

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

September 1998

November 23, 1998

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), September 1998.
2. Continuous water monitoring at Station B (discharge from San Luis Drain), September 1998.
3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), September 1998.
4. Continuous water monitoring at Station F (Salt Slough at Highway 165), September 1998.
5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), September 1998.

Weekly Monitoring

6. Weekly water quality monitoring at Station A (inflow to San Luis Drain), 1998.
7. Weekly water quality monitoring at Station B (discharge from San Luis Drain), 1998.
8. Weekly water quality monitoring at Station C (Mud Slough North upstream of drainage discharge), 1998.
9. Weekly water quality monitoring at Station D (Mud Slough North downstream of drainage discharge), 1998.
10. Weekly water quality monitoring at Station F (Salt Slough at Lander Avenue), 1998.
11. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford), 1998.
12. Weekly water quality monitoring at Station H (San Joaquin River at Hills Ferry), 1998.
13. Weekly water quality monitoring at Station J (Camp 13 Ditch), 1998.
14. Weekly water quality monitoring at Station K (Agatha Canal), 1998.
15. Weekly water quality monitoring at Station L (San Luis Canal at Henry Miller Road), 1998.
16. Weekly water quality monitoring at Station M (Santa Fe Canal at Henry Miller Road), 1998.
17. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing), 1998.

Monthly Monitoring

18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from October 1997 to September 1998. Each value is the mean of 4 replicates with 10 fish in each replicate.
19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from October 1997 to September 1998. Each value is the mean of 4 replicates with 10 fish in each replicate.
20. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from October 1997 to September 1998. Each value is the mean of 10 replicates with 1 animal in each replicate.
21. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from October 1997 to September 1998. Each value is the mean of 10 replicates with 1 animal in each replicate.
22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from October 1997 to September 1998. Each value is the mean of 4 replicates.
23. Summary of selenium concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, June to September 1998.
24. Summary of sulfate concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, June to September 1998.

Quarterly Monitoring

25. Summary of quarterly in situ bioassay results from December 1995 to May 1998.
26. Explanations of footnotes and agency abbreviations.

Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), September 1998.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow
DATA SOURCE	USBR
UNITS	cfs
Sep-01-1998	59.9
Sep-02-1998	54.8
Sep-03-1998	54.4
Sep-04-1998	59.8
Sep-05-1998	54.8
Sep-06-1998	55.6
Sep-07-1998	52.9
Sep-08-1998	50.5
Sep-09-1998	54.5
Sep-10-1998	52.7
Sep-11-1998	57.9
Sep-12-1998	62.2
Sep-13-1998	66.0
Sep-14-1998	60.2
Sep-15-1998	62.1
Sep-16-1998	53.9
Sep-17-1998	54.2
Sep-18-1998	46.5
Sep-19-1998	39.9
Sep-20-1998	44.7
Sep-21-1998	39.5
Sep-22-1998	37.7
Sep-23-1998	36.7
Sep-24-1998	26.3
Sep-25-1998	26.5
Sep-26-1998	30.7
Sep-27-1998	37.9
Sep-28-1998	36.5
Sep-29-1998	33.0
Sep-30-1998	29.0

