

# GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

**June 2012**

October 2012

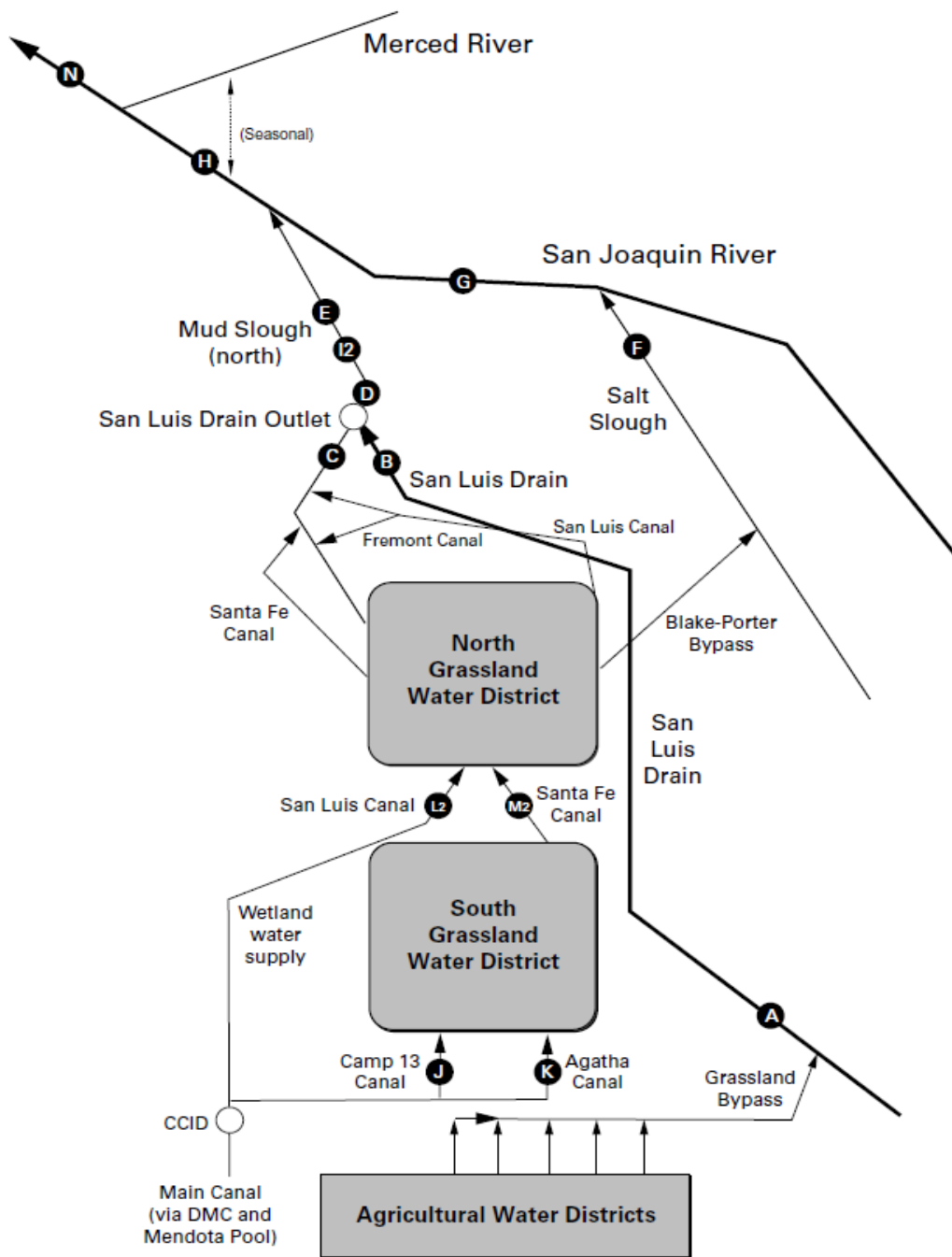
### **Preliminary Results**

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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**LIST OF TABLES FOR MONTHLY REPORT****Continuous Monitoring**

1. Continuous water monitoring at Station A (inflow to San Luis Drain), June 2012.
- 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), June 2012.
- 2b. Monthly selenium discharges from the terminus of the San Luis Drain into Mud Slough compared to load values.
3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), June 2012.
4. Continuous water monitoring at Station F (Salt Slough at Highway 165), June 2012.
5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), June 2012.

**Weekly Monitoring**

- 6a. Weekly water quality monitoring at Station A (inflow to San Luis Drain), taken from grab samples.
- 6b. Weekly water quality monitoring at Station A (inflow to San Luis Drain), taken from composite samples.
7. Weekly water quality monitoring at Station B (discharge from San Luis Drain).
8. Weekly water quality monitoring at Station C (Mud Slough North upstream of drainage discharge).
9. Weekly water quality monitoring at Station D (Mud Slough North downstream of drainage discharge).
10. Weekly water quality monitoring at Station I2 (Mud Slough backwater downstream of Station D).
11. Weekly water quality monitoring at Station F (Salt Slough at Lander Avenue).
12. Weekly water quality monitoring at Station J (Camp 13 Ditch).
13. Weekly water quality monitoring at Station K (Agatha Canal).
14. Weekly water quality monitoring at Station L2 (San Luis Canal at splits).
15. Weekly water quality monitoring at Station M2 (Santa Fe Canal at weir).
16. Weekly water quality monitoring at Central California Irrigation District Main Canal at Russell Avenue (MER510).
17. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford).
18. Weekly water quality monitoring at Station H1 (Above Newman WW (previously SJR at Hills Ferry)).
19. Weekly water quality monitoring at Station H2 (San Joaquin River at Hills Ferry).
20. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing).

