

# GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

**December 2010**

May 18, 2011

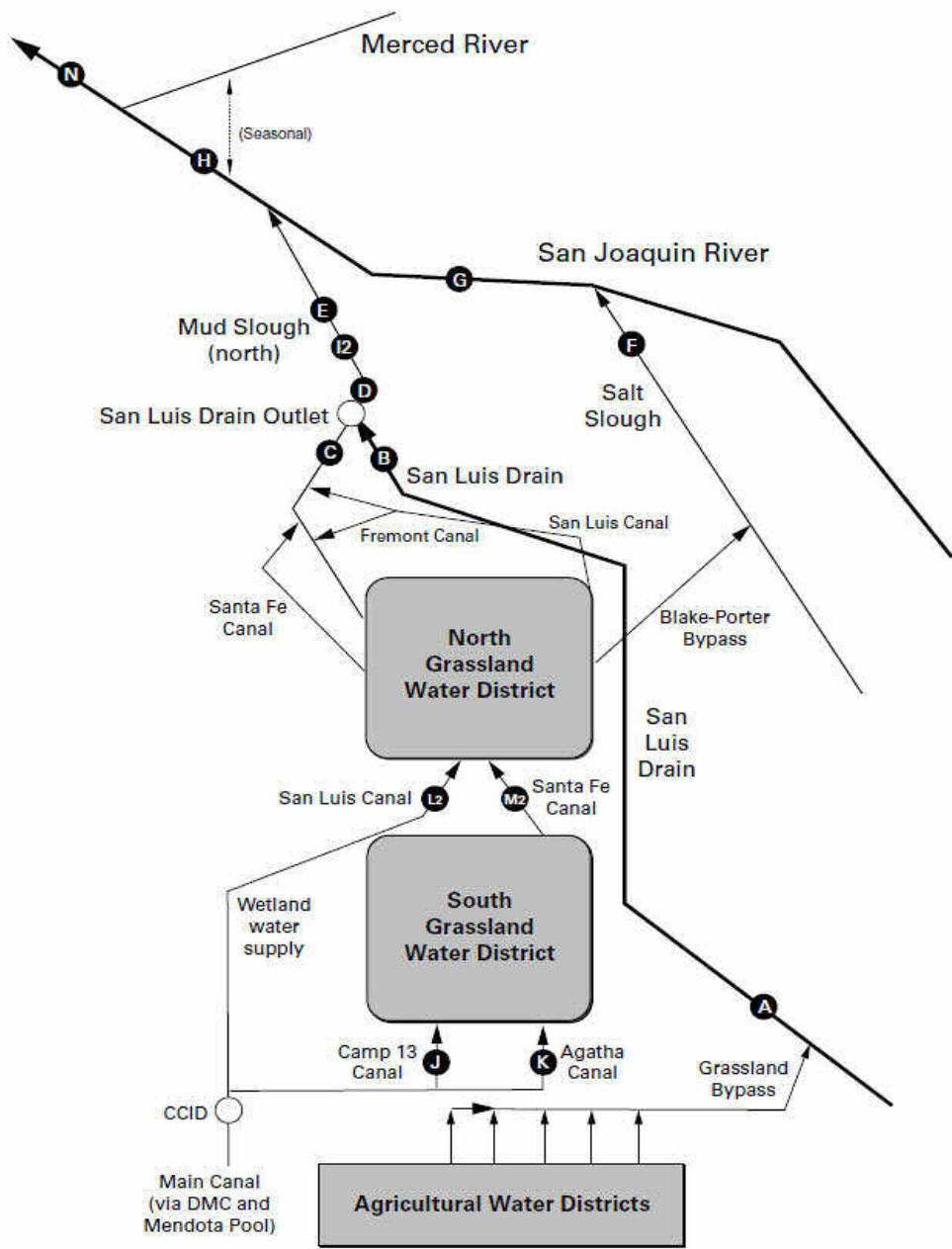
### **Preliminary Results**

A cooperative effort of:

U.S. Bureau of Reclamation  
Central Valley Regional Water Quality Control Board  
U.S. Fish and Wildlife Service  
California Department of Fish and Game  
San Luis & Delta-Mendota Water Authority  
U.S. Environmental Protection Agency  
U.S. Geological Survey

compiled by San Francisco Estuary Institute





## GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

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**Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), December 2010.**

See Table 28 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Specific Conductance</b>
<b>DATA SOURCE</b>	<b>SLDMWA</b>	<b>SLDMWA</b>
<b>UNITS</b>	<b>cfs</b>	<b>µS/cm</b>
Dec-01-2010	17	3,860
Dec-02-2010	20	4,110
Dec-03-2010	17	4,320
Dec-04-2010	18	4,480
Dec-05-2010	19	4,370
Dec-06-2010	20	4,290
Dec-07-2010	18	4,200
Dec-08-2010	15	4,670
Dec-09-2010	15	4,790
Dec-10-2010	14	4,620
Dec-11-2010	15	4,130
Dec-12-2010	16	4,330
Dec-13-2010	17	4,620
Dec-14-2010	15	3,950
Dec-15-2010	20	4,690
Dec-16-2010	22	4,800
Dec-17-2010	18	4,870
Dec-18-2010	20	5,210
Dec-19-2010	23	5,350
Dec-20-2010	35	5,630
Dec-21-2010	37	5,530
Dec-22-2010	29	5,560
Dec-23-2010	32	5,150
Dec-24-2010	26	4,780
Dec-25-2010	22	4,870
Dec-26-2010	31	5,500
Dec-27-2010	26	5,620
Dec-28-2010	19	5,450
Dec-29-2010	40	5,390
Dec-30-2010	45	5,540
Dec-31-2010	25	5,230
Mean	23	4,840

**Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), December 2010.**

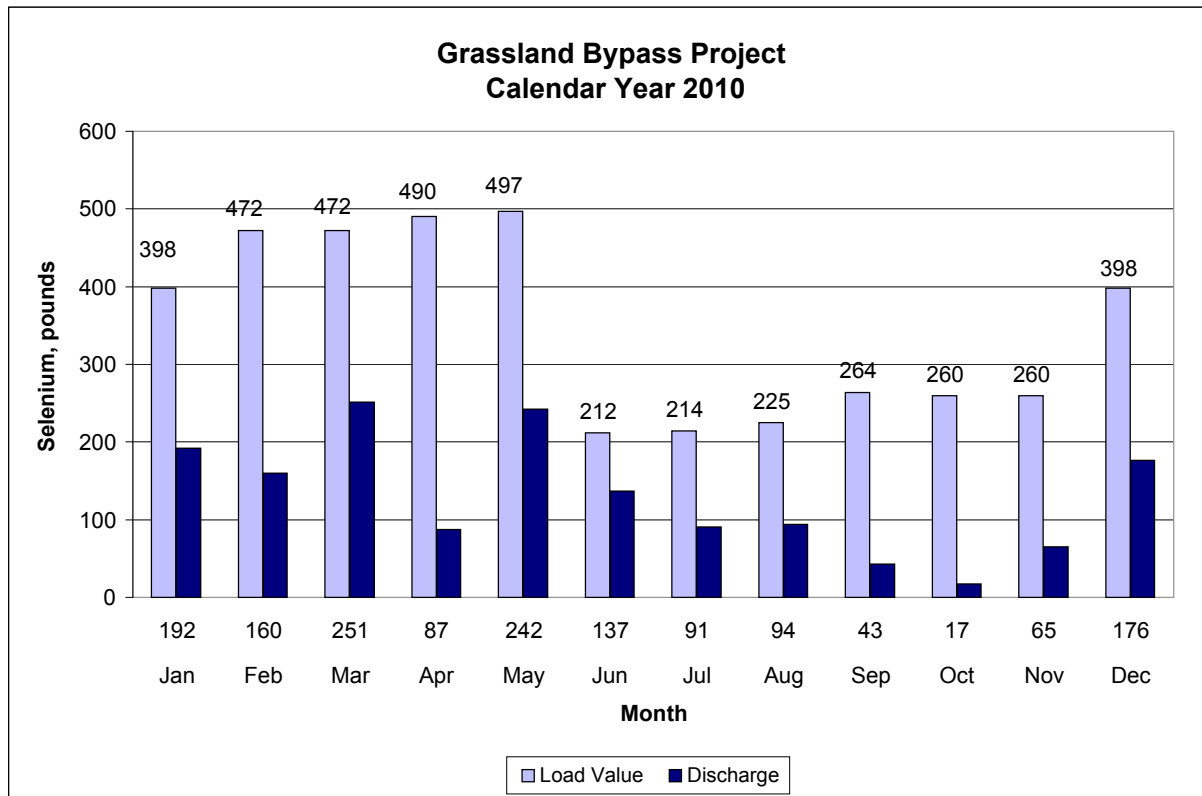
See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	San Luis Drain Outlet Flow	Temperature	Boron	Specific Conductance	Selenium (total)	Selenium (total) Load
DATA SOURCE	SLDMWA*	SLDMWA	CVRWQCB	SLDMWA	CVRWQCB	Computed
UNITS	cfs	°C	mg/L	µS/cm	µg/L	lbs
Dec-01-2010	20	8.5	7.8	4,110	42.5	4.5
Dec-02-2010	23	8.9	8.5	4,500	50.2	6.2
Dec-03-2010	26	9.6	8.6	4,460	48.5	6.7
Dec-04-2010	26	10.6	7.9	4,350	41.2	5.8
Dec-05-2010	26	12.4	6.6	3,810	36.9	5.3
Dec-06-2010	29	13.3	6.7	3,500	31.4	4.9
Dec-07-2010	28	13.9	7.1	3,880	40.0	6.0
Dec-08-2010	26	14.1	7.6	3,870	38.3	5.4
Dec-09-2010	24	14.8	7.8	4,160	43.7	5.6
Dec-10-2010	23	15.1	7.6	3,840	39.2	4.8
Dec-11-2010	23	15.8	7.1	3,900	36.7	4.5
Dec-12-2010	24	16.4	7.1	3,760	35.9	4.6
Dec-13-2010	24	16.4	8.3	3,910	37.2	4.7
Dec-14-2010	25	15.9	8.2	4,200	34.4	4.6
Dec-15-2010	20	15.3	7.9	4,080	30.9	3.3
Dec-16-2010	25	14.3	7.2	3,750	27.9	3.8
Dec-17-2010	29	13.7	8.0	3,810	28.9	4.5
Dec-18-2010	28	13.8	7.1	4,020	25.7	3.9
Dec-19-2010	30	14.9	7.5	3,730	28.7	4.7
Dec-20-2010	31	14.1	8.0	3,870	32.1	5.4
Dec-21-2010	43	13.3	7.4	4,020	35.7	8.2
Dec-22-2010	43	13.7	8.8	4,270	42.8	9.9
Dec-23-2010	35	14.2	11.0	4,990	46.6	8.8
Dec-24-2010	35	13.9	10.0	4,930	40.3	7.7
Dec-25-2010	33	13.6	11.0	5,000	38.2	6.7
Dec-26-2010	30	13.2	10.0	4,820	30.8	4.9
Dec-27-2010	34	13.2	9.1	4,650	34.3	6.3
Dec-28-2010	33	13.1	8.2	4,270	29.3	5.3
Dec-29-2010	27	12.9	8.7	4,190	25.3	3.7
Dec-30-2010	43	11.2	11.0	4,850	29.1	6.7
Dec-31-2010	49	10.7	9.9	4,830	31.0	8.2
<b>Mean</b>	<b>29</b>	<b>13.4</b>	<b>9.8</b>	<b>4,200</b>	<b>34.8</b>	<b>5.7</b>
<b>Total Acre-feet</b>	<b>1,810</b>					
<b>Total (lbs)</b>						<b>176</b>

