

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

June 1999

September 7, 1999

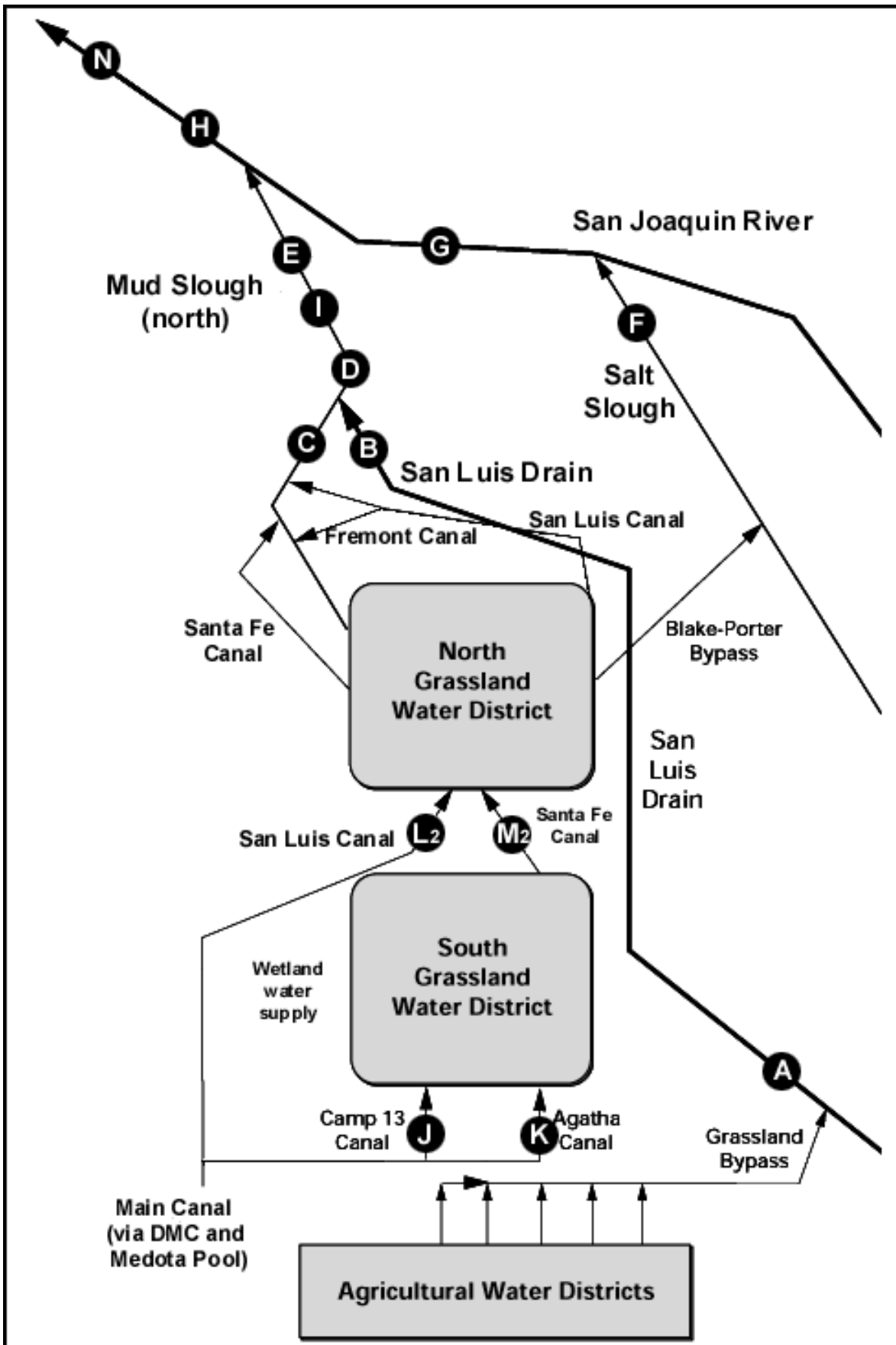
Preliminary Results

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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MONTHLY DATA REPORT

