

# GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

September 2005

January 30, 2006

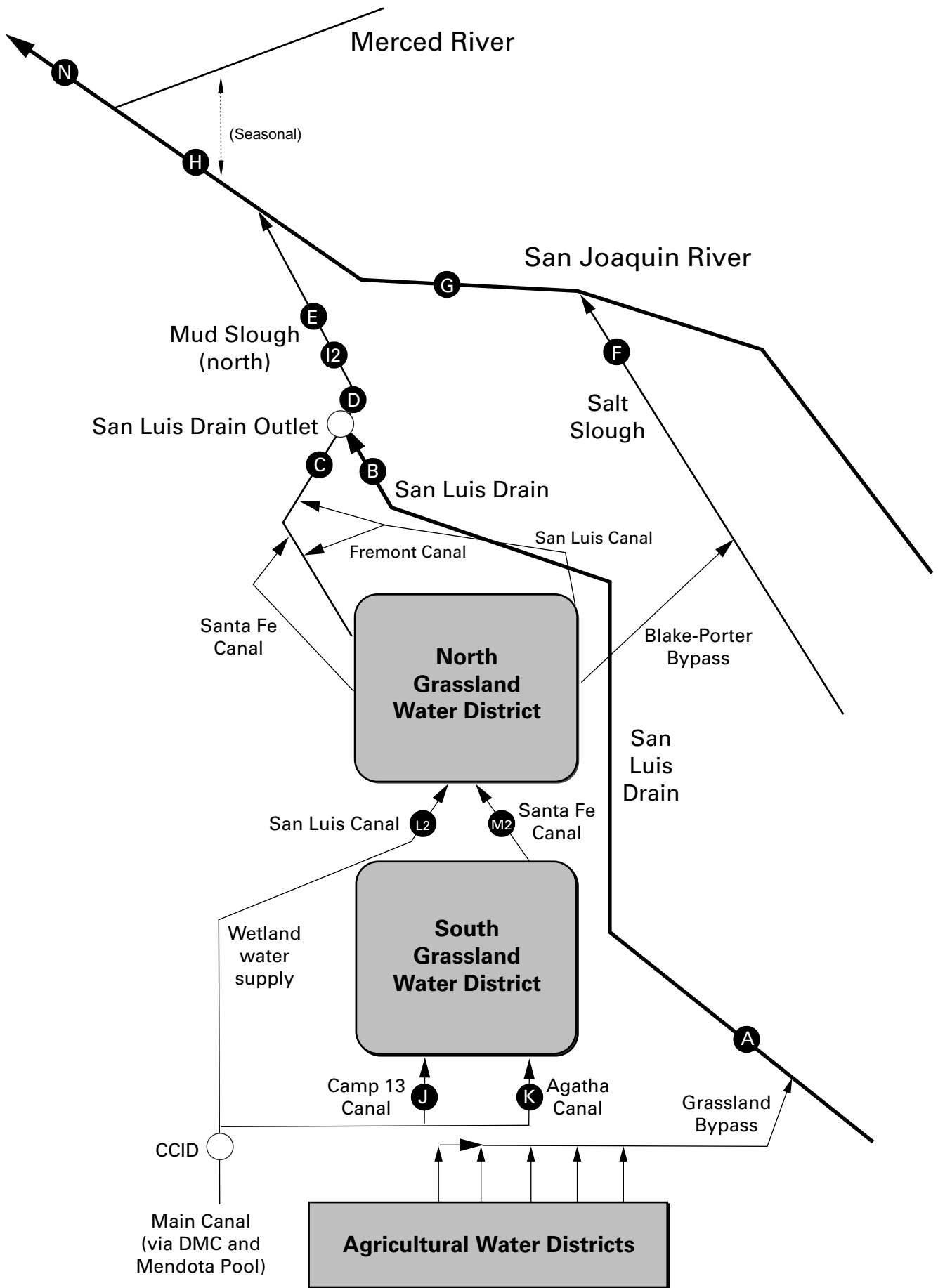
### Preliminary Results

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), September 2005.**

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>
Sep-01-2005	45	3,640
Sep-02-2005	45	3,710
Sep-03-2005	46	3,580
Sep-04-2005	33	4,230
Sep-05-2005	29	4,380
Sep-06-2005	32	4,470
Sep-07-2005	28	4,340
Sep-08-2005	30	4,000
Sep-09-2005	32	3,600
Sep-10-2005	35	3,620
Sep-11-2005	33	3,810
Sep-12-2005	30	3,890
Sep-13-2005	26	4,200
Sep-14-2005	23	3,850
Sep-15-2005	22	3,990
Sep-16-2005	25	4,150
Sep-17-2005	25	4,030
Sep-18-2005	17	4,790
Sep-19-2005	20	4,660
Sep-20-2005	25	4,050
Sep-21-2005	32	3,950
Sep-22-2005	32	4,070
Sep-23-2005	25	4,230
Sep-24-2005	21	4,370
Sep-25-2005	21	4,820
Sep-26-2005	17	4,970
Sep-27-2005	15	5,500
Sep-28-2005	14	5,440
Sep-29-2005	15	5,010
Sep-30-2005	13	5,220
.	.	.
Mean	27	4,290

