GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

October 1999

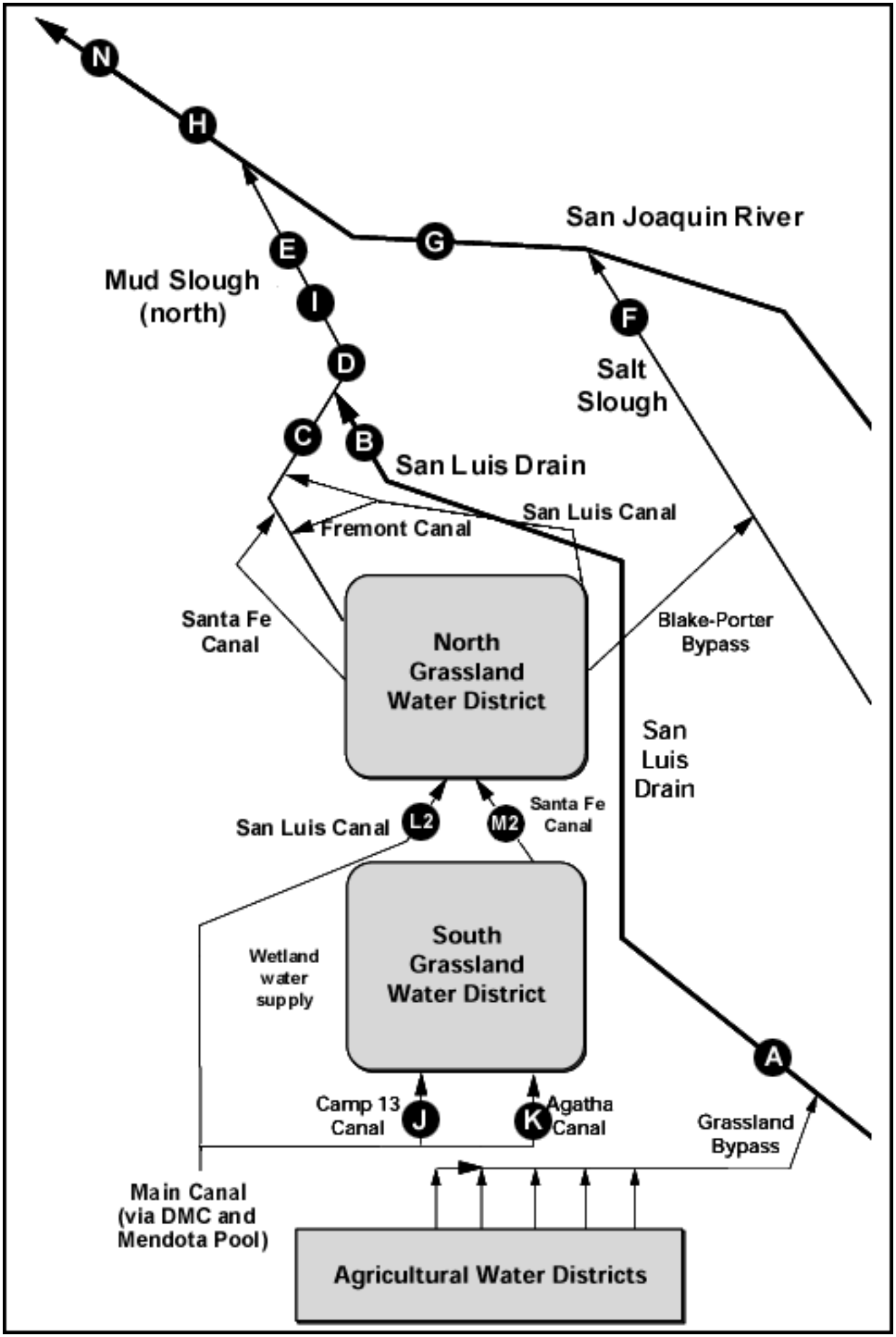
January 4, 2000

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


N
H
San Joaquin River
G
E
Mud Slough
(north)
I
F
D
Salt
Slough
C
B
San Luis Drain
San Luis Canal
Fremont Canal
Santa Fe
Canal
North
Grassland
Water District
Blake-Porter
Bypass
San
Luis
Drain
San Luis Canal
L2
M2
Santa Fe
Canal
Wetland
water
supply
South
Grassland
Water District
A
Camp 13
Canal
J
K
Agatha
Canal
Grassland
Bypass
Main Canal
(via DMC and
Mendota Pool)
Agricultural Water Districts

