STATE OF CALIFORNIA – THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

February 5, 2004

Gita Kapahi, Chief
Bay Delta Special Projects Unit
State Water Resources Control Board
Post Office. Box 2000
Sacramento, California 95812-2000

Re: Issues to Review in the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary

Dear Ms. Kapahi:

At the January 8, 2004 Scoping Workshop for Review of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, Chairman Art Baggett requested that parties submit additional substantive comments on the issues. The Department of Water Resources (DWR) submitted comments on scoping of the review to the Board on January 7. Attached are DWR's additional comments of specific issues that it would like considered during the review. At this time, DWR has provided some background and general basis for a review of these issues. The Board has indicated it will notice additional workshops on selected issues, if any, where parties may comment. DWR will be providing additional information regarding the issues during these later workshops or hearings.

In developing the schedule of when issues will be reviewed, DWR requests that the Board consider the complexity and controversial nature of an issue. For example, DWR has recommended review of the location of the salinity objective at Contra Costa Pumping Plant #1. This is a controversial issue that DWR believes should be heard towards the end of the review process so parties may meet to develop joint proposals that could be considered by the Board. Other issues, such as the update of the monitoring program may be less difficult to address and could be heard early in the process.

Thank you for consideration of these comments. Please contact me at (916) 653-5613 or crothers@water.ca.gov if you have questions or would like additional information.

Sincerely,

Cathy Crothers
Senior Staff Counsel

Attachments

cc: Michael J. Spear
Deputy Secretary for Land Conservation
The Resources Agency
1416 Ninth Street, Room 1311
Sacramento, California 95814

Sonke Mastrup, Acting Director
Department of Fish and Game
1416 Ninth Street, 12th Floor
Sacramento, California 95814

Dan Castleberry
California Bay Delta Authority
650 Capitol Mall, 5th Floor
Sacramento, California 95814

John Renning
U. S. Bureau of Reclamation
2800 Cottage Way
Sacramento, California 95825

David Harlow
U..S. Fish and Wildlife Service
2800 Cottage Way
Sacramento, California 95825

Gary Stern
National Oceanic and Atmospheric Agency Fisheries.
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404

Steve Chappell
Suisun Resource Conservation District
2544 Grizzly Island Road
Suisun City, California 94585

Department of Water Resources
Comments to State Water Resources Control Board
On Issues to Review in the
1995 Water Quality Control Plan
For the San Francisco Bay/Sacramento – San Joaquin Delta Estuary

February 5, 2004

Monitoring Program (Table 4 of WQCP)

The 1995 Water Quality Control Plan (WQCP) describes a monitoring program to provide physical, chemical, and biological data for baseline information and to determine compliance with water quality objectives in the plan. Table 4 of the WQCP lists monitoring parameters, such as monitoring station location, constituents measured, and whether the monitoring station is for baseline information, compliance information, or both. The State Water Resources Control Board (Board) implements the monitoring plan through its water right decisions.

The Department of Water Resources (DWR) and U.S. Bureau of Reclamation are responsible for the monitoring described in Table 4 pursuant to Conditions 3 and 11 and Table 5 of Decision 1641, which prescribes specific conditions on DWR and Reclamation water right permits. As a result of the Bay-Delta water rights hearings which concluded in 1999, a few of the parameters of the 1995 WQCP Table 4 are no longer consistent with the monitoring required under D-1641 Table 5. In addition, DWR and Reclamation recently completed a technical review of the monitoring program described in Table 5 that resulted in the agencies submitting recommendations for changes to the Board Executive Director. Condition 11 of D1641 requires DWR and Reclamation to evaluate the monitoring program every three years and report their conclusions and any appropriate modifications of the program to the Board's Executive Director. In August 2003, the Executive Director approved certain modifications to baseline monitoring identified in Table 5 (see attached letter from Celeste Cantu, dated August 11, 2003). DWR and Reclamation are providing the Executive Director additional information to consider for the modification of other baseline monitoring identified in the technical review.

DWR believes that the Board should review the WQCP monitoring program to update the WQCP Table 4 consistent with the most current Table 5 of D-1641 and to consider any recommendations of the technical evaluation that are not approved by the Executive Director. At a workshop or hearing to review the monitoring program, DWR will propose specific changes to Table 4 consistent with the recommendations from the technical evaluation and the most current Table 5. In addition, if new monitoring needs are identified during review of the WQCP, DWR may have comments on monitoring proposals for such needs.

Objectives at Contra Costa Canal at Pumping Plant Number 1

DWR has consistently taken the position that the SWP and CVP cannot reasonably control salinity in Contra Costa Canal at Pumping Plant Number 1 (PP#1) or in Rock Slough. DWR supports, however, the need to protect source drinking water quality and does not oppose an objective in Rock Slough or at PP#1 as such objectives might be reasonable if others more directly responsible for controlling salinity were responsible for achieving the objective. In the past, Contra Costa Water District (CCWD) and DWR have met and discussed issues of compliance at PP#1, including the possibility of relocating the objective. CCWD submitted comments to the Board in December 2003 about its concerns with water quality degradation in Rock Slough and its opposition to a review of the objective location. DWR believes that the Board's review of the objective is appropriate, as further discussed below. If the review does include the objective at PP#1, DWR recommends this issue be taken up towards the end of the review to allow time for DWR and CCWD to meet and possibly develop proposals to present to the Board.

Recognizing that Delta salinity in Old River provides the underlying background conditions within Rock Slough, DWR recommends that a new location for a water quality objective be established in a location that the CVP and SWP have the ability to control. Currently, DWR and Reclamation measure water quality in Old River at Bacon Island and near the confluence with Rock Slough because the SWP and CVP can control salinity at this location through storage releases or export curtailments. Therefore, DWR believes that the Board's WQCP review should include locating an objective for municipal water quality objectives in Old River at Bacon Island, where the Projects have control over water quality conditions.

The 1995 Water Quality Control Plan includes two chloride objectives in Contra Costa Canal at PP#1; a municipal water quality objective of a maximum mean daily of 250 mg/l Chloride from October to September, and an industrial water quality objective of a maximum mean daily of 150 mg/l Cl for specified number of days of the calendar year depending on water year type. Compliance with the municipal drinking water objective of 250 mg/l Cl is based on average daily chloride values and is met by the Projects maintaining chloride levels at or below 250 mg/l on a daily basis at PP#1. For protection of industrial uses, the projects must also maintain chloride levels at or below 150 mg/l for 155 to 240 days depending on the water year type at PP#1 or at Antioch. In addition to reviewing the location for the municipal objective, DWR recommends that the Board review the need for the objective to protect industrial beneficial uses because the industrial uses that were the basis for increased water quality protection no longer occur.

Background and Studies of Rock Slough Salinity

The water quality compliance monitoring site for the objectives is located within the Contra Costa Canal just downstream of PP #1 and about four miles from Rock Slough. The Canal draws in water from Rock Slough, a four-mile dead end slough that connects to Old River. Consequently, between the chloride monitoring station and Old River there is about eight miles of dead end slough and canal (some earthen lined) that

is subject to various factors that degrade water quality that are out of the Projects control.

