

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

August 2004

November 29, 2004

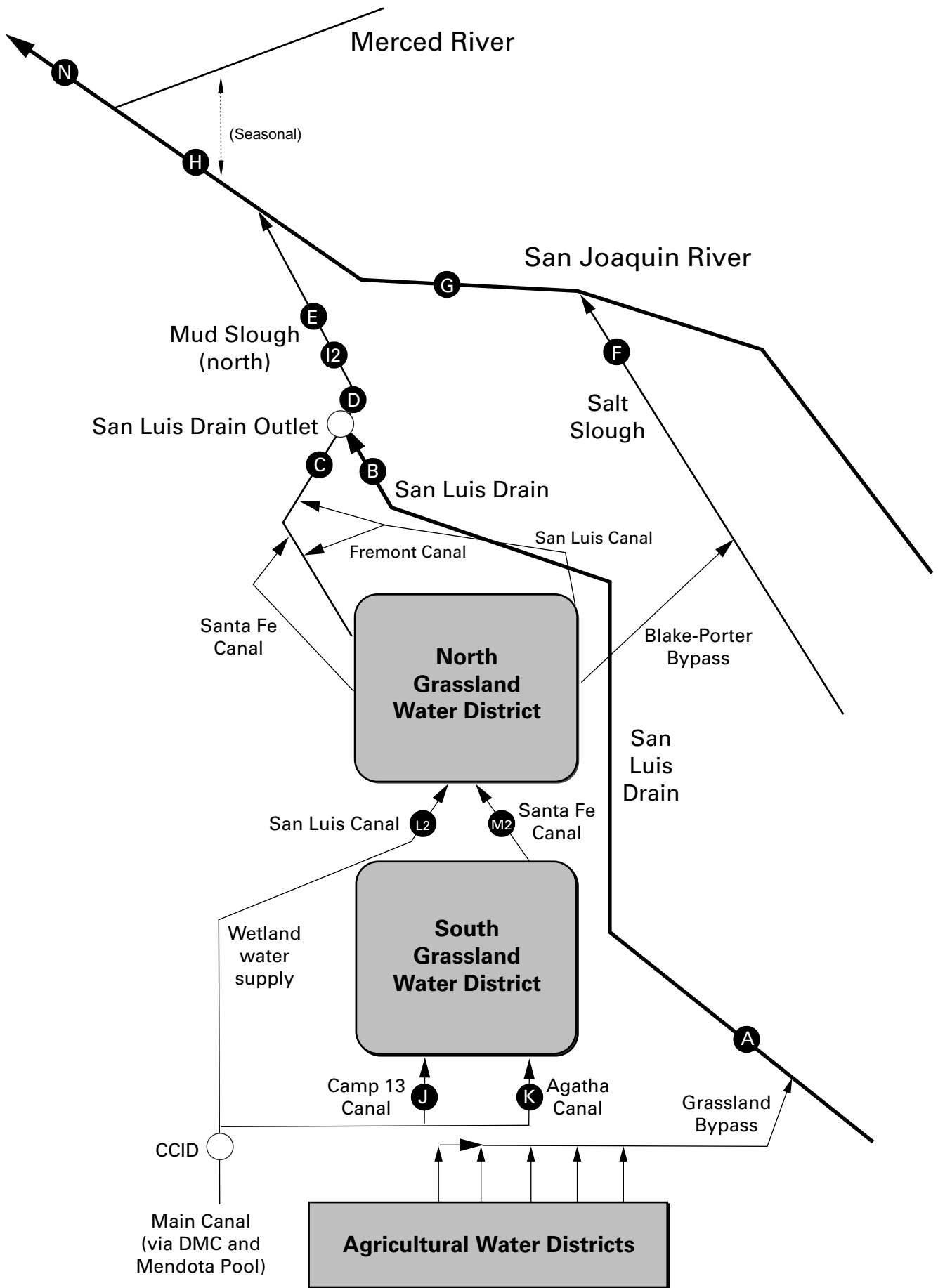
Preliminary Results

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

1. Continuous water monitoring at Station A (inflow to San Luis Drain), August 2004.
- 2a. Continuous water monitoring at Station B (discharge from San Luis Drain), August 2004.
- 2b. Continuous water monitoring at San Luis Drain Outlet, August 2004.
- 2c. 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), August 2004.
4. Continuous water monitoring at Station F (Salt Slough at Highway 165), August 2004.
5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), August 2004.

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 September 2003 to August 2004.
21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from September 2003 to August 2004.
22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from September 2003 to August 2004.
23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from September 2003 to August 2004.
24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from September 2003 to August 2004.
25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, June 2004 to August 2004.
26. Summary of total suspended solids concentrations in grab water samples collected from June 2004 to August 2004.
27. Explanations of footnotes and agency abbreviations.

Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), August 2004.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
Aug-01-2004	43	3,780
Aug-02-2004	45	3,870
Aug-03-2004	43	3,740
Aug-04-2004	43	3,570
Aug-05-2004	44	3,390
Aug-06-2004	50	3,240
Aug-07-2004	48	3,220
Aug-08-2004	43	3,270
Aug-09-2004	41	3,430
Aug-10-2004	40	3,600
Aug-11-2004	38	3,650
Aug-12-2004	41	3,450
Aug-13-2004	41	3,390
Aug-14-2004	38	3,320
Aug-15-2004	42	3,250
Aug-16-2004	52	3,140
Aug-17-2004	51	3,050
Aug-18-2004	43	3,060
Aug-19-2004	39	3,120
Aug-20-2004	39	3,200
Aug-21-2004	41	3,780
Aug-22-2004	44	3,570
Aug-23-2004	47	3,520
Aug-24-2004	49	3,530
Aug-25-2004	45	3,740
Aug-26-2004	40	4,010
Aug-27-2004	35	4,330
Aug-28-2004	35	4,530
Aug-29-2004	35	4,610
Aug-30-2004	31	4,830
Aug-31-2004	31	4,750
Mean	42	3,640

Table 2a. Continuous water monitoring at Station B (discharge from San Luis Drain), August 2004.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Boron	Specific Conductance	Selenium (total)	Selenium (total) Load
DATA SOURCE	USGS	USGS	CVRWQCB	CVRWQCB	CVRWQCB	Computed
UNITS	cfs	°C	mg/L	µS/cm	µg/L	lbs
Aug-01-2004	45	25.2	P	3,670	25.8	6.3
Aug-02-2004	46	24.4	P	3,710	27.1	6.7
Aug-03-2004	47	24.3	P	3,830	30.1	7.6
Aug-04-2004	46	24.9	P	3,940	31.9	7.9
Aug-05-2004	45	25.4	P	3,950	29.9	7.3
Aug-06-2004	47	25.0	P	3,930	31.9	8.1
Aug-07-2004	52	25.5	P	3,770	28.5	8.0
Aug-08-2004	50	26.3	P	3,530	26.0	7.0
Aug-09-2004	46	26.5	P	3,360	24.1	6.0
Aug-10-2004	44	26.4	P	3,410	24.5	5.8
Aug-11-2004	42	27.0	P	3,490	23.7	5.4
Aug-12-2004	41	27.3	P	3,480	21.6	4.8
Aug-13-2004	43	26.9	P	3,570	25.9	6.0
Aug-14-2004	44	26.5	P	3,610	25.0	5.9
Aug-15-2004	41	26.0	P	3,670	25.9	5.7
Aug-16-2004	46 e	25.5	P	3,520	24.8	6.2
Aug-17-2004	56	25.6	P	3,570	24.1	7.3
Aug-18-2004	54	26.1	P	3,450	25.9	7.5
Aug-19-2004	46	26.8	P	3,250	22.4	5.6
Aug-20-2004	42	26.6	P	3,170	24.1	5.5
Aug-21-2004	43	26.3	P	3,130	21.4	5.0
Aug-22-2004	44	25.4	P	3,290	21.8	5.2
Aug-23-2004	48	24.5	P	3,410	23.6	6.1
Aug-24-2004	51	24.5	P	3,950	27.6	7.6
Aug-25-2004	53	24.7	P	3,820	29.1	8.3
Aug-26-2004	51	24.5	P	3,740	26.8	7.4
Aug-27-2004	45	24.2	P	4,000	30.5	7.4
Aug-28-2004	39	24.7	P	4,000	30.9	6.5
Aug-29-2004	38	25.3	P	4,030	30.3	6.2
Aug-30-2004	38	25.4	P	4,140	31.2	6.4
Aug-31-2004	35	25.4	P	4,440	35.2	6.6
Mean	45	25.6	P	3,670	26.8	6.6
Total Acre-feet	2,790					
Total (lbs)						203

Load Limitation for August 2004 (lbs)	339
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Table 2b. Continuous water monitoring at San Luis Drain Outlet, August 2004.

Note: This is unofficial data reported for comparison with Station B.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	San Luis Drain Outlet Flow	Selenium (total) *	Selenium (total) Load
DATA SOURCE	USGS	CVRWQCB	Computed
UNITS	cfs	µg/L	lbs
Aug-01-2004	45	25.8	6.2
Aug-02-2004	45	27.1	6.6
Aug-03-2004	46	30.1	7.5
Aug-04-2004	45	31.9	7.7
Aug-05-2004	44	29.9	7.1
Aug-06-2004	46	31.9	7.9
Aug-07-2004	52	28.5	7.9
Aug-08-2004	50	26.0	7.0
Aug-09-2004	45	24.1	5.8
Aug-10-2004	43	24.5	5.6
Aug-11-2004	41	23.7	5.3
Aug-12-2004	40	21.6	4.7
Aug-13-2004	42	25.9	5.9
Aug-14-2004	42	25.0	5.7
Aug-15-2004	39	25.9	5.5
Aug-16-2004	51	24.8	6.9
Aug-17-2004	54	24.1	7.0
Aug-18-2004	53	25.9	7.4
Aug-19-2004	45	22.4	5.5
Aug-20-2004	40	24.1	5.2
Aug-21-2004	41	21.4	4.7
Aug-22-2004	43	21.8	5.0
Aug-23-2004	46	23.6	5.9
Aug-24-2004	50	27.6	7.4
Aug-25-2004	52	29.1	8.1
Aug-26-2004	47	26.8	6.9
Aug-27-2004	43	30.5	7.1
Aug-28-2004	37	30.9	6.2
Aug-29-2004	36	30.3	5.9
Aug-30-2004	37	31.2	6.2
Aug-31-2004	34	35.2	6.4
Mean	44	26.8	6.4
Total Acre-feet	2,720		
Total (lbs)			198