**Monthly Monitoring**

21. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from July 2011 to June 2012.
22. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from July 2011 to June 2012.
23. Summary of Daphnia magna survival in 7-day tests using water samples collected from July 2011 to June 2012.
24. Summary of Daphnia magna reproduction in 7-day tests using water samples collected from July 2011 to June 2012.
25. Summary of Selenastrum capricornutum growth in 4-day tests using water samples collected from July 2011 to June 2012.
26. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, April 2012 to June 2012.
27. Summary of total suspended solids concentrations in grab water samples collected from April 2012 to June 2012.
28. Explanations of footnotes and agency abbreviations.

Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), June 2012.

See Table 28 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Temperature</b>	<b>Specific Conductance</b>	<b>Salt Load</b>
<b>DATA SOURCE</b>	<b>SLDMWA</b>	<b>SLDMWA</b>	<b>SLDMWA</b>	<b>Computed</b>
<b>UNITS</b>	<b>cfs</b>	<b>°C</b>	<b>µS/cm</b>	<b>tons</b>
Jun-01-2012	12	26.5	2,780	68
Jun-02-2012	13	25.1	2,800	72
Jun-03-2012	12	23.9	2,940	70
Jun-04-2012	12	21.2	2,980	71
Jun-05-2012	13	18.8	2,940	78
Jun-06-2012	14	19.8	2,850	82
Jun-07-2012	16	21.9	3,640	115
Jun-08-2012	15	22.5	4,450	137
Jun-09-2012	13	19.5	4,420	113
Jun-10-2012	13	21.5	4,400	113
Jun-11-2012	16	24.7	4,410	139
Jun-12-2012	16	25.6	4,420	140
Jun-13-2012	17	24.8	4,420	147
Jun-14-2012	19	25.6	4,420	164
Jun-15-2012	19	24.7	4,430	171
Jun-16-2012	18	26.9	4,520	162
Jun-17-2012	21	27.8	4,500	191
Jun-18-2012	20	26.0	4,480	175
Jun-19-2012	15	24.5	4,450	132
Jun-20-2012	14	25.4	4,430	128
Jun-21-2012	13	24.4	4,410	115
Jun-22-2012	13	22.5	4,390	113
Jun-23-2012	20	22.7	4,380	176
Jun-24-2012	20	22.2	4,340	173
Jun-25-2012	14	22.0	4,320	119
Jun-26-2012	12	22.1	4,290	107
Jun-27-2012	10	24.6	4,270	82
Jun-28-2012	6	25.3	4,260	54
Jun-29-2012	8	24.7	4,250	68
Jun-30-2012	13	25.3	4,260	113
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Mean	15	23.8	4,060	3,588
Total Acre-feet	868			
<b>Salinity Load Value (Dry Year, June)</b>				<b>10,185</b>

Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), June 2012.

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	USBR	SLDMWA	USBR	Computed
UNITS	cfs	°C	mg/L	µS/cm	µg/L	lbs
Jun-01-2012	12	29.1	10.0	4,920	50.0	3.2
Jun-02-2012	10	26.5	9.9	4,920	46.0	2.5
Jun-03-2012	12	25.0	10.0	4,780	45.0	2.9
Jun-04-2012	11	19.3	10.0	4,900	44.0	2.7
Jun-05-2012	11	16.5	11.0	4,980	42.0	2.4
Jun-06-2012	11	19.0	11.0	4,900	44.0	2.6
Jun-07-2012	14	22.2	NA	4,830	NA	NA
Jun-08-2012	14	22.3	10.0	4,700	45.0	3.5
Jun-09-2012	12	19.7	9.3	4,630	41.0	2.7
Jun-10-2012	12	24.9	9.4	4,490	39.0	2.6
Jun-11-2012	12	26.6	9.7	4,600	38.0	2.5
Jun-12-2012	14	26.8	9.6	4,890	37.0	2.7
Jun-13-2012	14	25.6	10.0	4,850	37.0	2.8
Jun-14-2012	15	26.8	10.0	4,900	35.0	2.8
Jun-15-2012	16	25.7	8.7	4,820	34.0	3.0
Jun-16-2012	18	29.7	8.8	4,670	39.0	3.9
Jun-17-2012	17	31.2	9.9	5,060	40.0	3.6
Jun-18-2012	19	26.8	10.0	5,220	38.0	4.0
Jun-19-2012	18	23.9	10.0	5,130	42.0	4.1
Jun-20-2012	14	26.7	9.2	5,080	42.0	3.2
Jun-21-2012	13	25.0	8.8	4,940	37.0	2.6
Jun-22-2012	11	20.2	9.3	4,680	35.0	2.2
Jun-23-2012	12	20.8	10.0	4,690	35.0	2.2
Jun-24-2012	18	20.0	9.1	4,450	30.0	3.0
Jun-25-2012	19	20.0	9.3	4,350	32.0	3.3
Jun-26-2012	13	20.6	9.1	4,510	29.0	2.1
Jun-27-2012	12	24.0	9.6	4,370	31.0	2.0
Jun-28-2012	10	24.8	10.0	4,550	30.0	1.6
Jun-29-2012	7	23.8	10.0	4,660	27.0	1.0
Jun-30-2012	6	24.8	10.0	4,720	25.0	0.9
.	.	.	.	.	.	.
Mean	13	23.9	9.7	4,770	37.6	2.7
Total Acre-feet	790					
Total (lbs)						79