Poor water quality measured at PP#1 can result from localized degradation of water quality in Rock Slough. This degradation occurs because of factors beyond the control of DWR or Reclamation, including: (1) stagnation in Rock Slough exacerbated by the timing of diversions by Contra Costa Water District at PP#1 and at its Old River Intake for Los Vaqueros, and (2) agricultural drainage into a number of sloughs in the vicinity of Rock Slough. Although this local degradation is largely independent of the State and federal projects, the projects must anticipate such degradation in attempting to meet the water quality objectives at PP#1, at a cost to Project water supply.

In 1997 Contra Costa Water District began diverting from its Old River intake into Los Vaqueros to improve water supply reliability and water quality. Operation of the new intake has further diminished the Projects' ability to provide any reasonable control over salinity in Rock Slough and at PP#1. Besides diverting for Los Vaqueros Reservoir, the new intake is used to make diversions to serve CCWD's service area and as an alternate pumping plant location to PP#1. When CCWD has reduced pumping or is not pumping water through its PP#1, the water in Rock Slough has little movement and the agricultural drainage water accumulates and stagnates. Conversely, when PP#1 is operating at high rates, a significant portion of the agricultural drain water is drawn into the canal intake and PP#1.

Reducing the effects of agricultural drainage from Veale Tract into Rock Slough was identified in the 2000 CALFED Bay-Delta Program Record of Decision (ROD) and Programmatic EIR/EIS as an action that could improve drinking water quality. The California Bay-Delta Authority (CBDA), which in 2003 began overseeing implementation of the ROD, has provided funding for feasibility studies and projects to address the drainage problems in Rock Slough.

CALFED and DWR funded the "CALFED Rock Slough Drainage Management Project" to monitor water quality in Rock Slough in 2002 and 2003 (performed by Carollo Engineers). The resulting "Technical Memorandum Evaluation of Water Quality Data and Preliminary Identification of Degradation Sources in Rock Slough and Contra Costa Canal" (Carollo Engineers, March 2003) identified a number of degradation sources along the study area and that drainage from Veale Tract and existing marinas, seepage from Dairies, Ironhouse Sanitary District, and Marsh Creek were potential sources of degradation. The attached graph "Old River at Bacon Island Specific Conductance versus Flow at PP#1" shows monitoring data from 1990 –2003 and indicates that when the salinity in Old River near Rock Slough decreased and pumping at PP#1 decreased, the salinity at PP#1 did not decrease as would be expected if changes in Old River directly affected Rock Slough salinity.

In late January 2004, Contra Costa Water District released for public comment its environmental documentation on the proposed CALFED Rock Slough Water Quality Improvement Project. The primary purpose of this proposed project is to reduce the adverse water quality effects of agricultural drainage from Veale Tract on CCWD's water supply diversions from PP #1. The project would entail constructing and operating a new pump station and discharge outfall on Veale Tract to relocate agricultural drainage from its current discharge point into Rock Slough to a new location on Werner Cut/Indian Slough. These recent studies and analyses suggest that multiple

factors and entities have a role in controlling salinity in the Rock Slough area and that implementing a reasonable objective for municipal beneficial uses in this area should include these entities.

In summary, the DWR believes that the Board should review the WQCP objectives to evaluate whether the current location is reasonable to protect the municipal beneficial uses in the area, whether a new location should be established in Old River, and if there is a continued need to protect industrial beneficial uses at PP#1.

Suisun Marsh

Western Suisun Marsh Salinity Objectives at S-35 and S-97

Established in the 1978 WQCP, the salinity objectives at S-97 and S-35 in the western Suisun Marsh have never been implemented by the Board. The March 2, 1987 Suisun Marsh Preservation Agreement (SMPA), however, specifies that salinities at these locations would be met by DWR and Reclamation after construction of large scale water conveyance facilities in the Marsh. In 1988, DWR and Reclamation began operating the Suisun Marsh Salinity Control Gates (SMSCG) and found that the gate operation effectively reduces salinity in Montezuma Slough and the eastern regions of the Marsh, and to a lesser degree in most of the western Marsh. Because the gate operation has proven to be more effective than was predicted, the parties to the SMPA agreed that additional large scale conveyance facilities would not be needed and that other less intrusive management actions would be negotiated. Currently, the SMPA parties are preparing a Revised SMPA that would describe S-97 and S-35 as monitoring stations of channel salinity and stage. Information from the monitoring will be used as water quality indicators to determine SMSCG operations and to control when special funding is provided for additional management actions during drought periods.

At this time, DWR does not have specific recommendations regarding modifications to the WQCP objectives at S-35 and S-97, but we do support their review in light of new information becoming available and their importance in defining "equivalent or better protection" of the western Marsh. This review should be in conjunction with development of the Habitat Management, Preservation, and Restoration Plan for Suisun Marsh, being prepared by the Suisun Marsh Charter Group. Also, any potential changes in the objectives should be made in collaboration with the efforts of the Suisun Marsh Charter Group. The Department is working to develop a common position among the Charter Group agencies that could be discussed during a review of the Marsh. DWR requests that the Board allow time for development of a common position when developing a schedule for any workshop that includes the Marsh.

The Suisun Marsh Charter Group was created at the request of CALFED to help resolve disagreements among SMPA agencies and USFWS with respect to competing wildlife and resource needs in the Marsh. CALFED requested the agencies develop a "Charter for the Suisun Marsh" that would "develop a regional plan that balances implementation of CALFED, the Suisun Marsh Preservation Act, and other management and restoration programs within Suisun Marsh in a manner responsive to the concerns of stakeholders and based upon voluntary participation by private land owners." The

Charter was completed in 2001 and a draft Suisun Marsh Implementation Plan was developed. In 2003 the Charter process was expanded to include additional State and federal agencies. Principal agencies are the Reclamation, NOAA Fisheries, USFWS, DFG, DWR, SRCD, and CBDA. Other participating agencies include USACE, BCDC, USGS, and SF Bay-Delta Science Consortium.

Narrative Objective for Suisun Brackish Tidal Marsh

The Board directed DWR to convene a Suisun Marsh Ecological Workgroup (SEW) to identify specific measures to implement and evaluate the achievement of the narrative objective and to develop recommendations for numeric objectives to replace it. SEW submitted its final report to the Board in August 2002[1]. In Decision 1641, the Board stated that it would review the narrative objective at the time of the WQCP review, if information from the SEW report was available (D-1641, p. 56). In addition to reviewing the final SEW report, the Board should consider ongoing progress in the Habitat Management, Preservation, and Restoration Plan for Suisun Marsh by the Suisun Marsh Charter Group. DWR does not have any specific recommendations regarding the narrative objective at this time. However, DWR recommends the Board collaborate with the Charter Group in making any proposed changes to the narrative objective.

