

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

March 1999

June 22, 1999

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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See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow
DATA SOURCE	usgs
UNITS	cfs
Mar-01-1999	57
Mar-02-1999	52
Mar-03-1999	61
Mar-04-1999	57
Mar-05-1999	58
Mar-06-1999	56
Mar-07-1999	59
Mar-08-1999	58
Mar-09-1999	56
Mar-10-1999	57
Mar-11-1999	54
Mar-12-1999	51
Mar-13-1999	53
Mar-14-1999	57
Mar-15-1999	60
Mar-16-1999	53
Mar-17-1999	55
Mar-18-1999	53
Mar-19-1999	50
Mar-20-1999	55
Mar-21-1999	55
Mar-22-1999	49
Mar-23-1999	49
Mar-24-1999	49
Mar-25-1999	50
Mar-26-1999	49
Mar-27-1999	47
Mar-28-1999	43
Mar-29-1999	42
Mar-30-1999	39
Mar-31-1999	37
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Table 2. Continuous water monitoring at Station B (discharge from San Luis Drain), March 1999.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Boron	Specific Conductance	Selenium (total)	Selenium (total) Load
DATA SOURCE	USGS	USGS	CVRWQCB	CVRWQCB	CVRWQCB	Computed
UNITS	cfs	°C	mg/L	µS/cm	µg/L	lbs
Mar-01-1999	61.6	15.7	7.5	5,050	81.2	27.0
Mar-02-1999	61.2	16.0	7.7	5,190	76.7	25.3
Mar-03-1999	58.5	15.8	7.3	5,140	78.3	24.7
Mar-04-1999	63.3	14.8	7.5	5,260	75.7	25.8
Mar-05-1999	61.0	14.0	8.1	5,490	81.9	26.9
Mar-06-1999	61.6	13.4	7.9	5,280	80.5	26.7
Mar-07-1999	59.0	13.2	7.7	5,490	81.4	25.9
Mar-08-1999	61.8	12.7	7.7	5,410	82.5	27.5
Mar-09-1999	61.5	12.5	7.6	5,420	83.2	27.6
Mar-10-1999	60.4	13.0	7.4	5,290	80.7	26.3
Mar-11-1999	60.0	13.4	7.7	5,520	80.4	26.0
Mar-12-1999	58.1	14.0	8.3	5,600	91.1	28.5
Mar-13-1999	54.4	14.7	8.1	5,460	85.5	25.1
Mar-14-1999	56.7	14.6	8.0	5,440	90.6	27.7
Mar-15-1999	60.5	14.0	8.0	5,550	89.6	29.2
Mar-16-1999	61.7	13.9	7.9	5,520	90.4	30.1
Mar-17-1999	55.9	14.6	7.8	5,490	86.9	26.2
Mar-18-1999	57.4	15.5	7.7	5,190	83.0	25.7
Mar-19-1999	54.6	15.6	7.5	5,350	86.2	25.4
Mar-20-1999	55.2	14.9	7.5	5,330	90.0	26.8
Mar-21-1999	57.1	15.2	7.5	5,150	80.1	24.7
Mar-22-1999	56.2	15.5	8.0	5,430	86.5	26.2
Mar-23-1999	52.6	16.0	7.5	5,410	86.6	24.6
Mar-24-1999	51.6	16.4	7.3	5,310	81.6	22.7
Mar-25-1999	53.5	16.7	7.4	5,470	80.9	23.3
Mar-26-1999	54.0	17.6	P	5,480	91.6	26.7
Mar-27-1999	51.4	16.7	P	5,500	91.6	25.4
Mar-28-1999	45.5	16.1	P	5,590	97.1	23.8
Mar-29-1999	45.3	16.2	P	5,580	97.7	23.9
Mar-30-1999	43.3	16.0	P	5,300	95.8	22.4
Mar-31-1999	39.9	15.6	P	5,370	97.6	21.0
Mean	56.0	15.0	7.7	5,390	85.9	
Total						799

Load Limitation for March 1999 (lbs)	1,013
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**Table 3. Continuous water monitoring at Station D
(Mud Slough North downstream of drainage discharges), March 1999.**