Load Limitation for June 2012 (lbs)	130
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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.

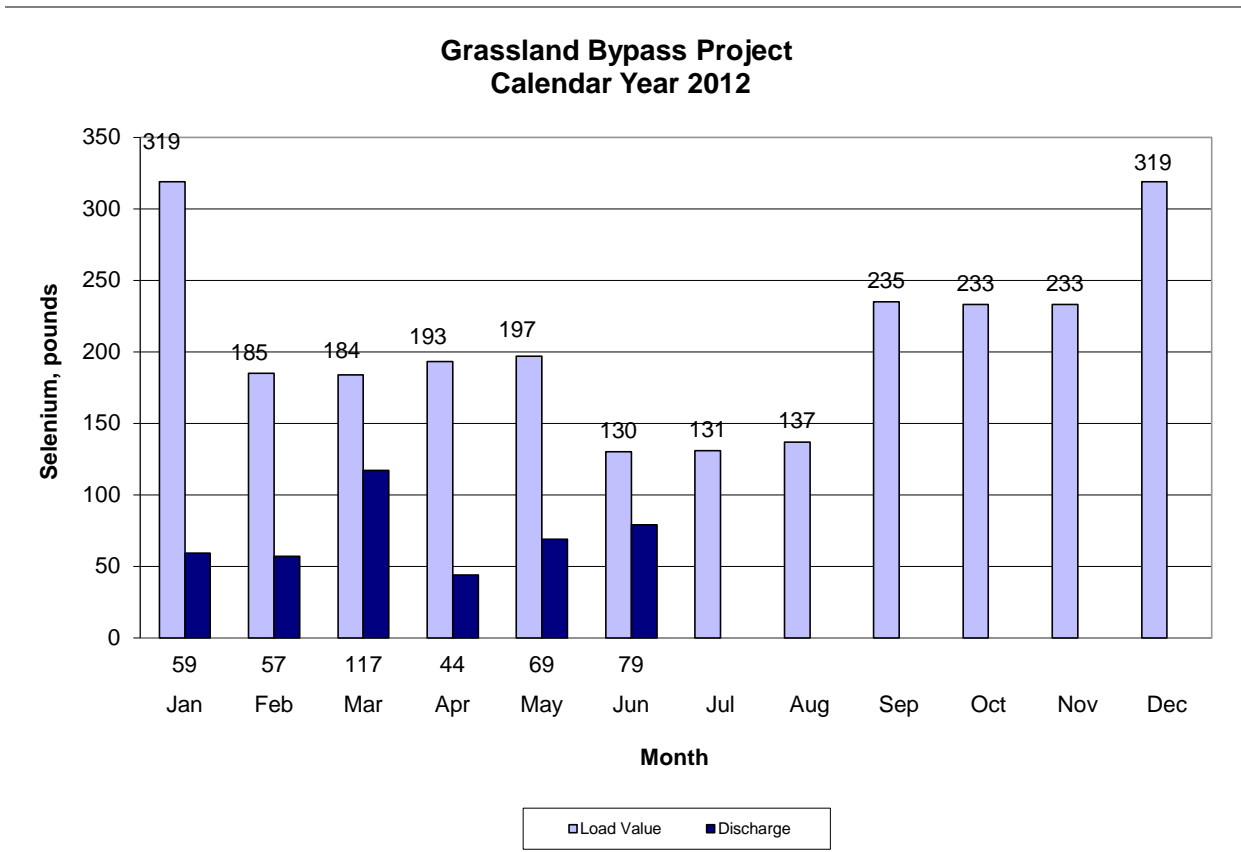


Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), June 2012.

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
Jun-01-2012	43	26.4	2,530
Jun-02-2012	46	26.6	2,200
Jun-03-2012	57	25.1	1,930
Jun-04-2012	61	23.4	1,850
Jun-05-2012	75	21.3	1,650
Jun-06-2012	70	20.6	1,800
Jun-07-2012	64	21.8	2,100
Jun-08-2012	54	23.0	2,450
Jun-09-2012	62	21.0	2,070
Jun-10-2012	59	20.5	2,170
Jun-11-2012	56	23.2	2,200
Jun-12-2012	52	24.8	2,550
Jun-13-2012	47	25.6	2,640
Jun-14-2012	44	26.1	2,930
Jun-15-2012	43	25.6	3,100
Jun-16-2012	46	26.4	2,940
Jun-17-2012	40	27.5	3,370
Jun-18-2012	45	27.1	3,290
Jun-19-2012	39	25.4	3,750
Jun-20-2012	40	24.7	3,340
Jun-21-2012	53	25.5	2,590
Jun-22-2012	53	24.5	2,520
Jun-23-2012	47	24.0	2,800
Jun-24-2012	54	23.3	2,880
Jun-25-2012	50	23.4	3,140
Jun-26-2012	36	22.9	3,900
Jun-27-2012	32	23.6	4,110
Jun-28-2012	29	24.4	4,510
Jun-29-2012	25	24.6	4,640
Jun-30-2012	25	25.2	4,480
.	.	.	.
Mean	48	24.3	2,880

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), June 2012.

