

# GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

October 2004

February 8, 2005

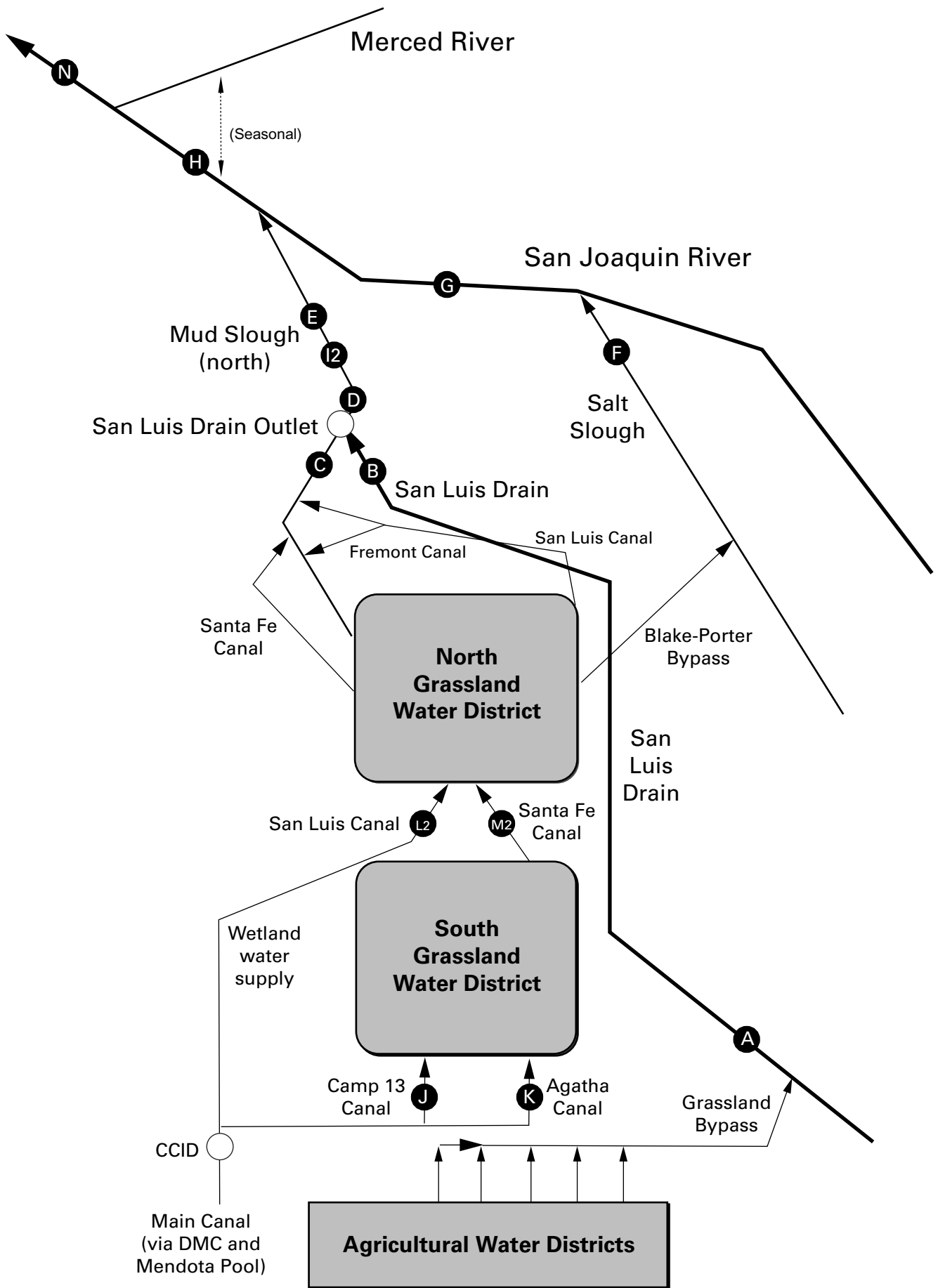
### Preliminary Results

A cooperative effort of:

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

compiled by San Francisco Estuary Institute





## GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

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

See Table 27 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Specific Conductance</b>
<b>DATA SOURCE</b>	<b>SLDMWA</b>	<b>SLDMWA</b>
<b>UNITS</b>	<b>cfs</b>	<b>µS/cm</b>
Oct-01-2004	12	4,510
Oct-02-2004	11	4,340
Oct-03-2004	12	4,360
Oct-04-2004	14	4,590
Oct-05-2004	12	4,430
Oct-06-2004	14	4,670
Oct-07-2004	15	4,410
Oct-08-2004	14	4,290
Oct-09-2004	13	4,280
Oct-10-2004	13	4,080
Oct-11-2004	13	4,240
Oct-12-2004	13	4,200
Oct-13-2004	14	4,010
Oct-14-2004	11	4,440
Oct-15-2004	9	4,990
Oct-16-2004	8	4,830
Oct-17-2004	10	4,700
Oct-18-2004	15	4,730
Oct-19-2004	18	4,450
Oct-20-2004	47	4,150
Oct-21-2004	33	3,940
Oct-22-2004	22	4,110
Oct-23-2004	20	3,960
Oct-24-2004	20	4,200
Oct-25-2004	20	4,240
Oct-26-2004	28	3,900
Oct-27-2004	37	4,080
Oct-28-2004	25	3,940
Oct-29-2004	21	4,340
Oct-30-2004	20	4,680
Oct-31-2004	18	4,860
Mean	18	4,350

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

See Table 27 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Temperature</b>	<b>Boron</b>	<b>Specific Conductance</b>	<b>Selenium (total)</b>	<b>Selenium (total) Load</b>
<b>DATA SOURCE</b>	<b>USGS</b>	<b>USGS</b>	<b>CVRWQCB</b>	<b>CVRWQCB</b>	<b>CVRWQCB</b>	<b>Computed</b>
<b>UNITS</b>	<b>cfs</b>	<b>°C</b>	<b>mg/L</b>	<b>µS/cm</b>	<b>µg/L</b>	<b>lbs</b>
Oct-01-2004	20	19.6	6.5	3,790	29.0	3.1
Oct-02-2004	18	20.0	6.3	3,750	29.2	2.8
Oct-03-2004	17	20.6	5.5	3,310	22.4	2.1
Oct-04-2004	18	21.0	5.6	3,390	22.7	2.2
Oct-05-2004	20	21.1	5.6	3,010	21.4	2.3
Oct-06-2004	19	21.3	5.5	3,300	21.2	2.2
Oct-07-2004	20	21.7	5.6	3,390	22.6	2.4
Oct-08-2004	22	22.0	5.5	3,490	22.0	2.6
Oct-09-2004	23	21.5	5.4	3,510	23.0	2.9
Oct-10-2004	22	19.2	5.7	3,710	26.7	3.2
Oct-11-2004	21	18.7	5.9	3,590	24.4	2.8
Oct-12-2004	21	19.2	6.6	3,740	27.4	3.1
Oct-13-2004	20	19.3	6.3	3,670	26.5	2.9
Oct-14-2004	21	19.8	6.0	3,550	24.4	2.8
Oct-15-2004	20	19.9	6.0	3,470	22.0	2.4
Oct-16-2004	17	19.8	6.0	3,340	19.0	1.7
Oct-17-2004	17	19.6	5.8	3,370	19.8	1.8
Oct-18-2004	19	19.0	6.0	3,460	20.4	2.1
Oct-19-2004	22	17.6	5.9	3,350	20.2	2.4
Oct-20-2004	29	16.6	P	3,220	18.6	2.9
Oct-21-2004	51	16.6	6.0	3,440	20.0	5.5
Oct-22-2004	41	16.7	6.4	3,790	30.2	6.7
Oct-23-2004	31	16.8	7.2	4,010	39.5	6.6
Oct-24-2004	30	17.1	6.4	4,170	63.8	10.3
Oct-25-2004	29	16.7	7.0	3,700	37.4	5.8
Oct-26-2004	30	15.8	6.7	3,700	32.8	5.3
Oct-27-2004	36	14.9	6.2	3,620	32.4	6.3
Oct-28-2004	43	14.5	6.5	3,670	39.4	9.1
Oct-29-2004	33	14.8	6.6	3,760	42.9	7.6
Oct-30-2004	29	14.9	6.1	3,600	42.1	6.6
Oct-31-2004	29	14.9	6.9	3,920	57.3	9.0
Mean	25	18.4	6.1	3,570	29.1	4.2
<b>Total Acre-feet</b>	<b>1,560</b>					
<b>Total (lbs)</b>						<b>129</b>

