

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

April 2008

August 25, 2008

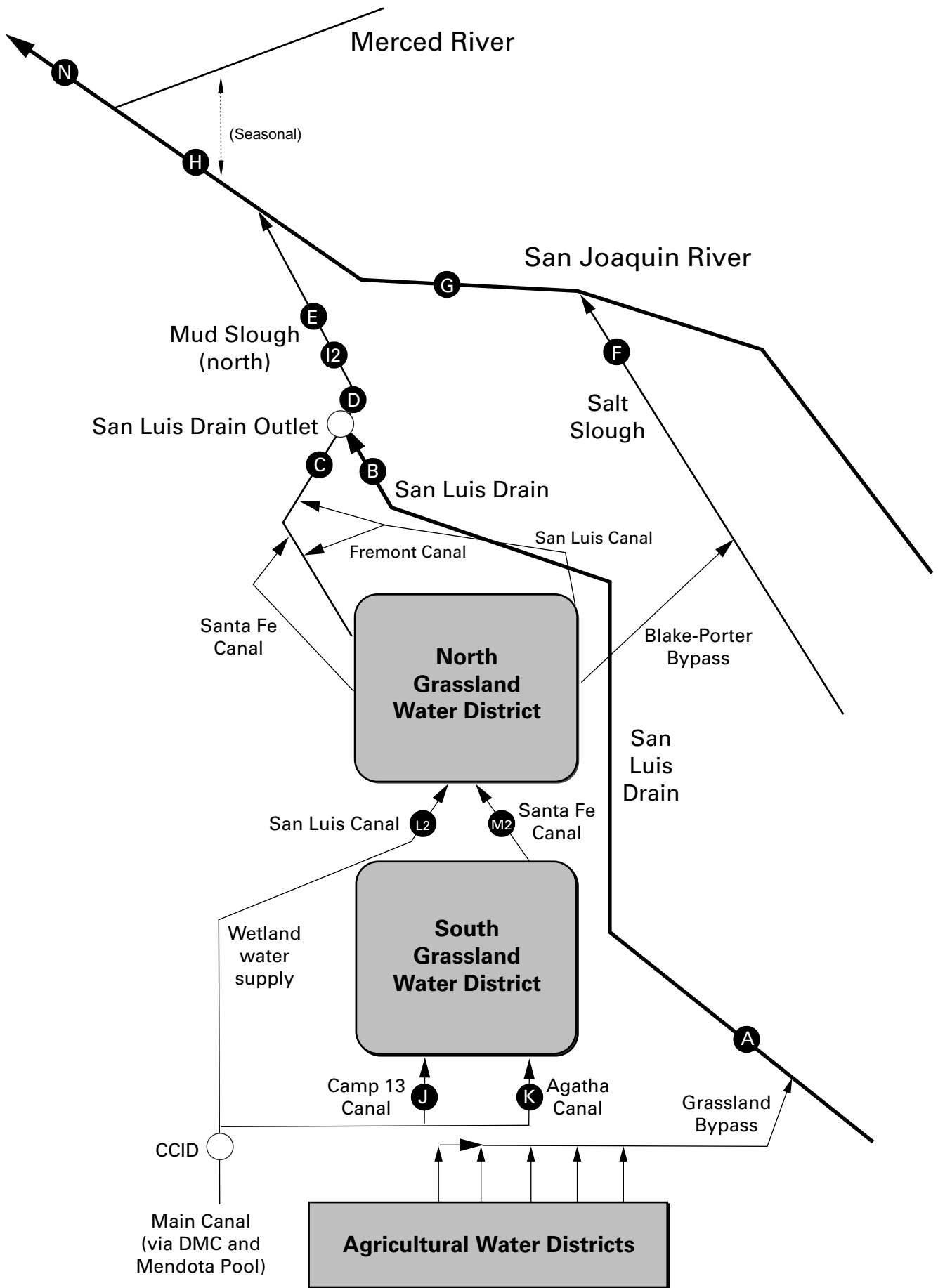
Preliminary Results

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

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

1. Continuous water monitoring at Station A (inflow to San Luis Drain), April 2008.
- 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), April 2008.
- 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), April 2008.
4. Continuous water monitoring at Station F (Salt Slough at Highway 165), April 2008.
5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), April 2008.