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See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow
DATA SOURCE	usgs
UNITS	cfs
Jun-01-1999	54
Jun-02-1999	47
Jun-03-1999	48
Jun-04-1999	51
Jun-05-1999	56
Jun-06-1999	61
Jun-07-1999	65
Jun-08-1999	65
Jun-09-1999	66
Jun-10-1999	70
Jun-11-1999	68
Jun-12-1999	65
Jun-13-1999	65
Jun-14-1999	64
Jun-15-1999	62
Jun-16-1999	62
Jun-17-1999	68
Jun-18-1999	68
Jun-19-1999	68
Jun-20-1999	69
Jun-21-1999	68
Jun-22-1999	59
Jun-23-1999	55
Jun-24-1999	58
Jun-25-1999	59
Jun-26-1999	57
Jun-27-1999	61
Jun-28-1999	57
Jun-29-1999	57
Jun-30-1999	54
.	.
Mean	61

Table 2. Continuous water monitoring at Station B (discharge from San Luis Drain), June 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
Jun-01-1999	58.0	21.7	7.5	5,020	51.2	16.0
Jun-02-1999	51.0	20.6	7.2	4,920	60.2	16.6
Jun-03-1999	46.0	19.4	6.9	4,480	52.3	13.0
Jun-04-1999	49.0	19.8	7.8	4,780	54.9	14.5
Jun-05-1999	52.0	21.2	8.5	4,920	50.3	14.1
Jun-06-1999	56.0	22.0	8.8	5,160	52.4	15.8
Jun-07-1999	60.0	22.1	8.9	5,200	48.4	15.7
Jun-08-1999	64.0	21.9	8.5	5,190	59.5	20.5
Jun-09-1999	66.0	21.7	8.4	5,080	58.4	20.8
Jun-10-1999	66.0	21.8	7.1	5,020	57.9	20.6
Jun-11-1999	72.0	22.3	6.8	4,790	51.7	20.1
Jun-12-1999	68.0	23.4	7.0	4,740	53.4	19.6
Jun-13-1999	65.0	24.1	6.9	4,470	49.4	17.3
Jun-14-1999	65.0	25.1	6.9	4,380	42.0	14.7
Jun-15-1999	64.0	25.5	7.6	4,780	56.4	19.5
Jun-16-1999	63.0	25.4	7.8	4,750	53.4	18.1
Jun-17-1999	63.0	25.8	8.0	5,040	53.0	18.0
Jun-18-1999	67.0	P	8.0	5,030	53.0	19.2
Jun-19-1999	68.0	25.9	8.1	5,250	63.8	23.4
Jun-20-1999	68.0	25.9	7.8	5,220	61.5	22.6
Jun-21-1999	68.0	26.1	8.0	5,220	64.4	23.6
Jun-22-1999	66.0	26.4	7.6	4,920	53.2	18.9
Jun-23-1999	59.0	27.2	7.7	4,850	54.3	17.3
Jun-24-1999	45.0	26.9	8.0	4,950	55.5	13.5
Jun-25-1999	53.0	26.5	7.8	4,840	49.9	14.3
Jun-26-1999	61.0	26.2	7.9	4,930	49.1	16.2
Jun-27-1999	57.0	26.1	8.1	4,870	46.3	14.2
Jun-28-1999	65.0	26.3	8.4	4,860	45.4	15.9
Jun-29-1999	59.0 e	27.5	8.3	4,820	48.4	15.4
Jun-30-1999	57.0 e	28.3	8.0	4,600	48.2	14.8
.
Mean	60.7	24.2	7.8	4,900	53.3	
Total						524