Table 2. Continuous water monitoring at Station B (discharge from San Luis Drain), September 1998.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance	Selenium (total)	Selenium (total) Load
DATA SOURCE	USBR	USBR	CVRWQCB	CVRWQCB	Computed
UNITS	cfs	°C	µS/cm	µg/L	lbs
Sep-01-1998	61.6	27.5	4,410	51.1	17.0
Sep-02-1998	60.8	28.0	4,330	50.6	16.6
Sep-03-1998	57.2	28.7	4,410	49.8	15.4
Sep-04-1998	57.4	28.6	4,480	51.4	15.9
Sep-05-1998	61.7	28.4	4,290	45.5	15.1
Sep-06-1998	58.3	28.8	4,080	43.9	13.8
Sep-07-1998	56.8	28.8	4,210	50.0	15.3
Sep-08-1998	54.4	28.9	4,300	46.6	13.7
Sep-09-1998	51.0	25.9	4,290	44.6	12.3
Sep-10-1998	56.7	22.9	4,360	43.4	13.3
Sep-11-1998	55.1	22.8	4,510	58.5	17.4
Sep-12-1998	60.8	23.7	4,220	53.8	17.6
Sep-13-1998	64.2	25.0	4,200	52.6	18.2
Sep-14-1998	67.4	26.0	3,970	53.0	19.3
Sep-15-1998	62.2	25.9	4,010	57.2	19.2
Sep-16-1998	62.5	25.4	3,900	57.6	19.4
Sep-17-1998	58.0	24.7	3,980	55.2	17.3
Sep-18-1998	59.1	23.3	4,140	64.9	20.7
Sep-19-1998	51.5	22.3	3,740	42.8	11.9
Sep-20-1998	48.6	22.2	3,560	37.4	9.8
Sep-21-1998	50.7	21.8	3,810	37.1	10.1
Sep-22-1998	46.7	21.2	3,819	34.3	8.6
Sep-23-1998	46.7	21.1	3,713	34.0	8.6
Sep-24-1998	44.6	21.1	3,620	31.2	7.5
Sep-25-1998	37.3	21.1	3,910	26.0	5.2
Sep-26-1998	37.7	19.8	3,510	20.2	4.1
Sep-27-1998	42.2	19.0	3,880	23.6	5.4
Sep-28-1998	46.9	19.6	4,180	26.1	6.6
Sep-29-1998	46.8	20.1	3,760	26.4	6.7
Sep-30-1998	44.8	20.2	3,430	24.2	5.8
Mean	53.7	24.1	4,034	43.1	
Total					388

Load Limitation for September 1998 (lbs)	350
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**Table 3. Continuous water monitoring at Station D
(Mud Slough North downstream of drainage discharges), September 1998.**

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
Sep-01-1998	93	27.5	3,510
Sep-02-1998	85	28.0	3,560
Sep-03-1998	75	28.5	3,390
Sep-04-1998	102	28.5	2,790
Sep-05-1998	110	28.0	2,610
Sep-06-1998	91	28.5	2,730
Sep-07-1998	92	28.5	2,720
Sep-08-1998	85	28.5	2,960
Sep-09-1998	74	26.0	3,160
Sep-10-1998	75	23.0	3,450
Sep-11-1998	75	23.0	3,550
Sep-12-1998	82	24.0	3,420
Sep-13-1998	88	25.0	3,290
Sep-14-1998	95	26.0	3,130
Sep-15-1998	99	26.0	2,840
Sep-16-1998	99	25.5	2,890
Sep-17-1998	97	24.5	2,790
Sep-18-1998	96	23.0	3,150
Sep-19-1998	99	22.0	2,590
Sep-20-1998	95	22.0	2,400
Sep-21-1998	104	22.0	2,350
Sep-22-1998	111	21.5	2,270
Sep-23-1998	116	21.0	2,050
Sep-24-1998	137	P	P
Sep-25-1998	134	P	P
Sep-26-1998	124	P	P
Sep-27-1998	137	19.0	1,710
Sep-28-1998	150	19.5	1,870
Sep-29-1998	165	20.0	1,620
Sep-30-1998	172	20.5	1,500
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Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), September 1998.