<b>Load Limitation for December 2010 (lbs)</b>	<b>398</b>
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◆To improve the accuracy of flow measurements, Reclamation and the San Luis & Delta-Mendota Water Authority, with technical assistance from the USGS, are measuring flow at the San Luis Drain Outlet. The Outlet is located two miles from Station B. Discharge is measured as stage over a sharp-crested weir, identical to Station A. This is a simpler and more accurate method that will not be altered by sediment accumulation. Water quality data are still collected at the old Site B.

Figure 2b. Monthly selenium discharges from the terminus of the San Luis Drain into Mud Slough compared to load values.



**Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), December 2010.**

See Table 28 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Temperature</b>	<b>Specific Conductance</b>
<b>DATA SOURCE</b>	<b>usgs</b>	<b>usgs</b>	<b>usgs</b>
<b>UNITS</b>	<b>cfs</b>	<b>°C</b>	<b>µS/cm</b>
Dec-01-2010	142	8.7	1,910
Dec-02-2010	143	8.8	2,000
Dec-03-2010	146	9.4	2,040
Dec-04-2010	148	10.3	2,030
Dec-05-2010	149	11.6	1,940
Dec-06-2010	158	12.2	1,880
Dec-07-2010	157	12.5	1,950
Dec-08-2010	158	12.4	1,930
Dec-09-2010	160	13.0	1,910
Dec-10-2010	156	13.5	1,880
Dec-11-2010	158	14.2	1,880
Dec-12-2010	169	14.3	1,810
Dec-13-2010	160	13.9	1,900
Dec-14-2010	144	13.3	2,070
Dec-15-2010	144	12.6	1,960
Dec-16-2010	163	11.6	1,880
Dec-17-2010	203	11.1	1,770
Dec-18-2010	247	11.4	1,680
Dec-19-2010	291	12.3	1,630
Dec-20-2010	328	11.8	1,620
Dec-21-2010	339	10.9	1,730
Dec-22-2010	317	11.5	1,890
Dec-23-2010	288	12.5	1,940
Dec-24-2010	262	12.0	2,030
Dec-25-2010	237	11.5	2,060
Dec-26-2010	230	10.9	2,020
Dec-27-2010	210	11.0	2,110
Dec-28-2010	208	10.9	2,050
Dec-29-2010	225	10.8	1,920
Dec-30-2010	256	8.8	2,110
Dec-31-2010	270	7.9	2,250
Mean	205	11.5	1,930

**Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), December 2010.**

See Table 28 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Temperature</b>	<b>Specific Conductance</b>
<b>DATA SOURCE</b>	<b>usgs</b>	<b>usgs</b>	<b>usgs</b>
<b>UNITS</b>	<b>cfs</b>	<b>°C</b>	<b>µS/cm</b>
Dec-01-2010	199	8.0	1,160
Dec-02-2010	192	8.2	1,250
Dec-03-2010	178	8.9	1,300
Dec-04-2010	161	10.0	1,410
Dec-05-2010	151	11.4	1,390
Dec-06-2010	155	11.9	1,330
Dec-07-2010	161	11.9	1,310
Dec-08-2010	166	11.8	1,280
Dec-09-2010	161	12.5	1,290
Dec-10-2010	150	13.2	1,390
Dec-11-2010	147	13.8	1,390
Dec-12-2010	146	14.0	1,420
Dec-13-2010	135	13.8	1,520
Dec-14-2010	128	13.5	1,530
Dec-15-2010	131	12.9	1,560
Dec-16-2010	133	11.8	1,530
Dec-17-2010	136	11.4	1,540
Dec-18-2010	144	12.0	1,510
Dec-19-2010	178	12.5	1,300
Dec-20-2010	218	11.8	1,260
Dec-21-2010	247	11.2	1,250
Dec-22-2010	251	11.6	1,280
Dec-23-2010	251	12.0	1,320
Dec-24-2010	251	11.7	1,380
Dec-25-2010	251	11.4	1,480
Dec-26-2010	242	11.0	1,520
Dec-27-2010	233	10.8	1,520
Dec-28-2010	230	10.6	1,620
Dec-29-2010	213	10.9	1,650
Dec-30-2010	231	9.1	1,600
Dec-31-2010	244	8.2	1,590
Mean	188	11.4	1,420



Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), December 2010.