Export / Inflow Ratio and Alternative Used to Calculate Delta Inflow

The Export/Inflow Ratio is a measurement used to limit combined SWP and CVP Delta exports in relation to the flows into the Delta. Export rate and Delta Inflow are calculated based on formulas in the WQCP on page 25 and footnote 23 of Table 3. DWR does not oppose the E/I ratio but would like the Board to review two specific issues related to the method of calculation. DWR would like review of the E/I ratio formula to determine if it should be adjusted to account for inflows that might occur from in-delta storage projects. Another issue for review, more fully discussed below, is the determination of when to use the 3-day or the 14-day running average to calculate inflow.

Calculating Inflow

Footnote 23 of the WQCP Table 3 describes the method of calculating export rate and Delta inflow for determining E/I. Footnote 23 requires that the export rate be based on a 3-day running average and the Delta inflow be based on a 14-day running average, with certain exception. The 14-day running average for determining inflow helps preserve and protect from export the naturally occurring freshets entering the Delta and which are deemed beneficial to fisheries. During development of the E/I ratio, the Project agencies suggested allowing an exception to the 14-day running average and instead use a 3-day running average to determine inflow when the Projects are making storage withdrawals so these releases could be captured during export, also

[1] The final SEW report is available at the Interagency Ecological Program website: http://www.iep.ca.gov/suisun_eco_workgroup/final_report/SEWFinalReport.pdf

calculated using a 3-day running average. However, Footnote 23 mandates use of the alternative 3-day running average to calculate Delta Inflow when the CVP or SWP are making storage withdrawals for export. The Projects have found that, at times, the use of the 3-day running average for inflow during some storage withdrawals penalizes the Projects rather than benefits them.

The 3-day running average was intended as an exception to the typical 14-day running average calculation in order to allow the Projects a greater opportunity to export water from storage when protection of the natural freshet was not a concern. However, when inflows to one or more Project reservoirs drop below releases, those releases become storage withdrawals. Despite no increase in flows—on the contrary there is also typically a simultaneous decrease in accretions to the Delta and it's tributaries—the Projects are forced to adjust exports to comply with the 3-day running average inflow without discretion and sooner than would be required using the 14-day running average. This adjustment, in the form of export cuts, inadvertently penalizes the Projects while providing no intended fishery enhancement.

To correct what DWR believes is an unintended method of calculation, DWR suggests that Footnote 23 of Table 3 be modified. DWR suggests deleting from Footnote 23 the phrase "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" and adding the underlined language shown below:

> "Percent of Delta inflow diverted is defined on page 25. 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. **However, a 3-day running average Delta inflow may be used when the CVP or the SWP is making storage withdrawals for export following an increase in releases from Shasta, Folsom, or Oroville reservoirs."**

In summary, DWR requests that the Board include a review of Table 3, Footnote 23 of the WQCP to consider an adjustment in the method of calculating inflow during storage withdrawals for export and also review the E/I formula to consider if it adequately accounts for any potential in-delta storage projects.

X2 (Port Chicago) Objective for Delta Outflow

DWR recommends the Board review the process for triggering the Delta Outflow Objective known as X2 at Port Chicago, which is described in Table A, and referenced in Footnote 14 of Table 3. The X2 Objective at Port Chicago is also known as the Roe Island Objective. In addition, DWR agrees with the Department of Fish and Game's comments that any review of this objective must be conducted with a consideration of the need for change and an understanding of biological consequences of any proposed changes.

DWR recommends that the Board review the X2 Objective at Port Chicago to allow flexible implementation similar to the flexibility allowed to the E/I Ratio in Footnote 24 and 22 of Table 3, or as provided in D-1641 Footnotes 20 and 18 of Table 3. The benefits of the flexibility could allow improved fish protection, water supply reliability, or

potential water quality improvements. As allowed for the E/I ratio, implementation of the X2 flexibility could be through recommendations made to the Board Executive Officer by the USFWS, NOAA, DFG, Reclamation, and DWR. Such a process could also be implemented by the five agencies to benefit the Environmental Water Account, similar to what is done with flexibility of the E/I ratio.

The X2 Objective requires a specified number of days when maximum daily average electrical conductivity of 2.64 mmhos/cm must be maintained at Roe Island. The number of days requiring the 2.64 mmhos/cm is triggered based on the previous months "Eight River Index" that is defined in the WQCP. Maintaining the required number of days results in the Projects releasing flows or reducing exports to achieve a certain Net Delta Outflow Index to assure compliance. The water used to comply with this outflow may prove more beneficial to fisheries if used with discretion at other times. Below is an example of how flexibility of the X2 Objective might be used.

Example of X2 flexibility

If the X2 objective at Port Chicago is triggered as a result of conditions in the previous month, the projects may determine that a Net Delta Outflow Index of 29,200 cfs is necessary to ensure compliance for the upcoming month. However, the water required to comply with this standard may prove more beneficial to fisheries if used with discretion at other times. For example, if the month of February requires 20 days of compliance with the Roe Standard through a NDOI target of 29,200 cfs, but the drying hydrology and planned Project operations would otherwise provide only 20,000 cfs then 9,200 cfs must be had by combination of pumping reductions and reservoir releases. If with concurrence of the fishery agencies the NDOI target could be altered (to say 25,000 cfs) then 4,200 cfs (or 166,600 AF over 20 days) could be saved for future fish protection actions at a later time and to a greater benefit while still preserving the natural variation of the X2 position deemed beneficial to species.

State Water Resources Control Board

Executive Office
1001 I Street • Sacramento, California 95814 • (916) 341-5615
Mailing Address: P.O. Box 100 • Sacramento, California • 95812-0100
FAX (916) 341-5621 • Web Site Address: http://www.swrcb.ca.gov

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at http://www.swrcb.ca.gov.

AUG 11 2003

Stephen Verigin
Acting Chief Deputy Director
Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-001

Susan Ramos
Assistant Regional Director
Bureau of Reclamation
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, CA 95825-1098

Dear Mr. Verigin and Ms. Ramos:

2001-2002 REVIEW OF THE ENVIRONMENTAL MONITORING PROGRAM (EMP)

This letter replies to your correspondence dated March 25, 2003, submitting the Interagency Ecological Program's (IEP) "2001-2002 Review of the Environmental Monitoring Program (EMP)" and requesting modifications of the monitoring program pursuant to Condition 11 (page 149) of State Water Resources Control Board (SWRCB) Revised Decision 1641 (D-1641). You conducted the review in compliance with Condition 11(e) on page 149 of D-1641, which requires the Department of Water Resources (DWR) and the U.S. Bureau of Reclamation (USBR) to complete an assessment of the EMP every three years to evaluate whether the goals of the monitoring program are being attained and report those finding to the SWRCB's Executive Director. Based on the conclusions of the review, DWR and USBR may propose appropriate modifications of the EMP for concurrence of the Executive Director.