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

Monthly Monitoring

20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from May 2007 to April 2008.
21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from May 2007 to April 2008.
22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from May 2007 to April 2008.
23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from May 2007 to April 2008.
24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from May 2007 to April 2008.
25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, February 2008 to April 2008.
26. Summary of total suspended solids concentrations in grab water samples collected from February 2008 to April 2008.
27. Explanations of footnotes and agency abbreviations.

Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), April 2008.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
Apr-01-2008	18	4,560
Apr-02-2008	16	4,590
Apr-03-2008	15	4,680
Apr-04-2008	14	4,760
Apr-05-2008	17	4,700
Apr-06-2008	23	4,470
Apr-07-2008	21	3,990
Apr-08-2008	21	4,160
Apr-09-2008	17	4,400
Apr-10-2008	21	4,380
Apr-11-2008	21	4,380
Apr-12-2008	21	4,460
Apr-13-2008	22	4,220
Apr-14-2008	26	4,290
Apr-15-2008	31	4,250
Apr-16-2008	29	3,950
Apr-17-2008	25	3,920
Apr-18-2008	23	3,590
Apr-19-2008	26	3,500
Apr-20-2008	36	3,610
Apr-21-2008	42	3,570
Apr-22-2008	39	3,190
Apr-23-2008	35	3,910
Apr-24-2008	34	4,050
Apr-25-2008	27	4,010
Apr-26-2008	24	4,370
Apr-27-2008	25	4,420
Apr-28-2008	26	4,330
Apr-29-2008	21	4,320
Apr-30-2008	26	4,710
.	.	.
Mean	24.8	4,190

Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), April 2008.

See Table 27 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
Apr-01-2008	18	16.9	P	4,680	38.0	3.7
Apr-02-2008	20	17.9	P	4,660	35.9	3.9
Apr-03-2008	19	18.2	P	4,070	28.6	2.9
Apr-04-2008	17	19.0	P	4,680	34.2	3.1
Apr-05-2008	16	19.0	P	4,700	40.8	3.5
Apr-06-2008	18	19.1	P	4,650	32.3	3.1
Apr-07-2008	23	18.7	P	4,620	40.2	5.0
Apr-08-2008	22	17.8	P	4,690	38.2	4.5
Apr-09-2008	22	17.4	P	4,860	39.3	4.6
Apr-10-2008	19	18.3	P	4,860	41.1	4.3
Apr-11-2008	21	18.7	P	4,710	42.1	4.8
Apr-12-2008	21	19.6	P	4,140	37.3	4.3
Apr-13-2008	21	21.4	P	4,290	44.2	5.1
Apr-14-2008	22	22.7	P	4,550	49.5	5.8
Apr-15-2008	26	21.2	P	4,530	39.5	5.5
Apr-16-2008	31	19.1	P	4,600	38.9	6.5
Apr-17-2008	31	19.4	P	4,600	36.5	6.1
Apr-18-2008	27	20.7	P	4,490	37.5	5.4
Apr-19-2008	23	20.3	P	4,230	32.6	4.1
Apr-20-2008	27	18.6	P	4,060	34.8	5.1
Apr-21-2008	41	18.1	P	4,050	33.4	7.3
Apr-22-2008	50	18.2	P	3,770	25.9	7.0
Apr-23-2008	46	17.9	P	3,880	37.4	9.3
Apr-24-2008	38	17.6	P	3,980	47.3	9.6
Apr-25-2008	32	18.6	P	3,400	36.7	6.3
Apr-26-2008	29	20.6	P	3,790	43.0	6.7
Apr-27-2008	25	21.9	P	4,190	50.1	6.9
Apr-28-2008	25	23.5	P	4,290	49.2	6.7
Apr-29-2008	26	22.9	P	4,120	52.1	7.2
Apr-30-2008	21	20.6	P	4,340	54.5	6.1
.
Mean	26	19.5	P	4,350	39.7	5.5
Total Acre-feet	1,540					
Total (lbs)						164

Load Limitation for April 2008 (lbs)	401
--------------------------------------	-----

◆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.

