



State Water Resources Control Board



Winston H. Hickox
Secretary for
Environmental
Protection

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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 findings 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.




AUG 11 2003

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
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Erwin Van Nieuwenhuyse
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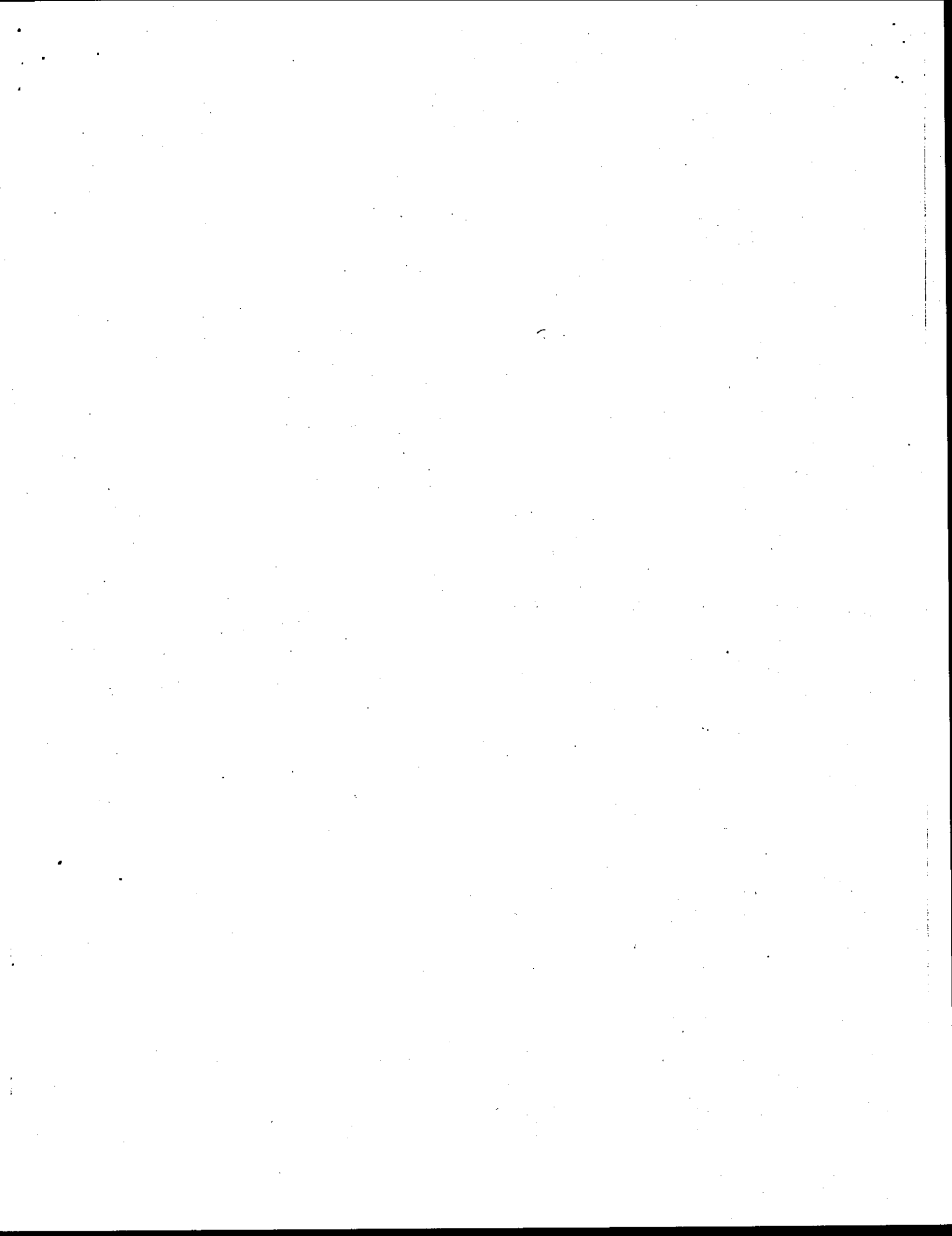
Stephen Verigin
Susan Ramos