As a result of the comprehensive technical review of the EMP, you recommend several changes to the EMP that you state are functionally equivalent to the existing program, but would improve monitoring efficiency and information products. You state that implementation of some of the recommendations requires approval by the Executive Director, while other changes do not require consent by the Executive Director. You request approval of the following changes to Table 5 and Figure 4 on pages 192-194 of Revised D-1641:

1. Add, reestablish, and/or better integrate stations and monitoring elements where needed for more comprehensive, integrative data analyses and modeling;

2. Consolidate two neighboring continuous and discrete stations;

3. Change discrete sampling frequency from monthly to near monthly according to the tides.

Thank you for your comprehensive effort in conducting the first evaluation of the EMP. My authority to approve the requested changes to Table 5 (pages 192-193, Revised D-1641) and/or the location of these monitoring stations pursuant to Figure 4 (page 194, Revised D-1641) is dependent on the type of monitoring station. The Executive Director may approve the requested changes to baseline monitoring stations and the addition of baseline monitoring stations.

However, changes in the compliance monitoring stations would conflict with the requirements in D-1641 to meet the water quality objectives listed in Tables 1 – 3, commencing at page 181, of D-1641 at those stations. Changes in the compliance stations also would conflict with the water quality objectives in the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (1995 Bay-Delta Plan). Accordingly, changes in the compliance stations must be subjected to public comment and formal review by the SWRCB. This type of review first should take place during a formal periodic review of the 1995 Bay-Delta Plan under Water Code section 13240, and then be the subject of a conforming water right change petition. Enclosed is a table showing my action or denial of action on each of the stations listed in Table 5 (pages 192-193 of D-1641). This table responds to Table F of the EMP Review and Recommendations Final Report, March 25, 2003, which sets forth your proposal for changes. Additionally, I am enclosing a revised Table 5 to replace pages 192-193 of D-1641, and a revised Figure 4 to replace page 194 of D-1641.

The SWRCB currently is considering initiating a periodic review of the 1995 Bay-Delta Plan. Upon commencement of this process, you will have an opportunity to present the review findings and recommendations to the SWRCB, and subsequently the SWRCB may consider whether to adopt the changes you propose in the water quality objectives. The SWRCB will notify all interested and affected parties upon initiation of a formal review of the 1995 Bay-Delta Plan.

Should you have questions concerning this matter, please contact Gita Kapahi, Chief of the Special Projects Unit, at (916) 341-5289.

Sincerely,

Celeste Cantú
Executive Director

cc: Anke Mueller-Solger
Department of Water Resources
3251 S Street
Sacramento, CA 95816

Erwin Van Nieuwenhuyse
Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825-1098

Barbara McDonnell, Chief
Division of Environmental Services
Department of Water Resources
3251 S Street
Sacramento, CA 95816

cc: (Continuation page.)

Zach Hymanson
Bay-Delta Authority
P.O. Box 6533
Tahoe City, CA 96145

Enclosures

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
C2	■	Sacramento River @ Collinsville	*						No operational change, but analytical integration of this compliance station with baseline station D4. See also D 4.	None.Compliance station according to D-1641
C3	▲	Sacramento River @ Greens Landing			(-)	(-)			See C3A.	Approved. Baseline station according to D-1641
C3A	▲	Sacramento River @ Hood		*	*	*	X		Discrete P/C & P sampling moved from historical station C3 to the neighboring continuous MP station C3A at Hood.	Approved. Baseline station according to D-1641
▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station										

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
C4	■	San Joaquin River @ San Andreas Landing	*						No operational change.	None requested
C5	■	Contra Costa Canal @ Pumping Plant #1	*						No operational change.	None requested
C6	■	San Joaquin River @ Brandt Bridge site	*						No operational change.	None requested
C7A	▲	San Joaquin River @ Mossdale Bridge		*					New station ID and description indicates different station location from historical station C7.	Approved. Baseline station according to D-1641
C8	■	Middle River near Old River	*						No operational change.	None requested

▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
C9	•	Clifton Court Forebay @ Radial Gates		X	X	*	X		Formally re-adopt continous D-1485 compliance monitoring. Reinstatement of D-1485 discrete P/C sampling and historical zooplankton (pump) monitoring. Separate station ID and description indicates different location from C9A.	None. Compliance and baseline station according to D-1641
▲ Baseline monitoring station ■ Compliance monitoring station • Compliance and baseline monitoring station										

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed In Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
C9-R	▲	West Canal @ Mouth of CC Forebay Intake						*	Analytical integration of existing, but not currently mandated, MP monitoring at C9 with D-1641 baseline benthos monitoring at C9-R, right channel bank	None. Compliance and baseline station according to D-1641
C10	■	San Joaquin River near Vernalis	X						Formally reinstate D-1485 CR compliance monitoring currently conducted by the USBR.	None.Compliance and baseline station according to D-1641

▲ Baseline monitoring station ■ Compliance monitoring station • Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
C10A	▲	San Joaquin River near Vernalis @ San Joaquin River Club		X	*	*	X		After side-by-side P/C & P sampling for at least one year, discontinue discrete baseline sampling at historical station C10 and move it to the new Vernalis MP station C10A, slightly north of current C10. Separate station ID and description indicates different location from C10. Add zooplankton sampling (pump).	None.Compliance and baseline station according to D-1641
C13	■	Mokelumne River @ Terminous	*						No operational change.	None requested
▲ Baseline monitoring station ■ Compliance monitoring station • Compliance and baseline monitoring station										

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Approval granted
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
C14	■	Sacramento River @ Port Chicago	*						No operational change. Analytical intergration of continuous data from this compliance station with discrete data from baseline station D8.	None.Compliance station according to D-1641
C19	■	Cache Slough @ City of Vallejo Intake	*						No operational change.	None requested
D4	▲	Sacramento River above Point Sacramento			*	*	*	*	Analytical integration of discrete data from this baseline station with continuous data from compliance station C2. See also C2.	Approved. Baseline station according to D-1641

▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
D6	▲	Suisun Bay @ Bull's Head Pt. near Martinez		(-)	*	*	*	*	Separation of continuous MP monitoring from discrete monitoring at D6 to indicate different station locations, see D6A.	Approved. Baseline station according to D-1641
D6A	▲	Suisun Bay @ Martinez		*					Separate new station ID and description indicates different location from D6.	Approved. Baseline station according to D-1641
D7	▲	Grizzly Bay @ Dolphin near Suisun Slough	X		*	*	*	*	New: moored continuous recorder for EC & Temperature	Approved. Baseline station according to D-1641
▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station										

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
D8	▲	Suisun Bay off Middle Point near Nichols			*	*	*		Analytical integration of discrete data from this baseline station with continuous data from compliance station C14. See also C14.	Approved. Baseline station according to D-1641
D9	▲	Honker Bay near Wheeler Point	X		X	X			Reinstated D-1485 P/C and P monitoring. New: continuous recorder for EC & Temperature.	Approved. New Baseline station
D10	▲	Sacramento River @ Chipps Island		(-)			*		Separation of continuous MP monitoring from discrete monitoring at D10 to indicate different station locations, see D10A for details	None. Compliance and baseline station according to D-1641

▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-para meter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
D10A	•	Sacramento River @ Mallard Island		*	X				Separate new station ID and description indicates different location from D10. Reinstatement of discrete D-1485 P/C sampling conducted during sensor maintenance.	None. Compliance and baseline station according to D-1641
D11	▲	Sherman Lake near Antioch	X		X	X			Reinstated D-1485 P/C monitoring. New: phytoplankton monitoring and continuous recorder for EC & Temperature.	Approved. New Baseline station
▲ Baseline monitoring station ■ Compliance monitoring station • Compliance and baseline monitoring station										

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
D12	▲	San Joaquin River @ Antioch Ship Channel		(-)			*		Separation of continuous MP monitoring from discrete monitoring at D12 to indicate different station locations, see D12A for details.	None. Compliance and baseline station according to D-1641
D12A	●	San Joaquin River @ Antioch Water Works		*	X				Separate new station ID and description indicates different location from D12, see proposed new Table 6 for coordinates. This station was listed as D12* in D-1485. Reinstatement of D-1485 station description and P/C sampling.	None. Compliance and baseline station according to D-1641

▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
D15	■	San Joaquin River @ Jersey Point	*						No operational change. New analytical integration of data from this USBR-operated station into comprehensive EMP data analyses.	None. Compliance station according to D-1641
D16	▲	San Joaquin River @ Twitchell Island					*	*	No operational change.New analytical association of D16 discrete monitoring data with continuous and discrete monitoring data from stations D29 and D15.	Approved. Baseline station according to D-1641

▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
D19	▲	Franks Tract near Russo's Landing	X		X	X	X		Reinstated D-1485 P/C and Z monitoring station. Reinstated historical (1975-1979, 1988-1995) P monitoring. New: CR monitoring.	Approved. New Baseline station
D22A	■	Sacramento River NW of Emmaton	X						No operational change, but formally reinstate D-1485 CR compliance monitoring at existing shore station operated by DWR O&M (EC1120).	None. Compliance and baseline station according to D-1641

▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
D22	▲	Sacramento River @ Emmaton					*		Separate new station ID and description indicates (very slightly!) different location from D22A. Improved analytical association of D22 discrete zooplankton monitoring data with continuous and discrete monitoring data from continuous shore station D22A and D24. See also D22A and D24.	None. Compliance and baseline station according to D-1641
D24A	•	Sacramento River below Rio Vista Bridge		*	X				New: discrete P/C sampling.	None. Compliance and baseline station according to D-1641

▲ Baseline monitoring station ■ Compliance monitoring station • Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-para meter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
D24-L	▲	Sacramento River below Rio Vista Bridge, left bank						*	Separate new station ID and description indicates different location from D24A.	
									Improved analytical integration of benthos baseline monitoring data from discrete channel station D24 with data from near-by, shore-based MP station.	None. Compliance and baseline station according to D-1641

▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
D26	▲	San Joaquin River @ Potato Point			*	*	*		No operational change.	
									New: analytical association of D26 discrete monitoring data with continuous and discrete monitoring data from stations D16 and D29.	Approved. Baseline station according to D-1641

▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
D28A	▲	Old River near Rancho Del Rio	(-)		*	*	*	*	Separation of CR baseline monitoring from discrete monitoring at D28A to indicate different station locations.	
									New: analytical integration of discrete data from channel station D28A with data from near-by, shore-based continuous station D28B (=EC5250) operated by DWR (Central District).	Approved. Baseline station according to D-1641

▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-para meter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
D28B	▲	Old River at Bacon Island	*						New station ID and description for the shore-based continuous station near D28A operated by DWR, Central District (EC5250).	Approved. Baseline station according to D-1641
D29	•	San Joaquin River @ Prisoners Point	*		X	X	X		Seasonal CR monitoring station expanded to year-around operation with new discrete sampling of P/C, P, and Z.	None. Compliance and baseline station according to D-1641

▲ Baseline monitoring station ■ Compliance monitoring station • Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
D41	▲	San Pablo Bay near Pinole Point			*	*	X	*	No operational change, but formal addition of ongoing Z monitoring.	Approved. Baseline station according to D-1641
D41A	▲	San Pablo Bay near Mouth of Petaluma River			X	X	X	*	Expand to include discrete sampling of PC, P, and Z. Analytical integration of discrete data from D41 A with continuous data from near-by USGS-operated CR station at Channel Marker 9 (turbidity, EC, temperature).	Approved. Baseline station according to D-1641

▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-para meter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
DMC1	■	Delta-Mendota Canal @ Tracy Pump. Plt.		*					No operational change.	None requested
P8	▲	San Joaquin River @ Buckley Cove		(-)	*	*	*	*	Separation of continuous MP monitoring from discrete monitoring at P8 to indicate different station locations.	
									Improved analytical integration of discrete baseline monitoring data from discrete channel station P8 with data from near-by, shore-based MP station.	Approved. Baseline station according to D-1641
▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station										

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
P8A	▲	San Joaquin River @ Rough and Ready Island		*					No operational change.	
									Separate new station ID and description indicates different location from P8.	Approved. Baseline station according to D-1641
P12	■	Old River @ Tracy Road Bridge	*						No operational change.	None requested
MD10	▲	Disappointment Slough near Bishop Cut			*	*	*		No operational change.	None requested
S21	■	Chadbourne Slough @ Sunrise Duck Club	*						No operational change.	None requested
S35	▲	Goodyear Sl. @ Morrow Island Clubhouse	*						No operational change.	None requested

▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-para meter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
S42	●	Suisun Slough 300' south of Volanti Slough	*		X	X			New: discrete P/C & P sampling.	None. Compliance and baseline station according to D-1641
S42A	▲	Suisun Slough 300' south of Volanti Slough, center channel					*		Separate new station ID and description indicates different location from S42. Improved analytical integration of zooplankton baseline monitoring data from discrete channel station S42A with data from near-by, shore-based CR station S42.	None. Compliance and baseline station according to D-1641
S49	■	Montezuma Slough near Beldon Landing	*						No operational change.	None requested

▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
S64	■	Montezuma Slough @ National Steel	*						No operational change.	None requested
S97	▲	Cordelia Slough @ Ibis Club	*						No operational change.	None requested
NZ032	▲	Montezuma Slough, 2nd bend from mouth					*		No operational change. New. Improved analytical association of zooplankton data from continuous recorder stations S49 and S54 operated by DWR-Suisun Marsh	Approved. Baseline station according to D-1641
SLBAR3	■	Barker Sl. at No. Bay Aqueduct	*						No operational change.	None requested
---	■	Sacramento R. (I St. Bridge to Freeport) (RSAC155)	*						No operational change.	None requested

▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
---	▲	San Joaquin R. (Turner Cut to Stockton) (RSAN050-RSAN061)	*						No operational change.	None requested
---	▲	Water supply intakes for waterfowl management areas on Van Sickle Island and Chipps Island	*						No operational change.	None requested
NZ325	▲	San Pablo Bay near Rock Wall and Light 15					X		Monthly sampling and formal addition of existing, ongoing Z monitoring to D-1641 baseline monitoring.	Approved. New Baseline station
▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station										

