

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

October 1998

January 4, 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), October 1998.
2. Continuous water monitoring at Station B (discharge from San Luis Drain), October 1998.
3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), October 1998.
4. Continuous water monitoring at Station F (Salt Slough at Highway 165), October 1998.
5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), October 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 November 1997 to October 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 November 1997 to October 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 November 1997 to October 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 November 1997 to October 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 November 1997 to October 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, July to October 1998.
24. Summary of sulfate concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, July to October 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), October 1998.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow
DATA SOURCE	USBR
UNITS	cfs
Oct-01-1998	26.0
Oct-02-1998	29.0
Oct-03-1998	24.0
Oct-04-1998	23.0
Oct-05-1998	22.0
Oct-06-1998	24.0
Oct-07-1998	28.0
Oct-08-1998	28.0
Oct-09-1998	31.0
Oct-10-1998	32.0
Oct-11-1998	27.0
Oct-12-1998	27.0
Oct-13-1998	25.0
Oct-14-1998	28.0
Oct-15-1998	27.0
Oct-16-1998	24.0
Oct-17-1998	24.0
Oct-18-1998	22.0
Oct-19-1998	21.0
Oct-20-1998	21.0
Oct-21-1998	21.0
Oct-22-1998	22.0
Oct-23-1998	24.0
Oct-24-1998	26.0
Oct-25-1998	33.0
Oct-26-1998	33.0
Oct-27-1998	33.0
Oct-28-1998	31.0
Oct-29-1998	29.0
Oct-30-1998	34.0
Oct-31-1998	25.0

Table 2. Continuous water monitoring at Station B (discharge from San Luis Drain), October 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
Oct-01-1998	42.0	20.4	3,300	21.1	4.8
Oct-02-1998	28.2	20.1	3,430	21.4	3.3
Oct-03-1998	21.7	19.8	3,470	30.8	3.6
Oct-04-1998	30.0	19.1	3,850	35.4	5.7
Oct-05-1998	30.7	18.8	3,820	27.6	4.6
Oct-06-1998	31.2	19.4	3,940	30.0	5.0
Oct-07-1998	34.2	19.8	4,180	36.1	6.7
Oct-08-1998	32.3	19.9	4,190	41.0	7.1
Oct-09-1998	35.9	19.9	4,960	47.1	9.1
Oct-10-1998	40.4	19.3	5,150	55.2	12.0
Oct-11-1998	40.9	18.8	5,390	58.7	12.9
Oct-12-1998	35.2	18.8	4,910	49.0	9.3
Oct-13-1998	32.9	18.7	4,880	46.2	8.2
Oct-14-1998	32.0	19.2	5,000	53.2	9.2
Oct-15-1998	36.0	18.2	5,250	52.2	10.1
Oct-16-1998	34.5	16.1	5,280	48.5	9.0
Oct-17-1998	30.7	15.8	5,670	51.8	8.6
Oct-18-1998	29.3	16.5	5,760	57.8	9.1
Oct-19-1998	28.6	17.0	5,510	60.3	9.3
Oct-20-1998	28.2	17.3	5,150	53.1	8.1
Oct-21-1998	28.7	17.7	5,270	49.0	7.6
Oct-22-1998	28.7	18.0	5,200	50.0	7.7
Oct-23-1998	30.5	18.2	5,340	62.3	10.2
Oct-24-1998	31.5	18.0	5,330	61.2	10.4
Oct-25-1998	31.1	16.8	5,360	65.3	11.0
Oct-26-1998	37.4	16.7	5,620	88.4	17.8
Oct-27-1998	37.8	17.1	5,580	76.4	15.6
Oct-28-1998	38.0	17.0	5,400	64.3	13.2
Oct-29-1998	36.8	16.9	5,190	61.3	12.2
Oct-30-1998	35.6	16.5	4,320	40.8	7.8
Oct-31-1998	37.2	16.0	4,410	38.8	7.8
Mean	33.2	18.1	4,840	49.5	
Total					277

