

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

December 2008

April 15, 2009

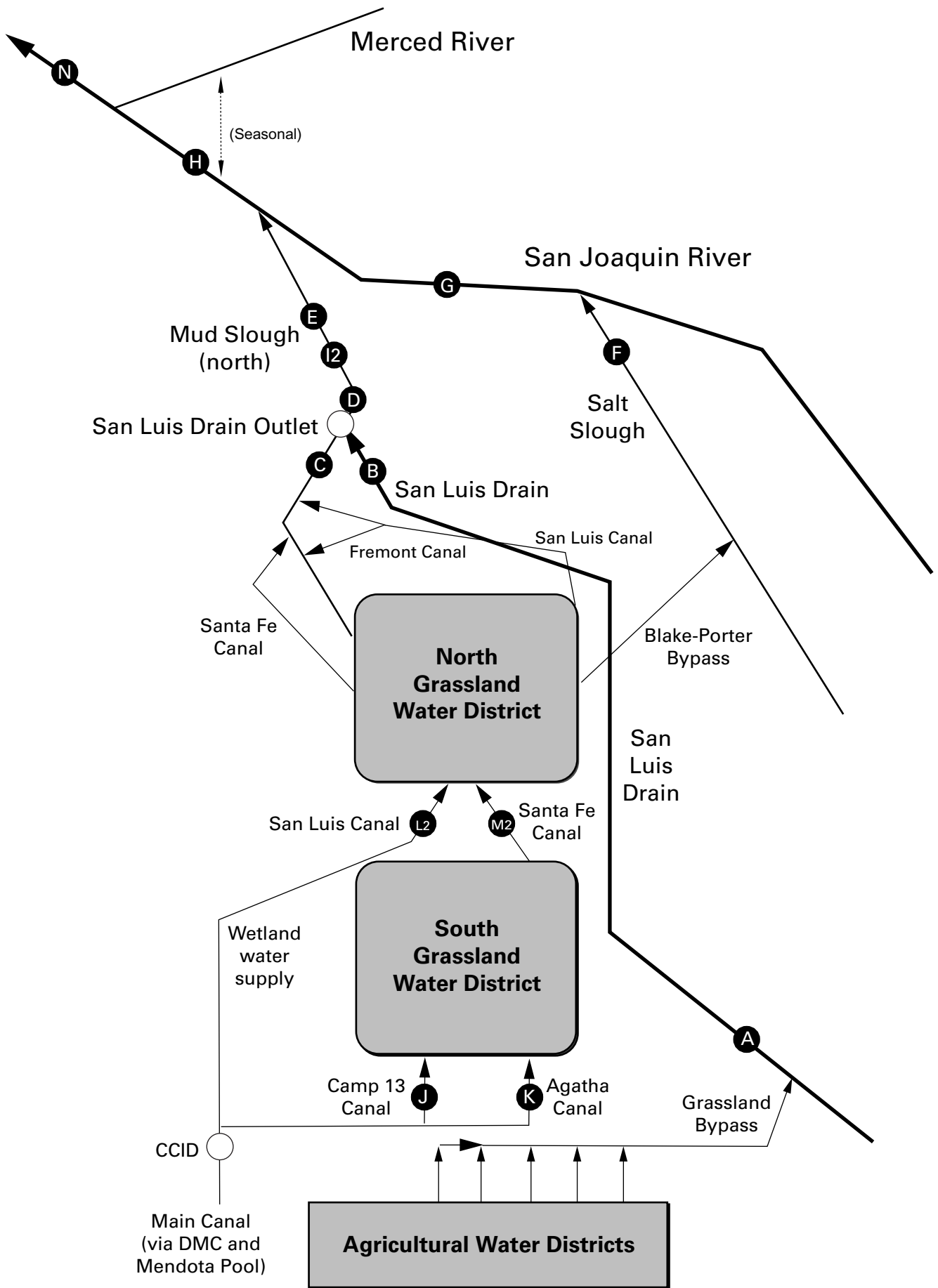
Preliminary Results

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





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

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
Dec-01-2008	11	4,490
Dec-02-2008	19	3,910
Dec-03-2008	19	3,970
Dec-04-2008	22	4,160
Dec-05-2008	15	3,760
Dec-06-2008	20	4,000
Dec-07-2008	20	4,040
Dec-08-2008	20	4,150
Dec-09-2008	21	4,340
Dec-10-2008	23	3,780
Dec-11-2008	22	3,760
Dec-12-2008	21	3,760
Dec-13-2008	21	3,940
Dec-14-2008	20	4,100
Dec-15-2008	21	3,980
Dec-16-2008	20	4,060
Dec-17-2008	18	4,260
Dec-18-2008	17	4,300
Dec-19-2008	17	4,190
Dec-20-2008	16	4,290
Dec-21-2008	16	4,300
Dec-22-2008	16	4,220
Dec-23-2008	16	4,370
Dec-24-2008	15	4,360
Dec-25-2008	15	4,360
Dec-26-2008	14	4,390
Dec-27-2008	13	4,490
Dec-28-2008	13	4,410
Dec-29-2008	12	4,300
Dec-30-2008	12	4,260
Dec-31-2008	12	4,230
Mean	17	4,160

Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), December 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
Dec-01-2008	15	13.1	4.6	3,280	31.2	2.5
Dec-02-2008	16	12.9	4.5	3,350	28.5	2.4
Dec-03-2008	22	13.1	4.1	3,120	19.8	2.4
Dec-04-2008	23	13.1	5.0	3,450	22.8	2.8