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance	Selenium (total)
DATA SOURCE	usgs	usgs	cvrwqcb	cvrwqcb
UNITS	cfs	°C	µS/cm	µg/L
Dec-01-2010	817	8.4	1,180	2.0
Dec-02-2010	825	8.6	1,160	1.4
Dec-03-2010	831	9.1	1,130	1.6
Dec-04-2010	829	10.0	1,150	1.7
Dec-05-2010	816	11.1	1,200	1.9
Dec-06-2010	789	12.0	1,240	1.4
Dec-07-2010	793	12.2	1,250	1.5
Dec-08-2010	798	11.9	1,210	1.5
Dec-09-2010	813	12.5	1,230	1.7
Dec-10-2010	847	13.1	1,190	1.4
Dec-11-2010	824	13.7	1,210	1.5
Dec-12-2010	805	13.9	1,250	1.4
Dec-13-2010	791	13.7	1,260	1.4
Dec-14-2010	769	13.4	1,290	1.3
Dec-15-2010	760	12.8	1,350	1.8
Dec-16-2010	809	11.6	1,140	1.3
Dec-17-2010	893	11.2	1,260	1.1
Dec-18-2010	1,150	11.4	1,140	1.0
Dec-19-2010	1,650	12.0	970	0.7
Dec-20-2010	2,120	11.8	680	0.8
Dec-21-2010	2,660	11.5	580	0.5
Dec-22-2010	3,360	11.3	470	0.5
Dec-23-2010	3,680	11.5	380	0.7
Dec-24-2010	3,790	11.5	420	0.7
Dec-25-2010	3,910	11.5	440	0.8
Dec-26-2010	4,020	11.0	410	0.6
Dec-27-2010	4,200	10.7	400	0.5
Dec-28-2010	4,350	10.5	360	0.4
Dec-29-2010	4,340	10.5	360	0.5
Dec-30-2010	4,710	9.6	350	<0.4
Dec-31-2010	5,180	8.5	280	<0.4
Mean	2,030	11.4	900	1.2

Table 6a. Weekly water quality monitoring at Station A (inflow to San Luis Drain), taken from grab samples.

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Total Suspended Solids	.	.	.
DATA SOURCE	SLDMWA	.	.	CVRWQCB	CVRWQCB	.	.	.
UNITS	cfs	.	.	µS/cm	mg/L	.	.	.
Oct-04-2010	2	.	.	4,980	26	.	.	.
Oct-11-2010	6	.	.	2,360	134	.	.	.
Oct-18-2010	12	.	.	5,490	102	.	.	.
Oct-25-2010	3	.	.	5,810	38	.	.	.
Nov-01-2010	5	.	.	4,990	42	.	.	.
Nov-08-2010	9	.	.	5,830	100	.	.	.
Nov-15-2010	36	.	.	5,750	109	.	.	.
Nov-22-2010	35	.	.	4,790	140	.	.	.
Nov-29-2010	33	.	.	4,940	74	.	.	.
Dec-06-2010	20	.	.	4,210	188	.	.	.
Dec-13-2010	17	.	.	4,560	210	.	.	.
Dec-20-2010	35	.	.	5,340	194	.	.	.
Dec-27-2010	26	.	.	5,460	121	.	.	.

Table 6b. Weekly water quality monitoring at Station A (inflow to San Luis Drain), taken from composite samples.

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	.	Selenium (total)	.	Boron
DATA SOURCE	SLDMWA	.	.	CVRWQCB	.	CVRWQCB	.	CVRWQCB
UNITS	cfs	.	.	µS/cm	.	µg/L	.	mg/L
Oct-03-2010	3	.	.	5,290	.	20.2	.	11.0
Oct-10-2010	6	.	.	3,280	.	20.0	.	6.6
Oct-17-2010	9	.	.	4,860	.	24.2	.	9.9
Oct-24-2010	3	.	.	5,520	.	23.5	.	13.0
Nov-07-2010	7	.	.	5,950	.	27.2	.	9.8
Nov-14-2010	9	.	.	5,680	.	41.8	.	12.0
Nov-21-2010	44	.	.	4,770	.	48.9	.	10.0
Nov-28-2010	37	.	.	4,910	.	65.8	.	10.0
Dec-05-2010	19	.	.	4,280	.	56.7	.	8.3
Dec-12-2010	16	.	.	4,450	.	43.7	.	8.7
Dec-19-2010	23	.	.	4,700	.	49.3	.	10.0
Dec-26-2010	31	.	.	5,250	.	40.7	.	12.0

Table 7. Weekly water quality monitoring at Station B (discharge from San Luis Drain), taken from grab samples.

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Total Suspended Solids	Selenium (total)	Boron
DATA SOURCE	SLDMWA	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	mg/L	µg/L	mg/L
Oct-05-2010	6	20.3	7.9	4,130	13	9.8	8.0
Oct-12-2010	11	21.2	8.3	3,170	33	6.2	5.8
Oct-19-2010	17	18.2	7.4	2,670	24	6.4	4.3
Oct-26-2010	10	16.3	8.3	4,060	47	13.2	7.4
Nov-02-2010	13	16.1	7.8	3,460	51	7.4	6.8
Nov-09-2010	15	14.4	8.3	3,250	34	8.4	5.5
Nov-16-2010	15	13.9	8.1	4,180	40	18.2	8.1
Nov-23-2010	28	11.4	7.7	3,820	23	26.3	7.3
Nov-30-2010	24	7.9	7.5	4,000	21	44.0	7.9
Dec-07-2010	28	11.7	7.6	3,860	29	41.0	7.1
Dec-14-2010	25	13.8	7.4	3,990	27	34.4	7.5
Dec-21-2010	43	10.9	7.6	3,950	22	35.0	7.5
Dec-28-2010	33	10.7	7.7	4,200	40	28.9	8.4

