

# GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

November 1999

January 2000

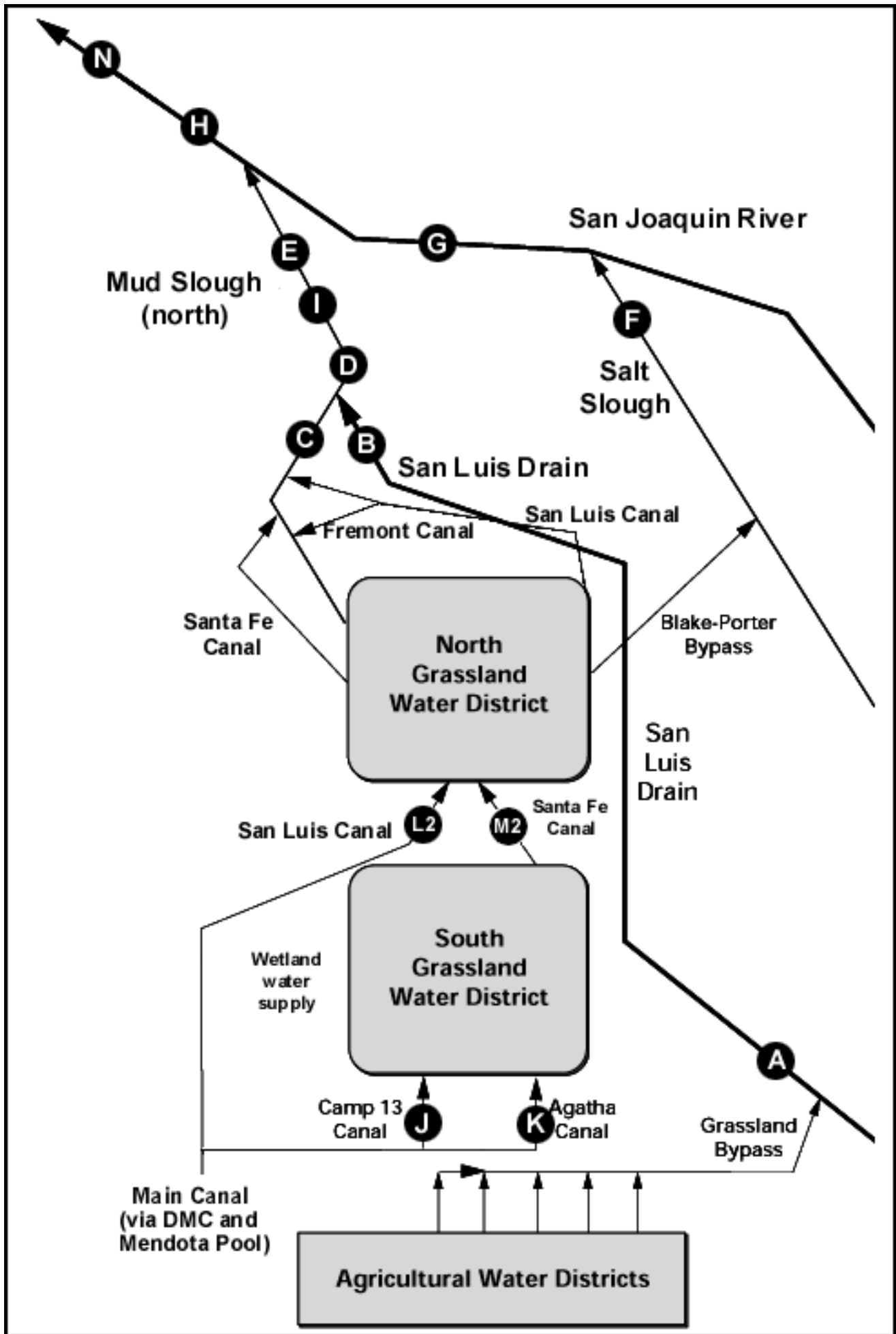
### Preliminary Results

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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## MONTHLY DATA REPORT