Dec-05-2008	25	12.2	5.7	3,870	23.8	3.2
Dec-06-2008	21	11.5	6.1	4,050	26.3	3.0
Dec-07-2008	23	11.0	6.1	4,130	36.3	4.6
Dec-08-2008	24	10.4	5.9	3,960	36.9	4.7
Dec-09-2008	24	9.8	6.2	4,270	48.7	6.3
Dec-10-2008	24	9.4	5.5	3,980	28.0	3.7
Dec-11-2008	27	9.4	5.6	4,160	43.1	6.2
Dec-12-2008	26	9.4	6.5	4,210	46.0	6.4
Dec-13-2008	25	9.4	7.0	4,320	42.0	5.6
Dec-14-2008	25	8.6	6.7	4,520	43.7	6.0
Dec-15-2008	26	8.6	5.6	3,930	39.9	5.7
Dec-16-2008	26	8.2	5.6	3,850	38.5	5.4
Dec-17-2008	24	7.6	5.7	3,880	40.2	5.2
Dec-18-2008	23	6.8	5.9	4,050	46.7	5.8
Dec-19-2008	21	7.3	5.8	4,180	48.1	5.5
Dec-20-2008	21	7.5	5.8	4,110	46.6	5.2
Dec-21-2008	20	7.9	6.1	4,070	45.6	5.0
Dec-22-2008	20	8.8	6.0	4,150	45.0	4.9
Dec-23-2008	20	9.4	6.1	4,270	46.8	5.2
Dec-24-2008	21	9.4	6.2	4,250	47.4	5.3
Dec-25-2008	20	9.5	6.0	4,170	47.3	5.0
Dec-26-2008	19	8.6	6.4	4,240	45.6	4.6
Dec-27-2008	18	8.4	6.5	4,260	45.6	4.5
Dec-28-2008	18	8.6	6.1	4,240	46.1	4.4
Dec-29-2008	17	8.9	6.3	4,310	48.1	4.3
Dec-30-2008	17	9.2	6.4	4,370	48.9	4.4
Dec-31-2008	17	9.5	6.2	4,290	48.3	4.3
Mean	22	9.6	5.9	4,040	40.4	4.7
Total Acre-feet	1,320					
Total (lbs)						144

Load Limitation for December 2008 (lbs)	324
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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.