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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. Phytoplankton	Discr. Zooplankton	Discrete Benthos	Modification requested	Action
C2	■	Sacramento River @ Collinsville	*	(MP)	(P/C)	(P)	(Z)	(B)	No operational change, but analytical integration of this compliance station with baseline station D4. See also D4. See C3A.	None. Compliance station according to D-1641
C3	▲	Sacramento River @ Greens Landing			(-)	(-)				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

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C4	■	San Joaquin River @ San Andreas Landing	*	5 (MP)	6 (P/C)	7 (P)	8 (Z)	9 (B)	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

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			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
C9	•	Clifton Court Forebay @ Radial Gates		X	X	*	X		Formally re-adopt continuous 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

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C9-R	▲	West Canal @ Mouth of CC Forebay Intake	4	5	6	7	8	9	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
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
								*		
C10	■	San Joaquin River near Vernatis	X						Formally reinstate D-1485 CR compliance monitoring currently conducted by the USBR.	None. Compliance and baseline station according to D-1641
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C10A	▲	San Joaquin River near Vernalis @ San Joaquin River Club	4 (CR)	5 (MP)	6 (P/C)	7 (P)	8 (Z)	9 (B)	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
				X	*	*	X			
C13	■	Mokelumne River @ Terminus	*						No operational change.	None requested
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C14	■	Sacramento River @ Port Chicago	4	5	6	7	8	9	No operational change. Analytical integration of continuous data from this compliance station with discrete data from baseline station D8.	None. Compliance station according to D-1641
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
			*							
C19	■	Cache Slough @ City of Vallejo Intake	*						No operational change.	
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
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Station ID ¹	Station Type ²	Station Description ³	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/Chemical	Discrete Phytoplankton	Discr. Zooplankton	Discrete Benthos	Modification requested	Action
D6	▲	Suisun Bay @ Bull's Head Pt. near Martinez	4	5	6	7	8	9	Separation of continuous MP monitoring from discrete monitoring at D6 to indicate different station locations, see D6A.	Approved. Baseline station according to D-1641
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
				(-)	*	*	*	*		
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

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Station ID ¹	Station Type ²	Station Description ³	Cont.Rec.	Cont. Multi-pars meter	Discrete Physical/Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
D8	▲	Suisun Bay off Middle Point near Nichols	4	5	6	7	8	9	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
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
					*	*	*			
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

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			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
D10A	•	Sacramento River @ Maillard 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

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D12	▲	San Joaquin River @ Antioch Ship Channel	4 (CR)	5 (MP)	6 (P/C)	7 (P)	8 (Z)	9 (B)		
				(-)			*		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.	None. Compliance and baseline station according to D-1641
									Reinstatement of D-1485 station description and P/C sampling.	None. Compliance and baseline station according to D-1641

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Station ID ¹	Station Type ²	Station Description ³	Cont. Rec.	Cont. Multi-parameter	Discrete Physical/Chemical	Discr. Phytoplankton	Discr. Zooplankton	Discrete Benthos	Modification requested	Action
D15	■	San Joaquin River @ Jersey Point	4 (CR)	5 (MP)	6 (P/C)	7 (P)	8 (Z)	9 (B)	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

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Station ID	Station Type ²	Station Description ³	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/Chemical	Discr. Phytoplankton	Discr. Zooplankton	Discrete Benthos	Modification requested	Action
D19	▲	Franks Tract near Russo's Landing	X	(MP)	(P/C)	(P)	(Z)	(B)	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

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Station ID ¹	Station Type ²	Station Description ³	Cont.Rec.	Cont. Multi-parameter meter	Discrete Physical/Chemical	Discr. Phytoplankton	Discr. Zooplankton	Discrete Benthos	Modification requested	Action
D22	▲	Sacramento River @ Emmaton	4 (CR)	5 (MP)	6 (P/C)	7 (F)	8 (Z)	9 (B)	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
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D24-L	▲	Sacramento River below Rio Vista Bridge, left bank	4 (CR)	5 (MP)	6 (P/C)	7 (P)	8 (Z)	9 (B)	Separate new station ID and description indicates different location from D24A.	None. Compliance and baseline station according to D-1641
								*	Improved analytical integration of benthos baseline monitoring data from discrete channel station D24 with data from near-by, shore-based MP station.	
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Station ID ¹	Station Type ²	Station Description ³	Cont.Rec.	Cont. Multi-parameter meter	Discrete Physical/Chemical	Discr. Phytoplankton	Discr. Zooplankton	Discrete Benthos	Modification requested	Action
D26	▲	San Joaquin River @ Potato Point	4 (CR)	5 (MP)	6 (P/C)	7 (P)	8 (Z)	9 (B)	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

