

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

June 1998

September 21, 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), June 1998.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow
DATA SOURCE	USBR
UNITS	cfs
Jun-01-1998	59.7
Jun-02-1998	47.3
Jun-03-1998	44.6
Jun-04-1998	45.4
Jun-05-1998	46.2
Jun-06-1998	45.6
Jun-07-1998	73.9
Jun-08-1998	94.9
Jun-09-1998	80.0
Jun-10-1998	65.7
Jun-11-1998	54.1
Jun-12-1998	45.1
Jun-13-1998	52.2
Jun-14-1998	59.7
Jun-15-1998	65.8
Jun-16-1998	70.8
Jun-17-1998	73.8
Jun-18-1998	65.4
Jun-19-1998	62.4
Jun-20-1998	55.2
Jun-21-1998	57.6
Jun-22-1998	60.7
Jun-23-1998	58.9
Jun-24-1998	58.0
Jun-25-1998	59.1
Jun-26-1998	65.5
Jun-27-1998	66.9
Jun-28-1998	61.6
Jun-29-1998	66.1
Jun-30-1998	67.6

Table 2. Continuous water monitoring at Station B (discharge from San Luis Drain), June 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
Jun-01-1998	66.4	22.6	5,330	95.1	34.1
Jun-02-1998	58.2	23.1	5,490	96.6	30.3
Jun-03-1998	48.8	22.1	5,740	108.0	28.4
Jun-04-1998	47.2	21.6	5,100	84.0	21.4
Jun-05-1998	46.8	22.5	5,910	93.6	23.6
Jun-06-1998	46.3	22.3	5,950	95.1	23.7
Jun-07-1998	49.9	21.0	6,110	103.0	27.7
Jun-08-1998	81.6	21.4	5,830	92.9	40.9
Jun-09-1998	89.2	22.4	5,160	93.0	44.7
Jun-10-1998	77.2	22.9	4,830	86.2	35.9
Jun-11-1998	62.1	21.8	5,280	99.4	33.3
Jun-12-1998	54.0	22.1	5,470	106.0	30.9
Jun-13-1998	47.3	22.8	5,480	93.6	23.9
Jun-14-1998	53.9	24.9	5,570	87.3	25.4
Jun-15-1998	59.4	26.3	5,350	73.1	23.4
Jun-16-1998	63.9	25.9	5,580	92.4	31.8
Jun-17-1998	71.4	23.5	5,130	82.2	31.7
Jun-18-1998	71.2	24.8	4,920	86.4	33.2
Jun-19-1998	64.4	25.4	5,220	85.5	29.7
Jun-20-1998	60.3	24.5	5,240	87.4	28.4
Jun-21-1998	57.2	23.6	4,920	78.2	24.1
Jun-22-1998	57.5	23.5	4,820	64.0	19.8
Jun-23-1998	59.5	23.8	4,900	64.5	20.7
Jun-24-1998	59.4	23.9	4,970	69.0	22.1
Jun-25-1998	58.9	24.1	4,930	64.8	20.6
Jun-26-1998	60.4	24.1	4,910	61.2	19.9
Jun-27-1998	67.4	24.7	4,690	54.6	19.8
Jun-28-1998	66.3	25.8	4,650	54.6	19.5
Jun-29-1998	61.7	25.8	4,550	57.0	19.0
Jun-30-1998	65.0	25.5	4,520	53.6	18.8
Mean	61.1	23.6	5,218	82.1	
Total					807

Load Limitation for June 1998 (lbs)	599
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**Table 3. Continuous water monitoring at Station D
(Mud Slough North downstream of drainage discharges), June 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
Jun-01-1998	91	22.9	3,390
Jun-02-1998	93	23.2	3,250
Jun-03-1998	91	22.3	3,210
Jun-04-1998	93	21.9	2,660
Jun-05-1998	94	22.8	2,850
Jun-06-1998	87	22.6	3,290
Jun-07-1998	84	21.1	3,730
Jun-08-1998	106	21.8	4,160
Jun-09-1998	126	23.2	3,900
Jun-10-1998	130	23.6	3,290
Jun-11-1998	132	22.0	2,760
Jun-12-1998	132	21.3	2,140
Jun-13-1998	118	22.1	2,510
Jun-14-1998	110	24.4	3,520
Jun-15-1998	109	26.0	3,460
Jun-16-1998	121	25.7	3,650
Jun-17-1998	109	23.1	3,650
Jun-18-1998	97	24.7	3,880
Jun-19-1998	93	25.3	3,970
Jun-20-1998	88	24.8	3,940
Jun-21-1998	83	23.9	3,710
Jun-22-1998	78	23.7	3,270
Jun-23-1998	72	24.1	3,680
Jun-24-1998	73	24.2	3,680
Jun-25-1998	77	24.4	3,630
Jun-26-1998	82	24.1	3,900
Jun-27-1998	85	24.6	3,660
Jun-28-1998	89	25.7	3,510
Jun-29-1998	93	25.5	3,310
Jun-30-1998	95	25.2	3,460
.	.	.	.