Load Limitation for October 1998 (lbs)	348
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**Table 3. Continuous water monitoring at Station D
(Mud Slough North downstream of drainage discharges), October 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
Oct-01-1998	168	20.7	1,440
Oct-02-1998	171	20.1	1,200
Oct-03-1998	175	19.2	1,090
Oct-04-1998	186	18.6	1,230
Oct-05-1998	187	18.7	1,270
Oct-06-1998	178	19.5	1,250
Oct-07-1998	190	19.8	1,290
Oct-08-1998	206	20.1	1,410
Oct-09-1998	208	20.0	1,470
Oct-10-1998	203	19.0	1,540
Oct-11-1998	208	18.6	1,560
Oct-12-1998	211	18.6	1,500
Oct-13-1998	213	18.7	1,360
Oct-14-1998	209	19.0	1,320
Oct-15-1998	202	17.8	1,400
Oct-16-1998	191	15.7	1,510
Oct-17-1998	183	15.5	1,560
Oct-18-1998	177	16.4	1,580
Oct-19-1998	166	16.9	1,580
Oct-20-1998	158	17.5	1,580
Oct-21-1998	151	18.0	1,580
Oct-22-1998	148	18.1	1,650
Oct-23-1998	149	18.2	1,760
Oct-24-1998	161	17.5	1,800
Oct-25-1998	176	16.3	1,790
Oct-26-1998	193	16.3	1,740
Oct-27-1998	212	16.9	1,720
Oct-28-1998	232	16.9	1,620
Oct-29-1998	219	16.8	1,600
Oct-30-1998	212	15.9	1,510
Oct-31-1998	209	15.4	1,520

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), October 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
Oct-01-1998	171	20.3	756
Oct-02-1998	157	19.8	767
Oct-03-1998	131	18.9	882
Oct-04-1998	150	18.3	826
Oct-05-1998	143	18.4	858
Oct-06-1998	141	19.0	906
Oct-07-1998	160	19.2	873
Oct-08-1998	159	19.4	890
Oct-09-1998	158	19.2	925
Oct-10-1998	165	18.3	930
Oct-11-1998	177	17.8	912
Oct-12-1998	181	17.6	908
Oct-13-1998	187	17.9	905
Oct-14-1998	208	18.3	878
Oct-15-1998	208	17.4	892
Oct-16-1998	212	15.6	883
Oct-17-1998	182	15.3	962
Oct-18-1998	161	15.9	1,010
Oct-19-1998	144	16.3	1,040
Oct-20-1998	124	16.8	1,070
Oct-21-1998	121	17.2	1,060
Oct-22-1998	144	17.4	960
Oct-23-1998	175	17.5	878
Oct-24-1998	188	16.9	919
Oct-25-1998	224	15.6	889
Oct-26-1998	224	15.7	921
Oct-27-1998	211	16.3	956
Oct-28-1998	206	16.4	968
Oct-29-1998	196	16.3	1,010
Oct-30-1998	188	15.8	1,030
Oct-31-1998	181	15.1	1,040

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), October 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
Oct-01-1998	2,100	19.0	364	0.6
Oct-02-1998	2,130	18.7	408	0.7
Oct-03-1998	2,380	18.0	305	0.7
Oct-04-1998	2,510	17.3	NA	NA
Oct-05-1998	2,550	17.0	NA	NA
Oct-06-1998	2,500	17.1	NA	NA
Oct-07-1998	2,490	17.2	NA	NA
Oct-08-1998	2,410	17.4	NA	NA
Oct-09-1998	2,460	17.4	NA	NA
Oct-10-1998	2,480	17.0	NA	NA
Oct-11-1998	2,530	16.5	NA	NA
Oct-12-1998	2,590	16.4	NA	NA
Oct-13-1998	2,540	16.4	NA	NA
Oct-14-1998	2,590	16.6	NA	NA
Oct-15-1998	2,620	16.3	NA	NA
Oct-16-1998	2,590	15.2	323	1.0
Oct-17-1998	2,540	14.8	326	0.9
Oct-18-1998	2,120	15.2	425	1.1
Oct-19-1998	1,900	15.6	513	1.1
Oct-20-1998	1,610	16.1	590	1.4
Oct-21-1998	1,420	16.7	709	1.6
Oct-22-1998	1,300	17.1	753	1.6
Oct-23-1998	1,330	17.1	781	1.7
Oct-24-1998	1,350	17.0	733	1.7
Oct-25-1998	1,550	16.1	698	2.0
Oct-26-1998	1,620	16.1	602	1.8
Oct-27-1998	1,670	16.4	614	2.0
Oct-28-1998	1,740	16.4	591	2.4
Oct-29-1998	1,800	16.4	599	1.9
Oct-30-1998	1,780	16.0	594	1.8
Oct-31-1998	1,660	15.5	615	1.8