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
Sep-01-1998	303	27.0	706
Sep-02-1998	247	28.0	762
Sep-03-1998	219	29.0	793
Sep-04-1998	226	28.5	788
Sep-05-1998	227	28.0	822
Sep-06-1998	255	28.5	785
Sep-07-1998	261	29.0	750
Sep-08-1998	225	28.5	829
Sep-09-1998	194	25.0	847
Sep-10-1998	177	21.5	858
Sep-11-1998	162	22.5	897
Sep-12-1998	184	24.0	887
Sep-13-1998	174	25.5	849
Sep-14-1998	187	26.5	879
Sep-15-1998	154	26.0	844
Sep-16-1998	122	25.0	948
Sep-17-1998	129	24.0	975
Sep-18-1998	162	22.5	820
Sep-19-1998	146	21.5	900
Sep-20-1998	152	22.0	868
Sep-21-1998	160	21.5	844
Sep-22-1998	128	21.0	910
Sep-23-1998	115	20.5	946
Sep-24-1998	145	20.5	923
Sep-25-1998	165	20.5	730
Sep-26-1998	144	19.0	856
Sep-27-1998	165	18.0	809
Sep-28-1998	174	19.0	744
Sep-29-1998	161	20.0	724
Sep-30-1998	157	20.0	789
.	.	.	.

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), September 1998.

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
Sep-01-1998	1,650	24.5	604	2.3
Sep-02-1998	1,700	24.5	584	2.3
Sep-03-1998	1,660	25.0	586	2.3
Sep-04-1998	1,660	25.0	587	2.0
Sep-05-1998	1,730	24.5	571	1.9
Sep-06-1998	1,820	25.0	538	1.9
Sep-07-1998	1,870	25.0	506	1.7
Sep-08-1998	1,820	25.0	474	1.8
Sep-09-1998	1,760	23.5	486	2.0
Sep-10-1998	1,700	22.0	502	1.8
Sep-11-1998	1,660	21.5	534	1.8
Sep-12-1998	1,680	21.5	551	1.9
Sep-13-1998	1,750	22.0	526	2.2
Sep-14-1998	1,790	22.5	492	1.8
Sep-15-1998	1,830	23.0	474	1.8
Sep-16-1998	1,800	23.0	451	1.7
Sep-17-1998	1,790	22.5	444	2.0
Sep-18-1998	1,860	21.0	431	1.8
Sep-19-1998	2,050	20.5	395	1.6
Sep-20-1998	2,070	20.0	373	1.8
Sep-21-1998	1,950	20.0	369	0.5
Sep-22-1998	1,880	20.5	410	1.0
Sep-23-1998	1,810	20.0	450	1.1
Sep-24-1998	1,780	20.0	428	0.9
Sep-25-1998	1,790	20.0	436	1.0
Sep-26-1998	1,780	19.5	442	0.9
Sep-27-1998	1,990	18.5	377	0.6
Sep-28-1998	2,050	18.0	333	0.4
Sep-29-1998	2,000	18.5	387	0.6
Sep-30-1998	2,070	19.0	398	0.7
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Table 6. Weekly water quality monitoring at Station A (inflow to San Luis Drain), 1998.

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	USBR	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	mg/L	µg/L	µg/L	mg/L
Jul-08-1998	78.3	NA	NA	4,240	220	47.0	46.1	P
Jul-15-1998	81.4	NA	NA	4,180	280	47.2	44.0	P
Jul-22-1998	64.1	NA	NA	4,630	110	46.1	44.1	P
Jul-29-1998	64.7	NA	NA	4,440	104	51.6	51.4	P
Aug-05-1998	61.1	NA	NA	4,440	81	52.6	51.6	P
Aug-12-1998	61.9	NA	NA	4,160	160	44.2	42.6	P
Aug-19-1998	61.7	NA	NA	3,780	P	32.6	33.1	P
Aug-26-1998	53.1	NA	NA	4,760	41	57.5	57.4	P
Sep-02-1998	54.8	NA	NA	4,400	26	50.1	49.4	P
Sep-09-1998	54.5	NA	NA	3,930	46	54.4	51.9	P
Sep-16-1998	53.9	NA	NA	3,780	P	46.3	47.2	P
Sep-23-1998	36.7	NA	NA	3,040	39	25.4	22.2	P
Sep-30-1998	29.0	NA	NA	4,510	P	67.4	65.2	P

Table 7. Weekly water quality monitoring at Station B (discharge from San Luis Drain), 1998.

