

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

May 1998

August 3, 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), May 1998.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow
DATA SOURCE	USBR
UNITS	cfs
May-01-1998	50.4
May-02-1998	50.3
May-03-1998	54.8
May-04-1998	54.6
May-05-1998	60.3
May-06-1998	65.8
May-07-1998	62.5
May-08-1998	58.3
May-09-1998	51.5
May-10-1998	50.1
May-11-1998	49.1
May-12-1998	59.8
May-13-1998	118.9
May-14-1998	137.5
May-15-1998	133.5
May-16-1998	120.1
May-17-1998	108.3
May-18-1998	97.1
May-19-1998	90.0
May-20-1998	87.7
May-21-1998	82.2
May-22-1998	81.9
May-23-1998	77.3
May-24-1998	73.3
May-25-1998	69.3
May-26-1998	70.1
May-27-1998	68.3
May-28-1998	69.5
May-29-1998	78.6
May-30-1998	78.1
May-31-1998	67.2

Table 2. Continuous water monitoring at Station B (discharge from San Luis Drain), May 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
May-01-1998	62.8	22.9	5,700	111.0	37.6
May-02-1998	54.1	21.8	5,860	110.0	32.1
May-03-1998	55.0	21.3	5,990	114.0	33.8
May-04-1998	59.2	21.5	5,780	98.2	31.4
May-05-1998	50.2	20.6	5,840	101.0	27.3
May-06-1998	63.8	20.4	5,650	98.0	33.7
May-07-1998	68.0	20.6	5,750	99.6	36.5
May-08-1998	66.8	21.0	5,310	95.2	34.3
May-09-1998	62.6	20.0	5,100	81.3	27.4
May-10-1998	57.6	19.6	5,090	82.0	25.5
May-11-1998	55.3	19.2	5,360	89.3	26.6
May-12-1998	58.4	17.0	5,680	95.2	30.0
May-13-1998	77.7	16.6	5,880	102.0	42.7
May-14-1998	126.9	16.8	5,670	101.0	69.1
May-15-1998	140.3	17.7	3,730	63.9	48.4
May-16-1998	134.9	18.9	3,890	68.9	50.1
May-17-1998	117.4	18.7	4,940	92.8	58.8
May-18-1998	108.1	19.1	5,560	107.0	62.4
May-19-1998	96.9	20.1	5,840	114.0	59.6
May-20-1998	92.4	20.3	5,920	116.0	57.8
May-21-1998	89.5	20.5	5,960	117.0	56.5
May-22-1998	85.4	20.4	6,080	120.0	55.3
May-23-1998	82.8	20.9	6,020	118.0	52.7
May-24-1998	78.1	21.6	6,070	122.0	51.4
May-25-1998	74.9	22.0	6,150	125.0	50.5
May-26-1998	71.2	21.0	6,330	128.0	49.2
May-27-1998	74.6	19.7	6,080	117.0	47.1
May-28-1998	70.7	18.2	6,020	119.0	45.4
May-29-1998	72.9	18.1	5,970	116.0	45.6
May-30-1998	80.0	19.7	5,810	110.0	47.5
May-31-1998	76.9	21.1	5,600	107.0	44.4
Mean	79.5	19.9	5,633	104.5	
Total					1,371

Load Limitation for May 1998 (lbs)	666
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**Table 3. Continuous water monitoring at Station D
(Mud Slough North downstream of drainage discharges), May 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
May-01-1998	91	23.0	4,700
May-02-1998	92	21.7	4,570
May-03-1998	91	21.4	4,940
May-04-1998	93	21.8	4,840
May-05-1998	106	20.7	4,800
May-06-1998	127	20.2	4,150
May-07-1998	143	20.4	3,190
May-08-1998	156	20.5	2,480
May-09-1998	148	19.6	2,900
May-10-1998	138	19.6	3,770
May-11-1998	137	19.5	4,240
May-12-1998	137	17.0	4,520
May-13-1998	155	16.0	3,830
May-14-1998	173	17.1	3,580
May-15-1998	189	17.9	2,380
May-16-1998	182	18.7	2,520
May-17-1998	166	18.3	3,350
May-18-1998	147	19.1	4,020
May-19-1998	142	20.2	4,330
May-20-1998	137	20.2	4,320
May-21-1998	127	20.4	4,570
May-22-1998	120	20.6	4,280
May-23-1998	112	21.1	4,490
May-24-1998	106	21.6	4,510
May-25-1998	98	21.9	4,660
May-26-1998	83	20.9	4,750
May-27-1998	76	20.0	4,690
May-28-1998	77	18.4	4,820
May-29-1998	82	17.9	4,590
May-30-1998	88	19.5	4,260
May-31-1998	89	21.3	4,130