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed in Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
EZ2	▲	Entrapment Zone - Location determined when bottom EC values occur @ approximately 2000 us					X		No operational change, but formal addition of ongoing Z monitoring to D-1641 baseline monitoring.	Approved. New Baseline station
EZ6	▲	Entrapment Zone - Location determined when bottom EC values occur @ approximately 6000 us					X		No operational change, but formal addition of ongoing Z monitoring to D-1641 baseline monitoring.	Approved. New Baseline station
YB	▲	Yolo Bypass Toe Drain @ DWR screw trap site		X	X	X			Formal addition of ongoing MP, P/C, and P monitoring to D-1641 baseline monitoring, expansion from seasonal to year-round station.	Approved. New Baseline station

▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed In Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
MI	▲	Mildred Island, southern basin		X	X	X			New MP (CR and algal fluorescence), P/C, and P baseline monitoring station.	Approved. New Baseline station
TS	▲	Threemile Slough	X						New CR baseline monitoring at USGS flow monitoring station in collaboration with USGS.	Approved. New Baseline station
MR	▲	Mokelumne River Mouth	X						New collaborative USGS-EMP CR baseline and flow monitoring station.	Approved. New Baseline station
▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station										

Symbols:*:no change; x:added, (-):moved to neighboring station

Approved Revisions to Table 5 (D-1641) And Other Actions Regarding The Changes Proposed In Table F of the EMP Review and Recommendations Final Report Submitted By DWR and USBR dated March 25, 2003

Station ID[1]	Station Type[2]	Station Description[3]	Cont.Rec.	Cont. Multi-para meter	Discrete Physical/ Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
			4	5	6	7	8	9		
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
CB	▲	Carquinez Bridge, center channel (north side of center pier)	X						Formal addition of ongoing, multiple depth, CR baseline monitoring station operated by the USGS to D-1641 baseline monitoring in collaboration with USGS.	Approved. New Baseline station
RB	▲	Richmond Bridge, center channel	X						New CR baseline monitoring station in collaboration with USGS. Replaces IEP-funded USGS "Point San Pablo" CR station. Obtain funding for multi-depth CR array by the end of the 2003-2005 review cycle.	Approved. New Baseline station
▲ Baseline monitoring station ■ Compliance monitoring station ● Compliance and baseline monitoring station										

Symbols:*:no change; x:added, (-):moved to neighboring station

Footnotes

[1] Most stations use historical "interagency" station identification (ID) numbers as given in SWRCB D-1641 (2000) and D-1485 (1978). Modified station ID numbers (e.g. C3A) identify stations near historical stations. For geographical coordinates see Table 6.

[2] C: Compliance monitoring station; B: Baseline monitoring station , C&B: Compliance and baseline monitoring station.

[3] Most stations use historical "interagency" station descriptions as given in SWRCB D-1641 (2000) and D-1485 (1978). Stations with modified station ID numbers (e.g. D24A) also have modified names to indicate stations near historical stations with similar numbers and names.

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

[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 fluorescence, tidal elevation, and meteorological data (air temperature, wind speed and direction, solar radiation).

[6] Discrete physical/chemical monitoring is conducted near-monthly on alternating 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] Near-monthly discrete sampling on alternating spring and neap tides for phytoplankton enumeration or algal pigment analysis.

[8] Near-monthly tow or pump sampling for zooplankton, mysids, and amphipods.

[9] In 2003 and 2004, replicated benthos and sediment grab samples are taken quarterly (every three months) and during special studies events; more frequent monitoring sampling resumes in 2005.

Revised Table 5. Water Quality Compliance and Baseline Monitoring								
Station Number		Station Description	Cont. Rec.1	Physical/ Chem2	Multipara-meter3	Phyto-plank-ton4	Zoo-plank-ton5	Ben-thos 6
C2	■	Sacramento River @ Collinsville	*					
C3	▲	Sacramento River @ Greens Landing	*					
C3A	▲	Sacramento River @ Hood		*	*	*	*	
C4	■	San Joaquin River @ San Andreas Landing	*					
C5	■	Contra Costa Canal @ Pumping Plant #1	*					
C6	■	San Joaquin River @ Brandt Bridge site	*					
C7A	▲	San Joaquin River @ Mossdale Bridge(near C7)			*			
C8	■	Middle River near Old River	*					
C9	•	Clifton Court Forebay @ Radial Gates				*		*
C10	•	San Joaquin River near Vernalis		*		*		
C13	■	Mokelumne River @ Terminous	*					
C14	■	Sacramento River @ Port Chicago	*					
C19	■	Cache Slough @ City of Vallejo Intake	*					
D4	▲	Sacramento River above Point Sacramento		*		*	*	*
D6	▲	Suisun Bay @ Bull's Head Pt. near Martinez		*		*	*	*
D6A	▲	Suisun Bay @ Martinez			*			
D7	▲	Grizzly Bay @ Dolphin near Suisun Slough	*	*		*	*	*
D8	▲	Suisun Bay off Middle Point near Nichols		*		*	*	
D9	▲	Honker Bay near Wheeler Point	*	*		*		
D10	•	Sacramento River @ Chipps Island			*		*	
D11	▲	Sherman Lake near Antioch	*	*		*		
D12	•	San Joaquin River @ Antioch Ship Channel			*		*	
D15	■	San Joaquin River @ Jersey Point	*					
D16	▲	San Joaquin River @ Twitchell Island					*	*
D19	▲	Franks Tract near Russo's Landing	*	*		*	*	
D22	•	Sacramento River @ Emmaton					*	
D24	•	Sacramento River below Rio Vista Bridge						
D26	▲	San Joaquin River @ Potato Point		*		*	*	
D28A	▲	Old River near Rancho Del Rio		*	*	*	*	*
D28B	▲	Old River at Bacon Island	*					
D29	■	San Joaquin River @ Prisoners Point	*					
D41	▲	San Pablo Bay near Pinole Point		*		*	*	*
D41A	▲	San Pablo Bay near Mouth of Petaluma River		*		*	*	*
DMC1	•	Delta-Mendota Canal @ Tracy Pump. Plt.			*			
P8	▲	San Joaquin River @ Buckley Cove		*		*	*	*
P8A	▲	San Joaquin River @ Rough and Ready Island			*			
P12	■	Old River @ Tracy Road Bridge	*					
MD10	▲	Disappointment Slough near Bishop Cut		*		*	*	
S21	■	Chadbourne Slough @ Sunrise Duck Club	*					
S35	▲	Goodyear Sl. @ Morrow Island Clubhouse	*					
S42	•	Suisun Slough 300' south of Volanti Slough	*				*	
S49	■	Montezuma Slough near Beldon Landing	*					
S64	■	Montezuma Slough @ National Steel	*					
S97	▲	Cordelia Slough @ Ibis Club	*					
NZ032	▲	Montezuma Slough, 2nd bend from mouth					*	
	■	Barker Sl. at No. Bay Aqueduct (SLBAR3)	*					