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
Mar-01-1999	296	16.0	2,460
Mar-02-1999	340	15.5	P
Mar-03-1999	307	15.3	2,440
Mar-04-1999	274	13.9	2,710
Mar-05-1999	253	13.1	2,790
Mar-06-1999	245	13.2	2,810
Mar-07-1999	243	13.1	2,760
Mar-08-1999	239	12.2	2,800
Mar-09-1999	239	12.5	2,770
Mar-10-1999	232	12.4	2,780
Mar-11-1999	229	13.0	2,870
Mar-12-1999	219	13.8	2,940
Mar-13-1999	222	14.5	2,800
Mar-14-1999	220	12.8	2,810
Mar-15-1999	217	12.7	2,880
Mar-16-1999	212	13.4	2,940
Mar-17-1999	197	14.6	3,030
Mar-18-1999	190	15.7	3,010
Mar-19-1999	190	15.4	2,910
Mar-20-1999	197	14.2	2,950
Mar-21-1999	200	14.7	2,890
Mar-22-1999	193	15.4	3,030
Mar-23-1999	195	16.3	2,910
Mar-24-1999	197	16.3	2,900
Mar-25-1999	210	17.0	2,820
Mar-26-1999	208	18.0	2,730
Mar-27-1999	198	16.7	2,630
Mar-28-1999	188	15.8	2,550
Mar-29-1999	177	16.1	2,430
Mar-30-1999	164	16.2	2,510
Mar-31-1999	161	15.6	2,530

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), March 1999.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
Mar-01-1999	404	15.2	1,340
Mar-02-1999	415	15.4	1,270
Mar-03-1999	430	15.1	1,260
Mar-04-1999	415	13.9	1,310
Mar-05-1999	389	12.8	1,380
Mar-06-1999	373	12.5	1,390
Mar-07-1999	350	12.7	1,480
Mar-08-1999	328	12.3	1,520
Mar-09-1999	326	12.0	1,510
Mar-10-1999	307	12.3	1,540
Mar-11-1999	273	13.0	1,620
Mar-12-1999	268	13.8	1,610
Mar-13-1999	265	14.4	1,600
Mar-14-1999	291	13.9	1,570
Mar-15-1999	337	13.2	1,500
Mar-16-1999	362	13.0	1,490
Mar-17-1999	384	13.9	1,590
Mar-18-1999	394	15.0	1,590
Mar-19-1999	381	15.2	1,620
Mar-20-1999	379	14.2	1,640
Mar-21-1999	371	14.3	1,640
Mar-22-1999	379	15.0	1,620
Mar-23-1999	365	15.7	1,670
Mar-24-1999	379	16.0	1,740
Mar-25-1999	400	16.4	1,750
Mar-26-1999	397	17.1	1,740
Mar-27-1999	374	16.3	1,780
Mar-28-1999	346	15.2	1,760
Mar-29-1999	319	15.3	1,870
Mar-30-1999	266	15.4	1,960
Mar-31-1999	234	15.2	2,040

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), March 1999.

See Table 27 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
Mar-01-1999	2,480	13.9	778	2.8
Mar-02-1999	2,370	14.3	840	2.9
Mar-03-1999	2,360	14.6	845	2.8
Mar-04-1999	2,390	13.8	875	2.8
Mar-05-1999	2,550	12.7	803	2.1
Mar-06-1999	2,470	12.3	824	2.3
Mar-07-1999	2,400	12.1	861	2.3
Mar-08-1999	2,330	12.0	852	2.4
Mar-09-1999	2,280	11.9	853	2.7
Mar-10-1999	2,190	11.8	878	2.7
Mar-11-1999	2,120	12.4	940	2.8
Mar-12-1999	2,130	12.7	887	2.6
Mar-13-1999	2,060	13.2	921	2.7
Mar-14-1999	1,830	13.4	1,050	2.9
Mar-15-1999	1,750	13.4	1,110	3.0
Mar-16-1999	1,710	13.3	1,170	3.4
Mar-17-1999	1,720	13.6	1,140	3.7
Mar-18-1999	1,740	14.3	1,150	3.5
Mar-19-1999	1,630	14.8	1,220	3.5
Mar-20-1999	1,610	14.5	1,250	3.4
Mar-21-1999	1,580	15.0	1,270	3.6
Mar-22-1999	1,540	15.5	1,270	3.5
Mar-23-1999	1,490	16.0	1,320	3.8
Mar-24-1999	1,460	16.3	1,330	4.4
Mar-25-1999	1,590	16.7	1,320	3.5
Mar-26-1999	1,660	17.3	1,270	3.3
Mar-27-1999	1,610	16.8	1,310	3.4
Mar-28-1999	1,530	16.1	1,340	3.6
Mar-29-1999	1,450	15.9	1,360	3.5
Mar-30-1999	1,380	16.0	1,380	4.0
Mar-31-1999	1,280	15.8	1,440	P