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), May 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
May-01-1998	255	22.2	1,250
May-02-1998	267	20.5	1,120
May-03-1998	275	20.6	1,010
May-04-1998	279	21.1	1,050
May-05-1998	298	20.0	1,040
May-06-1998	337	19.1	1,050
May-07-1998	350	19.6	1,070
May-08-1998	342	20.4	1,120
May-09-1998	318	18.9	1,170
May-10-1998	290	18.7	1,270
May-11-1998	280	18.4	1,270
May-12-1998	284	15.9	1,200
May-13-1998	306	15.3	1,120
May-14-1998	339	16.2	978
May-15-1998	363	17.8	1,020
May-16-1998	350	18.9	1,370
May-17-1998	302	18.3	1,680
May-18-1998	265	19.5	1,530
May-19-1998	221	20.9	1,500
May-20-1998	191	21.0	1,700
May-21-1998	195	20.7	1,590
May-22-1998	197	20.9	1,430
May-23-1998	202	21.6	1,330
May-24-1998	205	22.0	1,260
May-25-1998	213	21.9	1,150
May-26-1998	216	20.3	1,070
May-27-1998	227 e	18.9	983
May-28-1998	242	17.8	878
May-29-1998	263	17.2	832
May-30-1998	284	18.9	806
May-31-1998	298	21.0	793

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), May 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
May-01-1998	12,100	20.3	232	1.1
May-02-1998	11,800	19.2	229	1.2
May-03-1998	11,700	19.0	224	0.9
May-04-1998	11,400	19.7	233	1.2
May-05-1998	11,300	18.9	238	1.1
May-06-1998	11,900	17.9	232	1.0
May-07-1998	12,200	18.3	245	1.3
May-08-1998	12,400	18.7	250	1.7
May-09-1998	12,400	18.6	247	1.2
May-10-1998	12,200	P	233	1.2
May-11-1998	12,100	P	211	0.9
May-12-1998	12,300	P	201	1.0
May-13-1998	12,900	15.1	222	0.9
May-14-1998	13,200	15.9	243	1.2
May-15-1998	13,500	17.1	261	1.2
May-16-1998	13,900	17.7	279	1.4
May-17-1998	14,300	17.1	250	1.1
May-18-1998	14,200	17.5	246	1.1
May-19-1998	14,100	18.7	246	1.3
May-20-1998	14,100	18.8	238	1.2
May-21-1998	14,200	18.9	222	1.3
May-22-1998	14,000	19.2	217	1.1
May-23-1998	13,700	19.8	222	1.3
May-24-1998	13,400	20.0	220	1.2
May-25-1998	13,200	20.2	219	1.2
May-26-1998	13,000	19.1	215	0.9
May-27-1998	12,700	18.4	206	1.0
May-28-1998	12,500 e	P	210	0.9
May-29-1998	12,700 e	P	211	1.2
May-30-1998	12,800	17.4	208	0.9
May-31-1998	12,700	19.3	218	1.1

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
Mar-04-1998	118.6	NA	NA	5,120	180	79.0	76.8	P
Mar-11-1998	113.6	NA	NA	5,180	180	86.2	85.6	P
Mar-18-1998	113.0	NA	NA	5,400	340	92.4	91.5	P
Mar-25-1998	139.1	NA	NA	3,030	460	49.0	50.6	P
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

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
Mar-05-1998	119.5	13.3	8.1	5,240	130	82.4	80.5	P
Mar-12-1998	115.3	17.2	7.9	5,410	66	85.8	88.8	P
Mar-19-1998	111.8	22.2	8.0	5,590	120	91.5	90.9	P
Mar-26-1998	135.6	19.4	7.9	4,720	140	77.6	79.4	P
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

