GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

February 1999

April 20, 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

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

LIST OF TABLES FOR MONTHLY REPORT

Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), February 1999.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow
DATA SOURCE	USGS
UNITS	cfs
Feb-01-1999	40
Feb-02-1999	38
Feb-03-1999	40
Feb-04-1999	40
Feb-05-1999	42
Feb-06-1999	38
Feb-07-1999	43
Feb-08-1999	52
Feb-09-1999	57
Feb-10-1999	66
Feb-11-1999	51
Feb-12-1999	58
Feb-13-1999	58
Feb-14-1999	55
Feb-15-1999	54
Feb-16-1999	60
Feb-17-1999	59
Feb-18-1999	61
Feb-19-1999	63
Feb-20-1999	58
Feb-21-1999	64
Feb-22-1999	64
Feb-23-1999	61
Feb-24-1999	62
Feb-25-1999	66
Feb-26-1999	65
Feb-27-1999	59
Feb-28-1999	59
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Mean	55

PRELIMINARY RESULTS

Table 2. Continuous water monitoring at Station B (discharge from San Luis Drain), February 1999.

See Table 26 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
Feb-01-1999	42.7	10.3	7.0	4,790	64.2	14.8
Feb-02-1999	44.5	10.4	6.3	4,620	62.7	15.0
Feb-03-1999	42.6	10.8	5.9	4,160	46.7	10.7
Feb-04-1999	42.6	11.3	5.9	4,170	52.3	12.0
Feb-05-1999	44.9	11.5	6.4	4,350	59.5	14.4
Feb-06-1999	44.5	11.4	5.9	4,480	65.7	15.8
Feb-07-1999	43.2	11.3	6.3	4,610	68.7	16.0
Feb-08-1999	47.3	12.2	6.2	4,370	62.3	15.9
Feb-09-1999	57.9	12.3	6.3	4,570	66.6	20.8
Feb-10-1999	71.5	11.2	6.2	4,430	64.6	24.9
Feb-11-1999	67.8	11.1	6.1	4,410	66.2	24.2
Feb-12-1999	58.0	10.4	5.8	4,220	66.4	20.8
Feb-13-1999	67.4	10.6	5.6	4,140	63.4	23.0
Feb-14-1999	63.2	11.4	6.2	4,330	58.6	20.0
Feb-15-1999	61.4	11.6	6.2	4,350	67.1	22.2
Feb-16-1999	61.7	12.2	6.7	4,680	75.3	25.1
Feb-17-1999	65.8	13.0	6.9	4,740	72.9	25.9
Feb-18-1999	65.3	13.7	6.6	4,690	69.1	24.3
Feb-19-1999	67.4	13.3	6.4	4,350	64.2	23.3
Feb-20-1999	68.0	13.2	6.8	4,650	70.0	25.7
Feb-21-1999	65.9	12.7	6.7	4,640	75.3	26.8
Feb-22-1999	69.6	13.1	7.0	4,910	75.8	28.5
Feb-23-1999	69.2	13.4	7.2	5,020	78.3	29.2
Feb-24-1999	66.9	14.3	6.8	4,910	76.5	27.6
Feb-25-1999	68.4	14.6	7.1	4,710	69.1	25.5
Feb-26-1999	69.8	14.2	7.4	4,800	66.4	25.0
Feb-27-1999	69.1	14.6	7.3	4,990	75.4	28.1
Feb-28-1999	60.5	15.4	7.1	4,760	72.0	23.5
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Mean	59.5	12.3	6.5	4,570	67.0	
Total						**609**

Load Limitation for February 1999 (lbs)	**823**

Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), February 1999.