**Table 2a. Continuous water monitoring at Station B (discharge from San Luis Drain), September 2005.**

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>
Sep-01-2005	47	25.0	7.4	4,280	45.4	11.5
Sep-02-2005	47	25.2	7.5	4,290	46.1	11.7
Sep-03-2005	48	25.4	6.8	4,030	39.2	10.1
Sep-04-2005	47	25.1	6.8	4,010	40.8	10.3
Sep-05-2005	35	24.6	6.8	3,780	35.0	6.6
Sep-06-2005	32	24.6	6.8	3,860	36.7	6.3
Sep-07-2005	34	24.3	6.7	3,690	32.4	5.9
Sep-08-2005	30	23.8	8.1	4,590	43.2	7.0
Sep-09-2005	31	23.2	7.9	5,100	48.2	8.1
Sep-10-2005	34	21.9	7.9	5,220	53.0	9.7
Sep-11-2005	37	21.5	7.5	5,180	51.9	10.4
Sep-12-2005	35	21.2	6.7	4,770	48.2	9.1
Sep-13-2005	32	21.3	5.9	4,140	38.8	6.7
Sep-14-2005	28	21.3	5.3	3,870	33.2	5.0
Sep-15-2005	26	21.4	5.9	3,920	35.7	5.0
Sep-16-2005	23	21.1	5.7	3,830	38.4	4.8
Sep-17-2005	26	21.7	5.4	3,810	39.2	5.5
Sep-18-2005	27	21.3	5.9	3,990	40.4	5.9
Sep-19-2005	21	21.3	5.3	3,710	33.8	3.8
Sep-20-2005	21	21.7	5.5	3,780	35.1	4.0
Sep-21-2005	27	22.3	6.1	4,020	40.6	5.9
Sep-22-2005	32	23.2	6.1	4,070	42.7	7.4
Sep-23-2005	34	23.5	7.0	4,490	48.6	8.9
Sep-24-2005	29	21.5	6.5	4,220	47.8	7.5
Sep-25-2005	24	20.8	6.6	4,140	47.0	6.1
Sep-26-2005	22	21.4	6.1	3,860	43.6	5.2
Sep-27-2005	21	21.4	6.7	4,070	53.9	6.1
Sep-28-2005	18	21.5	6.9	4,280	47.3	4.6
Sep-29-2005	17	22.1	6.6	4,140	43.7	4.0
Sep-30-2005	18	22.5	6.5	4,160	41.4	4.0
Mean	30	22.6	6.6	4,180	42.4	6.9
<b>Total Acre-feet</b>	<b>1,790</b>					
<b>Total (lbs)</b>						<b>207</b>

<b>Load Limitation for September 2005 (lbs)</b>	<b>332</b>
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Table 2b. Continuous water monitoring at San Luis Drain Outlet, September 2005.

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
Sep-01-2005	47	45.4	11.5
Sep-02-2005	47	46.1	11.7
Sep-03-2005	48	39.2	10.1
Sep-04-2005	47	40.8	10.3
Sep-05-2005	36	35.0	6.8
Sep-06-2005	32	36.7	6.3
Sep-07-2005	34	32.4	5.9
Sep-08-2005	31	43.2	7.2
Sep-09-2005	32	48.2	8.3
Sep-10-2005	34	53.0	9.7
Sep-11-2005	37	51.9	10.4
Sep-12-2005	36	48.2	9.4
Sep-13-2005	34	38.8	7.1
Sep-14-2005	30	33.2	5.4
Sep-15-2005	27	35.7	5.2
Sep-16-2005	25	38.4	5.2
Sep-17-2005	27	39.2	5.7
Sep-18-2005	28	40.4	6.1
Sep-19-2005	22	33.8	4.0
Sep-20-2005	22	35.1	4.2
Sep-21-2005	28	40.6	6.1
Sep-22-2005	34	42.7	7.8
Sep-23-2005	35	48.6	9.2
Sep-24-2005	28	47.8	7.2
Sep-25-2005	26	47.0	6.6
Sep-26-2005	24	43.6	5.6
Sep-27-2005	21	53.9	6.1
Sep-28-2005	19	47.3	4.8
Sep-29-2005	19	43.7	4.5
Sep-30-2005	19	41.4	4.2
Mean	31	42.4	7.1
Total Acre-feet	1,840		
Total (lbs)			213

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.