<b>Load Limitation for October 2004 (lbs)</b>	<b>294</b>
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Table 2b. Continuous water monitoring at San Luis Drain Outlet, October 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
Oct-01-2004	21	29.0	3.2
Oct-02-2004	20	29.2	3.1
Oct-03-2004	19	22.4	2.3
Oct-04-2004	20	22.7	2.4
Oct-05-2004	21	21.4	2.4
Oct-06-2004	21	21.2	2.3
Oct-07-2004	21	22.6	2.5
Oct-08-2004	22	22.0	2.6
Oct-09-2004	21	23.0	2.6
Oct-10-2004	20	26.7	2.9
Oct-11-2004	21	24.4	2.7
Oct-12-2004	21	27.4	3.0
Oct-13-2004	21	26.5	3.0
Oct-14-2004	21	24.4	2.8
Oct-15-2004	21	22.0	2.4
Oct-16-2004	19	19.0	1.9
Oct-17-2004	19	19.8	2.0
Oct-18-2004	20	20.4	2.2
Oct-19-2004	26	20.2	2.8
Oct-20-2004	30	18.6	3.0
Oct-21-2004	51	20.0	5.5
Oct-22-2004	42	30.2	6.8
Oct-23-2004	32	39.5	6.9
Oct-24-2004	30	63.8	10.3
Oct-25-2004	30	37.4	6.0
Oct-26-2004	32	32.8	5.6
Oct-27-2004	37	32.4	6.4
Oct-28-2004	44	39.4	9.2
Oct-29-2004	34	42.9	7.9
Oct-30-2004	30	42.1	6.8
Oct-31-2004	26	57.3	7.9
Mean	26	29.1	4.2
Total Acre-feet	1,600		
Total (lbs)			132

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.

