

# GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

**August 1998**

October 26, 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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## MONTHLY DATA REPORT

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

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow
DATA SOURCE	USBR
UNITS	cfs
Aug-01-1998	67.6
Aug-02-1998	69.6
Aug-03-1998	70.5
Aug-04-1998	66.6
Aug-05-1998	61.1
Aug-06-1998	63.3
Aug-07-1998	66.0
Aug-08-1998	65.0
Aug-09-1998	65.1
Aug-10-1998	65.4
Aug-11-1998	65.2
Aug-12-1998	61.9
Aug-13-1998	62.6
Aug-14-1998	63.4
Aug-15-1998	63.0
Aug-16-1998	68.1
Aug-17-1998	70.4
Aug-18-1998	67.5
Aug-19-1998	61.7
Aug-20-1998	62.2
Aug-21-1998	62.7
Aug-22-1998	59.4
Aug-23-1998	55.3
Aug-24-1998	55.9
Aug-25-1998	55.1
Aug-26-1998	53.1
Aug-27-1998	53.3
Aug-28-1998	55.9
Aug-29-1998	59.1
Aug-30-1998	64.0
Aug-31-1998	60.6

**Table 2. Continuous water monitoring at Station B (discharge from San Luis Drain), August 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
Aug-01-1998	65.5	25.7	4,550	54.8	19.4
Aug-02-1998	66.9	27.1	4,550	51.2	18.5
Aug-03-1998	68.0	28.2	4,440	51.6	18.9
Aug-04-1998	67.8	29.3	4,390	54.4	19.9
Aug-05-1998	64.3	29.8	4,370	54.8	19.0
Aug-06-1998	61.0	29.8	4,400	51.4	16.9
Aug-07-1998	62.8	29.2	4,350	51.2	17.3
Aug-08-1998	65.6	27.5	4,430	54.6	19.3
Aug-09-1998	64.8	26.7	4,270	47.4	16.6
Aug-10-1998	65.7	26.7	4,390	52.5	18.6
Aug-11-1998	65.5	27.2	4,320	48.4	17.1
Aug-12-1998	66.0	27.9	4,070	47.7	17.0
Aug-13-1998	62.6	28.8	4,180	42.4	14.3
Aug-14-1998	64.0	29.0	4,330	47.4	16.4
Aug-15-1998	63.0	28.8	4,200	39.8	13.5
Aug-16-1998	62.7	27.4	4,100	39.0	13.2
Aug-17-1998	67.8	25.5	4,140	36.8	13.5
Aug-18-1998	69.2	23.7	4,260	42.0	15.7
Aug-19-1998	65.8	22.9	4,150	42.3	15.0
Aug-20-1998	65.0	23.1	4,130	42.9	15.0
Aug-21-1998	65.1	23.5	3,800	37.7	13.2
Aug-22-1998	63.6	24.5	3,900	33.1	11.4
Aug-23-1998	59.3	24.9	3,930	36.7	11.7
Aug-24-1998	57.3	25.4	4,230	45.5	14.1
Aug-25-1998	56.0	25.8	4,520	50.5	15.3
Aug-26-1998	55.1	24.7	4,590	52.8	15.7
Aug-27-1998	55.1	24.6	4,550	53.5	15.9
Aug-28-1998	55.4	25.3	4,770	55.1	16.5
Aug-29-1998	58.7	25.7	4,650	51.2	16.2
Aug-30-1998	62.4	26.7	4,590	51.4	17.3
Aug-31-1998	65.4	26.9	4,440	51.2	18.1
Mean	63.1	26.5	4,322	47.5	
<b>Total</b>					<b>500</b>

<b>Load Limitation for August 1998 (lbs)</b>	<b>533</b>
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**Table 3. Continuous water monitoring at Station D  
(Mud Slough North downstream of drainage discharges), August 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
Aug-01-1998	108	26.2	3,320
Aug-02-1998	106	27.5	3,450
Aug-03-1998	111	28.6	3,450
Aug-04-1998	125	29.8	3,040
Aug-05-1998	128	30.3	2,890
Aug-06-1998	101	30.2	3,270
Aug-07-1998	77	29.5	4,130
Aug-08-1998	77	27.8	4,310
Aug-09-1998	83	27.0	3,870
Aug-10-1998	94	27.2	3,790
Aug-11-1998	99	27.8	3,490
Aug-12-1998	98	28.6	3,420
Aug-13-1998	94	29.3	3,250
Aug-14-1998	91	29.4	3,430
Aug-15-1998	73	29.2	3,850
Aug-16-1998	72	27.9	3,870
Aug-17-1998	87	26.1	3,660
Aug-18-1998	86	24.4	3,780
Aug-19-1998	87	23.6	3,690
Aug-20-1998	81	23.6	3,610
Aug-21-1998	90	23.8	3,230
Aug-22-1998	90	24.7	3,270
Aug-23-1998	84	25.2	3,320
Aug-24-1998	87	25.6	3,350
Aug-25-1998	87	26.0	3,470
Aug-26-1998	80	24.9	3,680
Aug-27-1998	72	24.7	3,950
Aug-28-1998	72	25.4	4,030
Aug-29-1998	87	25.8	3,670
Aug-30-1998	93	26.7	3,530
Aug-31-1998	94	26.8	3,550

**Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), August 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
Aug-01-1998	303	25.8	600
Aug-02-1998	301	27.5	599
Aug-03-1998	307	28.6	589
Aug-04-1998	331	29.4	610
Aug-05-1998	302	30.1	700
Aug-06-1998	231	29.8	840
Aug-07-1998	213	28.6	877
Aug-08-1998	229	26.8	815
Aug-09-1998	287	26.3	747
Aug-10-1998	338	26.5	685
Aug-11-1998	380	27.3	646
Aug-12-1998	358	28.3	696
Aug-13-1998	334	29.1	720
Aug-14-1998	307	29.3	732
Aug-15-1998	303	28.8	741
Aug-16-1998	292	26.8	710
Aug-17-1998	321	25.0	705
Aug-18-1998	364	23.3	632
Aug-19-1998	377	22.7	653
Aug-20-1998	347	23.0	712
Aug-21-1998	281	23.6	778
Aug-22-1998	287	24.5	755
Aug-23-1998	306	24.9	759
Aug-24-1998	301	25.1	747
Aug-25-1998	288	25.4	734
Aug-26-1998	209	24.2	828
Aug-27-1998	208	24.4	837
Aug-28-1998	244	25.1	756
Aug-29-1998	270	25.7	743
Aug-30-1998	256	26.7	765
Aug-31-1998	282	26.7	725

**Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), August 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
Aug-01-1998	2,920	24.5	558	1.7
Aug-02-1998	2,650	25.2	609	1.9
Aug-03-1998	2,510	26.1	632	2.0
Aug-04-1998	2,340	26.9	641	2.0
Aug-05-1998	2,220	27.7	642	2.1
Aug-06-1998	2,060	27.9	653	2.2
Aug-07-1998	1,790	27.3	710	2.3
Aug-08-1998	1,620	26.0	790	2.3
Aug-09-1998	1,580	25.5	876	2.5
Aug-10-1998	1,610 e	P	809	2.5
Aug-11-1998	1,590 e	P	742	2.2
Aug-12-1998	1,570 e	P	726	2.4
Aug-13-1998	1,520 e	P	719	2.4
Aug-14-1998	1,510 e	P	738	2.2
Aug-15-1998	1,520 e	P	729	2.1
Aug-16-1998	1,470 e	P	743	2.1
Aug-17-1998	1,400 e	P	729	1.9
Aug-18-1998	1,370 e	P	809	2.2
Aug-19-1998	1,270 e	P	902	2.6
Aug-20-1998	1,470	23.5	741	2.3
Aug-21-1998	1,570	22.8	673	2.3
Aug-22-1998	1,580	23.0	641	2.1
Aug-23-1998	1,600	23.2	623	1.8
Aug-24-1998	1,660	23.3	596	2.1
Aug-25-1998	1,660	23.8	587	1.8
Aug-26-1998	1,590	23.2	595	2.0
Aug-27-1998	1,560	23.0	606	2.1
Aug-28-1998	1,540	23.2	608	2.2
Aug-29-1998	1,550	23.4	605	1.9
Aug-30-1998	1,590	23.9	619	2.2
Aug-31-1998	1,660	24.0	606	2.1

**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
Jun-03-1998	44.6	NA	NA	6,000	62	92.9	92.8	9.6
Jun-10-1998	65.7	NA	NA	5,370	150	103	101	8.1
Jun-17-1998	73.8	NA	NA	4,880	140	84.2	81.8	7.7
Jun-24-1998	58.0	NA	NA	4,420	140	51.2	49.2	7.2
Jul-01-1998	70.1	NA	NA	4,630	140	52.8	50.5	P
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	P	57.5	57.4	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
Jun-04-1998	47.2	22.2	8.4	4,850	44.0	80.6	80.6	7.7
Jun-11-1998	62.1	21.1	8.4	5,180	46.0	102	98.4	7.9
Jun-18-1998	71.2	25.6	8.4	5,090	32.0	92.8	91.0	7.7
Jun-25-1998	58.9	27.2	8.3	4,680	46.0	65.6	68.9	7.5
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	P	51.0	52.4	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
Jun-04-1998	.	23.3	8.3	1,210	1.4	1.3
Jun-11-1998	.	21.1	8.0	841	1.2	1.0
Jun-18-1998	.	25.6	7.3	807	1.1	0.9
Jun-25-1998	.	27.8	8.1	1,010	1.4	1.1
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

**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
Jun-04-1998	93	21.7	8.2	2,870	32.8	4.1
Jun-11-1998	132	21.1	8.2	2,690	38.6	3.8
Jun-18-1998	97	25.6	8.2	3,780	61.4	5.8
Jun-25-1998	77	26.7	8.2	3,480	39.0	5.7
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

**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
Jun-04-1998	249	20.0	7.6	1,020	0.7	0.5
Jun-11-1998	317	20.6	7.4	833	0.5	0.3
Jun-18-1998	252	23.3	7.2	851	0.5	0.4
Jun-25-1998	296	19.4	7.3	634	0.6	0.3
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