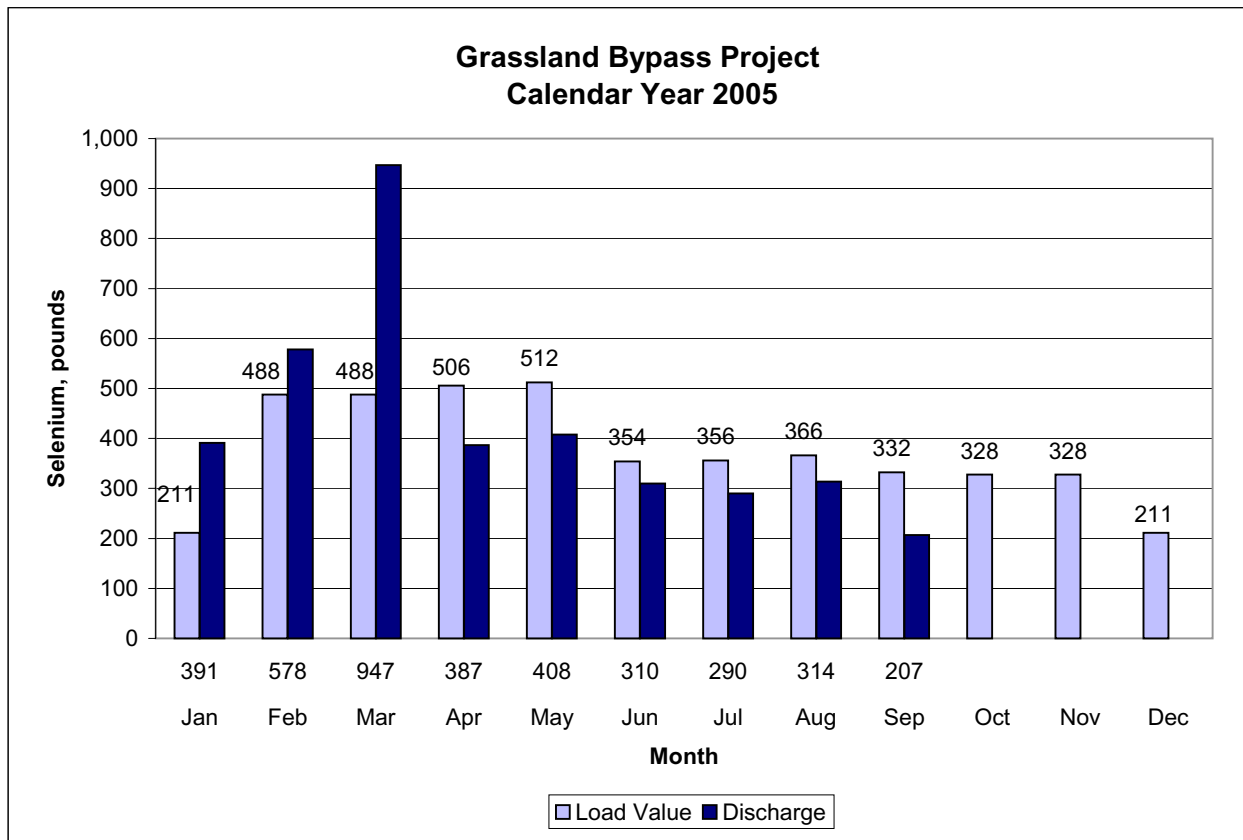
To improve the accuracy of flow measurements, Reclamation and the San Luis & Delta-Mendota Water Authority, with technical assistance from the USGS, are measuring flow at the San Luis Drain Outlet. The Outlet is located two miles from Station B. Discharge will be measured as stage over a sharp-crested 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), September 2005.**