The US Geological Survey determines flow at Station B through continuous measurements of stage that is rated for a known cross-section. These flow data, listed in Table 2a, are verified with frequent current meter measurements.

Monitoring and Reporting Program No. 5-101-234 states:

"Samples representative of the discharge shall be collected from the San Luis Drain at the footbridge between Gun Club Road and the terminus (Site B)."

Accurate flow measurements are necessary to determine compliance with selenium load limits specified in Waste Discharge Requirement Order No. 5-101-234.

The accumulation of sediments, as documented in the 2001 Annual Report, have caused irregularities in flow measurements at Station B, resulting in "shifts" in the relationship between stage and discharge.

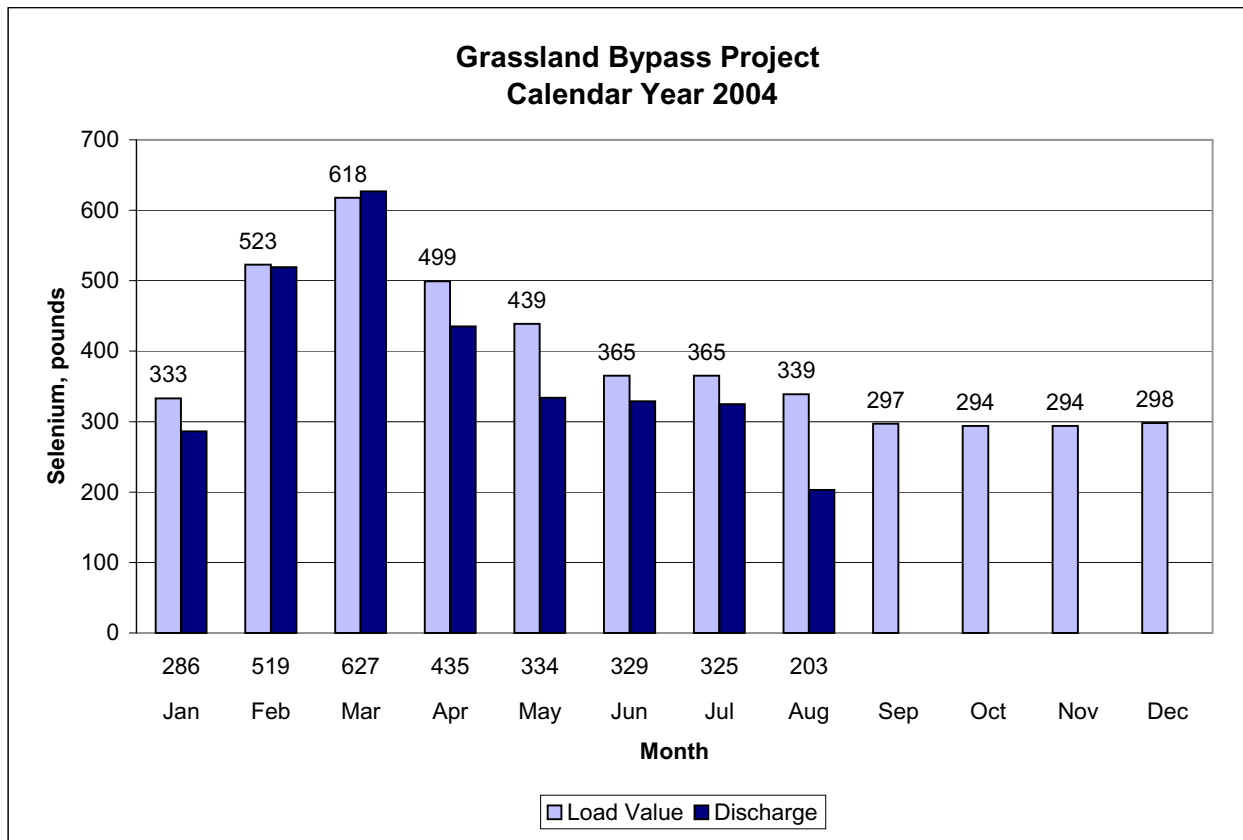
To improve the accuracy of flow measurements, Reclamation and the San Luis & Delta-Mendota Water Authority, with technical assistance from the USGS, are measuring flow at the San Luis Drain Outlet. The Outlet is located two miles from Station B. Discharge will be measured as stage over a sharp-crested weir, identical to Station A. This is a simpler and more accurate method that will not be altered by sediment accumulation.