Revised Table 5. Water Quality Compliance and Baseline Monitoring

Station Number		Station Description	Cont. Rec.1	Physical/ Chem2	Multipara-meter3	Phyto-plank-ton4	Zoo-plank-ton5	Ben-thos 6
	■	Sacramento R. (I St. Bridge to Freeport) (RSAC155)	*					
	▲	San Joaquin R. (Turner Cut to Stockton) (RSAN050-RSAN061)	*					
	▲	Water supply intakes for waterfowl management areas on Van Sickle Island and Chipps Island	*					
Proposed additional D-1641 monitoring stations								
NZ325	▲	San Pablo Bay near Rock Wall and Light 15					*	
EZ2	▲	Entrapment Zone - Location determined when bottom EC values occur @ approximately 2000 us					*	
EZ6	▲	Entrapment Zone - Location determined when bottom EC values occur @ approximately 6000 us					*	
YB	▲	Yolo Bypass Toe Drain @ DWR screw trap site		*	*	*		
MI	▲	Mildred Island, southern basin		*	*	*		
TS	▲	Threemile Slough	*					
MR	▲	Mokelumne River Mouth	*					
CB	▲	Carquinez Bridge, center channel (north side of center pier)	*					
RB	▲	Richmond Bridge, center channel	*					

■ Compliance monitoring station ▲ Baseline monitoring station • Compliance and baseline monitoring station

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

2 Discrete physical/chemical monitoring is conducted approximately 30 days apart, 12 times per calendar year on alternating 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 flourescence.

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

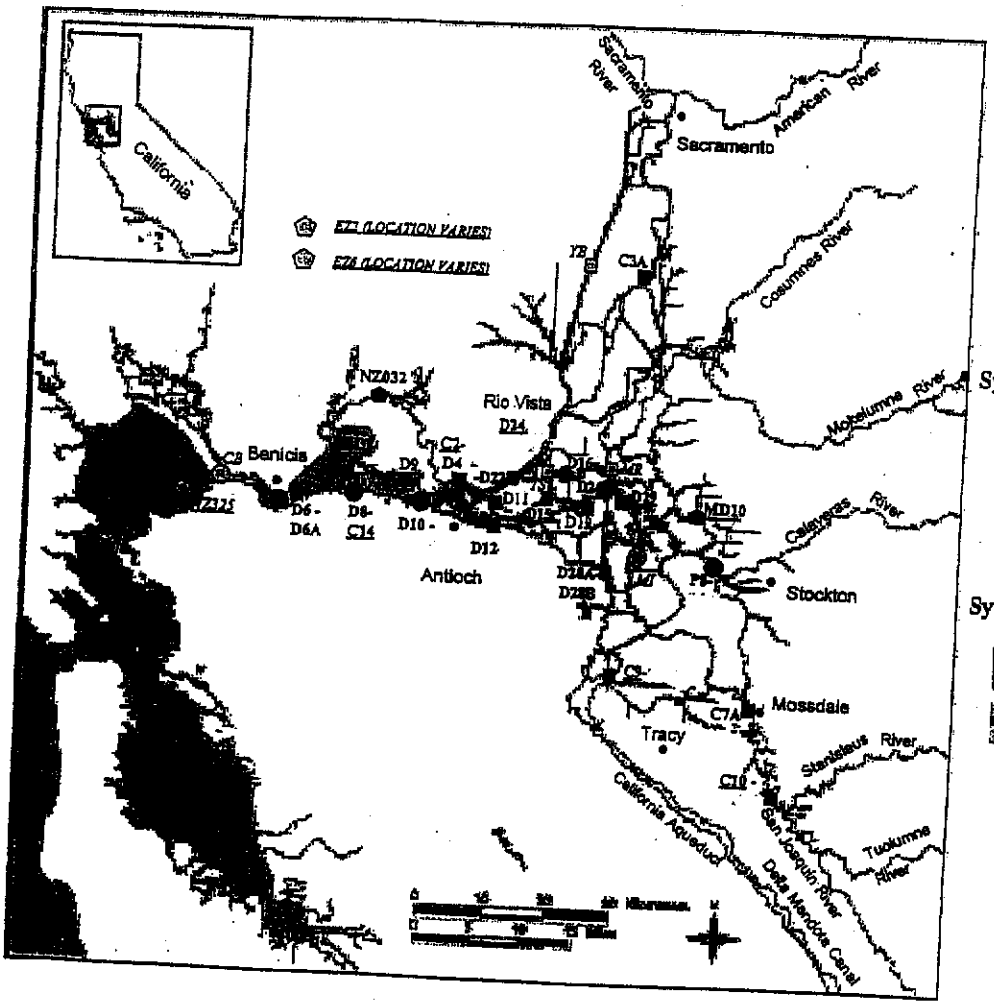
4 Discrete sampling conducted approximately 30 days apart, 12 times per calendar year on alternating spring and neap tides for phytoplankton enumeration or algal pigment analysis.

5 Tow or pump sampling for zooplankton, mysids and amphipods conducted approximately 30 days apart, 12 times per calendar year.

6 In 2003 and 2004, replicated benthos and sediment grab samples are taken quarterly (every three months) and during special studies events; more frequently monitoring sampling resumes in 2005.

Note: A proposed modification to station D28A is the elimination of continuous multiparameter monitoring. Staff of the SWRCB believes it best to continue this type of monitoring at station D28A.

Revised Figure 4. Proposed EMP Station Network



Station IDs:

D-1641 Compliance Station

Existing D-1641 Baseline Station

Proposed D-1641 Baseline Station

Existing IEP-EMP Baseline Station

Proposed IEP-EMP Baseline Station

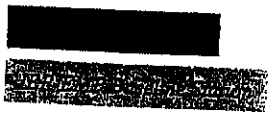
Symbols:

○ Continuous, Multi-depth

□ Continuous, Single-depth

⬠ Discrete Sampling Only

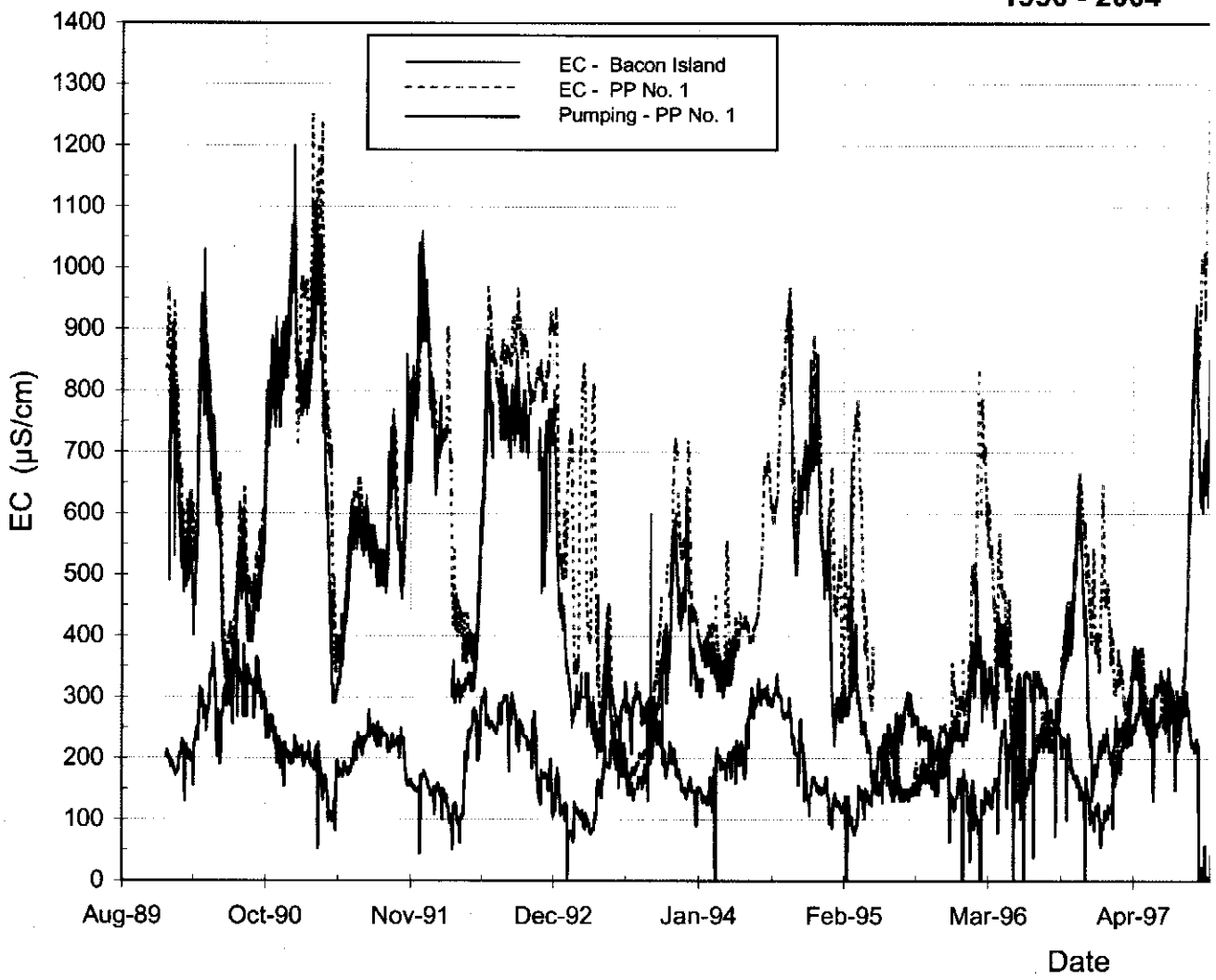
Symbol Fill Colors:



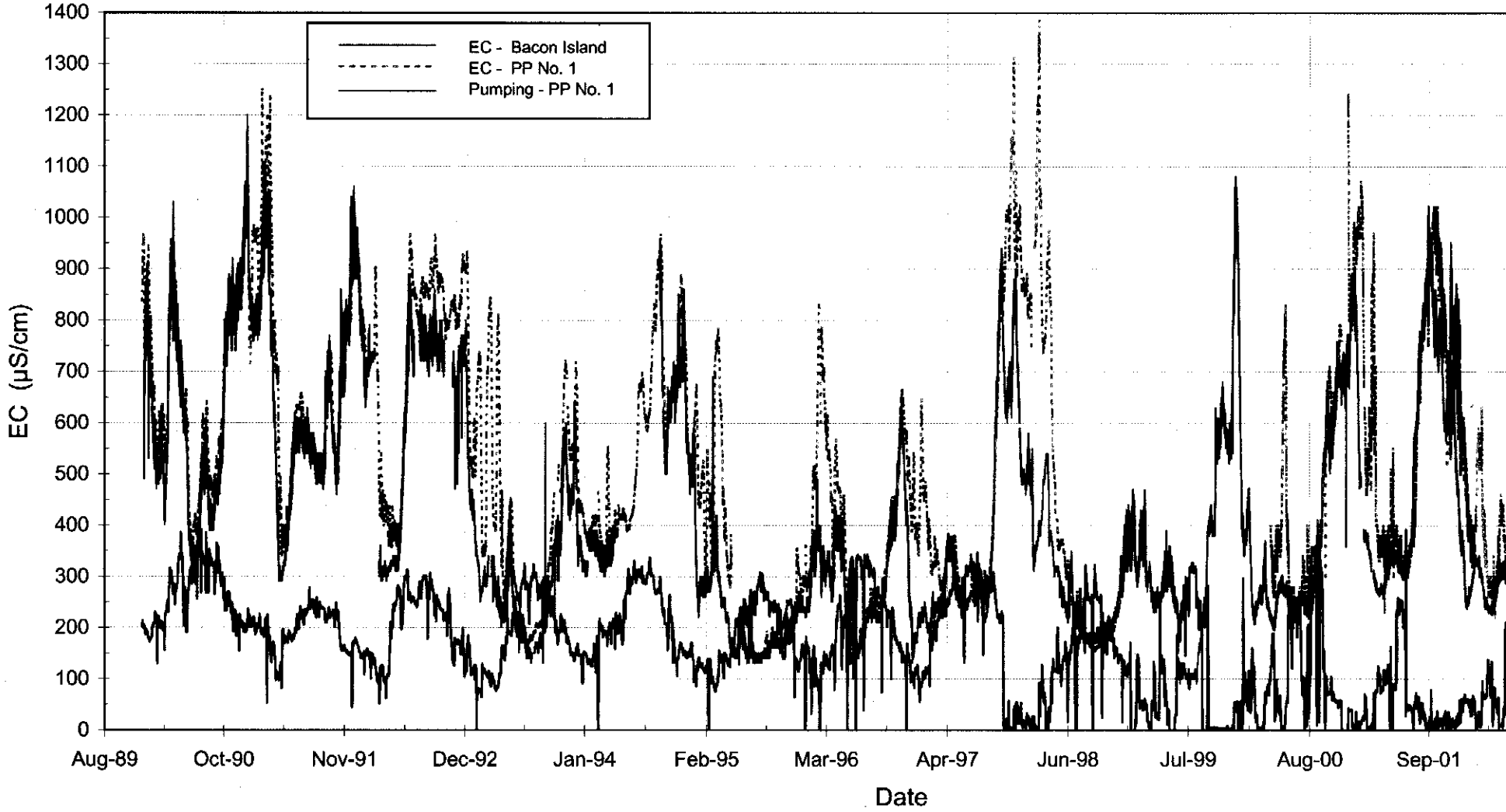
Historic Informatio

Electrical Conductivity at Old River/Bacon Island and CC

1990 - 2004



Historic Information
Electrical Conductivity at Old River/Bacon Island and CCWD PP No. 1 VS. Pumping at PP No. 1
1990 - 2004



Departament of Water Resources