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>
Sep-01-2005	71	25.0	3,010
Sep-02-2005	69	25.2	3,120
Sep-03-2005	64	25.2	3,180
Sep-04-2005	57	25.0	3,420
Sep-05-2005	42	24.6	3,150
Sep-06-2005	40	24.8	3,180
Sep-07-2005	56	24.1	2,450
Sep-08-2005	46	23.7	3,040
Sep-09-2005	46	23.0	3,360
Sep-10-2005	54	21.9	3,290
Sep-11-2005	56	21.7	3,440
Sep-12-2005	52	21.5	3,380
Sep-13-2005	71	21.4	2,410
Sep-14-2005	81	21.4	1,780
Sep-15-2005	62	21.6	1,970
Sep-16-2005	57	21.8	2,070
Sep-17-2005	58	21.8	2,110
Sep-18-2005	65	21.3	2,100
Sep-19-2005	67	21.6	1,720
Sep-20-2005	57	21.8	1,860
Sep-21-2005	56	22.8	2,330
Sep-22-2005	56	23.4	2,580
Sep-23-2005	62	23.0	2,640
Sep-24-2005	65	20.6	2,350
Sep-25-2005	74	20.2	1,860
Sep-26-2005	64	21.3	1,960
Sep-27-2005	54	21.2	2,080
Sep-28-2005	51	21.8	2,190
Sep-29-2005	53	22.4	2,130
Sep-30-2005	54	22.9	2,090
.	.	.	.
Mean	59	22.6	2,540



Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), September 2005.

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
Sep-01-2005	154	24.8	965
Sep-02-2005	138	25.1	1,010
Sep-03-2005	143	25.0	996
Sep-04-2005	140	24.5	1,010
Sep-05-2005	137	23.9	1,020
Sep-06-2005	136	24.1	1,010
Sep-07-2005	149	23.7	997
Sep-08-2005	143	23.1	1,020
Sep-09-2005	140	22.2	1,030
Sep-10-2005	164	21.1	915
Sep-11-2005	180	21.0	819
Sep-12-2005	194	20.7	820
Sep-13-2005	199	20.9	837
Sep-14-2005	166	21.0	904
Sep-15-2005	148	21.2	953
Sep-16-2005	134	21.5	940
Sep-17-2005	129	21.3	938
Sep-18-2005	147	20.9	959
Sep-19-2005	166	21.1	869
Sep-20-2005	155	21.6	898
Sep-21-2005	160	22.2	909
Sep-22-2005	174	23.0	875
Sep-23-2005	151	22.8	909
Sep-24-2005	116	20.3	1,060
Sep-25-2005	117	20.0	1,090
Sep-26-2005	123	21.0	1,040
Sep-27-2005	109	20.9	1,060
Sep-28-2005	102	21.6	1,150
Sep-29-2005	103	22.2	1,170
Sep-30-2005	96	22.8	1,170
.	.	.	.
Mean	144	22.2	980

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), September 2005.

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
Sep-01-2005	1,020	23.5	831	2.5
Sep-02-2005	998	23.6	809	2.5
Sep-03-2005	1,030	23.4	762	2.2
Sep-04-2005	1,020	23.1	749	2.3
Sep-05-2005	1,010	22.8	761	2.4
Sep-06-2005	914	23.0	756	1.7
Sep-07-2005	926	22.6	749	1.6
Sep-08-2005	1,010	22.3	701	1.4
Sep-09-2005	1,080	21.7	603	1.1
Sep-10-2005	1,150	21.0	573	1.3
Sep-11-2005	1,160	20.4	591	1.4
Sep-12-2005	1,220	20.1	465	1.9
Sep-13-2005	1,240	19.9	562	1.5
Sep-14-2005	1,280	19.7	529	1.5
Sep-15-2005	1,290	19.7	477	1.0
Sep-16-2005	1,270	19.8	492	0.9
Sep-17-2005	1,320	19.7	469	1.0
Sep-18-2005	1,370	19.3	434	1.3
Sep-19-2005	1,400	19.4	438	1.1
Sep-20-2005	1,410	19.5	437	1.0
Sep-21-2005	1,310	20.0	459	0.7
Sep-22-2005	1,340	20.9	489	1.2
Sep-23-2005	1,350	20.9	464	1.1
Sep-24-2005	1,380	19.4	468	1.4
Sep-25-2005	1,370	18.7	463	1.2
Sep-26-2005	1,410	18.9	452	1.0
Sep-27-2005	1,380	19.0	418	1.2
Sep-28-2005	1,330	19.3	427	0.9
Sep-29-2005	1,290	19.8	453	1.4
Sep-30-2005	1,240	20.1	489	0.8
.	.	.	.	.
Mean	1,220	20.7	560	1.4

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	.	.	.
Jul-06-2005	48	.	.	4,880	95	.	.	.
Jul-13-2005	48	.	.	4,080	89	.	.	.
Jul-20-2005	41	.	.	4,220	P	.	.	.
Jul-27-2005	36	.	.	4,020	100	.	.	.
Aug-03-2005	45	.	.	4,160	P	.	.	.
Aug-10-2005	43	.	.	3,840	160	.	.	.
Aug-17-2005	54	.	.	3,290	160	.	.	.
Aug-24-2005	48	.	.	3,970	140	.	.	.
Aug-31-2005	44	.	.	4,150	P	.	.	.
Sep-07-2005	28	.	.	5,070	P	.	.	.
Sep-14-2005	23	.	.	4,520	26	.	.	.
Sep-21-2005	32	.	.	4,400	P	.	.	.
Sep-28-2005	14	.	.	5,510	36	.	.	.