Table 6. Weekly water quality monitoring at Station A (inflow to San Luis Drain), 1999

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Total Suspended Solids	Selenium (total)	Selenium (dissolved)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	mg/L	µg/L	µg/L	mg/L
Jan-06-1999	21	NA	NA	4,890	43	58.2	56.0	8.4
Jan-13-1999	18	NA	NA	5,190	39	90.3	88.6	8.2
Jan-20-1999	24	NA	NA	5,080	87	78.4	79.7	7.9
Jan-27-1999	28	NA	NA	5,090	48	61.2	60.3	8.3
Feb-03-1999	40	NA	NA	4,940	NA	79.7	82.2	7.3
Feb-10-1999	66	NA	NA	4,110	210	62.0	60.9	5.4
Feb-17-1999	59	NA	NA	4,780	140	70.2	70.6	6.7
Feb-24-1999	62	NA	NA	5,190	98	79.2	79.1	7.9
Mar-03-1999	61	NA	NA	5,110	120	87.0	81.2	7.8
Mar-10-1999	57	NA	NA	5,420	56	88.8	80.9	8.1
Mar-17-1999	55	NA	NA	5,320	58	96.3	92.5	7.4
Mar-24-1999	49	NA	NA	5,780	32	96.1	88.2	7.5
Mar-31-1999	37	NA	NA	5,780	20	91.7	90.0	8.0

Table 7. Weekly water quality monitoring at Station B (discharge from San Luis Drain), 1999

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Total Suspended Solids	Selenium (total)	Selenium (dissolved)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	mg/L	µg/L	µg/L	mg/L
Jan-07-1999	25.0 e	7.5	8.1	4,820	17	49.2	52.1	7.7
Jan-14-1999	23.5	7.2	8.5	4,690	13	58.1	59.9	7.3
Jan-21-1999	29.2	14.4	7.8	4,720	26	53.4	54.1	7.2
Jan-28-1999	34.9	8.1	7.9	4,460	21	50.4	49.0	7.0
Feb-04-1999	42.6	11.8	8.0	3,990	30	54.1	56.6	5.9
Feb-11-1999	67.8	10.3	7.8	4,370	47	71.8	68.7	6.0
Feb-18-1999	65.3	13.6	7.6	4,570	53	68.5	69.5	6.1
Feb-25-1999	68.4	15.2	7.9	4,780	68	69.6	68.1	6.9
Mar-04-1999	63.3	14.0	7.6	5,400	P	80.7	79.3	7.6
Mar-11-1999	60.0	13.4	7.7	5,210	42	87.3	80.2	7.9
Mar-18-1999	57.4	15.5	8.1	5,130	34	79.6	80.6	7.4
Mar-25-1999	53.5	15.9	7.8	5,390	27	82.7	81.1	7.9
Mar-30-1999	43.3	14.4	8.5	5,670	27	87.0	88.4	8.0

Table 8. Weekly water quality monitoring at Station C (Mud Slough North upstream of drainage discharges), 1999.

See Table 27 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
Jan-07-1999	.	6.1	8.0	1,630	0.4	1.4
Jan-14-1999	.	7.2	NA	1,700	<0.4	1.4
Jan-21-1999	.	14.0	7.9	1,180	0.8	1.0
Jan-28-1999	.	8.7	8.1	1,590	0.6	1.4
Feb-04-1999	.	10.6	8.1	1,780	0.4	1.5
Feb-11-1999	.	9.0	8.1	1,340	0.8	1.2
Feb-18-1999	.	13.7	8.0	1,680	0.9	1.5
Feb-25-1999	.	15.0	7.9	1,700	0.6	1.7
Mar-04-1999	.	12.6	8.1	1,700	0.7	1.6
Mar-11-1999	.	13.2	8.1	1,920	0.7	2.0
Mar-18-1999	.	16.5	8.1	2,090	0.7	1.9
Mar-25-1999	.	16.3	7.9	1,860	0.8	1.9
Mar-30-1999	.	16.2	NA	2,190	0.9	2.1

Table 9. Weekly water quality monitoring at Station D (Mud Slough North downstream of drainage discharges), 1999.