This change is subject to approval by the California Regional Water Quality Board and modification of the Waste Discharge Requirement Order and Monitoring and Reporting Program. It is anticipated that flow will be measured solely at the Outlet works for determination of GBP flow discharge.

Unofficial flow data for the Outlet works are presented in Table 2b for comparison and are not used to determine compliance with the Waste Discharge Requirement Order.

*Selenium (total) concentrations from Site B (San Luis Drain)

Figure 2c. 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), August 2004.**

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
Aug-01-2004	58	25.3	3,160
Aug-02-2004	54	24.6	3,380
Aug-03-2004	59	24.5	3,180
Aug-04-2004	56	25.0	3,390
Aug-05-2004	57	25.0	3,260
Aug-06-2004	65	24.6	3,030
Aug-07-2004	62	25.4	3,300
Aug-08-2004	61	26.1	3,070
Aug-09-2004	63	26.1	2,700
Aug-10-2004	61	26.1	2,660
Aug-11-2004	47	26.6	3,180
Aug-12-2004	40	27.2	3,560
Aug-13-2004	39	27.1	3,710
Aug-14-2004	40	26.6	3,830
Aug-15-2004	38	25.8	3,790
Aug-16-2004	48	25.6	3,330
Aug-17-2004	51	25.6	3,690
Aug-18-2004	50	26.1	3,700
Aug-19-2004	43	26.8	3,410
Aug-20-2004	39	26.6	3,410
Aug-21-2004	43	26.4	3,130
Aug-22-2004	51	25.2	2,860
Aug-23-2004	61	24.8	2,580
Aug-24-2004	61	24.8	2,880
Aug-25-2004	58	24.7	3,370
Aug-26-2004	50	24.5	3,570
Aug-27-2004	45	24.2	3,670
Aug-28-2004	39	24.9	3,680
Aug-29-2004	39	25.3	3,720
Aug-30-2004	46	25.3	3,260
Aug-31-2004	43	25.5	3,500
Mean	51	25.6	3,320

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), August 2004.

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
Aug-01-2004	134	24.5	1,030
Aug-02-2004	161	23.6	984
Aug-03-2004	168	24.0	951
Aug-04-2004	147	24.9	991
Aug-05-2004	125	25.3	1,020
Aug-06-2004	125	24.4	1,030
Aug-07-2004	122	25.1	1,040
Aug-08-2004	124	26.3	1,050
Aug-09-2004	142	26.4	1,020
Aug-10-2004	156	25.9	954
Aug-11-2004	137	26.4	977
Aug-12-2004	116	26.7	1,050
Aug-13-2004	132	25.9	1,060
Aug-14-2004	150	25.7	976
Aug-15-2004	140	24.7	988
Aug-16-2004	163	24.5	950
Aug-17-2004	161	25.0	917
Aug-18-2004	150	25.8	930
Aug-19-2004	144	26.3	946
Aug-20-2004	142	25.6	931
Aug-21-2004	140	25.5	991
Aug-22-2004	155	23.8	980
Aug-23-2004	145	23.6	989
Aug-24-2004	140	24.2	994
Aug-25-2004	128	24.5	1,030
Aug-26-2004	103	24.3	1,100
Aug-27-2004	88	24.0	1,200
Aug-28-2004	93	24.9	1,240
Aug-29-2004	95	25.4	1,200
Aug-30-2004	90	25.2	1,160
Aug-31-2004	70	25.3	1,220
Mean	132	25.1	1,030

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), August 2004.

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
Aug-01-2004	361	25.7	1,480	P
Aug-02-2004	385	25.2	1,360	P
Aug-03-2004	429	24.5	1,320	P
Aug-04-2004	419	25.3	1,290	P
Aug-05-2004	408	25.0	1,280	P
Aug-06-2004	379	24.2	1,390	3.0
Aug-07-2004	374	24.8	1,500	3.2
Aug-08-2004	404	26.1	1,380	3.2
Aug-09-2004	402	26.0	1,400	3.2
Aug-10-2004	391	25.8	1,320	2.8
Aug-11-2004	368	26.2	1,250	2.5
Aug-12-2004	336	26.8	1,340	2.6
Aug-13-2004	339	26.4	1,350	2.2
Aug-14-2004	377	25.5	1,340	2.3
Aug-15-2004	405	24.5	1,310	2.4
Aug-16-2004	405	25.0	1,220	2.4
Aug-17-2004	418	25.4	1,290	2.4
Aug-18-2004	437	25.9	1,170	2.3
Aug-19-2004	404	26.5	1,270	2.6
Aug-20-2004	513	26.1	NA	NA
Aug-21-2004	593	25.6	NA	NA
Aug-22-2004	634	24.7	NA	NA
Aug-23-2004	662	24.5	NA	NA
Aug-24-2004	669	24.7	NA	NA
Aug-25-2004	664	24.4	NA	NA
Aug-26-2004	618	24.3	NA	NA
Aug-27-2004	631	23.7	NA	NA
Aug-28-2004	597	24.3	NA	NA
Aug-29-2004	589	24.9	NA	NA
Aug-30-2004	609	24.8	NA	NA
Aug-31-2004	564	24.6	NA	NA
Mean	480	25.2	1,330	2.7