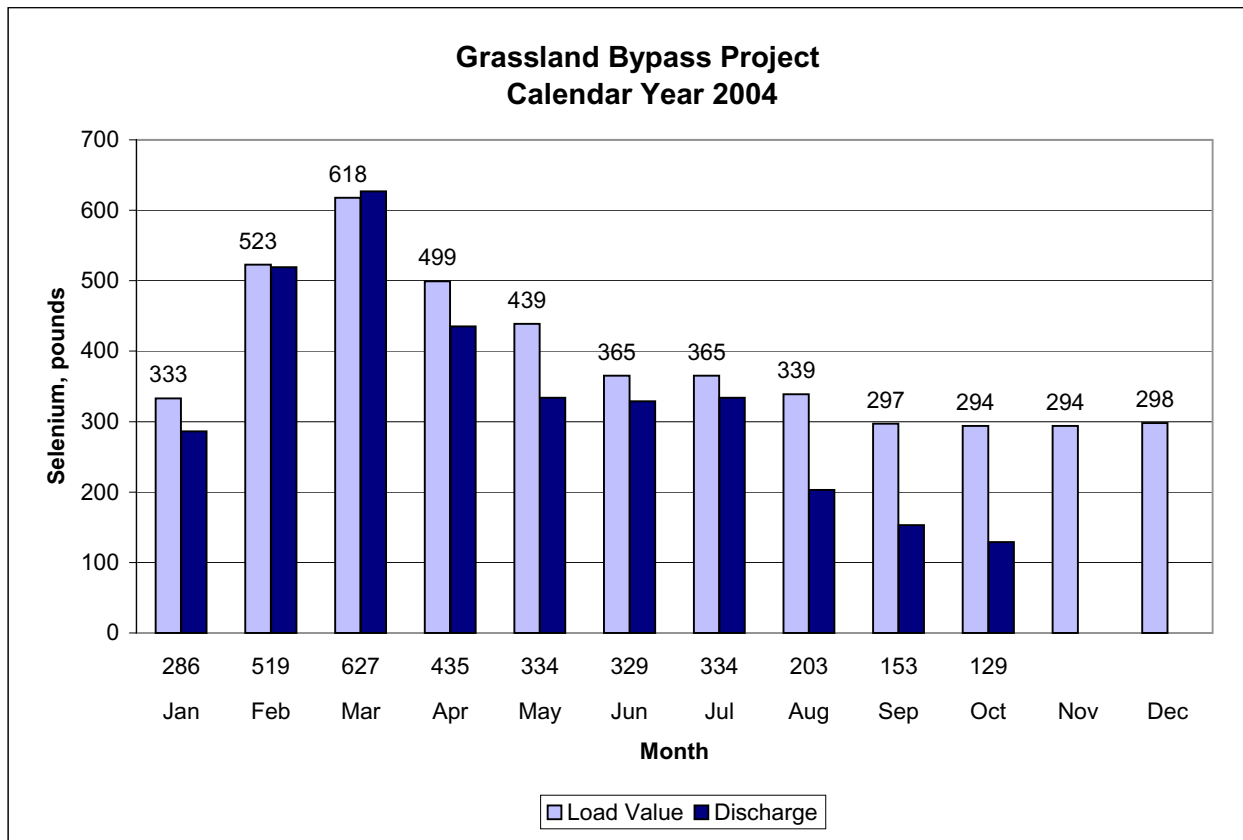
To improve the accuracy of flow measurements, Reclamation and the San Luis & Delta-Mendota Water Authority, with technical assistance from the USGS, are measuring flow at the San Luis Drain Outlet. The Outlet is located two miles from Station B. Discharge will be measured as stage over a sharp-crested 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), October 2004.**

See Table 27 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>
Oct-01-2004	63	19.5	1,750
Oct-02-2004	51	20.2	2,000
Oct-03-2004	58	20.8	1,760
Oct-04-2004	65	21.0	1,650
Oct-05-2004	77	20.9	1,590
Oct-06-2004	78	21.1	1,550
Oct-07-2004	80	21.5	1,570
Oct-08-2004	76	21.8	1,760
Oct-09-2004	78	20.9	1,700
Oct-10-2004	89	18.4	1,580
Oct-11-2004	100	18.0	1,510
Oct-12-2004	115	18.7	1,350
Oct-13-2004	133	19.5	1,270
Oct-14-2004	135	19.9	1,270
Oct-15-2004	131	19.9	1,270
Oct-16-2004	124	19.8	1,270
Oct-17-2004	127	19.2	1,250
Oct-18-2004	126	18.6	1,310
Oct-19-2004	152	17.1	1,310
Oct-20-2004	236	15.9	1,160
Oct-21-2004	248	16.0	1,420
Oct-22-2004	218	16.3	1,500
Oct-23-2004	210	16.6	1,430
Oct-24-2004	226	16.9	1,390
Oct-25-2004	229	16.4	1,320
Oct-26-2004	255	15.3	1,280
Oct-27-2004	320	14.1	1,240
Oct-28-2004	311	13.8	1,340
Oct-29-2004	257	14.1	1,420
Oct-30-2004	230	14.8	1,410
Oct-31-2004	204	14.8	1,430
Mean	155	18.1	1,450



Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), October 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
Oct-01-2004	62	19.4	1,320
Oct-02-2004	59	20.6	1,370
Oct-03-2004	58	21.4	1,410
Oct-04-2004	68	21.0	1,390
Oct-05-2004	68	20.9	1,300
Oct-06-2004	65	21.0	1,360
Oct-07-2004	64	21.3	1,330
Oct-08-2004	64	21.4	1,300
Oct-09-2004	65	20.4	1,240
Oct-10-2004	65	17.8	1,270
Oct-11-2004	69	17.9	1,200
Oct-12-2004	64	18.5	1,260
Oct-13-2004	65	19.3	1,280
Oct-14-2004	64	19.7	1,290
Oct-15-2004	65	19.2	1,300
Oct-16-2004	68	19.0	1,270
Oct-17-2004	73	18.6	1,220
Oct-18-2004	81	18.5	1,160
Oct-19-2004	103	16.6	1,100
Oct-20-2004	153	16.1	982
Oct-21-2004	156	16.0	979
Oct-22-2004	149	16.1	1,030
Oct-23-2004	133	16.1	1,080
Oct-24-2004	112	16.5	1,140
Oct-25-2004	117	15.9	1,160
Oct-26-2004	131	15.0	1,130
Oct-27-2004	172	14.1	1,070
Oct-28-2004	191	13.5	1,060
Oct-29-2004	186	13.7	1,110
Oct-30-2004	179	14.2	1,140
Oct-31-2004	180	14.3	1,160
Mean	102	17.9	1,210

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), October 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
Oct-01-2004	320	19.9	1,440	1.8
Oct-02-2004	327	20.5	1,300	1.9
Oct-03-2004	333	21.1	1,260	1.9
Oct-04-2004	373	21.0	1,180	1.6
Oct-05-2004	352	20.7	1,190	1.3
Oct-06-2004	373	20.9	1,140	1.3
Oct-07-2004	390	21.2	1,090	1.3
Oct-08-2004	392	21.2	1,090	1.3
Oct-09-2004	396	20.6	1,070	1.3
Oct-10-2004	388	18.1	1,160	1.3
Oct-11-2004	429	18.0	1,070	1.3
Oct-12-2004	440	18.4	992	1.3
Oct-13-2004	464	19.0	970	1.2
Oct-14-2004	472	19.6	984	1.4
Oct-15-2004	490	19.3	953	1.3
Oct-16-2004	503	19.1	948	1.2
Oct-17-2004	522	19.1	934	1.0
Oct-18-2004	593	18.4	844	0.8
Oct-19-2004	711	17.0	736	0.7
Oct-20-2004	1,000	15.8	614	0.6
Oct-21-2004	1,280	15.9	490	0.7
Oct-22-2004	1,360	15.8	518	0.8
Oct-23-2004	1,320	15.9	622	0.9
Oct-24-2004	1,330	16.1	553	0.9
Oct-25-2004	1,280	15.8	589	2.5
Oct-26-2004	1,200	15.4	604	1.4
Oct-27-2004	1,180	14.4	635	1.0
Oct-28-2004	1170	13.7	702	1.0
Oct-29-2004	1120	13.8	754	1.4
Oct-30-2004	1,070	14.2	850	1.8
Oct-31-2004	1,020	14.4	874	1.5
Mean	730	17.9	910	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	.	.	.
Aug-04-2004	43	.	.	3,660	P	.	.	.
Aug-11-2004	38	.	.	3,940	130	.	.	.
Aug-18-2004	43	.	.	3,430	130	.	.	.
Aug-25-2004	45	.	.	3,840	180	.	.	.
Sep-01-2004	38	.	.	4,130	130	.	.	.
Sep-08-2004	27	.	.	4,500	75	.	.	.
Sep-15-2004	19	.	.	4,210	52	.	.	.
Sep-22-2004	12	.	.	4,670	19	.	.	.
Sep-29-2004	15	.	.	4,080	P	.	.	.
Oct-06-2004	14	.	.	4,770	P	.	.	.
Oct-13-2004	15	.	.	3,850	P	.	.	.
Oct-20-2004	47	.	.	4,590	P	.	.	.
Oct-27-2004	37	.	.	4,130	P	.	.	.