Load Limitation for June 1999 (lbs)	569
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**Table 3. Continuous water monitoring at Station D
(Mud Slough North downstream of drainage discharges), June 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
Jun-01-1999	115	22.2	2,850
Jun-02-1999	107	20.4	2,850
Jun-03-1999	106	19.3	2,700
Jun-04-1999	113	19.9	2,640
Jun-05-1999	111	21.7	2,870
Jun-06-1999	107	22.3	3,260
Jun-07-1999	108	21.7	3,510
Jun-08-1999	106	21.5	3,710
Jun-09-1999	109	21.4	3,520
Jun-10-1999	109	21.8	3,490
Jun-11-1999	102	22.2	3,690
Jun-12-1999	96	23.0	3,800
Jun-13-1999	90	23.4	3,900
Jun-14-1999	85	24.4	3,970
Jun-15-1999	89	24.6	4,000
Jun-16-1999	91	24.6	3,910
Jun-17-1999	85	25.4	4,140
Jun-18-1999	87	26.0	4,170
Jun-19-1999	95	25.5	3,950
Jun-20-1999	100	25.5	3,690
Jun-21-1999	97	26.0	3,850
Jun-22-1999	91	26.4	3,950
Jun-23-1999	79	27.2	4,100
Jun-24-1999	69	26.9	4,030
Jun-25-1999	71	25.8	3,950
Jun-26-1999	77	25.5	4,140
Jun-27-1999	79	25.7	3,940
Jun-28-1999	81	P	P
Jun-29-1999	82 e	P	P
Jun-30-1999	75 e	P	P
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Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), June 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
Jun-01-1999	141	22.0	1,180
Jun-02-1999	114	20.1	1,350
Jun-03-1999	147	18.3	1,230
Jun-04-1999	174	19.1	1,100
Jun-05-1999	213	21.1	984
Jun-06-1999	235	22.3	968
Jun-07-1999	225	21.7	981
Jun-08-1999	206	20.9	1,010
Jun-09-1999	193	21.1	1,080
Jun-10-1999	175	21.6	1,140
Jun-11-1999	158	22.5	1,210
Jun-12-1999	149	23.4	1,250
Jun-13-1999	177	23.7	1,170
Jun-14-1999	206	24.6	1,040
Jun-15-1999	187	24.8	1,050
Jun-16-1999	140	24.5	1,230
Jun-17-1999	115	25.4	1,350
Jun-18-1999	128	26.1	1,250
Jun-19-1999	129	25.4	1,110
Jun-20-1999	136	25.2	1,110
Jun-21-1999	157	25.7	1,040
Jun-22-1999	168	26.4	1,010
Jun-23-1999	172	27.4	1,000
Jun-24-1999	176	26.4	1,030
Jun-25-1999	175	25.5	1,060
Jun-26-1999	187	25.0	1,070
Jun-27-1999	218	25.1	1,060
Jun-28-1999	219	26.1	1,050
Jun-29-1999	175	27.4	1,100
Jun-30-1999	151	28.3	1,190
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Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), June 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
Jun-01-1999	724	23.2	1273	3.3
Jun-02-1999	724	22.0	1214	3.9
Jun-03-1999	703	20.1	1290	4.0
Jun-04-1999	704	20.3	1390	3.9
Jun-05-1999	725	22.0	1209	3.5
Jun-06-1999	755	23.0	1183	3.3
Jun-07-1999	893	22.1	1120	3.0
Jun-08-1999	889	21.6	1080	3.1
Jun-09-1999	854	21.6	1159	3.0
Jun-10-1999	832	22.1	1192	4.2
Jun-11-1999	743	22.7	1290	4.5
Jun-12-1999	681	23.1	1310	4.7
Jun-13-1999	647	23.3	1480	5.0
Jun-14-1999	737	23.8	1340	4.3
Jun-15-1999	730	24.1	1230	3.8
Jun-16-1999	683	23.8	1260	3.6
Jun-17-1999	593	24.6	1380	4.8
Jun-18-1999	532	25.3	1540	5.0
Jun-19-1999	536	24.9	1640	5.7
Jun-20-1999	559	24.6	1720	6.1
Jun-21-1999	669	25.2	1490	6.0
Jun-22-1999	591	26.0	1510	6.0
Jun-23-1999	564	27.2	1580	6.9
Jun-24-1999	584	27.0	1480	5.8
Jun-25-1999	609	25.6	1370	4.5
Jun-26-1999	576	24.7	1310	3.7
Jun-27-1999	646	25.0	1380	4.2
Jun-28-1999	650	25.8	1380	4.7
Jun-29-1999	640	26.9	1250	4.0
Jun-30-1999	561	27.8	1410	4.8
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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
Apr-07-1999	37	NA	NA	5,460	30	92.9	86.8	6.5
Apr-14-1999	33	NA	NA	5,740	NA	98.5	94.3	8.1
Apr-21-1999	30	NA	NA	5,150	27	81.4	80.2	P
Apr-28-1999	36	NA	NA	5,270	72	75.3	74.6	7.9
May-05-1999	40	NA	NA	4,520	35	51.0	50.9	6.7
May-12-1999	41	NA	NA	4,880	41	64.6	60.3	7.9
May-19-1999	48	NA	NA	4,640	210	51.4	51.7	7.2
May-26-1999	51	NA	NA	4,840	100	48.9	51.2	7.6
Jun-02-1999	47	NA	NA	5,210	110	51.3	50.9	8.2
Jun-09-1999	66	NA	NA	4,940	170	49.8	49.8	7.4
Jun-16-1999	62	NA	NA	5,210	180	56.0	55.4	7.8
Jun-23-1999	55	NA	NA	5,040	180	47.4	48.4	7.9