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
Aug-05-1998	61.1	NA	NA	4,440	81	52.6	51.6	7.5
Aug-12-1998	61.9	NA	NA	4,160	160	44.2	42.6	7.4
Aug-19-1998	61.7	NA	NA	3,780	P	32.6	33.1	6.6
Aug-26-1998	53.1	NA	NA	4,760	41	57.5	57.4	8.2
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	7.6
Sep-16-1998	53.9	NA	NA	3,780	P	46.3	47.2	6.4
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
Oct-07-1998	28.0	NA	NA	4,970	26	55.6	57.3	P
Oct-14-1998	28.0	NA	NA	5,600	P	66.2	64.8	P
Oct-21-1998	21.0	NA	NA	6,570	P	104	105	P
Oct-28-1998	31.0	NA	NA	4,740	P	48.6	49.2	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
Aug-06-1998	61.0	31.1	8.2	4,330	31.0	49.2	48.1	7.3
Aug-12-1998	66.0	31.1	7.4	4,240	52.0	48.4	48.3	7.4
Aug-20-1998	65.0	24.4	8.0	4,130	48.0	44.4	44.2	6.9
Aug-27-1998	55.1	25.6	7.8	4,490	44.0	51.0	52.4	7.6
Sep-03-1998	57.2	27.2	7.3	4,280	P	46.1	46.8	7.4
Sep-10-1998	56.7	22.8	8.1	4,180	11.0	43.5	42.5	7.2
Sep-17-1998	58.0	25.6	7.3	3,790	P	47.6	48.4	6.3
Sep-24-1998	44.6	22.8	8.0	3,990	55.0	37.4	32.2	P
Oct-01-1998	42.0	20.6	7.6	3,210	P	21.6	22.1	P
Oct-08-1998	32.3	21.7	8.5	4,500	P	45.3	44.1	P
Oct-15-1998	36.0	18.9	8.1	5,280	P	50.0	49.6	P
Oct-22-1998	28.7	20.0	8.2	5,200	P	49.6	49.0	P
Oct-29-1998	36.8	19.4	NA	5,120	P	55.5	55.6	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
Aug-06-1998	.	30.0	8.0	1,080	1.6	1.1
Aug-12-1998	.	32.8	8.2	1,370	1.7	1.4
Aug-20-1998	.	24.4	7.8	936	1.8	1.0
Aug-27-1998	.	25.6	7.7	1,030	1.4	1.1
Sep-03-1998	.	27.2	7.8	730	1.9	0.7
Sep-10-1998	.	21.7	7.7	595	0.9	0.5
Sep-17-1998	.	24.4	7.4	618	1.0	0.5
Sep-24-1998	.	22.8	NA	672	0.5	P
Oct-01-1998	.	20.6	7.8	657	0.5	P
Oct-08-1998	.	21.7	7.9	676	0.7	P
Oct-15-1998	.	17.8	7.9	735	0.7	P
Oct-22-1998	.	20.0	7.8	898	0.7	P
Oct-29-1998	.	20.0	NA	862	0.6	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
Aug-06-1998	101	30.0	8.1	3,170	30.2	5.0
Aug-12-1998	98	30.0	8.3	3,330	33.5	5.3
Aug-20-1998	81	24.4	7.8	3,230	30.8	5.2
Aug-27-1998	72	25.0	7.9	3,740	37.8	6.1
Sep-03-1998	75	27.2	7.7	3,590	37.8	5.9
Sep-10-1998	75	23.3	7.3	3,790	35.4	6.5
Sep-17-1998	97	25.6	7.2	2,870	31.8	4.5
Sep-24-1998	137	NA	NA	1,800	11.5	P
Oct-01-1998	168	21.1	7.9	1,450	6.8	P
Oct-08-1998	206	20.0	8.3	1,410	7.3	P
Oct-15-1998	202	18.3	8.1	1,630	8.8	P
Oct-22-1998	148	18.9	7.9	2,100	12.3	P
Oct-29-1998	219	19.4	NA	1,660	48.1	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
Aug-06-1998	231	28.9	7.6	846	1.4	0.4
Aug-12-1998	358	28.9	7.7	727	1.0	0.4
Aug-20-1998	347	23.3	7.7	721	0.9	0.3
Aug-27-1998	208	23.3	7.4	887	0.9	0.5
Sep-03-1998	219	26.1	7.5	861	1.1	0.4
Sep-10-1998	177	26.1	7.6	888	1.0	0.5
Sep-17-1998	129	24.4	7.5	NA	0.4	0.5
Sep-24-1998	145	20.0	NA	993	0.8	P
Oct-01-1998	171	20.6	7.5	832	0.9	P
Oct-08-1998	159	19.4	7.4	871	0.9	P
Oct-15-1998	208	17.8	7.7	982	0.9	P
Oct-22-1998	144	17.2	7.5	1,200	1.1	P
Oct-29-1998	196	18.3	NA	1,030	1.0	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
Aug-06-1998	.	28.9	7.3	643	0.8	0.2
Aug-12-1998	.	27.8	6.8	561	0.7	0.2
Aug-20-1998	.	24.4	7.8	669	0.7	0.3
Aug-27-1998	.	24.4	6.7	660	0.7	0.3
Sep-03-1998	.	26.7	7.3	692	0.8	0.3
Sep-10-1998	.	22.2	7.1	816	0.7	0.3
Sep-17-1998	.	23.3	7.8	414	0.4	0.1
Sep-24-1998	.	19.4	7.6	510	<0.4	P
Oct-01-1998	.	20.0	7.2	711	0.5	P
Oct-08-1998	.	20.0	7.4	727	0.6	P
Oct-15-1998	.	17.8	7.6	709	0.7	P
Oct-22-1998	.	17.8	7.5	792	0.5	P
Oct-29-1998	.	17.8	NA	424	0.5	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