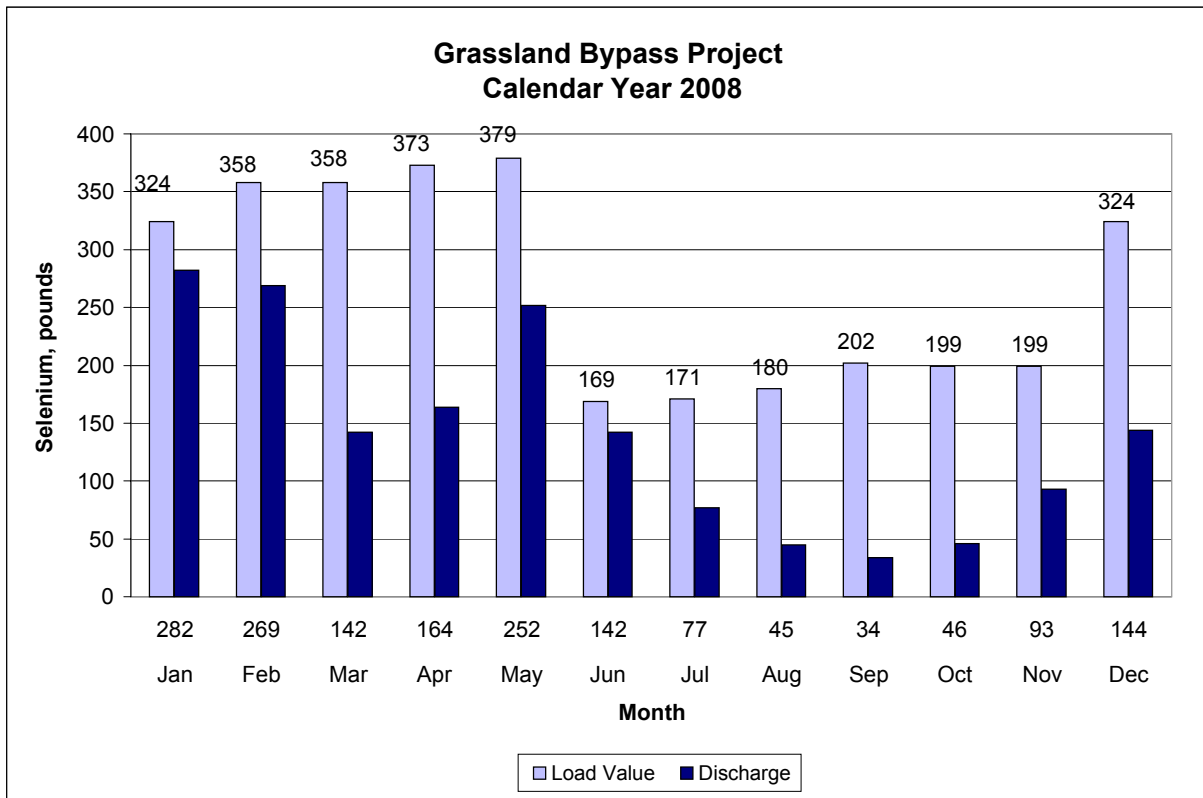


Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), December 2008.

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
Dec-01-2008	75	12.3	2,160
Dec-02-2008	72	12.3	2,240
Dec-03-2008	78	12.6	2,260
Dec-04-2008	83	12.6	2,340
Dec-05-2008	83	11.3	2,510
Dec-06-2008	76	10.9	2,590
Dec-07-2008	76	10.4	2,680
Dec-08-2008	77	9.6	2,600
Dec-09-2008	77	9.1	2,650
Dec-10-2008	77	9.0	2,650
Dec-11-2008	79	8.9	2,700
Dec-12-2008	79	9.0	2,760
Dec-13-2008	80	9.3	2,630
Dec-14-2008	85	8.2	2,720
Dec-15-2008	102	8.3	2,400
Dec-16-2008	107	7.9	2,300
Dec-17-2008	116	7.2	2,240
Dec-18-2008	118	6.4	2,260
Dec-19-2008	112	7.3	2,270
Dec-20-2008	114	7.4	2,250
Dec-21-2008	114	7.7	2,230
Dec-22-2008	116	8.7	2,270
Dec-23-2008	115	9.3	2,260
Dec-24-2008	119	9.2	2,230
Dec-25-2008	118	9.3	2,230
Dec-26-2008	114	8.2	2,250
Dec-27-2008	103	7.8	2,390
Dec-28-2008	97	8.0	2,380
Dec-29-2008	93	8.6	2,400
Dec-30-2008	91	9.0	2,300
Dec-31-2008	90	9.3	2,200
Mean	95	9.2	2,400