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

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See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow
DATA SOURCE	SLDMWA
UNITS	cfs
Oct-01-1999	23
Oct-02-1999	26
Oct-03-1999	29
Oct-04-1999	29
Oct-05-1999	29
Oct-06-1999	27
Oct-07-1999	27
Oct-08-1999	21
Oct-09-1999	19
Oct-10-1999	20
Oct-11-1999	20
Oct-12-1999	20
Oct-13-1999	18
Oct-14-1999	16
Oct-15-1999	14
Oct-16-1999	17
Oct-17-1999	16
Oct-18-1999	15
Oct-19-1999	17
Oct-20-1999	13
Oct-21-1999	14
Oct-22-1999	13
Oct-23-1999	16
Oct-24-1999	18
Oct-25-1999	15
Oct-26-1999	13
Oct-27-1999	14
Oct-28-1999	17
Oct-29-1999	16
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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
Oct-01-1999	26	23.8	6.9	4,500	41.1	5.8
Oct-02-1999	31	23.4	7.1	4,490	32.3	5.4
Oct-03-1999	35	22.7	8.0	4,840	34.2	6.5
Oct-04-1999	38	22.1	8.0	5,050	41.1	8.4
Oct-05-1999	38	21.5	8.0	4,880	35.2	7.2
Oct-06-1999	38	21.5	7.3	4,370	34.8	7.1
Oct-07-1999	37	20.7	7.1	4,340	32.8	6.5
Oct-08-1999	37	20.9	6.6	4,170	29.6	5.9
Oct-09-1999	34	21.4	7.7	4,640	28.8	5.3
Oct-10-1999	32	21.9	7.8	4,680	30.7	5.3
Oct-11-1999	33	22.4	8.3	4,940	37.4	6.7
Oct-12-1999	33	22.1	7.7	4,720	36.3	6.5
Oct-13-1999	34	22.1	7.3	4,630	27.2	5.0
Oct-14-1999	32	22.1	7.4	4,700	26.6	4.6
Oct-15-1999	29	21.3	7.1	4,500	22.7	3.6
Oct-16-1999	28	19.6	7.3	4,550	22.7	3.4
Oct-17-1999	30	19.1	7.3	4,630	29.5	4.8
Oct-18-1999	29	19.2	6.6	4,400	30.4	4.8
Oct-19-1999	28	18.9	6.2	4,380	26.3	4.0
Oct-20-1999	28	19.0	6.5	4,430	29.0	4.4
Oct-21-1999	26	19.0	6.5	4,510	30.6	4.3
Oct-22-1999	27	19.0	P	4,430	36.5	5.3
Oct-23-1999	26	19.1	P	4,390	31.7	4.4
Oct-24-1999	27	18.7	P	4,300	29.7	4.3
Oct-25-1999	29	18.5	P	4,420	37.3	5.8
Oct-26-1999	28	18.7	P	4,820	49.6	7.5
Oct-27-1999	26	19.3	P	4,730	39.9	5.6
Oct-28-1999	28	19.1	P	4,610	36.3	5.5
Oct-29-1999	29	17.7	P	4,730	50.9	8.0
Oct-30-1999	29	17.2	P	4,940	69.3	10.8
Oct-31-1999	28	17.6	P	4,770	53.9	8.1
Mean	31	20.3	7.3	4,600	35.3	
Total						**181**

Load Limitation for October 1999 (lbs)	**348**

Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), October 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
Oct-01-1999	97	23.4	2,110
Oct-02-1999	119	22.9	1,900
Oct-03-1999	126	22.1	2,010
Oct-04-1999	132	21.6	2,060
Oct-05-1999	142	20.9	1,980
Oct-06-1999	158	21.3	1,700
Oct-07-1999	176	20.3	1,500
Oct-08-1999	204	21.1	1,310
Oct-09-1999	174	22.1	1,450
Oct-10-1999	164	22.7	1,510
Oct-11-1999	168	23.1	1,570
Oct-12-1999	169	22.3	1,510
Oct-13-1999	178	22.1	1,410
Oct-14-1999	187	22.3	1,320
Oct-15-1999	193	21.1	1,240
Oct-16-1999	201	19.1	1,160
Oct-17-1999	203	19.0	1,190
Oct-18-1999	209	18.9	1,130
Oct-19-1999	230	18.8	1,030
Oct-20-1999	237	19.0	1,020
Oct-21-1999	224	19.5	1,050
Oct-22-1999	204	19.5	1,100
Oct-23-1999	195	19.5	1,130
Oct-24-1999	200	18.6	1,100
Oct-25-1999	205	18.6	1,090
Oct-26-1999	203	18.8	1,100
Oct-27-1999	195	19.4	1,090
Oct-28-1999	182	19.1	1,150
Oct-29-1999	182	16.9	1,210
Oct-30-1999	188	16.8	1,200
Oct-31-1999	188	17.2	1,190