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	.	25.6	7.1	843	5.3	P
Sep-24-1998	.	22.8	NA	909	3.8	P
Oct-01-1998	.	21.1	7.7	830	2.1	P
Oct-08-1998	.	21.1	7.5	728	1.9	P
Oct-15-1998	.	17.8	8.5	790	2.6	P
Oct-22-1998	.	20.0	7.5	1,290	3.5	P
Oct-29-1998	.	18.3	NA	795	2.8	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
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
Oct-07-1998	45	NA	NA	266	1.5	P
Oct-14-1998	10	NA	NA	241	0.9	P
Oct-21-1998	10	NA	NA	265	2.4	P
Oct-28-1998	10	NA	NA	294	2.4	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
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
Oct-07-1998	100	NA	NA	260	1.4	P
Oct-14-1998	50	NA	NA	312	2.1	P
Oct-21-1998	50	NA	NA	252	2.7	P
Oct-28-1998	65	NA	NA	275	2.0	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
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
Oct-07-1998	168	NA	NA	538	1.2	P
Oct-14-1998	150	NA	NA	582	1.5	P
Oct-21-1998	67	NA	NA	823	1.7	P
Oct-28-1998	81	NA	NA	736	1.3	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
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
Oct-07-1998	153	NA	NA	493	1.4	P
Oct-14-1998	137	NA	NA	484	2.0	P
Oct-21-1998	64	NA	NA	601	1.3	P
Oct-28-1998	34	NA	NA	498	1.5	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
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	22.8	7.5	440	1.9	P
Sep-24-1998	1,780	20.6	NA	398	1.1	P
Oct-01-1998	2,100	20.6	8.0	372	0.9	P
Oct-08-1998	2,410	18.9	7.5	313	0.7	P
Oct-15-1998	2,620	20.0	7.6	359	0.8	P
Oct-22-1998	1,300	19.4	7.7	786	1.6	P
Oct-28-1998	1,740	17.8	NA	592	2.5	P

Table 18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from November 1997 to October 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	%	%	%	%	%	%
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
October-98	98	53*	80	85	97	100

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from November 1997 to October 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
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
October-98	0.74	0.31*	0.53	0.55	0.58	0.67

Table 20. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from November 1997 to October 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	%	%	%	%	%	%
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
October-98	80	90	70	70	90	80

Table 21. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from November 1997 to October 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
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
October-98	14.7*	22.9	12.5*	22.0	24.2	23.5

Table 22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from November 1997 to October 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
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
October-98	15.5*	33.5	29.8	29.0	26.5	22.0

Table 23. Summary of selenium concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, July to October 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
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
Oct-12-1998	49	0.7	9.4	0.8	<0.4
Oct-14-1998	37	0.6	8.1	1.1	0.4
Oct-16-1998	46	0.6	10	1.0	<0.4

Table 24. Summary of sulfate concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, July to October 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
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
Oct-12-1998	1,390	71	317	115	15
Oct-14-1998	1,630	69	287	108	17
Oct-16-1998	1,660	77	373	112	25

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