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
Jul-05-2005	47	.	.	4,780	.	47.8	.	9.1
Jul-12-2005	46	.	.	4,470	.	39.7	.	8.7
Jul-19-2005	48	.	.	4,200	.	35.0	.	P
Jul-26-2005	38	.	.	4,030	.	32.6	.	8.1
Aug-02-2005	47	.	.	4,090	.	31.2	.	7.8
Aug-09-2005	40	.	.	4,440	.	43.4	.	8.8
Aug-16-2005	54	.	.	3,990	.	37.2	.	6.1
Aug-23-2005	54	.	.	3,810	.	35.7	.	P
Sep-02-2005	45	.	.	4,420	.	44.4	.	7.9
Sep-06-2005	32	.	.	4,420	.	45.2	.	8.0
Sep-13-2005	26	.	.	4,120	.	44.6	.	6.3
Sep-20-2005	25	.	.	4,490	.	50.3	.	7.0
Sep-27-2005	15	.	.	4,820	.	59.0	.	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
Jul-07-2005	49	25.5	8.5	4,980	61	47.2	9.9
Jul-13-2005	48	28.7	8.7	4,530	49	43.6	8.7
Jul-21-2005	44	27.7	8.1	4,210	P	17.8	8.2
Jul-28-2005	38	27.3	8.5	4,130	39	31.6	7.8
Aug-04-2005	47	27.0	8.2	3,940	42	30.0	7.7
Aug-11-2005	46	26.7	8.4	4,670	46	41.8	8.4
Aug-18-2005	57	24.4	8.0	3,790	P	35.4	6.5
Aug-25-2005	50	25.0	8.4	3,490	33	36.2	6.1
Sep-01-2005	47	24.0	7.6	4,600	34	46.2	8.4
Sep-08-2005	30	23.1	8.4	4,910	P	48.4	8.4
Sep-15-2005	26	20.5	7.6	3,850	47	36.7	5.9
Sep-22-2005	32	22.6	8.3	4,130	39	46.4	6.9
Sep-29-2005	17	21.2	7.9	4,250	40	43.6	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
Jul-07-2005	38	25.9	8.0	1,070	.	1.0	0.9
Jul-13-2005	43	28.1	7.3	970	.	1.1	1.0
Jul-21-2005	24	27.0	8.2	1,140	.	1.2	1.3
Jul-28-2005	11	29.3	8.7	1,270	.	0.9	1.4
Aug-04-2005	19	25.7	8.5	1,130	.	1.4	1.3
Aug-11-2005	23	27.3	8.4	1,110	.	0.8	1.2
Aug-18-2005	11	23.2	8.3	1,170	.	0.6	1.1
Aug-25-2005	10	22.2	8.0	1,110	.	0.5	1.0
Sep-01-2005	24	21.9	8.0	874	.	0.5	0.9
Sep-08-2005	16	21.8	8.1	784	.	0.6	0.5
Sep-15-2005	36	19.3	7.9	652	.	<0.4	0.4
Sep-22-2005	24	22.4	8.0	854	.	<0.4	0.6
Sep-29-2005	36	20.1	7.8	872	.	<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
Jul-07-2005	87	25.2	7.9	3,410	28.6	6.3
Jul-13-2005	91	27.9	7.2	2,740	19.0	5.0
Jul-21-2005	68	27.2	8.3	2,930	9.7	5.3
Jul-28-2005	49	27.6	8.6	3,370	22.7	6.1
Aug-04-2005	66	26.1	8.5	3,190	21.8	5.8
Aug-11-2005	69	26.6	8.5	3,240	23.6	5.5
Aug-18-2005	67	24.1	8.2	3,470	28.9	5.7
Aug-25-2005	59	24.2	7.9	3,000	27.0	5.1
Sep-01-2005	71	22.9	7.9	3,050	27.0	5.0
Sep-08-2005	46	22.0	8.0	2,970	22.7	4.6
Sep-15-2005	62	19.6	7.9	1,930	12.8	2.4
Sep-22-2005	56	22.1	8.0	2,700	21.2	3.8
Sep-29-2005	53	20.3	8.0	2,160	15.0	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
Jul-06-2005	.	8.6	3,300	24	22.6	5.4
Jul-12-2005	.	8.6	2,920	29	19.3	5.2
Jul-19-2005	.	8.7	3,670	19	22.6	6.6
Jul-26-2005	.	8.6	3,260	18	17.6	5.5
Aug-04-2005	.	8.4	3,380	20	20.2	5.9
Aug-11-2005	.	8.6	3,320	22	23.8	5.9
Aug-15-2005	.	8.3	3,520	42	31.9	6.4
Aug-23-2005	.	8.3	3,180	21	27.6	5.5
Aug-31-2005	.	8.1	3,270	25	30.4	5.4
Sep-07-2005	.	8.2	2,540	47	17.0	4.0
Sep-13-2005	.	8.2	2,180	94	16.5	3.3
Sep-20-2005	.	8.1	1,870	20	10.4	2.5
Sep-27-2005	.	8.1	2,140	17	18.4	2.8

**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
Jul-07-2005	283	24.1	7.6	801	1.0	0.4
Jul-13-2005	226	28.1	7.2	779	0.5	0.4
Jul-21-2005	199	26.7	7.9	911	1.0	0.5
Jul-28-2005	148	25.8	7.8	1,010	0.7	0.6
Aug-04-2005	159	25.6	7.7	945	0.8	0.5
Aug-11-2005	190	24.8	7.6	866	0.6	0.4
Aug-18-2005	172	23.8	7.4	940	0.6	0.5
Aug-25-2005	146	23.3	7.7	970	0.5	0.5
Sep-01-2005	154	22.8	7.7	962	0.6	0.5
Sep-08-2005	143	21.3	7.9	1,020	0.7	0.4
Sep-15-2005	148	19.1	7.9	925	0.6	0.4
Sep-22-2005	174	21.3	7.8	833	0.5	0.5
Sep-29-2005	103	19.9	7.7	1,100	0.5	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	SJDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jul-06-2005	15	.	.	361	1.1	0.3
Jul-13-2005	15	.	.	192	0.8	0.2
Jul-20-2005	15	.	.	352	1.1	P
Jul-27-2005	15	.	.	391	0.9	0.3
Aug-03-2005	15	.	.	348	1.3	0.3
Aug-10-2005	15	.	.	334	0.8	0.3
Aug-17-2005	15	.	.	368	0.7	0.2
Aug-24-2005	15	.	.	374	0.7	0.3
Aug-31-2005	15	.	.	400	0.7	0.3
Sep-07-2005	55	.	.	480	1.0	0.3
Sep-14-2005	55	.	.	417	0.6	0.3
Sep-21-2005	80	.	.	418	0.5	0.3
Sep-28-2005	165	.	.	419	0.7	0.2

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
Jul-06-2005	15	.	.	260	0.9	0.2
Jul-13-2005	0	.	.	154	0.7	0.2
Jul-20-2005	15	.	.	411	1.0	P
Jul-27-2005	15	.	.	454	1.1	0.3
Aug-03-2005	15	.	.	343	0.8	0.2
Aug-10-2005	15	.	.	402	0.9	0.2
Aug-17-2005	15	.	.	381	0.7	0.2
Aug-24-2005	40	.	.	374	1.4	1.5
Aug-31-2005	55	.	.	376	0.7	0.2
Sep-07-2005	90	.	.	409	1.1	0.2
Sep-14-2005	120	.	.	415	0.8	0.2
Sep-21-2005	120	.	.	447	0.5	0.3
Sep-28-2005	200	.	.	400	0.5	0.2

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
Jul-06-2005	35	.	.	671	1.6	0.6
Jul-13-2005	5	.	.	701	1.7	0.8
Jul-20-2005	0	.	.	1,170	1.8	P
Jul-27-2005	0	.	.	1,060	1.5	1.1
Aug-03-2005	5	.	.	1,030	1.7	1.2
Aug-10-2005	5	.	.	1,380	2.1	1.5
Aug-17-2005	5	.	.	958	1.4	0.9
Aug-24-2005	70	.	.	1,560	2.5	1.8
Aug-31-2005	110	.	.	582	1.0	0.4
Sep-07-2005	145	.	.	667	1.3	0.5
Sep-14-2005	145	.	.	498	0.9	0.4
Sep-21-2005	145	.	.	471	0.6	0.3
Sep-28-2005	160	.	.	504	0.7	0.3

**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
Jul-06-2005	55	.	.	820	1.5	1.2
Jul-13-2005	90	.	.	800	1.3	1.5
Jul-20-2005	44	.	.	928	1.6	P
Jul-27-2005	59	.	.	911	1.3	1.4
Aug-03-2005	77	.	.	917	1.5	1.6
Aug-10-2005	65	.	.	973	1.3	1.7
Aug-17-2005	97	.	.	899	1.0	1.2
Aug-24-2005	19	.	.	987	0.7	0.2
Aug-31-2005	3	.	.	897	1.1	0.9
Sep-07-2005	0	.	.	919	1.0	0.8
Sep-14-2005	1	.	.	784	1.0	0.7
Sep-21-2005	63	.	.	640	1.0	0.5
Sep-28-2005	68	.	.	561	0.7	0.4