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>
Jun-01-2012	104	26.5	1,260
Jun-02-2012	108	26.3	1,200
Jun-03-2012	113	24.8	1,190
Jun-04-2012	116	23.0	1,210
Jun-05-2012	128	20.4	1,210
Jun-06-2012	144	20.0	1,160
Jun-07-2012	141	21.2	1,160
Jun-08-2012	145	22.6	1,170
Jun-09-2012	157	20.9	1,140
Jun-10-2012	164	20.5	1,110
Jun-11-2012	173	22.9	1,050
Jun-12-2012	172	24.8	1,060
Jun-13-2012	148	25.2	1,130
Jun-14-2012	133	25.4	1,150
Jun-15-2012	127	24.7	1,190
Jun-16-2012	144	25.3	1,110
Jun-17-2012	164	27.0	1,060
Jun-18-2012	165	26.7	1,060
Jun-19-2012	135	24.2	1,130
Jun-20-2012	105	24.4	1,330
Jun-21-2012	110	25.3	1,160
Jun-22-2012	118	23.4	1,080
Jun-23-2012	124	23.0	1,090
Jun-24-2012	123	22.7	1,090
Jun-25-2012	121	22.7	1,100
Jun-26-2012	131	22.4	1,050
Jun-27-2012	141	23.3	1,010
Jun-28-2012	136	24.6	960
Jun-29-2012	132	24.9	1,020
Jun-30-2012	146	25.1	985
.	.	.	.
Mean	136	23.8	1,120



Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), June 2012.

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Boron	Specific Conductance	Selenium (total)
DATA SOURCE	USGS	USGS	USBR	USGS	USBR
UNITS	cfs	°C	mg/L	µS/cm	µg/L
Jun-01-2012	514	25.8	0.7	1,160	1.8
Jun-02-2012	522	26.2	0.7	1,190	1.5
Jun-03-2012	497	24.9	0.7	1,200	1.4
Jun-04-2012	559	23.2	0.7	1,130	1.3
Jun-05-2012	606	21.0	0.6	1,030	1.1
Jun-06-2012	657	20.9	0.6	971	1.0
Jun-07-2012	612	22.0	0.5	978	1.0
Jun-08-2012	568	23.0	0.6	1,040	1.4
Jun-09-2012	546	21.6	0.6	1,060	1.3
Jun-10-2012	574	20.6	0.6	1,060	1.4
Jun-11-2012	576	23.2	0.6	1,050	1.2
Jun-12-2012	553	25.0	0.5	1,030	1.1
Jun-13-2012	499	25.5	0.6	1,130	1.4
Jun-14-2012	476	25.9	0.6	1,170	1.3
Jun-15-2012	438	25.6	0.7	1,260	1.3
Jun-16-2012	442	26.0	0.7	1,300	1.4
Jun-17-2012	435	27.3	0.8	1,300	1.7
Jun-18-2012	455	27.5	0.7	1,230	1.7
Jun-19-2012	456	26.5	0.7	1,200	1.7
Jun-20-2012	465	25	0.6	1,160	1.5
Jun-21-2012	444	25	0.6	1,190	1.5
Jun-22-2012	425	24.4	0.7	1,290	1.5
Jun-23-2012	420	23.5	0.8	1,300	1.5
Jun-24-2012	435	22.5	0.7	1,240	1.2
Jun-25-2012	451	22.6	0.7	1,210	1.1
Jun-26-2012	419	22.3	0.8	1,250	1.3
Jun-27-2012	412	23.2	0.7	1,260	1.3
Jun-28-2012	417	24.3	0.7	1,240	1.1
Jun-29-2012	417	24.6	0.6	1,190	1.0
Jun-30-2012	397	24.9	0.6	1,180	1.2
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Mean	490	24.1	0.7	1,170	1.3

Table 6. Weekly water quality monitoring at Station A (inflow to San Luis Drain).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Total Suspended Solids	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA	Panoche DD	USBR	USBR	USBR
		Grab sample	Composite	Composite	Composite
UNITS	cfs	mg/L	µS/cm	µg/L	mg/L
Apr-02-2012	18	83	6,040	24	9.8
Apr-09-2012	7	61	6,140	28	12.0
Apr-16-2012	12	93	5,860	33	8.5
Apr-23-2012	10	93	8,690	41	9.2
Apr-30-2012	16	81	5,730	38	10.0
May-07-2012	9	86	5,910	46	10.0
May-14-2012	10	95	5,830	48	10.0
May-21-2012	18	126	5,740	50	10.0
May-28-2012	16	125	5,610	43	10.0
Jun-04-2012	12	135	5,490	38	9.1
Jun-11-2012	16	123	5,480	42	9.3
Jun-18-2012	20	184	5,230	33	8.5
Jun-25-2012	14	134	5,730	37	10.0

Note: Weekly results for specific conductance, selenium, and boron from composite of seven daily samples.