Table 8. Weekly water quality monitoring at Station C (Mud Slough North upstream of drainage discharges).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	.	Selenium (total)	Boron
DATA SOURCE	calculated **	CVRWQCB	CVRWQCB	CVRWQCB	.	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	.	µg/L	mg/L
Oct-05-2010	58	18.6	7.6	1,040	.	<0.4	0.8
Oct-12-2010	73	20.1	7.6	1,130	.	0.5	0.9
Oct-19-2010	114	17.8	7.8	1,170	.	<0.4	0.8
Oct-26-2010	154	15.4	7.9	1,160	.	0.4	0.9
Nov-02-2010	125	15.7	7.6	1,310	.	0.5	1.0
Nov-09-2010	100	13.3	7.7	1,450	.	0.4	1.2
Nov-16-2010	86	13.5	7.6	1,570	.	0.4	1.2
Nov-23-2010	107	11.0	7.8	1,330	.	0.7	1.1
Nov-30-2010	113	7.3	7.8	1,500	.	0.4	1.2
Dec-07-2010	129	11.9	7.8	1,520	.	0.4	1.3
Dec-14-2010	119	13.3	7.5	1,640	.	0.4	1.3
Dec-21-2010	296	10.7	7.7	1,410	.	0.7	1.3
Dec-28-2010	175	10.3	7.7	1,680	.	<0.4	1.6

\*\* Calculated flow value. Flow at Station C = flow at Station D - flow at Station B.

**Table 9. Weekly water quality monitoring at Station D (Mud Slough North downstream of drainage discharges).**

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Oct-05-2010	64	17.4	8.1	4,390	1.0	1.6
Oct-12-2010	84	20.2	7.6	1,590	1.7	1.8
Oct-19-2010	131	18.1	7.4	1,420	1.1	1.4
Oct-26-2010	164	15.6	7.8	1,400	1.5	1.4
Nov-02-2010	138	16.0	7.6	1,570	1.1	1.6
Nov-09-2010	115	13.5	7.7	1,810	1.7	1.9
Nov-16-2010	101	13.5	7.7	2,070	3.3	2.4
Nov-23-2010	135	11.1	7.7	1,740	3.7	2.0
Nov-30-2010	137	7.4	7.7	2,030	8.1	2.5
Dec-07-2010	157	11.8	7.7	1,990	6.8	2.4
Dec-14-2010	144	13.4	7.5	2,150	7.1	2.5
Dec-21-2010	339	10.8	7.7	1,770	4.8	2.2
Dec-28-2010	208	10.4	7.7	2,160	4.9	2.7

**Table 10. Weekly water quality monitoring at Station I2 (Mud Slough backwater downstream of Station D).**

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER		pH	Specific Conductance	Turbidity	Selenium	Boron
DATA SOURCE		USBR	USBR	USBR	USBR	USBR
UNITS		.	µS/cm	NTU	µg/L	mg/L
Oct-04-2010	.	8.1	1,460	46	0.9	1.7
Oct-13-2010	.	9.1	1,650	NA	1.0	1.7
Oct-21-2010	.	NA	NA	NA	0.8	1.4
Oct-26-2010	.	7.3	1,380	20	1.2	1.5
Nov-09-2010	.	8.1	1,930	15	1.4	2.1
Nov-18-2010	.	7.7	2,020	NA	2.5	1.7
Nov-30-2010	.	7.6	2,070	10	8.1	2.5
Dec-09-2010	.	7.8	2,030	19	6.7	1.9
Dec-13-2010	.	7.9	2,030	23	5.9	2.0
Dec-28-2010	.	8.1	2,020	15	5.0	2.3

Table 11. Weekly water quality monitoring at Station F (Salt Slough at Lander Avenue).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Oct-05-2010	81	18.1	7.6	1,130	<0.4	0.7
Oct-12-2010	100	19.1	7.6	1,210	0.5	0.7
Oct-19-2010	136	16.9	7.6	1,160	<0.4	0.6
Oct-26-2010	137	15.0	7.2	1,350	0.4	0.7
Nov-02-2010	153	14.8	7.0	1,300	<0.4	0.7
Nov-09-2010	167	12.9	7.6	1,170	0.5	0.7
Nov-16-2010	122	12.8	7.4	1,560	0.4	0.9
Nov-23-2010	205	11.1	7.7	1,160	0.6	0.8
Nov-30-2010	196	7.2	7.7	1,250	<0.4	0.8
Dec-07-2010	161	11.1	7.6	1,360	0.5	0.8
Dec-14-2010	128	13.3	7.2	1,640	0.6	0.9
Dec-21-2010	247	10.9	7.6	1,280	0.7	1.0
Dec-28-2010	230	10.3	7.2	1,620	0.4	1.1

Table 12. Weekly water quality monitoring at Station J (Camp 13 Ditch).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Oct-04-2010	145	.	.	600	0.4	0.2
Oct-11-2010	115	.	.	500	0.5	0.2
Oct-18-2010	55	.	.	530	0.4	0.2
Oct-25-2010	35	.	.	590	0.6	0.3
Nov-01-2010	35	.	.	600	0.6	0.3
Nov-08-2010	10	.	.	460	0.7	0.2
Nov-15-2010	10	.	.	460	0.7	0.2
Nov-22-2010	10	.	.	450	0.9	0.2
Nov-29-2010	10	.	.	270	0.5	0.1
Dec-06-2010	10	.	.	520	1.1	0.3
Dec-13-2010	10	.	.	660	1.6	0.4
Dec-20-2010	0	.	.	460	1.2	0.3
Dec-27-2010	0	.	.	520	1.6	0.3

Table 13. Weekly water quality monitoring at Station K (Agatha Canal).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Oct-04-2010	130	.	.	590	0.5	0.2
Oct-11-2010	100	.	.	530	0.5	0.2
Oct-18-2010	90	.	.	520	0.5	0.2
Oct-25-2010	80	.	.	580	0.8	0.3
Nov-01-2010	80	.	.	560	0.6	0.3
Nov-08-2010	80	.	.	470	0.6	0.2
Nov-15-2010	80	.	.	490	0.9	0.3
Nov-22-2010	40	.	.	470	0.9	0.2
Nov-29-2010	40	.	.	300	<0.4	0.2
Dec-06-2010	40	.	.	580	1.0	0.3
Dec-13-2010	60	.	.	690	1.5	0.4
Dec-20-2010	0	.	.	490	1.4	0.4
Dec-27-2010	30	.	.	1,000	0.9	1.6

Note: The peak in selenium is caused by no flow conditions at this site.