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), June 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
Jun-01-1998	298	22.0	806
Jun-02-1998	270	22.0	863
Jun-03-1998	246	20.6	866
Jun-04-1998	249	19.8	809
Jun-05-1998	251	21.1	821
Jun-06-1998	261	20.8	714
Jun-07-1998	277	18.8	592
Jun-08-1998	318	19.0	577
Jun-09-1998	355	20.8	697
Jun-10-1998	340	21.6	806
Jun-11-1998	317	20.0	847
Jun-12-1998	289	20.1	876
Jun-13-1998	265	21.6	961
Jun-14-1998	246	24.1	1,040
Jun-15-1998	242	25.7	989
Jun-16-1998	255	25.4	893
Jun-17-1998	249	23.0	932
Jun-18-1998	252	24.5	888
Jun-19-1998	261	25.4	735
Jun-20-1998	273	23.7	696
Jun-21-1998	285	22.7	696
Jun-22-1998	291	22.9	633
Jun-23-1998	294	23.3	683
Jun-24-1998	300	23.4	722
Jun-25-1998	296	23.7	709
Jun-26-1998	292	23.7	760
Jun-27-1998	285	24.2	790
Jun-28-1998	280	25.5	794
Jun-29-1998	277	25.1	736
Jun-30-1998	293	24.2	664
.	.	.	.