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

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow
DATA SOURCE	SLDMWA
UNITS	cfs
Nov-01-1999	19
Nov-02-1999	24
Nov-03-1999	24
Nov-04-1999	25
Nov-05-1999	23
Nov-06-1999	21
Nov-07-1999	27
Nov-08-1999	27
Nov-09-1999	25
Nov-10-1999	21
Nov-11-1999	22
Nov-12-1999	19
Nov-13-1999	20
Nov-14-1999	19
Nov-15-1999	19
Nov-16-1999	18
Nov-17-1999	21
Nov-18-1999	23
Nov-19-1999	22
Nov-20-1999	21
Nov-21-1999	18
Nov-22-1999	17
Nov-23-1999	16
Nov-24-1999	15
Nov-25-1999	20
Nov-26-1999	23
Nov-27-1999	24
Nov-28-1999	24
Nov-29-1999	24
Nov-30-1999	21
	.
Mean	21

**Table 2. Continuous water monitoring at Station B (discharge from San Luis Drain), November 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
Nov-01-1999	30	17.6	7.4	4,750	42.5	6.9
Nov-02-1999	31	17.6	7.5	4,730	41.5	6.9
Nov-03-1999	33	17.5	7.4	4,760	46.7	8.3
Nov-04-1999	22	17.2	7.1	4,680	38.7	4.6
Nov-05-1999	31	17.7	7.3	4,690	35.8	6.0
Nov-06-1999	30	17.6	7.4	4,700	45.4	7.3
Nov-07-1999	29	17.2	7.4	4,710	53.0	8.3
Nov-08-1999	34	16.9	6.7	4,440	50.0	9.2
Nov-09-1999	32	16.7	7.0	4,510	54.1	9.3
Nov-10-1999	31	16.8	6.6	4,390	54.7	9.1
Nov-11-1999	30	16.8	6.5	4,070	37.4	6.1
Nov-12-1999	31	16.6	6.6	4,090	36.1	6.0
Nov-13-1999	29	16.4	6.5	4,030	42.5	6.6
Nov-14-1999	29	16.4	6.4	4,010	43.7	6.8
Nov-15-1999	28	16.6	6.3	4,000	45.1	6.8
Nov-16-1999	28	16.7	6.9	4,260	48.0	7.2
Nov-17-1999	27	16.3	6.7	4,070	39.0	5.7
Nov-18-1999	29	15.7	7.0	4,160	35.3	5.5
Nov-19-1999	30	14.6	P	4,230	34.9	5.6
Nov-20-1999	30	14.5	P	4,290	41.8	6.8
Nov-21-1999	28	14.2	P	4,200	33.3	5.0
Nov-22-1999	26	11.9	P	4,280	33.9	4.8
Nov-23-1999	25	11.6	P	4,480	37.3	5.0
Nov-24-1999	24	11.6	P	4,200	38.4	5.0
Nov-25-1999	23	11.5	P	3,960	28.6	3.5
Nov-26-1999	27	11.7	P	4,360	46.2	6.7
Nov-27-1999	29	12.0	P	4,220	38.9	6.1
Nov-28-1999	30	12.0	P	4,280	38.5	6.2
Nov-29-1999	29	11.8	P	4,320	36.6	5.7
Nov-30-1999	29	12.2	P	4,460	36.4	5.7
Mean	29	15.1	6.9	4,340	41.1	
<b>Total</b>						<b>193</b>

<b>Load Limitation for November 1999 (lbs)</b>	<b>348</b>
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**Table 3. Continuous water monitoring at Station D  
(Mud Slough North downstream of drainage discharges), November 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
Nov-01-1999	184	17.0	1,210
Nov-02-1999	183	17.2	NP
Nov-03-1999	183	17.3	NP
Nov-04-1999	173	17.2	1,370
Nov-05-1999	179	17.5	1,670
Nov-06-1999	176	17.3	1,680
Nov-07-1999	173	16.6	1,710
Nov-08-1999	183	16.1	1,680
Nov-09-1999	183	16.2	1,610
Nov-10-1999	170	16.3	1,580
Nov-11-1999	169	16.4	1,540
Nov-12-1999	192	16.2	1,420
Nov-13-1999	188	16.0	1,460
Nov-14-1999	181	15.9	1,490
Nov-15-1999	180	16.5	1,490
Nov-16-1999	176	16.5	1,620
Nov-17-1999	172	15.8	1,610
Nov-18-1999	162	14.7	1,660
Nov-19-1999	156	13.4	1,730
Nov-20-1999	151	14.0	1,720
Nov-21-1999	149	13.3	1,770
Nov-22-1999	146	10.5	1,800
Nov-23-1999	142	10.5	1,850
Nov-24-1999	136	10.4	1,820
Nov-25-1999	130	10.9	1,780
Nov-26-1999	126	11.1	1,990
Nov-27-1999	124	11.3	NP
Nov-28-1999	122	8.8	NP
Nov-29-1999	121	9.0	NP
Nov-30-1999	122	12.6	NP
	.	.	.

**Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), November 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
Nov-01-1999	166	16.3	1,290
Nov-02-1999	165	16.3	1,270
Nov-03-1999	152	16.5	1,300
Nov-04-1999	164	16.3	1,250
Nov-05-1999	169	16.2	1,250
Nov-06-1999	171	16.2	1,280
Nov-07-1999	192	15.8	1,210
Nov-08-1999	200	15.5	1,240
Nov-09-1999	225	15.5	1,160
Nov-10-1999	243	15.7	1,170
Nov-11-1999	245	15.6	1,210
Nov-12-1999	223	15.4	1,300
Nov-13-1999	175	15.3	1,460
Nov-14-1999	161	15.2	1,460
Nov-15-1999	149	15.9	1,420
Nov-16-1999	142	16.0	1,390
Nov-17-1999	143	15.6	1,360
Nov-18-1999	147	14.3	1,320
Nov-19-1999	134	12.9	1,330
Nov-20-1999	127	14.0	1,390
Nov-21-1999	130	13.6	1,430
Nov-22-1999	128	11.2	1,440
Nov-23-1999	132	10.8	1,370
Nov-24-1999	128	10.8	1,420
Nov-25-1999	120	11.2	1,470
Nov-26-1999	124	11.3	1,480
Nov-27-1999	131	11.7	1,420
Nov-28-1999	123	11.9	1,520
Nov-29-1999	128	11.6	1,630
Nov-30-1999	138	12.4	1,710
	.	.	.

**Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), November 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
Nov-01-1999	958	16.3	943	2.2
Nov-02-1999	942	16.2	962	2.0
Nov-03-1999	945	16.2	950	1.7
Nov-04-1999	914	16.1	971	1.8
Nov-05-1999	914	16.4	1,010	1.8
Nov-06-1999	892	16.5	997	1.2
Nov-07-1999	878	16.2	NA	NA
Nov-08-1999	914	15.9	NA	NA
Nov-09-1999	923	15.8	NA	NA
Nov-10-1999	909	15.8	NA	NA
Nov-11-1999	932	15.9	NA	NA
Nov-12-1999	945	15.8	1020	2.1
Nov-13-1999	972	15.6	1,010	1.5
Nov-14-1999	957	15.5	1,020	1.5
Nov-15-1999	920	15.9	1,060	1.6
Nov-16-1999	902	16.1	1,080	1.6
Nov-17-1999	882	15.9	1,120	1.7
Nov-18-1999	873	14.8	1,130	1.6
Nov-19-1999	812	13.8	1,140	1.4
Nov-20-1999	779	14.0	1,190	1.5
Nov-21-1999	766	13.9	1,200	1.5
Nov-22-1999	754	11.9	1,220	1.7
Nov-23-1999	729	11.2	1,210	1.6
Nov-24-1999	701	11.1	1,240	1.6
Nov-25-1999	696	11.4	1,280	2.0
Nov-26-1999	696	11.6	1,250	1.5
Nov-27-1999	692	11.8	1,240	1.3
Nov-28-1999	701	11.8	1,270	2.1
Nov-29-1999	731	11.7	1,240	1.8
Nov-30-1999	776	12.3	1,220	1.8