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), December 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
Dec-01-2008	59	12.3	1,960
Dec-02-2008	54	12.6	1,990
Dec-03-2008	54	13.1	1,990
Dec-04-2008	56	12.9	2,060
Dec-05-2008	48	11.2	2,100
Dec-06-2008	54	11.1	2,140
Dec-07-2008	48	10.8	2,090
Dec-08-2008	60	10.0	2,070
Dec-09-2008	56	9.5	2,020
Dec-10-2008	42	9.5	2,020
Dec-11-2008	38	9.4	2,020
Dec-12-2008	42	9.7	2,020
Dec-13-2008	41	10.0	2,050
Dec-14-2008	47	8.4	2,100
Dec-15-2008	51	9.0	2,040
Dec-16-2008	62	8.7	1,980
Dec-17-2008	60	7.8	1,910
Dec-18-2008	58	7.0	1,850
Dec-19-2008	62	8.2	1,840
Dec-20-2008	74	7.9	1,760
Dec-21-2008	76	8.3	1,720
Dec-22-2008	84	9.4	1,710
Dec-23-2008	72	9.9	1,750
Dec-24-2008	72	9.6	1,780
Dec-25-2008	57	9.9	1,880
Dec-26-2008	63	8.4	1,880
Dec-27-2008	50	8.3	1,930
Dec-28-2008	49	8.7	2,060
Dec-29-2008	39	9.4	2,070
Dec-30-2008	41	9.5	2,060
Dec-31-2008	34	10.2	2,160
Mean	55	9.7	1,970

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), December 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
Dec-01-2008	501	12.4	1,160	1.0
Dec-02-2008	499	12.4	1,120	0.9
Dec-03-2008	491	12.9	1,120	1.0
Dec-04-2008	479	13.1	1,190	1.1
Dec-05-2008	488	11.7	1,210	1.1
Dec-06-2008	489	11.2	1,210	1.3
Dec-07-2008	480	NA	1,280	1.3
Dec-08-2008	459	NA	1,310	1.3
Dec-09-2008	465	NA	1,310	1.9
Dec-10-2008	470	NA	1,290	2.0
Dec-11-2008	467	NA	1,290	2.5
Dec-12-2008	447	9.3	1,330	1.8
Dec-13-2008	442	9.9	1,370	2.6
Dec-14-2008	437	8.8	1,380	2.6
Dec-15-2008	453	NA	1,360	2.5
Dec-16-2008	473	NA	1,370	2.6
Dec-17-2008	499	NA	1,250	2.3
Dec-18-2008	504	NA	1,260	2.1
Dec-19-2008	512	7.8	1,240	1.9
Dec-20-2008	517	NA	1,270	2.2
Dec-21-2008	518	NA	1,320	2.3
Dec-22-2008	544	NA	1,300	2.0
Dec-23-2008	552	NA	1,240	1.8
Dec-24-2008	554 e	9.4	1,240	1.7
Dec-25-2008	564	9.7	1,230	1.8
Dec-26-2008	556	NA	1,260	1.8
Dec-27-2008	549	NA	1,290	1.7
Dec-28-2008	529	NA	1,300	1.6
Dec-29-2008	506	NA	1,350	1.6
Dec-30-2008	490	8.9	1,340	1.8
Dec-31-2008	480	9.2	1,400	1.6
Mean	497	10.5	1,280	1.8

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	.	.	.
Oct-01-2008	13	.	.	4,220	176	.	.	.
Oct-08-2008	12	.	.	3,890	144	.	.	.
Oct-15-2008	8	.	.	4,870	NA	.	.	.
Oct-22-2008	10	.	.	4,460	99	.	.	.
Oct-29-2008	7	.	.	3,760	38	.	.	.
Nov-05-2008	11	.	.	3,190	39	.	.	.
Nov-12-2008	20	.	.	4,530	257	.	.	.
Nov-19-2008	18	.	.	4,450	207	.	.	.
Nov-25-2008	23	.	.	3,520	747	.	.	.
Dec-03-2008	19	.	.	4,150	222	.	.	.
Dec-10-2008	23	.	.	3,940	111	.	.	.
Dec-17-2008	18	.	.	4,530	68	.	.	.
Dec-23-2008	16	.	.	4,740	93	.	.	.
Dec-30-2008	12	.	.	4,560	29	.	.	.