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
Feb-01-1999	193	10.3	2,450
Feb-02-1999	188	10.2	2,460
Feb-03-1999	184	10.7	2,320
Feb-04-1999	182	10.9	2,300
Feb-05-1999	198	11.2	2,280
Feb-06-1999	219	10.8	2,170
Feb-07-1999	251	10.9	1,900
Feb-08-1999	246	12.1	2,030
Feb-09-1999	236	12.1	2,310
Feb-10-1999	264	10.2	2,350
Feb-11-1999	302	9.9	2,040
Feb-12-1999	311	9.8	1,870
Feb-13-1999	322	10.2	1,900
Feb-14-1999	325	11.0	1,900
Feb-15-1999	323	11.0	1,890
Feb-16-1999	310	11.5	2,020
Feb-17-1999	299	12.9	2,140
Feb-18-1999	265	13.4	2,360
Feb-19-1999	250	12.7	2,520
Feb-20-1999	242	12.2	2,660
Feb-21-1999	244	12.4	2,680
Feb-22-1999	244	13.0	2,770
Feb-23-1999	238	13.5	2,840
Feb-24-1999	238	14.3	2,830
Feb-25-1999	241	14.7	2,770
Feb-26-1999	234	13.8	2,920
Feb-27-1999	232	14.6	3,050
Feb-28-1999	233	15.4	2,930
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Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), February 1999.

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
Feb-01-1999	345	9.8	1,300
Feb-02-1999	311	9.7	1,340
Feb-03-1999	294	10.2	1,380
Feb-04-1999	284	10.6	1,420
Feb-05-1999	274	10.9	1,380
Feb-06-1999	275	10.7	1,350
Feb-07-1999	267	10.9	1,390
Feb-08-1999	259	12.3	1,430
Feb-09-1999	328	12.3	1,350
Feb-10-1999	416	10.3	1,280
Feb-11-1999	493	9.6	1,300
Feb-12-1999	425	9.8	1,430
Feb-13-1999	356	10.2	1,410
Feb-14-1999	331	11.1	1,390
Feb-15-1999	334	11.1	1,350
Feb-16-1999	318	11.6	1,390
Feb-17-1999	282	12.8	1,470
Feb-18-1999	285	13.4	1,370
Feb-19-1999	305	12.7	1,370
Feb-20-1999	337	11.8	1,320
Feb-21-1999	385	11.4	1,260
Feb-22-1999	432	12.0	1,200
Feb-23-1999	485	12.6	1,140
Feb-24-1999	520	13.1	1,140
Feb-25-1999	526	13.5	1,160
Feb-26-1999	496	13.2	1,220
Feb-27-1999	462	13.5	1,280
Feb-28-1999	417	14.2	1,350
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Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), February 1999.

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
Feb-01-1999	1,670	9.8	945	1.6
Feb-02-1999	1,620	10.0	989	1.7
Feb-03-1999	1,590	10.3	1,030	2.4
Feb-04-1999	1,550	10.6	1,050	2.4
Feb-05-1999	1,500	10.8	1,090	1.8
Feb-06-1999	1,470	11.0	1,110	2.2
Feb-07-1999	1,470	11.1	1,120	2.5
Feb-08-1999	1,500	11.7	1,090	2.5
Feb-09-1999	1,770	11.9	1,040	2.3
Feb-10-1999	3,100	10.7	756	1.6
Feb-11-1999	4,250	9.8	394	1.2
Feb-12-1999	4,780	9.5	391	1.2
Feb-13-1999	4,710	9.7	434	1.1
Feb-14-1999	4,100	10.2	498	1.3
Feb-15-1999	3,380	10.5	563	1.6
Feb-16-1999	3,070	10.8	600	1.6
Feb-17-1999	2,950	11.5	614	1.8
Feb-18-1999	2,920	12.0	631	1.9
Feb-19-1999	3,140	11.5	602	2.0
Feb-20-1999	3,340	11.0	545	1.8
Feb-21-1999	3,740	10.7	510	1.8
Feb-22-1999	4,110	10.8	463	1.6
Feb-23-1999	3,990	11.2	496	1.8
Feb-24-1999	3,740	11.7	525	1.9
Feb-25-1999	3,340	12.3	603	2.3
Feb-26-1999	3,110	12.3	637	2.2
Feb-27-1999	2,960	12.5	669	2.3
Feb-28-1999	2,810	12.9	691	2.4
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Table 6. Weekly water quality monitoring at Station A (inflow to San Luis Drain), 1999.