See Table 27 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
Jan-07-1999	126	6.5	8.0	2,340	9.2	2.8
Jan-14-1999	138	7.2	9.1	2,360	12.3	2.6
Jan-21-1999	229	13.6	7.8	1,950	8.3	2.2
Jan-28-1999	209	8.3	8.0	2,130	9.5	2.4
Feb-04-1999	182	11.5	8.1	2,380	12.4	2.6
Feb-11-1999	302	9.3	8.0	2,050	16.3	2.3
Feb-18-1999	265	13.3	7.9	2,460	20.0	2.9
Feb-25-1999	241	14.7	8.0	2,680	22.0	3.5
Mar-04-1999	274	12.8	8.1	2,670	21.8	3.2
Mar-11-1999	229	13.3	8.0	3,020	24.2	3.8
Mar-18-1999	190	16.0	7.5	3,240	29.7	4.0
Mar-25-1999	210	16.1	7.2	2,910	21.8	3.5
Mar-30-1999	164	16.0	NA	3,350	26.4	4.0

Table 10. Weekly water quality monitoring at Station F (Salt Slough at Lander Avenue), 1999.

See Table 27 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
Jan-07-1999	172	7.0	7.6	1,440	0.5	0.9
Jan-14-1999	200	6.1	7.9	1,210	0.7	0.7
Jan-21-1999	344	12.8	7.5	1,210	1.1	0.8
Jan-27-1999	352	8.3	7.9	1,290	0.9	0.8
Feb-04-1999	284	10.3	7.8	1,460	0.8	0.9
Feb-11-1999	493	8.5	7.3	1,300	1.2	0.8
Feb-18-1999	285	13.5	7.6	1,400	0.7	0.8
Feb-25-1999	526	12.9	7.6	1,140	0.8	0.7
Mar-04-1999	415	12.7	7.4	1,370	0.9	0.7
Mar-11-1999	273	12.2	7.6	1,610	0.9	1.0
Mar-18-1999	394	14.3	8.4	1,420	1.3	1.1
Mar-25-1999	400	15.9	6.9	1,600	1.1	1.2
Mar-31-1999	234	16.5	8.4	554	<0.4	0.1

Table 11. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford), 1999.

See Table 27 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
Jan-07-1999	.	6.4	7.8	1,430	0.8	0.7
Jan-14-1999	.	6.1	7.9	1,340	0.7	0.7
Jan-21-1999	.	11.8	7.4	1,280	1.0	0.7
Jan-27-1999	.	10.1	8.0	1,020	0.5	0.6
Feb-04-1999	.	10.0	7.7	1,310	0.6	0.7
Feb-10-1999	.	10.6	8.0	472	<0.4	0.2
Feb-18-1999	.	12.7	7.9	1,040	0.6	0.5
Feb-25-1999	.	12.6	7.9	839	0.6	0.4
Mar-04-1999	.	12.5	6.6	1,310	0.8	0.6
Mar-11-1999	.	11.9	6.9	1,530	0.7	0.7
Mar-18-1999	.	13.7	7.2	1,560	1.1	0.9
Mar-25-1999	.	15.6	7.1	1,390	0.8	0.9
Mar-31-1999	.	15.7	7.9	1,640	0.7	0.9

Table 12. Weekly water quality monitoring at Station H (San Joaquin River at Hills Ferry), 1999.