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
Aug-03-2004	43	.	.	3,830	.	31.8	.	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
Sep-07-2004	32	.	.	4,260	.	40.8	.	P
Sep-15-2004	19	.	.	4,470	.	41.3	.	P
Sep-22-2004	12	.	.	4,140	.	37.7	.	7.5
Sep-28-2004	16	.	.	4,390	.	41.2	.	7.8
Oct-05-2004	12	.	.	4,500	.	P	.	P
Oct-12-2004	13	.	.	4,230	.	36.4	.	7.2
Oct-19-2004	18	.	.	4,710	.	45.6	.	9.1
Oct-26-2004	28	.	.	4,090	.	53.7	.	6.6

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
Aug-05-2004	45	24.1	8.3	3,900	37	32.4	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
Sep-02-2004	42	25.0	8.1	4,570	46	39.9	P
Sep-09-2004	30	24.7	7.8	3,870	39	30.7	P
Sep-16-2004	23	21.7	8.2	4,690	46	40.9	P
Sep-23-2004	18	20.0	8.4	3,580	45	27.8	6.4
Sep-30-2004	21	19.7	8.1	3,760	P	29.0	6.0
Oct-07-2004	20	20.6	7.7	3,480	P	22.2	5.6
Oct-14-2004	21	18.8	7.5	3,630	P	27.0	5.9
Oct-21-2004	51	15.9	NA	3,510	P	19.4	5.4
Oct-28-2004	43	13.8	7.7	3,700	P	40.6	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
Aug-05-2004	12	22.9	8.0	979	.	1.2	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
Sep-02-2004	11	23.2	7.8	755	.	0.5	P
Sep-09-2004	9	25.9	7.7	807	.	0.4	P
Sep-16-2004	13	22.7	7.7	847	.	<0.4	P
Sep-23-2004	18	22.3	7.7	981	.	0.4	0.7
Sep-30-2004	25	18.2	7.8	899	.	0.5	0.6
Oct-07-2004	60	20.1	7.6	829	.	0.4	0.6
Oct-14-2004	114	18.9	7.5	789	.	<0.4	0.5
Oct-21-2004	197	15.1	NA	830	.	0.4	0.5
Oct-28-2004	268	NA	NA	NA	.	NA	NA

\*\* 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
Aug-05-2004	57	23.5	8.3	3,280	24.5	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
Sep-02-2004	53	24.1	8.1	3,520	25.5	P
Sep-09-2004	39	24.8	7.5	2,820	19.4	P
Sep-16-2004	36	22.3	8.1	2,960	21.6	P
Sep-23-2004	36	21.5	7.9	2,220	11.5	3.3
Sep-30-2004	46	18.9	7.8	2,170	11.2	3.1
Oct-07-2004	80	20.3	7.4	1,500	5.7	1.6
Oct-14-2004	135	18.8	7.4	1,240	3.6	1.2
Oct-21-2004	248	15.3	NA	1,480	4.8	1.7
Oct-28-2004	311	13.2	7.6	1,360	5.6	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
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
Sep-01-2004	.	8.8	3,570	15	21.9	5.9
Sep-07-2004	.	8.4	2,610	26	17.0	3.7
Sep-14-2004	.	8.4	2,860	10	16.6	4.2
Sep-22-2004	.	7.7	2,420	50	10.9	3.0
Sep-28-2004	.	7.3	2,260	24	10.5	2.7
Oct-05-2004	.	7.6	1,690	21	5.6	1.9
Oct-12-2004	.	7.6	1,820	26	4.1	1.5
Oct-20-2004	.	7.7	1,290	20	2.3	1.0
Oct-26-2004	.	7.9	1,380	16	3.9	1.5

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
Aug-05-2004	125	23.2	7.4	1,000	0.7	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
Sep-02-2004	74	23.1	7.8	1,480	<0.4	P
Sep-09-2004	112	23.5	7.9	1,130	0.5	P
Sep-16-2004	96	21.5	8.0	1,170	<0.4	P
Sep-23-2004	71	18.4	8.1	1,110	0.4	0.5
Sep-30-2004	66	17.3	7.7	1,190	0.5	P
Oct-07-2004	64	18.8	8.0	1,280	<0.4	0.7
Oct-14-2004	64	17.6	8.0	1,210	0.7	0.7
Oct-21-2004	156	14.8	NA	957	0.8	0.6
Oct-28-2004	191	12.8	7.6	1,060	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 <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Aug-04-2004	5	.	.	670	0.9	P
Aug-11-2004	20	.	.	459	0.6	P
Aug-18-2004	40	.	.	474	0.7	P
Aug-25-2004	10	.	.	641	0.8	P
Sep-01-2004	40	.	.	533	0.6	P
Sep-08-2004	50	.	.	730	0.8	P
Sep-15-2004	60	.	.	563	0.8	P
Sep-22-2004	85	.	.	473	0.5	0.2
Sep-29-2004	125	.	.	506	0.5	0.2
Oct-06-2004	175	.	.	547	0.4	0.2
Oct-13-2004	130	.	.	589	0.5	0.2
Oct-20-2004	45	.	.	567	0.7	0.2
Oct-27-2004	0	.	.	NA	NA	NA