Table 14. Weekly water quality monitoring at Station L2 (San Luis Canal at splits).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Oct-04-2010	NA	.	.	530	<0.4	0.2
Oct-11-2010	NA	.	.	580	0.8	0.2
Oct-18-2010	NA	.	.	590	<0.4	0.3
Oct-25-2010	NA	.	.	610	0.7	0.4
Nov-01-2010	NA	.	.	720	1.1	0.6
Nov-08-2010	NA	.	.	1,780	1.9	2.0
Nov-15-2010	NA	.	.	450	0.9	1.0
Nov-22-2010	NA	.	.	470	<0.4	0.4
Nov-29-2010	NA	.	.	1,670	0.4	1.5
Dec-06-2010	NA	.	.	980	0.8	1.1
Dec-13-2010	NA	.	.	870	0.7	1.0
Dec-20-2010	NA	.	.	430	0.8	0.6
Dec-27-2010	NA	.	.	330	0.4	0.4

Table 15. Weekly water quality monitoring at Station M2 (Santa Fe Canal at weir).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Oct-04-2010	NA	.	.	770	0.8	0.5
Oct-11-2010	NA	.	.	780	0.8	0.6
Oct-18-2010	NA	.	.	830	0.4	0.6
Oct-25-2010	NA	.	.	880	0.6	0.8
Nov-01-2010	NA	.	.	880	0.7	0.8
Nov-08-2010	NA	.	.	960	0.6	1.0
Nov-15-2010	NA	.	.	940	0.8	0.9
Nov-22-2010	NA	.	.	920	0.6	0.9
Nov-29-2010	NA	.	.	1,010	0.5	1.1
Dec-06-2010	NA	.	.	1,100	0.8	1.2
Dec-13-2010	NA	.	.	1,210	0.8	1.3
Dec-20-2010	NA	.	.	1,020	1.1	1.2
Dec-27-2010	NA	.	.	1,400	0.6	1.8

Table 16. Weekly water quality monitoring at Central California Irrigation District Main Canal at Russell Avenue (MER510).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	.	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	.	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	.	.	.	µS/cm	µg/L	mg/L
Oct-04-2010	.	.	.	530	<0.4	0.2
Oct-11-2010	.	.	.	590	0.7	0.3
Oct-18-2010	.	.	.	590	0.6	0.2
Oct-25-2010	.	.	.	590	0.7	0.3
Nov-01-2010	.	.	.	590	0.6	0.2
Nov-08-2010	.	.	.	430	0.7	0.2
Nov-15-2010	.	.	.	460	1.0	0.3
Nov-22-2010	.	.	.	500	0.8	0.3
Nov-29-2010	.	.	.	410	0.9	0.2
Dec-06-2010	.	.	.	660	1.4	0.4
Dec-13-2010	.	.	.	720	1.4	0.5
Dec-20-2010	.	.	.	450	1.3	0.3
Dec-27-2010	.	.	.	600	2.3	0.4

Table 17. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Oct-05-2010	141	19.9	7.5	1,020	<0.4	0.4
Oct-12-2010	249	19.6	7.4	600	0.5	0.3
Oct-19-2010	191	17.6	7.2	1,290	<0.4	0.4
Oct-26-2010	229	15.7	7.5	1,060	0.4	0.5
Nov-02-2010	247	15.2	7.3	1,040	0.6	0.5
Nov-09-2010	227	13.4	7.5	1,230	0.4	0.6
Nov-16-2010	225	13.2	7.5	1,340	0.6	0.6
Nov-23-2010	314	11.1	7.4	1,000	0.5	0.6
Nov-30-2010	302	7	7.4	1,200	<0.4	0.7
Dec-07-2010	260	11.3	7.4	1,320	0.5	0.6
Dec-14-2010	217	13.2	7.3	1,660	0.5	0.7
Dec-21-2010	1,380	11.1	7.3	350	0.5	0.1
Dec-28-2010	1,800	10.0	8.0	460	<0.4	0.2

Table 18. Weekly water quality monitoring at Station H1 (Above Newman WW (previously SJR at Hills Ferry)).

(Collected data intended for use with biological monitoring.)

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	.	.	.	Conductance	Selenium (total)	Boron
DATA SOURCE	.	.	.	SLDMWA	SLDMWA	SLDMWA
UNITS	.	.	.	µS/cm	µg/L	mg/L
Oct-06-2010	.	.	.	1,170	0.6	0.6
Oct-13-2010	.	.	.	1,310	0.7	0.7
Oct-20-2010	.	.	.	1,290	0.8	0.8
Oct-27-2010	.	.	.	1,180	0.4	0.8
Nov-03-2010	.	.	.	1,190	0.5	0.7
Nov-10-2010	.	.	.	1,160	0.6	0.7
Nov-17-2010	.	.	.	1,660	0.8	1.1
Nov-24-2010	.	.	.	1,680	1.0	1.1
Dec-01-2010	.	.	.	1,680	1.0	1.1
Dec-08-2010	.	.	.	1,720	2.4	1.1
Dec-14-2010	.	.	.	1,920	2.5	1.3
Dec-22-2010	.	.	.	1,720	2.7	1.1
Dec-29-2010	.	.	.	1,690	2.1	1.1

Table 19. Weekly water quality monitoring at Station H2 (San Joaquin River at Hills Ferry).