See Table 27 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
Jan-07-1999	.	7.6	7.9	1,820	3.2	1.4
Jan-14-1999	.	6.1	7.9	1,720	2.9	1.3
Jan-21-1999	.	13.7	7.9	1,530	2.8	1.2
Jan-27-1999	.	9.4	8.1	1,230	2.3	1.0
Feb-04-1999	.	11.0	7.8	1,670	3.0	1.2
Feb-10-1999	.	10.7	7.9	793	2.6	0.6
Feb-18-1999	.	12.6	7.7	1,270	4.5	1.0
Feb-25-1999	.	13.6	7.9	1,160	4.2	0.9
Mar-04-1999	.	13.6	7.8	1,630	5.2	1.2
Mar-11-1999	.	13.3	8.0	1,770	6.5	1.5
Mar-18-1999	.	16.0	8.1	1,980	6.4	1.6
Mar-25-1999	.	18.0	7.9	1,790	5.2	1.6
Mar-30-1999	.	16.4	7.9	2,110	6.3	1.7

Table 13. Weekly water quality monitoring at Station J (Camp 13 Ditch), 1999.

See Table 27 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
Jan-06-1999	7	NA	NA	436	1.3	0.3
Jan-13-1999	7	NA	NA	434	1.2	0.4
Jan-20-1999	0	NA	NA	544	0.9	0.4
Jan-27-1999	5	NA	NA	1,390	1.0	1.9
Feb-03-1999	7	NA	NA	680	2.0	0.6
Feb-10-1999	10	NA	NA	839	1.4	1.1
Feb-17-1999	10	NA	NA	479	1.2	0.4
Feb-24-1999	5	NA	NA	551	1.0	0.7
Mar-03-1999	5	NA	NA	374	1.1	0.4
Mar-10-1999	5	NA	NA	518	1.7	0.5
Mar-17-1999	5	NA	NA	686	2.3	0.9
Mar-24-1999	5	NA	NA	1,480	2.7	1.9
Mar-31-1999	5	NA	NA	913	3.1	1.0

Table 14. Weekly water quality monitoring at Station K (Agatha Canal), 1999.

See Table 27 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
Jan-06-1999	0	NA	NA	444	1.0	0.3
Jan-13-1999	0	NA	NA	1,270	0.6	1.8
Jan-20-1999	0	NA	NA	1,310	1.1	2.0
Jan-27-1999	7	NA	NA	1,860	0.9	3.0
Feb-03-1999	10	NA	NA	2,070	0.9	3.7
Feb-10-1999	20	NA	NA	645	1.5	0.7
Feb-17-1999	20	NA	NA	540	1.0	0.5
Feb-24-1999	10	NA	NA	275	0.6	0.3
Mar-03-1999	5	NA	NA	524	0.7	0.7
Mar-10-1999	5	NA	NA	1,850	0.5	4.1
Mar-17-1999	5	NA	NA	2,000	0.8	3.9
Mar-24-1999	5	NA	NA	2,130	1.5	3.3
Mar-31-1999	15	NA	NA	853	2.2	1.1

Table 15. Weekly water quality monitoring at Station L2 (San Luis Canal at splits), 1999.

See Table 27 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
Jan-06-1999	13	NA	NA	568	1.4	0.5
Jan-13-1999	8	NA	NA	631	1.6	0.5
Jan-20-1999	24	NA	NA	560	1.3	0.4
Jan-27-1999	11	NA	NA	620	1.9	0.4
Feb-03-1999	16	NA	NA	982	1.9	0.9
Feb-10-1999	16	NA	NA	1,010	3.2	0.9
Feb-17-1999	16	NA	NA	786	1.9	0.8
Feb-24-1999	21	NA	NA	690	1.8	0.7
Mar-03-1999	25	NA	NA	460	1.9	0.3
Mar-10-1999	18	NA	NA	856	2.2	0.9
Mar-17-1999	36	NA	NA	730	1.9	0.7
Mar-24-1999	34	NA	NA	618	2.2	0.5
Mar-31-1999	31	NA	NA	889	2.9	0.9

Table 16. Weekly water quality monitoring at Station M2 (Santa Fe Canal at weir), 1999.