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
Apr-08-1999	37.6	10.6	7.8	5,920	29	122	124	7.6
Apr-15-1999	26.6	20.9	7.4	5,480	42	90.3	93.4	7.2
Apr-22-1999	28.1	18.0	7.8	5,640	49	91.8	90.0	8.0
Apr-29-1999	35.0	13.9	7.4	5,910	30	98.0	98.4	8.2
May-06-1999	42.0	20.2	7.5	4,360	46	53.3	52.1	6.3
May-13-1999	41.1	19.5	7.5	4,260	36	59.7	58.3	6.8
May-20-1999	48.6	20.8	6.5	4,630	78	58.0	60.1	7.0
May-27-1999	51.1	NA	NA	4,670	80	54.1	53.9	6.7
Jun-03-1999	46.0	17.2	7.35	4,610	65	54.3	54.0	7.0
Jun-10-1999	66.0	21.5	8.11	5,090	83	60.0	59.3	7.3
Jun-17-1999	63.0	24.7	7.89	4,910	51	54.4	55.8	7.9
Jun-24-1999	45.0	24.4	7.82	5,040	73	62.0	57.6	7.6

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	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
Apr-08-1999	93	11.1	8.5	2,300	1.0	2.2
Apr-15-1999	95	22.3	8.4	2,130	1.1	2.0
Apr-22-1999	69	19.0	6.8	2,010	1.6	2.0
Apr-29-1999	54	13.6	8.5	835	2.6	0.7
May-06-1999	51	22.5	8.4	1,180	1.2	1.0
May-13-1999	44	19.4	8.2	1,710	1.1	1.4
May-20-1999	46	21.9	7.9	1,140	0.9	0.9
May-27-1999	67	NA	NA	1,170	0.9	1.0
Jun-03-1999	60	15.7	8.2	1,160	0.9	0.9
Jun-10-1999	43	23.0	8.1	1,420	1.0	1.2
Jun-17-1999	22	25.6	8.4	1,910	1.1	1.7
Jun-24-1999	24	23.4	7.3	1,750	1.7	1.6

++ 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 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
Apr-08-1999	131	10.7	8.3	3,830	43.3	4.3
Apr-15-1999	122	22.2	8.0	3,330	33.4	3.9
Apr-22-1999	97	19.0	6.8	3,490	33.3	4.2
Apr-29-1999	89	14.7	8.2	2,690	21.5	2.9
May-06-1999	93	21.1	8.3	2,860	28.1	3.5
May-13-1999	85	18.9	7.9	3,970	45.5	6.1
May-20-1999	95	21.4	7.5	2,850	25.2	3.7
May-27-1999	118	NA	NA	2,730	22.9	3.3
Jun-03-1999	106	16.4	7.0	2,690	23.4	3.5
Jun-10-1999	109	22.6	8.3	3,570	32.1	4.9
Jun-17-1999	85	25.0	8.2	4,100	38.0	6.3
Jun-24-1999	69	24.3	7.6	4,220	40.0	6.1

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
Apr-08-1999	210	10.8	7.7	1,850	1.5	1.4
Apr-15-1999	208	19.9	7.4	1,700	0.8	0.9
Apr-22-1999	156	17.1	7.2	1,790	1.3	1.0
Apr-29-1999	145	12.8	7.5	1,490	0.9	0.6
May-06-1999	226	18.8	8.1	1,130	0.6	0.5
May-13-1999	130	18.6	7.8	1,290	0.9	0.6
May-20-1999	124	17.9	7.1	1,370	0.8	0.6
May-27-1999	116	22.7	7.5	1,440	0.7	0.6
Jun-03-1999	147	17.0	6.7	1,350	0.5	0.6
Jun-10-1999	175	20.0	7.8	1,180	0.8	0.5
Jun-17-1999	115	22.9	7.9	1,450	0.9	0.7
Jun-24-1999	176	23.9	7.0	1,110	0.9	0.5