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	Total Suspended Solids	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA	Panoche DD	USBR	USBR	USBR	USBR	USBR
UNITS	cfs	mg/L	°C	.	µS/cm	µg/L	mg/L
Apr-03-2012	18	79	15.3	8.2	5,460	31.0	8.9
Apr-10-2012	7	38	17.8	8.7	5,740	26.0	9.1
Apr-17-2012	13	75	22.1	8.3	5,610	23.0	11.0
Apr-24-2012	8	93	23.1	8.9	5,860	24.0	9.6
May-01-2012	12	34	22.6	8.6	5,650	20.0	9.7
May-07-2012	7	40	19.8	8.7	5,940	35.0	9.5
May-15-2012	8	47	23.1	8.8	6,090	38.0	9.2
May-22-2012	17	42	23.1	8.7	6,300	42.0	12.0
May-29-2012	14	33	20.3	8.5	5,470	47.0	9.7
Jun-05-2012	11	34	21.3	8.1	5,830	41.0	11.0
Jun-06-2012	11	NA	20.6	8.2	5,680	43.0	10.0
Jun-13-2012	14	28	23.7	8.1	5,640	35.0	10.0
Jun-19-2012	18	20	23.9	8.3	5,900	42.0	10.0
Jun-25-2012	19	134	22.3	8.6	5,240	32.0	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 **		USBR	USBR	USBR	USBR	USBR
UNITS	cfs		°C	.	µS/cm	µg/L	mg/L
Apr-03-2012	32	.	14.5	8.3	3,340	0.4	2.6
Apr-10-2012	49	.	17.0	8.6	2,570	0.7	2.0
Apr-17-2012	59	.	20.2	8.5	2,370	0.9	2.3
Apr-24-2012	23	.	20.2	8.6	2,990	0.7	2.3
May-01-2012	11	.	24.4	8.3	3,240	0.8	2.6
May-07-2012	30	.	19.7	8.8	1,430	0.8	1.0
May-15-2012	21	.	24.5	8.9	1,650	0.8	1.2
May-22-2012	29	.	22.3	8.9	1,280	0.6	1.2
May-29-2012	23	.	19.3	8.8	1,470	< 0.4	1.2
Jun-05-2012	64	.	19.2	8.6	1,050	0.4	0.9
Jun-13-2012	33	.	23.6	8.2	1,440	0.9	1.3
Jun-19-2012	21	.	22.7	8.5	2,040	0.8	1.8
Jun-25-2012	31	.	22.6	9.2	1,630	1.2	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	Turbidity	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	USBR	USBR	USBR	USBR	USBR	USBR
UNITS	cfs	°C	NTU	.	µS/cm	µg/L	mg/L
Apr-03-2012	50	15.0	27.4	8.2	4,244	11.0	4.9
Apr-10-2012	56	17.4	30.7	8.3	3,040	3.2	2.9
Apr-17-2012	72	20.2	44.4	8.5	2,850	2.9	3.3
Apr-24-2012	31	21.3	36.8	8.1	4,030	6.5	4.2
May-01-2012	23	23.6	38.8	8.2	4,870	9.9	6.2 U
May-07-2012	37	20.6	97.6	8.4	2,240	4.3	2.3
May-15-2012	29	24.3	64.3	8.4	2,330	10.0	4.1
May-22-2012	46	22.8	30.2	8.4	3,200	13.0	4.7
May-29-2012	37	20.1	38.1	8.1	3,020	14.0	4.4
Jun-05-2012	75	19.7	93.3	8.1	1,690	4.9	2.0
Jun-06-2012	70	20.0	NA	8.0	1,940	6.7	2.4
Jun-13-2012	47	23.3	39.7	7.7	2,850	11.0	3.8
Jun-19-2012	39	23.7	24.8	8.1	4,410	23U	6.0
Jun-25-2012	50	23.1	NA	8.6	3,070	12.0	4.2

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		Temperature	Turbidity	pH	Specific Conductance	Selenium	Boron
DATA SOURCE		USBR	USBR	USBR	USBR	USBR	USBR
UNITS		°C	NTU	.	µS/cm	µg/L	mg/L
Apr-03-2012	.	16.0	73	8.1	4,980	9.9	5.0
Apr-17-2012	.	22.8	30	8.3	5,400	4.7	4.8
Apr-24-2012	No Flow	NA	NA	NA	NA	NA	NA
May-01-2012	Late April and	NA	NA	NA	NA	NA	NA
May-07-2012	May	NA	NA	NA	NA	NA	NA
May-15-2012	.	NA	NA	NA	NA	NA	NA
May-22-2012	.	NA	NA	NA	NA	NA	NA
May-29-2012	.	NA	NA	NA	NA	NA	NA
Jun-05-2012	.	19.8	42	8.1	1,730	5.1	2.1
Jun-13-2012	No Flow	NA	NA	NA	NA	NA	NA
Jun-19-2012	Mid - End of	NA	NA	NA	NA	NA	NA
Jun-25-2012	June	NA	NA	NA	NA	NA	NA