See Table 27 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
Jan-06-1999	28	NA	NA	1,730	2.2	2.2
Jan-13-1999	38	NA	NA	1,960	2.0	2.4
Jan-20-1999	55	NA	NA	1,700	1.1	2.2
Jan-27-1999	51	NA	NA	1,850	2.5	2.3
Feb-03-1999	42	NA	NA	2,100	1.0	2.8
Feb-10-1999	57	NA	NA	1,690	1.3	2.1
Feb-17-1999	70	NA	NA	1,960	1.0	2.6
Feb-24-1999	66	NA	NA	1,880	1.1	2.5
Mar-03-1999	76	NA	NA	1,640	1.3	2.1
Mar-10-1999	61	NA	NA	1,780	1.6	2.5
Mar-17-1999	70	NA	NA	2,160	1.5	3.4
Mar-24-1999	59	NA	NA	2,050	1.7	2.7
Mar-31-1999	49	NA	NA	2,580	1.6	3.8

Table 17. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing), 1999.

See Table 27 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
Jan-06-1999	1,080 e	8.2	7.8	1,080	1.6	0.7
Jan-14-1999	1,150	6.7	7.9	1,000	1.8	0.7
Jan-21-1999	1,410	13.4	7.9	940	1.3	0.7
Jan-28-1999	2,310	10.0	7.9	678	1.0	0.5
Feb-04-1999	1,550	12.3	8.1	1,050	2.1	0.7
Feb-10-1999	3,100	11.1	7.8	539	1.4	0.3
Feb-18-1999	2,920	11.8	7.7	637	2.0	0.5
Feb-25-1999	3,340	13.0	7.9	614	2.2	0.4
Mar-04-1999	2,390	13.5	8.1	958	2.7	0.6
Mar-11-1999	2,120	13.1	8.2	850	2.8	0.7
Mar-18-1999	1,740	15.6	8.1	1,170	3.4	0.8
Mar-25-1999	1,590	17.8	7.9	1,290	3.6	1.0
Mar-30-1999	1,380	16.7	7.6	1,440	4.0	1.1

Table 18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from April 1998 to March 1999. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 27 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	%	%	%	%	%	%
April-98	100	95	95	100	85	100
May-98	100	98	98	58	80	100
June-98	88	98	98	65*	98	95
July-98	98	93	100	78	93	100
August-98	88	100	95	95	95	100
September-98	98	93	100	100	100	100
October-98	98	53*	80	85	97	100
November-98	95	55*	55*	45*	90	85
December-98	98	68*	68	80	93	93
January-99	100	88	60*	43*	80	100
February-99	98	65	90	78	48 [†]	83
March-99	75	58	88	85	65 [†]	100

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from April 1998 to March 1999. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 27 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
April-98	0.67	0.53	0.59	0.58	0.47	0.54
May-98	0.62	0.50	0.54	0.32	0.41	0.51
June-98	0.64	0.56	0.59	0.38*	0.57	0.64
July-98	0.69	0.52	0.68	0.45	0.53	0.68
August-98	0.65	0.59*	0.64	0.65	0.65	0.63
September-98	0.57	0.56	0.60	0.51	0.53	0.66
October-98	0.74	0.31*	0.53	0.55	0.58	0.67
November-98	0.53	0.31*	0.28*	0.26*	0.50	0.49
December-98	0.68	0.48	0.45	0.50	0.53	0.55
January-99	0.72	0.62	0.38	0.23*	0.49	0.69
February-99	0.64	0.43	0.50	0.47	0.30	0.50
March-99	0.45	0.37	0.55	0.54	0.38	0.56

Table 20. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from April 1998 to March 1999. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 27 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	%	%	%	%	%	%
April-98	100	100	90	100	100	0
May-98	100	100	90	100	100	40
June-98	90	100	75	100	90	0
July-98	70	90	100	90	90	70
August-98	100	100	100	90	90	100
September-98	80	100	90	100	80	100
October-98	80	90	70	70	90	80
November-98	100	80	90	100	90	90
December-98	100	100	100	100	80	90
January-99	100	100	100	100	100	100
February-99	100	100	90	90	80	90
March-99	100	90	90	100	80	90

Table 21. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from April 1998 to March 1999. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 27 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
April-98	18.7	25.2	19.6	20.2	10.2	0.0
May-98	34.9	34.6	31.6	21.1	20.1	18.4
June-98	30.8	5.7	7.9	2.3	9.0 ^{†††}	0.0
July-98	10.8	11.9	12.6	8.2	6.6 ^{†††}	5.9
August-98	57.5	71.3	49.1	29.9	32.7	28.2
September-98	46.4	56.2	50.7	45.8	40.5	50.2
October-98	14.7*	22.9	12.5*	22.0	24.2	23.5
November-98	53.4	50.0	53.4	50.6	38.9	24.3
December-98	30.2	38.4	35.0	35.8	30.0	26.8
January-99	33.0	28.7	31.2	22.9	14.9	48.0
February-99	25.4	24.0	31.7	21.1	23.8	20.3
March-99	65.4	69.6	70.9	57.4	45.1	52.7

Table 22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from April 1998 to March 1999. Each value is the mean of 4 replicates.