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	USBR	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	mg/L	µg/L	µg/L	mg/L
Jul-02-1998	71.2	23.3	8.4	4,560	47.0	54.4	56.5	P
Jul-09-1998	78.3	28.9	7.7	4,300	51.0	44.4	44.2	P
Jul-16-1998	80.8	30.0	8.1	4,140	P	45.1	43.6	P
Jul-23-1998	64.1	28.3	8.0	4,340	77.0	48.3	46.9	P
Jul-30-1998	64.3	27.8	8.2	4,550	19.0	50.5	50.6	P
Aug-06-1998	61.0	31.1	8.2	4,330	31.0	49.2	48.1	P
Aug-12-1998	66.0	31.1	7.4	4,240	52.0	48.4	48.3	P
Aug-20-1998	65.0	24.4	8.0	4,130	48.0	44.4	44.2	P
Aug-27-1998	55.1	25.6	7.8	4,490	44.0	51.0	52.4	P
Sep-03-1998	57.2	27.2	7.3	4,280	P	46.1	46.8	P
Sep-10-1998	56.7	22.8	8.1	4,180	11.0	43.5	42.5	P
Sep-17-1998	58.0	NA	NA	NA	P	48.2	48.4	P
Sep-24-1998	44.6	22.8	8.0	3,990	55.0	37.4	32.2	P

Table 8. Weekly water quality monitoring at Station C (Mud Slough North upstream of drainage discharges), 1998.

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
Jul-02-1998	.	24.4	7.7	867	1.2	P
Jul-09-1998	.	30.0	7.8	830	1.2	P
Jul-16-1998	.	29.4	8.9	1,060	1.5	P
Jul-23-1998	.	28.9	7.9	947	1.8	P
Jul-30-1998	.	28.3	7.9	1,010	1.8	P
Aug-06-1998	.	30.0	8.0	1,080	1.6	P
Aug-12-1998	.	32.8	8.2	1,370	1.7	P
Aug-20-1998	.	24.4	7.8	936	1.8	P
Aug-27-1998	.	25.6	7.7	1,030	1.4	P
Sep-03-1998	.	27.2	7.8	730	1.9	P
Sep-10-1998	.	21.7	7.7	595	0.9	P
Sep-17-1998	.	NA	NA	NA	1.0	P
Sep-24-1998	.	22.8	NA	672	0.5	P

Table 9. Weekly water quality monitoring at Station D (Mud Slough North downstream of drainage discharges), 1998.

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
Jul-02-1998	98	25.0	8.2	3,060	31.4	P
Jul-09-1998	115	28.9	7.8	3,270	30.5	P
Jul-16-1998	80	29.4	7.8	3,650	37.0	P
Jul-23-1998	108	27.8	8.0	2,880	30.1	P
Jul-30-1998	97	27.8	7.8	3,120	29.0	P
Aug-06-1998	101	30.0	8.1	3,170	30.2	P
Aug-12-1998	98	30.0	8.3	3,330	33.5	P
Aug-20-1998	81	24.4	7.8	3,230	30.8	P
Aug-27-1998	72	25.0	7.9	3,740	37.8	P
Sep-03-1998	75	27.2	7.7	3,590	37.8	P
Sep-10-1998	75	23.3	7.3	3,790	35.4	P
Sep-17-1998	97	NA	NA	NA	31.8	P
Sep-24-1998	137	NA	NA	1,800	11.5	P

Table 10. Weekly water quality monitoring at Station F (Salt Slough at Lander Avenue), 1998.

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
Jul-02-1998	325	23.3	7.4	621	0.5	P
Jul-09-1998	315	27.8	7.3	790	0.4	P
Jul-16-1998	363	27.2	7.6	557	0.5	P
Jul-23-1998	191	26.7	7.5	778	0.8	P
Jul-30-1998	246	26.1	7.4	629	1.4	P
Aug-06-1998	231	28.9	7.6	846	1.4	P
Aug-12-1998	358	28.9	7.7	727	1.0	P
Aug-20-1998	347	23.3	7.7	721	0.9	P
Aug-27-1998	208	23.3	7.4	887	0.9	P
Sep-03-1998	219	26.1	7.5	861	1.1	P
Sep-10-1998	177	26.1	7.6	888	1.0	P
Sep-17-1998	129	NA	NA	NA	0.4	P
Sep-24-1998	145	20.0	NA	993	0.8	P

Table 11. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford), 1998.