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
Oct-07-2008	13	.	.	3,160	.	17.9	.	5.5
Oct-14-2008	9	.	.	4,550	.	42.1	.	7.7
Oct-21-2008	8	.	.	4,750	.	49.9	.	7.6
Oct-28-2008	6	.	.	4,070	.	29.8	.	7.4
Nov-04-2008	14	.	.	3,210	.	15.4	.	5.6
Nov-11-2008	15	.	.	3,520	.	28.7	.	6.2
Nov-18-2008	18	.	.	4,290	.	53.6	.	7.0
Nov-24-2008	26	.	.	3,370	.	45.9	.	6.6
Dec-01-2008	11	.	.	4,380	.	38.4	.	7.5
Dec-09-2008	21	.	.	4,360	.	50.4	.	7.0
Dec-16-2008	20	.	.	4,280	.	56.8	.	6.5
Dec-22-2008	16	.	.	4,660	.	59.6	.	7.9
Dec-30-2008	12	.	.	4,780	.	64.7	.	7.4

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
Oct-02-2008	16	22.8	7.7	3,530	49	11.2	5.7
Oct-09-2008	16	20.5	7.8	2,680	36	8.1	3.7
Oct-16-2008	15	15.7	7.1	3,900	34	27.0	5.5
Oct-23-2008	17	17.8	8.2	3,680	37	22.7	5.0
Oct-30-2008	14	17.9	8.1	3,430	56	19.0	4.7
Nov-06-2008	12	13.9	8.1	3,080	36	7.5	4.6
Nov-13-2008	23	15.4	7.3	3,170	23	22.8	4.4
Nov-20-2008	22	15.3	7.4	4,060	46	41.8	5.8
Nov-25-2008	29	12.9	7.4	3,930	50	35.0	5.9
Dec-04-2008	23	12.9	7.0	3,610	34	23.8	5.6
Dec-11-2008	27	8.8	7.6	3,980	N/A	40.0	5.7
Dec-18-2008	23	5.9	7.5	4,080	13	52.7	5.5
Dec-23-2008	20	8.8	8.0	4,150	18	45.3	6.4
Dec-30-2008	17	8.8	8.0	4,200	22	51.1	6.4

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
Oct-02-2008	29	22.0	7.6	1,040	.	<0.4	0.6
Oct-09-2008	66	19.1	7.7	1,010	.	<0.4	0.6
Oct-16-2008	63	16.0	7.7	1,170	.	<0.4	0.6
Oct-23-2008	129	16.8	7.7	1,160	.	0.6	0.7
Oct-30-2008	80	17.0	7.8	1,380	.	<0.4	0.9
Nov-06-2008	78	13.1	7.9	1,510	.	<0.4	1.0
Nov-13-2008	60	15.7	7.8	1,700	.	<0.4	1.1
Nov-20-2008	46	14.1	7.8	1,850	.	<0.4	1.2
Nov-25-2008	48	12.7	7.8	1,910	.	0.4	1.2
Dec-04-2008	60	12.6	7.7	1,930	.	<0.4	1.4
Dec-11-2008	52	8.4	6.8	2,090	.	<0.4	1.3
Dec-18-2008	95	5.3	7.8	1,830	.	0.4	1.3
Dec-23-2008	95	9.2	8.0	1,850	.	<0.4	1.4
Dec-30-2008	74	9.1	8.0	2,020	.	<0.4	1.4

++ 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
Oct-02-2008	45	22.3	7.6	1,760	3.2	2.1
Oct-09-2008	82	19.6	7.6	1,380	1.8	1.2
Oct-16-2008	78	15.9	7.7	1,660	3.7	1.5
Oct-23-2008	146	16.9	7.6	1,560	3.3	1.3
Oct-30-2008	94	17.5	7.7	1,720	3.2	1.5
Nov-06-2008	90	13.3	8.0	1,740	1.2	1.4
Nov-13-2008	83	15.7	7.8	2,040	5.1	1.9
Nov-20-2008	68	14.2	7.8	2,620	11.0	2.8
Nov-25-2008	77	12.7	7.8	2,830	15.8	3.0
Dec-04-2008	83	12.7	7.6	2,340	5.5	2.3
Dec-11-2008	79	8.5	7.3	2,790	14.4	2.8
Dec-18-2008	118	5.6	7.7	2,290	9.3	2.1
Dec-23-2008	115	9.1	7.8	2,330	9.0	2.3
Dec-30-2008	91	9.0	7.8	2,500	9.8	2.3

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
Oct-07-2008	.	7.8	1,912	17	3.0	2.3
Oct-15-2008	.	7.7	1,700	16	3.8	1.8
Oct-23-2008	.	7.8	1,622	19	3.2	1.5
Oct-30-2008	.	8.0	1,770	13	3.1	1.6
Nov-04-2008	.	7.9	1,856	31	1.7	1.8
Nov-13-2008	.	7.7	2,108	13	4.6	2.0
Nov-18-2008	.	7.9	2,756	28	16.2	3.3
Nov-25-2008	.	8.3	2,531	13	15.8	3.5
Dec-02-2008	.	7.7	2,376	17	6.5	2.2
Dec-23-2008	.	7.8	2,521	12	8.4	2.3