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
Apr-08-1999	.	10.8	7.2	1,630	0.7	1.0
Apr-15-1999	.	18.6	6.9	955	<0.4	0.4
Apr-22-1999	.	17.7	7.0	1,540	0.7	0.7
Apr-29-1999	.	12.8	6.5	2,060	0.7	0.7
May-06-1999	.	18.2	7.5	1,310	0.5	0.5
May-13-1999	.	18.2	7.2	1,490	0.8	0.6
May-20-1999	.	18.7	7.3	1,740	0.6	0.7
May-27-1999	.	21.4	7.4	1,530	0.6	0.5
Jun-03-1999	.	19.0	6.7	1,730	0.4	0.6
Jun-10-1999	.	19.0	7.4	1,340	0.7	0.5
Jun-17-1999	.	22.6	7.1	1,520	0.8	0.6
Jun-24-1999	.	25.7	7.4	1,240	0.9	0.5

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
Apr-08-1999	.	12.1	6.9	2,270	9.5	1.7
Apr-15-1999	.	22.2	7.2	1,240	3.5	0.9
Apr-22-1999	.	18.3	7.3	1,440	4.5	1.0
Apr-29-1999	.	15.2	7.6	2,160	8.1	1.4
May-06-1999	.	20.6	7.6	1,370	4.3	0.9
May-13-1999	.	19.6	8.1	1,680	6.2	1.2
May-20-1999	.	22.6	7.3	2,340	7.7	1.8
May-27-1999	.	26.4	7.2	1,960	6.9	1.5
Jun-03-1999	.	20.4	7.5	2,170	6.8	1.7
Jun-10-1999	.	22.1	8.1	2,050	8.4	1.9
Jun-17-1999	.	27.2	8.0	2,350	10.7	2.3
Jun-24-1999	.	26.5	7.3	2,080	9.5	1.9

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
Apr-07-1999	5	NA	NA	887	2.9	1.0
Apr-14-1999	5	NA	NA	987	2.5	1.1
Apr-21-1999	5	NA	NA	679	2.3	P
Apr-28-1999	5	NA	NA	561	2.1	0.5
May-05-1999	5	NA	NA	435	1.3	0.3
May-12-1999	15	NA	NA	418	1.8	0.3
May-19-1999	15	NA	NA	454	1.3	0.3
May-26-1999	60	NA	NA	459	1.0	0.2
Jun-02-1999	10	NA	NA	512	0.9	0.3
Jun-09-1999	10	NA	NA	553	1.3	0.5
Jun-16-1999	10	NA	NA	435	1.0	0.2
Jun-23-1999	5	NA	NA	548	1.1	0.3

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 ^{††}	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/L	mg/L
Apr-07-1999	15	NA	NA	659	3.1	0.6
Apr-14-1999	15	NA	NA	582	2.7	0.6
Apr-21-1999	20	NA	NA	900	2.0	P
Apr-28-1999	20	NA	NA	514	1.7	0.4
May-05-1999	30	NA	NA	396	1.0	0.3
May-12-1999	4	NA	NA	359	1.4	0.2
May-19-1999	7	NA	NA	419	1.2	0.3
May-26-1999	5	NA	NA	461	1.0	0.2
Jun-02-1999	40	NA	NA	452	1.0	0.2
Jun-09-1999	40	NA	NA	419	1.0	0.2
Jun-16-1999	20	NA	NA	454	1.2	0.3
Jun-23-1999	15	NA	NA	484	1.1	0.3