**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
Jun-04-1998	.	19.4	7.1	80	< 0.4	< 0.05
Jun-11-1998	.	20.6	7.6	85	< 0.4	< 0.05
Jun-18-1998	.	22.2	7.3	72	< 0.4	< 0.05
Jun-25-1998	.	19.4	7.0	62	< 0.4	< 0.05
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

**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
Jun-04-1998	.	22.2	6.7	295	1.5	0.2
Jun-11-1998	.	20.6	7.4	295	1.6	0.2
Jun-18-1998	.	25.6	6.9	261	1.4	0.2
Jun-24-1998	.	24.4	7.2	224	1.1	0.2
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

**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 <sup>††</sup>	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/L	mg/L
Jun-03-1998	10	NA	NA	209	1.7	0.2
Jun-10-1998	10	NA	NA	4,100	2.5	6.9
Jun-17-1998	30	NA	NA	217	1.8	0.3
Jun-24-1998	20	NA	NA	142	1.0	0.1
Jul-01-1998	30	NA	NA	100	0.7	P
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

**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 <sup>††</sup>	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/L	mg/L
Jun-03-1998	60	NA	NA	101	0.7	0.1
Jun-10-1998	30	NA	NA	97	0.7	0.1
Jun-17-1998	30	NA	NA	112	0.6	0.1
Jun-24-1998	15	NA	NA	144	0.6	0.1
Jul-01-1998	25	NA	NA	68	< 0.4	P
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

**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 <sup>††</sup>	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/L	mg/L
Jun-03-1998	58	NA	NA	577	1.5	0.7
Jun-10-1998	38	NA	NA	1,230	1.5	1.8
Jun-17-1998	42	NA	NA	805	1.4	1.2
Jun-24-1998	69	NA	NA	692	1.6	1.0
Jul-01-1998	67	NA	NA	709	1.1	P
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

**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 <sup>††</sup>	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/L	mg/L
Jun-03-1998	62	NA	NA	415	1.2	0.5
Jun-10-1998	50	NA	NA	430	1.0	0.5
Jun-17-1998	50	NA	NA	465	1.1	0.6
Jun-24-1998	80	NA	NA	507	1.2	0.7
Jul-01-1998	90	NA	NA	451	1.7	P
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

**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
Jun-04-1998	12,350	21.7	7.1	179	0.8	0.1
Jun-11-1998	13,050	20.6	7.3	190	0.8	0.1
Jun-18-1998	14,600	23.3	7.1	159	0.7	0.1
Jun-24-1998	15,200	18.3	7.2	135	< 0.4	0.1
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 e	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

Table 18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from September 1997 to August 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	%	%	%	%	%	%
September-97	98	90	93	85	83	90
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

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from September 1997 to August 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
September-97	0.60	0.46	0.53	0.50	0.42	0.48
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

Table 20. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from September 1997 to August 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	%	%	%	%	%	%
September-97	90	100	100	100	100	80
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 <sup>†</sup>	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

**Table 21. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from September 1997 to August 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
September-97	33.0*	31.2*	45.8	47.1	39.7	23.2
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 <sup>(3)</sup>
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 <sup>(2)</sup>	67.0	70.5	69.9	61.3	39.3 <sup>†</sup>	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 <sup>†††</sup>	0.0
July-98	10.8	11.9	12.6	8.2	6.6 <sup>†††</sup>	5.9
August-98	57.5	71.3	49.1	29.9	32.7	28.2

**Table 22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from September 1997 to August 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 <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
September-97	21.5*	29.5	25.4	30.9	32.2	44.4
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 <sup>††††</sup>	25.0
January-98	1.0*	11.9	14.5	6.8	9.1 <sup>††††</sup>	9.1
February-98	4.2*	7.9	10.9	11.8	8.3 <sup>††††</sup>	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 <sup>††††</sup>	7.5

**Table 23. Summary of selenium concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, May to August 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
May-12-1998	130	<2	78	<2	<2
May-14-1998	130	<2	67	<2	<2
May-16-1998	80	<2	33	<2	<2
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

**Table 24. Summary of sulfate concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, May to August 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
May-12-1998	2,000	488	1,470	156	27
May-14-1998	1,900	308	1,240	115	35
May-16-1998	1,170	268	605	163	32
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



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 <sup>(4)</sup>	NT	NT	NT	NT	NT	NT
March-1996 <sup>(5)</sup>	80/80	NT	NT	44/44	NT	70/70
August-1996 <sup>(6)</sup>	NT	NT	13/19	22/29	28/40	20/49
November-1996 <sup>(7)</sup>	46/62	63/68	0/2	.	16/36	.
February-1997 <sup>(8)</sup>	NT	3/13	0/0	.	0/11	.
May-1997	64/66	0/0	0/24	.	5/9	.
August-1997 <sup>(9)</sup>	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 <sup>6</sup> cell/mL) acceptability criteria.
#	New testing laboratory with precision to 0.4 µg/L