(Collected data intended for use with biological monitoring.)

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	.	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	.	.	.	SLDMWA	SLDMWA	SLDMWA
UNITS	.	.	.	µS/cm	µg/L	mg/L
Oct-06-2010	.	.	.	1,310	0.6	0.7
Oct-13-2010	.	.	.	1,170	0.8	0.6
Oct-20-2010	.	.	.	1,300	0.8	0.8
Oct-27-2010	.	.	.	1,310	<0.4	0.7
Nov-03-2010	.	.	.	1,260	0.5	0.7
Nov-10-2010	.	.	.	1,500	0.7	0.9
Nov-17-2010	.	.	.	1,500	<0.4	0.9
Nov-24-2010	.	.	.	1,510	0.5	0.9
Dec-02-2010	.	.	.	1,530	<0.4	0.9
Dec-08-2010	.	.	.	1,720	2.2	1.1
Dec-14-2010	.	.	.	1,930	2.4	1.3
Dec-22-2010	.	.	.	1,720	2.1	1.1
Dec-29-2010	.	.	.	1,690	1.9	1.1



**Table 20. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing).**

See Table 28 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Temperature</b>	<b>pH</b>	<b>Specific Conductance</b>	<b>Selenium (total)</b>	<b>Boron</b>
<b>DATA SOURCE</b>	<b>usgs</b>	<b>CVRWQCB</b>	<b>CVRWQCB</b>	<b>CVRWQCB</b>	<b>CVRWQCB</b>	<b>CVRWQCB</b>
<b>UNITS</b>	<b>cfs</b>	<b>°C</b>	<b>.</b>	<b>µS/cm</b>	<b>µg/L</b>	<b>mg/L</b>
Oct-05-2010	615	20.3	7.6	830	<0.4	0.4
Oct-12-2010	716	19.6	7.7	680	0.6	0.4
Oct-19-2010	693	18.0	7.7	880	0.7	0.5
Oct-26-2010	1,210	15.2	7.7	590	<0.4	0.3
Nov-02-2010	1,180	15.0	7.5	660	0.5	0.4
Nov-09-2010	795	13.8	7.7	960	0.5	0.6
Nov-16-2010	704	13.5	7.6	1,100	0.6	0.7
Nov-23-2010	841	11.7	7.8	1,090	1.2	0.8
Nov-30-2010	812	7.7	7.7	1,210	1.4	0.9
Dec-07-2010	793	11.8	7.8	1,220	1.8	0.9
Dec-14-2010	769	13.4	7.6	1,350	1.3	0.9
Dec-21-2010	2,660	11.5	7.5	480	0.7	0.3
Dec-28-2010	4,350	10.4	7.7	410	0.5	0.3

**Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from January 2010 to December 2010. Each value is the mean of 4 replicates with 10 fish in each replicate.**

See Table 28 for explanation of footnotes and agency abbreviations.

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal	Laboratory Control
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	%	%	%	%	%	%
Jan-2010	98	95	98	100	98	100
Feb-2010	98	100	95	95	100	90
Mar-2010	98	95	95	100	98	100
Apr-2010	95	98	100	100	100	98
May-2010	95	93	98	85	90	95
Jun-2010	100	100	100	98	95	98
Jul-2010	95	98	100	100	100	93
Aug-2010	98	98	98	98	93	95
Sep-2010	95	93	100	100	100	95
Oct-2010	95	100	100	100	100	100
Nov-2010	95	100	83	98	100	100
Dec-2010	98	95	95	100	98	100

**Table 22. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from January 2010 to December 2010. Each value is the mean of 4 replicates with 10 fish in each replicate.**

See Table 28 for explanation of footnotes and agency abbreviations.

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal	Laboratory Control
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	mg	mg	mg	mg	mg	mg
Jan-2010	0.43	0.49	0.50	0.48	0.49	0.41
Feb-2010	0.47	0.53	0.49	0.52	0.49	0.51
Mar-2010	0.41	0.48	0.48	0.46	0.40	0.45
Apr-2010	0.53	0.48	0.53	0.50	0.43	0.48
May-2010	0.35	0.34	0.36	0.39	0.37	0.37
Jun-2010	0.37	0.34	0.35	0.35	0.37	0.38
Jul-2010	0.35*	0.37	0.39	0.37	0.41	0.41
Aug-2010	0.32	0.28	0.33	0.33	0.26	0.35
Sep-2010	0.41	0.43	0.39	0.41	0.41	0.38
Oct-2010	0.38	0.43	0.42	0.39	0.37	0.33
Nov-2010	0.46	0.47	0.43	0.47	0.42	0.35
Dec-2010	0.39	0.40	0.46	0.44	0.39	0.39

**Table 23. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from January 2010 to December 2010. Each value is the mean of 10 replicates with 1 animal in each replicate.**

See Table 28 for explanation of footnotes and agency abbreviations.

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal	Laboratory Control
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	%	%	%	%	%	%
Jan-2010	100	90	90	100	90	100
Feb-2010	90	90	90	100	100	90
Mar-2010	90	100	90	80	90	90
Apr-2010	70	90	90	80	40†	80
May-2010	80	70	100	100	90	80
Jun-2010	100	100	100	90	90	100
Jul-2010	90	100	90	90	100	100
Aug-2010	100	100	100	100	90	50†
Sep-2010	100	100	90	100	88	90
Oct-2010	80	100	90	100	100	100
Nov-2010	90	90	100	80	100	80
Dec-2010	90	80	70	80	90	80

**Table 24. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from January 2010 to December 2010. Each value is the mean of 10 replicates with 1 animal in each replicate.**

See Table 28 for explanation of footnotes and agency abbreviations.