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
Oct-02-2008	54	21.1	7.8	1,580	<0.4	0.7
Oct-09-2008	38	17.6	7.9	1,610	<0.4	0.7
Oct-16-2008	40	14.2	7.7	1,650	<0.4	0.7
Oct-23-2008	49	16.1	7.8	1,740	<0.4	0.8
Oct-30-2008	74	15.9	7.8	1,530	<0.4	0.8
Nov-06-2008	123	12.5	8.1	1,350	0.5	0.6
Nov-13-2008	101	14.5	7.7	1,570	<0.4	0.7
Nov-20-2008	112	13.6	7.7	1,530	<0.4	0.7
Nov-25-2008	91	12.0	8.0	1,760	<0.4	0.8
Dec-04-2008	56	12.7	7.4	2,060	<0.4	1.1
Dec-11-2008	38	8.7	7.1	2,230	<0.4	1.0
Dec-18-2008	58	5.6	7.5	1,970	<0.4	1.1
Dec-23-2008	72	10.2	7.7	1,900	<0.4	1.2
Dec-30-2008	41	9.6	7.8	2,030	<0.4	1.2

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
Oct-01-2008	215	.	.	640	0.6	0.2
Oct-08-2008	105	.	.	580	<0.4	0.2
Oct-15-2008	80	.	.	580	<0.4	0.2
Oct-22-2008	80	.	.	590	0.5	0.2
Oct-29-2008	70	.	.	550	0.7	0.2
Nov-05-2008	50	.	.	570	0.6	0.2
Nov-12-2008	40	.	.	560	0.8	0.2
Nov-19-2008	65	.	.	600	0.8	0.2
Nov-25-2008	60	.	.	650	0.7	0.2
Dec-03-2008	35	.	.	720	0.5	0.3
Dec-10-2008	15	.	.	670	0.6	0.3
Dec-17-2008	5	.	.	790	0.7	0.4
Dec-23-2008	5	.	.	700	0.7	0.3
Dec-30-2008	5	.	.	790	<0.4	0.4

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
Oct-01-2008	150	.	.	670	0.7	0.3
Oct-08-2008	150	.	.	580	0.6	0.2
Oct-15-2008	70	.	.	570	<0.4	0.2
Oct-22-2008	35	.	.	550	<0.4	0.2
Oct-29-2008	35	.	.	560	0.7	0.3
Nov-05-2008	35	.	.	600	0.7	0.4
Nov-12-2008	35	.	.	790	1.3	0.5
Nov-19-2008	35	.	.	660	0.9	0.3
Nov-25-2008	30	.	.	610	0.6	0.3
Dec-03-2008	30	.	.	640	0.6	0.3
Dec-10-2008	30	.	.	710	0.6	0.3
Dec-17-2008	30	.	.	710	0.8	0.3
Dec-23-2008	20	.	.	750	<0.4	0.3
Dec-30-2008	20	.	.	780	0.6	0.4

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 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
Oct-01-2008	NA	.	.	700	0.6	0.3
Oct-08-2008	NA	.	.	640	0.5	0.2
Oct-15-2008	NA	.	.	680	0.5	0.3
Oct-22-2008	NA	.	.	690	0.5	0.3
Oct-29-2008	NA	.	.	660	0.6	0.3
Nov-05-2008	NA	.	.	650	0.7	0.4
Nov-12-2008	NA	.	.	1,080	0.8	0.9
Nov-19-2008	NA	.	.	1,030	0.8	0.8
Nov-25-2008	NA	.	.	1,040	0.7	0.8
Dec-03-2008	NA	.	.	1,550	2.2	1.5
Dec-10-2008	NA	.	.	820	0.5	0.5
Dec-17-2008	NA	.	.	1,220	0.8	1.0
Dec-23-2008	NA	.	.	800	0.5	0.4
Dec-30-2008	NA	.	.	1,270	0.9	1.1