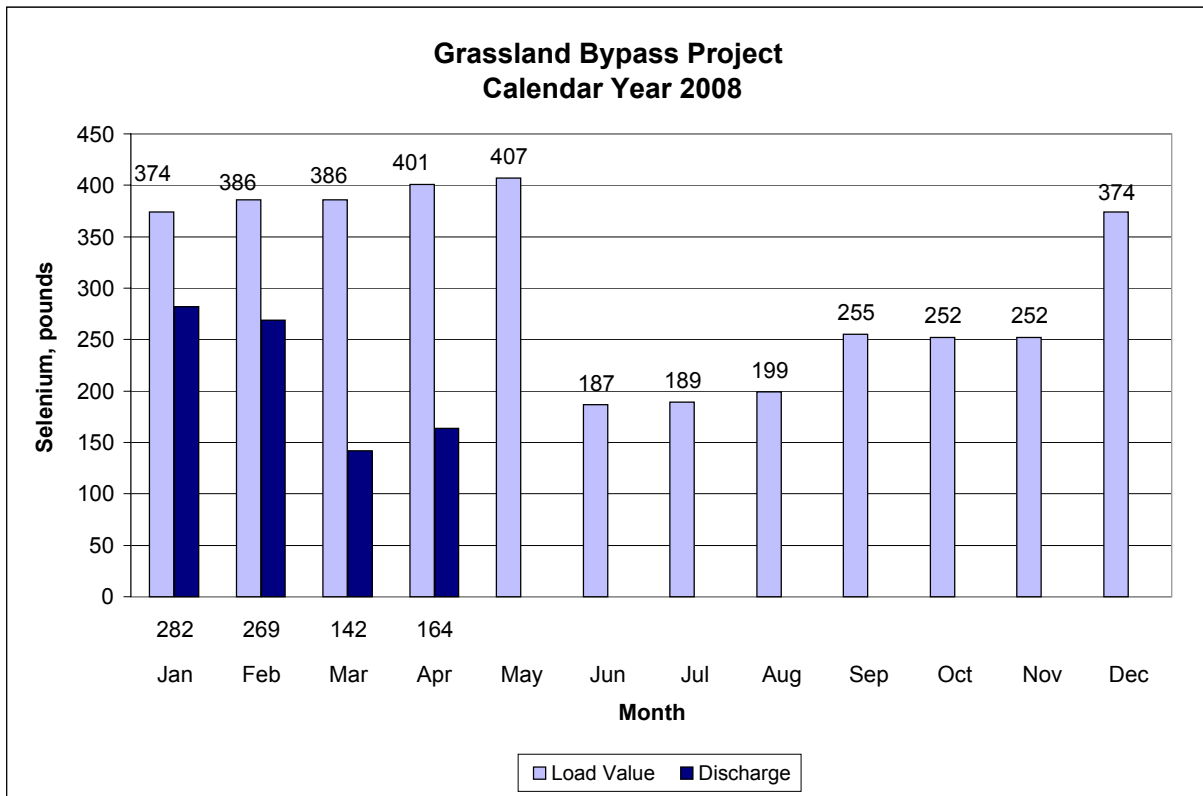


Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), April 2008.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
Apr-01-2008	133	17.0	2,600
Apr-02-2008	132	17.3	2,740
Apr-03-2008	123	18.0	2,730
Apr-04-2008	112	18.7	2,730
Apr-05-2008	90	18.0	3,180
Apr-06-2008	80	17.9	3,540
Apr-07-2008	83	17.2	3,610
Apr-08-2008	75	16.5	3,670
Apr-09-2008	67	16.5	3,830
Apr-10-2008	64	17.3	3,830
Apr-11-2008	55	18.5	4,260
Apr-12-2008	50	20.3	4,260
Apr-13-2008	55	22.0	3,820
Apr-14-2008	63	21.7	3,390
Apr-15-2008	63	18.9	3,630
Apr-16-2008	65	17.4	3,740
Apr-17-2008	64	18.7	3,750
Apr-18-2008	60	20.2	3,780
Apr-19-2008	59	18.7	3,910
Apr-20-2008	51	16.9	4,190
Apr-21-2008	60	16.8	3,880
Apr-22-2008	59	16.8	3,630
Apr-23-2008	62	16.7	3,590
Apr-24-2008	60	16.2	3,690
Apr-25-2008	59	17.3	3,580
Apr-26-2008	55	19.1	4,130
Apr-27-2008	54	21.2	4,590
Apr-28-2008	57	21.9	3,930
Apr-29-2008	59	21.3	3,440
Apr-30-2008	49	18.6	3,630
Mean	71	18.5	3,640