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	.	.	.
Jun-02-2004	65	.	.	4,670	230	.	.	.
Jun-09-2004	47	.	.	4,690	170	.	.	.
Jun-16-2004	40	.	.	3,830	200	.	.	.
Jun-23-2004	38	.	.	4,170	150	.	.	.
Jun-30-2004	56	.	.	3,570	240	.	.	.
Jul-07-2004	52	.	.	4,230	130	.	.	.
Jul-14-2004	46	.	.	4,400	150	.	.	.
Jul-21-2004	52	.	.	3,660	110	.	.	.
Jul-28-2004	38	.	.	3,460	120	.	.	.
Aug-04-2004	43	.	.	3,660	NA	.	.	.
Aug-11-2004	38	.	.	3,940	130	.	.	.
Aug-18-2004	43	.	.	3,430	130	.	.	.
Aug-25-2004	45	.	.	3,840	180	.	.	.

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
Jun-01-2004	62	.	.	4,480	.	49.6	.	6.9
Jun-08-2004	46	.	.	4,600	.	50.6	.	7.3
Jun-15-2004	47	.	.	4,200	.	37.3	.	P
Jun-23-2004	38	.	.	NA	.	35.4	.	6.8
Jun-29-2004	58	.	.	3,970	.	32.8	.	P
Jul-06-2004	59	.	.	4,090	.	40.7	.	P
Jul-13-2004	49	.	.	4,290	.	36.8	.	P
Jul-20-2004	55	.	.	3,910	.	31.9	.	P
Jul-27-2004	40	.	.	3,710	.	32.3	.	P
Aug-03-2004	43	.	.	3,830	.	P	.	P
Aug-10-2004	40	.	.	3,550	.	24.6	.	P
Aug-19-2004	39	.	.	3,470	.	24.1	.	P
Aug-24-2004	49	.	.	3,740	.	26.4	.	P
Aug-31-2004	31	.	.	4,520	.	37.9	.	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
Jun-03-2004	64	24.4	8.3	4,680	67	54.6	8.0
Jun-10-2004	48	20.8	8.6	4,340	64	46.9	6.9
Jun-17-2004	41	24.0	8.5	3,620	51	30.1	P
Jun-24-2004	41	23.4	8.3	4,080	48	33.8	7.2
Jul-01-2004	57	22.8	8.0	3,750	43	30.3	P
Jul-08-2004	53	24.9	7.8	4,380	54	48.2	P
Jul-15-2004	48	25.2	7.9	4,160	42	42.8	P
Jul-22-2004	53	27.4	8.3	3,980	53	42.0	P
Jul-29-2004	40	23.4	8.4	3,490	56	31.4	P
Aug-05-2004	45	24.1	8.3	3,900	37	P	P
Aug-12-2004	41	26.4	8.4	3,510	46	23.8	P
Aug-19-2004	46	25.4	8.2	3,250	53	20.6	P
Aug-26-2004	51	23.9	8.5	3,800	60	26.6	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
Jun-03-2004	7	24.0	8.3	2,290	.	0.8	1.7
Jun-10-2004	7	21.4	8.5	2,300	.	0.7	1.7
Jun-17-2004	10	25.2	8.1	1,630	.	0.7	P
Jun-24-2004	6	22.9	8.0	1,730	.	0.6	1.2
Jul-01-2004	14	22.5	8.1	1,530	.	0.6	P
Jul-08-2004	30	24.7	7.9	1,250	.	1.0	P
Jul-15-2004	40	25.5	7.9	1,150	.	1.4	P
Jul-22-2004	18	29.1	8.2	1,280	.	0.9	P
Jul-29-2004	16	25.8	8.0	1,200	.	0.6	P
Aug-05-2004	12	22.9	8.0	979	.	P	P
Aug-12-2004	-1	NA	NA	NA	.	NA	NA
Aug-19-2004	-3	27.7	8.2	2,460	.	<0.4	P
Aug-26-2004	-1	23.1	8.0	1,520	.	<0.4	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
Jun-03-2004	71	24.6	8.3	4,400	46.2	7.1
Jun-10-2004	55	20.8	8.6	4,170	40.2	6.2
Jun-17-2004	51	24.3	8.4	3,530	26.9	P
Jun-24-2004	47	23.2	8.3	3,800	27.4	5.5
Jul-01-2004	71	22.8	8.4	3,400	25.4	P
Jul-08-2004	83	24.7	8.1	3,480	31.2	P
Jul-15-2004	88	25.0	8.0	2,940	24.4	P
Jul-22-2004	71	27.6	8.3	3,120	21.1	P
Jul-29-2004	56	25.2	8.2	2,830	20.4	P
Aug-05-2004	57	23.5	8.3	3,280	P	P
Aug-12-2004	40	26.3	8.3	3,580	23.9	P
Aug-19-2004	43	26.2	8.4	3,140	19.3	P
Aug-26-2004	50	23.6	8.5	3,660	24.4	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
Jun-01-2004	.	8.5	4,690	32	37.3	5.9
Jun-09-2004	.	8.5	3,960	19	35.4	5.8
Jun-17-2004	.	8.3	4,020	21	27.1	6.0
Jun-22-2004	.	8.6	4,180	17	29.7	6.4
Jul-01-2004	.	8.5	3,610	22	26.4	5.8
Jul-09-2004	.	7.9	3,340	15	29.8	5.4
Jul-15-2004	.	8.4	3,010	17	23.6	4.8
Jul-20-2004	.	8.3	3,400	20	23.6	5.7
Jul-27-2004	.	8.1	3,100	14	22.0	5.3
Aug-02-2004	.	7.2	3,550	15	22.9	6.3
Aug-12-2004	.	8.0	3,620	19	22.0	6.3
Aug-20-2004	.	8.1	3,290	12	20.8	5.5
Aug-27-2004	.	8.8	4,020	13	24.5	7.0