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), October 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
Oct-01-1999	192	23.2	968
Oct-02-1999	143	22.3	1,030
Oct-03-1999	143	21.5	1,070
Oct-04-1999	145	21.0	1,080
Oct-05-1999	152	20.1	1,030
Oct-06-1999	163	20.0	993
Oct-07-1999	174	19.5	1,000
Oct-08-1999	178	19.7	968
Oct-09-1999	198	20.4	949
Oct-10-1999	141	21.0	1,070
Oct-11-1999	137	21.5	1,050
Oct-12-1999	135	21.0	949
Oct-13-1999	135	20.8	1,010
Oct-14-1999	146	20.8	1,030
Oct-15-1999	167	19.7	1,050
Oct-16-1999	166	18.2	1,080
Oct-17-1999	153	17.8	1,090
Oct-18-1999	163	17.6	1,130
Oct-19-1999	164	17.3	1,000
Oct-20-1999	179	17.4	865
Oct-21-1999	187	17.6	800
Oct-22-1999	203	17.7	733
Oct-23-1999	184	18.1	974
Oct-24-1999	174	17.7	1,180
Oct-25-1999	172	17.5	1,190
Oct-26-1999	174	17.7	1,150
Oct-27-1999	165	18.2	1,240
Oct-28-1999	165	18.5	1,280
Oct-29-1999	168	16.6	1,290
Oct-30-1999	168	16.0	1,270
Oct-31-1999	165	16.2	1,290

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), October 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
Oct-01-1999	583	22.4	996	1.6
Oct-02-1999	592	21.9	984	2.0
Oct-03-1999	641	21.2	1,040	2.2
Oct-04-1999	687	20.7	990	1.8
Oct-05-1999	650	20.1	1,040	2.0
Oct-06-1999	679	20.4	1,080	2.4
Oct-07-1999	673	19.6	1,040	2.1
Oct-08-1999	689	19.7	1,040	2.0
Oct-09-1999	705	20.4	1,010	1.9
Oct-10-1999	729	21.0	1,000	1.8
Oct-11-1999	738	21.4	962	1.6
Oct-12-1999	613	21.1	1,090	1.7
Oct-13-1999	602	20.8	1,210	2.1
Oct-14-1999	618	20.7	1,230	2.1
Oct-15-1999	670	20.0	1,170	1.6
Oct-16-1999	729	18.2	1,050	1.3
Oct-17-1999	925	17.8	876	0.9
Oct-18-1999	1,070	17.5	677	0.6
Oct-19-1999	1,110	16.8	640	0.7
Oct-20-1999	1,150	16.7	619	0.7
Oct-21-1999	1,180	16.9	618	0.6
Oct-22-1999	1,070	17.0	654	0.7
Oct-23-1999	959	17.4	773	1.2
Oct-24-1999	982	17.2	771	1.2
Oct-25-1999	1,020	17.1	760	1.1
Oct-26-1999	946	17.2	839	1.1
Oct-27-1999	943	17.7	882	1.4
Oct-28-1999	954	18.3	870	1.6
Oct-29-1999	979	16.7	875	1.4
Oct-30-1999	972	16.0	884	1.4
Oct-31-1999	958	16.1	931	2.0

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
Aug-04-1999	61	.	.	4,550	200	47.3	43.9	7.0
Aug-11-1999	55	.	.	4,180	79	39.3	39.0	6.9
Aug-18-1999	53	.	.	4,410	P	43.7	45.2	7.3
Aug-25-1999	76	.	.	3,870	220	51.6	49.3	6.0
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