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
Jul-02-1998	.	21.7	6.6	57	< 0.4	P
Jul-09-1998	.	26.1	7.0	48	0.4	P
Jul-16-1998	.	27.8	7.6	80	< 0.4	P
Jul-23-1998	.	26.7	7.2	259	< 0.4	P
Jul-30-1998	.	26.1	7.5	335	0.4	P
Aug-06-1998	.	28.9	7.3	643	0.8	P
Aug-12-1998	.	27.8	6.8	561	0.7	P
Aug-20-1998	.	24.4	7.8	669	0.7	P
Aug-27-1998	.	24.4	6.7	660	0.7	P
Sep-03-1998	.	26.7	7.3	692	0.8	P
Sep-10-1998	.	22.2	7.1	816	0.7	P
Sep-17-1998	.	NA	NA	NA	0.4	P
Sep-24-1998	.	19.4	7.6	510	< 0.4	P

Table 12. Weekly water quality monitoring at Station H (San Joaquin River at Hills Ferry), 1998.

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
Jul-02-1998	.	18.3	7.4	208	0.9	P
Jul-09-1998	.	26.1	7.1	233	0.9	P
Jul-16-1998	.	30.6	8.5	282	1.2	P
Jul-23-1998	.	26.7	7.5	517	1.9	P
Jul-30-1998	.	25.6	7.5	741	3.2	P
Aug-06-1998	.	31.1	7.8	1,130	5.2	P
Aug-12-1998	.	31.1	8.2	1,080	4.4	P
Aug-20-1998	.	23.3	7.6	1,170	5.0	P
Aug-27-1998	.	23.3	7.6	1,170	5.0	P
Sep-03-1998	.	27.8	7.2	1,170	5.2	P
Sep-10-1998	.	24.4	8.1	1,200	5.1	P
Sep-17-1998	.	NA	NA	NA	5.3	P
Sep-24-1998	.	22.8	NA	909	3.8	P

Table 13. Weekly water quality monitoring at Station J (Camp 13 Ditch), 1998.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA ^{††}	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/L	mg/L
Jul-08-1998	20	NA	NA	64	< 0.4	P
Jul-15-1998	5	NA	NA	158	< 0.4	P
Jul-22-1998	5	NA	NA	301	2.6	P
Jul-29-1998	5	NA	NA	328	1.0	P
Aug-05-1998	5	NA	NA	464	1.3	P
Aug-12-1998	5	NA	NA	NA	2.0	P
Aug-19-1998	5	NA	NA	590	2.1	P
Aug-26-1998	25	NA	NA	444	1.3	P
Sep-02-1998	45	NA	NA	271	1.1	P
Sep-09-1998	100	NA	NA	283	1.5	P
Sep-16-1998	175	NA	NA	315	1.0	P
Sep-23-1998	175	NA	NA	253	1.1	P
Sep-30-1998	200	NA	NA	278	0.7	P

Table 14. Weekly water quality monitoring at Station K (Agatha Canal), 1998.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA ^{††}	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/L	mg/L
Jul-08-1998	15	NA	NA	80	< 0.4	P
Jul-15-1998	15	NA	NA	66	< 0.4	P
Jul-22-1998	15	NA	NA	158	0.4	P
Jul-29-1998	5	NA	NA	198	1.5	P
Aug-05-1998	5	NA	NA	350	1.4	P
Aug-12-1998	15	NA	NA	486	1.3	P
Aug-19-1998	15	NA	NA	326	1.1	P
Aug-26-1998	40	NA	NA	359	1.2	P
Sep-02-1998	60	NA	NA	392	1.2	P
Sep-09-1998	100	NA	NA	339	1.5	P
Sep-16-1998	170	NA	NA	278	1.1	P
Sep-23-1998	190	NA	NA	300	1.5	P
Sep-30-1998	200	NA	NA	270	0.7	P

