

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

July 1998

October 2, 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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Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), July 1998.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow
DATA SOURCE	USBR
UNITS	cfs
Jul-01-1998	70.1
Jul-02-1998	76.7
Jul-03-1998	72.4
Jul-04-1998	70.3
Jul-05-1998	79.8
Jul-06-1998	80.5
Jul-07-1998	78.8
Jul-08-1998	78.3
Jul-09-1998	75.4
Jul-10-1998	84.9
Jul-11-1998	81.3
Jul-12-1998	83.7
Jul-13-1998	89.6
Jul-14-1998	91.0
Jul-15-1998	81.4
Jul-16-1998	79.5
Jul-17-1998	78.1
Jul-18-1998	75.6
Jul-19-1998	78.3
Jul-20-1998	75.6
Jul-21-1998	64.7
Jul-22-1998	64.1
Jul-23-1998	64.8
Jul-24-1998	60.1
Jul-25-1998	60.3
Jul-26-1998	65.4
Jul-27-1998	66.9
Jul-28-1998	64.9
Jul-29-1998	64.7
Jul-30-1998	64.4
Jul-31-1998	66.1

Table 2. Continuous water monitoring at Station B (discharge from San Luis Drain), July 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
Jul-01-1998	68.7	24.9	4,710	56.4	20.9
Jul-02-1998	71.2	23.9	4,610	52.2	20.0
Jul-03-1998	77.1	23.2	4,920	53.5	22.2
Jul-04-1998	73.2	24.3	4,650	52.0	20.5
Jul-05-1998	72.9	25.4	4,350	43.8	17.2
Jul-06-1998	81.1	26.3	4,650	49.7	21.7
Jul-07-1998	81.0	27.0	4,560	51.8	22.6
Jul-08-1998	79.5	27.5	4,380	46.8	20.1
Jul-09-1998	78.3	27.5	4,360	44.5	18.8
Jul-10-1998	77.1	26.4	4,410	47.9	19.9
Jul-11-1998	84.2	25.2	4,180	44.4	20.2
Jul-12-1998	83.2	25.7	4,070	42.9	19.3
Jul-13-1998	84.0	26.8	4,110	45.0	20.4
Jul-14-1998	89.3	27.0	4,170	45.4	21.9
Jul-15-1998	88.7	26.9	4,030	45.7	21.9
Jul-16-1998	80.8	27.1	4,190	43.2	18.8
Jul-17-1998	80.9	28.1	4,400	49.1	21.4
Jul-18-1998	77.6	28.8	4,480	54.5	22.8
Jul-19-1998	77.1	29.3	4,440	54.9	22.8
Jul-20-1998	77.9	29.1	4,330	52.4	22.0
Jul-21-1998	71.7	27.0	4,190	45.7	17.7
Jul-22-1998	65.9	26.6	4,300	48.6	17.3
Jul-23-1998	64.1	26.5	4,440	50.2	17.4
Jul-24-1998	65.7	26.6	4,520	52.6	18.6
Jul-25-1998	61.5	26.8	4,720	53.6	17.8
Jul-26-1998	63.8	27.9	4,600	54.4	18.7
Jul-27-1998	66.4	28.3	4,440	48.0	17.2
Jul-28-1998	67.6	28.1	4,410	53.2	19.4
Jul-29-1998	65.5	27.3	4,510	53.4	18.9
Jul-30-1998	64.3	26.3	4,460	49.7	17.2
Jul-31-1998	64.5	25.4	4,560	55.3	19.2
Mean	74.3	26.7	4,424	49.7	
Total					615

Load Limitation for July 1998 (lbs)	599
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**Table 3. Continuous water monitoring at Station D
(Mud Slough North downstream of drainage discharges), July 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
Jul-01-1998	98	24.8	3,550
Jul-02-1998	98	24.2	3,320
Jul-03-1998	99	23.5	3,440
Jul-04-1998	101	24.5	3,410
Jul-05-1998	105	25.6	3,180
Jul-06-1998	112	26.3	3,390
Jul-07-1998	118	26.7	3,650
Jul-08-1998	126	27.2	3,410
Jul-09-1998	134	27.2	3,380
Jul-10-1998	135	26.3	3,350
Jul-11-1998	133	25.1	3,270
Jul-12-1998	123	25.7	3,020
Jul-13-1998	119	26.8	3,060
Jul-14-1998	125	26.9	3,190
Jul-15-1998	131	26.8	3,180
Jul-16-1998	122	27.1	3,250
Jul-17-1998	124	28.2	3,200
Jul-18-1998	125	28.8	3,110
Jul-19-1998	124	29.4	3,090
Jul-20-1998	123	29.4	3,110
Jul-21-1998	113	27.5	3,150
Jul-22-1998	103	26.7	3,120
Jul-23-1998	108	26.8	2,960
Jul-24-1998	103	27.0	3,010
Jul-25-1998	95	27.2	3,260
Jul-26-1998	102	28.2	3,080
Jul-27-1998	112	28.5	2,950
Jul-28-1998	110	28.0	2,950
Jul-29-1998	103	27.3	3,180
Jul-30-1998	97	26.7	3,270
Jul-31-1998	100	25.8	3,290