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	.	.	Specific Conductance	Total Suspended Solids	Selenium (total)	Selenium (dissolved)	Boron
DATA SOURCE	USGS	.	.	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	mg/L	µg/L	µg/L	mg/L
Sep-01-1999	54	.	.	4,040	120	45.7	48.0	6.6
Sep-08-1999	38	.	.	4,110	61	46.7	46.1	6.6
Sep-15-1999	44	.	.	3,510	32	36.9	37.8	5.5
Sep-22-1999	29	.	.	5,200	46	66.5	68.3	7.7
Sep-29-1999	15	.	.	5,840	87	72.9	70.9	9.2
Oct-06-1999	27	.	.	5,760	82	48.6	49.0	10
Oct-13-1999	18	.	.	4,720	90	54.6	51.4	7.2
Oct-20-1999	13	.	.	5,610	62	84.3	80.8	8.3
Oct-27-1999	14	.	.	5,510	57	71.4	68.3	8.1
Nov-03-1999	24	.	.	4,900	72	62.2	61.1	7.7
Nov-11-1999	22	.	.	4,140	73	49.3	50.9	6.7
Nov-17-1999	21	.	.	5,080	74	59.2	57.5	8.7
Nov-22-1999	17	.	.	4,650	27	50.0	49.0	7.4

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
Sep-02-1999	56	21.8	6.2	3,780	86	41.5	41.7	6.4
Sep-09-1999	40	24.6	8.0	3,750	P	36.3	36.3	6.1
Sep-16-1999	46	22.0	7.0	4,210	79	34.6	36.7	6.3
Sep-23-1999	35	26.2	7.9	4,700	66	38.9	39.1	6.7
Sep-30-1999	25	22.5	7.5	4,540	54	61.1	60.9	6.4
Oct-07-1999	37	20.1	7.4	3,990	74	27.1	26.4	6.2
Oct-14-1999	32	21.6	7.8	4,730	49	25.7	25.8	8.1
Oct-21-1999	26	18.8	7.8	4,470	46	29.0	29.6	6.8
Oct-28-1999	28	18.8	8.0	4,580	58	33.5	34.2	6.5
Nov-04-1999	22	20.2	7.7	4,710	46	34.3	33.4	7.1
Nov-11-1999	30	16.4	NA	4,030	45	34.6	35.0	6.4
Nov-18-1999	29	16.8	7.9	4,260	46	32.9	32.4	7.1
Nov-23-1999	25	12.0	7.9	4,540	36	39.8	39.2	7.4

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	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	calculated **	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/L	mg/L
Sep-02-1999	16	24.1	8.1	898	0.6	0.7
Sep-09-1999	18	25.9	8.2	890	0.7	0.7
Sep-16-1999	34	22.5	8.0	697	0.5	0.5
Sep-23-1999	36	25.7	8.0	766	<0.4	0.5
Sep-30-1999	48	22.5	7.6	873	0.5	0.6
Oct-07-1999	139	20.2	7.9	788	0.4	0.5
Oct-14-1999	155	20.9	7.4	832	0.4	0.6
Oct-21-1999	198	18.9	7.8	842	<0.4	0.6
Oct-28-1999	154	18.9	7.6	961	<0.4	0.7
Nov-04-1999	151	19.3	8.1	1,060	0.5	0.8
Nov-11-1999	139	16.1	NA	1,080	<0.4	0.8
Nov-18-1999	133	15.7	7.7	1,210	0.6	1.0
Nov-23-1999	117	11.4	7.8	1,300	<0.4	1.0

++ Calculated flow value. Flow at Station C = flow at Station D - flow at Station B.

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
Sep-02-1999	72	23.4	7.5	3,480	39.8	5.6
Sep-09-1999	58	25.1	7.1	3,050	28.2	4.9
Sep-16-1999	80	22.7	7.9	2,860	23.2	4.0
Sep-23-1999	71	26.2	7.6	2,730	17.6	3.6
Sep-30-1999	73	22.0	7.7	1,870	9.2	2.3
Oct-07-1999	176	20.6	8.1	1,660	8.1	2.0
Oct-14-1999	187	20.9	7.4	1,550	4.6	1.9
Oct-21-1999	224	18.8	7.8	1,320	3.7	1.4
Oct-28-1999	182	18.8	7.7	1,530	4.3	1.5
Nov-04-1999	173	18.5	8.0	1,480	4.3	1.5
Nov-11-1999	169	16.4	NA	1,680	7.0	1.8
Nov-18-1999	162	16.4	7.8	1,780	6.5	2.1
Nov-23-1999	142	11.5	7.4	1,870	5.1	2.0