Table 15. Weekly water quality monitoring at Station L (San Luis Canal at Henry Miller Road), 1998.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA ^{††}	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/L	mg/L
Jul-08-1998	58	NA	NA	687	1.6	P
Jul-15-1998	45	NA	NA	739	1.6	P
Jul-22-1998	58	NA	NA	998	2.6	P
Jul-29-1998	40	NA	NA	876	2.5	P
Aug-05-1998	45	NA	NA	727	2.2	P
Aug-12-1998	41	NA	NA	706	2.0	P
Aug-19-1998	49	NA	NA	1,350	3.0	P
Aug-26-1998	53	NA	NA	648	1.8	P
Sep-02-1998	57	NA	NA	557	1.5	P
Sep-09-1998	91	NA	NA	498	1.9	P
Sep-16-1998	117	NA	NA	404	1.2	P
Sep-23-1998	139	NA	NA	396	1.4	P
Sep-30-1998	150	NA	NA	350	1.1	P

Table 16. Weekly water quality monitoring at Station M (Santa Fe Canal at Henry Miller Road), 1998.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA ^{††}	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/L	mg/L
Jul-08-1998	75	NA	NA	363	0.7	P
Jul-15-1998	51	NA	NA	518	1.1	P
Jul-22-1998	51	NA	NA	517	1.5	P
Jul-29-1998	51	NA	NA	564	1.9	P
Aug-05-1998	0	NA	NA	564	2.1	P
Aug-12-1998	0	NA	NA	591	1.6	P
Aug-19-1998	36	NA	NA	868	1.8	P
Aug-26-1998	54	NA	NA	524	1.4	P
Sep-02-1998	39	NA	NA	646	1.8	P
Sep-09-1998	79	NA	NA	484	1.7	P
Sep-16-1998	87	NA	NA	368	1.2	P
Sep-23-1998	106	NA	NA	373	1.6	P
Sep-30-1998	131	NA	NA	341	1.1	P

Table 17. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing), 1998.

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
Jul-02-1998	13,800	22.2	7.3	133	0.5	P
Jul-09-1998	14,400	25.6	7.1	136	0.7	P
Jul-16-1998	9,800	27.2	8.2	169	0.6	P
Jul-23-1998	5,780	25.0	7.1	288	0.9	P
Jul-30-1998	3,560	25.6	7.5	433	1.3	P
Aug-06-1998	2,060	28.3	7.8	654	2.6	P
Aug-12-1998	1,570	28.9	7.6	709	2.3	P
Aug-20-1998	1,470	17.8	7.7	724	2.5	P
Aug-27-1998	1,560	22.2	7.8	607	2.1	P
Sep-03-1998	1,660	23.9	7.8	582	2.2	P
Sep-10-1998	1,700	22.2	7.9	511	1.5	P
Sep-17-1998	1,790	NA	NA	NA	1.9	P
Sep-24-1998	1,780	20.6	NA	398	1.1	P

Table 18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from October 1997 to September 1998. 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	%	%	%	%	%	%
October-97	88	88	85	60*	95	98
November-97	85	75*	88	88	98	98
December-97	90	50*	58*	83	88	85
January-98	100	40*	50*	90	90	95
February-98	93	43*	73*	80*	93	93
March-98	95	60*	68*	53*	95	84
April-98	100	95	95	100	85	100
May-98	100	98	98	58	80	100
June-98	88	98	98	65*	98	95
July-98	98	93	100	78	93	100
August-98	88	100	95	95	95	100
September-98	98	93	100	100	100	100