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
Jun-03-2004	120	23.0	8.0	1,190	0.8	0.5
Jun-10-2004	180	19.4	7.8	1,010	0.9	0.5
Jun-17-2004	153	22.9	7.7	1,100	0.6	P
Jun-24-2004	117	22.4	7.8	1,130	0.7	0.4
Jul-01-2004	112	21.4	7.9	1,220	0.5	P
Jul-08-2004	135	22.0	7.8	1,110	0.7	P
Jul-15-2004	141	23.7	7.9	1,090	1.0	P
Jul-22-2004	164	26.1	8.1	966	0.7	P
Jul-29-2004	102	23.4	7.8	1,150	0.5	P
Aug-05-2004	125	23.2	7.4	1,000	P	P
Aug-12-2004	116	24.9	7.9	1,100	0.5	P
Aug-19-2004	145	25.3	7.9	955	0.4	P
Aug-26-2004	103	22.7	8.1	1,160	0.4	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
Jun-02-2004	5	.	.	1,390	1.2	1.6
Jun-09-2004	20	.	.	575	1.0	0.3
Jun-16-2004	15	.	.	502	0.8	P
Jun-23-2004	15	.	.	762	1.6	0.7
Jun-30-2004	15	.	.	499	0.7	P
Jul-07-2004	15	.	.	596	0.7	P
Jul-14-2004	5	.	.	523	0.7	P
Jul-21-2004	5	.	.	428	0.7	P
Jul-28-2004	5	.	.	581	0.8	P
Aug-04-2004	5	.	.	670	P	P
Aug-11-2004	20	.	.	459	0.6	P
Aug-18-2004	40	.	.	474	0.7	P
Aug-25-2004	10	.	.	641	P	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
Jun-02-2004	25	.	.	600	0.9	0.3
Jun-09-2004	15	.	.	533	0.9	0.2
Jun-16-2004	25	.	.	444	0.8	P
Jun-23-2004	35	.	.	447	0.6	0.2
Jun-30-2004	25	.	.	471	0.6	P
Jul-07-2004	10	.	.	431	0.6	P
Jul-14-2004	5	.	.	439	0.8	P
Jul-21-2004	5	.	.	402	0.8	P
Jul-28-2004	5	.	.	415	0.7	P
Aug-04-2004	5	.	.	381	P	P
Aug-11-2004	5	.	.	428	0.6	P
Aug-18-2004	30	.	.	369	1.1	P
Aug-25-2004	35	.	.	422	P	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
Jun-02-2004	85	.	.	793	1.3	0.6
Jun-09-2004	65	.	.	1,000	1.7	0.8
Jun-16-2004	100	.	.	826	1.5	P
Jun-23-2004	90	.	.	781	1.4	0.6
Jun-30-2004	50	.	.	895	1.3	P
Jul-07-2004	30	.	.	955	1.5	P
Jul-14-2004	30	.	.	1,090	2.0	P
Jul-21-2004	50	.	.	798	1.5	P
Jul-28-2004	40	.	.	715	1.3	P
Aug-04-2004	40	.	.	641	P	P
Aug-11-2004	65	.	.	870	1.4	P
Aug-18-2004	85	.	.	583	0.8	P
Aug-25-2004	85	.	.	528	P	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
Jun-02-2004	2	.	.	1,630	1.7	2.2
Jun-09-2004	15	.	.	1,460	1.4	2.0
Jun-16-2004	6	.	.	1,140	1.2	P
Jun-23-2004	2	.	.	904	1.2	0.8
Jun-30-2004	21	.	.	1,040	1.0	P
Jul-07-2004	33	.	.	1,190	1.2	P
Jul-14-2004	35	.	.	926	1.0	P
Jul-21-2004	16	.	.	1,380	1.3	P
Jul-28-2004	7	.	.	1,310	1.0	P
Aug-04-2004	7	.	.	1,200	P	P
Aug-11-2004	4	.	.	939	0.7	P
Aug-18-2004	4	.	.	1,070	0.7	P
Aug-25-2004	2	.	.	1,340	P	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
Jun-02-2004	.	.	.	762	1.3	0.4
Jun-09-2004	.	.	.	517	1.0	0.2
Jun-16-2004	.	.	.	472	1.1	P
Jun-23-2004	.	.	.	472	0.8	0.2
Jun-30-2004	.	.	.	437	0.6	P
Jul-07-2004	.	.	.	408	0.6	P
Jul-14-2004	.	.	.	416	1.1	P
Jul-21-2004	.	.	.	341	0.8	P
Jul-28-2004	.	.	.	359	0.6	P
Aug-04-2004	.	.	.	369	P	P
Aug-11-2004	.	.	.	434	0.7	P
Aug-18-2004	.	.	.	365	0.7	P
Aug-25-2004	.	.	.	412	P	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
Jun-03-2004	166	24.4	8.0	1,560	0.6	0.5
Jun-10-2004	198	21.2	7.9	1,040	0.8	0.5
Jun-17-2004	170	25.0	7.9	1,390	0.6	P
Jun-24-2004	158	23.7	7.9	1,370	0.6	0.4
Jul-01-2004	137	23.3	7.5	1,510	0.5	P
Jul-08-2004	164	24.8	7.5	1,310	0.4	P
Jul-15-2004	159	24.8	7.5	833	0.9	P
Jul-22-2004	173	26.5	7.9	1,130	0.6	P
Jul-29-2004	126	24.8	8.1	1,390	0.4	P
Aug-05-2004	151	23.8	7.9	987	P	P
Aug-12-2004	141	25.9	8.1	1,210	0.4	P
Aug-19-2004	153	25.5	7.9	1,110	<0.4	P
Aug-26-2004	143	23.3	8.2	1,250	<0.4	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
Jun-02-2004	.	.	.	1,860	0.6	0.4
Jun-08-2004	.	.	.	2,220	9.6	2.1
Jun-15-2004	.	.	.	2,130	8.6	2.0
Jun-22-2004	.	.	.	2,040	6.1	1.8
Jun-29-2004	.	.	.	2,020	6.3	1.9
Jul-07-2004	.	.	.	1,600	<0.4	0.3
Jul-13-2004	.	.	.	1,910	8.2	2.0
Jul-20-2004	.	.	.	1,620	4.9	1.6
Jul-30-2004	.	.	.	2,050	5.7	1.8
Aug-10-2004	.	.	.	1,700	4.6	1.6
Aug-17-2004	.	.	.	1,710	4.4	1.6
Aug-24-2004	.	.	.	1,700	4.5	1.6