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), April 2008.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
Apr-01-2008	137	16.4	NA
Apr-02-2008	139	16.9	1,890
Apr-03-2008	139	17.3	1,820
Apr-04-2008	133	18.1	1,810
Apr-05-2008	146	17.7	1,680
Apr-06-2008	155	17.5	1,520
Apr-07-2008	163	16.6	1,460
Apr-08-2008	163	16.2	1,400
Apr-09-2008	150	15.9	1,490
Apr-10-2008	141	16.9	1,580
Apr-11-2008	151	18.2	1,590
Apr-12-2008	153	19.9	1,580
Apr-13-2008	137	21.7	1,620
Apr-14-2008	166	21.7	1,490
Apr-15-2008	145	18.6	1,460
Apr-16-2008	127	16.9	1,660
Apr-17-2008	142	18.1	1,500
Apr-18-2008	145	19.8	1,460
Apr-19-2008	140	18.5	1,480
Apr-20-2008	127	16.1	1,520
Apr-21-2008	140	16.0	1,440
Apr-22-2008	133	16.4	1,390
Apr-23-2008	129	16.9	1,500
Apr-24-2008	136	16.5	1,450
Apr-25-2008	128	17.6	1,440
Apr-26-2008	119	19.5	1,500
Apr-27-2008	105	21.9	1,550
Apr-28-2008	96	22.5	1,660
Apr-29-2008	86	21.3	1,720
Apr-30-2008	85	18.6	1,810
.	.	.	.
Mean	135	18.2	1,570

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), April 2008.

See Table 27 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
Apr-01-2008	717	16.8	1,690	0.9
Apr-02-2008	709	17.3	1,670	1.1
Apr-03-2008	702	17.9	1,670	1.3
Apr-04-2008	693	18.4	1,680	1.2
Apr-05-2008	654	17.9	1,680	1.1
Apr-06-2008	665	17.9	1,680	0.9
Apr-07-2008	685	17.2	1,610	1.0
Apr-08-2008	647	16.9	1,520	1.2
Apr-09-2008	621	16.8	1,540	1.5
Apr-10-2008	604	17.4	1,570	1.5
Apr-11-2008	568	18.5	1,640	1.9
Apr-12-2008	564	20.0	1,290	1.5
Apr-13-2008	590	21.5	NA	NA
Apr-14-2008	589	21.5	NA	NA
Apr-15-2008	596	19.0	NA	NA
Apr-16-2008	590	17.6	NA	NA
Apr-17-2008	574	18.5	NA	NA
Apr-18-2008	552	20.2	NA	NA
Apr-19-2008	568	20.0	NA	NA
Apr-20-2008	534	17.9	NA	NA
Apr-21-2008	530	16.7	NA	NA
Apr-22-2008	565	17.0	NA	NA
Apr-23-2008	600	17.4	NA	NA
Apr-24-2008	794	16.6	NA	NA
Apr-25-2008	1,050	16.5	NA	NA
Apr-26-2008	1,320	16.9	NA	NA
Apr-27-2008	1,470	17.8	NA	NA
Apr-28-2008	1,580	18.4	NA	NA
Apr-29-2008	1,600	17.8	NA	NA
Apr-30-2008	1,580	16.4	NA	NA
Mean	780	18.0	1,600	1.3

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

See Table 27 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	.	.	.
Feb-06-2008	26	.	.	4,740	110	.	.	.
Feb-13-2008	26	.	.	4,740	120	.	.	.
Feb-20-2008	29	.	.	4,130	140	.	.	.
Feb-27-2008	27	.	.	4,060	110	.	.	.
Mar-05-2008	28	.	.	4,630	140	.	.	.
Mar-12-2008	42	.	.	3,030	280	.	.	.
Mar-19-2008	20	.	.	4,210	170	.	.	.
Mar-26-2008	17	.	.	4,970	57	.	.	.
Apr-02-2008	16	.	.	4,780	60	.	.	.
Apr-09-2008	17	.	.	4,640	60	.	.	.
Apr-16-2008	29	.	.	4,060	160	.	.	.
Apr-23-2008	35	.	.	4,040	190	.	.	.
Apr-30-2008	26	.	.	4,920	160	.	.	.