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			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

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

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D28B	▲	Old River at Bacon Island	4 (CR)	5 (MP)	6 (P/C)	7 (P)	8 (Z)	9 (B)	New station ID and description for the shore-based continuous station near D28A operated by DWR, Central District (ECS250).	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

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			(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
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Station ID ¹	Station Type ²	Station Description ³	Cont.Rec.	Cont. Multi-parameter meter	Discrete Physical/Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
DMC1	■	Delta-Mendota Canal @ Tracy Pump. Plt.	(CB)	(MP)	(P/C)	(P)	(Z)	(B)		
P8	▲	San Joaquin River @ Buckley Cove		(-)	*	*	*	*	No operational change.	None requested
									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.
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			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
P8A	▲	San Joaquin River @ Rough and Ready Island		*					No operational change.	
P12	■	Old River @ Tracy Road Bridge	*						Separate new station ID and description indicates different location from P8.	Approved. Baseline station according to D-1641
MD10	▲	Disappointme nt 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
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Symbols: *no change; x:added, (-):moved to neighboring station

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S42	•	Suisun Slough 300' south of Volanti Slough	4	5	6	7	8	9	New: discrete P/C & P sampling.	None. Compliance and baseline station according to D-1641
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
			*	X	X					
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.	
S49	■	Montezuma Slough near Beldon Landing	*						No operational change.	None. Compliance and baseline station according to D-1641
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S64	■	Montezuma Slough @ National Steel	4	5	6	7	8	9	No operational change.	None requested
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
			*							
S97	▲	Cordelia Slough @ Ibis Club	*						No operational change.	None requested
NZ032	▲	Montezuma Slough, 2 nd 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	None requested
SLBAR3	■	Barker Sl. at No. Bay Aqueduct	*						No operational change.	Approved. Baseline station according to D-1641
---	■	Sacramento R. (1 St. Bridge to Freepoint) (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 meter	Discrete Physical/Chemical	Discr. Phytoplankton	Discr. Zooplankton	Discrete Benthos	Modification requested	Action
			4 (CR)	5 (MP)	6 (P/C)	7 (P)	8 (Z)	9 (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 Chippys 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

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 meter	Discrete Physical/Chemical	Discr. Phytoplankton	Discr. Zooplankton	Discrete Benthos	Modification requested	Action	
EZ2	▲	Entrapment Zone - Location determined when bottom EC values occur @ approximately 2000 us	4 (CR)	5 (MP)	6 (P/C)	7 (P)	8 (Z)	9 (B)	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 meter	Discrete Physical/Chemical	Discr. Phytoplankton	Discr. Zooplankton	Discrete Benthos	Modification requested	Action
			(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										