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
Oct-01-2008	NA	.	.	820	0.5	0.4
Oct-08-2008	NA	.	.	840	0.6	0.5
Oct-15-2008	NA	.	.	830	0.4	0.5
Oct-22-2008	NA	.	.	840	0.5	0.5
Oct-29-2008	NA	.	.	870	0.5	0.6
Nov-05-2008	NA	.	.	920	0.6	0.7
Nov-12-2008	NA	.	.	890	0.6	0.6
Nov-19-2008	NA	.	.	940	0.5	0.7
Nov-25-2008	NA	.	.	1,040	0.6	0.8
Dec-03-2008	NA	.	.	1,040	<0.4	0.9
Dec-10-2008	NA	.	.	1,330	<0.4	1.3
Dec-17-2008	NA	.	.	1,460	0.6	1.3
Dec-23-2008	NA	.	.	1,520	<0.4	1.4
Dec-30-2008	NA	.	.	1,820	0.5	1.8

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
Oct-01-2008	.	.	.	640	0.4	0.2
Oct-08-2008	.	.	.	570	0.4	0.2
Oct-15-2008	.	.	.	650	<0.4	0.3
Oct-22-2008	.	.	.	530	0.5	0.2
Oct-29-2008	.	.	.	570	0.7	0.2
Nov-05-2008	.	.	.	560	0.7	0.2
Nov-12-2008	.	.	.	570	<0.4	0.2
Nov-19-2008	.	.	.	630	0.6	0.2
Nov-25-2008	.	.	.	720	0.8	0.3
Dec-03-2008	.	.	.	730	0.5	0.3
Dec-10-2008	.	.	.	630	0.5	0.2
Dec-17-2008	.	.	.	680	<0.4	0.2
Dec-23-2008	.	.	.	730	0.7	0.3
Dec-30-2008	.	.	.	620	0.6	0.2

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
Oct-02-2008	51	22.0	7.9	1,990	<0.4	0.8
Oct-09-2008	41	18.1	7.2	2,170	<0.4	0.9
Oct-16-2008	40	15.3	7.2	2,190	<0.4	0.9
Oct-23-2008	45	15.2	7.8	2,070	<0.4	0.8
Oct-30-2008	56	16.1	7.8	1,740	<0.4	0.8
Nov-06-2008	98	13.2	8.2	1,420	<0.4	0.7
Nov-13-2008	112	15.8	7.8	1,450	<0.4	0.7
Nov-20-2008	116	13.9	7.1	1,770	<0.4	0.7
Nov-25-2008	104	12.5	7.1	1,910	<0.4	0.7
Dec-04-2008	66	12.5	6.8	2,660	<0.4	0.7
Dec-11-2008	59	7.9	7.9	2,100	<0.4	0.9
Dec-18-2008	78	5.2	7.9	1,970	<0.4	0.9
Dec-23-2008	95	8.9	7.8	2,020	<0.4	1.1
Dec-30-2008	65	8.4	7.9	2,560	<0.4	1.1

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
Oct-07-2008	.	.	.	1,750	1.7	1.3
Oct-14-2008	.	.	.	1,880	1.5	1.1
Oct-21-2008	.	.	.	1,560	1.9	0.9
Oct-28-2008	.	.	.	1,930	1.6	1.3
Nov-04-2008	.	.	.	628	<0.4	0.2
Nov-11-2008	.	.	.	1,900	1.2	1.2
Nov-18-2008	.	.	.	2,060	4.3	1.6
Nov-25-2008	.	.	.	3,700	41	5.3
Dec-03-2008	.	.	.	1,050	0.5	0.8
Dec-10-2008	.	.	.	1,080	<0.4	0.8
Dec-12-2008	.	.	.	1,110	<0.4	0.8
Dec-23-2008	.	.	.	1,180	<0.4	0.9

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
Oct-02-2008	244	22.1	8.0	1,210	0.9	0.7
Oct-09-2008	466	18.9	8.0	790	0.5	0.4
Oct-16-2008	440	15.5	7.7	930	0.8	0.5
Oct-23-2008	494	16.3	7.7	840	1.2	0.5
Oct-30-2008	468	16.6	8.0	950	0.7	0.5
Nov-06-2008	520	13.9	8.1	940	0.8	0.5
Nov-13-2008	547	15.5	8.2	1,000	0.8	0.5
Nov-20-2008	510	14.1	7.9	1,130	1.9	0.7
Nov-25-2008	512	12.3	7.8	1,210	2.1	0.7
Dec-04-2008	479	12.8	7.7	1,220	1.3	1.0
Dec-11-2008	467	8.7	8.0	1,300	2.2	0.8
Dec-18-2008	504	6.3	7.9	1,320	2.1	0.8
Dec-23-2008	552	9.0	7.8	1,270	1.9	0.8
Dec-30-2008	490	8.7	7.9	1,390	1.8	0.9