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
Jun-03-2004	519	24.0	8.1	1,410	4.7	1.1
Jun-10-2004	481	22.8	8.3	1,520	5.1	1.1
Jun-17-2004	407	25.3	8.2	1,590	4.4	P
Jun-24-2004	396	23.7	8.1	1,480	3.3	1.0
Jul-01-2004	368	24.3	8.0	1,580	4.3	P
Jul-08-2004	410	25.0	8.0	1,490	4.4	P
Jul-15-2004	385	24.3	8.3	1,520	4.6	P
Jul-22-2004	421	25.1	8.0	1,320	2.1	P
Jul-29-2004	349	24.5	8.2	1,590	3.1	P
Aug-05-2004	408	24.0	8.1	1,310	P	P
Aug-12-2004	336	25.5	8.0	1,340	2.8	P
Aug-19-2004	404	24.9	7.9	1,280	2.5	P
Aug-26-2004	618	23.8	8.1	1,090	2.3	P

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from September 2003 to August 2004. 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	%	%	%	%	%	%
Sep-2003	100	100	95	93	98	100
Oct-2003	100	100	93	100	100	100
Nov-2003	100	93	40*	100	75	100
Dec-2003	95	40*	53*	83	88	100
Jan-2004	95	58*	75	93	98	100
Feb-2004	98	93	100	98	100	100
Mar-2004	100	90	53*	85	100	100
Apr-2004	100	100	95	95	90	98
May-2004	100	100	100	100	100	100
Jun-2004	98	93	98	100	88	95
Jul-2004	100	90	93	88	98	98
Aug-2004	98	98	100	95	85	100