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), June 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
Jun-01-1998	12,700	20.6	219	1.1
Jun-02-1998	12,600	20.9	205	0.9
Jun-03-1998	12,500	20.6	187	0.8
Jun-04-1998	12,400	19.6	181	0.8
Jun-05-1998	12,100	20.3	184	0.8
Jun-06-1998	11,900	20.6	182	0.6
Jun-07-1998	11,600	19.8	181	0.5
Jun-08-1998	11,700	19.4	180	0.5
Jun-09-1998	12,000	20.8	186	0.6
Jun-10-1998	12,600	21.6	201	0.9
Jun-11-1998	13,100	20.9	189	0.7
Jun-12-1998	13,400	20.4	180	0.7
Jun-13-1998	13,300	20.5	188	0.8
Jun-14-1998	13,300	21.9	P	NA
Jun-15-1998	13,500	23.0	154	NA
Jun-16-1998	13,700	23.4	161	P
Jun-17-1998	14,200	21.2	152	P
Jun-18-1998	14,600	22.1	161	P
Jun-19-1998	14,600	23.2	151	P
Jun-20-1998	14,400	23.1	149	P
Jun-21-1998	14,700	22.5	144	P
Jun-22-1998	15,200	22.1	141	P
Jun-23-1998	15,300	22.1	143	P
Jun-24-1998	15,200	22.3	138	P
Jun-25-1998	15,200	22.6	135	P
Jun-26-1998	14,900	22.4	135	P
Jun-27-1998	14,800	22.5	134	P
Jun-28-1998	14,700	23.3	142	P
Jun-29-1998	14,400	23.1	146	P
Jun-30-1998	14,200	22.8	143	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
Apr-01-1998	106.3	NA	NA	2,760	230	95.6	92.6	P
Apr-08-1998	106.7	NA	NA	4,980	170	81.1	77.7	P
Apr-15-1998	88.9	NA	NA	5,770	170	129.0	130.0	P
Apr-22-1998	81.4	NA	NA	6,230	150	133.0	126.0	P
Apr-29-1998	69.8	NA	NA	5,470	249	106.0	105.0	P
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	P
May-20-1998	87.7	NA	NA	5,930	320	120.0	120.0	9.0
May-27-1998	68.3	NA	NA	5,490	170	114.0	112.0	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	103.0	101.0	8.1
Jun-17-1998	73.8	NA	NA	4,880	140	84.2	81.8	P
Jun-24-1998	58.0	NA	NA	4,420	140	51.2	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
Apr-02-1998	103.8	15.0	7.9	5,160	87	90.0	92.8	P
Apr-09-1998	104.7	16.7	8.3	5,550	75	94.6	93.0	P
Apr-16-1998	89.9	13.9	8.1	5,930	60	118.0	120.0	P
Apr-23-1998	82.2	22.2	8.2	6,070	56	119.0	119.0	P
Apr-30-1998	70.1	23.3	8.1	5,550	67	106.0	106.0	P
May-07-1998	68.0	20.0	8.1	5,860	75	104.0	104.0	8.2
May-14-1998	126.9	16.7	8.0	5,990	P	99.2	99.4	P
May-21-1998	89.5	20.0	8.1	5,970	120	116.0	119.0	9.3
May-28-1998	70.7	16.1	8.2	5,610	64	120.0	120.0	9.9
Jun-04-1998	47.2	22.2	8.4	4,850	44	80.6	80.6	P
Jun-11-1998	62.1	21.1	8.4	5,180	46	102.0	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	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
Apr-02-1998	.	14.4	8.0	1,272	1.0	P
Apr-09-1998	.	16.7	8.3	1,333	1.3	P
Apr-16-1998	.	13.9	8.4	1,937	0.9	P
Apr-23-1998	.	21.7	8.2	2,330	1.1	P
Apr-30-1998	.	23.9	7.8	3,170	0.8	P
May-07-1998	.	20.0	8.0	1,109	1.7	1.2
May-14-1998	.	16.1	7.2	1,540	1.4	P
May-21-1998	.	19.4	8.4	1,904	1.3	2.0
May-28-1998	.	16.1	7.6	2,800	1.0	3.1
Jun-04-1998	.	23.3	8.3	1,214	1.4	P
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	1,005	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
Apr-02-1998	341	14.4	8.0	2,360	21.8	P
Apr-09-1998	290	16.7	8.1	2,660	26.6	P
Apr-16-1998	202	15.0	8.2	3,630	46.0	P
Apr-23-1998	126	22.2	8.2	4,690	70.0	P
Apr-30-1998	94	23.3	8.0	5,240	96.8	P
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	P
May-21-1998	127	20.6	8.2	4,620	73.6	6.8
May-28-1998	77	16.7	8.3	5,340	104.0	8.9
Jun-04-1998	93	21.7	8.2	2,870	32.8	P
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	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
Apr-02-1998	376	14.4	7.3	2,050	1.4	P
Apr-09-1998	342	17.2	7.7	2,100	1.4	P
Apr-16-1998	298	16.1	7.5	1,950	1.4	P
Apr-23-1998	245	22.2	7.5	1,730	1.0	P
Apr-30-1998	250	21.1	7.2	1,400	0.8	P
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	P
May-21-1998	195	18.3	7.6	1,557	0.8	0.7
May-28-1998	242	16.7	7.4	1,036	0.7	0.5
Jun-04-1998	249	20.0	7.6	1,015	0.7	P
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	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
Apr-02-1998	.	13.3	7.7	217	0.5	P
Apr-09-1998	.	17.2	8.0	168	0.5	P
Apr-16-1998	.	12.8	8.4	124	0.3	P
Apr-23-1998	.	18.9	7.3	108	0.3	P
Apr-30-1998	.	20.0	6.8	110	0.2	P
May-07-1998	.	18.3	7.3	104	0.5	P
May-14-1998	.	14.4	7.8	105	0.2	P
May-21-1998	.	17.2	7.5	91	0.1	P
May-28-1998	.	16.1	6.9	81	0.1	P
Jun-04-1998	.	19.4	7.1	80	0.2	P
Jun-11-1998	.	20.6	7.6	85	0.1	P
Jun-18-1998	.	22.2	7.3	72	0.1	P
Jun-25-1998	.	19.4	7.0	62	0.2	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
Apr-02-1998	.	13.3	7.5	793	3.1	P