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from January 2008 to December 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	%	%	%	%	%	%
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
May-2008	98	95	98	95	98	100
Jun-2008	98	95	100	93	100	98
Jul-2008	90	98	100	90	100	95
Aug-2008	98	93	95	98	100	100
Sep-2008	90	95	93	98	95	98
Oct-2008	100	98	95	100	93	98
Nov-2008	93	95	98	100	95	98
Dec-2008	100	100	100	95	100	100

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from January 2008 to December 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
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
May-2008	0.31	0.31	0.29*	0.31	0.34	0.32
Jun-2008	0.31	0.33	0.36	0.31	0.31	0.31
Jul-2008	0.32	0.34	0.30	0.26	0.29	0.25
Aug-2008	0.36	0.33	0.37	0.33	0.34	0.32
Sep-2008	0.30	0.36	0.30	0.33	0.33	0.28
Oct-2008	0.43	0.44	0.38	0.41	0.37	0.38
Nov-2008	0.32*	0.35	0.31	0.32*	0.38	0.35
Dec-2008	0.34	0.35	0.35	0.34	0.34	0.32

Table 22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from January 2008 to December 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	%	%	%	%	%	%
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
May-2008	80	70	80	100	90	90
Jun-2008	100	100	100	90	90	90
Jul-2008	100	80	100	100	90	100
Aug-2008	100	70	70	100	100	100
Sep-2008	90	90	100	90	100	100
Oct-2008	90	100	90	90	100	100
Nov-2008	100	100	100	100	90	90
Dec-2008	90	100	100	100	100	100

Table 23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from January 2008 to December 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
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
May-2008	22.2	19.6	23.5	33.1	25.7	28.8
Jun-2008	23.4	21.0	29.3	23.6	26.6	26.0
Jul-2008	19.1	22.4	23.8	18.4	21.4	24.3
Aug-2008	26.5	15.3*	23.3	30.2	24.1	29.5
Sep-2008	27.3	24.9	36.6	22.3	27.3	23.8
Oct-2008	24.4	28.2	25.6	22.3	24.9	26.3
Nov-2008	57.7	43.0	50.1	41.2	46.6	30.1
Dec-2008	32.6	26.0	26.3	22.6	30.3	21.2

Table 24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from January 2008 to December 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
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
May-2008	17.1	30.5	22.3	14.2*	21.6	19.8
Jun-2008	15.9*	20.9	8.6*	22.7	20.5	20.1
Jul-2008	22.1	27.7	22.7	26.1	21.5	12.6
Aug-2008	16.8*	23.3	18.2*	19.5	20.9	20.8
Sep-2008	24.7	18.2*	10.0*	17.5*	26.5	17.1
Oct-2008	25.8	33.9	30.6	30.7	24.3	22.5
Nov-2008	15.8*	23.7	25.3	24.0	20.5	21.6
Dec-2008	17.5	23.9	21.0	20.0	20.3	18.4

Table 25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, October 2008 to December 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
Oct-06-2008	11	<0.4	3.3	<0.4	<0.4
Oct-08-2008	8	<0.4	2.8	<0.4	<0.4
Oct-10-2008	11	<0.4	2.0	<0.4	<0.4
Nov-03-2008	11	0.4	3.2	<0.4	<0.4
Nov-05-2008	9	<0.4	2.2	0.5	<0.4
Nov-07-2008	9	<0.4	1.6	<0.4	<0.4
Dec-01-2008	30	<0.4	6.1	<0.4	<0.4
Dec-03-2008	19	<0.4	6.3	<0.4	<0.4
Dec-05-2008	24	<0.4	7.2	<0.4	0.5

Table 26. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, October 2008 to December 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
Oct-06-2008	32	16	14	34	10
Oct-08-2008	35	11	20	33	10
Oct-10-2008	54	50	19	24	16
Nov-03-2008	51	17	43	66	3
Nov-05-2008	45	32	35	88	9
Nov-07-2008	32	23	29	94	10
Dec-01-2008	28	28	28	34	5
Dec-03-2008	24	15	26	37	4
Dec-05-2008	39	14	27	25	6

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