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
Mar-05-1998	.	12.8	7.9	1,090	1.1	P
Mar-12-1998	.	17.2	8.2	1,485	1.3	P
Mar-19-1998	.	22.2	8.5	1,849	1.2	P
Mar-26-1998	.	17.8	7.8	1,428	1.3	P
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

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
Mar-05-1998	763	12.8	8.0	1,851	13.8	P
Mar-12-1998	638	16.7	8.1	2,280	19.5	P
Mar-19-1998	433	22.2	8.2	2,900	24.6	P
Mar-26-1998	373	17.8	7.5	2,540	24.0	P
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

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
Mar-05-1998	529	13.3	7.6	1,969	2.2	P
Mar-12-1998	501	16.7	7.4	1,730	2.8	P
Mar-19-1998	382	22.2	7.3	1,840	1.6	P
Mar-26-1998	517	17.8	7.2	1,280	1.1	P
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

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
Mar-05-1998	.	12.8	7.8	375	0.7	P
Mar-12-1998	.	16.1	8.5	349	0.6	P
Mar-19-1998	.	22.2	6.9	426	0.6	P
Mar-26-1998	.	17.8	7.9	211	0.6	P
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

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
Mar-05-1998	.	13.3	7.8	857	2.8	P
Mar-12-1998	.	16.7	7.9	835	3.3	P
Mar-19-1998	.	22.2	7.3	888	3.1	P
Mar-26-1998	.	18.9	7.9	793	3.3	P
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

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 ¹¹	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/l	mg/l
Mar-04-1998	1	NA	NA	3,980	3.4	P
Mar-11-1998	10	NA	NA	1,210	4.0	P
Mar-18-1998	2	NA	NA	4,690	3.5	P
Mar-25-1998	0	NA	NA	2,340	1.7	P
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

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
Mar-04-1998	25	NA	NA	2,750	3.5	P
Mar-11-1998	15	NA	NA	799	3.9	P
Mar-18-1998	5	NA	NA	997	1.1	P
Mar-25-1998	15	NA	NA	593	1.5	P
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

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
Mar-04-1998	120	NA	NA	1,830	4.0	P
Mar-11-1998	117	NA	NA	2,150	5.4	P
Mar-18-1998	116	NA	NA	2,340	4.3	P
Mar-25-1998	126	NA	NA	1,990	3.0	P
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

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
Mar-04-1998	51	NA	NA	2,420	3.6	P
Mar-11-1998	63	NA	NA	2,170	5.4	P
Mar-18-1998	36	NA	NA	2,260	4.1	P
Mar-25-1998	33	NA	NA	1,950	2.8	P
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

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
Mar-05-1998	11,500	13.3	7.8	541	1.4	P
Mar-12-1998	9,660	15.0	7.8	572	1.9	P
Mar-19-1998	7,050	18.9	8.1	636	1.9	P
Mar-26-1998	7,780	17.8	8.2	435	1.7	P
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

Table 18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from June 1997 to May 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	%	%	%	%	%	%
June-97	93	98	95	93	90	90
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

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from June 1997 to May 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
June-97	0.66	0.69	0.71	0.72	0.68	0.73
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

Table 20. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from June 1997 to May 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	%	%	%	%	%	%
June-97	90	100	70	100	80	90
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

Table 21. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from June 1997 to May 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
June-97	50.9	58.8	41.1	50.2	29.6	31.6
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

Table 22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from June 1997 to May 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
June-97	42.0*	55.6	44.6	44.4	54.2	57.9
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

Table 23. Summary of selenium concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, February to May 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
Feb-17-1998	47	<2	7	5	<2
Feb-19-1998	56	<2	8	5	<2
Feb-21-1998	63	<2	9	4	<2
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

Table 24. Summary of sulfate concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, February to May 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
Feb-17-1998	976	107	238	346	69
Feb-19-1998	1,000	119	230	406	61
Feb-21-1998	1,270	111	268	349	79
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

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
(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).