Apr-09-1998	.	18.9	8.0	681	2.4	P
Apr-16-1998	.	15.0	7.7	611	3.3	P
Apr-23-1998	.	23.3	8.0	520	2.5	P
Apr-30-1998	.	20.0	7.2	405	2.1	P
May-07-1998	.	17.8	7.0	460	2.4	0.3
May-14-1998	.	17.8	7.2	467	2.2	P
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	P
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	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
Apr-01-1998	0	NA	NA	980	11.5	P
Apr-08-1998	0	NA	NA	4,470	9.8	P
Apr-15-1998	0	NA	NA	6,270	7.3	P
Apr-22-1998	5	NA	NA	245	1.7	P
Apr-29-1998	5	NA	NA	209	1.1	P
May-06-1998	5	NA	NA	841	1.6	1.7
May-13-1998	5	NA	NA	1,462	1.6	P
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	P
Jun-24-1998	20	P	P	142	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 ^{††}	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/l	mg/l
Apr-01-1998	0	NA	NA	5,400	2.8	P
Apr-08-1998	0	NA	NA	2,140	1.8	P
Apr-15-1998	0	NA	NA	2,670	2.2	P
Apr-22-1998	0	NA	NA	2,690	2.3	P
Apr-29-1998	10	NA	NA	256	1.9	P
May-06-1998	10	NA	NA	413	1.4	0.6
May-13-1998	10	NA	NA	606	1.0	P
May-20-1998	10	NA	NA	468	0.9	0.7
May-27-1998	50	NA	NA	172	1.0	P
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	P
Jun-24-1998	15	NA	NA	144	0.6	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
Apr-01-1998	89	NA	NA	386	3.2	P
Apr-08-1998	106	NA	NA	2,560	3.3	P
Apr-15-1998	69	NA	NA	2,410	3.4	P
Apr-22-1998	84	NA	NA	1,570	1.8	P
Apr-29-1998	64	NA	NA	1,290	1.4	P
May-06-1998	76	NA	NA	1,280	1.8	2.0
May-13-1998	84	NA	NA	1,521	2.0	P
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	P
Jun-24-1998	69	NA	NA	692	1.6	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
Apr-01-1998	18	NA	NA	2,780	3.3	P
Apr-08-1998	6	NA	NA	1,870	3.4	P
Apr-15-1998	0	NA	NA	1,980	3.1	P
Apr-22-1998	2	NA	NA	1,029	1.8	P
Apr-29-1998	0	NA	NA	681	1.7	P
May-06-1998	34	NA	NA	564	1.6	0.7
May-13-1998	49	NA	NA	903	1.5	P
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	P
Jun-24-1998	80	NA	NA	507	1.2	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
Apr-02-1998	12,900	13.3	7.5	450	1.4	P
Apr-09-1998	14,600	18.3	7.8	421	1.1	P
Apr-16-1998	16,500	13.9	7.7	265	1.0	P
Apr-22-1998	13,300	22.2	7.8	288	1.0	P
Apr-30-1998	11,800	22.2	7.5	236	0.9	P
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	P
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	P
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	0.1	P

Table 18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from July 1997 to June 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	%	%	%	%	%	%
July-97	100	93	98	98	100	98
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

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from July 1997 to June 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
July-97	0.97	0.80*	0.95	0.91	0.92	0.89
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

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

Table 21. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from July 1997 to June 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
July-97	35.6	28.1	33.2	27.7	19.1	17.1
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

Table 22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from July 1997 to June 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
July-97	41.9	72.5	47.6	66.6	45.1	60.2
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

Table 23. Summary of selenium concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, March to June 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
Mar-10-1998	96	<2	15	4	<2
Mar-12-1998	100	<2	19	3	<2
Mar-14-1998	99	<2	21	2	<2
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	<2	62	<2	<2
Jun-11-1998	98	<2	43	<2	<2
Jun-13-1998	90	<2	30	<2	<2

Table 24. Summary of sulfate concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, March to June 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
Mar-10-1998	1,870	206	434	337	80
Mar-12-1998	1,840	236	499	290	68
Mar-14-1998	1,760	271	548	272	76
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

Table 25. Summary of quarterly in situ bioassay results from December 1995 to August 1997.

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	.

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
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.