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 ^{††}	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/L	mg/L
Apr-07-1999	30	NA	NA	847	2.9	0.8
Apr-14-1999	28	NA	NA	685	2.7	0.5
Apr-21-1999	42	NA	NA	1,040	2.6	P
Apr-28-1999	60	NA	NA	627	1.9	0.5
May-05-1999	66	NA	NA	656	1.2	0.5
May-12-1999	80	NA	NA	569	2.1	0.4
May-19-1999	110	NA	NA	497	1.4	0.3
May-26-1999	90	NA	NA	485	1.3	0.3
Jun-02-1999	78	NA	NA	671	1.1	0.5
Jun-09-1999	11	NA	NA	2,170	3.0	2.7
Jun-16-1999	2	NA	NA	1,560	2.4	1.6
Jun-23-1999	1	NA	NA	1,650	2.2	1.8

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 ^{1†}	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/L	mg/L
Apr-07-1999	59	NA	NA	2,320	1.8	3.4
Apr-14-1999	51	NA	NA	2,380	1.6	3.3
Apr-21-1999	39	NA	NA	1,670	2.0	P
Apr-28-1999	41	NA	NA	920	2.2	0.9
May-05-1999	28	NA	NA	950	1.4	0.8
May-12-1999	36	NA	NA	968	1.7	1.0
May-19-1999	43	NA	NA	840	1.4	0.8
May-26-1999	54	NA	NA	1,060	1.7	1.3
Jun-02-1999	48	NA	NA	791	1.3	0.7
Jun-09-1999	38	NA	NA	1,230	1.8	1.5
Jun-16-1999	22	NA	NA	1,150	2.1	1.4
Jun-23-1999	29	NA	NA	1,098	1.8	1.4

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
Apr-08-1999	1,130	12.4	7.7	1,380	4.3	0.9
Apr-15-1999	2,270	20.3	8.0	609	1.5	0.4
Apr-22-1999	2,460	17.6	7.9	550	1.2	0.3
Apr-29-1999	1,850	14.7	8.0	669	2.0	0.4
May-06-1999	1,890	19.9	8.2	544	1.6	0.3
May-13-1999	1,640	18.2	8.4	610	1.9	0.4
May-20-1999	836	22.2	7.6	1,200	2.8	0.8
May-27-1999	836	25.8	7.9	1,180	3.7	0.8
Jun-03-1999	703	19.9	7.8	1,340	3.6	0.9
Jun-10-1999	832	21.5	8.0	1,210	4.0	0.9
Jun-17-1999	593	25.9	7.6	1,420	6.0	1.2
Jun-24-1999	584	27.4	7.9	1,320	4.5	1.0

Table 18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from July 1998 to June 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	%	%	%	%	%	%
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
April-99	93	88	100	83	73 [†]	100
May-99	98	90	93	88	50 [†]	98
June-99	98	93	100	98	70 [†]	100

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from July 1998 to June 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
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
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

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

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

Table 22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from July 1998 to June 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
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
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

Table 23. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, April to June 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
Apr-05-1999	94	1.2	45	1.2	1.0
Apr-07-1999	133	1.3	40	1.1	0.8
Apr-09-1999	88	1.4	36	1.5	0.7
May-10-1999	69	1.3	42	0.9	0.7
May-12-1999	67	1.4	30	1.0	0.5
May-14-1999	61	1.0	48	0.7	0.6
Jun-14-1999	44	1.2	34	1.0	<0.4
Jun-16-1999	52	1.4	37	0.9	<0.4
Jun-18-1999	54	1.4	43	0.7	0.5

Table 24. Summary of sulfate concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, April to June 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
Apr-05-1999	2,010	423	1,010	365	78
Apr-07-1999	2,150	394	1,010	363	67
Apr-09-1999	1,920	355	875	275	78
May-10-1999	1,720	345	1,380	206	35
May-12-1999	1,770	217	943	177	37
May-14-1999	1,780	448	1,480	265	38
Jun-14-1999	1,500	414	1,190	149	30
Jun-16-1999	1,580	332	1,120	164	32
Jun-18-1999	1,600	417	1,340	191	43

Table 25. Summary of total suspended solids concentrations in grab water samples collected from April to June 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
Apr-05-1999	28	68	44	29	15
Apr-07-1999	24	98	61	59	12
Apr-09-1999	23	84	54	41	12
May-10-1999	24	132	25	142	19
May-12-1999	24	143	82	138	13
May-14-1999	36	45	24	31	11
Jun-14-1999	17	299	53	172	25
Jun-16-1999	41	155	34	152	40
Jun-18-1999	52	150	87	135	29

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 X 10 ⁶ 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.