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from October 1997 to September 1998. 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
October-97	0.48*	0.44*	0.40*	0.34*	0.58	0.50
November-97	0.55*	0.57*	0.72	0.65*	0.76	0.71
December-97	0.60	0.38*	0.52	0.63	0.63	0.57
January-98	0.65	0.26*	0.30*	0.58	0.54	0.57
February-98	0.74	0.35*	0.53*	0.56*	0.70	0.59
March-98	0.67	0.31*	0.39*	0.30*	0.54	0.53
April-98	0.67	0.53	0.59	0.58	0.47	0.54
May-98	0.62	0.50	0.54	0.32	0.41	0.51
June-98	0.64	0.56	0.59	0.38*	0.57	0.64
July-98	0.69	0.52	0.68	0.45	0.53	0.68
August-98	0.65	0.59*	0.64	0.65	0.65	0.63
September-98	0.57	0.56	0.60	0.51	0.53	0.66

Table 20. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from October 1997 to September 1998. 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	%	%	%	%	%	%
October-97	80	90	100	90	100	90
November-97	100	80	100	100	100	0
December-97	100	100	90	80	100	80
January-98	80	90	100	100	100	0
February-98	80	80	100	90	50†	0
March-98	100	90	100	100	100	0
April-98	100	100	90	100	100	0
May-98	100	100	90	100	100	40
June-98	90	100	75	100	90	0
July-98	70	90	100	90	90	70
August-98	100	100	100	90	90	100
September-98	80	100	90	100	80	100

Table 21. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from October 1997 to September 1998. 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
October-97	42.2	37.9	41.7	34.8	34.9	32.0
November-97	37.3	28.6	34.0	30.0	22.0	21.5 ⁽³⁾
December-97	46.0	44.5	41.2	32.7*	43.6	21.1
January-98	13.7*	21.8	18.5*	14.5*	27.4	0.0
February-98 ⁽²⁾	67.0	70.5	69.9	61.3	39.3†	0.0
March-98	32.0	28.9	28.0	29.1	28.5	0.0
April-98	18.7	25.2	19.6	20.2	10.2	0.0
May-98	34.9	34.6	31.6	21.1	20.1	18.4
June-98	30.8	5.7	7.9	2.3	9.0 ^{†††}	0.0
July-98	10.8	11.9	12.6	8.2	6.6 ^{†††}	5.9
August-98	57.5	71.3	49.1	29.9	32.7	28.2
September-98	46.4	56.2	50.7	45.8	40.5	50.2

Table 22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from October 1997 to September 1998. 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
October-97	3.0*	42.3	47.4	43.9	50.4	50.3
November-97	23.8	19.6	23.8	29.0	15.8	31.3
December-97	14.8	14.2	24.2	19.2	6.3 ^{††††}	25.0
January-98	1.0*	11.9	14.5	6.8	9.1 ^{††††}	9.1
February-98	4.2*	7.9	10.9	11.8	8.3 ^{††††}	17.1
March-98	5.4*	20.3	16.8	16.5	13.4	25.5
April-98	19.0	36.1	25.8	34.8	23.7	32.5
May-98	8.7*	26.6	17.8	9.9*	22.2	19.3
June-98	15.8*	25.4	21.3	20.1	22.7	32.1
July-98	23.4	20.5	23.7	23.2	22.2	27.6
August-98	5.6	6.4	6.0	7.5	4.2 ^{††††}	7.5
September-98	21.6*	27.4	27.7*	29.8	32.3	28.0

Table 23. Summary of selenium concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, June to September 1998.

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
Jun-09-1998 #	88	1.0	62	0.7	0.8
Jun-11-1998 #	98	0.8	43	0.7	0.5
Jun-13-1998 #	90	1.1	30	0.8	0.5
Jul-06-1998 #	45	1.3	27	0.4	0.4
Jul-08-1998 #	44	1.3	31	0.6	< 0.4
Jul-10-1998 #	47	1.2	31	< 0.4	0.6
Aug-10-1998 #	54	2.0	35	1.1	1.1
Aug-12-1998 #	51	2.0	31	1.1	0.5
Aug-14-1998 #	37	1.4	30	1.2	<0.4
Sep-08-1998 #	52	1.1	28	1.2	0.8
Sep-10-1998 #	43	0.9	37	1.0	<0.4
Sep-12-1998 #	50	0.9	43	1.2	<0.4

Table 24. Summary of sulfate concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, June to September 1998.