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	USBR	USBR	USBR	USBR	USBR
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Apr-03-2012	147	14.8	7.1	2,000	<0.4	0.9 U
Apr-10-2012	128	16.8	7.3	2,130	0.5	1.0 U
Apr-17-2012	206	19.7	7.1	1,820	0.8	1.1 U
Apr-24-2012	148	20.0	7.0	1,670	0.9	0.9
May-01-2012	119	22.0	7.6	1,550	0.7	0.7
May-07-2012	102	18.7	7.0	1,620	0.5	0.8
May-15-2012	151	21.6	7.3	1,000	0.5	0.4
May-22-2012	142	21.8	7.3	1,060	0.6	0.4
May-29-2012	131	19.2	7.7	1,010	0.4	0.4
Jun-05-2012	128	18.7	7.6	1,190	0.4	0.5
Jun-13-2012	148	13.3	8.7	1,200	0.6	0.5
Jun-19-2012	135	21.7	7.9	1,140	0.6	0.4
Jun-25-2012	121	21.3	7.9	1,170	0.5	0.4

Table 12. 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	USBR	USBR	USBR	USBR	USBR
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Apr-03-2012	203	15.3	8.3	2,220	<0.4	0.8
Apr-10-2012	199	17.1	8.3	2,220	0.4	0.8
Apr-17-2012	NA	18.8	8.6	1,170	0.5	0.6
Apr-24-2012	207	22.1	8.2	1,760	0.7	0.7
May-01-2012	164	22.9	8.4	1,780	0.6	0.5
May-07-2012	137	20.3	8.4	2,140	< 0.4	0.8
May-15-2012	182	22.1	8.6	1,330	0.5	0.5
May-22-2012	198	22.3	8.6	1,090	< 0.4	0.3
May-29-2012	172	20.1	8.3	1,270	< 0.4	0.4
Jun-05-2012	154	19.6	8	1,490	< 0.4	0.5
Jun-13-2012	183	23	7.5	1,300	0.5	0.4
Jun-19-2012	163	23.6	8.4	1,290	0.6	0.4
Jun-25-2012	128	21.8	8.9	1,390	0.4	0.4

Table 13. 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>	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Apr-02-2012	0	.	.	1,420	2.5 U	0.6 U
Apr-09-2012	0	.	.	861	2.2	0.4
Apr-16-2012	0	.	.	11,200	50 U	25 U
Apr-23-2012	0	.	.	899	2.4	0.4
Apr-30-2012	0	.	.	639	1.2	0.3
May-09-2012	35	.	.	1,040	1.3	0.5
May-16-2012	35	.	.	NA	1.3	0.4
May-23-2012	40	.	.	338	0.5	0.2
May-30-2012	50	.	.	392	0.5	0.2
Jun-04-2012	50	.	.	529	0.7	0.3
Jun-11-2012	50	.	.	433	0.8	0.3
Jun-18-2012	30	.	.	540	0.6	0.3
Jun-25-2012	30	.	.	566	0.8	0.2

Table 14. 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>	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Apr-02-2012	0	.	.	2,000	0.6	3.3 U
Apr-09-2012	0	.	.	2,440	0.9	4.8 U
Apr-16-2012	0	.	.	1,030	1.9 U	1.0
Apr-23-2012	0	.	.	1,160	1.3	1.1
Apr-30-2012	0	.	.	1,330	1.3	1.0
May-07-2012	75	.	.	573	0.8	0.3
May-14-2012	75	.	.	414	0.6	0.2
May-21-2012	45	.	.	392	0.4	0.2
May-29-2012	35	.	.	376	0.5	0.2
Jun-04-2012	35	.	.	524	0.7	0.3
Jun-11-2012	35	.	.	512	0.7	0.3
Jun-18-2012	20	.	.	512	0.6	0.3
Jun-25-2012	20	.	.	557	1.1	0.3

Table 15. 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>	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Apr-02-2012	NA	.	.	2,210	1.9	2.2
Apr-09-2012	NA	.	.	2,950	2.2	3.2
Apr-16-2012	NA	.	.	2,590	2.1	2.9
Apr-23-2012	NA	.	.	2,500	2.1	2.3
Apr-30-2012	NA	.	.	1,070	1.3	0.6
May-07-2012	NA	.	.	827	1.1	0.4
May-14-2012	NA	.	.	839	1.0	0.5
May-21-2012	NA	.	.	760	0.8	0.6
May-29-2012	NA	.	.	846	0.8	0.7
Jun-04-2012	NA	.	.	824	0.8	0.5
Jun-11-2012	NA	.	.	1,570	1.6	1.3
Jun-18-2012	NA	.	.	1,810	1.6	1.7
Jun-25-2012	NA	.	.	2,260	1.7	1.8