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), July 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
Jul-01-1998	340	23.7	658
Jul-02-1998	325	23.0	725
Jul-03-1998	297	22.7	792
Jul-04-1998	292	24.0	800
Jul-05-1998	293	25.2	781
Jul-06-1998	299	25.7	792
Jul-07-1998	310	26.3	769
Jul-08-1998	319	26.9	769
Jul-09-1998	315	26.8	862
Jul-10-1998	323	25.6	768
Jul-11-1998	320	24.6	698
Jul-12-1998	307	25.5	663
Jul-13-1998	301	26.8	681
Jul-14-1998	340	26.8	651
Jul-15-1998	369	26.5	615
Jul-16-1998	363	27.0	600
Jul-17-1998	353	28.1	583
Jul-18-1998	332	28.8	629
Jul-19-1998	301	29.4	672
Jul-20-1998	288	29.1	696
Jul-21-1998	262	26.5	730
Jul-22-1998	218	26.3	825
Jul-23-1998	191	26.6	799
Jul-24-1998	175	26.7	775
Jul-25-1998	189	27.4	772
Jul-26-1998	221	28.5	719
Jul-27-1998	241	28.9	649
Jul-28-1998	253	28.0	660
Jul-29-1998	258	26.9	674
Jul-30-1998	246	25.8	680
Jul-31-1998	283	25.0	634

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), July 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
Jul-01-1998	14,000	22.7	144	0.5
Jul-02-1998	13,800	22.7	144	0.6
Jul-03-1998	13,500	22.8	146	0.5
Jul-04-1998	13,300	23.3	155	0.6
Jul-05-1998	13,600	23.7	148	0.6
Jul-06-1998	13,800	24.1	138	0.6
Jul-07-1998	13,900	24.4	135	0.8
Jul-08-1998	14,100	24.5	137	0.5
Jul-09-1998	14,400	24.3	135	0.5
Jul-10-1998	14,500	23.3	130	0.6
Jul-11-1998	14,200	22.6	126	0.5
Jul-12-1998	13,400	23.0	138	0.5
Jul-13-1998	11,800	24.1	152	0.6
Jul-14-1998	10,700	24.4	171	0.6
Jul-15-1998	10,100	24.6	175	0.7
Jul-16-1998	9,800	24.8	172	0.7
Jul-17-1998	9,260	25.2	178	0.6
Jul-18-1998	8,690	25.6	192	0.7
Jul-19-1998	8,110	26.4	203	0.8
Jul-20-1998	7,320	27.5	227	0.9
Jul-21-1998	6,660	27.1	251	0.9
Jul-22-1998	6,110	25.9	286	1.2
Jul-23-1998	5,780	24.4	303	0.9
Jul-24-1998	5,530	23.0	320	1.1
Jul-25-1998	5,020	23.5	359	1.1
Jul-26-1998	4,650	25.1	390	1.4
Jul-27-1998	4,520	26.1	354	1.4
Jul-28-1998	4,300	26.3	347	1.3
Jul-29-1998	3,970	25.7	380	1.5
Jul-30-1998	3,560	25.1	P	NA
Jul-31-1998	3,140	24.5	NA	P

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
May-06-1998	65.8	NA	NA	5,280	320	93.4	92.4	7.7
May-13-1998	118.9	NA	NA	3,740	P	62.8	60.7	5.8
May-20-1998	87.7	NA	NA	5,930	320	120	120	9.0
May-27-1998	68.3	NA	NA	5,490	170	114	112	P
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

