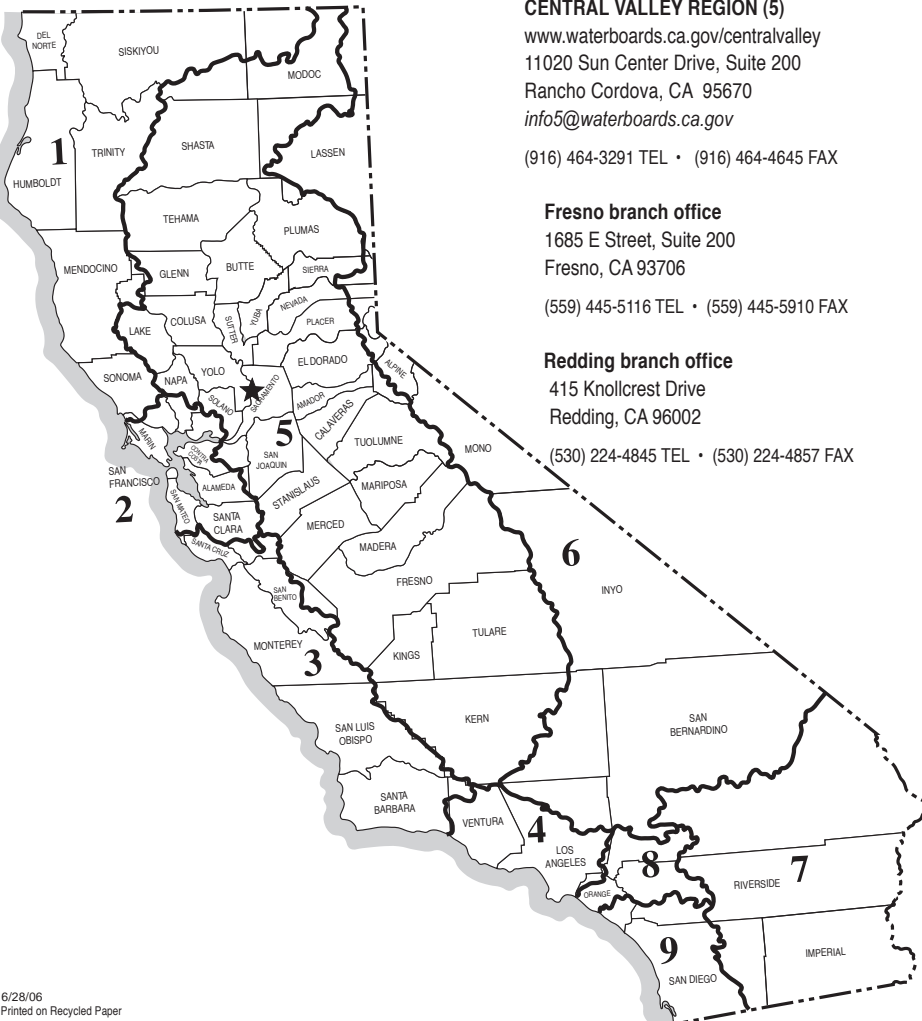
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