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 <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Aug-04-2004	5	.	.	381	0.6	P
Aug-11-2004	5	.	.	428	0.6	P
Aug-18-2004	30	.	.	369	1.1	P
Aug-25-2004	35	.	.	422	0.6	P
Sep-01-2004	65	.	.	481	0.7	P
Sep-08-2004	75	.	.	530	0.6	P
Sep-15-2004	75	.	.	611	0.5	P
Sep-22-2004	90	.	.	530	0.5	0.2
Sep-29-2004	110	.	.	495	0.5	0.2
Oct-06-2004	200	.	.	537	0.5	0.2
Oct-13-2004	200	.	.	672	0.5	0.2
Oct-20-2004	80	.	.	578	0.9	0.2
Oct-27-2004	30	.	.	593	0.5	0.3

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 <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Aug-04-2004	40	.	.	641	0.8	P
Aug-11-2004	65	.	.	870	1.4	P
Aug-18-2004	85	.	.	583	0.8	P
Aug-25-2004	85	.	.	528	0.7	P
Sep-01-2004	85	.	.	756	0.8	P
Sep-08-2004	60	.	.	860	0.8	P
Sep-15-2004	125	.	.	531	0.6	P
Sep-22-2004	150	.	.	553	0.6	0.2
Sep-29-2004	150	.	.	555	0.7	0.3
Oct-06-2004	150	.	.	509	0.7	0.2
Oct-13-2004	170	.	.	592	0.5	0.2
Oct-20-2004	50	.	.	536	0.5	0.2
Oct-27-2004	0	.	.	560	0.6	0.4

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 <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Aug-04-2004	7	.	.	1,200	0.9	P
Aug-11-2004	4	.	.	939	0.7	P
Aug-18-2004	4	.	.	1,070	0.7	P
Aug-25-2004	2	.	.	1,340	0.9	P
Sep-01-2004	14	.	.	1,110	0.8	P
Sep-08-2004	22	.	.	849	0.6	P
Sep-15-2004	1	.	.	948	0.5	P
Sep-22-2004	15	.	.	693	1.0	0.4
Sep-29-2004	60	.	.	659	0.8	0.4
Oct-06-2004	30	.	.	633	0.6	0.3
Oct-13-2004	2	.	.	812	0.6	0.5
Oct-20-2004	68	.	.	742	0.7	0.6
Oct-27-2004	139	.	.	898	0.4	0.9

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
Aug-04-2004	.	.	.	369	0.4	P
Aug-11-2004	.	.	.	434	0.7	P
Aug-18-2004	.	.	.	365	0.7	P
Aug-25-2004	.	.	.	412	0.7	P
Sep-01-2004	.	.	.	556	0.8	P
Sep-08-2004	.	.	.	500	0.6	P
Sep-15-2004	.	.	.	460	<0.4	P
Sep-22-2004	.	.	.	456	0.5	0.1
Sep-29-2004	.	.	.	536	0.6	0.2
Oct-06-2004	.	.	.	522	0.5	0.1
Oct-13-2004	.	.	.	564	0.7	0.2
Oct-20-2004	.	.	.	566	0.6	0.2
Oct-27-2004	.	.	.	691	1.4	0.3