Table 16. 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>	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Apr-02-2012	NA	.	.	2,490	1.5	3.0
Apr-09-2012	NA	.	.	2,230	1.4	2.1
Apr-16-2012	NA	.	.	2,460	1.8	3.2
Apr-26-2012	NA	.	.	2,300	1.9	5.2 U
Apr-30-2012	NA	.	.	1,420	1.5	1.1
May-07-2012	NA	.	.	911	1.3	0.6
May-14-2012	NA	.	.	877	1.0	0.5
May-21-2012	NA	.	.	820	0.8	0.7
May-29-2012	NA	.	.	854	0.9	0.8
Jun-04-2012	NA	.	.	1,040	1.1	1.2
Jun-11-2012	NA	.	.	1,030	1.1	1.1
Jun-18-2012	NA	.	.	1,120	1.5	1.2
Jun-25-2012	NA	.	.	1,170	1.4	1.2

Table 17. 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	.	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	.	.	.	SLDMWA	SLDMWA	SLDMWA
UNITS	.	.	.	µS/cm	µg/L	mg/L
Apr-04-2012	.	.	.	2,870	2.1	1.8
Apr-11-2012	.	.	.	2,670	1.0	1.5
Apr-18-2012	.	.	.	1,690	1.2	1.2
Apr-25-2012	.	.	.	2,450	1.5	1.5
May-02-2012	.	.	.	2,580	1.6	1.5
May-09-2012	.	.	.	2,080	1.8	1.2
May-16-2012	.	.	.	1,750	1.9	1.1
May-23-2012	.	.	.	1,820	3.6	1.3
May-30-2012	.	.	.	1,880	3.4	1.2
Jun-06-2012	.	.	.	1,540	2.0	1.0
Jun-13-2012	.	.	.	1,660	2.3	1.0
Jun-20-2012	.	.	.	2,030	4.4	1.5
Jun-27-2012	.	.	.	1,920	2.5	1.2

Table 18. 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	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	usgs	.	.	SLDMWA	SLDMWA	SLDMWA
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Apr-04-2012	387	.	.	2,870	2.1	1.8
Apr-11-2012	337	.	.	2,650	1.1	1.5
Apr-18-2012	479	.	.	1,690	1.2	1.2
Apr-25-2012	317	.	.	2,440	1.5	1.5
May-02-2012	271	.	.	2,590	1.5	1.5
May-09-2012	232	.	.	2,080	1.8	1.2
May-16-2012	241	.	.	1,760	2.0	1.1
May-23-2012	237	.	.	1,820	3.6	1.3
May-30-2012	197	.	.	1,890	3.3	1.2
Jun-06-2012	257	.	.	1,540	2.0	1.0
Jun-13-2012	222	.	.	1,670	2.1	1.0
Jun-20-2012	180	.	.	2,030	4.5	1.5
Jun-27-2012	177	.	.	1,910	2.6	1.3



Table 19. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	USBR	USBR	USBR	USBR	USBR
UNITS	cfs	°C	°C	°C	µg/L	mg/L
Apr-03-2012	617	15.6	8.1	1,720	0.8	0.9
Apr-10-2012	543	16.9	8.1	1,660	0.7	0.9
Apr-17-2012	1,250	18.6	8.1	1,020	0.7	0.7
Apr-24-2012	496	21.9	7.9	1,560	0.9	0.7
May-01-2012	921	20.9	8.3	704	0.4	0.3
May-07-2012	1,250	17.8	8.6	583	< 0.4	0.3
May-15-2012	813	21.3	8.2	890	0.6	0.4
May-22-2012	664	21.7	8.2	939	1.2	0.5
May-29-2012	560	20.4	8.0	1,050	1.2	0.6
Jun-05-2012	606	19.2	8.0	1,025	1.0	0.6
Jun-13-2012	499	23.0	8.0	1,198	1.4	0.6
Jun-19-2012	456	24.8	8.0	1,244	1.9	0.7
Jun-25-2012	451	21.6	8.3	1,152	1.3	0.6

Table 20. 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	.	.	.	USBR	USBR	USBR
UNITS	.	.	.	µS/cm	µg/L	mg/L
Apr-02-2012	.	.	.	882	1.6	0.5
Apr-09-2012	.	.	.	871	2.6	0.4
Apr-16-2012	.	.	.	831	1.5	0.4
Apr-23-2012	.	.	.	779	1.2	0.3
Apr-30-2012	.	.	.	592	1.0	0.3
May-07-2012	.	.	.	501	0.6	0.3
May-14-2012	.	.	.	374	0.5	0.2
May-21-2012	.	.	.	337	0.6	0.2
May-29-2012	.	.	.	368	0.5	0.2
Jun-04-2012	.	.	.	556	0.7	0.3
Jun-11-2012	.	.	.	535	0.9	0.3
Jun-18-2012	.	.	.	541	0.7	0.3
Jun-25-2012	.	.	.	546	0.9	0.3

**Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from July 2011 to June 2012. 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	%	%	%	%	%	%
Jul-2011	33*	100	95	100	98	90
Aug-2011	90	88	95	93	70	90
Sep-2011	79*	88	90	95	95	95
Oct-2011	90	98	98	100	98	100
Nov-2011	100	93	98	93	100	100
Dec-2011	100	98	98	95	95	98
Jan-2012	85	75	78	80	78	85
Feb-2012	98	90	100	100	98	98
Mar-2012	98	98	100	98	95	95
Apr-2012	98	100	98	95	93	93
May-2012	98	88	98	88	90	95
Jun-2012	95	100	100	98	100	98