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	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	mg/L	µg/L	µg/L	mg/L
Dec-02-1998	20	NA	NA	5,250	NA	106	60.2	7.9
Dec-09-1998	6	NA	NA	5,420	16	50.9	52.7	9.2
Dec-16-1998	18	NA	NA	5,650	30	88.7	89.7	10
Dec-22-1998	18	NA	NA	5,680	20	102	95.9	9.0
Dec-30-1998	22	NA	NA	4,870	9	46.0	49.0	7.9
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	80.9	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

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

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	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	mg/L	µg/L	µg/L	mg/L
Dec-03-1998	23.3	14.4	8.3	5,060	45	53.7	42.9	8.2
Dec-09-1998	19.9	11.1	NA	5,120	28	93.2	92.6	7.3
Dec-17-1998	25.0	9.4	7.8	5,370	NA	63.0	69.8	8.6
Dec-22-1998	23.4	7.8	8.0	5,300	18	68.8	67.6	8.2
Dec-31-1998	25.5	10.0	7.7	5,700	28	110	112	8.1
Jan-07-1999	25.0	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

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

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
Dec-03-1998	.	14.4	NA	1,300	0.5	1.1
Dec-09-1998	.	10.0	NA	1,260	0.5	1.1
Dec-17-1998	.	9.4	7.8	1,430	0.5	1.2
Dec-22-1998	.	6.7	8.3	1,470	<0.4	1.2
Dec-31-1998	.	11.7	8.0	1,510	<0.4	1.3
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

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

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
Dec-03-1998	156	14.4	NA	1,990	9.8	2.3
Dec-09-1998	165	10.6	NA	1,770	7.7	1.9
Dec-17-1998	144	9.4	7.8	2,160	10.2	2.5
Dec-22-1998	145	5.6	8.1	2,170	10.7	2.4
Dec-31-1998	138	12.2	7.5	2,330	11.4	2.7
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

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

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
Dec-03-1998	193	14.4	7.8	1,210	0.7	0.9
Dec-09-1998	160	12.2	NA	1,480	0.6	1.0
Dec-17-1998	140	9.4	7.5	1,640	0.5	1.0
Dec-22-1998	126	6.7	7.7	1,580	<0.4	1.0
Dec-30-1998	122	10.6	7.3	1,610	0.5	1.0
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

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

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
Dec-03-1998	.	14.4	7.8	426	<0.4	0.2
Dec-09-1998	.	10.6	6.8	300	<0.4	0.2
Dec-17-1998	.	9.4	7.8	337	<0.4	0.1
Dec-22-1998	.	6.7	8.3	738	<0.4	0.4
Dec-30-1998	.	9.4	7.6	1,230	<0.4	0.6
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

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

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
Dec-03-1998	.	14.4	NA	746	1.7	0.6
Dec-09-1998	.	11.1	7.2	568	1.0	0.4
Dec-17-1998	.	9.4	7.7	591	0.9	0.4
Dec-22-1998	.	6.1	8.2	1,090	2.1	0.8
Dec-30-1998	.	8.9	7.8	1,670	3.5	1.2
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

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

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
Dec-02-1998	15	NA	NA	212	1.8	0.2
Dec-09-1998	15	NA	NA	194	0.7	0.2
Dec-16-1998	7	NA	NA	140	<0.4	0.1
Dec-23-1998	7	NA	NA	157	<0.4	0.2
Dec-30-1998	7	NA	NA	579	6.8	0.7
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

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

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
Dec-02-1998	45	NA	NA	167	0.6	0.1
Dec-09-1998	45	NA	NA	164	0.5	0.2
Dec-16-1998	30	NA	NA	136	<0.4	0.1
Dec-23-1998	30	NA	NA	199	<0.4	0.3
Dec-30-1998	30	NA	NA	608	6.4	0.6
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