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

See Table 27 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
Feb-05-2008	25	.	.	4,940	.	82.1	.	P
Feb-12-2008	31	.	.	4,850	.	80.0	.	P
Feb-19-2008	24	.	.	4,320	.	42.6	.	P
Feb-26-2008	24	.	.	3,880	.	34.9	.	P
Mar-04-2008	24	.	.	4,380	.	41.6	.	P
Mar-11-2008	37	.	.	3,710	.	34.0	.	P
Mar-18-2008	22	.	.	3,640	.	26.1	.	P
Mar-25-2008	17	.	.	4,710	.	33.6	.	P
Apr-01-2008	18	.	.	4,710	.	39.1	.	P
Apr-08-2008	21	.	.	4,640	.	45.8	.	P
Apr-15-2008	31	.	.	4,560	.	40.3	.	P
Apr-22-2008	39	.	.	3,720	.	35.9	.	P
Apr-29-2008	21	.	.	4,540	.	56.2	.	P

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

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Total Suspended Solids	Selenium (total)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	mg/L	µg/L	mg/L
Feb-07-2008	33	9.9	8.1	4,660	22	68.6	P
Feb-14-2008	30	8.9	8.3	4,590	88	71.7	P
Feb-21-2008	36	13.0	8.1	3,880	20	30.0	P
Feb-28-2008	34	14.2	8.5	3,410	20	23.6	P
Mar-06-2008	34	13.6	8.4	3,830	31	29.8	P
Mar-13-2008	46	17.3	8.4	3,910	32	36.7	P
Mar-20-2008	24	15.8	8.7	3,660	36	23.6	P
Mar-27-2008	19	15.7	8.8	4,290	27	25.6	P
Apr-03-2008	19	16.6	8.9	4,110	40	28.4	P
Apr-10-2008	19	16.0	8.9	4,830	64	38.5	P
Apr-17-2008	31	17.1	8.7	4,570	48	35.1	P
Apr-24-2008	38	16.0	8.0	4,040	42	45.7	P

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

See Table 27 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
Feb-07-2008	120	10.0	7.8	2,000	.	0.8	P
Feb-14-2008	127	7.6	8.2	2,120	.	<0.4	P
Feb-21-2008	108	12.6	7.7	2,080	.	0.6	P
Feb-28-2008	113	14.1	7.9	2,230	.	0.6	P
Mar-06-2008	126	13.1	8.1	2,060	.	0.6	P
Mar-13-2008	77	16.5	7.9	2,320	.	0.8	P
Mar-20-2008	105	15.7	8.1	2,080	.	1.1	P
Mar-27-2008	72	13.3	8.2	2,350	.	0.6	P
Apr-03-2008	104	15.4	8.3	2,860	.	0.7	P
Apr-10-2008	45	14.7	8.4	2,650	.	0.7	P
Apr-17-2008	33	16.9	8.4	1,520	.	1.2	P
Apr-24-2008	22	17.3	8.4	2,570	.	0.8	P

** 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 27 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
Feb-07-2008	153	9.8	8.0	2,650	14.6	P
Feb-14-2008	157	7.9	8.2	2,650	12.2	P
Feb-21-2008	144	12.7	7.9	2,780	7.5	P
Feb-28-2008	147	14.1	8.0	2,590	5.5	P
Mar-06-2008	160	13.0	8.2	2,470	5.7	P
Mar-13-2008	123	16.6	8.0	2,770	10.9	P
Mar-20-2008	129	16.1	8.3	2,340	4.1	P
Mar-27-2008	91	13.8	8.2	2,770	4.2	P
Apr-03-2008	123	15.6	8.3	2,800	4.8	P
Apr-10-2008	64	15.0	8.5	3,590	12.7	P
Apr-17-2008	64	16.5	8.5	3,720	19.0	P
Apr-24-2008	60	16.0	8.2	3,700	30.1	P

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

See Table 27 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
Feb-07-2008	.	8.1	2,620	34	14.9	3.1
Feb-12-2008	.	7.8	2,920	31	14.8	3.3
Feb-19-2008	.	8.1	3,280	35	9.1	3.7
Mar-06-2008	.	8.1	2,460	49	5.7	2.7
Mar-10-2008	.	8.1	2,590	58	6.4	2.8
Mar-19-2008	.	8.2	2,520	55	2.2	2.4
Mar-27-2008	.	8.2	3,250	40	4.2	3.1
Apr-01-2008	.	8.3	2,740	43	5.0	3.3
Apr-07-2008	.	8.2	3,920	39	10.8	4.7
Apr-15-2008	.	8.4	3,660	43	16.4	5.0
Apr-25-2008	.	8.7	3,510	32	27.6**	4.6
Apr-30-2008	.	8.6	3,300	45	23.6**	4.3