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
Aug-05-1999	59	24.3	8.3	3,870	50	42.6	40.5	7.0
Aug-12-1999	56	22.9	8.3	3,720	58	31.4	29.5	6.2
Aug-19-1999	53	23.2	8.1	3,960	69	32.2	30.8	6.6
Aug-26-1999	76	24.0	7.6	3,590	66	42.1	38.3	5.6
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

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
Aug-05-1999	8	23.8	8.2	1,860	1.8	2.1
Aug-12-1999	7	22.4	8.2	1,870	1.5	1.7
Aug-19-1999	10	20.5	8.0	2,040	1.5	1.7
Aug-26-1999	3	22.2	6.1	1,190	1.4	1.2
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

++ 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
Aug-05-1999	67	24.6	8.2	4,360	50.7	7.7
Aug-12-1999	63	23.4	8.3	3,700	29.3	6.2
Aug-19-1999	63	23.1	7.9	3,990	33.2	6.5
Aug-26-1999	79	24.0	6.6	3,790	42.4	5.7
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

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
Aug-05-1999	161	23.4	8.0	1,010	0.8	0.5
Aug-12-1999	152	21.7	7.7	1,070	0.7	0.5
Aug-19-1999	193	21.3	7.2	868	0.8	0.5
Aug-26-1999	182	24.3	7.3	872	0.7	0.4
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

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
Aug-05-1999	.	22.8	7.3	1,080	0.8	0.5
Aug-12-1999	.	21.1	7.1	970	0.7	0.4
Aug-19-1999	.	21.2	8.3	967	0.7	0.5
Aug-26-1999	.	24.5	8.1	1,070	0.7	0.4
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

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
Aug-05-1999	.	26.0	8.1	1,700	8.4	1.9
Aug-12-1999	.	24.2	8.1	1,580	5.2	1.4
Aug-19-1999	.	23.4	7.5	1,710	6.5	1.7
Aug-26-1999	.	24.4	8.0	1,730	6.0	1.6
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

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††	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Aug-04-1999	5	.	.	753	1.1	0.9
Aug-11-1999	5	.	.	633	1.2	0.7
Aug-18-1999	5	.	.	401	1.3	0.5
Aug-25-1999	20	.	.	417	1.4	0.4
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

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††	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Aug-04-1999	10	.	.	315	0.8	0.2
Aug-11-1999	10	.	.	345	0.9	0.2
Aug-18-1999	10	.	.	303	0.8	0.2
Aug-25-1999	30	.	.	316	1.3	0.2
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

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††	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Aug-04-1999	10	.	.	960	1.7	1.0
Aug-11-1999	25	.	.	867	1.5	0.9
Aug-18-1999	25	.	.	806	1.5	0.9
Aug-25-1999	50	.	.	744	1.6	0.7
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

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††	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Aug-04-1999	12	.	.	1,400	2.5	2.5
Aug-11-1999	15	.	.	1,140	2.1	1.6
Aug-18-1999	18	.	.	1,250	2.5	2.2
Aug-25-1999	22	.	.	1,070	2.1	1.1
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

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
Aug-05-1999	675	26.1	8.1	1,180	4.8	1.1
Aug-12-1999	604	23.7	7.9	1,250	3.5	1.0
Aug-19-1999	533	25.0	8.0	1,300	4.2	1.0
Aug-26-1999	509	24.8	8.1	1,310	3.4	1.0
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

Table 18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from November 1998 to October 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	%	%	%	%	%	%
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
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

* Statistically significant

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

Table 20. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from November 1998 to October 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
GBP Monthly Data Report V1099.1	%	%	%	%	%	%
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
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

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

Table 22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from November 199 to October 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
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
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

Table 23. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, August to October 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
Aug-09-1999	23	1.8	13	0.8	<0.4
Aug-11-1999	18	0.9	16	0.7	<0.4
Aug-13-1999	24	1.0	21	0.9	<0.4
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

Table 24. Summary of sulfate concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, August to October 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
Aug-09-1999	1,170	230	1,020	89	19
Aug-11-1999	1,020	299	1,110	62	16
Aug-13-1999	866	296	1,230	130	12
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

Table 25. Summary of total suspended solids concentrations in grab water samples collected from August to October 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
Aug-09-1999	28	95	49	128	21
Aug-11-1999	23	117	100	131	19
Aug-13-1999	40	107	44	119	29
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

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). 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 (10^5cell/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.