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

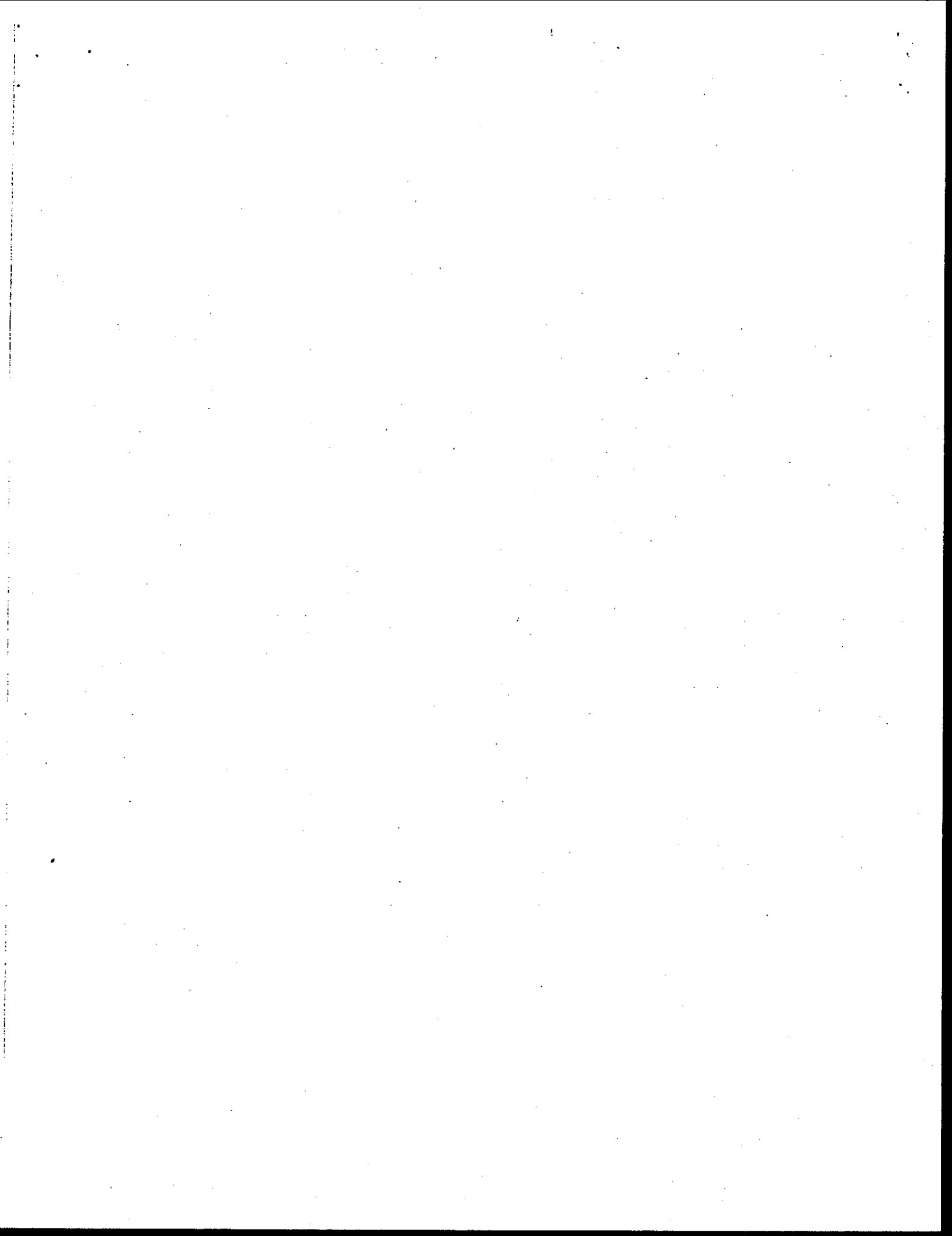
Station ID ¹	Station Type ²	Station Description ³	Cont.Rec.	Cont. Multi-parameter	Discrete Physical/Chemical	Discr. Phyto-plankton	Discr. Zoo-plankton	Discrete Benthos	Modification requested	Action
CB	▲	Carquinez Bridge, center channel (north side of center pier)	4	5	6	7	8	9	Formal addition of ongoing, multiple depth, CR baseline monitoring station operated by the USGS to D-1641 baseline monitoring in collaboration with USGS.	Approved. New Baseline station
			(CR)	(MP)	(P/C)	(P)	(Z)	(B)		
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.