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

See Table 27 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
Feb-07-2008	192	10.6	7.9	1,790	0.9	P
Feb-14-2008	141	8.6	7.9	1,900	0.6	P
Feb-21-2008	183	12.7	8.0	1,550	<0.4	P
Feb-28-2008	249	13.3	7.6	1,650	0.9	P
Mar-06-2008	268	13.0	7.6	1,600	0.7	P
Mar-13-2008	240	16.2	7.6	1,580	0.7	P
Mar-20-2008	259	16.5	7.7	1,630	1.0	P
Mar-27-2008	169	14.5	7.8	1,870	0.5	P
Apr-03-2008	139	15.3	7.5	1,060	0.6	P
Apr-10-2008	141	14.7	7.7	1,660	0.8	P
Apr-17-2008	142	15.5	7.8	1,380	0.6	P
Apr-24-2008	136	15.2	8.0	1,480	0.6	P

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

See Table 27 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
Feb-06-2008	30	.	.	830	2.0	P
Feb-13-2008	30	.	.	650	1.6	P
Feb-20-2008	30	.	.	780	3.3	P
Feb-27-2008	30	.	.	990	2.8	P
Mar-05-2008	10	.	.	690	1.9	P
Mar-12-2008	10	.	.	590	1.4	P
Mar-19-2008	10	.	.	730	1.5	P
Mar-26-2008	20	.	.	850	1.2	P
Apr-02-2008	10	.	.	810	1.3	P
Apr-09-2008	10	.	.	800	1.8	P
Apr-16-2008	10	.	.	670	1.1	P
Apr-23-2008	10	.	.	730	1.1	P
Apr-30-2008	20	.	.	690	0.9	P

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

See Table 27 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
Feb-06-2008	60	.	.	860	2.0	P
Feb-13-2008	60	.	.	660	1.2	P
Feb-20-2008	60	.	.	670	1.5	P
Feb-27-2008	60	.	.	740	2.0	P
Mar-05-2008	40	.	.	720	1.3	P
Mar-12-2008	20	.	.	1,070	2.0	P
Mar-19-2008	20	.	.	750	1.0	P
Mar-26-2008	10	.	.	1,310	1.2	P
Apr-02-2008	20	.	.	840	1.6	P
Apr-09-2008	20	.	.	820	1.3	P
Apr-16-2008	20	.	.	720	1.5	P
Apr-23-2008	20	.	.	740	1.8	P
Apr-30-2008	20	.	.	680	1.3	P

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

See Table 27 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
Feb-06-2008	0	.	.	1,020	0.8	P
Feb-13-2008	0	.	.	1,600	0.7	P
Feb-20-2008	0	.	.	500	0.8	P
Feb-27-2008	0	.	.	1,530	2.0	P
Mar-05-2008	0	.	.	1,950	1.9	P
Mar-12-2008	0	.	.	2,140	1.0	P
Mar-19-2008	0	.	.	1,800	2.4	P
Mar-26-2008	0	.	.	1,820	2.4	P
Apr-02-2008	0	.	.	2,730	3.4	P
Apr-09-2008	0	.	.	1,620	1.6	P
Apr-16-2008	25	.	.	1,260	1.6	P
Apr-23-2008	25	.	.	1,190	1.4	P
Apr-30-2008	65	.	.	830	1.3	P

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

See Table 27 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
Feb-06-2008	NA	.	.	1,470	1.0	P
Feb-13-2008	NA	.	.	1,560	0.8	P
Feb-20-2008	NA	.	.	1,410	1.0	P
Feb-27-2008	NA	.	.	1,440	1.4	P
Mar-05-2008	NA	.	.	1,640	1.0	P
Mar-12-2008	NA	.	.	1,950	1.2	P
Mar-19-2008	NA	.	.	1,950	1.5	P
Mar-26-2008	NA	.	.	2,060	0.9	P
Apr-02-2008	NA	.	.	1,960	1.5	P
Apr-09-2008	NA	.	.	1,590	1.6	P
Apr-16-2008	NA	.	.	2,410	1.4	P
Apr-23-2008	NA	.	.	1,470	1.0	P
Apr-30-2008	NA	.	.	1,250	1.2	P

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

See Table 27 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
Feb-06-2008	.	.	.	790	1.8	P
Feb-13-2008	.	.	.	620	1.2	P
Feb-20-2008	.	.	.	700	2.1	P
Feb-27-2008	.	.	.	860	1.6	P
Mar-05-2008	.	.	.	660	1.4	P
Mar-12-2008	.	.	.	640	1.1	P
Mar-19-2008	.	.	.	560	1.2	P
Mar-26-2008	.	.	.	710	1.5	P
Apr-02-2008	.	.	.	660	1.6	P
Apr-09-2008	.	.	.	760	1.8	P
Apr-16-2008	.	.	.	710	1.0	P
Apr-23-2008	.	.	.	660	1.3	P
Apr-30-2008	.	.	.	650	1.0	P