See Table 27 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
April-98	19.0	36.1	25.8	34.8	23.7	32.5
May-98	8.7*	26.6	17.8	9.9*	22.2	19.3
June-98	15.8*	25.4	21.3	20.1	22.7	32.1
July-98	23.4	20.5	23.7	23.2	22.2	27.6
August-98	5.6	6.4	6.0	7.5	4.2 ^{††††}	7.5
September-98	21.6*	27.4	27.7*	29.8	32.3	28.0
October-98	15.5*	33.5	29.8	29.0	26.5	22.0
November-98	10.8*	16.7	15.0*	21.5	21.3	22.0
December-98	6.0*	18.9	16.0	13.6*	16.2	24.4
January-99	13.0*	20.6	20.7	19.2*	24.4	25.6
February-99	16.0*	33.5	24.1*	15.7*	31.5	27.1
March-99	14.5	11.8*	15.5	17.6	17.1	22.9

Table 23. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, January to March 1999.

See Table 27 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
Jan-11-1999	46	0.8	12	1.2	1.0
Jan-13-1999	50	0.9	9.8	1.0	1.0
Jan-15-1999	49	0.7	9.2	1.0	1.2
Feb-08-1999	57	0.7	11	1.1	0.6
Feb-10-1999	60	0.8	17	1.0	0.8
Feb-12-1999	66	0.8	11	1.0	0.6
Mar-08-1999	89	1.3	26	1.3	0.9
Mar-10-1999	80	0.9	25	1.1	1.0
Mar-12-1999	88	0.9	27	1.4	1.1

Table 24. Summary of sulfate concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, January to March 1999.

See Table 27 for explanation of footnotes and agency abbreviations

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal
DATA SOURCE	SLDMWA/USBR	SLDMWA/USBR	SLDMWA/USBR	SLDMWA/USBR	SLDMWA/USBR
UNITS	mg/L	mg/L	mg/L	mg/L	mg/L
Jan-11-1999	1520	276	499	200	69
Jan-13-1999	1480	274	469	205	77
Jan-15-1999	1500	267	442	208	97
Feb-08-1999	1350	269	482	260	47
Feb-10-1999	1410	272	586	231	45
Feb-12-1999	1380	215	403	259	56
Mar-08-1999	1860	286	734	229	40
Mar-10-1999	1730	296	716	246	43
Mar-12-1999	1840	322	778	234	51

Table 25. Summary of total suspended solids concentrations in grab water samples collected from January to March 1999.

See Table 27 for explanation of footnotes and agency abbreviations

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	mg/L	mg/L	mg/L	mg/L	mg/L
Jan-11-1999	16	28	21	23	4
Jan-13-1999	13	27	19	26	10
Jan-15-1999	9	26	25	64	16
Feb-08-1999	19	83	73	76	22
Feb-10-1999	40	77	60	115	18
Feb-12-1999	21	85	60	43	20
Mar-08-1999	33	31	29	22	19
Mar-10-1999	16	57	32	18	12
Mar-12-1999	33	24	26	20	<1

Table 26. 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 27 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 27. 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
NT	Not tested
(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 Stations D and F cages and light silt accumulation was observed in both the Windmill station and Station B.
(8)	Moderate silt accumulation was noted in Stations B and F cages and light silt accumulation was observed in Station D.
(9)	No test deployment was done at the Windmill Station due to extreme conditions (stagnant & pH>9.0). Station 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 Station F cages.
*	Significantly reduced from Delta Mendota Canal (p<0.05)
†	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 (1×10^6 cell/mL) acceptability criteria.
#	New testing laboratory with reporting limit of 0.4 µg/L as of June 1998.