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

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
Dec-02-1998	28	NA	NA	342	2.1	0.3
Dec-09-1998	10	NA	NA	349	1.0	0.4
Dec-16-1998	20	NA	NA	174	0.5	0.2
Dec-23-1998	15	NA	NA	116	<0.4	0.1
Dec-30-1998	13	NA	NA	318	2.9	0.2
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

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

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
Dec-02-1998	50	NA	NA	1,150	1.2	1.6
Dec-09-1998	59	NA	NA	1,160	0.8	1.5
Dec-16-1998	40	NA	NA	1,210	0.8	1.7
Dec-23-1998	30	NA	NA	1,550	0.8	2.2
Dec-30-1998	28	NA	NA	1,560	1.0	2.2
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

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

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
Dec-03-1998	1,360	14.4	NA	869	1.5	0.6
Dec-09-1998	1,860	11.1	NA	481	0.9	0.4
Dec-17-1998	1,930	10.0	7.7	482	0.7	0.3
Dec-22-1998	1,340	6.7	7.7	778	1.4	0.5
Dec-30-1998	1,110	8.9	7.8	998	1.6	0.6
Jan-06-1999	1,080	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

Table 18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from March 1998 to February 1999. 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	%	%	%	%	%	%
March-98	95	60*	68*	53*	95	84
April-98	100	95	95	100	85	100
May-98	100	98	98	58	80	100
June-98	88	98	98	65*	98	95
July-98	98	93	100	78	93	100
August-98	88	100	95	95	95	100
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

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from March 1998 to February 1999. 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
March-98	0.67	0.31*	0.39*	0.30*	0.54	0.53
April-98	0.67	0.53	0.59	0.58	0.47	0.54
May-98	0.62	0.50	0.54	0.32	0.41	0.51
June-98	0.64	0.56	0.59	0.38*	0.57	0.64
July-98	0.69	0.52	0.68	0.45	0.53	0.68
August-98	0.65	0.59*	0.64	0.65	0.65	0.63
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

Table 20. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from March 1998 to February 1999. 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	%	%	%	%	%	%
March-98	100	90	100	100	100	0
April-98	100	100	90	100	100	0
May-98	100	100	90	100	100	40
June-98	90	100	75	100	90	0
July-98	70	90	100	90	90	70
August-98	100	100	100	90	90	100
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

Table 21. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from March 1998 to February 1999. 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
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
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

Table 22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from March 1998 to February 1999. 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
March-98	5.4*	20.3	16.8	16.5	13.4	25.5
April-98	19.0	36.1	25.8	34.8	23.7	32.5
May-98	8.7*	26.6	17.8	9.9*	22.2	19.3
June-98	15.8*	25.4	21.3	20.1	22.7	32.1
July-98	23.4	20.5	23.7	23.2	22.2	27.6
August-98	5.6	6.4	6.0	7.5	4.2 ††††	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

Table 23. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, November 1998 to February 1999.

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
Nov-10-1998	47	0.6	7.8	1.0	<0.4
Nov-12-1998	46	0.7	6.7	0.9	0.7
Nov-14-1998	52	0.6	8.0	0.9	0.5
Dec-07-1998	50	0.5	6.3	0.8	0.5
Dec-09-1998	79	0.6	7.5	0.8	0.5
Dec-11-1998	56	0.5	8.7	0.8	0.6
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

Table 24. Summary of sulfate concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, November 1998 to February 1999.

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	mg/L	mg/L	mg/L	mg/L	mg/L
Nov-10-1998	1,510	126	342	148	18
Nov-12-1998	1,470	131	322	160	48
Nov-14-1998	1,560	139	318	161	35
Dec-07-1998	1,710	176	374	205	44
Dec-09-1998	1,690	186	389	225	50
Dec-11-1998	1,440	193	343	226	53
Jan-11-1999	1,520	276	499	200	69
Jan-13-1999	1,480	274	469	205	77
Jan-15-1999	1,500	267	442	208	97
Feb-08-1999	1,350	269	482	260	47
Feb-10-1999	1,410	272	586	231	45
Feb-12-1999	1,380	215	403	259	56

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
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.
†††	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 precision to 0.4 µg/L