**Table 22. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from July 2011 to June 2012. 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
Jul-2011	0.06*	0.26	0.25	0.28	0.27	0.26
Aug-2011	0.26	0.25	0.26	0.28	0.25	0.29
Sep-2011	0.28	0.30	0.33	0.34	0.32	0.32
Oct-2011	0.45	0.34	0.41	0.42	0.37	0.38
Nov-2011	0.50	0.47	0.47	0.46	0.48	0.44
Dec-2011	0.42	0.38	0.44	0.39	0.37	0.36
Jan-2012	0.37	0.33	0.33	0.33	0.34	0.35
Feb-2012	0.38	0.33	0.36	0.38	0.35	0.39
Mar-2012	0.56	0.46	0.45	0.44	0.41	0.49
Apr-2012	0.39	0.35	0.34	0.40	0.34	0.34
May-2012	0.32	0.32	0.36	0.34	0.30	0.31
Jun-2012	0.34	0.37	0.39	0.38	0.38	0.36

**Table 23. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from July 2011 to June 2012. 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	%	%	%	%	%	%
Jul-2011	90	80	100	90	100	100
Aug-2011	90	90	90	100	90	90
Sep-2011	100	90	70	100	90	90
Oct-2011	90	60	100	90	100	100
Nov-2011	100	100	100	100	100	100
Dec-2011	90	80	80	70	80	90
Jan-2012	90	100	100	90	100	100
Feb-2012	100	90	100	90	100	100
Mar-2012	100	100	80	80	90	90
Apr-2012	100	80	90	100	100	90
May-2012	90	90	80	90	100	100
Jun-2012	90	80	90	90	100	100

**Table 24. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from July 2011 to June 2012. 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
Jul-2011	31.7	43.8	40.9	21.7	30.5	25.3
Aug-2011	38.1	32.8	40.4	31.4	31.0	34.3
Sep-2011	41.3	33.1	37.2	35.0	28.4	29.6
Oct-2011	26.9	13.2*	29.9	20.8	24.2	27.1
Nov-2011	51.9	46.8	48.1	39.3	44.6	27.0
Dec-2011	24.3	32.1	36.7	24.0	28.0	34.1
Jan-2012	34.1	41.4	35.7	29.2	33.9	28.5
Feb-2012	58.0	48.9	63.8	54.9	58.6	52.0
Mar-2012	58.3	49.7	41.8	40.8	45.1	31.5
Apr-2012	35.4	30.0	33.7	27.7	31.4	25.4
May-2012	33.0*	39.7	40.2	42.2	47.2	38.9
Jun-2012	41.9	37.7	33.1	29.8	35.7	28.3

**Table 25. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from July 2011 to June 2012. 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
Jul-2011	20.8	26.0	18.2	20.3	22.8	19.1
Aug-2011	20.4*	23.5	23.2	24.3	27.4	19.0
Sep-2011	7.1*	24.9	3.3*	29.2	17.8	2.0††††
Oct-2011	20.1	26.6	33.3	25.9	22.9	18.8
Nov-2011	14.7*	32.5	30.7	26.7	22.2	26.3
Dec-2011	17.4	36.6	36.0	35.6	25.1	2.9††††
Jan-2012	25.1	33.6	37.5	32.9	27.8	28.5
Feb-2012	25.0	36.4	34.9	4.9*	29.8	23.5
Mar-2012	17.9*	27.6	17.8*	26.7	25.6	24.0
Apr-2012	22.2	30.9	27.5	24.4	23.4	23.5
May-2012	18.1	8.3*	20.2	21.1	19.5	16.7
Jun-2012	21.8	27.7	27.1	34.3	23.1	16.3‡

**Table 26. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, April 2012 to June 2012.**

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
Apr-16-2012	17	0.8	5.1	1.0	< 0.4
Apr-18-2012	24	0.6	3.8	0.7	< 0.4
Apr-20-2012	30	1.0	4.2	0.8	< 0.4
May-14-2012	34	0.6	14	0.4	< 0.4
May-16-2012	33	0.9	9.1	0.5	< 0.4
May-18-2012	36	0.8	9.0	< 0.4	0.5
Jun-11-2012	37	0.9	8.0	0.5	< 0.4
Jun-13-2012	35	0.8	11	0.5	< 0.4
Jun-15-2012	33	0.6	13	0.5	< 0.4

**Table 27. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, April 2012 to June 2012.**

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
Apr-16-2012	67	76	83	42	6
Apr-18-2012	77	70	88	75	15
Apr-20-2012	65	37	109	84	6
May-14-2012	35	80	44	153	<1
May-16-2012	21	97	110	122	48
May-18-2012	54	77	126	246	29
Jun-11-2011	28	49	90	106	14
Jun-13-2011	33	33	60	153	16
Jun-15-2011	62	48	52	221	6

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 ( $10^6$ 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 $0.4 \mu\text{g/L}$ as of June 1998.
❖	Based on definitive bioassay, NOEC is 50 percent
D	Sample was dechlorinated
PPD	Panoche Drainage District
U	results are determined to be an outlier at the time of data validation