**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
Jul-06-2005	.	.	.	264	1.0	0.2
Jul-13-2005	.	.	.	221	1.1	0.2
Jul-20-2005	.	.	.	292	0.9	P
Jul-27-2005	.	.	.	307	1.0	0.2
Aug-03-2005	.	.	.	278	0.8	0.2
Aug-10-2005	.	.	.	335	0.8	0.2
Aug-17-2005	.	.	.	368	0.8	0.2
Aug-24-2005	.	.	.	406	0.8	0.3
Aug-31-2005	.	.	.	460	1.0	0.3
Sep-07-2005	.	.	.	395	1.0	0.2
Sep-14-2005	.	.	.	409	0.7	0.2
Sep-21-2005	.	.	.	444	0.6	0.2
Sep-28-2005	.	.	.	466	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
Jul-07-2005	401	25.6	7.0	1,050	0.7	0.4
Jul-13-2005	359	27.4	7.7	947	0.4	0.4
Jul-21-2005	284	27.0	7.8	1,220	0.7	0.5
Jul-28-2005	240	27.2	7.8	1,310	0.5	0.5
Aug-04-2005	269	26.4	7.7	1,120	0.6	0.4
Aug-11-2005	247	26.5	7.9	1,010	0.5	0.4
Aug-18-2005	291	24.9	8.0	972	0.5	0.4
Aug-25-2005	224	24.3	7.5	946	<0.4	0.4
Sep-01-2005	203	23.2	7.9	1,010	0.5	0.5
Sep-08-2005	193	22.4	7.2	1,040	0.7	0.4
Sep-15-2005	188	19.8	7.3	970	0.5	0.4
Sep-22-2005	218	22.1	7.1	771	<0.4	0.4
Sep-29-2005	160	20.5	7.4	1,090	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
Jul-05-2005	.	.	.	NA	0.5	0.2
Jul-12-2005	.	.	.	NA	4.2	1.3
Jul-19-2005	.	.	.	NA	4.6	1.6
Jul-29-2005	.	.	.	NA	4.0	1.6
Aug-02-2005	.	.	.	NA	4.0	1.6
Aug-11-2005	.	.	.	NA	5.3	1.5
Aug-16-2005	.	.	.	NA	5.2	1.5
Aug-23-2005	.	.	.	NA	5.7	1.4
Aug-30-2005	.	.	.	NA	6.5	1.7
Sep-13-2005	.	.	.	NA	5.0	1.4
Sep-27-2005	.	.	.	NA	3.4	1.0
.	.	.	.	.	.	.
.	.	.	.	.	.	.

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
Jul-07-2005	2,080	22.3	7.5	559	1.4	0.4
Jul-13-2005	1,670	23.8	7.7	691	1.5	0.6
Jul-21-2005	1,320	24.7	7.7	787	1.7	0.5
Jul-28-2005	1,140	25.1	7.9	796	1.4	0.6
Aug-04-2005	1,070	24.5	7.7	778	1.6	0.6
Aug-11-2005	1,190	24.0	7.9	673	1.9	0.5
Aug-18-2005	1,340	22.6	7.9	621	1.7	0.5
Aug-25-2005	1,440	21.8	7.6	538	1.8	0.5
Sep-01-2005	1,020	22.5	7.8	822	2.4	0.7
Sep-08-2005	1,010	21.4	7.5	690	1.4	0.4
Sep-15-2005	1,290	18.8	7.6	474	1.1	0.3
Sep-22-2005	1,340	20.5	7.6	496	0.9	0.3
Sep-29-2005	1,290	19.0	7.6	479	0.9	P

**Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from October 2004 to September 2005. 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	%	%	%	%	%	%
Oct-2004	100	95	98	95	98	98
Nov-2004	95	98	58*	88	98	98
Dec-2004	100	68*	75*	98	98	100
Jan-2005	98	85	80	100	100	98
Feb-2005	95	88	98	80	90	98
Mar-2005	88	73	93	83	85	73†
Apr-2005	95	100	95	93	100	90
May-2005	100	98	93	100	83	98
Jun-2005	100	93	98	95	90	95
Jul-2005	98	100	95	98	80	93
Aug-2005	93	95	95	95	100	98
Sep-2005	100	100	100	98	93	95

**Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from October 2004 to September 2005. 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
Oct-2004	0.69	0.67	0.71	0.71	0.66	0.58
Nov-2004	0.58	0.62	0.41*	0.62	0.62	0.71
Dec-2004	0.58	0.47	0.53	0.66	0.54	0.48
Jan-2005	0.62	0.57	0.51	0.61	0.54	0.46
Feb-2005	0.76	0.62	0.69	0.63	0.62	0.54
Mar-2005	0.41	0.38	0.49	0.44	0.46	0.35
Apr-2005	0.42	0.40	0.44	0.42	0.38	0.29
May-2005	0.40	0.46	0.39	0.43	0.29	0.42
Jun-2005	0.51	0.50	0.50	0.50	0.47	0.36
Jul-2005	0.39	0.39	0.35	0.33	0.35	0.39
Aug-2005	0.52	0.56	0.60	0.51	0.48	0.42
Sep-2005	0.54	0.41	0.45	0.45	0.42	0.38

**Table 22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from October 2004 to September 2005. 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	%	%	%	%	%	%
Oct-2004	100	100	80	100	100	100
Nov-2004	80	70	90	80	100	80
Dec-2004	100	100	90	90	80	100
Jan-2005	100	90	80	100	100	90
Feb-2005	80	100	100	90	100	30†
Mar-2005	80	100	90	100	100	90
Apr-2005	90	90	100	90	90	100
May-2005	90	90	100	100	90	90
Jun-2005	90	90	80	90	80	100
Jul-2005	90	100	80	90	80	90
Aug-2005	100	100	100	80	80	70†
Sep-2005	90	90	100	80	20†	30†

**Table 23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from October 2004 to September 2005. 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
Oct-2004	48.1	39.8	29.2*	36.6	47.0	32.1
Nov-2004	37.0	28.3	44.6	41.8	35.9	27.0
Dec-2004	30.8	30.8	32.8	34.4	26.6	31.1
Jan-2005	41.7	38.8	40.2	45.9	47.6	34.7
Feb-2005	15.2	13.6	17.3	8.5	12.2	4.0
Mar-2005	37.4	38.9	42.4	38.8	31.6	44.0
Apr-2005	26.4	35.9	42.3	37.1	30.4	27.0
May-2005	39.8	38.6	45.5	36.1	34.1	40.9
Jun-2005	41.8	35.1	36.8	42.5	30.7	31.9
Jul-2005	41.8	49.4	43.1	45.5	39.6	34.0
Aug-2005	29.3	36.1	32.5	29.4	22.1	21.0
Sep-2005	11.4	11.0	12.0	10.8	5.3†††	7.8†††

**Table 24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from October 2004 to September 2005. 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
Oct-2004	14.5	22.1	17.7	5.9*	16.6	16.8
Nov-2004	18.5	21.1	20.4	22.0	16.5	17.6
Dec-2004	0.9*	10.4	12.2	23.4	3.5	15.6
Jan-2005	1.3*	12.7	10.6*	18.0	13.7	16.2
Feb-2005	13.7	17.7	19.5	10.7*	13.1	22.4
Mar-2005	14.9	20.1	19.7	20.7	11.5	16.0
Apr-2005	17.4	25.6	21.1	19.6	19.2	24.5
May-2005	24.0	23.5	24.5	19.7	16.1	30.4
Jun-2005	21.4	17.8	21.2	14.6	16.3	20.6
Jul-2005	10.0*	13.0	7.4*	7.7*	11.9	13.0
Aug-2005	6.1*	21.0	7.3*	22.9	16.7	18.2
Sep-2005	21.5	23.1	25.0	28.3	21.6	22.4

**Table 25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, July 2005 to September 2005.**

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
Jul-18-2005	36	0.7	24	0.5	<0.4
Jul-20-2005	36	1.0	19	0.4	<0.4
Jul-22-2005	39	1.0	22	0.5	<0.4
Aug-15-2005	45	0.4	31	0.8	<0.4
Aug-17-2005	38	0.6	31	0.5	<0.4
Aug-19-2005	38	0.6	26	0.4	<0.4
Sep-12-2005	47	<0.4	29	0.6	<0.4
Sep-14-2005	34	<0.4	10	0.5	<0.4
Sep-16-2005	45	0.5	14	0.6	0.4

**Table 26. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, July 2005 to September 2005.**

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
Jul-18-2005	18	72	75	161	31
Jul-20-2005	36	83	45	113	43
Jul-22-2005	54	175	102	212	37
Aug-15-2005	34	117	42	175	30
Aug-17-2005	35	81	49	162	1
Aug-19-2005	70	129	98	190	24
Sep-12-2005	15	379	83	145	5
Sep-14-2005	7	63	121	64	5
Sep-16-2005	24	89	89	91	7

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