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

See Table 27 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
Feb-07-2008	1,280	9.0	7.9	420	<0.4	P
Feb-14-2008	347	9.4	8.0	1,220	<0.4	P
Feb-21-2008	295	12.1	7.9	1,500	0.6	P
Feb-28-2008	1,170	13.8	7.7	690	<0.4	P
Mar-06-2008	415	13.4	7.8	1,360	0.6	P
Mar-13-2008	335	16.5	7.7	1,610	0.7	P
Mar-20-2008	312	15.2	8.0	1,750	0.7	P
Mar-27-2008	232	14.8	8.0	2,100	0.5	P
Apr-03-2008	174	16.0	7.7	2,280	0.5	P
Apr-10-2008	176	15.5	7.8	2,030	0.6	P
Apr-17-2008	157	16.8	7.6	1,730	0.6	P
Apr-24-2008	164	16.7	7.6	1,880	0.5	P

Table 18. Weekly water quality monitoring at Station H (San Joaquin River at Hills Ferry).

(Collected data intended for use with biological monitoring.)

See Table 27 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
Feb-12-2008	.	.	.	1,620	3.5	1.2
Feb-20-2008	.	.	.	3,540	32.6	5.3
Feb-26-2008	.	.	.	1,530	1.2	0.9
Mar-04-2008	.	.	.	1,830	2.1	1.3
Mar-11-2008	.	.	.	2,100	2.1	1.6
Mar-18-2008	.	.	.	1,540	1.5	1.5
Mar-25-2008	.	.	.	2,290	1.5	1.6
Apr-01-2008	.	.	.	2,560	1.9	1.8
Apr-08-2008	.	.	.	2,550	3.1	1.8
Apr-15-2008	.	.	.	2,330	4.5	1.6
Apr-29-2008	.	.	.	2,740	6.5	1.7

Indicates questionable data.

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

See Table 27 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
Feb-07-2008	2,160	8.6	7.8	650	1.3	P
Feb-14-2008	1070	9.8	7.9	1,220	2.4	P
Feb-21-2008	894	12.9	7.9	1,450	1.5	P
Feb-28-2008	2,080	13.2	7.8	700	0.9	P
Mar-06-2008	1,260	13.5	8.0	1,230	1.3	P
Mar-13-2008	1,010	16.8	7.9	1,560	1.8	P
Mar-20-2008	877	15.6	8.0	1,560	1.6	P
Mar-27-2008	820	15.3	8.1	1,590	0.9	P
Apr-03-2008	702	16.5	8.0	1,670	1.2	P
Apr-10-2008	604	16.5	8.1	1,570	1.6	P
Apr-17-2008	574	17.3	8.0	1,570	2.3	P
Apr-24-2008	794	16.3	8.0	1,020	2.1	P

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from May 2007 to April 2008. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 27 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	%	%	%	%	%	%
May-2007	95	95	98	95	100	95
Jun-2007	98	93	90	90	93	90
Jul-2007	100	98	98	100	100	100
Aug-2007	93	100	100	95	93	100
Sep-2007	93	90	88	93	93	100
Oct-2008	88	98	93	95	98	100
Nov-2008	95	95	100	100	100	98
Dec-2008	93	93	98	98	95	95
Jan-2008	100	100	95	98	100	100
Feb-2008	100	95	100	95	98	100
Mar-2008	93	95	100	100	73	100
Apr-2008	98	100	100	100	95	98

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from May 2007 to April 2008. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 27 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
May-2007	0.41	0.43	0.40	0.36	0.45	0.41
Jun-2007	0.36	0.33	0.33	0.31	0.31	0.33
Jul-2007	0.36	0.32	0.26*	0.36	0.36	0.33
Aug-2007	0.30	0.29	0.32	0.33	0.27	0.26
Sep-2007	0.26	0.24	0.25	0.26	0.27	0.25
Oct-2008	0.32	0.36	0.34	0.41	0.36	0.34
Nov-2008	0.32*	0.32*	0.35	0.33	0.36	0.33
Dec-2008	0.31	0.33	0.32	0.32	0.32	0.32
Jan-2008	0.40	0.40	0.41	0.41	0.37	0.35
Feb-2008	0.46	0.43	0.41	0.41	0.38	0.33
Mar-2008	0.33	0.33	0.37	0.38	0.22	0.29
Apr-2008	0.31	0.39	0.31	0.24*	0.30	0.27

Table 22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from May 2007 to April 2008. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 27 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	%	%	%	%	%	%
May-2007	90	0*	90	90	100	100
Jun-2007	60*	100	80	100	100	100
Jul-2007	80	80	80	90	80	100
Aug-2007	100	70	90	90	80	100
Sep-2007	100	100	100	100	100	80
Oct-2008	90	80	100	90	90	80
Nov-2008	100	100	100	100	100	100
Dec-2008	90	100	100	100	100	80
Jan-2008	70	100	90	100	100	90
Feb-2008	100	90	80	90	100	100
Mar-2008	100	100	90	100	100	90
Apr-2008	100	100	80	100	90	90

Table 23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from May 2007 to April 2008. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 27 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
May-2007	38.4	16.0*	33.0	33.3	36.5	30.0
Jun-2007	18.3*	34.9	34.9	32.6	28.2	27.2
Jul-2007	43.1	32.5	34.6	20.9	20.8	36.3
Aug-2007	29.8	26.3	40.7	33.9	25.9	26.3
Sep-2007	19.2*	32.0	31.0	23.8	29.3	19.6
Oct-2008	35.8	31.1	34.4	27.5	24.3	26.2
Nov-2008	49.9	44.0	46.9	41.6	42.5	40.3
Dec-2008	32.2	24.4	32.2	28.7	30.7	23.0
Jan-2008	36.4	47.8	41.5	40.3	48.8	45.2
Feb-2008	35.6	33.6	33.4	35.8	27.7	28.3
Mar-2008	27.4	29.0	29.5	26.2	30.1	19.6
Apr-2008	31.4	31.1	27.5	24.8	33.6	25.8

Table 24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from May 2007 to April 2008. Each value is the mean of 4 replicates.

See Table 27 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 ⁵ cells/mL	10 ⁵ cells/mL	10 ⁵ cells/mL	10 ⁵ cells/mL	10 ⁵ cells/mL	10 ⁵ cells/mL
May-2007	12.2	15.8	2.8*	10.0*	14.2	14.9
Jun-2007	12.3	15.3	13.6	14.5	11.2	16.0
Jul-2007	10.4	15.4	11.2	15.5	9.4	13.4
Aug-2007	12.0	15.9	12.6	13.7	9.9	13.7
Sep-2007	11.8	8.9	11.5	13.5	9.2††††	3.8†††† ‡
Oct-2008	12.0	13.9	14.1	14.8	10.8	13.8 ‡
Nov-2008	9.7*	17.3	21.4	19.1	13.2	15.1
Dec-2008	11.7	19.3	17.7	18.3	13.2	14.1
Jan-2008	15.8	16.3	22.6	19.9	16.3	16.1
Feb-2008	6.2	13.9	12.1	12.8	7.7††††	12.3
Mar-2008	18.1	14.2*	22.2	11.2*	20.5	24.9
Apr-2008	13.3*	16.7	22.4	11.9*	17.2	18.3

Table 25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, February 2008 to April 2008.

See Table 27 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
Feb-11-2008	66	0.8	18	0.8	<0.4
Feb-13-2008	63	0.5	14	0.6	1.0
Feb-15-2008	69	0.5	15	0.7	1.1
Mar-10-2008	30	0.8	6.5	0.7	0.8
Mar-12-2008	28	0.8	7.7	0.6	<0.4
Mar-14-2008	25	0.8	8.5	0.6	0.5
Apr-07-2008	40	0.7	9.4	0.7	<0.4
Apr-09-2008	38	0.5	13	0.7	<0.4
Apr-11-2008	46	0.5	15	0.7	<0.4

Table 26. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, February 2008 to April 2008.

See Table 27 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
Feb-11-2008	21	43	42	74	21
Feb-13-2008	27	64	63	72	29
Feb-15-2008	36	44	54	60	42
Mar-10-2008	13	113	77	60	40
Mar-12-2008	26	104	83	53	17
Mar-14-2008	21	107	89	56	10
Apr-07-2008	54	78	65	68	16
Apr-09-2008	45	58	62	45	16
Apr-11-2008	73	90	87	105	9

Table 27. 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 µg/L as of June 1998.
❖	Based on definitive bioassay, NOEC is 50 percent
D	Sample was dechlorinated