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
May-07-1998	68.0	20.0	8.1	5,860	75	104	104	8.2
May-14-1998	126.9	16.7	8.0	5,990	P	99.2	99.4	8.4
May-21-1998	89.5	20.0	8.1	5,970	120	116	119	9.3
May-28-1998	70.7	16.1	8.2	5,610	64	120	120	9.9
Jun-04-1998	47.2	22.2	8.4	4,850	44	80.6	80.6	7.7
Jun-11-1998	62.1	21.1	8.4	5,180	46	102	98.4	7.9
Jun-18-1998	71.2	25.6	8.4	5,090	32	92.8	91.0	7.7
Jun-25-1998	58.9	27.2	8.3	4,680	46	65.6	68.9	7.5
Jul-02-1998	71.2	23.3	8.4	4,560	47	54.4	56.5	P
Jul-09-1998	78.3	28.9	7.7	4,300	51	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	48.3	46.9	P
Jul-30-1998	64.3	27.8	8.2	4,550	19	50.5	50.6	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
May-07-1998	.	20.0	8.0	1,110	1.7	1.2
May-14-1998	.	16.1	7.2	1,540	1.4	1.6
May-21-1998	.	19.4	8.4	1,900	1.3	2.0
May-28-1998	.	16.1	7.6	2,800	1.0	3.1
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

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
May-07-1998	143	20.0	7.8	3,150	38.3	3.9
May-14-1998	173	16.1	7.6	4,070	53.3	5.5
May-21-1998	127	20.6	8.2	4,620	73.6	6.8
May-28-1998	77	16.7	8.3	5,340	104	8.9
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

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
May-07-1998	350	18.9	7.3	1,060	1.0	0.6
May-14-1998	339	15.6	7.7	888	0.9	0.4
May-21-1998	195	18.3	7.6	1,560	0.8	0.7
May-28-1998	242	16.7	7.4	1,040	0.7	0.5
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

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
May-07-1998	.	18.3	7.3	104	0.5	< 0.05
May-14-1998	.	14.4	7.8	105	< 0.4	< 0.05
May-21-1998	.	17.2	7.5	91	< 0.4	< 0.05
May-28-1998	.	16.1	6.9	81	< 0.4	< 0.05
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

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
May-07-1998	.	17.8	7.0	460	2.4	0.3
May-14-1998	.	17.8	7.2	467	2.2	0.4
May-21-1998	.	19.4	8.2	432	2.6	0.4
May-28-1998	.	16.1	7.5	391	2.2	0.3
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	P	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

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
May-06-1998	5	NA	NA	841	1.6	1.7
May-13-1998	5	NA	NA	1,460	1.6	2.8
May-20-1998	10	NA	NA	295	1.3	0.4
May-27-1998	20	NA	NA	147	0.8	P
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	P	0.3
Jun-24-1998	20	P	P	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

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 ^{1†}	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/L	mg/L
May-06-1998	10	NA	NA	413	1.4	0.6
May-13-1998	10	NA	NA	606	1.0	1.2
May-20-1998	10	NA	NA	468	0.9	0.7
May-27-1998	50	NA	NA	172	1.0	NA
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

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 ^{1†}	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/L	mg/L
May-06-1998	76	NA	NA	1,280	1.8	2.0
May-13-1998	84	NA	NA	1,520	2.0	2.1
May-20-1998	47	NA	NA	1,490	1.5	1.8
May-27-1998	39	NA	NA	877	P	P
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

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
May-06-1998	34	NA	NA	564	1.6	0.7
May-13-1998	49	NA	NA	903	1.5	1.3
May-20-1998	43	NA	NA	982	1.9	1.2
May-27-1998	18	NA	NA	922	2.0	P
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

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
May-07-1998	12,200	16.7	7.3	244	1.0	0.1
May-14-1998	13,200	16.7	7.5	252	1.0	0.1
May-21-1998	14,200	20.0	8.3	211	1.0	0.1
May-28-1998	12,500	16.1	7.5	220	1.5	0.1
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	P	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

Table 18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from August 1997 to July 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	%	%	%	%	%	%
August-97	88	85	95	78	83	98
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

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from August 1997 to July 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
August-97	0.69	0.56	0.73	0.60	0.59	0.77
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

Table 20. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from August 1997 to July 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	%	%	%	%	%	%
August-97	90	100	100	100	80	90
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 [†]	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

Table 21. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from August 1997 to July 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
August-97	55.8	55.4	53.1	54.1	40.7	44.3
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 ⁽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

Table 22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from August 1997 to July 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
August-97	56.2	61.6	43.0	52.6	47.5	59.9
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	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

Table 23. Summary of selenium concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, April to July 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
Apr-07-1998	85	<2	31	<2	<2
Apr-09-1998	120	<2	29	<2	<2
Apr-11-1998	140	<2	42	<2	<2
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

Table 24. Summary of sulfate concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, April to July 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
Apr-07-1998	1,620	340	893	346	48
Apr-09-1998	1,890	232	676	389	46
Apr-11-1998	2,100	242	878	363	55
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

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.
#	New testing laboratory with precision to 0.4 ug/L