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
Sep-02-1999	109	21.4	7.2	1,240	0.7	0.5
Sep-09-1999	138	22.6	7.3	912	1.0	0.4
Sep-16-1999	148	20.9	7.2	978	1.1	0.5
Sep-23-1999	119	23.0	7.1	1,100	0.6	0.5
Sep-30-1999	185	20.9	7.3	1,030	0.8	0.5
Oct-07-1999	174	18.8	8.4	1,030	0.8	0.5
Oct-14-1999	146	19.8	7.8	1,180	0.8	0.6
Oct-21-1999	187	16.2	8.1	1,100	0.8	0.6
Oct-28-1999	165	17.8	7.7	1,320	0.4	0.7
Nov-04-1999	164	25.7	7.9	1,350	0.8	0.7
Nov-11-1999	245	14.9	NA	1,190	1.0	0.7
Nov-18-1999	142	15.0	7.7	1,470	0.8	0.9
Nov-23-1999	132	10.3	7.6	1,460	0.5	0.8

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
Sep-02-1999	.	21.4	6.9	1,130	0.6	0.4
Sep-09-1999	.	24.8	8.3	936	0.7	0.4
Sep-16-1999	.	20.4	6.7	988	0.8	0.4
Sep-23-1999	.	22.6	6.8	1,000	0.5	0.4
Sep-30-1999	.	20.2	7.2	1,030	0.7	0.4
Oct-07-1999	.	18.3	7.7	1,050	0.7	0.5
Oct-14-1999	.	19.2	7.9	1,300	0.7	0.7
Oct-21-1999	.	15.8	8.0	1,180	0.7	0.6
Oct-28-1999	.	17.8	7.9	1,370	0.5	0.6
Nov-04-1999	.	17.6	7.3	1,500	0.7	0.8
Nov-11-1999	.	14.3	NA	1,200	1.0	0.7
Nov-18-1999	.	14.4	7.8	1,610	0.7	0.9
Nov-23-1999	.	9.8	7.7	1,660	0.4	0.8

**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
Sep-02-1999	.	20.1	7.4	1,460	6.7	1.3
Sep-09-1999	.	26.2	8.2	1,590	7.2	1.4
Sep-16-1999	.	23.2	6.9	1,480	5.5	1.3
Sep-23-1999	.	26.1	7.7	1,560	4.5	1.3
Sep-30-1999	.	22.5	6.9	1,350	3.0	1.0
Oct-07-1999	.	18.4	7.7	1,380	3.9	1.2
Oct-14-1999	.	22.0	7.6	1,530	2.7	1.3
Oct-21-1999	.	19.1	7.7	1,280	1.9	1.0
Oct-28-1999	.	18.1	7.8	1,420	2.5	1.0
.	.	.	.	.	.	.
.	CVRWQCB is no longer providing data for this station					
.	.	.	.	.	.	.
.	.	.	.	.	.	.

**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	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Sep-01-1999	20	.	.	385	1.3	0.4
Sep-08-1999	100	.	.	467	2.7	0.3
Sep-15-1999	130	.	.	441	1.3	0.2
Sep-22-1999	190	.	.	458	0.7	0.2
Sep-29-1999	190	.	.	484	0.7	0.2
Oct-06-1999	220	.	.	640	1.2	0.4
Oct-13-1999	75	.	.	505	1.1	0.2
Oct-20-1999	25	.	.	501	0.6	0.2
Oct-27-1999	25	.	.	499	1.3	0.3
Nov-03-1999	25	.	.	605	1.6	0.4
Nov-10-1999	25	.	.	.	.	.
Nov-11-1999	NP	.	.	626	1.8	0.4
Nov-17-1999	15	.	.	556	1.3	0.3
Nov-22-1999	NP	.	.	669	1.2	0.4
Nov-24-1999	15	.	.	.	.	.