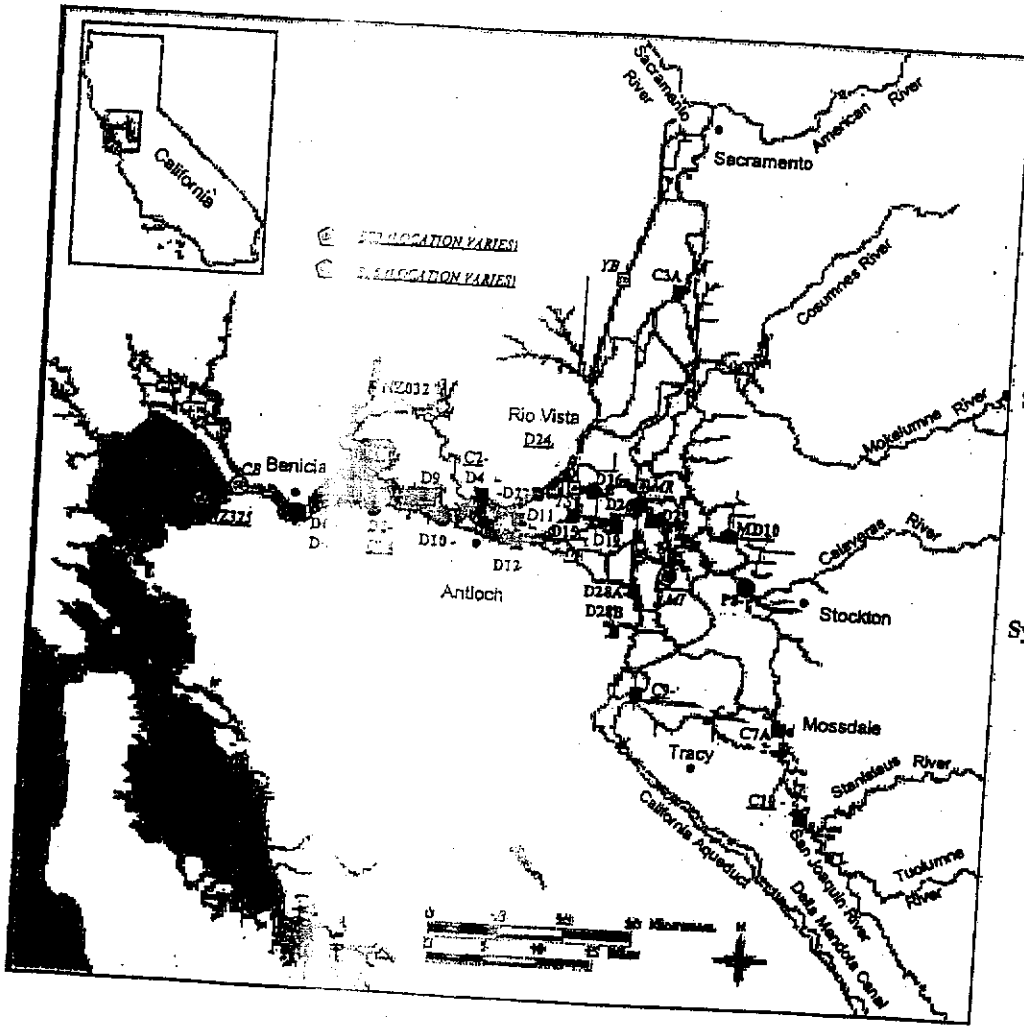
Revised Table 5. Water Quality Compliance and Baseline Monitoring

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 @ Twitcheil 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-Landota 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	▲ Goosey Sl. @ Monow Island Clubhouse	*					
S42	● Suisun Slough 300' south of Volant Slough	*				*	
S49	■ Montezuma Slough near Beldon Landing	*					
S64	■ Montezuma Slough @ National Steel	*					
S97	▲ Cordova Slough @ Ibis Club	*					
NZ032	▲ Montezuma Slough, 2nd bend from mouth					*	
	■ Bay Area Sl. of No. Bay Aqueduct (SLBAR3)	*					

Revised Table 5. Water Quality Compliance and Baseline Monitoring

Station Number	Station Description	Cont. Rec.1	Physical/Chem2	Multiparameter3	Phytoplankton4	Zooplankton5	Benthos6
	■ 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-1541 monitoring stations							
NZ325	▲ San Pablo Bay near Rock Wall and Light 15					*	
EZ2	▲ Entrainment Zone - Location determined when bottom EC values occur @ approximately 2000 us					*	
EZ6	▲ Entrainment Zone - Location determined when bottom EC values occur @ approximately 6000 us					*	
YB	▲ Yolo Bypass Toe Drain @ DWR screw trap site		*	*	*		
MI	▲ Middle Island, southern basin		*	*	*		
TS	▲ Tareanile Slough	*					
MR	▲ Mokelumne River Mouth	*					
CB	▲ Camanchez 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 Complete 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 fluorescence.							
3 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).							
4 Intermittent 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 Intermittent 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.							
A proposed modification to station D28A is the elimination of continuous multiparameter monitoring. 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:

