

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

July 2001

September, 2001

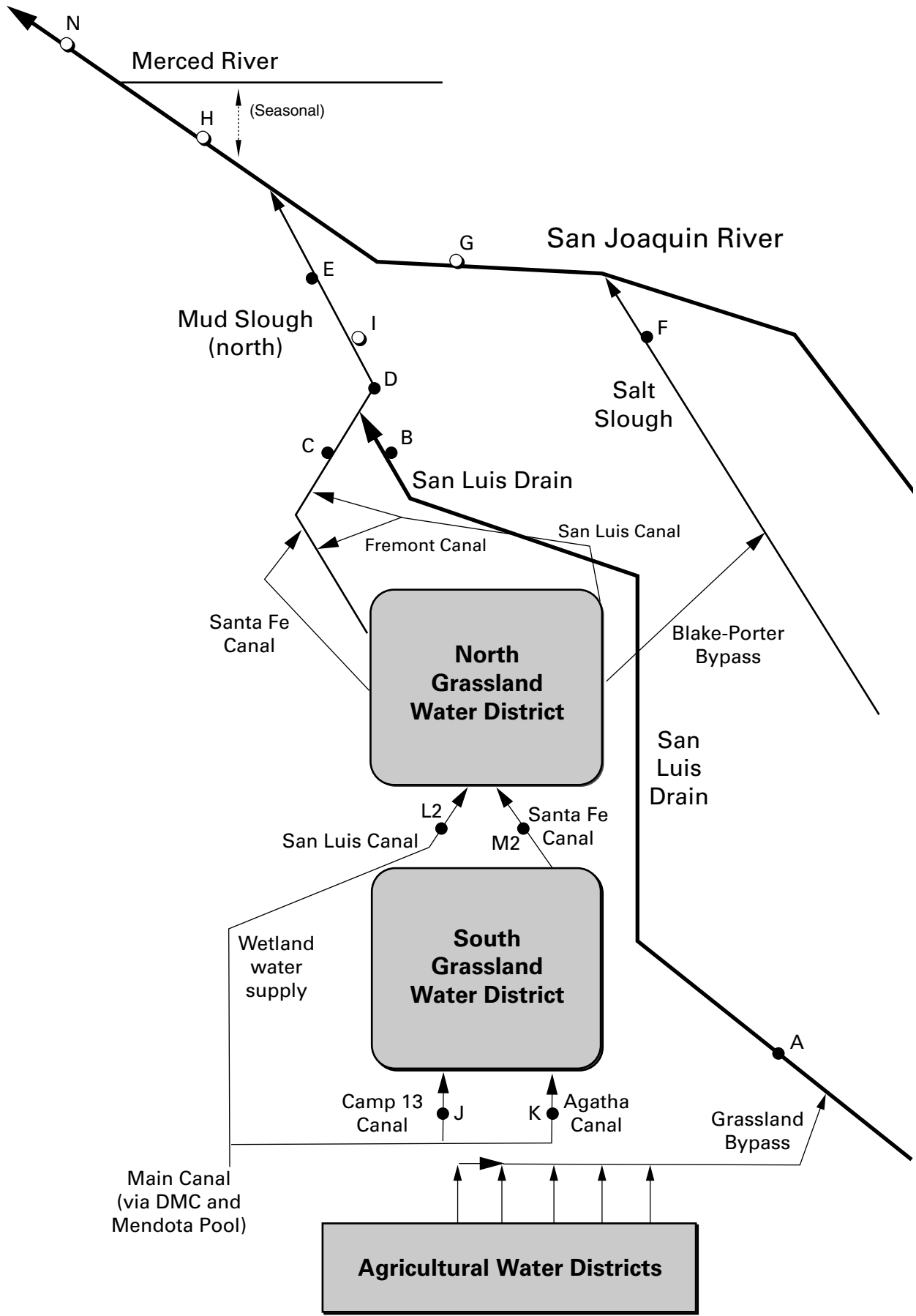
Preliminary Results

A cooperative effort of:

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

compiled by San Francisco Estuary Institute





GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

LIST OF TABLES FOR MONTHLY REPORT

Continuous Monitoring

1. Continuous water monitoring at Station A (inflow to San Luis Drain), July 2001.
2. Continuous water monitoring at Station B (discharge from San Luis Drain), July 2001.
3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), July 2001.
4. Continuous water monitoring at Station F (Salt Slough at Highway 165), July 2001.
5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), July 2001.

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 F (Salt Slough at Lander Avenue).
11. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford).
12. Weekly water quality monitoring at Station H (San Joaquin River at Hills Ferry).
13. Weekly water quality monitoring at Station J (Camp 13 Ditch).
14. Weekly water quality monitoring at Station K (Agatha Canal).
15. Weekly water quality monitoring at Station L2 (San Luis Canal at splits).
16. Weekly water quality monitoring at Station M2 (Santa Fe Canal at weir).
17. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing).

Monthly Monitoring

18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from August 2000 to July 2001.
19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from August 2000 to July 2001.
20. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from August 2000 to July 2001.
21. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from August 2000 to July 2001.
22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from August 2000 to July 2001.
23. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, May 2001 to July 2001.
24. Summary of sulfate concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, May 2001 to July 2001.
25. Summary of total suspended solids concentrations in grab water samples collected from May 2001 to July 2001.
26. Explanations of footnotes and agency abbreviations.

Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), July 2001.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
Jul-01-2001	58	3,970
Jul-02-2001	60	3,400
Jul-03-2001	59	3,930
Jul-04-2001	59	3,880
Jul-05-2001	61	3,830
Jul-06-2001	67	3,750
Jul-07-2001	62	3,860
Jul-08-2001	62	3,750
Jul-09-2001	62	3,760
Jul-10-2001	57	3,870
Jul-11-2001	60	3,940
Jul-12-2001	59	4,290
Jul-13-2001	59	4,450
Jul-14-2001	56	4,430
Jul-15-2001	60	4,550
Jul-16-2001	59	4,810
Jul-17-2001	64	4,770
Jul-18-2001	59	4,810
Jul-19-2001	60	4,690
Jul-20-2001	57	4,610
Jul-21-2001	55	4,720
Jul-22-2001	59	4,850
Jul-23-2001	59	4,680
Jul-24-2001	54	4,790
Jul-25-2001	53	4,690
Jul-26-2001	54	4,690
Jul-27-2001	52	4,580
Jul-28-2001	52	4,480
Jul-29-2001	52	4,360
Jul-30-2001	54	4,240
Jul-31-2001	56	4,350
Mean	58	4,320

Table 2. Continuous water monitoring at Station B (discharge from San Luis Drain), July 2001.

See Table 26 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
Jul-01-2001	57	26.8	7.5	4,210	44.2	13.6
Jul-02-2001	59	27.3	7.2	4,010	41.0	13.0
Jul-03-2001	59	28.4	7.1	3,970	41.9	13.3
Jul-04-2001	59	28.3	6.9	3,890	46.7	14.9
Jul-05-2001	59	27.8	NA	NA	46.6 e	14.8
Jul-06-2001	60	27.3	6.6	4,240	46.5	15.0
Jul-07-2001	66	26.9	6.6	4,180	43.8	15.6
Jul-08-2001	62	27.3	6.6	4,050	38.5	12.9
Jul-09-2001	62	27.7	6.1	3,960	38.1	12.7
Jul-10-2001	60	27.3	6.6	4,140	41.3	13.4
Jul-11-2001	58	26.2	6.2	3,900	35.3	11.0
Jul-12-2001	60	25.0	6.2	3,880	34.0	11.0
Jul-13-2001	60	24.8	6.4	3,990	33.6	10.9
Jul-14-2001	59	25.7	6.3	4,050	37.7	12.0
Jul-15-2001	57	25.2	6.2	4,200	41.1	12.6
Jul-16-2001	59	23.6	6.3	4,170	40.1	12.8
Jul-17-2001	59	23.1	6.7	4,090	37.3	11.9
Jul-18-2001	63	24.0	6.8	4,190	41.7	14.2
Jul-19-2001	59	24.9	7.1	4,400	47.4	15.1
Jul-20-2001	59	25.1	7.4	4,550	49.6	15.8
Jul-21-2001	57	24.8	7.4	4,580	49.0	15.1
Jul-22-2001	55	24.8	7.2	4,520	48.5	14.4
Jul-23-2001	58	25.7	7.1	4,420	48.4	15.1
Jul-24-2001	57	26.6	7.3	4,450	42.8	13.2
Jul-25-2001	54	26.8	7.5	4,680	53.1	15.5
Jul-26-2001	53	27.0	7.0	4,500	46.7	13.3
Jul-27-2001	54	27.4	7.3	4,510	42.0	12.2
Jul-28-2001	52	27.7	7.4	4,440	44.7	12.5
Jul-29-2001	52	27.5	7.3	4,400	45.1	12.6
Jul-30-2001	52	26.2	7.2	4,330	44.9	12.6
Jul-31-2001	55	25.9	7.2	4,230	42.9	12.7
Mean	58	26.2	6.9	4,240	43.0	
Total						416

Load Limitation for July 2001	(lbs)	509
--------------------------------------	--------------	------------

**Table 3. Continuous water monitoring at Station D
(Mud Slough North downstream of drainage discharges), July 2001.**

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
Jul-01-2001	66	26.8	4,260
Jul-02-2001	72	27.3	3,990
Jul-03-2001	82	28.1	3,400
Jul-04-2001	77	27.6	3,560
Jul-05-2001	76	27.7	3,470
Jul-06-2001	77	27.0	3,570
Jul-07-2001	80	26.8	3,790
Jul-08-2001	77	26.9	3,810
Jul-09-2001	77	27.2	3,660
Jul-10-2001	78	26.8	3,750
Jul-11-2001	71	25.8	3,710
Jul-12-2001	70	24.7	3,690
Jul-13-2001	68	24.5	3,840
Jul-14-2001	67	25.1	3,940
Jul-15-2001	65	24.8	4,120
Jul-16-2001	70	23.4	4,180
Jul-17-2001	72	22.9	4,080
Jul-18-2001	82	23.7	4,050
Jul-19-2001	73	24.4	4,240
Jul-20-2001	71	24.7	4,290
Jul-21-2001	68	24.3	4,220
Jul-22-2001	63	24.2	4,290
Jul-23-2001	66	25.0	4,140
Jul-24-2001	66	25.9	4,010
Jul-25-2001	62	26.1	4,330
Jul-26-2001	63	26.3	4,150
Jul-27-2001	81	26.4	3,440
Jul-28-2001	80	26.6	3,290
Jul-29-2001	79	26.4	3,260
Jul-30-2001	71	25.4	3,570
Jul-31-2001	67	25.3	3,930

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), July 2001.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
Jul-01-2001	161	26.8	1,190
Jul-02-2001	166	27.2	1,170
Jul-03-2001	167	28.4	1,150
Jul-04-2001	116	27.6	1,350
Jul-05-2001	128	26.8	1,330
Jul-06-2001	151	26.3	1,180
Jul-07-2001	147	26.7	1,220
Jul-08-2001	162	27.4	1,190
Jul-09-2001	166	27.3	1,130
Jul-10-2001	169	26.4	1,100
Jul-11-2001	191	25.0	1,030
Jul-12-2001	192	24.0	1,010
Jul-13-2001	201	24.6	990
Jul-14-2001	206	25.7	957
Jul-15-2001	194	24.5	1,010
Jul-16-2001	174	22.5	1,140
Jul-17-2001	176	22.5	1,160
Jul-18-2001	194	24.0	1,130
Jul-19-2001	195	24.9	1,140
Jul-20-2001	190	24.6	1,090
Jul-21-2001	210	23.7	1,130
Jul-22-2001	211	24.0	1,110
Jul-23-2001	222	25.3	1,050
Jul-24-2001	224	26.1	1,030
Jul-25-2001	193	26.0	1,100
Jul-26-2001	188	26.1	NA
Jul-27-2001	184	26.7	1,060
Jul-28-2001	174	26.9	1,060
Jul-29-2001	185	26.2	998
Jul-30-2001	193	24.3	951
Jul-31-2001	200	24.5	922

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), July 2001.

See Table 26 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
Jul-01-2001	478	26.4	1,440	4.9
Jul-02-2001	512	26.7	1,490	5.9
Jul-03-2001	498	28.1	1,310	4.6
Jul-04-2001	514	27.7	1,410	4.8
Jul-05-2001	481	26.9	1,400	4.3
Jul-06-2001	490	27.1	1,480	5.0
Jul-07-2001	503	27.1	1,460	5.0
Jul-08-2001	525	27.3	1,390	5.4
Jul-09-2001	567	27.0	1,370	5.1
Jul-10-2001	548	26.8	1,220	4.0
Jul-11-2001	489	26.1	1,260	4.1
Jul-12-2001	539	25.1	NA	NA
Jul-13-2001	546	25.4	NA	NA
Jul-14-2001	554	25.7	NA	NA
Jul-15-2001	546	25.6	NA	NA
Jul-16-2001	572	24.8	NA	NA
Jul-17-2001	550	24.5	NA	NA
Jul-18-2001	513	24.9	NA	NA
Jul-19-2001	521	25.5	NA	NA
Jul-20-2001	513	25.2	NA	NA
Jul-21-2001	520	24.7	NA	NA
Jul-22-2001	556	24.3	NA	NA
Jul-23-2001	580	25.3	NA	NA
Jul-24-2001	537	26.6	NA	NA
Jul-25-2001	535	26.8	NA	NA
Jul-26-2001	507	26.6	NA	NA
Jul-27-2001	453	26.5	NA	NA
Jul-28-2001	498	26.4	NA	NA
Jul-29-2001	483	26.6	NA	NA
Jul-30-2001	515	25.9	NA	NA
Jul-31-2001	516	25.0	NA	NA

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

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Total Suspended Solids	Selenium (total)	Selenium (dissolved)	Boron
DATA SOURCE	SLDMWA	.	.	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	mg/L	µg/L	µg/L	mg/L
May-02-2001	35	.	.	4,910	110	Selenium and boron analyses		
May-09-2001	37	.	.	4,980	82	from weekly grab		
May-16-2001	42	.	.	4,690	200	discontinued 2/1/00.		
May-23-2001	48	.	.	4,230	350	.	.	.
May-30-2001	51	.	.	4,230	200	.	.	.
Jun-06-2001	54	.	.	4,810	81	.	.	.
Jun-13-2001	49	.	.	NA	NA	.	.	.
Jun-20-2001	49	.	.	4,230	240	.	.	.
Jun-27-2001	52	.	.	4,560	230	.	.	.
Jul-03-2001	59	.	.	4,070	260	.	.	.
Jul-11-2001	60	.	.	4,040	140	.	.	.
Jul-18-2001	59	.	.	4,460	97	.	.	.
Jul-25-2001	53	.	.	4,330	72	.	.	.

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

See Table 26 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
May-01-2001	33	.	.	5,080	.	69.3	.	7.4
May-08-2001	33	.	.	NA	.	70.5	.	8.0
May-15-2001	43	.	.	NA	.	62.0	.	7.5
May-22-2001	48	.	.	NA	.	50.5	.	7.1
May-29-2001	48	.	.	4,370	.	53.4	.	6.9
Jun-05-2001	55	.	.	4,600	.	49.8	.	7.6
Jun-12-2001	54	.	.	4,700	.	51.4	.	7.5
Jun-19-2001	50	.	.	4,780	.	47.4	.	8.0
Jun-26-2001	50	.	.	4,330	.	48.2	.	7.3
Jul-02-2001	60	.	.	4,140	.	44.4	.	7.0
Jul-09-2001	62	.	.	3,960	.	41.7	.	6.8
Jul-17-2001	64	.	.	4,230	.	42.6	.	6.8
Jul-24-2001	54	.	.	4,390	.	45.7	.	6.8
Jul-31-2001	56	.	.	4,050	.	41.8	.	6.9

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

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Total Suspended Solids	Selenium (total)	Selenium (dissolved)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	mg/L	µg/L	µg/L	mg/L
May-03-2001	34	18.1	7.7	5,210	38	76.3	Selenium	7.5
May-10-2001	35	24.3	8.1	4,840	49	71.1	(dissolved)	7.6
May-17-2001	40	25.1	7.8	4,360	55	46.7	analyses	7.0
May-24-2001	45	26.5	7.8	4,240	42	46.5	discontinued	6.7
May-31-2001	50	26.1	7.6	4,470	44	53.4	1/15/2000.	6.8
Jun-07-2001	56	27.8	8.5	4,860	P	51.3	.	7.9
Jun-14-2001	51	21.1	8.4	4,460	P	49.1	.	7.2
Jun-21-2001	49	37.2	8.4	4,720	P	53.3	.	7.3
Jun-28-2001	54	24.1	8.4	4,280	P	43.5	.	7.4
Jul-05-2001	59	26.4	8.2	4,200	34	48.7	.	7.0
Jul-11-2001	58	25.4	8.3	3,770	41	37.3	.	6.6
Jul-19-2001	59	24.7	8.4	4,420	44	45.4	.	6.9
Jul-26-2001	53	24.9	8.2	4,440	44	48.9	.	6.9

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

See Table 26 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
May-03-2001	33	16.6	8.0	1,860	1.3	1.5
May-10-2001	32	23.3	7.8	1,550	<0.4	1.2
May-17-2001	36	26.5	7.4	1,500	0.9	1.1
May-24-2001	24	26.6	7.6	1,930	0.8	1.4
May-31-2001	31	29.1	8.1	1,580	0.9	1.2
Jun-07-2001	21	28.1	8.3	1,720	1.3	1.5
Jun-14-2001	7	23.1	8.1	3,270	1.1	2.4
Jun-21-2001	9	34.0	8.4	2,690	0.6	2.0
Jun-28-2001	8	29.3	8.5	2,570	0.5	1.9
Jul-05-2001	17	25.7	7.8	1,670	1.1	1.4
Jul-11-2001	13	28.1	8.2	2,350	0.7	1.9
Jul-19-2001	14	29.2	8.3	2,790	0.5	2.0
Jul-26-2001	10	23.1	7.9	2,200	0.5	1.9

++ 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 26 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
May-03-2001	67 e	17.0	8.1	3,980	39.9	5.2
May-10-2001	67 e	23.2	7.8	3,350	29.2	4.6
May-17-2001	77	24.4	7.1	3,200	28.2	4.3
May-24-2001	71	28.3	6.9	3,450	28.6	5.0
May-31-2001	86	26.0	8.0	3,400	34.1	4.6
Jun-07-2001	77	27.0	8.4	3,930	33.7	5.6
Jun-14-2001	58	21.6	8.3	4,560	48.2	6.9
Jun-21-2001	58	31.9	8.3	4,570	40.8	6.8
Jun-28-2001	62	24.8	8.4	4,190	41.7	6.4
Jul-05-2001	76	26.0	8.0	3,550	33.7	5.6
Jul-11-2001	71	25.6	8.3	3,750	34.6	6.1
Jul-19-2001	73	25.7	8.3	4,190	42.0	6.5
Jul-26-2001	63	24.7	8.2	4,160	41.7	6.1

Table 10. Weekly water quality monitoring at Station F (Salt Slough at Lander Avenue).

See Table 26 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
May-03-2001	124	15.4	7.8	1,880	1.1	0.8
May-10-2001	190	22.9	7.8	1,270	0.9	0.6
May-17-2001	222	23.1	7.8	1,020	1.0	0.5
May-24-2001	136	23.5	6.6	1,320	0.8	0.5
May-31-2001	116	25.6	7.8	1,310	0.8	0.5
Jun-07-2001	145	25.1	7.8	1,290	0.7	P
Jun-14-2001	162	20.8	7.8	1,270	1.6	P
Jun-21-2001	177	29.6	7.3	1,110	0.7	P
Jun-28-2001	191	24.0	7.8	1,040	0.7	P
Jul-05-2001	128	24.5	7.8	1,340	0.7	0.6
Jul-11-2001	191	23.9	7.8	975	0.8	0.5
Jul-19-2001	195	24.2	7.9	1,100	0.7	0.6
Jul-26-2001	188	27.6	7.1	1,000	<0.4	0.5

Table 11. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford).

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	.	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	.	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	.	°C		µS/cm	µg/L	mg/L
May-03-2001	.	17.5	7.0	2,120	0.9	0.7
May-10-2001	.	23.7	7.6	1,610	0.7	0.6
May-17-2001	.	22.4	7.0	1,200	1.0	0.5
May-24-2001	.	26.8	6.8	1,730	0.6	0.6
May-31-2001	.	27.5	7.6	1,690	0.7	0.5
Jun-07-2001	.	23.1	7.9	1,410	0.6	0.5
Jun-14-2001	.	22.2	7.8	1,490	1.3	0.6
Jun-21-2001	.	28.0	7.8	1,250	0.7	0.5
Jun-28-2001	.	26.0	8.1	1,020	0.6	0.4
Jul-05-2001	.	25.3	7.6	1,550	0.6	0.6
Jul-11-2001	.	24.6	7.7	1,180	0.7	0.5
Jul-19-2001	.	23.7	7.8	1,180	0.6	0.6
Jul-26-2001	.	24.7	7.7	1,230	<0.4	0.6

Table 12a. Weekly water quality monitoring at Station H (San Joaquin River at Hills Ferry).

(Collected data intended for use with biological monitoring.)

See Table 26 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
May-04-2001	.	.	.	2,770	10.5	1.9
May-08-2001	.	.	.	2,350	8.0	1.7
May-15-2001	.	.	.	1,610	6.2	1.3
May-22-2001	.	.	.	2,210	6.7	1.8
May-29-2001	.	.	.	2,000	7.9	1.6
Jun-05-2001	.	.	.	1,860	9.6	1.8
Jun-12-2001	.	.	.	2,570	12.4	2.6
Jun-19-2001	.	.	.	2,020	9.3	1.8
Jun-28-2001	.	.	.	1,740	8.4	1.7
Jul-06-2001	.	.	.	2,080	9.2	2.1
Jul-10-2001	.	.	.	1,960	10.0	2.0
Jul-17-2001	.	.	.	1,900	8.3	1.9
Jul-31-2001	.	.	.	1,720	8.2	1.7

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

See Table 26 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
May-02-2001	15	.	.	680	2.4	0.5
May-09-2001	55	.	.	666	2.3	0.5
May-16-2001	30	.	.	629	1.4	0.4
May-23-2001	10	.	.	628	1.5	0.4
May-30-2001	10	.	.	631	1.7	0.4
Jun-06-2001	20	.	.	613	1.3	0.4
Jun-13-2001	20	.	.	508	1.9	0.3
Jun-20-2001	20	.	.	516	1.9	0.4
Jun-27-2001	10	.	.	540	1.1	0.3
Jul-03-2001	10	.	.	499	1.3	0.3
Jul-11-2001	10	.	.	444	1.0	0.3
Jul-18-2001	4	.	.	547	1.4	0.6
Jul-25-2001	4	.	.	485	1.0	0.3

Table 14. Weekly water quality monitoring at Station K (Agatha Canal).

See Table 26 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
May-02-2001	35	.	.	614	2.1	0.3
May-09-2001	50	.	.	584	1.9	0.3
May-16-2001	65	.	.	532	1.1	0.2
May-23-2001	30	.	.	561	1.1	0.3
May-30-2001	40	.	.	579	1.2	0.3
Jun-06-2001	20	.	.	640	1.2	0.4
Jun-13-2001	10	.	.	640	1.8	0.4
Jun-20-2001	25	.	.	505	1.0	0.3
Jun-27-2001	25	.	.	522	1.2	0.3
Jul-03-2001	25	.	.	534	1.2	0.3
Jul-11-2001	10	.	.	511	1.3	0.3
Jul-18-2001	10	.	.	475	1.0	0.3
Jul-25-2001	10	.	.	450	0.5	0.2

Table 15. Weekly water quality monitoring at Station L2 (San Luis Canal at splits).

See Table 26 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
May-02-2001	40	.	.	781	1.9	0.6
May-09-2001	70	.	.	810	2.2	0.6
May-16-2001	80	.	.	787	1.4	0.6
May-23-2001	60	.	.	728	1.3	0.5
May-30-2001	60	.	.	748	1.6	0.5
Jun-06-2001	70	.	.	886	1.2	0.7
Jun-13-2001	80	.	.	574	1.9	0.4
Jun-20-2001	90	.	.	699	1.2	0.5
Jun-27-2001	110	.	.	676	1.2	0.5
Jul-03-2001	80	.	.	752	1.5	0.5
Jul-11-2001	80	.	.	556	1.2	0.4
Jul-18-2001	40	.	.	828	1.4	0.7
Jul-25-2001	50	.	.	766	0.8	0.5

Table 16. Weekly water quality monitoring at Station M2 (Santa Fe Canal at weir).

See Table 26 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
May-02-2001	24	.	.	1,010	2.3	0.9
May-09-2001	12	.	.	1,280	2.2	1.1
May-16-2001	105	.	.	836	1.4	0.5
May-23-2001	36	.	.	1,050	1.4	0.8
May-30-2001	70	.	.	922	1.4	0.5
Jun-06-2001	18	.	.	1,310	1.6	1.5
Jun-13-2001	11	.	.	1,300	2.5	1.6
Jun-20-2001	16	.	.	1,380	1.7	1.7
Jun-27-2001	17	.	.	1,490	1.8	2.1
Jul-03-2001	53	.	.	1,410	2.1	2.0
Jul-11-2001	11	.	.	1,280	1.9	1.6
Jul-18-2001	45	.	.	1,350	1.6	1.9
Jul-25-2001	15	.	.	1,480	1.4	2.3

Table 17. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing).

See Table 26 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
May-03-2001	1,100	18.1	7.2	992	2.5	0.6
May-10-2001	1560 e	21.1	7.7	653	1.6	0.4
May-17-2001	1780 e	19.6	6.9	542	1.6	0.4
May-24-2001	657	26.2	7.8	1,280	3.5	0.9
May-31-2001	621	28.4	7.4	1,150	3.3	0.7
Jun-07-2001	597	22.5	8.0	1,260	3.9	0.9
Jun-14-2001	486	21.0	8.0	1,400	5.6	1.1
Jun-21-2001	471	26.9	7.9	1,480	4.3	1.1
Jun-28-2001	532	22.5	7.8	1,250	4.2	1.0
Jul-05-2001	481	25.4	7.8	1,470	4.6	1.2
Jul-11-2001	489	24.3	7.6	1,370	5.3	1.1
Jul-19-2001	521	23.9	7.9	1,400	4.4	1.1
Jul-26-2001	507	24.9	7.9	1,320	3.5	1.1

Table 18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from August 2000 to July 2001. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 26 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	%	%	%	%	%	%
Aug-2000	100	97	88	80	100	100
Sep-2000	100	100	93	98	98	98
Oct-2000	100	75*	93	100	100	98
Nov-2000	88	15*	23*	63*	95	100
Dec-2000	100	63*	73	88	88	93
Jan-2001	95	85	93	90	100	100
Feb-2001	100	90	93	78	78	100
Mar-2001	100	93	93	90	95	100
Apr-2001	100	100	95	93	95	100
May-2001	88	97	90	90	90	100
Jun-2001	88	98	98	98	98	100
Jul-2001	90	93	98	100	93	98

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from August 2000 to July 2001. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 26 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
Aug-2000	0.50	0.40	0.49	0.44	0.56	0.64
Sep-2000	0.42	0.34	0.34	0.41	0.37	0.34
Oct-2000	0.66	0.46*	0.58*	0.67	0.68	0.58
Nov-2000	0.29	0.05*	0.07*	0.21*	0.28	0.31
Dec-2000	0.72	0.40*	0.49*	0.67	0.74	0.60
Jan-2001	0.63	0.50	0.59	0.55	0.62	0.57
Feb-2001	0.54*	0.53*	0.64	0.61	0.68	0.65
Mar-2001	0.61	0.66	0.67	0.63	0.64	0.60
Apr-2001	0.64	0.72	0.71	0.73	0.67	0.57
May-2001	0.45	0.45	0.46	0.43	0.45	0.46
Jun-2001	0.61*	0.83	0.85	0.85	0.74	0.65
Jul-2001	0.42	0.39	0.48	0.47	0.45	0.44

Table 20. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from August 2000 to July 2001. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 26 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	%	%	%	%	%	%
Aug-2000	90	100	90	100	90	90
Sep-2000	90	90	90	100	100	100
Oct-2000	80	80	60*	80	80	70
Nov-2000	100	100	100	100	90	100
Dec-2000	100	80	80	100	100	60*
Jan-2001	90	70*	100	100	90	80
Feb-2001	100	100	90	100	90	100
Mar-2001	100	100	90	90	90	90
Apr-2001	100	100	100	100	89	89
May-2001	0††	100	100	100	70	100
Jun-2001	50*	70	70	90	100	100
Jul-2001	100	100	60*	80	90	90