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

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>1†</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Sep-01-1999	90	.	.	406	1.3	0.2
Sep-08-1999	115	.	.	403	2.1	0.2
Sep-15-1999	115	.	.	387	1.1	0.2
Sep-22-1999	200	.	.	500	0.8	0.2
Sep-29-1999	200	.	.	662	2.1	0.4
Oct-06-1999	200	.	.	416	0.6	0.2
Oct-13-1999	60	.	.	504	1.0	0.2
Oct-20-1999	20	.	.	575	0.9	0.4
Oct-27-1999	20	.	.	539	1.2	0.3
Nov-03-1999	20	.	.	572	1.3	0.3
Nov-10-1999	20	.	.	.	.	.
Nov-11-1999	NP	.	.	627	1.8	0.4
Nov-17-1999	10	.	.	551	1.2	0.3
Nov-22-1999	NP	.	.	640	1.1	0.4
Nov-24-1999	10	.	.	.	.	.

**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	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>1†</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Sep-01-1999	70	.	.	504	1.4	0.4
Sep-08-1999	130	.	.	528	2.5	0.4
Sep-15-1999	130	.	.	470	1.7	0.3
Sep-22-1999	150	.	.	522	1.1	0.3
Sep-29-1999	160	.	.	513	0.9	0.2
Oct-06-1999	140	.	.	554	0.9	0.3
Oct-13-1999	80	.	.	530	0.9	0.3
Oct-20-1999	80	.	.	536	1.1	0.3
Oct-27-1999	70	.	.	589	0.9	0.4
Nov-03-1999	70	.	.	711	1.5	NA
Nov-10-1999	25	.	.	.	.	.
Nov-11-1999	NP	.	.	715	1.1	0.5
Nov-17-1999	10	.	.	884	1.6	0.7
Nov-22-1999	NP	.	.	1,070	1.6	1.0
Nov-24-1999	10	.	.	.	.	.

**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	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Sep-01-1999	17	.	.	516	1.6	0.4
Sep-08-1999	14	.	.	536	1.8	0.4
Sep-15-1999	63	.	.	514	1.2	0.3
Sep-22-1999	77	.	.	611	1.0	0.4
Sep-29-1999	67	.	.	771	1.7	0.6
Oct-06-1999	108	.	.	630	1.3	0.4
Oct-13-1999	143	.	.	742	0.8	0.7
Oct-20-1999	115	.	.	947	0.9	1.0
Oct-27-1999	65	.	.	997	0.8	1.1
Nov-03-1999	59	.	.	906	0.8	0.8
Nov-10-1999	99	.	.	.	.	.
Nov-11-1999	NP	.	.	969	0.7	0.9
Nov-17-1999	101	.	.	1,160	0.9	1.3
Nov-22-1999	NP	.	.	1,200	0.8	1.3
Nov-24-1999	100	.	.	.	.	.

**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
Sep-02-1999	631	19.5	7.2	1,130	5.1	0.8
Sep-09-1999	549	24.9	7.0	1,230	4.2	0.9
Sep-16-1999	558	24.4	7.7	1,160	2.6	0.9
Sep-23-1999	542	25.0	7.9	1,140	2.4	0.7
Sep-30-1999	565	22.6	7.6	1,030	1.8	0.6
Oct-07-1999	673	18.5	7.3	1,070	2.3	0.8
Oct-14-1999	618	22.0	7.6	1,270	2.1	0.9
Oct-21-1999	1,180	18.6	7.9	607	0.8	0.4
Oct-28-1999	954	17.3	7.7	888	1.2	0.6
Nov-04-1999	914	19.2	7.1	961	1.6	0.7
Nov-11-1999	932	17.0	7.3	1,010	1.7	0.7
Nov-18-1999	873	14.0	7.9	1,150	2.0	0.8
Nov-23-1999	729	10.0	7.6	1,220	1.4	0.8

Table 18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from December 1998 to November 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	%	%	%	%	%	%
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
April-99	93	88	100	83	73 †	100
May-99	98	90	93	88	50 †	98
June-99	98	93	100	98	70 †	100
July-99	93	100	90	93	98	100
August-99	93	100	89	68	98	100
September-99	95	85	93	53	93	98
October-99	100	98	90	70*	98	100
November-99	98	38*	60*	50*	87	95