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal	Laboratory Control
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	neonates per female	neonates per female	neonates per female	neonates per female	neonates per female	neonates per female
Jan-2010	39.7	32.3	44.1	30.7	34.4	33.8
Feb-2010	22.9	22.1	26.2	25.7	23.1	25.4
Mar-2010	23.6	28.4	23.3	19.5	25.0	16.6
Apr-2010	34.8	41.4	39.2	24.1	20.1	28.5
May-2010	30.6	45.4	39.3	42.9	33.8	19.4
Jun-2010	23.0	27.2	29.5	24.2	23.1	21.4
Jul-2010	43.6	48.8	46.3	46.6	38.7	38.6
Aug-2010	27.7	31.8	28.4	25.8	26.1	2.6†††
Sep-2010	35.5	29.8	30.0	28.1	24.3	20.0
Oct-2010	28.1	23.7	30.0	29.2	29.9	25.2
Nov-2010	40.7	27.2	36.3	30.1	31.6	28.8
Dec-2010	31.5	30.5	26.2	33.6	25.6	34.2

**Table 25. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from January 2010 to December 2010. Each value is the mean of 4 replicates.**

See Table 28 for explanation of footnotes and agency abbreviations.

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal	Laboratory Control
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL
Jan-2010	0.2*	27.5	1.4*	28.9	20.8	19.8
Feb-2010	19.1*	36.0	31.7	29.9	28.7	23.1
Mar-2010	17.6	28.4	27.8	27.4	19.5	15.5
Apr-2010	5.2*	22.2	25.1	33.2	26.3	24.7
May-2010	12.8	23.5	23.2	26.4	15.0	11.3
Jun-2010	17.7	29.6	24.8	33.0	22.7	22.0
Jul-2010	17.6	25.3	18.8	19.7	17.6	16.1
Aug-2010	19.6	25.0	21.8	28.8	21.4	22.3
Sep-2010	22.6	28.9	26.3	29.1	25.1	25.2
Oct-2010	27.6	34.4	38.0	29.0	25.6	21.2
Nov-2010	18.2*	29.0	33.4	28.3	26.5	26.7
Dec-2010	12.4*	28.5	29.8	24.8	19.7	20.3

**Table 26. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, October 2010 to December 2010.**

See Table 28 for explanation of footnotes and agency abbreviations

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal
DATA SOURCE	SLDMWA/USBR	SLDMWA/USBR	SLDMWA/USBR	SLDMWA/USBR	SLDMWA/USBR
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L
Oct-18-2010	7.4	<0.4	2.0	<0.4	<0.4
Oct-20-2010	5.7	<0.4	1.6	<0.4	<0.4
Oct-22-2010	11	<0.4	1.5	<0.4	<0.4
Nov-15-2010	18	<0.4	2.1	<0.4	<0.4
Nov-17-2010	20	<0.4	3.5	<0.4	<0.4
Nov-19-2010	16	<0.4	2.6	<0.4	<0.4
Dec-13-2010	38	0.4	5.1	0.4	0.4
Dec-15-2010	33	0.4	4.5	0.4	0.5
Dec-17-2010	30	NA	4.0	0.4	<0.4

**Table 27. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, October 2010 to December 2010.**

See Table 28 for explanation of footnotes and agency abbreviations

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	mg/L	mg/L	mg/L	mg/L	mg/L
Oct-18-2010	33	38	45	72	14
Oct-20-2010	23	27	29	89	16
Oct-22-2010	50	53	44	88	16
Nov-15-2010	35	25	39	43	7
Nov-17-2010	49	34	40	54	11
Nov-19-2010	40	27	49	59	3
Dec-13-2010	33	22	26	39	10
Dec-15-2010	27	54	26	62	13
Dec-17-2010	37	NA	25	44	17

Table 28. Explanations of footnotes and agency abbreviations.

Footnote	Explanation
CVRWQCB	California Regional Water Quality Control Board, Central Valley Region
SLDMWA	San Luis & Delta-Mendota Water Authority
USBR	U.S. Bureau of Reclamation
USGS	U.S. Geological Survey
e	Estimated value
.	Not applicable
<	Less than MDL. If needed in calculation, use 1/2 MDL
NA	Not analyzed - operator error, data will not be available in the future
NP	Not Provided. Data may be available in the future.
NT	Not tested
P	Pending, data not available at this time but will be available in the future
*	Significantly reduced from Delta Mendota Canal (p<0.05)
**	Sample re-analyzed and result confirmed.
L	Result may be biased low. Sample was not preserved in the field
†	DMC water failed to meet the survival (>80%) acceptability criteria.
††	Data from records of the Grassland Water District. Data is not subjected to the criteria documented in the Compliance Monitoring Program for the Use and Operation of the Grassland Bypass Project (1996) nor the Quality Assurance Project Plan for the GBP.
†††	DMC water failed to meet the reproduction (>10 neonates/adult) acceptability criteria.
††††	DMC water failed to meet minimum growth (10 <sup>6</sup> cell/mL) acceptability criteria.
‡	Control value exceeds suggested maximum variance (20%) acceptability criteria.
‡‡	Fungal growth observed on test organisms.
‡‡‡	Failed cell density requirement of 1E6 cells.
#	New testing laboratory with reporting limit of 0.4 µg/L as of June 1998.
❖	Based on definitive bioassay, NOEC is 50 percent
D	Sample was dechlorinated