Table 21. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from August 2000 to July 2001. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 26 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
Aug-2000	20.9	18.2	21.5	26.8	16.3	14.5
Sep-2000	42.4	38.9	39.9	41.6	48.7	31.8
Oct-2000	29.8	41.5	23.9	25.7	31.8	17.7
Nov-2000	45.7	40.4	43.9	35.1	22.8	26.3
Dec-2000	13.7	15.7	13.3	11.2	13.4	4.4*
Jan-2001	30.8	31.3	46.2	36.9	30.8	27.1
Feb-2001	31.2	25.7	25.1	29.9	27.2	27.5
Mar-2001	11.7	21.9	19.3	15.6	13.4	17.8
Apr-2001	30.7	28.6	36.5	26.2	24.9	24.8
May-2001	0††	25.0	27.5	23.3	13.1	25.2
Jun-2001	18.9*	32.7*	36.6	47.9	44.5	36.4
Jul-2001	25.3	28.5	16.8	17.7	26.2	15.9

Table 22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from August 2000 to July 2001. Each value is the mean of 4 replicates.

See Table 26 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
Aug-2000	19.8	25.1	24.8	33.3	13.4	23.0
Sep-2000	9.4	11.5	10.8	13.7	10.8	9.6
Oct-2000	15.0	15.7	14.3	16.1	14.4	16.2
Nov-2000	8.3	7.5	8.1	7.6	7.7	7.9
Dec-2000	7.8*	13.6	15.4	14.9	13.1	13.3
Jan-2001	2.0	2.0	2.1	2.3 ‡	2.1 ‡	2.2
Feb-2001	11.3 ‡	23.8	21.5	16.7 ‡	22.5	17.6
Mar-2001	18.9	24.6	20.0	21.7	18.4	23.5
Apr-2001	9.9	10.5	10.2	5.8*	10.7	20.2
May-2001	10.1* ⁵	18.4	13.1	19.6	15.5	14.5
Jun-2001	4.2*	12.9*	10.3*	14.7*	21.8	16.4
Jul-2001	8.3	8.5	8.5	9.4	8.0	9.1

Table 23. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, May 2001 to July 2001.

See Table 26 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
May-14-2001	65	0.7	32	0.8	<0.4
May-16-2001	47	0.4	22	1.0	<0.4
May-18-2001	52	0.5	35	0.6	<0.4
Jun-11-2001	52	1.0	43	0.6	0.6
Jun-13-2001	53	0.5	53	0.7	<0.4
Jun-15-2001	55	0.5	53	0.5	0.5
Jul-09-2001	37	0.7	33	0.6	<0.4
Jul-11-2001	39	0.7	32	0.6	<0.4
Jul-13-2001	35	0.6	30	0.7	<0.4

Table 24. Summary of sulfate concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, May 2001 to July 2001.

See Table 26 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	mg/L	mg/L	mg/L	mg/L	mg/L
May-14-2001	1,580	204	898	162	40
May-16-2001	1,450	191	709	132	41
May-18-2001	1,450	324	1,120	148	40
Jun-11-2001	1,510	423	1,250	204	74
Jun-13-2001	1,450	640	1,400	187	37
Jun-15-2001	1,440	698	1,380	153	53
Jul-09-2001	1,150	529	1,100	134	28
Jul-11-2001	1,220	489	980	120	28
Jul-13-2001	1,300	583	1,110	115	26

Table 25. Summary of total suspended solids concentrations in grab water samples collected from May 2001 to July 2001.

See Table 26 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
May-14-2001	70	50	67	99	1
May-16-2001	75	51	86	212	ND
May-18-2001	120	148	184	353	11
Jun-11-2001	54	27	60	376	3
Jun-13-2001	94	26	80	185	45
Jun-15-2001	50	20	87	144	35
Jul-09-2001	48	34	73	151	23
Jul-11-2001	96	32	71	217	42
Jul-13-2001	57	16	72	330	40

Table 26. 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 (1997 draft).
†††	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.
#	New testing laboratory with reporting limit of 0.4 µg/L as of June 1998.
5	Based on definitive bioassay, NOEC is 50 percent