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
Jun-09-1998	1,590	279	1,390	92	29
Jun-11-1998	1,680	196	817	114	21
Jun-13-1998	1,770	127	594	125	20
Jul-06-1998	1,390	179	854	92	21
Jul-08-1998	881	155	896	89	19
Jul-10-1998	1,300	164	893	80	29
Aug-10-1998	1,480	364	1,050	84	41
Aug-12-1998	1,350	294	906	93	24
Aug-14-1998	1,290	182	884	99	24
Sep-08-1998	1,500	67	861	110	47
Sep-10-1998	1,390	84	1,180	119	19
Sep-12-1998	1,470	94	1,170	136	20

Table 25. Summary of quarterly in situ bioassay results from December 1995 to May 1998.

Results are the number of live fathead minnows (*Pimephales promelas*) per number of fish recovered at the end of the 7 day deployment at each station (initial count of 80 used at each station).

See Table 26 for explanation of footnotes and agency abbreviations.

LOCATION	Windmill (4 day old larvae)	Station B (4 day old larvae)	Station D (4 day old larvae)	Station D (14 day old larvae)	Station F (4 day old larvae)	Station F (14 day old larvae)
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	# alive/total count	# alive/total count	# alive/total count	# alive/total count	# alive/total count	# alive/total count
December-1995 ⁽⁴⁾	NT	NT	NT	NT	NT	NT
March-1996 ⁽⁵⁾	80/80	NT	NT	44/44	NT	70/70
August-1996 ⁽⁶⁾	NT	NT	13/19	22/29	28/40	20/49
November-1996 ⁽⁷⁾	46/62	63/68	0/2	.	16/36	.
February-1997 ⁽⁸⁾	NT	3/13	0/0	.	0/11	.
May-1997	64/66	0/0	0/24	.	5/9	.
August-1997 ⁽⁹⁾	NT	38/38	27/31	.	0/8	.
May-1998	5/24	3/23	2/21	.	1/21	.

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
.	Not applicable
<	less than MDL. If needed in calculation, use 1/2 MDL
e	estimated value
P	pending, data not available at this time but will be available in the future
NA	not analyzed - operator error, data will not be available in the future
NP	data not provided - future unknown
NT	not tested
(1)	Calculated average of daily min and max values from source file.
(2)	Increased reproduction for the February 1998 sampling period is due to increased nutrients added to the test water.
(3)	There were no surviving <i>D. magna</i> at test completion. Value represents reproduction that occurred prior to mortality.
(4)	In situ cages could not be deployed due to wet weather conditions.
(5)	Baseline results for 3/96 are for 14-day old larvae. There was no survival for the 24-hour old larvae.
(6)	Windmill station was dry due to water drainage. Use of plastic screened beakers for Station F during 8/96 with use of 4-day old larvae resulted in 0/39. Apparent cause of mortality was elevated temperature and sediment which was found in all cages and beakers.
(7)	Heavy silt accumulation was noted in Sites D and F cages and light silt accumulation was observed in both the Windmill site and Site B.
(8)	Moderate silt accumulation was noted in Sites B and F cages and light silt accumulation was observed in Site D.
(9)	No test deployment was done at the Windmill Site due to extreme conditions (stagnant & pH>9.0). Site B replicate A was retrieved with no cork and replicate C lost its cork during retrieval. There were no surviving fish for a growth determination for Sit
*	Significantly reduced from Delta Mendota Canal (p<0.05)
**	possible calibration problem
†	DMC water failed to meet the survival (> 80%) and the 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 (1 X 10 ⁶ cell/mL) acceptability criteria.
#	New testing laboratory with precision to 0.4 µg/L