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from September 2003 to August 2004. 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
Sep-2003	0.46	0.37	0.45	0.38	0.31	0.38
Oct-2003	0.32	0.38	0.32	0.37	0.31	0.29
Nov-2003	0.45	0.43	0.16*	0.45	0.34	0.45
Dec-2003	0.50	0.29*	0.34	0.39	0.43	0.48
Jan-2004	0.60	0.37	0.49	0.58	0.55	0.58
Feb-2004	0.57	0.55	0.56	0.60	0.63	0.63
Mar-2004	0.44	0.39*	0.32*	0.42	0.48	0.46
Apr-2004	0.59	0.57	0.63	0.54	0.56	0.60
May-2004	0.49	0.55	0.53	0.57	0.43	0.49
Jun-2004	0.42	0.42	0.40	0.45	0.36	0.40
Jul-2004	0.55	0.50	0.51	0.54	0.51	0.48
Aug-2004	0.60	0.62	0.62	0.64	0.55	0.59

Table 22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from September 2003 to August 2004. 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	%	%	%	%	%	%
Sep-2003	60*	100	100	90	100	90
Oct-2003	60*	100	100	100	100	100
Nov-2003	90	100	89	100	100	90
Dec-2003	90	90	100	100	90	100
Jan-2004	95	58*	75	93	98	100
Feb-2004	98	93	100	98	100	100
Mar-2004	100	100	90	100	100	100
Apr-2004	100	100	90	90	90	100
May-2004	90	100	90	80	90	90
Jun-2004	90	100	100	90	90	100
Jul-2004	100	100	80	90	90	90
Aug-2004	100	88	88	100	90	100

Table 23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from September 2003 to August 2004. 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
Sep-2003	25.1	30.1	36.1	31.2	33.0	25.6
Oct-2003	23.3	48.1	52.8	41.5	33.8	23.0
Nov-2003	54.8	40.7	44.3	54.7	45.3	38.1
Dec-2003	59.0	58.7	64.9	73.6	64.2	68.7
Jan-2004	46.8	45.0	40.7	44.5	54.1	41.5
Feb-2004	59.4	59.0	60.7	54.3	60.0	59.0
Mar-2004	59.7	55.3	58.8	58.6	58.4	51.6
Apr-2004	35.5	34.3	35.9	34.6	21.7	15.7
May-2004	32.4	29.6	37.5	34.9	30.7	24.7
Jun-2004	25.8	29.8	25.6	16.7	19.0	30.0
Jul-2004	51.3	32.4	48.5	36.2	38.8	34.9
Aug-2004	41.9	41.8	46.1	37.4	32.0	33.9

Table 24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from September 2003 to August 2004. 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
Sep-2003	11.8*	15.5	14.5*	13.9*	15.9	12.2
Oct-2003	10.0	12.6	12.2	8.6*	9.9††††	8.7††††
Nov-2003	12.3	22.5	21.2	18.9	14.8	15.3
Dec-2003	0.7*	26.6	34.4	21.1*	25.0	18.5
Jan-2004	9.7*	21.1	5.9*	8.8	18.4	20.9
Feb-2004	0.5*	32.5	21.9	0.4*	25.0	23.1
Mar-2004	24.0*	39.2	27.5	33.1	29.9	29.3
Apr-2004	19.9	31.6	20.0	25.5	19.5	26.5
May-2004	19.3*	29.5	25.1	25.1	24.5	14.5
Jun-2004	12.1	25.2	18.1	21.5	15.4	22.4
Jul-2004	3.6*	13.1	16.3	17.5	12.5	10.1
Aug-2004	14.8	17.7	14.2	16.9	12.2	17.6

Table 25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, June 2004 to August 2004.

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
Jun-07-2004	49	0.8	39	0.7	<0.4
Jun-09-2004	43	0.8	37	0.7	<0.4
Jun-11-2004	52	0.5	44	0.7	<0.4
Jul-19-2004	35	0.9	21	0.5	<0.4
Jul-21-2004	25	0.9	19	0.4	<0.4
Jul-23-2004	35	0.7	21	<0.4	<0.4
Aug-02-2004	27	0.4	19	0.4	<0.4
Aug-04-2004	30	0.5	26	0.5	<0.4
Aug-06-2004	34	<0.4	21	0.4	<0.4

Table 26. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, June 2004 to August 2004.

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
Jun-07-2004	48	79	82	138	59
Jun-09-2004	64	68	83	172	38
Jun-11-2004	91	121	56	191	27
Jul-19-2004	48	39	46	115	30
Jul-21-2004	36	57	53	127	19
Jul-23-2004	66	65	56	75	28
Aug-02-2004	46	32	48	84	18
Aug-04-2004	54	31	41	64	25
Aug-06-2004	72	71	59	124	26

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.
†	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