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
Aug-05-2004	151	23.8	7.9	987	0.6	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
Sep-02-2004	91	23.6	7.5	2,050	<0.4	P
Sep-09-2004	112	23.1	7.9	1,340	0.5	P
Sep-16-2004	102	20.8	7.8	1,310	0.4	P
Sep-23-2004	96	22.4	8.0	1,510	0.4	0.7
Sep-30-2004	83	18.8	7.9	1,660	0.5	1.4
Oct-07-2004	77	19.3	7.6	1,710	<0.4	0.7
Oct-14-2004	77	18.4	7.4	1,500	0.4	0.8
Oct-21-2004	153	15.6	NA	938	1.2	0.5
Oct-28-2004	198	12.6	7.8	1,080	0.9	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
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
Sep-01-2004	.	.	.	2,020	5.5	1.9
Sep-02-2004	.	.	.	1,800	0.5	0.4
Sep-14-2004	.	.	.	1,730	4.3	1.3
Sep-21-2004	.	.	.	1,480	3.0	1.1
Sep-24-2004	.	.	.	1,980	3.3	1.3
Oct-12-2004	.	.	.	1,580	2.5	1.1
Oct-25-2004	.	.	.	1,760	2.6	1.1

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
Aug-05-2004	408	24.0	8.1	1,310	3.4	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
Sep-02-2004	318	23.4	7.8	1,640	2.7	P
Sep-09-2004	365	23.1	7.8	1,290	2.4	P
Sep-16-2004	358	21.2	7.6	1,240	2.2	P
Sep-23-2004	407	21.4	7.9	1,090	1.5	0.6
Sep-30-2004	293	19.8	7.8	1,450	1.7	1.3
Oct-07-2004	390	19.9	7.8	1,070	1.2	0.6
Oct-14-2004	472	18.5	7.6	990	1.5	0.5
Oct-21-2004	1,280	15.4	NA	468	0.8	0.4
Oct-28-2004	1,170	13.3	7.7	698	1.0	P

**Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from November 2003 to October 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	%	%	%	%	%	%
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
Sep-2004	98	93	95	100	93	95
Oct-2004	100	95	98	95	98	98

**Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from November 2003 to October 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
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
Sep-2004	0.71	0.60	0.75	0.74	0.62	0.51
Oct-2004	0.69	0.67	0.71	0.71	0.66	0.58

**Table 22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from November 2003 to October 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	%	%	%	%	%	%
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
Sep-2004	80	100	90	100	100	90
Oct-2004	100	100	80	100	100	100

**Table 23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from November 2003 to October 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
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
Sep-2004	49.8	48.0	40.4	38.7	41.8	44.3
Oct-2004	48.1	39.8	29.2*	36.6	47.0	32.1

**Table 24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from November 2003 to October 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 <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
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
Sep-2004	12.4*	13.4*	15.6	16.3	16.2	14.6
Oct-2004	14.5	22.1	17.7	5.9*	16.6	16.8

**Table 25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, August 2004 to October 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
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
Sep-13-2004	39	<0.4	13	<0.4	<0.4
Sep-15-2004	38	<0.4	17	<0.4	<0.4
Sep-17-2004	39	<0.4	21	<0.4	<0.4
Oct-11-2004	24	0.5	5.4	0.5	<0.4
Oct-13-2004	27	<0.4	4.2	<0.4	<0.4
Oct-15-2004	22	<0.4	3.4	<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, August 2004 to October 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
Aug-02-2004	46	32	48	84	18
Aug-04-2004	54	31	41	64	25
Aug-06-2004	72	71	59	124	26
Sep-13-2004	55	86	59	92	17
Sep-15-2004	62	86	121	73	32
Sep-17-2004	37	25	40	20	3
Oct-11-2004	34	18	75	88	90
Oct-13-2004	64	47	62	44	14
Oct-15-2004	83	107	76	46	16

**Table 27. Explanations of footnotes and agency abbreviations.**

<b>Footnote</b>	<b>Explanation</b>
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 <sup>6</sup> cell/mL) acceptability criteria.
‡	Control value exceeds suggested maximum variance (20%) acceptability criteria.
‡‡	Fungal growth observed on test organisms.
‡‡‡	Failed cell density requirement of 1E6 cells.
#	New testing laboratory with reporting limit of 0.4 µg/L as of June 1998.
√	Based on definitive bioassay, NOEC is 50 percent
D	Sample was dechlorinated