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from December 1998 to November 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
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
April-99	0.66	0.61	0.78	0.57	0.48	0.72
May-99	0.78	0.76	0.74	0.61	0.39	0.71
June-99	0.67	0.68	0.72	0.67	0.43	0.72
July-99	0.72	0.77	0.69	0.67	0.68	0.63
August-99	0.60	0.70	0.54	0.44*	0.65	0.63
September-99	0.65	0.49	0.54	0.35	0.59	0.58
October-99	0.70	0.62	0.58	0.51	0.63	0.65
November-99	0.58	0.20*	0.35*	0.29*	0.51	0.52

Table 20. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from December 1998 to November 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	%	%	%	%	%	%
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
April-99	90	100	100	100	100	100
May-99	100	90	90	100	100	100
June-99	100	80	90	100	90	90
July-99	90	100	80	90	50 †	90
August-99	100	100	100	100	90	80
September-99	100	100	100	80	100	80
October-99	100	100	100	100	100	80
November-99	100	100	100	100	90	100

Table 21. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from December 1998 to November 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
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
April-99	17.1	24.4	20.6	21.6	19.9	13.8
May-99	31.6	36.0	33.8	37.4	30.8	39.2
June-99	23.8	24.0	21.2	18.5	8.6 †††	10.3
July-99	31.1	35.9	32.6	27.2	12.8	15.7
August-99	19.9	23.2	24.3	19.9	11.4	12.3
September-99	29.2	37.7	36.1	28.4	17.9	14.6
October-99	31.7	25.7	28.4	22.2	22.8	16.8
November-99	16.2	11.7	10.1	14.8	5.3	7.3

Table 22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from December 1998 to November 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 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL
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
April-99	17.6	14.4*	15.8	23.0	19.6	22.6 ‡
May-99	12.0	13.3	11.8	8.5	11.5 ‡	14.7 ‡
June-99	9.3	10.1	9.4	11.1	7.4 ††††	11.6
July-99	9.1	10.5	9.9	11.2	7.5 ††††	11.9
August-99	9.2*	10.0	10.2	11.9	13.3 ‡	14.9 ‡
September-99	9.8	11.1	10.8	10.2	14.1	23.5
October-99	9.8	10.7	9.0*	11.4	11.8	12.7
November-99	9.9*	12.8	11.4*	12.9	14.3	15.3



**Table 23. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, September to November 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
Sep-13-1999	43	1.2	19	1.2	0.6
Sep-15-1999	34	0.9	23	1.1	<0.4
Sep-17-1999	43	1.0	22	1.3	<0.4
Oct-11-1999	30	0.8	8.1	0.9	0.7
Oct-13-1999	29	0.5	6.4	0.8	<0.4
Oct-15-1999	24	0.5	3.0	1.0	<0.4
Nov-08-1999	55	0.4	8.1	1.0	0.5
Nov-10-1999	58	0.5	7.5	1.1	<0.4
Nov-12-1999	36	0.6	5.4	1.0	<0.4

**Table 24. Summary of sulfate concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, September to November 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
Sep-13-1999	1,430	104	638	112	48
Sep-15-1999	1,370	74	843	115	22
Sep-17-1999	1,520	77	758	114	28
Oct-11-1999	1,460	69	382	176	58
Oct-12-1999	1,560	69	342	172	20
Oct-15-1999	1,400	70	285	147	19
Nov-08-1999	1,370	107	345	172	61
Nov-10-1999	1,130	111	324	164	23
Nov-12-1999	1,230	108	272	170	22

**Table 25. Summary of total suspended solids concentrations in grab water samples collected from September to November 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	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	mg/L	mg/L	mg/L	mg/L	mg/L
Sep-13-1999	42	93	69	109	21
Sep-15-1999	31	82	75	55	17
Sep-17-1999	50	64	90	104	12
Oct-11-1999	21	31	46	106	22
Oct-13-1999	41	37	39	92	12
Oct-15-1999	61	30	45	139	30
November 1999	P	P	P	P	P
November 1999	P	P	P	P	P
November 1999	P	P	P	P	P

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
NA	Not analyzed - operator error, data will not be available in the future
NP	Not Provided. Data may be available in the future.
NT	Not tested
P	Pending, data not available at this time but will be available in the future
(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). At 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%) 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 ( $10^5$ cell/mL) acceptability criteria.
‡	Control value exceeds suggested maximum variance (20%) acceptability criteria.
#	New testing laboratory with reporting limit of 0.4 µg/L as of June 1998.